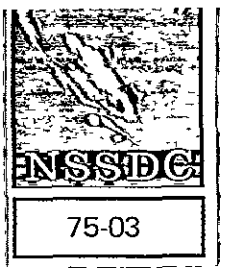
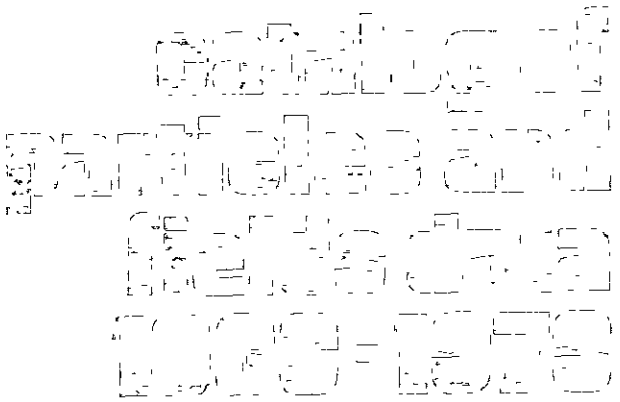
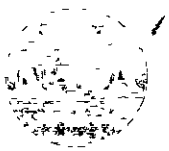
NASA TMX-72575



NATIONAL SPACE SCIENCE
DATA CENTER



June 1975



(NASA-TM-X-72575) CATALOG OF PARTICLES AND FIELDS DATA 1966-1973 (NASA) 202 p HC $7.25 CSCL 04A

N75-24212

Unclas
G3/46 23182

DEFINITIONS OF DISCIPLINES

ASTRONOMY — This category includes all observations of astronomical objects, both outside and within the solar system, made at various wavelengths (i.e., gamma rays through radio waves). Observed objects outside the solar system include stars, nebulae, galaxies, and all other matter. Observed objects within the solar system include zodiacal light sources, meteoroids, asteroids, dust, micrometeorites, and planetary radio emission sources. Other planetary observations (see Planetary Atmospheres, Planetology, or Ionospheric Physics) and solar observations (see Solar Physics) are excluded. Observations of cosmic-ray particles are listed under Particles and Fields. Celestial mechanics measurements are included under Geodesy and Gravimetry.

GEODESY AND GRAVIMETRY — This category includes experiments that measure size, shape, mass, coordinates, altitudes, or gravity fields or experiments concerned with the mapping of a body. It includes the mechanics of orbiting artificial and natural bodies.

IONOSPHERIC PHYSICS — This category includes observations of the ionosphere, which is defined as that region of a planetary atmosphere which contains a significant number of free thermal electrons on a daily basis and which has a free electron density maximum in the vertical direction. Its upper and lower extents are roughly defined as the areas in which densities approach 10^{-4} of the peak values. Included are all in situ and remotely sensed observations of ionospheric charged particles with thermal energies. This category is used for remotely sensed propagation experiments that primarily focus on the ionosphere, including very low frequency (VLF) and extremely low frequency (ELF) experiments; for other remotely sensed propagation experiments, an appropriate category, such as Particles and Fields, is used.

METEOROLOGY — This category includes observations made in the Earth's hydrosphere and atmosphere up to the mesopause or D region.

PARTICLES AND FIELDS — The subcategory Particles includes all in situ charged-particle measurements except those of thermal plasma in terrestrial or other planetary ionospheres (see Ionospheric Physics). It includes all neutron measurements and electromagnetic signal propagation experiments designed to measure columnar electron densities (except those in which the most significant portion of the free electrons within the column is within an ionosphere). The subcategory Fields includes all in situ measurements of electric and magnetic fields. It includes VLF and ELF experiments other than those primarily concerned with observing ionospheric properties. It excludes electromagnetic radiation (radio waves through gamma waves) propagating away from remote sources. (In such cases, either Solar Physics or Astronomy is used, as appropriate.)

PLANETARY ATMOSPHERES — This category includes all observations of the gaseous envelope above the surface of a planet. For the Earth the lower limit for observations that belong in this category is about 65 km, the height of the mesopause or D region.(For studies below this altitude, Meteorology is used.) The upper limit is defined as the transition level of the lightest gas. This region overlaps the ionosphere for planets which have an ionosphere; however, ionospheric observations are restricted to observations related to the charge aspects of matter, while Planetary Atmospheres relates to the mass aspects of matter (e.g., composition measurements). For cases in which both atmospheric and ionospheric categories apply, both may be used.

PLANETOLOGY — This category includes experiments for the purpose of deriving and analyzing data from the solid or liquid parts (excluding the oceans of the Earth) of any solar system body. Chemical, physical, and geologic studies of properties of gross or small surface features, materials of the surface, internal properties, magnetic properties, etc., are included. Gravitational and geodetic experiments are excluded from this category (see Geodesy and Gravimetry). When the primary purpose of the study is to measure the residual effects of some external phenomena (such as meteorite or cosmic-ray impacts), the external phenomena should determine the choice of category. If necessary, the experiment may be assigned to more than one category.

SOLAR PHYSICS — This category includes all solar observations regardless of the wavelength being observed. The source region considered here extends outward from the Sun to include that area observed with solar coronagraphs (nominally to 10 solar radii). All in situ measurements of electric or magnetic fields and of particles for which the source is believed to be the Sun are considered to fall in the domain of Particles and Fields.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GODDARD SPACE FLIGHT CENTER
GREENBELT, MARYLAND 20771

NATIONAL SPACE SCIENCE DATA CENTER
CODE 601

TELEPHONE
301-982-6695

June 2, 1975

MEMORANDUM

TO: Users of NSSDC Particles/Fields Data Catalog of June 1975

FROM: Joseph H. King JHK

SUBJECT: Additional Particles/Fields Data

The production of a data catalog requires that the NSSDC Information File be frozen a few months before the final distribution of the catalog. During those months, new data sets and additions to old data sets arrive at NSSDC. The purpose of this memo is to indicate what particles/fields data not announced in the catalog may now be available.

New Data Sets

Potential requesters are invited to query NSSDC for further details on these data sets, especially as related to their degree of readiness for distribution. Data beyond the times indicated in this memo are expected to become available at NSSDC for many of these data sets.

Spacecraft	Experimenter	Experiment	Data Set	Time Period
Apollo 16/ALSEP	Dyal	Lunar Surface Magnetometer	0.3-sec vectors on magnetic tape - corresponding Apollo 12 & 15 data in catalog.	04/27/72 - 05/21/72
IMP D	Sonett	Magnetometer	5-sec vectors on magnetic tape	07/01/66 - 09/01/67
IMP D	Sonett	Magnetometer	82-sec vectors on magnetic tape - corresponding IMP E data in catalog.	07/01/66 - 09/14/70

Spacecraft	Experimenter	Experiment	Data Set	Time Period
IMP E	Sonett	Magnetometer	5-sec.vectors on magnetic tape	07/19/67 - 10/28/71
IMP I	Bame	Plasma	hourly parameters on tape and microfilm	03/19/71 - 07/00/72
IMP I	Gurnett	AC E and B Fields	E & B summary plots	08/02/71 - 02/12/72
		"	E & B sonograms	02/03/72 - 05/18/72
IMP I	Ness	Magnetometer	15-sec vectors on magnetic tape	03/19/71 - 11/19/71
IMP H	Krimigis	0.3-100 MeV/n particles	5-sec count rates, all detectors, on tape	09/26/72 - 04/13/73
IMP H	Stone	0.2-50 MeV/n particles	1/2-hr. resolution plots on microfilm	09/26/72 - 02/7/74
OGO 5	Russell	Magnetometer	magnetospheric B, Model B-L dipole listings on microfilm	08/06/68 - 08/30/71
S-Cubed	All Experiments		sample master science tape - additional tapes expected.	

Additions to data sets announced in catalog

Spacecraft	Experimenter	Data Set ID	New End Date
IMP G	Simpson	69-053A-03A	10/14/72
		69-053A-03B	12/23/72
		69-053A-03C	12/23/72
IMP G	Brown (Lanzerotti)	69-053A-01A	04/08/71

3.

Spacecraft	Experimenter	Data Set ID	New End Date
IMP I	Bostrom	71-019A-07A	08/26/71
IMP I	Simpson	71-019A-09A	09/11/72
HEOS 2	Elliot (Hedgecock)	72-005A-01B	08/01/74

75-03

NATIONAL SPACE SCIENCE DATA CENTER

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

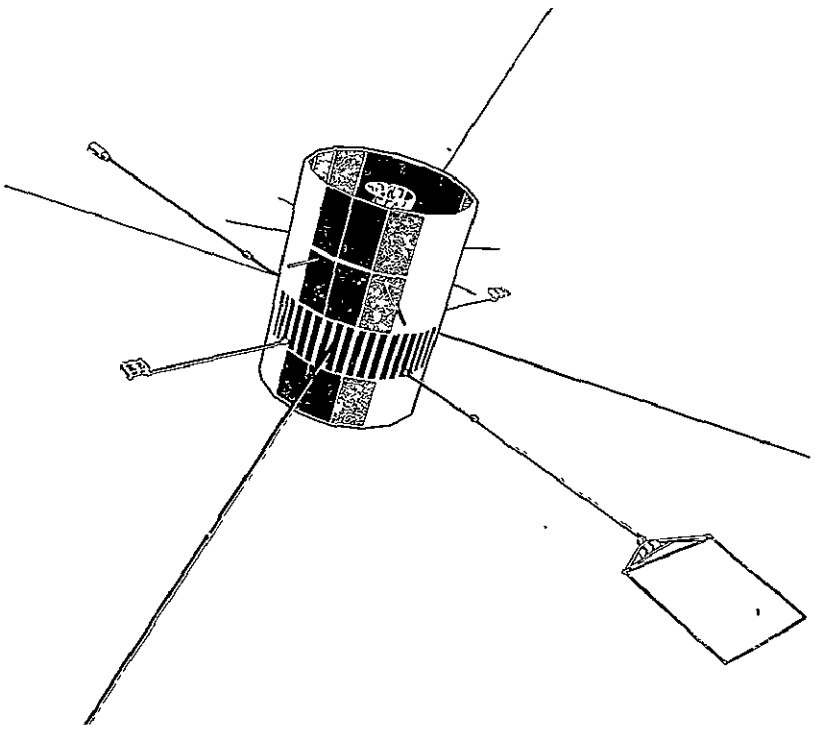
GODDARD SPACE FLIGHT CENTER, GREENBELT, MD.

catalog of particles and fields data 1966 - 1973

technical coordinator
JOSEPH H. KING

editor
MARGARET L. KING

June 1975



PREFACE

Many individuals have participated in some way toward the production of this catalog and deserve recognition for such efforts. I would like to both acknowledge and thank the many spacecraft experimenters and their colleagues who have submitted their documented data. In addition, a number of National Space Science Data Center (NSSDC) personnel have interacted with experimenters in bringing to NSSDC the data announced and have generated the many descriptions in this catalog. Of the present staff, these personnel include L. R. Davis, D. J. Hei, J. H. King, and E. G. Stassinopoulos. A great many other NSSDC personnel, too numerous to name, have also been involved in the data and information handling necessary to produce this catalog. Most of these personnel are associated with the Data Center's onsite contractor, PMI Facilities Management Corporation. To all these, my thanks are extended.

The Data Center is continually striving to increase the usefulness of this document by improving its form and content. Scientists are invited to submit their comments or recommendations to NSSDC regarding the data available, the services provided, and the contents and format of the catalog. Recipients are urged to inform potential data users of its availability.

Joseph H. King

CONTENTS

PRECEDING PAGE BLANK NOT FILMED

1. INTRODUCTION

1.1 PURPOSE AND ORGANIZATION

The National Space Science Data Center (NSSDC) was established by the National Aeronautics and Space Administration (NASA) to provide data and information from space science experiments in support of additional studies beyond those performed by principal investigators. Available particles and fields data, covering the period 1966-1973 inclusive, are announced in this catalog. The period from 1958-1965 is included in a companion catalog. Data available in other disciplines (see inside front cover) comprise additional catalogs to be published in the near future.

Virtually all the data sets available at or through NSSDC result from individual experiments carried on board individual spacecraft. The Data Center has developed an information system utilizing the spacecraft/experiment/data set hierarchy displayed in this document. The major part of this catalog consists of two photoreduced reports, produced by this information system, each sorted by spacecraft common name and then by principal investigator's last name. One report relates to electric and magnetic field data; the other concerns particle data.

In addition to the actual photoreduced reports, this catalog contains a variety of user-oriented data. There are discussions concerning a newly created composite interplanetary magnetic field data set and other data products that may interest the particles/fields community. Many indexes are also provided to assist the user find the specific information he requires.

1.2 NSSDC FACILITIES AND SERVICES

NSSDC provides facilities for reproduction of data and for onsite data use. Resident and visiting scientists are invited to study the data while at the Data Center. The Data Center staff will assist users with additional data searches and with the use of equipment. In addition to satellite and space probe data, the Data Center maintains some supporting information and other supporting data that may be related to the needs of such scientists. See section 5 of this catalog and the *NSSDC Handbook of Correlative Data*, NSSDC 71-05, for further details on supporting data.

In addition to its main function of providing selected data and supporting information for further analysis of space science flight experiments, the Data Center produces a wide spectrum of publications. Among these are a report on active and planned spacecraft and experiments, a report of recent sounding rocket launchings, lunar and planetary photographic data user notes, and users guides. For additional information on NSSDC document availability and distribution services, write to the address identified in section 1.3 and ask for document NSSDC/WDC-A-R&S 74-10.

1.3 DATA AVAILABILITY, COSTS, AND ORDERING PROCEDURES

The services provided by NSSDC are available to any individual or organization resident in the United States and to scientists outside the United States. Normally a charge is made for the requested data to cover the cost of reproduction and the processing of the request. The requester will be notified of the charge, and payment must be received prior to processing the request. The Director of NSSDC may waive, as resources permit, the charge for modest amounts of data when they are to be used for scientific studies or for specific educational purposes and when they are requested by an individual affiliated with: (1) U.S. Government agencies, their contractors, or their grantees; (2) universities and colleges; (3) state and local governments; or (4) nonprofit organizations. A user may obtain data by a letter or telephone request, an onsite visit, or the NSSDC Data Request Form (contained at the end of this document).

Anyone who wishes to obtain data for a scientific study should specify the NSSDC identification number, the common name and/or number of the satellite and the experiment, the form of data, and the time span (or location, when appropriate) of interest. A requester should also specify why the data are needed, the subject of his work, his affiliation, and any Government contracts he may have for performing his study. Data may be provided in a format or medium other than that noted in the data set descriptions. For example, magnetic tapes may be reformatted, computer printout or microfilmed listings can be produced from magnetic tape data sets, enlarged paper prints are available from data sets on photographic film and microfilm, etc. The Data

Center will provide the requester with an estimate of the response time and, when appropriate, the charge for such requests. When requesting data on magnetic tape, the user should specify whether he will supply new tapes prior to the processing, return the original NSSDC tapes after the data have been copied, or pay for new tapes.

The Data Center's address for requests is:

National Space Science Data Center
Code 601.4
Goddard Space Flight Center
Greenbelt, Maryland 20771
Phone: (301) 982-6695

Users who reside outside the U.S. should direct requests for data to:

World Data Center A for Rockets and Satellites
Code 601
Goddard Space Flight Center
Greenbelt, Maryland 20771 U.S.A.
Phone: (301) 982-6695

Since the World Data Center A for Rockets and Satellites (WDC-A-R&S) also maintains listings of rocket experiments, requests for information concerning rocket launchings and the experiments flown may be directed to this institution.

1.4 DATA ACQUISITION

NSSDC invites members of the scientific community to contribute data from satellite experiments. The Data Center assigns a specialist in the appropriate scientific discipline for each experiment to arrange for data acquisition with the principal investigator and to help solve related problems. Acquired data are cataloged and made available to users according to established procedures. Scientists who have not been contacted by one of the subject specialists and who have analyzed or reduced data available for contribution are requested to contact NSSDC so that transfer of the data may be discussed.

2. COMPOSITE INTERPLANETARY MAGNETIC FIELD DATA

Most data (codes, models, etc.) that do not conform to the spacecraft/experiment/data set hierarchy are discussed in section 5 of this catalog. Because experience indicates that interplanetary magnetic field (IMF) data are among the most requested types of particles/fields data, this section has been prepared to announce a newly created, composite IMF data set. The data set consists of a single 9-track, 800-bpi, IBM 360 binary magnetic tape containing hourly averaged, near-Earth IMF parameters (solar ecliptic Cartesian components, magnitude, latitude and azimuth angles, rms standard deviations, etc.) for almost 53,000 hours between November 27, 1963, and May 17, 1974. This composite data set was generated at NSSDC from data acquired on eight IMP/AIMP spacecraft (original data acquired by Dr. N. F. Ness and colleagues at Goddard Space Flight Center) and two HEOS spacecraft (original data acquired by Dr. P. C. Hedgecock and colleagues at Imperial College, London). As with all other NSSDC tape data sets, tapes with alternate formats can be made available. From the data tape, a data book was recently issued by NSSDC (NSSDC 75-04). The book contains listings of field magnitude and direction angles, the field component normal to the ecliptic, an rms standard deviation, and a spacecraft identifier for each hour of data coverage. The book also contains 27-day plots of field magnitude, direction angles, and the rms standard deviation. NSSDC will periodically update the composite tape so that data coverage may be as extensive and complete as possible.

3. AUTOMATED REPORTS

3.1 CONTENT AND ORGANIZATION

The following two reports, from the automated information system files of NSSDC, are concerned with electric and magnetic field data and particle data, respectively. Each report contains discussions of individual spacecraft, applicable experiments carried on board the spacecraft, and data sets resulting from these experiments.

Each report is ordered by spacecraft common name, then by principal investigator's last name, and finally by a data set identification number. Because spacecraft common names (the first sort parameter) are not universally common, the Spacecraft Name Index (section 4.1) contains all known names of relevant spacecraft. So that all IMP and AIMP spacecraft may be grouped, prelaunch designations have been used as common names; e.g., AIMP-1 reverts to IMP-D. The Investigator Name Index (section 4.4) may also assist the user find data from a given experimenter (the second sort parameter). The third sort parameter, data set ID, consists of a spacecraft ID; e.g., IMP 7 = 72-073A, with both an experiment sequence number (72-073A-01) and a data set sequence letter (72-073A-01A) attached.

For a few spacecraft listed in these reports, there are ephemeris data sets of special interest that are also identified. For the majority of spacecraft, however, NSSDC has available other ephemeris data sets (primarily world maps), which are not specifically identified for each spacecraft.

Each entry in these reports consists of two parts: a heading and a brief description. Each type of entry; i.e., spacecraft, experiment, and data set, contains its own heading. The headings list generic characteristics of satellites, experiments, and data sets.

3.1.1 CONTENTS OF SPACECRAFT ENTRIES

The heading for each spacecraft description contains the following information about the spacecraft: launch date, weight in orbit, status of operation, and, for inoperable or operationally off spacecraft, the date last spacecraft data were recorded or, if available, the date last usable spacecraft data were recorded. Orbiting spacecraft also have the following orbital parameters included in the heading: epoch date, orbit type, orbit period, apoapsis and periapsis (distance from the surface of the reference body to the furthest and nearest orbit points, respectively), and inclination (the angle between the satellite orbital plane and the equatorial plane of the primary gravitational body). For satellites with heliocentric orbits, the ecliptic plane is used in lieu of the equatorial plane.

Each spacecraft brief description contains a concise summary of the spacecraft mission, specifically outlining the overall objectives of the mission and the scientific studies being performed. Information about the operational performance and status of the spacecraft during a given period of time is also included and is frequently updated.

3.1.2 CONTENTS OF EXPERIMENT ENTRIES

Each experiment entry heading lists the name of the original experiment institution and the name and present affiliation of the principal investigator (PI) for the experiment. The names and present affiliations of other investigators (OI) associated with the experiment are also listed. The experiment status of operation is then listed as "normal," "partial," "operational off," or "inoperable." For inoperable or operationally off experiments, the date last experiment data were recorded or, if available, the date last usable experiment data were recorded, is also presented. In addition, if the experiment is functioning in other than a normal mode, the brief description explains the circumstances of, and periods affected by, the change.

The experiment brief description contains a concise summary of the experiment purpose and instrument characteristics, emphasizing those relevant to the scientific use of the resulting data. Information about the operational performance and status of the experiment during a given period of time is also included and is frequently updated.

3.1.3 CONTENTS OF DATA SET ENTRIES

Each data set entry contains three elements in the heading: the time period covered by the data, the quantity of data and medium on which the data are stored, and an indicator describing the availability of the data. The time period covered is annotated with one of

PRECEDING PAGE BLANK NOT FILMED

two additional comments: "as verified by NSSDC" – identifying that portion of the data set for which the period of data coverage has been verified; or "as reported by the experimenter" – identifying the period of coverage provided by the experimenter, regardless of the amount held or verified by NSSDC. Several indicators are used to describe the status of data availability to requesters:

- "Data at NSSDC Ready for Distribution" – designates a data set for which cataloging, verification, and documentation are sufficient to provide a comprehensible set of data to satisfy requests.

- "Data in Published Reports" – indicates that either all or a significant portion of the data are contained in a published report or journal, or that the only accessible source of any reduced data from an experiment is the published document. The publications cited in the brief descriptions for spacecraft, experiment, or data set entries normally are available through scientific libraries or document distribution centers. NSSDC provides copies of publications only if they cannot be obtained through such libraries or centers.

- "Data at NSSDC" – identifies data sets for which documentation and verification activities are in process. These data are usually sufficiently documented and verified to satisfy routine requests.

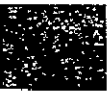
- "Data at NSSDC Processing Deferred" – indicates that the verifying, documenting, or cataloging of the data set is not complete, and that no additional work will be performed unless specifically requested. NSSDC may be able to supply the data from such a data set in a suitable form, depending upon the completeness of the processing and documentation and the particular requirements of the user. The completeness of the data set is indicated in its brief description.

- "Data Available from Experimenter" – used for data sets that NSSDC does not plan to acquire and that the experimenter is willing to make available, usually in limited amount, to other scientists. These data sets are not feasible for storing at NSSDC, either because they are large in volume or because they require special equipment to process. Requests for data sets carrying this indicator should be addressed directly to the experimenter. The experimenter's name and address and the expected date that the data will be ready for processing are given in the brief description of such a data set.

- "Data at Another Center" – used for data sets stored and distributed by any other data center. Requests for data sets with this indicator should be made directly to the organization identified in the brief description.

- "Data at Another Center that NSSDC can Process" – denotes a data set held by another data center but to which NSSDC has access for limited processing. Requests for this type of data set should be submitted to NSSDC.

For information on the procedures for ordering data, please refer to section 1.3 of the Introduction.



Electric and Magnetic Field Data

SPACECRAFT COMMON NAME- APOLLO 12 LM/ALSEP

ALTERNATE NAMES- 04246, ALSEP 12
LEM 12, APOLLO 12C

NSSDC ID- 69-099C

LAUNCH DATE- 11/14/69 WEIGHT- 4379. KG

STATUS OF OPERATION- PARTIAL

THE LUNAR MODULE (LM) WAS A TWO-STAGE VEHICLE DESIGNED FOR SPACE OPERATIONS NEAR AND ON THE MOON. THE LM STOOD 7 M HIGH AND WAS 9.4 M WIDE (DIAGONALLY ACROSS THE LANDING GEAR). THE ASCENT AND DESCENT STAGES OF THE LM OPERATED AS A UNIT UNTIL STAGING. WHEN THE ASCENT STAGE FUNCTIONED AS A SINGLE SPACECRAFT FOR RENDEZVOUS AND DOCKING WITH THE COMMAND MODULE (CM). THE ALSEP EXPERIMENTS INCLUDED (1) THE PASSIVE SEISMOGRAPH, WHICH WAS DESIGNED TO MEASURE SEISMIC ACTIVITY AND PHYSICAL PROPERTIES OF THE LUNAR CRUST AND INTERIOR, (2) THE SUPRATHERMAL ION DETECTOR, DESIGNED TO MEASURE THE FLUX COMPOSITION, ENERGY, AND VELOCITY OF LOW-ENERGY POSITIVE IONS, (3) THE COLD CATHODE ION GAUGE, DESIGNED TO MEASURE THE ATMOSPHERE AND ANY VARIATIONS WITH TIME OR SOLAR ACTIVITY SUCH ATMOSPHERE MAY HAVE, (4) THE CHARGED PARTICLE LUNAR ENVIRONMENT EXPERIMENT, DESIGNED TO MEASURE PARTICLE ENERGIES OF SOLAR PROTONS AND ELECTRONS THAT REACH THE LUNAR SURFACE AND TO PROVIDE DATA ON ENERGY DISTRIBUTION OF THESE SOLAR PARTICLES, (5) THE LUNAR SURFACE MAGNETOMETER (LSM), DESIGNED TO MEASURE THE MAGNETIC FIELD AT THE LUNAR SURFACE, AND (6) THE SOLAR WIND SPECTROMETER, WHICH MEASURED THE FLUXES AND SPECTRA OF THE ELECTRONS AND PROTONS THAT EMANATE FROM THE SUN AND REACH THE LUNAR SURFACE. THE LM ITSELF WAS ON THE LUNAR SURFACE NOVEMBER 19-20, 1969.

SONETT, APOLLO 12 LM/ALSEP

EXPERIMENT NAME- LUNAR SURFACE MAGNETOMETER

NSSDC ID- 69-099C-04

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 04/03/70

PERSONNEL
PI - C.P. SONETT ..... U OF ARIZONA
TUCSON, AZ
OI - P. DYAL ..... NASA-ARC
MOFFETT FIELD, CA

THE LUNAR SURFACE MAGNETOMETER IS PART OF THE ALSEP PACKAGE AND CONSISTS OF THREE FLUXGATE SENSORS LOCATED ON ORTHOGONAL 5-FT BOOMS. THE SENSORS ARE MOUNTED ON GIMBALS ALLOWING THEIR MEASUREMENT AXES TO BE INTERCHANGED FOR PURPOSES OF CALIBRATION AND SITE SURVEY. THE INSTRUMENT WAS DESIGNED TO MEASURE THE MOON'S MAGNETIC FIELD, AND OPERATED IN THE RANGES MINUS TO PLUS 100, 200, OR 400 GAMMAS. IT WAS ALSO EXPECTED TO YIELD INFORMATION ABOUT THE LUNAR GROSS ELECTRICAL DIFFUSIVITY, THE EXISTENCE OF A MOLTEN CORE, THE EARTH'S MAGNETIC TAIL, AND LOCAL MAGNETIC ANOMALIES. THE INSTRUMENT MEASURED THE MAGNETIC FIELD CONSTANTLY FOR ABOUT THREE WEEKS AFTER DEPLOYMENT, THEN ON THE DAYSIDE CONTINUOUSLY FOR SEVERAL MONTHS, THEN ON THE DAYSIDE VERY INTERMITTENTLY INTO 1972. FOR FURTHER DETAILS, SEE DYAL AND PARKIN, JGR, VOL 76, P 5947, 1971.

DATA SET NAME- TOTAL MAGNETIC FIELD MAGNITUDE AND COMPONENTS ON MICROFILM

NSSDC ID- 69-099C-04A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 11/19/69 TO 04/03/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF 16-MM MICROFILM, GENERATED AT NSSDC FROM HARDCOPY ORIGINAL PLOTS SUBMITTED BY THE EXPERIMENTER. EACH FRAME CONTAINS 30 OR 60 MIN OF DATA. THREE- OR SIX-SEC AVERAGE VALUES OF MAGNETIC FIELD MAGNITUDE AND OF EACH OF THREE CARTESIAN COMPONENTS ARE PLOTTED PER FRAME. THE COORDINATE SYSTEM USED HAS THE X-AXIS NORMAL TO THE LOCAL SURFACE, AND THE Y- AND Z-AXIS NORMAL TO X AND DIRECTED EASTWARD AND NORTHWARD, RESPECTIVELY. THERE ARE VERY FEW DATA GAPS.

DATA SET NAME- 0.3-SEC MAGNETIC VECTORS ON TAPE

NSSDC ID- 69-099C-04B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 11/19/69 TO 04/03/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 35 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF EXPERIMENTER-SUPPLIED MAGNETIC TAPES WRITTEN IN 556-BPI, 7-TRACK, DCS BINARY FORMAT ON AN IBM 7040/7094 COMPUTER. LOGICAL AND PHYSICAL RECORDS HAVE 751 AND 460 WORDS, RESPECTIVELY. EACH LOGICAL DATA RECORD CONTAINS THE TIME FOR THE FIRST DATA POINT, AND THE CARTESIAN COMPONENTS OF 500 SUCCESSIVE MAGNETIC FIELD VECTORS. SINCE ONE DATA POINT WAS OBTAINED EVERY 0.3 SEC, EACH LOGICAL RECORD COVERS 2.5 MIN OF DATA. FIELD COMPONENTS ARE GIVEN IN A COORDINATE SYSTEM WITH X RADIALLY OUTWARD FROM THE LOCAL LUNAR SURFACE AND Y AND Z TANGENT TO THE SURFACE AND DIRECTED EASTWARD AND NORTHWARD, RESPECTIVELY. TYPICALLY, EACH TAPE CONTAINS THREE DAYS OF DATA. THE DATA COVER THE PERIOD FROM NOVEMBER 19, 1969, THROUGH APRIL 3, 1970, WITH THE FOLLOWING GAPS -- DECEMBER 12 THROUGH DECEMBER 18, 1969, JANUARY 4 THROUGH JANUARY 17, 1970, FEBRUARY 3 THROUGH FEBRUARY 15, 1970, MARCH 6 THROUGH MARCH 17, 1970.

DATA SET NAME- FILTERED AND DECIMATED MAGNETIC FIELD DATA ON MAGNETIC TAPE

NSSDC ID- 69-099C-04C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 11/28/69 TO 12/03/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF A SAMPLE 7-TRACK, 556-BPI BCD MAGNETIC TAPE CONTAINING FILTERED AND DECIMATED MAGNETIC FIELD DATA AS SUBMITTED BY THE EXPERIMENTER. THE TAPE CONTAINS A HEADER RECORD AND SUCCESSIVE GROUPS OF THREE PHYSICAL RECORDS WHERE EACH SUCH GROUP CONSTITUTES ONE LOGICAL RECORD. THE 1602-CHARACTER HEADER RECORD INCLUDES THE DEGREE OF DECIMATION AND THE FILTER WEIGHTS USED. THE FIRST PHYSICAL RECORD IN EACH LOGICAL RECORD CONTAINS THE TIME OF THE FIRST SUBSEQUENT VECTOR. THE SECOND AND THIRD PHYSICAL RECORDS EACH CONTAIN 50 MAGNETIC VECTORS (CARTESIAN COMPONENTS IN ALSEP COORDINATES AND FIELD MAGNITUDE). NSSDC WILL HOLD A LIST OF TIMES FOR WHICH THE ORIGINAL DATA WERE SUBJECTED TO FILTERING AND DECIMATION AND WILL ACQUIRE APPROPRIATE TAPES FROM THE EXPERIMENTER AS REQUEST ACTIVITY WARRANTS.

SPACECRAFT COMMON NAME- APOLLO 14 LM/ALSEP

ALTERNATE NAMES- ALSEP 14, LEM 14
04905, APOLLO 14C

NSSDC ID- 71-008C

LAUNCH DATE- 01/31/71 WEIGHT- 4857. KG

STATUS OF OPERATION- PARTIAL

THE APOLLO 14 LUNAR MODULE (LM) CONSISTED OF A LUNAR LANDING CRAFT AND AN APOLLO LUNAR SURFACE EXPERIMENT PACKAGE (ALSEP) THAT CONTAINED SCIENTIFIC EXPERIMENTS TO BE LEFT ON THE LUNAR SURFACE AFTER COMPLETION OF THE MANNED PORTION OF THE MISSION. THE LM LANDED IN THE LUNAR HIGHLANDS (3 DEG 39 MIN 1 SEC S LATITUDE, 17 DEG 27 MIN 55 SEC W LONGITUDE). THE NUCLEAR POWERED ALSEP WAS DEPLOYED AT THE LANDING SITE AND INCLUDED EXPERIMENTS TO STUDY THE SEISMIC WAVES, MAGNETIC FIELDS, SOLAR WIND COMPOSITION AND INTERACTION WITH THE MOON, LUNAR ATMOSPHERE, AND IONIC ENVIRONMENT. THE LM ITSELF WAS ON THE LUNAR SURFACE FEBRUARY 5-6, 1971.

DYAL, APOLLO 14 LM/ALSEP

EXPERIMENT NAME- LUNAR PORTABLE MAGNETOMETER

NSSDC ID- 71-008C-10

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 02/06/71

PERSONNEL
PI - P. DYAL ..... NASA-ARC
MOFFETT FIELD, CA
OI - C.P. SONETT ..... U OF ARIZONA
TUCSON, AZ
OI - R.L. DUBOIS ..... U OF OKLAHOMA
NORMAN, OK
OI - M.G. SIMMONS ..... MASS INST OF TECH
CAMBRIDGE, MA

THE OBJECTIVE OF THIS EXPERIMENT WAS TO OBTAIN MORE SCIENTIFIC INFORMATION ON THE LOCATION, STRENGTH, AND DIMENSIONS OF LOCAL MAGNETIC SOURCES. THE LUNAR PORTABLE MAGNETOMETER WAS DEPLOYED BY THE ASTRONAUTS, WHO THEN TOOK MEASUREMENTS AT VARIOUS POSITIONS NEAR THE LANDING SITE. THE INSTRUMENT CONSISTED OF THREE ORTHOGONAL FLUXGATE MAGNETIC SENSORS. AFTER MEASUREMENTS WERE COMPLETE, THE ASTRONAUTS TURNED THE EXPERIMENT OFF AND LEFT THE HARDWARE ON THE LUNAR SURFACE.

DATA SET NAME- PERMANENT MAGNETIC FIELD MAGNITUDE AND COMPONENTS

NSSDC ID- 71-008C-10A

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 02/06/71 TO 02/06/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 BOOK(S) OR BOUND VOLUME(S)

THIS DATA SET CONSISTS OF VALUES OF THE LUNAR SURFACE REMANENT MAGNETIC FIELD MAGNITUDE AND CARTESIAN COMPONENTS TAKEN AT TWO IDENTIFIED LUNAR SURFACE SITES AT FRA MAURO BY THE APOLLO 14 ASTRONAUTS. THE DATA ARE FOUND IN AN UNPUBLISHED NASA-ARC REPORT, 'LUNAR PORTABLE MAGNETOMETER DATA.'

SPACECRAFT COMMON NAME- APOLLO 15 LM/ALSEP

ALTERNATE NAMES- APOLLO 15C, ALSEP 15
LEM 15, ROVER 15
C5366

NSSDC ID- 71-063C

LAUNCH DATE- 07/26/71 -WEIGHT- 12700. KG

STATUS OF OPERATION- PARTIAL

THE APOLLO 15 LUNAR MODULE (LM) CONSISTED OF A LUNAR LANDING CRAFT, A LUNAR ROVING VEHICLE (LRV), AND AN APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE (ALSEP) THAT CONTAINED SCIENTIFIC EXPERIMENTS TO BE LEFT ON THE MOON AFTER COMPLETION OF THE MANNED PORTION OF THE MISSION. THE LM LANDED IN THE NORTH CENTRAL PART OF THE MOON (26 DEG 4 MIN 54 SEC N LATITUDE, 3 DEG 39 MIN 30 SEC E LONGITUDE), AT THE FOOT OF THE APENNINE MOUNTAIN RANGE. THE ALSEP WAS DEPLOYED AT THE LANDING SITE. THE LRV WAS USED DURING THE EXTRAVEHICULAR ACTIVITIES (EVA) TO EXTEND THE RANGE OF MANNED LUNAR EXPLORATION. THE NUCLEAR-POWERED ALSEP CONTAINED SEISMIC, MAGNETIC FIELDS, LUNAR ATMOSPHERIC COMPOSITION, ION COMPOSITION, LUNAR DUST, SOLAR WIND COMPOSITION, HEAT LOSS, AND SOLAR CELL RADIATION DAMAGE EXPERIMENTS. THE LM ITSELF WAS ON THE LUNAR SURFACE JULY 30-AUGUST 2, 1971.

DYAL, APOLLO 15 LM/ALSEP

EXPERIMENT NAME- LUNAR SURFACE MAGNETOMETER

NSSDC ID- 71-063C-03

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 09/20/72

PERSONNEL
PI - P. DYAL ..... NASA-ARC
MOFFETT FIELD, CA

THE LUNAR SURFACE MAGNETOMETER WAS DESIGNED TO MEASURE THE MAGNITUDE AND TEMPORAL VARIATIONS OF THE LUNAR SURFACE MAGNETIC FIELD IN ORDER TO DETERMINE THE INTERNAL ELECTRICAL PROPERTIES OF THE MOON. THE DETECTOR PACKAGE CONSISTED OF THREE BOOM-MOUNTED FLUXGATE MAGNETOMETERS CAPABLE OF MEASURING MAGNETIC FIELDS IN THE THREE RANGES OF PLUS TO MINUS 50, 100, OR 200 GAMMAS AS SELECTED BY EARTH COMMAND. THE RESOLUTION WAS 0.5 PERCENT OF FULL SCALE. A FLIP-CALIBRATE SEQUENCE DESIGNED TO DETERMINE THE ABSOLUTE ACCURACY OF THE FLUXGATE SENSORS AND TO DETECT DRIFTS IN ZERO LEVELS WAS PERFORMED AUTOMATICALLY AT 18-HR INTERVALS. AT A TIME SPECIFIED BY THE PRINCIPAL INVESTIGATOR (BUT AFTER THE ASTRONAUTS HAD LEFT THE LUNAR SURFACE), A MAGNETIC FIELD SITE SURVEY WAS PERFORMED BY ROTATING EACH OF THE SENSORS. THE PURPOSE OF THE SURVEY WAS TO LOCATE ANY MAGNETIC INFLUENCES INHERENT IN THE DEPLOYMENT SITE. THE SITE SURVEY WAS PERFORMED ONLY ONCE. THE EXPERIMENT PROVIDED USEFUL DATA UNTIL SEPTEMBER 20, 1972, WHEN THE Y-AXIS SENSOR FAILED. DATA FROM THE X- AND Z-AXIS SENSORS WERE TRANSMITTED UNTIL DECEMBER 9, 1973.

DATA SET NAME- TOTAL MAGNETIC FIELD MAGNITUDE AND COMPONENTS ON MICROFILM

NSSDC ID- 71-063C-03A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/31/71 TO 09/20/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 8 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF 16-MM MICROFILM, GENERATED AT NSSDC FROM HARDCOPY ORIGINAL PLOTS SUBMITTED BY THE EXPERIMENTER. EACH FRAME CONTAINS 30 OR 60 MIN OF DATA. THREE- OR SIX-SEC AVERAGED VALUES OF MAGNETIC FIELD MAGNITUDE AND OF EACH OF THREE COMPONENTS ARE PLOTTED PER FRAME. THE COORDINATE SYSTEM USED HAS THE X-AXIS NORMAL TO THE LOCAL SURFACE, AND THE Y- AND Z-AXIS NORMAL TO X AND DIRECTED EASTWARD AND NORTHWARD, RESPECTIVELY. THERE ARE VERY FEW DATA GAPS.

DATA SET NAME- 0.3-SEC MAGNETIC VECTORS ON TAPE

NSSDC ID- 71-063C-03B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/31/71 TO 09/20/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 138 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF EXPERIMENTER-SUPPLIED MAGNETIC TAPES WRITTEN IN 556-BPI, 7-TRACK, DCS BINARY FORMAT ON AN IBM 7040/7094 COMPUTER. LOGICAL AND PHYSICAL RECORDS HAVE 751 AND 460 WORDS RESPECTIVELY. EACH LOGICAL DATA RECORD CONTAINS THE TIME FOR THE FIRST DATA POINT, AND THE CARTESIAN COMPONENTS OF 500 SUCCESSIVE MAGNETIC FIELD VECTORS. SINCE ONE DATA POINT WAS OBTAINED EVERY 0.3 SEC, EACH LOGICAL RECORD COVERS 2.5 MIN OF DATA. FIELD COMPONENTS ARE GIVEN IN A COORDINATE SYSTEM WITH X RADIALLY OUTWARD FROM THE LOCAL LUNAR SURFACE AND Y AND Z TANGENT TO THE SURFACE AND DIRECTED EASTWARD AND NORTHWARD, RESPECTIVELY. TYPICALLY, EACH TAPE CONTAINS THREE DAYS OF DATA. THE DATA COVER THE PERIOD FROM JULY 31, 1971, TO SEPTEMBER 20, 1972, WITH VIRTUALLY 100 PERCENT COMPLETENESS.

DATA SET NAME- FILTERED AND DECIMATED MAGNETIC FIELD DATA ON MAGNETIC TAPE

NSSDC ID- 71-063C-03C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/31/71 TO 08/15/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF A SAMPLE 7-TRACK, 556-BPI, BCD MAGNETIC TAPE CONTAINING FILTERED AND DECIMATED MAGNETIC FIELD DATA AS SUBMITTED BY THE EXPERIMENTER. THE TAPE CONTAINS A HEADER RECORD AND SUCCESSIVE GROUPS OF THREE PHYSICAL RECORDS, WHERE EACH SUCH GROUP CONSTITUTES ONE LOGICAL RECORD. THE 1602-CHARACTER HEADER RECORD INCLUDES THE DEGREE OF DECIMATION AND THE FILTER WEIGHTS USED. THE FIRST PHYSICAL RECORD IN EACH LOGICAL RECORD CONTAINS THE TIME OF THE FIRST SUBSEQUENT VECTOR. THE SECOND AND THIRD PHYSICAL RECORDS EACH CONTAIN 50 MAGNETIC VECTORS (CARTESIAN COMPONENTS IN ALSEP COORDINATES AND FIELD MAGNITUDE). NSSDC WILL HOLD A LIST OF TIMES FOR WHICH THE ORIGINAL DATA WERE SUBJECT TO FILTERING AND

DECIMATION AND WILL ACQUIRE APPROPRIATE TAPES FROM THE EXPERIMENTER AS REQUEST ACTIVITY WARRANTS.

SPACECRAFT COMMON NAME- APOLLO 15 SUBSATELLITE

ALTERNATE NAMES- APOLLO 15D, 05377
P + F S

NSSDC ID- 71-063D

LAUNCH DATE- 08/04/71 WEIGHT- 41. KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 01/22/73

ORBIT PARAMETERS
ORBIT TYPE- SELENOCENTRIC EPOCH DATE- 08/04/71
ORBIT PERIOD- 119.8 MIN INCLINATION- 28.7 DEG
PERIAPSIS- 102.05 KM ALT APOAPSIS- 141.31 KM ALT

A SUBSATELLITE OF THE APOLLO 15 MISSION CARRIED EXPERIMENTS DESIGNED TO STUDY INTERPLANETARY MAGNETIC FIELDS AND SOLAR FLARES. THE SUBSATELLITE WAS DEPLOYED FROM THE COMMAND SERVICE MODULE'S SCIENTIFIC INSTRUMENT MODULE BAY WHILE APOLLO 15 WAS IN LUNAR ORBIT. THE SUBSATELLITE SPIN AXIS WAS APPROXIMATELY PERPENDICULAR TO THE ECLIPTIC PLANE. THE SUBSATELLITE SPIN RATE STABILIZED AT ABOUT 12 RPM AFTER BOOM DEPLOYMENT. THE SUBSATELLITE HAD THREE EQUALLY SPACED, FOLDED BOOMS MOUNTED AROUND ITS BASE. THESE BOOMS DEPLOYED AUTOMATICALLY AT LAUNCH TO A LENGTH OF ABOUT 1.5 M. THE SUBSATELLITE PROVIDED ABOUT 6 MONTHS OF DATA COVERAGE BEFORE 2 SUCCESSIVE ELECTRONIC FAILURES IN FEBRUARY 1972 CAUSED THE LOSS OF MOST OF THE DATA CHANNELS. THE SURVIVING DATA CHANNELS WERE MONITORED INTERMITTENTLY UNTIL JUNE 1972 AND THEN MORE OR LESS CONTINUOUSLY UNTIL JANUARY 1973, WHEN GROUND SUPPORT WAS TERMINATED.

COLEMAN, JR., APOLLO 15 SUBSATELLITE

EXPERIMENT NAME- BIAXIAL FLUXGATE MAGNETOMETER

NSSDC ID- 71-063D-02

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 02/03/72

PERSONNEL
PI - P.J. COLEMAN, JR. ..... U OF CALIF, LA
LOS ANGELES, CA

THE PHYSICAL AND ELECTRICAL PROPERTIES OF THE MOON AND THE INTERACTIONS OF THE SOLAR PLASMA WITH THE MOON WERE DETERMINED USING A BOOM-DEPLOYED BIAXIAL TWO FLUXGATE MAGNETOMETER. ONE SENSOR WAS PARALLEL TO THE SPACECRAFT SPIN AXIS AND WAS SAMPLED ONCE EVERY 2 SEC OR ABOUT TWO TIMES PER REVOLUTION, AND THE OTHER WAS PERPENDICULAR TO THIS AXIS AND WAS SAMPLED ONCE PER SEC. A SUN PULSE GENERATOR WAS USED TO PROVIDE SPIN PHASE INFORMATION NEEDED FOR VECTOR FIELD CALCULATIONS. THE TWO DYNAMIC RANGES OF EACH SENSOR WERE PLUS OR MINUS 50 GAMMAS AND PLUS OR MINUS 200 GAMMAS. DATA WERE OBTAINED IN REAL TIME AT A HIGH INFORMATION BIT RATE AND IN RECORDED MODE ONCE EVERY 12 OR 24 SEC. FAILURE OF THE TELEMETRY SYSTEM ON FEBRUARY 3, 1972, TERMINATED THE USEFUL LIFE OF THE EXPERIMENT.

DATA SET NAME- 24-SEC TIME RESOLUTION BIAXIAL
VECTOR MAGNETIC FIELD MEASUREMENTS ON TAPE

NSSDC ID- 71-063D-02A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 08/04/71 TO 02/03/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 29 REEL(S) OF MAGNETIC TAPE

THESE MAGNETIC TAPES GENERATED BY NASA/JSC FOR THE EXPERIMENTER CONTAIN 24-SEC MAGNETIC FIELD DATA AND ENGINEERING DATA. EVERY 192 SEC, THE BASIC CYCLE TIME FOR THE SUB-SATELLITE. THESE DATA ARE ON UNIVAC 1108 7-TRACK MAGNETIC TAPES WRITTEN AT 800 BPI AND ODD PARITY WITH 36-BIT WORDS. CONTAINED IN THE DATA ARE TIME, VARIOUS DATA RELEVANT TO SPACECRAFT POSITION AND HOUSEKEEPING, AND THE MAGNETIC FIELD MEASUREMENTS TRANSVERSE AND PARALLEL TO THE SPACECRAFT SPIN AXIS, WHICH ALONG WITH THE SUN PULSE INFORMATION YIELD TRIAXIAL MAGNETIC FIELD MEASUREMENTS. THESE DATA ARE BLOCKED WITH 560 WORDS PER PHYSICAL RECORD. TIMES ARE IN MILLISECONDS.

DATA SET NAME- PLOTS OF TRIAXIAL 192-SEC AVG MAGNETIC
FIELD DATA ON 16-MM MICROFILM

NSSDC ID- 71-063D-02B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 08/04/71 TO 02/03/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 6 REEL(S) OF MICROFILM

THESE 16-MM MICROFILM REELS GENERATED BY NASA/JSC FOR THE EXPERIMENTER CONTAIN TWO TYPES OF PLOTS. THE FIRST OR 'A' PLOTS CONTAIN 192-SEC AVERAGED MAGNETIC X, Y, AND Z COMPONENTS IN SPACECRAFT COORDINATES AND TOTAL FIELD MAGNITUDE PLOTTED AGAINST TIME FOR ONE ORBIT PER FRAME. SPACECRAFT COORDINATES HAVE X AND Y IN THE SPIN PLANE, WITH X ALONG THE PROJECTION OF THE EARTH-SUN LINE. THE Z DIRECTION LIES ALONG THE SPACECRAFT SPIN AXIS, WHICH IS NEARLY PERPENDICULAR TO THE ECLIPTIC PLANE. NO SENSOR DRIFT CORRECTIONS HAVE BEEN APPLIED TO THE Z COMPONENT OF THE DATA PRIOR TO PLOTTING, BUT DRIFTS ARE EXPECTED TO BE WITHIN +0.27 TO -0.87 GAMMA. OFFSET DRIFTS ARE TABULATED IN THE DOCUMENTATION, ALONG WITH INSTRUCTIONS ON HOW TO APPLY THEM. THE SECOND SET, OR 'B' PLOTS CONTAIN ENGINEERING PARAMETERS, SPIN PERIODS, AND DATA FROM THE BERKELEY PARTICLE EXPERIMENT 71-063D-01 FOR THE SHIELDED AND UNSHIELDED DETECTORS.

DATA SET NAME- MICROFILM LISTINGS OF 192-SEC AVG
MAGNETIC FIELD VECTORS AND MAGNITUDE

NSSDC ID- 71-063D-02C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 08/04/71 TO 02/03/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 6 REEL(S) OF MICROFILM

THESE REELS OF 16-MM MICROFILM GENERATED AT NASA/JSC FOR THE EXPERIMENTER CONTAIN 192 SEC AVERAGED MAGNETOMETER DATA PRESENTED AS FUNCTIONS OF TIME. THESE DATA LISTINGS CONTAIN X, Y, AND Z VECTOR COMPONENTS IN SPACECRAFT COORDINATES WHERE THE X AND Y AXES LIE IN THE SPACECRAFT SPIN PLANE, WITH X ALONG THE PROJECTION OF THE EARTH-SUN LINE. THE Z AXIS IS ALONG THE SPACECRAFT SPIN AXIS AND IS APPROXIMATELY ALONG THE NORTHWARD NORMAL TO THE ECLIPTIC PLANE. ALSO LISTED ARE MAGNETIC FIELD MAGNITUDE AND THE SHIELDED COUNTS FROM THE BERKELEY EXPERIMENT (01). SPACECRAFT STATE INFORMATION ARE ALSO TABULATED.

SPACECRAFT COMMON NAME- APOLLO 16 LM/ALSEP

ALTERNATE NAMES- ALSEP 16, LEM 16,
ROVER 16, 06005
APOLLO 16C

NSSDC ID- 72-031C

LAUNCH DATE- 04/16/72 WEIGHT- 5040. KG

STATUS OF OPERATION- PARTIAL

THE APOLLO 16 LUNAR MODULE (LM) CONSISTED OF A LUNAR LANDING CRAFT, A LUNAR ROVING VEHICLE (LRV), AND AN APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE (ALSEP) THAT CONTAINED SCIENTIFIC EXPERIMENTS TO BE LEFT ON THE LUNAR SURFACE AFTER COMPLETION OF THE MANNED PORTION OF THE MISSION. THE LM LANDED IN THE DESCARTES HIGHLAND REGION JUST NORTH OF THE CRATER DOLLAND AT 8 DEG 59 MIN 55 SEC S LATITUDE, AND 15 DEG 31 MIN 12 SEC E LONGITUDE. THE ALSEP WAS DEPLOYED AT THE LANDING SITE. THE LRV WAS USED DURING EXTRAVEHICULAR ACTIVITIES (EVA) TO EXTEND THE RANGE OF MANNED LUNAR EXPLORATION. THE NUCLEAR-POWERED ALSEP PACKAGE CONTAINED SEISMIC, MAGNETIC FIELD, AND HEAT FLOW EXPERIMENTS. THE LM ITSELF WAS ON THE LUNAR SURFACE APRIL 21-24, 1972.

ORIGINAL PAGE IS
OF POOR QUALITY

APOLLO 16 LM/ALSEP APOLLO 16 SUBSATELLITE

DYAL, APOLLO 16 LM/ALSEP

EXPERIMENT NAME- LUNAR SURFACE MAGNETOMETER

NSSDC ID- 72-031C-03

STATUS OF OPERATION- NORMAL

PERSONNEL
PI - P. DYAL ..... NASA-ARC
MOFFETT FIELD, CA
OI - C.W. PARKIN ..... NASA-ARC
MOFFETT FIELD, CA
OI - C.P. SONETT ..... U OF ARIZONA
TUCSON, AZ

THIS EXPERIMENT CONSISTED OF A TRIAXIAL FLUXGATE MAGNETOMETER AND WAS PART OF A THREE-STATION NETWORK (APOLLO 12,15,16) INTENDED TO YIELD INFORMATION ON THE INTERNAL ELECTROMAGNETIC CHARACTERISTICS OF THE MOON. FLIPPABLE SENSORS WERE LOCATED 75-CM ABOVE THE LUNAR SURFACE AT THE ENDS OF THREE ORTHOGONAL 100-CM BOOMS. SENSOR ORIENTATION WAS INITIALLY DETERMINED BY THE ASTRONAUTS USING A BUBBLE LEVEL AND A SHADOWGRAPH, AND HAS BEEN SUBSEQUENTLY MONITORED (WITH AN ACCURACY OF 0.2 DEGREES) BY GRAVITY-LEVEL SENSORS. EACH SENSOR COULD BE OPERATED IN THE RANGES FROM MINUS TO PLUS 50, 100, OR 200 GAMMAS, WITH A 0.1-GAMMA RESOLUTION. FREQUENCY RESPONSE WAS FROM 0 TO 3 HZ. THE EXPERIMENT FUNCTIONED NORMALLY FROM EMPLACEMENT TO JULY 24, 1972, WHEN THE SENSOR FLIP MECHANISM FAILED. THE EXPERIMENT CONTINUED IN THIS STATE UNTIL FEBRUARY 15, 1973, WHEN A LONG PERIOD OF INTERMITTENT INSTRUMENT OPERATION ENSUED. ON AUGUST 17, 1973, THE INSTRUMENT RETURNED TO A FULLY OPERATIONAL CONDITION.

DATA SET NAME- TOTAL MAGNETIC FIELD MAGNITUDE AND COMPONENTS ON MICROFILM

NSSDC ID- 72-031C-03A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 04/21/72 TO 10/18/73
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 5 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF 16-MM MICROFILM, GENERATED AT NSSDC FROM HARDCOPY ORIGINAL PLOTS SUBMITTED BY THE EXPERIMENTER. EACH FRAME CONTAINS 30 OR 60 MIN OF DATA. THREE- OR SIX-SEC AVERAGE VALUES OF MAGNETIC FIELD MAGNITUDE AND OF EACH OF THREE CARTESIAN COMPONENTS ARE PLOTTED PER FRAME. THE COORDINATE SYSTEM USED HAS THE X-AXIS NORMAL TO THE LOCAL SURFACE, AND THE Y- AND Z-AXIS NORMAL TO THE X-AXIS AND DIRECTED EASTWARD AND NORTHWARD, RESPECTIVELY. THERE ARE VERY FEW DATA GAPS.

DYAL, APOLLO 16 LM/ALSEP

EXPERIMENT NAME- LUNAR PORTABLE MAGNETOMETER

NSSDC ID- 72-031C-08

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 04/23/72

PERSONNEL
PI - P. DYAL ..... NASA-ARC
MOFFETT FIELD, CA

THE OBJECTIVE OF THIS EXPERIMENT WAS TO OBTAIN MORE SCIENTIFIC INFORMATION ON THE LOCATION, STRENGTH, AND DIMENSIONS OF LOCAL MAGNETIC SOURCES. THE LUNAR PORTABLE MAGNETOMETER WAS DEPLOYED BY THE ASTRONAUTS, WHO THEN TOOK MEASUREMENTS AT VARIOUS POSITIONS NEAR THE LANDING SITE. THE INSTRUMENT CONSISTED OF THREE ORTHOGONAL FLUXGATE MAGNETIC SENSORS. AFTER MEASUREMENTS WERE COMPLETED, THE ASTRONAUTS TURNED THE EXPERIMENT OFF AND LEFT THE HARDWARE ON THE LUNAR SURFACE.

DATA SET NAME- TOTAL MAGNETIC FIELD MAGNITUDE AND COMPONENTS

NSSDC ID- 72-031C-08A

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 04/21/72 TO 04/23/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 BOOK(S) OR BOUND VOLUME(S)

THIS DATA SET CONSISTS OF VALUES OF THE OBSERVED MAGNETIC FIELD MAGNITUDE AND COMPONENTS TAKEN AT FOUR IDENTIFIED LUNAR SURFACE SITES BY THE APOLLO 16 ASTRONAUTS. THE DATA ARE FOUND IN AN UNPUBLISHED NASA-ARC REPORT, "LUNAR PORTABLE MAGNETOMETER DATA."

SPACECRAFT COMMON NAME- APOLLO 16 SUBSATELLITE

ALTERNATE NAMES- APOLLO 16D, 06009

NSSDC ID- 72-031D

LAUNCH DATE- 04/24/72 WEIGHT- 36. KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 05/29/72

ORBIT PARAMETERS
ORBIT TYPE- SELENOCENTRIC EPOCH DATE- 04/24/72
ORBIT PERIOD- 119.8 MIN INCLINATION- 151.28 DEG
PERIAPSIS- 103.49 KM ALT APOAPSIS- 135.90 KM ALT

THE SUBSATELLITE OF THE APOLLO 16 MISSION CARRIED EXPERIMENTS DESIGNED TO STUDY INTERPLANETARY MAGNETIC FIELDS AND ENERGETIC SOLAR PARTICLES. THE SUBSATELLITE WAS DEPLOYED FROM THE COMMAND SERVICE MODULE'S SCIENTIFIC INSTRUMENT MODULE (SIM) BAY WHILE APOLLO 16 WAS IN LUNAR ORBIT. THE SUBSATELLITE SPIN AXIS WAS APPROXIMATELY PERPENDICULAR TO THE ECLIPTIC PLANE. ITS SPIN RATE STABILIZED AT ABOUT 12 RPM AFTER BOOM DEPLOYMENT. THE SUBSATELLITE HAD THREE EQUALLY SPACED, FOLDED BOOMS MOUNTED AROUND ITS BASE. THESE BOOMS DEPLOYED AUTOMATICALLY AT LAUNCH TO A LENGTH OF ABOUT 1.5 M. THE SUBSATELLITE PREMATURELY IMPACTED WITH THE MOON ON MAY 29, 1972, AFTER 34 DAYS (425 REVOLUTIONS) IN ORBIT.

COLEMAN, JR., APOLLO 16 SUBSATELLITE

EXPERIMENT NAME- BIAXIAL FLUXGATE MAGNETOMETER

NSSDC ID- 72-031D-02

STATUS OF OPERATION- INOPERABLE
DATE LAST DATA RECORDED- 05/29/72

PERSONNEL
PI - P.J. COLEMAN, JR. ..... U OF CALIF, LA
LOS ANGELES, CA

THE APOLLO 16 LUNAR-ORBITING SUBSATELLITE MAGNETOMETER WAS A BOOM-DEPLOYED BIAXIAL FLUXGATE INSTRUMENT. ONE OF ITS AXES LAY ALONG THE SATELLITE SPIN AXIS. THE OTHER LAY IN THE SPIN PLANE. A SUN PULSE SECTOR GENERATOR PROVIDED THE PHASE INFORMATION NEEDED TO OBTAIN THE DIRECTION OF THE MAGNETIC VECTOR. THE SPIN RATE WAS 5.175 SEC. THE INSTRUMENT OPERATED IN TWO MODES, PLUS OR MINUS 50 GAMMAS AND PLUS OR MINUS 100 GAMMAS. OTHERWISE IT WAS IDENTICAL TO THE APOLLO 15 SUBSATELLITE MAGNETOMETER 71-0630-02. THE INSTRUMENT'S USEFUL LIFE WAS TERMINATED ON MAY 29, 1972, WHEN THE SATELLITE IMPACTED THE MOON.

DATA SET NAME- 24-SEC TIME RESOLUTION BIAXIAL VECTOR MAGNETIC FIELD MEASUREMENTS ON TAPE

NSSDC ID- 72-031D-02A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 04/25/72 TO 05/29/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 9 REEL(S) OF MAGNETIC TAPE

THESE MAGNETIC TAPES GENERATED BY NASA/JSC FOR THE EXPERIMENTER CONTAIN 24-SEC MAGNETIC FIELD DATA AND ENGINEERING DATA EVERY 192 SEC. THE BASIC CYCLE TIME FOR THE SUB-SATELLITE. THESE DATA ARE WRITTEN ON 800 BPI, ODD PARITY, 36-BIT WORD UNIVAC 1108, 7-TRACK MAGNETIC TAPES. CONTAINED IN THE DATA ARE TIME, VARIOUS DATA RELEVANT TO SPACECRAFT POSITION AND HOUSEKEEPING, AND THE TRANSVERSE AND PARALLEL

MAGNETIC FIELD MEASUREMENTS WHICH ALONG WITH THE SUN PULSE INFORMATION YIELD TRIAXIAL MAGNETIC FIELD MEASUREMENTS. THESE DATA ARE BLOCKED WITH 560 WORDS PER PHYSICAL RECORD. TIMES ARE IN MILLISECONDS.

DATA SET NAME- PLOTS OF TRIAXIAL 192-SEC AVG MAGNETIC FIELD DATA ON 16-MM MICROFILM

NSSDC ID- 72-031D-02B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 04/25/72 TO 05/29/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THESE 16-MM MICROFILM GENERATED AT JSC FOR THE EXPERIMENTER CONTAIN TWO TYPES OF PLOTS. THE FIRST OR 'A' PLOTS CONTAIN 192-SEC AVG MAGNETIC X, Y, AND Z COMPONENTS IN SPACECRAFT COORDINATES AND TOTAL FIELD MAGNITUDE PLOTTED AGAINST TIME FOR ONE ORBIT PER FRAME. SPACECRAFT COORDINATES HAVE X AND Y IN THE SPIN PLANE WITH X ALONG THE PROJECTION OF THE EARTH-SUN LINE IN THE SPIN PLANE AND Y ROUGHLY OPPOSITE THE DIRECTION OF PLANETARY MOTION. THE Z DIRECTION IS NORTHWARD RELATIVE TO THE ECLIPTIC PLANE AND ALONG THE S/C SPIN AXIS. NO SENSOR DRIFT CORRECTIONS HAVE BEEN APPLIED TO THE Z-COMPONENT OF THE DATA PRIOR TO PLOTTING, BUT DRIFTS ARE EXPECTED TO BE WITHIN +0.27 TO -0.87 GAMMA. OFFSET DRIFTS ARE TABULATED IN THE DOCUMENTATION, ALONG WITH INSTRUCTIONS ON HOW TO APPLY THEM. THE SECOND SET OF PLOTS, OR 'B' PLOTS, CONTAIN ENGINEERING PARAMETERS, SPIN PERIODS, AND DATA FROM THE SHIELDED AND UNSHIELDED DETECTORS OF THE BERKELEY PARTICLE EXPERIMENT (72-031D-01).

DATA SET NAME- LISTINGS OF SUBSATELLITE MAGNETOMETER VECTORS ON MICROFILM

NSSDC ID- 72-031D-02C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 04/25/72 TO 05/29/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS REEL OF 16-MM MICROFILM GENERATED AT JSC FOR THE EXPERIMENTER CONTAINS 192-SEC AVERAGED MAGNETOMETER DATA PRESENTED AS FUNCTIONS OF TIME. THESE DATA LISTINGS CONTAIN X, Y, AND Z VECTOR COMPONENTS IN SPACECRAFT COORDINATES WHERE THE X AXIS IS ALONG THE PROJECTION OF THE EARTH-SUN LINE ONTO THE SPACECRAFT SPIN PLANE, THE Y AXIS IS ANTIPARALLEL TO THE PLANETARY MOTION, AND THE Z AXIS IS ALONG THE SPACECRAFT SPIN AXIS. APPROXIMATELY ALONG THE NORTHWARD NORMAL TO THE ECLIPTIC PLANE. ALSO LISTED ARE MAGNETIC FIELD MAGNITUDE, THE SHIELDED COUNTS FROM THE BERKELEY EXPERIMENT (01), AND SPACECRAFT STATE INFORMATION.

SPACECRAFT COMMON NAME- ATS 1

ALTERNATE NAMES- ATS-B, 02608

NSSDC ID- 66-110A

LAUNCH DATE- 12/07/66 WEIGHT- 352. KG

STATUS OF OPERATION- PARTIAL

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 12/07/66
ORBIT PERIOD- 1466. MIN INCLINATION- 0.23 DEG
PERIAPSIS- 35852.0 KM ALT APOAPSIS- 36887.0 KM ALT

ATS 1 (APPLICATIONS TECHNOLOGY SATELLITE) WAS DESIGNED AND LAUNCHED FOR THE PURPOSE OF (1) TESTING NEW CONCEPTS IN SPACECRAFT DESIGN, PROPULSION, AND STABILIZATION, (2) COLLECTING HIGH-QUALITY CLOUDCOVER PICTURES AND RELAYING PROCESSED METEOROLOGICAL DATA VIA AN EARTH-SYNCHRONOUS SATELLITE, (3) PROVIDING IN SITU MEASUREMENTS OF THE AEROSPACE ENVIRONMENT, AND (4) TESTING IMPROVED COMMUNICATION SYSTEMS. THE SPIN-STABILIZED SPACECRAFT WAS CYLINDRICALLY SHAPED AND MEASURED 135 CM LONG AND 142 CM IN DIAMETER. THE PRIMARY STRUCTURAL MEMBERS WERE A HONEYCOMBED EQUIPMENT SHELF AND THRUST TUBE. SUPPORT RODS EXTENDED RADIALLY OUTWARD FROM THE THRUST TUBE AND WERE AFFIXED TO SOLAR PANELS THAT FORMED THE OUTER WALLS OF THE SPACECRAFT. EQUIPMENT COMPONENTS AND PAYLOAD WERE MOUNTED IN THE ANNULAR SPACE BETWEEN THE THRUST TUBE AND SOLAR PANELS. IN ADDITION TO SOLAR PANELS, THE SPACECRAFT WAS EQUIPPED WITH TWO RECHARGEABLE NICKEL-CADMIUM BATTERIES TO PROVIDE ELECTRICAL POWER. EIGHT 150-CM-LONG VHF EXPERIMENT WHIP ANTENNAS WERE MOUNTED AROUND THE AFT END OF THE SPACECRAFT, WHILE EIGHT TELEMETRY AND COMMAND ANTENNAS WERE PLACED ON THE FORWARD END. SPACECRAFT GUIDANCE AND ORBITAL CORRECTIONS WERE ACCOMPLISHED BY 2.3-KG HYDROGEN PEROXIDE AND HYDRAZINE THRUSTERS, WHICH WERE ACTIVATED BY GROUND COMMAND. THE SATELLITE WAS INITIALLY PLACED AT 151.16 DEG W LONGITUDE OVER THE PACIFIC OCEAN IN A GEOSTATIONARY EQUATORIAL ORBIT. IN GENERAL, MOST OF THE EXPERIMENTS WERE SUCCESSFUL. DATA COVERAGE WAS HIGH UNTIL ABOUT 1970, AFTER WHICH LIMITED REAL-TIME DATA ACQUISITION WAS CARRIED OUT BY NOAA UNTIL THE MAY 1974 LAUNCH OF SMS 1. LIMITED ATS 1 DATA ACQUISITION WAS BEGUN BY NASA AT ABOUT THAT TIME FOR ATS 1 - ATS 6 CORRELATIVE STUDIES.

COLEMAN, JR., ATS 1

EXPERIMENT NAME- BIAXIAL FLUXGATE MAGNETOMETER

NSSDC ID- 66-110A-02

STATUS OF OPERATION- PARTIAL

PERSONNEL
PI - P.J. COLEMAN, JR. ..... U OF CALIF, LA
LOS ANGELES, CA

THIS BIAXIAL FLUXGATE MAGNETOMETER MEASURED VECTOR MAGNETIC FIELDS AT SYNCHRONOUS ALTITUDE. ONE SENSOR WAS MOUNTED IN THE SPIN PLANE OF THE SPACECRAFT AND ONE ALONG THE SPIN AXIS. USING THE ONBOARD SUN SENSOR, TRIAXIAL VECTOR MEASUREMENTS WERE DEDUCED. AS THE SENSOR WAS MOUNTED ON ONLY A 15-CM BOOM, IT HAS SUFFERED FROM SERIOUS SPACECRAFT INTERFERENCE. THOUGH MEASUREMENT PRECISION WAS ABOUT 0.5 GAMMA, INTERFERENCE FIELDS WERE OF THE ORDER OF THE AMBIENT FIELDS. PROCEDURES FOR OFFSET CORRECTIONS HAVE BEEN DEVELOPED AND IMPLEMENTED FOR ABOUT 95 PERCENT OF THE INTERFERENCE SOURCES TO A 15-SEC TIME RESOLUTION. ALSO SPECTRAL ANALYSES OF WAVE MODES PRESENT WERE POSSIBLE TO A 0.32-SEC TIME RESOLUTION. THUS DC FIELDS WERE OBTAINABLE FROM THIS DATA UP TO 15-SEC TIME RESOLUTION, AND WAVE DATA UP TO 1.5 HZ. CERTAIN NONMACHINE CORRECTABLE OFFSETS STILL PLAGUE REDUCED DATA FROM THIS EXPERIMENT, BUT THESE ARE IDENTIFIABLE AND HAND CORRECTABLE. THE ONBOARD SUN SENSOR FAILED NOVEMBER 2, 1969. HOWEVER, THE SUN CAUSED A NOISE MODULATION OF THE SPINNING SPACECRAFT SO THAT EVEN AFTER THIS TIME, WITH SOME EFFORT, VECTOR DATA WERE EXTRACTABLE FROM THE TELEMETERED DATA. DATA COVERAGE WAS ABOUT 90 PERCENT THROUGH AUGUST 1968. DURING AUGUST 1968 TO NOVEMBER 1969, COVERAGE DROPPED TO 40 PERCENT. DATA WERE RECORDED BY NOAA, BOULDER, STARTING IN OCTOBER 1970. COVERAGE WAS ABOUT 80 PERCENT.

DATA SET NAME- 2.5-MIN AVG VECTOR MAGNETOMETER DATA FROM SYNCHRONOUS ALTITUDE ON FILM

NSSDC ID- 66-110A-02B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 11/17/67 TO 12/29/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MICROFILM

THESE 16-MM REELS OF MICROFILM MADE AT NSSDC FROM CALCOMP PLOTS GENERATED AT UCLA ARE OF 2.5 MIN AVERAGED MACHINE-CORRECTED REDUCED MAGNETOMETER DATA PRESENTED IN THE UCLA V-D-H COORDINATE SYSTEM WHERE (1) THE H AXIS IS ANTIPARALLEL TO THE EARTH'S MAGNETIC DIPOLE AXIS, (2) THE V AXIS IS RADIALLY OUTWARD IN THE MAGNETIC EQUATORIAL PLANE, AND (3) THE D AXIS IS AZIMUTHALLY EASTWARD. PLOTTED AGAINST COMMON TIME ARE THE 3 MAGNETIC FIELD CARTESIAN COMPONENTS AND AN INDICATOR OF THE SATELLITE STATE VECTOR, WHICH IS USEFUL IN IDENTIFYING OFFSET CHANGES THAT ARE NOT CORRECTED BY MACHINE IN THE PLOTTED DATA.

DATA SET NAME- 2.5-MIN AVG VECTOR MAGNETOMETER DATA FROM SYNCHRONOUS ALTITUDE ON TAPE

NSSDC ID- 66-110A-02C

AVAILABILITY OF DATA SET- DATA AT NSSDC

ATS 1/ATS 5

TIME PERIOD COVERED- 12/07/66 TO 12/29/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 3 REEL(S) OF MAGNETIC TAPE

THESE THREE EXPERIMENTER GENERATED 7-TRACK, 800-BPI, MAGNETIC TAPES CONTAIN DATA FROM DECEMBER 7, 1966, TO DECEMBER 29, 1968, WRITTEN IN A BCD FORMAT WITH 80 CHARACTERS PER LOGICAL RECORD, AND 3204 CHARACTERS PER PHYSICAL RECORD. THESE TAPES CONTAIN TIME, THE SPACECRAFT STATE VECTOR, AND 2.5 MIN AVERAGED CARTESIAN MAGNETIC FIELD IN V-D-H COORDINATES. THE H AXIS IS ANTIPARALLEL TO THE EARTH'S MAGNETIC DIPOLE AXIS, THE V AXIS IS RADIALLY OUTWARD IN THE MAGNETIC EQUATORIAL PLANE, AND THE D AXIS IS AZIMUTHALLY EASTWARD. EACH TAPE CONTAINS ONE FILE. THESE DATA HAVE BEEN CORRECTED FOR OFFSETS BY MACHINE AS MUCH AS POSSIBLE. THEY STILL CONTAIN SOME OFFSET ERRORS, BUT CONSIDERATION OF THE SPACECRAFT STATE VECTOR ALLOWS CORRECTION FOR THESE BY HAND.

DATA SET NAME- 15-SEC AVG VECTOR MAGNETOMETER DATA FROM SYNCHRONOUS ALTITUDE ON FILM

NSSDC ID- 66-110A-02D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/10/66 TO 12/29/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 4 REEL(S) OF MICROFILM

THESE 35-MM MICROFILM WERE MADE AT NSSDC FROM CALCOMP PLOTS GENERATED AT UCLA OF 15-SEC AVERAGED MACHINE CORRECTED REDUCED MAGNETOMETER DATA PRESENTED IN THE UCLA V-D-H COORDINATE SYSTEM. THE H AXIS IS ANTIPARALLEL TO THE EARTH'S MAGNETIC DIPOLE AXIS. THE V AXIS IS RADIALLY OUTWARD IN THE MAGNETIC EQUATORIAL PLANE AND THE D AXIS IS AZIMUTHALLY EASTWARD. PLOTTED AGAINST COMMON TIME ARE THE THREE MAGNETIC FIELD CARTESIAN COMPONENTS AND AN INDICATOR OF THE SATELLITE STATE VECTOR, WHICH IS USEFUL IN IDENTIFYING OFFSET CHANGES THAT COULD NOT BE CORRECTED BY MACHINE IN THE PLOTTED DATA.

DATA SET NAME- 15-SEC AVG VECTOR MAGNETOMETER DATA FROM SYNCHRONOUS ALTITUDE ON TAPE

NSSDC ID- 66-110A-02E

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/07/66 TO 12/29/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 22 REEL(S) OF MAGNETIC TAPE

THESE 22 EXPERIMENTER GENERATED 7-TRACK 800-BPI MAGNETIC TAPES CONTAIN DATA FROM DECEMBER 7, 1966, TO DECEMBER 29, 1968, WRITTEN IN A BCD FORMAT WITH 80 CHARACTERS PER LOGICAL RECORD, AND 3204 CHARACTERS PER PHYSICAL RECORD. THESE TAPES CONTAIN TIME, THE SPACECRAFT STATE VECTOR, AND 15 SEC AVERAGED DATA IN BOTH GEOCENTRIC SOLAR ECLIPTIC COORDINATES AND THE UCLA V-D-H COORDINATES WITH THE H AXIS ANTIPARALLEL TO THE EARTH'S MAGNETIC DIPOLE AXIS. THE V AXIS RADIALLY OUTWARD IN THE MAGNETIC EQUATORIAL PLANE, AND THE D AXIS AZIMUTHALLY EASTWARD. EACH TAPE CONTAINS ONE FILE, AND ABOUT 40 DAYS OF DATA. THESE DATA HAVE BEEN CORRECTED FOR OFFSETS BY MACHINE AS MUCH AS POSSIBLE. THEY STILL CONTAIN SOME OFFSET ERRORS, BUT CONSIDERATION OF THE SPACECRAFT STATE VECTOR ALLOWS CORRECTION FOR THESE BY HAND.

DATA SET NAME- SPACECRAFT AND EXPERIMENT COMMAND LOG AS A MULTIDIMENSIONAL VECTOR ON TAPE

NSSDC ID- 66-110A-02G

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/07/66 TO 12/31/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS MAGNETIC TAPE GENERATED BY THE EXPERIMENTER CONTAINS THREE FILES, REPRESENTING OPERATION IN 1966, 1967, AND 1968. THE 9-TRACK ODD PARITY 800-BPI TAPE HAS EBCDIC LOGICAL RECORDS OF 133 BYTES BLOCKED TO 7182 BYTES PER PHYSICAL RECORD. THE DATA CONTAINED ARE THE LISTINGS OF THE OCTAL COMMANDS SENT TO THE ATS SATELLITE FROM DECEMBER 7, 1966 TO DECEMBER 31, 1968. THESE COMMAND LOGS WERE REQUIRED TO MAKE THE MACHINE CORRECTIONS APPLIED TO THE MAGNETOMETER DATA FROM THIS SPACECRAFT. A MICROFILMED LISTING OF THE CONTENTS OF THIS TAPE IS ALSO AVAILABLE AT NSSDC (66-110A-02F).

SPACECRAFT COMMON NAME- ATS 5

ALTERNATE NAMES- PL-6928, ATS-E
04068

NSSDC ID- 69-069A

LAUNCH DATE- 08/12/69 WEIGHT- 821. KG

STATUS OF OPERATION- PARTIAL

ORBIT PARAMETERS

ORBIT TYPE- GEOCENTRIC	EPOCH DATE- 08/23/69
ORBIT PERIOD- 1463. MIN	INCLINATION- 2.6 DEG
PERIAPSIS- 35760.0 KM ALT	APOAPSIS- 36894.0 KM ALT

ATS 5 WAS AN EQUATORIAL-ORBITING, SYNCHRONOUS-ALTITUDE TECHNOLOGY SATELLITE INTENDED TO TEST VARIOUS COMMUNICATIONS AND EARTH OBSERVATIONAL SYSTEMS. ALSO INCLUDED ON BOARD WERE PARTICLE, ELECTRIC FIELD, AND MAGNETIC FIELD EXPERIMENTS. BECAUSE OF A MALFUNCTION, THE INTENDED GRAVITY GRADIENT STABILIZATION MECHANISM COULD NOT BE DEPLOYED, AND ATS 5 WAS STABILIZED IN A SPINNING MODE ABOUT SPACECRAFT Z AXIS AT APPROXIMATELY 71 RPM. ALL EXPERIMENTS WHICH DEPENDED ON THE PLANNED GRAVITY GRADIENT STABILIZATION WERE ADVERSELY AFFECTED TO VARYING DEGREES, AND THE MISSION WAS DECLARED A FAILURE. HOWEVER, SOME OF THE SCIENCE EXPERIMENTS, INCLUDING THE MAGNETIC FIELD MONITOR AND THE PARTICLE EXPERIMENTS, RETURNED USABLE DATA DURING THE OPERATIONAL LIFETIME OF THE MISSION. ATS 5 WAS POSITIONED AT ABOUT 105 DEG W LONGITUDE OVER THE PACIFIC OCEAN. DATA WERE RECORDED ABOUT 60 PERCENT OF THE TIME THROUGH MOST OF THE SPACECRAFT'S OPERATIONAL LIFETIME, WHICH EXTENDED TO JUNE 1, 1973, AFTER WHICH THE ACQUISITION RATE DECREASED FURTHER.

SUGIURA, ATS 5

EXPERIMENT NAME- MAGNETIC FIELD MONITOR

NSSDC ID- 69-069A-13

STATUS OF OPERATION- NORMAL

PERSONNEL

PI -	M.	SUGIURA	NASA-GSFC GREENBELT, MD
OI -	R.A.	LANGEL	NASA-GSFC GREENBELT, MD

THIS EXPERIMENT WAS DESIGNED TO STUDY THE PROCESSES TAKING PLACE ON THE AURORAL MAGNETIC SHELLS. IT WAS ALSO INTENDED TO PROVIDE CORRELATIVE DATA FOR THE OTHER EXPERIMENTS ON THE SATELLITE. THE EXPERIMENT WAS PART OF THE MAGNETIC STABILIZATION SYSTEM THAT WAS THE BACKUP FOR THE GRAVITY-GRADIENT STABILIZATION SYSTEM. THE SENSOR SYSTEM CONSISTED OF A TRIAXIAL FLUXGATE MAGNETOMETER. THE SYSTEM MEASURED THE MAGNETIC FIELD ALONG THREE AXES BY COMBINING A FINE RANGE (PLUS AND MINUS 25 GAMMAS) AND A COARSE RANGE OF 32 INCREMENTS (32.8 GAMMAS EACH) TO GIVE THE TOTAL RANGE OF PLUS AND MINUS 500 GAMMAS. THE FINE AND COARSE READINGS WERE SAMPLED ON THE PFM TELEMETRY AT 5.12-SEC INTERVALS. THE FINE READINGS ONLY WERE RECORDED ON THE PCM TELEMETRY AT 2.97-SEC INTERVALS. THE PCM COARSE READINGS WERE SUBCOMMUTATED AT 95-SEC INTERVALS. A 10-GAMMA CALIBRATION PULSE WAS INITIATED TWICE A DAY FOR 5.6 MIN. THE FAST SPIN RATE OF THE SATELLITE, THE SLOW SAMPLE RATE OF THE DATA, AND THE RESULTING ALIASING PROBLEMS DEGRADED THE DATA IN THE SPIN PLANE. THE MAGNETOMETER ITSELF HAD OPERATED SATISFACTORILY SINCE LAUNCH AND HAD ABOUT A 50 PERCENT COVERAGE UP TO THE TIME WHEN REGULARLY SCHEDULED DATA ACQUISITION WAS DISCONTINUED.

DATA SET NAME- TRIAXIAL 1.5-MIN AVG MAGNETIC FIELD DATA UNCORRECTED FOR SPACECRAFT INTERFERENCE

NSSDC ID- 69-069A-13A

AVAILABILITY OF DATA SET- DATA AT NSSDC PROCESSING DEFERRED

TIME PERIOD COVERED- 12/04/69 TO 05/09/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS REEL OF EXPERIMENTER-GENERATED 35-MM MICROFILM CONTAINS 1.5-MIN-AVERAGED VECTOR MAGNETIC FIELD PLOTTED 12 HR PER FRAME. UNCORRECTED FOR OFFSET DRIFT OR SPACECRAFT INTERFERENCE. THE DATA ARE INTENDED FOR USE WITH GROUND-BASED MAGNETOGRAMS AND OTHER SATELLITE MEASUREMENTS TO CORRELATE CHANGES DUE TO PRECIPITATION OF TRAPPED PARTICLES RELATED TO AURORAL AND OTHER IONOSPHERIC DISTURBANCES. THE DATA ARE BELIEVED TO BE ACCURATE FOR RELATIVE CHANGES TO PLUS OR MINUS 10 OR 20 GAMMAS FOR HIGH OR LOW SATELLITE BIT RATE, RESPECTIVELY. THE TELEMETRY COVERAGE FROM WHICH THESE DATA ARE DERIVED HAS BEEN ABOUT 50 PERCENT, RELATED TO THE OPERATION OF ATS 5 APPLICATIONS EXPERIMENTS.

DATA SET NAME- DAILY VARIATIONS IN HOURLY AVERAGED MAGNETIC FIELD PLOTTED IN PUBLISHED REPORT

NSSDC ID- 69-069A-13B

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 09/01/69 TO 09/30/71
(AS VERIFIED BY NSSDC).

QUANTITY OF DATA- 1 BOOK(S) OR BOUND VOLUME(S)

THIS DATA SET CONSISTS OF PLOTS AND LISTINGS TAKEN FROM THE NASA-GSFC INTERNAL PUBLICATION (X-645-72-301) "AVERAGE DAILY VARIATIONS IN THE MAGNETIC FIELD AS OBSERVED BY ATS 5" BY T. L. SKILLMAN. ALL HOURLY VALUES FOR FIELD MAGNITUDES AND D, H, AND V COMPONENTS OBTAINED BETWEEN SEPTEMBER 1969 AND SEPTEMBER 1971 HAVE BEEN GROUPED ACCORDING TO LOCAL TIME (24 ONE-HR CLASS INTERVALS), DIPOLE TILT (.LT. -10 DEG, -10 TO +10 DEG, .GT. +10 DEG), AND KP RANGE (0 TO 1, 1 TO 2, 2 TO 3, AND ABOVE 3). THE VALUES IN EACH OF THE 1152 GROUPINGS WERE THEN AVERAGED. THESE AVERAGES WERE THEN SORTED BY TILT AND KP RANGES AND PLOTTED AND LISTED VS LOCAL TIME. STANDARD DEVIATIONS FOR THE AVERAGES ARE ALSO LISTED. ALSO PRESENTED ARE THE RESULTS OF A HARMONIC ANALYSIS OF THE LOCAL TIME VARIATIONS. THE AMPLITUDE AND PHASES ARE GIVEN UP TO THE FOURTH HARMONIC. A RECTANGULAR (DVH) COORDINATE SYSTEM WAS USED FOR THE ANALYSIS, WHERE THE H-AXIS POINTS NORTHWARD ALONG THE SPACECRAFT SPIN AXIS, THE D-AXIS POINTS EASTWARD, AND THE V-AXIS POINTS RADIALLY OUTWARD FROM THE EARTH.

SPACECRAFT COMMON NAME- GRS-A

ALTERNATE NAMES- PL-694D, AZUR, GERMAN RESEARCH SAT
GRS-A1, 04221

NSSDC ID- 69-097A

LAUNCH DATE- 11/08/69 WEIGHT- 70.7 KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 07/04/70

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 01/19/70
ORBIT PERIOD- 121.8 MIN INCLINATION- 102.976 DEG
PERIAPSIS- 385.000 KM ALT APOAPSIS- 3139.00 KM ALT

THE MAGNETICALLY ALIGNED SPACECRAFT GRS-A, LAUNCHED INTO A NEAR-POLAR ORBIT IN NOVEMBER OF 1969, WAS A PRODUCT OF A JOINT EFFORT BY NASA-GSFC AND THE GERMAN BUNDESMINISTERIUM FUR WISSENSCHAFTLICHE FORSCHUNG (BMWF) AND HAD AS ITS PRIMARY PURPOSE THE ACQUISITION OF TERRESTRIAL RADIATION BELT DATA. SPECIFICALLY, THE SCIENTIFIC MISSION OF THE SPACECRAFT WAS AS FOLLOWS - 1) TO SCAN THE ENERGY SPECTRA OF INNER ZONE PROTONS AND ELECTRONS, 2) TO MEASURE THE FLUXES OF ELECTRONS OF ENERGY GREATER THAN 40 KEV THAT ARE PARALLEL, ANTIPARALLEL, AND PERPENDICULAR TO THE MAGNETIC LINES OF FORCE OVER THE AURORAL ZONE AND TO MEASURE ASSOCIATED OPTICAL EMISSION, AND 3) TO RECORD SOLAR PROTONS ON ALERT. AFTER ABOUT 24 HOURS IN ORBIT, A COMMAND SYSTEM INSTABILITY DEVELOPED AND PERSISTED INTERMITTENTLY THROUGHOUT THE FLIGHT. THE TAPE RECORDER FAILED ON DECEMBER 8, 1969. PRIOR TO THIS FAILURE, THE GERMAN PROJECT OFFICE ESTIMATED 85-90 PERCENT OF THE EXPECTED DATA HAD BEEN OBTAINED. ALL EXPERIMENTS WERE OPERATING NORMALLY UNTIL THE SPACECRAFT TELEMETRY SYSTEM MALFUNCTIONED IN EARLY JULY 1970.

MUSMANN, GRS-A

EXPERIMENT NAME- FLUXGATE MAGNETOMETER

NSSDC ID- 69-097A-01

STATUS OF OPERATION- INOPERABLE
DATE LAST DATA RECORDED- 07/04/70

PERSONNEL
PI = G. MUSMANN ..... BRAUNSCHWEIG TECH U
BRAUNSCHWEIG, FED REP OF GERMANY

A TWO-COMPONENT FLUXGATE MAGNETOMETER WITH TWO IDENTICAL ELECTRICALLY INDEPENDENT MEASURING UNITS WAS USED AS AN ATTITUDE SENSOR AND AS AN EXPERIMENT FOR DETECTING TRANSVERSE HYDROMAGNETIC WAVES. IT WAS ORIENTED PERPENDICULAR TO THE MAGNETIC FIELD. IN ORDER TO ELIMINATE MAGNETIC FIELDS FROM THE SATELLITE, THE MAGNETOMETER WAS PLACED ON A BOOM ABOUT 80 CM LONG. THE SENSOR WAS TO BE THERMALLY SHIELDED BY A CYLINDRICAL METAL CAP. EACH SENSOR HAD A RANGE OF MINUS TO PLUS 10,000 GAMMA, WITH 4.8-GAMMA DIGITIZATION RESOLUTION. EACH SENSOR WAS SAMPLED FOR 125 MSEC ONCE EVERY 5 SEC. THE EXPERIMENT WORKED NORMALLY UNTIL THE SPACECRAFT TELEMETRY SYSTEM MALFUNCTIONED IN EARLY JULY 1970. FOR FURTHER DETAILS, SEE THEILE AND PRAETORIUS, PLANET. SP. SCI., VOL 21, P 179, 1973.

DATA SET NAME- 9.875-SEC AVERAGED VECTOR MAGNETIC FIELD OBSERVATIONS ON TAPE

NSSDC ID- 69-097A-01A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 11/08/69 TO 06/28/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 30 REEL(S) OF MAGNETIC TAPE

THIS DATA SET, SUBMITTED BY THE EXPERIMENTER, CONSISTS OF TAPE RECORDER AND REAL-TIME TELEMETRY 9.875-SEC AVERAGED MAGNETIC FIELD DATA FROM A BIAXIAL FLUXGATE MAGNETOMETER. THE DATA ARE ON 7-TRACK, 800-BPI, BINARY MAGNETIC TAPES GENERATED ON A CDC 3800 COMPUTER. THERE ARE A VARIABLE NUMBER OF FILES PER TAPE. THE DATA WITHIN ONE FILE ARE CONTINUOUS WITH RESPECT TO THE TIME. THE FIRST PHYSICAL RECORD IN A FILE IS A FILE LABEL RECORD GIVING THE ORBIT NUMBER AND TIME. THIS RECORD IS FOLLOWED BY A VARIABLE NUMBER OF DATA PHYSICAL RECORDS. EACH PHYSICAL RECORD IS THREE HUNDRED AND THIRTY 48-BIT COMPUTER WORDS IN LENGTH AND IS FURTHER DIVIDED INTO SIX LOGICAL RECORDS OF 55 WORDS EACH. THE DATA WITHIN ONE LOGICAL RECORD COVER THE TIME OF ONE SUBCOMMUTATED DATA FRAME, I.E., 9.875 SEC, AND CONTAIN THE TIME OF OBSERVATION (UT YEAR, DAY OF THE YEAR, MSEC OF DAY), THE MAGNETIC FIELD COMPONENTS ALONG THE TWO SENSORS, SPACECRAFT LATITUDE, LONGITUDE, AND GEOCENTRIC RADIAL DISTANCE AND SOLAR SENSOR OUTPUT.

SPACECRAFT COMMON NAME- HEOS 1

ALTERNATE NAMES- HEOS-A1, HEOS-A
03595

NSSDC ID- 68-109A

LAUNCH DATE- 12/05/68 WEIGHT- 105. KG

STATUS OF OPERATION- PARTIAL
DATE LAST DATA RECORDED- 06/00/73

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 12/24/69
ORBIT PERIOD- 6690. MIN INCLINATION- 28.1 DEG
PERIAPSIS- 6804. KM ALT APOAPSIS- 227099. KM ALT

HEOS 1 WAS AN EARTH ORBITING, SPIN-STABILIZED SATELLITE THAT WAS LAUNCHED BY ESRO. IT WAS BASICALLY CYLINDRICAL WITH AN AXIAL BOOM SUPPORTING THE ANTENNA AND THE MAGNETOMETERS. THE SPIN AXIS ATTITUDE AND SPIN RATE WERE CHANGED BY ONBOARD GAS JETS. THE SPACECRAFT OBJECTIVES WERE TO STUDY THE INTERPLANETARY MAGNETIC FIELDS, COSMIC RAYS, SOLAR WIND, AND THE MAGNETOSHEATH. THE SPACECRAFT OPERATION WAS FULLY SATISFACTORY FOR 16 MONTHS, AFTER WHICH INTERMITTENT LOSS OF SOME SOLAR GATE (ATTITUDE REFERENCE) PULSES OCCURRED. BY 1974, SPACECRAFT TELEMETRY COVERAGE WAS 50 PERCENT, AND ONLY THE MAGNETIC FIELD EXPERIMENT WAS OPERATIONAL. THE SPACECRAFT IS EXPECTED TO REENTER THE EARTH'S ATMOSPHERE IN OCTOBER 1975.

HEOS 1/HEOS 2

ELLIOT, HEOS 1

EXPERIMENT NAME- FLUXGATE MAGNETOMETER

NSSDC ID- 68-109A-02

STATUS OF OPERATION- PARTIAL

PERSONNEL

PI -	H.	ELLIOT	IMPERIAL COLLEGE LONDON, ENGLAND
OI -	P.C.	HEDGECOCK	IMPERIAL COLLEGE LONDON, ENGLAND

THIS EXPERIMENT WAS DESIGNED TO MEASURE MAGNETIC FIELDS IN THE RANGE PLUS TO MINUS 64 GAMMAS WITH AN ACCURACY OF 0.25 GAMMA USING A BOOM-MOUNTED TRIAXIAL FLUXGATE MAGNETOMETER. THE HEOS-A1 SPACECRAFT WAS LAUNCHED INTO A HIGHLY ECCENTRIC ORBIT SO THAT THE MAGNETOMETER MEASURED MAGNETIC FIELDS WITHIN THE MAGNETOSPHERE AND THE TRANSITION AND INTERPLANETARY REGIONS. THE MAGNETOMETER OPERATED CONTINUOUSLY IN TWO MODES. ONE GAVE A CONTINUOUS SERIES OF VECTORS SAMPLED AT 48 SEC INTERVALS. THE OTHER OPERATED VIA A 16 KILOBIT DATA STORE WITH A VARIETY OF MEASUREMENT PROGRAMS WITH OPTIONS INCLUDING COMMAND OR AUTOMATIC REPLAY, SHOCK TYPE EVENT DETECTION, ETC. THE EXPERIMENT OPERATION WAS NORMAL AS OF OCTOBER 1974, EXCEPT THAT MEASUREMENTS WERE MISSING WHEN SOLAR GATE PULSES WERE MISSING.

DATA SET NAME- HOURLY AVERAGED INTERPLANETARY MAGNETIC FIELD VECTORS ON MAGNETIC TAPE

NSSDC ID- 68-109A-02A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/11/68 TO 08/01/74
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF EXPERIMENTER-SUPPLIED 800 BPI, BCD MAGNETIC TAPE CONTAINING HOURLY AVERAGED INTERPLANETARY MAGNETIC FIELD DATA DETERMINED FROM THE HEOS 1 AND HEOS 2 MAGNETOMETERS OVER THE PERIOD DECEMBER 1968 THROUGH AUGUST 1974. DATA ARE GIVEN IN TERMS OF CARTESIAN COMPONENTS IN GEOCENTRIC SOLAR ECLIPTIC COORDINATES, FIELD MAGNITUDE, AND FIELD LATITUDE AND LONGITUDE ANGLES IN THE SAME COORDINATES. RMS DEVIATIONS ARE GIVEN FOR THE LAST THREE PARAMETERS, AS IS THE NUMBER OF POINTS CONTRIBUTING TO EACH HOURLY AVERAGE. ALL HOURLY AVERAGED PARAMETERS WERE COMPUTED AS AVERAGES OVER FINER TIME SCALE VALUES OF THE SAME PARAMETERS. NO DATA ARE AVAILABLE FOR THE MAY TO AUGUST PERIOD OF 1969, 1970, AND 1971 DUE TO HEOS 1 ORBIT CHARACTERISTICS. THE FIELD MAGNITUDE AND DIRECTION DATA HAVE ALSO BEEN PLOTTED FOR 1968-1972, AND ARE FOUND IN DATA SETS 68-109A-02B AND 72-005A-01B.

DATA SET NAME- HOURLY AVERAGED INTERPLANETARY MAGNETIC FIELD VECTORS ON MICROFILM

NSSDC ID- 68-109A-02B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/11/68 TO 12/31/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF A REEL OF 35-MM MICROFILM PROVIDED BY THE EXPERIMENTER. EACH FRAME CONTAINS HOURLY AVERAGED INTERPLANETARY MAGNETIC FIELD MAGNITUDE AND DIRECTION (THETA AND PHI IN SOLAR ECLIPTIC COORDINATES) FOR A 27-DAY PERIOD. THESE DATA ARE TAKEN FROM TAPE DATA SETS 68-109A-02A AND 72-005A-01A.

SPACECRAFT COMMON NAME- HEOS 2

ALTERNATE NAMES- HEOS-A2, 05814

NSSDC ID- 72-005A

LAUNCH DATE- 01/31/72 WEIGHT- 108. KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 08/05/74

ORBIT PARAMETERS

ORBIT TYPE- GEOCENTRIC	EPOCH DATE- 01/31/72
ORBIT PERIOD- 7835. MIN	INCLINATION- 90.17 DEG
PERIAPSIS- 439.000 KM ALT	APOAPSIS- 248161. KM ALT

HEOS 2 WAS A SPIN-STABILIZED SPACECRAFT WITH A HIGHLY ECCENTRIC ORBIT WHOSE APOGEE OCCURRED AT HIGH LATITUDE. ITS PRIMARY SCIENTIFIC MISSION WAS THE INVESTIGATION OF INTERPLANETARY SPACE AND THE HIGH-LATITUDE MAGNETOSPHERE AND ITS BOUNDARY IN THE REGION AROUND THE NORTHERN NEUTRAL POINT. HEOS 2 PROVIDED NEW DATA ON THE SOURCES AND ACCELERATION MECHANISMS OF PARTICLES WHICH ARE FOUND IN THE TRAPPED RADIATION BELTS AND IN THE POLAR PRECIPITATION REGIONS AND AURORAL ZONES. IT MONITORED SOLAR ACTIVITY AND COSMIC RADIATION. THE SATELLITE CARRIED A MAGNETOMETER AND PARTICLE DETECTORS WHICH COVERED A BROAD RANGE FROM THERMAL TO COSMIC-RAY ENERGIES. THE SATELLITE HAD THREE ANTENNAS TO STUDY EXTREME LOW FREQUENCY (ELF) WAVES AND CARRIED A SENSITIVE MICROMETEORITE DETECTOR. THE SPACECRAFT FUNCTIONED NORMALLY UNTIL IT REENTERED THE EARTH'S ATMOSPHERE ON AUGUST 5, 1974.

ELLIOT, HEOS 2

EXPERIMENT NAME- FLUXGATE MAGNETOMETER

NSSDC ID- 72-005A-01

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 08/05/74

PERSONNEL

PI -	H.	ELLIOT	IMPERIAL COLLEGE LONDON, ENGLAND
OI -	P.C.	HEDGECOCK	IMPERIAL COLLEGE LONDON, ENGLAND

A THREE-AXIS FLUXGATE MAGNETOMETER WAS USED TO MEASURE MAGNETIC FIELDS OF UP TO PLUS OR MINUS 16 GAMMAS WITH A DIGITAL RESOLUTION OF 0.125 GAMMA AND FROM 16 TO 150 GAMMAS WITH A 1-GAMMA RESOLUTION. CONTINUOUS FIELD SAMPLING OCCURRED AT A RATE OF ONE VECTOR PER 32 SEC. FASTER ADDITIONAL RATES ARE AVAILABLE IN A LIMITED DUTY CYCLE WHEN CORE BUFFER STORAGE IS USED. RMS NOISE MEASUREMENTS FOR ONE FIELD COMPONENT IN A FREQUENCY BAND FROM 1 TO 5 HZ WERE ALSO MADE. THE INSTRUMENT WAS SIMILAR TO THAT USED FOR EXPERIMENT 68-109A-02 CARRIED ON HEOS-A1. THE INSTRUMENT WORKED NORMALLY UNTIL SPACECRAFT REENTRY ON AUGUST 5, 1974.

DATA SET NAME- HOURLY AVERAGED INTERPLANETARY MAGNETIC FIELD VECTORS ON MAGNETIC TAPE

NSSDC ID- 72-005A-01A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 01/31/72 TO 08/01/74
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF EXPERIMENTER-SUPPLIED 800 BPI, BCD MAGNETIC TAPE CONTAINING HOURLY AVERAGED INTERPLANETARY MAGNETIC FIELD DATA DETERMINED FROM THE HEOS 1 AND HEOS 2 MAGNETOMETERS OVER THE PERIOD DECEMBER 1968 THROUGH AUGUST 1974. DATA ARE GIVEN IN TERMS OF CARTESIAN COMPONENTS IN GEOCENTRIC SOLAR ECLIPTIC COORDINATES, FIELD MAGNITUDE, AND FIELD LATITUDE AND LONGITUDE ANGLES IN THE SAME COORDINATES. RMS DEVIATIONS ARE GIVEN FOR THE LAST THREE PARAMETERS, AS IS THE NUMBER OF POINTS CONTRIBUTING TO EACH HOURLY AVERAGE. ALL HOURLY AVERAGED PARAMETERS WERE COMPUTED AS AVERAGES OVER FINER TIME SCALE VALUES OF THE SAME PARAMETERS. NO DATA ARE AVAILABLE FOR THE MAY TO AUGUST PERIOD OF 1969, 1970, AND 1971 DUE TO HEOS 1 ORBIT CHARACTERISTICS. THE FIELD MAGNITUDE AND DIRECTION DATA HAVE ALSO BEEN PLOTTED THROUGH 1972 AND ARE FOUND IN DATA SETS 68-109A-02B AND 72-005A-01B.

DATA SET NAME- HOURLY AVERAGED INTERPLANETARY MAGNETIC FIELD VECTORS ON MICROFILM

NSSDC ID- 72-005A-01B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 01/31/72 TO 12/31/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF 35-MM MICROFILM PROVIDED BY THE EXPERIMENTER. EACH FRAME CONTAINS HOURLY AVERAGED INTERPLANETARY MAGNETIC FIELD MAGNITUDE AND DIRECTION (THETA AND PHI IN SOLAR ECLIPTIC COORDINATES) FOR A 27-DAY PERIOD. THESE DATA ARE TAKEN FROM TAPE DATA SETS 68-109A-02A AND 72-006A-01A.

SPACECRAFT COMMON NAME- IMP-C

ALTERNATE NAMES- EXPLORER 28, IMP 3
S 74B, 01388

NSSDC ID- 65-042A

LAUNCH DATE- 05/29/65 WEIGHT- 128. KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 05/12/67

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 05/29/65
ORBIT PERIOD- 8550. MIN INCLINATION- 34.0 DEG
PERIAPSIS- 200.000 KM ALT APOAPSIS- 264000. KM ALT

EXPLORER 28 (IMP 3) WAS A SOLAR-CELL AND CHEMICAL-BATTERY POWERED SPACECRAFT INSTRUMENTED FOR INTERPLANETARY AND DISTANT MAGNETOSPHERIC STUDIES OF ENERGETIC PARTICLES, COSMIC RAYS, MAGNETIC FIELDS, AND PLASMAS. INITIAL SPACECRAFT PARAMETERS INCLUDED A LOCAL TIME OF APOGEE OF 2020 HR, A SPIN RATE OF 23.7 RPM, AND A SPIN DIRECTION OF 64.9 DEG RIGHT ASCENSION AND -10.9 DEG DECLINATION. EACH NORMAL PFN TELEMETRY SEQUENCE 81.9 SEC IN DURATION CONSISTED OF 795 DATA BITS. AFTER EVERY THIRD NORMAL TELEMETRY SEQUENCE WAS AN 81.9-SEC INTERVAL OF RUBIDIUM VAPOR MAGNETOMETER ANALOG DATA TRANSMISSION. PERFORMANCE WAS ESSENTIALLY NORMAL UNTIL LATE APRIL 1967. THEN INTERMITTENT UNTIL MAY 12, 1967, AFTER WHICH NO FURTHER DATA WERE ACQUIRED.

DATA SET NAME- MULTICOORDINATE SYSTEM EPHEMERIS DATA ON TAPE

NSSDC ID- 65-042A-00G

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 05/29/65 TO 05/11/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 4 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF BLOCKED, 7-TRACK, 800-BPI, IBM 7094 BINARY MAGNETIC TAPES GENERATED AT NSSDC FROM UNBLOCKED TAPES SUBMITTED BY N. F. NESS. THERE ARE FIVE LOGICAL RECORDS PER PHYSICAL RECORD. THE TAPES CONTAIN THE FOLLOWING INFORMATION AT 5-MIN INTERVALS - (1) GEODETIC AND GEOMAGNETIC LATITUDE AND LONGITUDE AND RADIAL DISTANCE OF THE SPACECRAFT, (2) CARTESIAN REPRESENTATIONS OF THE SPACECRAFT POSITION IN SOLAR ECLIPTIC AND SOLAR MAGNETOSPHERIC COORDINATES, (3) GEOMAGNETIC LATITUDE AND LONGITUDE OF THE SUBSOLAR POINT, (4) THE ANGLE BETWEEN THE SPACECRAFT SPIN AXIS AND THE SATELLITE-SUN LINE, AND (5) MODEL MAGNETIC FIELD INFORMATION. THE COVERAGE IS GREATER THAN 80 PERCENT. A SEPARATE DATA SET (65-042A-00H) WITH ONE SET OF EPHEMERIS PARAMETERS PER HR IS AVAILABLE ON AN NSSDC-GENERATED TAPE.

NESS, IMP-C

EXPERIMENT NAME- FLUXGATE MAGNETOMETER

NSSDC ID- 65-042A-02

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 05/11/67

PERSONNEL
PI - N.F. NESS ..... NASA-GSFC
GREENBELT, MD

EACH OF TWO UNIAXIAL FLUXGATE MAGNETOMETERS HAD A DYNAMIC RANGE OF PLUS OR MINUS 40 GAMMAS AND A SENSITIVITY OF PLUS OR MINUS 0.25 GAMMA. ONE FLUXGATE FAILED AT LAUNCH, BUT THE OTHER PERFORMED NORMALLY, SAMPLING THE MAGNETIC FIELD 30 TIMES WITHIN EACH OF SIX 4.8-SEC INTERVALS EVERY 5.46 MIN. UNCERTAINTIES IN DATA ARE PLUS OR MINUS 1.0 GAMMA. USEFUL FLUXGATE DATA WERE TRANSMITTED UNTIL MAY 11, 1967. A RUBIDIUM VAPOR MAGNETOMETER WAS INCLUDED IN THE EXPERIMENT PACKAGE, BUT IT PRODUCED NO USEFUL DATA. THE INSTRUMENTATION AND ANALYSIS WERE SIMILAR TO THOSE OF EXPLORERS 18 AND 21, DESCRIBED IN JGR, VOL 69, P 3531, 1964, AND IN JGR, VOL 72, P 2379, 1967.

DATA SET NAME- 5.46-MIN VECTOR MAGNETIC FIELD DATA MERGED WITH EPHEMERIS DATA ON TAPE

NSSDC ID- 65-042A-02C

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 05/29/65 TO 05/11/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 3 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF THREE 7-TRACK, 800-BPI, IBM 7094, BINARY MAGNETIC TAPES. THE FLUXGATE DATA CONTAINED ON NINE EXPERIMENTER-SUPPLIED TAPES (65-042A-02A) WERE MERGED AT NSSDC WITH COMPLETE EPHEMERIS DATA GIVEN IN SOLAR ECLIPTIC AND SOLAR MAGNETOSPHERIC COORDINATES. THE FLUXGATE DATA CONSIST OF 5.46-MINUTE AVERAGED MAGNETIC VECTORS IN BOTH CARTESIAN AND SPHERICAL REPRESENTATIONS IN A SOLAR ECLIPTIC COORDINATE SYSTEM.

DATA SET NAME- HOURLY AVERAGED VALUES OF INTERPLANETARY MAGNETIC FIELD DATA

NSSDC ID- 65-042A-02E

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 06/01/65 TO 01/29/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF TWO 9-TRACK, 800-BPI, IBM 360, EBCDIC MAGNETIC TAPES PROVIDED BY THE EXPERIMENTER. THE DATA INCLUDE SPACECRAFT POSITION AND HOURLY AVERAGED VECTOR MAGNETIC FIELD DATA IN BOTH CARTESIAN AND SPHERICAL REPRESENTATIONS IN A SOLAR ECLIPTIC COORDINATE SYSTEM. ONLY DATA OBTAINED IN INTERPLANETARY SPACE ARE INCLUDED. THE PERIODS JUNE 1, 1965, TO JANUARY 26, 1966, AND JULY 1, 1966, TO JANUARY 29, 1967, ARE COVERED WITH 90 PERCENT COMPLETENESS. A MICROFILMED LISTING OF THE CONTENTS OF THIS DATA SET IS ALSO AVAILABLE (65-042A-02F).

DATA SET NAME- HOURLY AVERAGED VALUES OF MAGNETOSPHERIC MAGNETIC FIELD DATA ON TAPE

NSSDC ID- 65-042A-02G

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 05/29/65 TO 05/10/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF ONE 9-TRACK, 800-BPI, IBM 360, EBCDIC MAGNETIC TAPE PROVIDED BY THE EXPERIMENTER. THE DATA INCLUDE SPACECRAFT POSITION AND HOURLY AVERAGED VECTOR MAGNETIC FIELD DATA IN BOTH CARTESIAN AND SPHERICAL REPRESENTATIONS IN SOLAR MAGNETOSPHERIC COORDINATES. ONLY HOURLY AVERAGES WITHIN THE MAGNETOSPHERE ARE INCLUDED. TIME COVERAGE EXTENDS FROM MAY 29, 1965, TO MAY 10, 1967, WITH ABOUT 20 PERCENT COMPLETENESS. A MICROFILMED LISTING OF THE CONTENTS OF THIS DATA SET IS ALSO AVAILABLE (65-042A-02H).

DATA SET NAME- MULTISPACECRAFT HOURLY AVERAGED INTERPLANETARY MAGNETIC FIELD VECTORS ON TAPE

NSSDC ID- 65-042A-02I

ORIGINAL PAGE IS
OF POOR QUALITY

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/01/65 TO 05/06/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET, SUPPLIED BY THE EXPERIMENTER, WAS GENERATED FROM EXPLORER 28, 34, 33, AND 35 (IMP 3 AND 4, AIMP 1 AND 2) DATA TO HAVE AS COMPLETE AS POSSIBLE A RECORD OF THE INTERPLANETARY MAGNETIC FIELD, WITH 1-HR TIME RESOLUTION, OVER THE PERIOD JUNE 1965 THROUGH DECEMBER 1968. THE DATA WERE SUBMITTED ON ONE 9-TRACK, 800-BPI, EBCDIC CARD IMAGE MAGNETIC TAPE. EACH CARD IMAGE CONTAINS DATA FOR 1 HR AS OBTAINED ON ONE SPACECRAFT. NO HOUR IS COVERED BY MORE THAN ONE SPACECRAFT. EACH RECORD CONTAINS TIME, SPACECRAFT IDENTIFICATION AND LOCATION (RADIAL DISTANCE AND SOLAR ECLIPTIC CARTESIAN COORDINATES), AND HOURLY AVERAGED MAGNETIC FIELD VECTOR MAGNITUDE, SOLAR ECLIPTIC LATITUDE AND LONGITUDE ANGLES, AND CARTESIAN COMPONENTS WITH THEIR STANDARD DEVIATIONS.

SPACECRAFT COMMON NAME- IMP-D

ALTERNATE NAMES- EXPLORER 33, AIMP 1
02258, ANCHORED IMP 1

NSSDC ID- 66-058A

LAUNCH DATE- 07/01/66 WEIGHT- 212. KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 09/15/71

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 07/08/66
ORBIT PERIOD- 23148. MIN INCLINATION- 29.0 DEG
PERIAPSIS- 30532.0 KM ALT APOAPSIS- 494230. KM ALT

EXPLORER 33 WAS A SPIN-STABILIZED (SPIN AXIS PARALLEL TO THE ECLIPTIC PLANE, SPIN PERIOD VARYING BETWEEN 2.2 AND 3.6 SEC) SPACECRAFT INSTRUMENTED FOR STUDIES OF INTERPLANETARY PLASMA, ENERGETIC CHARGED PARTICLES (ELECTRONS, PROTONS, AND ALPHAS), MAGNETIC FIELDS, AND SOLAR X-RAYS AT LUNAR DISTANCES. THE SPACECRAFT FAILED TO ACHIEVE LUNAR ORBIT BUT DID ACHIEVE MISSION OBJECTIVES. THE INITIAL APOGEE OCCURRED AT ABOUT 1600 HR LOCAL TIME. OVER THE FIRST 3-YR PERIOD, PERIGEE VARIED BETWEEN 6 AND 44 EARTH RADII GEOCENTRIC, APOGEE VARIED BETWEEN 70 AND 135 EARTH RADII, AND THE INCLINATION WITH RESPECT TO THE EQUATOR OF THE EARTH VARIED BETWEEN 7 AND 60 DEG. PERIODS OF PRINCIPAL DATA COVERAGE (ESSENTIALLY 100 PERCENT) ARE JULY 1, 1966 (LAUNCH) TO JANUARY 14, 1970, FEBRUARY 21, 1970 TO MARCH 6, 1970, JULY 31, 1970 TO SEPTEMBER 14, 1970, JANUARY 15, 1971 TO FEBRUARY 28, 1971, MARCH 23, 1971 TO MAY 31, 1971, AND AUGUST 23, 1971, TO SEPTEMBER 15, 1971. NO DATA WERE OBTAINED AFTER SEPTEMBER 21, 1971.

DATA SET NAME- SOLAR ECLIPTIC AND SOLAR MAGNETOSPHERIC EPHEMERIS PLOTS ON MICROFILM

NSSDC ID- 66-058A-00D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/01/66 TO 10/29/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF ONE REEL OF 35-MM MICROFILMED PLOTS OF THE EXPLORER 33 EPHEMERIS DATA, SHOWN IN SOLAR MAGNETOSPHERIC AND SOLAR ECLIPTIC COORDINATES. X-Z AND X-Y PROJECTIONS IN SOLAR MAGNETOSPHERIC COORDINATES ARE AVAILABLE FOR THE TIME PERIODS FROM JULY 1, 1966, TO FEBRUARY 14, 1967 (ORBITS 1 TO 15), AND FROM MAY 31, 1967, TO SEPTEMBER 8, 1967 (ORBITS 24 TO 29). X-Z AND X-Y PROJECTIONS IN SOLAR ECLIPTIC COORDINATES ARE AVAILABLE FOR THE TIME PERIOD FROM JULY 1, 1966, TO OCTOBER 29, 1971 (ORBITS 1 TO 85). ON THE SOLAR ECLIPTIC PROJECTIONS OF ORBITS 1 TO 5, THE MOON'S ORBIT IS PLOTTED. TICK MARKS ARE SHOWN EVERY 3 HR FOR THE SOLAR MAGNETOSPHERIC COORDINATE PROJECTIONS AND EVERY 6 HR FOR THE SOLAR ECLIPTIC PROJECTIONS.

DATA SET NAME- SOLAR ECLIPTIC EPHEMERIS PLOTS

NSSDC ID- 66-058A-00E

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 07/01/66 TO 02/28/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 CARD(S) OF B/W MICROFICHE

THE PUBLICATION, 'TRAJECTORIES OF EXPLORERS 33, 34, AND 35, JULY 1966 - APRIL 1969,' WRITTEN BY K. W. BEHANNON, K. H. SCHATTEN, D. H. FAIRFIELD, AND N. F. NESS (NASA-GSFC X-692-70-64, FEBRUARY 1970) CONTAINS THE TRAJECTORIES OF EXPLORERS 33, 34, AND 35 FROM LAUNCH TO APRIL 1969 (EXCEPT FOR EXPLORER 34 FOR WHICH THERE ARE NO PLOTS AFTER MARCH 1969) AS PROJECTED INTO THE X-Y PLANE IN SOLAR ECLIPTIC COORDINATES. TICK MARKS INDICATING 1-DAY INTERVALS ARE SHOWN FOR EXPLORERS 33 AND 35 AND, WHERE POSSIBLE, FOR EXPLORER 34. THIS PUBLICATION ALSO HAS THE X-Z SOLAR ECLIPTIC ORBIT PROJECTIONS OF THESE SATELLITES FOR JANUARY 1969 TO APRIL 1969. COMPUTED AVERAGE POSITIONS OF THE BOW SHOCK AND MAGNETOPAUSE ARE SHOWN. A CONTINUATION OF THIS DATA SET IS FOUND IN 'TRAJECTORIES OF EXPLORER 33, 35, 41, 43, AND 47, MAY 1969-DECEMBER 1972,' WRITTEN BY D. H. FAIRFIELD, K. W. BEHANNON, R. P. LEPPING, AND N. F. NESS (NASA-GSFC X-692-73-291, OCTOBER 1973). EXPLORER 33 DATA ARE FOUND IN THIS DOCUMENT THROUGH FEBRUARY 28, 1970.

DATA SET NAME- MULTICOORDINATE SYSTEM EPHEMERIS TAPES

NSSDC ID- 66-058A-00F

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/01/68 TO 02/28/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 49 REEL(S) OF MAGNETIC TAPE

THIS SET OF EPHEMERIS DATA IS CONTAINED ON TWELVE 7-TRACK, 556-BPI, BCD, IBM 360 TAPES. EACH TAPE CONSISTS OF 1 MONTH OF DATA ON ONE FILE. THE DATA RECORDS ON THE TAPES ARE BLOCKED WITH FIVE LOGICAL RECORDS PER PHYSICAL RECORD, EACH LOGICAL RECORD CONTAINING 51 WORDS (204 CHARACTERS). EACH TAPE CONTAINS ONE HEADER RECORD. THIS IS A PHYSICAL RECORD THAT IS BLOCKED THE SAME AS THE DATA RECORDS. THE FOLLOWING INFORMATION IS CONTAINED ON THESE TAPES AT 5-MIN INTERVALS -- TIME, GEOCENTRIC SOLAR ECLIPTIC COORDINATES OF MOON AND SPACECRAFT, SOLAR MAGNETOSPHERIC COORDINATES OF MOON AND SPACECRAFT, SELENOCENTRIC SOLAR ECLIPTIC COORDINATES OF SPACECRAFT, AND GEOMAGNETIC LATITUDE AND LONGITUDE OF SPACECRAFT SUBSATELLITE POINT. EXCEPT FOR JANUARY THROUGH MARCH 1969 AND JANUARY 1970, TAPES COVERING THE TIME PERIOD INDICATED ARE AVAILABLE.

DATA SET NAME- 12-HOUR SOLAR ECLIPTIC EPHEMERIS PARAMETER LISTING ON MICROFILM

NSSDC ID- 66-058A-00G

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/01/66 TO 02/28/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF A MICROFILMED LISTING, GENERATED AT NSSDC, OF SELECTED DATA FROM TAPE DATA SET 66-058A-00F. SPACECRAFT EPHEMERIS INFORMATION IS GIVEN IN GEOCENTRIC SOLAR ECLIPTIC COORDINATES ONCE EACH 12 HR. PARAMETERS GIVEN INCLUDE CARTESIAN COORDINATES, RADIAL DISTANCE, AND POLAR AND AZIMUTHAL ANGLES. GEOCENTRIC SOLAR ECLIPTIC CARTESIAN COORDINATES OF THE MOON ARE ALSO GIVEN AT THE SAME 12-HR INTERVALS. COVERAGE IS COMPLETE BETWEEN JULY 1, 1966, AND FEBRUARY 28, 1970, EXCEPT THAT THERE ARE NO DATA FOR MARCH 1969.

NESS, IMP-D

EXPERIMENT NAME- GSFC MAGNETOMETER

NSSDC ID- 66-058A-01

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 10/10/68

PERSONNEL

PI -	N.F.	NESS	NASA-GSFC GREENBELT, MD
OI -	K.W.	BEHANNON	NASA-GSFC GREENBELT, MD

THE INSTRUMENTATION FOR THIS EXPERIMENT CONSISTED OF A BOOM-MOUNTED TRIAXIAL FLUXGATE MAGNETOMETER. EACH OF THE THREE SENSORS HAD A RANGE OF MINUS TO PLUS 64 GAMMAS AND A DIGITIZATION RESOLUTION OF MINUS TO PLUS 0.25 GAMMA. ZERO-LEVEL DRIFT WAS CHECKED BY PERIODIC REORIENTATION OF THE SENSORS. SPACECRAFT FIELDS AT THE SENSORS WERE NOT GREATER THAN THE DIGITIZATION UNCERTAINTY. ONE VECTOR MEASUREMENT WAS OBTAINED EACH 5.12 SEC. THE BANDPASS OF THE MAGNETOMETER WAS 0 TO 5 HZ, WITH A 20-DB PER DECADE FALLOFF FOR HIGHER FREQUENCIES. THE DETECTOR FUNCTIONED WELL BETWEEN LAUNCH AND OCTOBER 10, 1968, WHEN THE DC POWER CONVERTER FAILED. NO USEFUL DATA WERE OBTAINED AFTER THAT DATE. FOR FURTHER DETAILS, SEE BEHANNON, JGR, VOL 73, P 907, 1968.

DATA SET NAME- 5.12-SEC VECTOR MAGNETIC FIELD DATA ON TAPE

NSSDC ID- 66-058A-01A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/01/66 TO 10/05/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 59 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF EXPERIMENTER-SUPPLIED, 9-TRACK, 800-BPI, IBM 360 BINARY MAGNETIC TAPES. EACH TAPE HAS ONE OR TWO FILES, WHERE EACH FILE CONTAINS DATA FOR ONE WEEK, EXCEPT AT THE END OF A FILE. EACH PHYSICAL RECORD CONTAINS FOUR LOGICAL RECORDS OF 1080 BYTES EACH. EACH LOGICAL RECORD CONTAINS DATA TAKEN DURING ONE 81.92-SEC TELEMETRY SEQUENCE. INCLUDED IN EACH LOGICAL RECORD ARE TIME (WITH JANUARY 1 AS DAY 0) AND 16 VECTOR MAGNETIC FIELD MEASUREMENTS, WITH CARTESIAN COMPONENTS GIVEN IN FOUR COORDINATE SYSTEMS -- A SYSTEM COROTATING WITH THE SPACECRAFT, A SYSTEM WITH ITS Z AXIS ALONG THE SPACECRAFT SPIN AXIS AND ITS X AXIS IN THE PLANE DEFINED BY THE SPIN AXIS AND THE SATELLITE-SUN LINE, SOLAR ECLIPTIC COORDINATES, AND SOLAR MAGNETOSPHERIC COORDINATES. FOR THE LATTER THREE COORDINATE SYSTEMS, SEQUENCE AVERAGES AND RMS DEVIATIONS ARE GIVEN FOR THE COMPONENTS. IN ADDITION, 16 FIELD MAGNITUDES AND THE SEQUENCE-AVERAGED MAGNITUDE AND ITS RMS DEVIATIONS ARE GIVEN. THE LATITUDE AND AZIMUTH ANGLES OF THE SEQUENCE-AVERAGED FIELD VECTOR ARE GIVEN IN THE PAYLOAD AND SOLAR ECLIPTIC COORDINATE SYSTEMS. SUPPORTING INFORMATION FOUND IN EACH LOGICAL RECORD INCLUDES TIMES FOR THE 16 FIELD MEASUREMENTS, SPIN PERIOD, SPIN AXIS DIRECTION AND SPACECRAFT POSITION IN SOLAR ECLIPTIC AND SOLAR MAGNETOSPHERIC COORDINATES. ALL DATA EXCEPT THE THIRTEEN 16-ELEMENT ARRAYS OF 5.12-SEC DATA HAVE BEEN TRANSFERRED TO DATA SET 66-058A-01C. THE DATA COVER THE TIME PERIOD JULY 1, 1966 THROUGH OCTOBER 5, 1968, WITH AT LEAST 90 PERCENT COMPLETENESS.

DATA SET NAME- 82-SEC AVERAGED VECTOR MAGNETIC FIELD DATA ON MAGNETIC TAPE

NSSDC ID- 66-058A-01C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/01/66 TO 10/05/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 15 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF FIFTEEN 7-TRACK, 800-BPI, SINGLE FILE, IBM 7094 BINARY MAGNETIC TAPES. THEY WERE GENERATED AT NSSDC FROM THE 59 EXPERIMENTER-SUPPLIED TAPES THAT CONSTITUTE DATA SET 66-058A-01A. ALL THE DATA OF EACH LOGICAL RECORD OF DATA SET -01A WERE TRANSFERRED TO THIS DATA SET (-01C) EXCEPT FOR THE THIRTEEN 16-ELEMENT ARRAYS GIVING INDIVIDUAL 5.12-SEC DATA POINTS. THUS, WHETHER A USER NEEDS DATA SET -01A OR -01C IS DETERMINED BY THE REQUIREMENTS OF TEMPORAL RESOLUTION AS THERE ARE 5.12-SEC DATA IN -01A, AND ONLY 81.92-SEC AVERAGES IN -01C. TEMPORAL COVERAGE, AS OPPOSED TO RESOLUTION, IS THE SAME FOR DATA SETS -01A AND -01C.

SONETT, IMP-D

EXPERIMENT NAME- AMES MAGNETIC FIELDS

NSSDC ID- 66-058A-03

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 05/31/71

PERSONNEL

PI -	C.P.	SONETT	U OF ARIZONA TUCSON, AZ
OI -	J.H.	WOLFE	NASA-ARC MOFFETT FIELD, CA
OI -	R.W.	SILVA	NASA-ARC MOFFETT FIELD, CA
OI -	W.J.	KERWIN	NASA-ARC MOFFETT FIELD, CA

THE AMES MAGNETOMETER EXPERIMENT CONSISTED OF A BOOM-MOUNTED TRIAXIAL FLUXGATE MAGNETOMETER AND AN ELECTRONICS PACKAGE. THE SENSORS WERE ORTHOGONALLY MOUNTED WITH ONE SENSOR ORIENTED ALONG THE SPIN AXIS OF THE SPACECRAFT. A MOTOR INTERCHANGED A SENSOR IN THE SPIN PLANE WITH THE SENSOR ALONG THE SPIN AXIS EVERY 24 HR, ALLOWING INFLIGHT ZERO-LEVEL DETERMINATION. THE INSTRUMENT PACKAGE INCLUDED A CIRCUIT FOR SPIN-DEMODULATING THE OUTPUTS FROM THE SENSORS IN THE SPIN PLANE. THE NOISE THRESHOLD WAS ABOUT 0.2 GAMMA. THE INSTRUMENT HAD THREE RANGES COVERING PLUS OR MINUS 20, 60, AND 200 GAMMAS FULL SCALE FOR EACH VECTOR COMPONENT. THE DIGITIZATION ACCURACY FOR EACH RANGE WAS 1 PERCENT OF THE ENTIRE RANGE COVERED. THE MAGNETIC FIELD VECTOR WAS MEASURED INSTANTANEOUSLY, AND THE INSTRUMENT RANGE WAS CHANGED AFTER EACH MEASUREMENT. A PERIOD OF 2.05 SEC ELAPSED BETWEEN ADJACENT MEASUREMENTS AND 6.14 SEC BETWEEN MEASUREMENTS USING THE SAME RANGE. THE INSTRUMENT WORKED WELL DURING ALL PERIODS OF SPACECRAFT TRACKING. FOR FURTHER DETAILS, SEE MIHALOV ET AL, JGR, VOL 73, P 943, 1968.

DATA SET NAME- AVERAGED MAGNETIC FIELD VECTOR PLOTS ON MICROFILM

NSSDC ID- 66-058A-03A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/01/66 TO 09/13/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 4 REEL(S) OF MICROFILM

THESE MAGNETIC FIELD VECTOR PLOTS ARE CONTAINED ON TWO REELS OF 16-MM AND TWO REELS OF 35-MM MICROFILM. THESE REELS CONTAIN PLOTTED 81.8-SEC SCALAR AVERAGES IN EITHER SOLAR MAGNETOSPHERIC OR SOLAR EQUATORIAL COORDINATES (Z AXIS NORTHWARD IN A PLANE CONTAINING THE SOLAR DIRECTION AND THE SOLAR SPIN AXIS) OF THE MAGNITUDE, THE LONGITUDE, AND THE LATITUDE OF THE MAGNETIC FIELD B. GENERALLY, DATA ARE PLOTTED IN SOLAR MAGNETOSPHERIC COORDINATES FOR TIMES WHEN THE SPACECRAFT WAS INSIDE THE MAGNETOSPHERE OR GEOMAGNETIC TAIL, AND IN SOLAR EQUATORIAL COORDINATES WHEN THE SPACECRAFT WAS OUTSIDE THESE REGIONS. ABOUT 4 HR OF DATA ARE PLOTTED ON EACH FRAME. SEQUENCE NUMBER, TIME, AND THE COORDINATE SYSTEM USED ARE INDICATED ON EACH PLOT. DRIFTS IN ZERO LEVELS OF THE SENSORS HAVE BEEN CORRECTED BY THE EXPERIMENTER. DATA ARE AVAILABLE OVER THE TIME PERIOD SPECIFIED WITH 95 PERCENT COVERAGE.

SPACECRAFT COMMON NAME- IMP-E

ALTERNATE NAMES- EXPLORER 35, AIMP 2
AIMP-E, 02884

NSSDC ID- 67-070A

LAUNCH DATE- 07/19/67 WEIGHT- 230. KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 06/24/73

ORIGINAL PAGE IS
OF POOR QUALITY

IMP-E

ORBIT TYPE- SELENOCENTRIC
ORBIT PERIOD- 691.8 MIN
PERIAPSIS- 2568. KM ALT
EPOCH DATE- 07/22/67
INCLINATION- 169. DEG
APOAPSIS- 9388. KM ALT

EXPLORER 35 WAS A SPIN-STABILIZED SPACECRAFT INSTRUMENTED FOR INTERPLANETARY STUDIES AT LUNAR DISTANCES OF THE INTERPLANETARY PLASMA, MAGNETIC FIELD, ENERGETIC PARTICLES, AND SOLAR X RAYS. IT WAS LAUNCHED INTO AN ELLIPTICAL LUNAR ORBIT. THE SPIN AXIS DIRECTION WAS NEARLY PERPENDICULAR TO THE ECLIPTIC PLANE, AND THE SPIN RATE WAS 25.6 RPM. MISSION OBJECTIVES WERE ACHIEVED. AFTER SUCCESSFUL OPERATION FOR SIX YEARS, THE SPACECRAFT WAS TURNED OFF ON JUNE 24, 1973.

DATA SET NAME- SOLAR ECLIPTIC EPHEMERIS PLOTS

NSSDC ID- 67-070A-00D

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 07/19/67 TO 12/31/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 CARD(S) OF B/W MICROFICHE

THE PUBLICATION, "TRAJECTORIES OF EXPLORERS 33, 34, AND 35, JULY 1966 - APRIL 1969," WRITTEN BY K. W. BEHANNON, K. H. SCHATTEN, D. H. FAIRFIELD, AND N. F. NESS (NASA-GSFC X-692-70-64, FEBRUARY 1970) CONTAINS THE TRAJECTORIES OF EXPLORERS 33, 34, AND 35 FROM LAUNCH TO APRIL 1969 (EXCEPT FOR EXPLORER 34 FOR WHICH THERE ARE NO PLOTS AFTER MARCH 1969) AS PROJECTED INTO THE X-Y PLANE IN SOLAR ECLIPTIC COORDINATES. TICK MARKS, 1-DAY APART, ARE SHOWN FOR EXPLORERS 33 AND 35 AND, WHERE POSSIBLE, FOR EXPLORER 34. THIS PUBLICATION ALSO HAS THE X-Z SOLAR ECLIPTIC ORBIT PROJECTIONS OF THESE SATELLITES FOR JANUARY 1969 TO APRIL 1969. COMPUTED AVERAGE POSITIONS OF THE BOW SHOCK AND MAGNETOPAUSE ARE SHOWN. A CONTINUATION OF THIS DATA SET IS FOUND IN "TRAJECTORIES OF EXPLORER 33, 35, 41, 43, AND 47, MAY 1969-DECEMBER 1972," WRITTEN BY D. H. FAIRFIELD, K. W. BEHANNON, R. P. LEPPING, AND N. F. NESS (NASA-GSFC X-692-73-291, OCTOBER 1973). EXPLORER 35 DATA ARE FOUND IN THIS DOCUMENT FOR THE ENTIRE PERIOD, MAY 1969 - DECEMBER 1972.

DATA SET NAME- MULTICOORDINATE SYSTEM EPHEMERIS TAPES

NSSDC ID- 67-070A-00E

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/01/68 TO 08/31/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 17 REEL(S) OF MAGNETIC TAPE

THIS SET OF EPHEMERIS DATA IS CONTAINED ON SEVENTEEN 7-TRACK, 556-BPI, BCD, IBM 360 TAPES. EACH TAPE CONSISTS OF 1 MONTH OF DATA ON ONE FILE. THE DATA RECORDS ON THE TAPES ARE BLOCKED WITH FIVE LOGICAL RECORDS PER PHYSICAL RECORD, EACH LOGICAL RECORD CONTAINING 51 WORDS (204 CHARACTERS). EACH TAPE CONTAINS ONE HEADER RECORD. THIS IS A PHYSICAL RECORD THAT IS BLOCKED THE SAME AS THE DATA RECORDS. THE FOLLOWING INFORMATION IS CONTAINED ON THESE TAPES AT 5-MIN INTERVALS -- TIME, GEOCENTRIC SOLAR ECLIPTIC COORDINATES OF MOON AND SPACECRAFT, SOLAR MAGNETOSPHERIC COORDINATES OF MOON AND SPACECRAFT, SELENOCENTRIC SOLAR ECLIPTIC COORDINATES OF SPACECRAFT, AND GEOMAGNETIC LATITUDE AND LONGITUDE OF SPACECRAFT SUBSATELLITE POINT. EXCEPT FOR JANUARY THROUGH MARCH 1969 AND NOVEMBER 1969, TAPES COVERING THE TIME PERIOD INDICATED ARE AVAILABLE.

NESS, IMP-E

EXPERIMENT NAME- GSFC MAGNETOMETER

NSSDC ID- 67-070A-04

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 06/24/73

PERSONNEL
PI - N.F. NESS ..... NASA-GSFC
GREENBELT, MD
OI - K.W. BEHANNON ..... NASA-GSFC
GREENBELT, MD

THE EXPERIMENT CONSISTED OF A BOOM-MOUNTED TRIAXIAL FLUXGATE MAGNETOMETER. EACH SENSOR HAD DUAL RANGES OF MINUS TO PLUS 24 GAMMAS AND 64 GAMMAS, WITH DIGITIZATION RESOLUTIONS OF MINUS TO PLUS 0.094 GAMMA AND 0.25 GAMMA, RESPECTIVELY. ZERO LEVEL DRIFT WAS CHECKED BY PERIODIC REORIENTATION OF THE SENSORS UNTIL MAY 20, 1969, WHEN THE FLIPPER MECHANISM FAILED. PAST THIS POINT, DATA ANALYSIS WAS MORE DIFFICULT AS THE ZERO LEVEL DRIFT OF THE SENSOR PARALLEL TO THE SPACECRAFT SPIN AXIS WAS NOT READILY DETERMINED. SPACECRAFT INTERFERENCE WAS LESS THAN 0.125 GAMMA. ONE VECTOR MEASUREMENT WAS OBTAINED EACH 5.12 SEC. THE BANDPASS OF THE MAGNETOMETER WAS 0 TO 5 HZ, WITH A 20-DB PER DECADE FALLOFF FOR HIGHER FREQUENCIES. EXCEPT FOR THE FLIPPER FAILURE WHICH OCCURRED ON MAY 20, 1969, THE EXPERIMENT FUNCTIONED NORMALLY FROM LAUNCH TO SPACECRAFT TURNOFF (JUNE 24, 1973). FOR FURTHER DETAILS, SEE NESS ET AL, JGR, VOL 72, P 5769, 1967.

DATA SET NAME- 5.12-SEC VECTOR MAGNETIC FIELD DATA ON MAGNETIC TAPE

NSSDC ID- 67-070A-04A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/19/67 TO 05/01/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 76 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF EXPERIMENTER SUPPLIED, 9-TRACK, 800-BPI, SINGLE FILE, IBM 360, BINARY MAGNETIC TAPES. EACH PHYSICAL RECORD CONTAINS FOUR LOGICAL RECORDS OF 1092 BYTES EACH. EACH LOGICAL RECORD CONTAINS DATA TAKEN DURING ONE 81.92-SEC TELEMETRY SEQUENCE. INCLUDED IN EACH LOGICAL RECORD ARE TIME (WITH JANUARY 1=DAY 0) AND 16 VECTOR MAGNETIC FIELD MEASUREMENTS, WITH CARTESIAN COMPONENTS GIVEN IN FOUR COORDINATE SYSTEMS -- (1) A PAYLOAD SYSTEM CORDTATING WITH THE SPACECRAFT, (2) A SYSTEM WITH ITS Z AXIS ALONG THE SPACECRAFT SPIN AXIS, AND ITS X AXIS IN THE PLANE DEFINED BY THE SPIN AXIS AND THE SATELLITE-SUN LINE, (3) SOLAR ECLIPTIC COORDINATES, AND (4) SOLAR MAGNETOSPHERIC COORDINATES. FOR THE LATTER THREE COORDINATE SYSTEM, SEQUENCE AVERAGES AND RMS DEVIATIONS ARE GIVEN FOR THE COMPONENTS. IN ADDITION, 16 FIELD MAGNITUDES, THE SEQUENCE-AVERAGED MAGNITUDE AND ITS RMS DEVIATIONS ARE GIVEN. THE LATITUDE AND AZIMUTH ANGLES OF THE SEQUENCE-AVERAGED FIELD VECTOR ARE GIVEN IN THE PAYLOAD AND SOLAR ECLIPTIC COORDINATE SYSTEMS. THE DATA HAVE NOT BEEN CORRECTED FOR LUNAR SHADOW EFFECTS, AS SUCH, FIELD DIRECTION INFORMATION IS UNRELIABLE DURING LUNAR SHADOW PERIODS. SUPPORTING INFORMATION FOUND IN EACH LOGICAL RECORD INCLUDES TIME FOR THE 16 FIELD MEASUREMENTS, SPIN PERIOD, DIRECTION, AND SPACECRAFT POSITION IN GEOCENTRIC AND SELENOCENTRIC SOLAR ECLIPTIC COORDINATES AND GEOCENTRIC SOLAR MAGNETOSPHERIC COORDINATES. FOR THE FIRST 3 YEARS OR SO, DATA COVERAGE IS NEARLY 100 PERCENT COMPLETE, BUT FOR THE LAST YEAR OR SO A SIGNIFICANT NUMBER OF DATA GAPS APPEAR. THERE IS SOME MODULATION IN THE LATE-TIME-PERIOD 5.12 SEC DATA PROBABLY DUE TO THE DATA-GAP-ASSOCIATED INABILITY OF THE FILTERING PROGRAM TO REMOVE ALL SPIN MODULATION. THE 81.92-SEC AVERAGED DATA ARE EXPECTED TO BE MORE RELIABLE FOR THIS LATE TIME PERIOD. A SEPARATE SET OF TAPES WITH JUST THE 81.92-SEC AVERAGED DATA IS ALSO AVAILABLE (67-070A-04B).

DATA SET NAME- 82-SEC AVERAGED VECTOR MAGNETIC FIELD DATA ON MAGNETIC TAPE

NSSDC ID- 67-070A-04B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/19/67 TO 02/23/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 10 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF 7-TRACK, 800-BPI, IBM 7094 BINARY MAGNETIC TAPES GENERATED AT NSSDC FROM THE EXPERIMENTER-SUPPLIED TAPES THAT CONSTITUTE DATA SET 67-070A-04A. ALL THE MAGNETIC FIELD AND SUPPORTING DATA OF EACH LOGICAL RECORD OF DATA SET -04A WERE TRANSFERRED TO THIS DATA SET (-04B) EXCEPT FOR THE THIRTEEN 16-ELEMENT ARRAYS GIVING INDIVIDUAL 5.12-SEC DATA POINTS. THUS, WHETHER A USER NEEDS DATA SET -04A OR -04B IS DETERMINED BY THE REQUIREMENTS OF TEMPORAL RESOLUTION, AS THERE ARE 5.12-SEC DATA IN -04A AND ONLY 81.92-SEC AVERAGES IN -04B. TEMPORAL COVERAGE, AS OPPOSED TO RESOLUTION, IS THE SAME FOR DATA SETS -04A AND -04B.

DATA SET NAME- 5.12-SEC VECTOR MAGNETIC FIELD PLOTS ON MICROFILM

NSSDC ID- 67-070A-04D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/19/67 TO 02/23/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 57 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF EXPERIMENTER SUPPLIED, 16-MM MICROFILMED PLOTS OF INDIVIDUALLY MEASURED 5.12-SEC MAGNETIC VECTORS. EACH FRAME CONTAINS DATA FOR 1 HR, WITH 30-MIN ACROSS THE FRAME, TWICE. FIELD MAGNITUDE AND LATITUDE AND LONGITUDE ANGLES IN SOLAR ECLIPTIC OR SOLAR MAGNETOSPHERIC COORDINATES ARE GIVEN. GEOCENTRIC SPACECRAFT POSITION (X, Y, Z, AND R IN EARTH RADII) IS LISTED ONCE PER FRAME, AND SELENOCENTRIC POSITION IS LISTED SEVERAL TIMES (X, Y, Z, AND R IN LUNAR RADII).

DATA SET NAME- 81.92-SEC VECTOR MAGNETIC FIELD PLOTS ON MICROFILM

NSSDC ID- 67-070A-04E

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/19/67 TO 02/23/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 5 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF EXPERIMENTER SUPPLIED, 16-MM MICROFILMED PLOTS OF 81.92-SEC AVERAGED MAGNETIC VECTORS. EACH FRAME CONTAINS DATA FOR 6 HR, WITH 3 HR ACROSS THE FRAME, TWICE. FIELD MAGNITUDES (AS AVERAGED OVER 5.12-SEC MAGNITUDES), LATITUDE AND LONGITUDE ANGLES (AS DETERMINED FROM 81.92-SEC AVERAGED, SOLAR ECLIPTIC OR SOLAR MAGNETOSPHERIC CARTESIAN COMPONENTS), AND THE RMS DEVIATION IN THE MAGNITUDE AVERAGE ARE PLOTTED. GEOCENTRIC SPACECRAFT POSITION (X, Y, Z IN EARTH RADII) IS LISTED EVERY 3 HR, AND SELENOCENTRIC SPACECRAFT POSITION IS LISTED EVERY HOUR (X, Y, Z IN LUNAR RADII).

DATA SET NAME- VECTOR MAGNETIC FIELD DATA LISTINGS ON MICROFILM

NSSDC ID- 67-070A-04F

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/19/67 TO 02/23/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 57 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF EXPERIMENTER SUPPLIED, 16-MM MICROFILMED DATA LISTINGS OF TWO INTERSPERSED TYPES. ONE TYPE LISTS INDIVIDUAL 5.12-SEC FIELD MAGNITUDES (X 10) AND 81.92-SEC AVERAGES OF THESE MAGNITUDES. THIS TYPE ALSO LISTS 81.92-SEC AVERAGES OF PAYLOAD-COORDINATE-SYSTEM CARTESIAN COMPONENTS (X 10), THEIR STANDARD RMS DEVIATIONS (X 100), LATITUDE AND LONGITUDE ANGLES DERIVED FROM THE AVERAGED COMPONENTS, AND DATA QUALITY FLAGS. THE OTHER TYPE OF LISTING CONTAINS ONLY 81.92-SEC VALUES, INCLUDING SELENOCENTRIC SPACECRAFT POSITION (SOLAR ECLIPTIC X, Y, Z IN LUNAR RADII (X 100), AND DERIVED LONGITUDE), GEOCENTRIC SOLAR MAGNETOSPHERIC SPACECRAFT Z COORDINATE IN EARTH RADII (X 10), FIELD MAGNITUDE AVERAGE (X 10) AND ITS RMS DEVIATION (X 100), SOLAR ECLIPTIC AND SOLAR MAGNETOSPHERIC CARTESIAN COMPONENTS OF THE FIELD (X 10), RMS DEVIATIONS (X 100) FOR THE ECLIPTIC COMPONENTS, LATITUDE AND LONGITUDE ANGLES DERIVED FROM THE ECLIPTIC COMPONENTS, AND DATA QUALITY FLAGS.

SONETT, IMP-E

EXPERIMENT NAME- AMES MAGNETIC FIELDS

NSSDC ID- 67-070A-03

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 06/24/73

PERSONNEL

PI -	C.P.	SONETT	U OF ARIZONA TUCSON, AZ
OI -	J.H.	WOLFE	NASA-ARC MOFFETT FIELD, CA
OI -	R.W.	SILVA	NASA-ARC MOFFETT FIELD, CA
OI -	W.J.	KERWIN	NASA-ARC MOFFETT FIELD, CA

THE AMES MAGNETOMETER EXPERIMENT CONSISTED OF A BOOM-MOUNTED TRIAXIAL FLUXGATE MAGNETOMETER AND AN ELECTRONICS PACKAGE. THE SENSORS WERE ORTHOGONALLY MOUNTED, WITH ONE SENSOR ORIENTED ALONG THE SPIN AXIS OF THE SPACECRAFT. A MOTOR INTERCHANGED A SENSOR IN THE SPIN PLANE WITH THE SENSOR ALONG THE SPIN AXIS EVERY 24 HR, ALLOWING INFLIGHT CALIBRATION. THE INSTRUMENT PACKAGE INCLUDED A CIRCUIT FOR SPIN DEMODULATING THE OUTPUTS FROM THE SENSORS IN THE SPIN PLANE. THE NOISE THRESHOLD WAS ABOUT 0.2 GAMMA. THE INSTRUMENT HAD THREE RANGES COVERING PLUS OR MINUS 20, 60, AND 200 GAMMAS FULL SCALE FOR EACH VECTOR COMPONENT. THE DIGITIZATION ACCURACY FOR EACH RANGE WAS ONE PERCENT OF THE ENTIRE RANGE COVERED. THE MAGNETIC FIELD VECTOR WAS MEASURED INSTANTANEOUSLY, AND THE INSTRUMENT RANGE WAS CHANGED AFTER EACH MEASUREMENT. A PERIOD OF 2.05 SEC ELAPSED BETWEEN ADJACENT MEASUREMENTS AND 6.14 SEC BETWEEN MEASUREMENTS USING THE SAME RANGE. THE INSTRUMENT PERFORMANCE WAS NORMAL UNTIL SPACECRAFT TURNOFF ON JUNE 24, 1973.

DATA SET NAME- AVERAGED MAGNETIC FIELD VECTOR PLOTS ON MICROFILM

NSSDC ID- 67-070A-03A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/19/67 TO 12/23/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 4 REEL(S) OF MICROFILM

THESE MAGNETIC FIELD VECTOR PLOTS ARE CONTAINED ON THREE REELS OF 35-MM MICROFILM AND ONE REEL OF 16-MM MICROFILM. THESE REELS CONTAIN PLOTTED 81.8-SEC SCALAR AVERAGES IN EITHER SOLAR MAGNETOSPHERIC OR SOLAR EQUATORIAL COORDINATES (Z AXIS NORTHWARD ON A PLANE CONTAINING THE SOLAR DIRECTION AND THE SOLAR SPIN AXIS) OF THE MAGNITUDE, THE LONGITUDE, AND THE LATITUDE OF THE MAGNETIC FIELD B. GENERALLY, DATA ARE PLOTTED IN SOLAR MAGNETOSPHERIC COORDINATES FOR TIMES WHEN THE SPACECRAFT WAS INSIDE THE MAGNETOSPHERE OR GEOMAGNETIC TAIL AND IN SOLAR EQUATORIAL COORDINATES WHEN THE SPACECRAFT WAS OUTSIDE THIS REGION. ABOUT 4 HR OF DATA ARE PLOTTED ON EACH FRAME. SEQUENCE NUMBER, TIME, AND THE COORDINATE SYSTEM USED ARE INDICATED ON EACH PLOT. TEMPERATURE VARIATIONS AND DRIFTS IN ZERO LEVELS OF THE SENSORS HAVE BEEN CORRECTED BY THE EXPERIMENTER. DATA ARE AVAILABLE OVER THE TIME PERIOD SPECIFIED WITH A 95 PERCENT COVERAGE.

DATA SET NAME- 81.92-SEC VECTOR MAGNETIC FIELD DATA ON MAGNETIC TAPES

NSSDC ID- 67-070A-03C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/19/67 TO 10/28/71
(AS REPORTED BY THE EXPERIMENTER)

QUANTITY OF DATA- 19 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF EXPERIMENTER SUPPLIED, 7-TRACK, 556 BPI, ODD PARITY BINARY MAGNETIC TAPES. EACH PHYSICAL RECORD CONTAINS 2760 CHARACTERS OF WHICH THE FIRST 12 CONSTITUTE A DCS CONTROL WORD. EACH LOGICAL RECORD CONTAINS 132 CHARACTERS OF WHICH THE FIRST 6 CONSTITUTE A DCS CONTROL WORD. DATA GIVEN WITHIN EACH LOGICAL RECORD WERE OBTAINED BY AVERAGING THE INDIVIDUALLY MEASURED VECTORS WITHIN A GIVEN 81.92-SEC SEQUENCE. DATA INCLUDE FIELD MAGNITUDE, CARTESIAN COMPONENTS AND THEIR STANDARD DEVIATIONS, AND FIELD LATITUDE AND LONGITUDE ANGLES. THE DATA ARE GIVEN IN SOLAR EQUATORIAL, SOLAR MAGNETOSPHERIC, AND SOLAR ECLIPTIC COORDINATES.

ORIGINAL PAGE IS OF POOR QUALITY

SPACECRAFT COMMON NAME- IMP-F

ALTERNATE NAMES- EXPLORER 34, IMP 4
02817

NSSDC ID- 67-051A

LAUNCH DATE- 05/24/67 WEIGHT- 163. KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 05/03/69

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 05/24/67
ORBIT PERIOD- 6846. MIN INCLINATION- 67.17 DEG
PERIAPSIS- 242.000 KM ALT APOAPSIS- 214383. KM ALT

THIS SPACECRAFT WAS PLACED INTO A HIGH-INCLINATION, HIGHLY ECCENTRIC EARTH ORBIT. THE APOGEE POINT WAS LOCATED NEAR THE ECLIPTIC PLANE AND HAD AN INITIAL LOCAL TIME OF ABOUT 1900 HR. THE SPACECRAFT WAS SPIN-STABILIZED AND HAD AN INITIAL SPIN PERIOD OF 2.6 SEC. THE SPIN VECTOR WAS APPROXIMATELY PERPENDICULAR TO THE ECLIPTIC PLANE. LIKE THE EARLIER IMP'S, THIS SPACECRAFT WAS INSTRUMENTED TO STUDY INTERPLANETARY MAGNETIC FIELDS, ENERGETIC PARTICLES, AND PLASMA. THE SPACECRAFT OPTICAL ASPECT SYSTEM FAILED ON MARCH 4, 1969, OTHERWISE, USEFUL DATA WERE ACQUIRED UNTIL JUST BEFORE SPACECRAFT REENTRY, WHICH OCCURRED ON MAY 3, 1969.

DATA SET NAME- SOLAR ECLIPTIC AND SOLAR MAGNETOSPHERIC EPHEMERIS PLOTS ON MICROFILM

NSSDC ID- 67-051A-00D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 05/24/67 TO 05/03/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF ONE REEL OF 35-MM MICROFILMED PLOTS OF EPHEMERIS DATA SHOWN IN SOLAR ECLIPTIC AND SOLAR MAGNETOSPHERIC COORDINATES FOR ALL THE ORBITS OF EXPLORER 34. THE X-Y, X-Z, AND Y-Z PROJECTIONS ARE AVAILABLE FOR BOTH COORDINATE SYSTEMS. THE X-Y SOLAR ECLIPTIC PROJECTION SHOWS THE COMPUTED AVERAGE POSITION OF THE BOW SHOCK AS COMPUTED BY DR. D. FAIRFIELD OF GSFC. TWO THREE-DIMENSIONAL PERSPECTIVES ARE ALSO AVAILABLE FOR EACH COORDINATE SYSTEM FOR EACH ORBIT. EVERY PLOT SHOWS ONE FULL ORBIT CURVE AND TABULAR LISTINGS OF THE ORBIT NUMBER, APOGEE, PERIGEE, START TIME, STOP TIME, COORDINATE SYSTEM, AND PROJECTION OR PERSPECTIVE FOR THE ORBIT. AN ASTERISK IS USED TO MARK THE FIRST NOON OR MIDNIGHT (UT) ENCOUNTERED, WITH TICK MARKS USED AT SUCCESSIVE 12-HOUR POINTS.

DATA SET NAME- SOLAR ECLIPTIC EPHEMERIS PLOTS

NSSDC ID- 67-051A-00E

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 05/24/67 TO 03/00/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 CARD(S) OF B/W MICROFICHE

THE PUBLICATION, "TRAJECTORIES OF EXPLORERS 33, 34, AND 35, JULY 1966 - APRIL 1969," WRITTEN BY K. W. BEHANNON, K. H. SCHATTEN, D. H. FAIRFIELD, AND N. F. NESS (NASA-GSFC X-692-70-64, FEBRUARY 1970) CONTAINS THE TRAJECTORIES OF EXPLORERS 33, 34, AND 35 FROM LAUNCH TO APRIL 1969 (EXCEPT FOR EXPLORER 34 FOR WHICH THERE ARE NO PLOTS AFTER MARCH 1969) AS PROJECTED INTO THE X-Y PLANE IN SOLAR ECLIPTIC COORDINATES. TICK MARKS, 1-DAY APART, ARE SHOWN FOR EXPLORERS 33 AND 35 AND, WHERE POSSIBLE, FOR EXPLORER 34. THIS PUBLICATION ALSO HAS THE X-Z SOLAR ECLIPTIC ORBIT PROJECTIONS OF THESE SATELLITES FOR JANUARY 1969 TO APRIL 1969. COMPUTED AVERAGE POSITIONS OF THE BOW SHOCK AND MAGNETOPAUSE ARE ALSO SHOWN.

DATA SET NAME- U.OF CHICAGO EPHEMERIS DATA ON TAPE

NSSDC ID- 67-051A-00F

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 05/24/67 TO 05/03/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 5 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF FIVE 7-TRACK, 800-BPI, BINARY TAPES USING XDS 930 INTEGER FORMAT. THE TAPES WERE GENERATED BY PERSONNEL AT THE UNIVERSITY OF CHICAGO. EACH PHYSICAL RECORD CONSISTS OF 40 LOGICAL RECORDS OF 25 WORDS EACH. END-OF-FILE MARKS SEPARATE ORBITS, AND A DOUBLE END-OF-FILE MARK ENDS EACH TAPE. EPHEMERIS POINTS (LOGICAL RECORDS) ARE GIVEN AT 61.44-SEC INTERVALS. DATA PRESENTED INCLUDE TIME, PSEUDO SEQUENCE COUNT, SATELLITE RADIAL DISTANCE, SATELLITE AND SUN GEOCENTRIC AND GEOMAGNETIC LATITUDE AND LONGITUDE, SATELLITE SOLAR-MAGNETOSPHERIC COORDINATES, SATELLITE-EARTH-SUN ANGLE, SATELLITE SPEED, B AND L, B/B0, AND THE SOLAR ECLIPTIC COMPONENTS OF THE GSFC (12/66) MODEL GEOMAGNETIC FIELD AS UPDATED TO 1965.0. THERE ARE NO KNOWN SIGNIFICANT DATA GAPS.

NESS, IMP-F

EXPERIMENT NAME- TRIAXIAL FLUXGATE MAGNETOMETER

NSSDC ID- 67-051A-11

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 05/03/69

PERSONNEL
PI - N.F. NESS ..... NASA-GSFC
GREENBELT, MD
OI - D.H. FAIRFIELD ..... NASA-GSFC
GREENBELT, MD

THIS EXPERIMENT USED A TRIAXIAL FLUXGATE MAGNETOMETER. EACH SENSOR HAD DUAL RANGES OF MINUS TO PLUS 32 GAMMAS AND 128 GAMMAS AND DIGITIZATION ERRORS OF MINUS TO PLUS 0.16 AND 0.64 GAMMA, RESPECTIVELY. THE OPERATING RANGE COULD BE CHANGED BY GROUND COMMAND. THE SENSOR PARALLEL TO THE SPIN AXIS WAS ON A 1.8-M BOOM AND WAS FLIPPED EVERY 3.9 DAYS TO CHECK THE ZERO LEVEL. THE OTHER TWO SENSORS WERE ON A SEPARATE BOOM. VECTOR MEASUREMENTS WERE RETURNED EACH 2.56 SEC. AN ONBOARD AUTOCORRELATION COMPUTER WAS INCLUDED. AUTOCORRELATION DATA BASED ON 240 SAMPLINGS WERE RETURNED ON ALTERNATE COMPONENTS EACH 20.45 SEC. THE EXPERIMENT WORKED WELL THROUGHOUT THE LIFE OF THE SPACECRAFT. HOWEVER, FAILURE OF THE SPACECRAFT OPTICAL ASPECT SYSTEM ON MARCH 4, 1969, RENDERED IMPOSSIBLE THE DETERMINATION OF THE MAGNETIC FIELD DIRECTION OVER THE LAST 2 MONTHS OF DATA ACQUISITION. FOR FURTHER DETAILS, SEE FAIRFIELD, JGR, VOL 74, P 3541, 1969.

DATA SET NAME- 20-SEC-AVERAGED VECTOR MAGNETIC FIELD DATA ON TAPE

NSSDC ID- 67-051A-11A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 05/24/67 TO 12/06/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 13 REEL(S) OF MAGNETIC TAPE

THIS EXPERIMENTER-SUPPLIED DATA SET CONSISTS OF 20.48-SEC AVERAGED VECTOR MAGNETIC FIELD DATA MERGED WHEN POSSIBLE, WITH 3-MIN AVERAGE BULK PLASMA PARAMETERS. THE DATA ARE FOUND ON 9-TRACK, 800-BPI, IBM/360 BINARY MAGNETIC TAPES. EACH PHYSICAL RECORD CONTAINS 280 LOGICAL RECORDS, AND EACH LOGICAL RECORD CONTAINS 27 4-BYTE DATA WORDS. EACH TAPE CONTAINS DATA FOR 10 ORBITS (43 DAYS). THE MAGNETIC FIELD DATA FOUND IN ANY ONE LOGICAL RECORD REPRESENTS A 20.48-SEC AVERAGE OVER 8 INDIVIDUALLY MEASURED VECTOR MAGNETIC FIELDS. THESE AVERAGES WERE PERFORMED BY THE EXPERIMENTER IN HIS DATA ANALYSIS SEQUENCE. THE MAGNETIC DATA INCLUDE FIELD MAGNITUDE, FIELD VECTOR LATITUDE AND LONGITUDE IN SOLAR ECLIPTIC AND SOLAR MAGNETOSPHERIC COORDINATES, AND STANDARD DEVIATIONS OF THE SOLAR ECLIPTIC X, Y, AND Z COMPONENTS (BUT NOT THE COMPONENTS THEMSELVES). EACH LOGICAL RECORD ALSO CONTAINS TIME, SPACECRAFT POSITION IN SOLAR ECLIPTIC AND SOLAR MAGNETOSPHERIC CARTESIAN COORDINATES, THE GEOMAGNETIC LATITUDE OF THE SUN, AND A DATA QUALITY FLAG. THE PLASMA DATA, SEPARATELY IDENTIFIED AS DATA SET 67-051A-08B, ARE AVAILABLE FOR ONLY THE FIRST 58 ORBITS OF THE IMP F FLIGHT AND INCLUDE

PROTON DENSITY, TEMPERATURE, VELOCITY, FLOW DIRECTION, AND RATIO OF BULK VELOCITY TO THERMAL SPEED, AND ALPHA PARTICLE DENSITY AND VELOCITY.

DATA SET NAME- 20-SEC AVERAGED MAGNETIC FIELD VECTORS ON MICROFILM

NSSDC ID- 67-051A-11B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 05/24/67 TO 03/07/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 3 REEL(S) OF MICROFILM

THIS DATA SET, SUPPLIED BY THE EXPERIMENTER, CONSISTS OF THREE REELS OF 35-MM MICROFILM CONTAINING 6 HR OF DATA PER FRAME. POINTS REPRESENTING FIELD MAGNITUDE AND FIELD VECTOR POLAR AND AZIMUTHAL ANGLES IN SOLAR ECLIPTIC OR SOLAR MAGNETOSPHERIC COORDINATES ARE GIVEN EACH 20 SEC. SPACECRAFT EPHEMERIS DATA ARE LISTED ONCE EACH HOUR. THE DATA COVERAGE IS COMPLETE BETWEEN LAUNCH AND THE LOSS OF SOLAR ASPECT ON MARCH 4, 1969.

DATA SET NAME- 2.5-SEC MULTICOORDINATE MAGNETIC VECTORS ON TAPE

NSSDC ID- 67-051A-11D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 05/24/67 TO 02/10/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 136 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF EXPERIMENTER-SUPPLIED, 9-TRACK, 800-BPI IBM 360 BINARY MAGNETIC TAPES. EACH TAPE CONTAINS DATA TAKEN DURING ONE SPACECRAFT ORBIT (4.3 DAYS). EACH PHYSICAL RECORD CONTAINS A 4-BYTE CONTROL WORD AND 16 LOGICAL RECORDS. EACH LOGICAL RECORD CONTAINS A 4-BYTE CONTROL WORD AND 307 FOUR-BYTE DATA WORDS FOR ONE TELEMETRY SEQUENCE (20.48 SEC). DATA FOUND IN EACH LOGICAL RECORD INCLUDE TIME, SPACECRAFT POSITION (RADIAL DISTANCE, GEODETIC AND GEOMAGNETIC LATITUDE AND LONGITUDE, AND SOLAR ECLIPTIC AND SOLAR MAGNETOSPHERIC X, Y, AND Z), AND MAGNETIC FIELD DATA AS MEASURED BY EACH OF THE THREE SENSORS (EIGHT TIMES), AND AS CONVERTED TO NONROTATING PAYLOAD, SOLAR ECLIPTIC, AND SOLAR MAGNETOSPHERIC COORDINATES. FOR EACH OF THE THREE LATTER COORDINATE SYSTEMS, INDIVIDUALLY MEASURED MAGNETIC VECTORS (2.5-SEC RESOLUTION) AND SEQUENCE-AVERAGED VECTORS (20-SEC RESOLUTION) ARE GIVEN IN TERMS OF BOTH CARTESIAN COMPONENTS (WITH STANDARD DEVIATIONS FOR THE AVERAGES) AND MAGNITUDE AND POLAR AND AZIMUTHAL ANGLES. THE DATA COVERAGE IS COMPLETE BETWEEN MAY 24, 1967, AND FEBRUARY 10, 1969, EXCEPT FOR THE FOLLOWING 1968 GAPS - JANUARY 1-4, JANUARY 26-FEBRUARY 3, MAY 9-18, MAY 22-26, APRIL 13-17, OCTOBER 24-29, AND DECEMBER 7-11. THE EXPERIMENTER HAS GENERATED A SET OF TAPES WITH THE 20-SEC AVERAGED DATA AND NO 2.5-SEC VECTORS. THIS SET OF TAPES, WITH TEN ORBITS OF DATA PER TAPE, IS ALSO HELD AT NSSDC, AND IS DATA SET 67-051A-11A.

SPACECRAFT COMMON NAME- IMP-G

ALTERNATE NAMES- PL-691K, IMP 5
EXPLORER 41, 03990

NSSDC ID- 69-053A

LAUNCH DATE- 06/21/69 WEIGHT- 175. KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 12/23/72

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH-DATE- 06/21/69
ORBIT PERIOD- 4843. MIN INCLINATION- 86.78 DEG
PERIAPSIS- 378.000 KM ALT APOAPSIS- 176434. KM ALT

EXPLORER 41 (IMP-G) WAS A SPIN-STABILIZED SPACECRAFT PLACED INTO A HIGH-INCLINATION, HIGHLY ELLIPTIC ORBIT TO MEASURE ENERGETIC PARTICLES, MAGNETIC FIELDS, AND PLASMA IN CISLUNAR SPACE. THE LINE OF APSIDES AND THE SATELLITE SPIN VECTOR WERE WITHIN A FEW DEGREES OF BEING IN AND NORMAL TO, RESPECTIVELY, THE ECLIPTIC PLANE. INITIAL LOCAL TIME OF APOGEE WAS ABOUT 1300 HR. INITIAL SATELLITE SPIN RATE WAS 27.5 RPM. THE BASIC TELEMETRY SEQUENCE WAS 20.48 SEC. THE SPACECRAFT FUNCTIONED VERY WELL FROM LAUNCH UNTIL IT DECAYED FROM ORBIT ON DECEMBER 23, 1972. DATA TRANSMISSION WAS NEARLY 100 PERCENT FOR THE SPACECRAFT LIFE EXCEPT FOR THE INTERVAL NOVEMBER 15, 1971, TO FEBRUARY 1, 1972, WHEN DATA ACQUISITION WAS LIMITED TO THE VICINITY OF THE MAGNETOTAIL NEUTRAL SHEET.

DATA SET NAME- PROJECTION AND PERSPECTIVE EPHEMERIS PLOTS ON MICROFILM

NSSDC ID- 69-053A-00D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/21/69 TO 08/25/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF ONE REEL OF 35-MM MICROFILM PLOTS OF EPHEMERIS DATA SHOWN IN SOLAR ECLIPTIC AND SOLAR MAGNETOSPHERIC COORDINATES FOR THE ORBITS OF EXPLORER 41. THE X-Y, X-Z, AND Y-Z PROJECTIONS ARE AVAILABLE FOR BOTH COORDINATE SYSTEMS. THE X-Y SOLAR ECLIPTIC PROJECTION SHOWS THE COMPUTED AVERAGE POSITION OF THE BOW SHOCK AS COMPUTED BY DR. D. FAIRFIELD OF GSFC. TWO THREE-DIMENSIONAL PERSPECTIVES ARE ALSO AVAILABLE FOR EACH COORDINATE SYSTEM FOR EACH ORBIT. EVERY PLOT SHOWS ONE FULL ORBIT CURVE AND TABULAR LISTINGS OF THE ORBIT NUMBER, APOGEE, PERIGEE, START TIME, STOP TIME, COORDINATE SYSTEM, AND PROJECTION OR PERSPECTIVE FOR THE ORBIT. AN ASTERISK IS USED TO MARK THE FIRST NOON OR MIDNIGHT (UT) ENCOUNTERED, WITH TICK MARKS USED AT SUCCESSIVE 12-HOUR POINTS.

DATA SET NAME- MULTICOORDINATE SYSTEM EPHEMERIS TAPES

NSSDC ID- 69-053A-00E

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/21/69 TO 11/15/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 6 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF 7-TRACK, 800-BPI, BINARY TAPES USING XDS 930 INTEGER FORMAT. THE TAPES WERE GENERATED BY PERSONNEL AT THE UNIVERSITY OF CHICAGO. EACH PHYSICAL RECORD CONSISTS OF 40 LOGICAL RECORDS OF 25 WORDS EACH. END-OF-FILE MARKS SEPARATE ORBITS, AND A DOUBLE END-OF-FILE MARK ENDS EACH TAPE. EPHEMERIS POINTS (LOGICAL RECORDS) ARE GIVEN AT 61.44-SEC INTERVALS. DATA PRESENTED INCLUDE TIME, PSEUDO SEQUENCE COUNT, SATELLITE RADIAL DISTANCE, SATELLITE AND SUN GEOCENTRIC AND GEOMAGNETIC LATITUDE AND LONGITUDE, SATELLITE SOLAR-MAGNETOSPHERIC COORDINATES, SATELLITE-EARTH-SUN ANGLE, SATELLITE SPEED, B AND L, B/B0, AND THE SOLAR ECLIPTIC COMPONENTS OF THE GSFC (12/66) MODEL GEOMAGNETIC FIELD AS UPDATED TO 1965. THERE ARE NO KNOWN SIGNIFICANT DATA GAPS.

DATA SET NAME- GSFC TRAJECTORY PLOTS, SOLAR ECLIPTIC PROJECTIONS

NSSDC ID- 69-053A-00G

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 06/21/69 TO 12/23/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 CARD(S) OF B/W MICROFICHE

THE PUBLICATION "TRAJECTORIES OF EXPLORERS 33, 35, 41, 43, AND 47, MAY 1969 - DECEMBER 1972," WRITTEN BY D. H. FAIRFIELD, K. W. BEHANNON, R. P. LEPPING, AND N. F. NESS (NASA-GSFC X-692-73-291, OCTOBER 1973), CONTAINS THE ECLIPTIC PLANE PROJECTIONS OF ALL 381 ORBITS OF EXPLORER 41. THE PLOTS ARE NOT USEFUL FOR DETAILED STUDIES, BUT THEY ARE USEFUL IN INDICATING THE ORBITAL PHASE OF THE SPACECRAFT ON A GIVEN DAY AND SHOWING WHERE APOGEE IS IN LOCAL TIME. IN ADDITION, ONE PLOT IS GIVEN TO SHOW THE SOLAR ECLIPTIC X-Z PROJECTIONS OF FOUR ORBITS WITH 1-YR SPACING.

NESS, IMP-G

EXPERIMENT NAME- TRIAXIAL FLUXGATE MAGNETOMETER

NSSDC ID- 69-053A-11

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 12/23/72

PERSONNEL
PI - N.F. NESS ..... NASA-GSFC
GREENBELT, MD
OI - D.H. FAIRFIELD ..... NASA-GSFC
GREENBELT, MD

A BOOM-MOUNTED TRIAXIAL FLUXGATE MAGNETOMETER MEASURED MAGNETIC FIELDS IN THE INTERPLANETARY MEDIUM, IN THE MAGNETOSHEATH, AND IN THE GEOMAGNETIC TAIL. THE MAGNETOMETER HAD DYNAMIC RANGES OF PLUS OR MINUS 40 GAMMAS AND PLUS OR MINUS 200 GAMMAS WITH RESPECTIVE SENSITIVITIES OF PLUS OR MINUS 0.2 GAMMA AND PLUS OR MINUS 1.0 GAMMA. AUTOMATIC ONBOARD RANGE SELECTION WAS INCLUDED. MEASUREMENT OF THE ENERGY SPECTRA OF MAGNETIC FIELD FLUCTUATIONS WAS ACCOMPLISHED THROUGH A COMPUTATION OF THE AUTOCORRELATION FUNCTION IN AN ONBOARD DIGITAL PROCESSOR. THE EXPERIMENT FUNCTIONED NORMALLY FROM LAUNCH UNTIL THE SPACECRAFT DECAYED FROM ORBIT (JUNE 21, 1969 - DECEMBER 23, 1972).

DATA SET NAME- 20-SEC AVERAGED VECTOR MAGNETIC FIELD DATA ON MICROFILM

NSSDC ID- 69-053A-11A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/21/69 TO 12/23/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 8 REEL(S) OF MICROFILM

THIS DATA SET, SUPPLIED BY THE EXPERIMENTER, CONSISTS OF MICROFILM CONTAINING 6 HOURS OF DATA PER FRAME. POINTS REPRESENTING FIELD MAGNITUDE AND FIELD VECTOR POLAR AND AZIMUTHAL ANGLES IN SOLAR ECLIPTIC OR SOLAR MAGNETOSPHERIC COORDINATES ARE GIVEN EACH 20 SEC. SPACECRAFT EPHEMERIS DATA ARE LISTED ONCE EACH HOUR. THE DATA COVERAGE IS COMPLETE EXCEPT FOR A GAP FROM NOVEMBER 15, 1971, TO JANUARY 31, 1972.

DATA SET NAME- 2.5-SEC MULTICOORDINATE MAGNETIC VECTORS ON TAPE

NSSDC ID- 69-053A-11B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/21/69 TO 12/23/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 367 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF EXPERIMENTER-SUPPLIED, 9-TRACK, 800 BPI, IBM/360 BINARY MAGNETIC TAPES. EACH CONTAINS DATA TAKEN DURING ONE SPACECRAFT ORBIT (3.3 DAYS). EACH PHYSICAL RECORD CONTAINS A FOUR-BYTE CONTROL WORD AND 16 LOGICAL RECORDS. EACH LOGICAL RECORD CONTAINS A FOUR-BYTE CONTROL WORD AND 307 FOUR-BYTE DATA WORDS FOR ONE TELEMETRY SEQUENCE (20.48 SEC). DATA FOUND IN EACH LOGICAL RECORD INCLUDE TIME, SPACECRAFT POSITION (RADIAL DISTANCE, GEODETIC AND GEOMAGNETIC LATITUDE AND LONGITUDE, SOLAR ECLIPTIC AND SOLAR MAGNETOSPHERIC X, Y, AND Z) AND MAGNETIC FIELD DATA AS MEASURED BY EACH OF THE THREE SENSORS EIGHT TIMES, AND AS CONVERTED TO NON-ROTATING PAYLOAD, SOLAR ECLIPTIC, AND SOLAR MAGNETOSPHERIC COORDINATES. FOR EACH OF THE THREE LATTER COORDINATE SYSTEMS, INDIVIDUALLY MEASURED MAGNETIC VECTORS (2.5 SEC RESOLUTION) AND SEQUENCE-AVERAGED VECTORS (20 SEC RESOLUTION) ARE GIVEN IN TERMS OF THEIR CARTESIAN COMPONENTS (WITH STANDARD DEVIATIONS FOR THE AVERAGES) AND MAGNITUDE AND POLAR AND AZIMUTHAL ANGLES. NSSDC EXPECTS TO GENERATE A SET OF TAPES CONTAINING ONLY SEQUENCE-AVERAGED DATA WITH ABOUT 10 ORBITS OF DATA PER TAPE.

SPACECRAFT COMMON NAME- IMP-I

ALTERNATE NAMES- EXPLORER 43, IMP 6
05043

NSSDC ID- 71-019A

LAUNCH DATE- 03/13/71 WEIGHT- 635. KG

STATUS OF OPERATION- PARTIAL

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 03/17/71
ORBIT PERIOD- 5956. MIN INCLINATION- 28.80 DEG
PERIAPSIS- 353.000 KM ALT APOAPSIS- 204577. KM ALT

IMP-I CONTINUED THE STUDY, BEGUN BY EARLIER IMPS, OF THE INTERPLANETARY AND OUTER MAGNETOSPHERIC REGIONS BY MEASURING ENERGETIC PARTICLES, PLASMA, AND ELECTRIC AND MAGNETIC FIELDS. A RADIO ASTRONOMY EXPERIMENT WAS ALSO INCLUDED IN THE SPACECRAFT PAYLOAD. THE 16-SIDED SPACECRAFT WAS 182.12 CM HIGH BY 135.64 CM IN DIAMETER. THE SPACECRAFT SPIN AXIS WAS NORMAL TO THE ECLIPTIC PLANE, AND ITS SPIN RATE WAS 5 RPM. THE INITIAL APOGEE POINT LAY NEAR THE EARTH-SUN LINE. THE SOLAR-CELL AND CHEMICAL-BATTERY-POWERED SPACECRAFT CARRIED TWO TRANSMITTERS. ONE CONTINUOUSLY TRANSMITTED PCM ENCODER DATA AT A 1600-BPS INFORMATION BIT RATE. THE SECOND TRANSMITTER WAS USED FOR TRANSMISSION OF VLF DATA AND FOR RANGING INFORMATION. THREE ORTHOGONAL PAIRS OF DIPOLE ANTENNAS WERE USED FOR THE ELECTRIC FIELDS EXPERIMENTS, AND ONE OF THESE PAIRS WAS ALSO USED FOR THE RADIO ASTRONOMY EXPERIMENT. THE MEMBERS OF THE ANTENNA PAIR ALONG THE SPACECRAFT SPIN AXIS EXTENDED 2.9 M. THE MEMBERS OF THE PAIR USED IN BOTH THE ELECTRIC FIELD AND RADIO ASTRONOMY EXPERIMENTS EXTENDED 45.5 M, AND THE MEMBERS OF THE THIRD PAIR WERE SLIGHTLY UNBALANCED, EXTENDING 24.4 AND 27.6 M, RESPECTIVELY. ALL FOUR ELEMENTS PERPENDICULAR TO THE SPIN AXIS WERE TO HAVE EXTENDED 45.5 M. THE SPACECRAFT REENTERED THE EARTH'S ATMOSPHERE OCTOBER 2, 1974, AFTER A HIGHLY SUCCESSFUL MISSION.

DATA SET NAME- GSFC TRAJECTORY PLOTS, SOLAR ECLIPTIC PROJECTIONS

NSSDC ID- 71-019A-00D

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 03/13/71 TO 12/31/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 CARD(S) OF B/W MICROFICHE

THE PUBLICATION "TRAJECTORIES OF EXPLORERS 33, 35, 41, 43, AND 47, MAY 1969 - DECEMBER 1972," WRITTEN BY D. H. FAIRFIELD, K. W. BEHANNON, R. P. LEPPING, AND N. F. NESS (NASA-GSFC X-692-73-291, OCTOBER, 1973), CONTAINS THE ECLIPTIC PLANE PROJECTIONS OF THE FIRST 158 ORBITS OF EXPLORER 43. THE PLOTS ARE NOT USEFUL FOR DETAILED STUDIES, BUT THEY ARE USEFUL IN INDICATING THE ORBITAL PHASE OF THE SPACECRAFT ON A GIVEN DAY AND IN SHOWING WHERE APOGEE IS IN LOCAL TIME. IN ADDITION, ONE PLOT IS GIVEN TO SHOW THE SOLAR ECLIPTIC X-Z PROJECTIONS OF TWO ORBITS SEPARATED BY ONE YEAR.

NESS, IMP-I

EXPERIMENT NAME- MEASUREMENT OF MAGNETIC FIELDS

NSSDC ID- 71-019A-01

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 10/02/74

PERSONNEL
PI - N.F. NESS ..... NASA-GSFC
GREENBELT, MD
OI - J.B. SEEK ..... NASA-GSFC
GREENBELT, MD
OI - D.H. FAIRFIELD ..... NASA-GSFC
GREENBELT, MD

THIS EXPERIMENT WAS DESIGNED TO MEASURE ACCURATELY THE VECTOR MAGNETIC FIELD IN THE INTERPLANETARY MEDIUM AND IN THE EARTH'S MAGNETOSPHERE, MAGNETOTAIL, AND MAGNETOSHEATH. THE DETECTOR WAS A BOOM-MOUNTED TRIAXIAL FLUXGATE MAGNETOMETER WITH FOUR RANGES -- MINUS TO PLUS 16, 48, 144, AND 432 GAMMAS, RESPECTIVELY, CORRESPONDING SENSITIVITIES WERE PLUS OR MINUS 0.06, 0.19, 0.56, AND 1.69 GAMMAS, RESPECTIVELY. AUTOMATIC RANGE SELECTION CAPABILITY WAS INCLUDED. A FLIPPING MECHANISM PERMITTED INFLIGHT CALIBRATION OF THE THREE SENSOR ZERO LEVELS. THE VECTOR SAMPLING RATE WAS 12.5 SAMPLES PER SECOND.

THE EXPERIMENT FUNCTIONED NORMALLY THROUGH THE SPACECRAFT LIFE. FOR FURTHER DETAILS, SEE FAIRFIELD, JGR, VOL 79, P 1368, 1974.

DATA SET NAME- 15-SEC AVERAGED MAGNETIC FIELD VECTORS
ON MICROFILM

NSSDC ID- 71-019A-01A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/13/71 TO 04/03/73
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 3 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF 16-MM MICROFILM WHICH WAS SUBMITTED BY THE EXPERIMENTER AND WHICH CONTAINS 6 HRS OF 15.36-SEC AVERAGED VECTOR MAGNETIC-FIELD DATA PLOTS PER FRAME (3 HRS ACROSS THE FRAME, TWICE). THE DATA CONSIST OF FIELD MAGNITUDES (DETERMINED AS AVERAGES OVER INDIVIDUAL MAGNITUDES) AND FIELD LATITUDE AND LONGITUDE ANGLES IN SOLAR ECLIPTIC COORDINATES. LISTED EACH HOUR ARE SPACECRAFT POSITION IN SOLAR ECLIPTIC COORDINATES (CARTESIAN COMPONENTS, RADIAL DISTANCE, LATITUDE AND LONGITUDE ANGLES, DISTANCE FROM X AXIS) AND THE GEOMAGNETIC LATITUDE OF THE SUN.

SPACECRAFT COMMON NAME- INJUN 5

ALTERNATE NAMES- EXPLORER 40, INJUN-C
INJUN IE-C, 03338

NSSDC ID- 68-066B

LAUNCH DATE- 08/08/68 WEIGHT- 71.4 KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 06/07/71

ORBIT PARAMETERS

ORBIT TYPE- GEOCENTRIC	EPOCH DATE- 08/11/68
ORBIT PERIOD- 118.3 MIN	INCLINATION- 80.67 DEG
PERIAPSIS- 631.000 KM ALT	APOAPSIS- 2533.00 KM ALT

EXPLORER 40 (INJUN 5) WAS A 71 KG, MAGNETICALLY ORIENTED SPACECRAFT LAUNCHED TOGETHER WITH A 3.65M INFLATABLE BALLOON (EXPLORER 39, 1968-66A, USED FOR AIR DENSITY MEASUREMENTS) USING A SINGLE SCOUT VEHICLE. EXPLORER 40 WAS DESIGNED TO ACCOMPLISH THE FOLLOWING OBJECTIVES -- (1) COMPREHENSIVE STUDY OF THE DOWNWARD FLUX OF CHARGED PARTICLES, (2) STUDY OF VLF RADIO EMISSION IN THE IONOSPHERE ASSOCIATED WITH THE DOWNWARD FLUX, (3) STUDY OF GEOMAGNETICALLY TRAPPED PROTONS, ALPHA PARTICLES, AND ELECTRONS, (4) OBSERVATION OF SOLAR COSMIC RAYS, (5) OBSERVATION OF THE CONTINUING DECAY OF THE STARFISH ARTIFICIAL RADIATION BELT, AND (6) STUDY OF THE TEMPERATURE AND DENSITY OF ELECTRONS AND POSITIVE IONS OF THERMAL AND NEAR THERMAL ENERGY. THE SPACECRAFT SYSTEMS PERFORMED NORMALLY EXCEPT FOR THE MALFUNCTION OF THE SOLAR CELL POWER DUMP DEVICE (SHORTLY AFTER LAUNCH) WHICH CAUSED THE SOLAR CELLS TO DELIVER A LOWER POWER LEVEL TO THE EXPERIMENTS AND REDUCED THE TIME DURING WHICH THE ONBOARD TAPE RECORDER COULD BE RUN. AFTER A PERIOD OF QUASI-RANDOM TUMBLING, THE PASSIVE MAGNETIC ALIGNMENT BECAME EFFECTIVE IN MID-DECEMBER 1968. THE SPACECRAFT WAS TURNED OFF FROM MAY 31, 1970 TO FEBRUARY 18, 1971 AFTER WHICH IT WAS TURNED ON AGAIN. THE SPACECRAFT WAS PUT IN AN OPERATIONAL OFF MODE IN EARLY JUNE 1971, AND BECAME INOPERABLE SHORTLY THEREAFTER.

GURNETT, INJUN 5

EXPERIMENT NAME- VLF RECEIVER

NSSDC ID- 68-066B-02

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 06/07/71

PERSONNEL

PI -	D.A.	GURNETT	U OF IOWA IOWA CITY, IA
OI -	L.A.	FRANK	U OF IOWA IOWA CITY, IA

THIS VERY LOW FREQUENCY (VLF) RECEIVER WAS DESIGNED TO STUDY BOTH ELECTRIC AND MAGNETIC COMPONENTS (BOTH PHASE AND AMPLITUDE) OF VLF SIGNALS. THE DIRECTION OF SIGNAL PROPAGATION COULD BE DETERMINED AND USED TO ASSIST IN IDENTIFYING THE ORIGINS OF VARIOUS VLF SIGNALS. THE OBSERVATIONS OF ANTENNA IMPEDANCE FOR THE ELECTRIC ANTENNA (ECA) WERE NEEDED TO STUDY CHARACTERISTICS OF SUCH AN ANTENNA OPERATING IN A PLASMA. THERE WERE TWO ANTENNAS, ONE DRIVING A MAGNETIC-FIELD COMPONENT RECEIVER (MCR), AND THE OTHER DRIVING TWO ELECTRIC-FIELD COMPONENT RECEIVERS (ECR). THE MCR OPERATED FROM A 55.9-CM-DIAM LOOP ANTENNA (MCA), AND THE ECRS OPERATED FROM AN ANTENNA CONSISTING OF TWO 20.3-CM-DIAM ALUMINUM SPHERES MOUNTED 2.85 M APART ON OPPOSITE SIDES OF THE SPACECRAFT (SC). BOTH THE MCA AND ECA WERE MOUNTED ON BOOMS TO REDUCE INTERFERENCE FROM THE SC. WITHIN A FEW WEEKS AFTER LAUNCH, THE SC WAS DESPUN AND MAGNETICALLY STABILIZED SO THAT NOMINALLY, THE ANTENNA AXES AND THE MAGNETIC FIELD LINE THROUGH THE SC WERE ORTHOGONAL. IN THE NORTHERN HEMISPHERE, THE MCA SUPPORING BOOM WAS INCLINED EARTHWARD. BOTH THE MCR AND ECR OPERATED FROM 10 TO 3063 HZ. ALSO OPERATING FROM THE ECA WAS A NARROW-BAND STEP FREQUENCY RECEIVER (ECR 2) WHICH WAS RECEIVING THROUGH FILTERS WITH CENTER FREQUENCIES AT 7.5, 10.5, 22, 52.5, 70, AND 105 (PLUS OR MINUS 7.5 PERCENT) KHZ. SUPPLEMENTARY TO THESE THREE RECEIVERS AND TWO ANTENNAS WERE (1) A SPECIAL CIRCUIT THAT COULD MEASURE PHASE AND AMPLITUDE OF THE IMPEDANCE ON THE ECA BETWEEN 20 AND 2063 HZ AND (2) AN ELECTRON GUN USED TO BIAS THE ECA. THE MCR AND ECR1 OBSERVED AND TELEMETERED (ON A 0.8-W, 400-MHZ CHANNEL) ANALOG, BROADBAND DATA IN REAL TIME. WHEN THE SC WAS IN TELEMETRY RANGE OF A GROUND STATION. WHEN LATER ANALYZED, THE NORMAL DATA FORM FOR THESE BROADBAND DATA WERE PHOTOGRAPHICALLY PRODUCED FREQUENCY VS TIME PLOTS, (SPECTROGRAMS) PREPARED BY USE OF A SPECTRUM ANALYZER. SEPARATE PLOTS WERE REQUIRED TO SHOW THE DATA FROM EACH RECEIVER. THE IMPEDANCE OBSERVATIONS APPEAR ON THE ECR SPECTROGRAMS. WHEN OBSERVING WITH THE IMPEDANCE CIRCUIT ON, IMPEDANCE MEASUREMENTS REQUIRED 8 OF EACH 30 SEC OF WIDEBAND OBSERVING TIME. THE SIGNAL STRENGTH VALUES FROM THE ECR2, AND SEPARATELY FROM BOTH THE LOW (0.03 TO 0.65 KHZ) AND HIGH (0.3 TO 10 KHZ) RANGES OF THE ECR1 AND MCR, WERE RECORDED ON THE SC TAPE RECORDER AND COMPRISED THE DIGITAL DATA FOR THIS EXPERIMENT. THE RESOLUTION OF WIDEBAND DATA IS LARGELY DEPENDENT UPON THE SPECTRUM ANALYZER (AND ITS FILM TRANSPORT SPEED) USED FOR DATA PROCESSING. IN THIS EXPERIMENT, THE DIGITAL DATA WERE OBSERVED AND RECORDED OVER A 30-SEC CYCLE WITHIN WHICH THE SIGNAL AMPLITUDES FROM THE TWO LOW FREQUENCY STEPS OF THE ECR2 WERE OBSERVED EVERY 4 SEC (1-SEC DURATION) AND THE OTHER FREQUENCIES OBSERVED EVERY 8 SEC. WHEN THE IMPEDANCE CIRCUIT WAS ON, EIGHT SAMPLES OF THE STEP RECEIVER DATA WERE NOT OBSERVED DURING EACH 30-SEC CYCLE. EXPERIMENT PERFORMANCE WAS NOMINAL WITH THE EXCEPTION OF THE ELECTRON GUN OPERATION. THE CAUSE OF ITS INEFFECTIVE OPERATION WAS UNKNOWN, BUT THIS FAILURE WAS NOT A MAJOR LOSS TO THE EXPERIMENT RESULT. THIS FAILURE ONLY REDUCED THE CAPABILITY OF STUDYING ANTENNA CHARACTERISTICS UNDER DIFFERENT BIAS CONDITIONS. FAILURE OF THE SC POWER REGULATOR EARLY IN THE MISSION LIMITED OPERATION TO SOME EXTENT, BUT NOMINAL DATA WERE OBTAINED UNTIL MAY 29, 1970. DURING FEBRUARY TO JUNE 1971, WHEN THE SC WAS REACTIVATED, IT IS PRESUMED THAT ADDITIONAL VLF DATA WERE OBTAINED. PRINCIPAL TELEMETRY SITES FOR THE DATA THROUGH MAY 1970 WERE IN IOWA AND ALASKA. FURTHER EXPERIMENT DETAILS MAY BE FOUND IN GURNETT ET AL., UNIV. OF IOWA, REPORT 66-43, AND GURNETT ET AL., JGR VOL. 74, PP. 4631-4648.

DATA SET NAME- MASTER DATA TAPE INCLUDING VLF SIGNAL
STRENGTH

NSSDC ID- 68-066B-02A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 08/09/68 TO 05/29/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 949 REEL(S) OF MAGNETIC TAPE

THIS DATA SET, SUPPLIED BY THE EXPERIMENTER, CONSISTS OF A TIME-ORDERED MASTER FILE FOR EXPLORER 40 (INJUN 5) OF SATELLITE TELEMETRY DATA ON 949, 7-TRACK, UNIVAC 418, BINARY MAGNETIC TAPES WRITTEN AT 800 BPI WITH 696 CHARACTERS PER LOGICAL RECORD, 10 LOGICAL RECORDS PER PHYSICAL RECORD, A VARIABLE NUMBER OF PHYSICAL RECORDS PER FILE, AND ONE FILE PER TAPE. IN ADDITION TO EXPERIMENTAL DATA, THE FOLLOWING DATA ARE GIVEN -- TIME (UT-LOCAL), ORBIT NUMBER, GEOCENTRIC LOCATION (GEOGRAPHIC COORDINATES AND, EQUATORIAL INERTIAL COORDINATES, SATELLITE VELOCITY VECTOR, MAGNETIC FIELD LOCATION (DIPOLE MODEL, MCILWAIN L, AND INVARIANT LATITUDE), SOLAR RIGHT ASCENSION AND DECLINATION IN CELESTIAL COORDINATES, SUN ECLIPSE TIME, AND ATTITUDE OF SATELLITE. THIS SET OF TAPES CONTAINS DATA SETS 68-066B-01A, -02A, -03A, AND -04A. THE VLF DATA OCCUR IN DATA WORDS 62 THROUGH 65 OF EACH 90-WORD DATA FRAME AND CONTAIN INFORMATION ON SIGNAL STRENGTH OF THE SIX FREQUENCIES RECEIVED BY THE VLF RECEIVER. FURTHER DESCRIPTIONS OF THE CONTENT OF THE VLF DATA IS NOT YET AVAILABLE FROM NSSDC.

SPACECRAFT COMMON NAME- MARINER 5

ALTERNATE NAMES- VENUS, MARINER VENUS 67
02845

NSSDC ID- 67-060A

LAUNCH DATE- 06/14/67 WEIGHT- 245. KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 11/21/67

ORBIT PARAMETERS
ORBIT TYPE- HELIOCENTRIC EPOCH-DATE- 06/14/67
ORBIT PERIOD- 292. DAYS INCLINATION- 0. DEG
PERIAPSIS- .72 AU RAD APOAPSIS- 1.0 AU RAD

THE MARINER 5 SPACECRAFT WAS THE FIFTH IN A SERIES OF SPACECRAFT USED FOR PLANETARY EXPLORATION IN THE FLYBY MODE. MARINER 5 WAS A REFURBISHED BACKUP SPACECRAFT FOR THE MARINER 4 MISSION AND WAS CONVERTED FROM A MARS MISSION TO A VENUS MISSION. THE SPACECRAFT WAS FULLY ATTITUDE STABILIZED, USING THE SUN AND THE STAR CANOPUS AS REFERENCES. A CENTRAL COMPUTER AND SEQUENCER SUBSYSTEM SUPPLIED TIMING SEQUENCES AND COMPUTING SERVICES FOR OTHER SPACECRAFT SUBSYSTEMS. THE SPACECRAFT PASSED 4000 KM FROM VENUS ON OCTOBER 19, 1967. THE SPACECRAFT INSTRUMENTS MEASURED BOTH INTERPLANETARY AND VENUSIAN MAGNETIC FIELDS, CHARGED PARTICLES, AND PLASMAS, AS WELL AS THE RADIO REFRACTIVITY AND UV EMISSIONS OF THE VENUSIAN ATMOSPHERE. THE MISSION WAS TERMED A SUCCESS.

SMITH, MARINER 5

EXPERIMENT NAME- TRIAXIAL LOW FIELD HELIUM MAGNETOMETER

NSSDC ID- 67-060A-05

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 11/21/67

PERSONNEL
PI - E.J. SMITH ..... NASA-JPL
PASADENA, CA

FOR THIS EXPERIMENT A LOW-FIELD HELIUM MAGNETOMETER WAS USED TO OBTAIN TRIAXIAL MEASUREMENTS OF INTERPLANETARY AND VENUSIAN MAGNETIC FIELDS. ITS OPERATION DEPENDED ON THE VARIATION IN ABSORPTIVITY OF EXCITED HELIUM TO CIRCULARLY POLARIZED INFRARED LIGHT WITH APPLIED FIELD. SWEPT HELMHOLTZ COILS NULLED THE AMBIENT FIELD BY USE OF FEEDBACK CIRCUITS. MOUNTED ON A 1.5-M BOOM, THE INSTRUMENT'S DYNAMIC RANGE WAS PLUS OR MINUS 204 GAMMAS PER AXIS, WITH A MEASUREMENT PRECISION DETERMINED BY TELEMETRY CONSTRAINTS OF PLUS OR MINUS 0.2 GAMMA. OFFSET FIELDS WERE CORRECTABLE TO WITHIN 0.25 GAMMA PER COMPONENT. THE EXPERIMENT OPERATED IN A HIGH (LOW) BIT-RATE MODE OF 3 VECTOR SAMPLES SPACED 1/7, 2/7, AND 4/7 OF THE SEQUENCE EVERY 12.6 (50.4) SEC, THUS THE NYQUIST FREQUENCIES WERE ABOUT 0.12 AND 0.03 HZ RESPECTIVELY. HIGH-RATE DATA WERE OBTAINED FROM JUNE 14 TO JULY 24, 1967, AND FOR 4 HOURS ON OCTOBER 25, 1967. LOW BIT-RATE DATA WERE OBTAINED FOR THE REMAINDER OF THE EXPERIMENT'S USEFUL LIFETIME. QUALITY OF DATA WAS HIGH EXCEPT DURING SEPTEMBER 23 TO OCTOBER 1, 1967, WHEN TELEMETERED DATA WERE OF UNCERTAIN QUALITY.

DATA SET NAME- FINE-TIME SCALE MAGNETOMETER DATA ON TAPE

NSSDC ID- 67-060A-05A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/14/67 TO 11/21/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS EXPERIMENTER SUPPLIED DATA SET ON BINARY 556-BPI, 7-TRACK IBM 7094 MAGNETIC TAPE HAS A PHYSICAL RECORD SIZE OF 330 WORDS, AND A NOMINAL LOGICAL RECORD SIZE OF 652 WORDS. NOMINALLY THERE ARE 128 FRAMES OF DATA PER LOGICAL RECORD. EACH FRAME CONTAINS FIVE PACKED DATA WORDS, CORRESPONDING TO ONE TIME WORD AND CARTESIAN COMPONENTS OF THREE VECTOR READINGS OF THE MAGNETIC FIELD. THE TIME COVERED BY EACH FRAME IS 12.6 SEC FOR THE HIGH SATELLITE BIT RATE AND 50.4 SEC FOR THE LOW RATE. AT THE END OF EACH LOGICAL RECORD ARE CONTAINED EPHEMERIS INFORMATION AND DATA REQUIRED TO GENERATE THE ORIGINAL TELEMETERED DATA IN SPACECRAFT COORDINATES. THESE DATA ARE IN THE JPL VERSION OF SPACECRAFT-CENTERED SOLAR ECLIPTIC COORDINATES WITH THE X AXIS POINTING RADIALLY AWAY FROM THE SUN, THE Y AXIS POINTING IN THE DIRECTION OF PLANETARY MOTION, AND THE Z AXIS NORMAL TO THE ECLIPTIC (POSITIVE NORTH). ALL AVAILABLE GOOD QUALITY DATA POINTS ARE CONTAINED ON THIS TAPE -- ABOUT 300,000 VECTOR VALUES.

DATA SET NAME- 1-, 3-, AND 24-HOUR AVERAGES OF INTERPLANETARY MAGNETIC FIELD VECTORS

NSSDC ID- 67-060A-05B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/14/67 TO 11/21/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS 9-TRACK, 800-BPI, IBM 360, BINARY TAPE, SUPPLIED BY THE EXPERIMENTER, CONTAINS AVERAGED DATA FROM THE JPL HELIUM MAGNETOMETER EXPERIMENT ON MARINER 5. THERE ARE TWO LOGICAL RECORDS PER 24 HR OF DATA. THE FIRST LOGICAL RECORD SPANS 20 PHYSICAL RECORDS OF 257 WORDS AND ONE PHYSICAL RECORD OF 173 WORDS. THIS RECORD CONTAINS TIME, EPHEMERIS, 168.75-SEC, 22.5-MIN, 3-HR, AND 1-DAY AVERAGES OF THE MAGNETIC FIELD VECTOR COMPONENTS IN GSE COORDINATES, AND THE FIELD MAGNITUDE, VARIANCE, AND NUMBER OF VECTOR READINGS IN EACH AVERAGE. THE SECOND LOGICAL RECORD SPANS SIX PHYSICAL RECORDS OF 255 WORDS AND ONE PHYSICAL RECORD OF 227 WORDS. IT CONTAINS THE CROSS VARIANCES FOR EACH OF THE ABOVE SETS OF AVERAGES.

DATA SET NAME- 1-DAY, 3-HR, AND 1-HR AVG PLOTS OF TRIAXIAL MAGNETOMETER DATA ON MICROFILM

NSSDC ID- 67-060A-05C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/14/67 TO 11/21/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF ONE REEL OF 35-MM EXPERIMENTER-GENERATED MICROFILM, AS FOLLOWS -- (1) 1 HR AVERAGES FROM JUNE 14, 1967, TO JULY 23, 1967, (2) 3 HR AVERAGES FROM JULY 24, 1967, TO NOVEMBER 21, 1967, AND (3) 1 DAY AVERAGES FROM JUNE 14, 1967, TO NOVEMBER 21, 1967. THE MAGNETIC FIELD MAGNITUDE AVERAGE AND AVERAGES OF THE VECTOR COMPONENTS IN THE JPL VERSION OF SPACECRAFT CENTERED SOLAR ECLIPTIC COORDINATES ARE PLOTTED. DATA COVERAGE IS NEARLY COMPLETE.

DATA SET NAME- TRIAXIAL MAGNETIC FIELD MEASUREMENTS FOR THE MARINER ENCOUNTER WITH VENUS

NSSDC ID- 67-060A-05D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 10/19/67 TO 10/19/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS TAPE GENERATED FROM CARDS PROVIDED BY THE EXPERIMENTER CONTAINS APPROXIMATELY 46.8-SEC AVERAGES OF THE MAGNETIC FIELD MAGNITUDE AND VECTOR COMPONENTS IN SPACECRAFT COORDINATES. SINCE MARINER 5 WAS THREE-AXIS STABILIZED, THESE COMPONENTS REPRESENT THE FIELD COMPONENTS ALONG THE SPACECRAFT SUN LINE, IN THE DIRECTION OF MOTION ABOUT THE SUN, AND NORMAL TO THE ECLIPTIC PLANE. ALSO CONTAINED ON EACH CARD ARE THE STANDARD DEVIATIONS FOR EACH OF THE AVERAGES. DATA IN THIS DATA SET COMPLEMENT THE DATA ON MAGNETIC TAPE (05A) AND CONTAINS ONLY THE DATA RELEVANT TO THE VENUS PLANETARY ENCOUNTER.

SPACECRAFT COMMON NAME- OGO 1

ALTERNATE NAMES- EOGO 1, OGO-A
00879, S 49

NSSDC ID- 64-054A

LAUNCH DATE- 09/05/64 WEIGHT- 487. KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 11/25/69

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 09/07/64
ORBIT PERIOD- 3839. MIN INCLINATION- 31.2 DEG
PERIAPSIS- 281.000 KM ALT APOAPSIS- 149385. KM ALT

THE PURPOSE OF THE OGO 1 SPACECRAFT, THE FIRST OF A SERIES OF SIX ORBITING GEOPHYSICAL OBSERVATORIES, WAS TO CONDUCT MANY DIVERSIFIED GEOPHYSICAL EXPERIMENTS TO OBTAIN A BETTER UNDERSTANDING OF THE EARTH AS A PLANET AND TO DEVELOP AND OPERATE A STANDARDIZED OBSERVATORY-TYPE SATELLITE. OGO 1 CONSISTED OF A MAIN BODY THAT WAS PARALLELEPIPED IN FORM, TWO SOLAR PANELS, EACH WITH A SOLAR-ORIENTED EXPERIMENT PACKAGE (SOEP), TWO ORBITAL PLANE EXPERIMENT PACKAGES (OPEP) AND SIX APPENDAGES EP-1 THROUGH EP-6 SUPPORTING THE BOOM-EXPERIMENT PACKAGES. ONE FACE OF THE MAIN BODY WAS DESIGNED TO POINT TOWARD THE EARTH (+Z AXIS), AND THE LINE CONNECTING THE TWO SOLAR PANELS (X AXIS) WAS INTENDED TO BE PERPENDICULAR TO THE EARTH-SUN-SPACECRAFT PLANE. THE SOLAR PANELS WERE ABLE TO ROTATE ABOUT THE X AXIS. THE OPEP'S WERE MOUNTED ON AND COULD ROTATE ABOUT AN AXIS WHICH WAS PARALLEL TO THE Z AXIS AND ATTACHED TO THE MAIN BODY. DUE TO A BOOM DEPLOYMENT FAILURE SHORTLY AFTER ORBITAL INJECTION, THE SPACECRAFT WAS PUT INTO A PERMANENT SPIN MODE OF 5 RPM ABOUT THE Z AXIS. THIS SPIN AXIS REMAINED FIXED WITH A DECLINATION OF ABOUT -10 DEG AND RIGHT ASCENSION OF ABOUT 40 DEG AT LAUNCH. THE INITIAL LOCAL TIME OF APOGEE WAS 2100 HR. OGO 1 CARRIED 20 EXPERIMENTS. TWELVE OF THESE WERE PARTICLE STUDIES AND TWO WERE MAGNETIC FIELD STUDIES. IN ADDITION, THERE WAS ONE EXPERIMENT FOR EACH OF THE FOLLOWING TYPES OF STUDIES -- INTERPLANETARY DUST, VLF, LYMAN-ALPHA, GEGENSCHEIN, ATMOSPHERIC MASS, AND RADIO ASTRONOMY. REAL-TIME DATA WERE TRANSMITTED AT 1, 8, OR 64 KBS DEPENDING ON THE DISTANCE OF THE SPACECRAFT FROM THE EARTH. PLAYBACK DATA WERE TAPE RECORDED AT 1 KBS AND TRANSMITTED AT 64 KBS. TWO WIDEBAND TRANSMITTERS, ONE FEEDING INTO AN OMNIDIRECTIONAL ANTENNA AND THE OTHER FEEDING INTO A DIRECTIONAL ANTENNA, WERE USED TO TRANSMIT DATA. A SPECIAL-PURPOSE TELEMETRY SYSTEM, FEEDING INTO EITHER ANTENNA, WAS ALSO USED TO TRANSMIT WIDEBAND DATA IN REAL TIME ONLY. TRACKING WAS ACCOMPLISHED BY USING RADIO BEACONS AND A RANGE AND RANGE-RATE S-BAND TRANSPONDER. BECAUSE OF THE BOOM DEPLOYMENT FAILURE, THE BEST OPERATING MODE FOR THE DATA HANDLING SYSTEM WAS THE USE OF ONE OF THE WIDEBAND TRANSMITTERS AND THE DIRECTIONAL ANTENNA. ALL DATA RECEIVED FROM THE OMNIDIRECTIONAL ANTENNA WERE NOISY. DURING SEPTEMBER 1964, ACCEPTABLE DATA WERE RECEIVED OVER 70 PERCENT OF THE ORBITAL PATH. BY JUNE 1969, DATA ACQUISITION WAS LIMITED TO 10 PERCENT OF THE ORBITAL PATH. THE SPACECRAFT WAS PLACED IN A STAND-BY STATUS NOVEMBER 25, 1969, AND ALL SUPPORT WAS TERMINATED NOVEMBER 1, 1971. BY APRIL 1970, THE SPACECRAFT PERIGEE HAD INCREASED TO 46,000 KM AND THE INCLINATION HAD INCREASED TO 58.8 DEG.

DATA SET NAME- MULTICOORDINATE SYSTEM EPHEMERIS PLOTS

NSSDC ID- 64-054A-00H

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 09/07/64 TO 06/03/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF 35-MM MICROFILM, FILMED BY NSSDC FROM EXPERIMENTER-GENERATED CALCOMP PLOTS. THE DATA SET CONTAINS TWO-DIMENSIONAL PROJECTIONS OF INDIVIDUAL ORBITS, WITH TIC MARKS FOR TIME, IN A VARIETY OF COORDINATE SYSTEMS. INCLUDED ARE THE DISTANCE FROM THE EARTH-SUN-LINE GEOMAGNETIC DIPOLE PLANE, DISTANCE FROM THE NEUTRAL SHEET, THE ORBIT IN GEOCENTRIC SOLAR MAGNETOSPHERIC COORDINATES, DISTANCE FROM THE EARTH-SUN-LINE ECLIPTIC POLE PLANE, AND THE ORBIT IN GEOCENTRIC ECLIPTIC COORDINATES. ONE ORBIT IS INCLUDED PER PLOT, AND DISTANCES ARE ALL IN EARTH RADII.

SMITH, OGO 1

EXPERIMENT NAME- TRIAXIAL SEARCH-COIL MAGNETOMETER

NSSDC ID- 64-054A-01

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 11/25/69

PERSONNEL
PI - E.J. SMITH ..... NASA-JPL
PASADENA, CA
OI - R.E. HOLZER ..... U OF CALIF, LA
LOS ANGELES, CA

THE OGO 1 TRIAXIAL SEARCH COIL MAGNETOMETER WAS DESIGNED TO MEASURE THE MAGNETIC FIELD FLUCTUATIONS FROM 0.01 TO 1 KHZ. DUE TO A SPACECRAFT MALFUNCTION, THE OGO SATELLITE ASSUMED A SPIN-STABILIZED MODE WITH A 12-SEC PERIOD. THIS MEANT THE MAGNETOMETER OUTPUT WAS MODULATED WITH AN APPROXIMATELY SINUSOIDAL SIGNAL, PROVIDING A MEASURE OF THE DC COMPONENT OF THE MAGNETIC FIELD PERPENDICULAR TO THE SPIN AXIS AS WELL AS THE AC DATA. THE MAGNETOMETER ASSEMBLY WAS ON A 6.1-M BOOM, AND THE ELECTRONICS WERE IN THE BODY OF THE SPACECRAFT. THE SENSITIVITY WAS 10 MICROVOLTS PER GAMMA-SEC. THE LOW-FREQUENCY CHANNEL WAS SAMPLED FIVE TIMES EVERY 1.152 SEC BY THE TELEMETRY SYSTEM WHEN THE DATA RATE WAS 1 KBS, AND PROPORTIONALLY FASTER FOR THE HIGHER TELEMETRY RATES OF 8 AND 64 KBS. HOWEVER, DUE TO THE SPACECRAFT SPIN, THE HIGHEST BIT RATE COULD NOT BE USED WHEN THE SATELLITE WAS MORE THAN 10 EARTH RADII AWAY. THE UPPER FREQUENCY CUTOFF (TO AVOID ALIASING IN THE DATA) WAS 2 HZ FOR THE 1- AND 8-KBS TELEMETRY RATES, AND 130 HZ FOR THE 64-KBS RATE. THE HIGH-FREQUENCY CHANNEL PROVIDED SPECTRAL ANALYSIS INFORMATION FOR FREQUENCIES FROM 1 TO 10 KHZ IN FIVE STEPS. THE EXPERIMENT OPERATED SATISFACTORILY, AVERAGING ABOUT 4000 HR OF DATA PER YEAR.

DATA SET NAME- 36.864-SEC AVERAGED SEARCH-COIL MAGNETOMETER DATA ON TAPE

NSSDC ID- 64-054A-01A

AVAILABILITY OF DATA SET- DATA AT NSSDC PROCESSING DEFERRED

TIME PERIOD COVERED- 09/23/64 TO 11/17/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 29 REEL(S) OF MAGNETIC TAPE

THESE 29 EXPERIMENTER-GENERATED 7-TRACK, 556-BPI, BCD MAGNETIC TAPES CONTAIN 36.864-SEC AVERAGED SEARCH COIL MAGNETOMETER DATA FROM ALL EXPERIMENT MODES. EACH FILE CONTAINS, IN ABOUT 1600 RECORDS, DATA FROM ONE ORBIT, WITH THE POSSIBILITY OF SOME OVERLAP AT THE END OF EACH FILE. AN INDEX TO EACH FILE IS CONTAINED ON MICROFILM IN DATA SET 64-054A-01D. IN EACH RECORD ARE TIME AND THE AVERAGED VECTOR FIELD NOISE AMPLITUDES FOR THE 10-, 30-, 100-, 300-, AND 800-HZ CENTER FREQUENCY CHANNELS. REAL-TIME DATA AND TAPE RECORDED PLAYBACK DATA WERE PROCESSED SEPARATELY, THOUGH THE TAPES CONTAIN CONSECUTIVE DATA. MERGING OF THESE TWO TYPES OF DATA WAS NOT PERFORMED. AS THE INSTRUMENT RESPONDED DIFFERENTLY TO BROADBAND AND MONOTONE SIGNALS, IT WAS NOT POSSIBLE TO CALIBRATE THE MEASURED FIELD SIGNAL MAGNITUDES WITHOUT INDEPENDENT KNOWLEDGE OF THE NATURE OF THE MEASURED SIGNAL. IN ANY CASE, THESE DATA ARE USEFUL AS INDICATORS OF THE TIMES AND PLACES OF MAGNETIC ACTIVITY, AND MAY BE USED TO IDENTIFY SHOCK FRONTS, MAGNETOPAUSE CROSSINGS, PLASMAPAUSE CROSSINGS, THE NATURE OF MAGNETOSPHERIC WAVES, ETC., TO THE NEAREST MINUTE.

DATA SET NAME- SEARCH-COIL MAGNETOMETER SQUISH PLOTS ON MICROFILM

NSSDC ID- 64-054A-01B

AVAILABILITY OF DATA SET- DATA AT NSSDC PROCESSING DEFERRED

TIME PERIOD COVERED- 09/23/64 TO 03/10/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS REEL OF EXPERIMENTER-GENERATED 35-MM MICROFILM HAS 13 SEPARATE ABSCISSA-ORDINATE COMBINATIONS PLOTTED AGAINST COMMON TIME. THE REEL CONTAINS THE MAGNITUDE OF THE VECTOR -- 10-, 30-, 100-, AND 800-HZ DATA, AVERAGED OVER 147.45 SEC, THE 36.864-SEC AVERAGED 10-HZ Z CHANNEL IN SPACECRAFT COORDINATES (COMPONENT ALONG SPIN AXIS) AND AN INDICATOR OF THE DATA QUALITY ARE ALSO INCLUDED, AS WELL AS DATA FROM THIS INSTRUMENT, PROCESSED INTO TWO BANDS. VECTOR DATA (IN SPINNING

SPACECRAFT COORDINATES) FOR FREQUENCIES GREATER THAN 0.2 HZ, AND VECTOR DATA FOR FREQUENCIES BETWEEN 0.15 AND 0.1 HZ ARE AVERAGED OVER 36.864 SEC. THESE DATA WERE RECEIVED IN AN EXTREMELY COMPRESSED FORMAT, AND BLOWN BACK TO A FULL-SIZE PLOT 6 FT IN LENGTH AND 1 FT IN WIDTH. THESE DATA CAN BE USED TO LOCATE REGIONS OF MAGNETIC ACTIVITY SUCH AS SHOCK FRONTS, MAGNETOPAUSE CROSSINGS, ETC., TO A CRUDE TIME OR SPATIAL SCALE. UNFORTUNATELY, MUCH OF THE FILM IS OF POOR QUALITY AND MAY BE DIFFICULT TO USE. SHORT PORTIONS OF THE DATA WHICH WERE ORIGINALLY OF POOR QUALITY WERE REFILMED AND ARE INCLUDED AT THE END OF THE ORIGINAL DATA SET. AN INDEX IN THE FRONT OF THE DATA SET IDENTIFIES THE INTERVALS THAT ARE NOT IN CHRONOLOGICAL ORDER.

DATA SET NAME- MAGNETIC FIELD MAGNITUDE AND DIRECTION
NORMAL TO THE SPACECRAFT SPIN AXIS ON FILM

NSSDC ID- 64-054A-01C

AVAILABILITY OF DATA SET- DATA AT NSSDC PROCESSING DEFERRED

TIME PERIOD COVERED- 09/05/64 TO 09/29/66
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF ONE REEL OF 35-MM MICROFILM MADE BY NSSDC FROM EXPERIMENTER-GENERATED CALCOMP PLOTS CONTAINING MEASUREMENTS OF THE AMPLITUDE AND DIRECTION OF THE MAGNETIC FIELD COMPONENT IN THE PLANE NORMAL TO THE OGO SPACECRAFT SPIN AXIS. THE TIME RESOLUTION RETRIEVABLE FROM THESE PLOTS IS LIMITED TO ABOUT 10 MINUTES.

SPACECRAFT COMMON NAME- OGO 2

ALTERNATE NAMES- OGO-C, POGO 1
S 50, 01620

NSSDC ID- 65-081A

LAUNCH DATE- 10/14/65 WEIGHT- 520. KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 02/00/68

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 10/15/65
ORBIT PERIOD- 104. MIN INCLINATION- 87.356 DEG
PERIAPSIS- 414.000 KM ALT APOAPSIS- 1510.00 KM ALT

OGO 2 WAS A LARGE OBSERVATORY INSTRUMENTED WITH 20 EXPERIMENTS DESIGNED TO MAKE SIMULTANEOUS, CORRELATIVE OBSERVATIONS OF AURORA AND AIRGLOW EMISSIONS, ENERGETIC PARTICLES, MAGNETIC FIELD VARIATIONS, IONOSPHERIC PROPERTIES, ETC., ESPECIALLY OVER THE POLAR AREAS. OGO 2 CONSISTED OF A MAIN BODY, GENERALLY PARALLELEPIPED IN FORM, TWO RECTANGULAR SOLAR PANELS, EACH WITH A SOLAR-ORIENTED EXPERIMENT PACKAGE (SOEP), AND TWO ORBITAL PLANE EXPERIMENT PACKAGES (OPEP). IT ALSO INCLUDED SIX EXPERIMENT PACKAGES (EP) MOUNTED ON BOOMS EXTENDING GENERALLY FORE AND AFT OF THE SPACECRAFT ALONG THE Y AXIS. ANTENNA AND ATTITUDE CONTROL FIXTURES ALSO EXTENDED FROM SEPARATE AND/OR EP BOOMS. THE MAIN BODY WAS ATTITUDE-CONTROLLED BY USE OF HORIZON SCANNERS AND GAS JETS AND WAS DESIGNED TO POINT TOWARD THE EARTH (Z AXIS). THE AXIS CONNECTING THE TWO SOLAR PANELS (X AXIS) WAS DESIGNED TO OSCILLATE IN ORDER TO REMAIN PERPENDICULAR TO THE EARTH-SUN-SPACECRAFT PLANE. THE SOLAR PANELS ACTIVATED BY SUN SENSORS COULD ROTATE ABOUT THIS X AXIS IN ORDER TO OBTAIN MAXIMUM RADIATION FOR THE SOLAR CELLS AND CONCURRENTLY ORIENT THE SOEP PROPERLY. THE OPEP'S WERE REORIENTED ON EITHER END OF AN AXIS THAT WAS PARALLEL TO THE Z AXIS AND ATTACHED TO THE FORWARD END OF THE MAIN BODY. THESE OPEP SENSORS NORMALLY WERE MAINTAINED LOOKING FORWARD IN THE ORBITAL PLANE OF THE SATELLITE. TO MAINTAIN THIS ORIENTATION, THE OPEP AXIS COULD ROTATE OVER 90 DEG. IN ADDITION, AN ANGULAR DIFFERENCE OF OVER 90 DEG WAS POSSIBLE BETWEEN THE ORIENTATION OF THE UPPER AND LOWER OPEP PACKAGES. THE SOEP CONTAINED FOUR EXPERIMENTS, AND THE OPEP CONTAINED FIVE EXPERIMENTS. NEWTON'S PARTICLE EXPERIMENT FAILED ON LAUNCH, AND KREPLIN'S SOLAR X-RAY EXPERIMENT FAILED SHORTLY THEREAFTER. SOON AFTER ACHIEVING ORBIT, DIFFICULTIES IN MAINTAINING EARTH LOCK WITH HORIZON SCANNERS CAUSED EXHAUSTION OF ATTITUDE CONTROL GAS BY OCTOBER 23, 1965, 10 DAYS AFTER LAUNCH. AT THIS TIME, THE SPACECRAFT ENTERED A SPIN MODE (ABOUT 0.11 RPM) WITH A LARGE CONING ANGLE ABOUT THE PREVIOUSLY VERTICAL AXIS. FIVE EXPERIMENTS BECAME USELESS WHEN THE SATELLITE WENT INTO THIS SPIN MODE. SIX ADDITIONAL EXPERIMENTS WERE DEGRADED BY THIS LOSS OF ATTITUDE CONTROL. BY APRIL 1966, BOTH BATTERIES HAD FAILED, SO SUBSEQUENT OBSERVATIONS WERE LIMITED TO SUNLIT PORTIONS OF THE ORBIT. BY DECEMBER 1966, ONLY EIGHT EXPERIMENTS WERE OPERATIONAL, FIVE OF WHICH WERE NOT DEGRADED BY THE SPIN MODE OPERATION. BY APRIL 1967, THE TAPE RECORDERS HAD MALFUNCTIONED AND ONLY ONE THIRD OF THE RECORDED DATA COULD BE PROCESSED. SPACECRAFT POWER AND PERIODS OF OPERATIONAL SCHEDULING CONFLICTS CREATED SIX LARGE DATA GAPS SO THAT DATA WERE OBSERVED ON A TOTAL OF ABOUT 306 DAYS OF THE TWO-YR 18-DAY TOTAL SPAN OF OBSERVED SATELLITE DATA TO NOVEMBER 1, 1967. THE DATA GAPS WERE -- (A) OCTOBER 24, 1965 TO NOVEMBER 5, 1965, (B) DECEMBER 6, 1965 TO JANUARY 7, 1966, (C) APRIL 9, 1966 TO JUNE 21, 1966, (D) SEPTEMBER 2, 1966 TO NOVEMBER 18, 1966, (E) DECEMBER 27, 1966 TO APRIL 11, 1967, AND (F) MAY 9, 1967 TO SEPTEMBER 19, 1967. THE SPACECRAFT WAS SHUT DOWN ON NOVEMBER 1, 1967 WITH EIGHT EXPERIMENTS STILL OPERATIONAL. IT WAS REACTIVATED FOR TWO WEEKS IN FEBRUARY 1968 TO OPERATE EXPERIMENT 5 (J. CAIN).

CAIN, OGO 2

EXPERIMENT NAME- RUBIDIUM VAPOR MAGNETOMETER

NSSDC ID- 65-081A-05

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 10/02/67

PERSONNEL
PI - J.C. CAIN ..... NASA-GSFC
GREENBELT, MD
OI - R.A. LANGEL ..... NASA-GSFC
GREENBELT, MD

THE PRIMARY OBJECTIVES OF THIS EXPERIMENT WERE TO REFINE THE ANALYTICAL DESCRIPTION OF THE MAIN GEOMAGNETIC FIELD (AS PART OF THE U.S. CONTRIBUTION TO THE WORLD MAGNETIC SURVEY) AND TO MEASURE THE SECULAR CHANGE IN THE MAIN FIELD. THE DETECTOR SYSTEM CONSISTED OF TWO DUAL-CELL, OPTICALLY PUMPED, SELF-OSCILLATING, RUBIDIUM (85) VAPOR MAGNETOMETERS. THE OSCILLATION FREQUENCY (PROPORTIONAL TO THE AMBIENT FIELD MAGNITUDE) WAS COUNTED BY TWO ELECTRONIC SCALERS FOR ALTERNATE HALF-SECONDS. EACH SCALER WAS READ OUT ONCE IN EACH MAIN FRAME. SINCE THE SPACECRAFT OPERATED AT 4 KBS, 16 KBS, OR 64 KBS, THE MAIN FRAME WAS READ OUT IN 0.288, 0.072, OR 0.018 SEC. BECAUSE OF THE RATE DIFFERENCE BETWEEN THE HALF-SECOND SAMPLING TIMES AND THE TIMES BETWEEN READOUTS, THE SAME DATA POINT WAS OFTEN READ OUT MORE THAN ONCE. THE OSCILLATION FREQUENCY OF THE MAGNETOMETER WAS ALSO TRANSMITTED IN REAL TIME ON ONE CHANNEL OF THE SPACECRAFT'S SPECIAL PURPOSE TELEMETER TO PROVIDE INFORMATION ON FIELD FLUCTUATIONS. THIS MAGNETOMETER SYSTEM MADE SCALAR MEASUREMENTS OVER A RANGE OF 15,000 TO 64,000 GAMMAS AND HAD PRECISION OF 0.5 TO 1.5 GAMMAS OVER THIS RANGE. SPACECRAFT FIELDS ARE EXPECTED TO INTRODUCE AN OFFSET INTO THE ABSOLUTE FIELD MEASUREMENT. IN SPITE OF THE SPACECRAFT ATTITUDE CONTROL SYSTEM PROBLEMS, THE MAGNETOMETER FUNCTIONED WELL. THE INSTRUMENT OPERATION WAS NOMINAL FOR THE FIRST SIX MONTHS OF THE SATELLITE LIFETIME, AFTER WHICH A FAILURE OF ONE SCALAR POWER SUPPLY CAUSED THE LOSS OF THE SPECIAL PURPOSE TELEMETRY SIGNAL AND HALF OF THE DIGITAL DATA. THE REDUCTION IN THE SCIENTIFIC USEFULNESS OF THE DATA RECEIVED FROM THE REMAINING SCALER WAS MINOR, HOWEVER, BECAUSE OF THE REDUNDANCIES BUILT INTO THE SYSTEM. THE REST OF THE DATA FROM THE MAGNETOMETER WERE OBTAINED WITH THE REMAINING SCALER UNTIL MAY 1967 AND THEN IN THE INTERVAL FROM SEPTEMBER 19 TO OCTOBER 2, 1967, DURING WHICH TIME DATA COLLECTION WAS VERY INTERMITTENT.

DATA SET NAME- MICROFILM PLOTS OF REDUCED MAGNETIC AND
DELTA FIELD (CAIN 12/66 GSFC MODEL) DATA

NSSDC ID- 65-081A-05C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 10/14/65 TO 01/22/66
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS REDUCED DATA SET, SUPPLIED BY THE EXPERIMENTER, CONSISTS OF PLOTS OF 0.5-SEC AVERAGES OF THE MAGNETIC FIELD MAGNITUDE AND PLOTS OF THE DIFFERENCE BETWEEN THE MEASURED FIELD AND THE CAIN (12/66) GSFC FIELD MODEL. APOGEE, PERIGEE, TIME, LONGITUDE, LATITUDE, AND SATELLITE ALTITUDE ARE MARKED ON EACH PLOT. THERE ARE SIX TIMES AND NINE LATITUDES, ALTITUDES, AND LONGITUDES INDICATED ON EACH PLOT. EACH PLOT COVERS 1.5 HR, OR ABOUT ONE ORBIT. THE DATA ARE CONTAINED ON ONE REEL OF 35-MM MICROFILM AND HAVE AN 80 PERCENT COVERAGE FOR THE TIME PERIOD INDICATED.

DATA SET NAME- MICROFILM PLOTS OF REDUCED MAGNETIC AND DELTA FIELD (CAIN 10/68 POGO MODEL) DATA

NSSDC ID- 65-081A-05F

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 10/14/65 TO 10/02/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MICROFILM

THIS REDUCED DATA SET, SUPPLIED BY THE EXPERIMENTER, CONSISTS OF PLOTS OF 0.5-SEC AVERAGES OF THE MAGNETIC FIELD MAGNITUDE AND PLOTS OF THE DIFFERENCE BETWEEN THE MEASURED FIELD AND THE CAIN POGO (10/68) GSFC FIELD MODEL. APOGEE, PERIGEE, TIME, LONGITUDE, LATITUDE, AND SATELLITE ALTITUDE ARE MARKED ON EACH PLOT. THERE ARE SIX TIMES AND NINE LATITUDES, ALTITUDES, AND LONGITUDES INDICATED ON EACH PLOT. EACH PLOT COVERS 1.5 HR, OR ABOUT ONE ORBIT. THE DATA ARE CONTAINED ON TWO REELS OF 35-MM MICROFILM AND HAVE AN 80 PERCENT COVERAGE FOR THE FOLLOWING TIME PERIODS -- OCTOBER 14, 1965, TO OCTOBER 24, 1965, OCTOBER 29, 1965, TO APRIL 2, 1966, JUNE 11, 1966, TO JUNE 12, 1966, JUNE 29, 1966, TO AUGUST 4, 1966, NOVEMBER 22, 1966, TO DECEMBER 22, 1966, APRIL 11, 1967, TO MAY 8, 1967, AND SEPTEMBER 19, 1967, TO OCTOBER 2, 1967.

DATA SET NAME- COMPRESSED 0.5-SEC REDUCED MAGNETIC FIELD AVERAGES ON TAPE

NSSDC ID- 65-081A-05G

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 10/14/65 TO 10/02/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 4 REEL(S) OF MAGNETIC TAPE

THIS REDUCED DATA SET, SUPPLIED BY THE EXPERIMENTER, CONSISTS OF 0.5-SEC AVERAGES OF THE MAGNETIC FIELD MAGNITUDE EVERY 0.5 SEC OR EVERY 1 SEC. NO EPHEMERIS INFORMATION IS INCLUDED. THE DATA ARE CONTAINED ON FOUR 7-TRACK, 800-BPI, BINARY MAGNETIC TAPES. THESE TAPES WERE PRODUCED ON AN IBM 7094. THE DATA ON EACH TAPE ARE CONTAINED IN ONE FILE OF VARIABLE-LENGTH RECORDS. THE DATA ARE TIME ORDERED, AND TIME IS EXPRESSED IN JULIAN DAY AND MSEC OF THE JULIAN DAY. A FORTRAN IV PROGRAM IS AVAILABLE TO COMPUTE THE DIFFERENCE BETWEEN THE OBSERVED FIELD AND EITHER THE GEOMAGNETIC FIELD MODEL THAT USES THE POGO 10/68 COEFFICIENTS OR THE MODEL THAT USES THE GSFC 12/66 COEFFICIENTS. THE COEFFICIENTS AND THE EPHEMERIS TAPE REQUIRED FOR THIS PROGRAM ARE AVAILABLE. THE EPHEMERIS TAPE IS 7-TRACK, BINARY, WRITTEN AT 556 BPI AND PRODUCED ON A 7094. IT CONTAINS ONE FILE.

DATA SET NAME- 0.5-SEC AVERAGES OF MAGNETIC FIELD MAGNITUDE SAMPLED EVERY 10 SEC ON TAPE

NSSDC ID- 65-081A-05H

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 10/14/65 TO 10/02/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET, SUPPLIED BY THE EXPERIMENTER, CONSISTS OF 0.5-SEC AVERAGES OF THE MAGNETIC FIELD MAGNITUDE EVERY 10 SEC. NO EPHEMERIS INFORMATION IS INCLUDED. THE DATA ARE CONTAINED ON ONE 7-TRACK, 800-BPI, BINARY MAGNETIC TAPE. THIS TAPE WAS PRODUCED ON AN IBM 7094. THE DATA ARE CONTAINED IN ONE FILE OF VARIABLE-LENGTH RECORDS. THE DATA ARE TIME ORDERED, AND TIME IS EXPRESSED IN JULIAN DAY AND MSEC OF THE JULIAN DAY. A FORTRAN IV PROGRAM IS AVAILABLE TO COMPUTE THE DIFFERENCE BETWEEN THE OBSERVED FIELD AND EITHER THE GEOMAGNETIC FIELD MODEL THAT USES THE POGO 10/68 COEFFICIENTS OR THE MODEL THAT USES THE GSFC 12/66 COEFFICIENTS. THE COEFFICIENTS AND THE EPHEMERIS TAPE REQUIRED FOR THIS PROGRAM ARE AVAILABLE. THE EPHEMERIS TAPE IS 7-TRACK, BINARY, WRITTEN AT 556 BPI AND PRODUCED ON A 7094. IT CONTAINS ONE FILE.

ORIGINAL PAGE IS OF POOR QUALITY

SPACECRAFT COMMON NAME- OGO 3

ALTERNATE NAMES- OGO-B, EOGO 3
02195, S 49A

NSSDC ID- 66-049A

LAUNCH DATE- 06/07/66 WEIGHT- 515. KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 12/01/69

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 06/19/66
ORBIT PERIOD- 2915. MIN INCLINATION- 31.4 DEG
PERIAPSIS- 319.000 KM ALT APOAPSIS- 128511. KM ALT

THE PURPOSE OF THE OGO 3 SPACECRAFT, THE THIRD OF A SERIES OF SIX ORBITING GEOPHYSICAL OBSERVATORIES, WAS TO CONDUCT MANY DIVERSIFIED GEOPHYSICAL EXPERIMENTS TO OBTAIN A BETTER UNDERSTANDING OF THE EARTH AS A PLANET. OGO 3 CONSISTED OF A MAIN BODY THAT WAS PARALLELEPIPED IN FORM, TWO SOLAR PANELS, EACH WITH A SOLAR-ORIENTED EXPERIMENT PACKAGE (SOEP), AND TWO ORBITAL PLANE EXPERIMENT PACKAGES (OPEP). ONE FACE OF THE MAIN BODY WAS DESIGNED TO BE EARTH POINTING (Z AXIS), AND THE LINE CONNECTING THE TWO SOLAR PANELS (X AXIS) WAS INTENDED TO BE PERPENDICULAR TO THE EARTH-SUN-SPACECRAFT PLANE. THE SOLAR PANELS WERE ABLE TO ROTATE ABOUT THE X AXIS. THE OPEP'S WERE MOUNTED ON, AND COULD ROTATE ABOUT, AN AXIS WHICH WAS PARALLEL TO THE Z AXIS AND ATTACHED TO THE MAIN BODY. DUE TO A FAILURE IN THE ATTITUDE CONTROL SUBSYSTEM ON JULY 23, 1966, THE SPACECRAFT WAS PUT INTO A PERMANENT SPIN MODE ABOUT THE Z AXIS. BOTH THE ORIENTATION OF THE SPIN AXIS AND THE SPIN PERIOD WERE VARIABLE, THE LATTER USUALLY IN THE RANGE 90 SEC TO 125 SEC. AT LAUNCH, THE LOCAL TIME OF APOGEE WAS 2300 HR. OGO 3 CARRIED 21 EXPERIMENTS. THIRTEEN OF THESE WERE PARTICLE STUDIES, AND TWO WERE MAGNETIC FIELD STUDIES. IN ADDITION, THERE WAS ONE EACH OF THE FOLLOWING TYPES OF EXPERIMENTS -- INTERPLANETARY DUST, VLF, LYMAN-ALPHA, GEGENSCHEIN, ATMOSPHERIC COMPOSITION, AND RADIO ASTRONOMY. REAL-TIME DATA WERE TRANSMITTED AT 1, 8, OR 64 KBS DEPENDING ON THE DISTANCE FROM THE SPACECRAFT TO EARTH. PLAYBACK DATA WERE TAPE RECORDED AT 1 KBS AND TRANSMITTED AT 64 KBS. TWO WIDEBAND TRANSMITTERS, ONE FEEDING INTO AN OMNIDIRECTIONAL ANTENNA AND THE OTHER FEEDING INTO A DIRECTIONAL ANTENNA, WERE USED TO TRANSMIT DATA. A SPECIAL PURPOSE TELEMETRY SYSTEM, FEEDING INTO EITHER ANTENNA, WAS ALSO USED TO TRANSMIT WIDEBAND DATA IN REAL TIME ONLY. TRACKING WAS ACCOMPLISHED BY USING RADIO BEACONS AND A RANGE AND RANGE-RATE S-BAND TRANSPONDER. ROUTINE SPACECRAFT OPERATION WAS DISCONTINUED ON DECEMBER 1, 1969, AFTER WHICH ONLY DATA FROM HEPPNER'S EXPERIMENT WAS ACQUIRED. BY MARCH 1971 SPACECRAFT PERIGEE HAD INCREASED TO 16,400 KM AND THE INCLINATION HAD INCREASED TO 75.8 DEG. ALL SPACECRAFT SUPPORT TERMINATED ON FEBRUARY 29, 1972.

DATA SET NAME- MULTICOORDINATE SYSTEM EPHEMERIS PLOTS

NSSDC ID- 66-049A-00H

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/07/66 TO 04/02/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 3 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF 35-MM MICROFILM, FILMED BY NSSDC FROM EXPERIMENTER-GENERATED CALCOMP PLOTS. THE DATA SET CONTAINS TWO-DIMENSIONAL PROJECTIONS OF INDIVIDUAL ORBITS, WITH TIC MARKS FOR TIME, IN A VARIETY OF COORDINATE SYSTEMS. INCLUDED ARE THE DISTANCE FROM THE EARTH-SUN-LINE GEOMAGNETIC DIPOLE PLANE, DISTANCE FROM THE NEUTRAL SHEET, THE ORBIT IN GEOCENTRIC SOLAR MAGNETOSPHERIC COORDINATES, DISTANCE FROM THE EARTH-SUN-LINE ECLIPTIC POLE PLANE, AND THE ORBIT IN GEOCENTRIC ECLIPTIC COORDINATES. ONE ORBIT IS INCLUDED PER PLOT, AND DISTANCES ARE ALL IN EARTH RADII.

HEPPNER, OGO 3

EXPERIMENT NAME- MAGNETIC SURVEY USING TWO MAGNETOMETERS

NSSDC ID- 66-049A-11

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 12/01/69

PERSONNEL
PI - J.P. HEPPNER ..... NASA-GSFC
GREENBELT, MD
OI - B.G. LEDLEY ..... NASA-GSFC
GREENBELT, MD

OGO 3

OI - R.M. CAMPBELL ..... NASA-GSFC
GREENBELT, MD
OI - T.L. SKILLMAN ..... NASA-GSFC
GREENBELT, MD
OI - M. SUGIURA ..... NASA-GSFC
GREENBELT, MD

THE PRIMARY OBJECTIVE OF THIS EXPERIMENT WAS TO STUDY THE GEOMAGNETIC FIELD AND ITS INTERACTIONS WITH THE ENVIRONMENT. THE DETECTOR SYSTEM CONSISTED OF A BOOM-MOUNTED, TRIAXIAL, DUAL RANGE, FLUXGATE MAGNETOMETER AND TWO BOOM-MOUNTED, DUAL CELL, OPTICALLY PUMPED, SELF-OSCILLATING RUBIDIUM VAPOR MAGNETOMETERS. THE TRIAXIAL FLUXGATE MAGNETOMETER PROVIDED SIMULTANEOUS MEASUREMENTS OF THE THREE MAGNETIC FIELD VECTOR COMPONENTS IN TWO DIFFERENT RANGES, PLUS OR MINUS 30 GAMMAS AND PLUS OR MINUS 300 GAMMAS. THE SAMPLING RATES, WHICH WERE DEPENDENT ON TELEMETRY BIT RATE, FOR THE 30-GAMMA RANGE WERE 1.7, 14, AND 110 SAMPLES PER SEC PER AXIS. THE SAMPLING RATES FOR THE 300-GAMMA RANGE WERE 0.85, 7 AND 55 SAMPLES PER SEC PER AXIS. THE ACCURACY FOR THE FLUXGATE WAS PLUS OR MINUS 2 GAMMAS IN FIELD INTENSITIES UP TO 30 GAMMAS AND REACHED A MAXIMUM OF 10 GAMMAS IN FIELD INTENSITIES OF 300 GAMMAS (CHECKED BY MEANS OF INFLIGHT COMPARISON WITH THE RUBIDIUM MAGNETOMETER). THE RUBIDIUM VAPOR MAGNETOMETERS PROVIDED SCALAR MEASUREMENTS OF THE MAGNETIC FIELD MAGNITUDE. HOWEVER, A TRIAXIAL COIL SYSTEM WAS BUILT INTO THE SPHERE SURROUNDING THE RUBIDIUM MAGNETOMETERS TO ALLOW VECTOR MEASUREMENTS. ON COMMAND EVERY 300 SEC, EACH COIL APPLIED A PLUS 10-GAMMA FIELD AND THEN MINUS 10-GAMMA FIELD TO THE RUBIDIUM MAGNETOMETERS. RESULTANT CHANGES IN THE SCALAR FIELD BEING MEASURED MADE IT POSSIBLE TO COMPUTE THE FIELD DIRECTION. THIS VALUE USED TO MONITOR THE OUTPUT OF THE FLUXGATE MAGNETOMETER AS A CHECK ON ZERO DRIFTS. THE RUBIDIUM VAPOR MAGNETOMETERS HAD AN ACCURACY OF PLUS OR MINUS 0.1 GAMMA. FOR RELATIVE CHANGES IN FIELD MAGNITUDE ITS ABSOLUTE ACCURACY FOR HIGH FIELDS, INCLUDING ERRORS DUE TO SPACECRAFT OFFSETS, WAS WITHIN 2 GAMMAS. THE INSTRUMENT WAS NOT RELIABLE FOR SMALL FIELDS (ABOUT 10 GAMMAS). THE RUBIDIUM VAPOR MAGNETOMETER SYSTEM HAD TWO OUTPUTS. THE FIRST OUTPUT PHASE MODULATED THE 40-KHZ SUBCARRIER ON THE OGO 3 SPECIAL PURPOSE TRANSMITTER. THE RANGE OF THIS OUTPUT WAS FROM 5 TO 85.7 GAMMAS. THE SECOND OUTPUT DIRECTLY MODULATED THE OGO SPECIAL PURPOSE TRANSMITTER. THE RANGE OF THIS OUTPUT WAS FROM 42.8 TO 14,000 GAMMAS. THE SAMPLING RATE OF THE SPECIAL PURPOSE TELEMETRY DATA WAS ARBITRARY. USUALLY A RATE OF 6.94 SAMPLES PER SEC WAS USED IN GROUND DATA PROCESSING. THE FLUXGATE AND RUBIDIUM SENSORS RETURNED NOMINAL DATA UNTIL ABOUT JULY 23, 1966 WHEN THE SPACECRAFT ATTITUDE CONTROL SYSTEM FAILED, CAUSING SPACECRAFT SPIN-UP. FLUXGATE DATA TAKEN AFTER THIS DATE ARE OF POOR-TO-USELESS QUALITY DUE TO THE DIFFICULTY IN DESPINNING THESE DATA. THE VECTOR DATA FROM THE RUBIDIUM INSTRUMENT SUFFER FROM THIS SAME PROBLEM. HOWEVER, THE FIELD MAGNETUDES OBTAINED BY THE RUBIDIUM MAGNETOMETERS REMAINED USEFUL, WITH ABOUT 50 PERCENT DATA COVERAGE FROM JULY 1966 TO AUGUST 1968.

DATA SET NAME- FIELD MAGNITUDE AS MEASURED BY THE GSFC RUBIDIUM VAPOR MAGNETOMETER ON FILM

NSSDC ID- 66-049A-11A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/09/66 TO 08/14/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 24 REEL(S) OF MICROFILM

THIS SET OF OGO 3 RUBIDIUM VAPOR MAGNETOMETER PLOTS ON EXPERIMENTER-GENERATED 35-MM MICROFILM CONTAINS 1/7 SEC AVERAGES OF THE SCALAR MAGNETIC FIELD PLOTTED AGAINST TIME. 2 MIN PER FRAME AND ABOUT 5 DAYS PER REEL. THE VERTICAL SCALE CHANGES ACCORDING TO THE FIELD MAGNITUDE. INCLUDED ARE BOTH THE FIELD MAGNITUDE, DIFFERENCE BETWEEN A MODEL FIELD AND THE MEASURED FIELD, AND A CALIBRATION SIGNAL THAT ALLOWS DETERMINATION OF THE VECTOR FIELD ONCE EVERY 5 MIN IF THE SPACECRAFT ORIENTATION IS KNOWN. THE MINIMUM DETECTABLE FIELD BY THIS INSTRUMENT IS ABOUT 3 GAMMAS. UNCERTAINTIES IN LOW FIELD MEASUREMENTS ARE HIGH. A MINIMUM PRACTICAL FIELD THRESHOLD FOR ABOUT 20 PERCENT UNCERTAINTY IN THE FIELD MAGNITUDE, INCLUDING SYSTEMATIC ERRORS SUCH AS SPACECRAFT OFFSET, IS ESTIMATED AT ABOUT 10 GAMMAS. SMALL FIELD CHANGES ARE DETECTABLE, LIMITED BY THE RESOLUTION OF THE PLOTS. THE DIFFERENCE PLOT USUALLY ALLOWS FIELD CHANGES OF ABOUT 0.1 GAMMA TO BE DETECTED EVEN FOR HIGH FIELD MAGNITUDES. MUCH OF THE BAD DATA HAS BEEN EDITED FROM THESE DATA, AND PHYSICAL PROCESSES MAY BE SORTED FROM NONPHYSICAL PROCESSES SUCH AS BOOM VIBRATIONS WITH RELATIVE EASE IN THE DATA THAT REMAINS.

DATA SET NAME- MICROFILM LISTINGS OF 30-SEC AVG MAGNETIC FIELD MEASUREMENTS IN SEVERAL COORDINATES

NSSDC ID- 66-049A-11B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/09/66 TO 07/21/66
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 3 REEL(S) OF MICROFILM

THESE EXPERIMENTER-GENERATED MICROFILM CONTAIN LISTINGS OF 30-SEC AVERAGED MAGNETIC FIELD MAGNITUDE AND CARTESIAN COMPONENTS IN SPACECRAFT AND IN TOPOGRAPHIC COORDINATES, A MODEL REFERENCE FIELD, THE DIFFERENCE FIELD (MEASURED MINUS MODEL), AND FIELD MAGNITUDE AND COMPONENTS IN SOLAR GEOMAGNETIC, SOLAR MAGNETOSPHERIC, AND SOLAR ECLIPTIC COORDINATE SYSTEMS. FIELD DIRECTION ANGLES ARE ALSO GIVEN FOR ECLIPTIC COORDINATES. THE DATA IN THE LISTINGS HAVE NOT BEEN CORRECTED FOR SPACECRAFT OFFSET, AND THE OFFSET HAS BEEN DETERMINED TO BE ABOUT 2 GAMMAS BY GROUND MEASUREMENT, AND LATER CONFIRMED WHEN THE SPACECRAFT BEGAN ITS SPIN-STABILIZED MODE OF OPERATION. THESE DATA ARE FOR THE INTERVAL JUNE 9 TO JULY 21, 1966, WHEN THE SPACECRAFT WAS IN THREE-AXIS STABILIZED MODE OF OPERATION. BAD DATA HAVE BEEN REMOVED FROM THIS DATA SET.

SMITH, OGO 3

EXPERIMENT NAME- TRIAXIAL SEARCH-COIL MAGNETOMETER

NSSDC ID- 66-049A-12

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 12/01/69

PERSONNEL
PI - E.J. SMITH ..... NASA-JPL
PASADENA, CA
OI - R.E. HOLZER ..... U OF CALIF, LA
LOS ANGELES, CA

IN THIS EXPERIMENT, MAGNETIC FIELD VARIATIONS WERE MEASURED TRIAXIALLY FROM 0.01 TO 800 HZ BY A BOOM-MOUNTED SEARCH COIL MAGNETOMETER WITH HIGH-PERMIABILITY CORE. TWO DIGITALLY SAMPLED AND ONE ANALOG BROADBAND CHANNEL MAPPED THE VECTOR WAVE DATA. THE TWO DIGITAL CHANNELS COVERED FREQUENCIES FROM 0.01 TO 0.8 HZ OR 0.01 TO 75 HZ, DEPENDING ON TELEMETRY RATE. THE ANALOG CHANNEL, TRANSMITTED VIA THE FM SPECIAL PURPOSE TELEMETRY, COVERED FROM 1 TO 1000 HZ. ALSO INCLUDED WAS A FIVE-CHANNEL SPECTRUM ANALYZER WITH CENTER FREQUENCIES AT 10, 32, 100, 320, AND 800 HZ. THESE CHANNELS OVERLAPPED AT THE -12 DB POINTS. THE TIME REQUIRED FOR A TRIAXIAL SPECTRUM ANALYSIS VARIED WITH TELEMETRY RATE FROM 147 TO 18.4 SEC TO 2.3 SEC FOR THE 1, 8, AND 64 KBS RATES, RESPECTIVELY. THE INSTRUMENT PERFORMED THROUGHOUT THE OPERATIONAL LIFE OF THE SPACECRAFT, BUT THE USEFULNESS OF THE THREE BROADBAND CHANNELS WAS GREATLY REDUCED BY INTERFERENCE FROM THE DIGITAL SPECTRUM ANALYZER CHANNELS.

DATA SET NAME- 36.864-SEC AVERAGED SEARCH-COIL MAGNETOMETER DATA ON MAGNETIC TAPE

NSSDC ID- 66-049A-12A

AVAILABILITY OF DATA SET- DATA AT NSSDC PROCESSING DEFERRED

TIME PERIOD COVERED- 06/09/66 TO 04/27/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 41 REEL(S) OF MAGNETIC TAPE

THESE 41 EXPERIMENTER-GENERATED 7-TRACK, 556-BPI, BCD MAGNETIC TAPES CONTAIN 36.864-SEC AVG SEARCH COIL MAGNETOMETER DATA FROM ALL EXPERIMENT MODES. EACH FILE CONTAINS DATA FROM ONE SPACECRAFT ORBIT, WITH THE POSSIBILITY OF SOME OVERLAP AT THE END OF THOSE FILES THAT CONTAIN APPROXIMATELY 1200 RECORDS. AN INDEX TO EACH FILE IS CONTAINED ON MICROFILM IN DATA SET 66-049A-12C. IN EACH RECORD ARE TIME AND THE AVERAGED VECTOR FIELD AMPLITUDES FOR THE 10-, 30-, 100-, 300-, AND 800-HZ CENTER FREQUENCY CHANNELS. REAL-TIME DATA AND TAPE RECORDED DATA WERE PROCESSED SEPARATELY. THOUGH THE TAPES CONTAIN CONSECUTIVE DATA, MERGING OF THESE TWO TYPES OF DATA WAS NOT PERFORMED. AS THE INSTRUMENT RESPONDS DIFFERENTLY TO BROADBAND AND MONOTONE SIGNALS, IT WAS NOT POSSIBLE TO CALIBRATE THE MEASURED FIELD SIGNAL MAGNITUDES WITHOUT INDEPENDENT KNOWLEDGE OF THE NATURE OF THE MEASURED SIGNAL. IN ANY CASE, THESE DATA ARE USEFUL AS INDICATORS OF THE TIMES AND PLACES OF MAGNETIC ACTIVITY, AND MAY BE USED TO IDENTIFY SHOCK

FRONTS, MAGNETOPAUSE CROSSING, PLASMA-PAUSE CROSSINGS, THE NATURE OF MAGNETOSPHERIC WAVES, ETC, TO THE NEAREST MIN.

DATA SET NAME- SEARCH-COIL MAGNETOMETER SQUISH PLOTS ON MICROFILM

NSSDC ID- 66-049A-12B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/09/66 TO 02/12/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS REEL OF EXPERIMENTER-GENERATED 35-MM MICROFILM HAS 13 SEPARATE ABSCISSA-ORDINATE COMBINATIONS PLOTTED AGAINST COMMON TIME. THE PLOTS CONTAIN THE MAGNITUDE OF THE VECTOR 10-, 30-, 100-, AND 800-HZ DATA, AVERAGED OVER 147.45 SEC. ALSO PRESENTED ARE (1) 36.864-SEC AVERAGED DATA FROM THE 10-HZ Z-CHANNEL IN SPACECRAFT COORDINATES (COMPONENT ALONG SPIN AXIS), (2) AN INDICATOR OF THE DATA QUALITY, AND (3) DIGITIZED WAVEFORM DATA FROM THE SEARCH-COIL MAGNETOMETER, PROCESSED INTO TWO BANDS. VECTOR DATA (IN SPINNING SPACECRAFT COORDINATES) FOR FREQUENCIES GREATER THAN 0.2 HZ, AND VECTOR DATA FOR FREQUENCIES BETWEEN 0.15 AND 0.1 HZ ARE AVERAGED OVER 36.864 SEC. THESE DATA WERE RECEIVED IN AN EXTREMELY COMPRESSED FORMAT, AND BLOWN BACK TO A FULL-SIZE PLOT 6 FT IN LENGTH AND 1 FT IN WIDTH. THE HORIZONTAL TIME AXES IS 30 SEC PER 0.01 IN. OR 1.2 IN./HR. THESE DATA MAY BE USED TO LOCATE REGIONS OF MAGNETIC ACTIVITY SUCH AS SHOCK FRONTS, MAGNETOPAUSE CROSSINGS, PLASMAPAUSE CROSSINGS, ETC., TO A CRUDE TIME OR SPATIAL SCALE. UNFORTUNATELY, MUCH OF THE FILM IS OF POOR QUALITY AND MAY BE DIFFICULT TO USE.

SPACECRAFT COMMON NAME- OGO 5

ALTERNATE NAMES- OGO-E, EGO 5
EOGO 5, 03138
S 59

NSSDC ID- 68-014A

LAUNCH DATE- 03/04/68 WEIGHT- 611. KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 07/13/72

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 03/04/68
ORBIT PERIOD- 3796. MIN INCLINATION- 31.1 DEG
PERIAPSIS- 232.000 KM ALT APOAPSIS- 148228. KM ALT

THE PURPOSE OF THE OGO 5 SPACECRAFT, THE FIFTH OF A SERIES OF SIX ORBITING GEOPHYSICAL OBSERVATORIES, WAS TO CONDUCT MANY DIVERSIFIED GEOPHYSICAL EXPERIMENTS TO OBTAIN A BETTER UNDERSTANDING OF THE EARTH AS A PLANET, AND TO DEVELOP AND OPERATE A STANDARDIZED OBSERVATORY-TYPE SPACECRAFT. OGO 5 CONSISTED OF A MAIN BODY THAT WAS PARALLELEPIPED IN FORM, TWO SOLAR PANELS, EACH WITH A SOLAR-ORIENTED EXPERIMENT PACKAGE (SOEP), AND TWO ORBITAL PLANE EXPERIMENT PACKAGES (OPEP). ONE FACE OF THE MAIN BODY WAS EARTH-POINTING (Z AXIS), AND THE LINE CONNECTING THE TWO SOLAR PANELS (X AXIS) WAS PERPENDICULAR TO THE EARTH-SUN-SPACECRAFT PLANE. THE SOLAR PANELS WERE ABLE TO ROTATE ABOUT THE X AXIS. THE OPEP'S WERE MOUNTED ON AND COULD ROTATE ABOUT AN AXIS THAT WAS PARALLEL TO THE Z AXIS AND THAT WAS ATTACHED TO THE MAIN BODY. AT LAUNCH, THE INITIAL LOCAL TIME OF APOGEE WAS 0944 HR. OGO 5 CARRIED 25 EXPERIMENTS, 17 OF WHICH WERE PARTICLE STUDIES, TWO, MAGNETIC FIELD STUDIES. IN ADDITION, THERE WAS ONE EACH OF THE FOLLOWING TYPES OF EXPERIMENTS -- RADIO ASTRONOMY, UV SPECTRUM, LYMAN-ALPHA, SOLAR X-RAY, PLASMA WAVES, AND ELECTRIC FIELD. REAL-TIME DATA WERE TRANSMITTED AT 1, 8, AND 64 KBS DEPENDING ON THE DISTANCE FROM THE SPACECRAFT TO THE EARTH. PLAYBACK DATA WERE TAPE RECORDED AT 1 KBS AND TRANSMITTED AT 64 KBS. TWO WIDE-BAND TRANSMITTERS, ONE FEEDING INTO AN OMNIDIRECTIONAL ANTENNA AND THE OTHER FEEDING INTO A DIRECTIONAL ANTENNA, WERE USED TO TRANSMIT DATA. A SPECIAL PURPOSE TELEMETRY SYSTEM, FEEDING INTO EITHER ANTENNA, WAS ALSO USED TO TRANSMIT WIDE-BAND DATA IN REAL TIME ONLY. TRACKING WAS ACCOMPLISHED BY USING RADIO BEACONS AND A RANGE AND RANGE-RATE S-BAND TRANSPONDER. THE SPACECRAFT ATTITUDE CONTROL FAILED ON AUGUST 6, 1971, AFTER 41 MONTHS OF NORMAL OPERATION. THE SPACECRAFT WAS PLACED IN A STANDBY STATUS ON OCTOBER 8, 1971. THREE EXPERIMENTS (MEYER, BLAMONT, AND SIMPSON) WERE REACTIVATED FOR THE PERIOD FROM JUNE 1 TO JULY 13, 1972, AFTER WHICH ALL OPERATIONAL SUPPORT TERMINATED. SPACECRAFT ORBIT PARAMETERS CHANGED SIGNIFICANTLY OVER THE SPACECRAFT LIFE. BY APRIL 1971, SPACECRAFT PERIGEE HAD INCREASED TO 26,400 KM AND INCLINATION HAD INCREASED TO 54 DEG.

DATA SET NAME- MULTICOORDINATE SYSTEM EPHEMERIS PLOTS

NSSDC ID- 68-014A-00D

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 03/04/68 TO 10/04/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 5 REEL(S) OF MICROFILM

THIS SET CONTAINS MICROFILM GENERATED BY DR. CHRISTOPHER RUSSELL OF UCLA. THERE ARE NINE PLOTS PER ORBIT, THREE IN GEOCENTRIC SOLAR ECLIPTIC COORDINATES, THREE IN GEOCENTRIC SOLAR MAGNETOSPHERIC COORDINATES, ONE IN CYLINDRICAL COORDINATES, ONE LOCAL TIME VS L-VALUE PLOT, AND ONE RADIAL DISTANCE VS MAGNETIC LATITUDE POLAR PLOT.

DATA SET NAME- TABLE OF EPHEMERIS PARAMETERS ON MICROFILM

NSSDC ID- 68-014A-00E

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 03/04/68 TO 05/26/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 12 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF 12 REELS OF 35-MM MICROFILM THAT CONTAIN OGO 5 EPHEMERIS INFORMATION GIVEN AT VARIABLE TIME INTERVALS (5 SEC NEAR PERIGEE, 10 MIN NEAR APOGEE). EPHEMERIS PARAMETERS INCLUDE RADIAL DISTANCE, GEOMAGNETIC LATITUDE (NOT INVARIANT LATITUDE, DERIVED FROM THE SUBSATELLITE POINT), L, B/BO, SOLAR ECLIPTIC AND SOLAR MAGNETOSPHERIC LATITUDE AND LONGITUDE, AND GEOGRAPHIC AND GEOMAGNETIC LOCAL TIME. THESE REELS OF MICROFILM, SUPPLIED TO NSSDC BY DR. H. WEST OF THE THE LAWRENCE RADIATION LABORATORY, COVER THE FIRST 301 OGO 5 ORBITS (MARCH 4, 1968 TO MAY 26, 1970).

COLEMAN, JR., OGO 5

EXPERIMENT NAME- UCLA TRIAXIAL FLUXGATE MAGNETOMETER

NSSDC ID- 68-014A-14

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 09/20/71

PERSONNEL
PI - P.J. COLEMAN, JR. ..... U OF CALIF, LA LOS ANGELES, CA
OI - T.A. FARLEY ..... U OF CALIF, LA LOS ANGELES, CA
OI - D.L. JUDGE ..... U OF SOUTHERN CALIF LOS ANGELES, CA
OI - C.T. RUSSELL ..... U OF CALIF, LA LOS ANGELES, CA

THIS EXPERIMENT CONSISTED OF A TRIAXIAL FLUXGATE MAGNETOMETER MOUNTED ON A 6.1-M BOOM. THE RANGE OF EACH SENSOR WAS MINUS TO PLUS 16 GAMMAS WITH 0.125-GAMMA DIGITIZATION WINDOWS. FOR A GIVEN AMBIENT FIELD, A KNOWN OFFSET FIELD COULD BE APPLIED TO THE SENSOR BY A SURROUNDING CURRENT-CARRYING COIL. IN THIS WAY, AMBIENT FIELDS OF MINUS TO PLUS 64,000 GAMMAS PER AXIS WERE MEASURABLE WITH 0.125-GAMMA DIGITIZATION ACCURACY. THE SENSOR OUTPUT SIGNALS WERE PASSED THROUGH A FILTER THAT REMOVED FREQUENCY COMPONENTS HIGHER THAN THE SAMPLING FREQUENCY. THE FILTERED SIGNALS WERE THEN SAMPLED IN REAL TIME AT 0.87, 6.96, OR 55.5 VECTOR MEASUREMENTS PER SECOND, DEPENDING ON THE SATELLITE BIT RATE, AND AT 0.87 VECTOR MEASUREMENTS PER SECOND IN THE TAPE RECORDED CHANNEL. AS THE INSTRUMENT SHIFTED OFFSET FIELD RANGES, THE FIRST SIX DATA POINTS TAKEN AFTER THE SHIFT WERE AFFECTED IN AN UNDERSTOOD, AND THEREFORE CORRECTABLE, WAY. ALSO, THE INSTRUMENT HOUSING WAS EQUIPPED WITH AN ELECTRIC HEATER THAT INTRODUCED A CORRECTABLE OFFSET FIELD WHEN IT CAME ON. FURTHER, THE ZERO OFFSET ON EACH SENSOR DRIFTED SLOWLY (ON TIMESCALES COMPARED TO 6 HOURS) AS A FUNCTION OF SENSOR ELECTRONIC TEMPERATURE. BY USING SIMULTANEOUS FLUXGATE AND RUBIDIUM MAGNETOMETER DATA FROM THE GSFC EXPERIMENT, THIS OFFSET CORRECTION COULD BE DETERMINED WITHIN PLUS OR MINUS 3 GAMMAS OVER MOST OF THE SPACECRAFT ORBIT. DATA WERE RECEIVED UNTIL SEPTEMBER 20, 1971, WHEN THE EXPERIMENT WAS TURNED OFF. TEMPERATURE PLOTS ARE AVAILABLE FROM NSSDC FOR ORBITS 38 AND THEREAFTER. DURING LOW-TEMPERATURE TIMES, OFFSETS COULD BE AS MUCH AS 10 GAMMAS. IT IS EXPECTED THAT DATA FROM THIS EXPERIMENT WILL BE MOST USEFUL IN THE INNER MAGNETOSPHERE AND

ORIGINAL PAGE IS OF POOR QUALITY

OGO 5

FOR WAVE STUDIES.

DATA SET NAME- 1-MIN AVERAGED VECTOR MAGNETIC FIELD DATA ON MICROFILM

NSSDC ID- 68-014A-14A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/05/68 TO 11/18/69 (AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 16 REEL(S) OF MICROFILM

THIS DATA SET, ON 16 REELS OF 35-MM MICROFILM, CONTAINS ALL EXISTING DATA FOR THE TIME PERIOD CITED. THE DATA ARE PRESENTED AS 1-MIN AVERAGED CARTESIAN COMPONENTS AND AVERAGED MAGNITUDE, WITH 5 HR OF DATA PER FRAME, AND ARE AVAILABLE IN THREE SEPARATE COORDINATE SYSTEMS -- SPACECRAFT BODY COORDINATES, GEOCENTRIC SOLAR ECLIPTIC COORDINATES, AND GEOCENTRIC SOLAR MAGNETOSPHERIC COORDINATES. IN ADDITION, 1-MIN VALUES OF THE RMS FLUCTUATION AMPLITUDE FOR THE SIGNAL BETWEEN 0.07 HZ AND THE SAMPLING FREQUENCY ARE PRESENTED FOR EACH AXIS AND FOR THE FIELD MAGNITUDE. PLOTTED ON THE SAME FRAME IS A MEASURE OF THE NUMBER OF GOOD DATA POINTS THAT WERE USED TO GENERATE EACH AVERAGE. A CENTRAL PROCESSING PROGRAM HAS ATTEMPTED TO REMOVE OR CORRECT IDENTIFIABLE BAD DATA, AND, FOR THE MOST PART, THE DATA ARE CLEAN AND RELIABLE TO WITHIN PLUS OR MINUS 0.063 GAMMA FOR RELATIVE CHANGES. OFFSET ERRORS OF UP TO 10 GAMMAS ARE PRESENT IN THESE DATA, SO FOR ABSOLUTE MAGNITUDES THE DATA MUST BE USED WITH CAUTION. THE DATA ARE INTENDED TO BE USED AS ROAD MAPS OF THE SATELLITE LOCATION IN SPACE.

DATA SET NAME- 1-MIN AVG VECTOR MAGNETIC FIELD AND RMS NOISE AMPLITUDE DATA TAPES IN S/C COORD.

NSSDC ID- 68-014A-14B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/05/68 TO 09/01/68 (AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 14 REEL(S) OF MAGNETIC TAPE

THESE DATA, SUPPLIED BY THE EXPERIMENTER, CONSIST OF TIME-ORDERED 1-MIN AVERAGED VECTOR MAGNETIC FIELD CARTESIAN COMPONENTS IN SPACECRAFT COORDINATES, THE MAGNETIC FIELD MAGNITUDE, THE RMS DEVIATIONS OF EACH COMPONENT AND OF THE TOTAL FIELD, AND A DATA QUALITY INDICATOR. THE DATA ARE ON IBM 360 UCLA STANDARD LABELED BINARY 7- AND 9-TRACK 800 BPI MAGNETIC TAPES, WITH FIVE DATA FILES PER TAPE. EACH FILE CORRESPONDS TO ONE ORBIT. THERE ARE HEADER AND TRAILER FILES BETWEEN EACH DATA FILE, TOTALING 15 FILES PER TAPE. 1128 LOGICAL RECORDS PER PHYSICAL RECORD, AND A BLOCK SIZE OF 5132 WORDS. THERE ARE NO EPHEMERIS DATA ON THESE TAPES. OFFSET CORRECTIONS WILL HAVE TO BE APPLIED TO THESE DATA TO OBTAIN ACCURACY IN ABSOLUTE MAGNITUDES OF BETTER THAN 10 GAMMA, BUT RELATIVE CHANGES ARE RELIABLE TO 0.063 GAMMA PER COMPONENT.

DATA SET NAME- 4.608-SEC AVERAGED FLUXGATE MAGNETOMETER DATA IN SPACECRAFT COORDINATES ON TAPE

NSSDC ID- 68-014A-14C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/05/68 TO 09/01/68 (AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 14 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF EXPERIMENTER-SUPPLIED 9-TRACK, 800-BPI, BINARY MAGNETIC TAPES GENERATED ON AN IBM 360/91 COMPUTER. EACH TAPE CONTAINS DATA FILES WITH A HEADER AND TRAILER FILE FOR EACH DATA FILE. EACH FILE CONTAINS OVERLAPPING DATA INTO THE NEXT ORBIT AT PERIGEE. AS OFFSET CORRECTIONS ARE INTRODUCED AT APOGEE AND EXTRAPOLATED BACKWARD AND FORWARD IN TIME THROUGHOUT EACH ORBIT. THESE OVERLAPPING PERIODS IN GENERAL WILL NOT EXACTLY AGREE. EACH PHYSICAL RECORD CONTAINS 128 LOGICAL RECORDS OF SIX WORDS EACH. EACH LOGICAL RECORD CONTAINS TIME. THE VECTOR FIELD AS AVERAGED OVER 4.608 SEC IN SPACECRAFT COORDINATES TAPES IN DATA SET, AND A QUALITY INDICATOR. OFFSET CORRECTIONS WILL HAVE TO BE APPLIED TO THESE DATA TO OBTAIN ACCURACY IN ABSOLUTE MAGNITUDES OF BETTER THAN 10 GAMMA, BUT RELATIVE CHANGES ARE RELIABLE TO 0.128 GAMMA PER COMPONENT.

DATA SET NAME- FLUXGATE MAGNETOMETER DATA ON FILM, 4.608 -SEC AVG IN SPACECRAFT COORDINATES

NSSDC ID- 68-014A-14D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/05/68 TO 08/06/69 (AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 40 REEL(S) OF MICROFILM

THESE 4.608-SEC AVERAGES OF THE FLUXGATE MAGNETOMETER DATA ARE PLOTTED ON 40 REELS OF 35-MM MICROFILM SUPPLIED BY THE EXPERIMENTER PRINCIPALLY TO PERMIT THE STUDY OF FIELD VARIATIONS WITH 4 SEC RESOLUTION. EACH FRAME CONTAINS 20 MIN OF DATA. THE THREE VECTOR CARTESIAN COMPONENTS IN SPACECRAFT COORDINATES AND THE MAGNETIC FIELD MAGNITUDE ARE PLOTTED ON A LINEAR SCALE AGAINST COMMON TIME. ALSO INCLUDED ARE INITIAL AND FINAL EPHEMERIS INFORMATION FOR EACH FRAME. BECAUSE OF COARSENESS OF SCALE AND ACCURACY OF THESE PLOTS, THE MAGNETIC TAPE DATA 68-014A-14C SHOULD BE USED WHERE ACCURATE FIELD VALUES ARE REQUIRED, ESPECIALLY WHEN THE AMBIENT FIELD IS SMALL. THE FIRST 37 ORBITS OF DATA WERE PLOTTED FROM PRELIMINARY VERSIONS OF THE DATA TAPES IN DATA SET 68-014A-14C AND, UNFORTUNATELY, CONTAIN OFFSET ERRORS OF UP TO 22 GAMMAS. THE CORRECTIONS OF THE PLOTTED VALUES TO THE TAPE DATA VALUES ARE INCLUDED IN THE DOCUMENTATION THAT WILL BE SENT WITH REQUESTS FOR THESE DATA. NOTE THAT EVEN THE TAPE DATA CONTAIN OFFSET ERRORS THAT MUST BE ACCOUNTED FOR BY A USER REQUIRING ACCURACY OF BETTER THAN 10 GAMMA.

DATA SET NAME- 1-MIN AVG VECTOR MAGNETIC FIELD DATA ON TAPE IN GSE COORDINATES

NSSDC ID- 68-014A-14E

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/05/68 TO 09/01/68 (AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 14 REEL(S) OF MAGNETIC TAPE

THESE DATA, SUPPLIED BY THE EXPERIMENTER, ARE THE TIME-ORDERED 1-MIN AVERAGED VECTOR MAGNETIC FIELD CARTESIAN COMPONENTS AND FIELD MAGNITUDES (68-014A-14B), WHICH THE EXPERIMENTER HAS ROTATED INTO GEOCENTRIC SOLAR ECLIPTIC (GSE) COORDINATES. ALSO INCLUDED IS THE SPACECRAFT POSITION IN GSE. THE DATA ARE ON 7- AND 9-TRACK 800-BPI UCLA STANDARD LABELED 360 (BINARY) TAPES, WITH FIVE DATA FILES PER TAPE AND ONE ORBIT PER FILE. THERE ARE HEADER AND TRAILER FILES FOR EACH DATA FILE, TOTALING 15 FILES PER TAPE. THE BLOCK SIZE IS 1232 CHARACTERS. OFFSET CORRECTIONS WILL HAVE TO BE APPLIED TO THESE DATA TO OBTAIN ACCURACY IN ABSOLUTE MAGNITUDES OF BETTER THAN 10 GAMMA, BUT RELATIVE CHANGES ARE RELIABLE TO 0.063 GAMMA PER COMPONENT.

DATA SET NAME- 1-MIN AVG VECTOR MAGNETIC FIELD DATA ON TAPE IN GSM COORDINATES

NSSDC ID- 68-014A-14F

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/05/68 TO 09/01/68 (AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 14 REEL(S) OF MAGNETIC TAPE

THESE DATA, SUPPLIED BY THE EXPERIMENTER, CONSIST OF TIME-ORDERED 1-MIN AVERAGED VECTOR MAGNETIC FIELD CARTESIAN COMPONENTS AND FIELD MAGNITUDE, WHICH THE EXPERIMENTER HAS ROTATED INTO GEOCENTRIC SOLAR MAGNETOSPHERIC COORDINATES (GSM). ALSO INCLUDED IS THE SPACECRAFT POSITION IN GSM. THE DATA ARE ON IBM-360 BINARY 7- AND 9-TRACK 800-BPI UCLA STANDARD LABELED TAPES, WITH FIVE DATA FILES PER TAPE AND ONE ORBIT PERIOD PER DATA FILE. THERE IS A HEADER AND TRAILER FILE FOR EACH DATA FILE, TOTALING 15 FILES PER TAPE. THE BLOCK SIZE IS 1232 CHARACTERS. OFFSET CORRECTIONS WILL HAVE TO BE APPLIED TO THESE DATA TO OBTAIN ACCURACY IN ABSOLUTE MAGNITUDES OF BETTER THAN 10 GAMMA, BUT RELATIVE CHANGES ARE RELIABLE TO 0.063 GAMMA PER COMPONENT.

CROOK, OGO 5

EXPERIMENT NAME- PLASMA WAVE DETECTOR

NSSDC ID- 68-014A-24

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 10/08/71

PERSONNEL

PI -	G.M.	CROOK	TRW SYSTEMS GROUP REDONDO BEACH, CA
OI -	F.L.	SCARF	TRW SYSTEMS GROUP REDONDO BEACH, CA
OI -	R.W.	FREDERICKS	TRW SYSTEMS GROUP REDONDO BEACH, CA
OI -	I.M.	GREEN	TRW SYSTEMS GROUP REDONDO BEACH, CA

THE PLASMA WAVE DETECTOR INCLUDED FIVE ELECTRIC DIPOLES AND THREE ORTHOGONAL SEARCH-COIL MAGNETOMETERS MOUNTED ON A 6.7-M BOOM. THE THREE 0.5-M ORTHOGONAL ELECTRIC DIPOLES WERE NORMAL TO THE PLANES OF THE MAGNETOMETERS. EACH OF THE ORTHOGONAL COMPONENTS OF THE DIPOLE AND MAGNETOMETER WAS SAMPLED SIMULTANEOUSLY FOR 9.2 SEC THROUGH 15-PERCENT BANDPASS FILTERS IN THE FOLLOWING SEQUENCE -- 0.56, 1.3, 3.0, 7.35, 14.5, 30.0, AND 70.0 KHZ FOR EACH DIPOLE CONCURRENT WITH 0.56, 0.56, 0.56, 0.56, 70.0, 70.0, AND 70.0 KHZ FOR EACH MAGNETOMETER. REPEAT TIME FOR THIS SEQUENCE WAS 3.26 MIN. ONBOARD AUTOCORRELATION WAS PERFORMED BETWEEN EACH ELECTRIC FIELD AND MAGNETIC FIELD MEASUREMENT. THE REMAINING TWO BOOM-MOUNTED DIPOLES WERE COLINEAR, DIFFERING ONLY IN LENGTH. EACH DIPOLE WAS MONITORED THROUGH A 200-HZ 10-PERCENT FILTER FOR 2 SEC ONCE EVERY 9.2 SEC. IN ADDITION TO THE DIGITAL DATA, 1- TO 22-KHZ ELECTRIC FIELD DATA TAKEN FROM ONE MAIN DIPOLE AND YIELDING POWER SPECTRUM INFORMATION FOR THAT AXIS WERE CONTINUOUSLY MONITORED BY A SPECIAL PURPOSE ANALOG TELEMETRY SYSTEM. THRESHOLD SENSITIVITY OF THESE MEASUREMENTS WAS TELEMETERED WITH THE DIGITAL DATA. INTENSE EMISSIONS BELOW 1 KHZ AND ABOVE 22 KHZ MAY STILL BE DETECTABLE. THE EXPERIMENT OPERATED NORMALLY, BUT MUCH OF THE DATA RETURNED AFTER APRIL 1968 WERE OF POOR QUALITY DUE TO A TRANSMITTER FAILURE.

DATA SET NAME- ORIGINAL ELECTRIC FIELD SONOGRAMS ON MICROFILM

NSSDC ID- 68-014A-24A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/14/68 TO 01/03/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 35 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF 35-MM MICROFILM CONTAINING ELECTRIC FIELD SONOGRAMS GENERATED BY THE EXPERIMENTER FROM ANALOG DATA. THE DATA COVER AN AVERAGE OF 3 HR PER DAY FOR 8 DAYS INTERSPERSED BETWEEN MARCH 27, 1968, AND SEPTEMBER 15, 1968. THE DATA WERE PROCESSED AT A RATE OF 16 SEC PER INCH. THE FREQUENCY INTERVALS INCLUDED IN THE SET ARE 0 TO 2.5, 0 TO 5, 0 TO 10, 9 TO 10, 0 TO 20, AND 10 TO 30 KHZ, WITH THE 0- TO 5-, 0- TO 10-, AND 0- TO 20-KHZ INTERVALS PRESENTED MOST OFTEN. THE ANALOG DATA USED TO GENERATE THESE SONOGRAMS ARE FROM ONE AXIS OF THE THREE ORTHOGONAL DIPOLES OF THE TRW PLASMA WAVE DETECTOR. SENSITIVITY CALIBRATION OF THE ELECTRIC FIELD AMPLITUDE VS FREQUENCY INFORMATION IS NOT INCLUDED IN THIS DATA SET.

DATA SET NAME- INDEX OF ANALOG ELECTRIC FIELD SONOGRAM DATA TAPES AT TRW

NSSDC ID- 68-014A-24B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/05/68 TO 10/16/69
(AS REPORTED BY THE EXPERIMENTER)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

ANALOG DATA FROM THE SPECIAL PURPOSE BROADBAND TELEMETRY, IN ORIGINAL FORM ON MAGNETIC TAPE, ARE AVAILABLE THROUGH TRW. THESE DATA ARE BEING USED TO GENERATE THE ANALOG ELECTRIC FIELD SONOGRAMS (DATA SET 68-014A-24A) AT NSSDC. BECAUSE THE EQUIPMENT REQUIRED TO GENERATE THIS MICROFILM IS SOMEWHAT SPECIALIZED AND NOT GENERALLY AVAILABLE TO A POTENTIAL USER, THE EXPERIMENTER HAS AGREED TO PROCESS INTO SONOGRAMS REASONABLE AMOUNTS OF DATA FOR SPECIFIC INTERVALS NOT COVERED IN DATA SET 68-014A-24A. IN RESPONSE TO REQUESTS MADE THROUGH THE DATA CENTER, WHILE FUNDING IS AVAILABLE TO DO SO. AN INDEX OF ALL AVAILABLE DATA FROM MARCH 5, 1968, THROUGH OCTOBER 16, 1969, IS CONTAINED ON ONE REEL OF 16-MM MICROFILM AT NSSDC. LATER DATA ARE AVAILABLE, BUT NSSDC DOES NOT HAVE AN INDEX OF THESE DATA AT THE PRESENT TIME.

DATA SET NAME- TABULATED ELECTRIC AND MAGNETIC WAVE ENVELOPES ON MICROFILM

NSSDC ID- 68-014A-24C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/11/68 TO 01/11/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 5 REEL(S) OF MICROFILM

THESE DATA ARE CONTAINED ON FOUR REELS OF COMPUTER GENERATED 35-MM MICROFILM LISTINGS MADE AT TRW. THE MICROFILM CONTAINS NO DATA OF QUESTIONABLE VALIDITY. THE MAXIMUM, MINIMUM, AVERAGE, AND STANDARD DEVIATIONS OF ALL THE ELECTRIC AND MAGNETIC FIELD DIGITAL DATA (SCALAR SUM OVER THREE AXES OF FIELD COMPONENT MAGNITUDES) ARE GIVEN FOR EACH FREQUENCY CHANNEL AND FOR EACH 3.26-MIN EXPERIMENT CYCLE AND ARE TABULATED AS FUNCTIONS OF TIME. THESE DATA INDICATE THE OMNIDIRECTIONAL NOISE AMPLITUDE IN VARIOUS DISCRETE FREQUENCY CHANNELS. THE NUMBER OF DATA POINTS USED IN EACH CALCULATION IS INCLUDED, AND THESE NUMBERS CAN BE USED TO DETERMINE THE DATA QUALITY.

DATA SET NAME- DIGITAL 3.26-MIN AVERAGED SPECTRUM ANALYSES ON MAGNETIC TAPE

NSSDC ID- 68-014A-24D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 01/00/69 TO 03/00/70
(AS REPORTED BY THE EXPERIMENTER)

QUANTITY OF DATA- 5 REEL(S) OF MAGNETIC TAPE

THE FIVE 7-TRACK, 800-BPI, BCD MAGNETIC PRINT TAPES OF THIS DATA SET WERE GENERATED AT TRW BY THE EXPERIMENTER. THEY CONTAIN THE MAGNETIC TAPE FORM OF DATA SET 68-014A-24C. THEY CONTAIN NO DATA OF QUESTIONABLE VALIDITY. THE MAXIMUM, MINIMUM, AVERAGE, AND STANDARD DEVIATIONS OF ALL THE ELECTRIC AND MAGNETIC FIELD DIGITAL DATA (SCALAR SUM OVER THREE AXES OF FIELD COMPONENT MAGNITUDE) ARE GIVEN FOR EACH FREQUENCY CHANNEL AND FOR EACH 3.26-MIN EXPERIMENT CYCLE AS FUNCTIONS OF TIME. THESE DATA INDICATE THE OMNIDIRECTIONAL NOISE AMPLITUDE IN VARIOUS DISCRETE FREQUENCY CHANNELS. THE NUMBER OF POINTS USED IN EACH CALCULATION IS INCLUDED, AND THIS NUMBER CAN BE USED TO INDICATE THE DATA QUALITY. PERIODS OF DATA EARLIER THAN JANUARY 1969 ARE NOT AVAILABLE IN TAPE FORM.

DATA SET NAME- 0-10 KHZ SPECTRA OF MAGNETOSPHERIC AND PLASMASPHERIC BOUNDARIES ON MICROFILM

NSSDC ID- 68-014A-24E

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/14/68 TO 05/12/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 14 REEL(S) OF MICROFILM

THESE DATA ARE SIMILAR TO THE DATA CONTAINED IN 68-014A-24A BUT INCLUDE ONLY DATA FROM SELECTED MAGNETOPAUSE-TO-PLASMAPAUSE CROSSINGS (CONTAINING INTERESTING FEATURES IN THE 0-TO-10-KHZ BANDWIDTH). THEY ARE SONOGRAMS, WITH TIME AS ONE AXIS AND FREQUENCY AS THE OTHER. THE INTENSITY OF THE PATTERN INDICATES THE RELATIVE POWER IN AN EMISSION. THESE EXPERIMENTER-GENERATED DATA ARE PLOTTED ON 35-MM MICROFILM.

ORIGINAL PAGE IS OF POOR QUALITY

OGO 5

HEPPNER, OGO 5

EXPERIMENT NAME- MAGNETIC SURVEY USING TWO MAGNETOMETERS

NSSDC ID- 68-014A-15

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 10/08/71

PERSONNEL

PI -	J.P.	HEPPNER	NASA-GSFC GREENBELT, MD
OI -	B.G.	LEDLEY	NASA-GSFC GREENBELT, MD
OI -	N.	SUGIURA	NASA-GSFC GREENBELT, MD
OI -	T.L.	SKILLMAN	NASA-GSFC GREENBELT, MD
OI -	R.M.	CAMPBELL	NASA-GSFC GREENBELT, MD

THE PRIMARY OBJECTIVE OF THIS EXPERIMENT WAS TO STUDY THE GEOMAGNETIC FIELD AND ITS INTERACTIONS WITH THE ENVIRONMENT. THE DETECTOR SYSTEM CONSISTED OF A TRIAXIAL FLUXGATE MAGNETOMETER AND TWO DUAL-CELL, OPTICALLY PUMPED, SELF-OSCILLATING, RUBIDIUM (87) VAPOR MAGNETOMETERS. BOTH MAGNETOMETERS WERE MOUNTED ON BOOMS TO MINIMIZE EFFECTS OF SPACECRAFT FIELDS. THE TRIAXIAL FLUXGATE MAGNETOMETER PROVIDED SIMULTANEOUS MEASUREMENTS OF THE THREE MAGNETIC FIELD VECTOR COMPONENTS IN THE RANGE 0 TO PLUS OR MINUS 4000 GAMMAS (OVER A FREQUENCY RANGE OF 0 TO 120 HZ). A 10-GAMMA INFLIGHT CALIBRATION WAS APPLIED ON COMMAND AS A CHECK ON SENSITIVITY CHANGES. THE ACCURACY WAS PLUS OR MINUS 1 GAMMA (CHECKED BY MEANS OF INFLIGHT COMPARISON WITH THE RUBIDIUM MAGNETOMETERS). THE SAMPLING RATES WERE 1.7, 7, 55, AND 111 SAMPLES PER SECOND PER AXIS. THERE HAS BEEN NO DEGRADATION OF THE FLUXGATE MAGNETOMETER (JUNE 30, 1971). SINCE LAUNCH, DATA HAVE BEEN RECEIVED FROM THIS MAGNETOMETER WHENEVER DATA WERE RECEIVED FROM THE SPACECRAFT. THE RUBIDIUM VAPOR MAGNETOMETERS PROVIDED SCALAR MEASUREMENTS OF THE MAGNETIC FIELD MAGNITUDE. HOWEVER, A TRIAXIAL COIL SYSTEM WAS BUILT INTO THE SPHERE SURROUNDING THE RUBIDIUM MAGNETOMETERS TO ALLOW VECTOR MEASUREMENTS TO BE MADE. ON COMMAND EVERY 295 SEC, EACH COIL APPLIED A +0-GAMMA FIELD, THEN A -10-GAMMA FIELD TO THE RUBIDIUM MAGNETOMETERS. RESULTANT CHANGES IN THE SCALAR FIELD BEING MEASURED MADE IT POSSIBLE TO COMPUTE THE FIELD DIRECTION. THIS WAS USED TO MONITOR THE OUTPUT OF THE FLUXGATE MAGNETOMETER AS A CHECK ON ZERO DRIFTS. THE RUBIDIUM VAPOR MAGNETOMETERS HAD AN ABSOLUTE ACCURACY OF PLUS OR MINUS 0.5 GAMMA. THE MAGNETOMETER SYSTEM HAD THREE OUTPUTS. THE FIRST OUTPUT PHASE MODULATED THE 40-KHZ SUBCARRIER ON THE OGO 5 SPECIAL PURPOSE TRANSMITTER. THE RANGE OF THIS OUTPUT WAS 3 TO 85.7 GAMMAS OVER THE FREQUENCY RANGE 20 TO 600 HZ. THE SECOND OUTPUT DIRECTLY MODULATED THE OGO SPECIAL PURPOSE TRANSMITTER. THE RANGE OF THIS OUTPUT WAS 42.8 TO 14,000 GAMMAS OVER THE FREQUENCY RANGE 300 TO 100,000 HZ. THE THIRD OUTPUT CONSISTED OF MAIN FRAME DIGITIZED DATA. THE RANGE OF THIS OUTPUT WAS 3 TO 50,000 GAMMAS OVER A FREQUENCY RANGE OF 20 TO 350,000 HZ. THE SAMPLING RATE OF THE MAIN FRAME RUBIDIUM DATA WAS 1.7 SAMPLES PER SECOND. THE SAMPLING RATE OF THE SPECIAL PURPOSE TELEMETRY DATA WAS ARBITRARY, USUALLY 6.94 SAMPLES PER SECOND WERE USED IN GROUND DATA PROCESSING. SIX WEEKS AFTER LAUNCH, THE FREQUENCY COUNTER FAILED THEREBY CAUSING LOSS OF THE MAIN FRAME DIGITIZED DATA OUTPUT OF THE RUBIDIUM MAGNETOMETER SYSTEM. THE RUBIDIUM MAGNETOMETER SYSTEM WAS OPERATING WHENEVER DATA FROM THE SPECIAL PURPOSE TELEMETRY WERE BEING RECORDED. HOWEVER, THIS TELEMETRY SYSTEM WAS OPERATED ONLY 30 PERCENT OF THE TIME. A PROBLEM THAT DEVELOPED WITH TIME AND HAD AN EFFECT ON THE QUALITY OF THE RUBIDIUM DATA WAS A LAMP OSCILLATION OF ONE OF THE TWO RUBIDIUM MAGNETOMETERS. THIS LED TO TURNING OFF THE MALFUNCTIONING RUBIDIUM MAGNETOMETER IN APRIL 1968. WITH THIS MAGNETOMETER OFF, THE OPERATION WAS NORMAL BUT CAUSED THE RUBIDIUM SYSTEM TO HAVE LARGER NULL ZONES. AS A RESULT, SOME OF THE DATA ARE EITHER OF LOWER QUALITY OR ABSENT. IN DECEMBER 1970, OWING TO FURTHER PROBLEMS WITH THE LAMP OSCILLATIONS, IT WAS DECIDED TO TURN ON THE RUBIDIUM MAGNETOMETERS ONLY BRIEFLY AT SELECTED TIME INTERVALS IN ORDER TO CHECK THE OPERATIONS OF THE FLUXGATE MAGNETOMETER. BY THE NATURE OF FLUXGATE MAGNETOMETERS WITHOUT FLIPPERS ON NON-SPINNING SPACECRAFT, A ONE-GAMMA DRIFT CAN BE EXPECTED IN ONE ORBIT. THUS, THE ACCURACY OF THE FLUXGATE DATA AFTER CORRECTION IS AT BEST 1.5 TO 3 GAMMAS.

DATA SET NAME- MAGNETIC FIELD MEASUREMENTS FROM THE SCALAR RUBIDIUM MAGNETOMETER ON 35-MM FILM

NSSDC ID- 68-014A-15A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/05/68 TO 05/13/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 71 REEL(S) OF MICROFILM

THESE REELS OF 35-MM MICROFILM, GENERATED BY THE EXPERIMENTER AND EDITED FOR BAD DATA, CONTAIN PLOTS OF THE FIELD MAGNITUDE MEASURED BY THE RUBIDIUM SENSOR, AND THE DIFFERENCE FIELD BETWEEN THE MEASURED 1/7-SEC VALUE AND THE VALUE CALCULATED FROM THE CAIN GSFC FIELD MODEL DATED 1966. THERE ARE 120 SEC OF DATA PLOTTED PER 35-MM FRAME. THESE DATA ARE CAPABLE OF BEING USED FOR DERIVING VECTOR FIELD INFORMATION EVERY 295 SEC. THIS VECTOR INFORMATION IS MOST ACCURATE WHEN THE FIELD MAGNITUDE IS IN THE VICINITY OF 50 GAMMAS AND THE AMBIENT FIELD IS STEADY. THIS DATA SET CONTAINS MANY TIME GAPS, DUE NOT ONLY TO TELEMETRY GAPS AND TIMES WHEN THE INSTRUMENT WAS TURNED OFF, BUT ALSO TO EDITED INTERVALS.

SMITH, OGO 5

EXPERIMENT NAME- TRIAXIAL SEARCH-COIL MAGNETOMETER

NSSDC ID- 68-014A-16

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 10/08/71

PERSONNEL

PI -	E.J.	SMITH	NASA-JPL PASADENA, CA
OI -	R.E.	HOLZER	U OF CALIF, LA LOS ANGELES, CA

THE UCLA-JPL SEARCH COIL MAGNETOMETER SAMPLED AMBIENT FIELD FLUCTUATIONS FROM 0.01 TO 1000 HZ IN TWO MODES. THE TRIAXIAL SEARCH COILS MOUNTED AT THE END OF A 6.1-M BOOM PROVIDED TRIAXIAL WAVEFORM DATA IN THREE BANDS, FROM 0.03 TO 0.1 HZ, 0.1 TO 0.3 HZ, AND 0.3 HZ TO CUTOFF, WHICH DEPENDED ON SAMPLING RATE I-- FOR BIT RATES OF 1, 8, OR 64 KBS, THE CUTOFF WAS 0.9, 7, OR 55 HZ, RESPECTIVELY. SIGNALS FROM THE TRIAXIAL SEARCH COILS WERE ALSO SAMPLED BY SEVEN COMB FILTERS WITH CENTER FREQUENCIES OF 10, 22, 47, 100, 216, 467, AND 1000 HZ. THE TIME REQUIRED FOR A COMPLETE TRIAXIAL SPECTRUM ANALYSIS (21 DATA VALUES) WAS 8.06, 1.01, OR 0.126 SEC, ALSO DEPENDING ON THE SATELLITE BIT RATE. INTERFERENCE OCCURRED BETWEEN THE SEVEN-CHANNEL SPECTRUM ANALYZER AND THE BROADBAND CHANNELS, SERIOUSLY DEGRADING THE BROADBAND SIGNALS THROUGHOUT THE OPERATIONAL LIFE OF THE EXPERIMENT. THE EXPERIMENT OPERATED ADEQUATELY THROUGHOUT THE MISSION.

DATA SET NAME- 2.5-MIN-AVG SEARCH-COIL MAGNETOMETER NOISE AMPLITUDES,0.03 TO 1000 HZ ON FILM

NSSDC ID- 68-014A-16A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/07/68 TO 03/07/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 6-REEL(S) OF MICROFILM

THESE EXPERIMENTER-GENERATED COMPRESSED DATA PLOTS ON MICROFILM OF VARIOUS SIZES SUMMARIZE THE INSTRUMENT RESPONSE TO BOTH AMBIENT AND INSTRUMENTAL EFFECTS. CONTAINING 36-SEC AVERAGES, THE PLOTTED MAGNETOMETER DATA ARE READABLE TO ABOUT 1.5-MIN TIME RESOLUTION. EACH ORBIT IS REPRESENTED BY A PAIR OF PLOTS. THE FIRST CONTAINING COMPRESSED PHYSICAL DATA, AND THE SECOND THE INFORMATION THAT MAY AFFECT THE EXPERIMENT -- SUCH AS INSTRUMENT GAIN, BANDWIDTH INFORMATION. SAMPLE OUTPUT FROM THE E-FIELD EXPERIMENT (68-014A-24), SAMPLE OUTPUT FROM THE FLUXGATE MAGNETOMETER EXPERIMENT (68-014A-14), AND SAMPLES OF THE SPACECRAFT STATUS. THE PHYSICAL DATA CONSIST OF THE SEVEN MAGNITUDES (AVERAGED OVER THREE COMPONENTS) FROM THE SEVEN-CHANNEL TRIAXIAL SPECTRUM ANALYZER, THE DATA QUALITY INDICATOR, AND THE THREE SETS OF TRIAXIAL WAVEFORM DATA REPRESENTING MAGNETIC SIGNALS FROM 0.03 TO 0.1 HZ, 0.1 TO 0.3 HZ, AND 0.3 HZ TO EXPERIMENT CUTOFF. THESE PLOTS WERE USEFUL IN IDENTIFYING THE INTERPLANETARY REGION, BOW SHOCK, MAGNETOPAUSE, PLASMA AND PLASMASPHERE, ETC. WHICH THE SPACECRAFT COULD BE SAMPLING AT ANY PARTICULAR TIME.

DATA SET NAME- SEARCH-COIL MAGNETOMETER SUMMARY TAPES, 36.9-SEC TIME RESOLUTION

NSSDC ID- 68-014A-16B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/07/68 TO 01/01/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 45 REEL(S) OF MAGNETIC TAPE

THESE EXPERIMENTER-SUPPLIED DIGITAL TAPES REPRESENT SUMMARIES OF ABOUT 2000 FINE-TIME SCALE DATA TAPES, WHICH THE EXPERIMENTER CURRENTLY HOLDS. THESE TAPES ARE 9-TRACK MULTIPLE-FILE EBCDIC CODED DIGITAL MAGNETIC TAPES PRODUCED ON AN IBM 360/91 COMPUTER, RECORDED AT 800 BPI, THEY HAVE 420 CHARACTERS PER RECORD AND ABOUT 1500 RECORDS PER FILE, WHICH REPRESENTS ONE SPACECRAFT ORBIT OR ABOUT 2.7 DAYS. THESE DATA ARE TIME ORDERED EXCEPT FOR OCCASIONAL OVERLAPPING DATA AT THE END OF A FILE. AN INDEX TO THE FILES ON EACH TAPE IS PROVIDED IN DATA SET 68-014A-16C. EACH DATA RECORD CONTAINS 36.9-SEC AVERAGED VALUES FOR TRIAXIAL SPECTRUM ANALYZER OUTPUTS AT 10, 22, 47, 100, 216, 467, AND 1000 HZ (21 VALUES), TRIAXIAL BROADBAND DATA FROM 0.03 TO 0.1 HZ, 0.1 TO 0.3 HZ, AND 0.3 HZ TO INSTRUMENT NYQUIST FREQUENCY, WHICH IS DETERMINED BY BIT RATE (9 VALUES). ALIASING DOES NOT OCCUR EXCEPT DURING THE TAPE RECORDER PLAYBACK MODE. HOWEVER THIS QUESTION OF ALIASING IS ACADEMIC FOR THE OGO 5 INSTRUMENTS OPERATING IN THE WAVEFORM MODE, AS INTERFERENCE OCCURS BETWEEN THE SEVEN SPECTRUM ANALYZER CHANNELS AND THESE THREE BROADBAND MODES, SERIOUSLY DEGRADING THE BROADBAND CHANNELS. ALSO ON THE TAPES IS A DATA QUALITY INDICATOR. A MICROFILMED INDEX OF THIS DATA SET IS ALSO AVAILABLE (68-014A-16C).

DATA SET NAME- FREQUENCY TIME SPECTROGRAMS FOR 0-1000 HZ
ANALOG SEARCH-COIL MAGNETOMETER

NSSDC ID- 68-014A-16D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/06/68 TO 10/27/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 27 REEL(S) OF MICROFILM

THESE EXPERIMENTER-GENERATED SPECTROGRAMS ARE ON 35-MM MICROFILM. THEY CONTAIN 0- TO 1000-HZ SEARCH COIL SIGNAL AMPLITUDES PLOTTED AS FUNCTIONS OF FREQUENCY (ON A LINEAR SCALE) AND OF TIME. THE STRENGTH OF THE SIGNAL IS INDICATED BY THE DENSITY OF THE IMAGE ON THE FILM. THE STRONGER SIGNALS GIVE DENSER IMAGES ON THE MICROFILM. THE FREQUENCY RESOLUTION OF THESE PLOTS IS ABOUT 5 HZ. THE TIME RESOLUTION IS APPROXIMATELY 0.5 SEC. EACH SEGMENT OF DATA IS ABOUT 10 MINUTES LONG, AND HAS A START TIME INDICATED AT THE BEGINNING OF THE RUN. TIME IS INDICATED BY TICK MARKS OR DOTS AT THE BOTTOM OF THE FILM. TIME SHOWN IN DOT REPRESENTATION LAGS ACTUAL TIME BY APPROXIMATELY SIX SECONDS. THE DATA WERE GENERATED FROM THE SPECIAL-PURPOSE ANALOG TELEMETRY LINK ABOARD OGO 5, SO THAT DATA COVERAGE AVAILABLE WAS LIMITED BY THE TRACKING ACQUISITION FROM THAT PORTION OF TELEMETERED SIGNAL.

DATA SET NAME- MICROFILM LISTINGS OF SEARCH 37-SEC AVG
DATA WITH AMPLIFIER GAIN INCLUDED

NSSDC ID- 68-014A-16E

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/06/68 TO 04/25/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THESE NSSDC GENERATED 16-MM MICROFILM CONTAIN DATA INCLUDED IN DATA SET 68-014A-16B. HOWEVER, ONLY A SUBSET OF 68-014A-16B HAS BEEN PROCESSED TO DATE. THEY ARE LISTINGS BY TIME AND TRIAXIAL SPECTRUM CHANNEL OF THE 36.8-SEC AVERAGES OF THE SEARCH COIL DIGITAL WAVE FORMS AND 7-CHANNEL SPECTRUM ANALYSES. THE AMPLIFIER GAIN HAS BEEN INCLUDED SO THAT THE DATA REPRESENT SIGNAL AMPLITUDES ON A COMMON SCALE. GAIN WORDS HAVE NOT BEEN INCLUDED IN THE PLOTS IN 68-014A-16A OR EXPLICITLY IN THE AMPLITUDES GIVEN IN 68-014A-16B, ALTHOUGH IT IS CONTAINED IN THE SPACECRAFT STATUS WORD IN THAT DATA. DUE TO A SEVERE INTERFERENCE PROBLEM BETWEEN THE 7 TRIAXIAL DIGITAL CHANNELS AND THE WAVEFORM CHANNELS, A CHANGE IN THE DIGITAL CHANNELS IS REFLECTED IN THE WAVEFORM CHANNELS. FOR THIS REASON, THE WAVEFORM CHANNELS HAVE BEEN FLAGGED BY MINUS SIGNS WHENEVER THERE IS SIGNIFICANT ACTIVITY IN THE DIGITAL CHANNELS. THE CRITERIA FOR SIGNIFICANT ACTIVITY WAS OBTAINED THROUGH A JOINT NSSDC-EXPERIMENTER EFFORT. DIGITAL WAVEFORM DATA FLAGGED WITH MINUS SIGNS SHOULD BE VIEWED WITH MORE CAUTION THAN UNFLAGGED WAVEFORM DATA.

DATA SET NAME- MICROFILM LISTINGS OF INSTRUMENT
GAIN-CALIBRATED TRIAXIAL SEARCH-COIL DATA

NSSDC ID- 68-014A-16F

AVAILABILITY OF DATA SET- DATA AT NSSDC PROCESSING DEFERRED

TIME PERIOD COVERED- 03/07/68 TO 01/01/71
(AS REPORTED BY THE EXPERIMENTER)

QUANTITY OF DATA- 0 REEL(S) OF MICROFILM

THIS DATA SET MAKES AVAILABLE INSTRUMENT-GAIN-CALIBRATED LISTINGS OF 37-SEC AVERAGED SEARCH COIL DATA IN INSTRUMENT COORDINATES. TO PRODUCE SUCH LISTINGS, A COMPUTER PROGRAM WAS WRITTEN AT NSSDC TO PROCESS TAPE DATA SET 68-014A-16B. HOWEVER, BULK PROCESSING HAS NOT BEEN DONE FOR THE ENTIRE SET OF TAPES. UPON REQUEST, A 16-MM MICROFILM LISTING OF VARIOUS ORBITS FROM DATA SET -16B CAN BE PRODUCED AND WOULD CONTAIN TIME AND TRIAXIAL COMPONENTS OF THE SEVEN DIGITAL CHANNELS FROM 10 TO 1000 HZ. NOTE THAT NEITHER DATA SET -16A NOR -16B CONTAINS DATA CORRECTED FOR INSTRUMENT-GAIN VARIATIONS.

SPACECRAFT COMMON NAME- OGO 6

ALTERNATE NAMES- PL-6910, OGO-F
S 60, POGO 3
03986

NSSDC ID- 69-051A

LAUNCH DATE- 06/05/69 WEIGHT- 632.0 KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 03/00/72

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 06/04/69
ORBIT PERIOD- 099.66 MIN INCLINATION- 81.9810 DEG
PERIAPSIS- 413. KM ALT APOAPSIS- 1077. KM ALT

OGO 6 WAS A LARGE OBSERVATORY INSTRUMENTED WITH 26 EXPERIMENTS DESIGNED TO STUDY THE VARIOUS INTERRELATIONSHIPS BETWEEN, AND LATITUDINAL DISTRIBUTIONS OF, HIGH-ALTITUDE ATMOSPHERIC PARAMETERS DURING A PERIOD OF INCREASED SOLAR ACTIVITY. THE MAIN BODY OF THE SPACECRAFT WAS ATTITUDE CONTROLLED BY MEANS OF HORIZON SCANNERS AND GAS JETS SO THAT ITS ORIENTATION WAS MAINTAINED CONSTANT WITH RESPECT TO THE EARTH AND THE SUN. THE SOLAR PANELS ROTATED ON A HORIZONTAL AXIS EXTENDING TRANSVERSELY THROUGH THE MAIN BODY OF THE SPACECRAFT. THE ROTATION OF THE PANELS WAS ACTIVATED BY SUN SENSORS SO THAT THE PANELS RECEIVED MAXIMUM SUNLIGHT. SEVEN EXPERIMENTS WERE MOUNTED ON THE SOLAR PANELS (THE SOPEP PACKAGE). AN ADDITIONAL AXIS, ORIENTED VERTICALLY ACROSS THE FRONT OF THE MAIN BODY, CARRIED SEVEN EXPERIMENTS (THE OPEP PACKAGE). NOMINALLY, THESE SENSORS OBSERVED IN A FORWARD DIRECTION IN THE ORBITAL PLANE OF THE SATELLITE. THE SENSORS COULD BE ROTATED MORE THAN 90 DEG RELATIVE TO THE NOMINAL OBSERVING POSITION AND MORE THAN 90 DEG BETWEEN THE UPPER AND LOWER OPEP GROUPS MOUNTED ON EITHER END OF THIS AXIS. ON JUNE 22, 1969, THE SPACECRAFT POTENTIAL DROPPED SIGNIFICANTLY DURING SUNLIGHT OPERATION AND REMAINED SO DURING SUBSEQUENT SUNLIGHT OPERATION. THIS UNEXPLAINED SHIFT AFFECTED SEVEN EXPERIMENTS WHICH MADE MEASUREMENTS DEPENDENT UPON KNOWLEDGE OF THE SPACECRAFT PLASMA SHEATH. DURING OCTOBER 1969, A STRING OF SOLAR CELLS FAILED, BUT THE ONLY EFFECT OF THE DECREASED POWER WAS TO CAUSE TWO EXPERIMENTS TO CHANGE THEIR MODE OF OPERATION. ALSO DURING OCTOBER 1969, A COMBINATION OF MANUAL AND AUTOMATIC ATTITUDE CONTROL WAS INITIATED, WHICH EXTENDED THE CONTROL GAS LIFETIME OF THE ATTITUDE CONTROL SYSTEM. IN AUGUST 1970, TAPE RECORDER (TR) NO. 1 OPERATION DEGRADED SO THAT ALL RECORDED DATA WERE SUBSEQUENTLY TAKEN WITH TR NO. 2. BY SEPTEMBER 1970, POWER AND EQUIPMENT DEGRADATION LEFT 14 EXPERIMENTS OPERATING NORMALLY, THREE PARTIALLY, AND NINE OFF. FROM OCTOBER 14, 1970, TR NO. 2 WAS USED ONLY ON WEDNESDAYS (WORLD DAYS) TO CONSERVE POWER AND EXTEND TR OPERATION. IN JUNE 1971 THE NUMBER OF "ON" EXPERIMENTS DECREASED FROM 13 TO 7, AND ON JUNE 28, 1971, THE SPACECRAFT WAS PLACED IN A SPIN-STABILIZED MODE ABOUT THE YAW (Z) AXIS AND TURNED OFF DUE TO DIFFICULTIES WITH SPACECRAFT POWER. OGO 6 WAS TURNED ON AGAIN FROM OCTOBER 10, 1971, THROUGH MARCH 1972, FOR OPERATION OF EXPERIMENT 25 BY RADIO RESEARCH LABORATORY, JAPAN.

SMITH, OGO 6

EXPERIMENT NAME- TRIAXIAL SEARCH-COIL MAGNETOMETER

NSSDC ID- 69-051A-22

OGO 6/PIONEER 6

STATUS OF OPERATION- OPERATIONAL OFF
DATE LAST USABLE DATA RECORDED- 06/28/71

PERSONNEL
PI - E.J. SMITH ..... NASA-JPL
PASADENA, CA
OI - R.E. HOLZER ..... U OF CALIF, LA
LOS ANGELES, CA

THE UCLA-JPL SEARCH COIL MAGNETOMETER SAMPLED AMBIENT FIELD FLUCTUATIONS FROM 0.01 TO 1000 HZ IN TWO MODES. THE TRIAXIAL SEARCH COILS MOUNTED AT THE END OF A 6.1-M BOOM PROVIDED TRIAXIAL WAVEFORM DATA IN THREE BANDS, FROM 0.03 TO 0.1 HZ, 0.1 TO 0.3 HZ, AND 0.3 HZ TO CUTOFF, WHICH DEPENDED ON SAMPLING RATE AND GAIN MODE IN THE FOLLOWING WAY -- FOR BIT RATES OF 8, 16 OR 64 KBS, THE CUTOFF WAS 4, 8, OR 32 HZ, FOR DUAL GAIN MODE AND 8, 16, AND 64 HZ FOR SINGLE GAIN MODE, RESPECTIVELY. SIGNALS FROM THE TRIAXIAL SEARCH COILS WERE ALSO SAMPLED BY SEVEN COMB FILTERS WITH CENTER FREQUENCIES OF 10, 22, 47, 100, 216, 550 AND 1000 HZ. THE TIME REQUIRED FOR A COMPLETE TRIAXIAL SPECTRUM ANALYSIS (21 DATA VALUES) WAS 1.01, 0.504 OR 0.126 SEC, ALSO DEPENDING ON THE SATELLITE BIT RATE. INTERFERENCE OCCURRED BETWEEN THE SEVEN-CHANNEL SPECTRUM ANALYZER AND THE BROADBAND CHANNELS, SERIOUSLY DEGRADING THE BROADBAND SIGNALS THROUGHOUT THE OPERATIONAL LIFE OF THE EXPERIMENT. THE EXPERIMENT OPERATED ADEQUATELY THROUGHOUT THE MISSION.

DATA SET NAME- 36-SEC AVERAGED MAGNETOMETER DATA, MICROFILMED PLOTS

NSSDC ID- 69-051A-22A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/10/69 TO 10/13/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 5 REEL(S) OF MICROFILM

THESE EXPERIMENTER-GENERATED COMPRESSED DATA PLOTS ON 16-MM MICROFILM SUMMARIZE THE INSTRUMENT RESPONSE TO BOTH AMBIENT AND INSTRUMENTAL EFFECTS, CONTAINING 36-SEC AVERAGES, THE PLOTTED MAGNETOMETER DATA ARE READABLE TO ABOUT 1.5-MIN TIME RESOLUTION. EACH ORBIT IS REPRESENTED BY A PAIR OF PLOTS, THE FIRST CONTAINING COMPRESSED PHYSICAL DATA, AND THE SECOND THE INFORMATION THAT MAY AFFECT THE EXPERIMENT -SUCH AS INSTRUMENT GAIN, BANDWIDTH INFORMATION, AND SAMPLES OF THE SPACECRAFT STATUS. THE PHYSICAL DATA CONSIST OF THE SEVEN MAGNITUDES (AVERAGED OVER THREE COMPONENTS) FROM THE SEVEN-CHANNEL (10 TO 1000 HZ) TRIAXIAL SPECTRUM ANALYZER, THE DATA QUALITY INDICATOR, AND THE THREE SETS OF TRIAXIAL WAVEFORM DATA REPRESENTING MAGNETIC SIGNALS FROM 0.03 TO 0.1 HZ, 0.1 TO 0.3 HZ, AND 0.3 HZ TO EXPERIMENT CUTOFF. THESE PLOTS ARE USEFUL IN IDENTIFYING THE PLASMAPAUSE, ETC.

SPACECRAFT COMMON NAME- PIONEER 6

ALTERNATE NAMES- PIONEER-A, 01841

NSSDC ID- 65-105A

LAUNCH DATE- 12/16/65 WEIGHT- 146. KG

STATUS OF OPERATION- PARTIAL

ORBIT PARAMETERS
ORBIT TYPE- HELIOCENTRIC EPOCH DATE- 12/16/65
ORBIT PERIOD- 311.3 DAYS INCLINATION- .1639 DEG
PERIAPSIS- .8143 AU RAD APOAPSIS- .936 AU RAD

PIONEER 6 WAS THE FIRST IN A SERIES OF SOLAR-ORBITING, SPIN-STABILIZED, AND SOLAR-CELL AND BATTERY-POWERED SATELLITES DESIGNED TO OBTAIN MEASUREMENTS ON A CONTINUING BASIS OF INTERPLANETARY PHENOMENA FROM WIDELY SEPARATED POINTS IN SPACE. ITS EXPERIMENTS STUDIED THE POSITIVE IONS AND ELECTRONS IN THE SOLAR WIND, THE INTERPLANETARY ELECTRON DENSITY (RADIO PROPAGATION EXPERIMENT), SOLAR AND GALACTIC COSMIC RAYS, AND THE INTERPLANETARY MAGNETIC FIELD. ITS MAIN ANTENNA WAS A HIGH-GAIN DIRECTIONAL ANTENNA. THE SPACECRAFT WAS SPIN-STABILIZED AT ABOUT 60 RPM, AND THE SPIN AXIS WAS PERPENDICULAR TO THE ECLIPTIC PLANE AND POINTED TOWARD THE SOUTH ECLIPTIC POLE. BY GROUND COMMAND, ONE OF FIVE BIT RATES, ONE OF FOUR DATA FORMATS, AND ONE OF FOUR OPERATING MODES COULD BE SELECTED. THE FIVE BIT RATES WERE 512, 256, 64, 16, AND 8 BPS. THREE OF THE FOUR DATA FORMATS CONTAINED PRIMARILY SCIENTIFIC DATA AND CONSISTED OF THIRTY-TWO 7-BIT WORDS PER FRAME. ONE SCIENTIFIC DATA FORMAT WAS FOR USE AT THE TWO HIGHEST BIT RATES. ANOTHER WAS FOR USE AT THE THREE LOWEST BIT RATES. THE THIRD CONTAINED DATA FROM ONLY THE RADIO PROPAGATION EXPERIMENT. THE FOURTH DATA FORMAT CONTAINED MAINLY ENGINEERING DATA. THE FOUR OPERATING MODES WERE REAL TIME, TELEMETRY STORE, DUTY CYCLE STORE, AND MEMORY READOUT. IN THE REAL-TIME MODE, DATA WERE SAMPLED AND TRANSMITTED DIRECTLY (WITHOUT STORAGE) AS SPECIFIED BY THE DATA FORMAT AND BIT RATE SELECTED. IN THE TELEMETRY STORE MODE, DATA WERE STORED AND TRANSMITTED SIMULTANEOUSLY IN THE FORMAT AND AT THE BIT RATE SELECTED. IN THE DUTY CYCLE STORE MODE, A SINGLE FRAME OF SCIENTIFIC DATA WAS COLLECTED AND STORED AT A RATE OF 512 BPS. THE TIME INTERVAL BETWEEN THE COLLECTION AND STORAGE OF SUCCESSIVE FRAMES COULD BE VARIED BY GROUND COMMAND BETWEEN 2 AND 17 MIN TO PROVIDE PARTIAL DATA COVERAGE FOR PERIODS UP TO 19 HR, AS LIMITED BY THE BIT STORAGE CAPACITY. IN THE MEMORY READOUT MODE, DATA WERE READ OUT AT WHATEVER BIT RATE WAS APPROPRIATE TO THE SATELLITE DISTANCE FROM THE EARTH. THE BIT RATE WAS 512 BPS FROM DECEMBER 16, 1965, TO FEBRUARY 28, 1966, 256 BPS FROM MARCH 1, 1966, TO MARCH 17, 1966, 64 BPS FROM MARCH 18, 1966, TO APRIL 13, 1966, AND 16 OR 8 BPS FOR ALL SUBSEQUENT PERIODS. THE REAL-TIME TRANSMISSION MODE WAS USED PREDOMINANTLY THROUGHOUT THE FLIGHT WHEN TRACKING STATIONS WERE AVAILABLE. BETWEEN TRACKING PERIODS, THE DUTY CYCLE STORE MODE WAS GENERALLY USED. DATA COVERAGE AMOUNTED TO ALMOST 100 PERCENT FOR THE FIRST 23 WEEKS AFTER LAUNCH. THEN THE COVERAGE DROPPED TO BETWEEN 10 AND 20 PERCENT UNTIL NOVEMBER, 1969 AT WHICH TIME THE DATA COVERAGE ROSE TO BETWEEN 20 AND 60 PERCENT. THERE HAS BEEN ALMOST NO TRACKING SINCE JULY, 1972. A LEAK IN THE ATTITUDE GAS SYSTEM PREVENTED FURTHER ATTITUDE CORRECTIONS FOLLOWING AN ADJUSTMENT MADE ON JUNE 9, 1966. HOWEVER, THE SENSORS THAT DETERMINED THE SPIN AXIS DIRECTION CONTINUED TO WORK AND INDICATED THAT THE SPIN AXIS DIRECTION REMAINED CLOSE TO NOMINAL DURING THE MAJOR PERIODS OF DATA ACQUISITION.

DATA SET NAME- COMPRESSED EPHEMERIS DATA ON MAGNETIC TAPE

NSSDC ID- 65-105A-00F

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/16/65 TO 05/16/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET WHICH CONTAINS COMPLETE TRAJECTORY INFORMATION WAS GENERATED AT NSSDC BY TAKING THE MOST ACCURATE INFORMATION FROM EACH EPHEMERIS TAPE PROVIDED BY JPL (DATA SET 65-105A-00E) AND ELIMINATING OVERLAP. THE DATA SET CONSISTS OF ONE 7-TRACK, IBM 7094, 800-BPI, BINARY MAGNETIC TAPE. EACH LOGICAL RECORD CONTAINS 89 WORDS, AND EACH PHYSICAL RECORD CONTAINS 20 LOGICAL RECORDS. THE FOLLOWING INFORMATION IS AVAILABLE IN INTERVALS OF ONE DAY (EXCEPT FOR PERIODS WHEN THE SPACECRAFT IS CLOSE TO THE EARTH, WHEN THE INTERVAL MAY BE SHORTER) -- (1) DATE, (2) TIME, (3) DISTANCE FROM THE EARTH TO THE PROBE, (4) DISTANCE FROM THE EARTH TO THE SUN, (5) DISTANCE FROM THE EARTH TO THE MOON, (6) DISTANCE FROM THE SUN TO THE PROBE, (7) GEOCENTRIC RIGHT ASCENSION AND DECLINATION OF PROBE, SUN, AND MOON, (8) GEOCENTRIC LATITUDE, LONGITUDE, AND ALTITUDE ABOVE THE EARTH, (9) EARTH-SUN-PROBE ANGLE, (10) EARTH-PROBE-SUN ANGLE, (11) SUN-PROBE-NEAR LIMB OF EARTH ANGLE (SUN-PROBE-EARTH ANGLE MINUS THE ANGULAR SEMI-DIAMETER OF EARTH WHERE THE ANGULAR SEMI-DIAMETER WOULD BE THE PROBE-CENTERED ANGLE BETWEEN EARTH LIMB AND CENTER OF EARTH), (12) MOON-EARTH-PROBE ANGLE, (13) MOON-PROBE-SUN ANGLE, (14) EARTH-PROBE-MOON ANGLE, (15) CANOPUS-PROBE-EARTH ANGLE, (16) CANOPUS-PROBE-SUN ANGLE, (17) ANGLE MADE BY THE SUN TO PROBE VECTOR AND THE ECLIPTIC PLANE OF DATE, (18) X, Y, Z COMPONENTS OF SPACECRAFT IN THE SUN-EARTH LINE COORDINATE SYSTEM (SUN-CENTERED SYSTEM, X AXIS IS ALONG THE SUN-TO-EARTH VECTOR, Z AXIS IS TOWARD ECLIPTIC NORTH POLE), (19) LONGITUDE OF SPACECRAFT IN THE SUN-EARTH LINE COORDINATE SYSTEM, (20) X, Y, Z COMPONENTS OF SPACECRAFT IN GEOCENTRIC, SELENOCENTRIC, HELIOCENTRIC VENUS-CENTERED, MARS-CENTERED, SATURN-CENTERED, AND JUPITER-CENTERED INERTIAL COORDINATE (X POINTS TO VERNAL EQUINOX, Z POINTS ALONG THE NORTH POLE VECTOR WITH THE REFERENCE PLANE BEING THE EARTH'S TRUE EQUATOR OF DATE), (21) MAGNITUDE OF THE VELOCITY VECTOR AND X, Y, Z COMPONENTS OF THE VELOCITY VECTOR IN GEOCENTRIC INERTIAL COORDINATES, (22) GEOCENTRIC INERTIAL PATH ANGLE (ANGLE MADE BY PROBE VELOCITY VECTOR AND PLANE NORMAL TO EARTH-TO-PROBE VECTOR), (23) GEOCENTRIC INERTIAL AZIMUTH ANGLE (ANGLE BETWEEN THE PLANE DEFINED BY THE EARTH-TO-PROBE VECTOR AND THE GEOCENTRIC INERTIAL VELOCITY VECTOR), (24) HELIOCENTRIC INERTIAL VELOCITY, (25) HELIOCENTRIC INERTIAL PATH ANGLE (ANGLE MADE BY THE HELIOCENTRIC VELOCITY VECTOR AND THE PLANE NORMAL TO THE SUN-TO-PROBE VECTOR), (26) CELESTIAL LONGITUDE OF PROBE (ANGULAR DISTANCE MEASURED COUNTERCLOCKWISE ALONG THE ECLIPTIC PLANE OF DATE FROM THE VERNAL EQUINOX TO THE PROJECTION OF THE SUN-PROBE VECTOR ON A PLANE AS VIEWED FROM THE ECLIPTIC NORTH POLE), (27) CELESTIAL LONGITUDE OF EARTH, (28) CELESTIAL LATITUDE OF EARTH, AND (29) VARIOUS CLOCK ANGLES AND HINGE AND SWIVEL ANGLES WHICH ARE DESCRIBED IN THE DOCUMENTATION.

NESS, PIONEER 6

EXPERIMENT NAME- UNIAXIAL FLUXGATE MAGNETOMETER

NSSDC ID- 65-105A-01

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 07/06/70

PERSONNEL
PI - N.F. NESS ..... NASA-GSFC
GREENBELT, MD

A SINGLE, BOOM-MOUNTED UNIAXIAL FLUXGATE MAGNETOMETER, WITH A DYNAMIC RANGE OF PLUS OR MINUS 64 GAMMAS AND PLUS OR MINUS 0.25-GAMMA RESOLUTION, OBTAINED A COMPLETE VECTOR MAGNETIC FIELD MEASUREMENT BY MEANS OF THREE MEASUREMENTS TAKEN AT EQUAL TIME INTERVALS DURING EACH SPACECRAFT SPIN PERIOD (APPROXIMATELY 1 SEC). AT TELEMETRY BIT RATES LESS THAN OR EQUAL TO 16 BPS, AVERAGES WERE COMPUTED ON BOARD FOR TRANSMISSION TO EARTH. THE INSTRUMENT WORKED WELL FROM LAUNCH TO JULY 6, 1970. NO USEFUL DATA WERE OBTAINED AFTER THAT DATE. FOR FURTHER DETAILS, SEE NESS ET AL. JGR, VOL 71, P 3305, 1966.

DATA SET NAME- 30-SEC AVERAGED VECTOR MAGNETIC FIELD DATA ON TAPE

NSSDC ID- 65-105A-01A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 01/26/66 TO 07/26/66
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 3 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF 7-TRACK, 556-BPI, IBM 7094 BINARY TAPES SUPPLIED BY THE EXPERIMENTER. EACH TAPE CONTAINS ONE FILE, AND EACH PHYSICAL RECORD CONTAINS DATA FOR 1 HR. THIRTY-SEC AVERAGES OF THE VECTOR MAGNETIC FIELD COMPONENTS ARE GIVEN IN SOLAR ECLIPTIC COORDINATES. THE NUMBER OF POINTS IN EACH AVERAGE (UP TO 30) AND THE STANDARD DEVIATION ARE GIVEN. TIMES OF THE AVERAGES AND OTHER SUPPORTING INFORMATION ARE ALSO GIVEN. THERE IS NO SPACECRAFT EPHEMERIS INFORMATION.

DATA SET NAME- HOURLY AVERAGED VECTOR MAGNETIC FIELD DATA ON MICROFILM

NSSDC ID- 65-105A-01B

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 12/17/65 TO 09/05/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF A MICROFILMED (ONE 35-MM REEL) VERSION OF GODDARD X DOCUMENT "MAGNETIC FIELD MEASUREMENTS BY PIONEER 6, 1-HOURLY AVERAGES" (X-690-71-449) BY N. F. NESS AND F. W. OTTENS. DATA PRESENTED IN THE DOCUMENT INCLUDE HOURLY AVERAGED MAGNETIC FIELD PLOTS (MAGNITUDE, LATITUDE, LONGITUDE) IN SPACECRAFT-CENTERED SOLAR ECLIPTIC COORDINATES. TIME COVERAGE IS NEARLY COMPLETE FROM LAUNCH UNTIL MAY 22, 1966, AFTER WHICH THE COVERAGE, AS LIMITED BY SPACECRAFT TELEMETRY, IS VERY SPOTTY. EACH OF 21 FRAMES CONTAINS PLOTS FOR ONE SOLAR ROTATION COVERING THE INTERVAL DECEMBER 17, 1965 THROUGH SEPTEMBER 5, 1967.

SPACECRAFT COMMON NAME- PIONEER 7

ALTERNATE NAMES- PIONEER-B, 02398

NSSDC ID- 66-075A

LAUNCH DATE- 08/17/66 WEIGHT- 138. KG

STATUS OF OPERATION- PARTIAL

ORBIT TYPE- HELIOCENTRIC EPOCH DATE- 08/17/66
ORBIT PERIOD- 402.9 DAYS INCLINATION- .09767 DEG
PERIAPSIS- 1.0100 AU RAD APOAPSIS- 1.1250 AU RAD

PIONEER 7 WAS THE SECOND IN A SERIES OF SOLAR-ORBITING, SPIN-STABILIZED, AND SOLAR-CELL AND BATTERY-POWERED SATELLITES DESIGNED TO OBTAIN MEASUREMENTS OF INTERPLANETARY PHENOMENA FROM WIDELY SEPARATED POINTS IN SPACE ON A CONTINUING BASIS. THE SPACECRAFT CARRIED EXPERIMENTS TO STUDY POSITIVE IONS AND ELECTRONS IN THE SOLAR WIND, THE INTERPLANETARY ELECTRON DENSITY (RADIO PROPAGATION EXPERIMENT), SOLAR AND GALACTIC COSMIC RAYS, AND THE INTERPLANETARY MAGNETIC FIELD. ITS MAIN ANTENNA WAS A HIGH-GAIN DIRECTIONAL ANTENNA. THE SPACECRAFT WAS SPIN-STABILIZED AT ABOUT 60 RPM, AND THE SPIN AXIS WAS PERPENDICULAR TO THE ECLIPTIC PLANE AND POINTED APPROXIMATELY TOWARD THE SOUTH ECLIPTIC POLE. BY GROUND COMMAND, ONE OF FIVE BIT RATES, ONE OF FOUR DATA FORMATS, AND ONE OF FOUR OPERATING MODES COULD BE SELECTED. THE FIVE BIT RATES WERE 512, 256, 64, 16, AND 8 BPS. THREE OF THE FOUR DATA FORMATS CONTAINED PRIMARILY SCIENTIFIC DATA AND CONSISTED OF 32 SEVEN-BIT WORDS PER FRAME. ONE SCIENTIFIC DATA FORMAT WAS USED FOR THE TWO HIGHEST BIT RATES, ANOTHER WAS USED FOR THE THREE LOWEST BIT RATES. THE THIRD CONTAINED DATA FROM ONLY THE RADIO PROPAGATION EXPERIMENT. THE FOURTH DATA FORMAT CONTAINED MAINLY ENGINEERING DATA. THE FOUR OPERATING MODES WERE (1) REAL TIME, (2) TELEMETRY STORE, (3) DUTY CYCLE STORE, AND (4) MEMORY READOUT. IN THE REAL-TIME MODE, DATA WERE SAMPLED AND TRANSMITTED DIRECTLY (WITHOUT STORAGE) AS SPECIFIED BY THE DATA FORMAT AND BIT RATE SELECTED. IN THE TELEMETRY STORE MODE, DATA WERE STORED AND TRANSMITTED SIMULTANEOUSLY IN THE FORMAT AND AT THE BIT RATE SELECTED. IN THE DUTY CYCLE STORE MODE, A SINGLE FRAME OF SCIENTIFIC DATA WAS COLLECTED AND STORED AT A RATE OF 512 BPS. THE TIME PERIOD BETWEEN WHICH SUCCESSIVE FRAMES WERE COLLECTED AND STORED COULD BE VARIED BY GROUND COMMAND BETWEEN 2 AND 17 MIN TO PROVIDE PARTIAL DATA COVERAGE FOR PERIODS UP TO 19 HR, AS LIMITED BY THE BIT STORAGE CAPACITY. IN THE MEMORY READOUT MODE, DATA WERE READ OUT AT WHATEVER BIT RATE WAS APPROPRIATE TO THE SATELLITE DISTANCE FROM THE EARTH. THE BIT RATE FOR THE MAJORITY OF THE DATA WAS 512 BPS FROM AUGUST 17, 1966, TO OCTOBER 23, 1966, 256 BPS FROM OCTOBER 25, 1966, TO NOVEMBER 6, 1966, 64 BPS FROM NOVEMBER 9, 1966, TO DECEMBER 16, 1966, 16 BPS FROM DECEMBER 16, 1966, TO MAY 15, 1967, AND 8 BPS FROM MAY 15, 1967, AND THEREAFTER. HIGHER BIT RATES WERE POSSIBLE WHEN THE SPACECRAFT WAS BEING TRACKED BY THE 64-M ANTENNA, BUT THE DATA COVERAGE AT THESE TIMES WAS LOW. BY FEBRUARY 1968, ALL REAL-TIME DATA WERE BEING RECEIVED AT 8 BPS. DATA COVERAGE AVERAGED BETWEEN 50 AND 100 PERCENT COVERAGE FOR THE FIRST 30 WEEKS AFTER LAUNCH. THE DATA COVERAGE THEN FELL TO BETWEEN 20 AND 30 PERCENT UNTIL SEPTEMBER 1968. AFTER THIS TIME, IT DROPPED TO BETWEEN 0 AND 20 PERCENT THROUGH JANUARY 1971. ONLY AN INSIGNIFICANT AMOUNT OF DATA HAS BEEN OBTAINED SINCE JANUARY 1971. REAL-TIME TRANSMISSION WAS GENERALLY USED WHEN TRACKING STATIONS WERE AVAILABLE. OTHERWISE, THE DUTY CYCLE STORE MODE WAS USED. SOMETIME BETWEEN FEBRUARY 9, 1969, AND FEBRUARY 16, 1969, THE SUN SENSOR THAT GENERATED THE SPACECRAFT SUN PULSES FOR ONBOARD SECTORING OF EXPERIMENTS FAILED. HOWEVER, THE REMAINING SUN SENSORS CONTINUED TO FUNCTION, THUS PERMITTING DETERMINATION OF THE SPIN AXIS DIRECTION UNTIL ABOUT JANUARY 1972.

DATA SET NAME- COMPRESSED EPHEMERIS DATA ON MAGNETIC TAPE

NSSDC ID- 66-075A-00F

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 08/17/66 TO 01/02/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET WHICH CONTAINS COMPLETE TRAJECTORY INFORMATION WAS GENERATED AT NSSDC BY TAKING THE MOST ACCURATE INFORMATION FROM EACH EPHEMERIS TAPE PROVIDED BY JPL (DATA SET 66-075A-00E) AND ELIMINATING OVERLAP. THE DATA SET CONSISTS OF ONE 7-TRACK, IBM 7094, 800-BPI, BINARY MAGNETIC TAPE. EACH LOGICAL RECORD CONTAINS 89 WORDS, AND EACH PHYSICAL RECORD CONTAINS 20 LOGICAL RECORDS. THE FOLLOWING INFORMATION IS AVAILABLE IN INTERVALS OF ONE DAY (EXCEPT FOR PERIODS WHEN THE SPACECRAFT IS CLOSE TO THE EARTH, WHEN THE INTERVAL MAY BE SHORTER) -- (1) DATE, (2) TIME, (3) DISTANCE FROM THE EARTH TO THE PROBE, (4) DISTANCE FROM THE EARTH TO THE SUN, (5) DISTANCE FROM THE EARTH TO THE MOON, (6) DISTANCE FROM THE SUN TO THE PROBE, (7) GEOCENTRIC RIGHT ASCENSION AND DECLINATION OF PROBE, SUN, MOON, (8) GEOCENTRIC LATITUDE, LONGITUDE, AND ALTITUDE ABOVE THE EARTH, (9) EARTH-SUN-PROBE ANGLE, (10) EARTH-PROBE-SUN ANGLE, (11) SUN-PROBE-NEAR LIMB OF EARTH ANGLE (SUN-PROBE-EARTH ANGLE MINUS THE ANGULAR SEMI-DIAMETER OF EARTH WHERE THE ANGULAR SEMI-DIAMETER WOULD BE THE PROBE-CENTERED ANGLE BETWEEN EARTH LIMB AND CENTER OF EARTH), (12) MOON-EARTH-PROBE ANGLE, (13) MOON-PROBE-SUN ANGLE, (14) EARTH-PROBE-MOON ANGLE, (15) CANOPUS-PROBE-EARTH ANGLE, (16) CANOPUS-PROBE-SUN ANGLE, (17) ANGLE MADE BY THE SUN-TO-PROBE VECTOR AND THE ECLIPTIC PLANE OF DATE, (18) X, Y, Z COMPONENTS OF SPACECRAFT IN THE SUN-EARTH LINE COORDINATE SYSTEM (SUN-CENTERED SYSTEM, X AXIS IS ALONG THE SUN-TO-EARTH VECTOR,

Z AXIS IS TOWARD ECLIPTIC NORTH POLE). (19) LONGITUDE OF SPACECRAFT IN THE SUN-EARTH LINE COORDINATE SYSTEM. (20) X, Y, Z COMPONENTS OF SPACECRAFT IN GEOCENTRIC, SELENOCENTRIC, HELIOCENTRIC VENUS-CENTERED, MARS-CENTERED, SATURN-CENTERED, AND JUPITER-CENTERED INERTIAL COORDINATE (X POINTS TO VERNAL EQUINOX, Z POINTS ALONG THE NORTH POLE VECTOR WITH THE REFERENCE PLANE BEING THE EARTH'S TRUE EQUATOR OF DATE), (21) MAGNITUDE OF THE VELOCITY VECTOR AND X, Y, Z COMPONENTS OF THE VELOCITY VECTOR IN GEOCENTRIC INERTIAL COORDINATES, (22) GEOCENTRIC INERTIAL PATH ANGLE (ANGLE MADE BY PROBE VELOCITY VECTOR AND PLANE NORMAL TO EARTH-TO-PROBE VECTOR), (23) GEOCENTRIC INERTIAL AZIMUTH ANGLE (ANGLE BETWEEN THE PLANE DEFINED BY THE EARTH-TO-PROBE VECTOR AND THE GEOCENTRIC INERTIAL VELOCITY VECTOR), (24) HELIOCENTRIC INERTIAL VELOCITY, (25) HELIOCENTRIC INERTIAL PATH ANGLE (ANGLE MADE BY THE HELIOCENTRIC VELOCITY VECTOR AND THE PLANE NORMAL TO THE SUN-TO-PROBE VECTOR), (26) CELESTIAL LONGITUDE OF PROBE (ANGULAR DISTANCE MEASURED COUNTERCLOCKWISE ALONG THE ECLIPTIC PLANE OF DATE FROM THE VERNAL EQUINOX TO THE PROJECTION OF THE SUN-PROBE VECTOR ON A PLANE AS VIEWED FROM THE ECLIPTIC NORTH POLE), (27) CELESTIAL LONGITUDE OF EARTH, (28) CELESTIAL LATITUDE OF EARTH, AND (29) VARIOUS CLOCK ANGLES AND HINGE AND SWIVEL ANGLES WHICH ARE DESCRIBED IN THE DOCUMENTATION.

NESS, PIONEER 7

EXPERIMENT NAME- SINGLE-AXIS MAGNETOMETER

NSSDC ID- 66-075A-01

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 02/01/69

PERSONNEL
PI - N.F. NESS ..... NASA-GSFC
GREENBELT, MD

A SINGLE, BOOM-MOUNTED, UNIAXIAL FLUXGATE MAGNETOMETER, WITH A DYNAMIC RANGE OF PLUS OR MINUS 32 GAMMAS AND PLUS OR MINUS 0.125-GAMMA RESOLUTION, OBTAINED A VECTOR MAGNETIC FIELD MEASUREMENT BY MEANS OF THREE SCALAR MEASUREMENTS TAKEN AT EQUAL TIME INTERVALS DURING EACH SPACECRAFT SPIN PERIOD (APPROXIMATELY 1 SEC). AT TELEMETRY BIT RATES LESS THAN OR EQUAL TO 16 BPS, TIME-AVERAGED FIELD DATA WERE RETURNED FROM THE SPACECRAFT. THE DETECTOR PERFORMED WELL UNTIL FEBRUARY 1969, AFTER WHICH NO FURTHER DATA WERE OBTAINED. FOR FURTHER DETAILS SEE MARIANI ET AL., JGR, VOL 75, P 6037, 1970.

DATA SET NAME- VECTOR MAGNETIC FIELD DATA, 30-SEC AVERAGES ON TAPE

NSSDC ID- 66-075A-01A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 08/17/66 TO 02/25/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 4 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF 7-TRACK, 556-BPI, IBM 7094, BINARY TAPES SUPPLIED BY THE EXPERIMENTER. EACH TAPE CONTAINS ONE FILE, AND EACH PHYSICAL RECORD CONTAINS DATA FOR 1 HR. THIRTY-SEC AVERAGES OF THE VECTOR MAGNETIC FIELD COMPONENTS ARE GIVEN IN SOLAR ECLIPTIC COORDINATES. THE NUMBER OF POINTS IN EACH AVERAGE (UP TO 30) AND THE STANDARD DEVIATION ARE GIVEN. TIMES OF THE AVERAGES AND OTHER SUPPORTING INFORMATION ARE ALSO GIVEN. THERE IS NO SPACECRAFT EPHEMERIS INFORMATION.

DATA SET NAME- HOURLY AVERAGED VECTOR MAGNETIC FIELD DATA ON MICROFILM

NSSDC ID- 66-075A-01B

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 08/17/66 TO 10/29/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF A MICROFILMED (ONE 35-MM REEL) VERSION OF GODDARD X DOCUMENT 'MAGNETIC FIELD MEASUREMENTS BY PIONEER 7, 1-HOURLY AVERAGES (X-690-71-452)' BY N. F. NESS AND F. W. OTTENS. DATA PRESENTED IN THE DOCUMENT INCLUDE HOURLY AVERAGED MAGNETIC FIELD PLOTS (MAGNITUDE, LATITUDE, LONGITUDE) IN SPACECRAFT-CENTERED SOLAR ECLIPTIC COORDINATES. TIME COVERAGE IS NEARLY COMPLETE FROM LAUNCH UNTIL MARCH 3, 1967, AFTER WHICH THE COVERAGE, AS LIMITED BY SPACECRAFT TELEMETRY, IS VERY SPOTTY. EACH OF 17 FRAMES CONTAINS PLOTS FOR ONE SOLAR ROTATION COVERING THE INTERVAL AUGUST 17, 1966 THROUGH OCTOBER 29, 1967.

SPACECRAFT COMMON NAME- PIONEER 8

ALTERNATE NAMES- PIONEER-C, 03066

NSSDC ID- 67-123A

LAUNCH DATE- 12/13/67 WEIGHT- 146. KG

STATUS OF OPERATION- PARTIAL

ORBIT PARAMETERS
ORBIT TYPE- HELIOCENTRIC EPOCH DATE- 12/13/67
ORBIT PERIOD- 386.6 DAYS INCLINATION- .0578 DEG
PERIAPSIS- .9892 AU RAD APOAPSIS- 1.0880 AU RAD

PIONEER 8 WAS THE THIRD IN A SERIES OF SOLAR-ORBITING, SPIN-STABILIZED, SOLAR CELL, AND BATTERY-POWERED SATELLITES DESIGNED TO OBTAIN MEASUREMENTS OF INTERPLANETARY PHENOMENA FROM WIDELY SEPARATED POINTS IN SPACE ON A CONTINUING BASIS. THE SPACECRAFT CARRIED EXPERIMENTS TO STUDY THE POSITIVE IONS AND ELECTRONS IN THE SOLAR WIND, THE INTERPLANETARY ELECTRON DENSITY (RADIO PROPAGATION EXPERIMENT), SOLAR AND GALACTIC COSMIC RAYS, THE INTERPLANETARY MAGNETIC FIELD, COSMIC DUST, AND ELECTRIC FIELDS. ITS MAIN ANTENNA WAS A HIGH-GAIN DIRECTIONAL ANTENNA. THE SPACECRAFT WAS SPIN-STABILIZED AT ABOUT 60 RPM, AND THE SPIN AXIS WAS PERPENDICULAR TO THE ECLIPTIC PLANE AND POINTED TOWARD THE SOUTH ECLIPTIC POLE. BY GROUND COMMAND, ONE OF FIVE BIT RATES, ONE OF FOUR DATA FORMATS, AND ONE OF FOUR OPERATING MODES COULD BE SELECTED. THE FIVE BIT RATES WERE 512, 256, 64, 16, AND 8 BPS. THREE OF THE FOUR DATA FORMATS WERE USED PRIMARILY FOR SCIENTIFIC DATA AND CONSISTED OF THIRTY-TWO 7-BIT WORDS PER FRAME. ONE SCIENTIFIC DATA FORMAT WAS USED AT THE TWO HIGHEST BIT RATES. ANOTHER WAS USED AT THE THREE LOWEST BIT RATES. THE THIRD WAS USED FOR DATA FROM ONLY THE RADIO PROPAGATION EXPERIMENT. THE FOURTH DATA FORMAT WAS USED MAINLY FOR ENGINEERING DATA. THE FOUR OPERATING MODES WERE (1) REAL TIME, (2) TELEMETRY STORE, (3) DUTY CYCLE STORE, AND (4) MEMORY READOUT. IN THE REAL-TIME MODE, DATA WERE SAMPLED AND TRANSMITTED DIRECTLY (WITHOUT STORAGE) AS SPECIFIED BY THE DATA FORMAT AND BIT RATE SELECTED. IN THE TELEMETRY STORE MODE, DATA WERE STORED AND TRANSMITTED SIMULTANEOUSLY IN THE FORMAT AND AT THE BIT RATE SELECTED. IN THE DUTY CYCLE STORE MODE, A SINGLE FRAME OF SCIENTIFIC DATA WAS COLLECTED AND STORED AT A RATE OF 512 BPS. THE TIME INTERVAL BETWEEN THE COLLECTION AND STORAGE OF SUCCESSIVE FRAMES COULD BE VARIED BY GROUND COMMAND BETWEEN 2 AND 17 MIN TO PROVIDE PARTIAL DATA COVERAGE FOR PERIODS UP TO 19 HR, AS LIMITED BY THE BIT STORAGE CAPACITY. IN THE MEMORY READOUT MODE, DATA WERE READ OUT AT WHATEVER BIT RATE WAS APPROPRIATE TO THE SATELLITE DISTANCE FROM THE EARTH. THE BIT RATE FOR THE MAJORITY OF THE DATA WAS 512-BPS FROM DECEMBER 13, 1967 TO MARCH 20, 1968, 256 BPS FROM MARCH 20, 1968 TO MAY 6, 1968, 64 BPS FROM MAY 6, 1968 TO AUGUST 29, 1968, AND 16 OR 8 BPS THEREAFTER. HIGHER BIT RATES WERE USED WHEN THE SPACECRAFT WAS TRACKED BY THE 64-M ANTENNA, BUT THE DATA COVERAGE BY THIS ANTENNA WAS LOW. DATA COVERAGE AVERAGED CLOSE TO 100 PERCENT FOR THE FIRST YEAR AFTER LAUNCH. AFTER THAT, THE DATA COVERAGE AVERAGED BETWEEN 50 AND 80 PERCENT UNTIL NOVEMBER 1970 WHEN COVERAGE DROPPED TO BETWEEN 50 AND 0 PERCENT. ALMOST NO DATA HAVE BEEN ACQUIRED SINCE MAY 1971. DURING A REORIENTATION MANEUVER IN MARCH 1968, ONE OF THE FOUR SUN SENSORS (WHICH WAS CONNECTED TO THE ATTITUDE GAS SYSTEM USED TO KEEP THE SPIN AXIS POINTED) WAS FOUND TO BE INOPERATIVE. IT WAS NOTED AT THIS TIME THAT THE SPACECRAFT ATTITUDE WAS OFF 4 DEG. ANOTHER ORIENTATION WAS ATTEMPTED IN JUNE 1968, AND IT WAS FOUND THAT THREE OF THE FOUR ATTITUDE SUN SENSORS WERE INOPERATIVE.

DATA SET NAME- COMPRESSED EPHEMERIS DATA ON MAGNETIC TAPE

NSSDC ID- 67-123A-00E

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/13/67 TO 11/15/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET WHICH CONTAINS COMPLETE TRAJECTORY INFORMATION WAS GENERATED AT NSSDC BY TAKING THE MOST ACCURATE INFORMATION FROM EACH EPHEMERIS TAPE PROVIDED BY JPL (DATA SET 67-123A-00D) AND ELIMINATING OVERLAP. THE DATA SET CONSISTS OF ONE 7-TRACK, IBM 7094, 800-BPI, BINARY MAGNETIC TAPE. EACH

LOGICAL RECORD CONTAINS 89 WORDS, AND EACH PHYSICAL RECORD CONTAINS 20 LOGICAL RECORDS. THE FOLLOWING INFORMATION IS AVAILABLE IN INTERVALS OF ONE DAY (EXCEPT FOR PERIODS WHEN THE SPACECRAFT IS CLOSE TO THE EARTH, WHEN THE INTERVAL MAY BE SHORTER) -- (1) DATE, (2) TIME, (3) DISTANCE FROM THE EARTH TO THE PROBE, (4) DISTANCE FROM THE EARTH TO THE SUN, (5) DISTANCE FROM THE EARTH TO THE MOON, (6) DISTANCE FROM THE SUN TO THE PROBE, (7) GEOCENTRIC RIGHT ASCENSION AND DECLINATION OF PROBE, SUN, MOON, (8) GEOCENTRIC LATITUDE, LONGITUDE, AND ALTITUDE ABOVE THE EARTH, (9) EARTH-SUN-PROBE ANGLE, (10) EARTH-PROBE-SUN ANGLE, (11) SUN-PROBE-NEAR LIMB OF EARTH ANGLE (SUN-PROBE-EARTH ANGLE MINUS THE ANGULAR SEMI-DIAMETER OF EARTH WHERE THE ANGULAR SEMI-DIAMETER WOULD BE THE PROBE-CENTERED ANGLE BETWEEN EARTH LIMB AND CENTER OF EARTH), (12) MOON-EARTH-PROBE ANGLE, (13) MOON-PROBE-SUN ANGLE, (14) EARTH-PROBE-MOON ANGLE, (15) CANOPUS-PROBE-EARTH ANGLE, (16) CANOPUS-PROBE-SUN ANGLE, (17) ANGLE MADE BY THE SUN TO PROBE VECTOR AND THE ECLIPTIC PLANE OF DATE, (18) X, Y, Z COMPONENTS OF SPACECRAFT IN THE SUN-EARTH LINE COORDINATE SYSTEM (SUN-CENTERED SYSTEM, X AXIS IS ALONG THE SUN-TO-EARTH VECTOR, Z AXIS IS TOWARD ECLIPTIC NORTH POLE), (19) LONGITUDE OF SPACECRAFT IN THE SUN-EARTH LINE COORDINATE SYSTEM, (20) X, Y, Z COMPONENTS OF SPACECRAFT IN GEOCENTRIC, SELENOCENTRIC, HELIOCENTRIC VENUS-CENTERED, MARS-CENTERED, SATURN-CENTERED, AND JUPITER-CENTERED INERTIAL COORDINATES (X POINTS TO VERNAL EQUINOX, Z POINTS ALONG THE NORTH POLE VECTOR WITH THE REFERENCE PLANE BEING THE EARTH'S TRUE EQUATOR OF DATE, (21) MAGNITUDE OF THE VELOCITY VECTOR AND X, Y, Z COMPONENTS OF THE VELOCITY VECTOR IN GEOCENTRIC INERTIAL COORDINATES, (22) GEOCENTRIC INERTIAL PATH ANGLE (ANGLE MADE BY PROBE VELOCITY VECTOR AND PLANE NORMAL TO EARTH-TO-PROBE VECTOR), (23) GEOCENTRIC INERTIAL AZIMUTH ANGLE (ANGLE BETWEEN THE PLANE DEFINED BY THE EARTH-TO-PROBE VECTOR AND THE GEOCENTRIC INERTIAL VELOCITY VECTOR), (24) HELIOCENTRIC INERTIAL VELOCITY, (25) HELIOCENTRIC INERTIAL PATH ANGLE (ANGLE MADE BY THE HELIOCENTRIC VELOCITY VECTOR AND THE PLANE NORMAL TO THE SUN-TO-PROBE VECTOR), (26) CELESTIAL LONGITUDE OF PROBE (ANGULAR DISTANCE MEASURED COUNTERCLOCKWISE ALONG THE ECLIPTIC PLANE OF DATE FROM THE VERNAL EQUINOX TO THE PROJECTION OF THE SUN-PROBE VECTOR ON A PLANE AS VIEWED FROM THE ECLIPTIC NORTH POLE), (27) CELESTIAL LONGITUDE OF EARTH, (28) CELESTIAL LATITUDE OF EARTH, AND (29) VARIOUS CLOCK ANGLES AND HINGE AND SWIVEL ANGLES WHICH ARE DESCRIBED IN THE DOCUMENTATION.

NESS, PIONEER 8

EXPERIMENT NAME- SINGLE-AXIS MAGNETOMETER

NSSDC ID- 67-123A-01

STATUS OF OPERATION- NORMAL

PERSONNEL

PI -	N.F.	NESS	NASA-GSFC GREENBELT, MD
OI -	S.C.	CANTARANO	U OF ROME ROME, ITALY
OI -	F.	MARIANI	U OF AQUILA AQUILA, ITALY

A SINGLE, BOOM-MOUNTED UNIAXIAL FLUXGATE MAGNETOMETER, WITH MODE-DEPENDENT RANGES OF PLUS OR MINUS 32 GAMMAS AND PLUS OR MINUS 96 GAMMAS AND CORRESPONDING RESOLUTIONS OF PLUS OR MINUS 0.125 GAMMA AND PLUS OR MINUS 0.375 GAMMA, OBTAINED A VECTOR MAGNETIC FIELD MEASUREMENT BY MEANS OF THREE MEASUREMENTS TAKEN AT EQUAL TIME INTERVALS DURING EACH SPACECRAFT SPIN PERIOD (APPROXIMATELY 1 SEC). AT TELEMETRY BIT RATES LESS THAN OR EQUAL TO 16 BPS, AVERAGES WERE COMPUTED ON BOARD FOR TRANSMISSION TO EARTH. FOR FURTHER DETAILS, SEE MARIANI AND NESS, JGR, VOL 74, P 5633, 1969.

DATA SET NAME- HOURLY AVERAGED VECTOR MAGNETIC FIELD PLOTS ON MICROFILM

NSSDC ID- 67-123A-01A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/23/67 TO 12/07/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF ONE REEL OF 35-MM MICROFILM CONTAINING ANALOG PLOTS OF HOURLY AVERAGED MAGNETIC FIELD COMPONENTS (MAGNITUDE, LATITUDE, LONGITUDE) IN A SPACECRAFT-CENTERED SOLAR ECLIPTIC COORDINATE SYSTEM. EACH OF THE 13 DATA FRAMES CONTAINS DATA FOR ONE SOLAR ROTATION. THE TIME COVERAGE IS NEARLY COMPLETE FOR MOST OF THE INTERVAL COVERED. THE DATA AND DOCUMENTATION ARE AS FOUND IN 'MAGNETIC FIELD MEASUREMENTS BY PIONEER 8 'I. HOURLY AVERAGES OF THE FIELD ELEMENTS FROM DECEMBER 23, 1967 TO DECEMBER 7, 1968 (BARTELS' SOLAR ROTATION 1839 TO 1851)' BY F. MARIANI, N. F. NESS, AND G. BAVASSANO, LABORATORIO DI RICERCA E TECNOLOGIA PER LO STUDIO DEL PLASMA NELLO SPAZIO, LPS-71-22, JULY 1971.

DATA SET NAME- MAGNETIC FIELD VECTOR 30-SEC AVERAGES ON TAPE

NSSDC ID- 67-123A-01B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/13/67 TO 12/03/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 3 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF THREE 7-TRACK, 800 BPI, MULTIFILE UNIVAC 1108 BINARY TAPES SUBMITTED BY THE EXPERIMENTER. EACH FILE CONTAINS DATA FOR ABOUT ONE DAY. EACH PHYSICAL RECORD CONTAINS, IN 726 WORDS, PACKED DATA FOR ONE HR. THE DATA CONSIST OF TIME AND 30 SEC AVERAGES OF MAGNETIC FIELD MAGNITUDE, SOLAR ECLIPTIC CARTESIAN COMPONENTS, AUTOCORRELATION FUNCTIONS, AND CROSS-CORRELATION FUNCTIONS. THE DATA COVERAGE IS NEARLY COMPLETE BETWEEN DECEMBER 13, 1967 AND DECEMBER 3, 1968, ALTHOUGH OVER THE LAST MONTH OR SO THERE ARE SEVERAL DATA GAPS OF ABOUT A DAY'S DURATION. AN UNPACKING ROUTINE THAT WAS SUBMITTED TO NSSDC BY THE EXPERIMENTER AND WHICH RESULTS IN A PRINTOUT DESIGNED BY HIM IS AVAILABLE. THIS IS A FORTRAN PROGRAM THAT RUNS ON THE UNIVAC 1108. A SLIGHTLY MODIFIED IBM 7094 VERSION IS ALSO AVAILABLE. ALTERNATIVELY, A DETAILED FORMAT STATEMENT IS AVAILABLE FOR USERS WISHING TO UNPACK THE DATA IN A DIFFERENT WAY.

SCARF, PIONEER 8

EXPERIMENT NAME- PLASMA WAVE DETECTOR

NSSDC ID- 67-123A-07

STATUS OF OPERATION- OPERATIONAL OFF
DATE LAST USABLE DATA RECORDED- 03/00/71

PERSONNEL

PI -	F.L.	SCARF	TRW SYSTEMS GROUP REDONDO BEACH, CA
OI -	I.M.	GREEN	TRW SYSTEMS GROUP REDONDO BEACH, CA

ELECTROSTATIC AND ELECTROMAGNETIC PLASMA WAVES WERE MEASURED IN THE SOLAR WIND NEAR 1 AU USING AN UNBALANCED DIPOLE ANTENNA. THE 423-KHZ STANFORD UNIVERSITY ANTENNA, WHICH SERVED AS THE SENSOR, WAS CAPACITIVELY COUPLED TO THREE CHANNELS. CHANNEL 1 WAS A 15 PERCENT BANDPASS FILTER CENTERED AT 400 HZ, A TYPICAL INTERPLANETARY ELECTRON CYCLOTRON FREQUENCY. CHANNEL 2 WAS A 15 PERCENT BANDPASS FILTER CENTERED AT 22 KHZ, A TYPICAL INTERPLANETARY ELECTRON PLASMA FREQUENCY. THE BROADBAND CHANNEL FROM 100 HZ TO 100 KHZ WAS FED INTO A COUNT RATE METER THAT MEASURED THE NUMBER OF POSITIVE GOING PULSES PER UNIT TIME HAVING AMPLITUDES LARGE ENOUGH TO CROSS THE PRESENT TRIGGER LEVEL. THE TRIGGER LEVEL WAS VARIED IN 16 STEPS PER TELEMETRY SEQUENCE. THE TRIGGER LEVELS TOGETHER WITH THE COUNT RATE AT EACH LEVEL GAVE A MEASURE OF THE BROADBAND POWER SPECTRUM. ALMOST ALL OF THE TIME THIS MEASUREMENT AMOUNTS TO THE POWER SPECTRUM AT NEAR 100 HZ. AT THE HIGHEST TELEMETRY RATE OF PIONEER 8, THIS SEQUENCE WAS REPEATED EVERY 7.47 MIN.

DATA SET NAME- REDUCED ELECTRIC FIELD DATA ON MICROFILM

NSSDC ID- 67-123A-07A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/13/67 TO 10/07/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 16 REEL(S) OF MICROFILM

THESE 16 REELS OF 35-MM MICROFILM CONTAIN REDUCED DATA PLOTS OF THE BROADBAND OUTPUT, THE 400-HZ OUTPUT, AND THE 22-KHZ OUTPUT AFTER CALIBRATION AND IN THE FINEST TIME SCALE AVAILABLE FROM THE TELEMETERED DATA. THE APPROPRIATE STATISTICAL INFORMATION ACCUMULATED OVER EACH EXPERIMENT CYCLE IS ALSO INCLUDED. IT IS NOTED THAT THE EXPERIMENT CYCLE DEPENDS ON THE BIT RATE OF THE TRANSMITTER AND VARIES FROM 7.47 MIN TO 1 HR FOR ONE BROADBAND MEASUREMENT OF 16 STEPS AND

ORIGINAL PAGE IS
OF POOR QUALITY

FOR SIXTEEN 400-HZ AND SIXTEEN 22-KHZ MEASUREMENTS. THE 22-KHZ CHANNEL WAS DEGRADED CONSIDERABLY FROM SPACECRAFT INTERFERENCE AND WAS USEFUL ONLY WHEN STRONG 22-KHZ SIGNALS WERE PRESENT IN THE AMBIENT PLASMA, SUCH AS NEAR THE EARTH OR AT THE PASSAGE OR AN INTERPLANETARY SHOCK.

DATA SET NAME- SUMMARY PLOTS OF EACH EXPERIMENT CYCLE ON MICROFILM

NSSDC ID- 67-123A-07B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/13/67 TO 09/23/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MICROFILM

THESE DATA ON TWO REELS OF EXPERIMENTER GENERATED 35-MM MICROFILM, SUMMARIZE DATA SET 67-123A-07A. THEY CONTAIN MAXIMUM AND MINIMUM 400-HZ LEVEL, MAXIMUM AND MINIMUM 22-KHZ LEVEL, AND THE AVERAGE OF TWO (STEP 7) 100-HZ BROADBAND LEVELS, PRESENTED FOR EACH EXPERIMENT CYCLE (1024 MAIN TELEMETRY FRAMES) IN THE FULL DATA PLOTS. THEY REPRESENT ABOUT ONE TO EIGHT DATA POINTS PER HR.

SPACECRAFT COMMON NAME- PIONEER 9

ALTERNATE NAMES- PIONEER-D, PL-684K
03533

NSSDC ID- 68-100A

LAUNCH DATE- 11/08/68 WEIGHT- 147. KG

STATUS OF OPERATION- PARTIAL

ORBIT PARAMETERS

ORBIT TYPE- HELIOCENTRIC	EPOCH DATE- 11/08/68
ORBIT PERIOD- 297.6 DAYS	INCLINATION- .086509 DEG
PERIAPSIS- 0.7542 AU RAD	APOAPSIS- 0.9905 AU RAD

PIONEER 9 WAS THE FOURTH IN A SERIES OF SOLAR-ORBITING, SPIN-STABILIZED, AND SOLAR-CELL AND BATTERY-POWERED SATELLITES DESIGNED TO OBTAIN MEASUREMENTS OF INTERPLANETARY PHENOMENA FROM WIDELY SEPARATED POINTS IN SPACE ON A CONTINUING BASIS. THE SPACECRAFT CARRIED EXPERIMENTS TO STUDY THE POSITIVE IONS AND ELECTRONS IN THE SOLAR WIND, THE INTERPLANETARY ELECTRON DENSITY (RADIO PROPAGATION EXPERIMENT), SOLAR AND GALACTIC COSMIC RAYS, THE INTERPLANETARY MAGNETIC FIELD, COSMIC DUST, AND ELECTRIC FIELDS. ALSO, A NEW CODING PROCESS WAS IMPLEMENTED FOR PIONEER 9. ITS MAIN ANTENNA WAS A HIGH-GAIN DIRECTIONAL ANTENNA. THE SPACECRAFT WAS SPIN-STABILIZED AT ABOUT 60 RPM, AND THE SPIN AXIS WAS PERPENDICULAR TO THE ECLIPTIC PLANE AND POINTED TOWARD THE SOUTH ECLIPTIC POLE. BY GROUND COMMAND, ONE OF FIVE BIT RATES, ONE OF FOUR DATA FORMATS, AND ONE OF FOUR OPERATING MODES COULD BE SELECTED. THE FIVE BIT RATES WERE 512, 256, 64, 16, AND 8 BPS. THREE OF THE FOUR DATA FORMATS CONTAINED PRIMARILY SCIENTIFIC DATA AND CONSISTED OF THIRTY-TWO 7-BIT WORDS PER FRAME. ONE SCIENTIFIC DATA FORMAT WAS USED AT THE TWO HIGHEST BIT RATES, ANOTHER WAS USED AT THE THREE LOWEST BIT RATES, AND THE THIRD CONTAINED DATA FROM ONLY THE RADIO PROPAGATION EXPERIMENT. THE FOURTH DATA FORMAT CONTAINED MAINLY ENGINEERING DATA. THE FOUR OPERATING MODES WERE REAL TIME, TELEMETRY STORE, DUTY CYCLE STORE, AND MEMORY READOUT. IN THE REAL-TIME MODE, DATA WERE SAMPLED AND TRANSMITTED DIRECTLY (WITHOUT STORAGE) AS SPECIFIED BY THE DATA FORMAT AND BIT RATE SELECTED. IN THE TELEMETRY STORE MODE, DATA WERE STORED AND TRANSMITTED SIMULTANEOUSLY IN THE FORMAT AND AT THE BIT RATE SELECTED. IN THE DUTY CYCLE STORE MODE, A SINGLE FRAME OF SCIENTIFIC DATA WAS COLLECTED AND STORED AT A RATE OF 512 BPS. THE TIME PERIOD BETWEEN WHICH SUCCESSIVE FRAMES WERE COLLECTED AND STORED COULD BE VARIED BY GROUND COMMAND BETWEEN 2 AND 17 MIN TO PROVIDE PARTIAL DATA COVERAGE FOR PERIODS OF UP TO 19 HR, AS LIMITED BY THE BIT STORAGE CAPACITY. IN THE MEMORY READOUT MODE, DATA WERE READ OUT AT WHATEVER BIT RATE WAS APPROPRIATE TO THE SATELLITE DISTANCE FROM THE EARTH. THE BIT RATE FOR THE MAJORITY OF THE DATA WAS 512 BPS FROM NOVEMBER 8, 1968, TO JANUARY 15, 1969, 256 BPS FROM JANUARY 16, 1969, TO JANUARY 29, 1969, 64 BPS FROM JANUARY 30, 1969 TO MARCH 27, 1969, AND 16 OR 8 BPS THEREAFTER. HIGHER BIT RATES WERE USED WHEN THE SPACECRAFT WAS TRACKED BY THE 64-CM ANTENNA, BUT THE DATA COVERAGE BY THIS ANTENNA WAS LOW. THE DATA COVERAGE AVERAGED CLOSE TO 100 PERCENT FOR THE FIRST 29 WEEKS AFTER LAUNCH. AFTER THIS, DATA COVERAGE DROPPED TO CLOSE TO 50 PERCENT UNTIL DECEMBER 1969, AND IT VARIED BETWEEN 10 AND 30 PERCENT THROUGH JULY 1971. ALMOST NO DATA WERE ACQUIRED BETWEEN JULY 1971 AND JUNE 1972. FOR THE NEXT 10 MONTHS COVERAGE WAS TYPICALLY BETWEEN 10 AND 30 PERCENT, WITH 100 PERCENT COVERAGE FOR THE MAJOR SOLAR ACTIVE PERIOD OF AUGUST 1972. FROM APRIL 1973 THROUGH AUGUST 1974 COVERAGE AVERAGED 5 PERCENT.

DATA SET NAME- COMPRESSED EPHEMERIS DATA ON MAGNETIC TAPE

NSSDC ID- 68-100A-00E

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 11/08/68 TO 04/16/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET WHICH CONTAINS COMPLETE TRAJECTORY INFORMATION WAS GENERATED AT NSSDC BY TAKING THE MOST ACCURATE INFORMATION FROM EACH EPHEMERIS TAPE AND ELIMINATING OVERLAP. THE DATA SET CONSISTS OF ONE 7-TRACK, IBM 7094, 800-BPI, BINARY MAGNETIC TAPE, EACH LOGICAL RECORD CONTAINS 89 WORDS, AND EACH PHYSICAL RECORD CONTAINS 20 LOGICAL RECORDS. THE FOLLOWING INFORMATION IS AVAILABLE IN INTERVALS OF ONE DAY (EXCEPT FOR PERIODS WHEN THE SPACECRAFT IS CLOSE TO THE EARTH, WHEN THE INTERVAL MAY BE SHORTER) -- (1) DATE, (2) TIME, (3) DISTANCE FROM THE EARTH TO THE PROBE, (4) DISTANCE FROM THE EARTH TO THE SUN, (5) DISTANCE FROM THE EARTH TO THE MOON, (6) DISTANCE FROM THE SUN TO THE PROBE, (7) GEOCENTRIC RIGHT ASCENSION AND DECLINATION OF PROBE, SUN, MOON, (8) GEOCENTRIC LATITUDE, LONGITUDE, AND ALTITUDE ABOVE THE EARTH, (9) EARTH-SUN-PROBE ANGLE, (10) EARTH-PROBE-SUN ANGLE, (11) SUN-PROBE-NEAR LIMB OF EARTH ANGLE (SUN-PROBE-EARTH ANGLE MINUS THE ANGULAR SEMI-DIAMETER OF EARTH WHERE THE ANGULAR SEMI-DIAMETER WOULD BE THE PROBE-CENTERED ANGLE BETWEEN EARTH LIMB AND CENTER OF EARTH), (12) MOON-EARTH-PROBE ANGLE, (13) MOON-PROBE-SUN ANGLE, (14) EARTH-PROBE-MOON ANGLE, (15) CANOPUS-PROBE-EARTH ANGLE, (16) CANOPUS-PROBE-SUN ANGLE, (17) ANGLE MADE BY THE SUN TO PROBE VECTOR AND THE ECLIPTIC PLANE OF DATE, (18) X, Y, Z COMPONENTS OF SPACECRAFT IN THE SUN-EARTH LINE COORDINATE SYSTEM (SUN-CENTERED SYSTEM, X AXIS IS ALONG THE SUN-TO-EARTH VECTOR, Z AXIS IS TOWARD ECLIPTIC NORTH POLE), (19) LONGITUDE OF SPACECRAFT IN THE SUN-EARTH LINE COORDINATE SYSTEM, (20) X, Y, Z COMPONENTS OF SPACECRAFT IN GEOCENTRIC, SELENOCENTRIC, HELIOCENTRIC VENUS-CENTERED, MARS-CENTERED, SATURN-CENTERED, AND JUPITER-CENTERED INERTIAL COORDINATE (X POINTS TO VERNAL EQUINOX, Z POINTS ALONG THE NORTH POLE VECTOR WITH THE REFERENCE PLANE BEING THE EARTH'S TRUE EQUATOR OF DATE), (21) MAGNITUDE OF THE VELOCITY VECTOR AND X, Y, Z COMPONENTS OF THE VELOCITY VECTOR IN GEOCENTRIC INERTIAL COORDINATES, (22) GEOCENTRIC INERTIAL PATH ANGLE (ANGLE MADE BY PROBE VELOCITY VECTOR AND PLANE NORMAL TO EARTH-TO-PROBE VECTOR), (23) GEOCENTRIC INERTIAL AZIMUTH ANGLE (ANGLE BETWEEN THE PLANE DEFINED BY THE EARTH-TO-PROBE VECTOR AND THE GEOCENTRIC INERTIAL VELOCITY VECTOR), (24) HELIOCENTRIC INERTIAL VELOCITY, (25) HELIOCENTRIC INERTIAL PATH ANGLE (ANGLE MADE BY THE HELIOCENTRIC VELOCITY VECTOR AND THE PLANE NORMAL TO THE SUN-TO-PROBE VECTOR), (26) CELESTIAL LONGITUDE OF PROBE (ANGULAR DISTANCE MEASURED COUNTERCLOCKWISE ALONG THE ECLIPTIC PLANE OF DATE FROM THE VERNAL EQUINOX TO THE PROJECTION OF THE SUN-PROBE VECTOR ON A PLANE AS VIEWED FROM THE ECLIPTIC NORTH POLE), (27) CELESTIAL LONGITUDE OF EARTH, (28) CELESTIAL LATITUDE OF EARTH, AND (29) VARIOUS CLOCK ANGLES AND HINGE AND SWIVEL ANGLES WHICH ARE DESCRIBED IN THE DOCUMENTATION.

SCARF, PIONEER 9

EXPERIMENT NAME- PLASMA WAVE DETECTOR

NSSDC ID- 68-100A-07

STATUS OF OPERATION- NORMAL

PERSONNEL

PI -	F.L.	SCARF	TRW SYSTEMS GROUP REDONDO BEACH, CA
OI -	I.M.	GREEN	TRW SYSTEMS GROUP REDONDO BEACH, CA
OI -	G.K.	CROOK	TRW SYSTEMS GROUP REDONDO BEACH, CA
OI -	R.W.	FREDERICKS	TRW SYSTEMS GROUP REDONDO BEACH, CA

ELECTROSTATIC AND ELECTROMAGNETIC PLASMA WAVES WERE MEASURED IN THE SOLAR WIND NEAR 1 AU USING AN UNBALANCED ELECTRIC DIPOLE ANTENNA. THE 423-MHZ STANFORD UNIVERSITY ANTENNA, WHICH SERVED AS THE SENSOR, WAS CAPACITIVELY COUPLED TO THREE TELEMETRY CHANNELS. CHANNEL 1 WAS A 15-PERCENT BANDPASS FILTER CENTERED AT 400 HZ. CHANNEL 2 WAS A 15-PERCENT BANDPASS FILTER CENTERED AT 30 KHZ. THESE CHANNELS WERE EACH SAMPLED 64 TIMES PER TELEMETRY SEQUENCE. CHANNEL 3 WAS A BROADBAND 100-HZ TO 100-KHZ CHANNEL. THE BROADBAND CHANNEL WAS FED INTO A COUNT RATE METER THAT MEASURED THE NUMBER OF POSITIVE GOING PULSES PER UNIT TIME HAVING AMPLITUDES LARGE ENOUGH TO CROSS THE PRESENT TRIGGER LEVEL. THE TRIGGER LEVEL WAS VARIED THROUGH EIGHT STEPS EIGHT TIMES PER TELEMETRY SEQUENCE. THE TRIGGER LEVELS, TOGETHER WITH THE COUNT RATE AT EACH LEVEL, GAVE A MEASURE OF THE BROADBAND POWER SPECTRUM. DUE TO AMBIENT CONDITIONS, THESE DATA USUALLY REPRESENT THE POWER AT ABOUT 100 HZ. THE TELEMETRY SEQUENCE WAS REPEATED

OVER TIME INTERVALS FROM 7 MIN 28 SEC TO 472 MIN 52 SEC, WITH MOST OF THE DATA OBTAINED AT 59 MIN 44 SEC PER TELEMETRY SEQUENCE DURING THE FIRST YEAR OF ACQUISITION. THIS IMPLIES THAT ONE 8-STEP PULSE HEIGHT ANALYSIS AND EIGHT 400-HZ AND 30-KHZ MEASUREMENTS WERE MADE EVERY 7 MIN 28 SEC.

DATA SET NAME- PLOTS OF HOURLY AVERAGED BROADBAND AND 400-HZ WAVE LEVELS

NSSDC ID- 68-100A-07A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 11/08/68 TO 02/27/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THESE DATA CONSIST OF FIVE EXPERIMENTER GENERATED HOURLY AVERAGED PLOTS OF BROADBAND WAVE LEVEL AND 400-HZ WAVE LEVEL, BOTH IN MILLIVOLTS, FROM THE TRW ELECTRIC FIELD EXPERIMENT ON PIONEER 9. THE DATA ARE ABOUT 80 PERCENT COMPLETE, AND GAPS CURRENTLY EXISTING IN THE DATA WILL EVENTUALLY BE FILLED IN. FOR CONVENIENCE, THE HOURLY AVERAGED AP INDEX HAS BEEN INCLUDED WITH THESE DATA.

DATA SET NAME- MICROFILMED FINE TIME SCALE E-FIELD SPECTRUM DATA

NSSDC ID- 68-100A-07B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 11/09/68 TO 09/07/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 9 REEL(S) OF MICROFILM

THESE ORIGINAL 35-MM MICROFILM PLOTS WERE GENERATED AT NASA/AMES FOR TRW. THEY ARE ONE OF THREE REDUCED DATA OUTPUTS FROM THE E-FIELD EXPERIMENT. INCLUDED ARE THE COUNT RATES FOR EACH OF THE EIGHT LEVELS IN THE PULSE HEIGHT ANALYSIS, THE 400-HZ AND 30-KHZ WAVE AMPLITUDES, AND CALCULATED STATISTICS BASED ON THESE MEASUREMENTS. THE STATISTICS INCLUDE THE AVERAGE STANDARD DEVIATION AND THE MAXIMUM AND MINIMUM OF THE EIGHT 400-HZ WAVE AMPLITUDES AND OF THE EIGHT 30-KHZ WAVE AMPLITUDES OBSERVED DURING THE EIGHT-POINT PULSE HEIGHT ANALYSIS. EPHEMERIS DATA ARE ALSO INCLUDED. TIME COVERAGE WILL BE ADDED TO THIS DATA SET AS IT BECOMES AVAILABLE.

DATA SET NAME- FRAME SUMMARY PLOTS OF 100 HZ, 400 HZ, AND 30 KHZ E-FIELD AMPLITUDES ON FILM

NSSDC ID- 68-100A-07C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/03/68 TO 09/06/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MICROFILM

THESE DATA REPRESENT SUMMARIES OF DATA PRESENTED IN DATA SET 68-100A-07B. PLOTTED AGAINST COMMON TIME ARE THE 100-HZ AMPLITUDE IN MILLIVOLTS FOR EACH FRAME, AND MAX AND MIN 400-HZ AND 30-KHZ AMPLITUDES IN MILLIVOLTS FOR EACH FRAME. THESE DATA ARE ON EXPERIMENTER GENERATED 35-MM MICROFILM.

DATA SET NAME- FINE-TIME SCALE 100 HZ, 400 HZ, AND 30 KHZ ELECTRIC FIELD AMPLITUDES ON TAPE

NSSDC ID- 68-100A-07D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 11/08/68 TO 07/03/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 4 REEL(S) OF MAGNETIC TAPE

THESE MAGNETIC TAPES MADE AT NSSDC FROM EXPERIMENTER-SUPPLIED DATA TAPES CONTAIN ALL PROBABLY CORRECT DATA FROM THE PIONEER 9 EXPERIMENT IN BOTH REDUCED AND PACKED RAW FORM. LOGICAL TESTS WERE MADE ON THE TIME WORDS DURING TAPE COPYING TO ASSURE THAT SCRAMBLED, AND THUS UNINTELLIGIBLE DATA RECORDS, WERE NOT RETAINED. (THESE RECORDS WERE RETAINED ON A FOURTH TAPE ALSO AVAILABLE FROM NSSDC.) RECORDS CONTAINING ALL ZEROS WERE NOT DELETED, AND SOME FILES MAY CONTAIN NO DATA RECORDS. THE DATA ARE ON 800-BPI BINARY, 7-TRACK TAPES WITH NUMEROUS FILES PER TAPE. EACH FILE CONTAINS A 648 CHARACTER BCD HEADER RECORD FOLLOWED BY 450 BINARY 36-BIT WORD DATA RECORDS (2700 CHARACTERS). EACH PHYSICAL RECORD CONTAINS ONE LOGICAL RECORD. EACH LOGICAL RECORD INCLUDES EIGHT SETS OF EIGHT 100-HZ MEASUREMENTS, SIXTY-FOUR 400-HZ AND 30-KHZ AMPLITUDE MEASUREMENTS, TIMES FOR EACH MEASUREMENT, AND SATELLITE EPHEMERIS.

SONETT, PIONEER 9

EXPERIMENT NAME- TRIAXIAL MAGNETOMETER

NSSDC ID- 68-100A-01

STATUS OF OPERATION- NORMAL

PERSONNEL

PI -	C.P.	SONETT	U OF ARIZONA TUCSON, AZ
OI -	D.S.	COLBURN	NASA-ARC MOFFETT FIELD, CA

A BOOM-MOUNTED, TRIAXIAL FLUXGATE MAGNETOMETER WAS USED TO STUDY THE INTERPLANETARY MAGNETIC FIELD AND ITS FLUCTUATIONS. THE SENSORS WERE ORTHOGONALLY MOUNTED WITH ONE AXIS PARALLEL TO THE SPACECRAFT SPIN AXIS. UPON COMMAND, A MOTOR INTERCHANGED A SENSOR IN THE SPIN PLANE WITH THE SENSOR ALONG THE SPIN AXIS, ENABLING INFLIGHT DETERMINATION OF ZERO LEVELS. EVERY 24 HR, THE INSTRUMENT WAS COMMANDED INTO A SELF-CALIBRATE SEQUENCE, AND THIS WAS OFTEN REPEATED AFTER THE SENSORS WERE FLIPPED. THE INSTRUMENT, WHICH HAD A DYNAMIC RANGE OF PLUS OR MINUS 200 GAMMAS WITH A RESOLUTION OF PLUS OR MINUS 0.2 GAMMA, WAS CAPABLE OF INFLIGHT DEMODULATION OF THE SIGNALS RECEIVED FROM THE TWO SENSORS IN THE SPIN PLANE. EACH MAGNETIC FIELD COMPONENT WAS DIGITIZED INTO A 10-BIT TELEMETRY WORD. NINE MAGNETIC FIELD COMPONENTS, COMPRISING THREE MAGNETIC FIELD VECTORS, WERE TRANSMITTED IN EACH SPACECRAFT TELEMETRY FRAME.

DATA SET NAME- 30-SEC AVERAGED VECTOR MAGNETIC FIELD PLOTS ON MICROFILM

NSSDC ID- 68-100A-01A

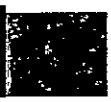
AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 11/08/68 TO 06/13/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF 35-MM MICROFILM GENERATED AT NSSDC FROM HARDCOPY PLOTS SUBMITTED BY THE EXPERIMENTER. EACH FRAME CONTAINS 70 MIN OF DATA. THIRTY-SEC AVERAGED VALUES OF MAGNETIC FIELD MAGNITUDE, WITH STANDARD DEVIATIONS, AND FIELD VECTOR POLAR AND AZIMUTHAL ANGLES IN SOLAR ECLIPTIC COORDINATES ARE GIVEN.

ORIGINAL PAGE IS
OF POOR QUALITY



Particle Data

SPACECRAFT COMMON NAME- 1963-038C

ALTERNATE NAMES- SN 39, SE 1
00671

NSSDC ID- 63-038C

LAUNCH DATE- 09/28/63 WEIGHT- 59. KG

STATUS OF OPERATION- OPERATIONAL OFF
DATE LAST DATA RECORDED- 11/00/74

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 09/28/63
ORBIT PERIOD- 107.5 MIN INCLINATION- 89.94 DEG
PERIAPSIS- 1067.00 KM ALT APOAPSIS- 1147.00 KM ALT

THE MAGNETICALLY ALIGNED 1963-038C SPACECRAFT WAS DESIGNED TO MEASURE ENERGETIC CHARGED PARTICLES, MAGNETIC FIELDS, AND THE SOLAR SPECTRUM, AND TO ACQUIRE GEODETIC DATA. AFTER AUGUST 1969, THE SATELLITE, WHICH ATTAINED A NEARLY CIRCULAR POLAR ORBIT, SAMPLED ITS ENVIRONMENT ONLY INFREQUENTLY. THE LAST DATA WERE TRANSMITTED DURING NOVEMBER 1974. THE MISSION WAS HIGHLY SUCCESSFUL.

BOSTROM, 1963-038C

EXPERIMENT NAME- ENERGETIC ELECTRON AND PROTON DETECTORS

NSSDC ID- 63-038C-01

STATUS OF OPERATION- PARTIAL

PERSONNEL
PI - C.O. BOSTROM ..... APPLIED PHYSICS LAB
SILVER SPRING, MD
OI - D.J. WILLIAMS ..... NOAA-ERL
BOULDER, CO

THE CHARGED PARTICLE EXPERIMENT ON 1963-038C CONSISTED OF AN ARRAY OF SOLID-STATE DETECTORS. FIVE DETECTORS COMPRISED AN ELECTRON SPECTROMETER THAT MEASURED THE DIRECTIONAL INTENSITY OF ELECTRONS WITH ENERGIES GREATER THAN 0.28, 1.2, 2.4, AND 3.6 MEV. EACH OF TWO PROTON SPECTROMETERS UTILIZED TWO SENSORS AND THREE ELECTRONIC DISCRIMINATION LEVELS IN VARIOUS COMBINATIONS TO MEASURE THE DIRECTIONAL INTENSITY OF PROTONS IN THE ENERGY RANGES 1.2 TO 2.2 MEV, 2.2 TO 8.5 MEV, 8.5 TO 25 MEV, AND 25 TO 100 MEV. THREE OMNIDIRECTIONAL (2 PI) DETECTORS MEASURED THE SUM OF ELECTRON AND PROTON INTENSITIES (IE AND IP) ACCORDING TO THE FOLLOWING -- IE (E GREATER THAN .28 MEV) PLUS IP (E GREATER THAN 2.2 MEV), IE (E GREATER THAN .41 MEV) PLUS IP (E GREATER THAN 8.5 MEV), AND IE (E GREATER THAN 1.8 MEV) PLUS IP (E GREATER THAN 25 MEV). THE ELECTRON SPECTROMETER AND ONE PROTON SPECTROMETER WERE ORIENTED WITH THEIR AXES NORMAL TO THE GEOMAGNETIC FIELD. ALL OTHER DETECTORS WERE PARALLEL TO THE FIELD LOOKING UPWARD WHEN IN THE NORTHERN HEMISPHERE. MOST DETECTORS WERE SAMPLED 22.9 TIMES PER MINUTE. THE LOWEST ENERGY OMNIDIRECTIONAL DETECTOR WAS SAMPLED 45.8 TIMES PER MINUTE. EXCEPT FOR THE GREATER THAN 3.6-MEV ELECTRON SPECTROMETER DETECTOR, WHICH HAS BEEN UNUSABLE MOST OF THE TIME DUE TO NOISE, AND ONE OF THE PROTON SPECTROMETERS, WHICH WAS INTERMITTENT FOR PERIODS DURING THE FIRST MONTH, THE EXPERIMENT HAS WORKED WELL THROUGH THE SPACECRAFT LIFETIME. AFTER AUGUST 1969, DATA WERE ACQUIRED ONLY INFREQUENTLY AND ON SPECIAL EXPERIMENTER REQUEST. VIRTUALLY NO DATA WERE ACQUIRED AFTER 1970.

DATA SET NAME- TIME-ORDERED REDUCED PROTON AND ELECTRON COUNT RATES ON TAPE

NSSDC ID- 63-038C-01D

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 09/28/63 TO 12/31/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 103 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF 9 TRACK, 800 BPI, IBM 360, BINARY MAGNETIC TAPES SUBMITTED BY THE EXPERIMENTER. THESE TAPES REPRESENT A TIME ORDERED, COMPRESSED VERSION OF THE EXPERIMENTER SUPPLIED DATA SET 63-038C-01A (COVERAGE FOR SEPTEMBER 28, 1963 TO MARCH 4, 1967, ON 430 TAPES) EXCEPT THAT THE OBSERVED MAGNETIC FIELD VALUES FOUND IN 63-038C-01A ARE NOT FOUND IN THIS DATA SET. TIME COVERAGE FOR THIS DATA SET IS ALSO GREATER THAN THAT OF 63-038C-01A. EACH RECORD CONTAINS, FOR EACH DETECTOR, DEAD TIME CORRECTED COUNT RATES WITH STATISTICAL UNCERTAINTIES AND EPHEMERIS DATA (INCLUDING B AND L).

DATA SET NAME- INDEX TO TIME-ORDERED REDUCED PROTON AND ELECTRON COUNT RATE DATA TAPES

NSSDC ID- 63-038C-01E

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 09/28/63 TO 12/31/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 6 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF ONE TAPE PER YEAR OF DATA, FOR A TOTAL OF SIX TAPES, EACH 9-TRACK, 800-BPI, IBM 360, BINARY TAPE IS AN INDEX OF THE INFORMATION CONTAINED IN DATA SET 63-038C-01D, START AND STOP TIMES FOR INDIVIDUAL PASSES ARE LISTED CHRONOLOGICALLY.

DATA SET NAME- PLOTS OF PARTICLE COUNT RATES VS TIME OR VS B AT DISCRETE L ON MICROFILM

NSSDC ID- 63-038C-01F

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 09/28/63 TO 12/31/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF TWO REELS OF 35-MM MICROFILM CONTAINING EXPERIMENTER GENERATED PLOTS OF RAW COUNT RATE DATA (EXCEPT ELECTRONS ABOVE 3.6 MEV) FROM ALL DETECTORS. IN SOME PLOTS, COUNT RATES ARE GIVEN VS TIME AT DISCRETE L VALUES BETWEEN 1.2 AND 20 AND WITHIN A FIXED RANGE OF B FOR EACH L. IN OTHER PLOTS, COUNT RATES ARE GIVEN VS B AT DISCRETE L VALUES BETWEEN 1.2 AND 20 FOR ONE 15-DAY INTERVAL IN EACH OF 5 YR. THE PLOTS COVER THE PERIOD SEPTEMBER 28, 1963, THROUGH DECEMBER 31, 1967. SEVERAL PAGES OF A MORE DETAILED DESCRIPTION OF THIS DATA SET ARE FOUND ON THE FIRST REEL OF MICROFILM THAT ALSO INCLUDES THE DATA.

DATA SET NAME- ELECTRON COUNT RATE PLOTS ON MICROFILM

NSSDC ID- 63-038C-01G

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 09/28/63 TO 04/16/66
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF ONE REEL OF 16-MM MICROFILM THAT GIVES THE COUNT RATES OF ELECTRONS ABOVE 280 KEV AND 1.2 MEV PLOTTED VS TIME. THESE PLOTS ARE PRESENTED AT DISCRETE L VALUES BETWEEN 2.6 AND 8.0 (280 KEV) OR 2.6 AND 4.5 (1.2 MEV). DAYSIDE AND NIGHTSIDE DATA ARE DISTINGUISHABLE. DST AND KP VALUES ARE ALSO PLOTTED. THE PLOTS WERE GENERATED BY D.J. WILLIAMS.

SPACECRAFT COMMON NAME- ALOUETTE 2

ALTERNATE NAMES- ALOUETTE-B, S 27B
ISIS-X, 01804

NSSDC ID- 65-098A

LAUNCH DATE- 11/29/65 WEIGHT- 145. KG

STATUS OF OPERATION- OPERATIONAL OFF
DATE LAST DATA RECORDED- 06/03/73

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 11/29/65
ORBIT PERIOD- 121. MIN INCLINATION- 79.724 DEG
PERIAPSIS- 529.000 KM ALT APOAPSIS- 2956.00 KM ALT

ALOUETTE 2 WAS ENERGETICL IONOSPHERIC OBSERVATORY INSTRUMENTED WITH A SWEEP FREQUENCY IONOSPHERIC SOUNDER, A VLF RECEIVER, TWO ENERGETIC PARTICLE EXPERIMENTS, A COSMIC NOISE EXPERIMENT, AND AN ELECTROSTATIC PROBE. THE SPACECRAFT USED TWO LONG DIPOLE ANTENNAS (78.9 M AND 22.8 M LONG, RESPECTIVELY) FOR THE SOUNDER, VLF, AND COSMIC NOISE

ORIGINAL PAGE IS OF POOR QUALITY

PRECEDING PAGE BLANK NOT FILMED

EXPERIMENTS. THE SATELLITE WAS SPIN-STABILIZED AT ABOUT 2.25 RPM AFTER ANTENNA DEPLOYMENT. BY JANUARY 1970, THE SPIN HAD DECAYED TO 1.84 RPM. END PLATES ON THE LONG ALOUETTE 2 ANTENNA SEEM TO HAVE CORRECTED THE RAPID DESPIN OCCURRING ON ALOUETTE 1, WHICH WAS BELIEVED TO RESULT FROM THERMAL DISTORTION OF THE ANTENNA AND FROM RADIATION PRESSURE. THERE WAS NO TAPE RECORDER, SO THAT DATA ARE AVAILABLE ONLY FROM WHEN THE SPACECRAFT WAS IN LINE OF SIGHT OF TELEMETRY STATIONS. TELEMETRY STATIONS ARE LOCATED SO THAT PRIMARY DATA COVERAGE IS NEAR THE 80 DEG W MERIDIAN PLUS AREAS NEAR HAWAII, SINGAPORE, AUSTRALIA, ENGLAND, INDIA, NORWAY, AND CENTRAL AFRICA. INITIALLY, DATA WERE RECORDED FOR ABOUT 7-1/2 HR PER DAY. IN 1972, OBSERVATIONS WERE MADE FOR ABOUT 2 HR PER DAY. ROUTINE SPACECRAFT OPERATION WAS DISCONTINUED AFTER MARCH 31.IN 1973, BUT SPECIAL REQUEST OPERATION HAS OCCURRED OCCASIONALLY SINCE THEN.

MCDIARMID. ALOUETTE 2

EXPERIMENT NAME- ENERGETIC PARTICLE DETECTORS

NSSDC ID- 65-098A-04

STATUS OF OPERATION- OPERATIONAL OFF
DATE LAST DATA RECORDED- 06/03/73

PERSONNEL
PI - I.B. MCDIARMID ..... NATL RES COUNC OF CA
OTTAWA, ONTARIO, CANADA

THE ALOUETTE 2 COSMIC PARTICLE DETECTION EXPERIMENT WAS COMPOSED OF SEVEN DETECTORS. FOUR OF THESE WERE GEIGER-MUELLER TUBES. THE FIRST RESPONDED TO ELECTRONS GREATER THAN 3.9 MEV AND PROTONS GREATER THAN 40 MEV. THE SECOND HAD A MAGNETIC BROOM AND RESPONDED TO ELECTRONS GREATER THAN 250 KEV AND PROTONS GREATER THAN 500 KEV. THE THIRD RESPONDED TO ELECTRONS GREATER THAN 40 KEV AND PROTONS GREATER THAN 500 KEV. THESE THREE GM TUBES WERE PERPENDICULAR TO THE SPIN AXIS. THE FOURTH GM TUBE WAS 10 DEG FROM THE SPIN AXIS AND RESPONDED TO ELECTRONS GREATER THAN 40 KEV AND PROTONS GREATER THAN 500 KEV. THE FIFTH DETECTOR WAS A SILICON JUNCTION WHICH DETECTED PROTONS AND ALPHA PARTICLES WITH MINIMUM ENERGIES OF 1 AND 5 MEV, RESPECTIVELY, AND MAXIMUM ENERGIES OF 8 AND 24 MEV, RESPECTIVELY. THE SIXTH DETECTOR WAS A GEIGER TELESCOPE WHICH DETECTED PROTONS GREATER THAN 100 MEV. THE SEVENTH DETECTOR WAS A PLASTIC SCINTILLATOR WHICH DETERMINED THE PROTON SPECTRA IN THE ENERGY RANGE FROM 100 TO 600 MEV. PARTICLES ASSOCIATED WITH AURORAL AND SOLAR EVENTS WERE STUDIED. AN INDEX OF OPERATION TIMES AND LOCATIONS FOR THIS EXPERIMENT IS AVAILABLE IN DATA SET 65-098A-00E.

DATA SET NAME- REDUCED COUNT RATE DATA ON MAGNETIC TAPE

NSSDC ID- 65-098A-04A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/02/65 TO 11/08/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 7 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF 9-TRACK MAGNETIC TAPES WRITTEN IN BINARY AT 800 BPI ON AN IBM 360 COMPUTER. EACH TAPE SUBMITTED BY THE EXPERIMENTER CONTAINS 1 FILE OF REDUCED DATA. ALL LOGICAL RECORDS ARE 80 BYTES LONG, AND ALL BLOCKS CONTAIN 50 RECORDS (BLKSIZE EQUAL TO 4000). ALL RECORDS WERE WRITTEN UNDER FORMAT CONTROL (20A4). EACH RECORD CONTAINS ORBIT AND TIME INFORMATION, KP INDEX, ALTITUDE, B, INVARIANT LATITUDE, LOCAL MAGNETIC TIME, ORIENTATION AND PITCH ANGLE, COUNT RATES FOR ALL COUNTING MODES WITH TIME RESOLUTION OF ONE SECOND, AND MISCELLANEOUS OTHER INFORMATION. THE DATA ARE STORED IN CHRONOLOGICAL ORDER COVERING THE PERIOD FROM DECEMBER 2, 1965, TO NOVEMBER 8, 1967 AND INCLUDE ONLY THOSE TIMES WHEN THE INVARIANT LATITUDE EXCEEDED 50 DEG. THERE ARE GAPS IN THE DATA.

DATA SET NAME- ANALYZED SELECTED BOUNDARY DATA ON MAGNETIC TAPE

NSSDC ID- 65-098A-04B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 11/29/65 TO 06/18/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF ONE 9-TRACK MAGNETIC TAPE WRITTEN IN EBCDIC AT 800 BPI ON AN IBM 360 COMPUTER. THE TAPE, SUBMITTED BY THE EXPERIMENTER, CONTAINS 1 FILE OF REDUCED DATA. THE FILE IS MADE UP OF 1784 RECORDS. ONE RECORD FOR EACH SATELLITE PASS, IN CHRONOLOGICAL ORDER, AND ALL RECORDS ARE 120 BYTES LONG, WRITTEN UNDER FORMAT CONTROL. EACH RECORD CONTAINS ORBIT NUMBER, TIME INFORMATION, PASS DIRECTION, INTERPLANETARY FIELD POLARITY, MAGNETIC SOLAR CO-DECLINATION, KP AND AP INDICES, LOCAL MAGNETIC TIME AND INVARIANT LATITUDE FOR VARIOUS 40-KEV ELECTRON BOUNDARIES, INVARIANT LATITUDE FOR 250 KEV, 3.9 MEV, AND 1- TO 8-MEV ELECTRON BOUNDARIES. INVARIANT LATITUDE, INTENSITY, B, LOCAL MAGNETIC TIME FOR INTENSITY MAXIMA OF 40 KEV, 3.9 MEV AND 250 KEV ELECTRONS, AND SIMILAR INFORMATION FOR INTENSITY MINIMA. THERE ARE SOME GAPS IN THE DATA. THE DATA ON THIS TAPE COVER THE PERIOD FROM NOVEMBER 29, 1965, TO JUNE 18, 1969. THE INTERPLANETARY FIELD POLARITY IS OBTAINED FROM WILCOX AND COLBURN, JGR, VOL. 74, P 2388, 1969.

SPACECRAFT COMMON NAME- APOLLO 12 LM/ALSEP

ALTERNATE NAMES- 04246, ALSEP 12
LEM 12, APOLLO 12C

NSSDC ID- 69-099C

LAUNCH DATE- 11/14/69 WEIGHT- 4379. KG

STATUS OF OPERATION- PARTIAL

THE LUNAR MODULE (LM) WAS A TWO-STAGE VEHICLE DESIGNED FOR SPACE OPERATIONS NEAR AND ON THE MOON. THE LM STOOD 7 M HIGH AND WAS 9.4 M WIDE (DIAGONALLY ACROSS THE LANDING GEAR). THE ASCENT AND DESCENT STAGES OF THE LM OPERATED AS A UNIT UNTIL STAGING, WHEN THE ASCENT STAGE FUNCTIONED AS A SINGLE SPACECRAFT FOR RENDEZVOUS AND DOCKING WITH THE COMMAND MODULE (CM). THE ALSEP EXPERIMENTS INCLUDED (1) THE PASSIVE SEISMOGRAPH, WHICH WAS DESIGNED TO MEASURE SEISMIC ACTIVITY AND PHYSICAL PROPERTIES OF THE LUNAR CRUST AND INTERIOR, (2) THE SUPRATHERMAL ION DETECTOR, DESIGNED TO MEASURE THE FLUX COMPOSITION, ENERGY, AND VELOCITY OF LOW-ENERGY POSITIVE IONS, (3) THE COLD CATHODE ION GAUGE, DESIGNED TO MEASURE THE ATMOSPHERE AND ANY VARIATIONS WITH TIME OR SOLAR ACTIVITY SUCH ATMOSPHERE MAY HAVE, (4) THE CHARGED PARTICLE LUNAR ENVIRONMENT EXPERIMENT, DESIGNED TO MEASURE PARTICLE ENERGIES OF SOLAR PROTONS AND ELECTRONS THAT REACH THE LUNAR SURFACE AND TO PROVIDE DATA ON ENERGY DISTRIBUTION OF THESE SOLAR PARTICLES, (5) THE LUNAR SURFACE MAGNETOMETER (LSM), DESIGNED TO MEASURE THE MAGNETIC FIELD AT THE LUNAR SURFACE, AND (6) THE SOLAR WIND SPECTROMETER, WHICH MEASURED THE FLUXES AND SPECTRA OF THE ELECTRONS AND PROTONS THAT EMANATE FROM THE SUN AND REACH THE LUNAR SURFACE. THE LM ITSELF WAS ON THE LUNAR SURFACE NOVEMBER 19-20, 1969.

FREEMAN, APOLLO 12 LM/ALSEP

EXPERIMENT NAME- SUPRATHERMAL ION DETECTOR

NSSDC ID- 69-099C-05

STATUS OF OPERATION- PARTIAL

PERSONNEL
PI - J.W. FREEMAN ..... RICE U
HOUSTON, TX
OI - F.C. MICHEL ..... RICE U
HOUSTON, TX

THIS EXPERIMENT, WHICH WAS PART OF THE ALSEP PACKAGE, STUDIED THE IONIC ENVIRONMENT OF THE MOON BY DETECTING FREE STREAMING AND THERMALIZED SOLAR WIND IONS AND THOSE IONS WHICH RESULT FROM ULTRAVIOLET IONIZATION OF THE LUNAR ATMOSPHERE. A LOW-ENERGY CURVED PLATE ANALYZER, WITH A VELOCITY FILTER OF CROSSED ELECTRIC AND MAGNETIC FIELDS, DETERMINED THE PARTICLE FLUX IN SELECTED INTERVALS OVER THE RANGE 0.2 TO 48.6 EV PER UNIT CHARGE. WITH SPECIES DISCRIMINATION OF MASSES UP TO 1000 AMU. ANOTHER ANALYZER WITHOUT A VELOCITY FILTER DETECTED HIGHER-ENERGY PARTICLES SUCH AS THOSE FOUND IN SELECTED ENERGY INTERVALS BETWEEN 10 AND 3500 EV. DUE TO ITS ORIENTATION, THIS INSTRUMENT DID NOT OBSERVE SOLAR WIND PARTICLES EXCEPT IN THE SHEATH AND TAIL. HOWEVER, IT DID SEE UPSTREAMING PARTICLES FROM THE EARTH'S BOW SHOCK. HIGH-VOLTAGE POWER SUPPLY ARCING CAUSED SOME LOSS OF DATA. AFTER MARCH 18, 1970, THE INSTRUMENT WAS NOT OPERATED WHEN SENSOR TEMPERATURE EXCEEDED 85 DEG C.

DATA SET NAME- PLOTS OF MASS ANALYZER AND TOTAL ION DATA ON 16-MM MICROFILM, 24-SEC RES DATA

NSSDC ID- 69-099C-05A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 09/14/71 TO 02/01/73 (AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 22 REEL(S) OF MICROFILM

THESE EXPERIMENTER-GENERATED MICROFILM REELS CONTAIN PLOTS OF THE TOTAL ION DATA IN 20 CHANNELS FROM 3500 EV/Q TO 10 EV/Q, AND OF THE MASS SPECTROMETER DATA IN SIX ENERGY RANGES FROM 48.6 EV TO 0.2 EV AND IN 20 MASS RANGES FROM 10 TO 1000 AMU PLOTTED AGAINST FRAME NUMBER. (BOTH SPECTRA ARE ON THE SAME PLOT). EACH SET OF SPECTRA REQUIRES 24 SEC TO COMPLETE IN THE NORMAL EXPERIMENT MODE. INTERPRETATION OF THESE PLOTS REQUIRES REFERENCE TO HOUSEKEEPING DATA IN DATA SET 69-099C-05B. DATA EARLIER THAN SEPTEMBER 14, 1971 ARE AVAILABLE IN HARDCOPY, CURRENTLY HELD BY THE EXPERIMENTER.

DATA SET NAME- LISTS OF MASS ANALYZER AND TOTAL ION DATA ON 16-MM MICROFILM, 24-SEC RES DATA

NSSDC ID- 69-099C-05B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 09/14/71 TO 02/03/73 (AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 37 REEL(S) OF MICROFILM

THESE EXPERIMENTER-GENERATED 16-MM MICROFILM CONTAIN LISTINGS OF THE 20 CHANNEL TOTAL ION SPECTRA FROM 3500 EV/Q TO 10 EV/Q AND THE MASS SPECTROMETER DATA FROM SIX ENERGY RANGES FROM 48.6 EV TO 0.2 EV AND IN 20 MASS RANGES OF 10 TO 1000 AMU LISTED AGAINST FRAME NUMBER AND TIME. ALSO INCLUDED ARE HOUSEKEEPING DATA NEEDED TO INTERPRET THESE LISTINGS AND THE PLOTS IN DATA SET 69-099C-05A. EACH SET OF TOTAL ION SPECTRA AND MASS ANALYZER SPECTRA REQUIRES 24 SEC TO COMPLETE. DATA EARLIER THAN SEPTEMBER 14, 1971 ARE AVAILABLE IN HARDCOPY, CURRENTLY HELD BY THE EXPERIMENTER.

SNYDER, APOLLO 12 LM/ALSEP

EXPERIMENT NAME- SOLAR WIND SPECTROMETER

NSSDC ID- 69-099C-02

STATUS OF OPERATION- PARTIAL

PERSONNEL

PI -	C.W. SNYDER	NASA-JPL	PASADENA, CA
OI -	D.R. CLAY	NASA-JPL	PASADENA, CA
OI -	M.M. NEUGEBAUER	NASA-JPL	PASADENA, CA

THE SOLAR WIND SPECTROMETER WAS PART OF THE APOLLO 12 ALSEP PACKAGE LEFT ON THE LUNAR SURFACE. IT CONSISTED OF SEVEN MODULATED FARADAY CUPS OPENED TOWARD DIFFERENT, BUT SLIGHTLY OVERLAPPING, PORTIONS OF THE LUNAR SKY. THE INSTRUMENT WAS USED TO OBSERVE THE DIRECTIONAL INTENSITIES OF THE ELECTRON (6-1330 EV) AND POSITIVE ION (18-9780 EV) COMPONENTS OF THE SOLAR WIND AND MAGNETOTAIL PLASMA THAT STRIKE THE SURFACE OF THE MOON. THE SOLAR WIND SPECTROMETER OPERATED WELL FROM TURN-ON UNTIL NOVEMBER 5, 1971, WHEN TROUBLE WAS ENCOUNTERED IN TWO OF THE SPECTRAL ENERGY LEVELS.

DATA SET NAME- TWENTY-EIGHT SECOND TIME RESOLUTION PLASMA PARAMETERS ON MAGNETIC TAPE

NSSDC ID- 69-099C-02A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 11/19/69 TO 02/21/72 (AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 13 REEL(S) OF MAGNETIC TAPE

THESE TAPES CONTAIN THE HIGHEST TIME RESOLUTION PLASMA DATA AVAILABLE FROM THIS EXPERIMENT (28 SEC PER SPECTRUM). THE TAPES WERE GENERATED ON A UNIVAC 1108 IN 7-TRACKS, AT 800 BPI, BCD, AND EVEN PARITY. PHYSICAL RECORDS ARE BLOCKED TO 384 WORDS, EACH PHYSICAL RECORD CONTAINING 32 LOGICAL RECORDS OF 12 WORDS EACH, AT 72 BCD CHARACTERS TO EVERY 12 WORDS. CONTAINED IN EACH RECORD ARE -- TIME, PROTON DENSITY, ALPHA-TO-PROTON RATIO, BULK SPEED, ANGLE OF FLOW, MOST PROBABLE THERMAL SPEED, AND VARIOUS HOUSEKEEPING AND FIT PARAMETERS RELATING TO THE RELIABILITY OF THE CALCULATED PLASMA PARAMETERS. THE FIRST RECORD(S) ON EACH TAPE CONTAINS LABELING INFORMATION TO IDENTIFY THE TAPE CONTENTS TO A USER. EACH TAPE CONTAINS ONE FILE.

DATA SET NAME- HOUR-AVERAGED PLASMA PARAMETERS ON MAGNETIC TAPE

NSSDC ID- 69-099C-02B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 11/19/69 TO 02/10/72 (AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 4 REEL(S) OF MAGNETIC TAPE

THESE EXPERIMENTER-SUPPLIED TAPES CONTAIN HOURLY-AVERAGED PLASMA PARAMETERS. THE TAPES ARE IN 7 TRACKS, 800 BPI AND EVEN PARITY, AND WERE WRITTEN IN BCD ON A UNIVAC 1108. EACH SET OF AVERAGES IS IN TWO LOGICAL RECORDS, WITH TWO LOGICAL RECORDS PER PHYSICAL RECORD. THERE ARE 216 BCD CHARACTERS PER PHYSICAL RECORD. FOUR SETS OF HOURLY AVERAGED PARAMETERS ARE COMPUTED, USING AS INPUT DATA (1) ALL FINE TIME SCALE PARAMETERS (FTSP), (2) ALL FTSP COMPUTED FROM SPECTRA WITH SMALL RMS ERROR ON CURVE FITTING AND THERMAL SPEEDS LESS THAN ONE-HALF THE BULK VELOCITY, (3) ALL FTSP COMPUTED FROM SPECTRA THAT SATISFY THE REQUIREMENTS OF CRITERION 2 AS WELL AS HAVING ONLY ONE FLOW ANGLE THAT CAN BE DIRECTLY MEASURED, AND (4) ALL FTSP COMPUTED FROM SPECTRA THAT SATISFY THE REQUIREMENTS OF CRITERION 2 AS WELL AS HAVING BOTH FLOW ANGLES DIRECTLY MEASURABLE. EACH TAPE CONTAINS ONE FILE. CONTAINED IN EACH OF THE FOUR SETS OF AVERAGES ARE THE PROTON DENSITY, ALPHA-TO-PROTON RATIO, BULK SPEED, ANGLE OF FLOW, NUMBER OF SPECTRA, AND RMS DEVIATIONS OF EACH AVERAGE.

DATA SET NAME- PLOTS OF HOUR-AVERAGED PLASMA PARAMETERS

NSSDC ID- 69-099C-02C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 11/20/69 TO 05/16/74 (AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THESE EXPERIMENTER-GENERATED PLOTS CONTAIN HOURLY AVERAGED PLASMA PARAMETERS AS FUNCTIONS OF TIME, WITH 22 DAYS PER FRAME. CONTAINED IN EACH PLOT ARE THE HOURLY AVERAGED PROTON BULK SPEED, MOST PROBABLE THERMAL SPEED, PROTON DENSITY, AND ANGLE OF FLOW FROM THE HOURLY AVERAGED DATA IN DATA SET 69-099C-02B THAT SATISFIED CRITERION 2, THAT IS, WHICH HAD SMALL RMS ERROR ON CURVE FITTING AND THERMAL SPEEDS LESS THAN ONE-HALF THE BULK SPEED.

SPACECRAFT COMMON NAME- APOLLO 14 LM/ALSEP

ALTERNATE NAMES- ALSEP 14, LEM 14 04905, APOLLO 14C

NSSDC ID- 71-008C

LAUNCH DATE- 01/31/71 WEIGHT- 4857. KG

STATUS OF OPERATION- PARTIAL

THE APOLLO 14 LUNAR MODULE (LM) CONSISTED OF A LUNAR LANDING CRAFT AND AN APOLLO LUNAR SURFACE EXPERIMENT PACKAGE (ALSEP) THAT CONTAINED SCIENTIFIC EXPERIMENTS TO BE LEFT ON THE LUNAR SURFACE AFTER COMPLETION OF THE MANNED PORTION OF THE MISSION. THE LM LANDED IN THE LUNAR HIGHLANDS (3 DEG 39 MIN 1 SEC S LATITUDE, 17 DEG 27 MIN 55 SEC W LONGITUDE). THE NUCLEAR POWERED ALSEP WAS DEPLOYED AT THE LANDING SITE AND INCLUDED EXPERIMENTS TO STUDY THE SEISMIC WAVES, MAGNETIC FIELDS, SOLAR WIND COMPOSITION AND INTERACTION WITH THE MOON, LUNAR ATMOSPHERE, AND IONIC ENVIRONMENT. THE LM ITSELF WAS ON

THE LUNAR SURFACE FEBRUARY 5-6, 1971.

FREEMAN, APOLLO 14 LM/ALSEP

EXPERIMENT NAME- SUPRATHERMAL ION DETECTOR

NSSDC ID- 71-008C-06

STATUS OF OPERATION- PARTIAL

PERSONNEL

PI -	J.W.	FREEMAN	RICE U HOUSTON, TX
OI -	F.C.	MICHEL	RICE U HOUSTON, TX

THE ALSEP SUPRATHERMAL ION DETECTOR EXPERIMENT MEASURED IONS GENERATED FROM ULTRAVIOLET IONIZATION OF THE LUNAR ATMOSPHERE AND THE FREE-STREAMING SOLAR WIND/LUNAR SURFACE INTERACTION. FROM THE DATA OBTAINED, FLUX, NUMBER DENSITY, VELOCITY, AND ENERGY PER UNIT CHARGE CAN BE DETERMINED. A CURVED PLATE ANALYZER AND AN E-CROSS-B VELOCITY SELECTOR DETECTED IONS WITH NORMAL VELOCITIES FROM 0.4 TO 93.5 KM/SEC AND ENERGIES FROM 0.2 TO 48.6 EV, ENABLING SPECIES DISCRIMINATION OF MASSES UP TO 750 AMU. A SEPARATE CURVED PLATE ANALYZER COUNTED PROTONS IN SELECTED ENERGY INTERVALS FROM 10 TO 3500 EV. DUE TO THE ORIENTATION OF THESE DIRECTIONAL INSTRUMENTS, SOLAR WIND IONS WERE NOT OBSERVED DIRECTLY EXCEPT IN THE TAILWARD SHEATH. HOWEVER, IONS FROM THE BOW SHOCK WERE OBSERVED. ON APRIL 5, 1971 SOME ENGINEERING DATA WERE LOST DUE TO THE PARTIAL FAILURE OF AN ANALOG-TO-DIGITAL CONVERTER. THE EXPERIMENT RETURNED GOOD CONTINUOUS SCIENTIFIC DATA UNTIL OCTOBER 20, 1971 WHEN ARCING IN THE HIGH-VOLTAGE POWER SUPPLY LIMITED OPERATION NEAR LUNAR NOON. AFTER DECEMBER 16, 1971 OPERATION WAS DISCONTINUED WHEN INSTRUMENT TEMPERATURE EXCEEDED 85 DEG C. ALL DATA TAKEN AFTER MARCH 29, 1972 WERE TAKEN IN AN ANOMALOUS STANDBY MODE, AND DATA COVERAGE WAS VERY POOR.

DATA SET NAME- PLOTS OF MASS ANALYZER AND TOTAL ION DATA ON 16-MM MICROFILM, 24-SEC RES DATA

NSSDC ID- 71-008C-06A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 08/26/72 TO 03/03/73
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 47 REEL(S) OF MICROFILM

THESE EXPERIMENTER-GENERATED MICROFILM REELS CONTAIN PLOTS OF THE TOTAL ION DATA IN 20 CHANNELS FROM 3500 EV/Q TO 10 EV/Q AND THE MASS SPECTROMETER DATA IN SIX ENERGY RANGES FROM 48.6 EV TO 0.2 EV AND IN 20 MASS RANGES FROM 6 TO 750 AMU PLOTTED AGAINST FRAME NUMBER. (BOTH SPECTRA ARE ON THE SAME PLOT). EACH SET OF SPECTRA REQUIRES 24 SEC TO COMPLETE IN THE NORMAL EXPERIMENT MODE. INTERPRETATION OF THESE PLOTS REQUIRES REFERENCE TO HOUSEKEEPING DATA IN DATA SET 71-008C-06B. DATA TAKEN PRIOR TO AUGUST 26, 1972, ARE AVAILABLE IN HARDCOPY CURRENTLY HELD BY THE EXPERIMENTER.

DATA SET NAME- LISTS OF MASS ANALYZER AND TOTAL ION DATA ON 16-MM MICROFILM, 24-SEC RES DATA

NSSDC ID- 71-008C-06B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 08/26/72 TO 02/28/73
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 41 REEL(S) OF MICROFILM

THESE EXPERIMENTER-GENERATED 16-MM MICROFILM REELS CONTAIN LISTINGS OF THE 20 CHANNEL TOTAL ION SPECTRA FROM 3500 EV/Q TO 10 EV/Q AND THE MASS SPECTROMETER DATA FROM SIX ENERGY RANGES FROM 48.6 EV TO 0.2 EV AND IN 20 MASS RANGES OF 6 TO 750 AMU LISTED AGAINST FRAME NUMBER AND TIME. EACH SET OF TOTAL ION SPECTRA AND MASS ANALYZER SPECTRA REQUIRES 24 SEC TO COMPLETE. ALSO INCLUDED ARE HOUSEKEEPING DATA NEEDED TO INTERPRET THESE LISTINGS AND THE PLOTS IN DATA SET 71-008C-06A. DATA TAKEN PRIOR TO AUGUST 26, 1972, ARE AVAILABLE IN HARDCOPY CURRENTLY HELD BY THE EXPERIMENTER.

O'BRIEN, APOLLO 14 LM/ALSEP

EXPERIMENT NAME- CHARGED PARTICLE LUNAR ENVIRONMENT

NSSDC ID- 71-008C-08

STATUS OF OPERATION- PARTIAL

PERSONNEL

PI -	B.J.	O'BRIEN	DEPT OF ENVIRON PROT PERTH, AUSTRALIA
OI -	D.L.	REASONER	NASA-MSFC HUNTSVILLE, AL

THIS EXPERIMENT WAS DESIGNED TO MEASURE THE ENERGY SPECTRA OF LOW-ENERGY CHARGED PARTICLES STRIKING THE LUNAR SURFACE. THE MAIN PART OF THE INSTRUMENTATION CONSISTED OF TWO ELECTROSTATIC ANALYZERS, ONE OF THESE POINTED TOWARD LOCAL LUNAR VERTICAL, AND THE OTHER TO A POINT 60 DEG FROM VERTICAL TOWARD LUNAR WEST. AS A FIRST APPROXIMATION, BOTH DETECTORS COULD BE CONSIDERED TO POINT IN THE ECLIPTIC PLANE. EACH ANALYZER CONSISTED OF A SET OF DIRECTION-DEFINING SLITS, DEFLECTION PLATES, FIVE SMALL-APERTURE C-SHAPED CHANNEL ELECTRON MULTIPLIERS, AND ONE LARGE-APERTURE CHANNEL ELECTRON MULTIPLIER. FOR A GIVEN APPLIED DEFLECTION VOLTAGE, THE FIVE MULTIPLIERS WERE ARRANGED TO COUNT PARTICLES OF ONE POLARITY WITH DIFFERING ENERGIES, WHILE THE LARGE-APERTURE MULTIPLIER MADE A WIDE-BAND MEASUREMENT OF PARTICLES OF THE OPPOSITE POLARITY. DURING EACH 19.2-SEC INTERVAL IN THE AUTOMATIC MODE OF EXPERIMENT OPERATION, DEFLECTION VOLTAGES OF ZERO (TWICE) AND PLUS AND MINUS 35, 350, AND 3500 WERE APPLIED TO THE DEFLECTION PLATES OF BOTH ANALYZERS FOR 2.4 SEC EACH VOLTAGE. THE LITTLE-USED MANUAL MODE PERMITTED THE CONTINUOUS APPLICATION OF A SINGLE DEFLECTION VOLTAGE, THUS INCREASING TEMPORAL RESOLUTION FOR PARTICLES IN A LIMITED PORTION OF THE SPECTRUM. USEFUL DATA OBTAINED DURING EACH 19.2-SEC INTERVAL (AUTOMATIC MODE) WERE, FOR EACH ANALYZER, 1.2-SEC ACCUMULATED COUNTS OF ELECTRONS IN 18 ENERGY WINDOWS BETWEEN 40 EV AND 20 KEV, AND IONS IN 12 ENERGY WINDOWS BETWEEN 0.17 AND 20 KEV. THE EXPERIMENT WORKED NORMALLY FROM DEPLOYMENT (FEB. 5, 1971) UNTIL APRIL 8, 1971 WHEN THE ANALYZER POINTING AWAY FROM LUNAR VERTICAL FAILED. THE OTHER ANALYZER CONTINUED TO FUNCTION NORMALLY UNTIL JUNE 6, 1971 WHEN A PARTIAL FAILURE OCCURRED. OPERATION OF THIS ANALYZER WAS INTERMITTENT FOR THE REST OF 1971. DURING MOST OF 1972, OPERATION WAS CONTINUOUS DURING LUNAR NIGHT AND INTERMITTENT DURING LUNAR DAY. FROM DECEMBER 1972 TO FEBRUARY 1973 OPERATION WAS CONTINUOUS, AFTER WHICH TIME THE HIGH VOLTAGE PROBLEMS OCCURRED AGAIN. FOR FURTHER DETAILS, SEE BURKE AND REASONER, PLANET. SPACE SCI., VOL 20, P 429, 1972.

DATA SET NAME- COUNT RATE DATA ON MAGNETIC TAPE

NSSDC ID- 71-008C-08A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 02/05/71 TO 03/02/73
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 56 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF EXPERIMENTER SUPPLIED MAGNETIC TAPES. EACH TAPE IS 7-TRACK, 556-BPI, SDS 92 BINARY, WITH 10 LOGICAL RECORDS PER PHYSICAL RECORD, AND ONE HUNDRED AND ELEVEN 36-BIT WORDS PER LOGICAL RECORD. EACH LOGICAL RECORD CONTAINS ALL THE PARTICLE COUNTING DATA TAKEN OVER ONE 19.2-SEC SEQUENCE, IN ADDITION TO THE NECESSARY TIME AND MODE IDENTIFICATION INFORMATION.

DATA SET NAME- EXPERIMENT POSITION AND ORIENTATION INFORMATION VS TIME ON TAPE

NSSDC ID- 71-008C-08B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 01/01/71 TO 12/31/73
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF ONE 7-TRACK, 556-BPI, MAGNETIC TAPE IN BINARY INTEGER 36-BIT FORMAT, WHICH WAS GENERATED BY THE EXPERIMENTER ON AN SDS 92 COMPUTER. THERE ARE THREE FILES, ONE FOR EACH YEAR -- 1971, 1972, AND 1973. ONE SET OF DATA IS GIVEN FOR EVERY 2 HR IN EACH RECORD. DATA INCLUDE (1) LOOK-DIRECTION INFORMATION FOR EACH EXPERIMENT ANALYZER RELATIVE TO MOON-SUN AND MOON-EARTH LINES AND IN GEOCENTRIC SOLAR ECLIPTIC AND SOLAR MAGNETOSPHERIC COORDINATES, AND (2)

INSTRUMENT-LOCATION INFORMATION, RELATIVE TO LOCAL LUNAR MIDNIGHT AND IN GEOCENTRIC SOLAR ECLIPTIC AND SOLAR MAGNETOSPHERIC COORDINATES. NOTE THAT SOME COMPUTED PARAMETERS ARE INCLUDED FOR A TIME PERIOD PRIOR TO THE LUNAR EMPLACEMENT OF THE INSTRUMENT.

DATA SET NAME- 200-EV ELECTRON COUNT RATE PLOTS ON MICROFILM

NSSDC ID- 71-008C-08C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 02/06/71 TO 03/12/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF 35-MM MICROFILM GENERATED AT NSSDC FROM 18 HARDCOPY PLOTS SUBMITTED BY THE EXPERIMENTER. EACH PLOT CONTAINS 2 DAYS OF 5-MINUTE-AVERAGED, 200-EV ELECTRON COUNT RATES (COUNTS PER 1.2 SEC - CONVERSION TO FLUX (PER SQ CM STER EV) EFFECTED BY MULTIPLICATION BY 100). THIS MODE WAS CHOSEN BECAUSE IT INCLUDES THE PEAK IN THE PLASMA SHEET ELECTRON SPECTRUM AND PORTIONS OF THE PHOTOELECTRON AND MAGNETOSHEATH ELECTRON SPECTRUMS. THE PLOTS INCLUDE THE TIME PERIOD FEBRUARY 6 TO MARCH 12, 1971 WHICH CONTAINS THE FIRST ORBIT OF THE MOON ABOUT THE EARTH AFTER THE PLACEMENT OF THE INSTRUMENT ON THE MOON. THE EXPERIMENT WAS MARKED ON THE PLOTS PHYSICALLY SIGNIFICANT TRANSITIONS (E.G., FROM THE MAGNETOTAIL TO THE MAGNETOSHEATH) AND THE MONTHLY 18-HR PERIOD OF SOLAR ULTRAVIOLET-INDUCED PHOTOELECTRON CONTAMINATION. THE EXPERIMENTER ALSO HAS GENERATED SIMILAR PLOTS FOR OTHER TIMES AND OTHER MODES THAT WERE SCIENTIFICALLY INTERESTING TO HIM, BUT NOT ON A ROUTINE BASIS. ALL HIS DATA ARE TO BE FOUND IN MAGNETIC TAPE DATA SET 71-008C-08A.

SPACECRAFT COMMON NAME- APOLLO 15 LM/ALSEP

ALTERNATE NAMES- APOLLO ISC, ALSEP 15
LEM 15, ROVER 15
05366

NSSDC ID- 71-063C

LAUNCH DATE- 07/26/71 WEIGHT- 12700. KG

STATUS OF OPERATION- PARTIAL

THE APOLLO 15 LUNAR MODULE (LM) CONSISTED OF A LUNAR LANDING CRAFT, A LUNAR ROVING VEHICLE (LRV), AND AN APOLLO LUNAR SURFACE EXPERIMENTS PACKAGE (ALSEP) THAT CONTAINED SCIENTIFIC EXPERIMENTS TO BE LEFT ON THE MOON AFTER COMPLETION OF THE MANNED PORTION OF THE MISSION. THE LM LANDED IN THE NORTH CENTRAL PART OF THE MOON (26 DEG 4 MIN 54 SEC N LATITUDE, 3 DEG 39 MIN 30 SEC E LONGITUDE), AT THE FOOT OF THE APENNINE MOUNTAIN RANGE. THE ALSEP WAS DEPLOYED AT THE LANDING SITE. THE LRV WAS USED DURING THE EXTRAVEHICULAR ACTIVITIES (EVA) TO EXTEND THE RANGE OF MANNED LUNAR EXPLORATION. THE NUCLEAR-POWERED ALSEP CONTAINED SEISMIC, MAGNETIC FIELDS, LUNAR ATMOSPHERIC COMPOSITION, ION COMPOSITION, LUNAR DUST, SOLAR WIND COMPOSITION, HEAT LOSS, AND SOLAR CELL RADIATION DAMAGE EXPERIMENTS. THE LM ITSELF WAS ON THE LUNAR SURFACE JULY 30-AUGUST 2, 1971.

SNYDER, APOLLO 15 LM/ALSEP

EXPERIMENT NAME- SOLAR WIND SPECTROMETER

NSSDC ID- 71-063C-04

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 06/30/72

PERSONNEL
PI - C.W. SNYDER ..... NASA-JPL
PASADENA, CA

THE SOLAR WIND SPECTROMETER WAS DESIGNED TO MEASURE ENERGIES, DENSITIES, INCIDENCE ANGLES, AND TEMPORAL VARIATIONS OF THE ELECTRON AND PROTON COMPONENTS OF THE SOLAR WIND PLASMA THAT STRIKES THE SURFACE OF THE MOON. SEVEN FARADAY CUP SENSORS MEASURED ELECTRONS IN THE ENERGY RANGE 10 TO 1480 EV AND PROTONS IN THE ENERGY RANGE 50 TO 10,400. THE EXPERIMENT PERFORMED WELL UNTIL NOVEMBER 5, 1971 WHEN INTERMITTENT MODULATION DROPPING IN PROTON CHANNELS 13 AND 14 OCCURRED. THIS INTERMITTENT, THOUGH SCIENTIFICALLY USABLE, BEHAVIOR CONTINUED UNTIL INSTRUMENT FAILURE ON JUNE 30, 1972.

DATA SET NAME- 28-SEC TIME RESOLUTION PLASMA PARAMETERS ON MAGNETIC TAPE

NSSDC ID- 71-063C-04A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/31/71 TO 12/08/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 3 REEL(S) OF MAGNETIC TAPE

THESE TAPES CONTAIN THE HIGHEST TIME RESOLUTION PLASMA DATA AVAILABLE FROM THIS EXPERIMENT (28 SEC PER SPECTRUM). THE TAPES WERE GENERATED ON A UNIVAC 1108 IN 7 TRACKS, AT 800 BPI, BCD, AND EVEN PARITY. PHYSICAL RECORDS ARE BLOCKED TO 384 WORDS, EACH PHYSICAL RECORD CONTAINING 32 LOGICAL RECORDS OF 12 WORDS EACH, AT 72 BCD CHARACTERS TO EVERY 12 WORDS. CONTAINED IN EACH RECORD ARE -- TIME, PROTON DENSITY, ALPHA-TO-PROTON RATIO, BULK SPEED, ANGLE OF FLOW, MOST PROBABLE THERMAL SPEED, AND VARIOUS HOUSEKEEPING AND FIT PARAMETERS RELATING TO THE RELIABILITY OF THE CALCULATED PLASMA PARAMETERS. THE FIRST RECORD(S) ON EACH TAPE CONTAIN LABELING INFORMATION TO IDENTIFY THE TAPE CONTENTS TO A USER. EACH TAPE CONTAINS ONE FILE.

DATA SET NAME- HOUR-AVERAGED PLASMA PARAMETERS ON MAGNETIC TAPE

NSSDC ID- 71-063C-04B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/31/71 TO 12/08/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MAGNETIC TAPE

THESE EXPERIMENTER-SUPPLIED TAPES CONTAIN HOURLY AVERAGED PLASMA PARAMETERS. THE TAPES ARE IN 7-TRACKS, AT 800 BPI AND EVEN PARITY, AND WERE WRITTEN IN BCD ON A UNIVAC 1108. EACH SET OF AVERAGES IS IN TWO LOGICAL RECORDS, WITH TWO LOGICAL RECORDS PER PHYSICAL RECORD. THERE ARE 216 BCD CHARACTERS PER PHYSICAL RECORD. FOUR SETS OF HOURLY AVERAGED PARAMETERS ARE COMPUTED, USING AS INPUT DATA (1) ALL FINE TIME SCALE PARAMETERS (FTSP), (2) ALL FTSP COMPUTED FROM SPECTRA WITH SMALL RMS ERROR ON CURVE FITTING AND THERMAL SPEEDS LESS THAN ONE-HALF THE BULK VELOCITY, (3) ALL FTSP COMPUTED FROM SPECTRA THAT SATISFY THE REQUIREMENTS OF CRITERION 2 AS WELL AS HAVING ONLY ONE FLOW ANGLE THAT CAN BE DIRECTLY MEASURED, AND (4) ALL FTSP COMPUTED FROM SPECTRA THAT SATISFY THE REQUIREMENTS OF CRITERION 2 AS WELL AS HAVING BOTH FLOW ANGLES DIRECTLY MEASUREABLE. EACH TAPE CONTAINS ONE FILE. CONTAINED IN EACH OF THE FOUR SETS OF AVERAGES ARE THE PROTON DENSITY, ALPHA-TO-PROTON RATIO, BULK SPEED, ANGLE OF FLOW, NUMBER OF SPECTRA, AND RMS DEVIATIONS OF EACH AVERAGE.

DATA SET NAME- PLOTS OF HOUR-AVERAGED PLASMA PARAMETERS

NSSDC ID- 71-063C-04C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 08/02/71 TO 06/30/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THESE EXPERIMENTER-GENERATED PLOTS CONTAIN HOURLY AVERAGED PLASMA PARAMETERS AS FUNCTIONS OF TIME, WITH 22 DAYS PER FRAME. CONTAINED IN EACH PLOT ARE THE HOURLY AVERAGED PROTON BULK SPEED, MOST PROBABLE THERMAL SPEED, PROTON DENSITY, AND ANGLE OF FLOW FROM THE HOURLY AVERAGED DATA IN DATA SET 71-063C-04B THAT SATISFIED CRITERION 2, THAT IS WHICH HAD SMALL RMS ERROR ON CURVE FITTING AND THERMAL SPEEDS LESS THAN ONE-HALF THE BULK SPEED.

APOLLO 15 SUBSATELLITE/ APOLLO 16 SUBSATELLITE

SPACECRAFT COMMON NAME- APOLLO 15 SUBSATELLITE

ALTERNATE NAMES- APOLLO 15D, 05377
P + F S

NSSDC ID- 71-063D

LAUNCH DATE- 08/04/71 WEIGHT- 41. KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 01/22/73

ORBIT PARAMETERS
ORBIT TYPE- SELENOCENTRIC EPOCH DATE- 08/04/71
ORBIT PERIOD- 119.8 MIN INCLINATION- 28.7 DEG
PERIAPSIS- 102.05 KM ALT APOAPSIS- 141.31 KM ALT

A SUBSATELLITE OF THE APOLLO 15 MISSION CARRIED EXPERIMENTS DESIGNED TO STUDY INTERPLANETARY MAGNETIC FIELDS AND SOLAR FLARES. THE SUBSATELLITE WAS DEPLOYED FROM THE COMMAND SERVICE MODULE'S SCIENTIFIC INSTRUMENT MODULE BAY WHILE APOLLO 15 WAS IN LUNAR ORBIT. THE SUBSATELLITE SPIN AXIS WAS APPROXIMATELY PERPENDICULAR TO THE ECLIPTIC PLANE. THE SUBSATELLITE SPIN RATE STABILIZED AT ABOUT 12 RPM AFTER BOOM DEPLOYMENT. THE SUBSATELLITE HAD THREE EQUALLY SPACED, FOLDED BOOMS MOUNTED AROUND ITS BASE. THESE BOOMS DEPLOYED AUTOMATICALLY AT LAUNCH TO A LENGTH OF ABOUT 1.5 M. THE SUBSATELLITE PROVIDED ABOUT 6 MONTHS OF DATA COVERAGE BEFORE 2 SUCCESSIVE ELECTRONIC FAILURES IN FEBRUARY 1972 CAUSED THE LOSS OF MOST OF THE DATA CHANNELS. THE SURVIVING DATA CHANNELS WERE MONITORED INTERMITTENTLY UNTIL JUNE 1972 AND THEN MORE OR LESS CONTINUOUSLY UNTIL JANUARY 1973, WHEN GROUND SUPPORT WAS TERMINATED.

ANDERSON, APOLLO 15 SUBSATELLITE

EXPERIMENT NAME- LUNAR PARTICLE SHADOWS AND BOUNDARY LAYER

NSSDC ID- 71-063D-01

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 02/03/72

PERSONNEL
PI - K.A. ANDERSON ..... U OF CALIF, BERKELEY
BERKELEY, CA
OI - L.M. CHASE ..... U OF CALIF, BERKELEY
BERKELEY, CA
OI - R.P. LIN ..... U OF CALIF, BERKELEY
BERKELEY, CA
OI - J. MCCOY ..... NASA-JSC
HOUSTON, TX
OI - G. SCHUBERT ..... U OF CALIF, LA
LOS ANGELES, CA

THIS EXPERIMENT WAS DESIGNED TO STUDY THE PLASMA REGIMES THROUGH WHICH THE MOON MOVES, THE INTERACTION OF THE MOON AND PLASMAS, AND SOME FEATURES OF THE STRUCTURE AND DYNAMICS OF THE MAGNETOSPHERE. TWO 2-FLEMENT SOLID-STATE PARTICLE TELESCOPES AND FOUR ELECTROSTATIC ANALYZERS WERE USED. THE TWO TELESCOPES WERE ALIGNED ALONG THE SPACECRAFT SPIN AXIS AND DIFFERED IN THAT ONE HAD AN ORGANIC FOIL IN WHICH INCIDENT ELECTRONS LOST RELATIVELY LITTLE ENERGY AND PROTONS LOST RELATIVELY MUCH ENERGY. EACH TELESCOPE WAS OPERATED AT SIX DISCRIMINATION LEVELS, WHICH CORRESPONDED ON BOTH TELESCOPES TO ELECTRON THRESHOLD ENERGIES OF APPROXIMATELY 20, 40, 85, 155, 320, AND 520 KEV. THE UNSHIELDED TELESCOPE WAS SENSITIVE TO PROTONS OF APPROXIMATELY THE SAME ENERGIES AS ELECTRONS IN THE SIX DISCRIMINATION STATES, BUT THE SHIELDED TELESCOPE WAS SENSITIVE TO PROTONS WITH SIX THRESHOLDS BETWEEN ABOUT 340 AND 700 KEV. SPECIES RESOLUTION WAS DETERMINED FROM THE RELATIVE RESPONSES OF THE TWO TELESCOPES. THE ELECTROSTATIC ANALYZERS WERE ORIENTED PERPENDICULAR TO THE SPACECRAFT SPIN AXIS AND MEASURED BOTH LARGE FLUXES OF ELECTRONS IN THE ENERGY WINDOWS 0.53-0.68, 1.75-2.25, AND 5.8-6.5 KEV AND SMALL FLUXES OF ELECTRONS IN THE WINDOWS 5.5-6.5 AND 13.5-15.0 KEV. THESE ANALYZERS DID NOT COUNT PROTONS. SPIN-INTEGRATED COUNTS WERE OBTAINED FOR ALL ENERGY WINDOWS EXCEPT THE 13.5-15.0 WINDOW IN WHICH 4-SECTORED DATA WERE OBTAINED. EXCEPT FOR AN APPARENT TEMPERATURE-DEPENDENT GAIN SHIFT IN ONE TELESCOPE AND A HIGH-TEMPERATURE-INDUCED MALFUNCTION OF THIS TELESCOPE BETWEEN OCTOBER AND DECEMBER 1971, THE EXPERIMENT WORKED AS PLANNED.

DATA SET NAME- 10-MIN AND 2-HR AVERAGED PARTICLE COUNT RATES ON MAGNETIC TAPE

NSSDC ID- 71-063D-01A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 08/04/71 TO 02/03/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF AVERAGED PROTON AND ELECTRON FLUXES ON 7-TRACK BINARY MAGNETIC TAPE, WRITTEN AT 800 BPI, AND GENERATED ON A CDC 6600 COMPUTER. THERE IS ONE FILE PER TAPE, AND EACH PHYSICAL RECORD CONSISTS OF 276 60-BIT WORDS. THE FIRST 16 WORDS OF A PHYSICAL RECORD GIVE THE ORBIT NUMBER, DATE, AND FRACTIONAL DAY OF THE START OF THE ORBIT, FOLLOWED BY THE NUMBER OF MINUTES OF OPERATION OVER THE ORBIT (2 HR) OF THE 0.53- TO 0.68-KEV ELECTRON MODE, AND 12 SUCCESSIVE 10-MIN VALUES OF THIS PARAMETER. THE NEXT 260 WORDS CONSTITUTE A 13-X 20-WORD ARRAY WHERE THE FIRST COLUMN OF THE ARRAY CONTAINS ORBIT-AVERAGED FLUXES FOR ALL COUNTING MODES, AND EACH OF THE NEXT 12 COLUMNS CONTAINS 10-MIN AVERAGED FLUXES FOR THESE MODES.

DATA SET NAME- 24-SEC AND 10-MIN AVERAGED PARTICLE COUNT RATES ON MICROFILM

NSSDC ID- 71-063D-01B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 08/04/71 TO 09/18/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 19 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF PLOTS OF PARTICLE FLUXES ON MICROFILM, AS PROVIDED BY THE EXPERIMENTER. EACH TIME INTERVAL IS COVERED BY 10 FRAMES, EACH HAVING TWO TRACES, REPRESENTING ALL THE COUNTING MODES OF THE EXPERIMENT. ALTHOUGH SOME CHARACTERS ON THE MICROFILM FRAMES ARE ILLEGIBLE, THE SUPPORTING DOCUMENTATION PERMITS READY USE OF THE PLOTS. THERE ARE TWO TYPES OF PLOTS, ONE TYPE PRESENTING THE FINEST TIME SCALE DATA AT 2 HR PER FRAME AND THE OTHER PRESENTING 10-MIN AVERAGES AT 24 HR PER FRAME. FOR ANY ONE TIME, BOTH TYPES OF PLOTS ARE INCLUDED (10 EACH). TWO-HR AVERAGES OF ALL COUNTING MODES PLOTTED AT 10 DAYS PER FRAME ARE IDENTIFIED IN NSSDC DATA SET 71-063D-01C.

SPACECRAFT COMMON NAME- APOLLO 16 SUBSATELLITE

ALTERNATE NAMES- APOLLO 16D, 06009

NSSDC ID- 72-031D

LAUNCH DATE- 04/24/72 WEIGHT- 36. KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 05/29/72

ORBIT PARAMETERS
ORBIT TYPE- SELENOCENTRIC EPOCH DATE- 04/24/72
ORBIT PERIOD- 119.8 MIN INCLINATION- 151.28 DEG
PERIAPSIS- 103.49 KM ALT APOAPSIS- 135.90 KM ALT

THE SUBSATELLITE OF THE APOLLO 16 MISSION CARRIED EXPERIMENTS DESIGNED TO STUDY INTERPLANETARY MAGNETIC FIELDS AND ENERGETIC SOLAR PARTICLES. THE SUBSATELLITE WAS DEPLOYED FROM THE COMMAND SERVICE MODULE'S SCIENTIFIC INSTRUMENT MODULE (SIM) BAY WHILE APOLLO 16 WAS IN LUNAR ORBIT. THE SUBSATELLITE SPIN AXIS WAS APPROXIMATELY PERPENDICULAR TO THE ECLIPTIC PLANE. ITS SPIN RATE STABILIZED AT ABOUT 12 RPM AFTER BOOM DEPLOYMENT. THE SUBSATELLITE HAD THREE EQUALLY SPACED, FOLDED BOOMS MOUNTED AROUND ITS BASE. THESE BOOMS DEPLOYED AUTOMATICALLY AT LAUNCH TO A LENGTH OF ABOUT 1.5 M. THE SUBSATELLITE PREMATURELY IMPACTED WITH THE MOON ON MAY 29, 1972, AFTER 34 DAYS (425 REVOLUTIONS) IN ORBIT.

ANDERSON, APOLLO 16 SUBSATELLITE

EXPERIMENT NAME- LUNAR PARTICLE SHADOWS AND BOUNDARY LAYER

NSSDC ID- 72-031D-01

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 05/29/72

PI - K.A. ANDERSON ..... U OF CALIF, BERKELEY
BERKELEY, CA
OI - L.M. CHASE ..... U OF CALIF, BERKELEY
BERKELEY, CA
OI - P.J. COLEMAN, JR. ..... U OF CALIF, LA
LOS ANGELES, CA
OI - R.P. LIN ..... U OF CALIF, BERKELEY
BERKELEY, CA
OI - J. MCCOY ..... NASA-JSC
HOUSTON, TX
OI - G. SCHUBERT ..... U OF CALIF, LA
LOS ANGELES, CA

THIS EXPERIMENT WAS DESIGNED TO STUDY THE PLASMA REGIMES THROUGH WHICH THE MOON MOVES, THE INTERACTION OF THE MOON AND PLASMAS, AND THE SAME FEATURES. TWO 2-ELEMENT SOLID-STATE PARTICLE TELESCOPES AND FOUR ELECTROSTATIC ANALYZERS WERE USED. THE TWO TELESCOPES WERE ALIGNED ALONG THE SPACECRAFT SPIN AXIS AND DIFFERED IN THAT ONE HAD AN ORGANIC FOIL IN WHICH INCIDENT ELECTRONS LOST RELATIVELY LITTLE ENERGY AND PROTONS LOST RELATIVELY MUCH ENERGY. EACH TELESCOPE WAS OPERATED AT SIX DISCRIMINATION LEVELS WHICH CORRESPONDED ON BOTH TELESCOPES TO ELECTRON THRESHOLD ENERGIES OF APPROXIMATELY 20, 40, 85, 155, 320, AND 520 KEV. THE UNSHIELDED TELESCOPE WAS SENSITIVE TO PROTONS OF APPROXIMATELY THE SAME ENERGIES AS ELECTRONS IN THE SIX DISCRIMINATION STATES, BUT THE SHIELDED TELESCOPE WAS SENSITIVE TO PROTONS WITH SIX THRESHOLDS BETWEEN ABOUT 340 AND 700 KEV. SPECIES RESOLUTION WAS DETERMINED FROM THE RELATIVE RESPONSES OF THE TWO TELESCOPES. THE ELECTROSTATIC ANALYZERS WERE ORIENTED PERPENDICULAR TO THE SPACECRAFT SPIN AXIS AND MEASURED BOTH LARGE FLUXES OF ELECTRONS IN THE ENERGY WINDOWS 0.53-0.68, 1.9-2.1, AND 5.9-6.4 KEV AND SMALL FLUXES OF ELECTRONS IN THE WINDOWS 5.8-6.5 AND 13.5-15.0 KEV. THESE ANALYZERS DID NOT COUNT PROTONS. SPIN-INTEGRATED COUNTS WERE OBTAINED FOR ALL ENERGY WINDOWS EXCEPT THE 13.5-15.0 WINDOW IN WHICH 4-SECTORED DATA WERE OBTAINED. THE INSTRUMENTS WORKED AS PLANNED FOR THE LIFE OF THE SPACECRAFT.

DATA SET NAME- 10-MIN AND 2-HR AVERAGED PARTICLE COUNT RATES ON MAGNETIC TAPE

NSSDC ID- 72-031D-01A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 04/25/72 TO 05/29/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF AVERAGED PROTON AND ELECTRON FLUXES ON 7-TRACK BINARY MAGNETIC TAPE, WRITTEN AT 800 BPI ON A CDC 6600 COMPUTER. THERE IS ONE FILE PER TAPE, AND EACH PHYSICAL RECORD CONSISTS OF 276 60-BIT WORDS. THE FIRST 16 WORDS OF A PHYSICAL RECORD GIVE THE ORBIT NUMBER, DATE, AND FRACTIONAL DAY OF THE START OF THE ORBIT FOLLOWED BY THE NUMBER OF MINUTES OF OPERATION OVER THE ORBIT (2 HR) OF THE 0.53- TO 0.68-KEV ELECTRON MODE, AND 12 SUCCESSIVE 10-MIN VALUES OF THIS PARAMETER. THE NEXT 260 WORDS CONSTITUTE A 13-X 20-WORD ARRAY WHERE THE FIRST COLUMN OF THE ARRAY CONTAINS ORBIT-AVERAGED FLUXES FOR ALL COUNTING MODES AND EACH OF THE NEXT 12 COLUMNS CONTAINS 10-MIN AVERAGED FLUXES FOR THESE MODES.

DATA SET NAME- 24-SEC AND 10-MIN AVERAGED PARTICLE COUNT RATES ON MICROFILM

NSSDC ID- 72-031D-01B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 04/25/72 TO 05/29/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 4 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF PLOTS OF PARTICLE FLUXES ON MICROFILM, AS PROVIDED BY THE EXPERIMENTER. EACH TIME INTERVAL IS COVERED BY 10 FRAMES, EACH HAVING TWO TRACES, REPRESENTING ALL THE COUNTING MODES OF THE EXPERIMENT. ALTHOUGH SOME CHARACTERS ON THE MICROFILM FRAMES ARE ILLEGIBLE, THE SUPPORTING DOCUMENTATION PERMITS READY USE OF THE PLOTS. THERE ARE TWO TYPES OF PLOTS, ONE TYPE PRESENTING THE FINEST TIME SCALE DATA AT 2 HR PER FRAME AND THE OTHER PRESENTING 10-MIN AVERAGES AT 24 HR PER FRAME. FOR ANY ONE TIME, BOTH TYPES OF PLOTS ARE INCLUDED (10 EACH). TWO-HR AVERAGES OF ALL COUNTING MODES PLOTTED AT 10 DAYS PER FRAME ARE IDENTIFIED IN NSSDC DATA SET 72-031D-01C.

SPACECRAFT COMMON NAME- ATS 1

ALTERNATE NAMES- ATS-B, 02608

NSSDC ID- 66-110A

LAUNCH DATE- 12/07/66 WEIGHT- 352. KG

STATUS OF OPERATION- PARTIAL

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 12/07/66
ORBIT PERIOD- 1466. MIN INCLINATION- 0.23 DEG
PERIAPSIS- 35852.0 KM ALT APOAPSIS- 36887.0 KM ALT

ATS 1 (APPLICATIONS TECHNOLOGY SATELLITE) WAS DESIGNED AND LAUNCHED FOR THE PURPOSE OF (1) TESTING NEW CONCEPTS IN SPACECRAFT DESIGN, PROPULSION, AND STABILIZATION, (2) COLLECTING HIGH-QUALITY CLOUDCOVER PICTURES AND RELAYING PROCESSED METEOROLOGICAL DATA VIA AN EARTH-SYNCHRONOUS SATELLITE, (3) PROVIDING IN SITU MEASUREMENTS OF THE AEROSPACE ENVIRONMENT, AND (4) TESTING IMPROVED COMMUNICATION SYSTEMS. THE SPIN-STABILIZED SPACECRAFT WAS CYLINDRICALLY SHAPED AND MEASURED 135 CM LONG AND 142 CM IN DIAMETER. THE PRIMARY STRUCTURAL MEMBERS WERE A HONEYCOMBED EQUIPMENT SHELF AND THRUST TUBE. SUPPORT RODS EXTENDED RADIALLY OUTWARD FROM THE THRUST TUBE AND WERE AFFIXED TO SOLAR PANELS THAT FORMED THE OUTER WALLS OF THE SPACECRAFT. EQUIPMENT COMPONENTS AND PAYLOAD WERE MOUNTED IN THE ANNULAR SPACE BETWEEN THE THRUST TUBE AND SOLAR PANELS. IN ADDITION TO SOLAR PANELS, THE SPACECRAFT WAS EQUIPPED WITH TWO RECHARGEABLE NICKEL-CADMIUM BATTERIES TO PROVIDE ELECTRICAL POWER. EIGHT 150-CM-LONG VHF EXPERIMENT WHIP ANTENNAS WERE MOUNTED AROUND THE AFT END OF THE SPACECRAFT, WHILE EIGHT TELEMETRY AND COMMAND ANTENNAS WERE PLACED ON THE FORWARD END. SPACECRAFT GUIDANCE AND ORBITAL CORRECTIONS WERE ACCOMPLISHED BY 2.3-KG HYDROGEN PEROXIDE AND HYDRAZINE THRUSTERS, WHICH WERE ACTIVATED BY GROUND COMMAND. THE SATELLITE WAS INITIALLY PLACED AT 151.16 DEG W LONGITUDE OVER THE PACIFIC OCEAN IN A GEOSTATIONARY EQUATORIAL ORBIT. IN GENERAL, MOST OF THE EXPERIMENTS WERE SUCCESSFUL. DATA COVERAGE WAS HIGH UNTIL ABOUT 1970, AFTER WHICH LIMITED REAL-TIME DATA ACQUISITION WAS CARRIED OUT BY NOAA UNTIL THE MAY 1974 LAUNCH OF SMS 1. LIMITED ATS 1 DATA ACQUISITION WAS BEGUN BY NASA AT ABOUT THAT TIME FOR ATS 1 - ATS 6 CORRELATIVE STUDIES.

BROWN, ATS 1

EXPERIMENT NAME- PARTICLE TELESCOPE

NSSDC ID- 66-110A-05

STATUS OF OPERATION- OPERATIONAL OFF
DATE LAST USABLE DATA RECORDED- 07/01/70

PERSONNEL
PI - W.L. BROWN ..... BELL TELEPHONE LAB
MURRAY HILL, NJ
OI - L.J. LANZEROTTI ..... BELL TELEPHONE LAB
MURRAY HILL, NJ

THE INSTRUMENTATION FOR THE EXPERIMENT CONSISTED OF A SIX-ELEMENT SEMICONDUCTOR PARTICLE TELESCOPE MOUNTED BEHIND A COLLIMATOR WITH A HALF ANGLE OF ABOUT 20 DEG. THE SIX ELEMENTS OPERATED IN NINE MODES WITH FIVE ENERGY INTERVALS PER MODE. THE INSTRUMENT COULD DETECT PROTONS FROM 0.6 TO 100 MEV, ALPHA PARTICLES FROM 2.4 TO 400 MEV, AND ELECTRONS FROM 0.4 TO 3 MEV. SPECIES DISCRIMINATION WAS POSSIBLE OVER MOST OF THE ENERGY RANGES. ONE OF THE NINE MODES PROVIDED DATA ON DETECTOR NOISE AND PARTICLE BACKGROUND. ONE EXPERIMENTAL MODE WAS MONITORED DURING ONE TELEMETRY SEQUENCE. THE COMPLETE EXPERIMENT SEQUENCE READOUT REQUIRED 16 TELEMETRY SEQUENCES AND WAS REPEATED EVERY 5.46 MIN. ONCE EVERY 5.8 HR, THE COUNTERS AND ELECTRONICS WERE CALIBRATED. THE EXPERIMENT HAS FUNCTIONED NORMALLY THROUGHOUT THE OPERATIONAL LIFE OF THE SPACECRAFT.

DATA SET NAME- PLOTS OF REDUCED PARTICLE COUNT RATES ON MICROFILM

NSSDC ID- 66-110A-05A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/09/66 TO 03/01/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 7 REEL(S) OF MICROFILM

THESE REDUCED DATA, GENERATED AT BELL TELEPHONE

LABORATORIES FROM ORIGINAL DATA, CONSIST OF SEVEN REELS OF 35-MM MICROFILM PLOTS. THE PLOTS CONTAIN DATA IN EACH OF NINE EXPERIMENTAL MODES DESIGNATED 'A' THROUGH 'I'. EACH MODE LETTER INDICATES A SPECIFIC LOGICAL PROGRAM FOR THE ONBOARD DATA PROCESSING INVOLVING THE USE OF COINCIDENT AND ANTICOINCIDENT CIRCUITS TO YIELD A PARTICULAR SPECIES PARTICLE COUNT RATE. FOR EACH MODE, THE LOG OF THE COUNT RATE OF EACH TELESCOPE ELEMENT (INVOLVED IN THAT MODE) IS PLOTTED AGAINST TIME. EIGHT HR OF DATA ARE PLOTTED ON EACH GRAPH, AND EACH GRAPH CONTAINS DATA FROM A SINGLE MODE. BECAUSE EACH MODE WAS MONITORED IN TURN FOR 5.12 SEC AND THE EXPERIMENTAL SAMPLING SEQUENCE REQUIRED 2.73 MIN TO BE COMPLETED, THE PLOTS EFFECTIVELY REPRESENT SIMULTANEOUS MEASUREMENTS OF THE COUNT RATES FOR EACH MODE. THE TIME PERIODS COVERED ARE DECEMBER 9, 1966, TO DECEMBER 19, 1966, AND DECEMBER 23, 1966, TO MARCH 1, 1967.

FREEMAN, ATS 1

EXPERIMENT NAME- SUPRATHERMAL ION DETECTOR

NSSDC ID- 66-110A-01

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 02/18/67

PERSONNEL
PI - J.W. FREEMAN ..... RICE U
HOUSTON, TX

THE ATS 1 SUPRATHERMAL ION DETECTOR WAS DESIGNED TO SEARCH FOR CONVECTIVE FLUXES OF LOW-ENERGY IONS IN THE MAGNETOSPHERE. THE DETECTOR SYSTEM CONSISTED OF A PLANAR RETARDING POTENTIAL ANALYZER, WHICH FED INTO A CHANNELTRON. THE ANALYZER OPERATED IN THE DIFFERENTIAL MODE FOR 20 ENERGY WINDOWS FROM 0 TO 50 EV AND IN AN INTEGRAL MODE FOR TWO WINDOWS, GREATER THAN 0 AND GREATER THAN 50 EV. THE SYSTEM WAS SENSITIVE TO IONS FROM 0 TO 50 EV, ELECTRONS GREATER THAN 3 KEV, AND ULTRAVIOLET RADIATION. THE SATELLITE SPIN RATE WAS ABOUT 97 RPM. THE ACCUMULATED COUNTS FROM THE CHANNELTRON WERE SEGMENTED IN TIME SO THE DIRECTION OF ARRIVAL OF INCOMING PARTICLES WERE DIVIDED INTO 30 DISCRETE 12-DEG (BY 25-DEG WIDE) ANGULAR SECTORS. THE TIME REQUIRED FOR A COMPLETE SET OF ENERGY-ANGULAR SCAN DATA WAS 112.6 SEC, WITH 0.64 SEC EVERY 5.120 SEC REQUIRED FOR EACH ENERGY WINDOW SCAN, AND 0.02 SEC REQUIRED FOR EACH ANGULAR WINDOW PER ENERGY WINDOW SCAN. THE DETECTOR WAS POINTED IN A DIRECTION NORMAL TO THE SPACECRAFT SPIN AXIS. CHANNELTRONS SUFFERED DEGRADATION BY HIGH COUNTING FLUXES. BECAUSE OF THE NATURE OF ITS MISSION, THE INSTRUMENT WAS DESIGNED TO ACCEPT LARGE FLUXES OF PARTICLES, THEREBY SACRIFICING LONGEVITY. THE EXPERIMENT WAS SUCCESSFUL, HAVING DETECTED FLUXES OF IONS ON SEVERAL OCCASIONS DURING ITS 50 DAYS OF CONTINUOUS OPERATION. FOR FURTHER DETAILS OF THIS EXPERIMENT, SEE 'EXTRAIT DES ANNALES DE GEOPHYSIQUE,' TOME 24, 1968, BY FREEMAN ET. AL. 'ON THE VARIETY OF PARTICLE PHENOMENA DISCERNABLE AT GEOSTATIONARY ORBIT VIA THE ATS 1 SATELLITE'.

DATA SET NAME- SUPRATHERMAL ION DATA FROM THE ATS-1
SPECTROMETER ON BCD MAGNETIC TAPE

NSSDC ID- 66-110A-01A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/10/66 TO 02/18/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 55 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF EXPERIMENTER-SUPPLIED 7-TRACK, 556-BPI, BCD MAGNETIC TAPES. THERE IS ONE SHORT HEADER FILE AND ONE DATA FILE PER TAPE. THE DATA FILE CONTAINS SIX CHARACTERS PER WORD, 10 WORDS PER LOGICAL RECORD, 22 LOGICAL RECORDS PER PHYSICAL RECORD, AND APPROXIMATELY 140 PHYSICAL RECORDS PER FILE. TWENTY-TWO LOGICAL RECORDS INCLUDE THE DATA FROM ONE COMPLETE SPECTRAL AND ANGULAR SCAN. APPROXIMATELY 660 DATA POINTS. ALSO INCLUDED IN EACH LOGICAL RECORD ARE TIME AND DATA QUALITY FLAGS. THE COUNTS PER ENERGY ANGULAR WINDOW (COUNTS PER 0.02 SEC) MUST BE CORRECTED BY THE USER FOR TELEMETRY ERRORS AND A PRESCALER. THE ALGORITHM FOR THIS CORRECTION IS PROVIDED IN THE DOCUMENTATION.

PAULIKAS, ATS 1

EXPERIMENT NAME- OMNIDIRECTIONAL SPECTROMETER

NSSDC ID- 66-110A-03

STATUS OF OPERATION- PARTIAL

PERSONNEL
PI - G.A. PAULIKAS ..... AEROSPACE CORP
EL SEGUNDO, CA
OI - J.B. BLAKE ..... AEROSPACE CORP
EL SEGUNDO, CA
OI - S.C. FREDEN ..... NASA-GSFC
GREENBELT, MD

THE CHARGED PARTICLE EXPERIMENT DESIGNED FOR ATS 1 BY AEROSPACE CORPORATION PERSONNEL CONSISTED OF AN ARRAY OF THREE OMNIDIRECTIONAL DETECTORS. THESE SHIELDED, SOLID-STATE DETECTORS MEASURED ELECTRONS WITH THRESHOLDS OF 0.30, 0.45, 1.05, AND 1.90 MEV, AND PROTONS IN THE ENERGY RANGES 5 TO 21 MEV AND 21 TO 70 MEV. GOOD ELECTRON DATA WERE OBTAINED ONLY UNTIL JULY 1, 1970, AS OF DECEMBER 1974, USEFUL PROTON DATA WERE OBTAINED WHENEVER DATA WAS ACQUIRED FROM THE SPACECRAFT.

DATA SET NAME- PROTON AND ELECTRON FLUX VALUES ON TAPE

NSSDC ID- 66-110A-03A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/17/66 TO 12/05/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 49 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF FORTY-NINE 7-TRACK, 800-BPI, CDC 6600, BINARY MAGNETIC TAPES COVERING, IN CHRONOLOGICAL ORDER, THE TIME PERIOD DECEMBER 17, 1966, THROUGH DECEMBER 5, 1968. THE TAPES CONTAIN PROTON AND ELECTRON FLUX VALUES THAT WERE DERIVED FROM OBSERVED COUNT RATES. ORBIT INFORMATION IS NOT CONTAINED ON THESE TAPES. A COMPRESSED SET OF 10 IBM 7094 BINARY TAPES CONTAINING THE SAME DATA IS ALSO AVAILABLE (66-110A-03C).

DATA SET NAME- HOURLY AVERAGED PROTON FLUXES PUBLISHED
IN 'SOLAR-GEOPHYSICAL DATA'

NSSDC ID- 66-110A-03D

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 01/01/70 TO 08/31/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 32 BOOK(S) OR BOUND VOLUME(S)

THIS DATA SET CONSISTS OF MONTHLY TABULAR LISTINGS OF HOURLY AVERAGED FLUXES OF OMNIDIRECTIONAL, GEOSYNCHRONOUS PROTONS WITH ENERGIES IN THE INTERVALS 5 TO 21 MEV AND 21 TO 70 MEV. DATA OBTAINED DURING A GIVEN MONTH WERE PUBLISHED (UNTIL SEPTEMBER 1972) IN 'SOLAR-GEOPHYSICAL DATA (PROMPT REPORTS)' WITH A 1-MONTH LAG.

WINCKLER, ATS 1

EXPERIMENT NAME- ELECTRON SPECTROMETER

NSSDC ID- 66-110A-04

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 06/30/68

PERSONNEL
PI - J.R. WINCKLER ..... U OF MINNESOTA
MINNEAPOLIS, MN

THIS EXPERIMENT WAS DESIGNED TO MEASURE THE TRAPPED ELECTRON COMPONENT AT ABOUT 6.6 EARTH RADII IN THE ENERGY RANGE FROM 50 TO 1000 KEV. THE INSTRUMENT WAS A HIGH-TIME RESOLUTION MAGNETIC SPECTROMETER, WHERE THE ELECTROMAGNET STEPPED REPEATEDLY THROUGH FOUR FIELD VALUES ALLOWING DETERMINATION OF BACKGROUND-CORRECTED ELECTRON FLUX MEASUREMENTS IN EACH OF THREE CHANNELS 50 TO 150 KEV, 150 TO

500 KEV, 500 TO 1000 KEV. THE FLUX IN EACH CHANNEL WAS SAMPLED FOR 40 MS ONCE EVERY 160 MS. THE DETECTOR SYSTEM CONSISTED OF A SHIELDED PLASTIC SCINTILLATOR COUPLED TO A PHOTOMULTIPLIER, WHOSE SIGNAL PASSED THROUGH A PULSE HEIGHT ANALYZER TO AN APPROPRIATE SCALING CIRCUIT. THE LOOK DIRECTION MADE AN ANGLE OF 74 DEG TO THE SPACECRAFT SPIN AXIS. THE STORED DIGITAL COUNTS WERE CONVERTED TO ANALOG SIGNALS PRIOR TO TELEMETRY INTERROGATION. THE INSTRUMENT MEASURED ELECTRON FLUXES FROM 0.4 TO 1,000,000 PARTICLES PER CM SQ PER SEC PER STER PER KEV. TYPICALLY THE BACKGROUND CORRECTION TO THE DATA WAS LESS THAN 10 PERCENT. THE EXPERIMENT FUNCTIONED WELL THROUGH MOST OF THE TIME INTERVAL DECEMBER 17, 1966 TO JANUARY 23, 1968, DURING SOME SHORT SUBINTERVALS, HOWEVER, IT WAS NOT OPERATING PROPERLY. FROM JANUARY 23, 1968, UNTIL THE END OF JUNE 1968, ONLY THE 50 TO 150 KEV AND 150 TO 500 KEV CHANNELS FUNCTIONED PROPERLY. AFTER JUNE 1968, THE SPECTROMETER FAILED COMPLETELY AND NEVER RECOVERED.

DATA SET NAME- 6-MIN AVERAGED COUNT RATES ON MAGNETIC TAPE

NSSDC ID- 66-110A-04A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/19/66 TO 12/30/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET, SUBMITTED BY THE EXPERIMENTER, CONSISTS OF ONE 7-TRACK, 800-BPI BCD (EVEN PARITY) MAGNETIC TAPE. THERE ARE FIVE LOGICAL RECORDS PER PHYSICAL RECORD (400 CHARACTERS) CONTAINING 6-MIN AVERAGE COUNT RATES FOR THE TIME PERIOD FROM DECEMBER 19, 1966 TO DECEMBER 30, 1967. EACH CARD IMAGE CONTAINS INFORMATION AS TO TIME, COUNT RATE, AND BACKGROUND RATE FOR ALL THREE CHANNELS, PLUS THEIR STATISTICAL ERRORS. NOTE -- ALTHOUGH TAPE ENTRIES START AT DECEMBER 9, 1966, NO DATA ARE CONTAINED IN THE FIRST TEN LOGICAL RECORDS. FIRST DATA ENTRY OCCURS ON DECEMBER 19, 1966.

DATA SET NAME- 6-MIN AVERAGED COUNT RATE PLOTS ON MICROFILM

NSSDC ID- 66-110A-04B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/19/66 TO 12/30/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS COMPLETE DATA SET CONSISTS OF ONE REEL OF 35-MM MICROFILM THAT WAS GENERATED AT NSSDC FROM PLOTS SUBMITTED BY THE EXPERIMENTER, COVERING THE TIME PERIOD FROM DECEMBER 19, 1966 TO DECEMBER 30, 1967. PRESENTED ARE 6-MIN AVERAGE COUNT RATES VS TIME, EACH PLOT GIVING ONE DAY FOR ALL THREE CHANNELS. NO BACKGROUND INFORMATION IS CONTAINED ON PLOTS.

SPACECRAFT COMMON NAME- ATS 2

ALTERNATE NAMES- ATS-A, 02743

NSSDC ID- 67-031A

LAUNCH DATE- 04/06/67 WEIGHT- 319.11 KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 09/00/68

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 04/07/67
ORBIT PERIOD- 219.7 MIN INCLINATION- 28.32 DEG
PERIAPSIS- 186.000 KM ALT APOAPSIS- 11180.0 KM ALT

ATS 2 (APPLICATIONS TECHNOLOGY SATELLITE) WAS A MEDIUM ALTITUDE, GRAVITY-GRADIENT-STABILIZED SPACECRAFT DESIGNED TO (1) TEST NEW CONCEPTS IN SPACECRAFT DESIGN, PROPULSION, AND STABILIZATION, (2) TAKE HIGH-QUALITY CLOUDCOVER PICTURES, (3) PROVIDE IN SITU MEASUREMENTS OF THE AEROSPACE ENVIRONMENT, AND (4) TEST IMPROVED COMMUNICATION SYSTEMS. THE CYLINDRICALLY-SHAPED SPACECRAFT MEASURED 142 CM IN DIAMETER AND 183 CM IN LENGTH. THE SPACECRAFT STRUCTURE CONSISTED PRIMARILY OF A CORRUGATED THRUST TUBE WITH HONEYCOMBED BULKHEADS SECURED TO EACH END. EQUIPMENT COMPONENTS AND PAYLOAD WERE EXTERNALLY MOUNTED ON THE OUTER SURFACE OF THE THRUST TUBE AS WELL AS ON A STRUCTURE THAT SLID INTO THE INTERIOR OF THE THRUST TUBE. ELECTRIC POWER WAS PROVIDED BY TWO SOLAR ARRAYS MOUNTED ON EITHER END OF THE SPACECRAFT'S OUTER SHELL AND BY TWO RECHARGEABLE NICKEL-CADMIUM BATTERIES. EXTENDING RADIALLY OUTWARD FROM THE SIDE OF THE SPACECRAFT WERE FOUR 28.2-M, ADJUSTABLE GRAVITY-GRADIENT BOOMS. THE SPACECRAFT TELEMETRY SYSTEM CONSISTED OF FOUR 2.1-W TRANSMITTERS (TWO AT 136.47 MHZ AND TWO AT 137.35 MHZ), IN ADDITION TO A MICROWAVE COMMUNICATIONS EXPERIMENT, ATS 2 WAS PROGRAMMED TO BE LAUNCHED INTO AN 11,000-KM CIRCULAR EARTH ORBIT. HOWEVER, THE SECOND STAGE OF THE LAUNCH VEHICLE FAILED TO IGNITE, THUS RESULTING IN AN ELLIPTICAL ORBIT. STRESSES INDUCED BY THIS UNPLANNED ORBIT EVENTUALLY INDUCED SPACECRAFT TUMBLING. IN SPITE OF THESE CONDITIONS, USEFUL DATA WERE OBTAINED FROM SOME OF THE EXPERIMENTS, MOST NOTABLY THE COSMIC-RAY AND PARTICLE EXPERIMENTS AND THE FIELD DETECTION EXPERIMENTS. DATA WERE SPORADICALLY TRANSMITTED UNTIL SEPTEMBER 1968. THE SATELLITE REENTERED THE ATMOSPHERE ON SEPTEMBER 2, 1969.

MCILWAIN, ATS 2

EXPERIMENT NAME- OMNIDIRECTIONAL PROTON AND ELECTRON DETECTORS

NSSDC ID- 67-031A-05

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 10/23/67

PERSONNEL
PI - C.E. MCILWAIN ..... U OF CALIF, SAN DIEG SAN DIEGO, CA
OI - R.W. FILLIUS ..... U OF CALIF, SAN DIEG SAN DIEGO, CA

THIS EXPERIMENT WAS DESIGNED PRIMARILY TO MEASURE FLUCTUATIONS IN 12-MEV PROTONS ON THE TIME SCALE OF THEIR AZIMUTHAL DRIFT PERIOD. THE PARTICLE FLUXES WERE MEASURED BY THREE SPHERICAL PLASTIC SCINTILLATORS, EACH OF WHICH HAD FIVE ASSOCIATED ELECTRONIC DISCRIMINATION STATES. EACH OF TWO SCINTILLATORS, DIFFERING IN THEIR GEOMETRICAL FACTORS, SEPARATELY MEASURED OMNIDIRECTIONAL FLUXES OF PROTONS ABOVE 12 MEV AND OF ELECTRONS ABOVE 0.44, 0.63, AND 1.31 MEV. THE THIRD SCINTILLATOR SEPARATELY MEASURED OMNIDIRECTIONAL FLUXES OF PROTONS ABOVE 20 MEV AND OF ELECTRONS ABOVE 1.10, 1.27, AND 1.93 MEV. THE FIFTH DISCRIMINATION LEVEL OF EACH SCINTILLATOR WAS USED TO CHECK THE RELATIVE SETTING OF THE MAIN PROTON LEVEL AND TO CHECK FOR ELECTRON CONTAMINATION IN THE PROTON LEVEL. EVERY 5.12 SEC, COUNTS WERE ACCUMULATED FOR 4.46 SEC IN THE PROTON DISCRIMINATION STATE OF EACH OF THE THREE DETECTORS AND WERE THEN TELEMETERED. EVERY 81.92 SEC, COUNTS WERE ACCUMULATED DURING ONE OR TWO 4.46-SEC INTERVALS IN EACH OF THE OTHER DISCRIMINATION STATES (AND ONCE IN A CALIBRATION MODE) OF EACH OF THE THREE DETECTORS AND WERE TELEMETERED. USEFUL DATA WERE OBTAINED FROM LAUNCH UNTIL OCTOBER 23, 1967.

DATA SET NAME- PARTICLE COUNT RATES ON TAPE

NSSDC ID- 67-031A-05A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 04/07/67 TO 10/23/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 31 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF THIRTY-ONE 7-TRACK, 800-BPI, CDC 3600, BINARY MAGNETIC TAPES. EACH PHYSICAL RECORD CONTAINS 10 LOGICAL RECORDS OF TWENTY-SEVEN 48-BIT WORDS EACH. EACH LOGICAL RECORD CONTAINS DATA FOR A 5.12-SEC TELEMETRY SEQUENCE. THESE DATA INCLUDE TIME, THREE DEAD-TIME-CORRECTED PROTON COUNT RATES, ONE COUNT RATE FROM A NON-PROTON DISCRIMINATION STATE, EPHEMERIS INFORMATION (INCLUDING B AND L), TEMPERATURE AND VOLTAGE LEVELS, AND ERROR FLAGS IF APPROPRIATE. TIME COVERAGE EXTENDS FROM APRIL 7, 1967, THROUGH OCTOBER 23, 1967. A LIST OF BAD DATA VALUES DETECTED BY THE EXPERIMENTERS SUBSEQUENT TO SUBMISSION OF DATA TO NSSDC IS AVAILABLE ON MICROFILM AT NSSDC.

ATS 5/EPE-D

SPACECRAFT COMMON NAME- ATS 5

ALTERNATE NAMES- PL-6928, ATS-E
04068

NSSDC ID- 69-069A

LAUNCH DATE- 08/12/69 WEIGHT- 821. KG

STATUS OF OPERATION- PARTIAL

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 08/23/69
ORBIT PERIOD- 1463. MIN INCLINATION- 2.6 DEG
PERIAPSIS- 35760.0 KM ALT APOAPSIS- 36894.0 KM ALT

ATS 5 WAS AN EQUATORIAL-ORBITING, SYNCHRONOUS-ALTITUDE TECHNOLOGY SATELLITE INTENDED TO TEST VARIOUS COMMUNICATIONS AND EARTH OBSERVATIONAL SYSTEMS. ALSO INCLUDED ON BOARD WERE PARTICLE, ELECTRIC FIELD, AND MAGNETIC FIELD EXPERIMENTS. BECAUSE OF A MALFUNCTION, THE INTENDED GRAVITY GRADIENT STABILIZATION MECHANISM COULD NOT BE DEPLOYED, AND ATS 5 WAS STABILIZED IN A SPINNING MODE ABOUT SPACECRAFT Z AXIS AT APPROXIMATELY 71 RPM. ALL EXPERIMENTS WHICH DEPENDED ON THE PLANNED GRAVITY GRADIENT STABILIZATION WERE ADVERSELY AFFECTED TO VARYING DEGREES, AND THE MISSION WAS DECLARED A FAILURE. HOWEVER, SOME OF THE SCIENCE EXPERIMENTS, INCLUDING THE MAGNETIC FIELD MONITOR AND THE PARTICLE EXPERIMENTS, RETURNED USABLE DATA DURING THE OPERATIONAL LIFETIME OF THE MISSION. ATS 5 WAS POSITIONED AT ABOUT 105 DEG W LONGITUDE OVER THE PACIFIC OCEAN. DATA WERE RECORDED ABOUT 60 PERCENT OF THE TIME THROUGH MOST OF THE SPACECRAFT'S OPERATIONAL LIFETIME, WHICH EXTENDED TO JUNE 1, 1973, AFTER WHICH THE ACQUISITION RATE DECREASED FURTHER.

MOZER, ATS 5

EXPERIMENT NAME- TRI-DIRECTIONAL MEDIUM-ENERGY PARTICLE DETECTOR

NSSDC ID- 69-069A-04

STATUS OF OPERATION- OPERATIONAL OFF
DATE LAST DATA RECORDED- 09/01/73

PERSONNEL
PI - F.S. MOZER ..... U OF CALIF, BERKELEY
BERKELEY, CA

THIS EXPERIMENT CONSISTED OF THREE ESSENTIALLY IDENTICAL SCINTILLATION PHOTOMULTIPLIER DETECTORS, EACH INTENDED TO MEASURE (SEPARATELY) ELECTRONS AND PROTONS, IN THREE ENERGY WINDOWS CENTERED RESPECTIVELY AT 40, 75, AND 120 KEV AND 60.120, AND 165 KEV. TWO DETECTORS, LOOKING IN OPPOSITE DIRECTIONS, WERE TILTED BY 12 DEG FROM THE SATELLITE Z AXIS AND ONE WAS ORIENTED PERPENDICULAR TO THIS CONFIGURATION. OVER MOST OF ITS DATA COLLECTING LIFETIME, THE SATELLITE WAS SPINNING ABOUT ITS Z AXIS, WITH A SPIN PERIOD OF 0.78 SEC. DUE TO AN UNPLANNED SPACECRAFT SPIN SOON AFTER LAUNCH, A SHUTTER SYSTEM WAS ACTIVATED THAT RENDERED THE PERPENDICULAR DETECTOR INEFFECTIVE. THEREFORE, MEASUREMENTS WERE MADE ONLY IN DIRECTIONS APPROXIMATELY PARALLEL AND ANTIPARALLEL TO THE LOCAL MAGNETIC FIELD. THE SPECIES ANALYSIS WAS PERFORMED BY A THREE-CHANNEL PULSE-HEIGHT ANALYZER, AND PARTICLE COUNTS WERE TELEMETERED IN BOTH ANALOG AND DIGITAL MODES. THE INTEGRATION TIME FOR EACH CHANNEL WAS 0.01 SEC, WHILE THE READOUT RATE FOR ANY ONE CHANNEL VARIED FROM 0.2 TO 5.12 SEC, DEPENDING ON A COMMANDABLE READOUT MODE. FOR FURTHER INFORMATION CONSULT -- 'DEVELOPMENT OF A DOUBLE-LAYERED SCINTILLATOR FOR SEPARATING AND DETECTING LOW-ENERGY PROTONS AND ELECTRONS,' BY F. S. MOZER, F. H. BOGOTT, AND C. W. BATES, JR., IEEE TRANS. ON NUCL. SCI., VOL NS-15, P 144, 1965.

DATA SET NAME- 40- TO 120-KEV ELECTRON AND 60- TO 165-KEV PROTON DATA ON MAGNETIC TAPE

NSSDC ID- 69-069A-04A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 09/16/69 TO 04/09/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 319 REEL(S) OF MAGNETIC TAPE

THIS DATA SET, SUPPLIED BY THE EXPERIMENTER, CONTAINS INTERMEDIATE DATA TAPES AND TAPE SUMMARY SHEETS. THESE ARE ALL CDC 6600 GENERATED, 7-TRACK, 800-BPI, BINARY TAPES WITH A VARIABLE NUMBER OF FILES. THIS ENTRY IS TEMPORARY (03-13-73), PENDING FURTHER CLARIFICATION OF TAPE CONTENTS. UNTIL ADDITIONAL DOCUMENTATION IS RECEIVED FROM THE EXPERIMENTER, NO INFORMATION AS TO PARTICLE SPECIES, TYPES OF MEASUREMENTS, TIME RANGE, ENERGY, RATE, ETC. CAN BE GIVEN.

DATA SET NAME- 40- TO 120-KEV ELECTRON AND 60- TO 165-KEV PROTON DATA ON MICROFILM

NSSDC ID- 69-069A-04B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 09/17/69 TO 10/01/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 3 REEL(S) OF MICROFILM

THIS EXPERIMENTER-SUPPLIED, DATA SET CONSISTS OF 35-MM MICROFILM CONTAINING MACHINE PLOTS DEPICTING TIME-ORDERED PARTICLE FLUXES, ENERGY DENSITIES, E-FOLDING ENERGIES, AND MAGNETOMETER DATA, EXTENDING FROM SEPTEMBER 17, 1969 TO OCTOBER 1, 1970. ALL PLOTS ARE 8 HR LONG AND CAN BE READ WITH ABOUT 5-MIN TIME RESOLUTION. THERE ARE FOUR FRAMES FOR EVERY 8-HR TIME INTERVAL CONTAINING, RESPECTIVELY -- (1) THE SOUTH ENERGY DENSITY AND FLUXES, (2) THE NORTH ENERGY DENSITY AND FLUXES, (3) THE RADIAL ENERGY DENSITY AND FLUXES, AND (4) THE MAGNETIC FIELD COMPONENTS, MEASURED BY ONBOARD MAGNETOMETER ANTICOINCIDENCE CHANNEL DATA, AND E-FOLDING ENERGIES. SUNLIGHT CONTAMINATION OCCURS DURING PART OF EACH SPIN IN THE SOUTH ENERGY DENSITY, SOMETIMES IN THE SOUTH PROTON CHANNELS, AND IN ALL NORTH CHANNELS. THIS CONTAMINATION IS OBVIOUS ON THE PLOTS. FOR INFORMATION REGARDING THE MAGNETIC FIELD DETECTOR USED IN THIS EXPERIMENT CONSULT 'ATS-E MAGNETIC FIELD MONITOR INSTRUMENTATION,' BY T. L. SKILLMAN, REPORT NO. X-645-70-54, GSFC, GREENBELT, MD.

SPACECRAFT COMMON NAME- EPE-D

ALTERNATE NAMES- EXPLORER 26, S 3C
00963

NSSDC ID- 64-086A

LAUNCH DATE- 12/21/64 WEIGHT- 45.8 KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 05/26/67

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 12/21/64
ORBIT PERIOD- 456. MIN INCLINATION- 20.1 DEG
PERIAPSIS- 305.000 KM ALT APOAPSIS- 27192.0 KM ALT

EXPLORER 26 WAS A SPIN-STABILIZED, SOLAR-CELL-POWERED SPACECRAFT INSTRUMENTED TO MEASURE TRAPPED PARTICLES AND THE GEOMAGNETIC FIELD. A 16-CHANNEL PFM/PM TIME-DIVISION MULTIPLEXED TELEMETER WAS USED. THE TIME REQUIRED TO SAMPLE THE 16 CHANNELS (ONE FRAME PERIOD) WAS 0.29 SEC. HALF OF THE CHANNELS WERE USED TO CONVEY EIGHT-LEVEL DIGITAL INFORMATION. THE OTHER CHANNELS WERE USED FOR ANALOG INFORMATION. DURING GROUND PROCESSING, THE ANALOG INFORMATION WAS DIGITIZED WITH AN ACCURACY OF 1/800 OF FULL SCALE. ONE ANALOG CHANNEL WAS SUBCOMMUTATED IN A 16-FRAME-LONG PATTERN AND USED TO TELEMETER SPACECRAFT TEMPERATURES, POWER SYSTEM VOLTAGES, CURRENTS, ETC. A DIGITAL SOLAR ASPECT SENSOR MEASURED THE SPIN PERIOD AND PHASE. DIGITIZED TO 0.036 SEC, AND THE ANGLE BETWEEN THE SPIN AXIS AND SUN DIRECTION TO ABOUT 3-DEG INTERVALS. THE SPACECRAFT SYSTEMS FUNCTIONED WELL, EXCEPT FOR SOME UNDERVOLTAGE TURNOFFS, UNTIL MAY 26, 1967 WHEN THE TELEMETER FAILED. THE INITIAL SPIN RATE WAS 33 RPM, AND THE SPIN AXIS DIRECTION WAS RIGHT ASCENSION 272.8 DEG, AND THE DECLINATION 21.5 DEG. THE SPIN RATE DECREASED WITH TIME TO 2 RPM ON SEPTEMBER 9, 1965. FOR THE BALANCE OF ITS LIFE, THE SPACECRAFT WAS CONING OR TUMBLING AT A RATE OF ABOUT 1 RPM.

BROWN, EPE-D

EXPERIMENT NAME- SOLID-STATE ELECTRON DETECTOR

NSSDC ID- 64-086A-01

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 05/22/67

PI - W.L. BROWN ..... BELL TELEPHONE LAB
MURRAY HILL, NJ
OI - L.J. LANZEROTTI ..... BELL TELEPHONE LAB
MURRAY HILL, NJ
OI - L. MEDFORD ..... BELL TELEPHONE LAB
MURRAY HILL, NJ

TRAPPED ELECTRONS AND PROTONS IN THE EARTH'S VAN ALLEN BELTS WERE MEASURED USING A COMBINATION OF SIX OMNIDIRECTIONAL AND DIRECTIONAL SOLID-STATE PARTICLE DETECTORS (SILICON P-N JUNCTIONS). ELECTRONS WERE ANALYZED IN THE ENERGY RANGES E.GT. 1 MEV, E.GT. 3.5 MEV, AND E.GT. 2.5 MEV WITH THE THREE OMNIDIRECTIONAL DETECTORS (E1, E2, E3), AND IN THE RANGES E.GT. 0.3 MEV AND E.GT. 0.45 MEV WITH THE THREE DIRECTIONAL DETECTORS (E5, E6, E7). PROTONS WERE ANALYZED IN THE ENERGY RANGES E.GT. 10 MEV, E.GT. 27 MEV, AND E.GT. 21 MEV WITH THE OMNIDIRECTIONAL DETECTORS, AND IN THE RANGES E.GT. 1.7 MEV, E.GT. 2.2 MEV, AND E.GT. 16 MEV WITH THE DIRECTIONAL DETECTORS. SPECIES DISCRIMINATION WAS NOT ALWAYS POSSIBLE. OMNIDIRECTIONAL DATA WERE ACCUMULATED AND TELEMETERED EVERY 1.43 SEC. DIRECTIONAL DATA WERE ACCUMULATED FOR 0.145 SEC AND TELEMETERED EVERY 0.29 SEC. THE SPACECRAFT SPIN PERIOD INCREASED FROM 0.03 SEC TO 0.5 SEC DURING THE SPACECRAFT LIFE. PROTON DATA ARE PRIMARILY USEFUL IN IDENTIFYING PROTON CONTAMINATION OF ELECTRON COUNTING RATES. THE INSTRUMENT BEHAVED WELL THROUGHOUT THE SPACECRAFT LIFE.

DATA SET NAME- REDUCED ELECTRON DATA ON MAGNETIC TAPE
(THRESHOLDS 0.3 TO 3.5 MEV)

NSSDC ID- 64-086A-01A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/21/64 TO 05/15/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 68 REEL(S) OF MAGNETIC TAPE

THESE DATA ARE ON SIXTY-EIGHT 7-TRACK, IBM, BINARY TAPES GENERATED AT BELL TELEPHONE LABORATORIES FROM THE ORIGINAL DATA AT 800 BPI (BESYS FORMAT) IN A TIME-ORDERED SEQUENCE. THE DATA INCLUDE THE OUTPUT FROM COUNTERS E1, E2, E3, E5, E6, AND E7 IN A DIGITAL FORMAT, MAGNETIC COORDINATES (L, X), THE ANGLE BETWEEN THE DETECTOR AND (W X B) IN RADIANS (WHERE W IS FOR SPIN VECTOR), GEOGRAPHIC SATELLITE POSITION, SATELLITE SPIN RATE, UT, TEMPERATURE (PLUS OR MINUS 1 DEG C), AND VARIOUS CONTROL PARAMETERS. COUNTERS E1, E2, AND E3 WERE OMNIDIRECTIONAL, AND COUNTERS E5, E6, AND E7 WERE DIRECTIONAL. THE THRESHOLDS FOR COUNTING ELECTRONS FOR THE SIX COUNTERS WERE 1 MEV, 3.5 MEV, 2.5 MEV, 0.3 MEV, 0.45 MEV, AND 1.7 MEV, RESPECTIVELY. THESE DATA COMPRISE ALL USEFUL DATA FROM THIS EXPERIMENT.

DATA SET NAME- L-INTERPOLATED OUTER ZONE ELECTRON DATA
ON MAGNETIC TAPES

NSSDC ID- 64-086A-01D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/21/64 TO 05/15/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 6 REEL(S) OF MAGNETIC TAPE

THESE DATA CONSIST OF SIX 556-BPI, 7-TRACK, EVEN PARITY, BCD TAPES, ONE FOR EACH OF THE SIX DETECTORS OF EXPERIMENT 64-086A-01, GENERATED AT NSSDC FROM DATA SET 64-086A-01A. EACH TAPE CONTAINS L-INTERPOLATED ELECTRON COUNT RATES, MAGNETIC FIELD, TIME, AND POSITIONAL INFORMATION. DATA WERE INTERPOLATED TO L-VALUES FROM 3.5 TO 7.5 EARTH RADII IN INCREMENTS OF 0.5 EARTH RADII. THE DATA WERE SORTED ON L, AND ORDERED CHRONOLOGICALLY WITHIN EACH L-SET.

MCILWAIN, EPE-D

EXPERIMENT NAME- OMNIDIRECTIONAL AND UNIDIRECTIONAL
ELECTRON AND PROTON FLUXES

NSSDC ID- 64-086A-02

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 05/25/67

PI - C.E. MCILWAIN ..... U OF CALIF, SAN DIEG
SAN DIEGO, CA
OI - R.W. FILLIUS ..... U OF CALIF, SAN DIEG
SAN DIEGO, CA

OMNIDIRECTIONAL FLUXES OF 40- TO 110-MEV PROTONS AND OF ELECTRONS GREATER THAN ABOUT 4 MEV WERE SEPARABLY MEASURED BY A PLASTIC SCINTILLATOR. A SECOND PLASTIC SCINTILLATOR WITH AN 8-DEG HALF-ANGLE APERTURE AND A LOOK DIRECTION PERPENDICULAR TO THE SPACECRAFT SPIN AXIS SEPARABLY MEASURED PROTONS ABOVE 5.2 MEV AND ELECTRONS ABOVE 0.5 MEV. THE ABILITY TO DISTINGUISH BETWEEN THE ENERGY LEVELS WAS DUE TO THE PRESENCE OF TWO DISCRIMINATION LEVELS ASSOCIATED WITH EACH DETECTOR. HIGH QUALITY DATA TRANSMISSION FROM THIS EXPERIMENT WAS ESSENTIALLY CONTINUOUS FROM LAUNCH UNTIL ABOUT THE MIDDLE OF 1966, THEN INTERMITTENT UNTIL MAY 25, 1967, AFTER WHICH NO FURTHER DATA WERE OBTAINED.

DATA SET NAME- L-ORDERED COUNT RATES ON TAPE

NSSDC ID- 64-086A-02A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/21/64 TO 02/28/66
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MAGNETIC TAPE

THIS ANALYZED DATA SET CONSISTS OF TWO 7-TRACK, 556-BPI, BCD MAGNETIC TAPES ON WHICH THE DATA HAVE BEEN INTERPOLATED TO ABOUT 65 DISCRETE L VALUES BETWEEN 1.15 AND 7.00. THERE ARE 10 LOGICAL RECORDS OF 144 CHARACTERS EACH PER PHYSICAL RECORD. COUNT RATES FOR BOTH DISCRIMINATION LEVELS OF BOTH DETECTORS ARE PRESENTED. FOR EACH SET OF FOUR COUNTS, TIME (UT), COMPUTED MAGNETIC FIELD MAGNITUDE, AND SPACECRAFT POSITION (ALTITUDE, LATITUDE, LONGITUDE) AND ORIENTATION ARE GIVEN. THESE TAPES, ORDERED ON B AND L, WERE GENERATED BY THE EXPERIMENTER FROM HIS TIME-ORDERED TAPES.

DATA SET NAME- REDUCED COUNT RATES ON TAPE

NSSDC ID- 64-086A-02B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/21/64 TO 05/21/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 42 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF FORTY-TWO 7-TRACK, 556-BPI, CDC 3600, BINARY MAGNETIC TAPES. THERE ARE 10 LOGICAL RECORDS OF 96 CHARACTERS EACH PER PHYSICAL RECORD. TIME-ORDERED REDUCED COUNT RATES FOR BOTH DISCRIMINATION LEVELS OF BOTH DETECTORS, ALONG WITH NOISE FLAGS, SPACECRAFT EPHEMERIS INFORMATION (LATITUDE, LONGITUDE, ALTITUDE, COMPUTED B AND L), AND HOUSEKEEPING INFORMATION, ARE PRESENTED IN EACH LOGICAL RECORD. THE TAPES WERE GENERATED BY THE EXPERIMENTER.

SPACECRAFT COMMON NAME- GRS-A

ALTERNATE NAMES- PL-694D, AZUR, GERMAN RESEARCH SAT
GRS-A1, 04221

NSSDC ID- 69-097A

LAUNCH DATE- 11/08/69 WEIGHT- 70.7 KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 07/04/70

ORBIT PARAMETERS

ORBIT TYPE- GEOCENTRIC	EPOCH DATE- 01/19/70
ORBIT PERIOD- 121.8 MIN	INCLINATION- 102.976 DEG
PERIAPSIS- 385.000 KM ALT	APOAPSIS- 3139.00 KM ALT

THE MAGNETICALLY ALIGNED SPACECRAFT GRS-A, LAUNCHED INTO A NEAR-POLAR ORBIT IN NOVEMBER OF 1969, WAS A PRODUCT OF A JOINT EFFORT BY NASA-GSFC AND THE GERMAN BUNDESMINISTERIUM FUR WISSENSCHAFTLICHE FORSCHUNG (BMWF) AND HAD AS ITS PRIMARY PURPOSE THE ACQUISITION OF TERRESTRIAL RADIATION BELT DATA. SPECIFICALLY, THE SCIENTIFIC MISSION OF THE SPACECRAFT WAS AS FOLLOWS - 1) TO SCAN THE ENERGY SPECTRA OF INNER ZONE PROTONS AND ELECTRONS, 2) TO MEASURE THE FLUXES OF ELECTRONS OF ENERGY GREATER THAN 40 KEV THAT ARE PARALLEL, ANTIPARALLEL, AND

ORIGINAL PAGE IS
OF POOR QUALITY

PERPENDICULAR TO THE MAGNETIC LINES OF FORCE OVER THE AURORAL ZONE AND TO MEASURE ASSOCIATED OPTICAL EMISSION, AND 3) TO RECORD SOLAR PROTONS ON ALERT. AFTER ABOUT 24 HOURS IN ORBIT, A COMMAND SYSTEM INSTABILITY DEVELOPED AND PERSISTED INTERMITTENTLY THROUGHOUT THE FLIGHT. THE TAPE RECORDER FAILED ON DECEMBER 8, 1969. PRIOR TO THIS FAILURE, THE GERMAN PROJECT OFFICE ESTIMATED 85-90 PERCENT OF THE EXPECTED DATA HAD BEEN OBTAINED. ALL EXPERIMENTS WERE OPERATING NORMALLY UNTIL THE SPACECRAFT TELEMETRY SYSTEM MALFUNCTIONED IN EARLY JULY 1970.

HOVESTADT, GRS-A

EXPERIMENT NAME- PROTON-ALPHA TELESCOPE

NSSDC ID- 69-097A-02

STATUS OF OPERATION- INOPERABLE
DATE LAST DATA RECORDED- 06/28/70

PERSONNEL
PI - D.K. HOVESTADT ..... MPI
GARCHING, FED REP OF GERMANY

THIS EXPERIMENT CONSISTED OF TWO IDENTICAL PROTON-ALPHA PARTICLE TELESCOPES, ONE ORIENTED PERPENDICULAR AND ONE ORIENTED AT 45 DEG WITH RESPECT TO THE LOCAL MAGNETIC FIELD VECTOR. IN THE NORTHERN HEMISPHERE, THE 45 DEG TELESCOPE POINTED UPWARDS. THE TELESCOPES WERE TO DETECT PROTONS AND ALPHA PARTICLES IN THE EARTH'S TRAPPING REGION. THE EXPERIMENT WAS ALSO USED IN CONJUNCTION WITH 69-097A-04 (PROTON-ELECTRON DETECTORS) TO PROVIDE PITCH ANGLE DISTRIBUTIONS FOR PROTONS ABOVE 20 MEV. EACH TELESCOPE IS COMPOSED OF SEVEN FULLY DEPLETED SILICON SURFACE BARRIER DETECTORS (D1 THROUGH D7) SURROUNDED BY A PLASTIC ANTICOINCIDENCE SCINTILLATOR (D8) AND A HEAVY SHIELDING (PROTON THRESHOLD ENERGY OF 75 MEV). THE SEVEN ENERGY CHANNELS FOR WHICH DATA WERE OBTAINED ARE AS FOLLOWS -- PROTONS 1.5 TO 2.7, 2.7-5.2, 5.2-10.4, 10.4-22, 22-49, AND 49-104 MEV, AND ALPHA PARTICLES 6 TO 19 MEV. THE TELESCOPES HAD GEOMETRIC FACTORS OF ABOUT 0.0580 CM SQ STER. THE ACCEPTANCE CONE OF BOTH TELESCOPES WAS 31 DEG FULL ANGLE. THE EXPERIMENT PERFORMED NORMALLY THROUGHOUT THE MISSION.

DATA SET NAME- PROTON, ALPHA PARTICLE AND ELECTRON COUNT RATES ON MAGNETIC TAPE

NSSDC ID- 69-097A-02A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 11/16/69 TO 03/15/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 14 REEL(S) OF MAGNETIC TAPE

THIS DATA SET WAS SUPPLIED BY THE EXPERIMENTER AND CONSISTS OF A MASTER FILE OF PARTICLE COUNT RATE (COUNTS/9.875 SEC) DATA FROM EXPERIMENTS 69-097A-02 AND -04 WITH A PORTION OF THE DATA FROM 69-097A-03 (CORRESPONDING TO LOW INVARIANT LATITUDES). THE DATA ARE IN CHRONOLOGICAL ORDER ON 9-TRACK MAGNETIC TAPE WRITTEN AT 800 BPI WITH TWO FILES PER TAPE. EACH TAPE BEGINS WITH A TAPE IDENTIFICATION RECORD CONTAINING 81 WORDS FOLLOWED BY AN END-OF-FILE MARK. THE TAPE IDENTIFICATION RECORD IS FOLLOWED BY A VARIABLE NUMBER OF PHYSICAL RECORDS. EACH PASS OR ORBIT REVOLUTION OF THE SATELLITE IS NOTED IN THE PASS HEADER PHYSICAL RECORD WHICH IS FOLLOWED BY THE NORMAL DATA PHYSICAL RECORDS. EACH OF THESE RECORDS, PASS AS WELL AS DATA RECORD, CONTAINS 81 WORDS. IN ADDITION TO THE PASS NUMBER, THE PASS HEADER RECORD CONTAINS THE TIME (YEAR, DAY, SECOND OF THE BEGINNING AND CLOSE OF THE PASS), STATION NAME, AND MAGNETIC ACTIVITY INDEX (KP). EACH DATA RECORD CONTAINS THE TIME (UT, YEAR, DAY, MILLISECONDS), LOCAL TIME, MAGNETIC LOCAL TIME, ORBIT NUMBER, GEOGRAPHIC LATITUDE, LONGITUDE, ALTITUDE, RIGHT ASCENSION, DECLINATION, MAGNETIC LATITUDE, LONGITUDE, B, L, INVARIANT LATITUDE, RE (EARTH RADII), ANGLE BETWEEN THE SATELLITE AXIS AND MAGNETIC FIELD, AZIMUTH WITH RESPECT TO MAGNETIC FIELD, ASPECT SOLAR ANGLE, AZIMUTH WITH RESPECT TO THE SUN, THE THREE SPACECRAFT SPIN AXIS COMPONENTS, 3 LOCAL MAGNETIC FIELD (X, Y, Z) COMPONENTS AND VARIOUS HOUSEKEEPING PARAMETERS, AS WELL AS THE PROTON, ELECTRON, AND ALPHA PARTICLE COUNT RATES FROM THE THREE EXPERIMENTS.

HOVESTADT, GRS-A

EXPERIMENT NAME- PROTON-ELECTRON DETECTOR

NSSDC ID- 69-097A-04

STATUS OF OPERATION- INOPERABLE
DATE LAST DATA RECORDED- 06/28/70

PERSONNEL
PI - D.K. HOVESTADT ..... MPI
GARCHING, FED REP OF GERMANY

THIS EXPERIMENT CONSISTED OF TWO OMNIDIRECTIONAL PROTON/ELECTRON DETECTORS COMPOSED OF CUBICAL LITHIUM-DRIFTED SILICON ELEMENTS, HEAVILY SHIELDED ON ONE SIDE AND COVERED BY A HEMISPHERICAL SHEILD OVER A 2-PI STER SOLID ANGLE ON THE OTHER SIDE. THE DETECTORS WERE USED TO MEASURE TRAPPED AND SOLAR PROTONS AND ELECTRONS, AND THE EXPERIMENT WAS ALSO USED IN CONJUNCTION WITH 69-097A-02 (PROTON/ALPHA PARTICLE TELESCOPES) TO PROVIDE PITCH ANGLE DISTRIBUTIONS FOR PROTONS ABOVE 20 MEV. ONE OF THE DETECTORS WAS SENSITIVE TO ELECTRONS WITH E .GT. 1.5 MEV AND PROTONS WITH E .GT. 20 MEV IN ONE ELECTRICAL THRESHOLD MODE AND SENSITIVE ONLY TO PROTONS FROM 20 TO 45 MEV IN THE OTHER MODE. SIMILARLY, THE OTHER DETECTOR WAS SENSITIVE TO ELECTRONS WITH E .GT. 4 MEV AND PROTONS WITH E .GT. 40 MEV IN ONE ELECTRICAL THRESHOLD MODE AND SENSITIVE ONLY TO PROTONS FROM 40 TO 72 MEV IN THE OTHER MODE. THE EXPERIMENT PERFORMED NORMALLY THROUGHOUT THE MISSION.

DATA SET NAME- PROTON AND ELECTRON COUNT RATES ON MAGNETIC TAPE

NSSDC ID- 69-097A-04A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 11/16/69 TO 03/15/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 14 REEL(S) OF MAGNETIC TAPE

THIS DATA SET WAS SUPPLIED BY THE EXPERIMENTER AND CONSISTS OF A MASTER FILE OF PARTICLE COUNT RATE (COUNTS/9.875 SEC) DATA FROM EXPERIMENTS 69-097A-02 AND -04 WITH A PORTION OF THE DATA FROM 69-097A-03 (CORRESPONDING TO LOW INVARIANT LATITUDES). THE DATA ARE IN CHRONOLOGICAL ORDER ON 9-TRACK MAGNETIC TAPE WRITTEN AT 800 BPI WITH TWO FILES PER TAPE. EACH TAPE BEGINS WITH A TAPE IDENTIFICATION RECORD CONTAINING 81 WORDS FOLLOWED BY AN END-OF-FILE MARK. THE TAPE IDENTIFICATION RECORD IS FOLLOWED BY A VARIABLE NUMBER OF PHYSICAL RECORDS. EACH PASS OR ORBIT REVOLUTION OF THE SATELLITE IS NOTED IN THE PASS HEADER PHYSICAL RECORD WHICH IS FOLLOWED BY THE NORMAL DATA PHYSICAL RECORDS. EACH OF THESE RECORDS, PASS AS WELL AS DATA RECORDS, CONTAINS 81 WORDS. IN ADDITION TO THE PASS NUMBER, THE PASS HEADER RECORD CONTAINS THE TIME (YEAR, DAY, SECOND OF THE BEGINNING AND CLOSE OF THE PASS), STATION NAME, AND MAGNETIC ACTIVITY INDEX (KP). EACH DATA RECORD CONTAINS THE TIME (UT, YEAR, DAY, MILLISECONDS), LOCAL TIME, MAGNETIC LOCAL TIME, ORBIT NUMBER, GEOGRAPHIC LATITUDE, LONGITUDE, ALTITUDE, RIGHT ASCENSION, DECLINATION, MAGNETIC LATITUDE, LONGITUDE, B, L, INVARIANT LATITUDE, RE (EARTH RADII), ANGLE BETWEEN THE SATELLITE AXIS AND MAGNETIC FIELD, AZIMUTH WITH RESPECT TO MAGNETIC FIELD, ASPECT SOLAR ANGLE, AZIMUTH WITH RESPECT TO THE SUN, THE THREE SPACECRAFT SPIN AXIS COMPONENTS, THREE LOCAL MAGNETIC FIELD (X, Y, Z) COMPONENTS AND VARIOUS HOUSEKEEPING PARAMETERS, AS WELL AS THE PROTON, ELECTRON, AND ALPHA PARTICLE COUNT RATES FROM THE THREE EXPERIMENTS.

MORITZ, GRS-A

EXPERIMENT NAME- PROTON TELESCOPE

NSSDC ID- 69-097A-03

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 07/04/70

PERSONNEL
PI - J. MORITZ ..... U OF KIEL
KIEL, FED REP OF GERMANY

TWO SOLID-STATE DEVICES WERE USED IN CONJUNCTION WITH FOUR PULSE HEIGHT DISCRIMINATORS TO DETECT TRAPPED AND SOLAR PROTONS USING COINCIDENCE TECHNIQUES. THE DETECTOR HAD SIX ENERGY CHANNELS - PROTONS FROM 0.25 TO 1.65, 0.25 TO 12.5, 0.5 TO 1.65, 1.0 TO 1.65, AND 1.65 TO 13.5 MEV, AND ALPHA PARTICLES FROM 2.0 TO 6.4 MEV. ELECTRONS WERE ELIMINATED FROM THE INCIDENT BEAM BY USING A BROOM MAGNET. THE ACCEPTANCE CONE WAS 20.4 DEG FULL ANGLE. THE EXPERIMENT WORKED NORMALLY UNTIL

THE SPACECRAFT TELEMETRY SYSTEM MALFUNCTIONED IN EARLY JULY 1970.

DATA SET NAME- PROTON AND ALPHA PARTICLE COUNT RATES ORDERED BY INVARIANT LATITUDE ON TAPE

NSSDC ID- 69-097A-03A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 11/10/69 TO 06/28/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF SEPARATE PROTON AND ALPHA PARTICLE COUNT RATES (COUNTS PER 9.875-SEC INTERVAL) ON 7-TRACK, BINARY, ODD PARITY, 800-BPI, CDC 3400 FORMATTED MAGNETIC TAPES. THE DATA ARE ORDERED BY INVARIANT LATITUDE INTERVALS OF A FEW DEGREES EACH, AND THE DATA WITHIN A GIVEN INTERVAL ARE CHRONOLOGICALLY ORDERED. EACH TAPE HAS A VARIABLE NUMBER OF PHYSICAL RECORDS. EACH PHYSICAL RECORD CONTAINS 79 LOGICAL RECORDS, WITH EVERY 79TH LOGICAL RECORD CONTAINING BOOKKEEPING INFORMATION. EACH OF THE OTHER 78 DATA LOGICAL RECORDS CONTAINS SIX CDC 3400 COMPUTER WORDS (ONE DATA SAMPLE) GIVING THE INVARIANT LATITUDE, TIME (UT IN DAYS SINCE YEAR OF LAUNCH AND FRACTIONS OF A DAY), MAGNETIC FIELD STRENGTH (GSFC 12/66), MAGNETIC LOCAL TIME, THE HEMISPHERE (NORTH OR SOUTH) IN WHICH THE DATA WERE OBTAINED, AND THE COUNT RATES. EACH TAPE HAS AN END-OF-FILE MARK AT THE END OF THE TAPE.

DATA SET NAME- SELECTION OF VARIOUS PLOTS FOR PROTONS AND FOR ALPHA PARTICLES ON MICROFILM

NSSDC ID- 69-097A-03B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 11/09/69 TO 06/28/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONTAINS FOUR SETS OF PLOTS SUPPLIED BY THE EXPERIMENTER ON MICROFILM -- (1) PROTON (AND ALPHA PARTICLE SEPARATELY) COUNT RATE VS TIME IN THE INVARIANT LATITUDE INTERVALS 70 TO 74 DEG AND 75 TO 87 DEG, (2) PROTON FLUX VS TIME (SAME LATITUDE INTERVALS AS ABOVE BUT FOR DIFFERENT ENERGY CHANNELS), (3) PROTON FLUX VS TIME AT SEVERAL B, L POINTS, AND (4) SPACECRAFT ORBIT PASSES ACROSS THE NORTH POLE REGION. ALTHOUGH THE PLOTS OF COUNT RATE AND PARTICLE FLUX AS A FUNCTION OF INVARIANT LATITUDE ONLY COVER THE RANGE 70 TO 87 DEG, SIMILAR PLOTS FOR OTHER INVARIANT LATITUDES INTERVALS MAY BE GENERATED FROM THE MAGNETIC TAPE DATA SET 69-097A-03A. THE PARTICLE ENERGY CHANNELS ARE AS FOLLOWS -- PROTONS - 0.25 TO 0.50, 0.50 TO 1.00, 1.00 TO 1.65, AND 1.65 TO 13.5 MEV AND ALPHA PARTICLES - 2.00 TO 6.40 MEV. THE SIGMA KP INDEX IS GIVEN AT THE TOP OF EACH PAGE OF SECTIONS (1), (2), AND (3). THE DATA SET COVERS THE ENTIRE TIME INTERVAL FOR WHICH THE SPACECRAFT WAS OPERATIONAL, AND MOST OF THE PLOTS IN SECTIONS (1), (2), AND (3) EACH COVER THAT OPERATIONAL PERIOD ALTHOUGH SOME PLOTS COVER A 15-DAY INTERVAL.

DATA SET NAME- TABLE OF PROTON AND ALPHA PARTICLE COUNT RATES AND FLUXES ON MICROFILM

NSSDC ID- 69-097A-03C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 11/08/69 TO 06/30/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET, WHICH WAS SUBMITTED BY THE EXPERIMENTER, CONSISTS OF LISTINGS OF (1) PROTON AND ALPHA PARTICLE COUNT RATES SEPARATELY (PROTONS 1.65 TO 13.5 MEV, 0.25 TO 12.5 MEV, 0.25 TO 1.65 MEV, 0.50 TO 1.65 MEV, AND 1.0 TO 1.65 MEV, AND ALPHA PARTICLES 2.0 TO 6.4 MEV) AND (2) PROTON FLUXES (PARTICLES/CM SQ-SEC-STER FROM 0.25 TO 12.5 MEV, 0.50 TO 1.65 MEV, 1.0 TO 1.65 MEV, AND 1.65 TO 13.5 MEV) FOR THE INVARIANT LATITUDE INTERVALS 55 PLUS OR MINUS 0.5 DEG AND 75 PLUS OR MINUS 0.5 DEG ON 35-MM MICROFILM. THE DATA WITHIN EACH OF THESE INTERVALS ARE TIME ORDERED, AND FOR EACH COUNT RATE (COUNTS/9.875 SEC) AND FLUX ARE GIVEN THE INVARIANT LATITUDE LAMBDA, UNIVERSAL TIME (DAY, HOUR, MINUTE, AND SECOND), MAGNETIC LATITUDE (DEG), GEOGRAPHIC LATITUDE (DEG), B AND L (GSFC 12/66), PITCH ANGLE ALPHA, B/B0, RADIAL DISTANCE (MEASURED FROM THE CENTER OF THE EARTH'S DIPOLE IN KM), LATITUDE OF THE SATELLITE IN DIPOLE COORDINATES, AND AN INDICATOR TO SHOW IN WHICH HEMISPHERE THE OBSERVATION WAS MADE (N-NORTH, S-SOUTH). A MINUS SIGN TO THE LEFT OF THE HEMISPHERE INDICATOR FOR L GREATER THAN 2 MEANS THAT THE DATA ARE QUESTIONABLE. THE DATA SET IS BASED ON ALL OF THE ACCEPTABLE REAL-TIME OBSERVATIONS MADE IN THESE TWO INVARIANT LATITUDE INTERVALS FOR THE ENTIRE MISSION OF GRS-A. A CDC COMPUTER PROGRAM LISTING IS ALSO INCLUDED AT THE BEGINNING OF THE MICROFILM AND MAY BE USED WITH THE CDC COMPUTER TAPES OF DATA SET 69-097A-03A TO GENERATE SIMILAR LISTINGS FOR OTHER INVARIANT LATITUDE INTERVALS.

DATA SET NAME- PLOTS OF PROTON AND ALPHA PARTICLE COUNT RATES AND FLUXES ON MICROFILM

NSSDC ID- 69-097A-03D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 11/08/69 TO 06/28/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF 12-HR-AVERAGED PROTON AND ALPHA PARTICLE COUNT RATES (COUNTS/10 SEC) AND FLUXES VS. TIME ON 16 MM MICROFILM. THE PLOTS ARE ORDERED BY INVARIANT LATITUDE, AND EACH PLOT INCLUDES A FOUR-DEG INCREMENT IN INVARIANT LATITUDE FOR ONE ENERGY CHANNEL. THE DATA SET COVERS INVARIANT LATITUDES FROM -25 DEG TO -89 DEG AND +25 DEG TO +89 DEG, AND WAS GENERATED AT NSSDC USING THE MAGNETIC TAPE DATA SET 69-097A-03A. THERE ARE FIVE ENERGY CHANNELS FOR EACH FOUR-DEG INTERVAL OF INVARIANT LATITUDE -- FOR PROTONS, 0.25 TO 0.50 MEV, 0.50 TO 1.00 MEV, 1.00 TO 1.65 MEV AND 1.65 TO 13.5 MEV, AND FOR ALPHA PARTICLES, 2.00 TO 6.40 MEV. DOTTED LINES ARE USED IN THE TRACES TO INDICATE GAPS IN THE DATA COVERAGE. EACH PLOT IN THE DATA SET COVERS THE ENTIRE PERIOD FOR WHICH THE SPACECRAFT WAS OPERATIONAL.

SPACECRAFT COMMON NAME- HEOS 1

ALTERNATE NAMES- HEOS-A1, HEOS-A
03595

NSSDC ID- 68-109A

LAUNCH DATE- 12/05/68 WEIGHT- 105. KG

STATUS OF OPERATION- PARTIAL
DATE LAST DATA RECORDED- 06/00/73

ORBIT PARAMETERS

ORBIT TYPE- GEOCENTRIC	EPOCH DATE- 12/24/69
ORBIT PERIOD- 6690. MIN	INCLINATION- 28.1 DEG
PERIAPSIS- 6804. KM ALT	APOAPSIS- 227099. KM ALT

HEOS 1 WAS AN EARTH ORBITING, SPIN-STABILIZED SATELLITE THAT WAS LAUNCHED BY ESRO. IT WAS BASICALLY CYLINDRICAL WITH AN AXIAL BOOM SUPPORTING THE ANTENNA AND THE MAGNETOMETERS. THE SPIN AXIS ATTITUDE AND SPIN RATE WERE CHANGED BY ONBOARD GAS JETS. THE SPACECRAFT OBJECTIVES WERE TO STUDY THE INTERPLANETARY MAGNETIC FIELDS, COSMIC RAYS, SOLAR WIND, AND THE MAGNETOSHEATH. THE SPACECRAFT OPERATION WAS FULLY SATISFACTORY FOR 16 MONTHS, AFTER WHICH INTERMITTENT LOSS OF SOME SOLAR GATE (ATTITUDE REFERENCE) PULSES OCCURRED. BY 1974, SPACECRAFT TELEMETRY COVERAGE WAS 50 PERCENT, AND ONLY THE MAGNETIC FIELD EXPERIMENT WAS OPERATIONAL. THE SPACECRAFT IS EXPECTED TO REENTER THE EARTH'S ATMOSPHERE IN OCTOBER 1975.

BAROUCH, HEOS 1

EXPERIMENT NAME- COSMIC-RAY PARTICLE FLUX

NSSDC ID- 68-109A-06

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 05/00/72

PERSONNEL

PI - E.	BAROUCH	CENS GIF-SUR-YVETTE, FRANCE
OI - L.	KOCH	CENS GIF-SUR-YVETTE, FRANCE

ORIGINAL PAGE IS
OF POOR QUALITY

OI - J. ENGELMANN ..... CENS
GIF-SUR-YVETTE, FRANCE
OI - P. MASSE ..... CENS
GIF-SUR-YVETTE, FRANCE
OI - M. GROS ..... CENS
GIF-SUR-YVETTE, FRANCE

THIS EXPERIMENT WAS DESIGNED TO MEASURE SOLAR AND GALACTIC PROTONS IN SEVERAL ENERGY WINDOWS BETWEEN 3.8 AND 22.8 MEV. THE INSTRUMENT CONSISTED OF A FOUR-SENSOR (LITHIUM-DRIFTED SILICON) SOLID-STATE TELESCOPE WITH AN ANTI-COINCIDENCE SHIELD. THE TELESCOPE LOOK DIRECTION WAS ALONG THE SPACECRAFT SPIN AXIS (WHICH WAS ITSELF CHANGED BY COMMAND AT VARIOUS TIMES). A COMPLETE DATA COLLECTION CYCLE REQUIRED 128 SEC. FIVE PULSE-HEIGHT DISCRIMINATION LEVELS WERE APPLIED TO THE SIGNAL COMING OFF THE FIRST SENSOR (ONE LEVEL FOR EACH OF FIVE SUCCESSIVE 24-SEC INTERVALS). DURING EACH 24-SEC INTERVAL, FOUR COUNT RATES WERE OBTAINED. THESE WERE COUNTS IN SENSOR 1, AND COINCIDENT COUNTS IN SENSORS 1 AND 2, 1 AND 3, AND 1 AND 4. THE LAST COUNT RATE IS NOT RELIABLE, AS THE COUNTER ROLLED OVER AFTER 16 COUNTS. THE INSTRUMENT PERFORMED NORMALLY UNTIL JUNE 1971, WHEN THE ANTICOINCIDENCE ELEMENT FAILED. THE INSTRUMENT CONTINUED IN THIS MODE OF OPERATION UNTIL JUNE 1973, AFTER WHICH NO USEFUL DATA WERE OBTAINED.

DATA SET NAME- PLOTS OF PROTON HOURLY AVERAGED DIFFERENTIAL PARTICLE FLUX ON HARDCOPY

NSSDC ID- 68-109A-06A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 01/01/69 TO 11/06/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 3 PAGE(S) OF UNBOUND HARDCOPY

THIS DATA SET WAS SUBMITTED BY THE EXPERIMENTER AND CONSISTS OF PLOTS OF HOURLY AVERAGED, DIFFERENTIAL PARTICLE FLUX (PARTICLES/CM SQ SEC STER) VS TIME ON THREE SHEETS OF HARDCOPY. FLUXES ARE GIVEN FOR ENERGY CHANNELS 5, 9, 13, 17, AND 14, WHICH CORRESPOND TO PROTON ENERGIES OF 3.8 TO 4.9 MEV, 4.3 TO 5.2 MEV, 5.2 TO 7.1 MEV, 7.1 TO 23 MEV, AND 23 TO 68 MEV, RESPECTIVELY. EACH SHEET COVERS A ONE YEAR PERIOD, AND THE DATA SET COVERS THE PERIOD FROM JANUARY 1969 THROUGH NOVEMBER 6, 1971.

DATA SET NAME- PROTON COUNTS ON MAGNETIC TAPE

NSSDC ID- 68-109A-06B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 01/01/69 TO 12/24/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF A 2-FILE, 9-TRACK, 1600-BPI IBM/360 BINARY MAGNETIC TAPE SUBMITTED BY THE EXPERIMENTER. DATA FOR 1969 AND 1970 ARE ON THE FIRST FILE AND DATA FOR 1971 AND 1972 ARE ON THE SECOND. EACH PHYSICAL RECORD CONTAINS A CONTROL WORD AND FOUR LOGICAL RECORDS. EACH LOGICAL RECORD OF 6020 BYTES CONTAINS A CONTROL WORD, A WINDOW IDENTIFIER AND START TIME FOR SUBSEQUENT DATA, AND 3000 SUCCESSIVE COUNT RATES (COUNTS PER 24-SEC ACCUMULATION PERIOD) FOR THE INDICATED WINDOW (DEFINED IN TERMS OF ENERGY LOSS IN FIRST SENSOR AND COINCIDENCE REQUIREMENT). THUS EACH LOGICAL RECORD CONTAINS DATA FOR ABOUT 4.4 DAYS, AND 20 SUCCESSIVE LOGICAL RECORDS CONTAIN ALL THE EXPERIMENT DATA FOR 4.4 DAYS. NO SPACECRAFT EPHEMERIS OR ORIENTATION INFORMATION IS ON THE TAPE.

SPACECRAFT COMMON NAME- IMP-C

ALTERNATE NAMES- EXPLORER 28, IMP 3
S 748, 01388

NSSDC ID- 65-042A

LAUNCH DATE- 05/29/65 WEIGHT- 128. KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 05/12/67

ORBIT TYPE- GEOCENTRIC EPOCH DATE- 05/29/65
ORBIT PERIOD- 8550. MIN INCLINATION- 34.0 DEG
PERIAPSIS- 200,000 KM ALT APOAPSIS- 264000. KM ALT

EXPLORER 28 (IMP 3) WAS A SOLAR-CELL AND CHEMICAL-BATTERY POWERED SPACECRAFT INSTRUMENTED FOR INTERPLANETARY AND DISTANT MAGNETOSPHERIC STUDIES OF ENERGETIC PARTICLES, COSMIC RAYS, MAGNETIC FIELDS, AND PLASMAS. INITIAL SPACECRAFT PARAMETERS INCLUDED A LOCAL TIME OF APOGEE OF 2020 HR, A SPIN RATE OF 23.7 RPM, AND A SPIN DIRECTION OF 64.9 DEG RIGHT ASCENSION AND -10.9 DEG DECLINATION. EACH NORMAL PFM TELEMETRY SEQUENCE 81.9 SEC IN DURATION CONSISTED OF 795 DATA BITS. AFTER EVERY THIRD NORMAL TELEMETRY SEQUENCE WAS AN 81.9-SEC INTERVAL OF RUBIDIUM VAPOR MAGNETOMETER ANALOG DATA TRANSMISSION. PERFORMANCE WAS ESSENTIALLY NORMAL UNTIL LATE APRIL 1967. THEN INTERMITTENT UNTIL MAY 12, 1967, AFTER WHICH NO FURTHER DATA WERE ACQUIRED.

DATA SET NAME- MULTICOORDINATE SYSTEM EPHEMERIS DATA ON TAPE

NSSDC ID- 65-042A-00G

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 05/29/65 TO 05/11/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 4 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF BLOCKED, 7-TRACK, 800-BPI, IBM 7094 BINARY MAGNETIC TAPES GENERATED AT NSSDC FROM UNBLOCKED TAPES SUBMITTED BY N. F. NESS. THERE ARE FIVE LOGICAL RECORDS PER PHYSICAL RECORD. THE TAPES CONTAIN THE FOLLOWING INFORMATION AT 5-MIN INTERVALS - (1) GEODETIC AND GEOMAGNETIC LATITUDE AND LONGITUDE AND RADIAL DISTANCE OF THE SPACECRAFT, (2) CARTESIAN REPRESENTATIONS OF THE SPACECRAFT POSITION IN SOLAR ECLIPTIC AND SOLAR MAGNETOSPHERIC COORDINATES, (3) GEOMAGNETIC LATITUDE AND LONGITUDE OF THE SUBSOLAR POINT, (4) THE ANGLE BETWEEN THE SPACECRAFT SPIN AXIS AND THE SATELLITE-SUN LINE, AND (5) MODEL MAGNETIC FIELD INFORMATION. THE COVERAGE IS GREATER THAN 80 PERCENT. A SEPARATE DATA SET (65-042A-00H) WITH ONE SET OF EPHEMERIS PARAMETERS PER HR IS AVAILABLE ON AN NSSDC-GENERATED TAPE.

ANDERSON, IMP-C

EXPERIMENT NAME- ION CHAMBER AND GM COUNTERS

NSSDC ID- 65-042A-05

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 05/11/67

PERSONNEL
PI - K.A. ANDERSON ..... U OF CALIF, BERKELEY
BERKELEY, CA
OI - G.H. PITT ..... U OF CALIF, BERKELEY
BERKELEY, CA

THIS EXPERIMENT, DESIGNED TO MEASURE FLUXES OF GEOMAGNETICALLY TRAPPED PARTICLES, CONSISTED OF A 7.6-CM-DIAMETER NEHER-TYPE IONIZATION CHAMBER AND TWO ANTON 223 GEIGER-MUELLER TUBES. THE ION CHAMBER RESPONDED TO ELECTRONS AND PROTONS WITH ENERGIES GREATER THAN 1 AND 17 MEV, RESPECTIVELY. BOTH GM TUBES WERE MOUNTED PARALLEL TO THE SPACECRAFT SPIN AXIS. GM TUBE A DETECTED ELECTRONS GREATER THAN 45 KEV SCATTERED OFF A GOLD FOIL. THE ACCEPTANCE CONE FOR THESE ELECTRONS HAD A FULL ANGLE OF 61 DEG, AND ITS SPIN AXIS OF SYMMETRY MADE AN ANGLE OF 59.5 DEG WITH THE SPACECRAFT SPIN AXIS. GM TUBE A RESPONDED OMNIDIRECTIONALLY TO ELECTRONS AND PROTONS WITH ENERGIES GREATER THAN 6 AND 52 MEV, RESPECTIVELY. GM TUBE B LOOKED DIRECTLY INTO SPACE THROUGH A HOLE IN THE SPACECRAFT SKIN. THE ACCEPTANCE CONE FOR GM TUBE B HAD A FULL ANGLE OF 38 DEG, AND ITS AXIS OF SYMMETRY WAS PARALLEL TO THE SPACECRAFT SPIN AXIS. OMNIDIRECTIONALLY, GM TUBE B RESPONDED TO ELECTRONS AND PROTONS WITH ENERGIES GREATER THAN 6 AND 52 MEV, RESPECTIVELY. DIRECTIONALLY, GM TUBE B RESPONDED TO ELECTRONS AND PROTONS WITH ENERGIES GREATER THAN 40 AND 500 KEV, RESPECTIVELY. PULSES FROM THE ION CHAMBER WERE ACCUMULATED FOR 326.08 SEC AND READ OUT ONCE EVERY 327.68 SEC. COUNTS FROM GM TUBE A WERE ACCUMULATED FOR 39.36 SEC AND READ OUT SIX TIMES EVERY 327.68 SEC. COUNTS FROM GM TUBE B WERE ACCUMULATED FOR 39.36 SEC AND READ OUT FIVE TIMES EVERY 327.68 SEC. THIS EXPERIMENT PERFORMED NORMALLY FROM LAUNCH THROUGH MAY 11, 1967. THE DATE OF THE LAST USEFUL DATA TRANSMISSION.

DATA SET NAME- PLOTS OF COUNT RATES AND PULSE RATES VS TIME ON MICROFILM

NSSDC ID- 65-042A-05B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 05/29/65 TO 01/01/66
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF ONE REEL OF 35-MM MICROFILM THAT WAS GENERATED AT NSSDC FROM PLOTS SUBMITTED BY THE EXPERIMENTER. PRESENTED ARE THE PULSE RATE OF THE ION CHAMBER TIMES 100 AND THE COUNT RATES OF GM TUBES A AND B TIMES 1 AND 10, RESPECTIVELY. THESE RATES ARE PLOTTED ON A LOGARITHMIC SCALE VS TIME. THE DAY OF THE YEAR IS GIVEN ON EACH FRAME. THE DATA ARE TIME ORDERED AND CONTAIN NO EPHEMERIS INFORMATION. THE DATA COVER APPROXIMATELY 70 PERCENT OF THE PERIOD FROM MAY 29, 1965, TO JANUARY 1, 1966.

DATA SET NAME- ION CHAMBER AND GEIGER TUBE ACCUMULATIONS ORDERED BY DAY OF YEAR ON MAGNETIC TAPE

NSSDC ID- 65-042A-05C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 05/29/65 TO 01/03/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 6 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF 7-TRACK, BCD, 800-BPI MAGNETIC TAPES THAT WERE GENERATED AT NSSDC FROM EXPERIMENTER-SUPPLIED DATA SET 65-042A-05A. EACH TAPE HAS ONE FILE WITH A VARIABLE NUMBER OF 1028-CHARACTER PHYSICAL RECORDS, EACH CONSISTING OF EIGHTEEN 56-CHARACTER LOGICAL RECORDS. EACH LOGICAL RECORD CONTAINS THE TIME (UT DAY, HOUR, MINUTE, AND MSEC), ONE ACCUMULATION EACH FROM THE ION CHAMBER AND GM TUBE B, TWO ACCUMULATIONS FROM GM TUBE A, THE AZIMUTHAL ANGLE (SUN, SPACECRAFT, OPTICAL SENSOR ANGLE), THE POLAR SOLAR ANGLES (SPIN AXIS, SPACECRAFT, SUN ANGLE), THE SATELLITE SPIN PERIOD, AND A NUMBER OF PROCESSING ERROR FLAGS. THE DATA ARE ORDERED BY DAY OF YEAR. HOWEVER, ALTHOUGH THE YEAR NUMBER APPEARS IN THE FORMAT, THE DATA ARE NOT ORDERED BY YEAR. THE DATA COVER APPROXIMATELY 80 PERCENT OF THE PERIOD FROM MAY 29, 1965 TO JANUARY 3, 1967. THIS DATA SET DIFFERS FROM 65-042A-05A IN FORMAT AND IN ORDERING, AND CERTAIN NONSCIENTIFIC FIELDS HAVE BEEN DELETED.

SERBU, IMP-C

EXPERIMENT NAME- RETARDING POTENTIAL ANALYZER

NSSDC ID- 65-042A-01

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 05/12/67

PERSONNEL
PI - G.P. SERBU ..... NASA-GSFC
GREENBELT, MD

THE RETARDING POTENTIAL ANALYZER WAS A FOUR-ELEMENT FARADAY CUP. IT WAS MOUNTED NORMAL TO THE SPACECRAFT SPIN AXIS AND HAD AN EFFECTIVE LOOK ANGLE OF 5 STER. THE EXPERIMENT OPERATED FOR 5.2 SEC IN EACH OF SIX MODES ONCE EVERY 648 SEC. IN TWO MODES, 15-STEP SPECTRA FOR IONS WERE DETERMINED FOR RETARDING POTENTIALS IN THE RANGES -5 V TO +5 V AND -5 V TO +45 V. IN TWO OTHER MODES, SIMILAR INFORMATION FOR ELECTRONS WAS OBTAINED BY CHANGING THE SIGNS OF THE POTENTIALS. THE REMAINING TWO MODES WERE NET CURRENT MODES WITH ZERO POTENTIAL APPLIED TO ALL ELEMENTS FOR 15 MEASUREMENTS. THE INSTRUMENT EXPERIENCED SECONDARY ELECTRON CONTAMINATION, BUT OPERATED WITHOUT DEGRADATION DURING THE SPACECRAFT LIFETIME (I.E., UNTIL MAY 12, 1967).

DATA SET NAME- ANALYZED ELECTRON TEMPERATURE AND DENSITY VALUES ON MAGNETIC TAPE

NSSDC ID- 65-042A-01A

AVAILABILITY OF DATA SET- DATA AT NSSDC PROCESSING DEFERRED

TIME PERIOD COVERED- 05/29/65 TO 05/05/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THESE ANALYZED DATA, GENERATED BY THE EXPERIMENTER, ARE ON ONE IBM 7094, 7-TRACK, 800-BPI, EVEN PARITY, BCD MAGNETIC TAPE WITH EIGHTEEN 155-CHARACTER LOGICAL RECORDS PER PHYSICAL RECORD. THOSE DATA TAKEN AT RADIAL DISTANCES FROM THE EARTH OF LESS THAN 5 EARTH RADII ARE THE MOST USEFUL. THE TIME-ORDERED TAPE CONTAINS A MEASURE OF THE ELECTRON DENSITY, TEMPERATURES FOR A TWO-ENERGY COMPONENT MAXWELLIAN FIT TO THE DATA, AND A MEASURE OF THE SPACECRAFT POTENTIAL. EPHEMERIS DATA ARE ALSO INCLUDED.

SIMPSON, IMP-C

EXPERIMENT NAME- COSMIC-RAY RANGE VS ENERGY LOSS

NSSDC ID- 65-042A-03

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 04/29/67

PERSONNEL
PI - J.A. SIMPSON ..... U OF CHICAGO
CHICAGO, IL
OI - C.Y. FAN ..... U OF ARIZONA
TUCSON, AZ
OI - G. GLOECKLER ..... U OF MARYLAND
COLLEGE PARK, MD

A CHARGED PARTICLE SOLID STATE TELESCOPE WAS USED TO MEASURE RANGE AND ENERGY LOSS OF GALACTIC AND SOLAR COSMIC RAYS. THE EXPERIMENT WAS DESIGNED TO STUDY PARTICLE ENERGIES (ENERGY PER NUCLEON INTERVALS APPROXIMATELY PROPORTIONAL TO Z SQUARED Z/A, FOR PROTONS 2.6-190 MEV, 13.3-26 MEV, 26-94 MEV, AND 94-190 MEV) AND CHARGE SPECTRA (Z.LE.6). THE DETECTOR WAS ORIENTED NORMAL TO THE SPACECRAFT SPIN AXIS. THE DETECTOR ACCUMULATORS FOR EACH ENERGY INTERVAL WERE TELEMETERED SIX TIMES EVERY 5.46 MINUTES. EACH ACCUMULATION WAS ABOUT 40 SEC LONG (INITIAL SPACECRAFT SPIN PERIOD WAS ABOUT 3.3 SEC). THE OUTPUT FROM TWO 128-CHANNEL PULSE HEIGHT ANALYZERS WAS OBTAINED FOR ONE INCIDENT PARTICLE EVERY 41 SEC AND WAS READ OUT ALONG WITH THE DETECTOR ACCUMULATORS. THE EXPERIMENT PERFORMED NORMALLY UNTIL APRIL 21, 1966. AFTER WHICH SEVERAL PROBLEMS WITH THE INSTRUMENTATION DEVELOPED, CAUSING SPIKES IN THE COUNT RATE DATA, ESPECIALLY IN THE LOWEST ENERGY CHANNEL. THE DATE OF TRANSMISSION OF LAST USEFUL INFORMATION WAS APRIL 29, 1967.

DATA SET NAME- COUNT RATE PLOTS (R VS ENERGY LOSS) ON MICROFILM

NSSDC ID- 65-042A-03B

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 05/29/65 TO 05/02/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THE DATA SET CONSISTS OF MACHINE-GENERATED COUNT RATE PLOTS FOR THE TELESCOPE SENSOR COMBINATIONS (D1, D1D2 NOT D3, D1D2D3 NOT D4, AND D1D2D3D4), WHICH CORRESPOND TO THE FOLLOWING ENERGY INTERVALS FOR PROTONS -- 2.6 TO 190 MEV, 13.3 TO 26 MEV, 26 TO 94 MEV, AND 94 TO 190 MEV. EACH PLOT GIVES THE COUNT RATE (LOGARITHMIC) VS TIME (DAY NUMBER) FOR ONE SOLAR ROTATION. THE PLOTS ARE ON ONE REEL OF 35-MM MICROFILM THAT CONTAINS A TOTAL OF 108 PLOTS. THERE ARE 27 PLOTS FOR EACH OF THE FOUR SENSOR COMBINATIONS. THE TIME INTERVAL COVERED IS FROM SOLAR ROTATION NUMBER 1804 (MAY 29, 1965) THROUGH 1830 (MAY 2, 1967).

DATA SET NAME- REDUCED PULSE HEIGHT ANALYZER DATA ON MAGNETIC TAPE

NSSDC ID- 65-042A-03C

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

ORIGINAL PAGE IS
OF POOR QUALITY

TIME PERIOD COVERED- 05/29/65 TO 04/28/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET, SUPPLIED BY THE EXPERIMENTER, CONSISTS OF REDUCED PULSE HEIGHT ANALYZER DATA ON ONE 7-TRACK, ODD PARITY, BINARY MAGNETIC TAPE WRITTEN AT 800 BPI IN A TIME-ORDERED FORMAT USING AN XDS930 COMPUTER. AN END-OF-FILE MARK TERMINATES EACH SPACECRAFT ORBIT OF DATA, AND A DOUBLE END-OF-FILE MARK TERMINATES THE LAST ORBIT OF THE TAPE. AN ORBIT OF DATA CONTAINS A VARIABLE NUMBER OF PHYSICAL RECORDS WITH 200 LOGICAL RECORDS PER PHYSICAL RECORD. THERE ARE 120 ORBITS OF DATA ON THE TAPE. EACH LOGICAL RECORD CONTAINS THE FOLLOWING COSMIC-RAY TELESCOPE PULSE HEIGHT ANALYZER DATA -- D1, AND D3 DETECTOR ELEMENT PULSE HEIGHTS, TIME OF OBSERVATION, ORBIT NUMBER, AND DATA QUALITY INFORMATION.

DATA SET NAME- REDUCED COUNT ACCUMULATION DATA ON MAGNETIC TAPE

NSSDC ID- 65-042A-03D

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 05/29/65 TO 04/28/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET, SUPPLIED BY THE EXPERIMENTER, CONSISTS OF REDUCED COUNT ACCUMULATIONS ON ONE 7-TRACK, ODD PARITY, BINARY MAGNETIC TAPE WRITTEN AT 800 BPI IN A TIME-ORDERED FORMAT USING AN XDS930 COMPUTER. AN END-OF-FILE MARK TERMINATES EACH SPACECRAFT ORBIT OF DATA, AND A DOUBLE END-OF-FILE MARK TERMINATES THE LAST ORBIT OF THE TAPE. AN ORBIT OF DATA CONTAINS A VARIABLE NUMBER OF PHYSICAL RECORDS WITH 204 LOGICAL RECORDS PER PHYSICAL RECORD. THERE ARE 120 ORBITS OF DATA ON THE TAPE. EACH LOGICAL RECORD CONTAINS THE FOLLOWING COSMIC-RAY TELESCOPE COINCIDENCE ACCUMULATIONS -- D1, D1D2 NOT D3, D1D2D3 NOT D4, D1D2D3D4, AND D5 CORRESPONDING TO PROTON ENERGY INTERVALS 2.6 TO 190 MEV, 13.3 TO 26, 26 TO 94, 94 TO 190 MEV, AND ABOUT 1 MEV. ALSO INCLUDED IN THE FORMAT ARE THE TIME OF OBSERVATION AND DATA QUALITY INFORMATION.

DATA SET NAME- 5-MIN AVERAGE COUNT RATES ON MAGNETIC TAPE

NSSDC ID- 65-042A-03E

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 05/29/65 TO 04/29/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF REDUCED COSMIC-RAY TELESCOPE COUNTING RATES AVERAGED OVER 4 SEQUENCE COUNTS (APPROXIMATELY 328 SEC). THE DATA ARE CONTAINED ON TWO 7-TRACK, BLOCKED BCD MAGNETIC TAPES WRITTEN AT 800 BPI IN A TIME-ORDERED FORMAT USING AN XDS 930 COMPUTER. AN END-OF-FILE MARK TERMINATES EACH SPACECRAFT ORBIT OF DATA, AND A DOUBLE END-OF-FILE MARK TERMINATES THE LAST ORBIT OF THE TAPE. THERE ARE 90 FILES ON THE FIRST TAPE AND 30 FILES ON THE SECOND TAPE. AN ORBIT OF DATA CONTAINS A VARIABLE NUMBER OF PHYSICAL RECORDS WITH 97 LOGICAL RECORDS PER PHYSICAL RECORD AND 33 WORDS PER LOGICAL RECORD. EACH LOGICAL RECORD CONTAINS THE FOLLOWING COSMIC-RAY TELESCOPE COINCIDENCE RATES -- D1, D1D2 NOT D3, D1D2D3 NOT D4, D1D2D3D4, AND D5 CORRESPONDING TO PROTON ENERGY INTERVALS 0.9 TO 190, 6.5 TO 19, 19 TO 90, 90 TO 190 MEV, AND ABOUT 1 MEV, RESPECTIVELY. ALSO INCLUDED IN THE FORMAT ARE THE TIME OF OBSERVATION, SEQUENCE COUNT, SATELLITE GEOCENTRIC DISTANCE, AE INDEX, KP INDEX, AND DATA QUALITY INFORMATION.

SPACECRAFT COMMON NAME- IMP-D

ALTERNATE NAMES- EXPLORER 33, AIMP 1
02258, ANCHORED IMP 1

NSSDC ID- 66-058A

LAUNCH DATE- 07/01/66 WEIGHT- 212. KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 09/15/71

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 07/08/66
ORBIT PERIOD- 2314B. MIN INCLINATION- 29.0 DEG
PERIAPSIS- 30532.0 KM ALT APOAPSIS- 494230. KM ALT

EXPLORER 33 WAS A SPIN-STABILIZED (SPIN AXIS PARALLEL TO THE ECLIPTIC PLANE, SPIN PERIOD VARYING BETWEEN 2.2 AND 3.6 SEC) SPACECRAFT INSTRUMENTED FOR STUDIES OF INTERPLANETARY PLASMA, ENERGETIC CHARGED PARTICLES (ELECTRONS, PROTONS, AND ALPHAS), MAGNETIC FIELDS, AND SOLAR X RAYS AT LUNAR DISTANCES. THE SPACECRAFT FAILED TO ACHIEVE LUNAR ORBIT BUT DID ACHIEVE MISSION OBJECTIVES. THE INITIAL APOGEE OCCURRED AT ABOUT 1600 HR LOCAL TIME. OVER THE FIRST 3-YR PERIOD, PERIGEE VARIED BETWEEN 6 AND 44 EARTH RADII GEOCENTRIC. APOGEE VARIED BETWEEN 70 AND 135 EARTH RADII, AND THE INCLINATION WITH RESPECT TO THE EQUATOR OF THE EARTH VARIED BETWEEN 7 AND 60 DEG. PERIODS OF PRINCIPAL DATA COVERAGE (ESSENTIALLY 100 PERCENT) ARE JULY 1, 1966 (LAUNCH) TO JANUARY 14, 1970, FEBRUARY 21, 1970 TO MARCH 6, 1970, JULY 31, 1970 TO SEPTEMBER 14, 1970, JANUARY 15, 1971 TO FEBRUARY 28, 1971, MARCH 23, 1971 TO MAY 31, 1971, AND AUGUST 23, 1971, TO SEPTEMBER 15, 1971. NO DATA WERE OBTAINED AFTER SEPTEMBER 21, 1971.

DATA SET NAME- SOLAR ECLIPTIC AND SOLAR MAGNETOSPHERIC EPHEMERIS PLOTS ON MICROFILM

NSSDC ID- 66-058A-00D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/01/66 TO 10/29/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF ONE REEL OF 35-MM MICROFILMED PLOTS OF THE EXPLORER 33 EPHEMERIS DATA, SHOWN IN SOLAR MAGNETOSPHERIC AND SOLAR ECLIPTIC COORDINATES. X-Z AND X-Y PROJECTIONS IN SOLAR MAGNETOSPHERIC COORDINATES ARE AVAILABLE FOR THE TIME PERIODS FROM JULY 1, 1966, TO FEBRUARY 14, 1967 (ORBITS 1 TO 15), AND FROM MAY 31, 1967, TO SEPTEMBER 8, 1967 (ORBITS 24 TO 29). X-Z AND X-Y PROJECTIONS IN SOLAR ECLIPTIC COORDINATES ARE AVAILABLE FOR THE TIME PERIOD FROM JULY 1, 1966, TO OCTOBER 29, 1971 (ORBITS 1 TO 85). ON THE SOLAR ECLIPTIC PROJECTIONS OF ORBITS 1 TO 5, THE MOON'S ORBIT IS PLOTTED. TICK MARKS ARE SHOWN EVERY 3 HR FOR THE SOLAR MAGNETOSPHERIC COORDINATE PROJECTIONS AND EVERY 6 HR FOR THE SOLAR ECLIPTIC PROJECTIONS.

DATA SET NAME- SOLAR ECLIPTIC EPHEMERIS PLOTS

NSSDC ID- 66-058A-00E

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 07/01/66 TO 02/28/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 CARD(S) OF B/W MICROFICHE

THE PUBLICATION, 'TRAJECTORIES OF EXPLORERS 33, 34, AND 35, JULY 1966 - APRIL 1969,' WRITTEN BY K. W. BEHANNON, K. H. SCHATTEN, D. H. FAIRFIELD, AND N. F. NESS (NASA-GSFC X-692-70-64, FEBRUARY 1970) CONTAINS THE TRAJECTORIES OF EXPLORERS 33, 34, AND 35 FROM LAUNCH TO APRIL 1969 (EXCEPT FOR EXPLORER 34 FOR WHICH THERE ARE NO PLOTS AFTER MARCH 1969) AS PROJECTED INTO THE X-Y PLANE IN SOLAR ECLIPTIC COORDINATES. TICK MARKS INDICATING 1-DAY INTERVALS ARE SHOWN FOR EXPLORERS 33 AND 35 AND, WHERE POSSIBLE, FOR EXPLORER 34. THIS PUBLICATION ALSO HAS THE X-Z SOLAR ECLIPTIC ORBIT PROJECTIONS OF THESE SATELLITES FOR JANUARY 1969 TO APRIL 1969. COMPUTED AVERAGE POSITIONS OF THE BOW SHOCK AND MAGNETOPAUSE ARE SHOWN. A CONTINUATION OF THIS DATA SET IS FOUND IN 'TRAJECTORIES OF EXPLORER 33, 35, 41, 43, AND 47, MAY 1969-DECEMBER 1972,' WRITTEN BY D. H. FAIRFIELD, K. W. BEHANNON, R. P. LEPPING, AND N. F. NESS (NASA-GSFC X-692-73-291, OCTOBER 1973). EXPLORER 33 DATA ARE FOUND IN THIS DOCUMENT THROUGH FEBRUARY 28, 1970.

DATA SET NAME- MULTICOORDINATE SYSTEM EPHEMERIS TAPES

NSSDC ID- 66-058A-00F

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/01/68 TO 02/28/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 49 REEL(S) OF MAGNETIC TAPE

THIS SET OF EPHEMERIS DATA IS CONTAINED ON TWELVE 7-TRACK, 556-BPI, BCD, IBM 360 TAPES. EACH TAPE CONSISTS OF 1 MONTH OF DATA ON ONE FILE. THE DATA RECORDS ON THE TAPES ARE BLOCKED WITH FIVE LOGICAL RECORDS PER PHYSICAL RECORD, EACH LOGICAL RECORD CONTAINING 51 WORDS (204 CHARACTERS). EACH TAPE CONTAINS ONE HEADER RECORD. THIS IS A PHYSICAL RECORD THAT IS BLOCKED THE SAME AS THE DATA RECORDS. THE FOLLOWING INFORMATION IS CONTAINED ON THESE TAPES AT 5-MIN INTERVALS -- TIME, GEOCENTRIC SOLAR ECLIPTIC COORDINATES OF MOON AND SPACECRAFT, SOLAR MAGNETOSPHERIC COORDINATES OF MOON AND SPACECRAFT, SELENOCENTRIC SOLAR ECLIPTIC COORDINATES OF SPACECRAFT, AND GEOMAGNETIC LATITUDE AND LONGITUDE OF SPACECRAFT SUBSATELLITE POINT. EXCEPT FOR JANUARY THROUGH MARCH 1969 AND JANUARY 1970, TAPES COVERING THE TIME PERIOD INDICATED ARE AVAILABLE.

DATA SET NAME- 12-HOUR SOLAR ECLIPTIC EPHEMERIS
PARAMETER LISTING ON MICROFILM

NSSDC ID- 66-058A-00G

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/01/66 TO 02/28/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF A MICROFILMED LISTING, GENERATED AT NSSDC, OF SELECTED DATA FROM TAPE DATA SET 66-058A-00F. SPACECRAFT EPHEMERIS INFORMATION IS GIVEN IN GEOCENTRIC SOLAR ECLIPTIC COORDINATES ONCE EACH 12 HR. PARAMETERS GIVEN INCLUDE CARTESIAN COORDINATES, RADIAL DISTANCE, AND POLAR AND AZIMUTHAL ANGLES. GEOCENTRIC SOLAR ECLIPTIC CARTESIAN COORDINATES OF THE MOON ARE ALSO GIVEN AT THE SAME 12-HR INTERVALS. COVERAGE IS COMPLETE BETWEEN JULY 1, 1966, AND FEBRUARY 28, 1970, EXCEPT THAT THERE ARE NO DATA FOR MARCH 1969.

ANDERSON, IMP-D

EXPERIMENT NAME- ION CHAMBER AND GM COUNTERS

NSSDC ID- 66-058A-04

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 10/20/67

PERSONNEL
PI - K.A. ANDERSON ..... U OF CALIF, BERKELEY
BERKELEY, CA

THIS EXPERIMENT CONSISTED OF A 10.2-CM NEHER-TYPE IONIZATION CHAMBER AND TWO LIONEL TYPE 205 HT GEIGER-MUELLER TUBES. THE ION CHAMBER RESPONDED OMNIDIRECTIONALLY TO ELECTRONS ABOVE 0.7 MEV AND PROTONS ABOVE 12 MEV. BOTH GM TUBES WERE MOUNTED PERPENDICULAR TO THE SPACECRAFT SPIN AXIS. GM TUBE A DETECTED ELECTRONS ABOVE 45 KEV WHICH WERE SCATTERED OFF A GOLD FOIL. THE ACCEPTANCE CONE FOR THESE ELECTRONS HAD A FULL ANGLE OF 61 DEG AND AXIS OF SYMMETRY WHICH WAS PERPENDICULAR TO THE SPACECRAFT SPIN AXIS. GM TUBE B RESPONDED TO ELECTRONS AND PROTONS ABOVE 22 AND 300 KEV, RESPECTIVELY, IN AN ACCEPTANCE CONE OF 45 DEG FULL ANGLE WITH AXIS OF SYMMETRY PERPENDICULAR TO THE SPACECRAFT SPIN AXIS. BOTH GM TUBES RESPONDED OMNIDIRECTIONALLY TO ELECTRONS AND PROTONS OF ENERGIES ABOVE 2.5 AND 35 MEV, RESPECTIVELY. PULSES FROM THE ION CHAMBER AND COUNTS FROM EACH GM TUBE WERE ACCUMULATED FOR 39.72 SEC AND READ OUT EVERY 40.96 SEC. THE TIME BETWEEN THE FIRST TWO ION CHAMBER PULSES IN AN ACCUMULATION PERIOD WAS ALSO TELEMETERED. ON AUGUST 1, 1967, GM TUBE B BEGAN TO BEHAVE ERRATICALLY, AND ON AUGUST 9, 1967, IT STOPPED COUNTING. GM TUBE A STOPPED COUNTING A FEW DAYS LATER. THE ION CHAMBER OPERATED NORMALLY FROM LAUNCH THROUGH SEPTEMBER 2, 1966. BETWEEN SEPTEMBER 2, 1966, AND OCTOBER 20, 1967, THE DATE OF LAST USABLE DATA, THE ION CHAMBER OPERATED AT A LOWER THRESHOLD VOLTAGE. FOR FURTHER DETAILS, SEE LIN, SOLAR PHYSICS, VOL 12, P 266, 1970.

DATA SET NAME- ORIGINAL REDUCED ION CHAMBER AND GM
COUNTS ON TAPE

NSSDC ID- 66-058A-04A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/01/66 TO 06/09/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 7 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF 7-TRACK, BCD, 800-BPI MAGNETIC TAPES THAT WERE SUBMITTED BY THE EXPERIMENTER. EACH FILE ON A TAPE HAS A 12-CHARACTER INDEX, WHICH IDENTIFIES THE ORIGINAL GSFC TAPES FROM WHICH THE DATA WERE TAKEN, AND A VARIABLE NUMBER OF 865-CHARACTER DATA RECORDS. EACH DATA RECORD CONTAINS FOUR DATA SEQUENCES. A SEQUENCE CONTAINS THE UT (DAY AND MSEC) OF THE OBSERVATION, TWO ACCUMULATIONS EACH FROM GM TUBES A AND B AND THE ION CHAMBER, THE TIME BETWEEN THE FIRST PAIR OF ION CHAMBER PULSES IN EACH OF TWO ACCUMULATION PERIODS, THE SUN ANGLE, THE SATELLITE SPIN PERIOD, AND A NUMBER OF PROCESSING ERROR FLAGS. THESE DATA, WHICH ARE TIME ORDERED, COVER THE PERIOD JULY 1, 1966, TO JUNE 9, 1967.

BRIDGE, IMP-D

EXPERIMENT NAME- PLASMA PROBE

NSSDC ID- 66-058A-06

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 05/31/71

PERSONNEL
PI - H.S. BRIDGE ..... MASS INST OF TECH
CAMBRIDGE, MA

A SPLIT-COLLECTOR FARADAY CUP MOUNTED ON THE SPACECRAFT EQUATOR WAS USED TO STUDY THE DIRECTIONAL INTENSITY OF SOLAR WIND IONS AND ELECTRONS. THE FOLLOWING 25-SEC SEQUENCE WAS EXECUTED THREE TIMES FOR IONS AND ONCE FOR ELECTRONS EACH 328 SEC. TWENTY-SEVEN DIRECTIONAL CURRENT SAMPLES FROM THE TWO COLLECTORS WERE TAKEN IN THE ENERGY PER CHARGE (E/Q) WINDOW FROM 80 TO 2850 V. THE CURRENTS IN THE TWO COLLECTORS WERE THEN SAMPLED IN EIGHT E/Q WINDOWS BETWEEN 50 AND 5400 V AT THE AZIMUTH, AT WHICH PEAK CURRENT APPEARED IN THE PREVIOUS 27 MEASUREMENTS. DUE TO TELEMETRY LIMITATIONS, ONLY THE FOLLOWING DATA WERE RETURNED TO EARTH EVERY 328 SEC -- FOR IONS, THE SUMS OF CURRENTS MEASURED ON THE TWO COLLECTOR PLATES TWICE AND THE DIFFERENCE ONCE -- FOR ELECTRONS, THE SUMS ONCE. THE EXPERIMENT WORKED WELL FROM LAUNCH UNTIL THE FINAL SPACECRAFT DATA TRANSMISSION.

DATA SET NAME- 3-MIN INTERPLANETARY PLASMA PARAMETERS
ON MAGNETIC TAPE

NSSDC ID- 66-058A-06B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/06/66 TO 09/23/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF A 7-TRACK, BLOCKED EVEN-PARITY, BCD, 556-BPI DATA TAPE THAT WAS GENERATED BY THE EXPERIMENTER ON AN IBM 360. THE BLOCK SIZE IS 1000 CHARACTERS, WITH A LOGICAL RECORD SIZE OF 100 CHARACTERS. EACH LOGICAL RECORD CONTAINS ONE SOLAR WIND MEASUREMENT. THE TAPE CONTAINS ONLY ION SOLAR WIND DATA INCLUDING THE THERMAL SPEED, THE NUMBER DENSITY, THE FLOW SPEED, AND THE SOLAR ECLIPTIC LONGITUDE AND LATITUDE OF THE FLOW DIRECTION. THESE PARAMETERS ARE TIME ORDERED. THEY WERE DERIVED USING A GAMMA DISTRIBUTION FUNCTION, WHICH IN THE SOLAR WIND IS ESSENTIALLY EQUIVALENT TO A CONVECTED ISOTROPIC MAXWELLIAN DISTRIBUTION FUNCTION. THE PARAMETER SET WAS CALCULATED BASED ON A 2.7-MIN SPECTRUM, AND CHANGES IN THE SOLAR WIND ON TIME SCALES SHORTER THAN THAT PERIOD, E.G., THE PASSAGE OF AN INTERPLANETARY SHOCK FRONT, WILL INVALIDATE THE PARAMETER SET CALCULATED FROM DATA TAKEN DURING THAT INTERVAL.

ORIGINAL PAGE IS
OF POOR QUALITY

DATA SET NAME- PLOTS OF HOURLY AVERAGED PLASMA PARAMETERS ON FICHE

NSSDC ID- 66-058A-06C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/06/66 TO 04/20/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 CARD(S) OF B/W MICROFICHE

THESE EXPERIMENTER-GENERATED PLOTS CONTAIN HOURLY AVERAGED, INTERPLANETARY SOLAR WIND THERMAL SPEED, BULK SPEED, AND DENSITY PLOTTED AGAINST TIME, WITH ONE SOLAR ROTATION PER HORIZONTAL AXIS. THE DATA ARE CONTAINED ON MICROFICHE.

DATA SET NAME- HOURLY AVERAGED INTERPLANETARY PLASMA DATA ON TAPE WITH BLOCKS OF ZEROS REMOVED

NSSDC ID- 66-058A-06D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/06/66 TO 09/23/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS NSSDC REFORMATTED TAPE (GENERATED FROM DATA SET 66-058A-06A) CONTAINS HOURLY AVERAGED, INTERPLANETARY PLASMA PARAMETERS. INCLUDED ARE THE AVERAGED THERMAL SPEED, THE AVERAGED NUMBER DENSITY, THE AVERAGED FLOW SPEED, THE AVERAGED SOLAR ECLIPTIC LATITUDE AND LONGITUDE OF THE FLOW DIRECTION, AND THE CORRESPONDING STANDARD DEVIATIONS. THESE DATA ARE ON A 7-TRACK, 556-BPI, BCD MAGNETIC TAPE WITH 84 CHARACTERS PER LOGICAL RECORD AND ONE LOGICAL RECORD PER PHYSICAL RECORD. EACH RECORD CONTAINS ONE SET OF PLASMA PARAMETERS, AND NO RECORD CONTAINS ALL ZERO OR BLOCK ZERO DATA (AS WERE CONTAINED ON THE ORIGINAL MIT-GENERATED TAPE).

VAN ALLEN, IMP-D

EXPERIMENT NAME- ELECTRON AND PROTON DETECTORS

NSSDC ID- 66-058A-05

STATUS OF OPERATION- INOPERABLE
DATE LAST DATA RECORDED- 11/00/71

PERSONNEL
PI - J.A. VAN ALLEN ..... U OF IOWA
IOWA CITY, IA

THREE EON TYPE 6213 GEIGER-MUELLER TUBES (GM1, GM2, AND GM3) AND A SILICON SOLID-STATE DETECTOR (SSD) PROVIDED MEASUREMENTS OF SOLAR X RAYS (GEIGER TUBES ONLY, BETWEEN 2 AND 12A) AND OF SOLAR, GALACTIC, AND MAGNETOSPHERIC CHARGED PARTICLES. THE GEIGER-MUELLER TUBES MEASURED ELECTRONS OF ENERGIES GREATER THAN 45 TO 50 KEV AND PROTONS OF ENERGIES GREATER THAN 730 TO 830 KEV. THE SSD OUTPUT WAS DISCRIMINATED AT FOUR THRESHOLDS -- (1) PN1, WHICH DETECTED PROTONS BETWEEN .31 AND 10 MEV AND ALPHAS BETWEEN .59 AND 225 MEV, (2) PN2, WHICH DETECTED PROTONS BETWEEN .50 AND 4 MEV AND ALPHAS BETWEEN .78 AND 98 MEV, (3) PN3, WHICH DETECTED PROTONS BETWEEN .82 AND 1.9 MEV AND ALPHAS BETWEEN 1.13 AND 46 MEV, AND (4) PN4, WHICH DETECTED ALPHAS BETWEEN 2.1 AND 17 MEV. GM 1 AND THE SSD WERE ORIENTED PARALLEL TO THE SPIN AXIS, AND GM 3 WAS ORIENTED ANTIPARALLEL TO THE SPIN AXIS. DATA FROM GM 1 AND PN1 WERE DIVIDED INTO DATA FROM QUADRANTS ORIENTED WITH RESPECT TO THE SUN (SECTORS I, II, III, IV WERE CENTERED 180, 270, 0 AND 90 DEG FROM THE SUN, RESPECTIVELY). DATA WERE READ OUT IN EITHER 820R 164-SEC INTERVALS. HIGH TEMPERATURES ADVERSELY AFFECTED THE SSD PARTICLE DATA DURING THE PERIODS FROM SEPTEMBER 16 TO JANUARY 14 AND FROM MARCH 16 TO JULY 14 OF EACH YEAR FOLLOWING SEPTEMBER 16, 1966. HOWEVER, THE ALPHA PARTICLE DATA ARE BELIEVED TO BE UNAFFECTED. ON RARE OCCASIONS (LESS THAN 10), A GM TUBE WOULD PRODUCE A HIGH, SPURIOUS COUNT RATE FOR A PERIOD OF SEVERAL HOURS. THIS EFFECT APPARENTLY WAS PRODUCED ONLY DURING PERIODS OF EXTREMELY HIGH PARTICLE AND X-RAY FLUXES. ACCUMULATOR FAILURES OCCURRED ON JULY 21, 1967, AND SEPTEMBER 24, 1967. A LIMITED AMOUNT OF USABLE DATA WAS COLLECTED THROUGH MAY 31, 1971, THE DATE OF FINAL SPACECRAFT TRANSMISSION.

DATA SET NAME- PLOTS OF X-RAY AND PARTICLE DATA ON MICROFILM

NSSDC ID- 66-058A-05G

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/01/66 TO 12/31/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 18 REEL(S) OF MICROFILM

THIS DATA SET IS A SERIES OF PLOTS CONTAINED ON 18 REELS OF 35-MM MICROFILM. THESE ARE PARTIALLY REDUCED DATA SUBMITTED BY THE EXPERIMENTER. THE DATA COVERAGE IS GREATER THAN 90 PERCENT. SIX PLOTS ARE GIVEN FOR EACH 12 HR PERIOD (0000 TO 1200 OR 1200 TO 2400 UT). THESE PLOTS CONTAIN, AS A FUNCTION OF TIME, (1) THE COUNT RATES OF GM1 FOR EACH SECTOR, (2) THE COUNT RATES OF PN1 FOR EACH SECTOR, (3) THE COUNT RATES OF GM2, GM3, PN2, AND GM1 (GM1 SUMMED OVER ALL SECTORS), (4) THE COUNT RATES OF ALL CHANNELS OF THE SSD (PN1 SUMMED OVER ALL SECTORS), (5) THE AVERAGE COUNTING RATE (G1AV) OF GM1 FOR SECTORS I, II, AND IV, AND THE COUNTING RATE OF GM1, SECTOR III, DUE TO SOLAR X RAYS (G1X), OR (6) THE ANGULAR DISTRIBUTION DATA IN THE FORM OF THE RATIO OF THE COUNTING RATES OF GM2 TO GM3 AND COEFFICIENTS (ASSUMING A DISTRIBUTION OF THE FORM 1 + C COS (OD), (BEING THE ROTATION ANGLE OF THE SPACECRAFT) C AND D FOR PN1 AND GM1.

SPACECRAFT COMMON NAME- IMP-E

ALTERNATE NAMES- EXPLORER 35, AIMP 2
AIMP-E, 02884

NSSDC ID- 67-070A

LAUNCH DATE- 07/19/67 WEIGHT- 230. KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 06/24/73

ORBIT PARAMETERS
ORBIT TYPE- SELENOCENTRIC EPOCH DATE- 07/22/67
ORBIT PERIOD- 691.8 MIN INCLINATION- 169. DEG
PERIAPSIS- 2568. KM ALT APOAPSIS- 9388. KM ALT

EXPLORER 35 WAS A SPIN-STABILIZED SPACECRAFT INSTRUMENTED FOR INTERPLANETARY STUDIES AT LUNAR DISTANCES OF THE INTERPLANETARY PLASMA, MAGNETIC FIELD, ENERGETIC PARTICLES, AND SOLAR X RAYS. IT WAS LAUNCHED INTO AN ELLIPTICAL LUNAR ORBIT. THE SPIN AXIS DIRECTION WAS NEARLY PERPENDICULAR TO THE ECLIPTIC PLANE, AND THE SPIN RATE WAS 25.6 RPM. MISSION OBJECTIVES WERE ACHIEVED. AFTER SUCCESSFUL OPERATION FOR SIX YEARS, THE SPACECRAFT WAS TURNED OFF ON JUNE 24, 1973.

DATA SET NAME- SOLAR ECLIPTIC EPHEMERIS PLOTS

NSSDC ID- 67-070A-00D

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 07/19/67 TO 12/31/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 CARD(S) OF B/W MICROFICHE

THE PUBLICATION, "TRAJECTORIES OF EXPLORERS 33, 34, AND 35, JULY 1966 - APRIL 1969," WRITTEN BY K. W. BEHANNON, K. H. SCHATTEN, D. H. FAIRFIELD, AND N. F. NESS (NASA-GSFC X-692-70-64, FEBRUARY 1970) CONTAINS THE TRAJECTORIES OF EXPLORERS 33, 34, AND 35 FROM LAUNCH TO APRIL 1969 (EXCEPT FOR EXPLORER 34 FOR WHICH THERE ARE NO PLOTS AFTER MARCH 1969) AS PROJECTED INTO THE X-Y PLANE IN SOLAR ECLIPTIC COORDINATES. TICK MARKS, 1-DAY APART, ARE SHOWN FOR EXPLORERS 33 AND 35 AND, WHERE POSSIBLE, FOR EXPLORER 34. THIS PUBLICATION ALSO HAS THE X-Z SOLAR ECLIPTIC ORBIT PROJECTIONS OF THESE SATELLITES FOR JANUARY 1969 TO APRIL 1969. COMPUTED AVERAGE POSITIONS OF THE BOW SHOCK AND MAGNETOPAUSE ARE SHOWN. A CONTINUATION OF THIS DATA SET IS FOUND IN "TRAJECTORIES OF EXPLORER 33, 35, 41, 43, AND 47, MAY 1969-DECEMBER 1972," WRITTEN BY D. H. FAIRFIELD, K. W. BEHANNON, R. P. LEPPING, AND N. F. NESS (NASA-GSFC X-692-73-291, OCTOBER 1973). EXPLORER 35 DATA ARE FOUND IN THIS DOCUMENT FOR THE ENTIRE PERIOD, MAY 1969 - DECEMBER 1972.

DATA SET NAME- MULTICOORDINATE SYSTEM EPHEMERIS TAPES

NSSDC ID- 67-070A-00E

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/01/68 TO 08/31/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 17 REEL(S) OF MAGNETIC TAPE

THIS SET OF EPHEMERIS DATA IS CONTAINED ON SEVENTEEN 7-TRACK, 556-BPI, BCD, IBM 360 TAPES. EACH TAPE CONSISTS OF 1 MONTH OF DATA ON ONE FILE. THE DATA RECORDS ON THE TAPES ARE BLOCKED WITH FIVE LOGICAL RECORDS PER PHYSICAL RECORD. EACH LOGICAL RECORD CONTAINING 51 WORDS (204 CHARACTERS). EACH TAPE CONTAINS ONE HEADER RECORD. THIS IS A PHYSICAL RECORD THAT IS BLOCKED THE SAME AS THE DATA RECORDS. THE FOLLOWING INFORMATION IS CONTAINED ON THESE TAPES AT 5-MIN INTERVALS -- TIME, GEOCENTRIC SOLAR ECLIPTIC COORDINATES OF MOON AND SPACECRAFT, SOLAR MAGNETOSPHERIC COORDINATES OF MOON AND SPACECRAFT, SELENOCENTRIC SOLAR ECLIPTIC COORDINATES OF SPACECRAFT, AND GEOMAGNETIC LATITUDE AND LONGITUDE OF SPACECRAFT SUBSATELLITE POINT. EXCEPT FOR JANUARY THROUGH MARCH 1969 AND NOVEMBER 1969, TAPES COVERING THE TIME PERIOD INDICATED ARE AVAILABLE.

ANDERSON, IMP-E

EXPERIMENT NAME- ENERGETIC PARTICLE

NSSDC ID- 67-070A-02

STATUS OF OPERATION- INOPERABLE
DATE LAST DATA RECORDED- 06/24/73

PERSONNEL
PI - K.A. ANDERSON ..... U OF CALIF, BERKELEY
BERKELEY, CA
OI - G.H. PITT ..... U OF CALIF, BERKELEY
BERKELEY, CA

THIS EXPERIMENT CONSISTED OF A 12-CM NEHER TYPE IONIZATION CHAMBER AND TWO LIONEL TYPE 205 HT GEIGER-MUELLER TUBES. THE ION CHAMBER RESPONDED OMNIDIRECTIONALLY TO ELECTRONS ABOVE 0.7 MEV AND PROTONS ABOVE 12 MEV. BOTH GM TUBES WERE MOUNTED PARALLEL TO THE SPACECRAFT SPIN AXIS. GM TUBE 1 DETECTED ELECTRONS ABOVE 45 KEV THAT WERE SCATTERED OFF A GOLD FOIL. THE ACCEPTANCE CONE FOR THESE ELECTRONS HAD A 70-DEG FULL ANGLE AND AXIS OF SYMMETRY THAT WAS 20 DEG OFF THE SPACECRAFT SPIN AXIS. GM TUBE 2 RESPONDED TO ELECTRONS AND PROTONS ABOVE 22 AND 300 KEV, RESPECTIVELY, IN AN ACCEPTANCE CONE OF 70-DEG FULL ANGLE CENTERED AT THE SPACECRAFT SPIN AXIS. BOTH GM TUBES RESPONDED OMNIDIRECTIONALLY TO ELECTRONS AND PROTONS OF ENERGIES ABOVE 2.5 AND 50 MEV, RESPECTIVELY. PULSES FROM THE ION CHAMBER AND COUNTS FROM EACH GM TUBE WERE ACCUMULATED FOR 39.72 SEC AND READ OUT EVERY 40.96 SEC. IN ADDITION, THE TIME BETWEEN THE FIRST ION CHAMBER PULSES IN AN ACCUMULATION PERIOD WAS ALSO TELEMETERED. THIS EXPERIMENT PERFORMED WELL INITIALLY. ON NOVEMBER 20, 1968, THE ION CHAMBER FAILED. ON MAY 9, 1969, GM TUBE 2 FAILED. GM TUBE 1 OPERATED NORMALLY UP TO MAY 14, 1970, AFTER WHICH THE DATA COVERAGE WAS INTERMITTENT UNTIL THE SPACECRAFT WAS TURNED OFF ON JUNE 24, 1973.

DATA SET NAME- ORIGINAL REDUCED ION CHAMBER AND GM COUNTS ON TAPE

NSSDC ID- 67-070A-02A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/19/67 TO 07/24/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 8 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF ION CHAMBER OBSERVATIONS AND ACCUMULATED COUNTS FROM TWO GM TUBES IN A TIME-ORDERED FORMAT SUBMITTED BY THE EXPERIMENTER ON 7-TRACK, BCD MAGNETIC TAPES WRITTEN AT 800 BPI USING AN IBM 360/40 COMPUTER. EACH TAPE WAS GENERATED BY STACKING SEVEN SHORT GSFC DATA TAPES. THE FIRST FILE ON EACH STACKED TAPE IS A ONE-RECORD FILE WHICH SERVES AS AN INDEX TO THAT SHORT TAPE. EACH PHYSICAL RECORD IS 865 CHARACTERS LONG AND CAN CONTAIN SEVENTY-TWO 12-CHARACTER LOGICAL RECORDS. THE INDEX FILE PRECEDES THE STACKED EXPERIMENT DATA, IN WHICH EACH PHYSICAL RECORD CONTAINS FOUR DATA SEQUENCES. A SEQUENCE CONTAINS THE UT (DAY AND MSEC) OF THE OBSERVATION, TWO ACCUMULATIONS EACH FROM GM TUBES A AND B AND THE ION CHAMBER, THE SUN ANGLE, SATELLITE SPIN PERIOD, SUN TIME, MOON TIME, AND A NUMBER OF PROCESSING ERROR FLAGS.

BRIDGE, IMP-E

EXPERIMENT NAME- PLASMA PROBE

NSSDC ID- 67-070A-06

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 07/04/68

PERSONNEL
PI - H.S. BRIDGE ..... MASS INST OF TECH
CAMBRIDGE, MA

A MULTIGRID, SPLIT-COLLECTOR FARADAY CUP MOUNTED ON THE EQUATOR OF THE SPACECRAFT WAS USED TO STUDY THE DIRECTIONAL INTENSITY OF SOLAR WIND POSITIVE IONS AND ELECTRONS WITH PARTICULAR EMPHASIS ON THE INTERACTION OF THE SOLAR WIND WITH THE MOON. TWENTY-SEVEN INTEGRAL CURRENT SAMPLES (REQUIRING ABOUT 4.3 SEC) WERE TAKEN IN AN ENERGY PER CHARGE WINDOW FROM 80 TO 2850 V. THEN THE CURRENT WAS SAMPLED IN EIGHT DIFFERENTIAL ENERGY PER CHARGE WINDOWS BETWEEN 50 AND 5400 V AT THE AZIMUTH WHERE THE PEAK CURRENT APPEARED IN THE PREVIOUS SERIES OF INTEGRAL MEASUREMENTS. THESE MEASUREMENTS (INTEGRAL AND DIFFERENTIAL) TOOK ABOUT 25 SEC. BOTH SUM AND DIFFERENCE OF COLLECTOR CURRENTS WERE OBTAINED FOR POSITIVE IONS. ONLY THE SUM WAS OBTAINED FOR ELECTRONS. A COMPLETE SET OF MEASUREMENTS (TWO COLLECTOR PLATE SUMS AND ONE DIFFERENCE FOR PROTONS AND ONE COLLECTOR PLATE SUM FOR ELECTRONS) REQUIRED 328 SEC. THE EXPERIMENT WORKED WELL FROM LAUNCH UNTIL ITS FAILURE IN JULY 1968.

DATA SET NAME- 3-MIN INTERPLANETARY PLASMA PARAMETERS ON MAGNETIC TAPE

NSSDC ID- 67-070A-06B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/25/67 TO 07/03/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF A 7-TRACK, BLOCKED, EVEN-PARITY, BCD, 556-BPI DATA TAPE, THAT WAS GENERATED BY THE EXPERIMENTER ON AN IBM 360. THE BLOCK SIZE IS 1000 CHARACTERS WITH A LOGICAL RECORD SIZE OF 100 CHARACTERS. EACH LOGICAL RECORD CONTAINS ONE SOLAR WIND MEASUREMENT. THE TAPE CONTAINS ONLY ION SOLAR WIND DATA INCLUDING THE THERMAL SPEED, THE NUMBER DENSITY, THE FLOW SPEED, THE SOLAR ECLIPTIC LONGITUDE AND LATITUDE OF THE FLOW DIRECTION. THESE PARAMETERS ARE TIME ORDERED. THEY WERE DERIVED USING A GAMMA DISTRIBUTION FUNCTION, WHICH IN THE SOLAR WIND IS ESSENTIALLY EQUIVALENT TO A CONVECTED ISOTROPIC MAXWELLIAN DISTRIBUTION FUNCTION. THE PARAMETER SET WAS CALCULATED BASED ON A 2.7-MIN SPECTRUM, AND CHANGES IN THE SOLAR WIND ON TIME SCALES SHORTER THAN THAT PERIOD, E.G. THE PASSAGE OF AN INTERPLANETARY SHOCK FRONT, WILL INVALIDATE THE PARAMETER SET CALCULATED FROM DATA TAKEN DURING THAT INTERVAL.

DATA SET NAME- PLOTS OF HOURLY AVERAGED PLASMA PARAMETERS

NSSDC ID- 67-070A-06C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/25/67 TO 07/03/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 CARD(S) OF B/W MICROFICHE

THESE EXPERIMENTER-GENERATED PLOTS CONTAIN HOURLY AVERAGED INTERPLANETARY SOLAR WIND THERMAL SPEED, BULK SPEED, AND DENSITY PLOTTED AGAINST TIME, WITH ONE SOLAR ROTATION PER HORIZONTAL AXIS. THE DATA ARE CONTAINED ON MICROFICHE.

DATA SET NAME- HOURLY AVERAGED INTERPLANETARY PLASMA
DATA ON TAPE WITH BLOCKS OF ZEROS REMOVED

NSSDC ID- 67-070A-06D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/25/67 TO 07/03/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS NSSDC REFORMATTED TAPE (GENERATED FROM DATA SET 67-070A-06A) CONTAINS HOURLY AVERAGED INTERPLANETARY PLASMA PARAMETERS. INCLUDED ARE THE AVERAGED THERMAL SPEED, THE AVERAGED NUMBER DENSITY, THE AVERAGED FLOW SPEED, THE AVERAGED SOLAR ECLIPTIC LATITUDE AND LONGITUDE OF THE FLOW DIRECTION, AND THE CORRESPONDING STANDARD DEVIATIONS. THE DATA ARE ON A 7-TRACK, 556-BPI, BCD MAGNETIC TAPE WITH 84 CHARACTERS PER LOGICAL RECORD AND ONE LOGICAL RECORD PER PHYSICAL RECORD. EACH RECORD CONTAINS ONE SET OF PLASMA PARAMETERS, AND NO RECORD CONTAINS ALL ZERO OR BLOCK ZERO DATA (AS WERE CONTAINED ON THE ORIGINAL HIT-GENERATED TAPE).

VAN ALLEN, IMP-E

EXPERIMENT NAME- ELECTRON AND PROTON DETECTORS

NSSDC ID- 67-070A-01

STATUS OF OPERATION- INOPERABLE
DATE LAST DATA RECORDED- 06/24/73

PERSONNEL
PI - J.A. VAN ALLEN ..... U OF IOWA
IOWA CITY, IA

THREE EON TYPE 6213 GEIGER-MUELLER TUBES (GM1, GM2, AND GM3) AND A SILICON SOLID-STATE DETECTOR (SSD) PROVIDED MEASUREMENTS OF SOLAR X RAYS (GM1 ONLY, BETWEEN 2 AND 12 A) AND CHARGED PARTICLES IN THE VICINITY OF THE MOON. GM1 AND GM3 MEASURED ELECTRONS OF ENERGIES GREATER THAN 48 TO 50 KEV AND PROTONS OF ENERGY GREATER THAN 740 TO 820 KEV. WHILE GM2 WAS SHIELDED BY A CAP APPROXIMATELY 1 GRAM PER SQ CM THICK (LIMITING ITS RESPONSE TO PROTONS OF ENERGIES GREATER THAN ABOUT 55 MEV). THE SSD OUTPUT WAS DISCRIMINATED AT FOUR THRESHOLDS -- (1) PN1, WHICH DETECTED PROTONS BETWEEN .32 AND 6.3 MEV, (2) PN2, WHICH DETECTED PROTONS BETWEEN .48 AND 3.0 MEV, (3) PN4, WHICH DETECTED ALPHAS BETWEEN 2 AND 10.2 MEV, AND (4) PN3, WHICH WAS SENSITIVE TO PARTICLES OF Z GREATER THAN 3, CARBON 12 BETWEEN .58 AND 9.5 MEV PER NUCLEON, NITROGEN 14 BETWEEN .514 AND 13.9 MEV PER NUCLEON, AND OXYGEN 16 BETWEEN .466 AND 18.8 MEV PER NUCLEON. GM1 AND SSD WERE ORIENTED PERPENDICULAR TO THE SPACECRAFT SPIN AXIS, GM2 WAS ORIENTED PARALLEL TO THE SPIN AXIS, AND GM3 WAS ORIENTED ANTIPARALLEL TO THE SPIN AXIS. DATA FROM GM1, PN1, AND PN4 WERE DIVIDED INTO DATA FROM QUADRANTS ORIENTED WITH RESPECT TO THE SUN (SECTORS I, II, III, IV WERE CENTERED 180, 270, 0, AND 90 DEG AWAY FROM THE SUN, RESPECTIVELY). DATA WERE READ OUT EVERY 82 OR 164 SEC, AND THE EXPERIMENT PERFORMANCE WAS NORMAL. SEE 'PARTICLE SHADOWING BY THE MOON,' BY J. A. VAN ALLEN AND N. F. NESS, J. GEOPHYS. RES., 74, 71-93, 1969, BUT NOTE THE REVISED SSD ENERGY LEVELS.

DATA SET NAME- PLOTS OF PARTICLE COUNT RATE DATA ON
MICROFILM

NSSDC ID- 67-070A-01G

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/19/67 TO 12/31/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 10 REEL(S) OF MICROFILM

THIS DATA SET IS A SERIES OF PLOTS CONTAINED ON 10 REELS OF 35-MM MICROFILM. THIS IS A COMPLETE SET OF PARTIALLY REDUCED DATA SUBMITTED BY THE EXPERIMENTER. THE COVERAGE IS GREATER THAN 90 PERCENT. SIX PLOTS ARE GIVEN FOR EACH 12-HR PERIOD (0000 TO 1200 OR 1200 TO 2400 GMT). THESE PLOTS CONTAIN, AS A FUNCTION OF TIME, (1) THE COUNT RATES OF GM1 FOR EACH SECTOR, (2) THE COUNT RATES OF PN1 FOR EACH SECTOR, (3) THE COUNT RATES OF GM2, GM3, PN2 AND GM1 (GM1 SUMMED OVER ALL SECTORS), (4) THE COUNT RATES OF PN1, PN2, AND PN4 OF THE SSD (PN1 SUMMED OVER ALL SECTORS), (5) THE AVERAGE COUNTING RATE (G1AV) OF GM1 FOR SECTORS I, II, AND IV, THE COUNTING RATE OF GM1, SECTOR III, DUE TO SOLAR X-RAYS (G1X), AND THE DIFFERENCE BETWEEN THE COUNT RATES OF GM3 AND GM2, AND (6) THE ANGULAR DISTRIBUTION DATA IN THE FORM OF COEFFICIENTS (ASSUMING A DISTRIBUTION OF THE FORM 1 + C COS (OMICRON + D) (OMICRON BEING THE ROTATION ANGLE OF THE SPACECRAFT) C AND D FOR PN1 AND GM1.

SPACECRAFT COMMON NAME- IMP-F

ALTERNATE NAMES- EXPLORER 34, IMP 4
02817

NSSDC ID- 67-051A

LAUNCH DATE- 05/24/67 WEIGHT- 163. KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 05/03/69

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 05/24/67
ORBIT PERIOD- 6846. MIN INCLINATION- 67.17 DEG
PERIAPSIS- 242.000 KM ALT APOAPSIS- 214383. KM ALT

THIS SPACECRAFT WAS PLACED INTO A HIGH-INCLINATION, HIGHLY ECCENTRIC EARTH ORBIT. THE APOGEE POINT WAS LOCATED NEAR THE ECLIPTIC PLANE AND HAD AN INITIAL LOCAL TIME OF ABOUT 1900 HR. THE SPACECRAFT WAS SPIN-STABILIZED AND HAD AN INITIAL SPIN PERIOD OF 2.6 SEC. THE SPIN VECTOR WAS APPROXIMATELY PERPENDICULAR TO THE ECLIPTIC PLANE. LIKE THE EARLIER IMP'S, THIS SPACECRAFT WAS INSTRUMENTED TO STUDY INTERPLANETARY MAGNETIC FIELDS, ENERGETIC PARTICLES, AND PLASMA. THE SPACECRAFT OPTICAL ASPECT SYSTEM FAILED ON MARCH 4, 1969. OTHERWISE, USEFUL DATA WERE ACQUIRED UNTIL JUST BEFORE SPACECRAFT REENTRY, WHICH OCCURRED ON MAY 3, 1969.

DATA SET NAME- SOLAR ECLIPTIC AND SOLAR MAGNETOSPHERIC
EPHEMERIS PLOTS ON MICROFILM

NSSDC ID- 67-051A-00D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 05/24/67 TO 05/03/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF ONE REEL OF 35-MM MICROFILMED PLOTS OF EPHEMERIS DATA SHOWN IN SOLAR ECLIPTIC AND SOLAR MAGNETOSPHERIC COORDINATES FOR ALL THE ORBITS OF EXPLORER 34. THE X-Y, X-Z, AND Y-Z PROJECTIONS ARE AVAILABLE FOR BOTH COORDINATE SYSTEMS. THE X-Y SOLAR ECLIPTIC PROJECTION SHOWS THE COMPUTED AVERAGE POSITION OF THE BOW SHOCK AS COMPUTED BY DR. O. FAIRFIELD OF GSFC. TWO THREE-DIMENSIONAL PERSPECTIVES ARE ALSO AVAILABLE FOR EACH COORDINATE SYSTEM FOR EACH ORBIT. EVERY PLOT SHOWS ONE FULL ORBIT CURVE AND TABULAR LISTINGS OF THE ORBIT NUMBER, APOGEE, PERIGEE, START TIME, STOP TIME, COORDINATE SYSTEM, AND PROJECTION OR PERSPECTIVE FOR THE ORBIT. AN ASTERISK IS USED TO MARK THE FIRST MOON OR MIDNIGHT (UT) ENCOUNTERED, WITH TICK MARKS USED AT SUCCESSIVE 12-HOUR POINTS.

DATA SET NAME- SOLAR ECLIPTIC EPHEMERIS PLOTS

NSSDC ID- 67-051A-00E

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 05/24/67 TO 03/00/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 CARD(S) OF B/W MICROFICHE

THE PUBLICATION, 'TRAJECTORIES OF EXPLORERS 33, 34, AND 35, JULY 1966 - APRIL 1969,' WRITTEN BY K. W. BEHANNON, K. H. SCHATTEN, O. H. FAIRFIELD, AND N. F. NESS (NASA-GSFC X-692-70-64, FEBRUARY 1970) CONTAINS THE TRAJECTORIES OF EXPLORERS 33, 34, AND 35 FROM LAUNCH TO APRIL 1969 (EXCEPT FOR EXPLORER 34 FOR WHICH THERE ARE NO PLOTS AFTER MARCH 1969) AS PROJECTED INTO THE X-Y PLANE IN SOLAR ECLIPTIC COORDINATES. TICK MARKS, 1-DAY APART, ARE SHOWN FOR EXPLORERS 33 AND 35 AND, WHERE POSSIBLE, FOR EXPLORER 34. THIS PUBLICATION ALSO HAS THE X-Z SOLAR ECLIPTIC ORBIT PROJECTIONS OF THESE SATELLITES FOR JANUARY 1969 TO APRIL 1969. COMPUTED AVERAGE POSITIONS OF THE BOW SHOCK AND MAGNETOPAUSE ARE ALSO SHOWN.

DATA SET NAME- U OF CHICAGO EPHEMERIS DATA ON TAPE

NSSDC ID- 67-051A-00F

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 05/24/67 TO 05/03/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 5 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF FIVE 7-TRACK, 800-BPI, BINARY TAPES USING XDS 930 INTEGER FORMAT. THE TAPES WERE GENERATED BY PERSONNEL AT THE UNIVERSITY OF CHICAGO. EACH PHYSICAL RECORD CONSISTS OF 40 LOGICAL RECORDS OF 25 WORDS EACH. END-OF-FILE MARKS SEPARATE ORBITS, AND A DOUBLE END-OF-FILE MARK ENDS EACH TAPE. EPHEMERIS POINTS (LOGICAL RECORDS) ARE GIVEN AT 61.44-SEC INTERVALS. DATA PRESENTED INCLUDE TIME, PSEUDO SEQUENCE COUNT, SATELLITE RADIAL DISTANCE, SATELLITE AND SUN GEOCENTRIC AND GEOMAGNETIC LATITUDE AND LONGITUDE, SATELLITE SOLAR-MAGNETOSPHERIC COORDINATES, SATELLITE-EARTH-SUN ANGLE, SATELLITE SPEED, B AND L, B/B0, AND THE SOLAR ECLIPTIC COMPONENTS OF THE GSFC (12/66) MODEL GEOMAGNETIC FIELD AS UPDATED TO 1965.0. THERE ARE NO KNOWN SIGNIFICANT DATA GAPS.

ANDERSON, IMP-F

EXPERIMENT NAME- ION CHAMBER

NSSDC ID- 67-051A-02

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 11/05/67

PERSONNEL
PI - K.A. ANDERSON ..... U OF CALIF, BERKELEY
BERKELEY, CA
OI - G.H. PITT ..... U OF CALIF, BERKELEY
BERKELEY, CA

THE INSTRUMENTATION FOR THIS EXPERIMENT CONSISTED OF A 4-IN. NEHER TYPE IONIZATION CHAMBER AND TWO LIONEL TYPE 205 HT GEIGER-MUELLER TUBES. THE ION CHAMBER RESPONDED OMNIDIRECTIONALLY TO ELECTRONS ABOVE 0.7 MEV AND PROTONS ABOVE 12 MEV. BOTH GM TUBES WERE MOUNTED PARALLEL TO THE SPACECRAFT SPIN AXIS. GM TUBE A DETECTED ELECTRONS ABOVE 45 KEV THAT WERE SCATTERED OFF A GOLD FOIL. THE ACCEPTANCE CONE FOR THESE ELECTRONS HAD A 70-DEG FULL ANGLE AND AN AXIS OF SYMMETRY THAT WAS 20 DEG OFF THE SPACECRAFT SPIN AXIS. GM TUBE B RESPONDED TO ELECTRONS AND PROTONS ABOVE 22 AND 300 KEV, RESPECTIVELY, IN AN ACCEPTANCE CONE OF 70-DEG FULL ANGLE CENTERED AT THE SPIN DIRECTION. BOTH GM TUBES RESPONDED OMNIDIRECTIONALLY TO ELECTRONS AND PROTONS OF ENERGIES ABOVE 2.5 AND 50 MEV, RESPECTIVELY. PULSES FROM THE ION CHAMBER AND COUNTS FROM EACH GM TUBE WERE ACCUMULATED FOR 9.92 SEC AND READ OUT EVERY 10.24 SEC. THE TIME BETWEEN THE FIRST TWO ION CHAMBER PULSES IN AN ACCUMULATION PERIOD WAS ALSO TELEMETERED. THIS EXPERIMENT PERFORMED NORMALLY FROM LAUNCH THROUGH SEPTEMBER 8, 1967, WHEN GM TUBE A FAILED. ON NOVEMBER 5, 1967, GM TUBE B FAILED AND THE EXPERIMENT WAS TERMINATED. FOR FURTHER DETAILS, SEE LIN, SOLAR PHYSICS, VOL 12, P 266, 1970.

DATA SET NAME- ION CHAMBER AND GM TUBE COUNT RATES ON MICROFILM

NSSDC ID- 67-051A-02A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 05/24/67 TO 09/15/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET, SUPPLIED BY THE EXPERIMENTER, CONSISTS OF COUNT RATE PLOTS (COUNTS/SEC VS UT, EARTH-SPACECRAFT DISTANCE, MAGNETOSPHERIC LATITUDE, AND ECLIPTIC LONGITUDE) FOR THE ION CHAMBER AND TWO GM TUBES OF THE EXPERIMENT. THE PLOTS ARE CHRONOLOGICALLY ORDERED ON ONE REEL OF 35-MM MICROFILM. THE GM COUNT RATES ARE DEAD TIME CORRECTED. EACH PLOT COVERS A 24-HR TIME PERIOD AND CONTAINS THREE TRACES -- (1) ELECTRONS ABOVE 45 KEV FOR GM TUBE A (DESIGNATED 'SCATTER' PARTICLES IN THE PLOTS), (2) ELECTRONS ABOVE 22 KEV AND PROTONS ABOVE 300 KEV FOR GM TUBE B (DESIGNATED 'OPEN' PARTICLES IN THE PLOTS), AND (3) ELECTRONS ABOVE 0.7 MEV AND PROTONS ABOVE 12 MEV FOR THE ION CHAMBER. THE PLOTS ARE ANNOTATED WITH DATA QUALITY FLAGS. HOWEVER, THESE FLAGS DENOTE THE NOISINESS OF DATA TRANSMISSION AND NOT NECESSARILY THE INTRINSIC QUALITY OF THE DATA. THE SCALING FACTORS FOR EACH OF THE THREE TRACES APPEAR AT THE TOP OF EACH PLOT.

BOSTROM, IMP-F

EXPERIMENT NAME- SOLAR PROTON MONITORING EXPERIMENT

NSSDC ID- 67-051A-07

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 05/03/69

PERSONNEL
PI - C.O. BOSTROM ..... APPLIED PHYSICS LAB
SILVER SPRING, MD
OI - D.J. WILLIAMS ..... NOAA-ERL
BOULDER, CO
OI - D.E. HAGGE ..... NASA-JSC
HOUSTON, TX
OI - F.B. MCDONALD ..... NASA-GSFC
GREENBELT, MD

THE SOLAR PROTON MONITORING EXPERIMENT USED FOUR SEPARATE DETECTORS, EACH OF WHICH USED ONE OR MORE SOLID-STATE SENSORS. THREE DETECTORS MEASURED THE OMNIDIRECTIONAL FLUXES OF PROTONS AND ALPHA PARTICLES WITH ENERGY PER NUCLEON VALUES ABOVE 10, 30, AND 60 MEV. ALPHA PARTICLE CONTRIBUTIONS TO THE TOTAL COUNT RATES WERE GENERALLY LESS THAN 10 PERCENT. THESE DETECTORS WERE ALSO SENSITIVE TO ELECTRONS ABOVE APPROXIMATELY 0.7, 2, AND 8 MEV, RESPECTIVELY. THE 10-MEV CHANNEL WAS SAMPLED FOR TWO 19.2 SEC INTERVALS EVERY 163.8 SEC AND THE 30- AND 60-MEV CHANNELS FOR ONE 19.2 SEC INTERVAL EVERY 163.8 SEC. RESULTANT HOURLY AVERAGED FLUXES HAVE BEEN PUBLISHED IN SOLAR-GEOPHYSICAL DATA (NOAA, BOULDER) ON A RAPID BASIS. THE FOURTH DETECTOR HAD A 60-DEG FULL LOOK ANGLE NORMAL TO THE SPACECRAFT SPIN AXIS AND MEASURED FLUXES OF 1- TO 10-MEV PROTONS FOR TWO 19.2 SEC INTERVALS EVERY 163.8 SEC. DATA WERE OBTAINED FROM THE FIRST THREE DETECTORS BETWEEN LAUNCH AND MAY 3, 1969. DATA FROM THE FOURTH DETECTOR WERE OBTAINED BETWEEN LAUNCH AND JUNE 12, 1968.

DATA SET NAME- DAILY AVERAGED COUNT RATES, 10-, 30-, 60-MEV CHANNELS

NSSDC ID- 67-051A-07A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 05/24/67 TO 05/02/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF ONE REEL OF 16-MM MICROFILM WHICH CONTAINS COPIES OF EXPERIMENTER-SUPPLIED PLOTS OF DAILY AVERAGED COUNT RATES VERSUS TIME TAKEN IN THE 10-, 30-, AND 60-MEV PROTON CHANNELS.

DATA SET NAME- HOURLY AVERAGED SOLAR PROTON FLUXES PUBLISHED IN 'SOLAR-GEOPHYSICAL DATA'

NSSDC ID- 67-051A-07B

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 05/24/67 TO 05/02/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 17 BOOK(S) OR BOUND VOLUME(S)

THIS PUBLISHED DATA SET CONSISTS OF MONTHLY PLOTS AND TABULAR LISTINGS OF HOURLY AVERAGED OMNIDIRECTIONAL FLUXES OF PROTONS WITH ENERGIES ABOVE 10, 30, AND 60 MEV. DATA OBTAINED DURING A GIVEN MONTH WERE PUBLISHED IN 'SOLAR-GEOPHYSICAL DATA (COMPREHENSIVE REPORTS)' WITH A 6-MONTH LAG.

DATA SET NAME- COUNT RATES ON ENCYCLOPEDIA TAPES

NSSDC ID- 67-051A-07C

AVAILABILITY OF DATA SET- DATA AT NSSDC

ORIGINAL PAGE IS OF POOR QUALITY

TIME PERIOD COVERED- 05/24/67 TO 05/03/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 22 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF 22 IBM 360 BINARY, 800-BPI, 9-TRACK TAPES AS SUBMITTED BY THE EXPERIMENTER. SEVEN-TRACK COPIES EXIST. EACH TAPE HAS ONE FILE AND IS BLOCKED WITH 20 LOGICAL RECORDS PER PHYSICAL RECORD. EACH LOGICAL RECORD HAS 176 32-BIT WORDS. THERE ARE INTERSPERSED ON THE TAPES BOTH ID RECORDS AND DATA RECORDS. THERE IS ONE ID RECORD FOR A GIVEN SEGMENT OF DATA OBTAINED BY ONE TRACKING STATION DURING ONE SPACECRAFT PASS OVER THAT STATION. THE DATA LOGICAL RECORDS CONTAIN TIME, DATA QUALITY INDICATORS, DEAD-TIME CORRECTED COUNT RATES (CPS) OBTAINED FROM ALL THE DETECTOR READINGS TAKEN DURING ONE 2.73-MIN INTERVAL, ORBIT DATA, AND OTHER MISCELLANEOUS INFORMATION. DATA COVERAGE BETWEEN MAY 24, 1967, AND MAY 3, 1969, IS VIRTUALLY COMPLETE.

DATA SET NAME- EDITED HOURLY AVERAGED COUNT RATES ON MAGNETIC TAPE

NSSDC ID- 67-051A-07D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 05/24/67 TO 05/03/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF ONE EXPERIMENTER-SUPPLIED TAPE, WHICH IS OF 7-TRACK, 800 BPI, IBM/360 BINARY FORMAT. EACH LOGICAL RECORD CONSISTS OF 3120 8-BIT BYTES AND CONTAINS DATA FOR 1 DAY. THERE ARE SIX LOGICAL RECORDS PER PHYSICAL RECORD, AND ONE FILE FOR EACH CALENDAR YR OF DATA ON THE TAPE. DATA GIVEN WITHIN EACH LOGICAL RECORD INCLUDE TIME, EPHEMERIS DATA, AND HOURLY AVERAGED COUNT RATES FOR EACH OF THE FIVE EXPERIMENT COUNTING MODES. THESE RATES WERE THOROUGHLY EDITED, IN THAT NOISE POINTS AND MAGNETOSPHERIC COUNTING HAVE BEEN REMOVED. RECOGNIZABLY INTERPOLATED INTERPLANETARY COUNT RATE VALUES HAVE BEEN INSERTED FOR MAGNETOSPHERIC TRAVERSAL PERIODS. THE TIME COVERAGE IS ESSENTIALLY COMPLETE BETWEEN MAY 24, 1967 AND MAY 3, 1969. WHEN TAKEN TOGETHER WITH THE CORRESPONDING DATA SET FROM IMP 5 (69-053A-07C), THESE DATA PROVIDE A NEARLY CONTINUOUS RECORD OF 1 TO 100 MEV INTERPLANETARY PROTON FLUXES FROM MAY 1967 TO DECEMBER 1972.

BROWN, IMP-F

EXPERIMENT NAME- LOW-ENERGY SOLID-STATE TELESCOPE

NSSDC ID- 67-051A-01

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 05/03/69

PERSONNEL

PI -	W.L. BROWN	BELL TELEPHONE LAB	MURRAY HILL, NJ
OI -	G.L. MILLER	BELL TELEPHONE LAB	MURRAY HILL, NJ
OI -	C.S. ROBERTS	BELL TELEPHONE LAB	MURRAY HILL, NJ

A FOUR-ELEMENT SOLID-STATE TELESCOPE WITH AN ACCEPTANCE CONE HALF ANGLE OF 20 DEG WAS MOUNTED NORMAL TO THE SPACECRAFT SPIN AXIS. DURING EACH 2.73-MIN INTERVAL, 9.82-SEC ACCUMULATIONS WERE OBTAINED IN EACH OF 16 DISTINCT COUNTING MODES. THESE MODES INVOLVED PROTONS IN FIVE ENERGY INTERVALS COVERING 0.6 TO 18 MEV, ALPHA PARTICLES IN FOUR INTERVALS COVERING 1.7 TO 80 MEV, AND ELECTRONS, DEUTERONS, TRITONS, AND HELIUM-3 NUCLEI IN THE INTERVALS 0.3 TO 3, 5 TO 20, 5.5 TO 25, AND 11 TO 72 MEV, RESPECTIVELY. ONBOARD CALIBRATION CHECKS WERE PERFORMED EVERY 6 HR. THE EXPERIMENT PERFORMED NORMALLY FROM LAUNCH TO THE SPACECRAFT REENTRY DATE MAY 3, 1969. FOR FURTHER DETAILS, SEE LANZEROTTI, JGR, VOL 74, P 2851, 1969, AND REFERENCES CONTAINED THEREIN.

DATA SET NAME- REDUCED ELECTRON, PROTON, AND HEAVIER ION TELESCOPE DATA ON MAGNETIC TAPE

NSSDC ID- 67-051A-01A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 05/24/67 TO 05/03/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 33 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF THIRTY-THREE 7-TRACK, 800-BPI, GE/635 BINARY MAGNETIC TAPES SUBMITTED BY THE EXPERIMENTER. EXPERIMENT DATA RECORDS AND EPHEMERIS RECORDS ARE INTERSPERSED ON THE TAPES. THE DATA RECORDS ARE MADE UP OF TEN 36-BIT COMPUTER WORDS, WITH EACH WORD BEING FURTHER BROKEN DOWN INTO INTEGER NUMBERS OF SPECIFIED MEANINGS. DATA FOR ONE EXPERIMENT SEQUENCE (19.23 SEC) ARE FOUND IN ONE RECORD AND INCLUDE (1) TIME (UT), (2) SPACECRAFT CLOCK DATA, (3) COUNTS FOR EACH OF THE FIVE REGISTERS FOR ONE SENSOR COINCIDENCE MODE, AND (4) DATA QUALITY FLAGS RELATED TO THE NOISINESS OF BIT TRANSMISSION. THE EPHEMERIS RECORDS CONSIST OF TWENTY 36-BIT WORDS, 19 OF WHICH ARE FLOATING POINT. EPHEMERIS RECORDS OCCUR ONCE EACH 1 OR 10 MIN ACCORDING TO WHETHER THE SPACECRAFT RADICAL DISTANCE IS LESS THAN OR GREATER THAN 42,000 KM. EPHEMERIS DATA INCLUDE SPACECRAFT RADIAL DISTANCE, GEOCENTRIC LATITUDE AND LONGITUDE, INERTIAL ECLIPTIC DECLINATION AND RIGHT ASCENSION, SOLAR ECLIPTIC AND MAGNETOSPHERIC CARTESIAN COORDINATES, AND B AND L. THERE ARE NO DATA GAPS LASTING LONGER THAN 24 HOURS. THERE ARE 4 GAPS OF MORE THAN 6 HOURS, AND 14 GAPS OF MORE THAN 2 HOURS OVER THE 2 YEAR PERIOD COVERED BY THE DATA.

DATA SET NAME- REDUCED COUNT RATE PLOTS ON MICROFILM

NSSDC ID- 67-051A-01C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 05/24/67 TO 05/03/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 90 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF 35-MM MICROFILM SUBMITTED BY THE EXPERIMENTER. PLOTTED ARE COUNTS OBTAINED IN INDIVIDUAL ACCUMULATION INTERVALS AND FLAGGED AS GOOD DATA. CALIBRATION MODE COUNTS AND OCCASIONAL DATA POINTS THAT ARE OBVIOUSLY BAD BUT ARE FLAGGED AS GOOD DUE TO THE CLEANLINESS OF THEIR SPACECRAFT-TO-EARTH TRANSMISSION ARE VISIBLE. EACH MICROFILM REEL CONTAINS ABOUT 8 DAYS OF DATA. EACH FRAME CONTAINS 8 HR OF DATA. THERE ARE 24 DATA FRAMES COVERING EACH 8 HR INTERVAL. THESE FRAMES COVER ALL THE EXPERIMENT COUNTING MODES. EVERY 25TH FRAME CONTAINS 8 HR OF EPHEMERIS DATA (RADIAL DISTANCE AND SOLAR MAGNETOSPHERIC AND SOLAR ECLIPTIC LATITUDE AND LONGITUDE). ALL THE DATA OBTAINED BY THIS EXPERIMENT OVER THE LIFE OF THE SPACECRAFT ARE AVAILABLE FROM NSSDC IN THIS FORM.

MCCRACKEN, IMP-F

EXPERIMENT NAME- COSMIC-RAY ANISOTROPY

NSSDC ID- 67-051A-05

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 05/03/69

PERSONNEL

PI -	K.G. MCCRACKEN	U OF ADELAIDE	ADELAIDE, AUSTRALIA
OI -	R.U. RAO	PHYSICAL RESEARCH LA	AHMEDABAD, INDIA
OI -	W.C. BARTLEY	NATL ACADEMY OF SCI	WASHINGTON, DC

THIS EXPERIMENT WAS DESIGNED TO STUDY SOLAR PARTICLE ANISOTROPY AND ITS VARIATION WITH TIME. A TELESCOPE, CONSISTING OF THREE ALIGNED DETECTORS (A, SOLID STATE, B, PLASTIC SCINTILLATOR, C, CSI SCINTILLATOR) AND A PLASTIC SCINTILLATOR ANTICOINCIDENCE SHIELD (D), WAS USED TO MEASURE PROTONS FROM 0.8 TO 7.0 MEV (COUNTS IN A BUT NOT IN B) AND FROM 35 TO 110 MEV (COINCIDENT COUNTS IN B (DE/DX) AND C (TOTAL E) BUT NOT IN D). PULSE HEIGHT ANALYSIS YIELDED SIX-POINT SPECTRA WITHIN EACH OF THESE TWO ENERGY INTERVALS. PROTONS FROM 7 TO 55 MEV (COUNTS IN A AND B) WERE ALSO RECORDED WITHOUT SPECTRAL INFORMATION. IN ADDITION, A PROPORTIONAL COUNTER PROVIDED DIRECTIONAL MEASUREMENTS OF X RAYS WITH ENERGIES ABOVE 2 KEV AND ELECTRONS ABOVE 70 KEV. COUNTS IN EACH PARTICLE COUNTING MODE WERE OBTAINED IN EACH OF EIGHT OCTANTS IN THE ECLIPTIC PLANE. X-RAY COUNTS WERE OBTAINED IN THE SOLAR OCTANT. A COMPLETE SET OF COUNT RATES AND SPECTRAL DATA WAS OBTAINED EVERY 81.9 SEC. THE PROPORTIONAL COUNTER AND TELESCOPE WORKED WELL FROM LAUNCH UNTIL MARCH 27, 1968, AND MAY 3, 1969 (SPACECRAFT REENTRY DATE), RESPECTIVELY. FOR A MORE DETAILED DESCRIPTION, SEE SOLAR PHYSICS, 17, PAGE 218 (1971).

DATA SET NAME- HOURLY AVERAGED COUNT RATES ON TAPE

NSSDC ID- 67-051A-05A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 05/24/67 TO 05/02/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF ONE 7-TRACK, 800-BPI, BCD MAGNETIC TAPE SUBMITTED BY THE EXPERIMENTER. EACH PHYSICAL RECORD CONSISTS OF 240 CARD IMAGE LOGICAL RECORDS. EACH LOGICAL RECORD CONTAINS TIME AND HOURLY AVERAGED COUNT RATES. IN THE FIRST OF FOUR FILES, COUNT RATES FOR EACH OF THE FOUR SENSORS MAKING UP THE COMPOSITION TELESCOPE ARE GIVEN. THESE ARE OF SOMEWHAT LIMITED UTILITY BECAUSE GEOMETRICAL FACTORS ARE SIGNIFICANTLY ENERGY DEPENDENT. IN THE SECOND FILE, 0.7- TO 7.6-MEV PROTON COUNT RATES FOR EACH OF EIGHT AZIMUTHAL OCTANTS ARE GIVEN. IN THE THIRD FILE, COUNT RATES FOR EACH OF EIGHT AZIMUTHAL OCTANTS OBTAINED FROM THE PROPORTIONAL COUNTER ARE GIVEN. IN THE LAST FILE, 7- TO 55-MEV PROTON COUNT RATES FOR EACH OF EIGHT AZIMUTHAL OCTANTS ARE GIVEN. THE COUNT RATES IN THE LAST THREE FILES ARE READILY CONVERTIBLE TO FLUXES. THE DATA IN EACH FILE ARE COMPLETE FROM LAUNCH THROUGH MAY 2, 1969 (FILE 1), MARCH 16, 1969 (FILE 2), FEBRUARY 15, 1968 (FILE 3), AND JUNE 11, 1967 (FILE 4).

MCDONALD, IMP-F

EXPERIMENT NAME- LOW-ENERGY PROTON AND ALPHA DETECTOR

NSSDC ID- 67-051A-09

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 05/03/69

PERSONNEL
PI - F.B. MCDONALD ..... NASA-GSFC
GREENBELT, MD
OI - G.H. LUDWIG ..... NOAA
SUITLAND, MD

THIS EXPERIMENT USED A DE/DX E TELESCOPE WITH ONE THIN AND TWO THICK SURFACE BARRIER, SOLID-STATE DETECTORS AND AN ANTICOINCIDENCE PLASTIC SCINTILLATOR COUNTER. THE TWO THICK DETECTORS ACTED TOGETHER AS ONE DETECTOR. THE TELESCOPE AXIS WAS PERPENDICULAR TO THE SPACECRAFT SPIN AXIS. COUNTS OF PARTICLES PENETRATING THE THIN DETECTOR AND STOPPING IN A THICK DETECTOR WERE ACCUMULATED FOR TWO 4.48-SEC INTERVALS EVERY 2.73 MIN. THE RELATIVE CONTRIBUTIONS TO THE COUNT RATE OF PROTONS AND ALPHA PARTICLES WITH ENERGIES BETWEEN 4.2 AND 19.1 MEV/NUCLEON AND ENERGY SPECTRAL INFORMATION WERE DETERMINED BY 1024-CHANNEL PULSE HEIGHT ANALYSIS, WHICH WAS PERFORMED SIMULTANEOUSLY ON THE OUTPUT OF THE SOLID-STATE DETECTORS EIGHT TIMES EVERY 2.73 MIN. PROTONS STOPPING IN THE THIN DETECTOR (AND PARTICLES PENETRATING IT) WERE MEASURED BY PASSING THE OUTPUT SIGNAL THROUGH AN EIGHT-LEVEL ENERGY THRESHOLD DISCRIMINATOR. THE EIGHT CORRESPONDING PROTON ENERGIES RAN FROM 1.1 TO ABOUT 4 MEV. DATA FROM ANY ONE LEVEL WERE TRANSMITTED ONCE EVERY 2.73 MIN. THE ANTICOINCIDENCE SCINTILLATOR FAILED IN MARCH 1968. THIS RESULTED IN SOMEWHAT HIGHER BACKGROUND COUNT RATES, WHICH RENDERED ISOTOPIC (BUT NOT CHARGE) SEPARATION MORE DIFFICULT. EXCEPT AS ALREADY NOTED, THE EXPERIMENT PERFORMED WELL FROM LAUNCH UNTIL MAY 3, 1969 (SPACECRAFT REENTRY DATE).

DATA SET NAME- MICROFILM OF CATALOG OF SOLAR COSMIC RAY
EVENTS (VAN HOLLEBEKE ET AL, X-661-74-27)

NSSDC ID- 67-051A-09A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 05/25/67 TO 05/02/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF A MICROFILMED VERSION OF THE DOCUMENT 'A CATALOG OF SOLAR COSMIC RAY EVENTS - IMPS 4 AND 5 (MAY 1967 - DECEMBER 1972),' BY H. A. VANHOLLEBEKE, J. R. WANG, AND F. B. MCDONALD (GSFC X-661-74-27, JANUARY 1974). THE CATALOG CONTAINS PLOTS FOR ABOUT 185 EVENTS, WITH AN 'EVENT' DEFINED AS AN INCREASE IN THE 20- TO 80-MEV PROTON FLUX WHICH EXCEEDS 0.0001 PROTONS/(CM SQ SEC STER MEV) AND LASTS FOR MORE THAN 5 HRS. THE MINIMUM INCREASE OVER THIS ENERGY RANGE CORRESPONDS TO ABOUT 5 PERCENT OF THE TOTAL GALACTIC COSMIC-RAY FLUX AT 1 AU. THE DATA ARE PRESENTED AS HOURLY-AVERAGED FLUXES (10 DAYS PER PAGE) FOR THREE PROTON ENERGY INTERVALS (0.9 TO 1.6, 6 TO 20, AND 20 TO 80 MEV) AND FOR ONE ELECTRON INTERVAL (0.5 TO 1.1 MEV). ELECTRON ONSET TIMES ARE SPECIFIED WITH INDICATED UNCERTAINTIES BETWEEN 3 AND 30 MIN. PROTON ONSET TIMES ARE SPECIFIED FOR EVENTS WITH NO DISCERNIBLE ELECTRON INCREASES. DATA GAPS ASSOCIATED WITH PERIGEE PASSES AND OCCASIONAL SATURATION PERIODS ARE CLEARLY MARKED.

MCDONALD, IMP-F

EXPERIMENT NAME- COSMIC-RAY ENERGY VS ENERGY LOSS

NSSDC ID- 67-051A-10

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED-,05/03/69

PERSONNEL
PI - F.B. MCDONALD ..... NASA-GSFC
GREENBELT, MD
OI - G.H. LUDWIG ..... NOAA
SUITLAND, MD

THIS EXPERIMENT USED A DE/DX, E TELESCOPE WITH THIN AND THICK CSI SCINTILLATORS (ONE EACH) AND AN ANTICOINCIDENCE PLASTIC SCINTILLATION COUNTER. THE TELESCOPE AXIS WAS PARALLEL TO THE SPACECRAFT SPIN AXIS. COUNTS OF PARTICLES PENETRATING THE THIN CSI SCINTILLATOR AND STOPPING IN THE THICK CSI SCINTILLATOR WERE ACCUMULATED FOR A 4.48-SEC INTERVAL TWICE EVERY 2.73 MIN. THE RELATIVE CONTRIBUTION TO THE COUNT RATE OF VARIOUS SPECIES (ELECTRONS BETWEEN 2.7 AND 21.5 MEV, NUCLEI WITH CHARGE 1 AND 2, ATOMIC MASS 1, 2, 3, AND 4, AND ENERGY BETWEEN 18.7 AND 81.6 MEV/NUCLEON) AND ENERGY SPECTRAL INFORMATION WERE DETERMINED BY 1024-CHANNEL PULSE HEIGHT ANALYSIS PERFORMED SIMULTANEOUSLY ON THE OUTPUT OF BOTH CSI SCINTILLATORS 16 TIMES EVERY 2.73 MIN. COUNTS OF ELECTRONS BETWEEN 0.3 AND 0.9 MEV STOPPING IN THE THIN SCINTILLATOR WERE ALSO OBTAINED ONCE EACH 2.73 MIN. EXCEPT AS NOTED ABOVE, THE EXPERIMENT PERFORMED WELL FROM LAUNCH TO MAY 3, 1969 (SPACECRAFT REENTRY DATE).

DATA SET NAME- MICROFILM OF CATALOG OF SOLAR COSMIC-RAY
EVENTS (VAN HOLLEBEKE ET AL, X-661-74-27)

NSSDC ID- 67-051A-10A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 05/25/67 TO 05/02/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF A MICROFILMED VERSION OF THE DOCUMENT 'A CATALOG OF SOLAR COSMIC RAY EVENTS - IMPS 4 AND 5 (MAY 1967 - DECEMBER 1972),' BY H. A. VANHOLLEBEKE, J. R. WANG, AND F. B. MCDONALD (GSFC X-661-74-27, JANUARY 1974). THE CATALOG CONTAINS PLOTS FOR ABOUT 185 EVENTS, WITH AN 'EVENT' DEFINED AS AN INCREASE IN THE 20- TO 80-MEV PROTON FLUX WHICH EXCEEDS 0.0001 PROTONS/(CM SQ SEC STER MEV) AND LASTS FOR MORE THAN 5 HRS. THE MINIMUM INCREASE OVER THIS ENERGY RANGE CORRESPONDS TO ABOUT 5 PERCENT OF THE TOTAL GALACTIC COSMIC-RAY FLUX AT 1 AU. THE DATA ARE PRESENTED AS HOURLY-AVERAGED FLUXES (10 DAYS PER PAGE) FOR THREE PROTON ENERGY INTERVALS (0.9 TO 1.6, 6 TO 20, AND 20 TO 80 MEV) AND FOR ONE ELECTRON INTERVAL (0.5 TO 1.1 MEV). ELECTRON ONSET TIMES ARE SPECIFIED WITH INDICATED UNCERTAINTIES BETWEEN 3 AND 30 MIN. PROTON ONSET TIMES ARE SPECIFIED FOR EVENTS WITH NO DISCERNIBLE ELECTRON INCREASES. DATA GAPS ASSOCIATED WITH PERIGEE PASSES AND OCCASIONAL SATURATION PERIODS ARE CLEARLY MARKED.

OGILVIE, IMP-F

EXPERIMENT NAME- ELECTROSTATIC ANALYZER

NSSDC ID- 67-051A-08

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 01/30/68

PERSONNEL
PI - K.W. OGILVIE ..... NASA-GSFC
GREENBELT, MD
OI - T.D. WILKERSON ..... U OF MARYLAND
COLLEGE PARK, MD

AN ELECTROSTATIC ANALYZER AND AN E CROSS B VELOCITY SELECTOR NORMAL TO THE SPACECRAFT SPIN AXIS WERE USED TO SEPARATELY DETERMINE PROTON AND ALPHA PARTICLE SPECTRA IN THE SOLAR WIND. FOR EACH SPECIES, MEASUREMENTS IN THE ENERGY PER CHARGE RANGE 310 TO 5100 EV WERE MADE AT 14 POINTS LOGARITHMICALLY EQUISPACED IN ENERGY. DURING INDIVIDUAL SPACECRAFT ROTATIONS, COUNTS WERE OBTAINED IN EACH OF SIXTEEN 22.5-DEG SECTORS FOR A GIVEN SPECIES AND ENERGY. THE SUM OF THESE COUNTS, THE SUM OF THE SQUARES OF THESE COUNTS, AND THE SECTOR NUMBER OF MAXIMUM COUNTING WERE TELEMETERED TO EARTH. AFTER SUCCESSIVE 61.44-SEC SPECTRAL DETERMINATIONS FOR PROTONS AND ALPHA PARTICLES, 15 CONSECUTIVE READINGS FOR PROTONS AT 1408 EV WERE OBTAINED. A PERIOD OF 3.07 MIN SEPARATED TWO SPECTRA OF THE SAME SPECIES. THE INSTRUMENT OPERATED NORMALLY UNTIL JANUARY 30, 1968. AT THAT TIME, IT WAS TURNED OFF AS SPACECRAFT APOGEE HAD MOVED INTO THE MAGNETOTAIL. LATER, ATTEMPTS TO REACTIVATE THE SENSOR FAILED.

DATA SET NAME- REDUCED ENERGY SPECTRUM DATA WITH DERIVED PLASMA PARAMETERS ON MICROFILM

NSSDC ID- 67-051A-08A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 05/27/67 TO 01/30/68 (AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 5 REEL(S) OF MICROFILM

THIS EXPERIMENTER GENERATED DATA SET CONSISTS OF REDUCED VELOCITY STEP COUNTS (ENERGY SPECTRA). THE LOCATION NUMBER OF THE 22.5-DEG SECTOR WHERE MAXIMUM COUNTS WERE RECORDED, AN INDICATION OF THE AZIMUTHAL ANGULAR SPREAD IN THE INCOMING FLUX OF PARTICLES, THE DERIVED PLASMA FLUID PARAMETERS FOR EACH ENERGY SPECTRA, AND EPHEMERIS INFORMATION. THE THERMAL SPEED TO CONVECTION SPEED RATIO IS ALSO INCLUDED. THE DATA ARE CONTAINED ON FOUR REELS OF 35-MM MICROFILM AND ONE REEL OF 16-MM MICROFILM. DATA ARE GIVEN SEPARATELY FOR BOTH PROTONS AND ALPHA PARTICLES. THE TIME BETWEEN EACH SPECTRA IS 3 MIN, WITH THE TIME TO ACQUIRE ONE SPECTRA BEING 1 MIN. THE PLASMA PARAMETERS WERE DERIVED BY FITTING A SERIES OF CONVECTED MAXWELLIAN DISTRIBUTION FUNCTIONS TO THE VELOCITY STEP SPECTRUM, CONSIDERING THREE POINTS AT A TIME. THE RESULTING DISTRIBUTION FUNCTION WAS USED TO CALCULATE THE DENSITY, MEAN VELOCITY, AND TEMPERATURE BY THE METHOD OF MOMENTS. DATA ARE AVAILABLE WITH A 95 PERCENT COVERAGE FROM MAY 27, 1967, TO JANUARY 30, 1968.

DATA SET NAME- PLASMA PARAMETERS MERGED WITH MAGNETIC FIELD DATA ON TAPE

NSSDC ID- 67-051A-08B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 05/24/67 TO 01/30/68 (AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 6 REEL(S) OF MAGNETIC TAPE

THESE DATA, SUPPLIED BY THE EXPERIMENTER, CONSIST OF 3.07-MIN VALUES OF THE BULK PLASMA PARAMETERS ON MAGNETIC TAPE. MERGED WITH A 20.48-SEC MAGNETIC FIELD DATA SET (67-051A-11A), THE PLASMA PARAMETER DATA ARE ON SIX 9-TRACK, 800-BPI, IBM 360, BINARY MAGNETIC TAPES. EACH PHYSICAL RECORD CONTAINS 280 LOGICAL RECORDS, AND EACH LOGICAL RECORD CONTAINS 27 FOUR-BYTE DATA WORDS. EACH TAPE CONTAINS DATA FOR 10 ORBITS (43 DAYS). DENSITY, TEMPERATURE, BULK VELOCITY, THE RATIO OF BULK VELOCITY TO THERMAL SPEED, AND FLOW DIRECTION ARE INCLUDED FOR BOTH THE PROTON AND ALPHA PARTICLES COMPONENTS OF THE SOLAR WIND AND SHEATH PLASMA. THESE PARAMETERS WERE COMPUTED BY FITTING AN APPROPRIATE SMOOTH CURVE THROUGH ALL THE MEASURED SPECTRAL POINTS SUFFICIENTLY ABOVE THRESHOLD AND THEN TAKING MOMENTS OF THIS EMPIRICAL DISTRIBUTION FUNCTION.

SIMPSON, IMP-F

EXPERIMENT NAME- COSMIC-RAY PROTON (R VS DE/DX)

NSSDC ID- 67-051A-03

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 05/03/69

PI - J.A. SIMPSON ..... U OF CHICAGO
CHICAGO, IL

THE EXPERIMENT WAS DESIGNED TO MEASURE SEPARATELY THE CONTRIBUTIONS OF SOLAR NUCLEI AND OF GALACTIC NUCLEI (Z.LE.14) USING A SOLID STATE COSMIC RAY TELESCOPE DESIGNED FOR ENERGY-LOSS VS RANGE OR TOTAL ENERGY MEASUREMENTS. THE PARTICLE ENERGY PER NUCLEON INTERVALS WERE APPROXIMATELY PROPORTIONAL TO Z SQUARED/A. FOR EXAMPLE, FOR PROTONS 0.8 TO 9.6 MEV, 9.6 TO 18.8 MEV, 29.5 TO 94.2 MEV, AND 94.2 TO 170 MEV AND ABOVE. THE DETECTOR VIEWING ANGLE WAS PERPENDICULAR TO THE SATELLITE SPIN AXIS. A SECOND, SMALLER, SOLID-STATE TELESCOPE MOUNTED PARALLEL TO THE SPACECRAFT SPIN AXIS WAS USED TO DETECT ELECTRONS IN THE RANGES 80 TO 130 KEV AND 175 TO 390 KEV. THE ELECTRON DETECTOR WAS DESIGNED TO PROVIDE INFORMATION CONCERNING THE SHAPE AND INTENSITY OF THE MAGNETOSPHERIC ELECTRON SPECTRA. THE DETECTOR ACCUMULATORS FOR EACH ENERGY INTERVAL WERE TELEMETERED FOUR TIMES EVERY 20.48 SEC. EACH ACCUMULATION WAS 4.8 SEC LONG (SPACECRAFT INITIAL SPIN PERIOD WAS ABOUT 2.6 SEC). THE OUTPUT FROM THREE 256-CHANNEL NUCLEAR PARTICLE TELESCOPE PULSE HEIGHT ANALYZERS WAS OBTAINED FOR ONE INCIDENT PARTICLE EVERY 5.12 SEC AND WAS TELEMETERED ALONG WITH THE DETECTOR ACCUMULATORS. THE D3 ELEMENT OF THE FIRST TELESCOPE BEGAN TO BE INTERMITTENTLY NOISY NOVEMBER 16, 1967, NECESSITATING A MORE COMPLEX ANALYSIS TO MAINTAIN DATA USEFULNESS. AFTER SEPTEMBER 1968, NO USEFUL DATA ABOVE 30 MEV/NUC WERE OBTAINED. OTHERWISE THIS TELESCOPE FUNCTIONED UNTIL SPACECRAFT REENTRY. THE ELECTRON TELESCOPE PROVIDED USEFUL DATA FOR ONLY THE FIRST SIX DAYS AFTER LAUNCH. THE INSTRUMENT AND ITS PERFORMANCE ARE DISCUSSED IN DETAIL IN GARCIA-MUNOZ, ET AL, AP.J. 184, PP 967- 994, SEPT. 1973.

DATA SET NAME- TELESCOPE ACCUMULATOR READINGS ON MAGNETIC TAPE

NSSDC ID- 67-051A-03A

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 05/24/67 TO 05/02/69 (AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 6 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF ACCUMULATOR READINGS FOR EACH TELEMETERED FRAME (5.12 SEC) FOR ALL NONOVERLAPPED SEQUENCES (20.48 SEC) THAT CONTAIN AT LEAST ONE FRAME FOR WHICH DATA QUALITY IS CONSIDERED GOOD OR FAIR. THE DATA ARE CONTAINED ON SIX 7-TRACK BINARY MAGNETIC TAPES WRITTEN AT 800 BPI USING AN XDS930 COMPUTER. THE DATA ARE ORDERED BY SATELLITE ORBIT REVOLUTION NUMBER, WITH 30 FILES ON ALL TAPES EXCEPT THE LAST ONE, WHICH CONTAINS 14 FILES. EACH FILE ON THE TAPES CONTAINS ACCUMULATOR COUNT DATA FOR ONE ORBIT. THERE ARE A VARIABLE NUMBER OF PHYSICAL RECORDS (CONTAINING 816 BINARY WORDS EACH) PER FILE, AND THERE ARE EIGHT WORDS PER SEQUENCE AND 102 SEQUENCES (LOGICAL RECORDS) PER PHYSICAL RECORD. EACH SEQUENCE CONTAINS DETECTOR ACCUMULATOR COUNTS, DISTANCE OF SATELLITE FROM EARTH, SEQUENCE NUMBER, AND VARIOUS DATA QUALITY FLAGS.

DATA SET NAME- PULSE HEIGHT ANALYZER EVENT SUMMARIES ON MAGNETIC TAPE

NSSDC ID- 67-051A-03C

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 05/24/67 TO 05/02/69 (AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 9 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF COSMIC-RAY TELESCOPE PULSE HEIGHT ANALYZER DATA ON NINE 7-TRACK, BINARY, MAGNETIC TAPES WRITTEN AT 800 BPI USING AN XDS930 COMPUTER. THE DATA SET CONTAINS ALL NONOVERLAPPED, GOOD OR FAIR QUALITY, NONDUPLICATE PULSE HEIGHT ANALYSIS EVENTS FROM THE THREE 256-CHANNEL PULSE HEIGHT ANALYZERS. THE OUTPUT FROM THESE ANALYZERS WAS OBTAINED FOR ONE INCIDENT PARTICLE EVEN EVERY 5.12 SEC. THE DATA ARE ORDERED BY SATELLITE ORBIT REVOLUTION NUMBER, WITH 20 FILES ON ALL TAPES EXCEPT FOR THE LAST ONE WHICH HAS FOUR FILES. EACH FILE ON THE TAPE CONTAINS PULSE HEIGHT ANALYSIS DATA FOR ONE ORBIT. THERE ARE A VARIABLE NUMBER OF PHYSICAL RECORDS (EACH CONTAINING 600 BINARY WORDS) PER FILE. THERE ARE THREE BINARY WORDS PER EVENT, AND 200 EVENTS (LOGICAL RECORDS) PER PHYSICAL RECORD. IN ADDITION, THE TAPES INCLUDE THE ORBIT NUMBER, RANGE IDENTIFICATION, SEQUENCE NUMBER, AND DATA QUALITY FLAGS.

DATA SET NAME- 5-MIN AVERAGED COUNT RATES ON MAGNETIC TAPE

NSSDC ID- 67-051A-03D

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 05/24/67 TO 05/02/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF REDUCED COSMIC-RAY TELESCOPE COUNTING RATES AVERAGED OVER 15 SEQUENCES (ABOUT 5 MIN) AND BASED ON GOOD NONOVERLAP DATA. THE DATA ARE CONTAINED ON TWO 7-TRACK, BCD MAGNETIC TAPES WRITTEN AT 800 BPI USING AN XDS930 COMPUTER. THE DATA ARE ORDERED BY SATELLITE ORBIT REVOLUTION NUMBER WITH 133 FILES ON THE FIRST TAPE AND 64 FILES ON THE LAST TAPE. EACH FILE ON THE TAPE CONTAINS COUNTING RATE DATA FOR ONE ORBIT. THERE ARE A VARIABLE NUMBER OF PHYSICAL RECORDS (EACH CONTAINING FIFTY-SEVEN 33-WORD BCD LOGICAL RECORDS) PER FILE. EACH LOGICAL RECORD CONTAINS THE COUNTING RATES FOR THE COSMIC-RAY TELESCOPE COINCIDENCE COMBINATIONS THAT CORRESPOND TO THE FOLLOWING ENERGY INTERVALS FOR PROTONS -- 0.8 TO 9.6 MEV, 9.6 TO 18.8 MEV, 29.5 TO 94.2 MEV, AND 94.2 TO 170 MEV. THE ELECTRON TELESCOPE COUNTING RATES FOR THE ENERGY INTERVAL 80 KEV TO 450 KEV ARE ALSO INCLUDED ALONG WITH TIME AND DISTANCE OF THE SATELLITE FROM THE EARTH.

DATA SET NAME- COUNT RATE PLOTS (R VS ENERGY LOSS) ON MICROFILM

NSSDC ID- 67-051A-03E

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 05/24/67 TO 04/25/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THE DATA SET CONSISTS OF MACHINE GENERATED COUNT RATE PLOTS ON ONE 35-MM REEL OF MICROFILM FOR THE TELESCOPE SENSOR COMBINATIONS WHICH CORRESPOND TO THE FOLLOWING ENERGY INTERVALS FOR PROTONS -- 0.8 TO 9.6 MEV, 9.6 TO 18.8 MEV, 29.5 TO 94.2 MEV, AND 94.2 TO 170 MEV. THE 16 PLOTS COVER THE TIME INTERVAL FROM SOLAR ROTATION NUMBER 1831 (MAY 24, 1967) THROUGH 1856 (APRIL 25, 1969). FIVE PLOTS FOR E1 ELECTRON TELESCOPE VALUES FOR SOLAR ROTATION NUMBERS 1831 TO 1835 (MAY 24, 1967, TO OCTOBER 6, 1967) AND FIVE FOR E2 VALUES FOR SOLAR ROTATION NUMBER 1831 (MAY 24, 1967, TO JUNE 20, 1967) ARE ALSO INCLUDED ON THE REEL. EACH PLOT GIVES THE COUNT RATE (LOGARITHMIC) VS TIME (DAY NUMBER) FOR ONE SOLAR ROTATION.

VAN ALLEN, IMP-F

EXPERIMENT NAME- LOW-ENERGY PROTON AND ELECTRON DIFFERENTIAL ENERGY ANALYZER (LEPEDEA)

NSSDC ID- 67-051A-04

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 05/03/69

PERSONNEL
PI - J.A. VAN ALLEN ..... U OF IOWA
IOWA CITY, IA
OI - L.A. FRANK ..... U OF IOWA
IOWA CITY, IA

THIS EXPERIMENT WAS DESIGNED TO SEPARATELY MEASURE LOW-ENERGY ELECTRON AND PROTON INTENSITIES INSIDE THE MAGNETOSPHERE AND IN THE INTERPLANETARY REGION. THE INSTRUMENTATION SYSTEM CONSISTED OF A CURVED PLATE, CYLINDRICAL ELECTROSTATIC ANALYZER (LEPEDEA - LOW-ENERGY PROTON AND ELECTRON DIFFERENTIAL ENERGY ANALYZER) AND BENDIX CONTINUOUS CHANNEL MULTIPLIER (CHANNELTRON) ARRAY, AND, IN ADDITION, AN ANTON 213 GM TUBE DESIGNED TO SURVEY THE INTENSITIES OF ELECTRONS WITH ENERGIES E.GT.40 KEV IN THE OUTER MAGNETOSPHERE. THE ELECTROSTATIC ANALYZER WAS CAPABLE OF MEASURING THE ANGULAR DISTRIBUTIONS AND DIFFERENTIAL ENERGY SPECTRA OF PROTON (25 EV TO 47 KEV) AND ELECTRON (33 EV TO 57 KEV) INTENSITIES, SEPARATELY, WITHIN 15 CONTIGUOUS ENERGY INTERVALS. THE ANALYZER ACCUMULATORS WERE READ OUT FOUR TIMES EVERY 20.48 SEC. EACH ACCUMULATION WAS ABOUT 480 MSEC LONG (SPACECRAFT SPIN PERIOD WAS INITIALLY 2.6 SEC). A COMPLETE SCAN OF THE SPECTRUM FOR FOUR DIRECTIONS IN A PLANE PERPENDICULAR TO THE SPACECRAFT SPIN AXIS REQUIRED 307.2 SEC FOR EACH ENERGY INTERVAL. THE DETECTOR RESPONSE FOR FOUR APPROXIMATELY 60-DEG SEGMENTS OF THE ANGULAR DISTRIBUTION WERE SLAVED TO THE SPACECRAFT TELEMETRY SYSTEM. THE VIEWING DIRECTION OF THE SEGMENTS WAS CALCULATED FROM THE SPACECRAFT OPTICAL ASPECT INFORMATION. THE INSTRUMENTS PERFORMED NORMALLY FROM LAUNCH UNTIL THE SATELLITE DECAYED ON MAY 3, 1969. FOR FURTHER DETAILS, SEE FRANK, JGR, VOL 75, P 707, 1970.

DATA SET NAME- MOTION PICTURE SURVEY OF THE MAGNETOSPHERE

NSSDC ID- 67-051A-04A

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 06/30/67 TO 07/04/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 400 FRAMES

THIS DATA SET CONSISTS OF REDUCED DATA PROVIDED BY THE EXPERIMENTER ON ONE 400-FT REEL OF 16-MM MOVIE FILM. THE FILM CONTAINS A DISPLAY OF OBSERVATIONS OF LOW-ENERGY PROTON AND ELECTRON SPECTRA IN MAGNETOSPHERIC AND INTERPLANETARY REGIONS COMPRISING ABOUT 4-1/2 DAYS OF SUBSTANTIALLY CONTINUOUS SATELLITE OBSERVATIONS FROM 0520 UT ON JUNE 30, 1967, TO 1912 UT ON JULY 4, 1967. DURING THIS PERIOD, THE LOCAL TIME OF APOGEE WAS ABOUT 1700 HR. EACH MOVIE FRAME CONTAINS A GRAPH OF THE OBSERVED ENERGY SPECTRA (.03 TO 50 KEV) OF PROTONS AND ELECTRONS SEPARATELY FOR A GIVEN TIME AND POINT IN SPACE. A PICTORIAL REPRESENTATION OF THE SATELLITE'S POSITION WITH RESPECT TO THE SUN, EARTH, AND ITS MAGNETOSPHERE IS ALSO GIVEN ON EACH FRAME.

DATA SET NAME- LEPEDEA COUNT RATES AND FLUXES ON BCD MAGNETIC TAPE

NSSDC ID- 67-051A-04B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 05/26/67 TO 06/17/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 35 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF 7-TRACK, 800-BPI BCD MAGNETIC TAPES SUBMITTED BY THE EXPERIMENTER. EACH TAPE CONTAINS ABOUT 12 DAYS OF ALL THE LEPEDEA DATA. EACH RECORD CONTAINS DATA FOR ONE FULL LEPEDEA CYCLE (5.8 MIN). THESE DATA CONSIST OF COUNT RATES FOR PROTONS AND ELECTRONS FOR EACH OF 15 ENERGY WINDOWS, FOR EACH OF FOUR ANGULAR SECTORS. THE DATA ALSO CONTAIN ENERGY BANDPASS FLUXES AND INTEGRAL FLUXES FOR EACH SECTOR, ENERGY WINDOW, AND SPECIES. SECTORED GM TUBE COUNT RATES AND BACKGROUND LEPEDEA COUNT RATES ARE ALSO GIVEN. SUPPORTING DATA FOUND IN EACH RECORD INCLUDE LEPEDEA LOOK DIRECTION INFORMATION AND SPACECRAFT EPHEMERIS INFORMATION. LOOK DIRECTION INFORMATION CONSISTS OF RIGHT ASCENSION AND DECLINATION GIVEN IN SOLAR MAGNETOSPHERIC, SOLAR ECLIPTIC, AND GEOCENTRIC EQUATORIAL INERTIAL COORDINATE SYSTEMS. THE ANGLE BETWEEN THE MAGNETIC VECTOR AND THE FIELD OF VIEW IS ALSO GIVEN. SPACECRAFT EPHEMERIS INFORMATION INCLUDES GEOCENTRIC LATITUDE, LONGITUDE, AND RADIAL DISTANCE, B.L, AND RELATED VARIABLES, CARTESIAN COORDINATES, RIGHT ASCENSION, AND DECLINATION IN SOLAR MAGNETOSPHERIC, SOLAR ECLIPTIC, AND CELESTIAL INERTIAL COORDINATE SYSTEMS, AND GEOCENTRIC AND GEOMAGNETIC LOCAL TIMES. FURTHER DATA RELATE TO SPACECRAFT SPIN RATE AND DIRECTION, SUN DIRECTION, HOUSEKEEPING PARAMETERS, ETC.

SPACECRAFT COMMON NAME- IMP-G

ALTERNATE NAMES- PL-691K, IMP 5
EXPLORER 41, 03990

NSSDC ID- 69-053A

LAUNCH DATE- 06/21/69 WEIGHT- 175. KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 12/23/72

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 06/21/69
ORBIT PERIOD- 4843. MIN INCLINATION- 86.78 DEG
PERIAPSIS- 378.000 KM ALT APOAPSIS- 176434. KM ALT

EXPLORER 41 (IMP-G) WAS A SPIN-STABILIZED SPACECRAFT

ORIGINAL PAGE IS
OF POOR QUALITY

PLACED INTO A HIGH-INCLINATION, HIGHLY ELLIPTIC ORBIT TO MEASURE ENERGETIC PARTICLES, MAGNETIC FIELDS, AND PLASMA IN CISLUNAR SPACE. THE LINE OF APSIDES AND THE SATELLITE SPIN VECTOR WERE WITHIN A FEW DEGREES OF BEING IN AND NORMAL TO, RESPECTIVELY, THE ECLIPTIC PLANE. INITIAL LOCAL TIME OF APOGEE WAS ABOUT 1300 HR. INITIAL SATELLITE SPIN RATE WAS 27.5 RPM. THE BASIC TELEMETRY SEQUENCE WAS 20.48 SEC. THE SPACECRAFT FUNCTIONED VERY WELL FROM LAUNCH UNTIL IT DECAYED FROM ORBIT ON DECEMBER 23, 1972. DATA TRANSMISSION WAS NEARLY 100 PERCENT FOR THE SPACECRAFT LIFE EXCEPT FOR THE INTERVAL NOVEMBER 15, 1971, TO FEBRUARY 1, 1972, WHEN DATA ACQUISITION WAS LIMITED TO THE VICINITY OF THE MAGNETOTAIL NEUTRAL SHEET.

DATA SET NAME- PROJECTION AND PERSPECTIVE EPHEMERIS PLOTS ON MICROFILM

NSSDC ID- 69-053A-00D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/21/69 TO 08/25/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF ONE REEL OF 35-MM MICROFILM PLOTS OF EPHEMERIS DATA SHOWN IN SOLAR ECLIPTIC AND SOLAR MAGNETOSPHERIC COORDINATES FOR THE ORBITS OF EXPLORER 41. THE X-Y, X-Z, AND Y-Z PROJECTIONS ARE AVAILABLE FOR BOTH COORDINATE SYSTEMS. THE X-Y SOLAR ECLIPTIC PROJECTION SHOWS THE COMPUTED AVERAGE POSITION OF THE BOW SHOCK AS COMPUTED BY DR. D. FAIRFIELD OF GSFC. TWO THREE-DIMENSIONAL PERSPECTIVES ARE ALSO AVAILABLE FOR EACH COORDINATE SYSTEM FOR EACH ORBIT. EVERY PLOT SHOWS ONE FULL ORBIT CURVE AND TABULAR LISTINGS OF THE ORBIT NUMBER, APOGEE, PERIGEE, START TIME, STOP TIME, COORDINATE SYSTEM, AND PROJECTION OR PERSPECTIVE FOR THE ORBIT. AN ASTERISK IS USED TO MARK THE FIRST NOON OR MIDNIGHT (UT) ENCOUNTERED, WITH TICK MARKS USED AT SUCCESSIVE 12-HOUR POINTS.

DATA SET NAME- MULTICOORDINATE SYSTEM EPHEMERIS TAPES

NSSDC ID- 69-053A-00E

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/21/69 TO 11/15/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 6 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF 7-TRACK, 800-BPI, BINARY TAPES USING XDS 930 INTEGER FORMAT. THE TAPES WERE GENERATED BY PERSONNEL AT THE UNIVERSITY OF CHICAGO. EACH PHYSICAL RECORD CONSISTS OF 40 LOGICAL RECORDS OF 25 WORDS EACH. END-OF-FILE MARKS SEPARATE ORBITS, AND A DOUBLE END-OF-FILE MARK ENDS EACH TAPE. EPHEMERIS POINTS (LOGICAL RECORDS) ARE GIVEN AT 61.44-SEC INTERVALS. DATA PRESENTED INCLUDE TIME, PSEUDO SEQUENCE COUNT, SATELLITE RADIAL DISTANCE, SATELLITE AND SUN GEOCENTRIC AND GEOMAGNETIC LATITUDE AND LONGITUDE, SATELLITE SOLAR-MAGNETOSPHERIC COORDINATES, SATELLITE-EARTH-SUN ANGLE, SATELLITE SPEED, B AND L, B/B0, AND THE SOLAR ECLIPTIC COMPONENTS OF THE GSFC (12/66) MODEL GEOMAGNETIC FIELD AS UPDATED TO 1965. THERE ARE NO KNOWN SIGNIFICANT DATA GAPS.

DATA SET NAME- GSFC TRAJECTORY PLOTS, SOLAR ECLIPTIC PROJECTIONS

NSSDC ID- 69-053A-00G

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 06/21/69 TO 12/23/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 CARD(S) OF B/W MICROFICHE

THE PUBLICATION "TRAJECTORIES OF EXPLORERS 33, 35, 41, 43, AND 47, MAY 1969 - DECEMBER 1972," WRITTEN BY D. H. FAIRFIELD, K. W. BEHANNON, R. P. LEPPING, AND N. F. NESS (NASA-GSFC X-692-73-291, OCTOBER 1973), CONTAINS THE ECLIPTIC PLANE PROJECTIONS OF ALL 381 ORBITS OF EXPLORER 41. THE PLOTS ARE NOT USEFUL FOR DETAILED STUDIES, BUT THEY ARE USEFUL IN INDICATING THE ORBITAL PHASE OF THE SPACECRAFT ON A GIVEN DAY AND SHOWING WHERE APOGEE IS IN LOCAL TIME. IN ADDITION, ONE PLOT IS GIVEN TO SHOW THE SOLAR ECLIPTIC X-Z PROJECTIONS OF FOUR ORBITS WITH 1-YR SPACING.

ANDERSON, IMP-G

EXPERIMENT NAME- ION CHAMBER

NSSDC ID- 69-053A-02

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 12/23/72

PERSONNEL

PI -	K.A.	ANDERSON	U OF CALIF, BERKELEY BERKELEY, CA
OI -	G.H.	PITT	U OF CALIF, BERKELEY BERKELEY, CA
OI -	R.P.	LIN	U OF CALIF, BERKELEY BERKELEY, CA

THIS EXPERIMENT WAS DESIGNED TO MEASURE ENERGETIC CHARGED PARTICLE POPULATIONS IN AND BEYOND THE EARTH'S OUTER MAGNETOSPHERE AND THE DYNAMIC PROCESSES THAT INFLUENCE THESE POPULATIONS. THE INSTRUMENTATION CONSISTED OF A 4-IN-DIAM NEHER-TYPE INTEGRATING IONIZATION CHAMBER AND THREE PAIRS OF GM TUBES. THE IONIZATION CHAMBER RESPONDED OMNIDIRECTIONALLY TO ELECTRONS ABOVE 700 KEV, PROTONS ABOVE 12 MEV, AND X RAYS ABOVE 20 KEV. EACH PAIR OF GM TUBES HAD ONE MEMBER NORMAL TO, AND THE OTHER PARALLEL TO, THE SPACECRAFT SPIN AXIS. ALL BUT ONE TUBE HAD 70-DEG FULL WIDTH ACCEPTANCE CONES. THE MEMBERS OF ONE PAIR OF GM TUBES RESPONDED TO ELECTRONS ABOVE 80 KEV AND PROTONS ABOVE 1.5 MEV. THE SECOND PAIR OF GM TUBES RESPONDED TO ELECTRONS ABOVE 45 KEV SCATTERED FROM GOLD FOILS. THE THIRD TUBE NORMAL TO THE SPIN AXIS RESPONDED TO ELECTRONS ABOVE 120 KEV, PROTONS ABOVE 2.3 MEV, AND X RAYS FROM 3 TO 20 KEV (0.1 PERCENT EFFICIENCY). THE OTHER MEMBER OF THE THIRD SET OF GM TUBES RESPONDED TO ELECTRONS ABOVE 18 KEV AND PROTONS ABOVE 250 KEV. PULSES FROM THE IONIZATION CHAMBER AND COUNTS FROM EACH OF THE GM TUBES WERE ACCUMULATED FOR 9.92 SEC AND READ OUT FOUR TIMES EACH 40.96 SEC. THE EXPERIMENT PERFORMED NORMALLY FROM LAUNCH UNTIL THE SPACECRAFT DECAYED FROM ORBIT ON DECEMBER 23, 1972, EXCEPT THAT THE IONIZATION CHAMBER OPERATED INTERMITTENTLY THROUGHTOUT THE MISSION.

DATA SET NAME- IONIZATION CHAMBER AND DIRECTIONAL GEIGER-MUELLER TUBE COUNT RATES ON TAPE

NSSDC ID- 69-053A-02A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/21/69 TO 02/18/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 54 REEL(S) OF MAGNETIC TAPE

THIS DATA SET WAS SUBMITTED BY THE EXPERIMENTER AND CONSISTS OF IONIZATION CHAMBER PULSE RATES AND SIX GM TUBE COUNT RATES ON 7-TRACK, BINARY, ODD-PARITY MAGNETIC TAPES WRITTEN AT 556 BPI USING A CDC 6600 COMPUTER. THERE ARE A VARIABLE NUMBER OF FILES PER TAPE WITH AN END-OF-FILE MARK AT THE END OF EACH FILE AND AN END-OF-FILE MARK AT THE END OF EACH TAPE. EACH TAPE CONTAINS FIVE ORBITS OF DATA. EACH FILE CONTAINS A VARIABLE NUMBER OF PHYSICAL RECORDS AND COVERS A 24-HR PERIOD. EACH PHYSICAL RECORD IS 121 WORDS IN LENGTH AND CONTAINS 12 SETS OF SAMPLINGS OF THE 40.96 SEC AVERAGED (COUNT/SEC) IONIZATION CHAMBER PULSE RATES AND GM TUBE COUNT RATES. THE DAY, AND TIME (UT IN MSEC OF A DAY). EACH PHYSICAL RECORD ENDS WITH THE FOLLOWING ADDITIONAL INFORMATION -- ORBIT DAY, TIME (UT IN MSEC OF A DAY), GEOMAGNETIC LATITUDE, SATELLITE ALTITUDE (KM), THE POSITION OF THE SATELLITE IN SOLAR ECLIPTIC AND SOLAR MAGNETOSPHERIC COORDINATES, MCILWAIN'S L PARAMETER, ECLIPTIC LONGITUDE, AND SOLAR MAGNETOSPHERIC LATITUDE. THE DATA WERE CHECKED BY THE EXPERIMENTER FOR TIMING CONSISTENCY, AND REDUNDANT DATA DUE TO RECEIVING STATION OVERLAPS THAT WERE DELETED. ALL RATES HAVE BEEN DEAD-TIME CORRECTED. THIS DATA SET CONTAINS ALL THE EXPERIMENTER'S NONREDUNDANT REDUCED DATA FOR THE TIME PERIOD INDICATED, AND REPRESENTS ALMOST 100 PERCENT TIME COVERAGE EXCEPT FOR THE PERIOD NOVEMBER 12, 1971 TO FEBRUARY 1, 1972.

DATA SET NAME- ELECTRON AND PROTON COUNT RATES ON MICROFILM

NSSDC ID- 69-053A-02B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/21/69 TO 08/31/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 5 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF PLOTS OF PROTON AND ELECTRON DEAD-TIME CORRECTED, SCALED, 40-SEC AVERAGED COUNT RATES, IN CHRONOLOGICAL ORDER, ON 35-MM MICROFILM. THE PLOTS CONTAIN PROTON AND ELECTRON DATA FROM THE ION CHAMBER AND ALL SIX GM TUBES. EACH PLOT COVERS A 24-HR PERIOD AND GIVES THE DISTANCE OF THE SPACECRAFT FROM THE EARTH AND THE MAGNETOSPHERIC LATITUDE AND ECLIPTIC LONGITUDE OF THE SPACECRAFT DISPLAYED ALONG THE HORIZONTAL AXIS. THE DATES OF OBSERVATION AND ORBIT NUMBER ARE GIVEN AT THE BOTTOM OF EACH PLOT, AND THE DAY NUMBER IS GIVEN AT THE TOP OF EACH PLOT. FURTHER DOCUMENTATION ON DETECTOR CHARACTERISTICS IS PROVIDED AT THE BEGINNING OF EACH REEL OF MICROFILM. THE TIME COVERAGE IS NEAR 90 PERCENT, EXCEPT FOR THE PERIOD FROM NOVEMBER 16, 1971, TO JANUARY 31, 1972, WHERE NO DATA ARE AVAILABLE.

BOSTROM, IMP-G

EXPERIMENT NAME- SOLAR PROTON MONITORING EXPERIMENT

NSSDC ID- 69-053A-07

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 12/23/72

PERSONNEL

PI -	C.O. BOSTROM	APPLIED PHYSICS LAB SILVER SPRING, MD
OI -	D.J. WILLIAMS	NOAA-ERL BOULDER, CO
OI -	D.E. HAGGE	NASA-JSC HOUSTON, TX
OI -	F.B. MCDONALD	NASA-GSFC GREENBELT, MD

THE SOLAR PROTON MONITORING EXPERIMENT UTILIZED FOUR SEPARATE DETECTORS, EACH OF WHICH USED ONE OR MORE SOLID-STATE SENSORS. THREE DETECTORS MEASURED THE OMNIDIRECTIONAL FLUXES OF PROTONS AND ALPHA PARTICLES WITH ENERGY PER NUCLEON VALUES ABOVE 10, 30, AND 60 MEV. ALPHA PARTICLE CONTRIBUTIONS TO THE TOTAL COUNT RATES WERE GENERALLY LESS THAN 10 PERCENT. THESE DECTECTORS WERE ALSO SENSITIVE TO ELECTRONS ABOVE APPROXIMATELY 0.7, 2.0, AND 8.0 MEV, RESPECTIVELY. THE 10-MEV CHANNEL WAS SAMPLED FOR TWO 19.2 SEC INTERVALS EVERY 163.8 SEC AND THE 30- AND 60-MEV CHANNELS FOR ONE 19.2 SEC INTERVAL EVERY 163.8 SEC. RESULTANT HOURLY AVERAGED FLUXES HAVE BEEN PUBLISHED IN SOLAR-GEOPHYSICAL DATA (NOAA, BOULDER) ON A RAPID BASIS. THE FOURTH DETECTOR HAD A 60-DEG FULL LOOK ANGLE NORMAL TO THE SPACECRAFT SPIN AXIS. EACH OF TWO DISCRIMINATION LEVELS WAS SAMPLED FOR TWO 19.2 SEC INTERVALS EVERY 163.8 SEC. FLUXES OF 1- TO 10-MEV/NUCLEON PROTONS AND ALPHA PARTICLES WERE MEASURED IN THE LOWER AND UPPER DISCRIMINATION STATES, RESPECTIVELY. ALL DETECTORS FUNCTIONED NORMALLY FROM LAUNCH UNTIL THE SPACECRAFT DECAYED FROM ORBIT (JUNE 21, 1969 - DECEMBER 23, 1972).

DATA SET NAME- HOURLY AVERAGED SOLAR PROTON FLUXES
PUBLISHED IN "SOLAR-GEOPHYSICAL DATA"

NSSDC ID- 69-053A-07A

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 06/21/69 TO 12/23/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 28 BOOK(S) OR BOUND VOLUME(S)

THIS PUBLISHED DATA SET CONSISTS OF MONTHLY PLOTS AND TABULAR LISTINGS OF HOURLY AVERAGED OMNIDIRECTIONAL FLUXES OF PROTONS WITH ENERGIES ABOVE 10, 30, AND 60 MEV. DATA OBTAINED DURING A GIVEN MONTH THROUGH AUGUST 1972 WERE PUBLISHED IN "SOLAR-GEOPHYSICAL DATA (COMPREHENSIVE REPORTS)" WITH A 6-MONTH LAG. FOR THE PERIOD BEGINNING SEPTEMBER 1, 1972, EQUIVALENT EXPLORER 43 DATA HAVE BEEN PUBLISHED.

DATA SET NAME- COUNT RATES ON ENCYCLOPEDIA TAPES

NSSDC ID- 69-053A-07B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/21/69 TO 12/23/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 37 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF IBM 360 BINARY, 800-BPI, 9-TRACK TAPES AS SUBMITTED BY THE EXPERIMENTER. SEVEN-TRACK COPIES EXIST. EACH TAPE HAS ONE FILE AND IS BLOCKED WITH 20 LOGICAL RECORDS PER PHYSICAL RECORD. EACH LOGICAL RECORD HAS 176 32-BIT WORDS. ID RECORDS AND DATA RECORDS ARE INTERSPERSED ON THE TAPES. THERE IS ONE ID RECORD FOR A GIVEN SEGMENT OF DATA AS OBTAINED BY ONE TRACKING STATION DURING ONE SPACECRAFT PASS OVER THAT STATION. THE DATA LOGICAL RECORDS CONTAIN TIME, DATA QUALITY INDICATORS, DEAD-TIME CORRECTED COUNT RATES (CPS) OBTAINED FROM ALL THE DETECTOR READINGS TAKEN DURING ONE 2.73-MIN INTERVAL, ORBIT DATA, AND OTHER MISCELLANEOUS INFORMATION. DATA FOR THE ENTIRE LIFE OF THE MISSION ARE CONTAINED ON 37 TAPES.

DATA SET NAME- EDITED HOURLY AVERAGED COUNT RATES ON
MAGNETIC TAPE

NSSDC ID- 69-053A-07C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/21/69 TO 12/23/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF ONE EXPERIMENTER-SUPPLIED TAPE, WHICH IS OF 7-TRACK, 800 BPI, IBM/360 BINARY FORMAT. EACH LOGICAL RECORD CONSISTS OF 3120 8-BIT BYTES AND CONTAINS DATA FOR 1 DAY. THERE ARE SIX LOGICAL RECORDS PER PHYSICAL RECORD, AND ONE FILE FOR EACH CALENDAR YR OF DATA ON THE TAPE. DATA GIVEN WITHIN EACH LOGICAL RECORD INCLUDE TIME, EPHEMERIS DATA, AND HOURLY AVERAGED COUNT RATES FOR EACH OF THE FIVE EXPERIMENT COUNTING MODES. THESE RATES HAVE BEEN THOROUGHLY EDITED IN THAT NOISE POINTS AND MAGNETOSPHERIC COUNTING HAVE BEEN REMOVED. RECOGNIZABLY INTERPOLATED INTERPLANETARY COUNT RATE VALUES HAVE BEEN INSERTED FOR MAGNETOSPHERIC TRAVERSAL PERIODS. THE TIME COVERAGE IS ESSENTIALLY COMPLETE FROM JUNE 21, 1969 TO DECEMBER 23, 1972 EXCEPT FOR THE PERIOD OF RESTRICTED SPACECRAFT OPERATION (NOVEMBER 15, 1971 THROUGH FEBRUARY 1, 1972). WHEN TAKEN TOGETHER WITH THE CORRESPONDING DATA SET FROM IMP 4 (67-051A-07D), THESE DATA PROVIDE A NEARLY CONTINUOUS RECORD OF 1 TO 100 MEV INTERPLANETARY PROTON FLUXES FROM MAY 1967 TO DECEMBER 1972.

BROWN, IMP-G

EXPERIMENT NAME- LOW-ENERGY SOLID-STATE TELESCOPE

NSSDC ID- 69-053A-01

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 12/23/72

PERSONNEL

PI -	W.L. BROWN	BELL TELEPHONE LAB MURRAY HILL, NJ
OI -	C.S. ROBERTS	BELL TELEPHONE LAB MURRAY HILL, NJ
OI -	G.L. MILLER	BELL TELEPHONE LAB MURRAY HILL, NJ

IN THIS EXPERIMENT, A FOUR-ELEMENT SOLID-STATE TELESCOPE WITH AN ACCEPTANCE CONE HALF ANGLE OF 20 DEG WAS MOUNTED NORMAL TO THE SPACECRAFT SPIN AXIS. DURING EACH 2.73-MIN INTERVAL, 9.82-SEC ACCUMULATIONS WERE OBTAINED IN EACH OF 16 DISTINCT COUNTING MODES. THESE MODES INVOLVED PROTONS IN TEN ENERGY INTERVALS COVERING 0.5 TO 20 MEV, ALPHA PARTICLES IN SIX INTERVALS COVERING 4 TO 70 MEV, AND ELECTRONS, DEUTERONS, TRITONS, AND HELIUM-3 NUCLEI IN THE INTERVALS 0.3 TO 3, 5 TO 20, 5.5 TO 25, AND 11 TO 72 MEV, RESPECTIVELY. ONBOARD CALIBRATION CHECKS WERE PERFORMED EVERY 6 HR. THE EXPERIMENT PERFORMED NORMALLY UNTIL JANUARY 30, 1970, WHEN A GSFC POWER SUPPLY FAILURE LIMITED THE USEFUL DATA GATHERED TO PROTONS BETWEEN 0.5 AND 5 MEV, ALPHA PARTICLES BETWEEN 4 AND 18 MEV, AND ELECTRONS BETWEEN 0.3 AND 3 MEV. NO FURTHER EXPERIMENT DEGRADATION OCCURRED UNTIL THE SPACECRAFT DECAYED FROM ORBIT ON DECEMBER 23, 1972. THIS INSTRUMENT WAS ESSENTIALLY THE SAME AS THAT FLOWN BY THE BELL LAB GROUP ON EXPLORER 34, AND IS DESCRIBED FURTHER IN JGR, VOL 74, P 2851, 1969, BY LANZEROTTI AND THE REFERENCES CONTAINED THEREIN.

ORIGINAL PAGE IS
OF POOR QUALITY

DATA SET NAME- PARTICLE COUNT RATE DATA ON MAGNETIC TAPE

NSSDC ID- 69-053A-01A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/21/69 TO 08/15/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 23 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF 7-TRACK, 800-BPI, GE/635 BINARY MAGNETIC TAPES SUBMITTED BY THE EXPERIMENTER. EXPERIMENT DATA RECORDS AND EPHEMERIS RECORDS ARE INTERSPERSED ON THE TAPES. THE DATA RECORDS CONSIST OF TEN 36-BIT COMPUTER WORDS, WITH EACH WORD BEING FURTHER BROKEN DOWN INTO INTEGER NUMBERS OF SPECIFIED MEANINGS. DATA FOR ONE EXPERIMENT SEQUENCE (10.23 SEC) ARE FOUND IN ONE RECORD AND INCLUDE (1) TIME (UT) CLOCK DATA, (2) COUNTS FOR EACH OF THE FIVE REGISTERS FOR ONE SENSOR COINCIDENCE MODE, AND (3) DATA QUALITY FLAGS RELATED TO THE NOISINESS OF BIT TRANSMISSION. THE EPHEMERIS RECORDS CONSIST OF TWENTY 36-BIT WORDS, 19 OF WHICH ARE FLOATING POINT. EPHEMERIS RECORDS OCCUR ONCE EACH 1 OR 10 MIN ACCORDING TO WHETHER THE SPACECRAFT RADIAL DISTANCE IS LESS THAN OR GREATER THAN 42,000 KM. EPHEMERIS DATA INCLUDE SPACECRAFT RADIAL DISTANCE, GEOCENTRIC LATITUDE AND LONGITUDE, INERTIAL ECLIPTIC DECLINATION AND RIGHT ASCENSION, SOLAR ECLIPTIC AND MAGNETOSPHERIC CARTESIAN COORDINATES, AND B AND L. FROM JUNE 21, 1969 TO AUGUST 15, 1970, THERE ARE NO DATA GAPS GREATER THAN 24 HOURS. THERE IS ONE GAP GREATER THAN 6 HOURS AND 7 GAPS GREATER THAN 2 HOURS. DATA FOR LATER TIME PERIODS ARE EXPECTED TO BE SUBMITTED TO NSSDC EVENTUALLY.

MCDONALD, IMP-G

EXPERIMENT NAME- LOW-ENERGY PROTON AND ALPHA DETECTOR

NSSDC ID- 69-053A-09

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 12/23/72

PERSONNEL

PI -	F.B.	MCDONALD	NASA-GSFC GREENBELT, MD
OI -	G.H.	LUDWIG	NOAA SUITLAND, MD

THIS EXPERIMENT USED A DE/DX, E TELESCOPE WITH ONE THIN AND TWO THICK SURFACE BARRIER SOLID-STATE DETECTORS AND AN ANTICOINCIDENCE PLASTIC SCINTILLATOR COUNTER. THE TWO THICK DETECTORS ACTED TOGETHER AS ONE DETECTOR. THE TELESCOPE AXIS WAS PERPENDICULAR TO THE SPACECRAFT SPIN AXIS. COUNTS OF PARTICLES PENETRATING THE THIN DETECTOR AND STOPPING IN A THICK DETECTOR WERE ACCUMULATED FOR A 4.48-SEC INTERVAL ONCE EACH 2.73 MIN FOR EACH OF TWO COUNTING MODES. (COUNTING MODES ARE DEFINED WITH RESPECT TO THE ENERGY DEPOSITED IN THE THIN DE/DX DETECTOR. GOOD SEPARATION OF PROTONS AND ALPHA PARTICLES WAS ACHIEVED BY THIS MODE DISTINCTION.) THE RELATIVE CONTRIBUTION TO EACH COUNT RATE OF PROTONS AND ALPHA PARTICLES WITH ENERGIES BETWEEN 4.2 AND 19.1 MEV/NUCLEON AND ENERGY SPECTRAL INFORMATION WERE DETERMINED BY 1024-CHANNEL PULSE HEIGHT ANALYSIS PERFORMED SIMULTANEOUSLY ON THE OUTPUT OF THE SOLID-STATE DETECTORS FOUR TIMES EVERY 2.73 MIN FOR EACH OF THE TWO THRESHOLD MODES. PROTONS STOPPING IN THE THIN DETECTOR (AND PARTICLES PENETRATING IT) WERE MEASURED BY PASSING THE OUTPUT SIGNAL THROUGH AN EIGHT-LEVEL ENERGY THRESHOLD DISCRIMINATOR. THE EIGHT CORRESPONDING PROTON ENERGIES RAN FROM 0.6 TO ABOUT 4 MEV. DATA FROM ANY ONE LEVEL WERE TRANSMITTED ONCE EVERY 2.73 MIN. THERE WERE ALSO TWO SOLID-STATE DETECTORS THAT LOOKED ALONG THE SPACECRAFT SPIN AXIS AND THAT WERE IDENTICAL EXCEPT FOR DIFFERING COVERING FOIL THICKNESSES. BOTH RESPONDED TO ELECTRONS IN THE 80- TO 200-KEV RANGE. ONE RESPONDED TO PROTONS BETWEEN 83 KEV AND 2 MEV AND THE OTHER TO PROTONS BETWEEN 200 KEV AND 2 MEV. SPECTRAL INFORMATION WAS GATHERED BY SUBJECTING THE OUTPUT SIGNALS FROM EACH DETECTOR TO EIGHT-LEVEL ENERGY THRESHOLD DISCRIMINATION. DATA FROM EACH OF THE EIGHT LEVELS AND EACH OF THE TWO DETECTORS WERE TRANSMITTED ONCE EACH 5.46 MIN, EXCEPT FOR A 2-WEEK PERIOD IN MARCH 1970 WHEN THE TELESCOPE DATA WERE NOISY. ALL THE DETECTORS FUNCTIONED NORMALLY FROM LAUNCH TO SPACECRAFT REENTRY.

DATA SET NAME- MICROFILM OF CATALOG OF SOLAR COSMIC-RAY EVENTS (VAN HOLLEBEKE ET AL, X-661-74-27)

NSSDC ID- 69-053A-09A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 09/09/69 TO 11/29/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF A MICROFILMED VERSION OF THE DOCUMENT "A CATALOG OF SOLAR COSMIC RAY EVENTS - IMPS 4 AND 5 (MAY 1967 - DECEMBER 1972)," BY M. A. VANHOLLEBEKE, J. R. WANG, AND F. B. MCDONALD (GSFC X-661-74-27, JANUARY 1974). THE CATALOG CONTAINS PLOTS FOR ABOUT 185 EVENTS, WITH AN "EVENT" DEFINED AS AN INCREASE IN THE 20- TO 80-MEV PROTON FLUX WHICH EXCEEDS 0.0001 PROTONS/(CM SQ SEC STER MEV) AND LASTS FOR MORE THAN 5 HRS. THE MINIMUM INCREASE OVER THIS ENERGY RANGE CORRESPONDS TO ABOUT 5 PERCENT OF THE TOTAL GALACTIC COSMIC-RAY FLUX AT 1 AU. THE DATA ARE PRESENTED AS HOURLY-AVERAGED FLUXES (10 DAYS PER PAGE) FOR THREE PROTON ENERGY INTERVALS (0.9 TO 1.6, 6 TO 20, AND 20 TO 80 MEV) AND FOR ONE ELECTRON INTERVAL (0.5 TO 1.1 MEV). ELECTRON ONSET TIMES ARE SPECIFIED WITH INDICATED UNCERTAINTIES BETWEEN 3 AND 30 MIN. PROTON ONSET TIMES ARE SPECIFIED FOR EVENTS WITH NO DISCERNIBLE ELECTRON INCREASES. DATA GAPS ASSOCIATED WITH PERIGEE PASSES AND OCCASIONAL SATURATION PERIODS ARE CLEARLY MARKED.

MCDONALD, IMP-G

EXPERIMENT NAME- COSMIC-RAY ENERGY VS ENERGY LOSS

NSSDC ID- 69-053A-10

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 12/23/72

PERSONNEL

PI -	F.B.	MCDONALD	NASA-GSFC GREENBELT, MD
OI -	G.H.	LUDWIG	NOAA SUITLAND, MD

THIS EXPERIMENT USED A DE/DX, E TELESCOPE WITH THIN AND THICK CSI SCINTILLATORS (ONE EACH) AND AN ANTICOINCIDENCE PLASTIC SCINTILLATION COUNTER. THE TELESCOPE AXIS WAS PARALLEL TO THE SPACECRAFT SPIN AXIS. COUNTS OF PARTICLES PENETRATING THE THIN CSI SCINTILLATOR AND STOPPING IN THE THICK CSI SCINTILLATOR WERE ACCUMULATED FOR TWO 4.48-SEC INTERVALS EACH 2.73 MIN. THE RELATIVE CONTRIBUTION TO THE COUNT RATE OF VARIOUS SPECIES (ELECTRONS BETWEEN 2.7 AND 21.5 MEV, NUCLEI WITH CHARGE 1 AND 2, ATOMIC MASS=1, 2, 3, AND 4, AND ENERGY BETWEEN 18.7 AND 81.6 MEV/NUCLEON) AND ENERGY SPECTRAL INFORMATION WERE DETERMINED BY 1024-CHANNEL PULSE HEIGHT ANALYSIS PERFORMED SIMULTANEOUSLY ON THE OUTPUT OF BOTH CSI SCINTILLATORS 16 TIMES EVERY 2.73 MIN. IN ADDITION, COUNTS OF ELECTRONS BETWEEN 0.3 AND 0.9 MEV STOPPING IN THE THIN SCINTILLATOR WERE ALSO OBTAINED ONCE EACH 2.73 MIN. THE EXPERIMENT FUNCTIONED WELL OVER THE SPACECRAFT LIFETIME.

DATA SET NAME- MICROFILM OF CATALOG OF SOLAR COSMIC RAY EVENTS (VAN HOLLEBEKE ET AL, X-661-74-27)

NSSDC ID- 69-053A-10A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 09/09/69 TO 11/29/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF A MICROFILMED VERSION OF THE DOCUMENT "A CATALOG OF SOLAR COSMIC RAY EVENTS - IMPS 4 AND 5 (MAY 1967 - DECEMBER 1972)," BY M. A. VANHOLLEBEKE, J. R. WANG, AND F. B. MCDONALD (GSFC X-661-74-27, JANUARY 1974). THE CATALOG CONTAINS PLOTS FOR ABOUT 185 EVENTS, WITH AN "EVENT" DEFINED AS AN INCREASE IN THE 20- TO 80-MEV PROTON FLUX WHICH EXCEEDS 0.0001 PROTONS/(CM SQ SEC STER MEV) AND LASTS FOR MORE THAN 5 HRS. THE MINIMUM INCREASE OVER THIS ENERGY RANGE CORRESPONDS TO ABOUT 5 PERCENT OF THE TOTAL GALACTIC COSMIC-RAY FLUX AT 1 AU. THE DATA ARE PRESENTED AS HOURLY-AVERAGED FLUXES (10 DAYS PER PAGE) FOR THREE PROTON ENERGY INTERVALS (0.9 TO 1.6, 6 TO 20, AND 20 TO 80 MEV) AND FOR ONE ELECTRON INTERVAL (0.5 TO 1.1 MEV). ELECTRON ONSET TIMES ARE SPECIFIED WITH INDICATED UNCERTAINTIES BETWEEN 3 AND 30 MIN. PROTON ONSET TIMES ARE SPECIFIED FOR EVENTS WITH NO DISCERNIBLE ELECTRON INCREASES. DATA GAPS ASSOCIATED WITH PERIGEE PASSES AND OCCASIONAL SATURATION PERIODS ARE CLEARLY MARKED.

SIMPSON, IMP-G

EXPERIMENT NAME- COSMIC-RAY PROTON (R VS DE/DX)

NSSDC ID- 69-053A-03

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 12/23/72

PERSONNEL
PI - J.A. SIMPSON ..... U OF CHICAGO
CHICAGO, IL

THIS EXPERIMENT WAS DESIGNED TO MEASURE SEPARATELY THE CONTRIBUTIONS OF SOLAR NUCLEI AND GALACTIC NUCLEI (Z.LE.14) USING A COMBINATION SOLID-STATE AND CERENKOV COUNTER COSMIC-RAY-TELESCOPE DETECTOR. THE DETECTOR WAS DESIGNED FOR ENERGY LOSS VS RANGE OR TOTAL ENERGY MEASUREMENTS FOR PROTONS (DIFFERENTIAL MEASUREMENTS BETWEEN 0.8 TO 119 MEV AND AN INTEGRAL MEASUREMENT BETWEEN 119 MEV AND 1 BEV). SIMILAR DIFFERENTIAL ENERGY MEASUREMENTS OF HE AND HIGHER Z NUCLEI WERE MADE BETWEEN 3 MEV/NUCLEON AND 1 BEV/NUCLEON. THE DETECTOR WAS ORIENTED PERPENDICULAR TO THE SATELLITE SPIN AXIS. THE DETECTOR ACCUMULATORS WERE TELEMETERED FOUR TIMES EVERY 20.48 SEC. EACH ACCUMULATION WAS 4.8 SEC LONG (SPACECRAFT INITIAL SPIN PERIOD WAS ABOUT 2.2 SEC). THE OUTPUT FROM THE THREE 256-CHANNEL PULSE HEIGHT ANALYZERS WAS OBTAINED FOR ONE INCIDENT PARTICLE EVERY 5.12 SEC AND WAS TELEMETERED ALONG WITH THE DETECTOR ACCUMULATORS. THE INSTRUMENT AND ITS PERFORMANCE ARE DISCUSSED IN DETAIL IN GARCIA-MUNOZ, ET AL. AP. J., VOL 184, PP 967-994, SEPTEMBER 1973. THE D3 ELEMENT OF THE TELESCOPE BECAME NOISY ON SEPTEMBER 29, 1969, AND THE CONDITION CONTINUED UNTIL THE SPACECRAFT EMERGED FROM FIRST SHADOW ON JANUARY 5, 1970. OTHERWISE THE EXPERIMENT PERFORMED NORMALLY UNTIL THE SPACECRAFT DECAYED FROM ORBIT ON DECEMBER 23, 1972.

DATA SET NAME- TELESCOPE ACCUMULATOR READINGS ON MAGNETIC TAPE

NSSDC ID- 69-053A-03A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/21/69 TO 09/06/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 8 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF ACCUMULATOR READINGS FOR EACH TELEMETERED FRAME (5.12 SEC) FOR ALL NONOVERLAPPED SEQUENCES (20.4545 SEC) WHICH CONTAIN AT LEAST ONE FRAME WHOSE DATA QUALITY IS CONSIDERED GOOD OR FAIR. THE DATA ARE CONTAINED ON 7-TRACK, BINARY, MAGNETIC TAPES WRITTEN AT 800 BPI USING AN XDS 930 COMPUTER. THE DATA ARE ORDERED BY SATELLITE ORBIT REVOLUTION NUMBER WITH 30 FILES PER TAPE. EACH FILE CONTAINS ACCUMULATOR COUNT DATA FOR ONE ORBIT. THERE ARE A VARIABLE NUMBER OF PHYSICAL RECORDS (CONTAINING 816 BINARY WORDS EACH) PER FILE, AND THERE ARE EIGHT WORDS (24 BITS EACH) PER SEQUENCE AND 102 SEQUENCES (LOGICAL RECORDS) PER PHYSICAL RECORD. AN END-OF-FILE MARK TERMINATES EACH FILE, AND A DOUBLE END-OF-FILE MARK TERMINATES THE LAST ORBIT OF EACH TAPE. EACH SEQUENCE CONTAINS DETECTOR ACCUMULATOR COUNTS, DISTANCE OF THE SATELLITE FROM THE EARTH, SEQUENCE NUMBER, AND VARIOUS DATA QUALITY FLAGS.

DATA SET NAME- PULSE HEIGHT ANALYZER EVENT SUMMARIES ON MAGNETIC TAPE

NSSDC ID- 69-053A-03B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/21/69 TO 09/05/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 12 REEL(S) OF MAGNETIC TAPE

THE DATA SET CONSISTS OF COSMIC-RAY TELESCOPE PULSE HEIGHT ANALYZER DATA ON 7-TRACK, BINARY, MAGNETIC TAPES WRITTEN AT 800 BPI USING AN XDS 930-COMPUTER (24 BIT WORDS). THE DATA SET CONTAINS ALL NONOVERLAPPED GOOD OR FAIR QUALITY NONDUPLICATE PULSE HEIGHT ANALYSIS EVENTS FROM TWO 256-CHANNEL AND ONE 512-CHANNEL PULSE HEIGHT ANALYZER. THE OUTPUT FROM THESE ANALYZERS WAS OBTAINED FOR ONE INCIDENT PARTICLE EVENT EVERY 5.12 SEC. THE DATA ARE ORDERED BY SATELLITE ORBIT REVOLUTION NUMBER WITH 20 FILES PER TAPE. EACH FILE ON THE TAPE CONTAINS PULSE HEIGHT ANALYSIS FOR ONE ORBIT. THERE IS A VARIABLE NUMBER OF PHYSICAL RECORDS (EACH CONTAINING 600 BINARY WORDS) PER FILE. THERE ARE THREE BINARY WORDS PER EVENT AND 200 EVENTS (LOGICAL RECORDS) PER PHYSICAL RECORD. EACH LOGICAL RECORD CONTAINS THE PULSE HEIGHT ANALYSIS FROM ANALYZERS ON DETECTOR ELEMENTS D1, D2, AND D4 FOR THE TELESCOPE COINCIDENCE COMBINATIONS CORRESPONDING TO PROTON ENERGIES OF 0.8 TO 8.45 MEV, 8.45 TO 18.7 MEV, 18.7 TO 30.9 MEV, 30.9 TO 94.8 MEV, 94.8 TO 119 MEV, AND E .GT. 119 MEV. IN ADDITION, THE FORMAT INCLUDES THE ORBIT NUMBER, ANGULAR SECTOR AND RANGE IDENTIFICATIONS, SEQUENCE NUMBER, AND DATA QUALITY FLAGS.

DATA SET NAME- 5-MIN AVERAGE COUNT RATES ON MAGNETIC TAPE

NSSDC ID- 69-053A-03C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/21/69 TO 04/25/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF REDUCED COSMIC-RAY TELESCOPE COUNTING RATES AVERAGED OVER 15 SEQUENCES (ABOUT 5 MIN) AND BASED ON NONOVERLAPPED GOOD DATA. THE DATA ARE CONTAINED ON 7-TRACK, BLOCKED BCD MAGNETIC TAPE WRITTEN AT 800 BPI USING AN XDS 930 COMPUTER (24 BIT WORDS). THE DATA ARE ORDERED BY SATELLITE ORBIT REVOLUTION NUMBER WITH 100 FILES PER TAPE. EACH FILE ON THE TAPE CONTAINS COUNTING RATE DATA FOR ONE ORBIT. THERE IS A VARIABLE NUMBER OF PHYSICAL RECORDS (EACH CONTAINING FIFTY-SEVEN 33-WORD BCD LOGICAL RECORDS) PER FILE. EACH LOGICAL RECORD CONTAINS THE COUNTING RATES FOR THE COSMIC-RAY TELESCOPE COINCIDENCE COMBINATIONS WHICH CORRESPOND TO THE FOLLOWING ENERGY INTERVALS FOR PROTONS -- 0.8 TO 8.45 MEV, 8.45 TO 18.7 MEV, 30.9 TO 94.8 MEV, 94.8 TO 119 MEV, AND E.GT. 119 MEV. IN ADDITION, THE FORMAT INCLUDES THE TIME, CHICAGO SEQUENCE COUNT, SATELLITE GEOCENTRIC DISTANCE, ANALOG RATE METER OUTPUT (D5/D6), TEMPERATURE OF THE TELESCOPE, AND DATA QUALITY FLAGS.

SPACECRAFT COMMON NAME- IMP-H

ALTERNATE NAMES- PL-713A, EXPLORER 47
IMP 7, 06197

NSSDC ID- 72-073A

LAUNCH DATE- 09/23/72 WEIGHT- 390. KG

STATUS OF OPERATION- NORMAL

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 09/25/72
ORBIT PERIOD- 17365. MIN INCLINATION- 28.6 DEG
PERIAPSIS- 201599. KM ALT APOAPSIS- 235639. KM ALT

IMP-H CONTINUED THE STUDY BEGUN BY EARLIER IMP SPACECRAFT OF THE INTERPLANETARY AND MAGNETOTAIL REGIONS FROM A NEARLY CIRCULAR ORBIT, NEAR 37 EARTH RADII. THIS 16-SIDED DRUM-SHAPED SPACECRAFT WAS 157 CM HIGH AND 135 CM IN DIAM. IT WAS DESIGNED TO MEASURE ENERGETIC PARTICLES, PLASMA, AND ELECTRIC AND MAGNETIC FIELDS. THE SPIN AXIS WAS NORMAL TO THE ECLIPTIC PLANE, AND THE SPIN PERIOD WAS 1.3 SEC. THE SPACECRAFT WAS POWERED BY SOLAR CELLS AND A CHEMICAL BATTERY. SCIENTIFIC DATA WERE TELEMETERED TO EARTH AT 1600 BPS (WITH A SECONDARY 400-BPS RATE AVAILABLE).

DATA SET NAME- GSFC TRAJECTORY PLOTS, SOLAR ECLIPTIC PROJECTIONS

NSSDC ID- 72-073A-00D

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 09/26/72 TO 04/06/73
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 CARD(S) OF B/W MICROFICHE

THE PUBLICATION "TRAJECTORIES OF EXPLORERS 33, 35, 41, 43, AND 47, MAY 1969 -DECEMBER 1972," WRITTEN BY D. H. FAIRFIELD, K. W. BEHANNON, R. P. LEPPING, AND N. F. NESS (NASA-GSFC X-692-73-291, OCTOBER 1973), CONTAINS THE ECLIPTIC PLANE PROJECTIONS OF THE EXPLORER 47 ORBIT FROM SEPTEMBER 26, 1972 (SHORTLY AFTER LAUNCH), TO DECEMBER 31, 1972. THE DOCUMENT ALSO CONTAINS A LIST OF DATES (THROUGH APRIL 6, 1973)

WHEN THE SPACECRAFT SOLAR ECLIPTIC AZIMUTHAL ANGLE WAS 0, 90, 180, OR 270 DEG.

GLOECKLER, IMP-H

EXPERIMENT NAME- IONS AND ELECTRONS IN THE ENERGY RANGE 0.1 TO 2 MEV

NSSDC ID- 72-073A-03

STATUS OF OPERATION- PARTIAL

PERSONNEL

PI -	G.	GLOECKLER	U OF MARYLAND COLLEGE PARK, MD
OI -	C.Y.	FAN	U OF ARIZONA TUCSON, AZ
OI -	D.K.	HOVESTADT	MPI GARCHING, FED REP OF GERMANY

THIS EXPERIMENT WAS DESIGNED TO DETERMINE THE COMPOSITION AND ENERGY SPECTRA OF LOW-ENERGY PARTICLES ASSOCIATED WITH SOLAR ACTIVITY AND INTERPLANETARY PROCESSES. THE DETECTORS USED WERE (1) AN ELECTROSTATIC ANALYZER (TO SELECT PARTICLES OF THE DESIGNATED ENERGY PER CHARGE) COMBINED WITH AN ARRAY OF WINDOWLESS SOLID-STATE DETECTORS (TO MEASURE THE ENERGY LOSS) AND SURROUNDED BY AN ANTICOINCIDENCE SHIELDING AND (2) A PARTICLE TELESCOPE CONSISTING OF A SILICON SURFACE BARRIER DETECTOR AND A FLAT TWO-CHAMBER PROPORTIONAL COUNTER ENCLOSED IN AN ANTICOINCIDENCE SCINTILLATOR CUP. THE EXPERIMENT MEASURED PARTICLE ENERGIES FROM 0.1- TO 2-MEV-PER CHARGE IN 12 BANDS AND UNIQUELY IDENTIFIED POSITRONS AND ELECTRONS AS WELL AS NUCLEI WITH CHARGES OF Z FROM 1 TO 8 (CHARGE GROUP RESOLUTION FOR Z BETWEEN 9 AND 28). TWO 1000-CHANNEL PULSE HEIGHT ANALYZERS, ONE FOR EACH ELEMENT OF THE TELESCOPE, WERE INCLUDED IN THE EXPERIMENT PAYLOAD. THE TELESCOPE FAILED ON NOVEMBER 25, 1972, WHEN THE WINDOW ON THE PROPORTIONAL COUNTER WEAKENED AND BURST DUE TO EXPOSURE TO UV RADIATION.

DATA SET NAME- 10-MIN AVERAGED, 120-KEV PROTON COUNT RATE PLOTS ON MICROFILM

NSSDC ID- 72-073A-03A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 09/27/72 TO 04/13/73 (AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF A MICROFILMED VERSION OF EXPERIMENTER SUPPLIED PLOTS. EACH PLOT COVERS ONE SPACECRAFT ORBIT (ABOUT 12 DAYS) AND CONTAINS 10-MIN AVERAGED VALUES OF THE 120-KEV PROTON COUNT RATES.

DATA SET NAME- ENCYCLOPEDIA TAPES WITH ALL COUNT RATES

NSSDC ID- 72-073A-03B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 09/25/72 TO 04/13/73 (AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 32 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF EXPERIMENTER SUPPLIED, 7-TRACK, 800 BPI, IBM 360 BINARY MAGNETIC TAPES. EACH TAPE HAS A SINGLE FILE AND CONTAINS, IN EACH PHYSICAL RECORD, 3 LOGICAL RECORDS OF 360 WORDS EACH. EACH LOGICAL RECORD CONTAINS TIME, ALL COUNT RATE DATA AND PULSE HEIGHT DATA ACQUIRED DURING ONE 81.92-SEC INTERVAL, SPACECRAFT EPHEMERIS INFORMATION IN GEOMAGNETIC COORDINATES AND IN GEOCENTRIC SOLAR ECLIPTIC COORDINATES, POSITION OF THE MOON, SPACECRAFT ORIENTATION AND SPIN RATE DATA, SATELLITE-EARTH-SUN AND SATELLITE-EARTH-MOON ANGLES, AND VARIOUS HOUSEKEEPING PARAMETERS.

SPACECRAFT COMMON NAME- IMP-I

ALTERNATE NAMES- EXPLORER 43, IMP 6
05043

NSSDC ID- 71-019A

LAUNCH DATE- 03/13/71 WEIGHT- ,635. KG

STATUS OF OPERATION- PARTIAL

ORBIT PARAMETERS

ORBIT TYPE- GEOCENTRIC	EPOCH DATE- 03/17/71
ORBIT PERIOD- 5956. MIN	INCLINATION- 28.80 DEG
PERIAPSIS- 353.000 KM ALT	APOAPSIS- 204577. KM ALT

IMP-I CONTINUED THE STUDY, BEGUN BY EARLIER IMPS, OF THE INTERPLANETARY AND OUTER MAGNETOSPHERIC REGIONS BY MEASURING ENERGETIC PARTICLES, PLASMA, AND ELECTRIC AND MAGNETIC FIELDS. A RADIO ASTRONOMY EXPERIMENT WAS ALSO INCLUDED IN THE SPACECRAFT PAYLOAD. THE 16-SIDED SPACECRAFT WAS 182.12 CM HIGH BY 135.64 CM IN DIAMETER. THE SPACECRAFT SPIN AXIS WAS NORMAL TO THE ECLIPTIC PLANE, AND ITS SPIN RATE WAS 5 RPM. THE INITIAL APOGEE POINT LAY NEAR THE EARTH-SUN LINE. THE SOLAR-CELL AND CHEMICAL-BATTERY-POWERED SPACECRAFT CARRIED TWO TRANSMITTERS. ONE CONTINUOUSLY TRANSMITTED PCM ENCODER DATA AT A 1600-BPS INFORMATION BIT RATE. THE SECOND TRANSMITTER WAS USED FOR TRANSMISSION OF VLF DATA AND FOR RANGING INFORMATION. THREE ORTHOGONAL PAIRS OF DIPOLE ANTENNAS WERE USED FOR THE ELECTRIC FIELDS EXPERIMENTS, AND ONE OF THESE PAIRS WAS ALSO USED FOR THE RADIO ASTRONOMY EXPERIMENT. THE MEMBERS OF THE ANTENNA PAIR ALONG THE SPACECRAFT SPIN AXIS EXTENDED 2.9 M. THE MEMBERS OF THE PAIR USED IN BOTH THE ELECTRIC FIELD AND RADIO ASTRONOMY EXPERIMENTS EXTENDED 45.5 M, AND THE MEMBERS OF THE THIRD PAIR WERE SLIGHTLY UNBALANCED, EXTENDING 24.4 AND 27.6 M, RESPECTIVELY. ALL FOUR ELEMENTS PERPENDICULAR TO THE SPIN AXIS WERE TO HAVE EXTENDED 45.5 M. THE SPACECRAFT REENTERED THE EARTH'S ATMOSPHERE OCTOBER 2, 1974, AFTER A HIGHLY SUCCESSFUL MISSION.

DATA SET NAME- GSFC TRAJECTORY PLOTS, SOLAR ECLIPTIC PROJECTIONS

NSSDC ID- 71-019A-00D

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 03/13/71 TO 12/31/72 (AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 CARD(S) OF B/W MICROFICHE

THE PUBLICATION 'TRAJECTORIES OF EXPLORERS 33, 35, 41, 43, AND 47, MAY 1969 - DECEMBER 1972,' WRITTEN BY D. H. FAIRFIELD, K. W. BEHANNON, R. P. LEPPING, AND N. F. NESS (NASA-GSFC X-692-73-291, OCTOBER, 1973), CONTAINS THE ECLIPTIC PLANE PROJECTIONS OF THE FIRST 158 ORBITS OF EXPLORER 43. THE PLOTS ARE NOT USEFUL FOR DETAILED STUDIES, BUT THEY ARE USEFUL IN INDICATING THE ORBITAL PHASE OF THE SPACECRAFT ON A GIVEN DAY AND IN SHOWING WHERE APOGEE IS IN LOCAL TIME. IN ADDITION, ONE PLOT IS GIVEN TO SHOW THE SOLAR ECLIPTIC X-Z PROJECTIONS OF TWO ORBITS SEPARATED BY ONE YEAR.

BOSTROM, IMP-I

EXPERIMENT NAME- SOLAR PROTON MONITORING EXPERIMENT

NSSDC ID- 71-019A-07

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 10/02/74

PERSONNEL

PI -	C.O.	BOSTROM	APPLIED PHYSICS LAB SILVER SPRING, MD
OI -	D.J.	WILLIAMS	NOAA-ERL BOULDER, CO
OI -	D.S.	BEALL	APPLIED PHYSICS LAB SILVER SPRING, MD

THE SOLAR PROTON MONITORING EXPERIMENT CONSISTED OF FIVE SEPARATE DETECTORS EACH USING ONE OR MORE SOLID-STATE DETECTOR ELEMENTS. THREE DETECTORS, EACH WITH A 2-PI STER FIELD OF VIEW AND A 5.12-SEC ACCUMULATION TIME, MEASURED PROTONS WITH ENERGIES GREATER THAN 10, 30, AND 60 MEV. RESULTANT HOURLY AVERAGED FLUXES ARE BEING PUBLISHED ON A RAPID BASIS IN 'SOLAR-GEOPHYSICAL DATA.' THE FOURTH DETECTOR, A TWO-ELEMENT TELESCOPE, MEASURED DIRECTIONAL FLUXES OF PROTONS IN THE ENERGY INTERVALS FROM 0.2 TO 0.5, 0.5 TO 2.0, AND 2.0 TO 7.5 MEV AND DIRECTIONAL FLUXES OF ALPHA PARTICLES IN THE ENERGY

INTERVAL FROM 8 TO 20 MEV. THE FIFTH DETECTOR MEASURED DIRECTIONAL FLUXES OF ELECTRONS ABOVE 10 KEV FOR THE LAST TWO DETECTORS. COUNTS WERE OBTAINED IN 45-DEG SECTORS AS THE SPACECRAFT SPUN. ONBOARD CALIBRATION CAPABILITY FOR THE FIRST FOUR DETECTORS WAS INCLUDED. THE SPACECRAFT FUNCTIONED NORMALLY THROUGH THE SPACECRAFT LIFE.

DATA SET NAME- COUNT RATES ON ARCHIVE TAPES

NSSDC ID- 71-019A-07A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/14/71 TO 07/15/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 50 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF 9-TRACK, 800-BPI, IBM/360 BINARY MAGNETIC TAPES PROVIDED BY THE EXPERIMENTER. EACH TAPE CONTAINS DATA FOR ONE SPACECRAFT ORBIT OF ABOUT 4.1 DAYS. THE FIRST OF THE TWO PHYSICAL FILES ON EACH TAPE CONTAINS FINE TIME-SCALE DATA AND THE SECOND FILE CONTAINS HOURLY AVERAGED DATA. IN THE FIRST FILE EACH PHYSICAL RECORD CONTAINS TEN 2094-BYTE LOGICAL RECORDS. EACH LOGICAL RECORD MAY BE AN IDENTIFICATION RECORD CONTAINING DATA MANAGEMENT INFORMATION OR MAY BE A DATA RECORD. EACH DATA RECORD CONTAINS ALL THE COUNT RATE DATA OBTAINED DURING ONE 81.92-SEC SEQUENCE (EIGHT RATES EACH FOR PROTONS ABOVE 10, 30, AND 60 MEV AND FOR PROTONS IN THE INTERVALS 0.21-0.53, 0.53-2.2, AND 2.2-7.5 MEV AND ONE RATE FOR EACH OF THE EIGHT 45-DEG SECTORS FOR PROTONS IN THE INTERVALS 0.21-0.53 AND 0.53-2.2 MEV, FOR 8.2-20 MEV ALPHA PARTICLES, AND FOR ELECTRONS ABOVE 10 KEV), UNCERTAINTIES ASSOCIATED WITH EACH RATE, DATA QUALITY FLAGS, HOUSEKEEPING DATA, AND EPHEMERIS INFORMATION. EPHEMERIS INFORMATION INCLUDES GEOCENTRIC LATITUDE, LONGITUDE, RADIAL DISTANCE, SOLAR ECLIPTIC AND SOLAR MAGNETOSPHERIC CARTESIAN COORDINATES, B, L, SUN-EARTH-SPACECRAFT ANGLE, SPIN PERIOD AND DIRECTION, SUN-SPACECRAFT-SPIN AXIS DIRECTION ANGLE, AND OTHER PARAMETERS. IN THE SECOND FILE OF THE TAPE EACH PHYSICAL RECORD CONTAINS TWENTY 174-BYTE LOGICAL RECORDS. EACH OF THESE LOGICAL RECORDS CONTAINS HOURLY AVERAGED VALUES FOR ALL THE COUNT RATES, AND ALL OF THE EPHEMERIS PARAMETERS INDICATED PREVIOUSLY. THESE TAPES ARE BEING RECEIVED AT NSSDC ON A CONTINUING BASIS.

DATA SET NAME- HOURLY AVERAGED SOLAR PROTON FLUXES
PUBLISHED IN 'SOLAR GEOPHYSICAL DATA'

NSSDC ID- 71-019A-07B

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 11/01/71 TO 05/31/73
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 11 BOOK(S) OR BOUND VOLUME(S)

THIS DATA SET CONSISTS OF MONTHLY PLOTS AND TABULAR LISTINGS OF HOURLY AVERAGED OMNIDIRECTIONAL FLUXES OF PROTONS WITH ENERGIES ABOVE 10, 30, AND 60 MEV. AS WITH EARLIER IMP 4 AND IMP 5 VALUES, DATA OBTAINED DURING A GIVEN MONTH WERE TO BE PUBLISHED IN 'SOLAR-GEOPHYSICAL DATA (COMPREHENSIVE REPORTS)' WITH A NOMINAL 6-MONTH LAG. HOWEVER, THE PUBLICATION SCHEDULE BECAME SOMEWHAT IRREGULAR.

SIMPSON, IMP-I

EXPERIMENT NAME- NUCLEAR COMPOSITION OF COSMIC AND SOLAR PARTICLE RADIATIONS

NSSDC ID- 71-019A-09

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 10/02/74

PERSONNEL

PI -	J.A.	SIMPSON	U OF CHICAGO CHICAGO, IL
OI -	M.	GARCIA-MUNOZ	U OF CHICAGO CHICAGO, IL
OI -	S.	VERMA	U OF CHICAGO CHICAGO, IL
OI -	J.	HSIEH	U OF CHICAGO CHICAGO, IL
OI -	G.M.	MASON	U OF CHICAGO CHICAGO, IL

THIS EXPERIMENT WAS DESIGNED TO MEASURE THE SPECTRA AND COMPOSITION OF SOLAR AND GALACTIC COSMIC RAYS AND OF MAGNETOTAIL PARTICLES, TO SERVE AS A PROTOTYPE OF INSTRUMENTS TO BE FLOWN ON THE DEEP SPACE PROBES PIONEERS 10 AND 11, AND TO PROVIDE REFERENCE 1 AU DATA FOR COMPARISON WITH THE PIONEER DATA IN GRADIENT STUDIES. THE EXPERIMENT CONSISTED OF A COMPOSITION TELESCOPE (WHICH FAILED APPROXIMATELY 10 DAYS AFTER LAUNCH), A SECOND TELESCOPE (FROM WHICH VIRTUALLY ALL THE USEFUL DATA OF THIS EXPERIMENT WERE OBTAINED), AN ELECTRON CURRENT DETECTOR (ELECTRONS ABOVE 1.8 MEV PLUS PROTONS ABOVE 21 MEV) AND A FISSION CELL (PROTONS ABOVE 120 MEV). THE LATTER TWO INSTRUMENTS WERE SPECIFICALLY INCLUDED AS PROTOTYPES OF PIONEER INSTRUMENTS DESIGNED TO MEASURE VERY HIGH FLUXES OF JOVIAN TRAPPED PARTICLES. AS SUCH THEY WERE NOT OPTIMIZED FOR MEASUREMENTS OF THE RELATIVELY LOW FLUXES IN THE EARTH'S RADIATION BELT. THE SUCCESSFUL TELESCOPE CONSISTED OF SIX COLINEAR SENSORS (FIVE LITHIUM DRIFTED SILICON SENSORS AND ONE CSI (TL) SCINTILLATOR) AND AN ANTICOINCIDENCE SCINTILLATOR. THIS TELESCOPE HAD A LOOK DIRECTION THAT WAS NORMAL TO THE SPACECRAFT SPIN AXIS AND HAD AN ANGULAR APERTURE BETWEEN 48 AND 64 DEG (DEPENDING ON COINCIDENCE MODE CONSIDERED). COINCIDENCE MODE RATES (5.12 SEC ACCUMULATIONS, CORRESPONDING TO PROTONS IN THE RANGES 0.5-10.6, 10.6-19.6, 29.3-66.7 AND ABOVE 66.7 MEV WERE OBTAINED EACH 10.24 SEC. PULSE HEIGHT ANALYSIS (ONE EVENT EVERY 20.48 SEC) WAS USED WITH THESE RATES TO STUDY CHARGE COMPOSITION (UP TO Z OF 8), ISOTOPIC COMPOSITION (FOR Z OF 1 AND 2), AND ELECTRON FLUXES. THE SPACECRAFT ONBOARD COMPUTER WAS USED TO PERMIT SOME OF THE OBJECTIVES ASSIGNED TO THE COMPOSITION TELESCOPE TO BE ACHIEVED THROUGH THE SMALLER SUCCESSFUL TELESCOPE. EXCEPT FOR THE COMPOSITION TELESCOPE FAILURE, THE EXPERIMENT WORKED AS PLANNED THROUGHOUT THE SPACECRAFT LIFE.

DATA SET NAME- PROTON AND HIGHER Z COUNT RATES ON MAGNETIC TAPE

NSSDC ID- 71-019A-09A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/13/71 TO 01/06/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 18 REEL(S) OF MAGNETIC TAPE

THIS DATA SET, SUBMITTED BY THE EXPERIMENTER, WAS GENERATED ON 7-TRACK, BINARY, ODD-PARITY MAGNETIC TAPES WRITTEN AT 800 BPI USING AN XDS 930 COMPUTER. IT CONSISTS OF TIME-ORDERED, REDUCED PARTICLE COUNT RATES AND PULSE HEIGHT ANALYSIS FROM THE LOW-ENERGY TELESCOPE, PLUS THE ANTICOINCIDENCE RATE FROM THE COMPOSITION TELESCOPE AND FISSION CELL COUNT RATE. EACH TAPE CONTAINS FOUR SEPARATE FILES CORRESPONDING, RESPECTIVELY, TO FOUR ORBITS OF DATA. EACH FILE IS FOLLOWED BY AN END-OF-FILE MARK, AND A DOUBLE END-OF-FILE MARK FOLLOWS THE LAST ORBIT ON A TAPE. EACH FILE CONSISTS OF A VARIABLE NUMBER OF 2400-CHARACTER PHYSICAL RECORDS, AND EACH PHYSICAL RECORD CONTAINS THREE 800-CHARACTER LOGICAL RECORDS. EACH OF WHICH CONTAINS ONE ALBUM OF DATA. ONE ALBUM CORRESPONDS TO 81.92 SEC AT THE MOST OFTEN USED 1600-BPS RATE. THE THREE ALBUMS IN A PHYSICAL RECORD ARE NOT NECESSARILY ADJACENT IN TIME, AND INDIVIDUAL ALBUMS MAY BE EMPTY. EACH NONEMPTY ALBUM CONTAINS 16 SETS OF DATA SAMPLINGS (5.12 SEC AVERAGE AT 1600 BPS) EACH 48 CHARACTERS IN LENGTH, INCLUDING THE LOW-ENERGY TELESCOPE PARTICLE COINCIDENCE COUNT RATES AND OUTPUT FROM THE TWO 256-CHANNEL PULSE HEIGHT ANALYZERS, THE FISSION CELL COUNT RATE, THE COMPOSITION TELESCOPE D6 ANTICOINCIDENCE COUNT RATE, OPTICAL ASPECT DATA, AND VARIOUS DATA QUALITY FLAGS. AT THE BEGINNING OF EACH ALBUM IS GIVEN THE TIME (UT TENTHS OF SEC OF DAY), DAY, YEAR, SELECTED INSTRUMENT TEMPERATURES, ORBIT NUMBER, AND CALIBRATION INFORMATION.

DATA SET NAME- 5-MIN AVERAGED PROTON AND HIGHER Z COUNT RATES ON MAGNETIC TAPE

NSSDC ID- 71-019A-09B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/13/71 TO 05/01/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET WAS SUBMITTED BY THE EXPERIMENTER AND CONSISTS OF TIME-ORDERED, REDUCED 5.45-MIN PARTICLE COUNT ACCUMULATIONS FROM THE LOW-ENERGY TELESCOPE, FISSION CELL, AND ELECTRON CURRENT DETECTOR ON 7-TRACK, BINARY (ODD PARITY), MAGNETIC TAPES WRITTEN AT 800 BPI USING AN XDS-930 COMPUTER. EACH FULL TAPE CONTAINS DATA FOR 100 ORBITS. EACH ORBIT OF DATA IS TERMINATED BY AN END-OF-FILE MARK WITH A DOUBLE

END-OF-FILE MARK AFTER THE LAST ORBIT ON THE TAPE. EACH FILE CONTAINS A VARIABLE NUMBER OF 1760-CHARACTER PHYSICAL RECORDS, WITH EACH PHYSICAL RECORD CONSISTING OF 20 LOGICAL RECORDS 88 CHARACTERS IN LENGTH. IF DATA ARE LACKING FOR SOME ORBIT, THAT ORBIT IS FLAGGED BY A DOUBLE END-OF-FILE MARK. SO, MULTIPLE END-OF-FILE MARKS MAY BE ENCOUNTERED WITHIN A TAPE. EACH LOGICAL RECORD INCLUDES, IN ADDITION TO THE SEVEN TELESCOPE ACCUMULATIONS (D1 THROUGH D7), THE FISSION CELL AND ELECTRON CURRENT DETECTOR ACCUMULATIONS, THE TIME (UT), ORBIT NUMBER, YEAR, DAY, DATA QUALITY FLAGS, AND VARIOUS HOUSEKEEPING AND CALIBRATION PARAMETERS.

SPACECRAFT COMMON NAME- INJUN 4

ALTERNATE NAMES- EXPLORER 25, 00932

NSSDC ID- 64-076B

LAUNCH DATE- 11/21/64 WEIGHT- 40. KG

STATUS OF OPERATION- OPERATIONAL OFF
DATE LAST USABLE DATA RECORDED- 07/19/66

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 11/21/64
ORBIT PERIOD- 116.3 MIN INCLINATION- 81.36 DEG
PERIAPSIS- 522.000 KM ALT APOAPSIS- 2494.00 KM ALT

EXPLORER 25 WAS A MAGNETICALLY ALIGNED SATELLITE LAUNCHED SIMULTANEOUSLY WITH EXPLORER 24 (AIR DENSITY EXPERIMENT) USING A SCOUT ROCKET. THE SATELLITE'S PRIMARY MISSION WAS TO MAKE MEASUREMENTS OF THE INFLUX OF ENERGETIC PARTICLES INTO THE EARTH'S ATMOSPHERE AND TO STUDY ATMOSPHERIC HEATING AND THE INCREASE IN SCALE HEIGHT WHICH HAVE BEEN CORRELATED WITH GEOMAGNETIC ACTIVITY. STUDIES OF THE NATURAL AND ARTIFICIAL TRAPPED RADIATION BELTS WERE ALSO CONDUCTED. A BIAXIAL FLUXGATE MAGNETOMETER WAS USED TO MONITOR THE ORIENTATION OF THE SPACECRAFT WITH RESPECT TO THE LOCAL MAGNETIC FIELD. EXPLORER 25 WAS EQUIPPED WITH A TAPE RECORDER AND ANALOG-TO-DIGITAL CONVERTERS. THE SATELLITE POWER WAS DERIVED FROM RECHARGEABLE BATTERIES AND SOLAR CELLS. A TRANSMITTER OPERATING IN AN AM MODE AT CARRIER FREQUENCY 136.29 MHZ WAS USED TO TRANSMIT REAL-TIME DATA, AND ONE OPERATING IN A PM MODE AT 136.86 MHZ WAS USED TO TRANSMIT TAPE RECORDER DATA. STABLE MAGNETIC ALIGNMENT WAS NOT ACHIEVED UNTIL LATE FEBRUARY 1965. THE SATELLITE SENT RADIATION DATA UNTIL DECEMBER 1966 AND IS EXPECTED TO BE IN ORBIT FOR ABOUT 200 YR.

VAN ALLEN, INJUN 4

EXPERIMENT NAME- GEIGER-MUELLER COUNTER

NSSDC ID- 64-076B-03

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 07/19/66

PERSONNEL
PI - J.A. VAN ALLEN ..... U OF IOWA
IOWA CITY, IA

THIS EXPERIMENT WAS DESIGNED TO MEASURE THE NET DOWN-FLUX OF PARTICLES FROM THE TRAPPING REGION AND THE INTENSITIES OF GEOMAGNETICALLY TRAPPED PARTICLES AT LOW ALTITUDES OVER A WIDE RANGE OF LATITUDES AND LONGITUDES AND A LONG PERIOD OF TIME AND TO STUDY THE LONG-TERM DECAY OF ELECTRONS IN THE ARTIFICIALLY PRODUCED 'STARFISH' RADIATION BELT. FOUR EON 6213 TYPE DIRECTIONAL GM COUNTERS WERE USED FOR ENERGY FLUX MEASUREMENTS. THESE COUNTERS WERE SENSITIVE TO ELECTRONS (E.GT. 40 KEV) AND PROTONS (E.GT. 600 KEV). THE DETECTORS WERE ARRANGED TO DETECT PARTICLES WITH PITCH ANGLES FROM 0 TO 180 DEG IN FOUR SEGMENTS CENTERED AT PITCH ANGLES OF 35, 90, 125, AND 160 DEG. ORIENTATION IS REFERRED TO THE DIRECTION OF THE LOCAL MAGNETIC FIELD LINE SUCH THAT 0 DEG CORRESPONDS TO A DETECTOR LOOKING DOWNWARD TOWARDS THE EARTH IN THE NORTHERN HEMISPHERE. THE 6213 GM COUNTERS AT 35 AND 160 DEG FUNCTIONED NORMALLY THROUGHOUT THE FLIGHT. WHILE THE COUNTER AT 90 DEG OPERATED PROPERLY ONLY UNTIL ABOUT MID-MARCH 1965. PERIODS OF INTERMITTENT OPERATION COMMENCED AT THAT TIME DUE TO CONTINUOUS DISCHARGE OF THE GM COUNTER, AND THE COUNTER FAILED COMPLETELY IN JUNE 1965. THE FOURTH COUNTER, AT 125 DEG, MALFUNCTIONED SHORTLY AFTER LAUNCH YIELDING NO USEFUL DATA. ONE HEAVILY SHIELDED OMNIDIRECTIONAL EON 6213 TYPE GM COUNTER WAS USED FOR THE STUDY OF THE STARFISH RADIATION. THIS COUNTER WAS SENSITIVE TO PROTONS (E.GT. 70 MEV) BUT INSENSITIVE TO ELECTRONS EXCEPT VIA BREMSSTRAHLUNG (E.GT.1MEV). ONE OMNIDIRECTIONAL 5112 TYPE GM COUNTER OF THE KIND FLOWN ON THE EXPLORER 7 SATELLITE AND ONE OMNIDIRECTIONAL 7302 TYPE GM COUNTER WERE USED FOR MONITORING THE NATURAL RADIATION ZONES AND COSMIC RAYS. THE 5112 GM COUNTER WAS SENSITIVE TO PROTONS (E.GT. 27 MEV) BUT INSENSITIVE TO ELECTRONS EXCEPT VIA BREMSSTRAHLUNG (E.GT. 1 MEV). THE FOUR DIRECTIONAL TYPE 6213 GM COUNTER ACCUMULATORS WERE SAMPLED SEQUENTIALLY EVERY 4 SEC, AND THE OTHER GM COUNTER ACCUMULATORS WERE SAMPLED SEQUENTIALLY EVERY 8 SEC.

DATA SET NAME- MASTER FILE ON MAGNETIC TAPE, GM COUNTS

NSSDC ID- 64-076B-03A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 02/13/65 TO 07/19/66
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 47 REEL(S) OF MAGNETIC TAPE

THE DATA SET CONSISTS OF A TIME-ORDERED '8-SEC AVERAGE' FILE FOR EXPLORER 25 (INJUN 4). THESE REDUCED DATA ARE ON FORTY-SEVEN 7-TRACK, IBM 7094, BINARY, ODD PARITY MAGNETIC TAPES WRITTEN AT 800 BPI WITH 400 THREE-CHARACTER WORDS PER LOGICAL RECORD AND 10 LOGICAL RECORDS PER PHYSICAL RECORD. THERE IS ONE FILE PER TAPE. THE DATA ON THIS SET OF TAPES CONSIST OF DETECTOR COUNTING RATES FOR THIS EXPERIMENT AS WELL AS THE EXPERIMENTAL DATA FROM THE REST OF THE EXPLORER 25 EXPERIMENTS. THE TAPES ALSO INCLUDE -- TIME (UT), GEOCENTRIC LONGITUDE AND LATITUDE, ALTITUDE, GEOMAGNETIC LATITUDE AND LONGITUDE, INVARIANT LATITUDE, MCILWAIN'S L PARAMETER, SCALAR GEOMAGNETIC FIELD STRENGTH, B/BO, VARIOUS MAGNETIC INDICES, AND DATA QUALITY INDICATORS. THIS SET OF TAPES INCLUDES DATA SETS 64-076B-02A, -03A, -04A, -05A, AND -06A.

VAN ALLEN, INJUN 4

EXPERIMENT NAME- SOLID-STATE DETECTOR

NSSDC ID- 64-076B-04

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 07/19/66

PERSONNEL
PI - J.A. VAN ALLEN ..... U OF IOWA
IOWA CITY, IA
OI - S.M. KRIMIGIS ..... APPLIED PHYSICS LAB
SILVER SPRING, MD

THIS EXPERIMENT WAS DESIGNED TO DETECT PROTONS AND ALPHA PARTICLES IN THE OUTER ZONE AND IN SOLAR COSMIC-RAY EVENTS AT LOW ALTITUDES AND HIGH LATITUDES. THE EXPERIMENT USED A TOTALLY DEPLETED DIRECTIONAL SILICON SURFACE BARRIER DETECTOR IN THE FORM OF A THIN CIRCULAR DISC. THE DETECTOR WAS LOCATED INSIDE A CONICAL COLLIMATOR WITH FULL VERTEX ANGLE OF 40 DEG AND WAS ORIENTED AT 90 DEG TO THE SATELLITE SYMMETRY AXIS. SEPARATE DETERMINATIONS OF PROTON AND ALPHA PARTICLE FLUXES WERE MADE IN THE ENERGY RANGE 0.52 TO 4 MEV/NUCLEON AND 0.9 TO 1.8 MEV/NUCLEON. THE DETECTOR WAS INSENSITIVE TO ELECTRON FLUXES IN THE RADIATION ZONES. THE DETECTOR ACCUMULATORS WERE SAMPLED SEQUENTIALLY EVERY 4 SEC, AND THE DETECTOR PERFORMED NORMALLY THROUGH JULY 19, 1966.

DATA SET NAME- MASTER FILE ON MAGNETIC TAPE, P-N COUNTS

NSSDC ID- 64-076B-04A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 02/13/65 TO 07/19/66
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 47 REEL(S) OF MAGNETIC TAPE

THE DATA SET CONSISTS OF A TIME-ORDERED '8-SEC AVERAGE' FILE FOR EXPLORER 25 (INJUN 4). THESE REDUCED DATA ARE ON FORTY-SEVEN 7-TRACK, IBM 7094, BINARY, ODD PARITY MAGNETIC TAPES WRITTEN AT 800 BPI WITH 400 THREE-CHARACTER WORDS PER LOGICAL RECORD AND 10 LOGICAL RECORDS PER PHYSICAL RECORD. THERE IS ONE FILE PER TAPE. THE DATA ON THIS SET OF TAPES CONSIST OF DETECTOR COUNTING RATES FOR THIS EXPERIMENT AS WELL AS THE EXPERIMENTAL DATA FROM THE REST OF THE EXPLORER 25 EXPERIMENTS. THE TAPES ALSO INCLUDE -- TIME (UT), GEOCENTRIC LONGITUDE AND LATITUDE, ALTITUDE, GEOMAGNETIC LATITUDE AND LONGITUDE, INVARIANT LATITUDE, MCILWAIN'S L PARAMETER, SCALAR GEOMAGNETIC FIELD STRENGTH, B/BO, VARIOUS MAGNETIC INDICES, AND DATA QUALITY INDICATORS. THIS SET OF TAPES INCLUDES DATA SETS 64-076B-02A, -03A, -04A, -05A, AND -06A.

DATA SET NAME- PROTON COUNT RATE PLOTS ON MICROFILM

NSSDC ID- 64-076B-04B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 11/23/64 TO 07/19/66
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 11 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF COUNT RATE PLOTS (COUNTS/SEC VS UT, MAGNETIC LOCAL TIME, B (GAUSS), MCILWAIN'S L PARAMETER AND INVARIANT LATITUDE) OF PROTONS IN TWO ENERGY CHANNELS, 0.52 TO 4 MEV (PNA) AND 0.90 TO 1.8 MEV (PNB). THE UPPER LIMITS OF THE ENERGY RANGES ARE FOR AXIALLY INCIDENT PROTONS. THE PLOTS ARE CHRONOLOGICALLY ORDERED ON 11 REELS OF 35-MM MICROFILM AND COVER THE TIME INTERVAL FROM NOVEMBER 23, 1964, TO JULY 19, 1966. NOTE THAT FOR SOME TIME INTERVALS THERE IS OVERLAPPING TIME COVERAGE OWING TO THE USE OF TWO SLIGHTLY DIFFERENT PLOT FORMATS.

VAN ALLEN, INJUN 4

EXPERIMENT NAME- CADMIUM SULFIDE DETECTORS

NSSDC ID- 64-076B-05

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 07/19/66

PERSONNEL
PI - J.A. VAN ALLEN ..... U OF IOWA
IOWA CITY, IA

THIS EXPERIMENT WAS DESIGNED TO MEASURE PRECIPITATING AND TRAPPED PARTICLE FLUXES. FOUR CDS-TYPE PARTICLE DETECTORS WERE USED FOR THIS PURPOSE, ONE AT A PITCH ANGLE OF 90 DEG, ONE AT 125 DEG, AND TWO AT 160 DEG (ONE WITH AND ONE WITHOUT A MAGNETIC DEFLECTION WITHIN THE ENTRANCE APERTURE). ORIENTATION IS REFERRED TO THE DIRECTION OF THE LOCAL MAGNETIC FIELD LINE SUCH THAT 0 DEG CORRESPONDS TO A DETECTOR LOOKING DOWNWARD TOWARDS THE EARTH IN THE NORTHERN HEMISPHERE. THE DETECTOR ACCUMULATORS WERE SAMPLED SEQUENTIALLY EVERY 8 SEC. THE DETECTORS WERE TO YIELD TOTAL FLUX MEASUREMENTS FOR ELECTRONS (E.GT. 100 EV) AND PROTONS (E.GT. 100 EV). EXTREMELY HIGH BACKGROUND COUNTING RATES ENCOUNTERED DURING THE FLIGHT HAVE HINDERED ANALYSIS OF THE DATA.

DATA SET NAME- MASTER FILE ON MAGNETIC TAPE, CDS COUNTS

NSSDC ID- 64-076B-05A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 02/13/65 TO 07/19/66
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 47 REEL(S) OF MAGNETIC TAPE

THE DATA SET CONSISTS OF A TIME-ORDERED '8-SEC AVERAGE' FILE FOR EXPLORER 25 (INJUN 4). THESE REDUCED DATA ARE ON FORTY-SEVEN 7-TRACK, IBM 7094, BINARY, ODD PARITY MAGNETIC TAPES WRITTEN AT 800 BPI WITH 400 THREE-CHARACTER WORDS PER LOGICAL RECORD AND 10 LOGICAL RECORDS PER PHYSICAL RECORD. THERE IS ONE FILE PER TAPE. THE DATA ON THIS SET OF TAPES CONSIST OF DETECTOR COUNTING RATES FOR THIS EXPERIMENT AS WELL AS THE EXPERIMENTAL DATA FROM THE REST OF THE EXPLORER 25 EXPERIMENTS. THE TAPES ALSO INCLUDE -- TIME (UT), GEOCENTRIC LONGITUDE AND LATITUDE, ALTITUDE, GEOMAGNETIC LATITUDE AND LONGITUDE, INVARIANT LATITUDE, MCILWAIN'S L PARAMETER, SCALAR GEOMAGNETIC FIELD STRENGTH, B/BO, VARIOUS MAGNETIC INDICES, AND DATA QUALITY INDICATORS. THIS SET OF TAPES INCLUDES DATA SETS 64-076B-02A, -03A, -04A, -05A, AND -06A.

VAN ALLEN, INJUN 4

EXPERIMENT NAME- PLASTIC SCINTILLATOR PARTICLE DETECTORS

NSSDC ID- 64-076B-06

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 07/19/66

PI - J.A. VAN ALLEN ..... U OF IOWA
IOWA CITY, IA
OI - J.D. CRAVEN ..... U OF IOWA
IOWA CITY, IA

THIS EXPERIMENT WAS DESIGNED TO MEASURE THE DIRECTIONAL FLUXES OF ELECTRONS (E.GT. 5 KEV) MIRRORING AT SATELLITE ALTITUDES AND BEING PRECIPITATED INTO THE EARTH'S UPPER ATMOSPHERE. TWO PLASTIC SCINTILLATOR PARTICLE DETECTORS WERE USED. ONE DETECTOR, WHICH MEASURED ELECTRONS WITH PITCH ANGLES ABOUT 90 DEG PLUS OR MINUS 15 DEG, OPERATED NORMALLY UNTIL LATE JANUARY 1965. AN APPARENT INTERMITTENT FAILURE IN THE DETECTOR POWER SUPPLY DECREASED FURTHER OBSERVATIONS TO ONLY BRIEF PERIODS THROUGHOUT THE ACTIVE LIFE OF THE SATELLITE. THE OTHER DETECTOR, WHICH MEASURED ELECTRONS WITH PITCH ANGLES ABOUT 40 DEG PLUS OR MINUS 15 DEG, OPERATED NORMALLY THROUGHOUT THE 20-MONTH LIFE OF THE SATELLITE. ORIENTATION IS REFERRED TO THE DIRECTION OF THE LOCAL MAGNETIC FIELD LINE SUCH THAT ZERO DEG CORRESPONDS TO A DETECTOR LOOKING DOWNWARD TOWARDS THE EARTH IN THE NORTHERN HEMISPHERE. THE DETECTOR ACCUMULATORS WERE SAMPLED SEQUENTIALLY EVERY 8 SEC.

DATA SET NAME- MASTER FILE ON MAGNETIC TAPE, PLASTIC SCINTILLATOR COUNTS

NSSDC ID- 64-076B-06A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 02/13/65 TO 07/19/66
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 47 REEL(S) OF MAGNETIC TAPE

THE DATA SET CONSISTS OF A TIME-ORDERED '8-SEC AVERAGE' FILE FOR EXPLORER 25 (INJUN 4). THESE REDUCED DATA ARE ON FORTY-SEVEN 7-TRACK, IBM 7094, BINARY, ODD PARITY MAGNETIC TAPES WRITTEN AT 800 BPI WITH 400 THREE-CHARACTER WORDS PER LOGICAL RECORD AND 10 LOGICAL RECORDS PER PHYSICAL RECORD. THERE IS ONE FILE PER TAPE. THE DATA ON THIS SET OF TAPES CONSIST OF DETECTOR COUNTING RATES FOR THIS EXPERIMENT AS WELL AS THE EXPERIMENTAL DATA FROM THE REST OF THE EXPLORER 25 EXPERIMENTS. THE TAPES ALSO INCLUDE -- TIME (UT), GEOCENTRIC LONGITUDE AND LATITUDE, ALTITUDE, GEOMAGNETIC LATITUDE AND LONGITUDE, INVARIANT LATITUDE, MCILWAIN'S L PARAMETER, SCALAR GEOMAGNETIC FIELD STRENGTH, B/BO, VARIOUS MAGNETIC INDICES, AND DATA QUALITY INDICATORS. THIS SET OF TAPES INCLUDES DATA SETS 64-076B-02A, -03A, -04A, -05A, AND -06A.

SPACECRAFT COMMON NAME- INJUN 5

ALTERNATE NAMES- EXPLORER 40, INJUN-C
INJUN IE-C, 03338

NSSDC ID- 68-066B

LAUNCH DATE- 08/08/68 WEIGHT- 71.4 KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 06/07/71

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 08/11/68
ORBIT PERIOD- 118.3 MIN INCLINATION- 80.67 DEG
PERIAPSIS- 631.000 KM ALT APOAPSIS- 2533.00 KM ALT

EXPLORER 40 (INJUN 5) WAS A 71 KG, MAGNETICALLY ORIENTED SPACECRAFT LAUNCHED TOGETHER WITH A 3.65M INFLATABLE BALLOON (EXPLORER 39, 1968-66A, USED FOR AIR DENSITY MEASUREMENTS) USING A SINGLE SCOUT VEHICLE. EXPLORER 40 WAS DESIGNED TO ACCOMPLISH THE FOLLOWING OBJECTIVES -- (1) COMPREHENSIVE STUDY OF THE DOWNWARD FLUX OF CHARGED PARTICLES, (2) STUDY OF VLF RADIO EMISSION IN THE IONOSPHERE ASSOCIATED WITH THE DOWNWARD FLUX, (3) STUDY OF GEOMAGNETICALLY TRAPPED PROTONS, ALPHA PARTICLES, AND ELECTRONS, (4) OBSERVATION OF SOLAR COSMIC RAYS, (5) OBSERVATION OF THE CONTINUING DECAY OF THE STARFISH ARTIFICIAL RADIATION BELT, AND (6) STUDY OF THE TEMPERATURE AND DENSITY OF ELECTRONS AND POSITIVE IONS OF THERMAL AND NEAR THERMAL ENERGY. THE SPACECRAFT SYSTEMS PERFORMED NORMALLY EXCEPT FOR THE MALFUNCTION OF THE SOLAR CELL POWER DUMP DEVICE (SHORTLY AFTER LAUNCH) WHICH CAUSED THE SOLAR CELLS TO DELIVER A LOWER POWER LEVEL TO THE EXPERIMENTS AND REDUCED THE TIME DURING WHICH THE ONBOARD TAPE RECORDER COULD BE RUN. AFTER A PERIOD OF QUASI-RANDOM TUMBLING, THE PASSIVE MAGNETIC ALIGNMENT BECAME EFFECTIVE IN MID-DECEMBER 1968. THE SPACECRAFT WAS TURNED OFF FROM MAY 31, 1970 TO FEBRUARY 18, 1971 AFTER WHICH IT WAS TURNED ON AGAIN. THE SPACECRAFT WAS PUT IN AN OPERATIONAL OFF MODE IN EARLY JUNE 1971, AND BECAME INOPERABLE SHORTLY THEREAFTER.

ORIGINAL PAGE IS
OF POOR QUALITY

INJUN 5/ISIS 1

FRANK, INJUN 5

EXPERIMENT NAME- LOW-ENERGY PROTON AND ELECTRON
DIFFERENTIAL ENERGY ANALYZER (LEPEDEA)

NSSDC ID- 68-066B-01

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 06/07/71

PERSONNEL
PI - L.A. FRANK ..... U OF IOWA
IOWA CITY, IA

THIS EXPERIMENT WAS DESIGNED TO CONDUCT DETAILED MEASUREMENTS OF TRAPPED AND PRECIPITATING PROTON AND ELECTRON ENERGY FLUXES, SEPARATELY, OVER THE RANGE 50 EV TO 50 KEV. THE ENERGY SPECTRA OF THESE PARTICLES WERE STUDIED SEPARATELY AS A FUNCTION OF PITCH ANGLE, LATITUDE, LOCAL TIME, ALTITUDE, AND MAGNETIC ACTIVITY. THE DETECTOR USED WAS COMPOSED OF THREE LEPEDEA DEVICES. EACH MADE UP OF CYLINDRICAL CURVED PLATE ELECTROSTATIC ANALYZERS AND CONTINUOUS CHANNEL MULTIPLIERS (CHANNELTRONS). EACH LEPEDEA WAS ACCOMPANIED BY ONE EON TYPE 213 GM TUBE FOR MEASUREMENTS OF ELECTRON (E.GT. 40 KEV) AND PROTON (E.GT. 500 KEV) INTENSITIES AND TO PROVIDE BACKGROUND MEASUREMENTS FOR THE LEPEDEA. THE DETECTOR PERFORMED NORMALLY FROM LAUNCH UNTIL THE SPACECRAFT WAS PUT IN AN OPERATIONAL OFF MODE, EXCEPT FOR A TEMPORARY FAILURE OF THE LEPEDEA-C POWER SUPPLY ON SEPTEMBER 21, 1968 AND THE FAILURE OF A SECOND LEPEDEA SOMETIME DURING THE SUMMER OF 1970.

DATA SET NAME- MASTER FILE ON MAGNETIC TAPE, LEPEDEA
COUNT RATE

NSSDC ID- 68-066B-01A

AVAILABILITY OF DATA SET- DATA AT NSSDC PROCESSING DEFERRED

TIME PERIOD COVERED- 08/09/68 TO 05/29/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 949 REEL(S) OF MAGNETIC TAPE

THIS DATA SET, SUPPLIED BY THE EXPERIMENTER, CONSISTS OF A TIME-ORDERED MASTER FILE FOR EXPLORER 40 (INJUN 5) OF SATELLITE TELEMETRY DATA ON 949 7-TRACK, UNIVAC 418, BINARY MAGNETIC TAPES WRITTEN AT 800 BPI WITH 696 CHARACTERS PER LOGICAL RECORD, 10 LOGICAL RECORDS PER PHYSICAL RECORD, A VARIABLE NUMBER OF PHYSICAL RECORDS PER FILE, AND ONE FILE PER TAPE. THE DATA ON THIS SET OF TAPES CONSIST OF THE LEPEDEA TELEMETRY OUTPUT IN MILLIVOLTS (DOCUMENTATION AS TO CONVERSION TO COUNTS/SEC IS NOT AVAILABLE AT THIS TIME), AS WELL AS THE EXPERIMENTAL DATA FROM THE REST OF THE EXPLORER 40 DETECTORS. IN ADDITION, THE FOLLOWING DATA ARE GIVEN -- TIME (UT), ORBIT NUMBER, GEOGRAPHIC COORDINATES (LONGITUDE, LATITUDE, AND RADIAL DISTANCE PLUS LOCAL TIME OF THE SATELLITE), GEOCENTRIC EQUATORIAL INERTIAL COORDINATES (RIGHT ASCENSION OF SATELLITE, VELOCITY VECTOR RIGHT ASCENSION, DECLINATION AND MAGNITUDE OF THE SATELLITE VELOCITY, MAGNETIC FIELD RIGHT ASCENSION AND DECLINATION, AND CELESTIAL RIGHT ASCENSION AND DECLINATION OF THE SUN), GEOMAGNETIC COORDINATES (LONGITUDE, LATITUDE, EQUATORIAL DISTANCE TO LINE OF FORCE, AND LOCAL TIME OF SATELLITE), REAL FIELD VALUES (L, B, B/B0, AND INVARIANT LATITUDE), SUN ECLIPSE TIME (TIMES TO NEXT SUNRISE AND SUNSET), AND ATTITUDE OF THE SATELLITE (MAGNETOMETER MEASUREMENTS IN THE X, Y, AND Z DIRECTIONS).

VAN ALLEN, INJUN 5

EXPERIMENT NAME- SOLID-STATE PARTICLE DETECTOR

NSSDC ID- 68-066B-03

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 06/07/71

PERSONNEL
PI - J.A. VAN ALLEN ..... U OF IOWA
IOWA CITY, IA
OI - T.P. ARMSTRONG ..... U OF KANSAS
LAWRENCE, KS
OI - S.M. KRIMIGIS ..... APPLIED PHYSICS LAB
SILVER SPRING, MD

THIS EXPERIMENT WAS DESIGNED TO CONDUCT AN INVESTIGATION OF THE SPATIAL AND TEMPORAL DISTRIBUTIONS AND ENERGY SPECTRA OF LOW-ENERGY ALPHA PARTICLES, PROTONS, AND ELECTRONS. A SET OF SOLID-STATE DETECTORS (TOTALLY DEPLETED SILICON SURFACE BARRIER TYPE) WAS USED TO FORM A PROTON-TELESCOPE CAPABLE OF DETECTING PROTONS FROM 0.304 TO 74 MEV USING 10 ENERGY CHANNELS AND ELECTRONS WITH ENERGIES GREATER THAN 262, 264, 267, 269, 405, 407, 427, 428, 616, 646, 800, AND 833 KEV. ALSO INCLUDED IN THE EXPERIMENT WAS AN ALPHA PARTICLE DETECTOR, COMPOSED OF SIMILAR SOLID-STATE DETECTORS, CAPABLE OF DETECTING ALPHAS IN THE RANGE 1.25 TO 8.0, 1.65 TO 4.5, AND 2.03 TO 3.35 MEV. THE EXPERIMENT PERFORMED NORMALLY FROM LAUNCH UNTIL THE SPACECRAFT WAS PUT IN AN OPERATIONAL OFF MODE IN EARLY JUNE 1971, EXCEPT FOR A BACKGROUND NOISE PROBLEM IN ONE OF THE DETECTORS, WHICH DEVELOPED IN FEBRUARY 1969. SEE VAN ALLEN ET AL, JGR, VOL 75, P 6085, 1970, FOR FURTHER DETAILS.

DATA SET NAME- MASTER FILE ON MAGNETIC TAPE, PROTON AND
ALPHA PARTICLE COUNT RATES

NSSDC ID- 68-066B-03A

AVAILABILITY OF DATA SET- DATA AT NSSDC PROCESSING DEFERRED

TIME PERIOD COVERED- 08/09/68 TO 05/29/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 949 REEL(S) OF MAGNETIC TAPE

THIS DATA SET, SUPPLIED BY THE EXPERIMENTER, CONSISTS OF A TIME-ORDERED MASTER FILE FOR EXPLORER 40 (INJUN 5) OF SATELLITE TELEMETRY DATA ON 949 7-TRACK, UNIVAC 418, BINARY MAGNETIC TAPES WRITTEN AT 800 BPI WITH 696 CHARACTERS PER LOGICAL RECORD, 10 LOGICAL RECORDS PER PHYSICAL RECORD, A VARIABLE NUMBER OF PHYSICAL RECORDS PER FILE, AND ONE FILE PER TAPE. THE DATA ON THIS SET OF TAPES CONSIST OF THE SOLID-STATE TELESCOPE TELEMETRY OUTPUT IN MILLIVOLTS (DOCUMENTATION AS TO CONVERSION TO COUNTS/SEC IS AVAILABLE), AS WELL AS THE EXPERIMENTAL DATA FROM THE REST OF THE EXPLORER 40 DETECTORS. IN ADDITION, THE FOLLOWING DATA ARE GIVEN — TIME (UT), ORBIT NUMBER, GEOGRAPHIC COORDINATES (LONGITUDE, LATITUDE, AND RADIAL DISTANCE PLUS LOCAL TIME OF THE SATELLITE), GEOCENTRIC EQUATORIAL INERTIAL COORDINATES (RIGHT ASCENSION OF SATELLITE, VELOCITY VECTOR RIGHT ASCENSION, DECLINATION AND MAGNITUDE OF THE SATELLITE VELOCITY, MAGNETIC FIELD RIGHT ASCENSION AND DECLINATION, AND CELESTIAL RIGHT ASCENSION AND DECLINATION OF THE SUN), GEOMAGNETIC COORDINATES (LONGITUDE, LATITUDE, EQUATORIAL DISTANCE TO LINE OF FORCE, AND LOCAL TIME OF SATELLITE), REAL FIELD VALUES (L, B, B/B0, AND INVARIANT LATITUDE), SUN ECLIPSE TIME (TIMES TO NEXT SUNRISE AND SUNSET), AND ATTITUDE OF THE SATELLITE (MAGNETOMETER MEASUREMENTS IN THE X, Y, AND Z DIRECTIONS).

SPACECRAFT COMMON NAME- ISIS 1

ALTERNATE NAMES- ISIS-A, 03669

NSSDC ID- 69-009A

LAUNCH DATE- 01/30/69 WEIGHT- 532. KG

STATUS OF OPERATION- PARTIAL

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 01/30/69
ORBIT PERIOD- 128. MIN INCLINATION- 88.425 DEG
PERIAPSIS- 574.000 KM ALT APOAPSIS- 3522.00 KM ALT

ISIS 1 WAS AN IONOSPHERIC OBSERVATORY INSTRUMENTED WITH SWEEP FREQUENCY AND FIXED FREQUENCY IONOSONDES, A VLF RECEIVER, ENERGETIC AND SOFT PARTICLE DETECTORS, AN ION MASS SPECTROMETER, AN ELECTROSTATIC PROBE, AN ELECTROSTATIC ANALYZER, A BEACON TRANSMITTER, AND A COSMIC NOISE EXPERIMENT. THE SOUNDER USED TWO LONG DIPOLE ANTENNAS (78.9 AND 20.2 M LONG, RESPECTIVELY). THE SATELLITE WAS SPIN-STABILIZED AT ABOUT 2.9 RPM AFTER ANTENNA DEPLOYMENT. SOME CONTROL COULD BE EXERCISED OVER THE SPIN RATE AND ATTITUDE BY USING MAGNETICALLY INDUCED TORQUES TO CHANGE THE SPIN RATE AND TO PRECESS THE SPIN AXIS. A TAPE RECORDER WITH 1-HR CAPACITY WAS INCLUDED ON THE SATELLITE. THE SATELLITE COULD BE PROGRAMMED TO TAKE RECORDED OBSERVATIONS FOR FOUR DIFFERENT TIME PERIODS FOR EACH FULL RECORDING PERIOD. THE RECORDER WAS DUMPED ONLY AT OTTAWA. FOR NON-TAPE-RECORDED OBSERVATIONS, DATA FOR THE SATELLITE AND SUBSATELLITE REGIONS COULD BE OBSERVED AND TELEMETERED WHEN THE SPACECRAFT WAS IN THE LINE OF SIGHT OF TELEMETRY STATIONS. THE SELECTED TELEMETRY STATIONS WERE IN AREAS THAT PROVIDED PRIMARY DATA COVERAGE NEAR THE 80-DEG W MERIDIAN, PLUS AREAS NEAR HAWAII, SINGAPORE, AUSTRALIA, ENGLAND, NORWAY, INDIA, JAPAN, ANTARCTICA, NEW ZEALAND, AND CENTRAL AFRICA. NO TAPE-RECORDED DATA WERE AVAILABLE AFTER JANUARY 30, 1970, BECAUSE OF FAILURE OF THE RECORDER. THE ION MASS SPECTROMETER FAILED ABOUT 3 DAYS AFTER LAUNCH. INITIALLY, 6 TO 9 HR OF OBSERVATIONS WERE MADE DAILY, BUT BY THE SPRING OF 1973, ONLY 4 TO 5 HR OF OBSERVATIONS PER DAY WERE BEING MADE. THE DECREASE IN OBSERVATION TIME WAS DUE TO A COMBINATION OF FUNDING AND POWER LIMITATIONS AND SCHEDULING.

MCDIARMID, ISIS 1

EXPERIMENT NAME- ENERGETIC PARTICLE DETECTORS

NSSDC ID- 69-009A-04

STATUS OF OPERATION- NORMAL

PERSONNEL

PI -	I.B.	MCDIARMID	NATL RES COUNC OF CA OTTAWA, ONTARIO, CANADA
OI -	J.R.	BURROWS	NATL RES COUNC OF CA OTTAWA, ONTARIO, CANADA
OI -	R.C.	ROSE	NATL RES COUNC OF CA OTTAWA, ONTARIO, CANADA

THIS EXPERIMENT CONSISTED OF FOUR SETS OF DETECTORS. THE FIRST SET, COMPRISING FOUR GEIGER COUNTERS, MEASURED ELECTRONS GREATER THAN 20 AND 40 KEV AND PROTONS GREATER THAN 300 AND 500 KEV PARALLEL AND PERPENDICULAR TO THE SATELLITE SPIN AXIS. ALL REMAINING DETECTORS MEASURED PARTICLES PERPENDICULAR TO THE SPIN AXIS. THE SECOND SET CONSISTED OF SOLID-STATE SILICON JUNCTION DETECTORS. THESE RESPONDED TO ELECTRONS GREATER THAN 25 AND 140 KEV, ELECTRONS IN THE RANGE 200 TO 770 KEV, AND PROTONS GREATER THAN 200 AND 400 KEV. THE THIRD SET CONSISTED OF 5 SILICON JUNCTION DETECTORS WHICH RESPONDED TO PROTONS BETWEEN 0.15 AND 30 MEV. THE FOURTH SET CONSISTED OF CESIUM IODIDE SCINTILLATION-PHOTOMULTIPLIER SYSTEMS. EACH SYSTEM OPERATED IN TWO MODES, AND RESPONDED TO ELECTRONS GREATER THAN 8, 40, AND 80 KEV AND PROTONS GREATER THAN 50 KEV AND IN THE RANGE 50 TO 70 KEV.

DATA SET NAME- REDUCED COUNT RATE DATA ON MAGNETIC TAPE

NSSDC ID- 69-009A-04A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 02/02/69 TO 04/24/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 10 REEL(S) OF MAGNETIC TAPE

THIS DATA SET, GENERATED AND SUBMITTED BY THE EXPERIMENTER, CONSISTS OF 9-TRACK, 800-BPI, BINARY MAGNETIC TAPES. EACH TAPE CONTAINS A VARYING NUMBER OF FILES, AND EACH FILE CONTAINS AN ARBITRARY NUMBER OF 1-MIN RECORDS. ALL RECORDS ARE OF CONSTANT LENGTH (11,634 BYTES) AND CONTAIN UNFORMATTED DATA ORGANIZED INTO FIVE SECTIONS. SECTION 1 IS COMPOSED OF EIGHT PASS-IDENTIFICATION WORDS (INTEGER*4), SECTION 2 IS COMPOSED OF SIX HOUSEKEEPING DATA WORDS (REAL*4), SECTION 3 IS COMPOSED OF 80 EPHEMERIS WORDS TAKEN AT ONE PER 6 SEC (REAL*4), SECTION 4 CONTAINS 1350 ELECTRON-COUNTER AND PITCH-ANGLE DATA WORDS (REAL*4), AND SECTION 5 CONTAINS 2925 ELECTRON- AND PROTON-COUNTER DATA WORDS (INTEGER*2). THE DATA IN SECTIONS 4 AND 5 HAVE 225 VALUES-PER-MIN RESOLUTION. THE RECORDS ARE TIME ORDERED ON EACH TAPE, WITHOUT OVERLAP. THERE ARE GAPS IN THE TIME SEQUENCE OF THE DATA.

SPACECRAFT COMMON NAME- ISIS 2

ALTERNATE NAMES- ISIS-B, PL-701F
05104

NSSDC ID- 71-024A

LAUNCH DATE- 04/01/71 WEIGHT- 570. KG

STATUS OF OPERATION- PARTIAL

ORBIT PARAMETERS

ORBIT TYPE- GEOCENTRIC	EPOCH DATE- 04/01/71
ORBIT PERIOD- 113.61 MIN	INCLINATION- 88.1564 DEG
PERIAPSIS- 1367. KM ALT	APOAPSIS- 1429. KM ALT

ISIS 2 WAS AN IONOSPHERIC OBSERVATORY INSTRUMENTED WITH A SWEEP FREQUENCY AND A FIXED FREQUENCY IONOSONDE, A VLF RECEIVER, ENERGETIC AND SOFT PARTICLE DETECTORS, AN ION MASS SPECTROMETER, AN ELECTROSTATIC PROBE, A RETARDING POTENTIAL ANALYZER, A BEACON TRANSMITTER, A COSMIC NOISE EXPERIMENT, AND TWO PHOTOMETERS. THE SOUNDER USED TWO LONG CROSSED-DIPOLE ANTENNAS (78.9 M AND 20.2 M LONG, RESPECTIVELY) FOR THE SOUNDING, VLF, AND COSMIC NOISE EXPERIMENTS. THE SPACECRAFT WAS NOMINALLY SPIN STABILIZED WITH SPIN AXIS IN THE ORBIT PLANE TO ABOUT 2 RPM AFTER ANTENNA DEPLOYMENT. A CARTWHEEL MODE WITH THE AXIS PERPENDICULAR TO THE ORBIT PLANE WAS MADE AVAILABLE OCCASIONALLY FOR PERIODS OF A FEW MONTHS. THIS WAS DONE TO PROVIDE RAM AND WAKE DATA FOR SOME EXPERIMENTS EACH SPIN PERIOD RATHER THAN EACH ORBIT PERIOD. ATTITUDE AND SPIN INFORMATION WAS OBTAINED FROM A THREE-AXIS MAGNETOMETER AND A SUN SENSOR. CONTROL OF ATTITUDE AND SPIN WAS POSSIBLE BY MEANS OF MAGNETIC TORQUING. THE EXPERIMENT PACKAGE ALSO INCLUDED A PROGRAMMABLE TAPE RECORDER WITH A 1-HR CAPACITY. FOR NON-RECORDED OBSERVATIONS, DATA FROM SATELLITE AND SUBSATELLITE LOCATIONS WERE TELEMETERED WHEN THE SPACECRAFT WAS IN LINE OF SIGHT OF A TELEMETRY STATION. TELEMETRY STATIONS WERE LOCATED SO THAT PRIMARY DATA COVERAGE WAS NEAR THE 80-DEG W MERIDIAN AND NEAR HAWAII, SINGAPORE, AUSTRALIA, ENGLAND, FRANCE, NORWAY, INDIA, JAPAN, ANTARCTICA, NEW ZEALAND, AND CENTRAL AFRICA. INITIAL OPERATION OF ALL EXPERIMENTS WAS NOMINAL. THE TAPE RECORDERS FAILED ON FEBRUARY 4, 1972, BUT REAL-TIME OBSERVATIONS CONTINUED TO BE TELEMETERED TO GROUND STATIONS. AFTER APRIL 1973, DATA TAKEN WERE TO BE STORED ON TAPE FOR AT LEAST 18 MONTHS. THESE DATA TAPES MAY BE ERASED FOR REUSE IF NO REQUIREMENT (AND FUNDING) FOR DATA REDUCTION OCCURS WITHIN THAT PERIOD. SATELLITE OPERATION OCCURRED (JUNE 1974) FOR ABOUT 5 HOURS PER DAY.

MCDIARMID, ISIS 2

EXPERIMENT NAME- ENERGETIC PARTICLE DETECTORS

NSSDC ID- 71-024A-04

STATUS OF OPERATION- PARTIAL

PERSONNEL

PI -	I.B.	MCDIARMID	NATL RES COUNC OF CA OTTAWA, ONTARIO, CANADA
OI -	J.R.	BURROWS	NATL RES COUNC OF CA OTTAWA, ONTARIO, CANADA

THIS EXPERIMENT CONSISTED OF FOUR SETS OF DETECTORS. THE FIRST DETECTOR CONSISTED OF THREE GEIGER COUNTERS (OF WHICH ONE FAILED RIGHT AFTER LAUNCH) AND MEASURED ELECTRONS GREATER THAN 20 AND 40 KEV PERPENDICULAR AND PARALLEL TO THE SPIN AXIS. THESE GEIGERS WERE ALSO SENSITIVE TO PROTONS WITH ENERGIES GREATER THAN 240 AND 600 KEV, RESPECTIVELY. ALL REMAINING DETECTORS MEASURED PARTICLES PERPENDICULAR TO THE SPIN AXIS. THE TWO GEIGER COUNTERS WERE CORRECTED FOR SATURATION AND DEADTIME. ALL OTHER COUNTERS FOR DEADTIME ONLY. THE SECOND SET CONSISTED OF TWO SOLID-STATE SILICON JUNCTION DETECTORS. BOTH WERE OPERATED IN LOW AND HIGH THRESHOLD MODE, WHILE ONE COULD ADDITIONALLY BE SWITCHED TO ANOTHER DISCRIMINATION LEVEL. THEY MEASURED ELECTRONS WITH ENERGIES GREATER THAN 40, 60, 90, 120, 150, AND 200 KEV. THEY WERE ALSO SENSITIVE TO PROTONS WITH ENERGIES GREATER THAN 150, 200, AND 750 KEV. THE SWITCHABLE DETECTOR EXPERIENCED CONTINUOUS SATURATION. THE THIRD SET CONSISTED OF THREE SILICON JUNCTION DETECTORS THAT MEASURED PROTONS IN THE ENERGY RANGES 0.8 - 4.0, 3.2 - 12.7, AND 12.9 - 28.0 MEV, ALPHA PARTICLES IN THE ENERGY RANGE 2.5 - 16.0 MEV, AND ELECTRONS IN THE ENERGY RANGE 1.0 - 2.0 MEV. THE FOURTH SET WAS COMPOSED OF TWO CESIUM IODIDE SCINTILLATION-PHOTOMULTIPLIER SYSTEMS (CHANNELTRONS WITH CYLINDRICAL ELECTROSTATIC ANALYZERS) STEPPED THROUGH EIGHT ENERGIES IN 64/60 OF A SECOND. THESE DIFFERENTIAL SPECTROMETERS MEASURED ELECTRONS AT 9.6, 7.8, 6.0, 4.1, 3.0, 2.2, 1.3, 0.15, AND MEASURED PROTONS AT 26.2, 21.6, 17.0, 12.4, 9.4, 7.6, 5.2, AND 2.2 KEV.

DATA SET NAME- REDUCED COUNT RATE DATA ON MAGNETIC TAPE

NSSDC ID- 71-024A-04A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 04/19/71 TO 03/31/73
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 111 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF 9-TRACK, BINARY UNLABELLED MAGNETIC TAPES WRITTEN AT 800 BPI ON AN IBM 360/75. THE TAPES, SUBMITTED BY THE EXPERIMENTER, EACH CONTAIN VARYING NUMBERS OF FILES OF REDUCED DATA. THE FILES CONTAIN VARYING NUMBERS OF RECORDS. ALL RECORDS ARE 13,000 BYTES LONG, WHICH REPRESENTS ONE MINUTE OF DATA. GIVEN ARE PASS NUMBER, TIME INFORMATION, GEODETIC AND GEOMAGNETIC COORDINATES, INVARIANT LATITUDE, UNIVERSAL AND MAGNETIC LOCAL TIME, L, B, COUNTING RATES FOR EVERY 0.267 SECONDS, AND MISCELLANEOUS HOUSEKEEPING DATA. THE DATA ARE CHRONOLOGICALLY ORDERED ON MOST TAPES. THERE ARE GAPS IN THE DATA DUE TO EXPERIMENT-OFF TIMES, THE LARGEST OF WHICH ARE FROM APRIL 25 TO MAY 12, 1971, JULY 7 TO JULY 10, 1971, AND SEPTEMBER 9 TO OCTOBER 26, 1971.

ORIGINAL PAGE IS
OF POOR QUALITY

MARINER 5

SPACECRAFT COMMON NAME- MARINER 5

ALTERNATE NAMES- VENUS, MARINER VENUS 67
02845

NSSDC ID- 67-060A

LAUNCH DATE- 06/14/67 WEIGHT- 245. KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 11/21/67

ORBIT PARAMETERS
ORBIT TYPE- HELIOCENTRIC EPOCH DATE- 06/14/67
ORBIT PERIOD- 292. DAYS INCLINATION- 0. DEG
PERIAPSIS- .72 AU RAD APOAPSIS- 1.0 AU RAD

THE MARINER 5 SPACECRAFT WAS THE FIFTH IN A SERIES OF SPACECRAFT USED FOR PLANETARY EXPLORATION IN THE FLYBY MODE. MARINER 5 WAS A REFURBISHED BACKUP SPACECRAFT FOR THE MARINER 4 MISSION AND WAS CONVERTED FROM A MARS MISSION TO A VENUS MISSION. THE SPACECRAFT WAS FULLY ATTITUDE STABILIZED, USING THE SUN AND THE STAR CANOPUS AS REFERENCES. A CENTRAL COMPUTER AND SEQUENCER SUBSYSTEM SUPPLIED TIMING SEQUENCES AND COMPUTING SERVICES FOR OTHER SPACECRAFT SUBSYSTEMS. THE SPACECRAFT PASSED 4000 KM FROM VENUS ON OCTOBER 19, 1967. THE SPACECRAFT INSTRUMENTS MEASURED BOTH INTERPLANETARY AND VENUSIAN MAGNETIC FIELDS, CHARGED PARTICLES, AND PLASMAS, AS WELL AS THE RADIO REFRACTIVITY AND UV EMISSIONS OF THE VENUSIAN ATMOSPHERE. THE MISSION WAS TERMED A SUCCESS.

BRIDGE, MARINER 5

EXPERIMENT NAME- INTERPLANETARY ION PLASMA PROBE FOR E/Q OF 40 TO 9400 VOLTS

NSSDC ID- 67-060A-03

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 11/21/67

PERSONNEL
PI - H.S. BRIDGE ..... MASS INST OF TECH
CAMBRIDGE, MA

THIS THREE-SECTIONAL-COLLECTOR MODULATED-GRID FARADAY CUP MEASURED POSITIVE IONS FROM 40 TO 9400 EV/Q IN EIGHT APPROXIMATELY LOGARITHMICALLY EQUISPACED ENERGY WINDOWS. AS THE INSTRUMENT ALWAYS POINTED TOWARD THE SUN, VECTOR DATA WERE OBTAINED BY COMPARING THE RELATIVE SIGNALS FROM THE THREE 120 DEG PIE-SHAPED COLLECTOR SECTIONS. DURING EACH TELEMETRY SEQUENCE, THE INSTRUMENT WAS STEPPED FORWARD AND BACKWARD THROUGH THE EIGHT WINDOWS TO MEASURE THE SUM OF THE CURRENTS FROM THE THREE PLATES. THEN IT WAS STEPPED FORWARD AND BACKWARD TO MEASURE, FOR EACH VOLTAGE SETTING, THE CURRENTS TO THE THREE PLATES IN SUCCESSION. THE ENTIRE 32 STEPS IN VOLTAGE WINDOW PER TELEMETRY SEQUENCE PRODUCED 64 CURRENT MEASUREMENTS. THESE MEASUREMENTS WERE REPEATED EVERY 5 MIN. THE INSTRUMENT OPERATED NOMINALLY THROUGHOUT ITS MISSION.

DATA SET NAME- HOURLY AVERAGED PROTON PLASMA PARAMETERS ON 16-MM MICROFILM

NSSDC ID- 67-060A-03A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/14/67 TO 11/21/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THESE DATA CONSIST OF ONE REEL OF 16-MM MICROFILM MADE BY NSSDC FROM EXPERIMENTER-GENERATED COMPUTER LISTINGS OF 1-HR AVERAGED INTERPLANETARY PLASMA PARAMETERS FROM MARINER 5. THE PRINTOUT CONTAINS THE BULK VELOCITY VECTOR IN BOTH SOLAR ECLIPTIC AND SOLAR EQUATORIAL COORDINATES AND CORRESPONDING STANDARD DEVIATIONS.

DATA SET NAME- HOURLY AVERAGED PROTON PLASMA PARAMETERS ON 7-TRACK BCD MAGNETIC TAPE

NSSDC ID- 67-060A-03B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/14/67 TO 11/21/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THESE DATA, SUPPLIED BY THE EXPERIMENTER, ARE ON A SINGLE 7-TRACK, 556-BPI, BCD MAGNETIC TAPE WITH 402 CHARACTERS PER PHYSICAL RECORD. THE TAPE CONTAINS ONE FILE, WHICH INCLUDE THE HOURLY AVERAGED VECTOR BULK PROTON VELOCITY IN SOLAR ECLIPTIC AND SOLAR EQUATORIAL COORDINATES, THE NUMBER DENSITY, THE MOST PROBABLE THERMAL SPEED, AND THE FLUX (BULK SPEED TIMES NUMBER DENSITY) MERGED WITH THE HOURLY VECTOR MAGNETIC FIELD DATA FROM THE TRIAXIAL LOW-FIELD MAGNETOMETER EXPERIMENT (67-060A-05). THE CORRESPONDING STANDARD DEVIATIONS ARE ALSO INCLUDED.

ESHLEMAN, MARINER 5

EXPERIMENT NAME- TWO-FREQUENCY BEACON RECEIVER

NSSDC ID- 67-060A-02

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 11/21/67

PERSONNEL
PI - V.R. ESHLEMAN ..... STANFORD U
STANFORD, CA
OI - T.A. CROFT ..... STANFORD U
STANFORD, CA

BOTH 423.3-MHZ AND ITS 2/17 SUBHARMONIC 49.8-MHZ SIGNALS WERE TRANSMITTED FROM A 4.6-M STEERABLE PARABOLIC ANTENNA AT STANFORD UNIVERSITY TO THE TWO-FREQUENCY RADIO RECEIVER ON THE SPACECRAFT. THE HIGH-FREQUENCY SIGNAL SERVED AS A REFERENCE SIGNAL SINCE ITS PROPAGATION TIME WAS NOT APPRECIABLY DELAYED. THE LOW-FREQUENCY SIGNAL WAS DELAYED IN PROPORTION TO THE TOTAL ELECTRON CONTENT IN THE PROPAGATION PATH. ON THE SPACECRAFT, A PHASE LOCKED RECEIVER COUNTED THE BEAT-FREQUENCY ZERO CROSSINGS OF THE RECEIVED SIGNALS TO OBTAIN MEASUREMENTS OF PHASE-PATH DIFFERENCES. DIFFERENTIAL DELAY OF THE GROUP VELOCITY WAS ALSO OBSERVED, AND THESE VALUES WERE TELEMETERED TO THE GROUND STATION. FROM CALCULATED TOTAL ELECTRON CONTENT VALUES, THE IONOSPHERIC EFFECT (UP TO A SELECTED ALTITUDE OBTAINED FROM OTHER EXPERIMENTAL TECHNIQUES) CAN BE SUBTRACTED TO PRODUCE DATA DESCRIBING THE INTERPLANETARY ELECTRON CONTENT OF THE SOLAR WIND AND ITS VARIATIONS. THE EXPERIMENT HAS OPERATED NOMINALLY FROM LAUNCH TO NOVEMBER 1967. FOR SIMILAR EXPERIMENTS COVERING OTHER TIME PERIODS, SEE 68-100A-03, 67-123A-03, 66-075A-04, AND 65-105A-04. MORE DETAILED DESCRIPTIONS OF THE EXPERIMENT CAN BE FOUND IN THE JOURNAL OF GEOPHYSICAL RESEARCH, VOL. 17, 3325-3327, AND IN RADIO SCIENCE, VOL. 6, 55-63.

DATA SET NAME- HOURLY VALUES OF REDUCED TOTAL ELECTRON CONTENT DATA ON PUNCHED CARDS

NSSDC ID- 67-060A-02A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/14/67 TO 11/21/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF DIGITIZED HOURLY VALUES OF TOTAL ELECTRON CONTENT THROUGH THE IONOSPHERE AND THE SOLAR WIND. THESE ARE REDUCED DATA CALCULATED FROM MEASUREMENTS OF THE DIFFERENTIAL DELAY OF THE GROUP VELOCITY. THE HOURLY DATA ARE REPRESENTATIVE VALUES MANUALLY SELECTED FROM ANALOG RECORDS. EACH SET OF HOURLY VALUES IS FOR THE PORTION OF THE DAY (ABOUT 12 HR PER DAY) WHEN THE SPACECRAFT WAS IN VIEW FROM THE STANFORD TRANSMITTER. THIS DATA SET IS ON ONE 556-BPI, 7-TRACK, BCD MAGNETIC TAPE GENERATED AT NSSDC FROM PUNCHED CARDS SUPPLIED BY THE EXPERIMENTER. THE TAPE ALSO CONTAINS IDENTICAL DATA FOR OTHER TIME PERIODS FROM PIONEERS 6 (65-105A-04A), 7 (66-075A-04A), 8 (67-123A-03A), AND 9 (68-100A-03A).

DATA SET NAME- HOURLY VALUES OF REDUCED TOTAL ELECTRON CONTENT DATA ON MICROFILM

NSSDC ID- 67-060A-02B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/14/67 TO 11/21/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF DIGITIZED AND PLOTTED HOURLY VALUES OF TOTAL ELECTRON CONTENT THROUGH THE IONOSPHERE AND THE SOLAR WIND. THESE ARE REDUCED DATA CALCULATED FROM MEASUREMENTS OF THE DIFFERENTIAL DELAY OF THE GROUP VELOCITY. THE HOURLY DATA ARE REPRESENTATIVE VALUES MANUALLY SELECTED FROM ANALOG RECORDS. EACH SET OF HOURLY VALUES IS FOR THE PORTION OF THE DAY (ABOUT 12 HR PER DAY) WHEN THE SPACECRAFT WAS IN VIEW FROM THE STANFORD TRANSMITTER. THIS DATA SET IS ON ONE REEL OF 35-MM MICROFILM GENERATED AT NSSDC FROM DATA SUPPLIED BY THE EXPERIMENTER. THIS REEL OF MICROFILM ALSO CONTAINS IDENTICAL DATA FOR OTHER TIME PERIODS FROM PIONEERS 6 (65-105A-04B), 7 (66-075A-04B), 8 (67-123A-03B), AND 9 (68-100A-03B) AND SOLAR WIND ELECTRON DENSITY PLOTS FROM PIONEERS 6 (65-104A-04E), 7 (06-075A-04E), 8 (67-123A-03D), AND 9 (68-100A-03D).

DATA SET NAME- HOURLY VALUES OF NORMALIZED ELECTRON DENSITY ON MAGNETIC TAPE

NSSDC ID- 67-060A-02C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 09/01/67 TO 10/26/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THESE DATA WERE PREPARED FROM THE ORIGINAL ANALOG RECORDS BY THE EXPERIMENTER'S STAFF. THE PRIMARY DATA CONSIST OF HOURLY VALUES OF NORMALIZED ELECTRON NUMBER DENSITY IN THE SOLAR WIND. TO OBTAIN THESE DATA, THE IONOSPHERIC TOTAL CONTENT WAS REMOVED FROM THE OBSERVED TOTAL CONTENT VALUES, AND THE TOTAL CONTENT PATH LENGTH WAS USED TO CONVERT TOTAL CONTENT TO DENSITY. THE RESULTING VALUES WERE THEN NORMALIZED TO 1 AU ASSUMING DENSITY TO BE PROPORTIONAL TO THE INVERSE SQUARE OF THE SATELLITE-SOLAR DISTANCE. VALUES RESULTING FROM INTERPOLATION ARE FLAGGED. NO INTERPOLATED VALUES WERE RECORDED WHEN DATA GAPS EXCEEDED 4 DAYS. THIS DATA SET IS ON ONE 800-BPI, 7-TRACK, ODD PARITY, BINARY MAGNETIC TAPE WRITTEN ON AN IBM 7094 COMPUTER. AUXILIARY DATA ON THE TAPE INCLUDE UT AND CARRINGTON ROTATION NUMBER. DATA ARE AVAILABLE FOR ABOUT 12 HR PER DAY WHEN THE SPACECRAFT WAS IN VIEW FROM THE STANFORD TRANSMITTER. IDENTICAL DATA FOR OTHER TIME PERIODS FROM PIONEERS 6 (65-105A-04D), 7 (66-075A-04D), 8 (67-123A-03C), AND 9 (68-100A-03C) ALSO APPEAR ON THIS TAPE.

SPACECRAFT COMMON NAME- OGO 1

ALTERNATE NAMES- EOGO 1, OGO-A
00879, S 49

NSSDC ID- 64-054A

LAUNCH DATE- 09/05/64 WEIGHT- 487. KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 11/25/69

ORBIT PARAMETERS

ORBIT TYPE- GEOCENTRIC	EPOCH DATE- 09/07/64
ORBIT PERIOD- 3839. MIN	INCLINATION- 31.2 DEG
PERIAPSIS- 281.000 KM ALT	APOAPSIS- 149385. KM ALT

THE PURPOSE OF THE OGO 1 SPACECRAFT, THE FIRST OF A SERIES OF SIX ORBITING GEOPHYSICAL OBSERVATORIES, WAS TO CONDUCT MANY DIVERSIFIED GEOPHYSICAL EXPERIMENTS TO OBTAIN A BETTER UNDERSTANDING OF THE EARTH AS A PLANET AND TO DEVELOP AND OPERATE A STANDARDIZED OBSERVATORY-TYPE SATELLITE. OGO 1 CONSISTED OF A MAIN BODY THAT WAS PARALLELEPIPED IN FORM, TWO SOLAR PANELS, EACH WITH A SOLAR-ORIENTED EXPERIMENT PACKAGE (SOEP), TWO ORBITAL PLANE EXPERIMENT PACKAGES (OPEP) AND SIX APPENDAGES EP-1 THROUGH EP-6 SUPPORTING THE BOOM EXPERIMENT PACKAGES. ONE FACE OF THE MAIN BODY WAS DESIGNED TO POINT TOWARD THE EARTH (+Z AXIS), AND THE LINE CONNECTING THE TWO SOLAR PANELS (X AXIS) WAS INTENDED TO BE PERPENDICULAR TO THE EARTH-SUN-SPACECRAFT PLANE. THE SOLAR PANELS WERE ABLE TO ROTATE ABOUT THE X AXIS. THE OPEP'S WERE MOUNTED ON AND COULD ROTATE ABOUT AN AXIS WHICH WAS PARALLEL TO THE Z AXIS AND ATTACHED TO THE MAIN BODY. DUE TO A BOOM DEPLOYMENT FAILURE SHORTLY AFTER ORBITAL INJECTION, THE SPACECRAFT WAS PUT INTO A PERMANENT SPIN MODE OF 5 RPM ABOUT THE Z AXIS. THIS SPIN AXIS REMAINED FIXED WITH A DECLINATION OF ABOUT -10 DEG AND RIGHT ASCENSION OF ABOUT 40 DEG AT LAUNCH. THE INITIAL LOCAL TIME OF APOGEE WAS 2100 HR. OGO 1 CARRIED 20 EXPERIMENTS. TWELVE OF THESE WERE PARTICLE STUDIES AND TWO WERE MAGNETIC FIELD STUDIES. IN ADDITION, THERE WAS ONE EXPERIMENT FOR EACH OF THE FOLLOWING TYPES OF STUDIES -- INTERPLANETARY DUST, VLF, LYMAN-ALPHA, GEGENSCHEIN, ATMOSPHERIC MASS, AND RADIO ASTRONOMY. REAL-TIME DATA WERE TRANSMITTED AT 1, 8, OR 64 KBS DEPENDING ON THE DISTANCE OF THE SPACECRAFT FROM THE EARTH. PLAYBACK DATA WERE TAPE RECORDED AT 1 KBS AND TRANSMITTED AT 64 KBS. TWO WIDEBAND TRANSMITTERS, ONE FEEDING INTO AN OMNIDIRECTIONAL ANTENNA AND THE OTHER FEEDING INTO A DIRECTIONAL ANTENNA, WERE USED TO TRANSMIT DATA. A SPECIAL-PURPOSE TELEMETRY SYSTEM, FEEDING INTO EITHER ANTENNA, WAS ALSO USED TO TRANSMIT WIDEBAND DATA IN REAL TIME ONLY. TRACKING WAS ACCOMPLISHED BY USING RADIO BEACONS AND A RANGE AND RANGE-RATE S-BAND TRANSPONDER. BECAUSE OF THE BOOM DEPLOYMENT FAILURE, THE BEST OPERATING MODE FOR THE DATA HANDLING SYSTEM WAS THE USE OF ONE OF THE WIDEBAND TRANSMITTERS AND THE DIRECTIONAL ANTENNA. ALL DATA RECEIVED FROM THE OMNIDIRECTIONAL ANTENNA WERE NOISY. DURING SEPTEMBER 1964, ACCEPTABLE DATA WERE RECEIVED OVER 70 PERCENT OF THE ORBITAL PATH. BY JUNE 1969, DATA ACQUISITION WAS LIMITED TO 10 PERCENT OF THE ORBITAL PATH. THE SPACECRAFT WAS PLACED IN A STAND-BY STATUS NOVEMBER 25, 1969, AND ALL SUPPORT WAS TERMINATED NOVEMBER 1, 1971. BY APRIL 1970, THE SPACECRAFT PERIGEE HAD INCREASED TO 46,000 KM AND THE INCLINATION HAD INCREASED TO 58.8 DEG.

DATA SET NAME- MULTICOORDINATE SYSTEM EPHEMERIS PLOTS

NSSDC ID- 64-054A-00H

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 09/07/64 TO 06/03/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF 35-MM MICROFILM, FILMED BY NSSDC FROM EXPERIMENTER-GENERATED CALCOMP PLOTS. THE DATA SET CONTAINS TWO-DIMENSIONAL PROJECTIONS OF INDIVIDUAL ORBITS, WITH TIC MARKS FOR TIME, IN A VARIETY OF COORDINATE SYSTEMS. INCLUDED ARE THE DISTANCE FROM THE EARTH-SUN-LINE GEOMAGNETIC DIPOLE PLANE, DISTANCE FROM THE NEUTRAL SHEET, THE ORBIT IN GEOCENTRIC SOLAR MAGNETOSPHERIC COORDINATES, DISTANCE FROM THE EARTH-SUN-LINE ECLIPTIC POLE PLANE, AND THE ORBIT IN GEOCENTRIC ECLIPTIC COORDINATES. ONE ORBIT IS INCLUDED PER PLOT, AND DISTANCES ARE ALL IN EARTH RADII.

ANDERSON, OGO 1

EXPERIMENT NAME- SOLAR COSMIC RAYS

NSSDC ID- 64-054A-12

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 11/25/69

PERSONNEL

PI -	K.A. ANDERSON	U OF CALIF, BERKELEY	BERKELEY, CA
OI -	G.H. PITT	U OF CALIF, BERKELEY	BERKELEY, CA

THIS INSTRUMENTATION CONSISTED OF A CESIUM IODIDE CRYSTAL SURROUNDED BY A PLASTIC ANTICOINCIDENCE SHIELD AND OPTICALLY COUPLED TO A PHOTOMULTIPLIER TUBE. THE SYSTEM ALSO CONTAINED A 32-CHANNEL PULSE HEIGHT ANALYZER. ALTHOUGH THE PRINCIPAL OBJECTIVE OF THIS EXPERIMENT WAS TO MEASURE 3- TO 90-MEV SOLAR PROTONS, THE DETECTOR HAD NO ABILITY TO DISCRIMINATE BETWEEN DIFFERENT KINDS OF PARTICLES. THE SYSTEM WAS MOUNTED IN ONE OF THE TWO SOEP'S AND HAD A 38-DEG ACCEPTANCE CONE ANGLE. INFLIGHT CALIBRATION WAS PROVIDED. COUNTS IN GROUPS OF FOUR CHANNELS, ACCUMULATED OVER 31/32 OF THE TELEMETRY FRAME TIME (1.152, 0.144, OR 0.018 SEC), WERE READ OUT DURING SUCCESSIVE TELEMETRY FRAMES. SOME TIME BEFORE THE EXPERIMENT WAS TURNED ON, THE ANTICOINCIDENCE SYSTEM FAILED. THIS RESULTED IN HIGH BACKGROUND RATES DUE TO GALACTIC COSMIC RAYS. THUS, THE DATA WERE USEFUL FOR STUDIES OF EVENT MORPHOLOGY BUT NOT FOR DETERMINATION OF ABSOLUTE FLUXES. ALTHOUGH THE DETECTOR AXIS WAS INTENDED TO POINT TOWARD THE SUN, A MALFUNCTION IN THE OGO 1 ATTITUDE CONTROL SYSTEM PREVENTED THIS. OTHERWISE, THE EXPERIMENT PERFORMED WELL FROM LAUNCH THROUGH NOVEMBER 25, 1969, WHEN ALL EXPERIMENTS ABOARD OGO 1 WERE TURNED OFF. FOR FURTHER DETAILS, SEE KAHLER ET AL., SOLAR PHYSICS, VOL 2, P 179, 1967.

ORIGINAL PAGE IS OF POOR QUALITY

OGO 1

DATA SET NAME- ORIGINAL REDUCED COUNT RATES ON TAPE

NSSDC ID- 64-054A-12A

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 09/30/65 TO 05/03/66
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF ONE 7-TRACK, 556-BPI, BINARY TAPE GENERATED BY THE EXPERIMENTER ON AN IBM 360/40 SYSTEM. THE TAPE CONTAINS 35 FILES, EACH CONTAINING A VARIABLE NUMBER OF RECORDS CHOSEN FOR THEIR SOLAR FLARE INFORMATION. THE FIRST 120 CHARACTERS OF EACH FILE IS AN IDENTIFICATION HEADER CONTAINING, AMONG OTHER THINGS, THE FILE AND TAPE NUMBERS OF THE ORIGINAL DATA TAPES, THE RATE AT WHICH THE DATA WERE TELEMETERED, WHETHER THE DATA WERE REAL TIME OR PLAYBACK, AND THE START TIME OF THE DATA IN YEAR, DAY OF THE YEAR, AND SECONDS OF THE DAY. EACH DATA RECORD CONSISTS OF 1044 SIX-BIT CHARACTERS. THE FIRST 12 CHARACTERS CONTAIN SOEP ENVIRONMENT INFORMATION. THE NEXT EIGHT CHARACTERS CONTAIN THE DAY OF THE YEAR AND MILLISECOND OF THE DAY FOR THE FIRST DATA VALUE. THE REMAINING 1024 CHARACTERS CONTAIN 12 ACCUMULATIONS FOR EACH OF THE 32 CHANNELS. FOR TELEMETRY RATES OF 1, 8, AND 64 KBS, EACH RECORD CONTAINS 147.456, 18.432 AND 2.304 SEC OF DATA, RESPECTIVELY. THE FIRST 15 FILES CONTAIN DATA ASSOCIATED WITH THE OCTOBER 4, 1965, SOLAR FLARE. FILES 16 THROUGH 25 CONTAIN DATA ASSOCIATED WITH THE MARCH 24, 1966, SOLAR FLARE. FILES 26 THROUGH 35 CONTAIN DATA ASSOCIATED WITH THE MAY 2, 1966, SOLAR FLARE.

SIMPSON, OGO 1

EXPERIMENT NAME- COSMIC-RAY SPECTRA AND FLUXES

NSSDC ID- 64-054A-1B

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 11/25/69

PERSONNEL

PI -	J.A. SIMPSON	U OF CHICAGO	CHICAGO, IL
OI -	C.Y. FAN	U OF ARIZONA	TUCSON, AZ

THREE SOLID-STATE PARTICLE TELESCOPES WERE USED TO MEASURE THE INTENSITY AND ENERGY DISTRIBUTION OF COSMIC RAYS. A DE/DX VS E TELESCOPE RESOLVED THE NUCLEAR COMPOSITION OF COSMIC RAYS IN THE ENERGY RANGE FROM 22 TO 103 MEV/NUCLEON (CHARGE RESOLUTION RANGED THROUGH Z=26, ENERGY PER NUCLEON INTERVALS APPROXIMATELY PROPORTIONAL TO Z SQUARED/A). A DE/DX VS RANGE TELESCOPE (PROTON-ALPHA TELESCOPE) DETECTED PROTONS AND ALPHA PARTICLES IN THE ENERGY RANGE FROM 1.4 TO 33 MEV/NUCLEON, AND A SINGLE-ELEMENT LOW-ENERGY PROTON TELESCOPE (OPEP TELESCOPE) WAS PRIMARILY SENSITIVE TO PROTONS IN THE ENERGY RANGE FROM 1.4 TO 3.7 MEV. THE COMPOSITION AND PROTON-ALPHA TELESCOPES WERE ORIENTED PARALLEL TO THE SPACECRAFT Z AXIS. PULSE HEIGHT INFORMATION WAS OBTAINED FROM THE COMPOSITION TELESCOPE USING ONE 256-CHANNEL AND TWO 512-CHANNEL PULSE HEIGHT ANALYZERS. THIS ALLOWED PULSE HEIGHT ANALYSIS OF PARTICLES IN FOUR ENERGY INTERVALS -- FOR PROTONS 5 TO 11 MEV, 11 TO 22 MEV, 22 TO 103 MEV, AND GREATER THAN 103 MEV. PULSE HEIGHT INFORMATION SENT BACK FROM THE PROTON-ALPHA TELESCOPE ALLOWED PULSE HEIGHT ANALYSIS OF PARTICLES IN TWO ENERGY RANGES, PROTONS 1.4 TO 8.6 MEV AND 8.6 TO 33 MEV. THIS TRANSMISSION USED ONE 256-CHANNEL PULSE HEIGHT ANALYZER WHILE COUNT RATE INFORMATION WAS SENT BACK FROM ALL THREE TELESCOPES. THE TIME RESOLUTION RANGED FROM ABOUT ONE MEASUREMENT PER 0.02 SEC TO ABOUT ONE MEASUREMENT PER 147 SEC DEPENDING ON THE COUNTING MODE AND THE TELEMETRY BIT RATE. THE SPACECRAFT UNINTENDED INITIAL SPIN PERIOD ABOUT THE Z AXIS WAS ABOUT 12 SEC. FOR FURTHER DETAILS, SEE COMSTOCK ET AL., AP. J., VOL 146, P 51, 1966.

DATA SET NAME- REDUCED COUNT RATE DATA ON MAGNETIC TAPE

NSSDC ID- 64-054A-1BA

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 09/06/64 TO 11/25/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 35 REEL(S) OF MAGNETIC TAPE

THE DATA SET CONSISTS OF A COPY OF THE ORIGINAL REDUCED DATA ON THIRTY-FIVE 7-TRACK, IBM 7094, BINARY TAPES WRITTEN AT 800 BPI AND CONTAINING COUNT RATES ORDERED BY SOLAR ROTATION NUMBER. THE TAPES DO NOT CONTAIN ORBITAL DATA OR PULSE HEIGHT DATA. EACH TAPE HAS A 24-CHARACTER (SIX BITS/CHARACTER) HEADER RECORD FOLLOWED BY A VARIABLE NUMBER OF FILES. EACH FILE HAS A 144-CHARACTER HEADER RECORD, FOLLOWED BY A VARIABLE NUMBER OF RECORDS THAT HAVE A TOTAL LENGTH OF 3972 CHARACTERS, FOLLOWED BY A FILE TRAILER RECORD (24 CHARACTERS). A MICROFILMED INDEX OF THIS DATA SET IS ALSO AVAILABLE (64-054A-18A).

DATA SET NAME- DIGITAL AND ANALOG COUNT RATE PLOTS ON MICROFILM

NSSDC ID- 64-054A-18B

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 09/07/64 TO 11/25/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF A STANDARD SET OF DIGITAL AND ANALOG PLOTS (ON ONE ROLL OF 35-MM MICROFILM) OF THE MOST INTERESTING OGO-1 HALF-HOUR AVERAGE RATES USING A CALCOMP PLOTTER. EACH PLOT COVERS ONE SOLAR ROTATION. THESE RATES ARE OBTAINED FROM COINCIDENCES AND ANTICOINCIDENCES OF COUNTERS AS WELL AS SOME STRAIGHT COUNTER RATES.

DATA SET NAME- PULSE HEIGHT ANALYZER DATA ON MAGNETIC TAPE

NSSDC ID- 64-054A-18C

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 09/04/66 TO 11/25/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 3 REEL(S) OF MAGNETIC TAPE

THE DATA SET CONSISTS OF REDUCED PULSE HEIGHT ANALYZER DATA ON THREE 7-TRACK, XDS 930, BINARY MAGNETIC TAPES WRITTEN AT 800 BPI AND ORDERED BY SOLAR ROTATION NUMBER. THE PULSE HEIGHT ANALYSIS WAS CARRIED OUT FOR TWO OF THE DE/DX VS RANGE TELESCOPE COINCIDENCE COMBINATIONS CORRESPONDING TO PROTON ENERGIES FROM 1.4 TO 8.6 MEV AND FROM 8.6 TO 33 MEV (D1* NOT D2* NOT D4* AND D1*D2* NOT D4*). EACH TAPE HAS A 56-CHARACTER HEADER RECORD FOLLOWED BY A VARIABLE NUMBER OF FILES. EACH FILE HAS A 25-CHARACTER HEADER RECORD FOLLOWED BY A VARIABLE NUMBER OF RECORDS (4098 CHARACTERS/RECORD). A MICROFILMED INDEX OF THIS DATA SET IS ALSO AVAILABLE (64-054A-18E).

WINCKLER, OGO 1

EXPERIMENT NAME- IONIZATION CHAMBER

NSSDC ID- 64-054A-20

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 11/25/69

PERSONNEL

PI -	J.R. WINCKLER	U OF MINNESOTA	MINNEAPOLIS, MN
OI -	S.R. KANE	U OF CALIF. BERKELEY	BERKELEY, CA
OI -	R.L. ARNOLDY	U OF NEW HAMPSHIRE	DURHAM, NH

THIS EXPERIMENT, DESIGNED TO MEASURE THE IONIZATION DUE TO ENERGETIC PARTICLES, CONSISTED OF A 17.78-CM INTEGRATING IONIZATION CHAMBER WITH A RESETTING DRIFT-TYPE ELECTROMETER. THE SYSTEM WAS MOUNTED ON A 1.2-M BOOM EXTENDING FROM THE MAIN BODY OF THE SPACECRAFT ALONG THE Y AXIS. THE CHAMBER RESPONDED TO ELECTRONS AND PROTONS WITH ENERGIES GREATER THAN 0.6 AND 12 MEV, RESPECTIVELY, AND TO 10- TO 50-KEV X RAYS. THE IONIZATION CURRENT WAS MEASURED BY A VACUUM TUBE ELECTROMETER WHOSE OUTPUT, AS A FUNCTION OF TIME, WAS AN AUTOMATICALLY RESETTING SAWTOOTH RAMP VOLTAGE BETWEEN 0 AND 5 V. DATA WERE TELEMETERED IN THREE INDEPENDENT FORMS THROUGH THREE DIGITAL WORDS AND ONE ANALOG WORD, EACH OF WHICH WAS TELEMETERED ONCE EVERY 1.152 SEC WHEN THE OGO SYSTEM WAS OPERATING AT 1 KBS. THE SAMPLING RATE LINEARLY INCREASED WITH THE TELEMETRY RATE. THIS EXPERIMENT PERFORMED WELL FROM LAUNCH THROUGH NOVEMBER 25, 1969, WHEN ALL EXPERIMENTS ABOARD OGO 1 WERE TURNED OFF.

DATA SET NAME- PLOTS OF 1-MIN AVERAGED PULSE RATES VS TIME ON MICROFILM

NSSDC ID- 64-054A-20A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 09/12/64 TO 06/05/67 (AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF ONE REEL OF 16-MM MICROFILM THAT WAS GENERATED AT NSSDC FROM PLOTS SUBMITTED BY THE EXPERIMENTER. PRESENTED ARE TIME-ORDERED 1-MIN AVERAGES OF THE NUMBER OF NORMALIZED PULSES PER SECOND TIMES 1000 PLOTTED ON A LOGARITHMIC SCALE. EACH OF THE 244 FRAMES CONTAINS DATA FOR UP TO ONE THIRD OF AN ORBIT. APPROXIMATELY 30 PERCENT OF THE ORBITS DURING THE PERIOD FROM SEPTEMBER 12, 1964, TO JUNE 5, 1967, ARE REPRESENTED IN THIS DATA SET.

DATA SET NAME- ORIGINAL REDUCED PULSE RATES ON TAPE

NSSDC ID- 64-054A-20B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 09/05/64 TO 12/06/67 (AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 17 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF SEVENTEEN 7-TRACK BINARY TAPES WRITTEN AT 556 BPI ON AN IBM 7094. EACH TAPE, SUBMITTED BY THE EXPERIMENTER, IS MADE UP OF AN ARBITRARY NUMBER OF RECORDS AND COVERS AN ARBITRARY AMOUNT OF TIME. THE RECORDS ARE OF VARIABLE LENGTH RANGING FROM 21 TO 1000 48-BIT WORDS. THE FIRST 20 WORDS CONSTITUTE A HEADER THAT INDICATES, AMONG OTHER THINGS, THE RATE AT WHICH THE DATA WERE TELEMETERED, THE START AND END TIMES OF THE RECORD, THE NUMBER OF WORDS IN THE RECORD, AND WHETHER OR NOT THE RECORD IS IN EXACT TIME ORDER. EACH SUCCESSIVE SET OF THREE WORDS CONTAINS ONE 10-SEC AVERAGED PULSE RATE. THE FIRST WORD IN THE SET CONTAINS THE START TIME OF THE AVERAGE IN MSEC OF THE DAY. THE SECOND WORD CONTAINS THE ACTUAL DURATION OF THE AVERAGE (WHICH MAY BE SHORTER THAN 10 SEC BECAUSE OF NOISE FILTERING). THE NUMBER OF VOLTAGE RAMPS IN THE AVERAGE, AND WHETHER THE AVERAGE IS BASED ON UNFILTERED RAMPS, FILTERED RAMPS, CLOCK PULSES, OR ANALOG WORDS. THE THIRD WORD GIVES THE AVERAGED PULSE RATE IN NORMALIZED PULSES PER SECOND. ALL THE RECORDS HAVE BEEN ORDERED BY START TIME OF THE RECORD, AND CONSIDERABLE OVERLAP MAY EXIST IN THE TIME COVERED BY CONSECUTIVE RECORDS.

DATA SET NAME- ATLAS OF 10- TO 50-KEV SOLAR FLARE X RAYS ON MICROFILM

NSSDC ID- 64-054A-20C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 05/02/65 TO 05/28/67 (AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

AN ION CHAMBER NORMALLY USED FOR PARTICLE MEASUREMENTS ALSO RESPONDED TO BURSTS OF HARD (10 TO 50 KEV) X RAYS THAT OCCURRED DURING SOLAR FLARES. THESE SOLAR X-RAY BURSTS WERE IDENTIFIED AND SEPARATED FROM THE PARTICLE DATA. THE X-RAY DATA ARE ANALYZED DATA ON ONE REEL OF 35-MM MICROFILM AND ARE COPIES OF RESEARCH REPORTS CONTAINING PLOTS OF THE EXCESS ION CHAMBER RATE VS TIME. SHORTWAVE FADEOUTS AND SOLAR RADIO BURSTS, WHICH ACCOMPANIED THE SOLAR X-RAY BURSTS, ARE ALSO INDICATED ON THE PLOTS. DATA FROM OGO 3 DATA SET 66-049A-23D ARE ALSO INCLUDED.

DATA SET NAME- PLOTS OF 1-MIN AVERAGED PULSE RATES VS L ON MICROFILM

NSSDC ID- 64-054A-20D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 09/07/64 TO 06/04/67 (AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF ONE REEL OF 16-MM MICROFILM THAT WAS GENERATED AT NSSDC FROM 322 PLOTS SUBMITTED BY THE EXPERIMENTER. PRESENTED ARE TIME-ORDERED 1-MIN AVERAGES OF THE NUMBER OF NORMALIZED PULSES PER SECOND TIMES 1000 PLOTTED ON A LOGARITHMIC SCALE VS L (IN EARTH RADII). EACH FRAME PRESENTS 2 HR OF PLAYBACK DATA FOR L VALUES BETWEEN 1 AND 8. ALSO PRESENTED ON EACH FRAME ARE THE BEGINNING AND END TIMES AND AN INDICATION OF WHETHER THE DATA ARE FOR AN INBOUND (APOGEE TO PERIGEE) OR AN OUTBOUND PASS OF THE SPACECRAFT. APPROXIMATELY 65 PERCENT OF THE ORBITS DURING THE PERIOD FROM SEPTEMBER 7, 1964, TO JUNE 4, 1967, ARE REPRESENTED IN THIS DATA SET.

DATA SET NAME- TABULATIONS OF HOURLY AVERAGED PULSE RATES ON MICROFILM

NSSDC ID- 64-054A-20E

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 09/05/64 TO 12/06/67 (AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF ONE REEL OF 16-MM MICROFILM THAT WAS GENERATED AT NSSDC FROM COMPUTER PRINTOUT SUBMITTED BY THE EXPERIMENTER. THE PULSING RATE OF THE ION CHAMBER, IN NORMALIZED PULSES PER SECOND, IS GIVEN IN FOUR FORMS -- UNFILTERED PULSES, FILTERED PULSES, CLOCK PULSES, AND ANALOG WORD PULSES. EACH OF THE RATES REPRESENTS DATA AVERAGED OVER A PERIOD OF 1 HR. ALSO INCLUDED ARE THE ORIGINAL REEL, FILE, AND RECORD NUMBERS FROM WHICH THESE DATA WERE OBTAINED, AN INDICATION OF WHETHER THE DATA WERE PLAYBACK OR REAL TIME, AND THE RATE AT WHICH THE DATA WERE TELEMETERED. THESE DATA, WHICH ARE TIME ORDERED, COVER APPROXIMATELY 60 PERCENT OF THE PERIOD FROM SEPTEMBER 5, 1964, TO DECEMBER 6, 1967.

DATA SET NAME- TABULATIONS OF 1-MIN AVERAGED PULSE RATES ON MICROFILM

NSSDC ID- 64-054A-20F

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 09/05/64 TO 12/06/67 (AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 4 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF FOUR REELS OF 16-MM MICROFILM THAT WERE GENERATED AT NSSDC FROM COMPUTER PRINTOUT SUBMITTED BY THE EXPERIMENTER. THE PULSING RATE OF THE ION CHAMBER, IN NORMALIZED PULSES PER SECOND, IS PRESENTED IN FOUR FORMS -- UNFILTERED PULSES, FILTERED PULSES, CLOCK PULSES, AND ANALOG WORD PULSES. EACH OF THE RATES REPRESENTS DATA AVERAGED OVER A PERIOD OF 1 MIN. ALSO INCLUDED ARE THE ORIGINAL REEL, FILE, AND RECORD NUMBERS FROM WHICH THESE DATA WERE OBTAINED, AN INDICATION OF WHETHER THE DATA WERE PLAYBACK OR REAL TIME, AND THE RATE AT WHICH THESE DATA WERE TELEMETERED. THESE DATA, WHICH ARE TIME ORDERED, COVER APPROXIMATELY 60 PERCENT OF THE PERIOD FROM SEPTEMBER 5, 1964, TO DECEMBER 6, 1967.

DATA SET NAME- PLOTS OF 2-MIN AVERAGED PULSE RATES VS SPACECRAFT RADIAL DISTANCE ON MICROFILM

NSSDC ID- 64-054A-20G

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 09/07/64 TO 06/04/67 (AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF ONE REEL OF 16-MM MICROFILM THAT WAS GENERATED AT NSSDC FROM 441 PLOTS SUBMITTED BY THE EXPERIMENTER. PRESENTED ARE TIME-ORDERED 2-MIN AVERAGES OF THE NUMBER OF NORMALIZED PULSES PER SECOND TIMES 1000 (ON A LOGARITHMIC SCALE) VS SPACECRAFT RADIAL DISTANCE R (IN EARTH RADII). EACH FRAME PRESENTS APPROXIMATELY 20 HR OF PLAYBACK DATA FOR R VALUES BETWEEN 1 AND 23. ALSO PRESENTED ON EACH

FRAME ARE THE BEGINNING AND END TIMES AND AN INDICATION OF WHETHER THE DATA ARE FOR AN INBOUND (APOGEE TO PERIGEE) OR AN OUTBOUND PASS OF THE SPACECRAFT. APPROXIMATELY 60 PERCENT OF THE ORBITS DURING THE PERIOD FROM SEPTEMBER 7, 1964, TO JUNE 4, 1967, ARE REPRESENTED IN THIS DATA SET.

DATA SET NAME- PLOTS OF 2-MIN AVERAGED PULSE RATES VS TIME ON MICROFILM

NSSDC ID- 64-054A-20H

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 09/10/64 TO 06/05/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF ONE REEL OF 16-MM MICROFILM THAT WAS GENERATED AT NSSDC FROM PLOTS SUBMITTED BY THE EXPERIMENTER. PRESENTED ARE TIME-ORDERED 2-MIN AVERAGES OF THE NUMBER OF NORMALIZED PULSES PER SECOND TIMES 1000 VS TIME. EACH OF THE 436 FRAMES CONTAINS DATA FROM APPROXIMATELY ONE THIRD OF AN ORBIT. APPROXIMATELY 40 PERCENT OF THE ORBITS DURING THE PERIOD FROM SEPTEMBER 10, 1964, TO JUNE 5, 1967, ARE REPRESENTED IN THIS DATA SET. SIMILAR PLOTS ON A LOGARITHMIC SCALE COVERING ABOUT 70 PERCENT OF THE ORBITS FOR THE SAME PERIOD ARE FOUND IN DATA SET 64-054A-20I.

DATA SET NAME- PLOTS OF 1-MIN AVERAGED PULSE RATES VS TIME (NEAR PERIGEE) ON MICROFILM

NSSDC ID- 64-054A-20J

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 09/15/64 TO 05/27/66
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF ONE REEL OF 16-MM MICROFILM THAT WAS GENERATED AT NSSDC FROM PLOTS SUBMITTED BY THE EXPERIMENTER. PRESENTED ARE TIME-ORDERED 1-MIN AVERAGES OF THE NUMBER OF NORMALIZED PULSES PER SECOND TIMES 1000 PLOTTED ON A LOGARITHMIC SCALE. EACH OF THE 125 FRAMES CONTAINS DATA FOR A REGION UP TO 2 HR ON EITHER SIDE OF PERIGEE. APPROXIMATELY 50 PERCENT OF THE ORBITS DURING THE PERIOD FROM SEPTEMBER 15, 1964, TO MAY 27, 1966, ARE REPRESENTED IN THIS DATA SET.

WINCKLER, OGO 1

EXPERIMENT NAME- ELECTRON SPECTROMETER

NSSDC ID- 64-054A-21

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 11/25/69

PERSONNEL
PI - J.R. WINCKLER ..... U OF MINNESOTA
MINNEAPOLIS, MN
OI - K.A. PFITZER ..... MCDONNELL-DOUGLAS CO
P HUNTINGTON BEACH, CA
OI - R.L. ARNOLDY ..... U OF NEW HAMPSHIRE
DURHAM, NH

THE OBJECTIVE OF THIS EXPERIMENT WAS TO MEASURE THE ELECTRON ENERGY SPECTRUM IN THE RADIATION BELTS FOR THE ENERGY RANGE FROM 50 KEV TO 4 MEV. THE EXPERIMENT CONSISTED OF A FIVE-CHANNEL ELECTRON SPECTROMETER CONTAINING AN ANALYZING ELECTROMAGNET, A PLASTIC SCINTILLATOR CRYSTAL, A PHOTOMULTIPLIER TUBE, AND A PULSE HEIGHT ANALYZER. THE ANALYZING ELECTROMAGNET WAS USED TO DEFINE THE FIVE ENERGY CHANNELS. THE PULSE HEIGHT ANALYZER ACCEPTED ONLY PULSES CORRESPONDING TO THE PARTICULAR ENERGY CHANNEL BEING SAMPLED. IN THIS WAY, THE BACKGROUND DUE TO BREMSSTRAHLUNG AND PENETRATING PARTICLES WAS REDUCED BECAUSE ONLY THOSE BACKGROUND PULSES IN THE NARROW ENERGY BAND BEING ANALYZED WERE COUNTED. THIS SYSTEM WAS MOUNTED IN THE MAIN BODY OF THE SPACECRAFT AND LOOKED OUT IN A DIRECTION 10 DEG OFF THE SPACECRAFT Z AXIS, WITH A 15-DEG ACCEPTANCE CONE. SINCE OGO 1 WAS SPIN STABILIZED (ABOUT ITS Z AXIS) SHORTLY AFTER LAUNCH, THE ACCEPTANCE CONE WAS EFFECTIVELY INCREASED TO 35 DEG. DIRECTIONAL MEASUREMENTS OF ELECTRONS WERE MADE IN FIVE CONTIGUOUS, LOGARITHMICALLY EQUISPACED ENERGY CHANNELS BETWEEN 50 AND 4000 KEV. BACKGROUND PARTICLES WERE COUNTED BY OPERATING THE SPECTROMETER WITHOUT THE ELECTROMAGNET. THE SYSTEM SAMPLED THE FIVE SPECTRAL INTERVALS AND FIVE BACKGROUND INTERVALS EVERY 2.304 SEC WHEN THE OGO 1 SYSTEM WAS OPERATING AT 1 KBS. THE SAMPLING RATE INCREASED LINEARLY WITH THE TELEMETRY BIT RATE. DATA FROM EACH OF THE FIVE CHANNELS WERE TELEMETERED AS ONE DIGITAL WORD. THIS EXPERIMENT PERFORMED WELL FROM LAUNCH THROUGH NOVEMBER 25, 1969 WHEN ALL EXPERIMENTS ABOARD OGO 1 WERE TURNED OFF.

DATA SET NAME- PLOTS OF 2-MIN AVERAGED COUNT RATES VS TIME (RADIATION BELTS) ON MICROFILM

NSSDC ID- 64-054A-21A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 09/15/64 TO 05/27/66
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF ONE REEL OF 16-MM MICROFILM THAT WAS GENERATED AT NSSDC FROM PLOTS SUBMITTED BY THE EXPERIMENTER. PRESENTED ARE TIME-ORDERED 2-MIN AVERAGES OF THE LOGARITHM OF THE COUNT RATE VS TIME FOR EACH OF THE FIVE CHANNELS. THE COUNT RATE, WHICH HAS BEEN CORRECTED FOR BACKGROUND, MAY BE CONVERTED TO A FLUX VALUE BY USING A CONVERSION FACTOR SUPPLIED BY THE EXPERIMENTER. EACH OF THE 116 PLOTS PRESENTED CONTAINS APPROXIMATELY 3 HR OF DATA FOR THAT PORTION OF THE ORBIT IN THE VICINITY OF THE RADIATION BELTS. THESE DATA COVER APPROXIMATELY 60 PERCENT OF THE ORBITS DURING THE PERIOD FROM SEPTEMBER 15, 1964, TO MAY 27, 1966. NO EPHEMERIS INFORMATION IS PRESENTED.

DATA SET NAME- PLOTS OF COUNTS VS R ON MICROFILM

NSSDC ID- 64-054A-21B

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 09/07/64 TO 06/04/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF ONE REEL OF 16-MM MICROFILM THAT WAS GENERATED AT NSSDC FROM 417 PLOTS SUBMITTED BY THE EXPERIMENTER. PRESENTED ARE 15-MIN AVERAGES OF THE BACKGROUND CORRECTED COUNT RATE (PLOTTED ON A LOGARITHMIC SCALE) VS R (IN EARTH RADII) BETWEEN 1 AND 10 FOR EACH OF THE FIVE CHANNELS. ALSO PRESENTED ON EACH FRAME ARE THE BEGINNING AND END TIMES, THE ORBIT NUMBER, AND WHETHER THE DATA ARE FOR AN INBOUND (APOGEE TO PERIGEE) OR AN OUTBOUND PASS OF THE SPACECRAFT. THE DATA ARE TIME ORDERED AND COVER APPROXIMATELY 70 PERCENT OF THE ORBITS IN THE PERIOD SEPTEMBER 7, 1964, TO JUNE 4, 1967. NO ADDITIONAL EPHEMERIS INFORMATION IS PRESENTED.

DATA SET NAME- ORIGNAL REDUCED COUNT RATES ON TAPE

NSSDC ID- 64-054A-21C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 09/07/64 TO 12/06/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 11 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF ELEVEN 7-TRACK, 556-BPI, IBM 7094, BINARY TAPES GENERATED BY THE EXPERIMENTER. EACH TAPE CONTAINS ONE FILE OF REDUCED DATA. THE FILE IS MADE UP OF AN ARBITRARY NUMBER OF RECORDS AND COVERS AN ARBITRARY AMOUNT OF TIME. THE RECORDS ARE OF VARIABLE LENGTH - 21 TO 1000 48-BIT WORDS. THE FIRST 20 OF THESE WORDS CONSTITUTE A HEADER WHICH INDICATES, AMONG OTHER THINGS, THE RATE AT WHICH THE DATA WERE TELEMETERED, THE START AND END TIMES OF THE RECORD, AND THE NUMBER OF WORDS IN THE RECORD. THE DATA WORDS ARE GROUPED INTO 40-WORD DATA FRAMES WITHIN WHICH DATA FROM EACH OF THE FIVE SPECTROMETER CHANNELS ARE PRESENTED FOUR TIMES AND BACKGROUND COUNTS FROM EACH CHANNEL ARE PRESENTED THREE TIMES. THE REMAINING FIVE WORDS ARE SYNCHRONIZATION WORDS. THE FIRST SIX BITS OF EACH DATA WORD INDICATE THE CHANNEL AND WHETHER THE DATA ARE ANALYSIS OR BACKGROUND COUNTS. THE NEXT 12 BITS CONTAIN THE DATA IN THE FORM OF ACCUMULATED COUNTS. ONLY NONZERO DATA ARE PRESENTED. THE REMAINING 30 BITS CONTAIN THE

STARTING TIME OF THE ACCUMULATION CYCLE. THE ACCUMULATED COUNTS MAY BE CONVERTED TO A FLUX VALUE BY USING CONVERSION FACTORS SUPPLIED BY THE EXPERIMENTER. ALL THE RECORDS HAVE BEEN TIME ORDERED ACCORDING TO START TIME OF THE RECORD, SO CONSIDERABLE OVERLAP MAY EXIST IN THE TIME COVERED BY CONSECUTIVE RECORDS.

DATA SET NAME- TABULATION OF 5-MIN AVERAGED COUNT RATES ON MICROFILM

NSSDC ID- 64-054A-21D

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 09/07/64 TO 06/05/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 6 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF SIX REELS OF 16-MM MICROFILM THAT WERE GENERATED AT NSSDC FROM COMPUTER PRINTOUT SUPPLIED BY THE EXPERIMENTER. DATA FOR EACH 5-MIN PERIOD FOR EACH OF THE FIVE CHANNELS INCLUDE TOTAL COUNTS, TOTAL BACKGROUND COUNTS, AVERAGE COUNT RATE, AVERAGE BACKGROUND COUNT RATE, AND AVERAGE NET COUNT RATE (AVERAGE COUNT RATE MINUS AVERAGE BACKGROUND COUNT RATE). ALSO INCLUDED ARE THE ORIGINAL REEL, FILE, AND RECORD NUMBERS FROM WHICH THESE DATA WERE OBTAINED, WHETHER THE DATA WERE PLAYBACK OR REAL TIME, AND THE RATE AT WHICH THE DATA WERE TELEMETERED. THESE DATA, WHICH ARE TIME ORDERED, COVER APPROXIMATELY 60 PERCENT OF THE PERIOD FROM SEPTEMBER 7, 1964, TO JUNE 5, 1967.

DATA SET NAME- PLOTS OF COUNTS VS L ON MICROFILM

NSSDC ID- 64-054A-21E

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 09/07/64 TO 06/04/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF ONE REEL OF 16-MM MICROFILM THAT WAS GENERATED AT NSSDC FROM 322 PLOTS SUBMITTED BY THE EXPERIMENTER. PRESENTED ARE 2- AND 5-MIN AVERAGES OF THE BACKGROUND CORRECTED COUNT RATE ON A LOGARITHMIC SCALE VS L (IN EARTH RADII) FOR EACH OF THE FIVE CHANNELS. THE 2-MIN AVERAGES ARE PRESENTED ONLY FOR THOSE L VALUES THAT ARE LESS THAN 3, WHILE THE 5-MIN AVERAGES ARE PRESENTED ONLY FOR THOSE L VALUES GREATER THAN 3. ALSO PRESENTED ON EACH FRAME ARE THE BEGINNING AND END TIMES, ORBIT NUMBER, AND WHETHER THE DATA ARE FOR AN INBOUND (APOGEE TO PERIGEE) OR AN OUTBOUND PASS OF THE SPACECRAFT. THESE DATA, WHICH ARE TIME ORDERED, COVER APPROXIMATELY 75 PERCENT OF THE ORBITS DURING THE PERIOD FROM SEPTEMBER 7, 1964, TO JUNE 4, 1967. NO ADDITIONAL EPHEMERIS INFORMATION IS PRESENTED.

DATA SET NAME- PLOTS OF 5-MIN AVERAGED COUNT RATES VS TIME ON MICROFILM

NSSDC ID- 64-054A-21G

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 09/07/64 TO 06/05/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF ONE REEL OF 16-MM MICROFILM THAT WAS GENERATED AT NSSDC FROM PLOTS SUBMITTED BY THE EXPERIMENTER. PRESENTED ARE TIME-ORDERED 5-MIN AVERAGES OF THE LOGARITHM OF THE COUNT RATE VS TIME FOR EACH OF THE FIVE CHANNELS. THE COUNT RATE, WHICH HAS BEEN CORRECTED FOR BACKGROUND, MAY BE CONVERTED TO A FLUX VALUE BY USING A CONVERSION FACTOR SUPPLIED BY THE EXPERIMENTER. EACH OF THE 230 PLOTS PRESENTED CONTAINS DATA FROM APPROXIMATELY ONE THIRD OF AN ORBIT, WITH PERIGEE NEAR THE CENTER OF THE PLOT. THESE DATA COVER APPROXIMATELY 60 PERCENT OF THE ORBITS DURING THE PERIOD FROM SEPTEMBER 7, 1964, TO JUNE 5, 1967. NO EPHEMERIS INFORMATION IS PRESENTED.

DATA SET NAME- REDUCED L-INTERPOLATED COUNT RATES ON MAGNETIC TAPE

NSSDC ID- 64-054A-21I

AVAILABILITY OF DATA SET- DATA AT NSSDC.

TIME PERIOD COVERED- 09/15/64 TO 07/07/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF ONE 7-TRACK, 556-BPI, IBM 7094 BCD TAPE OF EVEN PARITY, GENERATED AT NSSDC AND CONTAINING TWO FILES OF REDUCED OGO 1 DATA AND THEN TWO FILES OF OGO-3 DATA (66-049A-22K). THE FIRST FILE OF THIS SET CONTAINS INNER ZONE ELECTRON DATA FOR THE RANGE L = 1.3 TO L = 2.4. THE SECOND FILE CONTAINS OUTER ZONE ELECTRON DATA FOR THE RANGE L = 2.4 TO L = 7.0. EACH FILE IS MADE UP OF AN ARBITRARY NUMBER OF RECORDS, BUT EACH RECORD IS OF A CONSTANT LENGTH OF 84 CHARACTERS. WITHIN EACH FILE THERE ARE FIVE GROUPS OF RECORDS (ONE FOR EACH DATA CHANNEL) IN WHICH THE FOLLOWING SEQUENCE IS REPEATED N TIMES (N = NUMBER OF DISCRETE L-VALUES) -- A HEADER RECORD PRECEDES A STRING OF DATA RECORDS AND IS FOLLOWED BY A TRAILER RECORD.

SPACECRAFT COMMON NAME- OGO 2

ALTERNATE NAMES- OGO-C, POGO 1
S 50, 01620

NSSDC ID- 65-081A

LAUNCH DATE- 10/14/65 WEIGHT- 520. KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 02/00/68

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 10/15/65
ORBIT PERIOD- 104. MIN INCLINATION- 87.356 DEG
PERIAPSIS- 414.000 KM ALT APOAPSIS- 1510.00 KM ALT

OGO 2 WAS A LARGE OBSERVATORY INSTRUMENTED WITH 20 EXPERIMENTS DESIGNED TO MAKE SIMULTANEOUS, CORRELATIVE OBSERVATIONS OF AURORA AND AIRGLOW EMISSIONS, ENERGETIC PARTICLES, MAGNETIC FIELD VARIATIONS, IONOSPHERIC PROPERTIES, ETC., ESPECIALLY OVER THE POLAR AREAS. OGO 2 CONSISTED OF A MAIN BODY, GENERALLY PARALLELEPIPED IN FORM, TWO RECTANGULAR SOLAR PANELS, EACH WITH A SOLAR-ORIENTED EXPERIMENT PACKAGE (SOEP), AND TWO ORBITAL PLANE EXPERIMENT PACKAGES (OPEP). IT ALSO INCLUDED SIX EXPERIMENT PACKAGES (EP) MOUNTED ON BOOMS EXTENDING GENERALLY FORE AND AFT OF THE SPACECRAFT ALONG THE Y AXIS. ANTENNA AND ATTITUDE CONTROL FIXTURES ALSO EXTENDED FROM SEPARATE AND/OR EP BOOMS. THE MAIN BODY WAS ATTITUDE-CONTROLLED BY USE OF HORIZON SCANNERS AND GAS JETS AND WAS DESIGNED TO POINT TOWARD THE EARTH (Z AXIS). THE AXIS CONNECTING THE TWO SOLAR PANELS (X AXIS) WAS DESIGNED TO OSCILLATE IN ORDER TO REMAIN PERPENDICULAR TO THE EARTH-SUN-SPACECRAFT PLANE. THE SOLAR PANELS ACTIVATED BY SUN SENSORS COULD ROTATE ABOUT THIS X AXIS IN ORDER TO OBTAIN MAXIMUM RADIATION FOR THE SOLAR CELLS AND CONCURRENTLY ORIENT THE SOEP PROPERLY. THE OPEP'S WERE REORIENTED ON EITHER END OF AN AXIS THAT WAS PARALLEL TO THE Z AXIS AND ATTACHED TO THE FORWARD END OF THE MAIN BODY. THESE OPEP SENSORS NORMALLY WERE MAINTAINED LOOKING FORWARD IN THE ORBITAL PLANE OF THE SATELLITE. TO MAINTAIN THIS ORIENTATION, THE OPEP AXIS COULD ROTATE OVER 90 DEG. IN ADDITION, AN ANGULAR DIFFERENCE OF OVER 90 DEG WAS POSSIBLE BETWEEN THE ORIENTATION OF THE UPPER AND LOWER OPEP PACKAGES. THE SOEP CONTAINED FOUR EXPERIMENTS, AND THE OPEP CONTAINED FIVE EXPERIMENTS. NEWTON'S PARTICLE EXPERIMENT FAILED ON LAUNCH, AND KREPLIN'S SOLAR X-RAY EXPERIMENT FAILED SHORTLY THEREAFTER. SOON AFTER ACHIEVING ORBIT, DIFFICULTIES IN MAINTAINING EARTH LOCK WITH HORIZON SCANNERS CAUSED EXHAUSTION OF ATTITUDE CONTROL GAS BY OCTOBER 23, 1965, 10 DAYS AFTER LAUNCH. AT THIS TIME, THE SPACECRAFT ENTERED A SPIN MODE (ABOUT 0.11 RPM) WITH A LARGE CONING ANGLE ABOUT THE PREVIOUSLY VERTICAL AXIS. FIVE EXPERIMENTS BECAME USELESS WHEN THE SATELLITE WENT INTO THIS SPIN MODE. SIX ADDITIONAL EXPERIMENTS WERE DEGRADED BY THIS LOSS OF ATTITUDE CONTROL. BY APRIL 1966, BOTH BATTERIES HAD FAILED, SO SUBSEQUENT OBSERVATIONS WERE LIMITED TO SUNLIT PORTIONS OF THE ORBIT. BY DECEMBER 1966, ONLY EIGHT EXPERIMENTS WERE OPERATIONAL, FIVE OF WHICH WERE NOT DEGRADED BY THE SPIN MODE OPERATION. BY APRIL 1967, THE TAPE RECORDERS HAD MALFUNCTIONED AND ONLY ONE THIRD OF THE RECORDED DATA COULD BE PROCESSED. SPACECRAFT POWER AND PERIODS OF OPERATIONAL SCHEDULING CONFLICTS CREATED SIX LARGE DATA GAPS SO THAT DATA WERE OBSERVED ON A TOTAL OF ABOUT 306 DAYS OF THE TWO-YR 18-DAY TOTAL SPAN OF OBSERVED SATELLITE DATA TO NOVEMBER 1, 1967. THE DATA GAPS WERE -- (A) OCTOBER 24, 1965 TO NOVEMBER 5, 1965, (B) DECEMBER 6, 1965 TO JANUARY 7, 1966, (C) APRIL 9, 1966 TO JUNE 21, 1966, (D) SEPTEMBER 2, 1966 TO NOVEMBER 18, 1966, (E) DECEMBER 27, 1966 TO APRIL 11, 1967, AND (F) MAY 9, 1967 TO SEPTEMBER 19, 1967. THE SPACECRAFT WAS SHUT DOWN ON NOVEMBER 1, 1967 WITH EIGHT EXPERIMENTS STILL OPERATIONAL. IT WAS

ORIGINAL PAGE IS
OF POOR QUALITY

REACTIVATED FOR TWO WEEKS IN FEBRUARY 1968 TO OPERATE EXPERIMENT S (J. CAIN).

ANDERSON, OGO 2

EXPERIMENT NAME- COSMIC-RAY IONIZATION

NSSDC ID- 65-081A-06

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 04/02/66

PERSONNEL
PI - H.R. ANDERSON ..... RICE U
HOUSTON, TX
OI - V.H. NEHER ..... CALIF INST OF TECH
PASADENA, CA

THIS EXPERIMENT WAS DESIGNED TO MEASURE COSMIC-RAY AND SOLAR FLARE PARTICLE INTENSITIES (PROTONS ABOVE 10 MEV, ELECTRONS ABOVE 1.0 MEV) USING AN ION CHAMBER. THE ION CHAMBER WAS MOUNTED AT THE END OF A SPACECRAFT BOOM ABOUT 2.5 M FROM THE MAIN BODY OF THE SPACECRAFT. BECAUSE THE ION CHAMBER HAD OMNIDIRECTIONAL SENSITIVITY, EXCEPT FOR NEGLIGIBLE SHADOWING BY THE SPACECRAFT, THE UNINTENDED SLOW ROLLING OF THE SPACECRAFT DID NOT ADVERSELY AFFECT THE INSTRUMENT. THE EXPERIMENT OPERATED NORMALLY FROM OCTOBER 14, 1965, TO APRIL 2, 1966. A DETAILED DESCRIPTION OF THE INSTRUMENTATION APPEARS IN H. R. ANDERSON ET AL, JGR, VOL 73, P 6285, 1968.

DATA SET NAME- MICROFILM PLOTS OF TOTAL IONIZATION RATES
AND SATELLITE ALT VS INVARIANT LAT

NSSDC ID- 65-081A-06A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 10/14/65 TO 04/02/66
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 5 REEL(S) OF MICROFILM

THIS DATA SET, SUPPLIED BY THE EXPERIMENTER, CONSISTS OF PLOTS OF IONIZATION CHAMBER TOTAL IONIZATION RATES (ION PAIRS/SEC-CM CUBED, STP AIR) AND SATELLITE ALTITUDE (KM) VS INVARIANT LATITUDE (-90 TO +90 DEG) ON FIVE REELS OF 35-MM MICROFILM. THE CORRESPONDING MCILWAIN L PARAMETER, GEOGRAPHIC LONGITUDE, AND LOCAL TIME OF THE SATELLITE ARE INDICATED ALONG THE INVARIANT LATITUDE AXIS. THE ORBIT NUMBER AND DAY NUMBER APPEAR AT THE TOP OF EACH PLOT ALONG WITH THE UT OF THE FIRST POINT PLOTTED ON THE GRAPH AND AN INSTRUMENT-SENSITIVITY MODE INDICATOR (H FOR HIGH, L FOR LOW). THE ALTITUDE PLOTS ARE GENERATED USING THE X SYMBOL, AND THE IONIZATION PLOTS ARE GENERATED USING DOTS. THE DIRECTION OF THE SPACECRAFT IN ITS ORBIT IS INDICATED IN THE LOWER LEFT MARGIN FOR A GIVEN PLOT. E.G., 'N-S' MEANS THE SPACECRAFT WAS TRAVELING FROM THE NORTHERN HEMISPHERE TOWARD THE SOUTHERN HEMISPHERE. TIME COVERAGE WAS LESS THAN 50 PERCENT FROM INSTRUMENT TURNON (OCTOBER 14, 1965) UNTIL THE INSTRUMENT CEASED OPERATING (APRIL 2, 1966). FURTHER DESCRIPTION OF THE EXPERIMENT AND THIS DATA SET, INCLUDING A DETAILED TIME COVERAGE CHART FOR THE ENTIRE LIFETIME OF THE EXPERIMENT, APPEAR ON THE MICROFILM ALONG WITH THE DATA.

SIMPSON, OGO 2

EXPERIMENT NAME- LOW-ENERGY PROTON, ALPHA PARTICLE
MEASUREMENT

NSSDC ID- 65-081A-07

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 11/01/67

PERSONNEL
PI - J.A. SIMPSON ..... U OF CHICAGO
CHICAGO, IL
OI - E.C. STONE ..... CALIF INST OF TECH
PASADENA, CA
OI - C.Y. FAN ..... U OF ARIZONA
TUCSON, AZ

TWO SOLID-STATE PARTICLE TELESCOPES WERE USED TO STUDY LOW-ENERGY COSMIC-RAY PROTONS AND ALPHA PARTICLES. ONE OF THESE DETECTORS WAS A THREE-ELEMENT RANGE TELESCOPE ('VERTICAL') THAT WAS CAPABLE OF IDENTIFYING PROTONS AND ALPHA PARTICLES (1.22 TO 39.2 MEV/NUCLEON) AND ELECTRONS (E.GT. 400 KEV). THE OTHER DETECTOR WAS A ONE-ELEMENT TELESCOPE ('HORIZONTAL') SENSITIVE TO PROTONS AND ALPHA PARTICLES IN THE ENERGY RANGE FROM 0.72 TO ABOUT 11 MEV/NUCLEON. THE VERTICAL TELESCOPE AXIS OF SYMMETRY WAS PARALLEL TO THE SPACECRAFT Z AXIS, WHICH LATER UNINTENTIONALLY BECAME THE SPIN AXIS. THE HORIZONTAL TELESCOPE SYMMETRY AXIS WAS NEARLY PARALLEL TO THE SPACECRAFT Y AXIS (PERPENDICULAR TO THE Z AXIS). PULSE HEIGHT INFORMATION WAS SENT BACK FROM THE VERTICAL TELESCOPE ALLOWING PULSE HEIGHT ANALYSES OF PROTONS, ALPHA PARTICLES, AND ELECTRONS USING A 256-CHANNEL PULSE HEIGHT ANALYZER. COUNT RATE INFORMATION WAS SENT BACK FROM BOTH TELESCOPES. THE TIME RESOLUTION RANGED FROM ABOUT ONE MEASUREMENT PER 0.02 SEC TO ABOUT ONE MEASUREMENT PER 0.3 SEC DEPENDING ON THE COUNTING MODE AND THE TELEMETRY BIT RATE. THE UNINTENDED SPIN PERIOD OF THE SPACECRAFT 10 DAYS AFTER LAUNCH WAS ABOUT 10 MIN. THE EXPERIMENT WAS PERFORMING NORMALLY AT THE TIME THE SPACECRAFT SYSTEMS WERE DEACTIVATED (NOVEMBER 1, 1967). HOWEVER, THE SPINNING OF THE SPACECRAFT CAUSED DIFFICULTY IN INTERPRETING THE DATA AFTER OCTOBER 23, 1965.

DATA SET NAME- COUNT RATE PLOTS (R VS ENERGY LOSS) AND
ORBITAL DATA ON MICROFILM

NSSDC ID- 65-081A-07B

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 10/15/65 TO 12/13/66
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 6 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF SIX 35-MM MICROFILM REELS OF REDUCED DATA IN THE FORM OF COUNT RATE (BOTH SINGLE AND COINCIDENCE RATES) PLOTS. EACH PLOT COVERS ONE OGO 2 ORBIT AND CONTAINS SEVERAL DIFFERENT COUNTING RATES AS WELL AS SATELLITE ORBIT DATA, INVARIANT LATITUDE, ALTITUDE, SCALAR MAGNETIC FIELD, MCILWAIN'S L PARAMETER, AND EITHER DIPOLE LOCAL TIME OR MAGNETIC LOCAL TIME. THROUGHOUT THE MICROFILM, THE RELEVANT SCALES ARE INCLUDED APPROXIMATELY EVERY 100 FRAMES. EACH PLOT CONTAINS THE FOLLOWING COINCIDENCE COUNT RATES FROM THE VERTICAL TELESCOPE -- V3 (PROTON AND ALPHA PARTICLE ENERGIES GREATER THAN 39.2 MEV/NUCLEON OR ELECTRON ENERGIES GREATER THAN 1 MEV), V1 NOT V3 (CORRESPONDS TO PROTON AND ALPHA PARTICLE ENERGIES FROM 1.22 TO 39.2 MEV/NUCLEON OR ELECTRONS FROM 0.4 TO 1 MEV), AND V2 NOT V3 AND V1V2 NOT V3 (BOTH OF WHICH CORRESPOND TO PROTON AND ALPHA PARTICLE ENERGIES FROM 9.32 TO 39.2 MEV/NUCLEON AND ONLY THE FORMER TO ELECTRON ENERGIES FROM 0.7 TO 1 MEV). THE ONE HORIZONTAL TELESCOPE COUNTING RATE IN THE FORMAT CORRESPONDS TO A PROTON AND ALPHA PARTICLE ENERGY THRESHOLD OF 720 KEV/NUCLEON. THE V3 COUNT RATE PLOTTED IS AN AVERAGE RATE OBTAINED OVER FIVE READOUTS WHEREAS THE OTHER THREE RATES, AS CALCULATED FOR THESE PLOTS, HAVE A NOMINAL ACCUMULATION TIME OF 15 SEC. THE DATA SET PROVIDES A COMPACT SAMPLE OF THE DATA FROM THIS EXPERIMENT. SINCE OGO 2 TUMBLED, THE USER OF THESE DATA SHOULD CONSULT 'OGO-C ORIENTATION STUDY,' BY P.E. DIMOTAKIS (CAL TECH SPACE RADIATION LAB. INTERNAL REPORT NO. 9) FOR HELP IN OBTAINING THE CORRECT ATTITUDE OF THE INSTRUMENT.

SPACECRAFT COMMON NAME- OGO 3

ALTERNATE NAMES- OGO-B, EOGO 3
02195, S 49A

NSSDC ID- 66-049A

LAUNCH DATE- 06/07/66 WEIGHT- 515. KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 12/01/69

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 06/19/66
ORBIT PERIOD- 2915. MIN INCLINATION- 31.4 DEG
PERIAPSIS- 319.000 KM ALT APOAPSIS- 128511. KM ALT

THE PURPOSE OF THE OGO 3 SPACECRAFT, THE THIRD OF A SERIES OF SIX ORBITING GEOPHYSICAL OBSERVATORIES, WAS TO CONDUCT MANY DIVERSIFIED GEOPHYSICAL EXPERIMENTS TO OBTAIN A BETTER UNDERSTANDING OF THE EARTH AS A PLANET. OGO 3 CONSISTED OF A MAIN BODY THAT WAS PARALLELEPIPED IN FORM, TWO SOLAR PANELS, EACH WITH A SOLAR-ORIENTED EXPERIMENT PACKAGE (SOEP), AND TWO ORBITAL PLANE EXPERIMENT PACKAGES (OPEP). ONE FACE OF THE MAIN BODY WAS DESIGNED TO BE EARTH POINTING (Z AXIS), AND THE LINE CONNECTING THE TWO SOLAR PANELS (X AXIS) WAS INTENDED TO BE PERPENDICULAR TO THE EARTH-SUN-SPACECRAFT PLANE. THE SOLAR PANELS WERE ABLE TO ROTATE ABOUT THE X AXIS. THE OPEP'S WERE MOUNTED ON, AND COULD ROTATE ABOUT, AN AXIS WHICH WAS PARALLEL TO THE Z AXIS AND ATTACHED TO THE MAIN BODY. DUE TO A FAILURE IN THE ATTITUDE CONTROL SUBSYSTEM ON JULY 23, 1966,

THE SPACECRAFT WAS PUT INTO A PERMANENT SPIN MODE ABOUT THE Z AXIS. BOTH THE ORIENTATION OF THE SPIN AXIS AND THE SPIN PERIOD WERE VARIABLE, THE LATTER USUALLY IN THE RANGE 90 SEC TO 125 SEC. AT LAUNCH, THE LOCAL TIME OF APOGEE WAS 2300 HR. OGO 3 CARRIED 21 EXPERIMENTS. THIRTEEN OF THESE WERE PARTICLE STUDIES, AND TWO WERE MAGNETIC FIELD STUDIES. IN ADDITION, THERE WAS ONE EACH OF THE FOLLOWING TYPES OF EXPERIMENTS -- INTERPLANETARY DUST, VLF, LYMAN-ALPHA, GEGENSCHEIN, ATMOSPHERIC COMPOSITION, AND RADIO ASTRONOMY. REAL-TIME DATA WERE TRANSMITTED AT 1, 8, OR 64 KBS DEPENDING ON THE DISTANCE FROM THE SPACECRAFT TO EARTH. PLAYBACK DATA WERE TAPE RECORDED AT 1 KBS AND TRANSMITTED AT 64 KBS. TWO WIDEBAND TRANSMITTERS, ONE FEEDING INTO AN OMNIDIRECTIONAL ANTENNA AND THE OTHER FEEDING INTO A DIRECTIONAL ANTENNA, WERE USED TO TRANSMIT DATA. A SPECIAL PURPOSE TELEMETRY SYSTEM, FEEDING INTO EITHER ANTENNA, WAS ALSO USED TO TRANSMIT WIDEBAND DATA IN REAL TIME ONLY. TRACKING WAS ACCOMPLISHED BY USING RADIO BEACONS AND A RANGE AND RANGE-RATE S-BAND TRANSPONDER. ROUTINE SPACECRAFT OPERATION WAS DISCONTINUED ON DECEMBER 1, 1969, AFTER WHICH ONLY DATA FROM HEPPNER'S EXPERIMENT WAS ACQUIRED. BY MARCH 1971 SPACECRAFT PERIGEE HAD INCREASED TO 16,400 KM AND THE INCLINATION HAD INCREASED TO 75.8 DEG. ALL SPACECRAFT SUPPORT TERMINATED ON FEBRUARY 29, 1972.

DATA SET NAME- MULTICOORDINATE SYSTEM EPHEMERIS PLOTS

NSSDC ID- 66-049A-00H

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/07/66 TO 04/02/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 3 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF 35-MM MICROFILM, FILMED BY NSSDC FROM EXPERIMENTER-GENERATED CALCOMP PLOTS. THE DATA SET CONTAINS TWO-DIMENSIONAL PROJECTIONS OF INDIVIDUAL ORBITS, WITH TIC MARKS FOR TIME, IN A VARIETY OF COORDINATE SYSTEMS. INCLUDED ARE THE DISTANCE FROM THE EARTH-SUN-LINE GEOMAGNETIC DIPOLE PLANE, DISTANCE FROM THE NEUTRAL SHEET, THE ORBIT IN GEOCENTRIC SOLAR MAGNETOSPHERIC COORDINATES, DISTANCE FROM THE EARTH-SUN-LINE ECLIPTIC POLE PLANE, AND THE ORBIT IN GEOCENTRIC ECLIPTIC COORDINATES. ONE ORBIT IS INCLUDED PER PLOT, AND DISTANCES ARE ALL IN EARTH RADII.

ANDERSON, OGO 3

EXPERIMENT NAME- SOLAR COSMIC RAYS

NSSDC ID- 66-049A-01

STATUS OF OPERATION- OPERATIONAL OFF
DATE LAST USABLE DATA RECORDED- 12/01/69

PERSONNEL
PI - K.A. ANDERSON ..... U OF CALIF, BERKELEY
BEREKLEY, CA
OI - G.H. PITT ..... U OF CALIF, BERKELEY
BERKELEY, CA

THE INSTRUMENTATION FOR THIS EXPERIMENT CONSISTED OF A CESIUM IODIDE CRYSTAL SURROUNDED BY A PLASTIC ANTICOINCIDENCE SHIELD AND OPTICALLY COUPLED TO A PHOTOMULTIPLIER TUBE. THE SYSTEM ALSO CONTAINED A 32-CHANNEL PULSE HEIGHT ANALYZER. ALTHOUGH THE PRINCIPAL OBJECTIVE OF THIS EXPERIMENT WAS TO MEASURE 3- TO 90-MEV SOLAR PROTONS, THE DETECTOR HAD NO ABILITY TO DISCRIMINATE BETWEEN DIFFERENT KINDS OF PARTICLES. THE SYSTEM WAS MOUNTED IN ONE OF THE TWO SOEPS AND HAD A 38-DEG ACCEPTANCE CONE ANGLE. INFLIGHT CALIBRATION WAS PROVIDED. COUNTS IN GROUPS OF FOUR CHANNELS, ACCUMULATED OVER 31/32 OF THE TELEMETRY FRAME TIME (1.152, 0.144, OR 0.018 SEC), WERE READ OUT DURING SUCCESSIVE TELEMETRY FRAMES. THUS, COMPLETE SPECTRAL ANALYSIS REQUIRED EIGHT FRAMES. ALTHOUGH THE DETECTOR AXIS WAS INTENDED TO POINT TOWARD THE SUN, A MALFUNCTION IN THE OGO 3 ATTITUDE CONTROL SYSTEM PREVENTED THIS. SHORTLY BEFORE LAUNCH, IT WAS DETERMINED THAT CHANNEL 1 FAILED TO OPERATE. SHORTLY AFTER LAUNCH, IT WAS FOUND THAT COUNTS IN CHANNELS 4N PLUS 1 (N = 1, 2, 3, 4, 5, 6, 7) WERE INCORRECT (HIGH).

DATA SET NAME- SOLAR PARTICLE COUNT RATES ON TAPE

NSSDC ID- 66-049A-01A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/24/66 TO 02/27/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 30 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF THIRTY 7-TRACK, 556-BPI, BINARY TAPES GENERATED BY THE EXPERIMENTER ON AN IBM 360/40 SYSTEM. EACH TAPE CONTAINS A VARIABLE NUMBER OF FILES, AND EACH FILE CONTAINS A VARIABLE NUMBER OF RECORDS CHOSEN FOR THEIR SOLAR FLARE INFORMATION. THE FIRST 120 CHARACTERS OF EACH FILE IS AN IDENTIFICATION HEADER THAT INCLUDES THE FILE AND TAPE NUMBERS OF THE ORIGINAL DATA TAPES, THE RATE AT WHICH THE DATA WERE TELEMETERED, WHETHER THE DATA WERE REAL TIME OR PLAYBACK, AND THE START TIME OF THE DATA IN YEAR, DAY OF THE YEAR, AND SECONDS OF THE DAY. EACH DATA RECORD CONSISTS OF 1044 SIX-BIT CHARACTERS. THE FIRST 12 CHARACTERS CONTAIN SOEP ENVIRONMENT INFORMATION. THE NEXT EIGHT CHARACTERS CONTAIN THE DAY OF THE YEAR AND MILLISECOND OF THE DAY FOR THE FIRST DATA VALUE. THE REMAINING 1024 CHARACTERS CONTAIN 12 ACCUMULATIONS FOR EACH OF THE 32 CHANNELS. FOR TELEMETRY RATES OF 1, 8, AND 64 KBS, EACH RECORD CONTAINS 147.456, 18.432, AND 2.304 SEC OF DATA, RESPECTIVELY. THE DATA SET, WHICH IS TIME ORDERED, CONTAINS DATA FOR 15 FLARES BETWEEN JUNE 24, 1966, AND FEBRUARY 27, 1967.

FRANK, OGO 3

EXPERIMENT NAME- LOW-ENERGY ELECTRONS AND PROTONS

NSSDC ID- 66-049A-08

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 05/23/67

PERSONNEL
PI - L.A. FRANK ..... U OF IOWA
IOWA CITY, IA
OI - J.A. VAN ALLEN ..... U OF IOWA
IOWA CITY, IA

THIS EXPERIMENT WAS DESIGNED TO MEASURE THE DIFFERENTIAL ENERGY SPECTRA OF PROTONS AND ELECTRONS OVER THE ENERGY RANGE 50 EV TO 49 KEV (SUBDIVIDED INTO 15 ENERGY INTERVALS) WITHIN AND IN THE VICINITY OF THE EARTH'S MAGNETOSPHERE. THE INSTRUMENTATION CONSISTED OF TWO CURVED-PLATE, CYLINDRICAL, ELECTROSTATIC ANALYZERS (LEPEDEA - LOW ENERGY PROTON AND ELECTRON DIFFERENTIAL ENERGY ANALYZER) AND TWO BENDIX CONTINUOUS CHANNEL MULTIPLIERS ('CHANNELTRONS'). THE ACCUMULATION TIME PER CHANNEL WAS ABOUT 1 SEC. APPROXIMATELY 5 MIN WERE REQUIRED TO COMPLETE A SCAN OF THE ENTIRE ENERGY RANGE. AFTER THE SPACECRAFT ATTITUDE CONTROL SYSTEM FAILED ON JULY 23, 1966, ONE OF THE LEPEDEA'S WAS ORIENTED PARALLEL TO THE SPACECRAFT SPIN AXIS, AND THE OTHER WAS ORIENTED PERPENDICULAR TO THE SPIN AXIS. (THE SPIN PERIOD VARIED FROM ABOUT 91 TO 122 SEC.) THE EXPERIMENT PERFORMED NORMALLY UNTIL IT FAILED MAY 23, 1967.

DATA SET NAME- MOTION PICTURE SURVEY OF THE MAGNETOSPHERE

NSSDC ID- 66-049A-08A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/14/66 TO 07/16/66
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 400 FRAMES

THIS DATA SET CONSISTS OF REDUCED DATA ON ONE 400-FT REEL OF 16-MM MOVIE FILM DISPLAYING OBSERVATIONS OF LOW-ENERGY PROTON AND ELECTRON SPECTRA IN THE TERRESTRIAL MAGNETOSPHERE. ABOUT 50 HR OF SUBSTANTIALLY CONTINUOUS SATELLITE OBSERVATIONS ARE COVERED FROM 1331 UT ON JULY 14, 1966, THROUGH 1521 UT ON JULY 16, 1966. EACH MOVIE FRAME CONTAINS A GRAPH OF THE OBSERVED ENERGY SPECTRA (0.3 TO 50 KEV) OF PROTONS AND ELECTRONS FOR A GIVEN TIME AND POINT IN SPACE. A PICTORIAL REPRESENTATION OF THE SATELLITE'S POSITION WITH RESPECT TO THE SUN, THE EARTH, AND ITS MAGNETOSPHERE IS ALSO GIVEN ON EACH FRAME.

OGO 3

KONRADI, OGO 3

EXPERIMENT NAME- TRAPPED RADIATION SCINTILLATION COUNTER

NSSDC ID- 66-049A-10

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 01/27/67

PERSONNEL

PI -	A. KONRADI	NASA-JSC	HOUSTON, TX
OI -	L.R. DAVIS	NASA-GSFC	GREENBELT, MD
OI -	R.A. HOFFMAN	NASA-GSFC	GREENBELT, MD
OI -	J.H. WILLIAMSON	NASA-GSFC	GREENBELT, MD

THE OBJECTIVES OF THIS EXPERIMENT WERE (1) TO STUDY THE TEMPORAL AND SPATIAL VARIATIONS OF THE TRAPPED PARTICLE INTENSITIES, PITCH ANGLE DISTRIBUTIONS, AND ENERGY SPECTRA OF ELECTRONS (10 TO 100 KEV) AND PROTONS (100 TO 1000 KEV) AND (2) TO DETERMINE PARTICLE LIFETIMES, PROCESSES BY WHICH TRAPPED PARTICLES ARE LOST, AND THE SOURCES AND ACCELERATING MECHANISMS OF TRAPPED PARTICLES. THE EXPERIMENT, LOCATED IN OPEP 2, CONSISTED OF A FILTER WHEEL, WHEEL STEPPING MOTOR, PHOSPHOR SCINTILLATOR, PHOTOMULTIPLIER TUBE, ELECTROMETER, AND COUNT RATE METER. THE DETECTOR HAD TWO ENTRANCE APERTURES FOR PARTICLES, ONE ALIGNED WITH THE PHOTOTUBE AXIS AND ONE AT 90 DEG TO THIS AXIS. BOTH PROTONS AND ELECTRONS COULD ENTER THE ALIGNED OPENING AND REACH THE PHOSPHOR. ONLY ELECTRONS COULD ENTER THE 90-DEG OPENING, SCATTER OFF A GOLD DISC, AND REACH THE PHOSPHOR. THE COUNTING RATE WITH THE ALIGNED OPENING MEASURED PROTON FLUX, AND THE CURRENT MEASURED THE TOTAL ENERGY FLUX OF ELECTRONS, PROTONS, ETC. THE CURRENT WITH THE 90-DEG OPENING MEASURED THE ELECTRON ENERGY FLUX. DIFFERENT THICKNESS ABSORBERS ON THE WHEEL PROVIDED SPECTRAL INFORMATION. THE EXPERIMENT WORKED WELL UNTIL THE ABSORBER WHEEL STOPPED IN JANUARY 1967.

DATA SET NAME- COMPLETE REDUCED AND ANALYZED
PROTON-ELECTRON DATA ON MAGNETIC TAPES

NSSDC ID- 66-049A-10A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/09/66 TO 01/26/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 14 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF FOURTEEN 9-TRACK, BINARY TAPES WRITTEN ON AN IBM 360/75 COMPUTER WITH ODD PARITY AT 800 BPI. THE TAPES, AS SUPPLIED BY THE EXPERIMENTER, EACH CONTAIN ONE FILE AND DO NOT CONTAIN STANDARD OS/360 TAPE LABELS. THE TAPES CONTAIN A COMPLETE SET OF ION-ELECTRON DETECTOR DATA INCLUDING BOTH THE REDUCED DATA RECORDED AT A 1-KBS RATE AND THE ANALYZED DATA TRANSMITTED AT 8 OR 64 KBS, WHICH, ON THESE TAPES, HAVE BEEN CONDENSED TO AN EQUIVALENT 1-KBS SAMPLING RATE. THE TAPES HAVE FIXED BLOCKED RECORDS 5184 BYTES LONG. EACH BLOCKED RECORD CONTAINS EIGHT LOGICAL RECORDS THAT ARE 648 BYTES LONG. EACH LOGICAL RECORD CONTAINS TIME (UT), THE DETECTOR CURRENTS AND COUNT RATES MEASURED DURING ONE REVOLUTION OF THE ABSORBER WHEEL, A SERIES OF HOUSEKEEPING PARAMETERS, AND ORBIT AND ATTITUDE PARAMETERS DEFINING THE SATELLITE POSITION IN GEOCENTRIC INERTIAL, GEOMAGNETIC, MAGNETOSPHERIC, AND ECLIPTIC COORDINATES AND THE DETECTOR ORIENTATION. THE DATA ARE TIME ORDERED, AND DATA OVERLAPS HAVE BEEN REMOVED.

DATA SET NAME- HIGH BIT RATES OF REDUCED
PROTON-ELECTRON DATA ON MAGNETIC TAPES

NSSDC ID- 66-049A-10B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/09/66 TO 01/16/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 9 REEL(S) OF MAGNETIC TAPE

THIS REDUCED DATA SET CONSISTS OF NINE 7-TRACK BINARY TAPES WRITTEN ON AN IBM 360/75 COMPUTER WITH ODD PARITY AT 800 BPI. THE TAPES, AS SUPPLIED BY THE EXPERIMENTER, CONTAIN ONE FILE EACH AND DO NOT HAVE STANDARD OS/360 TAPE LABELS. THE TAPES CONTAIN THE ION-ELECTRON DETECTOR DATA TRANSMITTED AT 8- OR 64-KBS RATES BUT NONE OF THE 1-KBS RATE DATA. THE DATA ARE WRITTEN ON THE TAPES IN FIXED BLOCKED RECORDS 5664 BYTES LONG. EACH BLOCKED RECORD CONTAINS FOUR LOGICAL RECORDS, EACH 1416 BYTES LONG. EACH LOGICAL RECORD CONTAINS -- TIME (UT), THE DETECTOR CURRENTS AND COUNT RATES MEASURED DURING 1/8 OR 1/16 REVOLUTION OF THE DETECTOR ABSORBER WHEEL, A SERIES OF HOUSEKEEPING PARAMETERS, AND ORBIT AND ATTITUDE PARAMETERS DEFINING THE SATELLITE POSITION IN GEOCENTRIC, INERTIAL, GEOMAGNETIC, MAGNETOSPHERIC, AND ECLIPTIC COORDINATES AND THE DETECTOR ORIENTATION. THE DATA ARE TIME ORDERED, AND DATA OVERLAPS HAVE BEEN REMOVED. THE SAME DATA, COMPRESSED TO BE EQUIVALENT TO 1-KBS SAMPLED DATA, ALONG WITH THE DATA RECORDED AT 1 KBS ARE IN DATA SET 66-049A-10A.

SIMPSON, OGO 3

EXPERIMENT NAME- COSMIC-RAY SPECTRA AND FLUXES

NSSDC ID- 66-049A-03

STATUS OF OPERATION- OPERATIONAL OFF
DATE LAST USABLE DATA RECORDED- 12/01/69

PERSONNEL

PI -	J.A. SIMPSON	U OF CHICAGO	CHICAGO, IL
OI -	C.Y. FAN	U OF ARIZONA	TUCSON, AZ
OI -	P. MEYER	U OF CHICAGO	CHICAGO, IL

THREE SOLID-STATE PARTICLE TELESCOPES WERE USED TO MEASURE THE INTENSITY AND ENERGY DISTRIBUTION OF COSMIC RAYS. A DE/DX VS E TELESCOPE (COMPOSITION TELESCOPE) RESOLVED THE NUCLEAR COMPOSITION OF COSMIC RAYS IN THE ENERGY RANGE FROM 30 TO 100 MEV/NUCLEON (CHARGE RESOLUTION RANGE THROUGH Z=26, ENERGY PER NUCLEON INTERVALS APPROXIMATELY PROPORTIONAL TO Z SQUARED/A). A DE/DX VS RANGE TELESCOPE (PROTON-ALPHA TELESCOPE) DETECTED PROTONS AND ALPHA PARTICLES IN THE ENERGY RANGE FROM 1.6 TO 33 MEV/NUCLEON, AND A SINGLE-ELEMENT LOW-ENERGY PROTON TELESCOPE (OPEP TELESCOPE) WAS PRIMARILY SENSITIVE TO PROTONS IN THE ENERGY RANGE FROM 1.4 TO 3.7 MEV. THE COMPOSITION AND PROTON-ALPHA TELESCOPES WERE ORIENTED PARALLEL TO THE SPACECRAFT Z AXIS, WHEREAS THE OPEP TELESCOPE WAS ORIENTED PERPENDICULAR TO THE Z AXIS. PULSE HEIGHT INFORMATION WAS OBTAINED FROM THE COMPOSITION TELESCOPE USING ONE 256-CHANNEL AND TWO 512-CHANNEL PULSE HEIGHT ANALYZERS. THIS ALLOWED PULSE HEIGHT ANALYSIS OF PARTICLES IN FOUR ENERGY INTERVALS -- FOR PROTONS 5 TO 11 MEV, 11 TO 22 MEV, 22 TO 103 MEV, AND GREATER THAN 103 MEV. PULSE HEIGHT INFORMATION WAS SENT BACK FROM THE PROTON-ALPHA TELESCOPE USING ONE 256-CHANNEL PULSE HEIGHT ANALYZER. THIS ALLOWED PULSE HEIGHT ANALYSIS OF PARTICLES IN TWO ENERGY RANGES -- FOR PROTONS 1.6 TO 8.6 MEV AND 8.6 TO 33 MEV. COUNT RATE INFORMATION WAS OBTAINED FROM ALL THREE TELESCOPES. THE TIME RESOLUTION RANGED FROM ABOUT ONE MEASUREMENT PER 0.02 SEC TO ABOUT ONE MEASUREMENT PER 147 SEC DEPENDING ON THE COUNTING MODE AND THE TELEMETRY BIT RATE. THE SPACECRAFT UNINTENDED INITIAL SPIN PERIOD VARIED FROM ABOUT 91 TO 122 SEC ABOUT THE Z AXIS.

DATA SET NAME- REDUCED COUNT RATE DATA ON MAGNETIC TAPE

NSSDC ID- 66-049A-03A

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 06/09/66 TO 12/01/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 65 REEL(S) OF MAGNETIC TAPE

THE DATA SET CONSISTS OF A COPY OF ORIGINAL REDUCED DATA ON 7-TRACK, IBM 7094, BINARY TAPES WRITTEN AT 800 BPI. THE TAPES CONTAIN COUNT RATES ORDERED BY SOLAR ROTATION NUMBER BUT DO NOT CONTAIN PULSE HEIGHT OR ORBITAL DATA. EACH TAPE HAS A 24-CHARACTER (SIX BITS PER CHARACTER) HEADER RECORD FOLLOWED BY A VARIABLE NUMBER OF FILES. EACH FILE HAS A 144-CHARACTER HEADER RECORD, FOLLOWED BY A VARIABLE NUMBER OF RECORDS WHICH HAVE A TOTAL LENGTH OF 3972 CHARACTERS, FOLLOWED BY A FILE TRAILER RECORD (24 CHARACTERS). A MICROFILMED INDEX OF THIS DATA SET IS AVAILABLE (66-049A-03D).

DATA SET NAME- DIGITAL AND ANALOG COUNT RATE PLOTS ON
MICROFILM

NSSDC ID- 66-049A-03B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/09/66 TO 07/15/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MICROFILM

THE DATA SET CONSISTS OF A STANDARD SET OF DIGITAL AND ANALOG PLOTS ON MICROFILM OF THE MOST INTERESTING OGO 3 HALF-HOUR AVERAGE RATES. THE DATA WERE GENERATED USING A CALCOMP PLOTTER. EACH PLOT COVERS ONE SOLAR ROTATION. THESE RATES WERE OBTAINED FROM COINCIDENCES AND ANTICOINCIDENCES OF COUNTERS, AS WELL AS FROM SOME STRAIGHT COUNTER RATES.

DATA SET NAME- PULSE HEIGHT ANALYZER DATA ON MAGNETIC TAPE

NSSDC ID- 66-049A-03C

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 06/09/66 TO 08/16/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 27 REEL(S) OF MAGNETIC TAPE

THE DATA SET CONSISTS OF REDUCED PULSE HEIGHT ANALYZER DATA ON TWENTY-SEVEN 7-TRACK, IBM 7094, BINARY MAGNETIC TAPES WRITTEN AT 800 BPI AND ORDERED BY SOLAR ROTATION NUMBER. THE PULSE HEIGHT ANALYSIS WAS CARRIED OUT FOR TWO OF THE DE/DX VS RANGE TELESCOPE COINCIDENCE COMBINATIONS CORRESPONDING TO PROTON ENERGIES FROM 1.6 TO 8.6 MEV AND FROM 8.6 TO 33 MEV (D1* NOT D2* NOT D4* AND D1*D2* NOT D4*). EACH TAPE HAS A 56-CHARACTER HEADER RECORD FOLLOWED BY A VARIABLE NUMBER OF FILES. EACH FILE HAS A 25-CHARACTER HEADER RECORD FOLLOWED BY A VARIABLE NUMBER OF RECORDS (4098 CHARACTERS/RECORD). A MICROFILMED INDEX OF THIS DATA SET IS AVAILABLE (66-049A-03E).

WINCKLER, OGO 3

EXPERIMENT NAME- ELECTRON SPECTROMETER

NSSDC ID- 66-049A-22

STATUS OF OPERATION- OPERATIONAL OFF
DATE LAST USABLE DATA RECORDED- 12/01/69

PERSONNEL
PI - J.R. WINCKLER ..... U OF MINNESOTA
MINNEAPOLIS, MN
OI - R.L. ARNOLDY ..... U OF NEW HAMPSHIRE
DURHAM, NH

THE OBJECTIVE OF THIS EXPERIMENT WAS TO MEASURE THE ELECTRON ENERGY SPECTRUM IN THE RADIATION BELTS FOR THE RANGE FROM 50 KEV TO 4 MEV. THE EXPERIMENT CONSISTED OF A FIVE-CHANNEL ELECTRON SPECTROMETER CONTAINING AN ANALYZING ELECTROMAGNET, A PLASTIC SCINTILLATOR CRYSTAL, A PHOTOMULTIPLIER TUBE, AND A PULSE HEIGHT ANALYZER. THE ANALYZING ELECTROMAGNET WAS USED TO DEFINE THE FIVE ENERGY CHANNELS. THE PULSE HEIGHT ANALYZER ACCEPTED ONLY THE PULSES CORRESPONDING TO THE PARTICULAR ENERGY CHANNEL BEING SAMPLED. IN THIS WAY, THE BACKGROUND DUE TO BREMSSTRAHLUNG AND PENETRATING PARTICLES WAS REDUCED BECAUSE ONLY THOSE BACKGROUND PULSES IN THE NARROW ENERGY BAND BEING ANALYZED WERE COUNTED. THIS SYSTEM WAS MOUNTED IN A DIRECTION 10 DEG OFF THE SPACECRAFT Z AXIS WITH A 15-DEG ACCEPTANCE CONE. SINCE OGO 3 WAS SPIN STABILIZED ABOUT ITS Z AXIS SHORTLY AFTER LAUNCH, THE ACCEPTANCE CONE WAS EFFECTIVELY INCREASED TO 35 DEG. DIRECTIONAL MEASUREMENTS OF ELECTRONS WERE MADE IN FIVE CONTIGUOUS, LOGARITHMICALLY EQUISPACED ENERGY CHANNELS BETWEEN 50 AND 4000 KEV. BACKGROUND PARTICLES WERE COUNTED BY OPERATING THE SPECTROMETER WITHOUT THE ELECTROMAGNET. THE SYSTEM SAMPLED THE FIVE SPECTRAL INTERVALS AND FIVE BACKGROUND INTERVALS EVERY 2.304 SEC WHEN THE OGO 3 SYSTEM WAS OPERATING AT 1 KBS. THE SAMPLING RATE INCREASED LINEARLY WITH THE TELEMETRY BIT RATE. DATA FROM EACH OF THE FIVE CHANNELS WERE TELEMETERED AS ONE DIGITAL WORD. THIS EXPERIMENT PERFORMED WELL FROM LAUNCH TO DECEMBER 1, 1969, WHEN ALL EXPERIMENTS ABOARD OGO 3 WERE TURNED OFF.

DATA SET NAME- PLOTS OF 2-MIN AVERAGED COUNT RATES VS TIME (NEAR RADIATION BELTS) ON MICROFILM

NSSDC ID- 66-049A-22A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/11/66 TO 04/27/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF TWO REELS OF 16-MM MICROFILM GENERATED AT NSSDC FROM PLOTS SUBMITTED BY THE EXPERIMENTER. PRESENTED ARE TIME-ORDERED 2-MIN AVERAGES OF THE BACKGROUND CORRECTED COUNT RATE PLOTTED ON A LOGARITHMIC SCALE VS TIME FOR EACH OF THE FIVE CHANNELS. EACH OF THE 267 PLOTS PRESENTED CONTAINS APPROXIMATELY 3 HR OF DATA FOR THAT PORTION OF THE ORBIT IN THE VICINITY OF THE RADIATION BELTS. THESE DATA COVER APPROXIMATELY 80 PERCENT OF THE ORBITS DURING THE PERIOD FROM JUNE 11, 1966, TO APRIL 27, 1968. NO EPHEMERIS INFORMATION IS PRESENTED.

DATA SET NAME- PLOTS OF 15-MIN AVERAGED COUNT RATES VS SPACECRAFT RADIAL DISTANCE ON MICROFILM

NSSDC ID- 66-049A-22B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/09/66 TO 04/02/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF TWO REELS OF 16-MM MICROFILM GENERATED AT NSSDC FROM 655 PLOTS SUBMITTED BY THE EXPERIMENTER. PRESENTED ARE 15-MIN AVERAGES OF THE BACKGROUND CORRECTED COUNT RATES PLOTTED ON A LOGARITHMIC SCALE VS R (IN EARTH RADII) BETWEEN 1 AND 18 FOR EACH OF THE FIVE CHANNELS. ALSO PRESENTED ON EACH FRAME ARE THE BEGINNING AND END TIMES, THE ORBIT NUMBER, AND AN INDICATION OF WHETHER THE DATA ARE FOR AN INBOUND (APOGEE TO PERIGEE) OR AN OUTBOUND PASS OF THE SPACECRAFT. THE DATA ARE TIME ORDERED AND COVER APPROXIMATELY 45 PERCENT OF THE ORBITS IN THE PERIOD JUNE 9, 1966, TO APRIL 2, 1968. NO ADDITIONAL EPHEMERIS INFORMATION IS PRESENTED.

DATA SET NAME- ORIGINAL REDUCED COUNT RATES ON MAGNETIC TAPE

NSSDC ID- 66-049A-22C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/09/66 TO 05/03/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 18 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF EIGHTEEN 7-TRACK, 556-BPI, IBM 7094, BINARY TAPES GENERATED BY THE EXPERIMENTER. EACH TAPE CONTAINS ONE FILE OF REDUCED DATA. THE FILE IS MADE UP OF AN ARBITRARY NUMBER OF RECORDS AND COVERS AN ARBITRARY PERIOD OF TIME. THE RECORDS ARE OF VARIABLE LENGTH -- 21 TO 1000 48-BIT WORDS. THE FIRST 20 OF THESE WORDS CONSTITUTE A HEADER WHICH INDICATES THE RATE AT WHICH THE DATA WERE TELEMETERED, THE START AND END TIMES OF THE RECORD, AND THE NUMBER OF WORDS IN THE RECORD. THE DATA WORDS ARE GROUPED INTO 40-WORD DATA FRAMES WITHIN WHICH DATA FROM EACH OF THE FIVE SPECTROMETER CHANNELS ARE PRESENTED FOUR TIMES AND BACKGROUND COUNTS FROM EACH CHANNEL ARE PRESENTED THREE TIMES. THE REMAINING FIVE WORDS ARE SYNCHRONIZATION WORDS. THE FIRST SIX BITS OF EACH DATA WORD INDICATE THE CHANNEL AND WHETHER THE DATA ARE ANALYSIS OR BACKGROUND COUNTS. THE NEXT 12 BITS CONTAIN THE DATA IN THE FORM OF ACCUMULATED COUNTS. ONLY NONZERO DATA ARE PRESENTED. THE REMAINING 30 BITS CONTAIN THE STARTING TIME OF THE ACCUMULATION CYCLE. ALL THE RECORDS HAVE BEEN TIME ORDERED ACCORDING TO START TIME OF THE RECORD, SO THAT CONSIDERABLE OVERLAP MAY EXIST IN THE TIME COVERED BY CONSECUTIVE RECORDS.

DATA SET NAME- TABULATIONS OF 5-MIN AVERAGED COUNT RATES ON MICROFILM

NSSDC ID- 66-049A-22D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/09/66 TO 05/01/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 7 REEL(S) OF MICROFIL

ORIGINAL PAGE IS
OF POOR QUALITY

THIS DATA SET CONSISTS OF SEVEN REELS OF 16-MM MICROFILM GENERATED AT NSSDC FROM COMPUTER PRINTOUT SUPPLIED BY THE EXPERIMENTER. DATA FOR EACH 5-MIN PERIOD FOR EACH OF THE FIVE CHANNELS INCLUDE TOTAL COUNTS, TOTAL BACKGROUND COUNTS, AVERAGE COUNT RATE, AVERAGE BACKGROUND COUNT RATE, AND AVERAGE NET COUNT RATE (AVERAGE COUNT RATE MINUS AVERAGE BACKGROUND COUNT RATE). ALSO INCLUDED ARE THE ORIGINAL REEL, FILE, AND RECORD NUMBERS FROM WHICH THESE DATA WERE OBTAINED, WHETHER THE DATA WERE PLAYBACK OR REAL TIME, AND THE RATE AT WHICH THE DATA WERE TELEMETERED. THESE DATA, WHICH ARE TIME ORDERED, COVER APPROXIMATELY 70 PERCENT OF THE PERIOD FROM JUNE 9, 1966, TO MAY 1, 1968.

DATA SET NAME- PLOTS OF 2- AND 5-MIN AVERAGED COUNT RATES VS L ON MICROFILM

NSSDC ID- 66-049A-22E

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/11/66 TO 04/02/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF TWO REELS OF 16-MM MICROFILM GENERATED AT NSSDC FROM 555 PLOTS SUBMITTED BY THE EXPERIMENTER. PRESENTED ARE 2- AND 5-MIN AVERAGES OF THE BACKGROUND CORRECTED COUNT RATE PLOTTED ON A LOGARITHMIC SCALE VS L (IN EARTH RADII) FOR EACH OF THE FIVE CHANNELS. THE 2-MIN AVERAGES ARE PRESENTED ONLY FOR THOSE L VALUES THAT ARE LESS THAN 3, WHILE THE 5-MIN AVERAGES ARE PRESENTED ONLY FOR THOSE L VALUES GREATER THAN 3. ALSO PRESENTED ON EACH FRAME ARE THE BEGINNING AND END TIMES, ORBIT NUMBER, AND WHETHER THE DATA ARE FOR AN INBOUND (APOGEE TO PERIGEE) OR AN OUTBOUND PASS OF THE SPACECRAFT. THESE DATA, WHICH ARE TIME ORDERED, COVER APPROXIMATELY 70 PERCENT OF THE ORBITS DURING THE PERIOD FROM JUNE 11, 1966, TO APRIL 2, 1968. NO ADDITIONAL EPHEMERIS INFORMATION IS PRESENTED.

DATA SET NAME- TABULATIONS OF COUNTS VS TIME AT DISCRETE L VALUES ON MICROFILM

NSSDC ID- 66-049A-22F

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/11/66 TO 12/27/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF 16-MM MICROFILM GENERATED AT NSSDC FROM 65 PAGES OF COMPUTER PRINTOUT SUBMITTED BY THE EXPERIMENTER. TIME-ORDERED COUNT RATES, CORRECTED FOR BACKGROUND, FROM EACH OF THE FIVE CHANNELS ARE PRESENTED FOR EACH OF 19 DISCRETE L VALUES IN THE RANGE 1.3 TO 8.0. ALSO PRESENTED ARE THE DATES AND THE EQUATORIAL PITCH ANGLES. THESE DATA COVER APPROXIMATELY 20 PERCENT OF THE PERIOD FROM JUNE 11, 1966, TO DECEMBER 27, 1967.

DATA SET NAME- PLOTS OF 5-MIN AVERAGED COUNT RATES VS TIME NEAR PERIGEE ON MICROFILM

NSSDC ID- 66-049A-22G

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/09/66 TO 04/30/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF 16-MM MICROFILM GENERATED AT NSSDC FROM PLOTS SUBMITTED BY THE EXPERIMENTER. PRESENTED ARE TIME-ORDERED 5-MIN AVERAGES OF THE BACKGROUND CORRECTED COUNT RATES PLOTTED ON A LOGARITHMIC SCALE VS TIME FOR EACH OF THE FIVE CHANNELS. EACH OF THE 662 PLOTS PRESENTED CONTAINS DATA FROM APPROXIMATELY ONE THIRD OF AN ORBIT, WITH PERIGEE NEAR THE CENTER OF THE PLOT. THESE DATA COVER APPROXIMATELY 50 PERCENT OF THE ORBITS DURING THE PERIOD FROM JUNE 9, 1966, TO APRIL 30, 1968. NO EPHEMERIS INFORMATION IS PRESENTED.

DATA SET NAME- PLOTS OF COUNT RATES VS EQUATORIAL PITCH ANGLE FOR DISCRETE L VALUES ON MICROFILM

NSSDC ID- 66-049A-22H

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 01/00/67 TO 12/00/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF ONE REEL OF 35-MM MICROFILM THAT WAS PRODUCED AT NSSDC FROM PLOTS SUBMITTED BY THE EXPERIMENTER. EACH PAIR OF FRAMES PRESENTS COUNT RATES (ON A LOGARITHMIC SCALE) VS EQUATORIAL PITCH ANGLE (0 TO 90 DEG ON A LINEAR SCALE) FOR EACH OF THE FIVE SPECTROMETER CHANNELS. DATA FROM CHANNELS 1, 3, AND 5 ARE PLOTTED ON ONE FRAME, AND DATA FROM CHANNELS 2 AND 4 ARE PLOTTED ON A SECOND FRAME. EACH FRAME PRESENTS DATA FOR A SPECIFIC L VALUE BETWEEN 1.4 AND 2.4. THE TIME PERIOD COVERED BY EACH FRAME IS EITHER JANUARY TO JUNE 1967 OR JULY TO DECEMBER 1967. THESE COUNT RATES CAN BE REDUCED TO FLUX VALUES BY USING CONVERSION FACTORS SUPPLIED BY THE EXPERIMENTER.

DATA SET NAME- PLOTS OF PITCH ANGLE NORMALIZED COUNT RATES VS TIME FOR DISCRETE L VALUES ON MF

NSSDC ID- 66-049A-22I

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/00/66 TO 06/00/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF ONE REEL OF 35-MM MICROFILM THAT WAS PRODUCED AT NSSDC FROM PLOTS SUBMITTED BY THE EXPERIMENTER. EACH PAIR OF FRAMES PRESENTS COUNT RATES (ON A LOGARITHMIC SCALE), WHICH HAVE BEEN NORMALIZED TO AN EQUATORIAL PITCH ANGLE OF 90 DEG, VS TIME FOR EACH OF THE FIVE SPECTROMETER CHANNELS. TICK MARKS ARE PRESENTED ON THE TIME AXIS FOR EACH 5-DAY PERIOD. DATA FROM CHANNELS 1, 3, AND 5 ARE PLOTTED ON ONE FRAME, AND DATA FROM CHANNELS 2 AND 4 ARE PLOTTED ON A SECOND FRAME. EACH FRAME PRESENTS DATA FOR A SPECIFIC L VALUE BETWEEN 1.4 AND 2.4 FOR THE TIME PERIOD DECEMBER 1966 TO JUNE 1967. THESE COUNT RATES CAN BE REDUCED TO FLUX VALUES BY USING CONVERSION FACTORS SUPPLIED BY THE EXPERIMENTER.

DATA SET NAME- PLOTS OF COUNT RATES VS TIME FOR DISCRETE L VALUES ON MICROFILM

NSSDC ID- 66-049A-22J

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/00/66 TO 02/00/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF ONE REEL OF 35-MM MICROFILM THAT WAS PRODUCED AT NSSDC FROM PLOTS SUBMITTED BY THE EXPERIMENTER. EACH PAIR OF FRAMES PRESENTS COUNT RATES (ON A LOGARITHMIC SCALE), WHICH HAVE BEEN NORMALIZED TO AN EQUATORIAL PITCH ANGLE OF 90 DEG, VS TIME FOR EACH OF THE FIVE SPECTROMETER CHANNELS. THESE DATA HAVE NOT BEEN MADE DIRECTLY COMPARABLE WITH SIMILAR OGO 1 DATA (DATA SET 64-054A-21H). THE EXPERIMENTER HAS PROVIDED CONVERSION FACTORS THAT WILL ACCOMPLISH THIS. DATA FROM CHANNELS 1, 3, AND 5 ARE PLOTTED ON ONE FRAME, AND DATA FROM CHANNELS 2 AND 4 ARE PLOTTED ON A SECOND FRAME. EACH FRAME PRESENTS DATA FOR A SPECIFIC L VALUE BETWEEN 1.3 AND 2.8. THE TIME PERIOD COVERED BY THESE DATA IS JUNE 1966 TO FEBRUARY 1968, WITH EACH HALF-MONTH PERIOD INDICATED BY A TICK MARK. THESE COUNT RATES CAN BE REDUCED TO FLUX VALUES BY USING CONVERSION FACTORS SUPPLIED BY THE EXPERIMENTER.

WINCKLER, OGO 3

EXPERIMENT NAME- IONIZATION CHAMBER

NSSDC ID- 66-049A-23

STATUS OF OPERATION- OPERATIONAL OFF
DATE LAST USABLE DATA RECORDED- 12/01/69

PERSONNEL
PI - J.R. WINCKLER ..... U OF MINNESOTA
MINNEAPOLIS, MN
OI - R.L. ARNOLDY ..... U OF NEW HAMPSHIRE
DURHAM, NH

THIS EXPERIMENT WAS DESIGNED TO MEASURE THE IONIZATION DUE TO ENERGETIC PARTICLES. THE INSTRUMENTATION CONSISTED OF A 17.78-CM-DIAMETER INTEGRATING IONIZATION CHAMBER WITH A RESETTING DRIFT-TYPE ELECTROMETER. THE SYSTEM WAS MOUNTED ON A 12-M BOOM EXTENDING FROM THE MAIN BODY OF THE SPACECRAFT ALONG THE Y AXIS. THE CHAMBER RESPONDED TO ELECTRONS AND PROTONS WITH ENERGIES GREATER THAN 0.6 AND 12 MEV, RESPECTIVELY, AND TO X RAYS IN THE RANGE 10 TO 50 KEV. THE IONIZATION CURRENT WAS MEASURED BY A VACUUM TUBE ELECTROMETER WHOSE OUTPUT, AS A FUNCTION OF TIME, WAS AN AUTOMATICALLY RESETTING SAWTOOTH RAMP VOLTAGE BETWEEN 0 AND 5 V. DATA WERE TELEMETERED IN THREE INDEPENDENT FORMS THROUGH THREE DIGITAL WORDS AND ONE ANALOG WORD, EACH OF WHICH WAS TELEMETERED ONCE EVERY 1.152 SEC WHEN THE OGO 3 SYSTEM WAS OPERATING AT 1 KBS. THE SAMPLING RATE LINEARLY INCREASED WITH THE TELEMETRY RATE. THIS EXPERIMENT PERFORMED WELL FROM LAUNCH TO DECEMBER 1969, WHEN ALL EXPERIMENTS ABOARD OGO 3 WERE TURNED OFF.

DATA SET NAME- PLOTS OF 1-MIN AVERAGED PULSE RATES VS TIME ON MICROFILM

NSSDC ID- 66-049A-23A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/08/66 TO 08/11/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 3 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF THREE REELS OF 16-MM MICROFILM GENERATED AT NSSDC FROM PLOTS SUBMITTED BY THE EXPERIMENTER. PRESENTED ARE TIME-ORDERED 1-MIN AVERAGES OF THE NUMBER OF NORMALIZED PULSES PER SECOND TIMES 1000 PLOTTED ON A LOGARITHMIC SCALE. EACH OF THE 1129 FRAMES CONTAINS DATA FOR UP TO ONE THIRD OF AN ORBIT. APPROXIMATELY 80 PERCENT OF THE ORBITS DURING THE PERIOD FROM JUNE 8, 1966, TO AUGUST 11, 1968, ARE REPRESENTED IN THIS DATA SET.

DATA SET NAME- ORIGINAL REDUCED PULSE RATES ON TAPE

NSSDC ID- 66-049A-23B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/09/66 TO 08/12/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 31 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF THIRTY-ONE 7-TRACK BINARY TAPES WRITTEN AT 556 BPI ON AN IBM 7094. EACH TAPE, SUBMITTED BY THE EXPERIMENTER, CONTAINS ONE FILE OF REDUCED DATA. THE FILE IS MADE UP OF AN ARBITRARY NUMBER OF RECORDS AND COVERS AN ARBITRARY PERIOD OF TIME. THE RECORDS ARE OF VARIABLE LENGTH RANGING FROM 21 TO 1000 48-BIT WORDS. THE FIRST 20 OF THESE WORDS CONSTITUTE A HEADER THAT INDICATES THE RATE AT WHICH THE DATA WERE TELEMETERED, THE START AND END TIMES OF THE RECORD, THE NUMBER OF WORDS IN THE RECORD, AND WHETHER OR NOT THE RECORD IS IN EXACT TIME ORDER. EACH SUCCESSIVE SET OF THREE WORDS CONTAINS ONE 10-SEC AVERAGED PULSE RATE. THE FIRST WORD IN THE SET CONTAINS THE START TIME OF THE AVERAGE (IN MSEC OF THE DAY). THE SECOND WORD CONTAINS THE ACTUAL DURATION OF THE AVERAGE (WHICH MAY BE SHORTER THAN 10 SEC BECAUSE OF NOISE FILTERING). THE NUMBER OF VOLTAGE RAMPS IN THE AVERAGE, AND WHETHER THE AVERAGE IS BASED ON UNFILTERED RAMPS, FILTERED RAMPS, CLOCK PULSES, OR ANALOG WORDS. THE THIRD WORD GIVES THE AVERAGED PULSE RATE IN NORMALIZED PULSES PER SECOND. ALL THE RECORDS HAVE BEEN ORDERED BY START TIME OF THE RECORD, AND CONSIDERABLE OVERLAP MAY EXIST IN THE TIME COVERED BY CONSECUTIVE RECORDS. THE DATA ON THESE TAPES COVER THE PERIOD FROM JUNE 9, 1966, TO AUGUST 12, 1968.

DATA SET NAME- PLOTS OF 1-MIN AVERAGED PULSE RATES VS L ON MICROFILM

NSSDC ID- 66-049A-23C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/11/66 TO 04/02/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF TWO REELS OF 16-MM MICROFILM GENERATED AT NSSDC FROM 567 PLOTS SUBMITTED BY THE EXPERIMENTER. PRESENTED ARE TIME-ORDERED 1-MIN AVERAGES OF THE NUMBER OF NORMALIZED PULSES PER SECOND TIMES 1000 PLOTTED ON A LOGARITHMIC SCALE VS L (IN EARTH RADII). EACH FRAME PRESENTS 2 HR OF PLAYBACK DATA FOR L VALUES BETWEEN 1 AND 8. ALSO PRESENTED ON EACH PLOT ARE THE BEGINNING AND END TIMES AND AN INDICATION OF WHETHER THE DATA ARE FOR AN INBOUND (APOGEE TO PERIGEE) OR AN OUTBOUND PASS OF THE SPACECRAFT. APPROXIMATELY 80 PERCENT OF THE ORBITS DURING THE PERIOD JUNE 11, 1966, TO APRIL 2, 1968, ARE REPRESENTED IN THIS DATA SET.

DATA SET NAME- ATLAS OF 10- TO 50-KEV SOLAR FLARE X RAYS ON MICROFILM

NSSDC ID- 66-049A-23D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/25/66 TO 12/29/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

AN ION CHAMBER NORMALLY USED FOR PARTICLE MEASUREMENTS ALSO RESPONDED TO BURSTS OF HARD (10 TO 50 KEV) X RAYS THAT OCCURRED DURING SOLAR FLARES. THESE SOLAR X-RAY BURSTS WERE IDENTIFIED AND SEPARATED FROM THE PARTICLE DATA. THESE X-RAY DATA ARE ANALYZED DATA ON ONE REEL OF 35-MM MICROFILM AND ARE COPIES OF RESEARCH REPORTS CONTAINING PLOTS OF THE EXCESS ION CHAMBER RATE VS TIME. DATA FROM OGO 1 (DATA SET 66-054A-20C) ARE ALSO INCLUDED.

DATA SET NAME- PLOTS OF 2-MIN AVERAGED PULSE RATES VS SPACECRAFT RADIAL DISTANCE ON MICROFILM

NSSDC ID- 66-049A-23E

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/09/66 TO 04/02/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF TWO REELS OF 16-MM MICROFILM GENERATED AT NSSDC FROM 669 PLOTS SUBMITTED BY THE EXPERIMENTER. PRESENTED ARE TIME-ORDERED 2-MIN AVERAGES OF THE NUMBER OF NORMALIZED PULSES PER SECOND TIMES 1000 PLOTTED ON A LOGARITHMIC SCALE VS SPACECRAFT RADIAL DISTANCE R (IN EARTH RADII). EACH PLOT PRESENTS APPROXIMATELY 20 HR OF PLAYBACK DATA FOR R VALUES BETWEEN 1 AND 23. ALSO PRESENTED ON EACH PLOT ARE THE BEGINNING AND END TIMES AND AN INDICATION OF WHETHER THE DATA ARE FOR AN INBOUND (APOGEE TO PERIGEE) OR AN OUTBOUND PASS OF THE SPACECRAFT. APPROXIMATELY 85 PERCENT OF THE ORBITS DURING THE PERIOD FROM JUNE 9, 1966, TO APRIL 2, 1968, ARE REPRESENTED IN THIS DATA SET.

DATA SET NAME- TABULATIONS OF HOURLY AVERAGED PULSE RATES ON MICROFILM

NSSDC ID- 66-049A-23F

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/09/66 TO 08/10/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF ONE REEL OF 16-MM MICROFILM GENERATED AT NSSDC FROM COMPUTER PRINTOUT SUBMITTED BY THE

EXPERIMENTER. THE PULSING RATE OF THE ION CHAMBER, IN NORMALIZED PULSES PER SECOND, IS PRESENTED IN FOUR FORMS -- UNFILTERED PULSES, FILTERED PULSES, CLOCK PULSES, AND ANALOG WORD PULSES. EACH OF THE RATES REPRESENTS DATA AVERAGED OVER A PERIOD OF 1 HR. ALSO INCLUDED ARE THE ORIGINAL REEL, FILE, AND RECORD NUMBERS FROM WHICH THESE DATA WERE OBTAINED, AN INDICATION OF WHETHER THE DATA WERE PLAYBACK OR REAL TIME, AND THE RATE AT WHICH THE DATA WERE TELEMETERED. THE DATA, WHICH ARE TIME ORDERED, COVER APPROXIMATELY 65 PERCENT OF THE PERIOD FROM JUNE 9, 1966, TO AUGUST 10, 1968.

DATA SET NAME- PLOTS OF 2-MIN AVERAGED PULSE RATES VS TIME ON MICROFILM

NSSDC ID- 66-049A-23G

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/09/66 TO 08/10/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF TWO REELS OF 16-MM MICROFILM GENERATED AT NSSDC FROM PLOTS SUBMITTED BY THE EXPERIMENTER. PRESENTED ARE TIME-ORDERED 2-MIN AVERAGES OF THE NUMBER OF NORMALIZED PULSES PER SECOND TIMES 1000 PLOTTED VS TIME. EACH OF THE 731 PLOTS CONTAINS DATA FROM APPROXIMATELY ONE HALF OF AN ORBIT. APPROXIMATELY 80 PERCENT OF THE ORBITS DURING THE PERIOD FROM JUNE 9, 1966, TO AUGUST 10, 1968, ARE REPRESENTED IN THIS DATA SET. SIMILAR PLOTS ON A LOGARITHMIC SCALE COVERING ABOUT THE SAME PERCENT OF ORBITS FOR THE SAME PERIOD ARE FOUND IN MICROFILM DATA SET 66-049A-23K.

DATA SET NAME- TABULATIONS OF 1-MIN AVERAGED PULSE RATES ON MICROFILM

NSSDC ID- 66-049A-23H

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/09/66 TO 08/10/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 5 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF FIVE REELS OF 16-MM MICROFILM GENERATED AT NSSDC FROM COMPUTER PRINTOUT SUBMITTED BY THE EXPERIMENTER. THE PULSING RATE OF THE ION CHAMBER, IN NORMALIZED PULSES PER SECOND, IS PRESENTED IN FOUR FORMS -- UNFILTERED PULSES, FILTERED PULSES, CLOCK PULSES, AND ANALOG WORD PULSES. EACH OF THE RATES REPRESENTS DATA AVERAGED OVER A PERIOD OF 1 MIN. ALSO INCLUDED ARE THE ORIGINAL REEL, FILE, AND RECORD NUMBERS FROM WHICH THESE DATA WERE OBTAINED, AN INDICATION OF WHETHER THE DATA WERE PLAYBACK OR REAL TIME, AND THE RATE AT WHICH THESE DATA WERE TELEMETERED. THESE DATA, WHICH ARE TIME ORDERED, COVER APPROXIMATELY 70 PERCENT OF THE PERIOD FROM JUNE 9, 1966, TO AUGUST 10, 1968.

DATA SET NAME- PLOTS OF 1-MIN AVERAGED PULSE RATES VS TIME NEAR PERIGEE ON MICROFILM

NSSDC ID- 66-049A-23J

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/11/66 TO 08/10/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF TWO REELS OF 16-MM MICROFILM THAT WERE GENERATED AT NSSDC FROM PLOTS SUBMITTED BY THE EXPERIMENTER. PRESENTED ARE TIME-ORDERED 1-MIN AVERAGES OF THE NUMBER OF NORMALIZED PULSES PER SECOND TIMES 1000 PLOTTED ON A LOGARITHMIC SCALE. EACH OF THE 344 PLOTS CONTAINS DATA FOR A REGION UP TO 2 HR ON EITHER SIDE OF PERIGEE. APPROXIMATELY 75 PERCENT OF THE ORBITS DURING THE PERIOD FROM JUNE 11, 1966, TO AUGUST 10, 1968, ARE REPRESENTED IN THIS DATA SET.

SPACECRAFT COMMON NAME- OGO 4

ALTERNATE NAMES- OGO-D, PDGO 2
02895, S 50A

NSSDC ID- 67-073A

LAUNCH DATE- 07/28/67 WEIGHT- 562.0 KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 03/00/70

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 07/28/67
ORBIT PERIOD- 98. MIN INCLINATION- 86.011 DEG
PERIAPSIS- 412.000 KM ALT APOAPSIS- 908.000 KM ALT

OGO 4 WAS A LARGE OBSERVATORY INSTRUMENTED WITH EXPERIMENTS DESIGNED TO STUDY THE INTERRELATIONSHIPS BETWEEN THE AURORA AND AIRGLOW EMISSIONS, ENERGETIC PARTICLE ACTIVITY, GEOMAGNETIC FIELD VARIATION, IONOSPHERIC IONIZATION AND RECOMBINATION, AND ATMOSPHERIC HEATING WHICH TAKE PLACE DURING A PERIOD OF INCREASED SOLAR ACTIVITY. OGO-4 CONSISTED OF A MAIN BODY, GENERALLY PARALLELEPIPED IN FORM, TWO RECTANGULAR SOLAR PANELS EACH INCLUDING A SOLAR-ORIENTED EXPERIMENT PACKAGE (SOEP), AND TWO ORBITAL PLANE EXPERIMENT PACKAGES (OPEP). THE MAIN BODY WAS ATTITUDE CONTROLLED BY USE OF HORIZON SCANNERS AND GAS JETS AND WAS DESIGNED TO BE POINTED TOWARD THE EARTH (Z AXIS). THE AXIS CONNECTING THE TWO SOLAR PANELS (X AXIS) WAS DESIGNED TO OSCILLATE SO AS TO REMAIN PERPENDICULAR TO THE EARTH-SUN-SPACECRAFT PLANE. THE SOLAR PANELS, ACTIVATED BY SUN SENSORS, COULD ROTATE ABOUT THIS X AXIS TO OBTAIN MAXIMUM RADIATION FOR THE SOLAR CELLS AND, CONCURRENTLY, ORIENT THE SOEP PROPERLY. THE OPEP'S WERE MOUNTED ON EITHER END OF AN AXIS WHICH WAS PARALLEL TO THE Z AXIS AND ATTACHED TO THE FORWARD END OF THE MAIN BODY. THE OPEP SENSORS NORMALLY WERE MAINTAINED LOOKING FORWARD IN THE ORBITAL PLANE OF THE SATELLITE. TO MAINTAIN THIS ORIENTATION, THE OPEP AXIS COULD ROTATE OVER 90 DEG, AND, IN ADDITION, AN ANGULAR DIFFERENCE OF OVER 90 DEG WAS POSSIBLE BETWEEN THE ORIENTATION OF THE UPPER AND LOWER OPEP PACKAGES. THE SOEP CONTAINED FOUR EXPERIMENTS, AND THE OPEP CONTAINED FIVE EXPERIMENTS. AFTER THE SPACECRAFT ACHIEVED ORBIT AND THE EXPERIMENTS WERE DEPLOYED INTO AN OPERATING MODE, AN ATTITUDE CONTROL PROBLEM OCCURRED. THIS CONDITION WAS CORRECTED BY GROUND CONTROL PROCEDURES UNTIL COMPLETE FAILURE OF THE TAPE RECORDING SYSTEMS IN MID-JANUARY 1969, AT THAT TIME, DUE TO THE DIFFICULTY OF MAINTAINING ATTITUDE CONTROL WITHOUT THE TAPE RECORDERS, THE ATTITUDE CONTROL SYSTEM WAS COMMANDED OFF, AND THE SPACECRAFT WAS PLACED INTO A SPIN-STABILIZED MODE ABOUT THE AXIS WHICH WAS PREVIOUSLY MAINTAINED VERTICALLY. INITIAL SPIN PERIOD WAS 202 SEC WITH THE MEAN SPIN AXIS APPROXIMATELY PERPENDICULAR TO THE ORBIT PLANE (SPIN PERIOD AS OF MARCH 12, 1969, WAS 217 SEC). THE PRECESSION PERIOD OF THE MEAN SPIN AXIS WAS ABOUT 5 DAYS. IN THIS MODE, SEVEN OF THE REMAINING EXPERIMENTS WERE TURNED OFF SINCE NO MEANINGFUL DATA COULD BE OBSERVED BY THEM. ON OCTOBER 23, 1969, THE SATELLITE WAS TURNED OFF. IT WAS REACTIVATED AGAIN IN JANUARY 1970 FOR 2 MONTHS TO OBTAIN VLF OBSERVATIONS.

ANDERSON, OGO 4

EXPERIMENT NAME- COSMIC-RAY IONIZATION

NSSDC ID- 67-073A-07

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 08/08/67

PERSONNEL
PI - H.R. ANDERSON ..... RICE U
HOUSTON, TX
OI - V.H. NEHER ..... CALIF INST OF TECH
PASADENA, CA.

THIS EXPERIMENT WAS DESIGNED TO MEASURE COSMIC-RAY AND SOLAR FLARE PARTICLE INTENSITIES (PROTONS ABOVE 10 MEV, ELECTRONS ABOVE 0.5 MEV) USING AN ION CHAMBER. THE ION CHAMBER WAS MOUNTED AT THE END OF A SPACECRAFT BOOM ABOUT 2.5 M FROM THE MAIN BODY OF THE SPACECRAFT. THE ION CHAMBER OPERATED SUCCESSFULLY FOR ONLY THE FIRST 160 ORBITS OF THE SATELLITE.

DATA SET NAME- MICROFILM PLOTS OF TOTAL IONIZATION RATES AND SATELLITE ALT. VS INVARIANT LAT.

NSSDC ID- 67-073A-07A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/30/67 TO 08/11/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET, SUPPLIED BY THE EXPERIMENTER, CONSISTS OF PLOTS OF IONIZATION CHAMBER TOTAL IONIZATION RATES (ION PAIRS/SEC-CM CUBED, STP AIR) AND SATELLITE ALTITUDE (KM) VS INVARIANT LATITUDE (-90 TO +90 DEG) ON ONE REEL OF 35-MM MICROFILM. THE CORRESPONDING MCILWAIN L PARAMETER, GEOGRAPHIC LONGITUDE, AND LOCAL TIME OF THE SATELLITE ARE INDICATED ALONG THE INVARIANT LATITUDE AXIS. THE ORBIT NUMBER AND DAY NUMBER APPEAR AT THE TOP OF EACH PLOT ALONG WITH THE UT OF THE FIRST POINT PLOTTED ON THE GRAPH AND AN INSTRUMENT SENSITIVITY MODE INDICATOR (H FOR HIGH, L FOR LOW). THE ALTITUDE PLOTS ARE GENERATED USING THE X SYMBOL, AND THE IONIZATION PLOTS ARE GENERATED USING DOTS. THE DIRECTION OF THE SPACECRAFT IN ITS ORBIT IS INDICATED IN THE LOWER LEFT MARGIN FOR A GIVEN PLOT, E.G., 'N-S' MEANS THE SPACECRAFT WAS TRAVELING FROM THE NORTHERN HEMISPHERE TOWARD THE SOUTHERN HEMISPHERE. THE OMNIDIRECTIONAL IONIZATION CHAMBER MEASURED THE TOTAL IONIZATION PRODUCED BY PROTONS (E GREATER THAN 10 MEV) AND ELECTRONS (E GREATER THAN 1 MEV). THE PERCENT TIME COVERAGE WAS LESS THAN 50 PERCENT FROM LAUNCH (JULY 28, 1967) UNTIL THE INSTRUMENT'S PREMATURE FAILURE (AUGUST 8, 1967). FURTHER DESCRIPTION OF THE EXPERIMENT AND THIS DATA SET, INCLUDING A DETAILED TIME COVERAGE CHART FOR THE ENTIRE LIFETIME OF THE EXPERIMENT, APPEAR ON THE MICROFILM ALONG WITH THE DATA.

HOFFMAN, OGO 4

EXPERIMENT NAME- LOW-ENERGY AURORAL PARTICLE DETECTOR

NSSDC ID- 67-073A-11

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 01/25/69

PERSONNEL
PI - R.A. HOFFMAN ..... NASA-GSFC
GREENBELT, MD
OI - D.S. EVANS ..... NOAA-ERL
BOULDER, CO

THE AURORAL PARTICLES EXPERIMENT CONTAINED EIGHT DETECTORS, EACH COMPRISED OF A CYLINDRICAL ELECTROSTATIC ANALYZER WITH A CHANNEL ELECTRON MULTIPLIER. SEVEN OF THESE DETECTORS WERE CAPABLE OF MEASURING PROTONS OR ELECTRONS AS SELECTED BY GROUND COMMAND, AND THE EIGHTH DETECTOR MEASURED BACKGROUND. FIVE OF THE DETECTORS LOOKED ALONG A VECTOR POINTING RADIALLY AWAY FROM THE EARTH, WHILE THREE OTHERS LOOKED OUT AT 30 DEG, 60 DEG, AND 90 DEG TO THE RADIUS VECTOR POINTING AWAY FROM THE EARTH. THE LOOK DIRECTIONS OF ALL THE DETECTORS LAY IN A SINGLE PLANE. FOUR OF THE DETECTORS THAT LOOKED DIRECTLY AWAY FROM THE EARTH MEASURED ELECTRONS OR PROTONS AT EITHER 0.7, 2.3, 7.4, OR 23.8 KEV, AND THE FIFTH MEASURED THE BACKGROUND. THOSE DETECTORS AT OTHER ANGLES MEASURED ELECTRONS OR PROTONS AT 2.3 KEV. MOST OF THE DATA WERE TAKEN OVER THE NORTH AND SOUTH AURORAL ZONES AND POLAR CAPS, BUT A SMALL AMOUNT OF LOWER LATITUDE DATA WERE TAKEN. THE DATA TAKEN OVER THE SOUTH AURORAL ZONE AMOUNTED TO LESS THAN 5 PERCENT OF THE DATA, SINCE THE EARTH'S MAGNETIC FIELD IS NEARLY VERTICAL IN THE AURORAL ZONE, THE DETECTORS THAT POINTED AWAY FROM THE EARTH MEASURED PRECIPITATING PARTICLES, AND THE ANGLED DETECTORS MEASURED PARTICLES HAVING PITCH ANGLES NEARLY COMPARABLE TO THEIR RESPECTIVE SPACECRAFT ANGLES. THE OUTPUTS OF FOUR OF THE DETECTORS THAT POINTED DIRECTLY AWAY FROM THE EARTH WERE ACCUMULATED SIMULTANEOUSLY INTO FOUR LOGARITHMIC ACCUMULATORS OVER PRECISELY THE SAME TIME INTERVAL, ONE HALF OF A TELEMETRY MAIN FRAME. THIS WAS FOLLOWED BY THE STORAGE OF THE OUTPUTS OF THE FOUR 2.3-KEV ANGLE DETECTORS FOR PRECISELY THE SAME DURATION, ONE HALF OF A TELEMETRY MAIN FRAME. THIS RESULTED IN SAMPLING RATES FOR EACH DETECTOR INCLUDING THE BACKGROUND DETECTOR OF 55.56 SAMPLES PER SEC AT 64 KBS, 13.89 SAMPLES PER SEC AT 16 KBS, AND 3.47 SAMPLES PER SEC AT 4 KBS. ALL DETECTORS, EXCEPT FOR THE 6-KEV AND THE 90-DEG, 2-KEV, DEVELOPED SOME NOISE PROBLEMS PREVENTING THE MEASUREMENT OF SMALL FLUXES. OTHER THAN THIS, THE DETECTORS FUNCTIONED NORMALLY FROM INSTRUMENT TURN ON (JULY 30, 1967, AT 0012 UT) UNTIL JANUARY 25, 1969, WHEN THE EXPERIMENT WAS TURNED OFF. THE EXPERIMENT WAS OPERATED IN THE ELECTRON MODE CONTINUOUSLY FOR ABOUT 6 DAYS OUT OF EVERY SEVEN.

DATA SET NAME- REDUCED COUNT RATE DATA ON MAGNETIC TAPE

NSSDC ID- 67-073A-11A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/30/67 TO 01/25/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 77 REEL(S) OF MAGNETIC TAPE

THIS REDUCED DATA SET, SUPPLIED BY THE EXPERIMENTER, CONSISTS OF 9-TRACK, 800-BPI, IBM 360, BINARY MAGNETIC TAPES. THERE ARE FIVE POSSIBLE LOGICAL RECORD LENGTHS CORRESPONDING TO EACH OF THE FORMATS USED IN SAMPLING AND TELEMETERING THE DATA, WITH THE MAXIMUM LOGICAL RECORD BEING 9002 BYTES. THE PHYSICAL RECORD CORRESPONDS TO 3114 CHARACTERS. ALL TAPES CONTAIN A SINGLE FILE OF TIME-ORDERED DATA. THE FOLLOWING INFORMATION IS CONTAINED ON EACH TAPE -- TIME, EXPERIMENT MODE (ELECTRONS, PROTONS, OR UNDETERMINED -- LESS THAN 5 PERCENT OF THE DATA WERE IN AN UNDETERMINED MODE), EXPERIMENT TEMPERATURE, CALIBRATION VOLTAGES, BACKGROUND READOUTS, DATA RATE (4 KBS, 16 KBS, 64 KBS, OR 4 KBS RECORDED), DATA FORMAT (MAIN FRAME DATA FORMAT OR ANY OF THE FOUR FLEXIBLE FORMATS USED TO SAMPLE AND TELEMETER DATA), AND COUNT RATES FOR ALL DETECTORS. THERE ARE AT LEAST SOME DATA FOR 95 PERCENT OF THE ORBITS OVER THE TIME PERIOD INDICATED. NINETY PERCENT OF THESE DATA WERE OBTAINED OVER THE NORTH AURORAL ZONE AND POLAR CAPS. THE REMAINING DATA WERE OBTAINED AT LOWER LATITUDES AND OVER THE SOUTH AURORAL ZONE. OF THESE DATA, 80 PERCENT ARE IN THE ELECTRON MODE AND THE REMAINDER (EXCLUDING THE SMALL AMOUNT WITH MODE UNDETERMINED) ARE IN THE PROTON MODE.

DATA SET NAME- LISTINGS OF DATA ACQUISITION TIMES ON MICROFILM

NSSDC ID- 67-073A-11E

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/30/67 TO 01/25/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THE DATA SET CONSISTS OF ONE REEL OF 16-MM MICROFILM GENERATED AT NSSDC FROM COMPUTER PRINTOUT SUPPLIED BY THE EXPERIMENTER. DATA FOR EACH ENTRY OF VARYING TIME PERIOD INCLUDE CALENDAR DATE, DAY COUNT OF YEAR, ORBIT NUMBER, START AND STOP TIME, FORMAT NUMBER, BIT RATE, TYPE OF PARTICLES (ELECTRONS OR PROTONS), START AND STOP L VALUES, HEMISPHERE, PASS DIRECTION, AVAILABILITY OF SUMMARY AND/OR ANALYSIS AND/OR POLAR PLOTS, AND AVAILABILITY OF PRINTOUT OF THE DATA. OWING TO THE INCLUSION OF A 13-MIN TIMER ON THE HIGH-VOLTAGE POWER SUPPLY THAT POWERED THE EXPERIMENT DETECTORS, DATA ACQUISITION WAS NOT CONTINUOUS. ACQUISITION WAS INITIATED VIA GROUND COMMAND USUALLY AS THE SATELLITE APPROACHED THE AURORAL ZONE. THIRTEEN MIN WAS NOMINALLY SUFFICIENT TIME FOR THE SATELLITE TO TRAVERSE THE AURORAL ZONE, PASS OVER THE POLAR CAP, AND AGAIN CROSS THE AURORAL ZONE BEFORE THE DETECTOR POWER WAS TURNED OFF. AT OTHER TIMES, THE HIGH VOLTAGE WAS COMMANDED OFF BY GROUND COMMAND. DATA ACQUISITION FOR THE EXPERIMENT WAS FURTHER COMPLICATED BY ORBITAL OPERATIONS REQUIREMENTS OF THE SPACECRAFT, ESPECIALLY PERTAINING TO SPACECRAFT ATTITUDE CONTROL AND ONBOARD TAPE RECORDER USE.

DATA SET NAME- PLOTS OF 0.576-MIN AVERAGED COUNT RATE DATA FROM THREE DETECTORS ON MICROFILM

NSSDC ID- 67-073A-11F

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/30/67 TO 01/14/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 5 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF MICROFILM THAT WERE PROVIDED BY THE EXPERIMENTER. THE MICROFILM CONTAINS PLOTS OF THE COUNT RATES (AVERAGED OVER 0.576 MIN) OF THE 30-DEG, 2.3-KEV DETECTOR, THE 0- DEG, 0.7-KEV DETECTOR AND THE 0- DEG, 7.4-KEV DETECTOR VS TIME. NO CORRECTIONS FOR NOISE HAVE BEEN MADE. THE FOLLOWING INFORMATION IS CONTAINED ON EACH PLOT -- TIME, L PARAMETER, B FIELD (CALCULATED FROM A SPHERICAL HARMONIC EXPANSION), ALTITUDE, SUN-EARTH-SATELLITE ANGLE, GEOGRAPHIC LOCAL TIME, INVARIANT LATITUDE, AND THE FORMAT IN WHICH THE DATA WERE TELEMETERED. THERE ARE AT LEAST SOME DATA FOR 95 PERCENT OF THE ORBITS OVER THE TIME PERIOD INDICATED. NINETY PERCENT OF THESE DATA OBTAINED ARE OVER THE NORTH AURORAL ZONE AND POLAR CAPS, AND THE REMAINING DATA WERE OBTAINED AT LOWER LATITUDES AND OVER THE SOUTH AURORAL ZONE. OF THESE DATA, 80 PERCENT ARE IN THE ELECTRON MODE, AND THE REMAINDER ARE IN THE PROTON MODE.

OGO 4

DATA SET NAME- MICROFILMED PLOTS OF PORTIONS OF THE SATELLITE ORBIT WHERE DATA WERE TAKEN

NSSDC ID- 67-073A-11G

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/30/67 TO 01/25/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 3 REEL(S) OF MICROFILM

THESE MICROFILMED PLOTS, SUPPLIED BY THE EXPERIMENTER, SHOW THOSE PORTIONS OF THE OGO 4 TRAJECTORY WHERE DATA FROM THE LOW ENERGY AUROAL PARTICLES EXPERIMENT (SEE DATA SET 67-073A-11) WERE TAKEN. THERE ARE POLAR PLOTS WHICH SHOW THE SATELLITE GEOMAGNETIC LOCAL TIME (INDICATED IN DEGREES FROM 0 TO 360) VS THE SATELLITE INVARIANT GEOMAGNETIC LATITUDE (INDICATED IN DEGREES FROM 85 TO 60). THERE IS ONE PLOT PER PASS OVER THE AURORAL ZONE. ON EACH PLOT, THE FOLLOWING ARE INDICATED -- PASS NUMBER, DATE, THE MAGNITUDE OF THE 3-HR GEOMAGNETIC FIELD" INDEX (KP) DURING THE PASS, THE START TIME OF THE PASS, AND THE STOP TIME OF THE PASS.

SIMPSON, OGO 4

EXPERIMENT NAME- LOW-ENERGY PROTON, ALPHA PARTICLE MEASUREMENT

NSSDC ID- 67-073A-08

STATUS OF OPERATION- OPERATIONAL OFF
DATE LAST USABLE DATA RECORDED- 01/15/69

PERSONNEL

PI -	J.A.	SIMPSON	U OF CHICAGO CHICAGO, IL
OI -	C.Y.	FAN	U OF ARIZONA TUCSON, AZ
OI -	E.C.	STONE	CALIF INST OF TECH PASADENA, CA

TWO SOLID-STATE PARTICLE TELESCOPES WERE USED TO STUDY LOW-ENERGY COSMIC-RAY PROTONS AND ALPHA PARTICLES. ONE OF THESE WAS A THREE-ELEMENT RANGE TELESCOPE ('VERTICAL' TELESCOPE) THAT WAS CAPABLE OF IDENTIFYING PROTONS AND ALPHA PARTICLES (1.22 TO 39.2 MEV/NUCLEON) AND ELECTRONS (E.GT. 400 KEV). THE OTHER DETECTOR WAS A ONE-ELEMENT TELESCOPE ('HORIZONTAL' TELESCOPE) SENSITIVE TO PROTONS AND ALPHA PARTICLES IN THE ENERGY RANGE E.GT. 720 KEV/NUCLEON. THE VERTICAL TELESCOPE AXIS OF SYMMETRY WAS PARALLEL TO THE SPACECRAFT Z AXIS WHICH LATER UNINTENTIONALLY BECAME THE SPIN AXIS. THE HORIZONTAL TELESCOPE SYMMETRY AXIS WAS NEARLY PARALLEL TO THE SPACECRAFT Y AXIS (PERPENDICULAR TO THE Z AXIS). PULSE HEIGHT INFORMATION WAS SENT BACK FROM THE VERTICAL TELESCOPE ALLOWING PULSE HEIGHT ANALYSES OF PROTONS, ALPHA PARTICLES, AND ELECTRONS (E.GT. 400 KEV) USING A 256-CHANNEL PULSE HEIGHT ANALYZER. COUNT RATE INFORMATION WAS SENT BACK FROM BOTH TELESCOPES. THE TIME RESOLUTION RANGED FROM ABOUT ONE MEASUREMENT PER 0.02 SEC TO ABOUT ONE MEASUREMENT PER 0.3 SEC DEPENDING ON THE COUNTING MODE AND THE TELEMETRY BIT RATE. THE UNINTENDED SPIN PERIOD OF THE SPACECRAFT ON JANUARY 23, 1969 WAS ABOUT 3 MIN. THE EXPERIMENT PERFORMED NORMALLY FROM LAUNCH UNTIL THE SATELLITE WAS PUT IN AN OPERATIONAL OFF MODE ON OCTOBER 23, 1969. HOWEVER, THE SPINNING OF THE SPACECRAFT MADE IT DIFFICULT TO INTERPRET DATA AFTER MID-JANUARY 1969.

DATA SET NAME- REDUCED COSMIC-RAY COUNT RATE AND ORBITAL DATA MERGED ON MAGNETIC TAPE

NSSDC ID- 67-073A-08A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/28/67 TO 02/02/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 291 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF REDUCED COSMIC-RAY COUNT RATE DATA MERGED WITH ORBITAL DATA ON ABOUT 1500 MAGNETIC 'ABSTRACT' TAPES. NSSDC WILL HOLD COPIES OF ABOUT 300 TAPES CORRESPONDING TO THE TIME PERIOD BEFORE THE SPACECRAFT WENT INTO A SPIN MODE. ALTHOUGH DATA IN THE TIME INTERVAL AFTER SPIN UP ARE MORE DIFFICULT TO INTERPRET, THEY ARE AVAILABLE FROM THE EXPERIMENTER THROUGH NSSDC. DATA OBTAINED DURING THE EARLY PORTION OF THE MISSION ARE RECORDED ON 7-TRACK TAPES WRITTEN AT 556 BPI USING AN IBM 7094 COMPUTER. ALTHOUGH THE MAJORITY OF THE DATA ARE RECORDED ON 9-TRACK TAPES WRITTEN AT 800 BPI USING AN IBM 360/75 COMPUTER. ALL OF THE DATA ARE IN A MIXED BINARY-BCD FORMAT. THE DATA ON THE 7-TRACK TAPES ARE FORMATTED AS FOLLOWS--EACH TAPE HAS A 20-WORD FILE HEADER RECORD FOLLOWED BY A VARIABLE NUMBER OF PHYSICAL RECORDS (EACH HAVING A 6-WORD RECORD HEADER). THERE ARE A VARIABLE NUMBER OF LOGICAL RECORDS PER PHYSICAL RECORD, SINCE THE 52-WORD ORBITAL DATA LOGICAL RECORD WAS INSERTED INTO THE STREAM OF FOUR-WORD COUNT RATE DATA LOGICAL RECORDS ONCE EVERY MINUTE IN GENERATING THIS SET OF 'ABSTRACT' TAPES. THIS INSERTION DID NOT NECESSARILY OCCUR AT THE BEGINNING OR END OF A GIVEN PHYSICAL RECORD. EACH FILE CONTAINS ABOUT 5 MIN OF DATA. THE DATA ON THE 9-TRACK TAPES ARE FORMATTED IN A SIMILAR MANNER EXCEPT THAT THE ORBITAL DATA LOGICAL RECORD LENGTH IS 98 WORDS. THE TAPES CONTAIN ALL COUNTING RATES, TIME (UT), TELESCOPE TEMPERATURES, LATITUDE, LONGITUDE, HEIGHT, SUN-EARTH-SATELLITE ANGLE, GEOMAGNETIC COORDINATES, AND VARIOUS DATA QUALITY FLAGS. THE DATA WITHIN A FILE ARE ALWAYS MONOTONICALLY INCREASING IN TIME. HOWEVER, THE SET OF FILES COMPRISING A DATA TAPE ARE NOT NECESSARILY TIME ORDERED. REDUNDANCIES IN THE DATA HAVE BEEN DELETED.

DATA SET NAME- COUNT RATE PLOTS (R VS ENERGY LOSS) AND ORBITAL DATA ON MICROFILM

NSSDC ID- 67-073A-08B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/29/67 TO 12/07/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 15 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF 35-MM MICROFILM REELS OF REDUCED DATA IN THE FORM OF COUNT RATE (BOTH SINGLE AND COINCIDENCE RATES) PLOTS. EACH PLOT COVERS ONE OGO 4 ORBIT AND CONTAINS SEVERAL DIFFERENT COUNTING RATES AS WELL AS SATELLITE ORBIT DATA, INVARIANT LATITUDE, ALTITUDE, SCALAR MAGNETIC FIELD, MCILWAIN'S L PARAMETER, AND EITHER DIPOLE LOCAL TIME OR MAGNETIC LOCAL TIME. THROUGHOUT THE MICROFILM, THE RELEVANT SCALES ARE INCLUDED APPROXIMATELY EVERY 100 FRAMES. EACH PLOT CONTAINS THE FOLLOWING COINCIDENCE COUNT RATES FROM THE VERTICAL TELESCOPE -- V3 (PROTON AND ALPHA PARTICLE E .GT. 39.2 MEV/NUCLEON OR E .GT. 1 MEV), V1 NOT V3 (CORRESPONDS TO PROTON AND ALPHA PARTICLE ENERGIES FROM 1.22 TO 39.2 MEV/NUCLEON OR ELECTRONS FROM 0.4 TO 1 MEV), AND V2 NOT V3 AND V1V2 NOT V3 (BOTH OF WHICH CORRESPOND TO PROTON AND ALPHA PARTICLE ENERGIES FROM 9.32 TO 39.2 MEV/NUCLEON BUT WITH ONLY THE FORMER CORRESPONDING TO ELECTRON ENERGIES FROM 0.7 TO 1 MEV). THE ONE HORIZONTAL TELESCOPE COUNTING RATE IN THE FORMAT CORRESPONDS TO A PROTON AND ALPHA PARTICLE ENERGY THRESHOLD OF 720 KEV/NUCLEON. THE V3 COUNT RATE PLOTTED IS AN AVERAGE RATE OBTAINED OVER FIVE READOUTS, WHEREAS THE OTHER THREE RATES, AS CALCULATED FOR THESE PLOTS, HAVE A NOMINAL ACCUMULATION TIME OF 15 SEC. THE DATA SET PROVIDES A COMPACT SAMPLE OF THE DATA FROM THIS EXPERIMENT.

WEBBER, OGO 4

EXPERIMENT NAME- GALACTIC AND SOLAR COSMIC RAYS

NSSDC ID- 67-073A-09

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 10/23/69

PERSONNEL

PI -	W.R.	WEBBER	U OF NEW HAMPSHIRE DURHAM, NH

THIS COSMIC-RAY TELESCOPE EXPERIMENT WAS DESIGNED TO MEASURE THE DIFFERENTIAL ENERGY SPECTRA OF PROTONS, HELIUM NUCLEI, AND HEAVIER NUCLEI UP TO Z = 10 WITHIN THE ENERGY RANGE 50 TO 2000 MEV/NUCLEON AND AT A MAXIMUM SAMPLING RATE OF ONCE PER 288 MSEC. THE TELESCOPE CONSISTED OF TWO DETECTORS, A SCINTILLATOR WITH ITS ASSOCIATED PHOTOMULTIPLIER (PM) TUBE AND A SCINTILLATOR AND A CERENKOV ELEMENT SANDWICH WITH BOTH ELEMENTS OPTICALLY COUPLED TO THE SAME PM TUBE. A 70-NANOSEC COINCIDENCE CIRCUIT COUPLED THE TWO DETECTORS TO FORM THE TELESCOPE. PULSES FROM EACH PM TUBE WERE PULSE HEIGHT ANALYZED, SAMPLED PULSE HEIGHTS, THE COINCIDENCE COUNT RATE, AND THE COUNT RATE OF THE FIRST DETECTOR WERE TELEMETERED. THE RESOLUTION OF THE OGO 4 DETECTOR DETERIORATED AT LAUNCH, PROBABLY DUE TO PARTIAL SEPARATION OF AN OPTICAL INTERFACE IN ONE ELEMENT OF THE TELESCOPE. THIS RESULTED IN A REDUCED EFFICIENCY FOR DETECTING PROTONS GREATER THAN ABOUT 200 MEV, WITH THE WORST RESOLUTION NEAR THE CERENKOV THRESHOLD OF 320 MEV. OTHERWISE, THE EXPERIMENT FUNCTIONED AS PLANNED UNTIL OCTOBER 23, 1969.

DATA SET NAME- REDUCED COSMIC-RAY DATA ON TAPE

NSSDC ID- 67-073A-09A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/30/67 TO 08/27/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MAGNETIC TAPE

THESE REDUCED DATA CONSIST OF TWO EXPERIMENTER GENERATED 7-TRACK, 556-BPI, BINARY MAGNETIC TAPES WRITTEN ON THE CDC 1604 COMPUTER. THE DATA ON THE TAPES ARE ORDERED BY ORBIT PASS, AS INDICATED BY THE MAXIMUM VALUE OF THE MCILWAIN L PARAMETER. THE DATA CONSIST OF 37-SEC AVERAGED TELESCOPE RATES AND 18-SEC AVERAGED SINGLES RATES. THE TAPES CONTAIN NINE-BIT WORD TELESCOPE RATES, NINE-BIT WORD SINGLES RATES, UT, ALTITUDE, LATITUDE, LONGITUDE, MCILWAIN L, AND MAGNETIC FIELD.

DATA SET NAME- PLOTS OF PARTICLE COUNT RATES ON MICROFILM

NSSDC ID- 67-073A-09B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/30/67 TO 08/27/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF ONE REEL OF 16-MM MICROFILM PROVIDED BY THE EXPERIMENTER. BOTH THE SINGLES COUNT RATES AND THE TELESCOPE RATES ARE PLOTTED ON THE SAME SCALE AS A FUNCTION OF TIME. (THE TELESCOPE RATES ARE SCALED BY A FACTOR OF 100.) THE VERTICAL SCALE ON THE PLOTS IS LOGARITHMIC COUNTS PER SECOND, AND THE HORIZONTAL SCALE IS LINEAR UT FOR ONE ORBIT PERIOD. IN ADDITION TO THE TIME SCALE, MCILWAIN L VALUES, ALTITUDE, AND LATITUDE ARE INDICATED. THE DATA PLOTTED ARE FOR THE SAME PERIOD COVERED BY THE COSMIC-RAY DATA TAPES IN DATA SET 67-073A-09A.

SPACECRAFT COMMON NAME- OGO 5

ALTERNATE NAMES- OGO-E, EGO 5
EOGO 5, 03138
S 59

NSSDC ID- 68-014A

LAUNCH DATE- 03/04/68 WEIGHT- 611. KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 07/13/72

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 03/04/68
ORBIT PERIOD- 3796. MIN INCLINATION- 31.1 DEG
PERIAPSIS- 232.000 KM ALT APOAPSIS- 148228. KM ALT

THE PURPOSE OF THE OGO 5 SPACECRAFT, THE FIFTH OF A SERIES OF SIX ORBITING GEOPHYSICAL OBSERVATORIES, WAS TO CONDUCT MANY DIVERSIFIED GEOPHYSICAL EXPERIMENTS TO OBTAIN A BETTER UNDERSTANDING OF THE EARTH AS A PLANET, AND TO DEVELOP AND OPERATE A STANDARDIZED OBSERVATORY-TYPE SPACECRAFT. OGO 5 CONSISTED OF A MAIN BODY THAT WAS PARALLELEPIPED IN FORM, TWO SOLAR PANELS, EACH WITH A SOLAR-ORIENTED EXPERIMENT PACKAGE (SOEP), AND TWO ORBITAL PLANE EXPERIMENT PACKAGES (OPEP). ONE FACE OF THE MAIN BODY WAS EARTH-POINTING (Z AXIS), AND THE LINE CONNECTING THE TWO SOLAR PANELS (X AXIS) WAS PERPENDICULAR TO THE EARTH-SUN-SPACECRAFT PLANE. THE SOLAR PANELS WERE ABLE TO ROTATE ABOUT THE X AXIS. THE OPEP'S WERE MOUNTED ON AND COULD ROTATE ABOUT AN AXIS THAT WAS PARALLEL TO THE Z AXIS AND THAT WAS ATTACHED TO THE MAIN BODY. AT LAUNCH, THE INITIAL LOCAL TIME OF APOGEE WAS 0944 HR. OGO 5 CARRIED 25 EXPERIMENTS, 17 OF WHICH WERE PARTICLE STUDIES, TWO, MAGNETIC FIELD STUDIES. IN ADDITION, THERE WAS ONE EACH OF THE FOLLOWING TYPES OF EXPERIMENTS -- RADIO ASTRONOMY, UV SPECTRUM, LYMAN-ALPHA, SOLAR X-RAY, PLASMA WAVES, AND ELECTRIC FIELD. REAL-TIME DATA WERE TRANSMITTED AT 1, 8, AND 64 KBS DEPENDING ON THE DISTANCE FROM THE SPACECRAFT TO THE EARTH. PLAYBACK DATA WERE TAPE RECORDED AT 1 KBS AND TRANSMITTED AT 64 KBS. TWO WIDE-BAND TRANSMITTERS, ONE FEEDING INTO AN OMNIDIRECTIONAL ANTENNA AND THE OTHER FEEDING INTO A DIRECTIONAL ANTENNA, WERE USED TO TRANSMIT DATA. A SPECIAL PURPOSE TELEMETRY SYSTEM, FEEDING INTO EITHER ANTENNA, WAS ALSO USED TO TRANSMIT WIDE-BAND DATA IN REAL TIME ONLY. TRACKING WAS ACCOMPLISHED BY USING RADIO BEACONS AND A RANGE AND RANGE-RATE S-BAND TRANSPONDER. THE SPACECRAFT ATTITUDE CONTROL FAILED ON AUGUST 6, 1971, AFTER 41 MONTHS OF NORMAL OPERATION. THE SPACECRAFT WAS PLACED IN A STANDBY STATUS ON OCTOBER 8, 1971. THREE EXPERIMENTS (MEYER, BLAMONT, AND SIMPSON) WERE REACTIVATED FOR THE PERIOD FROM JUNE 1 TO JULY 13, 1972, AFTER WHICH ALL OPERATIONAL SUPPORT TERMINATED. SPACECRAFT ORBIT PARAMETERS CHANGED SIGNIFICANTLY OVER THE SPACECRAFT LIFE. BY APRIL 1971, SPACECRAFT PERIGEE HAD INCREASED TO 26,400 KM AND INCLINATION HAD INCREASED TO 54 DEG.

DATA SET NAME- MULTICOORDINATE SYSTEM EPHEMERIS PLOTS

NSSDC ID- 68-014A-00D

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 03/04/68 TO 10/04/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 5 REEL(S) OF MICROFILM

THIS SET CONTAINS MICROFILM GENERATED BY DR. CHRISTOPHER RUSSELL OF UCLA. THERE ARE NINE PLOTS PER ORBIT, THREE IN GEOCENTRIC SOLAR ECLIPTIC COORDINATES, THREE IN GEOCENTRIC SOLAR MAGNETOSPHERIC COORDINATES, ONE IN CYLINDRICAL COORDINATES, ONE LOCAL TIME VS L-VALUE PLOT, AND ONE RADIAL DISTANCE VS MAGNETIC LATITUDE POLAR PLOT.

DATA SET NAME- TABLE OF EPHEMERIS PARAMETERS ON MICROFILM

NSSDC ID- 68-014A-00E

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 03/04/68 TO 05/26/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 12 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF 12 REELS OF 35-MM MICROFILM THAT CONTAIN OGO 5 EPHEMERIS INFORMATION GIVEN AT VARIABLE TIME INTERVALS (5 SEC NEAR PERIGEE, 10 MIN NEAR APOGEE). EPHEMERIS PARAMETERS INCLUDE RADIAL DISTANCE, GEOMAGNETIC LATITUDE (NOT INVARIANT LATITUDE, DERIVED FROM THE SUBSATELLITE POINT), L, B/B0, SOLAR ECLIPTIC AND SOLAR MAGNETOSPHERIC LATITUDE AND LONGITUDE, AND GEOGRAPHIC AND GEOMAGNETIC LOCAL TIME. THESE REELS OF MICROFILM, SUPPLIED TO NSSDC BY DR. H. WEST OF THE THE LAWRENCE RADIATION LABORATORY, COVER THE FIRST 301 OGO 5 ORBITS (MARCH 4, 1968 TO MAY 26, 1970).

ANDERSON, OGO 5

EXPERIMENT NAME- ENERGETIC RADIATIONS FROM SOLAR FLARES

NSSDC ID- 68-014A-04

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 10/08/71

PERSONNEL
PI - K.A. ANDERSON ..... U OF CALIF, BERKELEY
BERKELEY, CA
OI - S.R. KANE ..... U OF CALIF, BERKELEY
BERKELEY, CA
OI - H. MARK ..... NASA-ARC
MOFFETT FIELD, CA

THIS EXPERIMENT WAS DESIGNED TO STUDY THE TIME OF THE SPECTRUM OF ENERGETIC X RAYS, PROTONS, ALPHA PARTICLES, AND ELECTRONS EMITTED BY THE SUN IN ASSOCIATION WITH SOLAR FLARES. THE EXPERIMENT USED THREE SEPARATE DETECTING SYSTEMS. FIRST, AN OMNIDIRECTIONAL SODIUM IODIDE (THALLIUM) SCINTILLATION COUNTER MEASURED SOLAR X RAYS IN EIGHT ENERGY CHANNELS FROM 9.6 TO 19.2, 19.2 TO 32, 32 TO 48, 48 TO 64, 64 TO 80, 80 TO 104, 104 TO 128, AND GREATER THAN 128 KEV, WHICH DATA WERE SAMPLED FOR 1.152 SEC ONCE EVERY 2.304 SEC. SECOND, A PARTICLE TELESCOPE COMPOSED OF SEVEN SOLID-STATE DETECTORS -- D1, D2, D3, D4, D5, D6, D7, AND AN ANTICOINCIDENCE SHIELD -- MEASURED PROTONS IN THE SIX ENERGY CHANNELS FROM 7 TO 20, 20 TO 45, 45 TO 80, 80 TO 130, 130 TO 200, AND GREATER THAN 200 MEV. THESE CHANNELS HAD A NONSEPARABLE ALPHA PARTICLE COMPONENT. THE LOWEST ENERGY CHANNEL WAS SAMPLED ONCE EVERY 147 SEC. WHILE ALL OTHER CHANNELS WERE SAMPLED ONCE EVERY 9.216 SEC. THE THIRD SYSTEM CONSISTED OF A DIRECTIONAL GEIGER-MUELLER TUBE

MAGNETIC SPECTROMETER THAT MEASURED ELECTRONS IN TWO CHANNELS, 22 TO 27 AND 50 TO 90 KEV. THESE DATA WERE SAMPLED ONCE EVERY 147 SEC. IN ORDER TO REDUCE THE POSSIBLE CONTRIBUTION OF MAGNETOSPHERIC RADIATION TO THE BACKGROUND COUNTING RATES OF THE DETECTORS, THE EXPERIMENT ONLY OPERATED AT SPACECRAFT ALTITUDES ABOVE 80,000 KM, I.E., ABOUT 48 HR OR 67 PERCENT OF EACH ORBIT. THE X RAY DETECTOR OPERATED SATISFACTORILY THROUGHOUT THE MISSION. THE D7 DETECTOR ELEMENT IN THE PROTON ALPHA TELESCOPE WAS FOUND TO BE VERY NOISY JUST PRIOR TO LAUNCH. IT WAS THEREFORE DISABLED ELECTRONICALLY. HENCE NO DATA WERE AVAILABLE FOR PROTONS OR ALPHA PARTICLES ABOVE 200 MEV NUCLEON. THE REST OF THIS TELESCOPE PERFORMED NORMALLY THROUGHOUT THE MISSION. THE ELECTRON SPECTROMETER PERFORMED NORMALLY FROM LAUNCH UNTIL SEPTEMBER 23, 1969, WHEN THE 22 TO 27 KEV CHANNEL BECAME ERRATIC AND LATER STOPPED COUNTING COMPLETELY. THE OTHER ELECTRON CHANNEL PERFORMED NORMALLY THROUGHOUT THE MISSION.

DATA SET NAME- AVERAGED ELECTRON AND X-RAY COUNT RATES ON MAGNETIC TAPE

NSSDC ID- 68-014A-04A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 05/31/68 TO 10/04/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 3 REEL(S) OF MAGNETIC TAPE

THIS DATA SET WAS SUBMITTED BY THE EXPERIMENTER ON 7-TRACK MAGNETIC TAPES WRITTEN AT 556 BPI IN A BCD CARD IMAGE FORMAT WHICH WAS CREATED ON A CDC 6000 SERIES COMPUTER. EACH CARD IMAGE INCLUDES THE DAY OF YEAR, TIME (SEC, UT), 147.456 SEC AVERAGED ELECTRON COUNT RATES FROM THE TWO ENERGY CHANNELS 22 TO 27 KEV, AND 50 TO 90 KEV, AND 40 SEC AVERAGES FROM CHANNELS 1 AND 8 OF THE X-RAY DETECTOR CORRESPONDING TO ENERGIES FROM 9.6 TO 19.2 KEV AND GREATER THAN 128 KEV. EACH PHYSICAL RECORD (2960 CHARACTERS) CONTAINS 37 LOGICAL RECORDS (80 CHARACTERS). DATA COVERAGE IS LIMITED TO SPACECRAFT ALTITUDES GREATER THAN 80,000 KM, I.E., ABOUT 67 PERCENT OF EACH ORBIT.

DATA SET NAME- 40-SEC AVERAGED X-RAY COUNT RATES ON MAGNETIC TAPE

NSSDC ID- 68-014A-04B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/08/68 TO 10/04/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 10 REEL(S) OF MAGNETIC TAPE

THIS DATA SET WAS SUBMITTED BY THE EXPERIMENTER ON 7-TRACK MAGNETIC TAPES WRITTEN AT 556 BPI IN A BCD CARD IMAGE FORMAT WHICH WAS CREATED ON A CDC 6000 SERIES COMPUTER. EACH CARD IMAGE INCLUDES THE DAY OF YEAR, TIME (SEC, UT), AND EIGHT CHANNELS OF UNNORMALIZED 39.864 SEC AVERAGED X-RAY COUNT RATES CORRESPONDING TO ENERGY INTERVALS 9.6 TO 19.2 KEV, 19.2 TO 32 KEV, 32 TO 48 KEV, 48 TO 64 KEV, 64 TO 80 KEV, 80 TO 104 KEV, 104 TO 128 KEV, AND GREATER THAN 128 KEV. EACH PHYSICAL RECORD (2960 CHARACTERS) CONTAINS 37 LOGICAL RECORDS (80 CHARACTERS).

DATA SET NAME- PROTON AND ALPHA PARTICLE COUNT RATES ON MAGNETIC TAPE

NSSDC ID- 68-014A-04C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/08/68 TO 11/17/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MAGNETIC TAPE

THIS DATA SET WAS SUBMITTED BY THE EXPERIMENTER ON 7-TRACK MAGNETIC TAPES WRITTEN AT 556 BPI IN A BCD CARD IMAGE FORMAT. EACH CARD IMAGE INCLUDES THE DAY OF YEAR, TIME (SEC, UT), AND AVERAGED COUNT RATES (147-SEC AVERAGE FOR THE PROTON AND ALPHA PARTICLE CHANNEL 7-20 MEV/NUC AND 9.216-SEC AVERAGES FOR THE OTHER FIVE PROTON AND ALPHA PARTICLE CHANNELS 20 TO 45, 45 TO 80, 80 TO 130, 130 TO 200 AND E. GT. 200 MEV/NUC). DATA COVERAGE WAS LIMITED TO SPACECRAFT ALTITUDES GREATER THAN 80,000 KM, I.E., ABOUT 67 PERCENT OF EACH ORBIT.

COLEMAN, JR., OGO 5

EXPERIMENT NAME- PARTICLE WAVE STUDY

NSSDC ID- 68-014A-13

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 10/08/71

PERSONNEL
PI - P.J. COLEMAN, JR. ..... U OF CALIF, LA
LOS ANGELES, CA
OI - T.A. FARLEY ..... U OF CALIF, LA
LOS ANGELES, CA
OI - D.L. JUDGE ..... U OF SOUTHERN CALIF
LOS ANGELES, CA

THIS EXPERIMENT CONSISTED OF SIX PLASTIC SCINTILLATOR DETECTORS TO MEASURE THE UNIDIRECTIONAL FLUX OF ELECTRONS IN EIGHT ENERGY INTERVALS BETWEEN 50 KEV AND 1.2 MEV. TWO OF THE DETECTORS POINTED IN OPPOSITE DIRECTIONS WHILE THE REMAINDER POINTED IN VARIOUS OTHER DIRECTIONS. THE EXPERIMENT WAS DESIGNED TO DETERMINE THE MAGNETOHYDRODYNAMIC PROPERTIES OF THE DISTURBANCES IN THE MAGNETOSPHERE AND BEYOND. IT WAS CONDUCTED IN CONJUNCTION WITH THE UCLA FLUXGATE MAGNETOMETER EXPERIMENT (68-014A-14). A THERMAL PROBLEM ADVERSELY AFFECTED THE DATA QUALITY FOR THE SECOND HALF OF 1969. HOWEVER, PRIOR TO THAT TIME AND UNTIL OCTOBER 8, 1971, WHEN IT WAS TURNED OPERATIONALLY OFF, THE EXPERIMENT WAS PERFORMING NORMALLY. BY THE NATURE OF THE INSTRUMENT, THESE ELECTRON DATA WERE CONTAMINATED BY AN AMBIENT ENERGETIC PROTON POPULATION. THESE DATA ARE USEFUL FOR SIMULTANEOUS STUDIES OF THE VARIATION OF FLUX WITH PITCH ANGLE AS DETERMINED BY UCLA FLUXGATE MAGNETOMETER.

DATA SET NAME- REAL TIME TELEMETERED ELECTRON DATA, 0.05 TO 1.2 MEV ON MAGNETIC TAPE

NSSDC ID- 68-014A-13A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/05/68 TO 04/20/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 92 REEL(S) OF MAGNETIC TAPE

THESE 92 REELS OF EXPERIMENTER GENERATED, 9-TRACK OR 7-TRACK MAGNETIC TAPES WITH IBM 360 EIGHT-BIT BYTES. CONTAIN ALL AVAILABLE SIGNIFICANT REAL-TIME TELEMETERED DATA FROM THIS EXPERIMENT FOR THE INCLUSIVE TIME PERIOD. WITH THE EXPERIMENTER PROVIDED PROGRAM. FLUXES OF PARTICLES ARE AVAILABLE. THE PROGRAM IN ITS CURRENT FORM IS NOT INEXPENSIVE TO RUN, BUT CONTAINS CALIBRATION TABLES, ETC., NECESSARY TO REDUCE THE DATA. THE PHYSICAL RECORD SIZE OF THESE TAPES IS 4088 BYTES. FOR EACH PHYSICAL RECORD, THE FIRST EIGHT BYTES ARE SENSOR CALIBRATION DATA, FOLLOWED NOMINALLY BY UP TO 255 LOGICAL RECORDS OF 16 BYTES EACH CONTAINING DATA QUALITY FLAGS, TIME DATA FLAGS, MODE DATA QUALITY FLAGS, FLAGS, AND THE ELECTRON COUNT RATES. TIME WHEN NO CHANGE IN COUNT RATE WAS DETECTED DO NOT APPEAR ON THESE TAPES. NSSDC HAS FOUND PHYSICAL RECORDS WHERE THE FIRST SEVEN DATA RECORDS ARE FILLED WITH IRREGULAR LOOKING DATA THAT DOES NOT FIT THIS FORMAT, FOLLOWED BY APPARENTLY GOOD DATA FOR THE REST OF THE PHYSICAL RECORD. PHYSICAL RECORDS CONTAINING LESS THAN 255 LOGICAL DATA RECORDS ARE PADDED OUT WITH BLANKS.

DATA SET NAME- TAPE PLAYBACK ELECTRON DATA, 0.05 TO 1.2 MEV ON MAGNETIC TAPE

NSSDC ID- 68-014A-13B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/30/68 TO 02/14/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 6 REEL(S) OF MAGNETIC TAPE

THESE SIX REELS OF EXPERIMENTER GENERATED 9-TRACK OR 7-TRACK MAGNETIC TAPES WITH IBM 360 EIGHT-BIT BYTES CONTAIN ALL AVAILABLE SIGNIFICANT DATA FROM THIS EXPERIMENT FOR THE INCLUSIVE TIME PERIOD, WITH THE EXPERIMENTER PROVIDED PROGRAM. FLUXES OF PARTICLES ARE AVAILABLE. THE PROGRAM IN ITS CURRENT FORM IS EXPENSIVE TO RUN, BUT CONTAINS CALIBRATION TABLES, ETC., NECESSARY TO REDUCE THE DATA. THE PHYSICAL RECORD SIZE OF THESE TAPES IS 4088 BYTES. FOR EACH PHYSICAL RECORD, THE FIRST EIGHT BYTES ARE SENSOR CALIBRATION DATA, FOLLOWED BY UP TO 255 LOGICAL RECORDS OF 16 BYTES EACH CONTAINING DATA QUALITY FLAGS, TIME DATA FLAGS, MODE FLAGS, AND THE ELECTRON

ORIGINAL PAGE IS
OF POOR QUALITY

COUNT RATES. TIME WHEN NO CHANGE IN COUNT RATE WAS DETECTED DO NOT APPEAR ON THESE TAPES. NSSDC HAS FOUND PHYSICAL RECORDS WHERE THE FIRST SEVEN DATA RECORDS ARE FILLED WITH IRREGULAR LOOKING DATA WHICH DOES NOT FIT THIS FORMAT, FOLLOWED BY APPARENTLY GOOD DATA FOR THE REST OF THE PHYSICAL RECORD. PHYSICAL RECORDS CONTAINING LESS THAN 255 LOGICAL DATA RECORDS ARE PADDED OUT WITH BLANKS.

MEYER, OGO 5

EXPERIMENT NAME- COSMIC-RAY ELECTRONS

NSSDC ID- 68-014A-09

STATUS OF OPERATION- INOPERABLE
DATE LAST DATA RECORDED- 07/13/72

PERSONNEL

PI -	P.	MEYER	U OF CHICAGO CHICAGO, IL
OI -	C.Y.	FAN	U OF ARIZONA TUCSON, AZ
OI -	J.J.	L'HEUREUX	U OF ARIZONA TUCSON, AZ

THIS EXPERIMENT MEASURED THE FLUX AND ENERGY SPECTRUM OF ELECTRONS WITH ENERGIES BETWEEN 15 AND 45 MEV, AND FLUXES OF PROTONS WITH ENERGIES BETWEEN 90 AND 110 MEV AND 143 AND 169 MEV. THE DETECTOR USED WAS A PARTICLE TELESCOPE COMPOSED OF A SCINTILLATION COUNTER, A GAS CERENKOV COUNTER, A SOLID STATE DETECTOR, AND A CESIUM IODIDE SCINTILLATION COUNTER SURROUNDED BY TWO PLASTIC SCINTILLATORS. THE EXPERIMENT WAS TURNED ON ONLY WHEN THE SATELLITE'S MCILWAIN PARAMETER, L, WAS GREATER THAN 12. THE EXPERIMENT WAS FULLY OPERATIONAL WHEN THE SPACECRAFT WAS PUT IN A STANDBY STATUS ON OCTOBER 8, 1971. THE EXPERIMENT WAS REACTIVATED FROM JUNE 1 TO JULY 13, 1972.

DATA SET NAME- SELECTION OF VARIOUS PLOTS FOR PROTONS AND FOR ELECTRONS ON MICROFILM

NSSDC ID- 68-014A-09A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/05/68 TO 07/13/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONTAINS FOUR SETS OF PLOTS SUPPLIED BY THE EXPERIMENTER ON ONE REEL OF 35-MM MICROFILM -- (1) PROTON FLUX VS TIME (90 TO 110 MEV), (2) PROTON FLUX VS TIME (143 TO 169 MEV), (3) ELECTRON FLUX VS TIME (12 TO 45 MEV), AND (4) A SET OF 19 SPECIAL ELECTRON (12 TO 45 MEV) AND PROTON (90 TO 110 MEV) FLUX PLOTS COVERING ELECTRON FLARE EVENTS FROM JULY 6, 1968 TO JANUARY 19, 1970. THE DATA ARE IN CHRONOLOGICAL ORDER WITHIN EACH SECTION. MOST OF THE PLOTS COVER FOUR ORBITS EACH, GIVING THE AVERAGE RATES OVER 4-HR PERIODS. THE PARTICLE ENERGY RANGE, ORBIT NUMBER, AND AVERAGING INTERVAL APPEAR AT THE TOP OF EACH PLOT.

DATA SET NAME- PARTICLE ACCUMULATIONS AND PULSE HEIGHT ANALYSIS ON MAGNETIC TAPE

NSSDC ID- 68-014A-09B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/05/68 TO 07/14/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 109 REEL(S) OF MAGNETIC TAPE

THIS DATA SET WAS SUBMITTED BY THE EXPERIMENTER AND CONSISTS OF PRESCALED ONE-MINUTE CHARGED PARTICLE ACCUMULATIONS AND PULSE HEIGHT ANALYSIS. THE DATA ARE ON 7-TRACK, BINARY MAGNETIC TAPES, WRITTEN AT 800 BPI USING AN XDS 930 COMPUTER. THERE ARE, IN GENERAL, FIVE FILES OF DATA PER TAPE WITH AN END-OF-FILE MARK AT THE END OF EACH, AND A DOUBLE END-OF-FILE MARK AT THE END OF THE LAST FILE ON A TAPE. EACH FILE CONTAINS ONE ORBIT OF DATA. THERE ARE A VARIABLE NUMBER OF PHYSICAL RECORDS PER FILE, BUT EACH PHYSICAL RECORD WILL ALWAYS BE A MULTIPLE OF 15 WORDS (60 CHARACTERS) AND LESS THAN OR EQUAL TO 1200 WORDS TOTAL. A PHYSICAL RECORD CONTAINS TIME (UT), THE INDIVIDUAL TELESCOPE DETECTOR ACCUMULATIONS D0, D1, D2, D3, A1, AND A2, COINCIDENCE MODES D0123NOTA1NOTA2, D0123A2NOTA1, AND D023NOTA1, PULSE HEIGHT ANALYSIS OF D2 OUTPUT (7 CHANNELS) AND D3 OUTPUT (8 CHANNELS) FOR CERTAIN COINCIDENCE MODES, VARIOUS DATA QUALITY FLAGS, TELEMETRY BIT RATE (1, 8, OR 64 KBPS), AND SEVERAL HOUSEKEEPING PARAMETERS. ALL TELEMETRY FRAMES WITH OVERLAP OR ERRONEOUS TIME INFORMATION HAVE BEEN DELETED. THE TIME COVERAGE IS ABOUT 80 PERCENT FOR SPACECRAFT ALTITUDE ABOVE 80,000 KM.

SHARP, OGO 5

EXPERIMENT NAME- LIGHT ION MASS MAGNETIC SPECTROMETER

NSSDC ID- 68-014A-18

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 05/00/69

PERSONNEL

PI -	G.W.	SHARP	NASA HEADQUARTERS WASHINGTON, DC
OI -	T.J.	CROWTHER	LOCKHEED PALO ALTO PALO ALTO, CA
OI -	K.K.	HARRIS	LOCKHEED PALO ALTO PALO ALTO, CA

THIS EXPERIMENT WAS DESIGNED TO DETERMINE THE CONCENTRATION OF LIGHT ION SPECIES IN THE TOPSIDE IONOSPHERE AND EXOSPHERE AND TO MEASURE THESE CONCENTRATIONS THROUGHOUT THE PLASMASPHERE. THE EXPERIMENT WAS ALSO DESIGNED TO MONITOR THE LOCATIONS OF THE PLASMAPAUSE, MAGNETOPAUSE AND BOW SHOCK. THE INSTRUMENT CONSISTED OF AN AUTOMATIC MULTIRANGED MAGNETIC FOCUS ION MASS SPECTROMETER. THE INSTRUMENT WAS CAPABLE OF MEASURING SINGLY IONIZED ATOMIC OXYGEN, HYDROGEN, AND HELIUM CONCENTRATIONS. A COMPLETE MEASUREMENT OF THESE CONCENTRATIONS PLUS A CALIBRATION WAS COMPLETED IN 4.6 SEC. THE ACCURACY OF THE MEASURED DATA WAS ESTIMATED TO BE 10 PERCENT. THE INSTRUMENT WAS MOUNTED ON THE SPACECRAFT SUCH THAT THE VELOCITY VECTOR WAS ESSENTIALLY NORMAL TO THE INSTRUMENT APERTURE. THE INSTRUMENT ACQUIRED USEFUL DATA FROM LAUNCH UNTIL MAY 31, 1969. IN EARLY JULY 1969 THE INSTRUMENT WAS TURNED OFF DUE TO DEGRADATION OF THE EXPERIMENT SENSING ELEMENT. AT THAT TIME THE EXPERIMENT HAD OPERATED FOR MORE THAN 14,000 HR.

DATA SET NAME- O, HE, AND H ION CONCENTRATION ON MAGNETIC TAPE

NSSDC ID- 68-014A-18A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/07/68 TO 05/31/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 14 REEL(S) OF MAGNETIC TAPE

THIS DATA SET, SUPPLIED BY THE EXPERIMENTER, CONSISTS OF BINARY, 7-TRACK, 800-BPI UNIVAC 1108 MAGNETIC TAPES. THERE ARE 7 TO 12 FILES PER TAPE. THE TAPES CONTAIN HEADER RECORDS IN BCD FORMAT. THE FOLLOWING INFORMATION IS CONTAINED ON EACH TAPE - TIME, ION CONCENTRATION, GEODETIC LONGITUDE, LATITUDE AND ALTITUDE, MCILWAIN L, GEOCENTRIC DISTANCE, LOCAL TIME, MAGNETIC LATITUDE, EGRESS LATITUDE, AND INGRESS LATITUDE, WITH THE EXCEPTION OF THE TIME SPAN FROM APRIL 24, 1968 TO JUNE 12, 1968, THERE IS COMPLETE COVERAGE OVER THE TIME PERIOD INDICATED ABOVE.

SIMPSON, OGO 5

EXPERIMENT NAME- LOW-ENERGY HEAVY COSMIC-RAY PARTICLES

NSSDC ID- 68-014A-27

STATUS OF OPERATION- INOPERABLE
DATE LAST DATA RECORDED- 07/13/72

PERSONNEL

PI -	J.A.	SIMPSON	U OF CHICAGO CHICAGO, IL

THIS EXPERIMENT WAS DESIGNED TO DETECT PARTICLES IN THE ENERGY RANGE 2 TO 50 MEV/NUCLEON AND TO ACCOMPLISH THE FOLLOWING -- (1) EXAMINE THE SHAPE OF THE DIFFERENTIAL ENERGY SPECTRUM, (2) EXTEND THE MEASUREMENT OF RELATIVE ABUNDANCE OF THE ELEMENTS UP THROUGH IRON, (3) SEARCH FOR NUCLEI OF VERY HIGH CHARGE (Z EQUALS 5 TO 50), AND (4) EXTEND OBSERVATIONS OF

9-2

VERY HEAVY NUCLEI FROM SOLAR FLARES TO 2 MEV/NUCLEON. THE TELESCOPE (THREE COLINEAR SENSORS SURROUNDED BY AN ANTICOINCIDENCE CUP) WAS USED IN CONJUNCTION WITH A 512-CHANNEL AND A 1024-CHANNEL ANALYZER. THE EXPERIMENT WAS CONSIDERED OPERATIONAL AND TRANSMITTING DATA WHEN THE SPACECRAFT WAS TURNED OFF IN OCTOBER 1971. THE EXPERIMENT WAS REACTIVATED BETWEEN JUNE 1 AND JULY 13, 1972. FOR FURTHER DETAILS, SEE MOGRD-CAMPERED, JGR, VOL 77, P 2799, 1972.

DATA SET NAME- COUNT RATES AND PULSE HEIGHT ANALYSIS ON MAGNETIC TAPE

NSSDC ID- 68-014A-27A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/05/68 TO 07/14/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 6 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF REDUCED COSMIC-RAY TELESCOPE COUNTING RATES AND PULSE HEIGHT ANALYZER DATA ON SIX 7-TRACK BINARY MAGNETIC TAPES WRITTEN ON AN XDS 930 AT 556 BPI. THE DATA ARE TIME ORDERED WITH A VARIABLE NUMBER OF FILES PER TAPE AND A VARIABLE NUMBER OF PHYSICAL RECORDS PER FILE. EACH DATA RECORD (PHYSICAL RECORD) CONTAINS 200 LOGICAL RECORDS WITH THREE WORDS (24 BITS/WORD) PER LOGICAL RECORD. THESE THREE WORDS CONTAIN THE THREE COUNT RATES CORRESPONDING TO NUCLEI IN THE Z RANGE' FROM 1 TO 28 IN THE ENERGY RANGE 2 TO 61 MEV/NUCLEON AND TWO PULSE HEIGHT ANALYZERS — ONE FROM THE 512-CHANNEL ANALYZER AND ONE FROM THE 1024-CHANNEL ANALYZER. IN ADDITION, THE FORMAT CONTAINS THE TIME AND THE TELEMETRY BIT RATE.

DATA SET NAME- COUNT RATE PLOTS ON MICROFILM

NSSDC ID- 68-014A-27B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/05/68 TO 07/13/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF COUNT RATE PLOTS, IN CHRONOLOGICAL ORDER, ON 35-MM MICROFILM. THE PLOTS ARE DIVIDED INTO THREE GROUPS BY PARTICLE TELESCOPE COINCIDENCE MODE -- (1) D1LNOTD3 (MOST ABUNDANT SPECIES ARE 0.6- TO 6.0-MEV PROTONS), (2) D1HD2NOTD3 (MOST ABUNDANT SPECIES ARE 6.0- TO 14-MEV/NUCLEON ALPHA PARTICLES), AND (3) D1HNOTD2NOTD3 (MOST ABUNDANT SPECIES ARE 2.0- TO 6.5-MEV/NUCLEON ALPHA PARTICLES). EACH PLOT COVERS ONE SOLAR ROTATION (27 DAYS). TWO AVERAGING PERIODS WERE USED IN GENERATING THE PLOTS, 1/2 AND 3 1/2 HRS. THE DISTINCTION IS OBVIOUS WHEN LOOKING AT THE PLOTS. THE MAXIMUM TELEMETRY BIT RATE (1, 8, OR 64 KILOBITS/SEC) DURING THE AVERAGING INTERVAL IS ALSO DISPLAYED. THE RATES APPEAR TO SATURATE FOR LARGER SOLAR EVENTS. THE TIME COVERAGE FOR THE PERIOD COVERED BY THE DATA SET IS 90 PERCENT OR BETTER.

SNYDER, OGO 5

EXPERIMENT NAME- PLASMA SPECTROMETER

NSSDC ID- 68-014A-17

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 10/08/71

PERSONNEL

PI -	C.W.	SNYDER	NASA-JPL PASADENA, CA
OI -	M.M.	NEUGEBAUER	NASA-JPL PASADENA, CA
OI -	J.L.	LAWRENCE, JR.	NASA-JPL PASADENA, CA

TWO PAIRS OF DETECTORS, ONE MOUNTED ON A SOLAR PANEL ALWAYS FACING THE SUN AND ONE MOUNTED ON THE SPACECRAFT BODY ALWAYS FACING RADIALLY AWAY FROM THE EARTH, WERE USED TO MEASURE THE AMBIENT PLASMA IN THE VICINITY OF THE SPACECRAFT. POSITIVE IONS AND ELECTRONS COULD BE MEASURED BY THE 120-DEG CURVED PLATE ANALYZERS, WITH A 5-DEG CONIC FIELD OF VIEW IN 128 E/Q CHANNELS LOGARITHMICALLY EQUISPACED FROM 2.54 TO 16,900 VOLTS. POSITIVE IONS WERE ALSO MEASURED BY FARADAY CUPS WITH A 20-DEG FIELD OF VIEW IN ONE E/Q CHANNEL FROM 100 VOLTS TO 11,000 VOLTS. EACH PAIR OF FARADAY CUP ELECTROSTATIC ANALYZER COMBINATIONS WAS CAPABLE OF MAKING TWO PLASMA FLUX AND ANGLE OF FLOW MEASUREMENTS, AND ONE PROTON DENSITY, ALPHA PARTICLE DENSITY, BULK SPEED, AND TEMPERATURE MEASUREMENT ABOUT EVERY 10 SEC AT 8 KBPS. DURING ALMOST ALL THE TIME THE SPACECRAFT WAS IN THE SOLAR WIND, ONLY THE SOLAR-PANEL-MOUNTED SENSOR PAIR WAS ABLE TO MAKE THE USUAL SOLAR WIND PLASMA PARAMETER MEASUREMENTS. THIS SENSOR PAIR WAS CAPABLE OF BEING OPERATED IN THREE DIFFERENT MEASUREMENT MODES FOR POSITIVE IONS AND FOR ELECTRONS. HOWEVER, THE ONE USED MOST OFTEN WAS FOR POSITIVE IONS AND WAS CAPABLE OF THE TIME RESOLUTION DESCRIBED ABOVE. ELECTRONS WERE MEASURED ONLY OCCASIONALLY. THE ELECTROSTATIC ANALYZERS SUFFERED DATA DEGRADATION FROM SENSITIVITY SCALE SWITCHING WHICH CAUSED THE LOSS OF FROM 1 TO 8 ENERGY CHANNELS AND FROM PHOTOELECTRONS LEAKING INTO THE DETECTOR THROUGH A SLIT IN THE ELECTRONICS-DETECTION ASSEMBLY, WHICH RESULTED IN DEGRADATION OF UP TO 20 CHANNELS, CENTERED ABOUT 348 VOLTS, CORRESPONDING TO SOLAR WIND VELOCITIES FROM 320 TO 400 KM/SEC. SCALE-SWITCHING TRANSIENTS AFFECTED THE ALPHA DATA MOST OFTEN. PHOTOELECTRON CONTAMINATION AFFECTED THE LOCATION OF THE PROTON PEAK FLUX MOST OFTEN. DUE TO THESE EFFECTS, ERRORS APPEARED IN THE CALCULATED PARAMETERS OF TEMPERATURE, BULK SPEED, AND DENSITY, BUT NOT ANGLE FLOW AND PLASMA FLUX. PLASMA PARAMETERS WERE CALCULATED BY DOING AN ITERATIVE CALCULATION INVOLVING CORRECTION OF THE FARADAY CUP DENSITY AND ANGLE BY THE PROTON BULK SPEED, AND CORRECTION OF THE CURVED-PLATE-DETERMINED BULK SPEED BY THE FARADAY-CUP-DETERMINED ANGLE OF FLOW. PLASMA PARAMETERS PRODUCED BY PRODUCTION PROCESSING FROM THIS INSTRUMENT WERE GENERATED BY DOING A CONVECTED ISOTROPIC BOLTZMANN FIT TO THE DATA POINTS USING HERMITE POLYNOMIALS. RESULTS AGREE FAVORABLY WITH LEAST-SQUARE-FITTED CALCULATIONS. IT SHOULD BE ADDED THAT THE SOURCES OF ERROR DISCUSSED HERE WERE OBSERVED IN SOLAR WIND MEASUREMENTS. THIS IS BECAUSE TO DATE (1/74), SOLAR WIND ION DATA HAS BEEN BULK-PRODUCTION PROCESSED. IT IS ANTICIPATED THAT THIS PROBLEM EXISTS IN OTHER DATA, BUT TREATMENT OF THE PROBLEM WOULD PROBABLY BE LESS STRAIGHTFORWARD.

DATA SET NAME- HOUR-AVERAGED PLASMA PARAMETERS

NSSDC ID- 68-014A-17B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/05/68 TO 04/30/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS 7-TRACK BCD MAGNETIC TAPE CONTAINS 80-CHARACTER CARD IMAGES, ONE CARD PER RECORD, OF EXPERIMENTER-GENERATED HOURLY AVERAGED INTERPLANETARY PLASMA PARAMETERS. THE DATA MAY BE SUPPLIED TO A REQUESTER EITHER ON ONE MAGNETIC TAPE (PREFERABLE TO NSSDC) OR ON ABOUT ONE-AND ONE-HALF BOXES OF PUNCHED CARDS. CONTAINED IN EACH RECORD IS THE TIME, NUMBER OF POINTS IN EACH AVERAGE, PROTON BULK SPEED, TEMPERATURE, DENSITY, AND DIRECTION OF PLASMA FLOW. ALSO INCLUDED ARE THE HOURLY AVERAGED RATIO OF THE ALPHA PARTICLE VELOCITY TO THE PROTON VELOCITY, THE ALPHA TEMPERATURE TO PROTON TEMPERATURE, AND THE ALPHA DENSITY TO PROTON DENSITY. A COMPUTER LISTING OF THE CONTENTS OF THIS TAPE IS AVAILABLE (68-014A-17F).

DATA SET NAME- LISTING OF HIGH TIME RESOLUTION INTERPLANETARY PLASMA PARAMETERS ON FILM

NSSDC ID- 68-014A-17C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 05/08/68 TO 04/30/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MICROFILM

THESE EXPERIMENTER-GENERATED 16-MM MICROFILM CONTAIN SOME OF THE PLASMA PARAMETERS FOR EACH SET OF MEASUREMENTS ON DATA SET 68-014A-17D. THEY REPRESENT THE HIGHEST TIME RESOLUTION DATA AVAILABLE FROM THE BULK PROCESSING PROGRAM USED TO REDUCE THE INTERPLANETARY DATA FROM THIS EXPERIMENT. CONTAINED IN EACH RECORD ARE TIME, DIRECTION OF PLASMA FLOW, BULK SPEED, TEMPERATURE, ION DENSITY (FOR PROTONS, AND ALPHAS WHEN AVAILABLE), AND SOME FIT PARAMETERS WHICH INDICATE RELIABILITY OF EACH MEASUREMENT. TIME GAPS EXIST IN THESE DATA WHENEVER THE FLOW DIRECTION OF THE AMBIENT PLASMA WAS DIVERTED OUT OF THE ENTRANCE APERTURE SO AS TO PRECLUDE DATA PROCESSING, SUCH AS IN THE EARTH'S MAGNETOSHEATH, AND WHEN ERRORS INTRODUCED BY THE ANOMALOUS PHOTO DIP IN THE PROTON SPECTRA PREVENTED ADEQUATE CORRECTION OF THE DATA TO OBTAIN RELIABLE PLASMA PARAMETERS.

ORIGINAL PAGE IS
OF POOR QUALITY

DATA SET NAME- HIGH TIME RESOLUTION PLASMA DATA AND PLASMA PARAMETERS ON MAGNETIC TAPE

NSSDC ID- 68-014A-17D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/05/68 TO 04/30/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 12 REEL(S) OF MAGNETIC TAPE

THESE EXPERIMENTER-GENERATED MAGNETIC TAPES CONTAIN HIGH RESOLUTION ION PLASMA SPECTRA AND PARAMETERS CALCULATED FROM THESE SPECTRA. THE EXPERIMENTER-SUPPLIED DATA WERE ON 7-TRACK, ODD PARITY, BINARY, 800-BPI MAGNETIC TAPES, GENERATED ON A UNIVAC 1108 COMPUTER. THERE IS ONE FILE PER TAPE. PHYSICAL RECORD SIZE IS 50 WORDS, WITH ONE LOGICAL RECORD OF UP TO 50 WORDS PER PHYSICAL RECORD. CONTAINED IN EACH RECORD ARE TIME, SOME HOUSEKEEPING PARAMETERS, DIRECTION OF PLASMA FLOW, PROTON OR ALPHA DENSITY, BULK SPEED, ION DENSITY, SOME GOODNESS-OF-FIT PARAMETERS, AND THE PLASMA SPECTRUM USED TO DETERMINE THE PREVIOUS PARAMETERS. TIME GAPS EXIST IN THESE DATA WHENEVER THE FLOW DIRECTION OF THE AMBIENT PLASMA WAS DIVERTED OUT OF THE ENTRANCE APERTURE SO AS TO PRECLUDE DATA PROCESSING, SUCH AS IN THE EARTH'S MAGNETOSHEATH, AND WHEN ERRORS INTRODUCED BY THE ANOMALOUS PHOTO DIP IN THE PROTON SPECTRA PREVENTED ADEQUATE CORRECTION OF THE DATA TO OBTAIN RELIABLE PLASMA PARAMETERS.

DATA SET NAME- HIGH TIME RESOLUTION PLOTS OF SOME PLASMA PARAMETERS ON FILM

NSSDC ID- 68-014A-17E

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/05/68 TO 04/30/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 5 REEL(S) OF MICROFILM

THESE EXPERIMENTER-GENERATED 35-MM MICROFILM CONTAIN PLOTS OF THE FOLLOWING HIGH-TIME RESOLUTION PLASMA PARAMETERS AS FUNCTIONS OF TIME, 3 HOURS PER FRAME -- PROTON BULK SPEED PROTON TEMPERATURE, ION DENSITY, PLASMA DIRECTION OF FLOW, ALPHA TO PROTON/DENSITY RATIO, AND ALPHA TO PROTON TEMPERATURE RATIO. THEY CONTAIN DATA ALSO AVAILABLE IN LISTINGS IN DATA SET 68-014A-17C AND ON MAGNETIC TAPE IN 68-014A-17D.

VAN DE HULST, OGO 5

EXPERIMENT NAME- MEASUREMENT OF THE ABSOLUTE FLUX AND ENERGY SPECTRUM OF ELECTRONS

NSSDC ID- 68-014A-12

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 08/22/71

PERSONNEL
PI - H.C. VAN DE HULST ..... NETHERLANDS INSTITUT LEIDEN, NETHERLANDS
OI - D. TANKA ..... NETHERLANDS INSTITUT LEIDEN, NETHERLANDS
OI - M.N. LIND ..... NETHERLANDS INSTITUT LEIDEN, NETHERLANDS

THIS EXPERIMENT MEASURED THE ABSOLUTE FLUX AND ENERGY SPECTRUM OF ENERGETIC GALACTIC COSMIC RAY ELECTRONS (0.5 TO 10 BEV) WHICH ARE BELIEVED TO BE THE SOURCE OF SYNCHROTON RADIATION WHICH CAUSES THE NONTHERMAL GALACTIC RADIO NOISE. PROTONS (20 TO 100 BEV) AND GAMMA RAYS ABOVE 500 MEV WERE ALSO MEASURED. THE INSTRUMENT CONSISTED OF THREE COLINEAR SCINTILLATORS SEPARATED BY LEAD AND ALUMINUM SLABS, RESPECTIVELY, AND PLACED ON TOP OF A HIGH DENSITY LEAD-GLASS CERENKOV COUNTER. A SURROUNDING PLASTIC SCINTILLATOR ANTICOINCIDENCE SENSOR WAS ALSO USED. THE EXPERIMENT FUNCTIONED NORMALLY THROUGHOUT THE MISSION. SEE ROGOWSKI ET AL., TRANS. NUC. SCI., VOL NS-16, P 352, 1969, FOR FURTHER DETAILS.

DATA SET NAME- DAILY AVERAGED COSMIC-RAY ELECTRON AND PROTON COUNT RATES

NSSDC ID- 68-014A-12A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/05/68 TO 08/31/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF TIME-ORDERED ELECTRON COUNT RATES AND PROTON COUNT RATES IN A 7-TRACK, 556 BPI, BCD MAGNETIC TAPE FORMAT GENERATED ON AN IBM 7094 COMPUTER AT NSSDC FROM DATA SUBMITTED BY THE EXPERIMENTER ON COMPUTER CARDS. THERE IS ONE FILE ON THE TAPE, AND EACH PHYSICAL RECORD IS THE IMAGE OF ONE CARD AND IS 84 CHARACTERS IN LENGTH. THE FIRST 91 PHYSICAL RECORDS OF THE TAPE CONTAIN A DESCRIPTION OF THE EXPERIMENT AND ALSO OF THE DATA SET. THE DATA FORMAT INCLUDES THE YEAR OF OBSERVATION, JULIAN DAY OF YEAR, MONTH AND DAY OF MONTH, AND DAILY COUNT RATES FOR EIGHT ELECTRON CHANNELS AND ONE PROTON CHANNEL. THE DATA ARE ALSO AVAILABLE IN TABULAR FORM ON MICROFILM IN DATA SET 68-014A-12B.

WEST, JR., OGO 5

EXPERIMENT NAME- ELECTRON AND PROTON SPECTROMETER

NSSDC ID- 68-014A-06

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 09/00/71

PERSONNEL
PI - H.I. WEST, JR. ..... LAWRENCE LIVERMORE L B LIVERMORE, CA
OI - R.G. D'ARCY, JR. ..... BARTOL RESEARCH FOUN SWATHMORE, PA
OI - L. MANN ..... LAWRENCE LIVERMORE L B LIVERMORE, CA

THIS EXPERIMENT WAS DESIGNED TO MEASURE THE SPECTRA, FLUXES, AND DIRECTIONAL PROPERTIES OF ELECTRONS, PROTONS, AND ALPHA PARTICLES. ELECTRONS WERE SENSED BY SOLID-STATE DETECTORS FOUND WITHIN EACH OF TWO PERMANENT MAGNET SPECTROMETERS. THESE SPECTROMETERS MEASURED ELECTRONS IN NARROW ENERGY WINDOWS CENTERED AT 79, 158, 266, 479, 822, 1530, AND 2820 KEV. PROTONS IN SIX CONTIGUOUS ENERGY INTERVALS (AT 0.23, 0.67, 1.35, 5.6, 14, AND 43 KEV). ALPHA PARTICLES IN THREE CONTIGUOUS INTERVALS (AT 5.9, 22.7, AND 56.4 KEV). AND ELECTRONS ABOVE 4 MEV WERE SEPARATELY MEASURED BY A FOUR-SENSOR SOLID-STATE TELESCOPE. THIS TELESCOPE WAS PHYSICALLY LOCATED INSIDE THE LARGER OF THE TWO ELECTRON SPECTROMETER MAGNETS AND IN LINE WITH THE SPECTROMETER ENTRANCE APERTURE. PROTONS BETWEEN 100 AND 150 KEV WERE ALSO MEASURED BY A SINGLE SOLID-STATE DETECTOR ADJACENT TO THE TELESCOPE. THE INSTRUMENTS WERE MOUNTED ON OPEP 2 AND HAD THEIR APERTURES LOOKING PERPENDICULAR TO THE RADIUS VECTOR FROM THE EARTH. OPEP 2 WAS ROTATED BACK AND FORTH ABOUT THIS RADIUS VECTOR THROUGH 230 DEG AT 3 DEG/SEC, THUS PERMITTING THE DETERMINATION OF PARTICLE DIRECTIONAL DISTRIBUTIONS. FOR A GIVEN SPECIES-ENERGY CHANNEL, DETECTOR ACCUMULATIONS WERE TELEMETERED ONCE EACH 4, 8, OR 16 MAIN FRAMES (ONE MAIN FRAME = 1.152, 0.144, OR 0.018 SEC FOR TELEMETRY RATES OF 1, 8, OR 64 KBS) DEPENDING ON THE CHANNEL. THE EXPERIMENT WORKED NORMALLY AS LONG AS DATA WERE TELEMETERED FROM OGO 5, THUS, NEARLY 100 PERCENT COVERAGE WAS OBTAINED BETWEEN MARCH 1968 AND AUGUST 1971. FOR FURTHER DETAILS, SEE WEST ET AL., JGR, VOL 78, P 1064, 1973.

DATA SET NAME- 20-MIN COUNT RATE PLOTS ON MICROFILM

NSSDC ID- 68-014A-06A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/04/68 TO 06/13/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 30 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF 30 REELS OF 35-MM MICROFILMED PLOTS SUBMITTED BY THE EXPERIMENTER. EACH FRAME CONTAINS COUNT RATES FOR 20 MIN TAKEN IN ONE SPECIES -- ENERGY CHANNEL AND THE BACKGROUND COUNT RATES FOR THAT CHANNEL VS TIME. THE DETECTOR LOOK DIRECTION RELATIVE TO THE LOCAL MAGNETIC FIELD HAS BEEN DETERMINED WITH THE AID OF THE UCLA FLUXGATE MAGNETOMETER DATA AND HAS ALSO BEEN PLOTTED VS TIME. LIMITED EPHEMERIS INFORMATION APPEARS ON SOME BUT NOT ALL FRAMES. DATA

FOR THE PERIOD MARCH 4, 1968 TO JUNE 13, 1968, ARE HELD AT NSSDC. DATA FOR OTHER TIME PERIODS WILL BE FOUND IN OTHER DATA SETS ASSOCIATED WITH THIS EXPERIMENT.

DATA SET NAME- 2-HR COUNT RATE PLOTS ON MICROFILM

NSSDC ID- 68-014A-06B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/12/68 TO 11/06/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 37 REEL(S) OF MICROFILM

THIS DATA SET, SUBMITTED BY THE EXPERIMENTER, CONSISTS OF MICROFILMED PLOTS OF 4.6-SEC AVERAGED COUNT RATES FOR ALL THE COUNTING MODES OF THIS EXPERIMENT. EACH FRAME CONTAINS APPROXIMATELY 2 HR OF DATA FOR ONE MODE (PRINCIPAL AND BACKGROUND DETECTOR COUNT RATES). VALUES OF RADIAL DISTANCE, MCILWAIN L, MAGNETIC LATITUDE, AND SOLAR ECLIPTIC AND SOLAR MAGNETIC LATITUDE AND LONGITUDE OF THE SPACECRAFT ARE LISTED AT 12-MIN INTERVALS ON EACH OF THE DATA FRAMES. NO EFFORT WAS MADE TO SELECT PARTICLES WITH SPECIFIC PITCH ANGLES, WHICH LEADS TO SOME SCATTER IN THE DATA. PLOTS OF DETECTOR APERTURE DIRECTION ANGLE VS TIME ARE PROVIDED IN EACH SET OF PLOTS COVERING A GIVEN 2-HR PERIOD. LISTINGS OF 10-MIN AVERAGED COUNT RATES FOR EACH OF THE COUNTING MODES ARE ALSO GIVEN FOR 2-HR BLOCKS. THESE COUNT RATES INVOLVE AVERAGES OVER ALL PITCH ANGLES ENCOUNTERED DURING THE 10-MIN AVERAGING INTERVAL. THE EXPERIMENTER HAS SUPPLIED DATA IN THIS FORMAT FOR ALL OF 1968 AFTER LAUNCH AND FOR REPRESENTATIVE PORTIONS OF 1969, 1970, AND 1971. EMPHASIS IS ON MAGNETOSPHERIC DATA, WITH EXTRA-MAGNETOSPHERIC DATA BEING GIVEN ONLY FOR INTERESTING PERIODS.

DATA SET NAME- PARTICLE COUNT RATE, EPHEMERIS, AND MAGNETIC FIELD DATA ON MAGNETIC TAPES

NSSDC ID- 68-014A-06C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 05/23/68 TO 05/01/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 35 REEL(S) OF MAGNETIC TAPE

THIS EXPERIMENTER-SUPPLIED DATA SET CONSISTS OF 7-TRACK, 800-BPI, CDC 6600 BINARY MAGNETIC TAPES. EACH TAPE CONTAINS UP TO 2,000 RECORDS OF 724 60-BIT WORDS EACH. SEVERAL OF THESE COMPUTER WORDS CONTAIN MORE THAN ONE LOGICAL WORD. THERE ARE ABOUT 4 DAYS OF DATA ON EACH TAPE. EACH RECORD CONTAINS DATA TAKEN FROM (1) THE ATTITUDE-ORBIT TAPES SUPPLIED BY GSFC TO THE EXPERIMENTER, (2) THE EXPERIMENTER'S PARTICLE DETECTOR DATA TAPES, AND (3) MAGNETOMETER DATA TAPES PROVIDED TO H. WEST BY P. COLEMAN AND C. RUSSELL AT UCLA. ATTITUDE-ORBIT DATA INCLUDE TIME, SPACECRAFT RADIAL DISTANCE, MCILWAIN L PARAMETER, B, MAGNETIC LATITUDE, POLAR AND AZIMUTHAL ANGLES IN GEOCENTRIC SOLAR ECLIPTIC AND MAGNETOSPHERIC COORDINATES, AND CARTESIAN GEOCENTRIC EQUATORIAL INERTIAL (GEI) COORDINATES. CARTESIAN GEI COORDINATES OF THE SUN AND CARTESIAN GEI COMPONENTS OF THE MODEL MAGNETIC VECTOR ARE ALSO GIVEN. THE PARTICLE DATA IN A GIVEN RECORD CONSIST OF INDIVIDUAL ACCUMULATOR READINGS OR THEIR AVERAGES, AS OBTAINED OVER 2.5 MIN (AT A TELEMETRY BIT RATE OF 1 KBS) OR 1.25 MIN (AT TELEMETRY BIT RATES OF 8 AND 64 KBS). THERE ARE 32 SUCCESSIVE VALUES FOR EACH OF THE MAIN ELECTRON AND PROTON MODES, OVER THE 2.5- OR 1.25-MIN INTERVAL WITH SMALLER NUMBERS FOR OTHER MODES. DEAD TIME CORRECTIONS HAVE NOT BEEN MADE, AND ARE SELDOM NEEDED. THE MAGNETOMETER DATA CONSIST OF CARTESIAN MAGNETIC FIELD COMPONENTS (IN GEOCENTRIC SOLAR MAGNETOSPHERIC COORDINATES) AT 128 EQUISPACED TIME POINTS WITHIN THE 2.5- OR 1.25-MIN INTERVAL COVERED BY THE RECORD. THESE VALUES ARE OBTAINED BY VECTOR INTERPOLATION OF 4.608-SEC-AVERAGED UCLA MAGNETOMETER DATA. BECAUSE OF UNCORRECTED TEMPERATURE-RELATED EFFECTS OF (TYPICALLY 5 GAMMAS), THESE VALUES SHOULD BE TREATED WITH GREAT CAUTION IN REGIONS OF LOW MAGNETIC FIELDS. INFORMATION ON INSTRUMENT LOOK DIRECTION AS A FUNCTION OF TIME WITHIN INDIVIDUAL RECORDS IS ALSO GIVEN. THE INITIAL DATA SUBMISSION CONSISTED OF 35 TAPES COVERING THE TIME PERIODS FROM MAY 23 TO JUNE 5, 1968, AUG. 4 TO OCT. 2, 1968, AND APRIL 10 TO MAY 1, 1969.

DATA SET NAME- CORRECTED ELECTRON FLUXES ON BCD TAPE

NSSDC ID- 68-014A-06D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/04/68 TO 01/01/69
(AS REPORTED BY THE EXPERIMENTER)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF 7-TRACK, 556-BPI, BCD MAGNETIC TAPE CONTAINING CARD IMAGES OF PUNCHED CARDS SUBMITTED BY THE EXPERIMENTER. THE DATA SET CONTAINS INNER-ZONE (L BETWEEN 1.3 AND 2.4) PERPENDICULAR FLUXES OF ELECTRONS OF 79, 158, 266, 479, AND 822 KEV, SORTED BY L VALUE AND TAKEN OVER THE INTERVAL FROM MARCH 1968 TO JANUARY 1969. EACH CARD IMAGE CONTAINS L VALUE, TIME, MAGNETIC LATITUDE, B/B-ZERO, AND DIRECTIONAL DIFFERENTIAL FLUXES AT THE ENERGIES INDICATED ABOVE.

SPACECRAFT COMMON NAME- OGO 6

ALTERNATE NAMES- PL-691D, OGO-F
S 60, POGO 3
03986

NSSDC ID- 69-051A

LAUNCH DATE- 06/05/69 WEIGHT- 632.0 KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 03/00/72

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 06/04/69
ORBIT PERIOD- 099.66 MIN INCLINATION- 81.9810 DEG
PERIAPSIS- 413. KM ALT APOAPSIS- 1077. KM ALT

OGO 6 WAS A LARGE OBSERVATORY INSTRUMENTED WITH 26 EXPERIMENTS DESIGNED TO STUDY THE VARIOUS INTERRELATIONSHIPS BETWEEN, AND LATITUDINAL DISTRIBUTIONS OF, HIGH-ALTITUDE ATMOSPHERIC PARAMETERS DURING A PERIOD OF INCREASED SOLAR ACTIVITY. THE MAIN BODY OF THE SPACECRAFT WAS ATTITUDE CONTROLLED BY MEANS OF HORIZON SCANNERS AND GAS JETS SO THAT ITS ORIENTATION WAS MAINTAINED CONSTANT WITH RESPECT TO THE EARTH AND THE SUN. THE SOLAR PANELS ROTATED ON A HORIZONTAL AXIS EXTENDING TRANSVERSELY THROUGH THE MAIN BODY OF THE SPACECRAFT. THE ROTATION OF THE PANELS WAS ACTIVATED BY SUN SENSORS SO THAT THE PANELS RECEIVED MAXIMUM SUNLIGHT. SEVEN EXPERIMENTS WERE MOUNTED ON THE SOLAR PANELS (THE SOPEP PACKAGE). AN ADDITIONAL AXIS, ORIENTED VERTICALLY ACROSS THE FRONT OF THE MAIN BODY, CARRIED SEVEN EXPERIMENTS (THE OPEP PACKAGE). NOMINALLY, THESE SENSORS OBSERVED IN A FORWARD DIRECTION IN THE ORBITAL PLANE OF THE SATELLITE. THE SENSORS COULD BE ROTATED MORE THAN 90 DEG RELATIVE TO THE NOMINAL OBSERVING POSITION AND MORE THAN 90 DEG BETWEEN THE UPPER AND LOWER OPEP GROUPS MOUNTED ON EITHER END OF THIS AXIS. ON JUNE 22, 1969, THE SPACECRAFT POTENTIAL DROPPED SIGNIFICANTLY DURING SUNLIGHT OPERATION AND REMAINED SO DURING SUBSEQUENT SUNLIGHT OPERATION. THIS UNEXPLAINED SHIFT AFFECTED SEVEN EXPERIMENTS WHICH MADE MEASUREMENTS DEPENDENT UPON KNOWLEDGE OF THE SPACECRAFT PLASMA SHEATH. DURING OCTOBER 1969, A STRING OF SOLAR CELLS FAILED, BUT THE ONLY EFFECT OF THE DECREASED POWER WAS TO CAUSE TWO EXPERIMENTS TO CHANGE THEIR MODE OF OPERATION. ALSO DURING OCTOBER 1969, A COMBINATION OF MANUAL AND AUTOMATIC ATTITUDE CONTROL WAS INITIATED, WHICH EXTENDED THE CONTROL GAS LIFETIME OF THE ATTITUDE CONTROL SYSTEM. IN AUGUST 1970, TAPE RECORDER (TR) NO. 1 OPERATION DEGRADED SO THAT ALL RECORDED DATA WERE SUBSEQUENTLY TAKEN WITH TR NO. 2. BY SEPTEMBER 1970, POWER AND EQUIPMENT DEGRADATION LEFT 14 EXPERIMENTS OPERATING NORMALLY, THREE PARTIALLY, AND NINE OFF. FROM OCTOBER 14, 1970, TR NO. 2 WAS USED ONLY ON WEDNESDAYS (WORLD DAYS) TO CONSERVE POWER AND EXTEND TR OPERATION. IN JUNE 1971 THE NUMBER OF 'ON' EXPERIMENTS DECREASED FROM 13 TO 7, AND ON JUNE 28, 1971, THE SPACECRAFT WAS PLACED IN A SPIN-STABILIZED MODE ABOUT THE YAW (Z) AXIS AND TURNED OFF DUE TO DIFFICULTIES WITH SPACECRAFT POWER. OGO 6 WAS TURNED ON AGAIN FROM OCTOBER 10, 1971, THROUGH MARCH 1972, FOR OPERATION OF EXPERIMENT 25 BY RADIO RESEARCH LABORATORY, JAPAN.

STONE, OGO 6

EXPERIMENT NAME- COSMIC-RAY STUDY

NSSDC ID- 69-051A-20

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 06/28/71

ORIGINAL PAGE IS
OF POOR QUALITY

PI - E.C. STONE ..... CALIF INST OF TECH
PASADENA, CA
OI - R.E. VOGT ..... CALIF INST OF TECH
PASADENA, CA

THIS EXPERIMENT WAS DESIGNED TO MEASURE THE ENERGY SPECTRA AND CHEMICAL COMPOSITION OF COSMIC-RAY PARTICLES OF BOTH SOLAR AND GALACTIC ORIGIN OVER SELECTED ENERGY INTERVALS USING THREE CHARGED PARTICLE TELESCOPES. FIRST A RANGE TELESCOPE WAS USED, COMPOSED OF SEVEN SOLID-STATE DETECTORS, D1 THROUGH D7, AND AN ANTICOINCIDENCE SHIELD DETECTOR, D8, WITH THRESHOLD ENERGIES FOR PROTONS AND ALPHA PARTICLES OF 1.0, 3.3, 18.5, 46.6, 156, 235, 315, AND 1 MEV/NUCLEON, RESPECTIVELY. THE OUTPUT OF EACH OF THE EIGHT DETECTORS WAS MONITORED SEPARATELY IN ADDITION TO THE COINCIDENCE MODES D1NOTD8, D12NOTD8, AND D2NOTD8 (THIS MODE COULD BE CHANGED BACK AND FORTH ON COMMAND TO D23NOTD8). THE TELESCOPE GEOMETRIC FACTOR VARIED AS A FUNCTION OF PARTICLE RANGE FROM 1.5 TO 0.19 CM SQ STER, SECOND, A CERENKOV TELESCOPE, COMPOSED OF TWO THIN SOLID-STATE DETECTORS, D1' AND D2', A CERENKOV DETECTOR, D3', AND AN ANTICOINCIDENCE CUP, D4', TRIGGERED ONLY ON PARTICLES WITH Z FROM 1 THROUGH 12 WITH ENERGIES NO LESS THAN 400 MEV/NUCLEON. HOWEVER, IN ADDITION TO THIS COINCIDENCE (D1'D2'D3'NOTD4'), THE INDIVIDUAL DETECTOR RATES D1', D2', D3', AND D4' WERE ALSO MONITORED FOR USE IN DELETING ACCIDENTAL COINCIDENCES FROM THE D1'D2'D3'NOTD4' MODE. THE TELESCOPE GEOMETRIC FACTOR WAS 2.8 CM SQ STER. THIRD, A FLARE TELESCOPE COMPOSED OF TWO SOLID-STATE DETECTORS, D5' AND D6', WITH RESPECTIVE THRESHOLD ENERGIES FOR PROTONS AND ALPHA PARTICLES OF 3.3 AND 8.5 MEV/NUCLEON WAS USED. THE OUTPUT FROM EACH DETECTOR WAS MONITORED AS WELL AS THE COINCIDENCE MODE D5' AND D6'. THE TELESCOPE GEOMETRIC FACTOR WAS 0.02 CM SQ STER. THREE 256-CHANNEL PULSE HEIGHT ANALYZERS WERE USED TO ANALYZE THE OUTPUT OF D1, D2, D3 OF THE RANGE TELESCOPE OR D1', D2', D3' OF THE CERENKOV TELESCOPE, OR D5', D6' (FOR D5' D6' EVENTS ONLY) OF THE FLARE TELESCOPE ONCE PER COUNTING RATE ACCUMULATION PERIOD. IN GENERAL, THE ACCUMULATION PERIOD RANGED FROM 0.02 TO 3.4 SEC DEPENDING ON THE SPACECRAFT TELEMETRY BIT RATE. THERE EXISTED A PRIORITY AS TO WHICH TELESCOPE OUTPUT WOULD BE ANALYZED FOR A GIVEN ACCUMULATION INTERVAL. ASIDE FROM THE D6 RANGE TELESCOPE DETECTOR BEING NOISY FOR THE FIRST TWO MONTHS AFTER LAUNCH, THE EXPERIMENT PERFORMED NORMALLY THROUGHOUT THE MISSION. THE DATA TIME COVERAGE WAS NEAR 100 PERCENT UNTIL AUGUST 1970. AFTER WHICH THE COVERAGE DROPPED DUE TO THE MALFUNCTION OF THE SPACECRAFT TAPE RECORDER. FOR FURTHER DETAILS, SEE ALTHOUSE ET AL, IEEE TRANS, NUCL. SCI., VOL 15, P 229, 1967.

DATA SET NAME- PARTICLE COUNT RATES AND PULSE HEIGHT ANALYSIS ON MAGNETIC TAPE

NSSDC ID- 69-051A-20A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/07/69 TO 05/25/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 349 REEL(S) OF MAGNETIC TAPE

THIS DATA SET, SUBMITTED BY THE EXPERIMENTER, CONSISTS OF PARTICLE COUNT RATES AND PULSE HEIGHT ANALYZER DATA ON 9-TRACK, BINARY MAGNETIC TAPES WRITTEN AT 800 BPI ON AN IBM 360 COMPUTER. THERE IS ONE FILE PER TAPE AND A VARIABLE NUMBER OF PHYSICAL RECORDS (MAXIMUM LENGTH -- 3678 BYTES), EACH CONSISTING OF A VARIABLE NUMBER OF LOGICAL RECORDS OF FOUR TYPES. ALL COINCIDENCE MODE COUNT RATES AND PULSE HEIGHT DATA ARE FOUND ON THESE TAPES. EPHEMERIS DATA ARE ALSO GIVEN ONCE PER MINUTE. EACH TAPE CONTAINS NO MORE THAN ONE DAY OF DATA. IN SOME CASES MORE THAN ONE TAPE WAS NEEDED TO COVER A 24-HR PERIOD. DATA QUALITY FLAGS ARE USED IN THE FORMAT TO POINT OUT PARITY ERRORS AND ACCUMULATOR OVERFLOWS.

DATA SET NAME- PARTICLE COUNT RATES AND EPHEMERIS PLOTS ON MICROFILM

NSSDC ID- 69-051A-20B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 06/07/69 TO 01/27/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 37 REEL(S) OF MICROFILM

THIS DATA SET WAS SUBMITTED BY THE EXPERIMENTER ON 35 MM MICROFILM AND EACH PAIR OF PLOTS CONSISTS OF PARTICLE COINCIDENCE COUNT RATES (FROM THE RANGE, FLARE, AND CERENKOV TELESCOPES), SATELLITE ALTITUDE, AND B,L COORDINATES GRAPHED AS A FUNCTION OF FOUR PARAMETERS -- TIME (UT), MAGNETIC LOCAL TIME, INVARIANT LATITUDE AND ORBITAL DATA RECORD NUMBER ON CIT ABSTRACT TAPE (DREC). THE COINCIDENCE COUNT RATES PLOTTED INCLUDE (WITH PROTON ENERGY THRESHOLD) -- (1) RANGE TELESCOPE - D1NOTD8 (1 MEV), D12NOTD8 AND D2NOTD8 (3.3 MEV), D23NOTD8 AND D3 (18.5 MEV), D4 (46.6 MEV), D5 (156 MEV), D6 (235 MEV), D7 (315 MEV), AD8 (ANALOG RATEMETER), (2) FLARE TELESCOPE - D5' (3.3 MEV), D6' (18.5 MEV), D5'6' (FLR, 18.5 MEV), AND AD4' (ANALOG RATEMETER), (3) CERENKOV TELESCOPE - D1' (ABOUT 1 MEV), D2' (ABOUT 3 MEV), D3' (400 MEV), AND D1'2'3'NOTD4' (CER, 400 MEV). A LIMITED NUMBER OF PULSE HEIGHT ANALYZER PLOTS CORRESPONDING TO EARLY PORTIONS OF THE MISSION ARE ALSO INCLUDED. THE DAY NUMBER, MONTH, DAY, YEAR, AND SATELLITE ORBIT NUMBER (REV) APPEAR AT THE BOTTOM OF EACH PLOT. THE TIME COVERAGE IS 90 PERCENT OR MORE THROUGH JANUARY 1970.

SPACECRAFT COMMON NAME- OSO 4

ALTERNATE NAMES- OSO-D, 03000

NSSDC ID- 67-100A

LAUNCH DATE- 10/18/67 WEIGHT- 605. KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 03/07/70

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 10/19/67
ORBIT PERIOD- 95.85 MIN INCLINATION- 32.992 DEG
PERIAPSIS- 546.000 KM ALT APOAPSIS- 560.000 KM ALT

THE OBJECTIVES OF THE OSO SATELLITE SERIES ARE TO PERFORM SOLAR PHYSICS EXPERIMENTS ABOVE THE ATMOSPHERE DURING A COMPLETE SOLAR CYCLE AND TO MAP THE ENTIRE CELESTIAL SPHERE FOR DIRECTION AND INTENSITY OF UV LIGHT, X-RAY, AND GAMMA RADIATION. THE OSO 4 PLATFORM CONSISTS OF A SAIL SECTION, WHICH POINTS TWO EXPERIMENTS CONTINUOUSLY TOWARD THE SUN, AND A WHEEL SECTION, WHICH SPINS ABOUT AN AXIS PERPENDICULAR TO THE POINTING DIRECTION OF THE SAIL AND CARRIES SEVEN EXPERIMENTS. ATTITUDE ADJUSTMENT IS PERFORMED BY GAS JETS AND A MAGNETIC TORQUING COIL. A POINTING CONTROL SYSTEM PERMITS THE POINTED EXPERIMENTS TO SCAN THE REGION OF THE SUN IN A 40- BY 40-ARC-MIN RASTER PATTERN. DATA ARE SIMULTANEOUSLY RECORDED ON TAPE AND TRANSMITTED BY PCM/PM TELEMETRY. A COMMAND SYSTEM PROVIDES FOR 140 GROUND-BASED COMMANDS. THE SPACECRAFT PERFORMED NORMALLY UNTIL THE SECOND TAPE RECORDER FAILED IN MAY 1968. THE SPACECRAFT WAS PUT IN STANDBY CONDITION IN NOVEMBER 1969, AND WILL BE TURNED ON NOW ONLY FOR RECORDING SPECIAL EVENTS IN REAL TIME. SUCH AN EVENT OCCURRED ON MARCH 7, 1970, WHEN OSO 4 RECORDED DATA DURING THE SOLAR ECLIPSE.

WAGGONER, OSO 4

EXPERIMENT NAME- PROTON ELECTRON DETECTOR

NSSDC ID- 67-100A-04

STATUS OF OPERATION- OPERATIONAL OFF
DATE LAST USABLE DATA RECORDED- 12/00/68

PERSONNEL
PI - J.A. WAGGONER ..... LAWRENCE LIVERMORE L
B LIVERMORE, CA

THIS EXPERIMENT WAS DESIGNED TO INVESTIGATE THE ENERGY SPECTRA AND ANGULAR DISTRIBUTIONS OF PROTONS AND ELECTRONS IN THE EARTH'S MAGNETOSPHERE. THE INSTRUMENT CONSISTED OF A SINGLE SCINTILLATOR-PHOTOMULTIPLIER ASSEMBLY HAVING A LOOK DIRECTION NORMAL TO THE SATELLITE SPIN AXIS. PARTICLE IDENTIFICATION WAS ACCOMPLISHED BY PULSE SHAPE DISCRIMINATION. SPIN-INTEGRATED DIFFERENTIAL PROTON SPECTRA IN EIGHT INTERVALS BETWEEN 1.73 AND 36.7 MEV AND DIFFERENTIAL ELECTRON SPECTRA IN EIGHT INTERVALS BETWEEN 80 KEV AND 5 MEV WERE OBTAINED BY PULSE HEIGHT DISCRIMINATION. ENERGY-INTEGRATED ANGULAR DISTRIBUTIONS WERE OBTAINED IN 16 INTERVALS OF 22.5 DEG EACH. EIGHT DATA REGISTERS AND SUBCOMMUTATION TECHNIQUES WERE USED IN THE TRANSMISSION OF ONE FULL SET OF DATA EVERY 15.36 SEC. THE INSTRUMENT PROVIDED GOOD DATA FROM LAUNCH TO DECEMBER 1968. HOWEVER, ONLY REAL-TIME DATA WERE OBTAINED AFTER MAY 12, 1968, WHEN THE ONBOARD TAPE RECORDER FAILED.

DATA SET NAME- COUNT RATE DATA ON MAGNETIC TAPE

NSSDC ID- 67-100A-04A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 10/23/67 TO 12/30/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 11 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF 11 EXPERIMENTER-GENERATED 7-TRACK 556-BPI BINARY MULTI-FILE TAPES GENERATED ON A CDC 3600 COMPUTER. DATA FROM ONE ORBIT FILLS ONE TAPE FILE WHICH ITSELF HAS A MAXIMUM OF 18 PHYSICAL RECORDS. FULL TEMPORAL, SPECTRAL, AND ANGULAR RESOLUTION OF THE MEASURED FLUXES WAS PRESERVED IN THE GENERATION OF THESE TAPES. EPHEMERIS INFORMATION IS ALSO INCLUDED. THE TIME PERIOD OCTOBER 23, 1967 TO DECEMBER 30, 1967 IS COVERED BY THESE TAPES WITH ESSENTIALLY 100 PERCENT COMPLETENESS. VERY LITTLE DATA WERE REDUCED BY THE EXPERIMENTER FOR 1968.

SPACECRAFT COMMON NAME- OV1-13

ALTERNATE NAMES- PL-682D, 03173

NSSDC ID- 68-026A

LAUNCH DATE- 04/06/68 WEIGHT- 107. KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 11/03/69

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 04/06/68
ORBIT PERIOD- 199.7 MIN INCLINATION- 100.05 DEG
PERIAPSIS- 558.000 KM ALT APOAPSIS- 9316.00 KM ALT

THIS SPACECRAFT WAS PLACED INTO A POLAR ORBIT TO STUDY ENERGETIC PARTICLE PHENOMENA ALONG ITS ORBIT. THE SPACECRAFT WAS SPIN-STABILIZED, WITH A SPIN PERIOD OF ABOUT 7.5 SEC AND A SPIN AXIS DIRECTION NORMAL TO THE SPACECRAFT ORBITAL PLANE. THE SPACECRAFT PROVIDED USEFUL DATA FROM ITS LAUNCH UNTIL NOVEMBER 3, 1969.

KATZ, OV1-13

EXPERIMENT NAME- ELECTRON SPECTROMETER

NSSDC ID- 68-026A-02

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 08/15/68

PERSONNEL
PI - L. KATZ ..... USAF CAMBRIDGE RES L
B BEDFORD, MA
OI - P.L. ROTHWELL ..... USAF CAMBRIDGE RES L
B BEDFORD, MA
OI - J.G. KELLEY ..... USAF CAMBRIDGE RES L
B BEDFORD, MA

THIS EXPERIMENT WAS DESIGNED TO MEASURE ELECTRONS IN EIGHT ENERGY WINDOWS BETWEEN 0.1 AND 1.0 MEV. A MAGNETIC ANALYZER FOCUSED PARTICLES ONTO EIGHT SEPARATE SOLID-STATE DETECTORS ACCORDING TO PARTICLE ENERGY. UPPER LEVEL DISCRIMINATION WAS USED TO REJECT MOST COUNTS DUE TO PENETRATING PROTONS. THE INSTRUMENT LOOK DIRECTION WAS NORMAL TO THE SPACECRAFT SPIN AXIS WHICH WAS ITSELF NORMAL TO THE SPACECRAFT POLAR ORBITAL PLANE. COUNTING IN A GIVEN SOLID-STATE DETECTOR WAS MEASURED 24 TIMES IN 1 SEC. AFTER WHICH THE NEXT DETECTOR WAS SAMPLED. THUS THE FULL EXPERIMENT CYCLE REQUIRED 8 SEC, APPROXIMATELY THE SAME AS THE SPACECRAFT SPIN PERIOD. THE INSTRUMENT PROVIDED USEFUL ELECTRON DATA IN FIVE ENERGY WINDOWS (AT 160, 210, 503, 685, AND 930 KEV) FOR THE PERIOD APRIL 6, 1968 TO AUGUST 15, 1968.

DATA SET NAME- HIGH-TIME RESOLUTION ELECTRON COUNT RATES ON MAGNETIC TAPE

NSSDC ID- 68-026A-02A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 05/13/68 TO 07/10/68
(AS REPORTED BY THE EXPERIMENTER)

QUANTITY OF DATA- 12 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF EXPERIMENTER-SUPPLIED MAGNETIC TAPES OF 7-TRACK, 556-BPI, CDC 6600 BINARY FORMAT. THE PACKED DATA FOUND ON THE TAPES CONTAIN TIME, EPHEMERIS INFORMATION, AND ALL THE COUNT RATES FOR THE LOWER ENERGY (0.1 TO 1 MEV) ELECTRON INSTRUMENT AND THE HIGHER ENERGY (1 TO 10 MEV) ELECTRON INSTRUMENT. THE HIGHER ENERGY DATA, SEPARATELY IDENTIFIED AS DATA SET 68-026A-04A, IS NOT READILY USABLE. EACH TAPE CONTAINS DATA TAKEN DURING ONE SPACECRAFT ORBIT. THERE IS QUIET TIME DATA FOR FIVE ORBITS IN MAY AND FOR SIX ORBITS IN JULY 1968.

SPACECRAFT COMMON NAME- OV3-3

ALTERNATE NAMES- 02389

NSSDC ID- 66-070A

LAUNCH DATE- 08/04/66 WEIGHT- 75. KG

STATUS OF OPERATION- OPERATIONAL OFF
DATE LAST DATA RECORDED- 00/00/69

ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC EPOCH DATE- 08/04/66
ORBIT PERIOD- 137.0 MIN INCLINATION- 81.44 DEG
PERIAPSIS- 360.000 KM ALT APOAPSIS- 4492.00 KM ALT

THIS AIR FORCE SPACECRAFT WAS PLACED INTO A POLAR ORBIT TO MEASURE TRAPPED AND PRECIPITATING PARTICLES AND CORRELATED ELECTROMAGNETIC WAVE FIELDS. THE SPACECRAFT SYSTEMS PERFORMED WELL FOR 14 MONTHS, FROM LAUNCH ON AUGUST 4, 1966 UNTIL SEPTEMBER 27, 1967 WHEN THE ONBOARD TAPE RECORDER FAILED. AFTER THIS TIME, LOW-LATITUDE, REAL-TIME TRACKING CONTINUED INTO 1969 WHEN THE SPACECRAFT WAS DEACTIVATED.

VAMPOLA, OV3-3

EXPERIMENT NAME- MAGNETIC ELECTRON SPECTROMETER

NSSDC ID- 66-070A-05

STATUS OF OPERATION- NORMAL

PERSONNEL
PI - A.L. VAMPOLA ..... AEROSPACE CORP
EL SEGUNDO, CA
OI - P.A.M.GRAM ..... LOS ALAMOS SCI LAB
LOS ALAMOS, NM

IN THIS EXPERIMENT, A MAGNETIC SPECTROMETER WAS USED TO SEPARATE ELECTRONS (INCIDENT FROM DIRECTIONS NORMAL TO THE SPACECRAFT SPIN AXIS) INTO NINE ENERGY INTERVALS BETWEEN 0.3 MEV AND 2.3| MEV. NINE LITHIUM-DRIFTED, SOLID STATE DIODES WERE USED TO MEASURE THE ELECTRONS IN THE INDIVIDUAL ENERGY WINDOWS. NINE ASSOCIATED COUNT RATE METERS WERE SAMPLED ONCE PER SECOND. BACKGROUND PROTON COUNT RATES WERE ALSO OBTAINED ONCE PER SECOND. (THE SPACECRAFT SPIN PERIOD WAS INITIALLY 8.8 SEC.) DATA FOR ENTIRE ORBITS WERE STORED IN AN ONBOARD TAPE RECORDER FOR TELEMETRY. THE EXPERIMENT WORKED WELL FROM LAUNCH TO SEPTEMBER 27, 1967, WHEN THE TAPE RECORDER FAILED. A LIMITED AMOUNT OF LOW-LATITUDE REAL-TIME DATA WAS ACQUIRED AFTER THIS DATE. FOR FURTHER DETAILS, SEE VAMPOLA, JGR, VOL 74, P 1254, 1969.

DATA SET NAME- MULTIPITCH ANGLE ELECTRON FLUX ON MAGNETIC TAPE

NSSDC ID- 66-070A-05A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 08/04/66 TO 09/06/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 17 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF SEVENTEEN 800-BPI, 7-TRACK, CDC-6600 BINARY MAGNETIC TAPES PROVIDED BY THE EXPERIMENTER. EACH TAPE CONTAINS 10 TO 15 DATA FILES, WITH EACH FILE CONTAINING DATA TAKEN DURING ONE ORBIT. EACH PHYSICAL RECORD CONTAINS 26 LOGICAL RECORDS, AND EACH LOGICAL RECORD CONTAINS, IN 19 WORDS, DATA FOR 1 SEC. THE DATA INCLUDE TIME, FLUX LEVELS (NO./CM SQ-SEC-STER-KEV) FOR EACH OF NINE ELECTRON CHANNELS, BACKGROUND PROTON COUNT RATE, MEAN PITCH ANGLE, OBSERVED AND MODEL (JENSEN-CAIN, 99 TERMS) MAGNETIC FIELD MAGNITUDES, MCILWAIN L PARAMETER, ALTITUDE, LATITUDE, LONGITUDE, AND RIGHT ASCENSION. THE ELECTRON DATA HAVE NOT BEEN CORRECTED FOR BACKGROUND. THIS CORRECTION IS NEGLIGIBLE FOR L ABOVE 2 AND IS MAXIMUM (30 PERCENT) AT L = 1.5, E = 2.3|

ORIGINAL PAGE IS
OF POOR QUALITY

NEV. DATA FOR 183 ORBITS BETWEEN LAUNCH AND SEPTEMBER 6, 1967 (ORBIT 4194) ARE PRESENTED. FOR THE LATTER HALF OF THIS PERIOD, HOWEVER, VERY LITTLE MAGNETIC ASPECT DATA ARE AVAILABLE.

DATA SET NAME- PERPENDICULAR ELECTRON FLUX ON MAGNETIC TAPE

NSSDC ID- 66-070A-05B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 08/04/66 TO 09/06/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 8 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF EIGHT 800-BPI, 7-TRACK, CDC-6600 BINARY MAGNETIC TAPES PROVIDED BY THE EXPERIMENTER. DATA ON APPROXIMATELY LOCALLY MIRRORING ELECTRONS HAVE BEEN EXTRACTED FROM DATA SET 66-070A-05A FOR PRESENTATION IN THIS DATA SET. EACH TAPE CONTAINS BETWEEN 14 AND 32 DATA FILES, WITH EACH FILE CONTAINING DATA TAKEN DURING ONE ORBIT. EACH PHYSICAL RECORD CONTAINS SIX LOGICAL RECORDS OF 76 WORDS EACH. EACH LOGICAL RECORD CONTAINS TIME, RAW MAGNETIC SPECTROMETER AND MAGNETOMETER DATA, AND THE FOLLOWING REDUCED OR ANALYZED DATA -- ELECTRON COUNT RATES AND FLUXES FOR EACH OF THE NINE ELECTRON CHANNELS, PROTON BACKGROUND COUNT RATE, OBSERVED MAGNETIC FIELD TOTAL MAGNITUDE AND COMPONENTS ALONG WITH MODEL (JENSEN-CAIN, 99 TERMS) FIELD MAGNITUDE AND MCILWAIN L PARAMETER, A MEASURE OF THE AGREEMENT BETWEEN MODEL AND DATA FIELDS, LOCAL PITCH ANGLE (BETWEEN 84 AND 100 DEG), EQUATORIAL PITCH ANGLE FOR LOCALLY MIRRORING PARTICLES, SPACECRAFT ALTITUDE, LATITUDE, AND LONGITUDE, AND THE MAGNETIC COORDINATES OF THE SPACECRAFT. DATA FOR 183 ORBITS BETWEEN LAUNCH AND SEPTEMBER 6, 1967 (ORBIT 4194) ARE PRESENTED.

DATA SET NAME- PERPENDICULAR ELECTRON FLUX AT L LESS THAN 10, ON MAGNETIC TAPE

NSSDC ID- 66-070A-05C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 08/04/66 TO 09/06/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF ONE 800-BPI, 7-TRACK, CDC-6600 BINARY MAGNETIC TAPE PROVIDED BY THE EXPERIMENTER. DATA ON THE FLUXES OF ELECTRONS MIRRORING AT L VALUES LESS THAN OR EQUAL TO 10 HAVE BEEN EXTRACTED FROM DATA SET 66-070A-05B FOR PRESENTATION IN THIS DATA SET. THE TAPE CONTAINS 183 DATA FILES, WITH EACH FILE CONTAINING DATA TAKEN DURING ONE ORBIT. EACH PHYSICAL RECORD HAS 33 LOGICAL RECORDS OF 15 WORDS EACH. THESE WORDS INCLUDE TIME, ELECTRON FLUXES FOR EACH OF THE NINE CHANNELS, PROTON BACKGROUND COUNT RATE, MODEL B AND L, AND SPACECRAFT LONGITUDE. THE 183 ORBITS REPRESENTED ON THE TAPE OCCURRED BETWEEN LAUNCH AND SEPTEMBER 6, 1967 (ORBIT 4194).

DATA SET NAME- PERPENDICULAR EQUATORIAL ELECTRON FLUX ON MAGNETIC TAPE

NSSDC ID- 66-070A-05D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 08/04/66 TO 09/06/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF ONE 800-BPI, 7-TRACK, CDC-6600 BINARY MAGNETIC TAPE PROVIDED BY THE EXPERIMENTER. THE TAPE IS SIMILAR TO THAT OF DATA SET 66-070A-05C IN BOTH FORM AND CONTENT. HOWEVER, IN PLACE OF THE PROTON COUNT RATE, A FLAG IS USED TO INDICATE WHETHER THE ELECTRON FLUXES HAVE BEEN BACKGROUND CORRECTED AND REDUCED TO EQUIVALENT EQUATORIAL VALUES. IT IS PRESENTLY UNKNOWN WHAT FRACTION OF THE DATA HAS BEEN ALTERED IN THIS WAY.

SPACECRAFT COMMON NAME- PIONEER 6

ALTERNATE NAMES- PIONEER-A, 01841

NSSDC ID- 65-105A

LAUNCH DATE- 12/16/65 WEIGHT- 146. KG

STATUS OF OPERATION- PARTIAL

ORBIT PARAMETERS

ORBIT TYPE- HELIOCENTRIC	EPOCH DATE- 12/16/65
ORBIT PERIOD- 311.3 DAYS	INCLINATION- .1639 DEG
PERIAPSIS- .8143 AU RAD	APOAPSIS- .936 AU RAD

PIONEER 6 WAS THE FIRST IN A SERIES OF SOLAR-ORBITING, SPIN-STABILIZED, AND SOLAR-CELL AND BATTERY-POWERED SATELLITES DESIGNED TO OBTAIN MEASUREMENTS ON A CONTINUING BASIS OF INTERPLANETARY PHENOMENA FROM WIDELY SEPARATED POINTS IN SPACE. ITS EXPERIMENTS STUDIED THE POSITIVE IONS AND ELECTRONS IN THE SOLAR WIND, THE INTERPLANETARY ELECTRON DENSITY (RADIO PROPAGATION EXPERIMENT), SOLAR AND GALACTIC COSMIC RAYS, AND THE INTERPLANETARY MAGNETIC FIELD. ITS MAIN ANTENNA WAS A HIGH-GAIN DIRECTIONAL ANTENNA. THE SPACECRAFT WAS SPIN-STABILIZED AT ABOUT 60 RPM, AND THE SPIN AXIS WAS PERPENDICULAR TO THE ECLIPTIC PLANE AND POINTED TOWARD THE SOUTH ECLIPTIC POLE. BY GROUND COMMAND, ONE OF FIVE BIT RATES, ONE OF FOUR DATA FORMATS, AND ONE OF FOUR OPERATING MODES COULD BE SELECTED. THE FIVE BIT RATES WERE 512, 256, 64, 16, AND 8 BPS. THREE OF THE FOUR DATA FORMATS CONTAINED PRIMARILY SCIENTIFIC DATA AND CONSISTED OF THIRTY-TWO 7-BIT WORDS PER FRAME. ONE SCIENTIFIC DATA FORMAT WAS FOR USE AT THE TWO HIGHEST BIT RATES. ANOTHER WAS FOR USE AT THE THREE LOWEST BIT RATES. THE THIRD CONTAINED DATA FROM ONLY THE RADIO PROPAGATION EXPERIMENT. THE FOURTH DATA FORMAT CONTAINED MAINLY ENGINEERING DATA. THE FOUR OPERATING MODES WERE REAL TIME, TELEMETRY STORE, DUTY CYCLE STORE, AND MEMORY READOUT. IN THE REAL-TIME MODE, DATA WERE SAMPLED AND TRANSMITTED DIRECTLY (WITHOUT STORAGE) AS SPECIFIED BY THE DATA FORMAT AND BIT RATE SELECTED. IN THE TELEMETRY STORE MODE, DATA WERE STORED AND TRANSMITTED SIMULTANEOUSLY IN THE FORMAT AND AT THE BIT RATE SELECTED. IN THE DUTY CYCLE STORE MODE, A SINGLE FRAME OF SCIENTIFIC DATA WAS COLLECTED AND STORED AT A RATE OF 512 BPS. THE TIME INTERVAL BETWEEN THE COLLECTION AND STORAGE OF SUCCESSIVE FRAMES COULD BE VARIED BY GROUND COMMAND BETWEEN 2 AND 17 MIN TO PROVIDE PARTIAL DATA COVERAGE FOR PERIODS UP TO 19 HR, AS LIMITED BY THE BIT STORAGE CAPACITY. IN THE MEMORY READOUT MODE, DATA WERE READ OUT AT WHATEVER BIT RATE WAS APPROPRIATE TO THE SATELLITE DISTANCE FROM THE EARTH. THE BIT RATE WAS 512 BPS FROM DECEMBER 16, 1965, TO FEBRUARY 28, 1966, 256 BPS FROM MARCH 1, 1966, TO MARCH 17, 1966, 64 BPS FROM MARCH 18, 1966, TO APRIL 13, 1966, AND 16 OR 8 BPS FOR ALL SUBSEQUENT PERIODS. THE REAL-TIME TRANSMISSION MODE WAS USED PREDOMINANTLY THROUGHOUT THE FLIGHT WHEN TRACKING STATIONS WERE AVAILABLE. BETWEEN TRACKING PERIODS, THE DUTY CYCLE STORE MODE WAS GENERALLY USED. DATA COVERAGE AMOUNTED TO ALMOST 100 PERCENT FOR THE FIRST 23 WEEKS AFTER LAUNCH. THEN THE COVERAGE DROPPED TO BETWEEN 10 AND 20 PERCENT UNTIL NOVEMBER, 1969 AT WHICH TIME THE DATA COVERAGE ROSE TO BETWEEN 20 AND 60 PERCENT. THERE HAS BEEN ALMOST NO TRACKING SINCE JULY, 1972. A LEAK IN THE ATTITUDE GAS SYSTEM PREVENTED FURTHER ATTITUDE CORRECTIONS FOLLOWING AN ADJUSTMENT MADE ON JUNE 9, 1966. HOWEVER, THE SENSORS THAT DETERMINED THE SPIN AXIS DIRECTION CONTINUED TO WORK AND INDICATED THAT THE SPIN AXIS DIRECTION REMAINED CLOSE TO NOMINAL DURING THE MAJOR PERIODS OF DATA ACQUISITION.

DATA SET NAME- COMPRESSED EPHEMERIS DATA ON MAGNETIC TAPE

NSSDC ID- 65-105A-00F

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/16/65 TO 05/16/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET WHICH CONTAINS COMPLETE TRAJECTORY INFORMATION WAS GENERATED AT NSSDC BY TAKING THE MOST ACCURATE INFORMATION FROM EACH EPHEMERIS TAPE PROVIDED BY JPL (DATA SET 65-105A-00E) AND ELIMINATING OVERLAP. THE DATA SET CONSISTS OF ONE 7-TRACK, IBM 7094, 800-BPI, BINARY MAGNETIC TAPE. EACH LOGICAL RECORD CONTAINS 89 WORDS, AND EACH PHYSICAL RECORD CONTAINS 20 LOGICAL RECORDS. THE FOLLOWING INFORMATION IS AVAILABLE IN INTERVALS OF ONE DAY (EXCEPT FOR PERIODS WHEN THE SPACECRAFT IS CLOSE TO THE EARTH, WHEN THE INTERVAL MAY BE SHORTER) -- (1) DATE, (2) TIME, (3) DISTANCE FROM THE EARTH TO THE PROBE, (4) DISTANCE FROM THE EARTH TO THE SUN, (5) DISTANCE FROM THE EARTH TO THE MOON, (6) DISTANCE FROM THE SUN TO THE PROBE, (7) GEOCENTRIC RIGHT ASCENSION AND DECLINATION OF PROBE, SUN, AND MOON, (8) GEOCENTRIC LATITUDE, LONGITUDE, AND ALTITUDE ABOVE THE EARTH, (9) EARTH-SUN-PROBE ANGLE, (10) EARTH-PROBE-SUN ANGLE, (11) SUN-PROBE-NEAR LIMB OF EARTH ANGLE (SUN-PROBE-EARTH ANGLE MINUS THE ANGULAR SEMI-DIAMETER OF

EARTH WHERE THE ANGULAR SEMI-DIAMETER WOULD BE THE PROBE-CENTERED ANGLE BETWEEN EARTH LIMB AND CENTER OF EARTH), (12) MOON-EARTH-PROBE ANGLE, (13) MOON-PROBE-SUN ANGLE, (14) EARTH-PROBE-MOON ANGLE, (15) CANOPUS-PROBE-EARTH ANGLE, (16) CANOPUS-PROBE-SUN ANGLE, (17) ANGLE MADE BY THE SUN TO PROBE VECTOR AND THE ECLIPTIC PLANE OF DATE, (18) X, Y, Z COMPONENTS OF SPACECRAFT IN THE SUN-EARTH LINE COORDINATE SYSTEM (SUN-CENTERED SYSTEM, X AXIS IS ALONG THE SUN-TO-EARTH VECTOR, Z AXIS IS TOWARD ECLIPTIC NORTH POLE), (19) LONGITUDE OF SPACECRAFT IN THE SUN-EARTH LINE COORDINATE SYSTEM, (20) X, Y, Z 'COMPONENTS OF SPACECRAFT IN GEOCENTRIC, SELENOCENTRIC, HELIOCENTRIC VENUS-CENTERED, MARS-CENTERED, SATURN-CENTERED, AND JUPITER-CENTERED INERTIAL COORDINATE (X POINTS TO VERNAL EQUINOX, Z POINTS ALONG THE NORTH POLE VECTOR WITH THE REFERENCE PLANE BEING THE EARTH'S TRUE EQUATOR OF DATE), (21) MAGNITUDE OF THE VELOCITY VECTOR AND X, Y, Z COMPONENTS OF THE VELOCITY VECTOR IN GEOCENTRIC INERTIAL COORDINATES, (22) GEOCENTRIC INERTIAL PATH ANGLE (ANGLE MADE BY PROBE VELOCITY VECTOR AND PLANE NORMAL TO EARTH-TO-PROBE VECTOR), (23) GEOCENTRIC INERTIAL AZIMUTH ANGLE (ANGLE BETWEEN THE PLANE DEFINED BY THE EARTH-TO-PROBE VECTOR AND THE GEOCENTRIC INERTIAL VELOCITY VECTOR), (24) HELIOCENTRIC INERTIAL VELOCITY, (25) HELIOCENTRIC INERTIAL PATH ANGLE (ANGLE MADE BY THE HELIOCENTRIC VELOCITY VECTOR AND THE PLANE NORMAL TO THE SUN-TO-PROBE VECTOR), (26) CELESTIAL LONGITUDE OF PROBE (ANGULAR DISTANCE MEASURED COUNTERCLOCKWISE ALONG THE ECLIPTIC PLANE OF DATE FROM THE VERNAL EQUINOX TO THE PROJECTION OF THE SUN-PROBE VECTOR ON A PLANE AS VIEWED FROM THE ECLIPTIC NORTH POLE), (27) CELESTIAL LONGITUDE OF EARTH, (28) CELESTIAL LATITUDE OF EARTH, AND (29) VARIOUS CLOCK ANGLES AND HINGE AND SWIVEL ANGLES WHICH ARE DESCRIBED IN THE DOCUMENTATION.

BRIDGE, PIONEER 6

EXPERIMENT NAME- SOLAR WIND PLASMA FARADAY CUP

NSSDC ID- 65-105A-02

STATUS OF OPERATION- PARTIAL

PERSONNEL

PI -	H.S. BRIDGE		MASS INST OF TECH CAMBRIDGE, MA
OI -	A.J. LAZARUS		MASS INST OF TECH CAMBRIDGE, MA
OI -	F. SCHERB		U OF WISCONSIN MADISON, WI

A MULTIGRID FARADAY CUP WITH TWO SEMICIRCULAR, COPLANAR COLLECTORS WAS USED TO STUDY SOLAR WIND IONS AND ELECTRONS. THE INSTRUMENT HAD 14 CONTIGUOUS, ENERGY-PER-CHARGE (E/Q) CHANNELS BETWEEN 75 AND 9485 V FOR POSITIVE IONS AND FOUR ENERGY-PER-CHARGE CHANNELS BETWEEN 90 AND 1580 V FOR ELECTRONS. THE INSTRUMENT VIEW AXIS WAS PERPENDICULAR TO THE SPACECRAFT SPIN AXIS AND PARALLEL TO THE ECLIPTIC PLANE. THE LINE SEPARATING THE TWO COLLECTORS LAY IN THE ECLIPTIC PLANE, ENABLING A ROUGH DETERMINATION OF SOLAR WIND BULK FLOW PERPENDICULAR TO THE ECLIPTIC PLANE. DURING EVERY SECOND SPACECRAFT ROTATION AND AT ONE VOLTAGE LEVEL, THE SUM OF THE CURRENTS FROM THE COLLECTORS WAS OBTAINED IN 28 CONTIGUOUS 11.25-DEG ANGULAR SECTORS (FROM -45 DEG TO 270 DEG, WITH 0 DEG BEING THE SPACECRAFT-SUN LINE). THE EIGHT MEASUREMENTS ABOUT THE SUN-EARTH LINE (-45 DEG TO +45 DEG) WERE TELEMETERED, BUT ONLY THE LARGEST MEASUREMENT IN EACH SUCCEEDING 45-DEG INTERVAL (45 DEG TO 270 DEG) WAS TELEMETERED. IN ADDITION, DURING THIS ROTATION, THE CURRENT FROM ONE OF THE COLLECTORS WAS MEASURED IN ALL TWENTY-EIGHT 11.25-DEG SECTORS, AND THE LARGEST WAS IDENTIFIED AND TELEMETERED (BOTH MAGNITUDE AND SECTOR). A COMPLETE SET OF POSITIVE ION MEASUREMENTS AND ONE ENERGY CHANNEL OF ELECTRON MEASUREMENTS WERE COMPLETED EVERY 32 SEC. THE TIME BETWEEN EACH 32-SEC GROUP OF MEASUREMENTS VARIED WITH THE BIT RATE. FOR A MORE COMPLETE DESCRIPTION, SEE J. GEOPHYS. RES., VOL 71, 3787-3791, AUGUST 1966.

DATA SET NAME- PLOTS OF HOURLY AVERAGED SOLAR WIND PLASMA PARAMETERS ON MICROFILM

NSSDC ID- 65-105A-02A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/18/65 TO 04/03/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THESE FIRST GENERATION ANALYZED DATA CONSIST OF TIME-ORDERED PLOTS OF 1-HR AVERAGES OF SOLAR WIND POSITIVE ION BULK SPEED (KM/SEC), DENSITY (NO./CUBIC CM), AND TEMPERATURE (IN 10,000 DEG K). INDIVIDUAL PLOTS CONTINUE FOR ONE SOLAR ROTATION (27 DAYS) AND ARE AVAILABLE ON ONE REEL OF 35-MM MICROFILM. DATA PLOTS FROM THE MIT EXPERIMENT ON PIONEER 7 (DATA SET 66-075A-02A) APPEAR ON THIS SAME REEL OF MICROFILM. THE PLASMA PARAMETERS WERE DERIVED BY THE EXPERIMENTER ON THE ASSUMPTION OF AN ISOTROPIC MAXWELLIAN DISTRIBUTION FUNCTION. DATA ARE AVAILABLE FROM DECEMBER 18, 1965, TO MAY 1966, WITH 95 PERCENT COVERAGE, AND FROM JUNE 1966 TO APRIL 3, 1969, WITH 20 PERCENT COVERAGE.

DATA SET NAME- HOURLY AVERAGED VELOCITY AND DENSITY VALUES IN SGD BULLETINS

NSSDC ID- 65-105A-02B

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 03/01/69 TO 02/28/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 12 BOOK(S) OR BOUND VOLUME(S)

IN THIS DATA SET, SOLAR WIND HOURLY AVERAGED VELOCITY AND DENSITY ARE PRESENTED AS LISTINGS AGAINST TIME. THESE DATA ARE IN CERTAIN ISSUES OF THE SOLAR GEOPHYSICAL DATA BULLETINS PUBLISHED BY ESSA, BOULDER, COLORADO.

DATA SET NAME- 1-HR AVG SOLAR WIND DATA FROM THE EXPERIMENTS ON PIONEER 6 AND PIONEER 7

NSSDC ID- 65-105A-02C

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 12/16/65 TO 05/18/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 BOOK(S) OR BOUND VOLUME(S)

THE CONTENTS OF THIS NSSDC/MIT PUBLICATION WERE CREATED AT THE CENTER FOR SPACE RESEARCH, MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MA. THE PUBLICATION CONTAINS A DESCRIPTION OF THE INSTRUMENT, A DESCRIPTION OF THE DATA TAKING AND ANALYSIS PROCEDURES, 27 ONE-DAY PLOTS OF 1 HR AVERAGES OF PLASMA PARAMETERS (DENSITY, TEMPERATURE, BULK, SPEED, POLAR AND AZIMUTHAL ANGLES OF FLOW WITH RESPECT TO THE ECLIPTIC), AND DATA AND TRAJECTORY INFORMATION IN BOTH TABULAR AND PLOTTED FORM. THE DOCUMENT IS ON 8-1/2- BY 11-INCH PAPER, IS 1-1/2-INCH THICK, AND HAS HOLES PUNCHED IN THE MARGINS FOR INSERTION INTO A STANDARD THREE-HOLE BINDER. PIONEER 7 DATA (66-075A-02C) ARE ALSO INCLUDED IN THIS DOCUMENT.

DATA SET NAME- HOURLY AVERAGED PLASMA PARAMETERS ON BCD 7-TRACK MAGNETIC TAPE

NSSDC ID- 65-105A-02D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/16/65 TO 05/09/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS MAGNETIC TAPE CONTAINS 1-HR AVERAGES OF NINE PARAMETERS FROM THE MIT SOLAR WIND EXPERIMENT. THE PARAMETERS ARE SOLAR WIND BULK SPEED, DENSITY, MOST PROBABLE THERMAL SPEED, FLUX, RATIO OF THERMAL SPEED TO BULK SPEED, TWO FLOW ANGLES, VELOCITY COMPONENT IN THE ECLIPTIC PERPENDICULAR TO THE RADIAL DIRECTION, AND VELOCITY COMPONENT PERPENDICULAR TO THE ECLIPTIC. EACH RECORD CONTAINS TIME AND THE AVERAGES, STANDARD DEVIATIONS, AND NUMBER OF POINTS IN THE AVERAGE FOR EACH PARAMETER. THE TAPE IS A 7-TRACK, 800-BPI, BCD TAPE CREATED ON AN IBM 360. THERE ARE TEN 286-CHARACTER LOGICAL RECORDS BLOCKED PER PHYSICAL RECORD.

ESHLEMAN, PIONEER 6

EXPERIMENT NAME- TWO-FREQUENCY BEACON RECEIVER

NSSDC ID- 65-105A-04

STATUS OF OPERATION- NORMAL

PERSONNEL

PI -	V.R.	ESHLEMAN	STANFORD U STANFORD, CA
OI -	T.A.	CROFT	STANFORD U STANFORD, CA
OI -	R.L.	LEADABRAND	STANFORD RES INST MENLO PARK, CA
OI -	O.K.	GARRIOTT	STANFORD U STANFORD, CA
OI -	A.M.	PETERSON	STANFORD U STANFORD, CA

BOTH 423.3-MHZ AND ITS 2/17 SUBHARMONIC 49.8-MHZ SIGNALS WERE TRANSMITTED FROM A 46-M STEERABLE PARABOLIC ANTENNA AT STANFORD UNIVERSITY TO THE TWO-FREQUENCY RADIO RECEIVER ON THE SPACECRAFT. THE HIGH-FREQUENCY SIGNAL SERVED AS A REFERENCE SIGNAL SINCE ITS PROPAGATION TIME WAS NOT APPRECIABLY LENGTHENED BY ELECTRONS ALONG THE PATH. THE LOW-FREQUENCY SIGNAL WAS DELAYED IN PROPORTION TO THE TOTAL ELECTRON CONTENT IN THE PROPAGATION PATH. ON THE SPACECRAFT, A PHASE-LOCKED RECEIVER COUNTED THE BEAT FREQUENCY ZERO CROSSINGS OF THE RECEIVED SIGNALS TO OBTAIN MEASUREMENTS OF PHASE-PATH DIFFERENCES. DIFFERENTIAL DELAY OF THE GROUP VELOCITY WAS ALSO OBSERVED, AND THESE VALUES WERE TELEMETERED TO THE GROUND STATION. FROM CALCULATED TOTAL ELECTRON CONTENT VALUES, THE IONOSPHERIC EFFECT (UP TO A SELECTED ALTITUDE OBTAINED FROM OTHER EXPERIMENTAL TECHNIQUES) COULD BE SUBTRACTED TO PRODUCE DATA DESCRIBING THE INTERPLANETARY ELECTRON CONTENT OF THE SOLAR WIND AND ITS VARIATIONS. FOR SIMILAR EXPERIMENTS COVERING OTHER TIME PERIODS SEE 68-100A-03, 67-123A-03, 66-075A-04, AND 67-060A-02. MORE DETAILED DESCRIPTIONS OF THE EXPERIMENT CAN BE FOUND IN JOURNAL OF GEOPHYSICAL RESEARCH, VOL. 71, P. 3325-3327, AND IN RADIO SCIENCE, VOL. 6, P. 55-63.

DATA SET NAME- HOURLY VALUES OF REDUCED TOTAL ELECTRON CONTENT DATA ON MAGNETIC TAPE

NSSDC ID- 65-105A-04A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/16/65 TO 07/11/66
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF DIGITIZED HOURLY VALUES OF TOTAL ELECTRON CONTENT THROUGH THE IONOSPHERE AND THE SOLAR WIND. THESE ARE REDUCED DATA CALCULATED FROM MEASUREMENTS OF THE DIFFERENTIAL DELAY OF THE GROUP VELOCITY OF SIGNALS FROM EARTH TO THE SPACECRAFT. THE HOURLY DATA ARE REPRESENTATIVE VALUES MANUALLY SELECTED FROM ANALOG RECORDS. EACH SET OF HOURLY VALUES IS FOR THE PORTION OF THE DAY (ABOUT 12 HR PER DAY) WHEN THE SPACECRAFT WAS IN VIEW FROM THE STANFORD TRANSMITTER. THIS DATA SET IS ON ONE 556-BPI, 7-TRACK, BCD MAGNETIC TAPE GENERATED AT NSSDC FROM PUNCHED CARDS SUPPLIED BY THE EXPERIMENTER. THE TAPE ALSO CONTAINS IDENTICAL DATA FOR OTHER TIME PERIODS FROM PIONEERS 7 (66-075A-04A), 8 (67-123A-03A), AND 9 (68-100A-03A), AND MARINER 5 (67-060A-02A).

DATA SET NAME- HOURLY VALUES OF REDUCED TOTAL ELECTRON CONTENT DATA ON MICROFILM

NSSDC ID- 65-105A-04B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/16/65 TO 07/11/66
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF DIGITIZED AND PLOTTED HOURLY VALUES OF TOTAL ELECTRON CONTENT THROUGH THE IONOSPHERE AND THE SOLAR WIND. THESE ARE REDUCED DATA CALCULATED FROM MEASUREMENTS OF THE DIFFERENTIAL DELAY OF THE GROUP VELOCITY OF SIGNALS FROM EARTH TO THE SPACECRAFT. THE HOURLY DATA ARE REPRESENTATIVE VALUES MANUALLY SELECTED FROM ANALOG RECORDS. EACH SET OF HOURLY VALUES IS FOR THE PORTION OF THE DAY (ABOUT 12 HR PER DAY) WHEN THE SPACECRAFT WAS IN VIEW FROM THE STANFORD TRANSMITTER. THIS DATA SET IS ON ONE REEL OF 35-MM MICROFILM GENERATED AT NSSDC FROM DATA SUPPLIED BY THE EXPERIMENTER. THIS REEL OF MICROFILM ALSO CONTAINS IDENTICAL DATA FOR OTHER TIME PERIODS FROM PIONEER 7 (66-075A-04B), 8 (67-123A-03B), 9 (68-100A-03B), AND MARINER 5 (67-060A-02B) AND SOLAR WIND ELECTRON DENSITY PLOTS FROM PIONEERS 6 (65-105A-04E), 7 (66-075A-04E), 8 (67-123A-03D), AND 9 (68-100A-03D).

DATA SET NAME- DIGITAL VALUES OF SOLAR WIND ELECTRON DENSITY VS TIME NORMALIZED TO 1 AU ON TAPE

NSSDC ID- 65-105A-04D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 01/09/66 TO 05/25/66
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THESE DATA WERE PREPARED FROM THE ORIGINAL ANALOG RECORDS BY THE EXPERIMENTER'S STAFF. THE PRIMARY DATA CONSIST OF HOURLY VALUES OF NORMALIZED ELECTRON NUMBER DENSITY IN THE SOLAR WIND. TO OBTAIN THESE DATA, THE IONOSPHERIC TOTAL CONTENT WAS REMOVED FROM THE OBSERVED TOTAL CONTENT VALUES, AND THE TOTAL CONTENT PATH LENGTH WAS USED TO CONVERT TOTAL CONTENT TO DENSITY. THE RESULTING VALUES WERE THEN NORMALIZED TO 1 AU ASSUMING DENSITY TO BE PROPORTIONAL TO THE INVERSE SQUARE OF THE SATELLITE-SOLAR DISTANCE. VALUES RESULTING FROM INTERPOLATION ARE FLAGGED. NO INTERPOLATED VALUES WERE RECORDED WHEN DATA GAPS EXCEEDED 4 DAYS. THIS DATA SET IS ON ONE 800-BPI, 7-TRACK, ODD PARITY, BINARY MAGNETIC TAPE GENERATED ON A SIGMA 5 COMPUTER. AUXILIARY DATA ON THE TAPE INCLUDE UT AND CARRINGTON ROTATION NUMBER. DATA ARE AVAILABLE FOR ABOUT 12 HR PER DAY WHEN THE SPACECRAFT WAS IN VIEW FROM THE STANFORD TRANSMITTER. IDENTICAL DATA FOR OTHER TIME PERIODS FROM PIONEERS 7 (66-075A-04D), 8 (67-123A-03C), AND 9 (68-100A-03C) AND MARINER 5 (67-060A-02C) ALSO APPEAR ON THIS TAPE.

DATA SET NAME- CORRECTED ELECTRON DENSITY PLOTS VERSUS TIME ON MICROFILM

NSSDC ID- 65-105A-04E

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 01/10/66 TO 06/01/66
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THESE DATA WERE PREPARED FROM THE ORIGINAL ANALOG RECORDS BY THE EXPERIMENTER'S STAFF. THE PRIMARY DATA CONSIST OF PLOTS OF ELECTRON DENSITY VS TIME IN THE SOLAR WIND. TO OBTAIN THESE DATA, THE IONSOPHERIC TOTAL CONTENT FOR THE SAME TIMES AT A NEARBY LOCATION WERE REMOVED FROM THE OBSERVED TOTAL CONTENT VALUES. THEN THE OBSERVED TOTAL CONTENT PATH LENGTH WAS USED TO CONVERT TOTAL CONTENT TO DENSITY. THE RESULTING VALUES WERE NORMALIZED TO 1 AU, ASSUMING DENSITY TO BE PROPORTIONAL TO THE INVERSE SQUARE OF THE SATELLITE-SOLAR DISTANCE. THIS DATA SET IS ON ONE REEL OF 35-MM MICROFILM. THIS REEL OF MICROFILM ALSO CONTAINS IDENTICAL DATA FOR OTHER TIME PERIODS FROM PIONEERS 7 (66-075A-04E), 8 (67-123A-03D), AND 9 (68-100A-03D) AND HOURLY VALUES OF TOTAL ELECTRON CONTENT FROM PIONEERS 6 (65-105A-04B), 7 (66-075A-04B), 8 (67-123A-03B), AND 9 (68-100A-03B) AND MARINER 5 (67-060A-02B). THIS DATA SET IS ALSO AVAILABLE ON TAPE (65-105A-04D).

FAN, PIONEER 6

EXPERIMENT NAME- COSMIC-RAY TELESCOPE

NSSDC ID- 65-105A-03

STATUS OF OPERATION- NORMAL

PERSONNEL

PI -	C.Y.	FAN	U OF ARIZONA TUCSON, AZ
OI -	J.A.	SIMPSON	U OF CHICAGO CHICAGO, IL
OI -	J.E.	LAMPORT	U OF CHICAGO CHICAGO, IL

THIS EXPERIMENT USED A CHARGED PARTICLE TELESCOPE COMPOSED OF FOUR SILICON SOLID-STATE DETECTORS TO STUDY THE ANISOTROPY AND FLUCTUATIONS OF SOLAR PROTONS AND ALPHA PARTICLES. THE PROTON ENERGY RANGES SAMPLED WERE 0.6 TO 13.9 MEV, 13.9 TO 73.2 MEV, 73.2 TO 175 MEV, AND E.GT. 175 MEV (CORRESPONDING TO DETECTOR COINCIDENCES D1NOTD2NOTD4, D1D2NOTD3NOTD4, D1D2D3NOTD4, AND NOTD1D2D3NOTD4). THE ALPHA PARTICLE ENERGY RANGES SAMPLED WERE 2.4 TO 55.6 MEV, 55.6 TO 293 MEV, AND E.GT. 293 MEV (CORRESPONDING TO THE FIRST THREE DETECTOR COINCIDENCES GIVEN ABOVE). THE TIME RESOLUTION RANGED FROM ABOUT ONE MEASUREMENT PER 0.4 SEC TO ABOUT ONE MEASUREMENT PER 28 SEC DEPENDING ON THE TELEMETRY BIT RATE.

PIONEER 6

THE DETECTOR WAS MOUNTED SO THAT IT MADE A 360-DEG SCAN IN THE ECLIPTIC PLANE ABOUT ONCE PER SECOND. PULSE HEIGHT ANALYSIS OF DETECTOR D1 OUTPUT (128 CHANNEL) AND D3 OUTPUT (32 CHANNEL) WAS ACCOMPLISHED FOR THE LAST EVENT PRIOR TO EACH TELEMETRY READOUT FOR THE EXPERIMENT. THE D3 DETECTOR FAILED ON OCTOBER 22, 1967. THE D4 DETECTOR PERFORMED INTERMITTENTLY UP TO LATE 1969. FOR FURTHER DETAILS, SEE FAN ET AL., JGR, VOL 73, P 1555, 1968.

DATA SET NAME- REDUCED COUNT RATE AND PULSE HEIGHT ANALYZER DATA ON MAGNETIC TAPE

NSSDC ID- 65-105A-03A

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 12/16/65 TO 12/30/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 10 REEL(S) OF MAGNETIC TAPE

THIS DATA SET, SUPPLIED BY THE EXPERIMENTER, CONSISTS OF PROTON AND ALPHA PARTICLE COUNT AND PULSE HEIGHT ANALYZER ACCUMULATOR READINGS IN A TIME-ORDERED FORMAT ON 7-TRACK, BINARY, IBM-COMPATIBLE MAGNETIC TAPES WRITTEN AT 800 BPI. THE TIME RESOLUTION FOR THE COUNT ACCUMULATOR DATA RANGED FROM ABOUT ONE MEASUREMENT PER 0.4 TO 28 SEC DEPENDING ON THE SPACECRAFT TELEMETRY RATE. EACH PHYSICAL RECORD CONSISTS OF 500 LOGICAL RECORDS OF 12 BYTES EACH. THE LOGICAL RECORDS ARE OF TWO TYPES -- HEADER RECORDS AND DATA RECORDS. A GIVEN HEADER RECORD IS FOLLOWED BY FROM 1 TO 64 DATA RECORDS OF THE SAME SPACECRAFT SUBCOM SEQUENCE. EACH TAPE TERMINATES WITH AN EOD FLAG IN THE LAST GOOD DATA RECORD. EACH HEADER RECORD INCLUDES VARIOUS SPACECRAFT TEMPERATURES, SPIN RATE, TELEMETRY BIT RATE, AND OTHER HOUSEKEEPING PARAMETERS. EACH DATA RECORD INCLUDES TIME, PULSE HEIGHT ANALYZER OUTPUT (D1 AND D3 ELEMENTS OF THE COSMIC-RAY TELESCOPE), FOUR TELESCOPE COINCIDENCE COUNT RATES, AND DATA QUALITY INFORMATION. THE DATA ARE UNCORRECTED BUT HAVE BEEN EDITED TO THE EXTENT THAT DOUBTFUL INFORMATION HAS BEEN FLAGGED AND UNUSABLE DATA DELETED.

DATA SET NAME- COUNT RATE PLOTS AND TRAJECTORY PLOT ON MICROFILM

NSSDC ID- 65-105A-03D

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 12/16/65 TO 12/26/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THE DATA SET IS CONTAINED ON 16-MM MICROFILM AND INCLUDES (1) A PLOT OF THE PIONEER 6 TRAJECTORY IN HELIOCENTRIC SOLAR ECLIPTIC COORDINATES COVERING THE TIME INTERVAL FROM DAY 350 OF 1965 (DECEMBER 16, 1965) TO DAY 70 OF 1970 (MARCH 11, 1970) AND (2) COUNT RATE PLOTS (COUNTS/SEC VS DAY NUMBER) PRODUCED ON A CALCOMP PLOTTER FOR 27-DAY INTERVALS FOR THE TELESCOPE COINCIDENCE COMBINATIONS THAT CORRESPOND TO THE FOLLOWING ENERGY INTERVALS FOR PROTONS -- 0.6 TO 13.9 MEV, 13.9 TO 73.2 MEV, 73.2 TO 175 MEV, AND E.GT. 175 MEV. THE COUNT RATE DATA, WHICH ARE A COMPOSITE OF REAL-TIME DATA AND DUTY-CYCLE-STORAGE DATA, COVER THE TIME INTERVAL FROM DECEMBER 16, 1965, TO DECEMBER 26, 1968.

DATA SET NAME- COSMIC-RAY PROTON COUNTING RATES PUBLISHED IN "SOLAR GEOPHYSICAL DATA"

NSSDC ID- 65-105A-03E

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 03/07/69 TO 03/03/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 38 BOOK(S) OR BOUND VOLUME(S)

THIS DATA SET CONSISTS OF MONTHLY TABULAR LISTINGS OF DIRECTIONAL COUNTING RATES OF PROTONS WITH ENERGIES IN THE INTERVALS 0.6 TO 13.9 MEV, 13.9 TO 175 MEV, AND GREATER THAN 175 MEV. THE RATES ARE TYPICALLY GIVEN ONCE PER DAY. A LETTER FLAG INDICATES WHETHER THE FLUX WAS RISING, STEADY, OR FALLING AT THE TIME FOR WHICH THE DATA ARE PRESENTED. DATA OBTAINED DURING A GIVEN MONTH ARE PUBLISHED IN "SOLAR GEOPHYSICAL DATA (PROMPT REPORTS)" WITH A 1-MONTH LAG.

MCCRACKEN, PIONEER 6

EXPERIMENT NAME- COSMIC-RAY ANISOTROPY

NSSDC ID- 65-105A-05

STATUS OF OPERATION- PARTIAL

PERSONNEL

PI -	K.G.	MCCRACKEN	U OF ADELAIDE ADELAIDE, AUSTRALIA
OI -	W.C.	BARTLEY	NATL ACADEMY OF SCI WASHINGTON, DC
OI -	R.U.	RAO	PHYSICAL RESEARCH LA AHMADABED, INDIA

THIS EXPERIMENT WAS DESIGNED PRIMARILY TO MEASURE THE DIRECTIONAL CHARACTERISTICS OF GALACTIC AND SOLAR COSMIC-RAY FLUXES. THE PARTICLE DETECTOR WAS A CSI (TL) SCINTILLATOR CRYSTAL THAT WAS SET INTO AN ANTICOINCIDENCE PLASTIC SCINTILLATOR COLLIMATOR CUP. SEPARATE PHOTOMULTIPLIER TUBES VIEWED THE TWO SCINTILLATORS. PULSES FROM THE CSI CRYSTAL UNACCOMPANIED BY PULSES FROM THE PLASTIC SCINTILLATOR WERE SORTED BY A THREE-WINDOW PULSE HEIGHT ANALYZER. THE WINDOWS CORRESPONDING TO ENERGY DEPOSITIONS OF 7.4 TO 44.0, 44.0 TO 77.1, AND 123.8 TO 303.8 MEV. COUNTS IN THE TWO LOWER ENERGY WINDOWS WERE DUE MAINLY TO PROTONS WITH THE WINDOW ENERGIES, WHILE ONLY PARTICLES OF Z GREATER THAN OR EQUAL TO 2 CONTRIBUTED TO THE HIGHEST ENERGY WINDOW COUNT RATE. (PROTONS ABOVE 90 MEV GAVE ANTICOINCIDENCE PULSES.) FOR EACH ENERGY WINDOW, COUNTS WERE SEPARATELY ACCUMULATED IN EACH OF FOUR ANGULAR SECTORS AS THE SPACECRAFT SPUN; EACH ANGULAR SECTOR WAS NORMALLY 89.5 DEG IN WIDTH, WITH THE SUN IN THE MIDDLE OF ONE SECTOR. HOWEVER, WHEN LARGE FLUXES WERE ENCOUNTERED, EACH ANGULAR SECTOR WAS REDUCED TO 11.2 DEG, WITH THE SUN NEAR THE MIDPOINT BETWEEN TWO SECTORS. A SPIN-INTEGRATED (ISOTROPIC) MODE, IN WHICH ALL PARTICLES DEPOSITING 7.4 MEV IN THE CSI CRYSTAL (NO ANTICOINCIDENCE REQUIREMENT) WERE COUNTED, WAS ALSO USED. ACCUMULATION TIMES FOR EACH OF THE 12 DIRECTIONAL MODES AND FOR THE OMNIDIRECTIONAL MODE VARIED BETWEEN 14 SEC AND 112 SEC (SPACECRAFT SPIN PERIOD WAS ABOUT 1 SEC) DEPENDING ON THE TELEMETRY BIT RATE. SEE THE SPACECRAFT BRIEF DESCRIPTION (65-105A) FOR INFORMATION ON PERCENT TIME COVERAGE VS TIME. SEE BARTLEY ET AL., REV. SCI. INSTRUM., 38, PAGE 266, 1967, FOR A MORE DETAILED EXPERIMENT DESCRIPTION.

DATA SET NAME- COUNT RATE LISTINGS ON MICROFILM

NSSDC ID- 65-105A-05A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/16/65 TO 02/06/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF A MICROFILMED COPY, GENERATED AT NSSDC, OF A HARDCOPY DATA LISTING SUPPLIED BY THE EXPERIMENTER. EACH FRAME CONSISTS OF DATA FOR 1 DAY. DATA PRESENTED INCLUDE HOURLY AVERAGED COUNT RATES FOR EACH OF FOUR ANGULAR SECTORS AND EACH OF THREE ENERGY WINDOWS, FOR THE OMNIDIRECTIONAL INTEGRAL-ENERGY MODE, AND FOR THE ESTIMATED GALACTIC COMPONENT OF THIS MODE, HOURLY AVERAGED, OMNIDIRECTIONAL (I.E., SUMMED OVER SECTOR COUNTS), ENERGY-WINDOW COUNT RATES ARE PRESENTED, AS ARE MEASURES OF THE AMOUNT OF FINER TIME SCALE DATA CONTRIBUTING TO EACH HOURLY AVERAGE. DAILY AVERAGES OF ALL THE COUNT RATES ARE GIVEN, AND 3-, 6-, AND 12-HR AVERAGES ARE GIVEN FOR THE LOWEST ENERGY WINDOW OMNIDIRECTIONAL MODE, FOR THE INTEGRAL-ENERGY OMNIDIRECTIONAL MODE, AND FOR THE ESTIMATED GALACTIC COMPONENT OF THIS MODE. DAILY MEASURES OF TEMPORAL PERCENT COVERAGES ARE ALSO GIVEN WITH CONSIDERABLE VARIATION (FROM 0 TO 100) IN THE PERCENTAGES. DAYS FOR WHICH NO DATA EXIST ARE NOT FOUND ON THE MICROFILM. THE DATA ARE CONTAINED ON ONE REEL OF 35-MM MICROFILM THAT ALSO CONTAINS DATA SET 65-105A-05B.

DATA SET NAME- COUNT RATE PLOTS ON MICROFILM

NSSDC ID- 65-105A-05B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/16/65 TO 01/25/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF A MICROFILMED COPY, GENERATED AT NSSDC, OF HARDCOPY COUNT RATE PLOTS SUPPLIED BY THE EXPERIMENTER. EACH FRAME CONSISTS OF DATA FOR 7 DAYS. HOURLY AVERAGED COUNT RATES FOR THE OMNIDIRECTIONAL INTEGRAL-ENERGY AND ENERGY-WINDOW MODES ARE PRESENTED, AS ARE RELATIVE COUNT RATES FROM THE DEEP RIVER NEUTRON MONITOR. THE DECREASING PERCENT COVERAGE WITH TIME IS READILY APPARENT. THIS DATA SET IS CONTAINED ON ONE REEL OF 35-MM MICROFILM THAT ALSO CONTAINS DATA SET 65-105A-05A.

WOLFE, PIONEER 6

EXPERIMENT NAME- ELECTROSTATIC ANALYZER

NSSDC ID- 65-105A-06

STATUS OF OPERATION- OPERATIONAL OFF
DATE LAST USABLE DATA RECORDED- 07/30/72

PERSONNEL
PI - J.H. WOLFE ..... NASA-ARC
MOFFETT FIELD, CA

A QUADRISPHERICAL ELECTROSTATIC ANALYZER WITH EIGHT CONTIGUOUS CURPENT COLLECTORS WAS USED TO STUDY THE DIRECTIONAL INTENSITY OF ELECTRONS AND POSITIVE IONS IN THE SOLAR WIND. IONS WERE DETECTED IN 16 LOGARITHMICALLY EQUISPACED ENERGY-PER-CHARGE (E/Q) STEPS FROM 200 TO 10,000 V. THERE WAS AN ELECTRON MODE OF OPERATION IN WHICH ELECTRONS WERE MEASURED IN EIGHT LOGARITHMICALLY EQUISPACED E/Q STEPS RANGING FROM 1 TO 500 V. THE EIGHT COLLECTORS MEASURED PARTICLES INCIDENT FROM EIGHT DIFFERENT CONTIGUOUS ANGULAR INTERVALS RELATIVE TO THE SPACECRAFT EQUATORIAL PLANE (SAME AS THE ECLIPTIC PLANE). THERE WERE FOUR 15-DEG INTERVALS, TWO 20-DEG INTERVALS, AND TWO 30-DEG INTERVALS, AS THE SPACECRAFT WAS SPINNING. FLUXES WERE MEASURED IN 15 AZIMUTHAL ANGULAR SECTORS. EIGHT OF THESE SECTORS WERE 5-5/8 DEG WIDE, WERE CONTIGUOUS, AND BRACKETED THE SOLAR DIRECTION. THE REMAINING SEVEN SECTORS WERE 45 DEG WIDE. THREE DIFFERENT MODES OF DATA COLLECTION WERE USED. AT THE HIGHEST BIT RATE (512 BPS), THE FULL SCAN MODE WAS ALTERNATED WITH THE MAXIMUM FLUX MODE AT EACH E/Q STEP. IN THE FULL SCAN MODE, THE MAXIMUM FLUX OBSERVED IN EACH OF THE 15 AZIMUTHAL SECTORS AS THE SPACECRAFT ROTATED WAS RECORDED FOR A GIVEN SINGLE COLLECTOR AT A GIVEN E/Q STEP. DURING 24 SUCCESSIVE OPERATIONS OF THE FULL SCAN MODE (48 SPACECRAFT REVOLUTIONS), THE 16 ION E/Q STEPS AND EIGHT ELECTRON E/Q STEPS WERE EXERCISED FOR A GIVEN COLLECTOR. DURING EIGHT SUCCESSIVE SUCH PERIODS, EACH OF THE EIGHT COLLECTORS WAS EXERCISED. THE FULL CYCLE OF FULL SCAN MODE DATA REQUIRED 400 SPACECRAFT REVOLUTIONS (ABOUT 400 SEC). SUCH CYCLES WERE REPEATED WITHOUT INTERRUPTION AT THE HIGH BIT RATE. IN THE MAXIMUM FLUX MODE, FOR THE E/Q STEP USED IN THE PRECEDING REVOLUTION OF FULL SCAN MODE OPERATION, ALL COLLECTORS WERE OBSERVED FOR ONE REVOLUTION, AND THE MAXIMUM FLUX OBSERVED WAS REPORTED ALONG WITH THE NUMBER OF THE COLLECTOR THAT OBSERVED IT AND THE ANGULAR DIRECTION (2-13/16-DEG RESOLUTION) OF THE OBSERVATION. AT THE NEXT HIGHEST BIT RATE (256 BPS), THE SHORT SCAN MODE WAS ALTERNATED EVERY SPACECRAFT REVOLUTION WITH THE MAXIMUM FLUX MODE. THE SHORT SCAN MODE WAS THE SAME AS THE FULL SCAN MODE EXCEPT THAT ONLY THE PEAK FLUX IN EACH OF THE EIGHT 5-5/8-DEG-WIDE AZIMUTHAL SECTORS WAS RECORDED. THUS, THIS CYCLE ALSO TOOK 400 SPACECRAFT REVOLUTIONS. AT THE LOW BIT RATES (64, 16, AND 8 BPS), THE MAXIMUM FLUX MODE ALONE WAS USED. THUS, NO AZIMUTHAL DISTRIBUTIONS WERE MEASURED. AT THE LOW BIT RATES, IT TOOK 32 SEC FOR A COMPLETE SET OF ION MEASUREMENTS AND 16 SEC FOR A COMPLETE SET OF ELECTRON MEASUREMENTS. AT 64 BPS, THE ION AND ELECTRON MEASUREMENTS WERE TAKEN AND TELEMETERED EVERY 84 SEC. AT 16 BPS, THEY WERE TAKEN AND TELEMETERED EVERY 336 SEC. AT 8 BPS, THEY WERE TAKEN AND TELEMETERED EVERY 672 SEC.

DATA SET NAME- PLOTS OF ANALYZED PLASMA PARAMETERS ON MICROFILM

NSSDC ID- 65-105A-06A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/16/65 TO 11/12/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 22 REEL(S) OF MICROFILM

THESE ANALYZED DATA WERE SUPPLIED BY THE EXPERIMENTER AND CONSIST OF TIME-ORDERED PLOTS OF THE FOLLOWING SOLAR WIND PARAMETERS -- (1) PROTON NUMBER DENSITY (PROTONS/CUBIC CM), (2) AZIMUTH (SOLAR ECLIPTIC LONGITUDE) OF THE PEAK PARTICLE FLUX FOR IONS (DEG), (3) BULK VELOCITY (KM/SEC), (4) POLAR ANGLE (SOLAR ECLIPTIC LATITUDE) OF THE PEAK PARTICLE FLUX (DEG), (5) PROTON TEMPERATURE AND HELIUM TEMPERATURE (DEG), (6) HELIUM/HYDROGEN RATIO (NUMBER OF HELIUM IONS/CUBIC CM/NUMBER OF PROTONS/CUBIC CM), (7) ELECTRON TEMPERATURE (DEG K), AND (8) TWO INDICATORS OF THE ANISOTROPY IN THE SOLAR PLASMA ION TEMPERATURE DISTRIBUTION. THE EXPERIMENTER GIVES THE FOLLOWING INDICATORS OF ACCURACY -- (1) BULK VELOCITY, GOOD TO 10 PERCENT, (2) DIRECTION, GOOD TO A FEW DEGREES, AND (3) TEMPERATURE AND DENSITY, COULD BE OFF BY AS MUCH AS 200 PERCENT. THE PLASMA PARAMETERS WERE DERIVED BY THE EXPERIMENTER BASED ON THE ASSUMPTION OF AN ISOTROPIC MAXWELLIAN DISTRIBUTION FUNCTION (IN THE FRAME MOVING WITH THE BULK SOLAR WIND VELOCITY). DATA ARE AVAILABLE FROM DECEMBER 16, 1965, TO FEBRUARY 1966 WITH A 95 PERCENT COVERAGE, FROM MARCH 1966 TO MAY 1966 WITH A 50 PERCENT COVERAGE, FROM JUNE 1966 TO OCTOBER 27, 1968, WITH A 10 PERCENT COVERAGE, AND AFTER OCTOBER 1968 WITH VERY LIMITED COVERAGE.

DATA SET NAME- PUBLISHED PRELIMINARY SOLAR WIND PARAMETERS

NSSDC ID- 65-105A-06B

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 12/16/65 TO 08/17/74
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 70 BOOK(S) OR BOUND VOLUME(S)

THIS DATA SET CONSISTS OF PRELIMINARY SOLAR WIND PARAMETERS PRESENTED IN THE MONTHLY PUBLICATION "SOLAR-GEOPHYSICAL DATA" ISSUED BY THE NOAA ENVIRONMENTAL RESEARCH LABORATORIES. THESE PARAMETERS ARE DETERMINED BY MEASUREMENTS ON THE PIONEER 6 AND 7 SPACE PROBES. THE INFORMATION GIVEN CONSISTS OF DATE, TIME, SPACECRAFT, PASS NUMBER, BULK VELOCITY, AND COROTATION DELAY TIME. THE BULK VELOCITY IS ACCURATE TO 10 PERCENT. THE COROTATION DELAY TIME IS THE NUMBER OF DAYS BETWEEN THE OBSERVATION AT THE SPACECRAFT AND THE SUBSEQUENT OBSERVATION AT THE EARTH OF THE COROTATING INTERPLANETARY MAGNETIC FLUX TUBE (ASSUMING THAT THE SOLAR WIND SPEED REPORTED REMAINS CONSTANT). TYPICALLY, THERE IS ONE VELOCITY VALUE GIVEN FOR EACH SATELLITE PER DAY, ON ABOUT 30 PERCENT OF THE DAYS. NO DATA ARE GIVEN. THERE IS A 1-MONTH LAG BETWEEN THE TIME THE DATA ARE ACQUIRED AND THE TIME THE DATA ARE PUBLISHED.

DATA SET NAME- HOURLY AVERAGED PLASMA PARAMETERS

NSSDC ID- 65-105A-06C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/18/65 TO 03/04/66
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MAGNETIC TAPE

THESE ANALYZED DATA WERE SUPPLIED BY THE EXPERIMENTER AND CONSIST OF TIME-ORDERED HOURLY AVERAGES OF THE FOLLOWING SOLAR WIND PARAMETERS - THE ALPHA/PROTON NUMBER DENSITY RATIO, THE PROTON NUMBER DENSITY, THE ALPHA PARTICLE TEMPERATURE (DEG K), THE PROTON TEMPERATURE (DEG K), THE BULK VELOCITY (KM/SEC), THE AZIMUTHAL ANGLE (SOLAR ECLIPTIC LONGITUDE) OF THE PEAK PARTICLE FLUX (DEG), AND THE POLAR ANGLE (SOLAR ECLIPTIC LATITUDE) OF THE PEAK PARTICLE FLUX (DEG). THE ABOVE PLASMA PARAMETERS ARE GOOD TO 10 PERCENT. THE DATA WERE DERIVED BY THE EXPERIMENTER BASED ON THE ASSUMPTION OF AN ISOTROPIC MAXWELLIAN DISTRIBUTION FUNCTION (IN THE FRAME MOVING WITH THE BULK SOLAR WIND VELOCITY). THE DATA ARE CONTAINED ON TWO 9-TRACK, IBM 360, BINARY MAGNETIC TAPES WRITTEN AT A DENSITY OF 800 BPI. THEY WERE WRITTEN WITH VARIABLE LENGTH UNBLOCKED RECORDS. THE DATA CONSIST OF ALL THE HIGH BIT RATE DATA AND HAVE A 90 PERCENT COVERAGE OVER THE PERIOD INDICATED. A MICROFILMED COMPUTER PRINTOUT OF THESE TAPES IS AVAILABLE AT NSSDC AS 65-105A-06D.

SPACECRAFT COMMON NAME- PIONEER 7

ALTERNATE NAMES- PIONEER-B, 02398

NSSDC ID- 66-075A

LAUNCH DATE- 08/17/66 WEIGHT- 138. KG

PIONEER 7

STATUS OF OPERATION- PARTIAL

ORBIT PARAMETERS

ORBIT TYPE- HELIOCENTRIC	EPOCH DATE- 08/17/66
ORBIT PERIOD- 402.9 DAYS	INCLINATION- .09767 DEG
PERIAPSIS- 1.0100 AU RAD	APOAPSIS- 1.1250 AU RAD

PIONEER 7 WAS THE SECOND IN A SERIES OF SOLAR-ORBITING, SPIN-STABILIZED, AND SOLAR-CELL AND BATTERY-POWERED SATELLITES DESIGNED TO OBTAIN MEASUREMENTS OF INTERPLANETARY PHENOMENA FROM WIDELY SEPARATED POINTS IN SPACE ON A CONTINUING BASIS. THE SPACECRAFT CARRIED EXPERIMENTS TO STUDY POSITIVE IONS AND ELECTRONS IN THE SOLAR WIND, THE INTERPLANETARY ELECTRON DENSITY (RADIO PROPAGATION EXPERIMENT), SOLAR AND GALACTIC COSMIC RAYS, AND THE INTERPLANETARY MAGNETIC FIELD. ITS MAIN ANTENNA WAS A HIGH-GAIN DIRECTIONAL ANTENNA. THE SPACECRAFT WAS SPIN-STABILIZED AT ABOUT 60 RPM, AND THE SPIN AXIS WAS PERPENDICULAR TO THE ECLIPTIC PLANE AND POINTED APPROXIMATELY TOWARD THE SOUTH ECLIPTIC POLE. BY GROUND COMMAND, ONE OF FIVE BIT RATES, ONE OF FOUR DATA FORMATS, AND ONE OF FOUR OPERATING MODES COULD BE SELECTED. THE FIVE BIT RATES WERE 512, 256, 64, 16, AND 8 BPS. THREE OF THE FOUR DATA FORMATS CONTAINED PRIMARILY SCIENTIFIC DATA AND CONSISTED OF 32 SEVEN-BIT WORDS PER FRAME. ONE SCIENTIFIC DATA FORMAT WAS USED FOR THE TWO HIGHEST BIT RATES. ANOTHER WAS USED FOR THE THREE LOWEST BIT RATES. THE THIRD CONTAINED DATA FROM ONLY THE RADIO PROPAGATION EXPERIMENT. THE FOURTH DATA FORMAT CONTAINED MAINLY ENGINEERING DATA. THE FOUR OPERATING MODES WERE (1) REAL TIME, (2) TELEMETRY STORE, (3) DUTY CYCLE STORE, AND (4) MEMORY READOUT. IN THE REAL-TIME MODE, DATA WERE SAMPLED AND TRANSMITTED DIRECTLY (WITHOUT STORAGE) AS SPECIFIED BY THE DATA FORMAT AND BIT RATE SELECTED. IN THE TELEMETRY STORE MODE, DATA WERE STORED AND TRANSMITTED SIMULTANEOUSLY IN THE FORMAT AND AT THE BIT RATE SELECTED. IN THE DUTY CYCLE STORE MODE, A SINGLE FRAME OF SCIENTIFIC DATA WAS COLLECTED AND STORED AT A RATE OF 512 BPS. THE TIME PERIOD BETWEEN WHICH SUCCESSIVE FRAMES WERE COLLECTED AND STORED COULD BE VARIED BY GROUND COMMAND BETWEEN 2 AND 17 MIN TO PROVIDE PARTIAL DATA COVERAGE FOR PERIODS UP TO 19 HR, AS LIMITED BY THE BIT STORAGE CAPACITY. IN THE MEMORY READOUT MODE, DATA WERE READ OUT AT WHATEVER BIT RATE WAS APPROPRIATE TO THE SATELLITE DISTANCE FROM THE EARTH. THE BIT RATE FOR THE MAJORITY OF THE DATA WAS 512 BPS FROM AUGUST 17, 1966, TO OCTOBER 23, 1966, 256 BPS FROM OCTOBER 25, 1966, TO NOVEMBER 6, 1966, 64 BPS FROM NOVEMBER 9, 1966, TO DECEMBER 16, 1966, 16 BPS FROM DECEMBER 16, 1966, TO MAY 15, 1967, AND 8 BPS FROM MAY 15, 1967, AND THEREAFTER. HIGHER BIT RATES WERE POSSIBLE WHEN THE SPACECRAFT WAS BEING TRACKED BY THE 64-M ANTENNA, BUT THE DATA COVERAGE AT THESE TIMES WAS LOW. BY FEBRUARY 1968, ALL REAL-TIME DATA WERE BEING RECEIVED AT 8 BPS. DATA COVERAGE AVERAGED BETWEEN 50 AND 100 PERCENT COVERAGE FOR THE FIRST 30 WEEKS AFTER LAUNCH. THE DATA COVERAGE THEN FELL TO BETWEEN 20 AND 30 PERCENT UNTIL SEPTEMBER 1968. AFTER THIS TIME, IT DROPPED TO BETWEEN 0 AND 20 PERCENT THROUGH JANUARY 1971. ONLY AN INSIGNIFICANT AMOUNT OF DATA HAS BEEN OBTAINED SINCE JANUARY 1971. REAL-TIME TRANSMISSION WAS GENERALLY USED WHEN TRACKING STATIONS WERE AVAILABLE. OTHERWISE, THE DUTY CYCLE STORE MODE WAS USED. SOMETIME BETWEEN FEBRUARY 9, 1969, AND FEBRUARY 16, 1969, THE SUN SENSOR THAT GENERATED THE SPACECRAFT SUN PULSES FOR ONBOARD SECTORING OF EXPERIMENTS FAILED. HOWEVER, THE REMAINING SUN SENSORS CONTINUED TO FUNCTION, THUS PERMITTING DETERMINATION OF THE SPIN AXIS DIRECTION UNTIL ABOUT JANUARY 1972.

DATA SET NAME- COMPRESSED EPHEMERIS DATA ON MAGNETIC TAPE

NSSDC ID- 66-075A-00F

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 08/17/66 TO 01/02/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET WHICH CONTAINS COMPLETE TRAJECTORY INFORMATION WAS GENERATED AT NSSDC BY TAKING THE MOST ACCURATE INFORMATION FROM EACH EPHEMERIS TAPE PROVIDED BY JPL (DATA SET 66-075A-00E) AND ELIMINATING OVERLAP. THE DATA SET CONSISTS OF ONE 7-TRACK, IBM 7094, 800-BPI, BINARY MAGNETIC TAPE. EACH LOGICAL RECORD CONTAINS 89 WORDS, AND EACH PHYSICAL RECORD CONTAINS 20 LOGICAL RECORDS. THE FOLLOWING INFORMATION IS AVAILABLE IN INTERVALS OF ONE DAY (EXCEPT FOR PERIODS WHEN THE SPACECRAFT IS CLOSE TO THE EARTH, WHEN THE INTERVAL MAY BE SHORTER) -- (1) DATE, (2) TIME, (3) DISTANCE FROM THE EARTH TO THE PROBE, (4) DISTANCE FROM THE EARTH TO THE SUN, (5) DISTANCE FROM THE EARTH TO THE MOON, (6) DISTANCE FROM THE SUN TO THE PROBE, (7) GEOCENTRIC RIGHT ASCENSION AND DECLINATION OF PROBE, SUN, MOON, (8) GEOCENTRIC LATITUDE, LONGITUDE, AND ALTITUDE ABOVE THE EARTH, (9) EARTH-SUN-PROBE ANGLE, (10) EARTH-PROBE-SUN ANGLE, (11) SUN-PROBE-NEAR LIMB OF EARTH ANGLE (SUN-PROBE-EARTH ANGLE MINUS THE ANGULAR SEMI-DIAMETER OF EARTH WHERE THE ANGULAR SEMI-DIAMETER WOULD BE THE PROBE-CENTERED ANGLE BETWEEN EARTH LIMB AND CENTER OF EARTH), (12) MOON-EARTH-PROBE ANGLE, (13) MOON-PROBE-SUN ANGLE, (14) EARTH-PROBE-MOON ANGLE, (15) CANOPUS-PROBE-EARTH ANGLE, (16) CANOPUS-PROBE-SUN ANGLE, (17) ANGLE MADE BY THE SUN-TO-PROBE VECTOR AND THE ECLIPTIC PLANE OF DATE, (18) X, Y, Z COMPONENTS OF SPACECRAFT IN THE SUN-EARTH LINE COORDINATE SYSTEM (SUN-CENTERED SYSTEM, X AXIS IS ALONG THE SUN-TO-EARTH VECTOR, Z AXIS IS TOWARD ECLIPTIC NORTH POLE), (19) LONGITUDE OF SPACECRAFT IN THE SUN-EARTH LINE COORDINATE SYSTEM, (20) X, Y, Z COMPONENTS OF SPACECRAFT IN GEOCENTRIC, SELENOCENTRIC, HELIOCENTRIC VENUS-CENTERED, MARS-CENTERED, SATURN-CENTERED, AND JUPITER-CENTERED INERTIAL COORDINATE (X POINTS TO VERNAL EQUINOX, Z POINTS ALONG THE NORTH POLE VECTOR WITH THE REFERENCE PLANE BEING THE EARTH'S TRUE EQUATOR OF DATE), (21) MAGNITUDE OF THE VELOCITY VECTOR AND X, Y, Z COMPONENTS OF THE VELOCITY VECTOR IN GEOCENTRIC INERTIAL COORDINATES, (22) GEOCENTRIC INERTIAL PATH ANGLE (ANGLE MADE BY PROBE VELOCITY VECTOR AND PLANE NORMAL TO EARTH-TO-PROBE VECTOR), (23) GEOCENTRIC INERTIAL AZIMUTH ANGLE (ANGLE BETWEEN THE PLANE DEFINED BY THE EARTH-TO-PROBE VECTOR AND THE GEOCENTRIC INERTIAL VELOCITY VECTOR), (24) HELIOCENTRIC INERTIAL VELOCITY, (25) HELIOCENTRIC INERTIAL PATH ANGLE (ANGLE MADE BY THE HELIOCENTRIC VELOCITY VECTOR AND THE PLANE NORMAL TO THE SUN-TO-PROBE VECTOR), (26) CELESTIAL LONGITUDE OF PROBE (ANGULAR DISTANCE MEASURED COUNTERCLOCKWISE ALONG THE ECLIPTIC PLANE OF DATE FROM THE VERNAL EQUINOX TO THE PROJECTION OF THE SUN-PROBE VECTOR ON A PLANE AS VIEWED FROM THE ECLIPTIC NORTH POLE), (27) CELESTIAL LONGITUDE OF EARTH, (28) CELESTIAL LATITUDE OF EARTH, AND (29) VARIOUS CLOCK ANGLES AND HINGE AND SWIVEL ANGLES WHICH ARE DESCRIBED IN THE DOCUMENTATION.

BRIDGE, PIONEER 7

EXPERIMENT NAME- SOLAR WIND PLASMA FARADAY CUP

NSSDC ID- 66-075A-02

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 11/00/72

PERSONNEL
PI - H.S. BRIDGE ..... MASS INST OF TECH
CAMBRIDGE, MA

A MULTIGRID FARADAY CUP WITH TWO SEMICIRCULAR, COPLANAR COLLECTORS WAS USED TO STUDY SOLAR WIND IONS AND ELECTRONS. THE INSTRUMENT HAD 14 CONTIGUOUS ENERGY-PER-CHARGE CHANNELS BETWEEN 75 AND 9485 V FOR POSITIVE IONS AND FOUR ENERGY-PER-CHARGE CHANNELS BETWEEN 115 AND 1600 V FOR ELECTRONS. THE INSTRUMENT VIEW AXIS WAS PERPENDICULAR TO THE SPACECRAFT SPIN AXIS AND PARALLEL TO THE ECLIPTIC PLANE. THE LINE SEPARATING THE TWO COLLECTORS LAY IN THE ECLIPTIC PLANE, ENABLING A ROUGH DETERMINATION OF SOLAR WIND BULK FLOW PERPENDICULAR TO THE ECLIPTIC PLANE. DURING EVERY SECOND SPACECRAFT ROTATION AND AT ONE VOLTAGE LEVEL, THE SUM OF THE CURRENTS FROM THE COLLECTORS WAS OBTAINED IN 28 CONTIGUOUS 11.25-DEG ANGULAR SECTORS (FROM -45 DEG TO 270 DEG, WITH 0 DEG BEING THE SPACECRAFT-SUN LINE). THE EIGHT MEASUREMENTS ABOUT THE SUN-EARTH LINE (-45 DEG TO +45 DEG) WERE TELEMETERED, BUT ONLY THE LARGEST MEASUREMENT IN EACH SUCCEEDING 45-DEG INTERVAL (45 DEG TO 270 DEG) WAS TELEMETERED. IN ADDITION, DURING THIS ROTATION THE CURRENT FROM ONE OF THE COLLECTORS WAS MEASURED IN ALL TWENTY-EIGHT 11.25-DEG SECTORS, AND THE LARGEST WAS IDENTIFIED AND TELEMETERED (BOTH MAGNITUDE AND SECTOR). A COMPLETE SET OF POSITIVE ION MEASUREMENTS AND ONE ELECTRON MEASUREMENT WERE COMPLETED EVERY 32 SEC. THE TIME BETWEEN EACH 32-SEC GROUP OF MEASUREMENTS VARIED WITH THE BIT RATE. THE EXPERIMENT WORKED WELL FROM LAUNCH UNTIL IT BECAME INOPERABLE IN NOVEMBER 1972. FOR MORE COMPLETE INFORMATION, SEE J. GEOPHYS. RES., VOL 71, PP 3787-3791, AUGUST 1966.

DATA SET NAME- PLOTS OF HOURLY AVERAGED SOLAR WIND PLASMA PARAMETERS ON MICROFILM

NSSDC ID- 66-075A-02A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 08/18/66 TO 12/02/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THESE FIRST GENERATION ANALYZED DATA CONSIST OF TIME-ORDERED PLOTS OF 1-HR AVERAGES OF SOLAR WIND POSITIVE ION BULK SPEED (KM/SEC), DENSITY (NO./CUBIC CM), AND TEMPERATURE (IN 10,000 DEG K). INDIVIDUAL PLOTS CONTINUE FOR ONE SOLAR ROTATION (27 DAYS) AND ARE AVAILABLE ON ONE REEL OF 35-MM MICROFILM. DATA PLOTS FROM THE MIT EXPERIMENT ON PIONEER 6 (DATA SET 6S-105A-02A) APPEAR ON THIS SAME REEL OF MICROFILM. THE PLASMA PARAMETERS WERE DERIVED BY THE EXPERIMENTER ON THE ASSUMPTION OF AN ISOTROPIC MAXWELLIAN DISTRIBUTION FUNCTION (IN THE FRAME OF REFERENCE MOVING WITH THE BULK VELOCITY OF THE SOLAR WIND). DATA ARE AVAILABLE FROM AUGUST 18, 1966, TO OCTOBER 1966 WITH A 94 PERCENT COVERAGE, FROM OCTOBER 1966 TO FEBRUARY 1967 WITH A 50 PERCENT COVERAGE, AND FROM FEBRUARY

1967 TO DECEMBER 2, 1968, WITH A 30 PERCENT COVERAGE.,

DATA SET NAME- HOURLY AVERAGED VELOCITY AND DENSITY VALUES IN SGD BULLETINS

NSSDC ID- 66-075A-02B

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 06/02/69 TO 10/31/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 5 BOOK(S) OR BOUND VOLUME(S)

IN THIS DATA SET SOLAR WIND HOURLY AVERAGED VELOCITY AND DENSITY ARE PRESENTED AS LISTINGS AGAINST TIME. THESE DATA ARE IN CERTAIN ISSUES OF THE SOLAR GEOPHYSICAL DATA BULLETINS PUBLISHED BY ESSA, BOULDER, COLORADO.

DATA SET NAME- 1-HR AVG SOLAR WIND DATA FROM THE EXPERIMENTS ON PIONEER 6 AND PIONEER 7

NSSDC ID- 66-075A-02C

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 08/18/66 TO 12/02/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 BOOK(S) OR BOUND VOLUME(S)

THE CONTENTS OF THIS NSSDC/MIT PUBLICATION WERE CREATED AT THE CENTER FOR SPACE RESEARCH, MASSACHUSETTS INSTITUE OF TECHNOLOGY, CAMBRIDGE, MA. THE PUBLICATION CONTAINS A DESCRIPTION OF THE INSTRUMENT, A DESCRIPTION OF THE DATA TAKING AND ANALYSIS PROCEDURES, 27 ONE-DAY PLOTS OF 1 HR AVERAGES OF PLASMA PARAMETERS (DENSITY, TEMPERATURE, BULK, SPEED, POLAR AND AZIMUTHAL ANGLES OF FLOW WITH RESPECT TO THE ECLIPTIC), AND DATA AND TRAJECTORY INFORMATION IN BOTH TABULAR AND PLOTTED FORM. THE DOCUMENT IS ON 8-1/2- BY 11-INCH PAPER, IS 1-1/2-INCH THICK, AND HAS HOLES PUNCHED IN THE MARGINS FOR INSERTION INTO A STANDARD THREE-HOLE BINDER. PIONEER 6 DATA (65-105A-02C) ARE ALSO INCLUDED IN THIS DOCUMENT.

DATA SET NAME- HOURLY AVERAGED PLASMA PARAMETERS ON BCD 7-TRACK MAGNETIC TAPE

NSSDC ID- 66-075A-02D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 08/19/66 TO 11/29/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS MAGNETIC TAPE CONTAINS 1-HR AVERAGES OF NINE PARAMETERS FROM THE MIT SOLAR WIND EXPERIMENT. THE PARAMETERS ARE SOLAR WIND BULK SPEED, DENSITY, MOST PROBABLE THERMAL SPEED, FLUX, RATIO OF THERMAL TO BULK SPEED, TWO FLOW ANGLES, VELOCITY COMPONENT IN THE ECLIPTIC PERPENDICULAR TO THE RADIAL DIRECTION AND VELOCITY COMPONENT PERPENDICULAR TO THE ECLIPTIC. EACH RECORD CONTAINS TIME AND THE AVERAGES, STANDARD DEVIATIONS, AND NUMBER OF POINTS IN THE AVERAGE FOR EACH PARAMETER. THE TAPE IS A 7-TRACK, 800-BPI, BCD TAPE CREATED ON AN IBM 360. THERE ARE TEN 286-CHARACTER LOGICAL RECORDS BLOCKED PER PHYSICAL RECORD.

ESHLEMAN, PIONEER 7

EXPERIMENT NAME- TWO-FREQUENCY BEACON RECEIVER

NSSDC ID- 66-075A-04

STATUS OF OPERATION- OPERATIONAL OFF
DATE LAST USABLE DATA RECORDED- 04/01/67

PI - V.R. ESHLEMAN ..... STANFORD U
STANFORD, CA
OI - T.A. CROFT ..... STANFORD U
STANFORD, CA

BOTH 423.3-MHZ AND ITS 2/17 SUBHARMONIC 49.8-MHZ SIGNALS WERE TRANSMITTED FROM A 4.6-M STEERABLE PARABOLIC ANTENNA AT STANFORD UNIVERSITY TO THE TWO-FREQUENCY RADIO RECEIVER ON THE SPACECRAFT. THE HIGH-FREQUENCY SIGNAL SERVED AS A REFERENCE SIGNAL SINCE ITS PROPAGATION TIME WAS NOT APPRECIABLY DELAYED. THE LOW-FREQUENCY SIGNAL WAS DELAYED IN PROPORTION TO THE TOTAL ELECTRON CONTENT IN THE PROPAGATION PATH. ON THE SPACECRAFT, A PHASE LOCKED RECEIVER COUNTED THE BEAT FREQUENCY ZERO CROSSINGS OF THE RECEIVED SIGNALS TO OBTAIN MEASUREMENTS OF PHASE-PATH DIFFERENCES. DIFFERENTIAL DELAY OF THE GROUP VELOCITY WAS ALSO OBSERVED, AND THESE VALUES WERE TELEMETERED TO THE GROUND STATION. FROM CALCULATED TOTAL ELECTRON CONTENT VALUES, THE IONOSPHERIC EFFECT (UP TO A SELECTED ALTITUDE OBTAINED FROM OTHER EXPERIMENTAL TECHNIQUES) WAS SUBTRACTED TO PRODUCE DATA DESCRIBING THE INTERPLANETARY ELECTRON CONTENT OF THE SOLAR WIND AND ITS VARIATIONS. THE EXPERIMENT OPERATED NOMINALLY FROM LAUNCH TO NOVEMBER 29, 1967. FOR SIMILAR EXPERIMENTS COVERING OTHER TIME PERIODS, SEE 68-100A-03, 67-123A-03, 65-105A-04, AND 67-060A-02. MORE DETAILED DESCRIPTIONS OF THE EXPERIMENT CAN BE FOUND IN J. GEOPHYS. RES., 71, 3325-3327, 1966, AND IN RADIO SCIENCE, VOL. 6, 55-63, 1971.

DATA SET NAME- HOURLY VALUES OF REDUCED TOTAL ELECTRON CONTENT DATA ON TAPE

NSSDC ID- 66-075A-04A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 08/18/66 TO 11/29/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF DIGITIZED HOURLY VALUES OF TOTAL ELECTRON CONTENT THROUGH THE IONOSPHERE AND THE SOLAR WIND. THESE ARE REDUCED DATA CALCULATED FROM MEASUREMENTS OF THE DIFFERENTIAL DELAY OF THE GROUP VELOCITY. THE HOURLY DATA ARE REPRESENTATIVE VALUES MANUALLY SELECTED FROM ANALOG RECORDS. EACH SET OF HOURLY VALUES IS FOR THE PORTION OF THE DAY (ABOUT 12 HR PER DAY) WHEN THE SPACECRAFT WAS IN VIEW FROM THE STANFORD TRANSMITTER. THIS DATA SET IS ON ONE 556-BPI, 7-TRACK, BCD MAGNETIC TAPE GENERATED AT NSSDC FROM PUNCHED CARDS SUPPLIED BY THE EXPERIMENTER. THE TAPE ALSO CONTAINS IDENTICAL DATA FOR OTHER TIME PERIODS FROM PIONEERS 6 (65-105A-04A), 8 (67-123A-03A), AND 9 (68-100A-03A), AND MARINER 5 (67-060A-02A).

DATA SET NAME- HOURLY VALUES OF REDUCED TOTAL ELECTRON CONTENT DATA ON MICROFILM

NSSDC ID- 66-075A-04B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 08/18/66 TO 11/29/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF DIGITIZED AND PLOTTED HOURLY VALUES OF TOTAL ELECTRON CONTENT THROUGH THE IONOSPHERE AND THE SOLAR WIND. THESE ARE REDUCED DATA CALCULATED FROM MEASUREMENTS OF THE DIFFERENTIAL DELAY OF THE GROUP VELOCITY. THE HOURLY DATA ARE REPRESENTATIVE VALUES MANUALLY SELECTED FROM ANALOG RECORDS. EACH SET OF HOURLY VALUES IS FOR THE PORTION OF THE DAY (ABOUT 12 HR PER DAY) WHEN THE SPACECRAFT WAS IN VIEW FROM THE STANFORD TRANSMITTER. THIS DATA SET IS ON ONE REEL OF 35-MM MICROFILM GENERATED AT NSSDC FROM DATA SUPPLIED BY THE EXPERIMENTER. THIS REEL OF MICROFILM ALSO CONTAINS IDENTICAL DATA FOR OTHER TIME PERIODS FROM PIONEERS 6 (65-105A-04B), 8 (67-123A-04B), AND 9 (68-100A-03B) AND MARINER 5 (67-060A-02B) AND SOLAR WIND ELECTRON DENSITY PLOTS FROM PIONEERS 6 (65-105A-04E), 7 (60-075A-04E), 8 (67-123A-03D), AND 9 (68-100A-03D).

DATA SET NAME- DIGITAL VALUES OF SOLAR WIND ELECTRON DENSITY VS TIME NORMALIZED TO 1 AU ON TAPE

NSSDC ID- 66-075A-04D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 08/17/66 TO 10/26/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THESE DATA WERE PREPARED FROM THE ORIGINAL ANALOG RECORDS BY THE EXPERIMENTER'S STAFF. THE PRIMARY DATA CONSIST OF HOURLY VALUES OF NORMALIZED ELECTRON NUMBER DENSITY IN THE SOLAR WIND. TO OBTAIN THESE DATA, THE IONOSPHERIC TOTAL CONTENT WAS REMOVED FROM THE OBSERVED TOTAL CONTENT VALUES, AND THE TOTAL CONTENT PATH LENGTH WAS USED TO CONVERT TOTAL CONTENT TO DENSITY. THE RESULTING VALUES WERE THEN NORMALIZED TO 1 AU ASSUMING DENSITY TO BE PROPORTIONAL TO THE INVERSE SQUARE OF THE SATELLITE-SOLAR DISTANCE. VALUES RESULTING FROM INTERPOLATION ARE FLAGGED. NO INTERPOLATED VALUES WERE RECORDED WHEN DATA GAPS EXCEEDED 4 DAYS. THIS DATA SET IS ON ONE 800-BPI, 7-TRACK, ODD PARITY, BINARY MAGNETIC TAPE WRITTEN ON AN IBM 7094 COMPUTER. AUXILIARY DATA ON THE TAPE INCLUDE UT AND CARRINGTON ROTATION NUMBER. DATA ARE AVAILABLE FOR ABOUT 12 HR PER DAY WHEN THE SPACECRAFT WAS IN VIEW FROM THE STANFORD TRANSMITTER. IDENTICAL DATA FOR OTHER TIME PERIODS FROM PIONEERS 6 (65-105A-04D), 8 (67-123A-03C), AND 9 (68-100A-03C) AND MARINER 5 (67-060A-02C) ALSO APPEAR ON THIS TAPE.

DATA SET NAME- CORRECTED ELECTRON DENSITY PLOTS VERSUS TIME, ON MICROFILM

NSSDC ID- 66-075A-04E

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 09/12/66 TO 05/20/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THESE DATA WERE PREPARED FROM THE ORIGINAL ANALOG RECORDS BY THE EXPERIMENTER'S STAFF. THE PRIMARY DATA CONSIST OF PLOTS OF ELECTRON DENSITY VS TIME IN THE SOLAR WIND. TO OBTAIN THESE DATA, THE IONOSPHERIC TOTAL CONTENT FOR THE SAME TIMES AT A NEARBY LOCATION WERE REMOVED FROM THE OBSERVED TOTAL CONTENT VALUES. THEN THE OBSERVED TOTAL CONTENT PATH LENGTH WAS USED TO CONVERT TOTAL CONTENT TO DENSITY. THE RESULTING VALUES WERE NORMALIZED TO 1 AU, ASSUMING DENSITY TO BE PROPORTIONAL TO THE INVERSE SQUARE OF THE SATELLITE-SOLAR DISTANCE. THIS DATA SET IS ON ONE REEL OF 35-MM MICROFILM. THIS REEL OF MICROFILM ALSO CONTAINS IDENTICAL DATA FOR OTHER TIME PERIODS FROM PIONEERS 6 (65-105A-04E), 8 (67-123A-03D), AND 9 (68-100A-03D) AND HOURLY VALUES OF TOTAL ELECTRON CONTENT FROM PIONEERS 6 (65-105A-04B), 7 (66-075A-04B), 8 (67-123A-03B), 9 (68-100A-03B), AND MARINER 5 (67-060A-02B). THIS DATA SET IS ALSO AVAILABLE ON TAPE (66-075A-04D).

MCCRACKEN, PIONEER 7

EXPERIMENT NAME- COSMIC-RAY ANISOTROPY

NSSDC ID- 66-075A-05

STATUS OF OPERATION- PARTIAL

PERSONNEL

PI -	K.G.	MCCRACKEN	U OF ADELAIDE ADELAIDE, AUSTRALIA
OI -	W.C.	BARTLEY	NATL ACADEMY OF SCI WASHINGTON, DC
OI -	R.U.	RAO	PHYSICAL RESEARCH LA AHMADABED, INDIA

THIS EXPERIMENT WAS DESIGNED PRIMARILY TO MEASURE THE DIRECTIONAL CHARACTERISTICS OF GALACTIC AND SOLAR COSMIC RAY FLUXES. THE PARTICLE DETECTOR WAS A CSI (TL) SCINTILLATOR CRYSTAL THAT WAS SET INTO AN ANTICOINCIDENCE PLASTIC SCINTILLATOR COLLIMATOR CUP. SEPARATE PHOTOMULTIPLIER TUBES VIEWED THE TWO SCINTILLATORS. PULSES FROM THE CSI CRYSTAL THAT WERE NOT ACCOMPANIED BY PULSES FROM THE PLASTIC SCINTILLATOR WERE SORTED BY A THREE-WINDOW PULSE HEIGHT ANALYZER, THE WINDOWS CORRESPONDING TO ENERGY DEPOSITIONS OF 7.2 TO 47.4, 47.4 TO 64.5, AND 64.5 TO 81.2 MEV. NO POSITIVE SPECIES IDENTIFICATION WAS MADE ALTHOUGH MOST OF THE COUNTS IN EACH WINDOW WERE USUALLY DUE TO PROTONS WITH THE WINDOW ENERGIES. FOR EACH ENERGY WINDOW, COUNTS WERE SEPARATELY ACCUMULATED IN EACH OF FOUR ANGULAR SECTORS AS THE SPACECRAFT SPUN. EACH ANGULAR SECTOR WAS NORMALLY 89.5 DEG IN WIDTH, WITH THE SUN EITHER NEAR A SECTOR BOUNDARY OR IN THE MIDDLE OF A SECTOR. DEPENDING ON THE OPERATING MODE. HOWEVER, WHEN LARGE FLUXES WERE ENCOUNTERED, EACH ANGULAR SECTOR WAS REDUCED TO 11.2 DEG, WITH THE SUN EITHER IN A SECTOR OR NEAR THE MIDPOINT BETWEEN TWO SECTORS. A SPIN-INTEGRATED (ISOTROPIC) MODE, IN WHICH ALL PARTICLES DEPOSITING 7.2 MEV IN THE CSI CRYSTAL (NO ANTICOINCIDENCE REQUIREMENT) WERE COUNTED, WAS ALSO USED. ACCUMULATION TIMES FOR EACH OF THE 12 DIRECTIONAL MODES AND FOR THE OMNIDIRECTIONAL MODE VARIED BETWEEN 14 AND 112 SEC (SPACECRAFT SPIN PERIOD WAS ABOUT 1 SEC) DEPENDING ON THE TELEMETRY BIT RATE. DIRECTIONAL FLUX DATA RELIABILITY WAS REDUCED BY THE MALFUNCTION OF THE SUN PULSE MECHANISM BETWEEN FEBRUARY 9 AND FEBRUARY 16, 1969. OTHERWISE, THE INSTRUMENT FUNCTIONED NORMALLY, OBTAINING USEFUL OMNIDIRECTIONAL DATA. SEE THE SPACECRAFT BRIEF DESCRIPTION (66-075A) FOR INFORMATION ON PERCENT TIME COVERAGE VS TIME. SEE BARTLEY ET AL., REV. SCI. INSTRUM., 38, PAGE 266, 1967, FOR A MORE DETAILED EXPERIMENT DESCRIPTION.

DATA SET NAME- COUNT RATE LISTINGS ON MICROFILM

NSSDC ID- 66-075A-05A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 08/18/66 TO 01/31/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF A MICROFILMED COPY, GENERATED AT NSSDC, OF A HARDCOPY DATA LISTING SUPPLIED BY THE EXPERIMENTER. THERE ARE TWO FRAMES OF MICROFILM FOR EACH FULL DAY OF EXPERIMENT OPERATION, ONE FRAME FOR THE MODE WITH THE SUN NEAR THE MIDDLE OF AN ANGULAR SECTOR AND THE OTHER FRAME FOR THE MODE WITH THE SUN NEAR A SECTOR BOUNDARY. DATA PRESENTED INCLUDE HOURLY AVERAGED COUNT RATES FOR EACH OF FOUR ANGULAR SECTORS AND EACH OF THREE ENERGY WINDOWS, FOR THE OMNIDIRECTIONAL INTEGRAL-ENERGY MODE, AND FOR THE ESTIMATED GALACTIC COMPONENT OF THIS MODE. HOURLY AVERAGED, OMNIDIRECTIONAL (I.E., SUMMED OVER SECTOR COUNTS), ENERGY-WINDOW COUNT RATES ARE PRESENTED, AS ARE MEASURES OF THE AMOUNT OF FINER TIME SCALE DATA CONTRIBUTING TO EACH HOURLY AVERAGE. DAILY AVERAGES OF ALL THE COUNT RATES ARE GIVEN, AND 3-, 6-, AND 12-HR AVERAGES ARE GIVEN FOR THE LOWEST ENERGY WINDOW OMNIDIRECTIONAL MODE, FOR THE INTEGRAL-ENERGY OMNIDIRECTIONAL MODE, AND FOR THE ESTIMATED GALACTIC COMPONENT OF THIS MODE. DAILY MEASURES OF TEMPORAL PERCENT COVERAGES ARE ALSO GIVEN, WITH CONSIDERABLE VARIATION (FROM 0 TO 100) IN THE PERCENTAGES. DAYS FOR WHICH NO DATA EXIST ARE NOT FOUND ON THE MICROFILM. THE DATA ARE CONTAINED ON ONE REEL OF 35-MM MICROFILM THAT ALSO CONTAINS DATA SET 66-075A-05B.

DATA SET NAME- COUNT RATE PLOTS ON MICROFILM

NSSDC ID- 66-075A-05B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 08/17/66 TO 01/28/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF A MICROFILMED COPY, GENERATED AT NSSDC, OF HARDCOPY COUNT RATE PLOTS SUPPLIED BY THE EXPERIMENTER. EACH FRAME CONSISTS OF DATA FOR 7 DAYS. HOURLY AVERAGED COUNT RATES FOR THE OMNIDIRECTIONAL INTEGRAL-ENERGY AND ENERGY-WINDOW MODES ARE PRESENTED, AS ARE RELATIVE COUNT RATES FROM THE DEEP RIVER NEUTRON MONITOR. THE DATA ARE CONTAINED ON ONE REEL OF 35-MM MICROFILM THAT ALSO CONTAINS DATA SET 66-075A-05A.

SIMPSON, PIONEER 7

EXPERIMENT NAME- COSMIC-RAY TELESCOPE

NSSDC ID- 66-075A-06

STATUS OF OPERATION- NORMAL

PI - J.A. SIMPSON ..... U OF CHICAGO
CHICAGO, IL
OI - C.Y. FAN ..... U OF ARIZONA
TUCSON, AZ
OI - J.E. LAMPORT ..... U OF CHICAGO
CHICAGO, IL

THIS EXPERIMENT USED A CHARGED PARTICLE TELESCOPE COMPOSED OF FOUR SILICON SOLID-STATE DETECTORS TO STUDY THE ANISOTROPY AND FLUCTUATIONS OF SOLAR PROTONS AND ALPHA PARTICLES. THE PROTON ENERGY RANGES SAMPLED WERE 0.6 TO 12.7 MEV, 12.7 TO 73.0 MEV, 73.0 TO 165 MEV, AND E.GT. 165 MEV (CORRESPONDING TO DETECTOR COINCIDENCES D1D2NOTD4, D1D2NOTD3NOTD4, D1D2D3NOTD4, AND NOTD1D2D3NOTD4). THE ALPHA PARTICLE ENERGY RANGES SAMPLED WERE 2.5 TO 52 MEV, 52 TO 280 MEV, AND E.GT. 280 MEV (CORRESPONDING TO THE FIRST THREE DETECTOR COINCIDENCES). THE TIME RESOLUTION RANGED FROM ABOUT ONE MEASUREMENT PER 0.4 SEC TO ABOUT ONE MEASUREMENT PER 28 SEC DEPENDING ON THE TELEMETRY BIT RATE. THE DETECTOR WAS MOUNTED TO MAKE A 360-DEG SCAN IN THE ECLIPTIC PLANE ABOUT ONCE PER SECOND. THE D3 DETECTOR FAILED ON MAY 26, 1969.

DATA SET NAME- REDUCED COUNT RATE AND PULSE HEIGHT ANALYZER DATA ON MAGNETIC TAPE

NSSDC ID- 66-075A-06A

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 08/17/66 TO 12/29/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 8 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF PROTON AND ALPHA PARTICLE COUNT AND PULSE HEIGHT ANALYZER ACCUMULATOR READINGS IN A TIME-ORDERED FORMAT ON 7-TRACK, BINARY, IBM 7094 COMPATIBLE MAGNETIC TAPES WRITTEN AT 800 BPI. THE TIME RESOLUTION FOR THE COUNT ACCUMULATOR DATA RANGED FROM ABOUT ONE MEASUREMENT PER 0.4 TO 28 SEC DEPENDING ON THE SPACECRAFT TELEMETRY RATE. THE TAPE FORMAT CONSISTS OF PHYSICAL RECORDS EACH 6000, 6-BIT BYTES IN LENGTH. EACH PHYSICAL RECORD CONSISTS OF 500 LOGICAL RECORDS OF 12 BYTES EACH. THE LOGICAL RECORDS INCLUDE HEADER AND DATA LOGICAL RECORDS. A GIVEN HEADER LOGICAL RECORD IS FOLLOWED BY FROM 1 TO 64 DATA LOGICAL RECORDS OF THE SAME SPACECRAFT SUBCOM SEQUENCE. EACH TAPE TERMINATES WITH AN EOF FLAG IN THE LAST GOOD DATA RECORD. EACH HEADER LOGICAL RECORD INCLUDES VARIOUS SPACECRAFT TEMPERATURES, SPIN RATE, TELEMETRY BIT RATE, AND OTHER HOUSEKEEPING PARAMETERS. EACH DATA LOGICAL RECORD INCLUDES TIME, PULSE HEIGHT ANALYZER OUTPUT, FOUR TELESCOPE COINCIDENCE COUNT RATES AND DATA QUALITY INFORMATION. THE DATA ARE UNCORRECTED BUT HAVE BEEN EDITED TO THE EXTENT THAT DOUBTFUL INFORMATION HAS BEEN FLAGGED AND UNUSABLE DATA HAS BEEN DELETED.

DATA SET NAME- COUNT RATE PLOTS (COUNTS/SEC VS DAY NUMBER) AND TRAJECTORY PLOT ON MICROFILM

NSSDC ID- 66-075A-06D

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 08/17/66 TO 12/27/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THE DATA SET IS CONTAINED ON ONE REEL OF 16-MM MICROFILM WHICH INCLUDES (1) A PLOT OF THE PIONEER 7 TRAJECTORY IN HELIOCENTRIC SOLAR ECLIPTIC COORDINATES COVERING THE TIME INTERVAL FROM DAY 229 OF 1966 (AUGUST 17, 1966) TO DAY 190 OF 1971 (JULY 9, 1971) AND (2) COUNT RATE PLOTS (COUNTS PER SEC VS DAY NUMBER) PRODUCED ON A CALCOMP PLOTTER FOR 27-DAY INTERVALS FOR THE TELESCOPE COINCIDENCE COMBINATION WHICH CORRESPOND TO THE FOLLOWING ENERGY INTERVAL FOR PROTONS -- 0.6 TO 12.7 MEV, 12.7 TO 73.0 MEV, 7.0 TO 165 MEV, AND E.GT. 165 MEV. THE COUNT RATE DATA ARE A COMPOSITE OF REAL-TIME DATA AND DUTY CYCLE STORAGE DATA AND COVER THE TIME INTERVAL FROM AUGUST 17, 1966, TO DECEMBER 27, 1968.

DATA SET NAME- COSMIC-RAY PROTON COUNTING RATES PUBLISHED IN 'SOLAR GEOPHYSICAL DATA'

NSSDC ID- 66-075A-06E

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 03/07/69 TO 08/07/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 32 BOOK(S) OR BOUND VOLUME(S)

THIS DATA SET CONSISTS OF MONTHLY TABULAR LISTINGS OF DIRECTIONAL COUNTING RATES OF PROTONS WITH ENERGIES IN THE INTERVALS 0.6 TO 12.7 MEV, 12.7 TO 165 MEV, AND GREATER THAN 165 MEV. THE RATES ARE TYPICALLY GIVEN ONCE PER DAY. A LETTER FLAG INDICATES WHETHER THE FLUX WAS RISING, STEADY, OR FALLING AT THE TIME FOR WHICH THE DATA ARE PRESENTED. DATA OBTAINED DURING A GIVEN MONTH ARE PUBLISHED IN 'SOLAR GEOPHYSICAL DATA (PROMPT REPORTS)' WITH A 1-MONTH LAG.

WOLFE, PIONEER 7

EXPERIMENT NAME- ELECTROSTATIC ANALYZER

NSSDC ID- 66-075A-03

STATUS OF OPERATION- PARTIAL

PERSONNEL
PI - J.H. WOLFE ..... NASA-ARC
MOFFETT FIELD, CA
OI - R.W. SILVA ..... NASA-ARC
MOFFETT FIELD, CA

A QUADRISPHERICAL ELECTROSTATIC ANALYZER WITH EIGHT CONTIGUOUS CURRENT COLLECTORS WAS USED TO STUDY THE DIRECTIONAL INTENSITY OF THE ELECTRONS AND POSITIVE IONS IN THE SOLAR WIND. IONS WERE DETECTED IN 16 LOGARITHMICALLY EQUISPACED ENERGY PER UNIT CHARGE (E/Q) STEPS FROM 200 TO 10,000 V. THERE WAS AN ELECTRON MODE OF OPERATION IN WHICH ELECTRONS WERE MEASURED IN EIGHT LOGARITHMICALLY EQUISPACED ENERGY PER CHARGE STEPS RANGING FROM 0 TO 500 V. THE EIGHT COLLECTORS MEASURED PARTICLES INCIDENT FROM EIGHT DIFFERENT CONTIGUOUS ANGULAR INTERVALS RELATIVE TO THE SPACECRAFT EQUATORIAL PLANE (SAME AS THE ECLIPTIC PLANE). THERE WERE FOUR 15-DEG INTERVALS, TWO 20-DEG INTERVALS, AND TWO 30-DEG INTERVALS. AS THE SPACECRAFT WAS SPINNING, FLUXES WERE MEASURED IN 15 AZIMUTHAL ANGULAR SECTORS. EIGHT OF THESE SECTORS WERE 5-5/8 DEG WIDE, WERE CONTIGUOUS, AND BRACKETED THE SOLAR DIRECTION. THE REMAINING SEVEN SECTORS WERE 45 DEG WIDE. THREE DIFFERENT MODES OF DATA COLLECTION WERE USED. AT THE HIGHEST BIT RATE (512 BPS), THE FULL SCAN MODE WAS ALTERNATED WITH THE MAXIMUM FLUX MODE AT EACH E/Q STEP. IN THE FULL SCAN MODE, THE MAXIMUM FLUX OBSERVED IN EACH OF THE 15 AZIMUTHAL SECTORS AS THE SPACECRAFT ROTATED WAS RECORDED FOR A GIVEN SINGLE COLLECTOR AT A GIVEN E/Q STEP. DURING 24 SUCCESSIVE OPERATIONS OF THE FULL SCAN MODE (48 SPACECRAFT REVOLUTIONS), THE 16 ION E/Q STEPS AND EIGHT ELECTRON E/Q STEPS WERE EXERCISED FOR A GIVEN COLLECTOR. DURING EIGHT SUCCESSIVE SUCH PERIODS, EACH OF THE EIGHT COLLECTORS WAS EXERCISED. THE FULL CYCLE OF FULL SCAN MODE DATA REQUIRED 400 SPACECRAFT REVOLUTIONS (ABOUT 400 SEC). SUCH CYCLES WERE REPEATED WITHOUT INTERRUPTION AT THE HIGH BIT RATE. IN THE MAXIMUM FLUX MODE, FOR THE E/Q STEP USED IN THE PRECEDING REVOLUTION OF FULL SCAN MODE OPERATION, ALL COLLECTORS WERE OBSERVED FOR ONE REVOLUTION, AND THE MAXIMUM FLUX OBSERVED WAS REPORTED ALONG WITH THE NUMBER OF THE COLLECTOR THAT OBSERVED IT AND THE ANGULAR DIRECTION (2-13/16-DEG RESOLUTION) OF THE OBSERVATION. AT THE NEXT HIGHEST BIT RATE (256 BPS), THE SHORT SCAN MODE WAS ALTERNATED EVERY SPACECRAFT REVOLUTION WITH THE MAXIMUM FLUX MODE. THE SHORT SCAN MODE WAS THE SAME AS THE FULL SCAN EXCEPT THAT ONLY THE PEAK FLUX IN EACH OF THE EIGHT 5-5/8-DEG-WIDE AZIMUTHAL SECTORS WAS RECORDED. THUS, THIS CYCLE ALSO TOOK 400 SPACECRAFT REVOLUTIONS. AT THE LOW BIT RATES (64, 16, AND 8 BPS), THE MAXIMUM FLUX MODE ALONE WAS USED. THUS, NO AZIMUTHAL DISTRIBUTIONS WERE MEASURED. AT THE LOW BIT RATES, IT TOOK 32 SEC FOR A COMPLETE SET OF ION MEASUREMENTS AND 16 SEC FOR A COMPLETE SET OF ELECTRON MEASUREMENTS. AT 64 BPS, THE ION AND ELECTRON MEASUREMENTS WERE TAKEN AND TELEMETERED EVERY 84 SEC. AT 16 BPS, THEY WERE TAKEN AND TELEMETERED EVERY 336 SEC. AT 8 BPS, THEY WERE TAKEN AND TELEMETERED EVERY 672 SEC.

DATA SET NAME- PLOTS OF ANALYZED PLASMA PARAMETERS ON MICROFILM

NSSDC ID- 66-075A-03A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 08/17/66 TO 02/09/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 11 REEL(S) OF MICROFILM

THESE ANALYZED DATA WERE SUPPLIED BY THE EXPERIMENTER AND CONSIST OF TIME-ORDERED PLOTS OF THE FOLLOWING SOLAR WIND PARAMETERS -- (1) PROTON NUMBER DENSITY (PROTONS/CUBIC CM),

(2) AZIMUTH (SOLAR ECLIPTIC LONGITUDE) OF THE PEAK PARTICLE FLUX FOR IONS (DEG), (3) BULK VELOCITY (KM/SEC), (4) POLAR ANGLE (SOLAR ECLIPTIC LATITUDE) OF THE PEAK PARTICLE FLUX (DEG), (5) PROTON TEMPERATURE AND HELIUM TEMPERATURE (DEG), (6) HELIUM/HYDROGEN RATIO (NUMBER OF HELIUM IONS/CUBIC CM/NUMBER OF PROTONS/CUBIC CM), (7) ELECTRON TEMPERATURE (DEG K), AND (8) TWO INDICATORS OF THE ANISOTROPY IN THE SOLAR PLASMA ION TEMPERATURE DISTRIBUTION. THE EXPERIMENTER GIVES THE FOLLOWING INDICATORS OF ACCURACY -- (1) BULK VELOCITY, GOOD TO WITHIN 10 PERCENT, (2) DIRECTION, GOOD TO A FEW DEGREES, AND (3) TEMPERATURE AND DENSITY, COULD BE OFF BY AS MUCH AS 200 PERCENT. THE PLOTS ARE AVAILABLE ON 16-MM MICROFILM. THE PLASMA PARAMETERS WERE DERIVED BY THE EXPERIMENTER BASED ON THE ASSUMPTION OF AN ISOTROPIC MAXWELLIAN DISTRIBUTION FUNCTION (IN THE FRAME MOVING WITH THE BULK SOLAR WIND VELOCITY). DATA ARE AVAILABLE FROM AUGUST 17, 1966, TO DECEMBER 1966 WITH A 90 PERCENT COVERAGE, FROM DECEMBER 1966 TO MARCH 1967 WITH A 50 PERCENT COVERAGE, AND FROM MARCH 1967 TO NOVEMBER 19, 1968, WITH A 10 PERCENT COVERAGE.

DATA SET NAME- PUBLISHED PRELIMINARY SOLAR WIND PARAMETERS

NSSDC ID- 66-075A-03B

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 08/20/66 TO 08/07/74
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 55 BOOK(S) OR BOUND VOLUME(S)

THIS DATA SET CONSISTS OF PRELIMINARY SOLAR WIND PARAMETERS PRESENTED IN THE MONTHLY PUBLICATION 'SOLAR-GEOPHYSICAL DATA' ISSUED BY THE NOAA ENVIRONMENTAL RESEARCH LABORATORIES. THESE PARAMETERS ARE DETERMINED BY MEASUREMENTS ON THE PIONEER 6 AND 7 SPACE PROBES. THE INFORMATION GIVEN CONSISTS OF DATE, TIME, SPACECRAFT, PASS NUMBER, BULK VELOCITY, AND COROTATION DELAY TIME. THE BULK VELOCITY IS ACCURATE TO 10 PERCENT. THE COROTATION DELAY TIME IS THE NUMBER OF DAYS BETWEEN THE OBSERVATION AT THE SPACECRAFT AND THE SUBSEQUENT OBSERVATION AT THE EARTH OF THE COROTATING INTERPLANETARY MAGNETIC FLUX TUBE (ASSUMING THAT THE SOLAR WIND SPEED REPORTED REMAINS CONSTANT). TYPICALLY, THERE IS ONE VELOCITY VALUE GIVEN FOR EACH SATELLITE PER DAY. ON ABOUT 30 PERCENT OF THE DAYS, NO DATA ARE GIVEN. THERE IS A 1-MONTH LAG BETWEEN THE TIME THE DATA ARE ACQUIRED AND THE TIME THE DATA ARE PUBLISHED.

DATA SET NAME- HOURLY AVERAGED PLASMA PARAMETERS

NSSDC ID- 66-075A-03C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 08/19/66 TO 11/28/66
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THESE ANALYZED DATA WERE SUPPLIED BY THE EXPERIMENTER AND CONSIST OF TIME-ORDERED HOURLY AVERAGES OF THE FOLLOWING SOLAR WIND PARAMETERS - THE ALPHA/PROTON NUMBER DENSITY RATIO, THE PROTON NUMBER DENSITY, THE ALPHA PARTICLE TEMPERATURE (DEG K), THE PROTON TEMPERATURE (DEG K), THE BULK VELOCITY (KM/SEC), THE AZIMUTHAL ANGLE (SOLAR ECLIPTIC LONGITUDE) OF THE PEAK PARTICLE FLUX (DEG), AND THE POLAR ANGLE (SOLAR ECLIPTIC LATITUDE) OF THE PEAK PARTICLE FLUX (DEG). THE ABOVE PLASMA PARAMETERS ARE GOOD TO 10 PERCENT. THE DATA WERE DERIVED BY THE EXPERIMENTER BASED ON THE ASSUMPTION OF AN ISOTROPIC MAXWELLIAN DISTRIBUTION FUNCTION (IN THE FRAME MOVING WITH THE BULK SOLAR WIND VELOCITY). THE DATA ARE CONTAINED ON ONE 9-TRACK, IBM 360, BINARY MAGNETIC TAPE WRITTEN AT A DENSITY OF 800 BPI. THE TAPE IS WRITTEN WITH VARIABLE LENGTH UNBLOCKED RECORDS. THE DATA CONSIST OF ALL THE HIGH BIT RATE DATA AND HAVE A 90 PERCENT COVERAGE OVER THE PERIOD INDICATED. A MICROFILMED COMPUTER LISTING OF THESE TAPES IS AVAILABLE AT NSSDC AS 66-075A-03D.

SPACECRAFT COMMON NAME- PIONEER 8

ALTERNATE NAMES- PIONEER-C, 03066

NSSDC ID- 67-123A

LAUNCH DATE- 12/13/67 WEIGHT- 146. KG

STATUS OF OPERATION- PARTIAL

ORBIT PARAMETERS

ORBIT TYPE- HELIOCENTRIC	EPOCH DATE- 12/13/67
ORBIT PERIOD- 386.6 DAYS	INCLINATION- .0578 DEG
PERIAPSIS- .9892 AU RAD	APOAPSIS- 1.0880 AU RAD

PIONEER 8 WAS THE THIRD IN A SERIES OF SOLAR-ORBITING, SPIN-STABILIZED, SOLAR CELL, AND BATTERY-POWERED SATELLITES DESIGNED TO OBTAIN MEASUREMENTS OF INTERPLANETARY PHENOMENA FROM WIDELY SEPARATED POINTS IN SPACE ON A CONTINUING BASIS. THE SPACECRAFT CARRIED EXPERIMENTS TO STUDY THE POSITIVE IONS AND ELECTRONS IN THE SOLAR WIND, THE INTERPLANETARY ELECTRON DENSITY (RADIO PROPAGATION EXPERIMENT), SOLAR AND GALACTIC COSMIC RAYS, THE INTERPLANETARY MAGNETIC FIELD, COSMIC DUST, AND ELECTRIC FIELDS. ITS MAIN ANTENNA WAS A HIGH-GAIN DIRECTIONAL ANTENNA. THE SPACECRAFT WAS SPIN-STABILIZED AT ABOUT 60 RPM, AND THE SPIN AXIS WAS PERPENDICULAR TO THE ECLIPTIC PLANE AND POINTED TOWARD THE SOUTH ECLIPTIC POLE. BY GROUND COMMAND, ONE OF FIVE BIT RATES, ONE OF FOUR DATA FORMATS, AND ONE OF FOUR OPERATING MODES COULD BE SELECTED. THE FIVE BIT RATES WERE 512, 256, 64, 16, AND 8 BPS. THREE OF THE FOUR DATA FORMATS WERE USED PRIMARILY FOR SCIENTIFIC DATA AND CONSISTED OF THIRTY-TWO 7-BIT WORDS PER FRAME. ONE SCIENTIFIC DATA FORMAT WAS USED AT THE TWO HIGHEST BIT RATES. ANOTHER WAS USED AT THE THREE LOWEST BIT RATES. THE THIRD WAS USED FOR DATA FROM ONLY THE RADIO PROPAGATION EXPERIMENT. THE FOURTH DATA FORMAT WAS USED MAINLY FOR ENGINEERING DATA. THE FOUR OPERATING MODES WERE (1) REAL TIME, (2) TELEMETRY STORE, (3) DUTY CYCLE STORE, AND (4) MEMORY READOUT. IN THE REAL-TIME MODE, DATA WERE SAMPLED AND TRANSMITTED DIRECTLY (WITHOUT STORAGE) AS SPECIFIED BY THE DATA FORMAT AND BIT RATE SELECTED. IN THE TELEMETRY STORE MODE, DATA WERE STORED AND TRANSMITTED SIMULTANEOUSLY IN THE FORMAT AND AT THE BIT RATE SELECTED. IN THE DUTY CYCLE STORE MODE, A SINGLE FRAME OF SCIENTIFIC DATA WAS COLLECTED AND STORED AT A RATE OF 512 BPS. THE TIME INTERVAL BETWEEN THE COLLECTION AND STORAGE OF SUCCESSIVE FRAMES COULD BE VARIED BY GROUND COMMAND BETWEEN 2 AND 17 MIN TO PROVIDE PARTIAL DATA COVERAGE FOR PERIODS UP TO 19 HR, AS LIMITED BY THE BIT STORAGE CAPACITY. IN THE MEMORY READOUT MODE, DATA WERE READ OUT AT WHATEVER BIT RATE WAS APPROPRIATE TO THE SATELLITE DISTANCE FROM THE EARTH. THE BIT RATE FOR THE MAJORITY OF THE DATA WAS 512 BPS FROM DECEMBER 13, 1967 TO MARCH 20, 1968, 256 BPS FROM MARCH 20, 1968 TO MAY 6, 1968, 64 BPS FROM MAY 6, 1968 TO AUGUST 29, 1968, AND 16 OR 8 BPS THEREAFTER. HIGHER BIT RATES WERE USED WHEN THE SPACECRAFT WAS TRACKED BY THE 64-M ANTENNA, BUT THE DATA COVERAGE BY THIS ANTENNA WAS LOW. DATA COVERAGE AVERAGED CLOSE TO 100 PERCENT FOR THE FIRST YEAR AFTER LAUNCH. AFTER THAT, THE DATA COVERAGE AVERAGED BETWEEN 50 AND 80 PERCENT UNTIL NOVEMBER 1970 WHEN COVERAGE DROPPED TO BETWEEN 50 AND 0 PERCENT. ALMOST NO DATA HAVE BEEN ACQUIRED SINCE MAY 1971. DURING A REORIENTATION MANEUVER IN MARCH 1968, ONE OF THE FOUR SUN SENSORS (WHICH WAS CONNECTED TO THE ATTITUDE GAS SYSTEM USED TO KEEP THE SPIN AXIS POINTED) WAS FOUND TO BE INOPERATIVE. IT WAS NOTED AT THIS TIME THAT THE SPACECRAFT ATTITUDE WAS OFF 4 DEG. ANOTHER ORIENTATION WAS ATTEMPTED IN JUNE 1968, AND IT WAS FOUND THAT THREE OF THE FOUR ATTITUDE SUN SENSORS WERE INOPERATIVE.

DATA SET NAME- COMPRESSED EPHEMERIS DATA ON MAGNETIC TAPE

NSSDC ID- 67-123A-00E

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/13/67 TO 11/15/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET WHICH CONTAINS COMPLETE TRAJECTORY INFORMATION WAS GENERATED AT NSSDC BY TAKING THE MOST ACCURATE INFORMATION FROM EACH EPHEMERIS TAPE PROVIDED BY JPL (DATA SET 67-123A-00D) AND ELIMINATING OVERLAP. THE DATA SET CONSISTS OF ONE 7-TRACK, IBM 7094, 800-BPI, BINARY MAGNETIC TAPE. EACH LOGICAL RECORD CONTAINS 89 WORDS, AND EACH PHYSICAL RECORD CONTAINS 20 LOGICAL RECORDS. THE FOLLOWING INFORMATION IS AVAILABLE IN INTERVALS OF ONE DAY (EXCEPT FOR PERIODS WHEN THE SPACECRAFT IS CLOSE TO THE EARTH, WHEN THE INTERVAL MAY BE SHORTER) -- (1) DATE, (2) TIME, (3) DISTANCE FROM THE EARTH TO THE PROBE, (4) DISTANCE FROM THE EARTH TO THE SUN, (5) DISTANCE FROM THE EARTH TO THE MOON, (6) DISTANCE FROM THE SUN TO THE PROBE, (7) GEOCENTRIC RIGHT ASCENSION AND DECLINATION OF PROBE, SUN, MOON, (8) GEOCENTRIC LATITUDE, LONGITUDE, AND ALTITUDE ABOVE THE EARTH, (9) EARTH-SUN-PROBE ANGLE, (10) EARTH-PROBE-SUN ANGLE, (11) SUN-PROBE-NEAR LIMB OF EARTH ANGLE

(SUN-PROBE-EARTH ANGLE MINUS THE ANGULAR SEMI-DIAMETER OF EARTH WHERE THE ANGULAR SEMI-DIAMETER WOULD BE THE PROBE-CENTERED ANGLE BETWEEN EARTH LIMB AND CENTER OF EARTH), (12) MOON-EARTH-PROBE ANGLE, (13) MOON-PROBE-SUN ANGLE, (14) EARTH-PROBE-MOON ANGLE, (15) CANOPUS-PROBE-EARTH ANGLE, (16) CANOPUS-PROBE-SUN ANGLE, (17) ANGLE MADE BY THE SUN TO PROBE VECTOR AND THE ECLIPTIC PLANE OF DATE, (18) X, Y, Z COMPONENTS OF SPACECRAFT IN THE SUN-EARTH LINE COORDINATE SYSTEM (SUN-CENTERED SYSTEM, X AXIS IS ALONG THE SUN-TO-EARTH VECTOR, Z AXIS IS TOWARD ECLIPTIC NORTH POLE), (19) LONGITUDE OF SPACECRAFT IN THE SUN-EARTH LINE COORDINATE SYSTEM, (20) X, Y, Z COMPONENTS OF SPACECRAFT IN GEOCENTRIC, SELENOCENTRIC, HELIOCENTRIC VENUS-CENTERED, MARS-CENTERED, SATURN-CENTERED, AND JUPITER-CENTERED INERTIAL COORDINATES (X POINTS TO VERNAL EQUINOX, Z POINTS ALONG THE NORTH POLE VECTOR WITH THE REFERENCE PLANE BEING THE EARTH'S TRUE EQUATOR OF DATE, (21) MAGNITUDE OF THE VELOCITY VECTOR AND X, Y, Z COMPONENTS OF THE VELOCITY VECTOR IN GEOCENTRIC INERTIAL COORDINATES, (22) GEOCENTRIC INERTIAL PATH ANGLE (ANGLE MADE BY PROBE VELOCITY VECTOR AND PLANE NORMAL TO EARTH-TO-PROBE VECTOR), (23) GEOCENTRIC INERTIAL AZIMUTH ANGLE (ANGLE BETWEEN THE PLANE DEFINED BY THE EARTH-TO-PROBE VECTOR AND THE GEOCENTRIC INERTIAL VELOCITY VECTOR), (24) HELIOCENTRIC INERTIAL VELOCITY, (25) HELIOCENTRIC INERTIAL PATH ANGLE (ANGLE MADE BY THE HELIOCENTRIC VELOCITY VECTOR AND THE PLANE NORMAL TO THE SUN-TO-PROBE VECTOR), (26) CELESTIAL LONGITUDE OF PROBE (ANGULAR DISTANCE MEASURED COUNTERCLOCKWISE ALONG THE ECLIPTIC PLANE OF DATE FROM THE VERNAL EQUINOX TO THE PROJECTION OF THE SUN-PROBE VECTOR ON A PLANE AS VIEWED FROM THE ECLIPTIC NORTH POLE), (27) CELESTIAL LONGITUDE OF EARTH, (28) CELESTIAL LATITUDE OF EARTH, AND (29) VARIOUS CLOCK ANGLES AND HINGE AND SWIVEL ANGLES WHICH ARE DESCRIBED IN THE DOCUMENTATION.

ESHLEMAN, PIONEER 8

EXPERIMENT NAME- TWO-FREQUENCY BEACON RECEIVER

NSSDC ID- 67-123A-03

STATUS OF OPERATION- NORMAL

PERSONNEL

PI -	V.R.	ESHLEMAN	STANFORD U STANFORD, CA
OI -	T.A.	CROFT	STANFORD U STANFORD, CA
OI -	H.T.	HOWARD	STANFORD U STANFORD, CA
OI -	R.L.	LEADABRAND	STANFORD RES INST MENLO PARK, CA
OI -	R.A.	LONG	STANFORD RES INST MENLO PARK, CA
OI -	A.M.	PETERSON	STANFORD U STANFORD, CA

BOTH 423.3-MHZ AND ITS 2/17 SUBHARMONIC 49.8-MHZ SIGNALS WERE TRANSMITTED FROM A 46-M STEERABLE PARABOLIC ANTENNA AT STANFORD UNIVERSITY TO THE TWO-FREQUENCY RADIO RECEIVER ON THE SPACECRAFT. THE HIGH-FREQUENCY SIGNAL SERVED AS A REFERENCE SIGNAL SINCE ITS PROPAGATION TIME WAS NOT APPRECIABLY DELAYED. THE LOW-FREQUENCY SIGNAL WAS DELAYED IN PROPORTION TO THE TOTAL ELECTRON CONTENT IN THE PROPAGATION PATH. ON THE SPACECRAFT, A PHASE-LOCKED RECEIVER COUNTED THE BEAT FREQUENCY ZERO CROSSINGS OF THE RECEIVED SIGNALS TO OBTAIN MEASUREMENTS OF PHASE-PATH DIFFERENCES. DIFFERENTIAL DELAY OF THE GROUP VELOCITY WAS ALSO OBSERVED, AND THESE VALUES WERE TELEMETERED TO THE GROUND STATION. FROM CALCULATED TOTAL ELECTRON CONTENT VALUES, THE IONOSPHERIC EFFECT (UP TO A SELECTED ALTITUDE OBTAINED FROM OTHER EXPERIMENTAL TECHNIQUES) COULD BE SUBTRACTED TO PRODUCE DATA DESCRIBING THE INTERPLANETARY ELECTRON CONTENT OF THE SOLAR WIND AND ITS VARIATIONS. FOR SIMILAR EXPERIMENTS COVERING OTHER TIME PERIODS, SEE 68-100A-03, 65-075A-04, 65-105A-04, AND 67-060A-02. A MORE DETAILED DESCRIPTION OF THE EXPERIMENT CAN BE FOUND IN JOURNAL OF GEOPHYSICAL RESEARCH, VOL 17, PP 3325-3327, AND IN RADIO SCIENCE, VOL 6, PP 55-63.

DATA SET NAME- HOURLY VALUES OF REDUCED TOTAL ELECTRON CONTENT DATA ON PUNCHED CARDS

NSSDC ID- 67-123A-03A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/14/67 TO 08/25/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF DIGITIZED HOURLY VALUES OF TOTAL ELECTRON CONTENT THROUGH THE IONOSPHERE AND THE SOLAR WIND. THESE ARE REDUCED DATA CALCULATED FROM MEASUREMENTS OF THE DIFFERENTIAL DELAY OF THE GROUP VELOCITY. THE HOURLY DATA ARE REPRESENTATIVE VALUES MANUALLY SELECTED FROM ANALOG RECORDS. EACH SET OF HOURLY VALUES IS FOR THE PORTION OF THE DAY (ABOUT 12 HR PER DAY) WHEN THE SPACECRAFT WAS IN VIEW FROM THE STANFORD TRANSMITTER. THIS DATA SET IS ON ONE 556-BPI, 7-TRACK, BCD MAGNETIC TAPE GENERATED AT NSSDC FROM PUNCHED CARDS SUPPLIED BY THE EXPERIMENTER. THE TAPE ALSO CONTAINS IDENTICAL DATA FOR OTHER TIME PERIODS FROM PIONEERS 6, (65-105A-04A), 7 (60-075A-04A), AND 9 (68-100A-03A) AND MARINER 5 (67-060A-02A).

DATA SET NAME- HOURLY VALUES OF REDUCED TOTAL ELECTRON CONTENT DATA ON MICROFILM

NSSDC ID- 67-123A-03B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/14/67 TO 08/25/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF DIGITIZED AND PLOTTED HOURLY VALUES OF TOTAL ELECTRON CONTENT THROUGH THE IONOSPHERE AND THE SOLAR WIND. THESE ARE REDUCED DATA CALCULATED FROM MEASUREMENTS OF THE DIFFERENTIAL DELAY OF THE GROUP VELOCITY. THE HOURLY DATA ARE REPRESENTATIVE VALUES MANUALLY SELECTED FROM ANALOG RECORDS. EACH SET OF HOURLY VALUES IS FOR THE PORTION OF THE DAY (ABOUT 12 HR PER DAY) WHEN THE SPACECRAFT WAS IN VIEW FROM THE STANFORD TRANSMITTER. THIS DATA SET IS ON ONE REEL OF 35-MM MICROFILM GENERATED AT NSSDC FROM DATA SUPPLIED BY THE EXPERIMENTER. THIS REEL OF MICROFILM ALSO CONTAINS IDENTICAL DATA FOR OTHER TIME PERIODS FROM PIONEERS 6 (65-105A-04B), 7 (66-075A-04B), 9 (68-100A-03B) AND MARINER 5 (67-060A-02B) AND SOLAR WIND ELECTRON DENSITY PLOTS FROM PIONEERS 6 (65-105A-04E), 7 (66-075A-04E), 8 (67-123A-03D), AND 9 (68-100A-0ED).

DATA SET NAME- DIGITAL VALUES OF SOLAR WIND ELECTRON DENSITY VS TIME NORMALIZED TO 1 AU ON TAPE

NSSDC ID- 67-123A-03C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/19/67 TO 03/07/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THESE DATA WERE PREPARED FROM THE ORIGINAL ANALOG RECORDS BY THE EXPERIMENTER'S STAFF. THE PRIMARY DATA CONSIST OF HOURLY VALUES OF NORMALIZED ELECTRON NUMBER DENSITY IN THE SOLAR WIND. TO OBTAIN THESE DATA, THE IONOSPHERIC TOTAL CONTENT WAS REMOVED FROM THE OBSERVED TOTAL CONTENT VALUES, AND THE TOTAL CONTENT PATH LENGTH WAS USED TO CONVERT TOTAL CONTENT TO DENSITY. THE RESULTING VALUES WERE THEN NORMALIZED TO 1 AU ASSUMING DENSITY TO BE PROPORTIONAL TO THE INVERSE SQUARE OF THE DISTANCE OF THE SATELLITE FROM THE SUN. VALUES RESULTING FROM INTERPOLATION ARE FLAGGED. NO INTERPOLATED VALUES WERE RECORDED WHEN DATA GAPS EXCEEDED 4 DAYS. THIS DATA SET IS ON 800-BPI, 7-TRACK, ODD PARITY, BINARY MAGNETIC TAPE CREATED ON A XEROX SIGMA 5 COMPUTER. AUXILIARY DATA ON THE TAPE INCLUDE UT AND CARRINGTON ROTATION NUMBER. DATA ARE AVAILABLE FOR ABOUT 12 HR PER DAY WHEN THE SPACECRAFT WAS IN VIEW FROM THE STANFORD TRANSMITTER. IDENTICAL DATA FOR OTHER TIME PERIODS FROM PIONEERS 6 (65-105A-04D), 7 (66-075A-04D), 9 (68-100A-03C), AND MARINER 5 (67-060A-02C) ALSO APPEAR ON THIS TAPE.

DATA SET NAME- MICROFILM PLOTS OF SOLAR WIND ELECTRON DENSITY VS TIME NORMALIZED TO 1 AU

NSSDC ID- 67-123A-03D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 02/20/68 TO 08/30/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THESE DATA WERE PREPARED FROM THE ORIGINAL ANALOG RECORDS BY THE EXPERIMENTER'S STAFF. THE PRIMARY DATA CONSIST OF PLOTS OF ELECTRON DENSITY VS TIME IN THE SOLAR WIND. TO

OBTAIN THESE DATA, THE IONOSPHERIC TOTAL CONTENT FOR THE SAME TIMES AT A NEARBY LOCATION WERE REMOVED FROM THE OBSERVED TOTAL CONTENT VALUES. THEN THE OBSERVED TOTAL CONTENT PATH LENGTH WAS USED TO CONVERT TOTAL CONTENT TO DENSITY. THE RESULTING VALUES WERE NORMALIZED TO 1 AU, ASSUMING DENSITY TO BE PROPORTIONAL TO THE INVERSE SQUARE OF THE SATELLITE-SOLAR DISTANCE. THIS DATA SET IS ON ONE REEL OF 35-MM MICROFILM. THIS REEL OF MICROFILM ALSO CONTAINS IDENTICAL DATA FOR OTHER TIME PERIODS FROM PIONEERS 6 (65-105A-04E), 7 (66-075A-04E), AND 9 (68-100A-03D) AND HOURLY VALUES OF TOTAL ELECTRON CONTENT FROM PIONEERS 6 (65-105A-04B), 7 (66-075A-04B), 8 (67-123A-03B), 9 (68-100A-03B) AND MARINER 5 (67-060A-02B). THIS DATA SET IS ALSO AVAIABLE ON TAPE (67-123A-03C).

MCCRACKEN, PIONEER 8

EXPERIMENT NAME- COSMIC-RAY ANISOTROPY

NSSDC ID- 67-123A-05

STATUS OF OPERATION- NORMAL

PERSONNEL

PI -	K.G. MCCRACKEN	U OF ADELAIDE	ADELAIDE, AUSTRALIA
OI -	R.U. RAO	PHYSICAL RESEARCH LA	AHMADABED, INDIA
OI -	W.C. BARTLEY	NATL ACADEMY OF SCI	WASHINGTON, DC

THIS EXPERIMENT CONSISTED OF A CSI SCINTILLATOR AND THREE SOLID-STATE TELESCOPES. THE CSI SCINTILLATOR WAS COLLIMATED BY AN ANTICOINCIDENCE PLASTIC SCINTILLATOR AND HAD A CONICAL APERTURE WITH A 38.2-DEG HALF-ANGLE. THE SCINTILLATOR LOOK DIRECTION WAS CENTERED IN THE ECLIPTIC PLANE. THREE SOLID-STATE DETECTORS WERE ORIENTED IN A FAN ARRANGEMENT WITH RESPECT TO A FOURTH SOLID-STATE DETECTOR, SUCH THAT EACH OF THE FIRST THREE DETECTORS FORMED A TELESCOPE WITH THE FOURTH DETECTOR. EACH OF THE THREE TELESCOPES THUS FORMED HAD AN ACCEPTANCE CONE OF 23-DEG HALF-ANGLE. THE MEAN VIEWING DIRECTIONS OF THE TELESCOPES WERE IN THE ECLIPTIC PLANE AND 48 DEG ABOVE AND BELOW THAT PLANE, RESPECTIVELY. TWO CONCURRENT MODES OF COUNTING WERE EMPLOYED. IN THE FIRST MODE, COUNTS WERE ACCUMULATED IN EIGHT SEPARATE 45-DEG INTERVALS DURING THE SPACECRAFT SPIN, WHILE, IN THE SECOND, SPIN-INTEGRATED COUNTS WERE ACQUIRED. IN THE FIRST MODE, THE SCINTILLATOR SEPARATELY MEASURED PARTICLES WITH ENERGIES IN THE RANGES 7.4 TO 21.5 MEV/NUCLEON AND 19.7 TO 63.0 MEV/NUCLEON (NO SPECIES DISCRIMINATION) WHILE EACH SOLID-STATE TELESCOPE SEPARATELY MEASURED PROTONS IN THE ENERGY RANGES 3.3 TO 3.6 MEV AND 3.6 TO 6.7 MEV. IN THE SECOND MODE, THE SCINTILLATOR SEPARATELY MEASURED PARTICLES IN SIX CONTIGUOUS ENERGY INTERVALS BETWEEN 4.5 AND 40 MEV/NUCLEON (INTERVAL LOWER LIMITS AT 4.5, 7.0, 9.6, 13, 21, AND 28 MEV/NUCLEON), WHILE EACH OF THE SOLID-STATE TELESCOPES SEPARATELY MEASURED PROTONS IN THE ENERGY RANGES 1 TO 8, 1 TO 5, 1 TO 3, AND 4 TO 6 MEV AND ALPHA PARTICLES IN THE ENERGY RANGE 4 TO 8 MEV. DURING EACH 244-BIT MAIN TELEMETRY FRAME, TWO FIRST-MODE 9-BIT ACCUMULATORS AND ONE SECOND-MODE 9-BIT ACCUMULATOR WERE READ OUT. INFLIGHT CALIBRATION OF THE SCINTILLATOR AND OF SOME OF THE ELECTRONICS WAS PERFORMED DAILY. SEE BUKATA ET AL, IEEE TRANS. NUC. SCI., NS-17, 18-24, 1970, FOR A MORE DETAILED EXPERIMENT DESCRIPTION.

DATA SET NAME- 7.5-MIN AND 1-HR COUNT RATES FOR ALL MODES ON MAGNETIC TAPE

NSSDC ID- 67-123A-05A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/13/67 TO 03/31/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 6 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF EXPERIMENTER-SUPPLIED 9-TRACK MAGNETIC TAPES, WRITTEN IN EBCDIC AT 800 BPI ON AN IBM 370/155. EACH TAPE CONTAINS 80 DAYS OF DATA, AND EACH LOGICAL AND PHYSICAL RECORD CONTAINS ONE HOUR OF DATA. EACH DATA RECORD CONTAINS TIME AND COUNTS AT 7.5-MIN INTERVALS AND FOR THE FULL HOUR FOR EACH ISOTROPIC AND ANISOTROPIC MODE. THE TIME COVERAGE OF THE TAPES MIRRORS THE PERIODS DURING WHICH THE SPACECRAFT WAS BEING TRACKED (NEARLY 100 PERCENT UNTIL OCTOBER 1968, AND THEN BETWEEN 60 AND 90 PERCENT THROUGH MARCH 1969). DATA FOR TIMES AFTER MARCH 1969 ARE FOUND IN MICROFILM DATA SET 67-123A-05B. THE EXPERIMENTER ALSO PROVIDED A PROGRAM TO GENERATE LISTINGS SUCH AS THOSE FOUND IN DATA SET 67-123A-05B FROM THE TAPES OF THIS DATA SET 67-123A-05A.

DATA SET NAME- 7.5-MIN AND 1-HR COUNT RATES, ALL MODES, ON MICROFILM

NSSDC ID- 67-123A-05B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 03/21/69 TO 12/31/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 3 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF 16-MM MICROFILM GENERATED AT NSSDC FROM EXPERIMENTER-SUPPLIED COMPUTER PRINTOUT. EACH FRAME CONTAINS DATA MATRICES FOR 1 HR. COUNTS ACCUMULATED DURING INDICATED NUMBERS OF SPACECRAFT REVOLUTIONS FOR 7.5-MIN INTERVALS AND FOR FULL HOURS ARE GIVEN FOR ALL ISOTROPIC AND ANISOTROPIC COUNTING MODES. DATA COVERAGE BEGINS AT THE TIME THE COVERAGE IN TAPE DATA SET 67-123A-05A ENDS. THE DATA COVERAGE FOR THE LATER TIME PERIOD COVERED BY THIS MICROFILM DATA SET RUNS BETWEEN 50 AND 75 PERCENT PER WEEK.

WEBBER, PIONEER 8

EXPERIMENT NAME- COSMIC-RAY GRADIENT DETECTOR

NSSDC ID- 67-123A-06

STATUS OF OPERATION- PARTIAL

PERSONNEL

PI -	W.R. WEBBER	U OF NEW HAMPSHIRE	DURHAM, NH

THIS EXPERIMENT UTILIZED A TELESCOPE COMPRISED OF FIVE SOLID-STATE SENSORS, A CERENKOV DETECTOR, AND AN ANTICOINCIDENCE SHIELD. THE TELESCOPE AXIS WAS PERPENDICULAR TO THE SPACECRAFT SPIN AXIS, AS DETERMINED BY TWO COINCIDENCE MODES AND ELECTRONIC DISCRIMINATION OF SENSOR OUTPUT PULSES. PARTICLES MEASURED WERE ELECTRONS IN THREE CONTIGUOUS ENERGY INTERVALS BETWEEN 0.34 AND 8.4 MEV, PROTONS IN SIX CONTIGUOUS ENERGY INTERVALS BETWEEN 3.49 AND 64.3 MEV (ONE OF FIVE COUNT RATES WAS DUE TO THE SUM OF COUNTS IN TWO NONCONTIGUOUS ENERGY INTERVALS), AND ALPHA PARTICLES IN FOUR CONTIGUOUS ENERGY INTERVALS BETWEEN 6.64 AND 64.1 MEV/NUCLEON (ONE OF THREE COUNT RATES WAS DUE TO THE SUM OF COUNTS IN TWO NONCONTIGUOUS ENERGY INTERVALS). A THIRD COINCIDENCE MODE MEASURED THE SUM OF COUNTS DUE TO ELECTRONS ABOVE 0.6 MEV AND NUCLEI ABOVE 14 MEV/NUCLEON. A FOURTH COINCIDENCE MODE MEASURED THE SUM OF NUCLEI ABOVE 42 MEV/NUCLEON AND ELECTRONS ABOVE 5.1 MEV. SPACECRAFT SPIN-INTEGRATED DIRECTIONAL FLUXES WERE MEASURED IN THE VARIOUS MODES. ACCUMULATION TIMES AND READOUT INTERVALS WERE DEPENDENT ON THE TELEMETRY BIT RATE AND WERE TYPICALLY IN TENS OF SECONDS. IN ALL CASES, THEY WERE LONGER THAN THE SPACECRAFT SPIN PERIOD. THE EXPERIMENT FUNCTIONED WELL DURING THE SPACECRAFT LIFETIME, ALTHOUGH AT LOW TELEMETRY BIT RATES, ACCUMULATOR SATURATION RENDERED SOME COUNTING MODES TO BE OF NO VALUE. FOR FURTHER DETAILS, SEE J. GEOPHYS RES, VOL 76, P 1605, 1971.

DATA SET NAME- 20-MIN AVERAGES OF PARTICLE COUNT RATES ON MICROFILM

NSSDC ID- 67-123A-06A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/13/67 TO 04/10/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF MICROFILMED COPIES OF EXPERIMENTER GENERATED PLOTS OF 20-MIN AVERAGED COUNT RATES FOR ALL COINCIDENCE MODES AND DISCRIMINATION STATES EXCEPT FOR THE ALPHA PARTICLE COUNT RATES. (THE ALPHA PARTICLE COUNT RATES ARE FOUND IN DATA SET 67-123A-06B.)

DATA SET NAME- 8-HR AVERAGES OF ALPHA PARTICLE COUNT RATES ON MICROFILM

NSSDC ID- 67-123A-06B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/13/67 TO 04/21/68
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF MICROFILMED COPIES OF THREE EXPERIMENTER GENERATED PLOTS OF 8-HR AVERAGED ALPHA PARTICLE COUNT RATES COVERING THE PERIOD DECEMBER 13, 1967, THROUGH APRIL 10, 1968. THESE PLOTS ARE FOUND ON THE SAME MICROFILM REEL WHICH CONTAINS THE PROTON PLOTS (67-123A-06A).

DATA SET NAME- PROTON COUNT RATES PUBLISHED IN
'SOLAR-GEOPHYSICAL DATA'

NSSDC ID- 67-123A-06C

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 12/01/69 TO 08/18/74
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 49 BOOK(S) OR BOUND VOLUME(S)

THIS DATA SET CONSISTS OF MONTHLY TABULAR LISTINGS OF COUNT RATES OF PROTONS WITH ENERGIES ABOVE 13.9 AND 64 MEV. TYPICALLY, FOUR COUNT RATES PER ENERGY CHANNEL PER DAY WERE GIVEN IN THE EARLY LIFE OF THE SPACECRAFT. IN LATE 1971, ONLY A FEW COUNT RATES PER MONTH WERE GIVEN. AND FOR JANUARY 1973, ONE COUNT RATE WAS GIVEN. DATA OBTAINED DURING A GIVEN MONTH WERE PUBLISHED (AS OF NOVEMBER 1971) IN 'SOLAR-GEOPHYSICAL DATA (PROMPT REPORTS)' WITH A 1-MONTH LAG.

DATA SET NAME- DAILY AVERAGED COUNT RATE LISTINGS ON
MICROFILM

NSSDC ID- 67-123A-06D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/13/67 TO 11/05/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF 16-MM MICROFILM GENERATED AT NSSDC FROM EXPERIMENTER-SUPPLIED COMPUTER PRINTOUT. DAILY AVERAGED COUNT RATES AND STANDARD ERRORS (LESS THAN 1 PERCENT OF COUNT RATE) ARE LISTED FOR BOTH PIONEERS 8 AND 9 FOR MODES T1+2 AND T5. MODE T1+2 CORRESPONDS TO ELECTRONS ABOVE 8.4 MEV AND NUCLEI ABOVE 64 MEV/N ON PIONEER 8 AND TO ELECTRONS ABOVE 5.1 MEV AND NUCLEI ABOVE 42 MEV/N ON PIONEER 9. MODE T5 CORRESPONDS TO ELECTRONS ABOVE 0.6 MEV AND NUCLEI ABOVE 14 MEV/N ON PIONEERS 8 AND 9. DATA GAPS NEAR THE END OF THE TIME PERIOD COVERED REFLECT DECREASING SPACECRAFT TRACKING.

DATA SET NAME- DAILY AVERAGED COUNT RATE PLOTS ON
MICROFILM

NSSDC ID- 67-123A-06E

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/13/67 TO 11/06/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF 35-MM MICROFILM GENERATED AT NSSDC FROM EXPERIMENTER-SUPPLIED HARDCOPY PLOTS. DAILY AVERAGED COUNT RATES FOR MODES T1+2 AND T5 ARE PLOTTED WITH ONE YEAR OF DATA PER FRAME. PIONEER 8 AND 9 DATA FRAMES ARE INTERSPERSED. FOR EACH SPACECRAFT, MODE, AND YEAR, THERE ARE TWO PLOTS. ONE OF THESE HAS A LINEAR COUNT RATE SCALE AND THE OTHER HAS A LOGARITHMIC COUNT RATE SCALE. DATA GAPS WHICH REFLECT THE LACK OF SPACECRAFT TRACKING BECOME INCREASINGLY ABUNDANT NEAR THE END OF THE TIME PERIOD OF COVERAGE.

WOLFE, PIONEER 8

EXPERIMENT NAME- ELECTROSTATIC ANALYZER

NSSDC ID- 67-123A-02

STATUS OF OPERATION- NORMAL

PERSONNEL
PI - J.H. WOLFE ..... NASA-ARC
MOFFETT FIELD, CA
OI - D.D. MCKIBBIN ..... NASA-ARC
MOFFETT FIELD, CA

A TRUNCATED HEMISPHERICAL ELECTROSTATIC ANALYZER (120-DEG TOTAL PARALLEL PLATE CURVATURE) WITH THREE CONTIGUOUS CURRENT COLLECTORS WAS USED TO STUDY THE DIRECTIONAL INTENSITY OF THE ELECTRONS AND POSITIVE IONS IN THE SOLAR WIND. IONS WERE DETECTED IN 30 LOGARITHMICALLY EQUISPACED ENERGY PER UNIT CHARGE (E/Q) STEPS FROM 150 TO 15,000 V. THERE WAS AN ELECTRON MODE OF OPERATION IN WHICH ELECTRONS WERE MEASURED IN 14 LOGARITHMICALLY EQUISPACED E/Q STEPS RANGING FROM 12 TO 1000 V. THERE WAS ALSO A ZERO E/Q, OR BACKGROUND, STEP. THE THREE COLLECTORS MEASURED PARTICLES INCIDENT FROM THREE DIFFERENT CONTIGUOUS ANGULAR INTERVALS RELATIVE TO THE SPACECRAFT EQUATORIAL PLANE (SAME AS THE ECLIPTIC PLANE). TWO COLLECTORS MEASURED FLUX FROM 10 TO 85 DEG ON EITHER SIDE OF THE SPACECRAFT EQUATORIAL PLANE, AND THE THIRD MEASURED FLUX IN A 20-DEG INTERVAL CENTERED ON THE SPACECRAFT EQUATORIAL PLANE. AS THE SPACECRAFT WAS SPINNING, FLUXES WERE MEASURED IN 23 POSSIBLE 2-13/16-DEG-WIDE AZIMUTHAL ANGULAR SECTORS. SEVENTEEN OF THESE SECTORS WERE CONTIGUOUS AND BRACKETED THE SOLAR DIRECTION. THE REMAINING SIX SECTORS WERE WIDELY SPACED. THE INSTRUMENT HAD THREE MODES OF DATA COLLECTION - POLAR SCAN, AZIMUTHAL SCAN, AND MAXIMUM FLUX. AT THE TWO HIGHEST BIT RATES (512 AND 256 BPS) THE POLAR SCAN MODE WAS ALTERNATED WITH THE AZIMUTHAL SCAN MODE AT EACH E/Q STEP. IN THE POLAR SCAN MODE, ALL THREE COLLECTORS WERE OBSERVED, AND THE PEAK FLUX OBTAINED AND THE AZIMUTHAL DIRECTION (TO 2-13/16 DEG) OF THE OBSERVATION WERE REPORTED FOR EACH COLLECTOR. IN THE AZIMUTHAL SCAN MODE, THE PEAK FLUX OBSERVED IN THE 23 AZIMUTHAL SECTORS WAS RECORDED FOR THE CENTRAL COLLECTOR AT EACH E/Q STEP. AT THE LOW BIT RATES (64, 16, AND 8 BPS), THE MAXIMUM FLUX MODE WAS USED AT EACH E/Q STEP FOLLOWED BY EITHER (1) FOR IONS, A POLAR SCAN AND AN AZIMUTHAL SCAN AT THAT E/Q STEP WHERE THE PEAK FLUX MEASUREMENT DURING THE MAXIMUM FLUX MODE WAS OBTAINED, OR (2) FOR ELECTRONS, A POLAR SCAN AND AN AZIMUTHAL SCAN AT E/Q = 100 V. IN THE MAXIMUM FLUX MODE, ONLY THE CENTRAL COLLECTOR WAS OBSERVED, AND THE PEAK FLUX OBTAINED AND THE AZIMUTHAL DIRECTION (TO 2-13/16 DEG) OF THE OBSERVATION WERE REPORTED. A COMPLETE SET OF MEASUREMENTS CONSISTED OF SEVEN SETS OF ION MEASUREMENTS (AT EACH E/Q STEPS) AND ONE SET OF ELECTRON MEASUREMENTS (AT EACH E/Q STEPS). AT THE HIGH BIT RATES (512 AND 256 BPS) ONE SET OF ION MEASUREMENTS TOOK 62 SEC AND ONE SET OF ELECTRON MEASUREMENTS 38 SEC. AT THE LOW BIT RATES (64, 16, AND 8 BPS), ONE SET OF ION MEASUREMENTS TOOK 37 SEC AND ONE SET OF ELECTRON MEASUREMENTS 28 SEC. AT 64 BPS, A COMPLETE SET OF MEASUREMENTS (SEVEN IONS PLUS ONE ELECTRON) WAS TAKEN AND TELEMETERED EVERY 402.5 SEC. AT 16 BPS, IT TOOK 1610 SEC, AND, AT 8 BPS, IT TOOK 3220 SEC.

DATA SET NAME- ANALYZED PLASMA PARAMETERS ON MICROFILM

NSSDC ID- 67-123A-02A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 12/14/67 TO 11/05/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 36 REEL(S) OF MICROFILM

THESE ANALYZED DATA WERE SUPPLIED BY THE EXPERIMENTER AND CONSIST OF TIME-ORDERED PLOTS OF THE FOLLOWING SOLAR WIND PARAMETERS -- (1) PROTON NUMBER DENSITY (PROTONS/CUBIC CM), (2) AZIMUTH (SOLAR ECLIPTIC LONGITUDE) OF THE PEAK PARTICLE FLUX FOR IONS (DEG), (3) BULK VELOCITY (KM/SEC), (4) POLAR ANGLE (SOLAR ECLIPTIC LATITUDE) OF THE PEAK PARTICLE FLUX (DEG), (5) PROTON TEMPERATURE AND HELIUM TEMPERATURE (DEG), (6) HELIUM/HYDROGEN RATIO (NUMBER OF HELIUM IONS/CUBIC CM/NUMBER OF PROTONS/CUBIC CM), (7) ELECTRON TEMPERATURE (DEG K), AND (8) TWO INDICATORS OF THE ANISOTROPY IN THE SOLAR PLASMA ION TEMPERATURE DISTRIBUTION.

ORIGINAL PAGE IS
OF POOR QUALITY

PIONEER 9

SPACECRAFT COMMON NAME- PIONEER 9

ALTERNATE NAMES- PIONEER-D, PL-684K
03533

NSSDC ID- 68-100A

LAUNCH DATE- 11/08/68 WEIGHT- 147. KG

STATUS OF OPERATION- PARTIAL

ORBIT PARAMETERS
ORBIT TYPE- HELIOCENTRIC EPOCH DATE- 11/08/68
ORBIT PERIOD- 297.6 DAYS INCLINATION- .086509 DEG
PERIAPSIS- 0.7542 AU RAD APOAPSIS- 0.9905 AU RAD

PIONEER 9 WAS THE FOURTH IN A SERIES OF SOLAR-ORBITING, SPIN-STABILIZED, AND SOLAR-CELL AND BATTERY-POWERED SATELLITES DESIGNED TO OBTAIN MEASUREMENTS OF INTERPLANETARY PHENOMENA FROM WIDELY SEPARATED POINTS IN SPACE ON A CONTINUING BASIS. THE SPACECRAFT CARRIED EXPERIMENTS TO STUDY THE POSITIVE IONS AND ELECTRONS IN THE SOLAR WIND, THE INTERPLANETARY ELECTRON DENSITY (RADIO PROPAGATION EXPERIMENT), SOLAR AND GALACTIC COSMIC RAYS, THE INTERPLANETARY MAGNETIC FIELD, COSMIC DUST, AND ELECTRIC FIELDS. ALSO, A NEW CODING PROCESS WAS IMPLEMENTED FOR PIONEER 9. ITS MAIN ANTENNA WAS A HIGH-GAIN DIRECTIONAL ANTENNA. THE SPACECRAFT WAS SPIN-STABILIZED AT ABOUT 60 RPM, AND THE SPIN AXIS WAS PERPENDICULAR TO THE ECLIPTIC PLANE AND POINTED TOWARD THE SOUTH ECLIPTIC POLE; BY GROUND COMMAND, ONE OF FIVE BIT RATES, ONE OF FOUR DATA FORMATS, AND ONE OF FOUR OPERATING MODES COULD BE SELECTED. THE FIVE BIT RATES WERE 512, 256, 64, 16, AND 8 BPS. THREE OF THE FOUR DATA FORMATS CONTAINED PRIMARILY SCIENTIFIC DATA AND CONSISTED OF THIRTY-TWO 7-BIT WORDS PER FRAME. ONE SCIENTIFIC DATA FORMAT WAS USED AT THE TWO HIGHEST BIT RATES, ANOTHER WAS USED AT THE THREE LOWEST BIT RATES, AND THE THIRD CONTAINED DATA FROM ONLY THE RADIO PROPAGATION EXPERIMENT. THE FOURTH DATA FORMAT CONTAINED MAINLY ENGINEERING DATA. THE FOUR OPERATING MODES WERE REAL TIME, TELEMETRY STORE, DUTY CYCLE STORE, AND MEMORY READOUT. IN THE REAL-TIME MODE, DATA WERE SAMPLED AND TRANSMITTED DIRECTLY (WITHOUT STORAGE) AS SPECIFIED BY THE DATA FORMAT AND BIT RATE SELECTED. IN THE TELEMETRY STORE MODE, DATA WERE STORED AND TRANSMITTED SIMULTANEOUSLY IN THE FORMAT AND AT THE BIT RATE SELECTED. IN THE DUTY CYCLE STORE MODE, A SINGLE FRAME OF SCIENTIFIC DATA WAS COLLECTED AND STORED AT A RATE OF 512 BPS. THE TIME PERIOD BETWEEN WHICH SUCCESSIVE FRAMES WERE COLLECTED AND STORED COULD BE VARIED BY GROUND COMMAND BETWEEN 2 AND 17 MIN TO PROVIDE PARTIAL DATA COVERAGE FOR PERIODS OF UP TO 19 HR, AS LIMITED BY THE BIT STORAGE CAPACITY. IN THE MEMORY READOUT MODE, DATA WERE READ OUT AT WHATEVER BIT RATE WAS APPROPRIATE TO THE SATELLITE DISTANCE FROM THE EARTH. THE BIT RATE FOR THE MAJORITY OF THE DATA WAS 512 BPS FROM NOVEMBER 8, 1968, TO JANUARY 15, 1969, 256 BPS FROM JANUARY 16, 1969, TO JANUARY 29, 1969, 64 BPS FROM JANUARY 30, 1969 TO MARCH 27, 1969, AND 16 OR 8 BPS THEREAFTER. HIGHER BIT RATES WERE USED WHEN THE SPACECRAFT WAS TRACKED BY THE 64-M ANTENNA, BUT THE DATA COVERAGE BY THIS ANTENNA WAS LOW. THE DATA COVERAGE AVERAGED CLOSE TO 100 PERCENT FOR THE FIRST 29 WEEKS AFTER LAUNCH. AFTER THIS, DATA COVERAGE DROPPED TO CLOSE TO 50 PERCENT UNTIL DECEMBER 1969, AND IT VARIED BETWEEN 10 AND 30 PERCENT THROUGH JULY 1971. ALMOST NO DATA WERE ACQUIRED BETWEEN JULY 1971 AND JUNE 1972. FOR THE NEXT 10 MONTHS COVERAGE WAS TYPICALLY BETWEEN 10 AND 30 PERCENT, WITH 100 PERCENT COVERAGE FOR THE MAJOR SOLAR ACTIVE PERIOD OF AUGUST 1972. FROM APRIL 1973 THROUGH AUGUST 1974 COVERAGE AVERAGED 5 PERCENT.

DATA SET NAME- COMPRESSED EPHEMERIS DATA ON MAGNETIC TAPE

NSSDC ID- 68-100A-00E

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 11/08/68 TO 04/16/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET WHICH CONTAINS COMPLETE TRAJECTORY INFORMATION WAS GENERATED AT NSSDC BY TAKING THE MOST ACCURATE INFORMATION FROM EACH EPHEMERIS TAPE AND ELIMINATING OVERLAP. THE DATA SET CONSISTS OF ONE 7-TRACK, IBM 7094, 800-BPI, BINARY MAGNETIC TAPE. EACH LOGICAL RECORD CONTAINS 89 WORDS, AND EACH PHYSICAL RECORD CONTAINS 20 LOGICAL RECORDS. THE FOLLOWING INFORMATION IS AVAILABLE IN INTERVALS OF ONE DAY (EXCEPT FOR PERIODS WHEN THE SPACECRAFT IS CLOSE TO THE EARTH, WHEN THE INTERVAL MAY BE SHORTER) -- (1) DATE, (2) TIME, (3) DISTANCE FROM THE EARTH TO THE PROBE, (4) DISTANCE FROM THE EARTH TO THE SUN, (5) DISTANCE FROM THE EARTH TO THE MOON, (6) DISTANCE FROM THE SUN TO THE PROBE, (7) GEOCENTRIC RIGHT ASCENSION AND DECLINATION OF PROBE, SUN, MOON, (8) GEOCENTRIC LATITUDE, LONGITUDE, AND ALTITUDE ABOVE THE EARTH, (9) EARTH-SUN-PROBE ANGLE, (10) EARTH-PROBE-SUN ANGLE, (11) SUN-PROBE-NEAR LIMB OF EARTH ANGLE (SUN-PROBE-EARTH ANGLE MINUS THE ANGULAR SEMI-DIAMETER OF EARTH WHERE THE ANGULAR SEMI-DIAMETER WOULD BE THE PROBE-CENTERED ANGLE BETWEEN EARTH LIMB AND CENTER OF EARTH), (12) MOON-EARTH-PROBE ANGLE, (13) MOON-PROBE-SUN ANGLE, (14) EARTH-PROBE-MOON ANGLE, (15) CANOPUS-PROBE-EARTH ANGLE, (16) CANOPUS-PROBE-SUN ANGLE, (17) ANGLE MADE BY THE SUN TO PROBE VECTOR AND THE ECLIPTIC PLANE OF DATE, (18) X, Y, Z COMPONENTS OF SPACECRAFT IN THE SUN-EARTH LINE COORDINATE SYSTEM (SUN-CENTERED SYSTEM, X AXIS IS ALONG THE SUN-TO-EARTH VECTOR, Z AXIS IS TOWARD ECLIPTIC NORTH POLE), (19) LONGITUDE OF SPACECRAFT IN THE SUN-EARTH LINE COORDINATE SYSTEM, (20) X, Y, Z COMPONENTS OF SPACECRAFT IN GEOCENTRIC, SELENOCENTRIC, HELIOCENTRIC VENUS-CENTERED, MARS-CENTERED, SATURN-CENTERED, AND JUPITER-CENTERED INERTIAL COORDINATE (X POINTS TO VERNAL EQUINOX, Z POINTS ALONG THE NORTH POLE VECTOR WITH THE REFERENCE PLANE BEING THE EARTH'S TRUE EQUATOR OF DATE), (21) MAGNITUDE OF THE VELOCITY VECTOR AND X, Y, Z COMPONENTS OF THE VELOCITY VECTOR IN GEOCENTRIC INERTIAL COORDINATES, (22) GEOCENTRIC INERTIAL PATH ANGLE (ANGLE MADE BY PROBE VELOCITY VECTOR AND PLANE NORMAL TO EARTH-TO-PROBE VECTOR), (23) GEOCENTRIC INERTIAL AZIMUTH ANGLE (ANGLE BETWEEN THE PLANE DEFINED BY THE EARTH-TO-PROBE VECTOR AND THE GEOCENTRIC INERTIAL VELOCITY VECTOR), (24) HELIOCENTRIC INERTIAL VELOCITY, (25) HELIOCENTRIC INERTIAL PATH ANGLE (ANGLE MADE BY THE HELIOCENTRIC VELOCITY VECTOR AND THE PLANE NORMAL TO THE SUN-TO-PROBE VECTOR), (26) CELESTIAL LONGITUDE OF PROBE (ANGULAR DISTANCE MEASURED COUNTERCLOCKWISE ALONG THE ECLIPTIC PLANE OF DATE FROM THE VERNAL EQUINOX TO THE PROJECTION OF THE SUN-PROBE VECTOR ON A PLANE AS VIEWED FROM THE ECLIPTIC NORTH POLE), (27) CELESTIAL LONGITUDE OF EARTH, (28) CELESTIAL LATITUDE OF EARTH, AND (29) VARIOUS CLOCK ANGLES AND HINGE AND SWIVEL ANGLES WHICH ARE DESCRIBED IN THE DOCUMENTATION.

ESHLEMAN, PIONEER 9

EXPERIMENT NAME- TWO-FREQUENCY BEACON RECEIVER

NSSDC ID- 68-100A-03

STATUS OF OPERATION- NORMAL

PERSONNEL
PI - V.R. ESHLEMAN ..... STANFORD U
STANFORD, CA
OI - T.A. CROFT ..... STANFORD U
STANFORD, CA
OI - H.T. HOWARD ..... STANFORD U
STANFORD, CA
OI - R.L. LEADABRAND ..... STANFORD RES INST
MENLO PARK, CA
OI - R.A. LONG ..... STANFORD RES INST
MENLO PARK, CA
OI - A.M. PETERSON ..... STANFORD U
STANFORD, CA

BOTH 423.3-MHZ AND ITS 2/17 SUBHARMONIC 49.8-MHZ SIGNALS WERE TRANSMITTED FROM A 4.6-M STEERABLE PARABOLIC ANTENNA AT STANFORD UNIVERSITY TO THE TWO-FREQUENCY RADIO RECEIVER ON THE SPACECRAFT. THE HIGH-FREQUENCY SIGNAL SERVED AS A REFERENCE SIGNAL SINCE ITS PROPAGATION TIME WAS NOT APPRECIABLY DELAYED. THE LOW-FREQUENCY SIGNAL WAS DELAYED IN PROPORTION TO THE TOTAL ELECTRON CONTENT IN THE PROPAGATION PATH. ON THE SPACECRAFT, A PHASE-LOCKED RECEIVER COUNTED THE BEAT FREQUENCY ZERO CROSSINGS OF THE RECEIVED SIGNALS TO OBTAIN MEASUREMENTS OF PHASE-PATH DIFFERENCES. DIFFERENTIAL DELAY OF THE GROUP VELOCITY WAS ALSO OBSERVED, AND THESE VALUES WERE TELEMETERED TO THE GROUND STATION AND USED TO CALCULATE THE TOTAL ELECTRON CONTENT. THE IONOSPHERIC CONTRIBUTION (UP TO A SELECTED ALTITUDE OBTAINED FROM OTHER EXPERIMENTAL TECHNIQUES) COULD BE SUBTRACTED TO PRODUCE DATA DESCRIBING THE INTERPLANETARY ELECTRON CONTENT OF THE SOLAR WIND AND ITS VARIATIONS. FOR SIMILAR EXPERIMENTS FOR OTHER TIME PERIODS SEE 67-123A-03, 66-075A-04, 65-105A-04, AND 67-060A-02. MORE DETAILED DESCRIPTIONS OF THE EXPERIMENT CAN BE FOUND IN JOURNAL OF GEOPHYSICAL RESEARCH, VOL. 17, PP. 3325-3327, AND IN RADIO SCIENCE, VOL. 6, PP. 55-63.

DATA SET NAME- HOURLY VALUES OF REDUCED TOTAL ELECTRON CONTENT DATA ON PUNCHED CARDS

NSSDC ID- 68-100A-03A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 11/08/68 TO 07/16/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THIS DATA SET CONSISTS OF DIGITIZED HOURLY VALUES OF TOTAL ELECTRON CONTENT THROUGH THE IONOSPHERE AND THE SOLAR WIND. THESE ARE REDUCED DATA CALCULATED FROM MEASUREMENTS OF THE DIFFERENTIAL DELAY OF THE GROUP VELOCITY. THE HOURLY DATA

ARE REPRESENTATIVE VALUES MANUALLY SELECTED FROM ANALOG RECORDS. EACH SET OF HOURLY VALUES IS FOR THE PORTION OF THE DAY (ABOUT 12 HR PER DAY) WHEN THE SPACECRAFT WAS IN VIEW FROM THE STANFORD TRANSMITTER. THIS DATA SET IS ON ONE 556-BPI, 7-TRACK, BCD MAGNETIC TAPE GENERATED AT NSSDC FROM PUNCHED CARDS SUPPLIED BY THE EXPERIMENTER. THE TAPE ALSO CONTAINS IDENTICAL DATA FOR OTHER TIME PERIODS FROM PIONEERS 6 (65-105A-04A), 7 (66-075A-04A), AND 8 (67-123A-03A) AND MARINER 5 (67-060A-02A).

DATA SET NAME- HOURLY VALUES OF REDUCED TOTAL ELECTRON CONTENT DATA ON MICROFILM

NSSDC ID- 68-100A-03B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 11/09/68 TO 07/16/69
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF DIGITIZED AND PLOTTED HOURLY VALUES OF TOTAL ELECTRON CONTENT THROUGH THE IONOSPHERE AND THE SOLAR WIND. THESE ARE REDUCED DATA CALCULATED FROM MEASUREMENTS OF THE DIFFERENTIAL DELAY OF THE GROUP VELOCITY. THE HOURLY DATA ARE REPRESENTATIVE VALUES MANUALLY SELECTED FROM ANALOG RECORDS. EACH SET OF HOURLY VALUES IS FOR THE PORTION OF THE DAY (ABOUT 12 HR PER DAY) WHEN THE SPACECRAFT WAS IN VIEW FROM THE STANFORD TRANSMITTER. THIS DATA SET IS ON ONE REEL OF 35-MM MICROFILM GENERATED AT NSSDC FROM DATA SUPPLIED BY THE EXPERIMENTER. THIS REEL OF MICROFILM ALSO CONTAINS IDENTICAL DATA FOR OTHER TIME PERIODS FROM PIONEERS 6 (65-105A-04B), 7 (66-075A-04B), 8 (67-123A-03B) AND MARINER 5 (67-060A-02B) AND SOLAR WIND ELECTRON DENSITY PLOTS FROM PIONEERS 6 (65-105A-04E), 7 (66-075A-04E), 8 (67-123A-03D), AND 9 (68-100A-03D).

DATA SET NAME- DIGITAL VALUES OF SOLAR WIND ELECTRON DENSITY VS TIME NORMALIZED TO 1 AU ON TAPE

NSSDC ID- 68-100A-03C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 11/11/68 TO 03/07/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THESE DATA WERE PREPARED FROM THE ORIGINAL ANALOG RECORDS BY THE EXPERIMENTER'S STAFF. THE PRIMARY DATA CONSIST OF HOURLY VALUES OF NORMALIZED ELECTRON NUMBER DENSITY IN THE SOLAR WIND. TO OBTAIN THESE DATA, THE IONOSPHERIC TOTAL CONTENT WAS REMOVED FROM THE OBSERVED TOTAL CONTENT VALUES, AND THE TOTAL CONTENT PATH LENGTH WAS USED TO CONVERT TOTAL CONTENT TO DENSITY. THE RESULTING VALUES WERE THEN NORMALIZED TO 1 AU ASSUMING DENSITY TO BE PROPORTIONAL TO THE INVERSE SQUARE OF THE SATELLITE-SOLAR DISTANCE. VALUES RESULTING FROM INTERPOLATION ARE FLAGGED. NO INTERPOLATED VALUES WERE RECORDED WHEN DATA GAPS EXCEEDED 4 DAYS. THIS DATA SET IS ON ONE 800-BPI, 7-TRACK, ODD PARITY, BINARY MAGNETIC TAPE WRITTEN ON AN IBM 7094 COMPUTER. AUXILIARY DATA ON THE TAPE INCLUDE UT AND CARRINGTON ROTATION NUMBER. DATA ARE AVAILABLE FOR ABOUT 12 HR PER DAY WHEN THE SPACECRAFT WAS IN VIEW FROM THE STANFORD TRANSMITTER. IDENTICAL DATA FOR OTHER TIME PERIODS FROM PIONEERS 6 (65-105A-04D), 7 (66-075A-04D), AND 8 (67-123A-03C) AND MARINER 5 (67-060A-02C) ALSO APPEAR ON THIS TAPE.

DATA SET NAME- MICROFILM PLOTS OF SOLAR WIND ELECTRON DENSITY VS TIME NORMALIZED TO 1 AU

NSSDC ID- 68-100A-03D

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 04/04/69 TO 08/27/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THESE DATA WERE PREPARED FROM THE ORIGINAL ANALOG RECORDS BY THE EXPERIMENTER'S STAFF. THE PRIMARY DATA CONSIST OF PLOTS OF ELECTRON DENSITY VS TIME IN THE SOLAR WIND. TO OBTAIN THESE DATA, THE IONOSPHERIC TOTAL CONTENT FOR THE SAME TIMES AT A NEARBY LOCATION WERE REMOVED FROM THE OBSERVED TOTAL CONTENT VALUES. THEN THE OBSERVED TOTAL CONTENT PATH LENGTH WAS USED TO CONVERT TOTAL CONTENT TO DENSITY. THE RESULTING VALUES WERE NORMALIZED TO 1 AU, ASSUMING DENSITY TO BE PROPORTIONAL TO THE INVERSE SQUARE OF THE SATELLITE-SOLAR DISTANCE. THIS DATA SET IS ON ONE REEL OF 35-MM MICROFILM. THIS REEL OF MICROFILM ALSO CONTAINS IDENTICAL DATA FOR OTHER TIME PERIODS FROM PIONEERS 6 (65-105A-04E), 7 (66-075A-04E), AND 8 (67-123A-03D) AND HOURLY VALUES OF TOTAL ELECTRON CONTENT FROM PIONEERS 6 (65-105A-04B), 7 (66-075A-04B), 8 (67-123A-03B), AND (68-100A-03B) AND MARINER 5 (67-060A-02B). THIS DATA SET IS ALSO AVAILABLE ON TAPE (68-100A-03C).

MCCRACKEN, PIONEER 9

EXPERIMENT NAME- COSMIC-RAY ANISOTROPY

NSSDC ID- 68-100A-05

STATUS OF OPERATION- NORMAL

PERSONNEL

PI -	K.G.	MCCRACKEN	U OF ADELAIDE ADELAIDE, AUSTRALIA
OI -	R.U.	RAO	PHYSICAL RESEARCH LA AHMADABED, INDIA
OI -	W.C.	BARTLEY	NATL ACADEMY OF SCI WASHINGTON, DC

THIS EXPERIMENT CONSISTED OF A CSI SCINTILLATOR AND THREE SOLID-STATE TELESCOPES. THE CSI SCINTILLATOR WAS COLLIMATED BY AN ANTICOINCIDENCE PLASTIC SCINTILLATOR AND HAD A CONICAL APERTURE WITH A 38.2-DEG HALF-ANGLE. THE SCINTILLATOR LOOK DIRECTION WAS CENTERED IN THE ECLIPTIC PLANE. THREE SOLID-STATE DETECTORS WERE ORIENTED IN A FAN ARRANGEMENT WITH RESPECT TO A FOURTH SOLID-STATE DETECTOR SUCH THAT EACH OF THE FIRST THREE DETECTORS FORMED A TELESCOPE WITH THE FOURTH DETECTOR. EACH OF THE THREE TELESCOPES THUS FORMED HAD AN ACCEPTANCE CONE OF 23-DEG HALF-ANGLE. THE MEAN VIEWING DIRECTIONS OF THE TELESCOPES WERE IN THE ECLIPTIC PLANE AND 48 DEG ABOVE AND BELOW THAT PLANE, RESPECTIVELY. TWO CONCURRENT MODES OF COUNTING WERE EMPLOYED. IN THE FIRST MODE, COUNTS WERE ACCUMULATED IN EIGHT SEPARATE 45-DEG INTERVALS DURING THE SPACECRAFT SPIN, WHILE, IN THE SECOND, SPIN-INTEGRATED COUNTS WERE ACQUIRED. IN THE FIRST MODE, THE SCINTILLATOR SEPARATELY MEASURED PARTICLES WITH ENERGIES IN THE RANGES 7.4 TO 21.5 MEV/NUCLEON AND 19.7 TO 63.0 MEV/NUCLEON (NO SPECIES DISCRIMINATION) WHILE EACH SOLID-STATE TELESCOPE SEPARATELY MEASURED PROTONS IN THE ENERGY RANGES 3.3 TO 3.6 MEV AND 3.6 TO 6.7 MEV. IN THE SECOND MODE, THE SCINTILLATOR SEPARATELY MEASURED PARTICLES IN SIX CONTIGUOUS ENERGY INTERVALS BETWEEN 4.5 AND 40 MEV/NUCLEON (INTERVAL LOWER LIMITS AT 4.5, 7.0, 9.6, 13, 21, AND 28 MEV/NUCLEON), WHILE EACH OF THE SOLID-STATE TELESCOPES SEPARATELY MEASURED PROTONS IN THE ENERGY RANGES 1 TO 8, 1 TO 5, 1 TO 3, AND 4 TO 6 MEV AND ALPHA PARTICLES IN THE ENERGY RANGE 4 TO 8 MEV. DURING EACH 224-BIT MAIN TELEMETRY FRAME, TWO FIRST-MODE 9-BIT ACCUMULATORS AND ONE SECOND-MODE 9-BIT ACCUMULATOR WERE READ OUT. INFLIGHT CALIBRATION OF THE SCINTILLATOR AND OF SOME OF THE ELECTRONICS WAS PERFORMED DAILY. SEE BUKATA ET AL., IEEE TRANS. NUC. SCI., NS-17, PP. 18-24, 1970, FOR A MORE DETAILED EXPERIMENT DESCRIPTION.

DATA SET NAME- 7.5-MIN AND 1-HR COUNT RATES ON MICROFILM

NSSDC ID- 68-100A-05A

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME PERIOD COVERED- 11/08/68 TO 09/25/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 2 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF 16-MM MICROFILM, GENERATED AT NSSDC FROM EXPERIMENTER-SUPPLIED COMPUTER PRINTOUT. EACH FRAME CONTAINS DATA MATRICES FOR ONE HOUR. COUNTS ACCUMULATED DURING INDICATED NUMBERS OF SPACECRAFT REVOLUTIONS FOR 7.5-MIN INTERVALS AND FOR ONE-HOUR INTERVALS ARE GIVEN FOR ALL ISOTROPIC AND ANISOTROPIC COUNTING MODES. TWO YEARS OF DATA ARE CONTAINED IN THE DATA SET, WITH THE COVERAGE VERY LOW IN THE LATER PART, DUE TO GREATLY DECREASED SPACECRAFT TRACKING.

ORIGINAL PAGE IS OF POOR QUALITY

WEBBER, PIONEER 9

EXPERIMENT NAME- COSMIC-RAY TELESCOPE

NSSDC ID- 68-100A-06

STATUS OF OPERATION- NORMAL

PERSONNEL
PI - W.R. WEBBER ..... U OF NEW HAMPSHIRE
DURHAM, NH

THIS EXPERIMENT UTILIZED A TELESCOPE COMPRISED OF FIVE SOLID-STATE SENSORS, A CERENKOV DETECTOR, AND AN ANTICOINCIDENCE SHIELD. THE TELESCOPE AXIS WAS PERPENDICULAR TO THE SPACECRAFT SPIN AXIS. AS DETERMINED BY TWO COINCIDENCE MODES AND ELECTRONIC DISCRIMINATION OF SENSOR OUTPUT PULSES, PARTICLES MEASURED WERE ELECTRONS IN THREE CONTIGUOUS ENERGY INTERVALS BETWEEN 0.31 AND 5.1 MEV, PROTONS IN FIVE CONTIGUOUS ENERGY INTERVALS BETWEEN 2.2 AND 42 MEV, AND ALPHA PARTICLES IN THOSE CONTIGUOUS ENERGY INTERVALS BETWEEN 5.6 AND 42 MEV/NUCLEON. A THIRD COINCIDENCE MODE MEASURED THE SUM OF COUNTS DUE TO ELECTRONS ABOVE 0.6 MEV AND NUCLEI ABOVE 14 MEV/NUCLEON. A FOURTH COINCIDENCE MODE MEASURED THE SUM OF NUCLEI ABOVE 42 MEV/NUCLEON AND ELECTRONS ABOVE 5.1 MEV. SPACECRAFT SPIN-INTEGRATED DIRECTIONAL FLUXES WERE MEASURED IN THE VARIOUS MODES. ACCUMULATION TIMES AND READOUT INTERVALS WERE DEPENDENT ON THE TELEMETRY BIT RATE AND WERE TYPICALLY IN TENS OF SECONDS. IN ALL CASES, THEY WERE LONGER THAN THE SPACECRAFT SPIN PERIOD.

DATA SET NAME- PROTON COUNT RATES PUBLISHED IN 'SOLAR-GEOPHYSICAL DATA'

NSSDC ID- 68-100A-06A

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 12/01/69 TO 08/18/74
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 49 BOOK(S) OR BOUND VOLUME(S)

THIS DATA SET CONSISTS OF MONTHLY TABULAR LISTINGS OF COUNT RATES OF PROTONS WITH ENERGIES ABOVE 13.9 AND 40 MEV. TYPICALLY, ONE OR TWO COUNT RATES PER ENERGY CHANNEL PER DAY WERE GIVEN IN THE EARLY LIFE OF THE SPACECRAFT. BY LATE 1971, ONLY A FEW COUNT RATES PER MONTH WERE GIVEN. DATA OBTAINED DURING A GIVEN MONTH WERE PUBLISHED IN 'SOLAR-GEOPHYSICAL DATA (PROMPT REPORTS)' WITH A 1-MONTH LAG.

DATA SET NAME- DAILY AVERAGED COUNT RATE LISTINGS ON MICROFILM

NSSDC ID- 68-100A-06B

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 11/08/68 TO 09/04/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF 16-MM MICROFILM GENERATED AT NSSDC FROM EXPERIMENTER-SUPPLIED COMPUTER PRINTOUT. DAILY AVERAGED COUNT RATES AND STANDARD ERRORS (LESS THAN 1 PERCENT OF COUNT RATE), ARE LISTED FOR BOTH PIONEERS 8 AND 9 FOR MODES T1+2 AND T5. MODE T1+2 CORRESPONDS TO ELECTRONS ABOUT 8.4 MEV AND NUCLEI ABOVE 64 MEV/N ON PIONEER 8 AND TO ELECTRONS ABOVE 5.1 MEV AND NUCLEI ABOVE 42 MEV/N ON PIONEER 9. MODE T5 CORRESPONDS TO ELECTRONS ABOVE 0.6 MEV AND NUCLEI ABOVE 14 MEV/N ON PIONEERS 8 AND 9. DATA GAPS NEAR THE END OF THE TIME PERIOD COVERED REFLECT DECREASING SPACECRAFT TRACKING.

DATA SET NAME- DAILY AVERAGED COUNT RATE PLOTS ON MICROFILM

NSSDC ID- 68-100A-06C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 11/08/68 TO 09/04/71
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS DATA SET CONSISTS OF 35-MM MICROFILM GENERATED AT NSSDC FROM EXPERIMENTER-SUPPLIED HARDCOPY PLOTS. DAILY AVERAGED COUNT RATES FOR MODES T1+2 AND T5 ARE PLOTTED WITH 1 YEAR OF DATA PER FRAME. PIONEER 8 AND 9 DATA FRAMES ARE INTERSPERSED. FOR EACH SPACECRAFT, MODE, AND YEAR, THERE ARE TWO PLOTS. ONE OF THESE HAS A LINEAR COUNT-RATE SCALE AND THE OTHER HAS A LOGARITHMIC COUNT-RATE SCALE. DATA GAPS WHICH REFLECT THE LACK OF SPACECRAFT TRACKING BECOME INCREASINGLY ABUNDANT NEAR THE END OF THE TIME PERIOD OF COVERAGE.

WOLFE, PIONEER 9

EXPERIMENT NAME- ELECTROSTATIC ANALYZER

NSSDC ID- 68-100A-02

STATUS OF OPERATION- NORMAL

PERSONNEL
PI - J.H. WOLFE ..... NASA-ARC
MOFFETT FIELD, CA
OI - D.D. MCKIBBIN ..... NASA-ARC
MOFFETT FIELD, CA

A TRUNCATED HEMISPHERICAL ELECTROSTATIC ANALYZER (120-DEG TOTAL PARALLEL PLATE CURVATURE) WITH THREE CONTIGUOUS CURRENT COLLECTORS WAS USED TO STUDY THE DIRECTIONAL INTENSITY OF THE ELECTRONS AND POSITIVE IONS IN THE SOLAR WIND. IONS WERE DETECTED IN 30 LOGARITHMICALLY EQUISPACED ENERGY PER UNIT CHARGE (E/Q) STEPS FROM 150 TO 15,000 V. THERE WAS AN ELECTRON MODE OF OPERATION IN WHICH ELECTRONS WERE MEASURED IN 14 LOGARITHMICALLY EQUISPACED E/Q STEPS RANGING FROM 12 TO 1000 V. THERE WAS ALSO A ZERO E/Q, OR BACKGROUND, STEP. THE THREE COLLECTORS MEASURED PARTICLES INCIDENT FROM THREE DIFFERENT CONTIGUOUS ANGULAR INTERVALS RELATIVE TO THE SPACECRAFT EQUATORIAL PLANE (SAME AS THE ECLIPTIC PLANE). TWO COLLECTORS MEASURED FLUX FROM 10 TO 85 DEG ON EITHER SIDE OF THE SPACECRAFT EQUATORIAL PLANE, AND THE THIRD MEASURED FLUX IN A 20-DEG INTERVAL CENTERED ON THE SPACECRAFT EQUATORIAL PLANE. AS THE SPACECRAFT WAS SPINNING, FLUXES WERE MEASURED IN 23 POSSIBLE 2-13/16-DEG-WIDE AZIMUTHAL ANGULAR SECTORS. SEVENTEEN OF THESE SECTORS WERE CONTIGUOUS AND BRACKETED THE SOLAR DIRECTION. THE REMAINING SIX SECTORS WERE WIDELY SPACED. THE INSTRUMENT HAD THREE MODES OF DATA COLLECTION - POLAR SCAN, AZIMUTHAL SCAN, AND MAXIMUM FLUX. AT THE TWO HIGHEST BIT RATES (512 AND 256 BPS) THE POLAR SCAN MODE WAS ALTERNATED WITH THE AZIMUTHAL SCAN MODE AT EACH E/Q STEP. IN THE POLAR SCAN MODE, ALL THREE COLLECTORS WERE OBSERVED, AND THE PEAK FLUX OBTAINED AND THE AZIMUTHAL DIRECTION (TO 2-13/16 DEG) OF THE OBSERVATION WERE REPORTED FOR EACH COLLECTOR. IN THE AZIMUTHAL SCAN MODE, THE PEAK FLUX OBSERVED IN THE 23 AZIMUTHAL SECTORS WAS RECORDED FOR THE CENTRAL COLLECTOR AT EACH E/Q STEP. AT THE LOW BIT RATES (64, 16, AND 8 BPS), THE MAXIMUM FLUX MODE WAS USED AT EACH E/Q STEP FOLLOWED BY EITHER (1) FOR IONS, A POLAR SCAN AND AN AZIMUTHAL SCAN AT THAT E/Q STEP WHERE THE PEAK FLUX MEASUREMENT DURING THE MAXIMUM FLUX MODE WAS OBTAINED, OR (2) FOR ELECTRONS, A POLAR SCAN AND AN AZIMUTHAL SCAN AT E/Q = 100 V. IN THE MAXIMUM FLUX MODE, ONLY THE CENTRAL COLLECTOR WAS OBSERVED, AND THE PEAK FLUX OBTAINED AND THE AZIMUTHAL DIRECTION (TO 2-13/16 DEG) OF THE OBSERVATION WERE REPORTED. A COMPLETE SET OF MEASUREMENTS CONSISTED OF SEVEN SETS OF ION MEASUREMENTS (AT EACH E/Q STEPS) AND ONE SET OF ELECTRON MEASUREMENTS (AT EACH E/Q STEPS). AT THE HIGH BIT RATES (512 AND 256 BPS) ONE SET OF ION MEASUREMENTS TOOK 62 SEC AND ONE SET OF ELECTRON MEASUREMENTS 38 SEC. AT THE LOW BIT RATES (64, 16, AND 8 BPS), ONE SET OF ION MEASUREMENTS TOOK 37 SEC AND ONE SET OF ELECTRON MEASUREMENTS 28 SEC. AT 64 BPS, A COMPLETE SET OF MEASUREMENTS (SEVEN IONS PLUS ONE ELECTRON) WAS TAKEN AND TELEMETERED EVERY 402.6 SEC. AT 16 BPS, IT TOOK 1610 SEC, AND, AT 8 BPS, IT TOOK 3220 SEC.

DATA SET NAME- ANALYZED PLASMA PARAMETERS ON MICROFILM

NSSDC ID- 68-100A-02A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 11/08/68 TO 08/17/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 16 REEL(S) OF MICROFILM

THESE ANALYZED DATA WERE SUPPLIED BY THE EXPERIMENTER AND CONSIST OF TIME-ORDERED PLOTS OF THE FOLLOWING SOLAR WIND PARAMETERS -- (1) PROTON NUMBER DENSITY (PROTONS/CUBIC CM), (2) AZIMUTH (SOLAR ECLIPTIC LONGITUDE) OF THE PEAK PARTICLE FLUX FOR IONS (DEG), (3) BULK VELOCITY (KM/SEC), (4) POLAR ANGLE (SOLAR ECLIPTIC LATITUDE) OF THE PEAK PARTICLE FLUX (DEG), (5) PROTON TEMPERATURE AND HELIUM TEMPERATURE (DEG), (6) HELIUM/HYDROGEN RATIO (NUMBER OF HELIUM IONS/CUBIC

CM/NUMBER OF PROTONS/CUBIC CM), (7) ELECTRON TEMPERATURE (DEG K), AND (8) TWO INDICATORS OF THE ANISOTROPY IN THE SOLAR PLASMA ION TEMPERATURE DISTRIBUTION.

SPACECRAFT COMMON NAME- PIONEER 10

ALTERNATE NAMES- PIONEER-F, PL-723D
05860

NSSDC ID- 72-012A

LAUNCH DATE- 03/03/72 WEIGHT- 231. KG

STATUS OF OPERATION- PARTIAL

PIONEER 10 WAS THE FIRST OF TWO 258-KG, SPIN-STABILIZED (AT 4.8 RPM), EARTH-POINTING SPACECRAFT DESIGNED TO PROVIDE INFORMATION ON THE INTERPLANETARY MEDIUM, THE ASTEROID BELT, AND JUPITER AND ITS ENVIRONMENT. THE SPACECRAFT COMPLEMENT OF 11 EXPERIMENTS INCLUDED PLASMA AND ENERGETIC PARTICLE DETECTORS, A MAGNETOMETER, METEROID DETECTORS, AN IMAGING PHOTOPOLARIMETER, A UV PHOTOMETER AND AN IR RADIOMETER. PASSIVE IONOSPHERIC OCCULTATION AND CELESTIAL MECHANICS STUDIES WERE ALSO CARRIED OUT. POWER WAS PROVIDED BY FOUR BOOM-MOUNTED RADIOISOTOPE THERMOELECTRIC GENERATORS. EIGHT BIT RATES (8 TO 2048 BPS) WERE AVAILABLE. DURING JOVIAN ENCOUNTER THE BIT RATE WAS 1024 BPS. PIONEER 10 CROSSED THE JOVIAN BOW SHOCK AT ABOUT 108 PLANETARY RADII ON NOVEMBER 26, 1973, ALMOST 21 MONTHS AFTER LAUNCH AND AFTER SURVIVING ITS TRANSIT OF THE ASTEROID BELT WITH NO DAMAGE. CLOSEST APPROACH OCCURRED ON DECEMBER 4, 1973, AT 130,000 KM (1.8 PLANETARY RADII) ABOVE THE CLOUD TOPS. FINAL EXIT FROM THE JOVIAN MAGNETOSHEATH OCCURRED AT ABOUT 240 PLANETARY RADII. DESPITE THE INTENSE FLUXES OF VERY ENERGETIC PARTICLES, THE SPACECRAFT SYSTEMS (EXCEPT THE SPACECRAFT STELLAR REFERENCE ASSEMBLY) AND EXPERIMENTS (EXCEPT FOR THE ASTEROID-METEOROID DETECTOR) SURVIVED THE JOVIAN ENCOUNTER WELL. THE SPACECRAFT IS NOW ON A TRAJECTORY OF ESCAPE FROM THE SOLAR SYSTEM. IT IS EXPECTED TO TRANSMIT DATA UNTIL 1977, WHEN THE SPACECRAFT WILL BE ABOUT 20 AU IN THE DISTANCE.

WOLFE, PIONEER 10

EXPERIMENT NAME- PLASMA EXPERIMENT

NSSDC ID- 72-012A-13

STATUS OF OPERATION- NORMAL

PERSONNEL

PI -	J.H.	WOLFE	NASA-ARC MOFFETT FIELD, CA
OI -	L.A.	FRANK	U OF IOWA IOWA CITY, IA
OI -	R.	LUST	MPI-EXTRATERR PHYS GARCHING, FED REP OF GERMANY
OI -	D.S.	INTRILIGATOR	U OF SOUTHERN CALIF LOS ANGELES, CA
OI -	D.D.	MCKIBBIN	NASA-ARC MOFFETT FIELD, CA
OI -	V.T.	ZAVIENTSEFF	NASA-ARC MOFFETT FIELD, CA
OI -	F.L.	SCARF	TRW SYSTEMS GROUP REDONDO BEACH, CA
OI -	H.R.	COLLARD	NASA-ARC MOFFETT FIELD, CA
OI -	W.C.	FELDMAN	LOS ALAMOS SCI LAB LOS ALAMOS, NM
OI -	Z.A.	SMITH	NASA-ARC MOFFETT FIELD, CA

TWO QUADRISPHERICAL ELECTROSTATIC ANALYZERS WERE USED TO STUDY THE DIRECTIONAL INTENSITY OF SOLAR WIND IONS AND ELECTRONS. THE DETECTORS WERE USED TO OBSERVE A POSSIBLE JOVIAN BOW SHOCK, MAGNETOSHEATH, AND MAGNETOPAUSE. THE INSTRUMENTS STUDIED POSITIVE IONS IN 32 ENERGY/CHARGE STEPS BETWEEN 100 V AND 18 KV, AND ELECTRONS IN 16 STEPS BETWEEN 100 V AND 18 KV.

DATA SET NAME- MICROFILM PLOTS OF SOLAR WIND BULK SPEED VERSUS TIME

NSSDC ID- 72-012A-13A

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 04/18/72 TO 12/12/73
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THIS EXPERIMENTER GENERATED 35-MM MICROFILM CONTAINS PLOTS OF BULK SPEEDS VS. TIME, WITH ONE DATA POINT PER HOUR (WITH THE POINT TAKEN FROM ANY TIME DURING EACH HOUR) AND WITH ABOUT 14 DAYS OF DATA IN EACH PLOT. DATA WERE CALCULATED FROM LEAST SQUARES FITS TO THE ENTIRE SPECTRUM OF A CONVECTED ISOTROPIC MAXWELLIAN DISTRIBUTION FUNCTION. BAD DATA HAVE BEEN REMOVED. THE EXPERIMENTERS BELIEVE THESE SPEEDS ARE ACCURATE TO WITHIN 1 PERCENT. A DESCRIPTION OF THE FITTING PROCEDURE MAY BE FOUND IN "COSMIC ELECTRODYNAMICS", OCTOBER 1971, VOL 2, ISSUE 3, P 326, MIHALOV AND WOLFE.

SPACECRAFT COMMON NAME- VELA 3A

ALTERNATE NAMES- VELA 3 (USAF), VELA 5 (TRW)
01458

NSSDC ID- 65-058A

LAUNCH DATE- 07/20/65 WEIGHT- 150. KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 05/00/70

ORBIT PARAMETERS

ORBIT TYPE- GEOCENTRIC	EPOCH DATE- 07/20/65
ORBIT PERIOD- 5148. MIN	INCLINATION- 35.27 DEG
PERIAPSIS- 88524.0 KM ALT	APOAPSIS- 96238. KM ALT

VELA 3A WAS ONE OF TWO POLYHEDRAL SATELLITES COMPRISING THE THIRD IN A SERIES OF SIX VELA LAUNCHES. THE ORBITS OF THE TWO SATELLITES ON EACH LAUNCH WERE BASICALLY CIRCULAR AT A RADIAL DISTANCE OF ABOUT 17 EARTH RADII AND SPACED 180 DEG APART. THE SATELLITES WERE SPIN STABILIZED AT ABOUT 2 RPS AND HAD THEIR SPIN AXES INCLINED AT ABOUT 60 DEG TO THE ECLIPTIC. DATA ACQUISITION WAS MAINLY REAL TIME AND AVERAGED 25 PERCENT (1 OUT OF EVERY 4 HR) COVERAGE PER DAY. DATA COVERAGE WAS INCREASED FOR SPECIAL EVENTS. THE SATELLITE OPERATED WELL DURING THE PERIOD OF MAJOR DATA COVERAGE - FROM LAUNCH UNTIL THE APRIL 1967 LAUNCH OF THE VELA 4 SATELLITES. AFTER THIS TIME, DATA ACQUISITION FROM THE VELA 3 SATELLITES BECAME INCREASINGLY SPORADIC.

BAME, VELA 3A

EXPERIMENT NAME- ELECTROSTATIC ANALYZER AND GM TUBES

NSSDC ID- 65-058A-04

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 05/21/70

PERSONNEL

PI -	S.J.	BAME	LOS ALAMOS SCI LAB LOS ALAMOS, NM

THIS EXPERIMENT CONSISTED OF TWO GEIGER COUNTERS AND A HEMISPHERICAL ELECTROSTATIC ANALYZER. THE INSTRUMENTS WERE DESIGNED TO STUDY THE INTENSITY ENERGY SPECTRUM AND ANGULAR DISTRIBUTIONS OF SOLAR WIND AND MAGNETOSPHERIC PARTICLES. THE GEIGER COUNTERS MEASURED ELECTRONS WITH ENERGIES GREATER THAN 45 KEV. PARTICLES WERE ACCEPTED FROM A CONE OF 35 DEG HALF-ANGLE. ONE COUNTER WAS MOUNTED SO THAT THE AXIS OF THE ACCEPTANCE CONE WAS PERPENDICULAR TO THE SPIN AXIS. THE OTHER COUNTER HAD THE FIELD OF VIEW SHIFTED 60 DEG RELATIVE TO THE FIRST. THE COUNTERS WERE OPERATED ONLY IN REAL TIME (I.E., ONLY 25 PERCENT OF THE TIME), AND A MEASUREMENT WAS TAKEN ONCE EACH SECOND. THE ELECTROSTATIC ANALYZER WAS MOUNTED ON THE SPACECRAFT EQUATORIAL PLANE AND HAD A FIELD OF VIEW OF ABOUT 5 DEG IN SPACECRAFT LONGITUDE AND ABOUT 90 DEG IN SPACECRAFT LATITUDE. IN THE REAL-TIME MODE, THE ELECTROSTATIC ANALYZER MEASURED THE ION OR ELECTRON (POLARITY WAS SELECTED BY GROUND COMMAND) FLUX IN 64 LOGARITHMICALLY SPACED ENERGY PER CHARGE CHANNELS COVERING THE RANGE 0.2 TO 18 KEV. A COMPLETE 64-POINT ENERGY SPECTRUM WAS TAKEN CENTERED ON EACH OF THE FOLLOWING DIRECTIONS IN THE SPACECRAFT EQUATORIAL PLANE AND RELATIVE TO THE SPACECRAFT SUN LINE -- -11, -5, 1, 7, 14, 89, 190, AND 291 DEG (MINUS SIGNS INDICATE ANGLES TO THE LEFT (EAST) OF THE SUN). THIS SET OF ANGLES COULD BE ROTATED (BY GROUND COMMAND) BY +30 DEG FOR VELA 3A AND -30 DEG FOR VELA 3B. IN THE REAL-TIME MODE, A COMPLETE SET OF MEASUREMENTS (64-POINT SPECTRA IN EACH OF EIGHT DIRECTIONS) WAS TAKEN EVERY 256 SEC AND REPEATED CONTINUOUSLY. IN THE STORE MODE, THE ANALYZER TOOK A 16-POINT ENERGY SPECTRUM AT THE ANGLES 1 AND 190 DEG EVERY 512 SEC. THE INSTRUMENTS WORKED WELL OVER THE PERIOD OF MAJOR COVERAGE OF THE SPACECRAFT.

VELA 3A/VELA 3B

DATA SET NAME- PUBLISHED PRELIMINARY SOLAR WIND PARAMETERS

NSSDC ID- 65-058A-04A

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 01/01/69 TO 05/21/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 17 BOOK(S) OR BOUND VOLUME(S)

THIS DATA SET CONSISTS OF PRELIMINARY SOLAR WIND PARAMETERS PRESENTED IN THE MONTHLY PUBLICATION 'SOLAR-GEOPHYSICAL DATA' ISSUED BY THE NOAA ENVIRONMENTAL RESEARCH LABORATORIES. THESE PARAMETERS ARE DETERMINED BY MEASUREMENTS ON THE VELA 3, 4, AND 5 SATELLITES. THE INFORMATION GIVEN CONSISTS OF DATE, TIME, SPACECRAFT IDENTIFICATION, BULK VELOCITY, AND DENSITY. THE VELOCITY IS ACCURATE TO 3 PERCENT, AND THE DENSITY IS BELIEVED TO BE ACCURATE TO 50 PERCENT. HOWEVER, RELATIVE CHANGES IN THE DENSITY MEASURED OVER A SHORT TIME SPAN ARE ACCURATE TO 20 PERCENT. TYPICALLY, THERE ARE TWO OR THREE SETS OF PARAMETERS GIVEN FOR A PARTICULAR INSTRUMENT PER DAY, AND ON ABOUT 30 PERCENT OF THE DAYS THERE ARE NO DATA.

DATA SET NAME- 3-HR AVERAGES OF SOLAR WIND PARAMETERS ON MICROFILM

NSSDC ID- 65-058A-04B

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 07/26/65 TO 12/06/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THESE DATA WERE SUPPLIED BY THE EXPERIMENTER AS A PUBLISHED DOCUMENT, 'A COMPILATION OF VELA 3 SOLAR WIND OBSERVATIONS 1965 TO 1967,' LOS ALAMOS SCIENTIFIC LABORATORY, LA-4536, VOL. 1, OCT. 1970, BY S. J. BAME, H. E. FELTHAUSER, A. J. HUNDHAUSEN, I. B. STRONG, J. R. ASBRIDGE, H. E. GILBERT, D. M. SMITH, AND S. J. SYDORIAK. THE DOCUMENT WAS MICROFILMED BY NSSDC AND IS CONTAINED ON ONE 35-MM REEL. THE DATA CONSIST OF 3-HR AVERAGES OF THE SOLAR WIND PROTON DENSITY, FLOW SPEED, FLOW DIRECTION, AND PROTON TEMPERATURE. THESE PARAMETERS WERE DERIVED BY LEAST SQUARES TECHNIQUES ASSUMING BI-MAXWELLIAN DISTRIBUTION FUNCTIONS. THE DATA ARE DISPLAYED BOTH AS PLOTS AND AS LISTINGS. THERE IS A NEARLY UNIFORM 25 PERCENT COVERAGE OVER THE TIME PERIOD INDICATED.

DATA SET NAME- 3-HR AVERAGES OF SOLAR WIND PARAMETERS ON TAPE

NSSDC ID- 65-058A-04C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/26/65 TO 12/06/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THESE DATA WERE SUPPLIED BY DR. PAUL FOUGERE OF THE AIR FORCE CAMBRIDGE RESEARCH LABORATORIES AND CONSIST OF A CARD IMAGE MAGNETIC TAPE VERSION OF DATA SET 65-058A-04B. THE ONE-FILE TAPE IS BCD, HAS 7 TRACKS, HAS A DENSITY OF 556 BPI, AND WAS MADE ON AN IBM 7094. DATA FOR DATA SET 65-058B-04C (VELA 3B) ARE ALSO ON THIS TAPE.

SPACECRAFT COMMON NAME- VELA 3B

ALTERNATE NAMES- VELA 3 (USAF), VELA 6 (TRW)
01459

NSSDC ID- 65-058B

LAUNCH DATE- 07/20/65 WEIGHT- 150. KG

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 05/00/70

ORBIT TYPE- GEOCENTRIC
ORBIT PERIOD- 6726. MIN
PERIAPSIS- 101859. KM ALT

EPOCH DATE- 07/20/65
INCLINATION- 34.99 DEG
APOAPSIS- 121453. KM ALT

VELA 3B WAS ONE OF TWO POLYHEDRAL SATELLITES COMPRISING THE THIRD IN A SERIES OF SIX VELA LAUNCHES. THE ORBITS OF THE TWO SATELLITES ON EACH LAUNCH WERE BASICALLY CIRCULAR AT A RADIAL DISTANCE OF ABOUT 17 EARTH RADII AND SPACED 180 DEG APART. THE SATELLITES WERE SPIN STABILIZED AT ABOUT 2 RPS AND HAD THEIR SPIN AXES INCLINED AT ABOUT 60 DEG TO THE ECLIPTIC. DATA ACQUISITION WAS MAINLY REAL TIME AND AVERAGED 25 PERCENT (1 OUT OF EVERY 4 HR) COVERAGE PER DAY. DATA COVERAGE WAS INCREASED FOR SPECIAL EVENTS. THE SATELLITE OPERATED WELL DURING THE PERIOD OF MAJOR DATA COVERAGE - FROM LAUNCH UNTIL THE APRIL 1967 LAUNCH OF THE VELA 4 SATELLITES. AFTER THIS TIME, DATA ACQUISITION FROM THE VELA 3 SATELLITES BECAME INCREASINGLY SPORADIC.

BAME, VELA 3B

EXPERIMENT NAME- ELECTROSTATIC ANALYZER AND GM TUBES

NSSDC ID- 65-058B-04

STATUS OF OPERATION- INOPERABLE
DATE LAST USABLE DATA RECORDED- 05/21/70

PERSONNEL
PI - S.J. BAME ..... LOS ALAMOS SCI LAB
LOS ALAMOS, NM

THIS EXPERIMENT CONSISTED OF TWO GEIGER COUNTERS AND A HEMISPHERICAL ELECTROSTATIC ANALYZER. THE INSTRUMENTS WERE DESIGNED TO STUDY THE INTENSITY ENERGY SPECTRUM AND ANGULAR DISTRIBUTIONS OF SOLAR WIND AND MAGNETOSPHERIC PARTICLES. THE GEIGER COUNTERS MEASURED ELECTRONS WITH ENERGIES GREATER THAN 45 KEV. PARTICLES WERE ACCEPTED FROM A CONE OF 35 DEG HALF-ANGLE. ONE COUNTER WAS MOUNTED SO THAT THE AXIS OF THE ACCEPTANCE CONE WAS PERPENDICULAR TO THE SPIN AXIS. THE OTHER COUNTER HAD THE FIELD OF VIEW SHIFTED 60 DEG RELATIVE TO THE FIRST. THE COUNTERS WERE OPERATED ONLY IN REAL TIME (I.E., ONLY 25 PERCENT OF THE TIME), AND A MEASUREMENT WAS TAKEN ONCE EACH SECOND. THE ELECTROSTATIC ANALYZER WAS MOUNTED ON THE SPACECRAFT EQUATORIAL PLANE AND HAD A FIELD OF VIEW OF ABOUT 5 DEG IN SPACECRAFT LONGITUDE AND ABOUT 90 DEG IN SPACECRAFT LATITUDE. IN THE REAL-TIME MODE, THE ELECTROSTATIC ANALYZER MEASURED THE ION OR ELECTRON (POLARITY WAS SELECTED BY GROUND COMMAND) FLUX IN 64 LOGARITHMICALLY SPACED ENERGY PER CHARGE CHANNELS COVERING THE RANGE 0.2 TO 18 KEV. A COMPLETE 64-POINT ENERGY SPECTRUM WAS TAKEN CENTERED ON EACH OF THE FOLLOWING DIRECTIONS IN THE SPACECRAFT EQUATORIAL PLANE AND RELATIVE TO THE SPACECRAFT SUN LINE -- -11, -5, 1, 7, 14, 89, 190, AND 291 DEG (MINUS SIGNS INDICATE ANGLES TO THE LEFT (EAST) OF THE SUN). THIS SET OF ANGLES COULD BE ROTATED (BY GROUND COMMAND) BY +30 DEG FOR VELA 3A AND -30 FOR VELA 3B. IN THE REAL-TIME MODE, A COMPLETE SET OF MEASUREMENTS (64-POINT SPECTRA IN EACH OF EIGHT DIRECTIONS) WAS TAKEN EVERY 256 SEC AND REPEATED CONTINUOUSLY. IN THE STORE MODE, THE ANALYZER TOOK A 16-POINT ENERGY SPECTRUM AT THE ANGLES 1 AND 190 DEG EVERY 512 SEC. THE INSTRUMENTS WORKED WELL OVER THE PERIOD OF MAJOR COVERAGE OF THE SPACECRAFT.

DATA SET NAME- 3-HR AVERAGES OF SOLAR WIND PARAMETERS ON MICROFILM

NSSDC ID- 65-058B-04A

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 07/26/65 TO 12/06/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MICROFILM

THESE DATA WERE SUPPLIED BY THE EXPERIMENTER AS A PUBLISHED DOCUMENT, 'A COMPILATION OF VELA 3 SOLAR WIND OBSERVATIONS 1965 TO 1967,' LOS ALAMOS SCIENTIFIC LABORATORY, LA-4536, VOL. 1, OCT. 1970, BY S. J. BAME, H. E. FELTHAUSER, A. J. HUNDHAUSEN, I. B. STRONG, J. R. ASBRIDGE, H. E. GILBERT, D. M. SMITH, AND S. J. SYDORIAK. THE DOCUMENT WAS MICROFILMED BY NSSDC AND IS CONTAINED ON ONE 35-MM REEL. THE DATA CONSIST OF 3-HR AVERAGES OF SOLAR WIND PROTON DENSITY, FLOW SPEED, FLOW DIRECTION, AND PROTON TEMPERATURE. THESE PARAMETERS WERE DERIVED BY LEAST SQUARES TECHNIQUES ASSUMING BI-MAXWELLIAN DISTRIBUTION FUNCTIONS. THE DATA ARE DISPLAYED BOTH AS PLOTS AND AS LISTINGS. THERE IS A NEARLY UNIFORM 25 PERCENT COVERAGE OVER THE TIME PERIOD INDICATED.

DATA SET NAME- PUBLISHED PRELIMINARY SOLAR WIND PARAMETERS

NSSDC ID- 65-058B-04B

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 01/01/69 TO 05/21/70
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 17 BOOK(S) OR BOUND VOLUME(S)

THIS DATA SET CONSISTS OF PRELIMINARY SOLAR WIND PARAMETERS PRESENTED IN THE MONTHLY PUBLICATION 'SOLAR-GEOPHYSICAL DATA' ISSUED BY THE NOAA ENVIRONMENTAL RESEARCH LABORATORIES. THESE PARAMETERS ARE DETERMINED BY MEASUREMENTS ON THE VELA 3A, 3B, 5A, AND 5B SATELLITES. THE INFORMATION GIVEN CONSISTS OF DATE, TIME, SPACECRAFT IDENTIFICATION, BULK VELOCITY, AND DENSITY. THE VELOCITY IS ACCURATE TO 3 PERCENT, AND THE DENSITY IS BELIEVED TO BE ACCURATE TO 50 PERCENT. HOWEVER, RELATIVE CHANGES IN THE DENSITY MEASURED OVER A SHORT TIME SPAN ARE ACCURATE TO 20 PERCENT. TYPICALLY, THERE ARE TWO OR THREE SETS OF PARAMETERS GIVEN FOR A PARTICULAR INSTRUMENT PER DAY, AND ON ABOUT 30 PERCENT OF THE DAYS THERE ARE NO DATA. THERE IS A 1-MONTH LAG BETWEEN THE TIME THE DATA ARE ACQUIRED AND THE TIME THE DATA ARE PUBLISHED.

DATA SET NAME- 3-HR AVERAGES OF SOLAR WIND PARAMETERS ON TAPE

NSSDC ID- 65-058B-04C

AVAILABILITY OF DATA SET- DATA AT NSSDC

TIME PERIOD COVERED- 07/26/65 TO 12/06/67
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 1 REEL(S) OF MAGNETIC TAPE

THESE DATA WERE SUPPLIED BY DR. PAUL FOUGERE OF THE AIR FORCE CAMBRIDGE RESEARCH LABORATORIES AND CONSIST OF A CARD IMAGE MAGNETIC TAPE VERSION OF DATA SET 65-058B-04A. THIS TAPE WAS MADE ON AN IBM 7094. THE TAPE WAS WRITTEN IN BCD AT A DENSITY OF 556 BPI. THE TAPE HAS ONE FILE AND 7 TRACKS. DATA FOR DATA SET 65-058A-04C (VELA 3A) ARE ALSO ON THIS TAPE.

SPACECRAFT COMMON NAME- VELA 5A

ALTERNATE NAMES- VELA 9 (TRW), 03954
VELA 5A (USAF)

NSSDC ID- 69-046D

LAUNCH DATE- 05/23/69 WEIGHT- 571. KG

STATUS OF OPERATION- NORMAL

ORBIT PARAMETERS

ORBIT TYPE- GEOCENTRIC	EPOCH DATE- 05/23/69
ORBIT PERIOD- 6720. MIN	INCLINATION- 32.3 DEG
PERIAPSIS- 111000. KM ALT	APOAPSIS- 112000. KM ALT

VELA 5A WAS ONE OF TWO SPIN-STABILIZED, ICOSAHEDRAL SATELLITES THAT COMPRISED THE FIFTH LAUNCH IN THE VELA PROGRAM. THE ORBITS OF THE TWO SATELLITES ON EACH LAUNCH WERE BASICALLY CIRCULAR AT ABOUT 17 EARTH RADII, INCLINED AT 60 DEG TO THE ECLIPTIC, AND SPACED 180 DEG APART, THUS PROVIDING A MONITORING CAPABILITY OF OPPOSITE SIDES OF THE EARTH. THE OBJECTIVES OF THE SATELLITES WERE (1) TO STUDY SOLAR AND COSMIC X RAYS, EUV, SOLAR PROTONS, SOLAR WIND, AND NEUTRONS, (2) TO CARRY OUT RESEARCH AND DEVELOPMENT ON METHODS OF DETECTING NUCLEAR EXPLOSIONS BY MEANS OF SATELLITE-BORNE INSTRUMENTATION, AND (3) TO PROVIDE SOLAR FLARE DATA IN SUPPORT OF MANNED SPACE MISSIONS. VELA 5A, AN IMPROVED VERSION OF THE EARLIER VELA SERIES SATELLITES, HAD BETTER COMMAND CAPABILITIES, INCREASED DATA STORAGE, IMPROVED POWER REQUIREMENTS, BETTER THERMAL CONTROL OF OPTICAL SENSORS, AND GREATER EXPERIMENTATION WEIGHT. POWER SUPPLIES OF 120 W WERE PROVIDED BY 22,500 SOLAR CELLS MOUNTED ON THE SPACECRAFT'S 20 FACES. A ROTATION RATE OF 78 RPM DURING TRANSFER ORBITS AND 1 RPM AFTER FINAL ORBIT INSERTION MAINTAINED NOMINAL ATTITUDE CONTROL. EIGHT WHIP ANTENNAS AND FOUR STUB ANTENNA ARRAYS AT OPPOSITE ENDS OF THE SPACECRAFT STRUCTURE WERE USED FOR GROUND COMMANDS AND TELEMETRY.

ORIGINAL PAGE IS
OF POOR QUALITY

BAME, VELA 5A

EXPERIMENT NAME- SOLAR WIND EXPERIMENT

NSSDC ID- 69-046D-05

STATUS OF OPERATION- PARTIAL

PERSONNEL

PI -	S.J.	BAME	LOS ALAMOS SCI LAB LOS ALAMOS, NM
OI -	J.R.	ASBRIDGE	LOS ALAMOS SCI LAB LOS ALAMOS, NM
OI -	H.E.	FELTHAUSER	LOS ALAMOS SCI LAB LOS ALAMOS, NM

TWO ELECTROSTATIC ANALYZER-ELECTRON MULTIPLIER UNITS WERE USED TO STUDY THE INTERPLANETARY SOLAR WIND (INCLUDING HEAVY IONS) AND PROTONS AND ELECTRONS IN THE MAGNETOTAIL. ENERGY ANALYSIS WAS ACCOMPLISHED BY CHARGING THE PLATES TO KNOWN VOLTAGE LEVELS AND ALLOWING THEM TO DISCHARGE WITH KNOWN RESISTANCE CAPACITOR (RC) TIME CONSTANTS. PARTICLES IN A 6-DEG BY 100-DEG FAN-SHAPED ANGULAR RANGE WERE ACCEPTED FOR ANALYSIS DURING A DECAYING VOLTAGE CYCLE. THE 100-DEG DIMENSION WAS PARALLEL TO THE SPACECRAFT SPIN AXIS FOR BOTH DETECTORS. ONE ANALYZER-MULTIPLIER UNIT STUDIED SOLAR WIND ELECTRONS IN THE ENERGY RANGE FROM 7.5 EV TO 18.5 KEV AND SOLAR WIND POSITIVE IONS (MAINLY PROTONS AND ALPHA PARTICLES) IN AN ENERGY PER CHARGE RANGE FROM 120 V TO 5 KV. (THIS DETECTOR RETURNED USEFUL DATA UNTIL 4/12/72 WHEN IT FAILED.) THE OTHER UNIT STUDIED MAGNETOTAIL PROTONS OR ELECTRONS BETWEEN 20 EV AND 33 KEV AND SOLAR WIND HEAVY IONS IN THE ENERGY PER CHARGE RANGE BETWEEN 1 KV AND 8.3 KV. THIS DETECTOR RETURNED USEFUL DATA UNTIL IT FAILED ON 8/17/73. HOWEVER THIS MALFUNCTION WAS OVERCOME, AND GOOD DATA WERE OBTAINED FROM ABOUT 9/17/73 UNTIL PRESENT (10/24/74).

DATA SET NAME- PUBLISHED PRELIMINARY SOLAR WIND PARAMETERS

NSSDC ID- 69-046D-05A

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 09/14/69 TO 04/11/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 31 BOOK(S) OR BOUND VOLUME(S)

THIS DATA SET CONSISTS OF PRELIMINARY SOLAR WIND PARAMETERS PRESENTED IN THE MONTHLY PUBLICATION 'SOLAR-GEOPHYSICAL DATA' ISSUED BY THE NOAA ENVIRONMENTAL RESEARCH LABORATORIES. THESE PARAMETERS HAVE BEEN DETERMINED BY MEASUREMENTS ON THE VELA 3, 4, AND 5 SATELLITES. THE INFORMATION GIVEN CONSISTS OF DATE, TIME, SPACECRAFT, BULK VELOCITY, AND DENSITY. THE VELOCITY IS ACCURATE TO 3 PERCENT; AND THE DENSITY IS BELIEVED TO BE ACCURATE TO 50 PERCENT. HOWEVER, RELATIVE CHANGES IN THE DENSITY MEASURED OVER A SHORT TIME SPAN ARE ACCURATE TO 20 PERCENT. TYPICALLY, THERE ARE TWO OR THREE SETS OF PARAMETERS GIVEN FOR A PARTICULAR INSTRUMENT PER DAY, AND ON ABOUT 30 PERCENT OF THE DAYS THERE ARE NO DATA. THERE IS A 1-MONTH LAG BETWEEN THE TIME THE DATA ARE ACQUIRED AND THE TIME THE DATA ARE PUBLISHED.

SPACECRAFT COMMON NAME- VELA 5B

ALTERNATE NAMES- VELA 10 (TRW), 03955
VELA 5B (USAF)

NSSDC ID- 69-046E

LAUNCH DATE- 05/23/69 WEIGHT- 571. KG

STATUS OF OPERATION- PARTIAL

ORBIT PARAMETERS

ORBIT TYPE- GEOCENTRIC	EPOCH DATE- 05/23/69
ORBIT PERIOD- 6720. MIN	INCLINATION- 32.8 DEG
PERIAPSIS- 111000. KM ALT	APOAPSIS- 112000. KM ALT

VELA 5B WAS ONE OF TWO SPIN-STABILIZED, ICOSAHEDRAL SATELLITES THAT COMPRISED THE SIXTH LAUNCH IN THE VELA PROGRAM. THE ORBITS OF THE TWO SATELLITES ON EACH LAUNCH WERE BASICALLY CIRCULAR AT ABOUT 17 EARTH RADII, INCLINED AT 60 DEG TO THE ECLIPTIC, AND SPACED 180 DEG APART, THUS PROVIDING A MONITORING CAPABILITY OF OPPOSITE SIDES OF THE EARTH. THE OBJECTIVES OF THE SATELLITES WERE -- (1) TO STUDY SOLAR AND COSMIC X RAYS, EUV, SOLAR PROTONS, SOLAR WIND, AND NEUTRONS, (2) TO CARRY OUT RESEARCH AND DEVELOPMENT ON METHODS OF DETECTING NUCLEAR EXPLOSIONS BY MEANS OF SATELLITE-BORNE

VELA 5B

INSTRUMENTATION, AND (3) TO PROVIDE SOLAR FLARE DATA IN SUPPORT OF MANNED SPACE MISSIONS. VELA 5B, AN IMPROVED VERSION OF THE EARLIER VELA SERIES SATELLITES, HAD BETTER COMMAND CAPABILITIES, INCREASED DATA STORAGE, IMPROVED POWER REQUIREMENTS, BETTER THERMAL CONTROL OF OPTICAL SENSORS, AND GREATER EXPERIMENTATION WEIGHT. POWER SUPPLIES OF 120 W WERE PROVIDED BY 22,500 SOLAR CELLS MOUNTED ON THE SPACECRAFT'S 20 FACES. A ROTATION RATE OF 78 RPM DURING TRANSFER ORBITS AND 1 RPM AFTER FINAL ORBIT INSERTION MAINTAINED NOMINAL ATTITUDE CONTROL. EIGHT WHIP ANTENNAS AND FOUR STUB ANTENNA ARRAYS AT OPPOSITE ENDS OF THE SPACECRAFT STRUCTURE WERE USED FOR GROUND COMMANDS AND TELEMETRY. THE SPACECRAFT AND ITS COMPLIMENT OF EXPERIMENTS FUNCTIONED NORMALLY FOR THREE YEARS, EXCEPT THAT THE SOLAR WIND ELECTROSTATIC ANALYZER FAILED IN JUNE 1969 AND THE EUV DETECTOR WAS TURNED OFF IN APRIL 1972. IN JUNE OF 1972 ONE OF THE TWO ONBOARD DATA STORAGE UNITS FAILED. USE OF THE REMAINING GOOD UNIT WAS SUCH THAT NO USEFUL COSMIC GAMMA RAY DATA WERE OBTAINED BETWEEN JUNE 1972 AND JANUARY 1974 WHILE STORAGE MODE DATA FOR THE OTHER EXPERIMENTS WERE AVAILABLE. FROM JANUARY TO JULY 1974 USEFUL COSMIC GAMMA RAY DATA WERE AGAIN OBTAINED. WHILE ALL OTHER EXPERIMENTS WERE TRACKED ONLY IN REAL TIME (ABOUT 30 PERCENT COVERAGE). AFTER JULY 1974 THE ONLY USEFUL DATA WERE REAL TIME.

NAME, VELA 5B

EXPERIMENT NAME- SOLAR WIND EXPERIMENT

NSSDC ID- 69-046E-05

STATUS OF OPERATION- PARTIAL.

PERSONNEL

PI -	S.J.	BAME	LOS ALAMOS SCI LAB LOS ALAMOS, NM
OI -	J.R.	ASBRIDGE	LOS ALAMOS SCI LAB LOS ALAMOS, NM
OI -	H.E.	FELTHAUSER	LOS ALAMOS SCI LAB LOS ALAMOS, NM

TWO ELECTROSTATIC ANALYZER-ELECTRON MULTIPLIER UNITS WERE USED TO STUDY THE INTERPLANETARY SOLAR WIND (INCLUDING HEAVY IONS) AND PROTONS AND ELECTRONS IN THE MAGNETOTAIL. ENERGY ANALYSIS WAS ACCOMPLISHED BY CHARGING THE PLATES TO KNOWN VOLTAGE LEVELS AND ALLOWING THEM TO DISCHARGE WITH KNOWN RESISTANCE CAPACITOR (RC) TIME CONSTANTS. PARTICLES IN A 6-DEG BY 100-DEG FAN-SHAPED ANGULAR RANGE WERE ACCEPTED FOR ANALYSIS DURING A DECAYING VOLTAGE CYCLE. THE 100-DEG DIMENSION WAS PARALLEL TO THE SPACECRAFT SPIN AXIS FOR BOTH DETECTORS. ONE DETECTOR UNIT WAS USED TO STUDY MAGNETOTAIL PROTONS OR ELECTRONS BETWEEN 20 EV AND 33 KEV AND SOLAR WIND HEAVY IONS IN THE ENERGY PER CHARGE RANGE BETWEEN 1 KV AND 8.3 KV. THIS UNIT OPERATED NORMALLY AT PRESENT (10/24/74), BUT HAS ABOUT 1/4 TO 1/3 DATA RECOVERY DUE TO REALLOCATION OF THE S/C TAPE RECORDER USAGE. THE OTHER DETECTOR UNIT, WHICH FAILED, WAS DESIGNED TO STUDY SOLAR WIND ELECTRONS IN THE ENERGY RANGE FROM 7.5 EV TO 18.5 KEV AND SOLAR WIND POSITIVE IONS (MAINLY PROTONS AND ALPHA PARTICLES) IN AN ENERGY PER CHARGE RANGE FROM 120 V TO 5 KV.

DATA SET NAME- PUBLISHED PRELIMINARY SOLAR WIND PARAMETERS

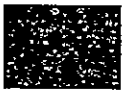
NSSDC ID- 69-046E-05A

AVAILABILITY OF DATA SET- DATA IN PUBLISHED REPORT(S)

TIME PERIOD COVERED- 09/14/69 TO 06/12/72
(AS VERIFIED BY NSSDC)

QUANTITY OF DATA- 33 BOOK(S) OR BOUND VOLUME(S)

THIS DATA SET CONSISTS OF PRELIMINARY SOLAR WIND PARAMETERS PRESENTED IN THE MONTHLY PUBLICATION "SOLAR-GEOPHYSICAL DATA" ISSUED BY THE NOAA ENVIRONMENTAL RESEARCH LABORATORIES. THESE PARAMETERS HAVE BEEN DETERMINED BY MEASUREMENTS ON THE VELA 3, 4, AND 5 SATELLITES. THE INFORMATION GIVEN CONSISTS OF DATE, TIME, SPACECRAFT, BULK VELOCITY, AND DENSITY. THE VELOCITY IS ACCURATE TO 3 PERCENT, AND THE DENSITY IS BELIEVED TO BE ACCURATE TO 50 PERCENT. HOWEVER, RELATIVE CHANGES IN THE DENSITY MEASURED OVER A SHORT TIME SPAN ARE ACCURATE TO 20 PERCENT. TYPICALLY, THERE ARE TWO OR THREE SETS OF PARAMETERS GIVEN FOR A PARTICULAR INSTRUMENT PER DAY, AND ON ABOUT 30 PERCENT OF THE DAYS THERE ARE NO DATA. THERE IS A 1-MONTH LAG BETWEEN THE TIME THE DATA ARE ACQUIRED AND THE TIME THE DATA ARE PUBLISHED.



Spacecraft Name Index

4. INDEXES

This section comprises six different indexes that contain additional information and cross-referencing items to assist the user find specific information he may require.

4.1 SPACECRAFT NAME INDEX

This index contains information on spacecraft, experiments, and data sets and is ordered by spacecraft name, principal investigator's name, and data set ID. The ordering is the same as in the body of the report (section 3) except that particles- and fields-related information has not been separated and spacecraft alternate names have been interspersed with common names. For a given data set, this index enables a reader to readily determine data form, quantity, and time period covered.

SPACECRAFT, EXPERIMENT, DATA SET NAME	NSSDC ID	TIME COVERAGE	QUANTITY AND FORM	PAGE
1963-038C	63-038C			41
BOSTROM - ENERGETIC ELECTRON AND PROTON DETECTORS	63-038C-01			41
TIME-ORDERED REDUCED PROTON AND ELECTRON COUNT RATES ON TAPE	63-038C-01D	09/28/63 - 12/31/68	103 TAPE(S)	41
INDEX TO TIME-ORDERED REDUCED PROTON AND ELECTRON COUNT RATE DATA TAPES	63-038C-01E	09/28/63 - 12/31/68	6 TAPE(S)	41
PLOTS OF PARTICLE COUNT RATES VS TIME OR VS B AT DISCRETE L ON MICROFILM	63-038C-01F	09/28/63 - 12/31/67	2 M/FILM	41
ELECTRON COUNT RATE PLOTS ON MICROFILM	63-038C-01G	09/28/63 - 04/16/66	1 M/FILM	41
SE 1 (SEE 1963-038C)	63-038C			41
AIMP 1 (SEE IMP-D)	66-058A			16
				56
AIMP 2 (SEE IMP-E)	67-070A			17
				58
AIMP-E (SEE IMP-E)	67-070A			17
				58
ALOUETTE 2	65-098A			41
MCDIARMID - ENERGETIC PARTICLE DETECTORS	65-098A-04			42
REDUCED COUNT RATE DATA ON MAGNETIC TAPE	65-098A-04A	12/02/65 - 11/08/67	7 TAPE(S)	42
ANALYZED SELECTED BOUNDARY DATA ON MAGNETIC TAPE	65-098A-04B	11/29/65 - 06/18/69	1 TAPE(S)	42
ALOUETTE-B (SEE ALOUETTE 2)	65-098A			41
ALSEP 12 (SEE APOLLO 12 LM/ALSEP)	69-099C			7
				42
ALSEP 14 (SEE APOLLO 14 LM/ALSEP)	71-008C			7
				43
ALSEP 15 (SEE APOLLO 15 LM/ALSEP)	71-063C			8
				45
	71-063C-05A			
	71-063C-05B			
ALSEP 16 (SEE APOLLO 16 LM/ALSEP)	72-031C			9
ANCHORED IMP 1 (SEE IMP-D)	66-058A			16
				56
APOLLO 12 LM/ALSEP	69-099C			7
				42
FREEMAN - SUPRATHERMAL ION DETECTOR	69-099C-05			42
PLOTS OF MASS ANALYZER AND TOTAL ION DATA ON 16-MM MICROFILM, 24-SEC RES DATA	69-099C-05A	09/14/71 - 02/01/73	22 M/FILM	43
LISTS OF MASS ANALYZER AND TOTAL ION DATA ON 16-MM MICROFILM, 24-SEC RES DATA	69-099C-05B	09/14/71 - 02/03/73	37 M/FILM	43
SNYDER - SOLAR WIND SPECTROMETER	69-099C-02			43
TWENTY-EIGHT SECOND TIME RESOLUTION PLASMA PARAMETERS ON MAGNETIC TAPE	69-099C-02A	11/19/69 - 02/21/72	13 TAPE(S)	43
HOUR-AVERAGED PLASMA PARAMETERS ON MAGNETIC TAPE	69-099C-02B	11/19/69 - 02/10/72	4 TAPE(S)	43
PLOTS OF HOUR-AVERAGED PLASMA PARAMETERS	69-099C-02C	11/20/69 - 05/16/74	1 M/FILM	43
SONETT - LUNAR SURFACE MAGNETOMETER	69-099C-04			7
TOTAL MAGNETIC FIELD MAGNITUDE AND COMPONENTS ON MICROFILM	69-099C-04A	11/19/69 - 04/03/70	2 M/FILM	7
0.3-SEC MAGNETIC VECTORS ON TAPE	69-099C-04B	11/19/69 - 04/03/70	35 TAPE(S)	7
FILTERED AND DECIMATED MAGNETIC FIELD DATA ON MAGNETIC TAPE	69-099C-04C	11/28/69 - 12/03/69	1 TAPE(S)	7
APOLLO 12C (SEE APOLLO 12 LM/ALSEP)	69-099C			7
				42
APOLLO 14 LM/ALSEP	71-008C			7
				43
DYAL - LUNAR PORTABLE MAGNETOMETER	71-008C-10			7
REMANENT MAGNETIC FIELD MAGNITUDE AND COMPONENTS	71-008C-10A	02/06/71 - 02/06/71	1 BOOK(S)	8
FREEMAN - SUPRATHERMAL ION DETECTOR	71-008C-06			44
PLOTS OF MASS ANALYZER AND TOTAL ION DATA ON 16-MM MICROFILM, 24-SEC RES DATA	71-008C-06A	08/26/72 - 03/03/73	47 M/FILM	44
LISTS OF MASS ANALYZER AND TOTAL ION DATA ON 16-MM MICROFILM, 24-SEC RES DATA	71-008C-06B	08/26/72 - 02/28/73	41 M/FILM	44
O'BRIEN - CHARGED PARTICLE LUNAR ENVIRONMENT	71-008C-08			44
COUNT RATE DATA ON MAGNETIC TAPE	71-008C-08A	02/05/71 - 03/02/73	56 TAPE(S)	44
EXPERIMENT POSITION AND ORIENTATION INFORMATION VS TIME ON TAPE	71-008C-08B	01/01/71 - 12/31/73	1 TAPE(S)	44
200-EV ELECTRON COUNT RATE PLOTS ON MICROFILM	71-008C-08C	02/06/71 - 03/12/71	1 M/FILM	45
APOLLO 14C (SEE APOLLO 14 LM/ALSEP)	71-008C			7
				43
APOLLO 15 LM/ALSEP	71-063C			8
				45
DYAL - LUNAR SURFACE MAGNETOMETER	71-063C-03			8
TOTAL MAGNETIC FIELD MAGNITUDE AND COMPONENTS ON MICROFILM	71-063C-03A	07/31/71 - 09/20/72	8 M/FILM	8
0.3-SEC MAGNETIC VECTORS ON TAPE	71-063C-03B	07/31/71 - 09/20/72	138 TAPE(S)	8
FILTERED AND DECIMATED MAGNETIC FIELD DATA ON MAGNETIC TAPE	71-063C-03C	07/31/71 - 08/15/71	1 TAPE(S)	8

PRECEDING PAGE BLANK NOT FILMED

SPACECRAFT, EXPERIMENT, DATA SET NAME	NSSDC ID	TIME COVERAGE	QUANTITY AND FORM	PAGE
APOLLO 15 LM/ALSEP				
SNYDER - SOLAR WIND SPECTROMETER	71-063C-04			45
28-SEC TIME RESOLUTION PLASMA PARAMETERS ON MAGNETIC TAPE	71-063C-04A	07/31/71 - 12/08/71	3 TAPE(S)	45
HOUR-AVERAGED PLASMA PARAMETERS ON MAGNETIC TAPE	71-063C-04B	07/31/71 - 12/08/71	2 TAPE(S)	45
PLOTS OF HOUR-AVERAGED PLASMA PARAMETERS	71-063C-04C	08/02/71 - 05/30/72	1 M/FILM	45
	71-063C-05A			
	71-063C-05B			
APOLLO 15 SUBSATELLITE	71-063D			9
				46
ANDERSON - LUNAR PARTICLE SHADOWS AND BOUNDARY LAYER	71-063D-01			46
10-MIN AND 2-HR AVERAGED PARTICLE COUNT RATES ON MAGNETIC TAPE	71-063D-01A	08/04/71 - 02/03/72	1 TAPE(S)	46
24-SEC AND 10-MIN AVERAGED PARTICLE COUNT RATES ON MICROFILM	71-063D-01B	08/04/71 - 09/18/72	19 M/FILM	46
COLEMAN, JR. - BIAXIAL FLUXGATE MAGNETOMETER	71-063D-02			9
24-SEC TIME RESOLUTION BIAXIAL VECTOR MAGNETIC FIELD MEASUREMENTS ON TAPE	71-063D-02A	08/04/71 - 02/03/72	29 TAPE(S)	9
PLOTS OF TRIAXIAL 192-SEC AVG MAGNETIC FIELD DATA ON 16-MM MICROFILM	71-063D-02B	08/04/71 - 02/03/72	6 M/FILM	9
MICROFILM LISTINGS OF 192-SEC AVG MAGNETIC FIELD VECTORS AND MAGNITUDE	71-063D-02C	08/04/71 - 02/03/72	6 M/FILM	9
APOLLO 15C SEE APOLLO 15 LM/ALSEP	71-063C			8
				45
	71-063C-05A			
	71-063C-05B			
APOLLO 15D SEE APOLLO 15 SUBSATELLITE	71-063D			9
				46
APOLLO 16 LM/ALSEP	72-031C			9
DYAL - LUNAR SURFACE MAGNETOMETER	72-031C-03			10
TOTAL MAGNETIC FIELD MAGNITUDE AND COMPONENTS ON MICROFILM	72-031C-03A	04/21/72 - 10/18/73	5 M/FILM	10
DYAL - LUNAR PORTABLE MAGNETOMETER	72-031C-08			10
TOTAL MAGNETIC FIELD MAGNITUDE AND COMPONENTS	72-031C-08A	04/21/72 - 04/23/72	1 BOOK(S)	10
APOLLO 16 SUBSATELLITE	72-031D			10
				46
ANDERSON - LUNAR PARTICLE SHADOWS AND BOUNDARY LAYER	72-031D-01			46
10-MIN AND 2-HR AVERAGED PARTICLE COUNT RATES ON MAGNETIC TAPE	72-031D-01A	04/25/72 - 05/29/72	1 TAPE(S)	47
24-SEC AND 10-MIN AVERAGED PARTICLE COUNT RATES ON MICROFILM	72-031D-01B	04/25/72 - 05/29/72	4 M/FILM	47
COLEMAN, JR. - BIAXIAL FLUXGATE MAGNETOMETER	72-031D-02			10
24-SEC TIME RESOLUTION BIAXIAL VECTOR MAGNETIC FIELD MEASUREMENTS ON TAPE	72-031D-02A	04/25/72 - 05/29/72	9 TAPE(S)	10
PLOTS OF TRIAXIAL 192-SEC AVG MAGNETIC FIELD DATA ON 16-MM MICROFILM	72-031D-02B	04/25/72 - 05/29/72	1 M/FILM	11
LISTINGS OF SUBSATELLITE MAGNETOMETER VECTORS ON MICROFILM	72-031D-02C	04/25/72 - 05/29/72	1 M/FILM	11
APOLLO 16C SEE APOLLO 16 LM/ALSEP	72-031C			9
APOLLO 16D SEE APOLLO 16 SUBSATELLITE	72-031D			10
				46
ATS 1	66-110A			11
				47
BROWN - PARTICLE TELESCOPE	66-110A-05			47
PLOTS OF REDUCED PARTICLE COUNT RATES ON MICROFILM	66-110A-05A	12/09/66 - 03/01/67	7 M/FILM	47
COLEMAN, JR. - BIAXIAL FLUXGATE MAGNETOMETER	66-110A-02			11
2.5-MIN AVG VECTOR MAGNETOMETER DATA FROM SYNCHRONOUS ALTITUDE ON FILM	66-110A-02B	11/17/67 - 12/29/68	2 M/FILM	11
2.5-MIN AVG VECTOR MAGNETOMETER DATA FROM SYNCHRONOUS ALTITUDE ON TAPE	66-110A-02C	12/07/66 - 12/29/68	3 TAPE(S)	11
15-SEC AVG VECTOR MAGNETOMETER DATA FROM SYNCHRONOUS ALTITUDE ON FILM	66-110A-02D	12/10/66 - 12/29/68	4 M/FILM	12
15-SEC AVG VECTOR MAGNETOMETER DATA FROM SYNCHRONOUS ALTITUDE ON TAPE	66-110A-02E	12/07/66 - 12/29/68	22 TAPE(S)	12
SPACECRAFT AND EXPERIMENT COMMAND LOG AS A MULTIDIMENSIONAL VECTOR ON TAPE	66-110A-02G	12/07/66 - 12/31/68	1 TAPE(S)	12
FREEMAN - SUPRATHERMAL ION DETECTOR	66-110A-01			48
SUPRATHERMAL ION DATA FROM THE ATS-1 SPECTROMETER ON BCD MAGNETIC TAPE	66-110A-01A	12/10/66 - 02/18/67	55 TAPE(S)	48
PAULIKAS - OMNIDIRECTIONAL SPECTROMETER	66-110A-03			48
PROTON AND ELECTRON FLUX VALUES ON TAPE	66-110A-03A	12/17/66 - 12/05/68	49 TAPE(S)	48
HOURLY AVERAGED PROTON FLUXES PUBLISHED IN 'SOLAR-GEOPHYSICAL DATA'	66-110A-03D	01/01/70 - 08/31/72	32 BOOK(S)	48
WINCKLER - ELECTRON SPECTROMETER	66-110A-04			48
6-MIN AVERAGED COUNT RATES ON MAGNETIC TAPE	66-110A-04A	12/19/66 - 12/30/67	1 TAPE(S)	49
6-MIN AVERAGED COUNT RATE PLOTS ON MICROFILM	66-110A-04B	12/19/66 - 12/30/67	1 M/FILM	49
ATS 2	67-031A			49
MCILWAIN - OMNIDIRECTIONAL PROTON AND ELECTRON DETECTORS	67-031A-05			49
PARTICLE COUNT RATES ON TAPE	67-031A-05A	04/07/67 - 10/23/67	31 TAPE(S)	49

SPACECRAFT, EXPERIMENT, DATA SET NAME	NSSDC ID	TIME COVERAGE	QUANTITY AND FORM	PAGE
GRS-A				
OBSERVATIONS ON TAPE	69-097A-01A	11/08/69 - 06/28/70	30 TAPE(S)	13
GRS-A1 SEE GRS-A	69-097A			13
				51
HEOS 1	68-109A			13
				53
BAROUCH - COSMIC-RAY PARTICLE FLUX	68-109A-06			53
PLOTS OF PROTON HOURLY AVERAGED				
DIFFERENTIAL PARTICLE FLUX ON HARDCOPY	68-109A-06A	01/01/69 - 11/06/71	3 HARDCPY	54
PROTON COUNTS ON MAGNETIC TAPE	68-109A-06B	01/01/69 - 12/24/72	1 TAPE(S)	54
ELLIOT - FLUXGATE MAGNETOMETER	68-109A-02			14
HOURLY AVERAGED INTERPLANETARY MAGNETIC				
FIELD VECTORS ON MAGNETIC TAPE	68-109A-02A	12/11/68 - 08/01/74	2 TAPE(S)	14
HOURLY AVERAGED INTERPLANETARY MAGNETIC				
FIELD VECTORS ON MICROFILM	68-109A-02B	12/11/68 - 12/31/72	1 M/FILM	14
HEOS 2	72-005A			14
ELLIOT - FLUXGATE MAGNETOMETER	72-005A-01			14
HOURLY AVERAGED INTERPLANETARY MAGNETIC				
FIELD VECTORS ON MAGNETIC TAPE	72-005A-01A	01/31/72 - 08/01/74	2 TAPE(S)	14
HOURLY AVERAGED INTERPLANETARY MAGNETIC				
FIELD VECTORS ON MICROFILM	72-005A-01B	01/31/72 - 12/31/72	1 M/FILM	14
HEOS-A SEE HEOS 1	68-109A			13
				53
HEOS-A1 SEE HEOS 1	68-109A			13
				53
HEOS-A2 SEE HEOS 2	72-005A			14
IMP 3 SEE IMP-C	65-042A			15
				54
IMP 4 SEE IMP-F	67-051A			20
				60
IMP 5 SEE IMP-G	69-053A			21
				65
IMP 6 SEE IMP-I	71-019A			22
				70
IMP 7 SEE IMP-H	72-073A			69
IMP-C	65-042A			15
				54
MULTICOORDINATE SYSTEM EPHEMERIS DATA ON				
TAPE	65-042A-00G	05/29/65 - 05/11/67	4 TAPE(S)	15
				54
ANDERSON - ION CHAMBER AND GM COUNTERS	65-042A-05			54
PLOTS OF COUNT RATES AND PULSE RATES VS				
TIME ON MICROFILM	65-042A-05B	05/29/65 - 01/01/66	1 M/FILM	55
ION CHAMBER AND GEIGER TUBE ACCUMULATIONS				
ORDERED BY DAY OF YEAR ON MAGNETIC TAPE	65-042A-05C	05/29/65 - 01/03/67	6 TAPE(S)	55
NESS - FLUXGATE MAGNETOMETER	65-042A-02			15
5.46-MIN VECTOR MAGNETIC FIELD DATA				
MERGED WITH EPHEMERIS DATA ON TAPE	65-042A-02C	05/29/65 - 05/11/67	3 TAPE(S)	15
HOURLY AVERAGED VALUES OF INTERPLANETARY				
MAGNETIC FIELD DATA	65-042A-02E	06/01/65 - 01/29/67	2 TAPE(S)	15
HOURLY AVERAGED VALUES OF MAGNETOSPHERIC				
MAGNETIC FIELD DATA ON TAPE	65-042A-02G	05/29/65 - 05/10/67	1 TAPE(S)	15
MULTISPACECRAFT HOURLY AVERAGED INTER-				
PLANETARY MAGNETIC FIELD VECTORS, ON TAPE	65-042A-02I	06/01/65 - 05/06/67	1 TAPE(S)	15
SERBU - RETARDING POTENTIAL ANALYZER	65-042A-01			55
ANALYZED ELECTRON TEMPERATURE AND				
DENSITY VALUES ON MAGNETIC TAPE	65-042A-01A	05/29/65 - 05/05/67	1 TAPE(S)	55
SIMPSON - COSMIC-RAY RANGE VS ENERGY LOSS	65-042A-03			55
COUNT RATE PLOTS (R VS ENERGY LOSS) ON				
MICROFILM	65-042A-03B	05/29/65 - 05/02/67	1 M/FILM	55
REDUCED PULSE HEIGHT ANALYZER DATA ON				
MAGNETIC TAPE	65-042A-03C	05/29/65 - 04/28/67	1 TAPE(S)	55
REDUCED COUNT ACCUMULATION DATA ON				
MAGNETIC TAPE	65-042A-03D	05/29/65 - 04/28/67	1 TAPE(S)	56
5-MIN AVERAGE COUNT RATES ON				
MAGNETIC TAPE	65-042A-03E	05/29/65 - 04/29/67	2 TAPE(S)	56
IMP-D	66-058A			16
				56
SOLAR ECLIPTIC AND SOLAR MAGNETOSPHERIC				
EPHEMERIS PLOTS ON MICROFILM	66-058A-00D	07/01/66 - 10/29/71	1 M/FILM	16
				56
SOLAR ECLIPTIC EPHEMERIS PLOTS	66-058A-00E	07/01/66 - 02/28/70	2 FICHE	16
				56
MULTICOORDINATE SYSTEM EPHEMERIS TAPES	66-058A-00F	12/01/68 - 02/28/70	49 TAPE(S)	16
				56
12-HOUR SOLAR ECLIPTIC EPHEMERIS				
PARAMETER LISTING ON MICROFILM	66-058A-00G	07/01/66 - 02/28/70	1 M/FILM	16
				57
ANDERSON - ION CHAMBER AND GM COUNTERS	66-058A-04			57
ORIGINAL REDUCED ION CHAMBER AND GM				
COUNTS ON TAPE	66-058A-04A	07/01/66 - 06/09/67	7 TAPE(S)	57
BRIDGE - PLASMA PROBE	66-058A-06			57
3-MIN INTERPLANETARY PLASMA PARAMETERS				

SPACECRAFT, EXPERIMENT, DATA SET NAME	NSSDC ID	TIME COVERAGE	QUANTITY AND FORM	PAGE
IMP-D				
ON MAGNETIC TAPE	66-058A-06B	07/06/66 - 09/23/69	1 TAPE(S)	57
PLOTS OF HOURLY AVERAGED PLASMA PARAMETERS ON FICHE	66-058A-06C	07/06/66 - 04/20/71	1 FICHE	58
HOURLY AVERAGED INTERPLANETARY PLASMA DATA ON TAPE WITH BLOCKS OF ZEROS REMOVED	66-058A-06D	07/06/66 - 09/23/69	1 TAPE(S)	58
NESS - GSFC MAGNETOMETER	66-058A-01			17
5.12-SEC VECTOR MAGNETIC FIELD DATA ON TAPE	66-058A-01A	07/01/66 - 10/05/68	59 TAPE(S)	17
82-SEC AVERAGED VECTOR MAGNETIC FIELD DATA ON MAGNETIC TAPE	66-058A-01C	07/01/66 - 10/05/68	15 TAPE(S)	17
SONETT - AMES MAGNETIC FIELDS	66-058A-03			17
AVERAGED MAGNETIC FIELD VECTOR PLOTS ON MICROFILM	66-058A-03A	07/01/66 - 09/13/70	4 M/FILM	17
VAN ALLEN - ELECTRON AND PROTON DETECTORS	66-058A-05			58
PLOTS OF X-RAY AND PARTICLE DATA ON MICROFILM	66-058A-05G	07/01/66 - 12/31/68	18 M/FILM	58
IMP-E	67-070A			17
				58
SOLAR ECLIPTIC EPHEMERIS PLOTS	67-070A-00D	07/19/67 - 12/31/72	2 FICHE	18
				58
MULTICOORDINATE SYSTEM EPHEMERIS TAPES	67-070A-00E	12/01/68 - 08/31/70	17 TAPE(S)	18
				59
ANDERSON - ENERGETIC PARTICLE	67-070A-02			59
ORIGINAL REDUCED ION CHAMBER AND GM COUNTS ON TAPE	67-070A-02A	07/19/67 - 07/24/68	8 TAPE(S)	59
BRIDGE - PLASMA PROBE	67-070A-06			59
3-MIN INTERPLANETARY PLASMA PARAMETERS ON MAGNETIC TAPE	67-070A-06B	07/25/67 - 07/03/68	1 TAPE(S)	59
PLOTS OF HOURLY AVERAGED PLASMA PARAMETERS	67-070A-06C	07/25/67 - 07/03/68	1 FICHE	59
HOURLY AVERAGED INTERPLANETARY PLASMA DATA ON TAPE WITH BLOCKS OF ZEROS REMOVED	67-070A-06D	07/25/67 - 07/03/68	1 TAPE(S)	60
NESS - GSFC MAGNETOMETER	67-070A-04			18
5.12-SEC VECTOR MAGNETIC FIELD DATA ON MAGNETIC TAPE	67-070A-04A	07/19/67 - 05/01/69	76 TAPE(S)	18
82-SEC AVERAGED VECTOR MAGNETIC FIELD DATA ON MAGNETIC TAPE	67-070A-04B	07/19/67 - 02/23/72	10 TAPE(S)	18
5.12-SEC VECTOR MAGNETIC FIELD PLOTS ON MICROFILM	67-070A-04D	07/19/67 - 02/23/72	57 M/FILM	19
81.92-SEC VECTOR MAGNETIC FIELD PLOTS ON MICROFILM	67-070A-04E	07/19/67 - 02/23/72	5 M/FILM	19
VECTOR MAGNETIC FIELD DATA LISTINGS ON MICROFILM	67-070A-04F	07/19/67 - 02/23/72	57 M/FILM	19
SONETT - AMES MAGNETIC FIELDS	67-070A-03			19
AVERAGED MAGNETIC FIELD VECTOR PLOTS ON MICROFILM	67-070A-03A	07/19/67 - 12/23/70	4 M/FILM	19
81.92-SEC VECTOR MAGNETIC FIELD DATA ON MAGNETIC TAPES	67-070A-03C	07/19/67 - 10/28/71	19 TAPE(S)	19
VAN ALLEN - ELECTRON AND PROTON DETECTORS	67-070A-01			60
PLOTS OF PARTICLE COUNT-RATE DATA ON MICROFILM	67-070A-01G	07/19/67 - 12/31/68	10 M/FILM	60
IMP-F	67-051A			20
				60
SOLAR ECLIPTIC AND SOLAR MAGNETOSPHERIC EPHEMERIS PLOTS ON MICROFILM	67-051A-00D	05/24/67 - 05/03/69	1 M/FILM	20
				60
SOLAR ECLIPTIC EPHEMERIS PLOTS	67-051A-00E	05/24/67 - 03/06/69	1 FICHE	20
				60
U OF CHICAGO EPHEMERIS DATA ON TAPE	67-051A-00F	05/24/67 - 05/03/69	5 TAPE(S)	20
				61
ANDERSON - ION CHAMBER	67-051A-02			61
ION CHAMBER AND GM TUBE COUNT RATES ON MICROFILM	67-051A-02A	05/24/67 - 09/15/67	1 M/FILM	61
BOSTROM - SOLAR PROTON MONITORING EXPERIMENT	67-051A-07			61
DAILY AVERAGED COUNT RATES, 10-, 30-, 60-MEV CHANNELS	67-051A-07A	05/24/67 - 05/02/69	1 M/FILM	61
HOURLY AVERAGED SOLAR PROTON FLUXES PUBLISHED IN "SOLAR-GEOPHYSICAL DATA"	67-051A-07B	05/24/67 - 05/02/69	17 BOOK(S)	61
COUNT RATES ON ENCYCLOPEDIA TAPES	67-051A-07C	05/24/67 - 05/03/69	22 TAPE(S)	61
EDITED HOURLY AVERAGED COUNT RATES ON MAGNETIC TAPE	67-051A-07D	05/24/67 - 05/03/69	1 TAPE(S)	62
BROWN - LOW-ENERGY SOLID-STATE TELESCOPE	67-051A-01			62
REDUCED ELECTRON, PROTON, AND HEAVIER ION TELESCOPE DATA ON MAGNETIC TAPE	67-051A-01A	05/24/67 - 05/03/69	33 TAPE(S)	62
REDUCED COUNT RATE PLOTS ON MICROFILM	67-051A-01C	05/24/67 - 05/03/69	90 M/FILM	62
MCCRACKEN - COSMIC-RAY ANISOTROPY	67-051A-05			62
HOURLY AVERAGED COUNT RATES ON TAPE	67-051A-05A	05/24/67 - 05/02/69	1 TAPE(S)	63
MCDONALD - LOW-ENERGY PROTON AND ALPHA DETECTOR	67-051A-09			63
MICROFILM OF CATALOG OF SOLAR COSMIC RAY EVENTS (VAN HOLLEBEKE ET AL., X-661-74-27)	67-051A-09A	05/25/67 - 05/02/69	1 M/FILM	63
MCDONALD - COSMIC-RAY ENERGY VS ENERGY LOSS	67-051A-10			63
MICROFILM OF CATALOG OF SOLAR COSMIC-RAY EVENTS (VAN HOLLEBEKE ET AL., X-661-74-27)	67-051A-10A	05/25/67 - 05/02/69	1 M/FILM	63
NESS - TRIAXIAL FLUXGATE MAGNETOMETER	67-051A-11			20
20-SEC AVERAGED VECTOR MAGNETIC FIELD DATA ON TAPE	67-051A-11A	05/24/67 - 12/06/68	13 TAPE(S)	20
20-SEC AVERAGED MAGNETIC FIELD VECTORS ON MICROFILM	67-051A-11B	05/24/67 - 03/07/69	3 M/FILM	21
2.5-SEC MULTICOORDINATE MAGNETIC VECTORS ON TAPE	67-051A-11D	05/24/67 - 02/10/69	136 TAPE(S)	21
OGILVIE - ELECTROSTATIC ANALYZER	67-051A-08			63
REDUCED ENERGY SPECTRUM DATA WITH DERIVED PLASMA PARAMETERS ON MICROFILM	67-051A-08A	05/27/67 - 01/30/68	5 M/FILM	64
PLASMA PARAMETERS MERGED WITH MAGNETIC				

ORIGINAL PAGE IS
OF POOR QUALITY

SPACECRAFT, EXPERIMENT, DATA SET NAME	NSSDC ID	TIME COVERAGE	QUANTITY AND FORM	PAGE
IMP-F				
FIELD DATA ON TAPE	67-051A-08B	05/24/67 - 01/30/68	6 TAPE(S)	64
SIMPSON - COSMIC-RAY PROTON (R VS DE/DX)	67-051A-03			64
TELESCOPE ACCUMULATOR READINGS ON MAGNETIC TAPE	67-051A-03A	05/24/67 - 05/02/69	6 TAPE(S)	64
PULSE HEIGHT ANALYZER EVENT SUMMARIES ON MAGNETIC TAPE	67-051A-03C	05/24/67 - 05/02/69	9 TAPE(S)	64
5-MIN AVERAGED COUNT RATES ON MAGNETIC TAPE	67-051A-03D	05/24/67 - 05/02/69	2 TAPE(S)	65
COUNT RATE PLOTS (R VS ENERGY LOSS) ON MICROFILM	67-051A-03E	05/24/67 - 04/25/69	1 M/FILM	65
VAN ALLEN - LOW-ENERGY PROTON AND ELECTRON DIFFERENTIAL ENERGY ANALYZER (LEPEDEA)	67-051A-04			65
MOTION PICTURE SURVEY OF THE MAGNETOSPHERE	67-051A-04A	06/30/67 - 07/04/67	400 FILM	65
LEPEDEA COUNT RATES AND FLUXES ON BCD MAGNETIC TAPE	67-051A-04B	05/26/67 - 06/17/68	35 TAPE(S)	65
IMP-G	69-053A			21
				65
PROJECTION AND PERSPECTIVE EPHEMERIS PLOTS ON MICROFILM	69-053A-00D	06/21/69 - 08/25/70	1 M/FILM	21
				66
MULTICOORDINATE SYSTEM EPHEMERIS TAPES	69-053A-00E	06/21/69 - 11/15/71	6 TAPE(S)	21
				66
GSFC TRAJECTORY PLOTS, SOLAR ECLIPTIC PROJECTIONS	69-053A-00G	06/21/69 - 12/23/72	1 FICHE	21
				66
ANDERSON - ION CHAMBER	69-053A-02			66
IONIZATION CHAMBER AND DIRECTIONAL GEIGER-MUELLER TUBE COUNT RATES ON TAPE	69-053A-02A	06/21/69 - 02/18/72	54 TAPE(S)	66
ELECTRON AND PROTON COUNT RATES ON MICROFILM	69-053A-02B	06/21/69 - 08/31/72	5 M/FILM	66
BOSTROM - SOLAR PROTON MONITORING EXPERIMENT	69-053A-07			67
HOURLY AVERAGED SOLAR PROTON FLUXES PUBLISHED IN "SOLAR-GEOPHYSICAL DATA"	69-053A-07A	06/21/69 - 12/23/72	28 BOOK(S)	67
COUNT RATES ON ENCYCLOPEDIA TAPES	69-053A-07B	06/21/69 - 12/23/72	37 TAPE(S)	67
EDITED HOURLY AVERAGED COUNT RATES ON MAGNETIC TAPE	69-053A-07C	06/21/69 - 12/23/72	1 TAPE(S)	67
BROWN - LOW-ENERGY SOLID-STATE TELESCOPE	69-053A-01			67
PARTICLE COUNT RATE DATA ON MAGNETIC TAPE	69-053A-01A	06/21/69 - 08/15/70	23 TAPE(S)	68
MCDONALD - LOW-ENERGY PROTON AND ALPHA DETECTOR	69-053A-09			68
MICROFILM OF CATALOG OF SOLAR COSMIC-RAY EVENTS (VAN HOLLEBEKE ET AL. X-661-74-27)	69-053A-09A	09/09/69 - 11/29/72	1 M/FILM	68
MCDONALD - COSMIC-RAY ENERGY VS ENERGY LOSS	69-053A-10			68
MICROFILM OF CATALOG OF SOLAR COSMIC RAY EVENTS (VAN HOLLEBEKE ET AL. X-661-74-27)	69-053A-10A	09/09/69 - 11/29/72	1 M/FILM	68
NESS - TRIAXIAL FLUXGATE MAGNETOMETER	69-053A-11			22
20-SEC AVERAGED VECTOR MAGNETIC FIELD DATA ON MICROFILM	69-053A-11A	06/21/69 - 12/23/72	8 M/FILM	22
2.5-SEC MULTICOORDINATE MAGNETIC VECTORS ON TAPE	69-053A-11B	06/21/69 - 12/23/72	367 TAPE(S)	22
SIMPSON - COSMIC-RAY PROTON (R VS DE/DX)	69-053A-03			69
TELESCOPE ACCUMULATOR READINGS ON MAGNETIC TAPE	69-053A-03A	06/21/69 - 09/06/71	8 TAPE(S)	69
PULSE HEIGHT ANALYZER EVENT SUMMARIES ON MAGNETIC TAPE	69-053A-03B	06/21/69 - 09/05/71	12 TAPE(S)	69
5-MIN AVERAGE COUNT RATES ON MAGNETIC TAPE	69-053A-03C	06/21/69 - 04/25/71	2 TAPE(S)	69
IMP-H	72-073A			69
GSFC TRAJECTORY PLOTS, SOLAR ECLIPTIC PROJECTIONS	72-073A-00D	09/26/72 - 04/06/73	1 FICHE	69
GLOECKLER - IONS AND ELECTRONS IN THE ENERGY RANGE	72-073A-03			70*0
			0	
10-MIN AVERAGED, 120-KEV PROTON COUNT RATE PLOTS ON MICROFILM	72-073A-03A	09/27/72 - 04/13/73	1 M/FILM	70
ENCYCLOPEDIA TAPES WITH ALL COUNT RATES	72-073A-03B	09/25/72 - 04/13/73	32 TAPE(S)	70
IMP-I	71-019A			22
				70
GSFC TRAJECTORY PLOTS, SOLAR ECLIPTIC PROJECTIONS	71-019A-00D	03/13/71 - 12/31/72	1 FICHE	22
				70
BOSTROM - SOLAR PROTON MONITORING EXPERIMENT	71-019A-07			70
COUNT RATES ON ARCHIVE TAPES	71-019A-07A	03/14/71 - 07/15/71	50 TAPE(S)	71
HOURLY AVERAGED SOLAR PROTON FLUXES PUBLISHED IN "SOLAR GEOPHYSICAL DATA"	71-019A-07B	11/01/71 - 05/31/73	11 BOOK(S)	71
NESS - MEASUREMENT OF MAGNETIC FIELDS	71-019A-01			22
15-SEC AVERAGED MAGNETIC FIELD VECTORS ON MICROFILM	71-019A-01A	03/13/71 - 04/03/73	3 M/FILM	23
SIMPSON - NUCLEAR COMPOSITION OF COSMIC AND SOLAR PARTICLE RADIATIONS	71-019A-09			71
PROTON AND HIGHER Z COUNT RATES ON MAGNETIC TAPE	71-019A-09A	03/13/71 - 01/06/72	16 TAPE(S)	71
5-MIN AVERAGED PROTON AND HIGHER Z COUNT RATES ON MAGNETIC TAPE	71-019A-09B	03/13/71 - 05/01/72	1 TAPE(S)	71
INJUN 4	64-076B			72
VAN ALLEN - GEIGER-MUELLER COUNTER	64-076B-03			72
MASTER FILE ON MAGNETIC TAPE, GM COUNTS	64-076B-03A	02/13/65 - 07/19/66	47 TAPE(S)	72
VAN ALLEN - SOLID-STATE DETECTOR	64-076B-04			72
MASTER FILE ON MAGNETIC TAPE, P-N COUNTS	64-076B-04A	02/13/65 - 07/19/66	47 TAPE(S)	72
PROTON COUNT RATE PLOTS ON MICROFILM	64-076B-04B	11/23/64 - 07/19/66	11 M/FILM	73
VAN ALLEN - CADMIUM SULFIDE DETECTORS	64-076B-05			73
MASTER FILE ON MAGNETIC TAPE, CDS COUNTS	64-076B-05A	02/13/65 - 07/19/66	47 TAPE(S)	73
VAN ALLEN - PLASTIC SCINTILLATOR PARTICLE DETECTORS	64-076B-06			73

SPACECRAFT, EXPERIMENT, DATA SET NAME	NSSDC ID	TIME COVERAGE	QUANTITY AND FORM	PAGE
INJUN 4				
MASTER FILE ON MAGNETIC TAPE, PLASTIC SCINTILLATOR COUNTS	64-076B-06A	02/13/65 - 07/19/66	47 TAPE(S)	73
INJUN 5	68-066B			23
				73
FRANK - LOW-ENERGY PROTON AND ELECTRON DIFFERENTIAL ENERGY ANALYZER (LEPEDEA)	68-066B-01			74
MASTER FILE ON MAGNETIC TAPE, LEPEDEA COUNT RATE	68-066B-01A	08/09/68 - 05/29/70	949 TAPE(S)	74
GURNETT - VLF RECEIVER	68-066B-02			23
MASTER DATA TAPE INCLUDING VLF SIGNAL STRENGTH	68-066B-02A	08/09/68 - 05/29/70	949 TAPE(S)	23
VAN ALLEN - SOLID-STATE PARTICLE DETECTOR	68-066B-03			74
MASTER FILE ON MAGNETIC TAPE, PROTON AND ALPHA PARTICLE COUNT RATES	68-066B-03A	08/09/68 - 05/29/70	949 TAPE(S)	74
INJUN IE-C SEE INJUN 5	68-066B			23
				73
INJUN-C SEE INJUN 5	68-066B			23
				73
ISIS 1	69-009A			74
MCDIARMID - ENERGETIC PARTICLE DETECTORS	69-009A-04			75
REDUCED COUNT RATE DATA ON MAGNETIC TAPE	69-009A-04A	02/02/69 - 04/24/69	10 TAPE(S)	75
ISIS 2	71-024A			75
MCDIARMID - ENERGETIC PARTICLE DETECTORS	71-024A-04			75
REDUCED COUNT RATE DATA ON MAGNETIC TAPE	71-024A-04A	04/19/71 - 03/31/73	111 TAPE(S)	75
ISIS-A SEE ISIS 1	69-009A			74
ISIS-B SEE ISIS 2	71-024A			75
ISIS-X SEE ALOUETTE 2	65-098A			41
LEM 12 SEE APOLLO 12 LM/ALSEP	69-099C			7
				42
LEM 14 SEE APOLLO 14 LM/ALSEP	71-008C			7
				43
LEM 15 SEE APOLLO 15 LM/ALSEP	71-063C			8
				45
	71-063C-05A			
	71-063C-05B			
LEM 16 SEE APOLLO 16 LM/ALSEP	72-031C			9
MARINER 5	67-060A			24
				76
BRIDGE - INTERPLANETARY ION PLASMA PROBE FOR E/Q OF 40 TO 9400 VOLTS	67-060A-03			76
HOURLY AVERAGED PROTON PLASMA PARAMETERS ON 16-MM MICROFILM	67-060A-03A	06/14/67 - 11/21/67	1 M/FILM	76
HOURLY AVERAGED PROTON PLASMA PARAMETERS ON 7-TRACK BCD MAGNETIC TAPE	67-060A-03B	06/14/67 - 11/21/67	1 TAPE(S)	76
ESHLEMAN - TWO-FREQUENCY BEACON RECEIVER	67-060A-02			76
HOURLY VALUES OF REDUCED TOTAL ELECTRON CONTENT DATA ON PUNCHED CARDS	67-060A-02A	06/14/67 - 11/21/67	1 TAPE(S)	76
HOURLY VALUES OF REDUCED TOTAL ELECTRON CONTENT DATA ON MICROFILM	67-060A-02B	06/14/67 - 11/21/67	1 M/FILM	77
HOURLY VALUES OF NORMALIZED ELECTRON DENSITY ON MAGNETIC TAPE	67-060A-02C	09/01/67 - 10/26/67	1 TAPE(S)	77
SMITH - TRIAXIAL LOW FIELD HELIUM MAGNETOMETER	67-060A-05			24
FINE-TIME SCALE MAGNETOMETER DATA ON TAPE	67-060A-05A	06/14/67 - 11/21/67	1 TAPE(S)	24
1-, 3-, AND 24-HOUR AVERAGES OF INTERPLANETARY MAGNETIC FIELD VECTORS	67-060A-05B	06/14/67 - 11/21/67	1 TAPE(S)	24
1-DAY, 3-HR, AND 1-HR AVG PLOTS OF TRIAXIAL MAGNETOMETER DATA ON MICROFILM	67-060A-05C	06/14/67 - 11/21/67	1 M/FILM	24
TRIAXIAL MAGNETIC FIELD MEASUREMENTS FOR THE MARINER ENCOUNTER WITH VENUS	67-060A-05D	10/19/67 - 10/19/67	1 TAPE(S)	24
MARINER VENUS 67 SEE MARINER 5	67-060A			24
				76
OGO 1	64-054A			25
				77
MULTICOORDINATE SYSTEM EPHEMERIS PLOTS	64-054A-00H	09/07/64 - 06/03/67	2 M/FILM	25
				77
ANDERSON - SOLAR-COSMIC RAYS	64-054A-12			77
ORIGINAL REDUCED COUNT RATES ON TAPE	64-054A-12A	09/30/65 - 05/03/66	1 TAPE(S)	78
SIMPSON - COSMIC-RAY SPECTRA AND FLUXES	64-054A-18			78
REDUCED COUNT RATE DATA ON MAGNETIC TAPE	64-054A-18A	09/06/64 - 11/25/67	35 TAPE(S)	78
DIGITAL AND ANALOG COUNT RATE PLOTS ON MICROFILM	64-054A-18B	09/07/64 - 11/25/67	1 M/FILM	78
PULSE HEIGHT ANALYZER DATA ON MAGNETIC TAPE	64-054A-18C	09/04/66 - 11/25/67	3 TAPE(S)	78
SMITH - TRIAXIAL SEARCH-COIL MAGNETOMETER	64-054A-01			25
36.864-SEC AVERAGED SEARCH-COIL MAGNETOMETER DATA ON TAPE	64-054A-01A	09/23/64 - 11/17/67	29 TAPE(S)	25
SEARCH-COIL MAGNETOMETER SQUISH PLOTS ON MICROFILM	64-054A-01B	09/23/64 - 03/10/67	1 M/FILM	25
MAGNETIC FIELD MAGNITUDE AND DIRECTION NORMAL TO THE SPACECRAFT SPIN AXIS ON FILM	64-054A-01C	09/05/64 - 09/29/66	1 M/FILM	26

ORIGINAL PAGE IS OF POOR QUALITY

SPACECRAFT, EXPERIMENT, DATA SET NAME	NSSDC ID	TIME COVERAGE	QUANTITY AND FORM	PAGE
OGO 1				
WINCKLER - IONIZATION CHAMBER	64-054A-20			78
PLOTS OF 1-MIN AVERAGED PULSE RATES VS TIME ON MICROFILM	64-054A-20A	09/12/64 - 06/05/67	1 M/FILM	79
ORIGINAL REDUCED PULSE RATES ON TAPE	64-054A-20B	09/05/64 - 12/06/67	17 TAPE(S)	79
ATLAS OF 10- TO 50-KEV SOLAR FLARE X RAYS ON MICROFILM	64-054A-20C	05/02/65 - 05/28/67	1 M/FILM	79
PLOTS OF 1-MIN AVERAGED PULSE RATES VS L ON MICROFILM	64-054A-20D	09/07/64 - 06/04/67	1 M/FILM	79
TABULATIONS OF HOURLY AVERAGED PULSE RATES ON MICROFILM	64-054A-20E	09/05/64 - 12/06/67	1 M/FILM	79
TABULATIONS OF 1-MIN AVERAGED PULSE RATES ON MICROFILM	64-054A-20F	09/05/64 - 12/06/67	4 M/FILM	79
PLOTS OF 2-MIN AVERAGED PULSE RATES VS SPACECRAFT RADIAL DISTANCE ON MICROFILM	64-054A-20G	09/07/64 - 06/04/67	1 M/FILM	79
PLOTS OF 2-MIN AVERAGED PULSE RATES VS TIME ON MICROFILM	64-054A-20H	09/10/64 - 06/05/67	1 M/FILM	80
PLOTS OF 1-MIN AVERAGED PULSE RATES VS TIME (NEAR PERIGEE) ON MICROFILM	64-054A-20J	09/15/64 - 05/27/66	1 M/FILM	80
WINCKLER - ELECTRON SPECTROMETER	64-054A-21			80
PLOTS OF 2-MIN AVERAGED COUNT RATES VS TIME (RADIATION BELTS) ON MICROFILM	64-054A-21A	09/15/64 - 05/27/66	1 M/FILM	80
PLOTS OF COUNTS VS R ON MICROFILM	64-054A-21B	09/07/64 - 06/04/67	1 M/FILM	80
ORIGNAL REDUCED COUNT RATES ON TAPE	64-054A-21C	09/07/64 - 12/06/67	11 TAPE(S)	80
TABULATION OF 5-MIN AVERAGED COUNT RATES ON MICROFILM	64-054A-21D	09/07/64 - 06/05/67	6 M/FILM	81
PLOTS OF COUNTS VS L ON MICROFILM	64-054A-21E	09/07/64 - 06/04/67	1 M/FILM	81
PLOTS OF 5-MIN AVERAGED COUNT RATES VS TIME ON MICROFILM	64-054A-21G	09/07/64 - 06/05/67	1 M/FILM	81
REDUCED L-INTERPOLATED COUNT RATES ON MAGNETIC TAPE	64-054A-21I	09/15/64 - 07/07/67	1 TAPE(S)	81
OGO 2	65-081A			26
				81
ANDERSON - COSMIC-RAY IONIZATION	65-081A-06			82
MICROFILM PLOTS OF TOTAL IONIZATION RATES AND SATELLITE ALT VS INVARIANT LAT	65-081A-06A	10/14/65 - 04/02/66	5 M/FILM	82
CAIN - RUBIDIUM VAPOR MAGNETOMETER	65-081A-05			26
MICROFILM PLOTS OF REDUCED MAGNETIC AND DELTA FIELD (CAIN 12/66 GSFC MODEL) DATA	65-081A-05C	10/14/65 - 01/22/66	1 M/FILM	26
MICROFILM PLOTS OF REDUCED MAGNETIC AND DELTA FIELD (CAIN 10/68 POGO MODEL) DATA	65-081A-05F	10/14/65 - 10/02/67	2 M/FILM	27
COMPRESSED 0.5-SEC REDUCED MAGNETIC FIELD AVERAGES ON TAPE	65-081A-05G	10/14/65 - 10/02/67	4 TAPE(S)	27
0.5-SEC AVERAGES OF MAGNETIC FIELD MAGNITUDE SAMPLED EVERY 10 SEC ON TAPE	65-081A-05H	10/14/65 - 10/02/67	1 TAPE(S)	27
SIMPSON - LOW-ENERGY PROTON, ALPHA PARTICLE MEASUREMENT	65-081A-07			82
COUNT RATE PLOTS (R VS ENERGY LOSS) AND ORBITAL DATA ON MICROFILM	65-081A-07B	10/15/65 - 12/13/66	6 M/FILM	82
OGO 3	66-049A			27
				82
MULTICOORDINATE SYSTEM EPHEMERIS PLOTS	66-049A-00H	06/07/66 - 04/02/68	3 M/FILM	27
				83
ANDERSON - SOLAR COSMIC RAYS	66-049A-01			83
SOLAR PARTICLE COUNT RATES ON TAPE	66-049A-01A	06/24/66 - 02/27/67	30 TAPE(S)	83
FRANK - LOW-ENERGY ELECTRONS AND PROTONS	66-049A-08			83
MOTION PICTURE SURVEY OF THE MAGNETOSPHERE	66-049A-08A	07/14/66 - 07/16/66	400 FILM	83
HEPPNER - MAGNETIC SURVEY USING TWO MAGNETOMETERS	66-049A-11			27
FIELD MAGNITUDE AS MEASURED BY THE GSFC RUBIDIUM VAPOR MAGNETOMETER ON FILM	66-049A-11A	06/09/66 - 08/14/68	24 M/FILM	28
MICROFILM LISTINGS OF 30-SEC AVG MAGNETIC FIELD MEASUREMENTS IN SEVERAL COORDINATES	66-049A-11B	06/09/66 - 07/21/66	3 M/FILM	28
KONRADI - TRAPPED RADIATION SCINTILLATION COUNTER	66-049A-10			84
COMPLETE REDUCED AND ANALYZED PROTON-ELECTRON DATA ON MAGNETIC TAPES	66-049A-10A	06/09/66 - 01/26/67	14 TAPE(S)	84
HIGH BIT RATES OF REDUCED PROTON-ELECTRON DATA ON MAGNETIC TAPES	66-049A-10B	06/09/66 - 01/16/67	9 TAPE(S)	84
SIMPSON - COSMIC-RAY SPECTRA AND FLUXES	66-049A-03			84
REDUCED COUNT RATE DATA ON MAGNETIC TAPE	66-049A-03A	06/09/66 - 12/01/69	65 TAPE(S)	84
DIGITAL AND ANALOG COUNT RATE PLOTS ON MICROFILM	66-049A-03B	06/09/66 - 07/15/68	2 M/FILM	84
PULSE HEIGHT ANALYZER DATA ON MAGNETIC TAPE	66-049A-03C	06/09/66 - 08/16/68	27 TAPE(S)	85
SMITH - TRIAXIAL SEARCH-COIL MAGNETOMETER	66-049A-12			28
36.864-SEC AVERAGED SEARCH-COIL MAGNETOMETER DATA ON MAGNETIC TAPE	66-049A-12A	06/09/66 - 04/27/68	41 TAPE(S)	28
SEARCH-COIL MAGNETOMETER SQUISH PLOTS ON MICROFILM	66-049A-12B	06/09/66 - 02/12/68	1 M/FILM	29
WINCKLER - ELECTRON SPECTROMETER	66-049A-22			85
PLOTS OF 2-MIN AVERAGED COUNT RATES VS TIME (NEAR RADIATION BELTS) ON MICROFILM	66-049A-22A	06/11/66 - 04/27/68	2 M/FILM	85
PLOTS OF 15-MIN AVERAGED COUNT RATES VS SPACECRAFT RADIAL DISTANCE ON MICROFILM	66-049A-22B	06/09/66 - 04/02/68	2 M/FILM	85
ORIGINAL REDUCED COUNT RATES ON MAGNETIC TAPE	66-049A-22C	06/09/66 - 05/03/68	18 TAPE(S)	85
TABULATIONS OF 5-MIN AVERAGED COUNT RATES ON MICROFILM	66-049A-22D	06/09/66 - 05/01/68	7 M/FILM	85
PLOTS OF 2- AND 5-MIN AVERAGED COUNT RATES VS L ON MICROFILM	66-049A-22E	06/11/66 - 04/02/68	2 M/FILM	86
TABULATIONS OF COUNTS VS TIME AT DISCRETE L VALUES ON MICROFILM	66-049A-22F	06/11/66 - 12/27/67	1 M/FILM	86
PLOTS OF 5-MIN AVERAGED COUNT RATES VS TIME NEAR PERIGEE ON MICROFILM	66-049A-22G	06/09/66 - 04/30/68	2 M/FILM	86
PLOTS OF COUNT RATES VS EQUATORIAL PITCH				

SPACECRAFT, EXPERIMENT, DATA SET NAME	NSSDC ID	TIME COVERAGE	QUANTITY AND FORM	PAGE
OGO 3				
ANGLE FOR DISCRETE L VALUES ON MICROFILM	66-049A-22H	01/00/67 - 12/00/67	1 M/FILM	86
PLOTS OF PITCH ANGLE NORMALIZED COUNT RATES VS TIME FOR DISCRETE L VALUES ON MF	66-049A-22I	12/00/66 - 06/00/67	1 M/FILM	86
PLOTS OF COUNT RATES VS TIME FOR DISCRETE L VALUES ON MICROFILM	66-049A-22J	06/00/66 - 02/00/68	1 M/FILM	86
WINCKLER - IONIZATION CHAMBER	66-049A-23			87
PLOTS OF 1-MIN AVERAGED PULSE RATES VS TIME ON MICROFILM	66-049A-23A	06/08/66 - 08/11/68	3 M/FILM	87
ORIGINAL REDUCED PULSE RATES ON TAPE	66-049A-23B	06/09/66 - 08/12/68	31 TAPE(S)	87
PLOTS OF 1-MIN AVERAGED PULSE RATES VS L ON MICROFILM	66-049A-23C	06/11/66 - 04/02/68	2 M/FILM	87
ATLAS OF 10- TO 50-KEV SOLAR FLARE X RAYS ON MICROFILM	66-049A-23D	06/25/66 - 12/29/67	1 M/FILM	87
PLOTS OF 2-MIN AVERAGED PULSE RATES VS SPACECRAFT RADIAL DISTANCE ON MICROFILM	66-049A-23E	06/09/66 - 04/02/68	2 M/FILM	87
TABULATIONS OF HOURLY AVERAGED PULSE RATES ON MICROFILM	66-049A-23F	06/09/66 - 08/10/68	1 M/FILM	87
PLOTS OF 2-MIN AVERAGED PULSE RATES VS TIME ON MICROFILM	66-049A-23G	06/09/66 - 08/10/68	2 M/FILM	88
TABULATIONS OF 1-MIN AVERAGED PULSE RATES ON MICROFILM	66-049A-23H	06/09/66 - 08/10/68	5 M/FILM	88
PLOTS OF 1-MIN AVERAGED PULSE RATES VS TIME NEAR PERIGEE ON MICROFILM	66-049A-23J	06/11/66 - 08/10/68	2 M/FILM	88
OGO 4	67-073A			88
ANDERSON - COSMIC-RAY IONIZATION	67-073A-07			88
MICROFILM PLOTS OF TOTAL IONIZATION RATES AND SATELLITE ALT. VS INVARIANT LAT.	67-073A-07A	07/30/67 - 08/11/67	1 M/FILM	88
HOFFMAN - LOW-ENERGY AURORAL PARTICLE DETECTOR	67-073A-11			89
REDUCED COUNT RATE DATA ON MAGNETIC TAPE	67-073A-11A	07/30/67 - 01/25/69	77 TAPE(S)	89
LISTINGS OF DATA ACQUISITION TIMES ON MICROFILM	67-073A-11E	07/30/67 - 01/25/69	1 M/FILM	89
PLOTS OF 0.576-MIN AVERAGED COUNT RATE DATA FROM THREE DETECTORS ON MICROFILM	67-073A-11F	07/30/67 - 01/14/69	5 M/FILM	89
MICROFILMED PLOTS OF PORTIONS OF THE SATELLITE ORBIT WHERE DATA WERE TAKEN	67-073A-11G	07/30/67 - 01/25/69	3 M/FILM	90
SIMPSON - LOW-ENERGY PROTON, ALPHA PARTICLE MEASUREMENT	67-073A-08			90
REDUCED COSMIC-RAY COUNT RATE AND ORBITAL DATA MERGED ON MAGNETIC TAPE	67-073A-08A	07/28/67 - 02/02/69	291 TAPE(S)	90
COUNT RATE PLOTS (R VS ENERGY LOSS) AND ORBITAL DATA ON MICROFILM	67-073A-08B	07/29/67 - 12/07/68	15 M/FILM	90
WEBBER - GALACTIC AND SOLAR COSMIC RAYS	67-073A-09			90
REDUCED COSMIC-RAY DATA ON TAPE	67-073A-09A	07/30/67 - 08/27/67	2 TAPE(S)	91
PLOTS OF PARTICLE COUNT RATES ON MICROFILM	67-073A-09B	07/30/67 - 08/27/67	1 M/FILM	91
OGO 5	68-014A			29
				91
MULTICOORDINATE SYSTEM EPHEMERIS PLOTS	68-014A-00D	03/04/68 - 10/04/71	5 M/FILM	29
				91
TABLE OF EPHEMERIS PARAMETERS ON MICROFILM	68-014A-00E	03/04/68 - 05/26/70	12 M/FILM	29
				91
ANDERSON - ENERGETIC RADIATIONS FROM SOLAR FLARES	68-014A-04			91
AVERAGED ELECTRON AND X-RAY COUNT RATES ON MAGNETIC TAPE	68-014A-04A	05/31/68 - 10/04/69	3 TAPE(S)	92
40-SEC AVERAGED X-RAY COUNT RATES ON MAGNETIC TAPE	68-014A-04B	03/08/68 - 10/04/69	10 TAPE(S)	92
PROTON AND ALPHA PARTICLE COUNT RATES ON MAGNETIC TAPE	68-014A-04C	03/08/68 - 11/17/69	2 TAPE(S)	92
COLEMAN, JR. - PARTICLE WAVE STUDY	68-014A-13			92
REAL TIME TELEMETERED ELECTRON DATA, 0.05 TO 1.2 MEV ON MAGNETIC TAPE	68-014A-13A	03/05/68 - 04/20/70	92 TAPE(S)	92
TAPE PLAYBACK ELECTRON DATA, 0.05 TO 1.2 MEV ON MAGNETIC TAPE	68-014A-13B	03/30/68 - 02/14/71	6 TAPE(S)	92
COLEMAN, JR. - UCLA TRIAXIAL FLUXGATE MAGNETOMETER	68-014A-14			29
1-MIN AVERAGED VECTOR MAGNETIC FIELD DATA ON MICROFILM	68-014A-14A	03/05/68 - 11/18/69	16 M/FILM	30
1-MIN AVG VECTOR MAGNETIC FIELD AND RMS NOISE AMPLITUDE DATA TAPES IN S/C COORD.	68-014A-14B	03/05/68 - 09/01/68	14 TAPE(S)	30
4.608-SEC AVERAGED FLUXGATE MAGNETOMETER DATA IN SPACECRAFT COORDINATES ON TAPE	68-014A-14C	03/05/68 - 09/01/68	14 TAPE(S)	30
FLUXGATE MAGNETOMETER DATA ON FILM, 4.608 -SEC AVG IN SPACECRAFT COORDINATES	68-014A-14D	03/05/68 - 08/06/69	40 M/FILM	30
1-MIN AVG VECTOR MAGNETIC FIELD DATA ON TAPE IN GSE COORDINATES	68-014A-14E	03/05/68 - 09/01/68	14 TAPE(S)	30
1-MIN AVG VECTOR MAGNETIC FIELD DATA ON TAPE IN GSM COORDINATES	68-014A-14F	03/05/68 - 09/01/68	14 TAPE(S)	30
CROOK - PLASMA WAVE DETECTOR	68-014A-24			31
ORIGINAL ELECTRIC FIELD SONOGRAMS ON MICROFILM	68-014A-24A	03/14/68 - 01/03/71	35 M/FILM	31
INDEX OF ANALOG ELECTRIC FIELD SONOGRAM DATA TAPES AT TRW	68-014A-24B	03/05/68 - 10/16/69	1 M/FILM	31
TABULATED ELECTRIC AND MAGNETIC WAVE ENVELOPES ON MICROFILM	68-014A-24C	03/11/68 - 01/11/71	5 M/FILM	31
DIGITAL 3.26-MIN AVERAGED SPECTRUM ANALYSES ON MAGNETIC TAPE	68-014A-24D	01/00/69 - 03/00/70	5 TAPE(S)	31
0-10 KHZ SPECTRA OF MAGNETOSPHERIC AND PLASMASPHERIC BOUNDARIES ON MICROFILM	68-014A-24E	03/14/68 - 05/12/69	14 M/FILM	31
HEPPNER - MAGNETIC SURVEY USING TWO MAGNETOMETERS	68-014A-15			32
MAGNETIC FIELD MEASUREMENTS FROM THE SCALAR RUBIDIUM MAGNETOMETER ON 35-MM FILM	68-014A-15A	03/05/68 - 05/13/70	71 M/FILM	32
MEYER - COSMIC-RAY ELECTRONS	68-014A-09			93
SELECTION OF VARIOUS PLOTS FOR PROTONS				

ORIGINAL PAGE IS OF POOR QUALITY

SPACECRAFT, EXPERIMENT, DATA SET NAME	NSSDC ID	TIME COVERAGE	QUANTITY AND FORM	PAGE
PIONEER 6				
TAPE	65-105A-00F	12/16/65 - 05/16/72	1 TAPE(S)	34
				99
BRIDGE - SOLAR WIND PLASMA FARADAY CUP	65-105A-02			100
PLOTS OF HOURLY AVERAGED SOLAR WIND PLASMA PARAMETERS ON MICROFILM	65-105A-02A	12/18/65 - 04/03/69	1 M/FILM	100
HOURLY AVERAGED VELOCITY AND DENSITY VALUES IN SGD BULLETINS	65-105A-02B	03/01/69 - 02/28/70	12 BOOK(S)	100
1-HR AVG SOLAR WIND DATA FROM THE EXPERIMENTS ON PIONEER 6 AND PIONEER 7	65-105A-02C	12/16/65 - 05/18/71	1 BOOK(S)	100
HOURLY AVERAGED PLASMA PARAMETERS ON BCD 7-TRACK MAGNETIC TAPE	65-105A-02D	12/16/65 - 05/09/71	1 TAPE(S)	100
ESHLEMAN - TWO-FREQUENCY BEACON RECEIVER	65-105A-04			100
HOURLY VALUES OF REDUCED TOTAL ELECTRON CONTENT DATA ON MAGNETIC TAPE	65-105A-04A	12/16/65 - 07/11/66	1 TAPE(S)	101
HOURLY VALUES OF REDUCED TOTAL ELECTRON CONTENT DATA ON MICROFILM	65-105A-04B	12/16/65 - 07/11/66	1 M/FILM	101
DIGITAL VALUES OF SOLAR WIND ELECTRON DENSITY VS TIME NORMALIZED TO 1 AU ON TAPE	65-105A-04D	01/09/66 - 05/25/66	1 TAPE(S)	101
CORRECTED ELECTRON DENSITY PLOTS VERSUS TIME ON MICROFILM	65-105A-04E	01/10/66 - 06/01/66	1 M/FILM	101
FAN - COSMIC-RAY TELESCOPE	65-105A-03			101
REDUCED COUNT RATE AND PULSE HEIGHT ANALYZER DATA ON MAGNETIC TAPE	65-105A-03A	12/16/65 - 12/30/70	10 TAPE(S)	102
COUNT RATE PLOTS AND TRAJECTORY PLOT ON MICROFILM	65-105A-03D	12/16/65 - 12/26/68	1 M/FILM	102
COSMIC-RAY PROTON COUNTING RATES PUBLISHED IN 'SOLAR GEOPHYSICAL DATA'	65-105A-03E	03/07/69 - 03/03/72	38 BOOK(S)	102
MCCRACKEN - COSMIC-RAY ANISOTROPY	65-105A-05			102
COUNT RATE LISTINGS ON MICROFILM	65-105A-05A	12/16/65 - 02/06/67	1 M/FILM	102
COUNT RATE PLOTS ON MICROFILM	65-105A-05B	12/16/65 - 01/25/67	1 M/FILM	102
NESS - UNIAXIAL FLUXGATE MAGNETOMETER	65-105A-01			35
30-SEC AVERAGED VECTOR MAGNETIC FIELD DATA ON TAPE	65-105A-01A	01/26/66 - 07/26/66	3 TAPE(S)	35
HOURLY AVERAGED VECTOR MAGNETIC FIELD DATA ON MICROFILM	65-105A-01B	12/17/65 - 09/05/67	1 M/FILM	35
WOLFE - ELECTROSTATIC ANALYZER	65-105A-06			103
PLOTS OF ANALYZED PLASMA PARAMETERS ON MICROFILM	65-105A-06A	12/16/65 - 11/12/72	22 M/FILM	103
PUBLISHED PRELIMINARY SOLAR WIND PARAMETERS	65-105A-06B	12/16/65 - 08/17/74	70 BOOK(S)	103
HOURLY AVERAGED PLASMA PARAMETERS	65-105A-06C	12/18/65 - 03/04/66	2 TAPE(S)	103
PIONEER 7	66-075A			35
				103
COMPRESSED EPHEMERIS DATA ON MAGNETIC TAPE	66-075A-00F	08/17/66 - 01/02/72	1 TAPE(S)	35
BRIDGE - SOLAR WIND PLASMA FARADAY CUP	66-075A-02			104
PLOTS OF HOURLY AVERAGED SOLAR WIND PLASMA PARAMETERS ON MICROFILM	66-075A-02A	08/18/66 - 12/02/68	1 M/FILM	104
HOURLY AVERAGED VELOCITY AND DENSITY VALUES IN SGD BULLETINS	66-075A-02B	06/02/69 - 10/31/69	5 BOOK(S)	105
1-HR AVG SOLAR WIND DATA FROM THE EXPERIMENTS ON PIONEER 6 AND PIONEER 7	66-075A-02C	08/18/66 - 12/02/68	1 BOOK(S)	105
HOURLY AVERAGED PLASMA PARAMETERS ON BCD 7-TRACK MAGNETIC TAPE	66-075A-02D	08/19/66 - 11/29/68	1 TAPE(S)	105
ESHLEMAN - TWO-FREQUENCY BEACON RECEIVER	66-075A-04			105
HOURLY VALUES OF REDUCED TOTAL ELECTRON CONTENT DATA ON TAPE	66-075A-04A	08/18/66 - 11/29/67	1 TAPE(S)	105
HOURLY VALUES OF REDUCED TOTAL ELECTRON CONTENT DATA ON MICROFILM	66-075A-04B	08/18/66 - 11/29/67	1 M/FILM	105
DIGITAL VALUES OF SOLAR WIND ELECTRON DENSITY VS TIME NORMALIZED TO 1 AU ON TAPE	66-075A-04D	08/17/66 - 10/26/67	1 TAPE(S)	106
CORRECTED ELECTRON DENSITY PLOTS VERSUS TIME ON MICROFILM	66-075A-04E	09/12/66 - 05/20/69	1 M/FILM	106
MCCRACKEN - COSMIC-RAY ANISOTROPY	66-075A-05			106
COUNT RATE LISTINGS ON MICROFILM	66-075A-05A	08/18/66 - 01/31/67	1 M/FILM	106
COUNT RATE PLOTS ON MICROFILM	66-075A-05B	08/17/66 - 01/28/67	1 M/FILM	106
NESS - SINGLE-AXIS MAGNETOMETER	66-075A-01			36
VECTOR MAGNETIC FIELD DATA, 30-SEC AVERAGES ON TAPE	66-075A-01A	08/17/66 - 02/26/67	4 TAPE(S)	36
HOURLY AVERAGED VECTOR MAGNETIC FIELD DATA ON MICROFILM	66-075A-01B	08/17/66 - 10/29/67	1 M/FILM	36
SIMPSON - COSMIC-RAY TELESCOPE	66-075A-06			106
REDUCED COUNT RATE AND PULSE HEIGHT ANALYZER DATA ON MAGNETIC TAPE	66-075A-06A	08/17/66 - 12/29/67	8 TAPE(S)	107
COUNT RATE PLOTS (COUNTS/SEC VS DAY NUMBER) AND TRAJECTORY PLOT ON MICROFILM	66-075A-06D	08/17/66 - 12/27/68	1 M/FILM	107
COSMIC-RAY PROTON COUNTING RATES PUBLISHED IN 'SOLAR GEOPHYSICAL DATA'	66-075A-06E	03/07/69 - 08/07/71	32 BOOK(S)	107
WOLFE - ELECTROSTATIC ANALYZER	66-075A-03			107
PLOTS OF ANALYZED PLASMA PARAMETERS ON MICROFILM	66-075A-03A	08/17/66 - 02/09/69	11 M/FILM	107
PUBLISHED PRELIMINARY SOLAR WIND PARAMETERS	66-075A-03B	08/20/66 - 08/07/74	55 BOOK(S)	108
HOURLY AVERAGED PLASMA PARAMETERS	66-075A-03C	08/19/66 - 11/28/66	1 TAPE(S)	108
PIONEER 8	67-123A			36
				108
COMPRESSED EPHEMERIS DATA ON MAGNETIC TAPE	67-123A-00E	12/13/67 - 11/15/71	1 TAPE(S)	36
				108
ESHLEMAN - TWO-FREQUENCY BEACON RECEIVER	67-123A-03			109
HOURLY VALUES OF REDUCED TOTAL ELECTRON CONTENT DATA ON PUNCHED CARDS	67-123A-03A	12/14/67 - 08/25/69	1 TAPE(S)	109

ORIGINAL PAGE IS
OF POOR QUALITY

SPACECRAFT, EXPERIMENT, DATA SET NAME		NSSDC ID	TIME COVERAGE	QUANTITY AND FORM	PAGE
POGO 3	SEE OGO 6	69-051A			33
					96
ROVER 15	SEE APOLLO 15 LM/ALSEP	71-063C			8
					45
		71-063C-05A			
		71-063C-05B			
ROVER 16	SEE APOLLO 16 LM/ALSEP	72-031C			9
S 3C	SEE EPE-D	64-086A			50
S 278	SEE ALOUETTE 2	65-098A			41
S 49	SEE OGO 1	64-054A			25
					77
S 49A	SEE OGO 3	66-049A			27
					82
S 50	SEE OGO 2	65-081A			26
					81
S 50A	SEE OGO 4	67-073A			88
S 59	SEE OGO 5	68-014A			29
					91
S 60	SEE OGO 6	69-051A			33
					96
S 74B	SEE INP-C	65-042A			15
					54
SN 39	SEE 1963-038C	63-038C			41
VELA 3 (USAF)	SEE VELA 3A	65-058A			115
VELA 3 (USAF)	SEE VELA 3B	65-058B			116
VELA 3A		65-058A			115
BAME - ELECTROSTATIC ANALYZER AND GM TUBES		65-058A-04			115
PUBLISHED PRELIMINARY SOLAR WIND PARAMETERS		65-058A-04A	01/01/69 - 05/21/70	17 BOOK(S)	116
3-HR AVERAGES OF SOLAR WIND PARAMETERS ON MICROFILM		65-058A-04B	07/26/65 - 12/06/67	1 M/FILM	116
3-HR AVERAGES OF SOLAR WIND PARAMETERS ON TAPE		65-058A-04C	07/26/65 - 12/06/67	1 TAPE(S)	116
VELA 3B		65-058B			116
BAME - ELECTROSTATIC ANALYZER AND GM TUBES		65-058B-04			116
3-HR AVERAGES OF SOLAR WIND PARAMETERS ON MICROFILM		65-058B-04A	07/26/65 - 12/06/67	1 M/FILM	116
PUBLISHED PRELIMINARY SOLAR WIND PARAMETERS		65-058B-04B	01/01/69 - 05/21/70	17 BOOK(S)	117
3-HR AVERAGES OF SOLAR WIND PARAMETERS ON TAPE		65-058B-04C	07/26/65 - 12/06/67	1 TAPE(S)	117
VELA 5 (TRW)	SEE VELA 3A	65-058A			115
VELA 5A		69-046D			117
BAME - SOLAR WIND EXPERIMENT		69-046D-05			117
PUBLISHED PRELIMINARY SOLAR WIND PARAMETERS		69-046D-05A	09/14/69 - 04/11/72	31 BOOK(S)	117
VELA 5A (USAF)	SEE VELA 5A	69-046D			117
VELA 5B		69-046E			117
BAME - SOLAR WIND EXPERIMENT		69-046E-05			118
PUBLISHED PRELIMINARY SOLAR WIND PARAMETERS		69-046E-05A	09/14/69 - 06/12/72	33 BOOK(S)	118
VELA 5B (USAF)	SEE VELA 5B	69-046E			117
VELA 6 (TRW)	SEE VELA 3B	65-058B			116
VELA 9 (TRW)	SEE VELA 5A	69-046D			117
VELA 10 (TRW)	SEE VELA 5B	69-046E			117
VENUS	SEE MARINER 5	67-060A			24
					76

ORIGINAL PAGE IS
OF POOR QUALITY

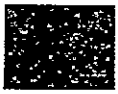
NSSDC ID Index

4.2 NSSDC ID INDEX

For the convenience of those who may know a spacecraft by its COSPAR ID, the following spacecraft level index has been generated. Note that NSSDC IDs and COSPAR IDs are almost identical; e.g., COSPAR ID 1967-51A is equivalent to NSSDC ID 67-051A.

PRECEDING PAGE BLANK NOT FILMED

PRECEDING PAGE BLANK NOT FILMED



Original Experiment Institution Index

4.3 ORIGINAL EXPERIMENT INSTITUTION INDEX

The following index is ordered alphabetically by institution and lists all the experiments appearing in this catalog which were originally contracted to each institution.

PRECEDING PAGE BLANK NOT FILMED

ORIGINAL PAGE IS
OF POOR QUALITY

PRECEDING PAGE BLANK NOT FILMED

Investigator Name Index

4.4 INVESTIGATOR NAME INDEX

This index lists both principal investigators and coinvestigators, ordered alphabetically by name. The index is designed to enable the reader to locate all the experiments associated with a given investigator. An asterisk indicates principal investigator.

ORIGINAL PAGE IS
OF POOR QUALITY

INVESTIGATORS AND EXPERIMENTS

CEDING PAGE BLANK-NOT FILMED

ORIGINAL PAGE IS
OF POOR QUALITY

Phenomenon Ordered Bar Graphs

4.5 PHENOMENON ORDERED BAR GRAPHS

Group 1: Charged Particles – Near Earth
Group 2: Charged Particles – Magnetosphere
Group 3: Charged Particles – Interplanetary
Group 4: Magnetic Fields – Magnetosphere, Magnetotail
Group 5: Magnetic Fields – Interplanetary
Group 6: Magnetic Fields – Moon, Planets

The time periods covered by charged particle and magnetic field data sets appearing in this catalog are indexed by means of a series of bar graphs generated from the NSSDC automated file. The plots allow the space-phenomenon-oriented user to easily identify the data available for a given time interval. Each plot is for a single type and location of observation.

4.5.1 CHARGED PARTICLE PLOTS

For charged particle plots, a bar is drawn at the appropriate threshold energy and with a length corresponding to the data time coverage. The caption for a given bar shows the spacecraft name, the principal investigator's name (the first eight characters), the energy threshold in FORTRAN E format, and the species measured. The code used for species identification is: A = alpha particle, E = electron, P = proton, and Z = other. Note that the threshold energy scale may be distorted to accommodate the information presented.

Users of this section should be aware that these plots represent an incomplete presentation of information coded into keyword strings; these keyword strings are, by themselves, incomplete codifications of information available as brief descriptions in the main body (section 3) of this catalog. The degree of species, spectral, and angular resolution for the modes identified in the bar plots are specified in the brief descriptions. The keyword strings and descriptions contain identification of hydrogen and helium isotopes, $Z \geqslant 3$ species, and positrons, all of which are grouped under "other" in the bar plots. Some descriptions may identify more modes for a given experiment than there are bars in these plots. This is because the automated system cannot accept more than 10 keyword strings for a given experiment. Modes have been identified (within this constraint) for a given species with energy thresholds separated by no more than 1 decade (for experiments spanning several decades above 1 keV).

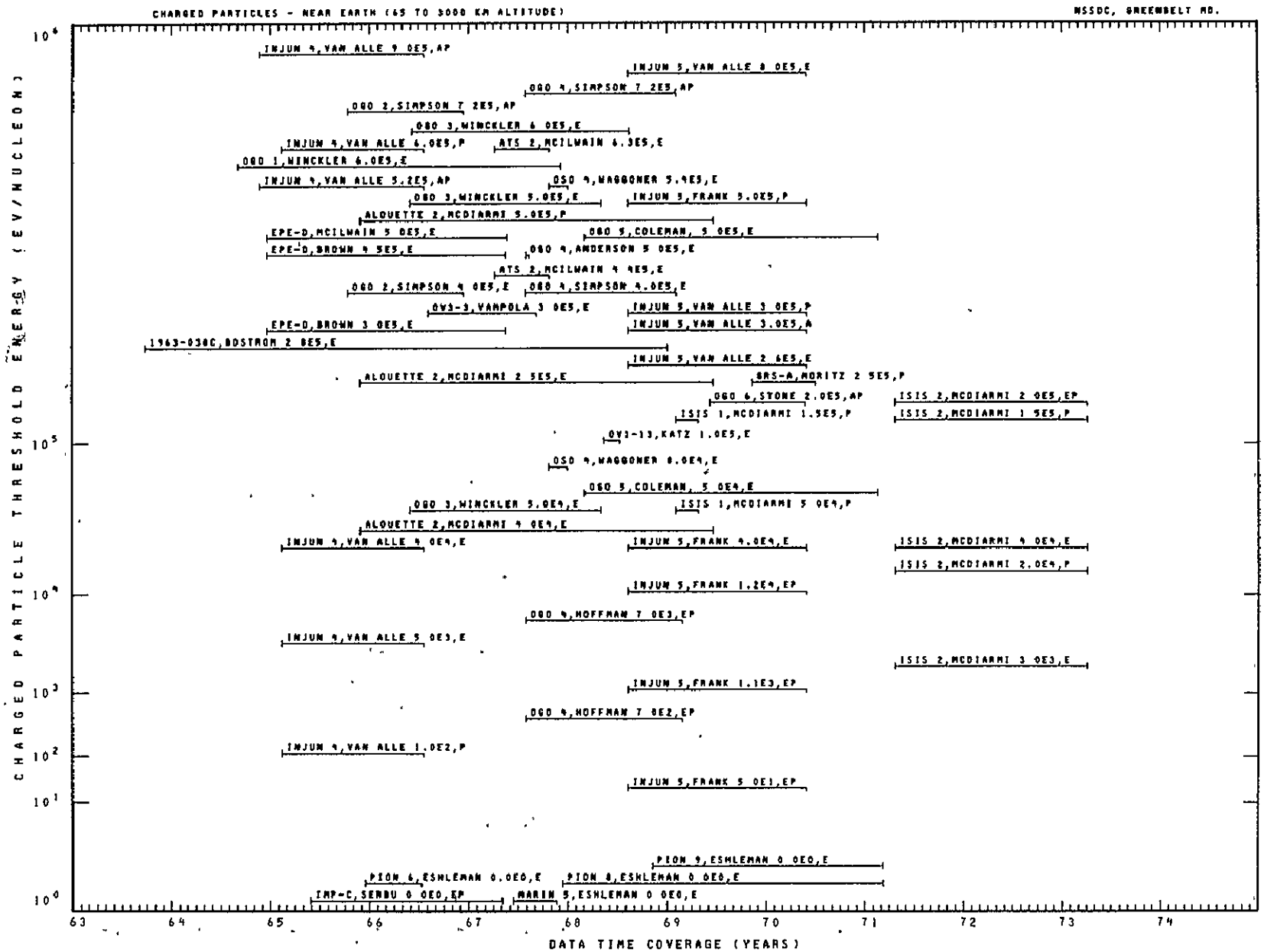
4.5.2 MAGNETIC FIELD PLOTS

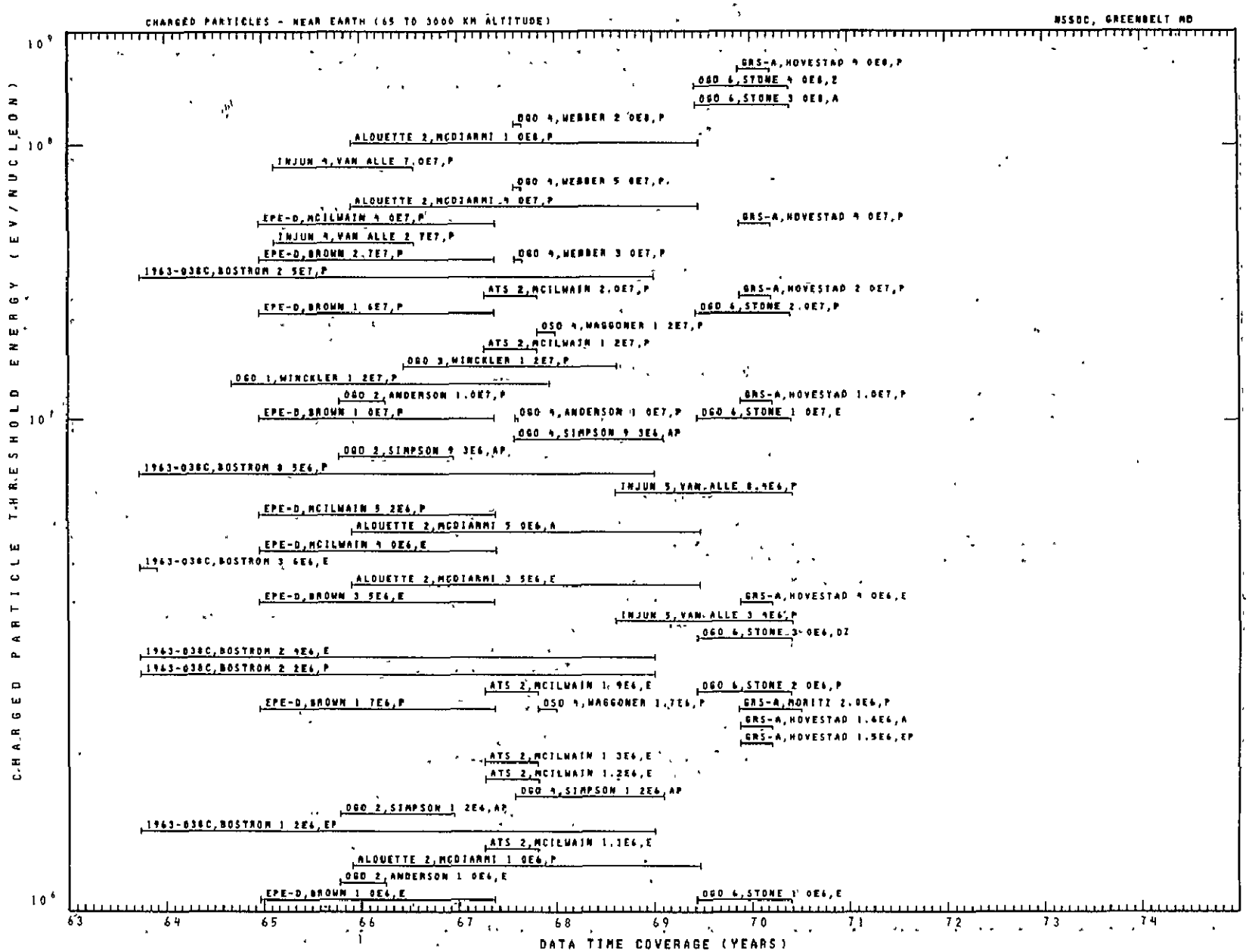
These plots indicate (for a given time) the magnetic field data available for magnetospheric (including magnetotail) or interplanetary studies. Spacecraft and investigators are identified in the caption for each bar; the bars are ordered by spacecraft name. VLF experiments in which magnetic fields are separately measured are also shown in these plots. Due to the paucity of electric field data, no electric field plots have been generated.

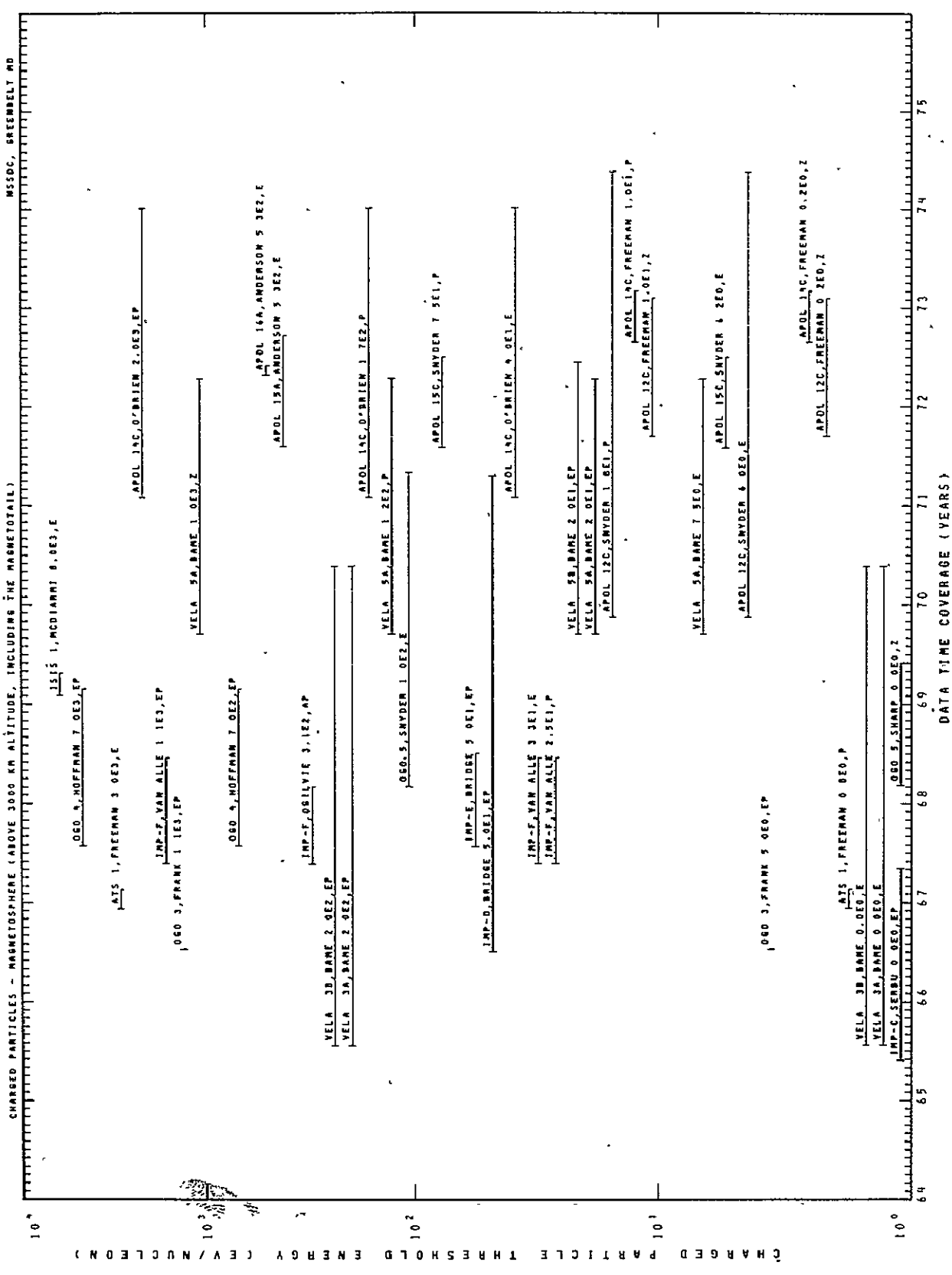
PRECEDING PAGE BLANK NOT FILMED

PRECEDING PAGE BLANK NOT FILMED

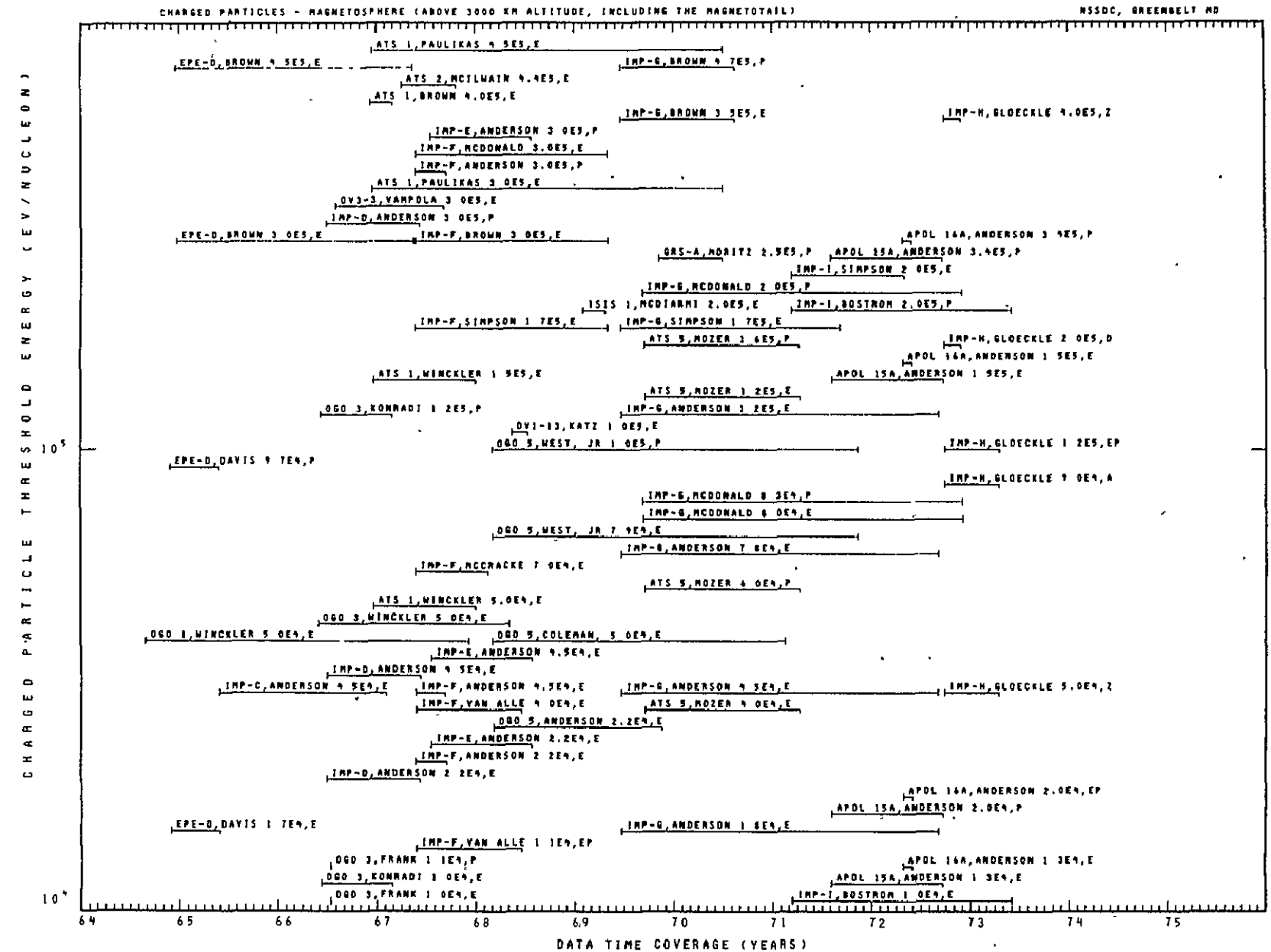
ORIGINAL PAGE IS
OF POOR QUALITY

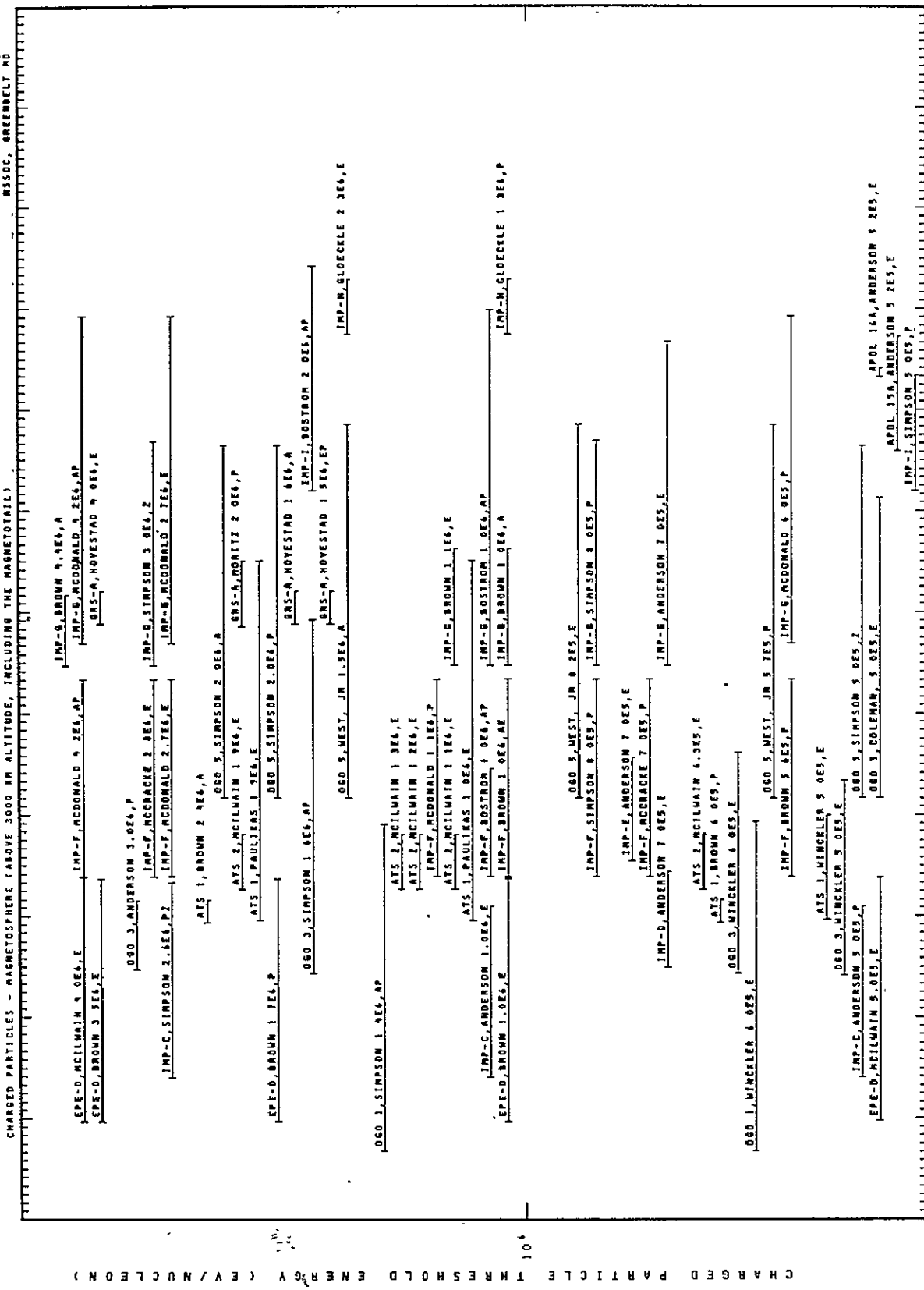



CHARGED PARTICLES - NEAR EARTH (65 TO 3000 KM ALTITUDE)
NSSDC, GREENBELT MD
C.HARGED PARTICLE THRESHOLD ENERGY (EV/NUCLEON)
DATA TIME COVERAGE (YEARS)
GRS-A,HOVESTAD 4 0E8,P
OGO 6,STONE 4 0E8,E
OGO 6,STONE 3 0E8,A
OGO 4,WEBBER 2 0E8,P
ALOUETTE 2,MCDIARMI 1 0E8,P
INJUN 4,VAN ALLE 7 0E7,P
OGO 4,WEBBER 5 0E7,P
ALOUETTE 2,MCDIARMI 4 0E7,P
EPE-D,MCILWAIN 4 0E7,P
GRS-A,HOVESTAD 4 0E7,P
INJUN 4,VAN ALLE 2 7E7,P
EPE-D,BROWN 2 7E7,P
OGO 4,WEBBER 3 0E7,P
1963-038C,BOSTROM 2 5E7,P
ATS 2,MCILWAIN 2 0E7,P
GRS-A,HOVESTAD 2 0E7,P
EPE-D,BROWN 1 6E7,P
OGO 6,STONE 2 0E7,P
OSO 4,MAGGONER 1 2E7,P
ATS 2,MCILWAIN 1 2E7,P
OGO 3,WINCKLER 1 2E7,P
OGO 1,WINCKLER 1 2E7,P
OGO 2,ANDERSON 1 0E7,P
GRS-A,HOVESTAD 1 0E7,P
EPE-D,BROWN 1 0E7,P
OGO 4,ANDERSON 1 0E7,P
OGO 6,STONE 1 0E7,E
OGO 4,SIMPSON 9 3E6,AP
OGO 2,SIMPSON 9 3E6,AP
1963-038C,BOSTROM 8 5E6,P
INJUN 5,VAN ALLE 8 4E6,P
EPE-D,MCILWAIN 5 2E6,P
ALOUETTE 2,MCDIARMI 5 0E6,A
EPE-D,MCILWAIN 4 0E6,E
1963-038C,BOSTROM 3 6E6,E
ALOUETTE 2,MCDIARMI 3 5E6,E
EPE-D,BROWN 3 5E6,E
GRS-A,HOVESTAD 4 0E6,E
INJUN 5,VAN ALLE 3 4E6,P
OGO 6,STONE 3 0E6,DZ
1963-038C,BOSTROM 2 4E6,E
1963-038C,BOSTROM 2 2E6,P
ATS 2,MCILWAIN 1 9E6,E
OGO 6,STONE 2 0E6,P
EPE-D,BROWN 1 7E6,P
OSO 4,MAGGONER 1 7E6,P
GRS-A,MORITZ 2 0E6,P
GRS-A,HOVESTAD 1 4E6,A
GRS-A,HOVESTAD 1 5E6,EP
ATS 2,MCILWAIN 1 3E6,E
ATS 2,MCILWAIN 1 2E6,E
OGO 4,SIMPSON 1 2E6,AP
OGO 2,SIMPSON 1 2E6,AP
1963-038C,BOSTROM 1 2E6,EP
ATS 2,MCILWAIN 1 1E6,E
ALOUETTE 2,MCDIARMI 1 0E6,P
OGO 2,ANDERSON 1 0E6,E
EPE-D,BROWN 1 0E6,E
OGO 6,STONE 1 0E6,E

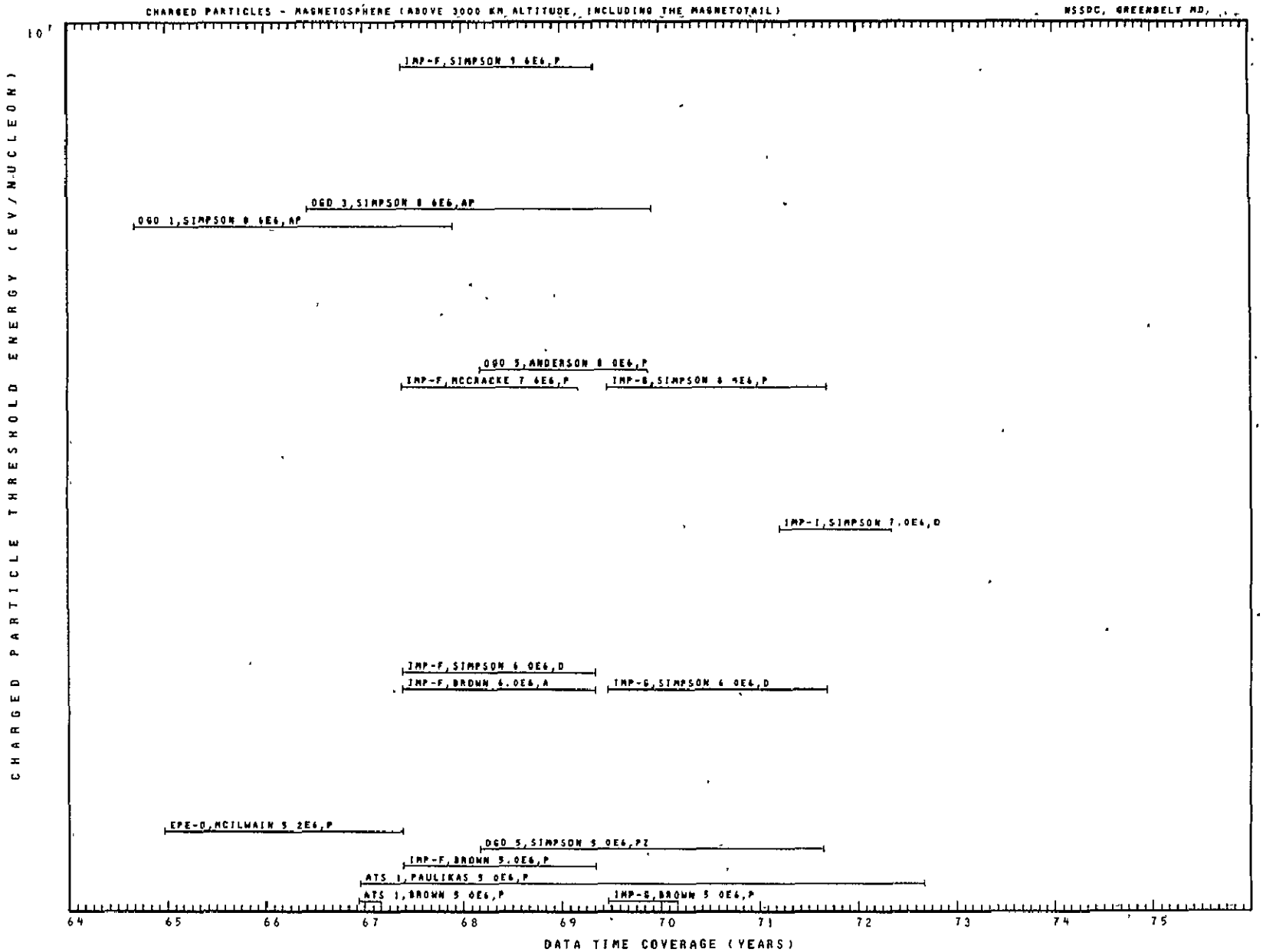


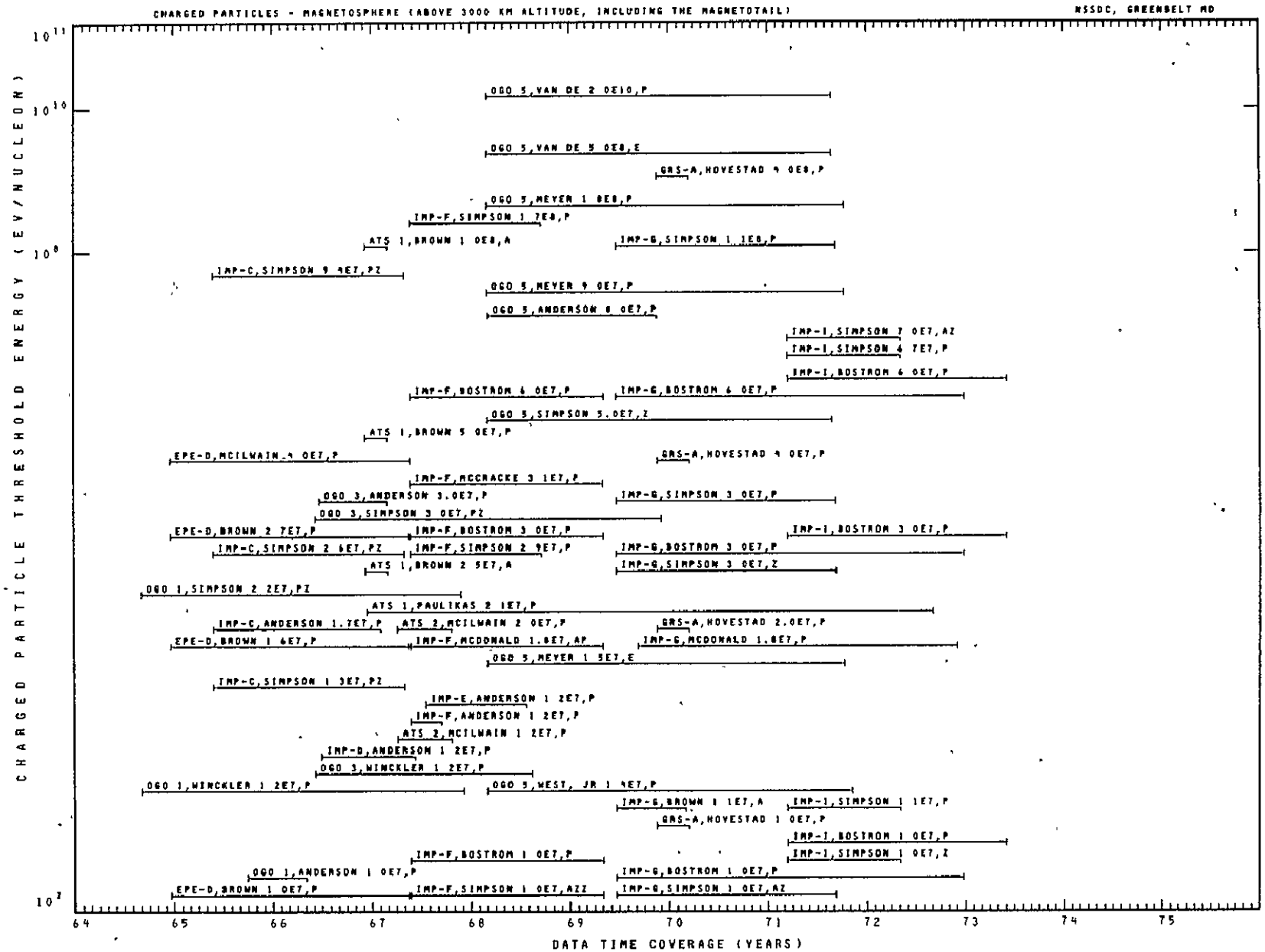
ORIGINAL PAGE IS
OF POOR QUALITY


CHARGED PARTICLES - MAGNETOSPHERE (ABOVE 3000 KM ALTITUDE, INCLUDING THE MAGNETOTAIL)
NSSDC, GREENBELT MD
ATS 1,PAULIKAS 9 5E5,E
EPE-D,BROWN 9 5E5,E
IMP-G,BROWN 9 7E5,P
ATS 2,MCILWAIN 9.4E5,E
ATS 1,BROWN 9.0E5,E
IMP-G,BROWN 3 5E5,E
IMP-H,GLOECKLE 9.0E5,Z
IMP-E,ANDERSON 3 0E5,P
IMP-F,MCDONALD 3.0E5,E
IMP-F,ANDERSON 3.0E5,P
ATS 1,PAULIKAS 3 0E5,E
OV3-3,VAMPOLA 3 0E5,E
IMP-D,ANDERSON 3 0E5,P
EPE-D,BROWN 3 0E5,E
IMP-F,BROWN 3 0E5,E
APOL 16A,ANDERSON 3 4E5,P
GRS-A,MORITZ 2.9E5,P
APOL 15A,ANDERSON 3.4E5,P
IMP-I,SIMPSON 2 0E5,E
IMP-G,MCDONALD 2 0E5,P
ISIS 1,MCDIARMI 2.0E5,E
IMP-I,BOSTROM 2.0E5,P
IMP-F,SIMPSON 1 7E5,E
IMP-G,SIMPSON 1 7E5,E
ATS 5,MOZER 1 6E5,P
IMP-H,GLOECKLE 2 0E5,D
APOL 16A,ANDERSON 1 5E5,E
ATS 1,WINCKLER 1 5E5,E
APOL 15A,ANDERSON 1 9E5,E
ATS 5,MOZER 1 2E5,E
OGO 3,KONRADI 1 2E5,P
IMP-G,ANDERSON 1 2E5,E
OV1-13,KATZ 1 0E5,E
OGO 5,WEST, JR 1 0E5,P
IMP-H,GLOECKLE 1 2E5,EP
EPE-D,DAVIS 9 7E4,P
IMP-H,GLOECKLE 9 0E4,A
IMP-G,MCDONALD 8 3E4,P
IMP-G,MCDONALD 8 0E4,E
OGO 5,WEST, JR 7 9E4,E
IMP-G,ANDERSON 7 6E4,E
IMP-F,MCCRACKE 7 0E4,E
ATS 5,MOZER 4 0E4,P
ATS 1,WINCKLER 5.0E4,E
OGO 3,WINCKLER 5 0E4,E
OGO 1,WINCKLER 5 0E4,E
OGO 5,COLEMAN, 5 0E4,E
IMP-E,ANDERSON 4.5E4,E
IMP-D,ANDERSON 4 5E4,E
IMP-C,ANDERSON 4 5E4,E
IMP-F,ANDERSON 4.5E4,E
IMP-G,ANDERSON 4 5E4,E
IMP-H,GLOECKLE 5.0E4,Z
IMP-F,VAN ALLE 4 0E4,E
ATS 5,MOZER 4 0E4,E
OGO 5,ANDERSON 2.2E4,E
IMP-E,ANDERSON 2.2E4,E
IMP-F,ANDERSON 2 2E4,E
IMP-D,ANDERSON 2 2E4,E
APOL 16A,ANDERSON 2.0E4,EP
APOL 15A,ANDERSON 2.0E4,P
EPE-D,DAVIS 1 7E4,E
IMP-G,ANDERSON 1 6E4,E
IMP-F,VAN ALLE 1 1E4,EP
OGO 3,FRANK 1 1E4,P
APOL 16A,ANDERSON 1 3E4,E
OGO 3,KONRADI 1 0E4,E
APOL 15A,ANDERSON 1 3E4,E
OGO 3,FRANK 1 0E4,E
IMP-I,BOSTROM 1 0E4,E
CHARGED PARTICLE THRESHOLD ENERGY (EV/NUCLEON)
10^5
10^4
64
65
66
67
68
69
70
71
72
73
74
75
DATA TIME COVERAGE (YEARS)

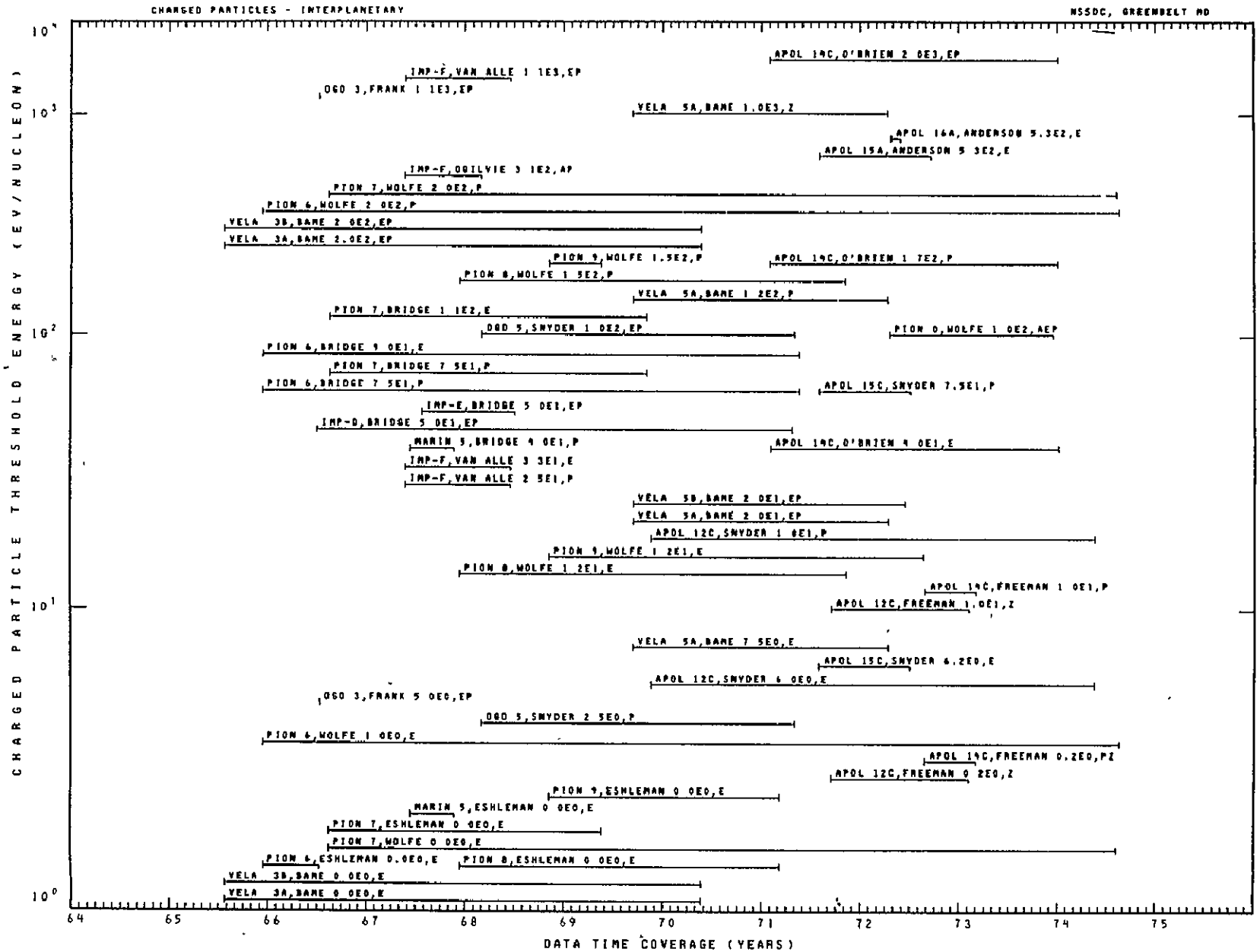


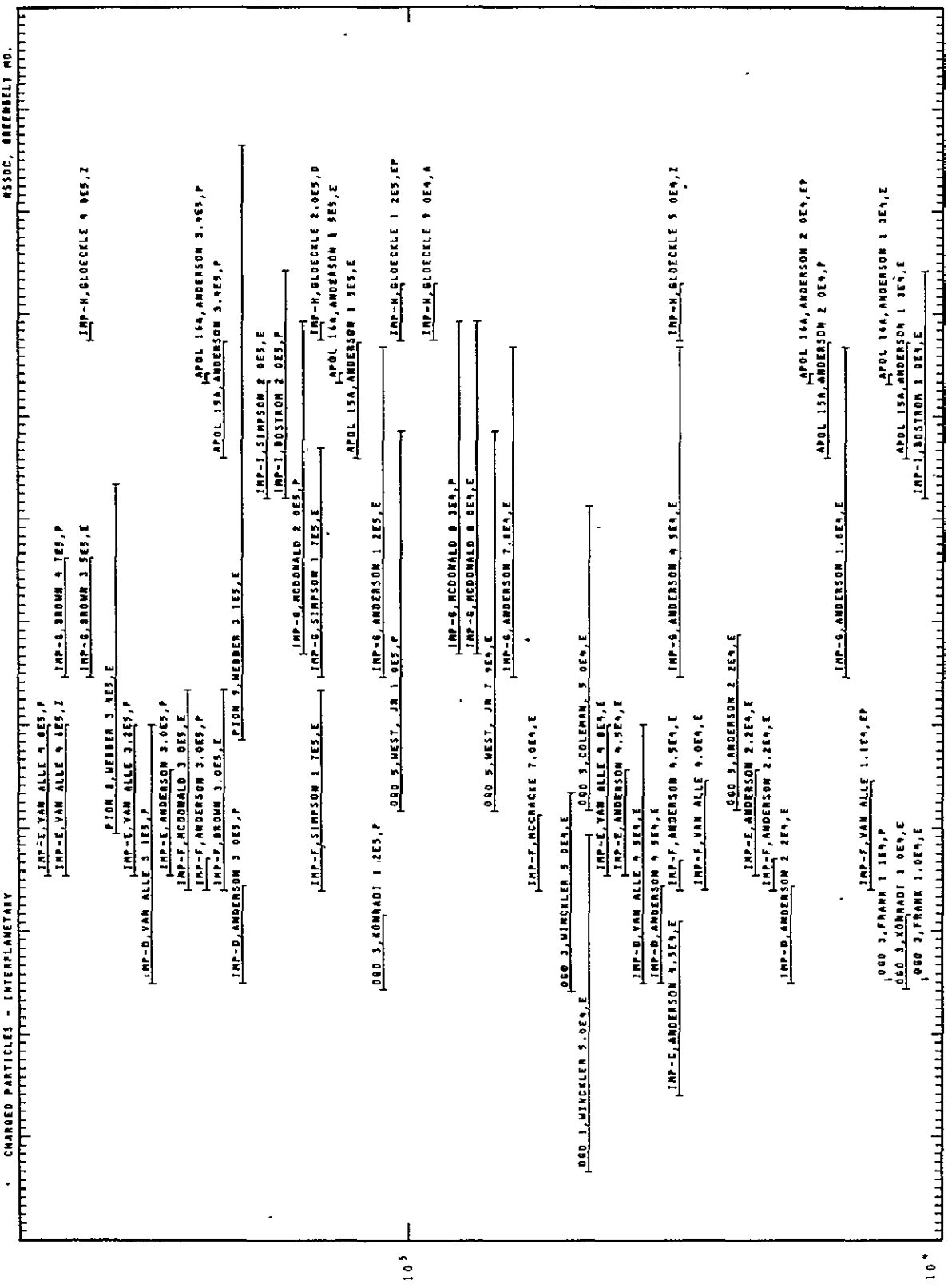
ORIGINAL PAGE IS
OF POOR QUALITY


CHARGED PARTICLES - MAGNETOSPHERE (ABOVE 3000 KM ALTITUDE, INCLUDING THE MAGNETOTAIL)
NSSDC, GREENBELT MD,
CHARGED PARTICLE THRESHOLD ENERGY (EV/NUCLEON)
10⁷
IMP-F,SIMPSON 1 6E6,P
OGO 3,SIMPSON 8 6E6,AP
OGO 1,SIMPSON 8 6E6,AP
OGO 5,ANDERSON 8 0E6,P
IMP-F,MCCRACKE 7 6E6,P
IMP-G,SIMPSON 6 9E6,P
IMP-I,SIMPSON 7.0E6,D
IMP-F,SIMPSON 6 0E6,D
IMP-F,BROWN 6.0E6,A
IMP-G,SIMPSON 6 0E6,D
EPE-D,MCILWAIN 5 2E6,P
OGO 5,SIMPSON 5 0E6,PI
IMP-F,BROWN 5.0E6,P
ATS 1,PAULIKAS 5 0E6,P
ATS 1,BROWN 5 0E6,P
IMP-G,BROWN 5 0E6,P
64
65
66
67
68
69
70
71
72
73
74
75
DATA TIME COVERAGE (YEARS)

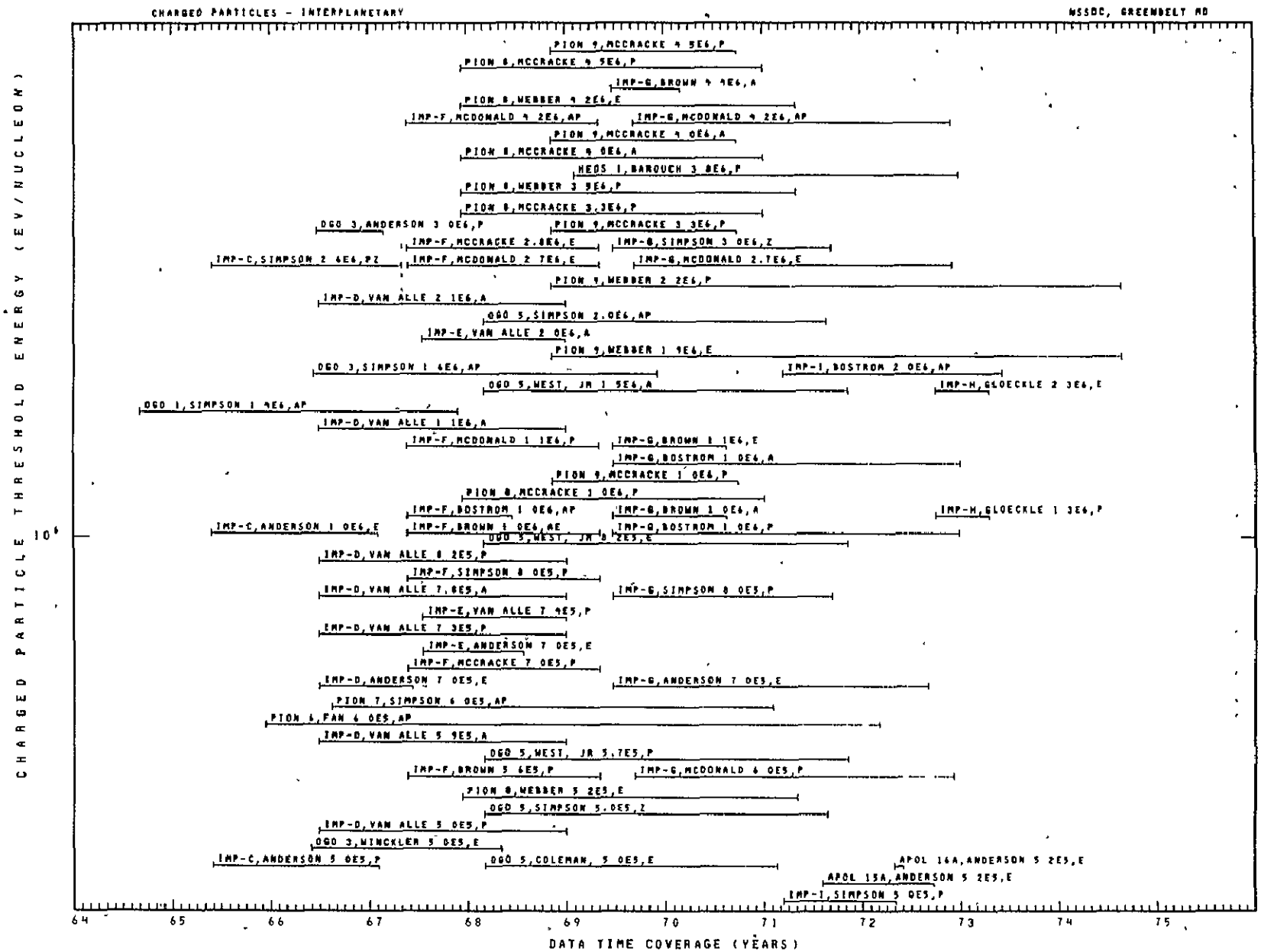


ORIGINAL PAGE IS
OF POOR QUALITY

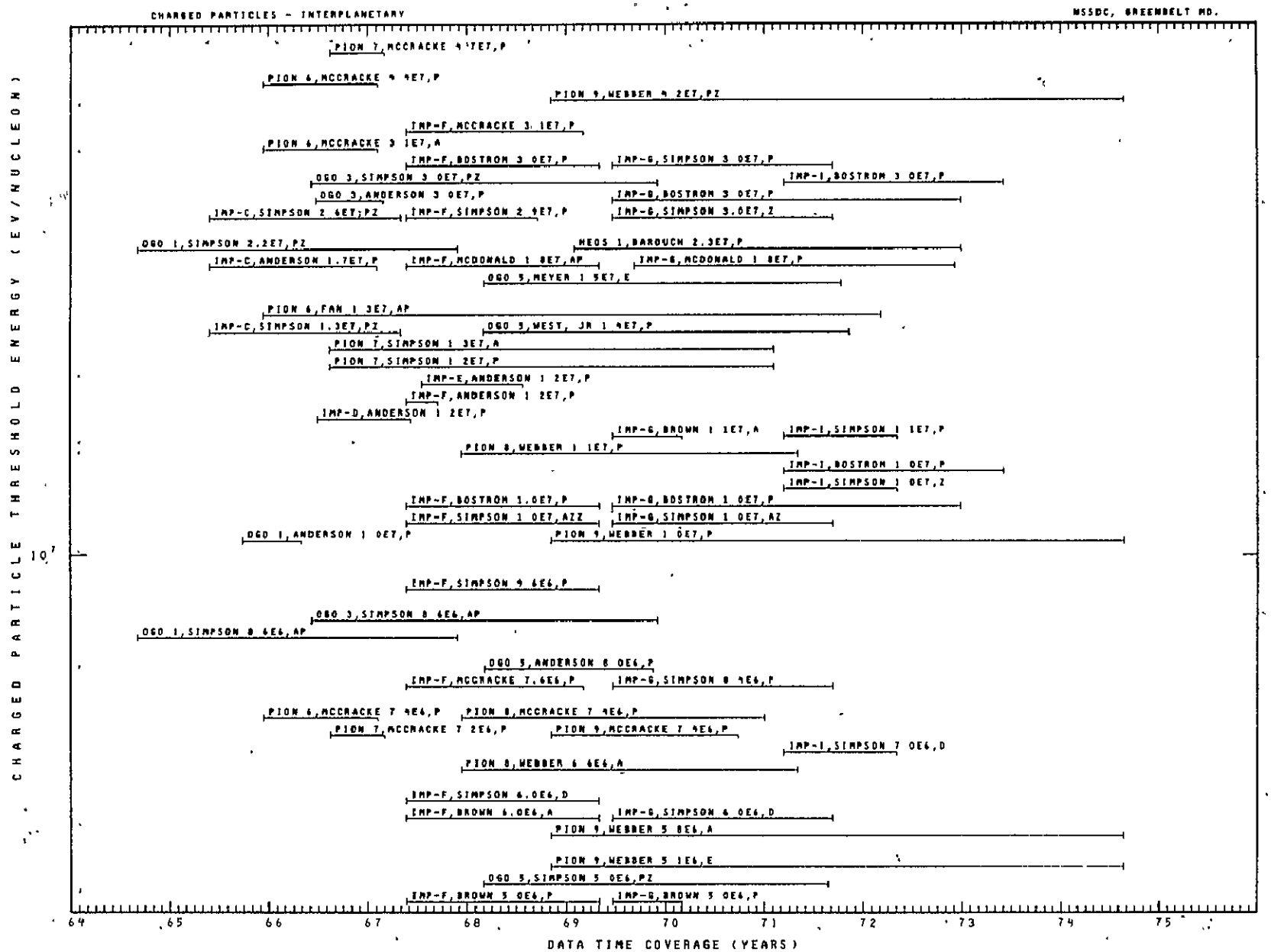

CHARGED PARTICLES - INTERPLANETARY
NSSDC, GREENBELT MD
CHARGED PARTICLE THRESHOLD ENERGY (EV/NUCLEON)
DATA TIME COVERAGE (YEARS)
APOL 14C,O'BRIEN 2 0E3,EP
IMP-F,VAN ALLE 1 1E3,EP
OGO 3,FRANK 1 1E3,EP
VELA 5A,BAME 1.0E3,Z
APOL 16A,ANDERSON 5.3E2,E
APOL 15A,ANDERSON 5 3E2,E
IMP-F,OGILVIE 3 1E2,AP
PION 7,WOLFE 2 0E2,P
PION 6,WOLFE 2 0E2,P
VELA 3B,BAME 2 0E2,EP
VELA 3A,BAME 2.0E2,EP
PION 9,WOLFE 1.5E2,P
APOL 14C,O'BRIEN 1 7E2,P
PION 8,WOLFE 1 5E2,P
VELA 5A,BAME 1 2E2,P
PION 7,BRIDGE 1 1E2,E
OGO 5,SNYDER 1 0E2,EP
PION 0,WOLFE 1 0E2,AEP
PION 6,BRIDGE 9 0E1,E
PION 7,BRIDGE 7 5E1,P
PION 6,BRIDGE 7 5E1,P
APOL 15C,SNYDER 7.5E1,P
IMP-E,BRIDGE 5 0E1,EP
IMP-D,BRIDGE 5 0E1,EP
MARIN 5,BRIDGE 4 0E1,P
APOL 14C,O'BRIEN 4 0E1,E
IMP-F,VAN ALLE 3 3E1,E
IMP-F,VAN ALLE 2 5E1,P
VELA 5B,BAME 2 0E1,EP
VELA 5A,BAME 2 0E1,EP
APOL 12C,SNYDER 1 0E1,P
PION 9,WOLFE 1 2E1,E
PION 8,WOLFE 1 2E1,E
APOL 14C,FREEMAN 1 0E1,P
APOL 12C,FREEMAN 1.0E1,Z
VELA 5A,BAME 7 5E0,E
APOL 15C,SNYDER 6.2E0,E
APOL 12C,SNYDER 6 0E0,E
OGO 3,FRANK 5 0E0,EP
OGO 5,SNYDER 2 5E0,P
PION 6,WOLFE 1 0E0,E
APOL 14C,FREEMAN 0.2E0,PZ
APOL 12C,FREEMAN 0 2E0,Z
PION 9,ESHLEMAN 0 0E0,E
MARIN 5,ESHLEMAN 0 0E0,E
PION 7,ESHLEMAN 0 0E0,E
PION 7,WOLFE 0 0E0,E
PION 6,ESHLEMAN 0.0E0,E
PION 8,ESHLEMAN 0 0E0,E
VELA 3B,BAME 0 0E0,E
VELA 3A,BAME 0 0E0,E

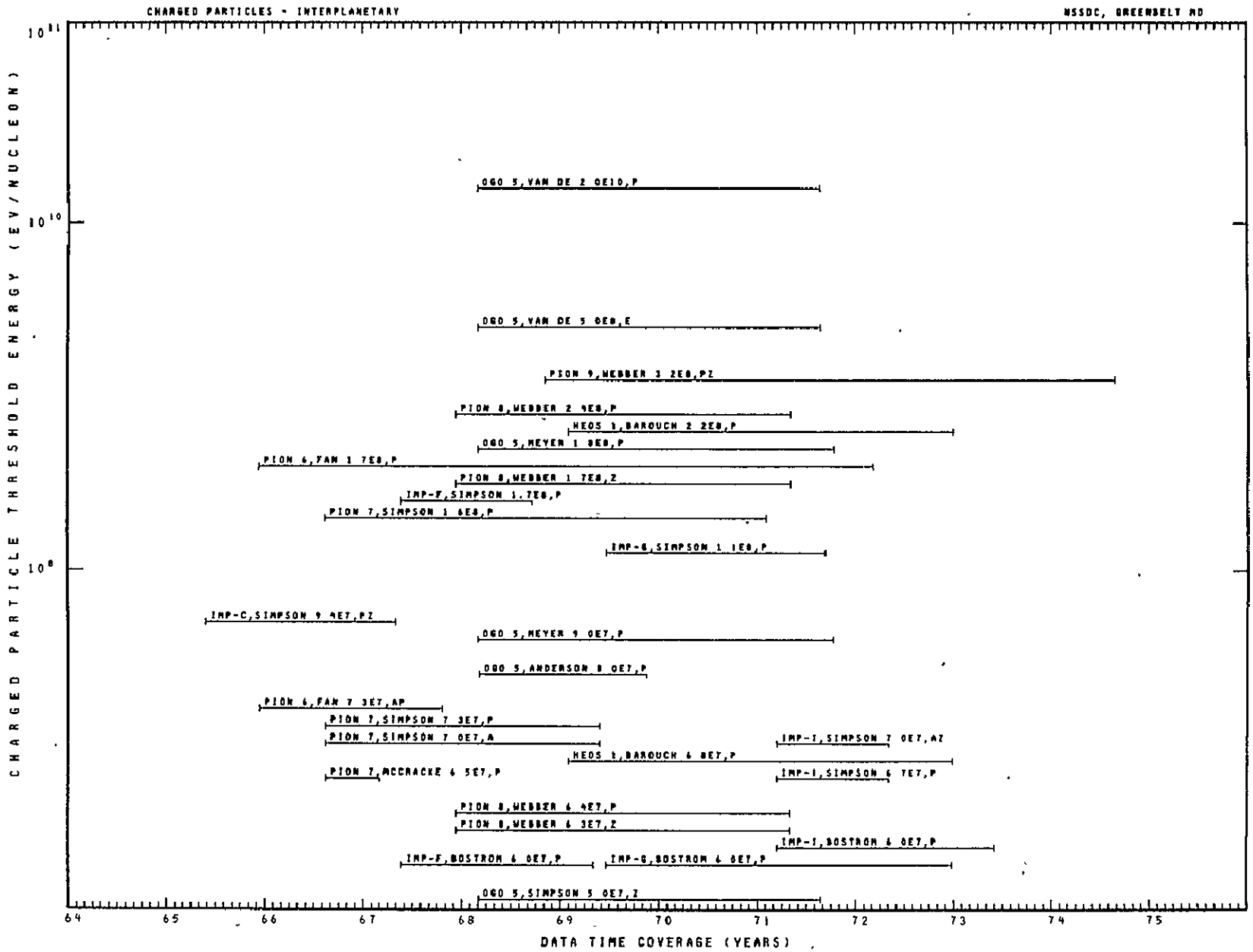


ORIGINAL PAGE IS
OF POOR QUALITY

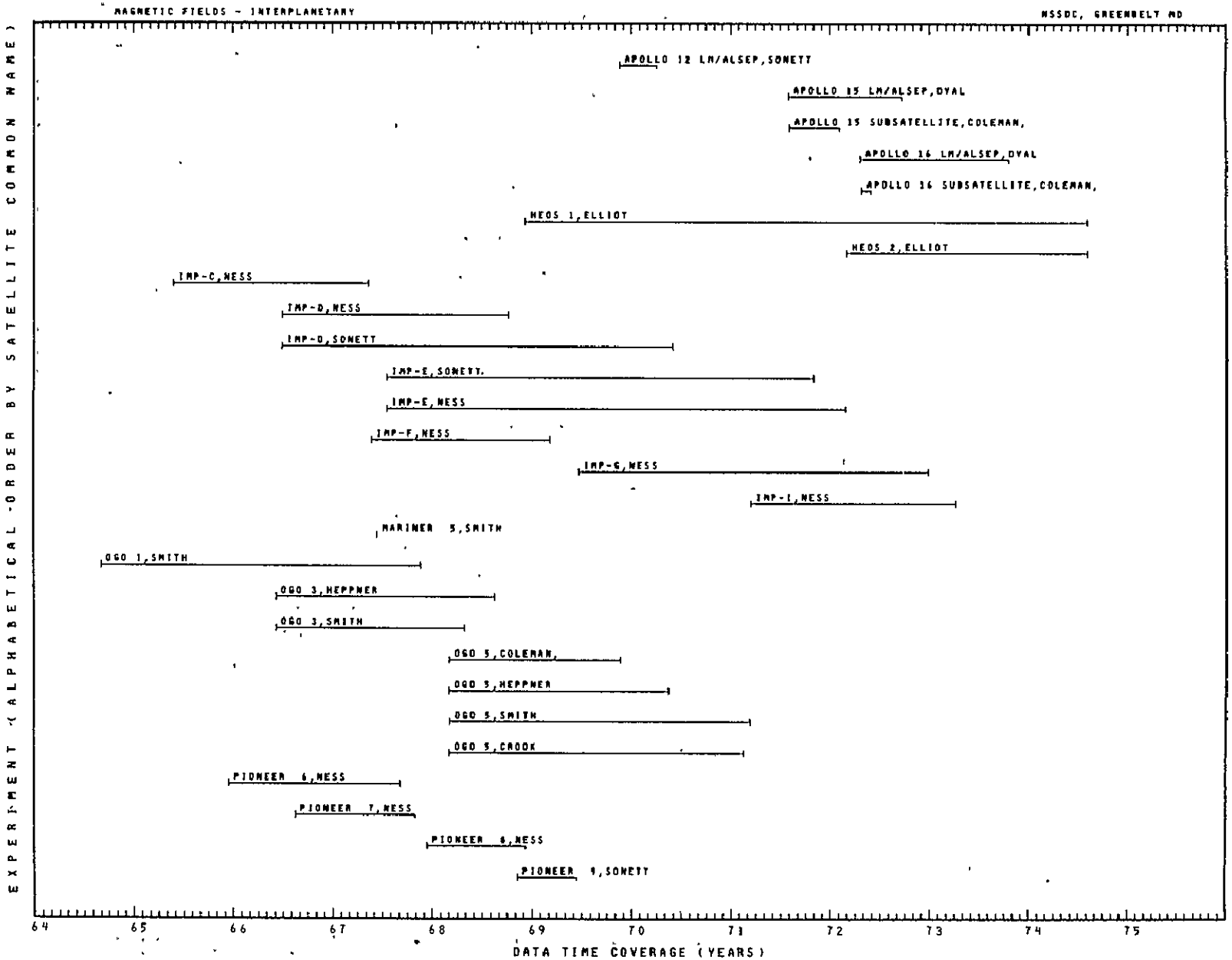

CHARGED PARTICLES - INTERPLANETARY
NSSDC, GREENBELT MD
PION 9,MCCRACKE 4 9E6,P
PION 8,MCCRACKE 4 9E6,P
IMP-G,BROWN 4 9E6,A
PION 8,WEBBER 4 2E6,E
IMP-F,MCDONALD 4 2E6,AP
IMP-G,MCDONALD 4 2E6,AP
PION 9,MCCRACKE 4 0E6,A
PION 8,MCCRACKE 4 0E6,A
HEOS 1,BAROUCH 3 8E6,P
PION 8,WEBBER 3 9E6,P
PION 8,MCCRACKE 3.3E6,P
OGO 3,ANDERSON 3 0E6,P
PION 9,MCCRACKE 3 3E6,P
IMP-F,MCCRACKE 2.8E6,E
IMP-G,SIMPSON 3 0E6,Z
IMP-C,SIMPSON 2 6E6,PZ
IMP-F,MCDONALD 2 7E6,E
IMP-G,MCDONALD 2.7E6,E
PION 9,WEBBER 2 2E6,P
IMP-D,VAN ALLE 2 1E6,A
OGO 5,SIMPSON 2.0E6,AP
IMP-E,VAN ALLE 2 0E6,A
PION 9,WEBBER 1 9E6,E
OGO 3,SIMPSON 1 4E6,AP
IMP-I,BOSTROM 2 0E6,AP
OGO 5,WEST, JR 1 5E6,A
IMP-H,GLOECKLE 2 3E6,E
OGO 1,SIMPSON 1 9E6,AP
IMP-D,VAN ALLE 1 1E6,A
IMP-F,MCDONALD 1 1E6,P
IMP-G,BROWN 1 1E6,E
IMP-G,BOSTROM 1 0E6,A
PION 9,MCCRACKE 1 0E6,P
PION 8,MCCRACKE 1 0E6,P
IMP-F,BOSTROM 1 0E6,AP
IMP-G,BROWN 1 0E6,A
IMP-H,GLOECKLE 1 3E6,P
IMP-C,ANDERSON 1 0E6,E
IMP-F,BROWN 1 0E6,AE
IMP-G,BOSTROM 1 0E6,P
OGO 5,WEST, JR 8 2E5,E
IMP-D,VAN ALLE 8 2E5,P
IMP-F,SIMPSON 8 0E5,P
IMP-D,VAN ALLE 7.8E5,A
IMP-G,SIMPSON 8 0E5,P
IMP-E,VAN ALLE 7 9E5,P
IMP-D,VAN ALLE 7 3E5,P
IMP-E,ANDERSON 7 0E5,E
IMP-F,MCCRACKE 7 0E5,P
IMP-D,ANDERSON 7 0E5,E
IMP-G,ANDERSON 7 0E5,E
PION 7,SIMPSON 6 0E5,AP
PION 6,FAN 6 0E5,AP
IMP-D,VAN ALLE 5 9E5,A
OGO 5,WEST, JR 5.7E5,P
IMP-F,BROWN 5 6E5,P
IMP-G,MCDONALD 6 0E5,P
PION 8,WEBBER 5 2E5,E
OGO 5,SIMPSON 5.0E5,Z
IMP-D,VAN ALLE 5 0E5,P
OGO 3,WINCKLER 5 0E5,E
IMP-C,ANDERSON 5 0E5,P
OGO 5,COLEMAN, 5 0E5,E
APOL 16A,ANDERSON 5 2E5,E
APOL 15A,ANDERSON 5 2E5,E
IMP-I,SIMPSON 5 0E5,P
CHARGED PARTICLE THRESHOLD ENERGY (EV/NUCLEON)
10^6
64
65
66
67
68
69
70
71
72
73
74
75
DATA TIME COVERAGE (YEARS)

ORIGINAL PAGE IS
OF POOR QUALITY




CHARGED PARTICLES - INTERPLANETARY
NSSDC, GREENBELT MD
CHARGED PARTICLE THRESHOLD ENERGY (EV/NUCLEON)
10^{11}
10^{10}
10^{9}
10^{8}
OGO 5,VAN DE 2 0E10,P
OGO 5,VAN DE 5 0E8,E
PION 9,WEBBER 3 2E8,PZ
PION 8,WEBBER 2 4E8,P
HEOS 1,BAROUCH 2 2E8,P
OGO 5,MEYER 1 8E8,P
PION 6,FAN 1 7E8,P
PION 8,WEBBER 1 7E8,Z
IMP-F,SIMPSON 1 7E8,P
PION 7,SIMPSON 1 6E8,P
IMP-G,SIMPSON 1 1E8,P
IMP-C,SIMPSON 9 4E7,PZ
OGO 5,MEYER 9 0E7,P
OGO 5,ANDERSON 8 0E7,P
PION 6,FAN 7 3E7,AP
PION 7,SIMPSON 7 3E7,P
PION 7,SIMPSON 7 0E7,A
IMP-I,SIMPSON 7 0E7,AZ
HEOS 1,BAROUCH 6 8E7,P
PION 7,MCCRACKE 6 5E7,P
IMP-I,SIMPSON 6 7E7,P
PION 8,WEBBER 6 4E7,P
PION 8,WEBBER 6 3E7,Z
IMP-I,BOSTROM 6 0E7,P
IMP-F,BOSTROM 6 0E7,P
IMP-G,BOSTROM 6 0E7,P
OGO 5,SIMPSON 5 0E7,Z
64
65
66
67
68
69
70
71
72
73
74
75
DATA TIME COVERAGE (YEARS)

ORIGINAL PAGE IS
OF POOR QUALITY


MAGNETIC FIELDS - INTERPLANETARY
NSSDC, GREENBELT MD
EXPERIMENT (ALPHABETICAL-ORDER BY SATELLITE COMMON NAME)
APOLLO 12 LM/ALSEP,SONETT
APOLLO 15 LM/ALSEP,DYAL
APOLLO 15 SUBSATELLITE,COLEMAN,
APOLLO 16 LM/ALSEP,DYAL
APOLLO 16 SUBSATELLITE,COLEMAN,
HEOS 1,ELLIOT
HEOS 2,ELLIOT
IMP-C,NESS
IMP-D,NESS
IMP-D,SONETT
IMP-E,SONETT.
IMP-E,NESS
IMP-F,NESS
IMP-G,NESS
IMP-I,NESS
MARINER 5,SMITH
OGO 1,SMITH
OGO 3,HEPPNER
OGO 3,SMITH
OGO 5,COLEMAN,
OGO 5,HEPPNER
OGO 5,SMITH
OGO 5,CROOK
PIONEER 6,NESS
PIONEER 7,NESS
PIONEER 8,NESS
PIONEER 9,SONETT
64
65
66
67
68
69
70
71
72
73
74
75
DATA TIME COVERAGE (YEARS)

ORIGINAL PAGE IS
OF POOR QUALITY

Phenomenon Measured Index

4.6 PHENOMENON MEASURED INDEX

The following outline is used for listing experiments according to the phenomenon measured:

1. Field Measurements

   1.1 Electric Field Measurements
   1.2 Magnetic Field Measurements

2. Charged Particle Measurements

   2.1 Sensing Electrons
      2.1.1 Electrons of Thermal Energies ($\leq$ 1 keV)
      2.1.2 Electrons of Energies Greater than Thermal ($>$ 1 keV)

   2.2 Sensing Protons or Hydrogen Ions
   2.3 Sensing Helium Nuclei
   2.4 Sensing Other Particle Species

The information contained under each major heading in the outline is uniquely sorted. For field measurements, there are three sorts: first by minimum frequency observable, next by maximum frequency observable, and last by NSSDC ID code. For dc field measurements, the minimum frequency observable is zero (shown as 0.00E-39) and the maximum frequency observable is usually the Nyquist frequency. Charged particle measurements are sorted by particle energy threshold, then by NSSDC ID code.

This index presents information in tabular form, with a variety of column headings. The headings that are common to each item in the outline are:

Spacecraft Common Name
NSSDC Experiment ID Code
Principal Investigator Name
NSSDC Experiment Title
Region of Observation
Time Span of Data (available from NSSDC)
Pertinent Report Page Number (where the complete experiment entry is located)

The remaining column headings are self-explanatory except for (1) Planet, (2) Region, and (3) RES. Brief explanations of these column headings are:

(1) Planet: The planets are indicated in numerical order from the Sun. The Sun is designated as zero (0); numbers 1 through 9 indicate Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, and Pluto, respectively. Letter M indicates the Earth's Moon.

(2) Region: Locations not covered or inadequately covered under "Planet" are identified alphabetically by:

A = $<$ 65 km altitude
B = $>$ 65 km altitude; $<$ 3000 km, Lat $<$ 65°
C = $>$ 65 km altitude; $<$ 3000 km, Lat 65° to 90°
D = Magnetospheric; $L < 2\ R_E$ (but not B or C)
E = Magnetospheric; $2\ R_E < L < 6\ R_E$
F = Magnetospheric; $6\ R_E < L < 10\ R_E$
G = Magnetospheric; $L > R_E$
H = Interplanetary Space
I = Celestial

(3) RES: This column indicates species resolution for charged particle measurements:

R = Resolved
P = Partially resolved
N = Unresolved
U = Unknown resolution

A given species is considered resolved when a flux is associated with that species with a probability of erroneous flux-species association of less than 10 percent. A species is considered unresolved if the probability of erroneous association is greater than 40 percent.

PRECEDING PAGE BLANK NOT FILMED

SATELLITE NAME / DESCRIPTIVE EXPERIMENT TITLE	EXPERIMENT ID	EXPERIMENTER	LIMITING DATES OF DATA AT NSSDC EARLIEST MM/DD/YY	LATEST MM/DD/YY	RANGE OF MEASUREMENTS MIN VALUE (F OR E) MAX VALUE (LAMBDA)	REGION MAX ABCDEFGHI/ MIN	PLANET 012345M 6789	PAGE
1. FIELD MEASUREMENTS								
1.1 ELECTRIC FIELD MEASUREMENTS								
INJUN 5	(68-066B-02)	GURNETT						
VLF RECEIVER			08/09/68	TO 05/29/70	3.000E 01 TO 1.050E 05 HZ	C		23
PIONEER 8	(67-123A-07)	SCARF						
PLASMA WAVE DETECTOR			12/13/67	TO 10/07/68	1.000E 02 TO 1.000E 05 HZ	H		37
PIONEER 9	(68-100A-07)	SCARF						
PLASMA WAVE DETECTOR			11/08/68	TO 09/07/69	1.000E 02 TO 1.000E 05 HZ	H		38
PIONEER 8	(67-123A-07)	SCARF						
PLASMA WAVE DETECTOR			12/13/67	TO 10/07/68	3.700E 02 TO 4.300E 02 HZ	H		37
PIONEER 9	(68-100A-07)	SCARF						
PLASMA WAVE DETECTOR			11/08/68	TO 09/07/69	3.850E 02 TO 4.150E 02 HZ	H		38
OGO 5	(68-014A-24)	CROOK						
PLASMA WAVE DETECTOR			03/05/68	TO 01/11/71	5.600E 02 TO 7.000E 04 HZ	B DEFGH		31
PIONEER 8	(67-123A-07)	SCARF						
PLASMA WAVE DETECTOR			12/13/67	TO 10/07/68	2.035E 04 TO 2.365E 04 HZ	H		37
PIONEER 9	(68-100A-07)	SCARF						
PLASMA WAVE DETECTOR			11/08/68	TO 09/07/69	2.775E 04 TO 3.225E 04 HZ	H		38
1.2 MAGNETIC FIELD MEASUREMENTS								
OGO 3	(66-049A-11)	HEPPNER						
MAGNETIC SURVEY USING TWO MAGNETOMETERS			06/09/66	TO 08/14/68	0.000E-39 TO 1.700E-03 HZ	B DEFGH		27
HEOS 1	(68-109A-02)	ELLIOT						
FLUXGATE MAGNETOMETER			12/11/68	TO 08/01/74	0.000E-39 TO 1.040E-02 HZ	GH		14
IMP-C	(65-042A-02)	NESS						
FLUXGATE MAGNETOMETER			05/29/65	TO 05/11/67	0.000E-39 TO 1.250E-02 HZ	FGH		15
HEOS 2	(72-005A-01)	ELLIOT						
FLUXGATE MAGNETOMETER			01/31/72	TO 08/01/74	0.000E-39 TO 1.560E-02 HZ	DEF H		14
MARINER 5	(67-060A-05)	SMITH						
TRIAXIAL LOW FIELD HELIUM MAGNETOMETER			06/14/67	TO 11/21/67	0.000E-39 TO 3.000E-02 HZ	H	2	24
OGO 1	(64-054A-01)	SMITH						
TRIAXIAL SEARCH-COIL MAGNETOMETER			09/05/64	TO 11/17/67	0.000E-39 TO 4.170E-02 HZ	B DEFGH		25
APOLLO 14 LM/ALSEP	(71-008C-10)	DYAL						
LUNAR PORTABLE MAGNETOMETER			02/06/71	TO 02/06/71	0.000E-39 TO 5.000E-02 HZ		H	7
APOLLO 16 LM/ALSEP	(72-031C-08)	DYAL						
LUNAR PORTABLE MAGNETOMETER			04/21/72	TO 04/23/72	0.000E-39 TO 5.000E-02 HZ		H	10
IMP-D	(66-058A-03)	SONETT						
AMES MAGNETIC FIELDS			07/01/66	TO 09/13/70	0.000E-39 TO 8.000E-02 HZ	GH		17
IMP-E	(67-070A-03)	SONETT						
AMES MAGNETIC FIELDS			07/19/67	TO 10/28/71	0.000E-39 TO 8.000E-02 HZ	GH	H	19
IMP-D	(66-058A-01)	NESS						
GSFC MAGNETOMETER			07/01/66	TO 10/05/68	0.000E-39 TO 9.700E-02 HZ	GH		17
IMP-E	(67-070A-04)	NESS						
GSFC MAGNETOMETER			07/19/67	TO 02/23/72	0.000E-39 TO 9.700E-02 HZ	GH	H	18
ATS 5	(69-069A-13)	SUGIURA						
MAGNETIC FIELD MONITOR			09/01/69	TO 09/30/71	0.000E-39 TO 9.800E-02 HZ	F		12
GRS-A	(69-097A-01)	MUSMANN						
FLUXGATE MAGNETOMETER			11/08/69	TO 06/28/70	0.000E-39 TO 1.000E-01 HZ	CD		13
APOLLO 15 SUBSATELLITE	(71-063D-02)	COLEMAN, JR.						
BIAXIAL FLUXGATE MAGNETOMETER			08/04/71	TO 02/03/72	0.000E-39 TO 1.160E-01 HZ	H	H	9
APOLLO 16 SUBSATELLITE	(72-031D-02)	COLEMAN, JR.						
BIAXIAL FLUXGATE MAGNETOMETER			04/25/72	TO 05/29/72	0.000E-39 TO 1.160E-01 HZ	H	H	10
MARINER 5	(67-060A-05)	SMITH						
TRIAXIAL LOW FIELD HELIUM MAGNETOMETER			06/14/67	TO 11/21/67	0.000E-39 TO 1.200E-01 HZ	H	2	24
IMP-F	(67-051A-11)	NESS						
TRIAXIAL FLUXGATE MAGNETOMETER			05/24/67	TO 03/07/69	0.000E-39 TO 1.950E-01 HZ	FGH		20
IMP-G	(69-053A-11)	NESS						
TRIAXIAL FLUXGATE MAGNETOMETER			06/21/69	TO 12/23/72	0.000E-39 TO 1.950E-01 HZ	FGH		22
PIONEER 6	(65-105A-01)	NESS						
UNIAXIAL FLUXGATE MAGNETOMETER			12/17/65	TO 09/05/67	0.000E-39 TO 5.000E-01 HZ	H		35
PIONEER 7	(66-075A-01)	NESS						
SINGLE-AXIS MAGNETOMETER			08/17/66	TO 10/29/67	0.000E-39 TO 5.000E-01 HZ	G		36
PIONEER 8	(67-123A-01)	NESS						
SINGLE-AXIS MAGNETOMETER			12/13/67	TO 12/07/68	0.000E-39 TO 5.000E-01 HZ	G		37
PIONEER 7	(66-075A-01)	NESS						
SINGLE-AXIS MAGNETOMETER			08/17/66	TO 10/29/67	0.000E-39 TO 5.000E-01 HZ	H		36
PIONEER 8	(67-123A-01)	NESS						
SINGLE-AXIS MAGNETOMETER			12/13/67	TO 12/07/68	0.000E-39 TO 5.000E-01 HZ	H		37
PIONEER 9	(68-100A-01)	SONETT						
TRIAXIAL MAGNETOMETER			11/08/68	TO 06/13/69	0.000E-39 TO 5.000E-01 HZ	H		39
OGO 5	(68-014A-15)	HEPPNER						
MAGNETIC SURVEY USING TWO MAGNETOMETERS			03/05/68	TO 05/13/70	0.000E-39 TO 8.500E-01 HZ	B DEF H		32
OGO 2	(65-081A-05)	CAIN						
RUBIDIUM VAPOR MAGNETOMETER			10/14/65	TO 10/02/67	0.000E-39 TO 1.000E 00 HZ	C		26
APOLLO 12 LM/ALSEP	(69-099C-04)	SONETT						
LUNAR SURFACE MAGNETOMETER			11/19/69	TO 04/03/70	0.000E-39 TO 1.600E 00 HZ	GH	H	7
APOLLO 15 LM/ALSEP	(71-063C-03)	DYAL						
LUNAR SURFACE MAGNETOMETER			07/31/71	TO 09/20/72	0.000E-39 TO 1.600E 00 HZ	GH	H	8
APOLLO 16 LM/ALSEP	(72-031C-03)	DYAL						
LUNAR SURFACE MAGNETOMETER			04/21/72	TO 10/18/73	0.000E-39 TO 1.600E 00 HZ	GH	H	10
OGO 5	(68-014A-14)	COLEMAN, JR.						
UCLA TRIAXIAL FLUXGATE MAGNETOMETER			03/05/68	TO 11/18/69	0.000E-39 TO 3.470E 00 HZ	B DEFGH		29
OGO 5	(68-014A-15)	HEPPNER						
MAGNETIC SURVEY USING TWO MAGNETOMETERS			03/05/68	TO 05/13/70	0.000E-39 TO 3.500E 00 HZ	B DEFGH		32
OGO 3	(66-049A-11)	HEPPNER						
MAGNETIC SURVEY USING TWO MAGNETOMETERS			06/09/66	TO 08/14/68	0.000E-39 TO 3.500E 00 HZ	B DEFGH		27
IMP-I	(71-019A-01)	NESS						
MEASUREMENT OF MAGNETIC FIELDS			03/13/71	TO 04/03/73	0.000E-39 TO 6.250E 00 HZ	EFGH		22
OGO 5	(68-014A-14)	COLEMAN, JR.						
UCLA TRIAXIAL FLUXGATE MAGNETOMETER			03/05/68	TO 11/18/69	0.000E-39 TO 2.500E 01 HZ	B DEFGH		29
OGO 5	(68-014A-15)	HEPPNER						
MAGNETIC SURVEY USING TWO MAGNETOMETERS			03/05/68	TO 05/13/70	0.000E-39 TO 2.700E 01 HZ	B DEFGH		32

ORIGINAL PAGE IS OF POOR QUALITY

PRECEDING PAGE BLANK NOT FILMED

SATELLITE NAME / DESCRIPTIVE EXPERIMENT TITLE	EXPERIMENT ID	EXPERIMENTER	LIMITING DATES OF DATA AT NSSDC EARLIEST MM/DD/YY	LATEST MM/DD/YY	RANGE OF MEASUREMENTS MIN VALUE (F OR E) MAX VALUE (LAMBDA) MAX MIN	REGION ABCDEFGHI/	PLANET 012345M 6789	PAGE

1.2 MAGNETIC FIELD MEASUREMENTS

SATELLITE NAME / DESCRIPTIVE EXPERIMENT TITLE	EXPERIMENT ID	EXPERIMENTER	EARLIEST	LATEST	RANGE OF MEASUREMENTS	REGION	PLANET	PAGE
ATS 1 — BIAXIAL FLUXGATE MAGNETOMETER	(66-110A-02)	COLEMAN, JR.	12/07/66	TO 12/31/68	0.000E-39 TO 5.600E 02 HZ	F		11
OGO 3 — TRIAXIAL SEARCH-COIL MAGNETOMETER	(66-049A-12)	SMITH	06/09/66	TO 04/27/68	1.000E-02 TO 8.000E 02 HZ	B DEFGH		28
OGO 6 — TRIAXIAL SEARCH-COIL MAGNETOMETER	(69-051A-22)	SMITH	06/10/69	TO 10/13/70	3.000E-02 TO 3.000E 01 HZ	C		33
OGO 5 — TRIAXIAL SEARCH-COIL MAGNETOMETER	(68-014A-16)	SMITH	03/06/68	TO 03/07/71	3.000E-02 TO 5.500E 01 HZ	B DEFGH		32
OGO 1 — TRIAXIAL SEARCH-COIL MAGNETOMETER	(64-054A-01)	SMITH	09/05/64	TO 11/17/67	1.000E 01 TO 1.000E 03 HZ	B DEFGH		25
OGO 5 — TRIAXIAL SEARCH-COIL MAGNETOMETER	(68-014A-16)	SMITH	03/06/68	TO 03/07/71	1.000E 01 TO 1.000E 03 HZ	B DEFGH		32
OGO 6 — TRIAXIAL SEARCH-COIL MAGNETOMETER	(69-051A-22)	SMITH	06/10/69	TO 10/13/70	1.000E 01 TO 1.000E 03 HZ	C		33
INJUN 5 — VLF RECEIVER	(68-066B-02)	GURNETT	08/09/68	TO 05/29/70	3.000E 01 TO 1.000E 04 HZ	C		23
OGO 5 — PLASMA WAVE DETECTOR	(68-014A-24)	CROOK	03/05/68	TO 01/11/71	4.180E 02 TO 6.020E 02 HZ	B DEFGH		31

2. CHARGED PARTICLE MEASUREMENTS

2.1 SENSING ELECTRONS

2.1.1 ELECTRONS OF THERMAL ENERGIES (LESS THAN OR EQUAL TO 1 KEV)

SATELLITE NAME / DESCRIPTIVE EXPERIMENT TITLE	EXPERIMENT ID	EXPERIMENTER	EARLIEST	LATEST	RANGE OF MEASUREMENTS	REGION	PLANET	PAGE
PIONEER 6 — TWO-FREQUENCY BEACON RECEIVER	(65-105A-04)	ESHLEMAN	12/16/65	TO 07/11/66	R THERMAL ENERGIES	B H	0	100
PIONEER 7 — ELECTROSTATIC ANALYZER	(66-075A-03)	WOLFE	08/17/66	TO 08/07/74	R THERMAL ENERGIES	H		107
MARINER 5 — TWO-FREQUENCY BEACON RECEIVER	(67-060A-02)	ESHLEMAN	06/14/67	TO 11/21/67	R THERMAL ENERGIES	B H	0	76
PIONEER 8 — TWO-FREQUENCY BEACON RECEIVER	(67-123A-03)	ESHLEMAN	12/14/67	TO 03/07/71	R THERMAL ENERGIES	B H		109
PIONEER 9 — TWO-FREQUENCY BEACON RECEIVER	(68-100A-03)	ESHLEMAN	11/08/68	TO 03/07/71	R THERMAL ENERGIES	B H		112
IMP-C — RETARDING POTENTIAL ANALYZER	(65-042A-01)	SERBU	05/29/65	TO 05/05/67	P THERMAL ENERGIES	B DE		55
VELA 3A — ELECTROSTATIC ANALYZER AND GM TUBES	(65-058A-04)	BAME	07/26/65	TO 05/21/70	R THERMAL ENERGIES	GH		115
VELA 3B — ELECTROSTATIC ANALYZER AND GM TUBES	(65-058B-04)	BAME	07/26/65	TO 05/21/70	R THERMAL ENERGIES	GH		116
PIONEER 7 — TWO-FREQUENCY BEACON RECEIVER	(66-075A-04)	ESHLEMAN	08/17/66	TO 05/20/69	R THERMAL ENERGIES	H		105
PIONEER 6 — ELECTROSTATIC ANALYZER	(65-105A-06)	WOLFE	12/16/65	TO 08/17/74	R 1.000E 00 TO 5.000E 02 EV	H		103
OGO 3 — LOW-ENERGY ELECTRONS AND PROTONS	(66-049A-08)	FRANK	07/14/66	TO 07/16/66	R 5.000E 00 TO 1.100E 03 EV	DEFGH		83
APOLLO 12 LM/ALSEP — SOLAR WIND SPECTROMETER	(69-099C-02)	SNYDER	11/19/69	TO 05/16/74	N 6.000E 00 TO 1.330E 03 EV	GH	M	43
APOLLO 15 LM/ALSEP — SOLAR WIND SPECTROMETER	(71-063C-04)	SNYDER	07/31/71	TO 06/30/72	R 6.200E 00 TO 8.170E 03 EV	GH	M	45
VELA 5A — SOLAR WIND EXPERIMENT	(69-046D-05)	BAME	09/14/69	TO 04/11/72	R 7.500E 00 TO 1.850E 04 EV	GH		117
PIONEER 8 — ELECTROSTATIC ANALYZER	(67-123A-02)	WOLFE	12/14/67	TO 11/05/71	R 1.200E 01 TO 1.000E 03 EV	H		111
PIONEER 9 — ELECTROSTATIC ANALYZER	(68-100A-02)	WOLFE	11/08/68	TO 08/17/72	R 1.200E 01 TO 1.000E 03 EV	H		114
PIONEER 8 — ELECTROSTATIC ANALYZER	(67-123A-02)	WOLFE	12/14/67	TO 11/05/71	R 1.200E 01 TO 1.000E 03 EV	H		111
PIONEER 9 — ELECTROSTATIC ANALYZER	(68-100A-02)	WOLFE	11/08/68	TO 08/17/72	R 1.200E 01 TO 1.000E 03 EV	H		114
PIONEER 8 — ELECTROSTATIC ANALYZER	(67-123A-02)	WOLFE	12/14/67	TO 11/05/71	R 1.200E 01 TO 1.000E 03 EV	H		111
PIONEER 9 — ELECTROSTATIC ANALYZER	(68-100A-02)	WOLFE	11/08/68	TO 08/17/72	R 1.200E 01 TO 1.000E 03 EV	H		114
VELA 5B — SOLAR WIND EXPERIMENT	(69-046E-05)	BAME	09/14/69	TO 06/12/72	R 2.000E 01 TO 3.300E 04 EV	GH		118
VELA 5A — SOLAR WIND EXPERIMENT	(69-046D-05)	BAME	09/14/69	TO 04/11/72	R 2.000E 01 TO 3.300E 04 EV	GH		117
IMP-F — LOW-ENERGY PROTON AND ELECTRON DIFFERENTIAL ENERGY ANALYZER (LEPEDEA)	(67-051A-04)	VAN ALLEN	05/26/67	TO 06/17/68	R 3.300E 01 TO 1.100E 03 EV	DEFGH		65
APOLLO 14 LM/ALSEP — CHARGED PARTICLE LUNAR ENVIRONMENT	(71-008C-08)	O'BRIEN	01/01/71	TO 12/31/73	R 4.000E 01 TO 2.000E 03 EV	GH	M	44
IMP-D — PLASMA PROBE	(66-058A-06)	BRIDGE	07/06/66	TO 04/20/71	R 5.000E 01 TO 5.400E 03 EV	GH		57
IMP-E — PLASMA PROBE	(67-070A-06)	BRIDGE	07/25/67	TO 07/03/68	R 5.000E 01 TO 5.400E 03 EV	H		59
INJUN 5 — LOW-ENERGY PROTON AND ELECTRON DIFFERENTIAL ENERGY ANALYZER (LEPEDEA)	(68-066B-01)	FRANK	08/09/68	TO 05/29/70	R 5.000E 01 TO 1.100E 03 EV	BC		74
PIONEER 6 — SOLAR WIND PLASMA FARADAY CUP	(65-105A-02)	BRIDGE	12/16/65	TO 05/18/71	R 9.000E 01 TO 1.580E 03 EV	H		100
OGO 5 — PLASMA SPECTROMETER	(68-014A-17)	SNYDER	03/05/68	TO 04/30/71	R 1.000E 02 TO 8.000E 02 EV	H		94
PIONEER 10 — PLASMA EXPERIMENT	(72-012A-13)	WOLFE	04/18/72	TO 12/12/73	R 1.000E 02 TO 1.800E 04 EV	H	5	115
OGO 5 — PLASMA SPECTROMETER	(68-014A-17)	SNYDER	03/05/68	TO 04/30/71	R 1.000E 02 TO 8.000E 02 EV	H		94
PIONEER 7 — SOLAR WIND PLASMA FARADAY CUP	(66-075A-02)	BRIDGE	08/18/66	TO 10/31/69	R 1.150E 02 TO 1.600E 03 EV	H		104
VELA 3B — ELECTROSTATIC ANALYZER AND GM TUBES	(65-058B-04)	BAME	07/26/65	TO 05/21/70	R 2.000E 02 TO 1.800E 04 EV	GH		116
VELA 3A — ELECTROSTATIC ANALYZER AND GM TUBES	(65-058A-04)	BAME	07/26/65	TO 05/21/70	R 2.000E 02 TO 1.800E 04 EV	GH		115
APOLLO 15 SUBSATELLITE — LUNAR PARTICLE SHADOWS AND BOUNDARY LAYER	(71-063D-01)	ANDERSON	08/04/71	TO 09/18/72	R 5.300E 02 TO 6.500E 03 EV	GH	M	46

SATELLITE NAME / DESCRIPTIVE EXPERIMENT TITLE	EXPERIMENT ID	EXPERIMENTER	LIMITING DATES OF DATA AT NSSDC: EARLIEST MM/DD/YY	LATEST MM/DD/YY	R/S	RANGE OF VALUE: MIN VALUE	E	MAX VALUE	MEASUREMENTS (F OR E) (LAMBDA)	REGION: MAX	ABCDEFGHI	PLANET: 01234	5M 6789	PAGE
2.1.1 ELECTRONS OF THERMAL ENERGIES (LESS THAN OR EQUAL TO 1 KEV)														
APOLLO 16 SUBSATELLITE LUNAR PARTICLE SHADOWS AND BOUNDARY LAYER	(72-031D-01)	ANDERSON	04/25/72	TO 05/29/72	R	5.300E 02	TO	6.500E 03	EV		GH		M	46
OGO 4	(67-073A-11)	HOFFMAN												
LOW-ENERGY AURORAL PARTICLE DETECTOR			07/30/67	TO 01/25/69	R	7.000E 02	TO	7.000E 03	EV		CDEF			89
OGO 3	(66-049A-08)	FRANK												
LOW-ENERGY ELECTRONS AND PROTONS			07/14/66	TO 07/16/66	R	1.100E 03	TO	1.000E 04	EV		DEFGH			83
IMP-F	(67-051A-04)	VAN ALLEN												
LOW-ENERGY PROTON AND ELECTRON DIFFERENTIAL ENERGY ANALYZER (LEPEDEA)			05/26/67	TO 06/17/68	R	1.100E 03	TO	1.100E 04	EV		DEFGH			65
INJUN 5	(68-066B-01)	FRANK												
LOW-ENERGY PROTON AND ELECTRON DIFFERENTIAL ENERGY ANALYZER (LEPEDEA)			08/09/68	TO 05/29/70	R	1.100E 03	TO	1.200E 04	EV	BC				74
APOLLO 14 LM/ALSEP	(71-068C-08)	O'BRIEN												
CHARGED PARTICLE LUNAR ENVIRONMENT			01/01/71	TO 12/31/73	R	2.000E 03	TO	2.000E 04	EV		GH		M	44
ATS 1	(66-110A-01)	FREEMAN												
SUPRATHERMAL ION DETECTOR			12/10/66	TO 02/18/67	P	3.000E 03	TO	INFINITY	EV		F			48
ISIS 2	(71-024A-04)	MCDIARMID												
ENERGETIC PARTICLE DETECTORS			04/19/71	TO 03/31/73	R	3.000E 03	TO	4.000E 04	EV	C				75
INJUN 4	(64-076B-06)	VAN ALLEN												
PLASTIC SCINTILLATOR PARTICLE DETECTORS			02/13/65	TO 07/19/66	R	5.000E 03	TO	INFINITY	EV	C				73
OGO 4	(67-073A-11)	HOFFMAN												
LOW-ENERGY AURORAL PARTICLE DETECTOR			07/30/67	TO 01/25/69	R	7.000E 03	TO	2.380E 04	EV		CDEF			89
2.1.2 ELECTRONS OF ENERGIES GREATER THAN THERMAL (GREATER THAN 1 KEV)														
ISIS 1	(69-009A-04)	MCDIARMID												
ENERGETIC PARTICLE DETECTORS			02/02/69	TO 04/24/69	R	8.000E 03	TO	1.400E 05	EV		DEF			75
OGO 3	(66-049A-10)	KONRADI												
TRAPPED RADIATION SCINTILLATION COUNTER			06/09/66	TO 01/26/67	R	1.000E 04	TO	1.000E 05	EV		EFGH			84
IMP-I	(71-019A-07)	BOSTROM												
SOLAR PROTON MONITORING EXPERIMENT			03/14/71	TO 05/31/73	R	1.000E 04	TO	INFINITY	EV		FGH			70
OGO 3	(66-049A-08)	FRANK												
LOW-ENERGY ELECTRONS AND PROTONS			07/14/66	TO 07/16/66	R	1.000E 04	TO	4.900E 04	EV		DEFGH			83
IMP-F	(67-051A-04)	VAN ALLEN												
LOW-ENERGY PROTON AND ELECTRON DIFFERENTIAL ENERGY ANALYZER (LEPEDEA)			05/26/67	TO 06/17/68	R	1.100E 04	TO	5.700E 04	EV		DEFGH			65
INJUN 5	(68-066B-01)	FRANK												
LOW-ENERGY PROTON AND ELECTRON DIFFERENTIAL ENERGY ANALYZER (LEPEDEA)			08/09/68	TO 05/29/70	R	1.200E 04	TO	5.000E 04	EV	BC				74
APOLLO 15 SUBSATELLITE LUNAR PARTICLE SHADOWS AND BOUNDARY LAYER	(71-063D-01)	ANDERSON	08/04/71	TO 09/18/72	R	1.350E 04	TO	1.500E 04	EV		GH		M	46
APOLLO 16 SUBSATELLITE LUNAR PARTICLE SHADOWS AND BOUNDARY LAYER	(72-031D-01)	ANDERSON	04/25/72	TO 05/29/72	R	1.350E 04	TO	1.500E 04	EV		GH		M	46
IMP-G	(69-053A-02)	ANDERSON												
ION CHAMBER			06/21/69	TO 08/31/72	P	1.800E 04	TO	INFINITY	EV		EFGH			66
APOLLO 16 SUBSATELLITE LUNAR PARTICLE SHADOWS AND BOUNDARY LAYER	(72-031D-01)	ANDERSON	04/25/72	TO 05/29/72	P	2.000E 04	TO	1.500E 05	EV		GH		M	46
IMP-D	(66-058A-04)	ANDERSON												
ION CHAMBER AND GM COUNTERS			07/01/66	TO 06/09/67	N	2.200E 04	TO	INFINITY	EV		GH			57
IMP-F	(67-051A-02)	ANDERSON												
ION CHAMBER			05/24/67	TO 09/15/67	N	2.200E 04	TO	INFINITY	EV		H			61
IMP-E	(67-070A-02)	ANDERSON												
ENERGETIC PARTICLE			07/19/67	TO 07/24/68	N	2.200E 04	TO	INFINITY	EV		GH		M	59
OGO 5	(68-014A-04)	ANDERSON												
ENERGETIC RADIATIONS FROM SOLAR FLARES			03/08/68	TO 11/17/69	R	2.200E 04	TO	9.000E 04	EV		GH			91
ATS 5	(69-069A-04)	MOZER												
TRI-DIRECTIONAL MEDIUM-ENERGY PARTICLE DETECTOR			09/16/69	TO 04/09/71	R	4.000E 04	TO	1.200E 05	EV		F			50
INJUN 4	(64-076B-03)	VAN ALLEN												
GEIGER-MUELLER COUNTER			02/13/65	TO 07/19/66	N	4.000E 04	TO	INFINITY	EV	BC				72
ALOUETTE 2	(65-098A-04)	MCDIARMID												
ENERGETIC PARTICLE DETECTORS			11/29/65	TO 06/18/69	R	4.000E 04	TO	INFINITY	EV	BC				42
IMP-F	(67-051A-04)	VAN ALLEN												
LOW-ENERGY PROTON AND ELECTRON DIFFERENTIAL ENERGY ANALYZER (LEPEDEA)			05/26/67	TO 06/17/68	P	4.000E 04	TO	INFINITY	EV		DEFGH			65
INJUN 5	(68-066B-01)	FRANK												
LOW-ENERGY PROTON AND ELECTRON DIFFERENTIAL ENERGY ANALYZER (LEPEDEA)			08/09/68	TO 05/29/70	N	4.000E 04	TO	INFINITY	EV	BC				74
ISIS 2	(71-024A-04)	MCDIARMID												
ENERGETIC PARTICLE DETECTORS			04/19/71	TO 03/31/73	R	4.000E 04	TO	2.000E 05	EV	C				75
IMP-D	(66-058A-04)	ANDERSON												
ION CHAMBER AND GM COUNTERS			07/01/66	TO 06/09/67	R	4.500E 04	TO	INFINITY	EV		GH			57
IMP-F	(67-051A-02)	ANDERSON												
ION CHAMBER			05/24/67	TO 09/15/67	R	4.500E 04	TO	INFINITY	EV		H			61
IMP-E	(67-070A-02)	ANDERSON												
ENERGETIC PARTICLE			07/19/67	TO 07/24/68	N	4.500E 04	TO	INFINITY	EV		GH		M	59
IMP-D	(66-058A-05)	VAN ALLEN												
ELECTRON AND PROTON DETECTORS			07/01/66	TO 12/31/68	N	4.500E 04	TO	INFINITY	EV		H			58
IMP-C	(65-042A-05)	ANDERSON												
ION CHAMBER AND GM COUNTERS			05/29/65	TO 01/03/67	R	4.500E 04	TO	INFINITY	EV		H			54
IMP-G	(69-053A-02)	ANDERSON												
ION CHAMBER			06/21/69	TO 08/31/72	R	4.500E 04	TO	INFINITY	EV		EFGH			66
IMP-E	(67-070A-01)	VAN ALLEN												
ELECTRON AND PROTON DETECTORS			07/19/67	TO 12/31/68	N	4.800E 04	TO	INFINITY	EV		H			60
OGO 1	(64-054A-21)	WINCKLER												
ELECTRON SPECTROMETER			09/00/64	TO 12/06/67	R	5.000E 04	TO	4.000E 06	EV		DEF H			80
OGO 3	(66-049A-22)	WINCKLER												
ELECTRON SPECTROMETER			06/00/66	TO 05/03/68	R	5.000E 04	TO	5.000E 05	EV	B	DEF H			85

ORIGINAL PAGE IS OF POOR QUALITY

SATELLITE NAME / DESCRIPTIVE EXPERIMENT TITLE	EXPERIMENT ID	EXPERIMENTER	LIMITING DATES OF DATA AT NSSDC EARLIEST MM/DD/YY	LATEST MM/DD/YY	R S	RANGE OF VALUE MIN MAX	MEASUREMENTS (E OR E) VALUE (LAMBDA)	REGION MAX	ABCDEFGHI/012345M 6789	PAGE
2.1.2 ELECTRONS OF ENERGIES GREATER THAN THERMAL (GREATER THAN 1 KEV)										
ATS 1	(66-110A-04)	WINCKLER								
ELECTRON SPECTROMETER			12/19/66	TO 12/30/67	R	5.000E 04 TO 1.500E 05	EV	F		48
OGO 5	(68-014A-13)	COLEMAN, JR.								
PARTICLE WAVE STUDY			03/05/68	TO 02/14/71	N	5.000E 04 TO 5.000E 05	EV	B DEFGH		92
IMP-F	(67-051A-05)	MCCRACKEN								
COSMIC-RAY ANISOTROPY			05/24/67	TO 05/02/69	P	7.000E 04 TO INFINITY	EV	DEFGH		62
IMP-G	(69-053A-02)	ANDERSON								
ION CHAMBER			06/21/69	TO 08/31/72	P	7.800E 04 TO INFINITY	EV	EFGH		66
OGO 5	(68-014A-06)	WEST, JR.								
ELECTRON AND PROTON SPECTROMETER			03/04/68	TO 11/06/71	R	7.900E 04 TO 4.800E 05	EV	DEFGH		95
OSO 4	(67-100A-04)	WAGGONER								
PROTON ELECTRON DETECTOR			10/23/67	TO 12/30/67	R	8.000E 04 TO 5.400E 05	EV	B		97
IMP-G	(69-053A-09)	MCDONALD								
LOW-ENERGY PROTON AND ALPHA DETECTOR			09/09/69	TO 11/29/72	N	8.000E 04 TO 2.000E 05	EV	DEFGH		68
OV1-13	(68-026A-02)	KATZ								
ELECTRON SPECTROMETER			05/13/68	TO 07/10/68	P	1.000E 05 TO 1.000E 06	EV	CDE		98
ATS 5	(69-069A-04)	MOZER								
TRI-DIRECTIONAL MEDIUM-ENERGY PARTICLE DETECTOR			09/16/69	TO 04/09/71	R	1.200E 05 TO INFINITY	EV	F		56
IMP-G	(69-053A-02)	ANDERSON								
ION CHAMBER			06/21/69	TO 08/31/72	P	1.200E 05 TO INFINITY	EV	EFGH		66
IMP-H	(72-073A-03)	GLOECKLER								
IONS AND ELECTRONS IN THE ENERGY RANGE 0.1 TO 2 MEV			09/25/72	TO 04/13/73	R	1.200E 05 TO 9.000E 05	EV	GH		70
ATS 1	(66-110A-04)	WINCKLER								
ELECTRON SPECTROMETER			12/19/66	TO 12/30/67	R	1.500E 05 TO 5.000E 05	EV	F		48
APOLLO 15 SUBSATELLITE	(71-063D-01)	ANDERSON								
LUNAR PARTICLE SHADOWS AND BOUNDARY LAYER			08/04/71	TO 09/18/72	P	1.500E 05 TO 5.200E 05	EV	GH	M	46
APOLLO 16 SUBSATELLITE	(72-031D-01)	ANDERSON								
LUNAR PARTICLE SHADOWS AND BOUNDARY LAYER			04/25/72	TO 05/29/72	P	1.500E 05 TO 5.200E 05	EV	GH	M	46
IMP-F	(67-051A-03)	SIMPSON								
COSMIC-RAY PROTON (R VS DE/DX)			05/24/67	TO 05/02/69	R	1.700E 05 TO 3.000E 06	EV	GH		64
IMP-G	(69-053A-03)	SIMPSON								
COSMIC-RAY PROTON (R VS DE/DX)			06/21/69	TO 09/06/71	R	1.700E 05 TO 3.000E 06	EV	GH		69
ISIS 1	(69-009A-04)	MCDIARMID								
ENERGETIC PARTICLE DETECTORS			02/02/69	TO 04/24/69	R	2.000E 05 TO 7.700E 05	EV	DEF		75
ISIS 2	(71-024A-04)	MCDIARMID								
ENERGETIC PARTICLE DETECTORS			04/19/71	TO 03/31/73	R	2.000E 05 TO INFINITY	EV	C		75
IMP-I	(71-019A-09)	SIMPSON								
NUCLEAR COMPOSITION OF COSMIC AND SOLAR PARTICLE RADIATIONS			03/13/71	TO 05/01/72	N	2.000E 05 TO 1.000E 07	EV	GH		71
ALOUETTE 2	(65-098A-04)	MCDIARMID								
ENERGETIC PARTICLE DETECTORS			11/29/65	TO 06/18/69	R	2.500E 05 TO INFINITY	EV	BC		42
INJUN 5	(68-066B-03)	VAN ALLEN								
SOLID-STATE PARTICLE DETECTOR			08/09/68	TO 05/29/70	R	2.640E 05 TO 8.000E 05	EV	C		74
1963-038C	(63-038C-01)	BOSTROM								
ENERGETIC ELECTRON AND PROTON DETECTORS			09/28/63	TO 12/31/68	R	2.800E 05 TO INFINITY	EV	C		41
EPE-D	(64-086A-01)	BROWN								
SOLID-STATE ELECTRON DETECTOR			12/21/64	TO 05/15/67	P	3.000E 05 TO 4.500E 05	EV	B DE		50
OV3-3	(66-070A-05)	VAMPOLA								
MAGNETIC ELECTRON SPECTROMETER			08/04/66	TO 09/06/67	R	3.000E 05 TO 2.300E 06	EV	CDE		98
ATS 1	(66-110A-03)	PAULIKAS								
OMNIDIRECTIONAL SPECTROMETER			12/17/66	TO 08/31/72	R	3.000E 05 TO INFINITY	EV	F		48
IMP-F	(67-051A-01)	BROWN								
LOW-ENERGY SOLID-STATE TELESCOPE			05/24/67	TO 05/03/69	R	3.000E 05 TO 1.000E 06	EV	DEFGH		62
IMP-F	(67-051A-10)	MCDONALD								
COSMIC-RAY ENERGY VS ENERGY LOSS			05/25/67	TO 05/02/69	R	3.000E 05 TO 9.000E 05	EV	DEFGH		63
PIONEER 9	(68-100A-06)	WEBBER								
COSMIC-RAY TELESCOPE			11/08/68	TO 08/18/74	R	3.100E 05 TO 1.900E 06	EV	H		114
PIONEER 8	(67-123A-06)	WEBBER								
COSMIC-RAY GRADIENT DETECTOR			12/13/67	TO 08/18/74	R	3.400E 05 TO 5.200E 05	EV	H		110
IMP-G	(69-053A-01)	BROWN								
LOW-ENERGY SOLID-STATE TELESCOPE			06/21/69	TO 08/15/70	R	3.500E 05 TO 1.100E 06	EV	DEFGH		67
ATS 1	(66-110A-05)	BROWN								
PARTICLE TELESCOPE			12/09/66	TO 03/01/67	R	4.000E 05 TO 3.000E 06	EV	F		47
OGO 2	(65-081A-07)	SIMPSON								
LOW-ENERGY PROTON, ALPHA PARTICLE MEASUREMENT			10/14/65	TO 12/13/66	R	4.000E 05 TO INFINITY	EV	C		82
OGO 4	(67-073A-08)	SIMPSON								
LOW-ENERGY PROTON, ALPHA PARTICLE MEASUREMENT			07/28/67	TO 02/02/69	R	4.000E 05 TO INFINITY	EV	C		90
ATS 2	(67-031A-05)	MCILWAIN								
OMNIDIRECTIONAL PROTON AND ELECTRON DETECTORS			04/07/67	TO 10/23/67	R	4.400E 05 TO INFINITY	EV	B.DE		49
ATS 1	(66-110A-03)	PAULIKAS								
OMNIDIRECTIONAL SPECTROMETER			12/17/66	TO 08/31/72	R	4.500E 05 TO INFINITY	EV	F		48
EPE-D	(64-086A-01)	BROWN								
SOLID-STATE ELECTRON DETECTOR			12/21/64	TO 05/15/67	P	4.500E 05 TO INFINITY	EV	B DE		50
EPE-D	(64-086A-02)	MCILWAIN								
OMNIDIRECTIONAL AND UNIDIRECTIONAL ELECTRON AND PROTON FLUXES			12/21/64	TO 05/21/67	R	5.000E 05 TO INFINITY	EV	B DEF		51
OGO 3	(66-049A-22)	WINCKLER								
ELECTRON SPECTROMETER			06/00/66	TO 05/03/68	R	5.000E 05 TO 4.000E 06	EV	B DEF H		85
OGO 4	(67-073A-07)	ANDERSON								
COSMIC-RAY IONIZATION			07/30/67	TO 08/11/67	N	5.000E 05 TO INFINITY	EV	C		88
OGO 5	(68-014A-13)	COLEMAN, JR.								
PARTICLE WAVE STUDY			03/05/68	TO 02/14/71	N	5.000E 05 TO 1.200E 06	EV	B DEFGH		92
ATS 1	(66-110A-04)	WINCKLER								
ELECTRON SPECTROMETER			12/19/66	TO 12/30/67	R	5.000E 05 TO 1.000E 06	EV	F		48
APOLLO 15 SUBSATELLITE	(71-063D-01)	ANDERSON								
LUNAR PARTICLE SHADOWS AND BOUNDARY LAYER			08/04/71	TO 09/18/72	P	5.200E 05 TO 2.000E 06	EV	GH	M	46
APOLLO 16 SUBSATELLITE	(72-031D-01)	ANDERSON								
LUNAR PARTICLE SHADOWS AND BOUNDARY LAYER			04/25/72	TO 05/29/72	P	5.200E 05 TO 2.000E 06	EV	GH	M	46
PIONEER 8	(67-123A-06)	WEBBER								
COSMIC-RAY GRADIENT DETECTOR			12/13/67	TO 08/18/74	R	5.200E 05 TO 4.300E 06	EV	H		110
OSO 4	(67-100A-04)	WAGGONER								
PROTON ELECTRON DETECTOR			10/23/67	TO 12/30/67	R	5.400E 05 TO 5.300E 06	EV	B		97
OGO 1	(64-054A-20)	WINCKLER								
IONIZATION CHAMBER			09/05/64	TO 12/06/67	N	6.000E 05 TO INFINITY	EV	B DEFG		78
OGO 3	(66-049A-23)	WINCKLER								
IONIZATION CHAMBER			06/08/66	TO 08/12/68	N	6.000E 05 TO INFINITY	EV	B DEFG		87

SATELLITE NAME / DESCRIPTIVE EXPERIMENT TITLE	EXPERIMENT ID	EXPERIMENTER	LIMITING DATES OF DATA AT NSSDC EARLIEST MM/DD/YY	LATEST MM/DD/YY	R E S	RANGE OF VALUE MIN MAX	MEASUREMENTS (F OR E) VALUE (LAMBDA)	REGION MAX	ABCDEFGHI	PLANET /012345M 6789	PAGE
2.1.2 ELECTRONS OF ENERGIES GREATER THAN THERMAL (GREATER THAN 1 KEV)											
ATS 2	(67-031A-05)	MCILWAIN									
OMNIDIRECTIONAL PROTON AND ELECTRON DETECTORS			04/07/67	TO 10/23/67	R	6.300E 05 TO INFINITY	EV	B	DE		49
IMP-G	(69-053A-02)	ANDERSON									
ION CHAMBER			06/21/69	TO 08/31/72	N	7.000E 05 TO INFINITY	EV		EFGH		66
IMP-E	(67-070A-02)	ANDERSON									
ENERGETIC PARTICLE			07/19/67	TO 07/24/68	N	7.000E 05 TO INFINITY	EV		GH	M	59
IMP-D	(66-058A-04)	ANDERSON									
ION CHAMBER AND GM COUNTERS			07/01/66	TO 06/09/67	N	7.000E 05 TO INFINITY	EV		GH		57
INJUN 5	(68-066B-03)	VAN ALLEN									
SOLID-STATE PARTICLE DETECTOR			08/09/68	TO 05/29/70	R	8.000E 05 TO INFINITY	EV	C			74
OGO 5	(68-014A-06)	WEST, JR.									
ELECTRON AND PROTON SPECTROMETER			03/04/68	TO 11/06/71	R	8.200E 05 TO 2.800E 06	EV		DEFGH		95
IMP-F	(67-051A-01)	BROWN									
LOW-ENERGY SOLID-STATE TELESCOPE			05/24/67	TO 05/03/69	R	1.000E 06 TO INFINITY	EV		DEFGH		62
EPE-D	(64-086A-01)	BROWN									
SOLID-STATE ELECTRON DETECTOR			12/21/64	TO 05/15/67	P	1.000E 06 TO 3.500E 06	EV	B	DE		50
IMP-C	(65-042A-05)	ANDERSON									
ION CHAMBER AND GM COUNTERS			05/29/65	TO 01/03/67	N	1.000E 06 TO INFINITY	EV		H		54
OGO 2	(65-081A-06)	ANDERSON									
COSMIC-RAY IONIZATION			10/14/65	TO 04/02/66	N	1.000E 06 TO INFINITY	EV	C			82
ATS 1	(66-110A-03)	PAULIKAS									
OMNIDIRECTIONAL SPECTROMETER			12/17/66	TO 08/31/72	R	1.000E 06 TO INFINITY	EV		F		48
OGO 6	(69-051A-20)	STONE									
COSMIC-RAY STUDY			06/07/69	TO 05/25/70	R	1.000E 06 TO 1.000E 07	EV	C			96
IMP-G	(69-053A-01)	BROWN									
LOW-ENERGY SOLID-STATE TELESCOPE			06/21/69	TO 08/15/70	R	1.100E 06 TO INFINITY	EV		DEFGH		67
ATS 2	(67-031A-05)	MCILWAIN									
OMNIDIRECTIONAL PROTON AND ELECTRON DETECTORS			04/07/67	TO 10/23/67	R	1.100E 06 TO INFINITY	EV	B	DE		49
1963-038C	(63-038C-01)	BOSTROM									
ENERGETIC ELECTRON AND PROTON DETECTORS			09/28/63	TO 12/31/68	R	1.200E 06 TO INFINITY	EV	C			41
ATS 2	(67-031A-05)	MCILWAIN									
OMNIDIRECTIONAL PROTON AND ELECTRON DETECTORS			04/07/67	TO 10/23/67	R	1.270E 06 TO INFINITY	EV	B	DE		49
GRS-A	(69-097A-04)	HOVESTADT									
PROTON-ELECTRON DETECTOR			11/16/69	TO 03/15/70	N	1.500E 06 TO INFINITY	EV		CD		52
PIONEER 9	(68-100A-06)	WEBBER									
COSMIC-RAY TELESCOPE			11/08/68	TO 08/18/74	R	1.900E 06 TO 5.100E 06	EV		H		114
ATS 1	(66-110A-03)	PAULIKAS									
OMNIDIRECTIONAL SPECTROMETER			12/17/66	TO 08/31/72	R	1.900E 06 TO INFINITY	EV		F		48
ATS 2	(67-031A-05)	MCILWAIN									
OMNIDIRECTIONAL PROTON AND ELECTRON DETECTORS			04/07/67	TO 10/23/67	R	1.930E 06 TO INFINITY	EV	B	DE		49
IMP-H	(72-073A-03)	GLOECKLER									
IONS AND ELECTRONS IN THE ENERGY RANGE 0.1 TO 2 MEV			09/25/72	TO 04/13/73	R	2.300E 06 TO 4.200E 06	EV		GH		70
1963-038C	(63-038C-01)	BOSTROM									
ENERGETIC ELECTRON AND PROTON DETECTORS			09/28/63	TO 12/31/68	R	2.400E 06 TO INFINITY	EV	C			41
IMP-F	(67-051A-10)	MCDONALD									
COSMIC-RAY ENERGY VS ENERGY LOSS			05/25/67	TO 05/02/69	R	2.700E 06 TO 2.100E 07	EV		DEFGH		63
IMP-G	(69-053A-10)	MCDONALD									
COSMIC-RAY ENERGY VS ENERGY LOSS			09/09/69	TO 11/29/72	R	2.700E 06 TO 2.100E 07	EV		DEFGH		68
IMP-F	(67-051A-05)	MCCRACKEN									
COSMIC-RAY ANISOTROPY			05/24/67	TO 05/02/69	R	2.800E 06 TO 2.700E 07	EV		DEFGH		62
ALOUETTE 2	(65-098A-04)	MCDIARMID									
ENERGETIC PARTICLE DETECTORS			11/29/65	TO 06/18/69	R	3.500E 06 TO INFINITY	EV	BC			42
EPE-D	(64-086A-01)	BROWN									
SOLID-STATE ELECTRON DETECTOR			12/21/64	TO 05/15/67	P	3.500E 06 TO INFINITY	EV	B	DE		50
1963-038C	(63-038C-01)	BOSTROM									
ENERGETIC ELECTRON AND PROTON DETECTORS			09/28/63	TO 12/31/68	R	3.600E 06 TO INFINITY	EV	C			41
EPE-D	(64-086A-02)	MCILWAIN									
OMNIDIRECTIONAL AND UNIDIRECTIONAL ELECTRON AND PROTON FLUXES			12/21/64	TO 05/21/67	R	4.000E 06 TO INFINITY	EV	B	DEF		51
GRS-A	(69-097A-04)	HOVESTADT									
PROTON-ELECTRON DETECTOR			11/16/69	TO 03/15/70	N	4.000E 06 TO INFINITY	EV		CD		52
PIONEER 8	(67-123A-06)	WEBBER									
COSMIC-RAY GRADIENT DETECTOR			12/13/67	TO 08/18/74	R	4.200E 06 TO 8.400E 06	EV		H		110
PIONEER 9	(68-100A-06)	WEBBER									
COSMIC-RAY TELESCOPE			11/08/68	TO 08/18/74	R	5.100E 06 TO INFINITY	EV		H		114
OGO 6	(69-051A-20)	STONE									
COSMIC-RAY STUDY			06/07/69	TO 05/25/70	R	1.000E 07 TO 1.000E 08	EV	C			96
OGO 5	(68-014A-09)	MEYER									
COSMIC-RAY ELECTRONS			03/05/68	TO 07/14/72	R	1.500E 07 TO 4.500E 07	EV		GH		93
OGO 5	(68-014A-12)	VAN DE HULST									
MEASUREMENT OF THE ABSOLUTE FLUX AND ENERGY SPECTRUM OF ELECTRONS			03/05/68	TO 08/31/71	R	5.000E 08 TO 5.000E 09	EV		DEFGH		95
2.2 SENSING PROTONS OR HYDROGEN IONS											
IMP-C	(65-042A-01)	SERBU									
RETARDING POTENTIAL ANALYZER			05/29/65	TO 05/05/67	P	THERMAL ENERGIES		B	DE		55
ATS 1	(66-110A-01)	FREEMAN									
SUPRATHERMAL ION DETECTOR			12/10/66	TO 02/18/67	P	THERMAL ENERGIES			F		48
APOLLO 14 LM/ALSEP	(71-008C-06)	FREEMAN									
SUPRATHERMAL ION DETECTOR			08/26/72	TO 03/03/73	R	2.000E-01 TO 4.860E 02	EV		GH		44
OGO 5	(68-014A-17)	SNYDER									
PLASMA SPECTROMETER			03/05/68	TO 04/30/71	R	2.540E 00 TO 1.690E 04	EV		H		94
OGO 3	(66-049A-08)	FRANK									
LOW-ENERGY ELECTRONS AND PROTONS			07/14/66	TO 07/16/66	R	5.000E 00 TO 1.100E 03	EV		DEFGH		83
APOLLO 14 LM/ALSEP	(71-008C-06)	FREEMAN									
SUPRATHERMAL ION DETECTOR			08/26/72	TO 03/03/73	P	1.000E 01 TO 3.500E 03	EV		GH		44
APOLLO 12 LM/ALSEP	(69-099C-02)	SNYDER									
SOLAR WIND SPECTROMETER			11/19/69	TO 05/16/74	R	1.800E 01 TO 9.780E 03	EV		GH	M	43
VELA 5B	(69-046E-05)	BAME									
SOLAR WIND EXPERIMENT			09/14/69	TO 06/12/72	R	2.000E 01 TO 3.300E 04	EV		GH		118
VELA 5A	(69-046D-05)	BAME									
SOLAR WIND EXPERIMENT			09/14/69	TO 04/11/72	R	2.000E 01 TO 3.300E 04	EV		GH		117

ORIGINAL PAGE IS OF POOR QUALITY

Satellite Name	Experiment ID	Experimenter	Descriptive Experiment Title	Earliest MM/DD/YY	Latest MM/DD/YY	RES	Range Min Value	Max Value	Measurements (F or E) (Lambda)	Region MAX ABCDEFGHI MIN	Planet /012345N 6789	Page
			2.2 SENSING PROTONS OR HYDROGEN IONS									
IMP-F	(67-051A-04)	VAN ALLEN	LOW-ENERGY PROTON AND ELECTRON DIFFERENTIAL ENERGY ANALYZER (LEPEDEA)	05/26/67	06/17/68	R	2.500E 01	1.100E 03	EV	DEFGH		65
MARINER 5	(67-060A-03)	BRIDGE	INTERPLANETARY ION PLASMA PROBE FOR E/Q OF 40 TO 9400 VOLTS	06/14/67	11/21/67	R	4.000E 01	9.400E 03	EV	H		76
IMP-D	(66-058A-06)	BRIDGE	PLASMA PROBE	07/06/66	04/20/71	R	5.000E 01	5.400E 03	EV	H		57
IMP-E	(67-070A-06)	BRIDGE	PLASMA PROBE	07/25/67	07/03/68	R	5.000E 01	5.400E 03	EV	H		59
INJUN 5	(68-066B-01)	FRANK	LOW-ENERGY PROTON AND ELECTRON DIFFERENTIAL ENERGY ANALYZER (LEPEDEA)	08/09/68	05/29/70	R	5.000E 01	1.100E 03	EV	BC		74
APOLLO 15 LM/ALSEP	(71-063C-04)	SNYDER	SOLAR WIND SPECTROMETER	07/31/71	06/30/72	R	7.500E 01	9.600E 03	EV	GH	M	45
PIONEER 6	(65-105A-02)	BRIDGE	SOLAR WIND PLASMA FARADAY CUP	12/16/65	05/18/71	R	7.500E 01	9.485E 03	EV	H		100
PIONEER 7	(66-075A-02)	BRIDGE	SOLAR WIND PLASMA FARADAY CUP	08/18/66	10/31/69	R	7.500E 01	9.485E 03	EV	H		104
INJUN 4	(64-076B-05)	VAN ALLEN	CADMIUM SULFIDE DETECTORS	02/13/65	07/19/66	N	1.000E 02	INFINITY	EV	BC		73
OGO 5	(68-014A-17)	SNYDER	PLASMA SPECTROMETER	03/05/68	04/30/71	P	1.000E 02	1.100E 04	EV	H		94
PIONEER 10	(72-012A-13)	WOLFE	PLASMA EXPERIMENT	04/18/72	12/12/73	R	1.000E 02	1.800E 04	EV	H	5	115
VELA 5A	(69-046D-05)	BAME	SOLAR WIND EXPERIMENT	09/14/69	04/11/72	R	1.200E 02	5.000E 03	EV	GH		117
PIONEER 8	(67-123A-02)	WOLFE	ELECTROSTATIC ANALYZER	12/14/67	11/05/71	R	1.500E 02	1.500E 04	EV	H		111
PIONEER 9	(68-100A-02)	WOLFE	ELECTROSTATIC ANALYZER	11/08/68	08/17/72	R	1.500E 02	1.500E 04	EV	H		114
PIONEER 8	(67-123A-02)	WOLFE	ELECTROSTATIC ANALYZER	12/14/67	11/05/71	R	1.500E 02	1.500E 04	EV	H		111
PIONEER 9	(68-100A-02)	WOLFE	ELECTROSTATIC ANALYZER	11/08/68	08/17/72	R	1.500E 02	1.500E 04	EV	H		114
PIONEER 8	(67-123A-02)	WOLFE	ELECTROSTATIC ANALYZER	12/14/67	11/05/71	R	1.500E 02	1.500E 04	EV	H		111
PIONEER 9	(68-100A-02)	WOLFE	ELECTROSTATIC ANALYZER	11/08/68	08/17/72	R	1.500E 02	1.500E 04	EV	H		114
PIONEER 8	(67-123A-02)	WOLFE	ELECTROSTATIC ANALYZER	12/14/67	11/05/71	R	1.500E 02	1.500E 04	EV	H		111
APOLLO 14 LM/ALSEP	(71-008C-08)	O'BRIEN	CHARGED PARTICLE LUNAR ENVIRONMENT	01/01/71	12/31/73	P	1.700E 02	2.000E 03	EV	GH	M	44
VELA 3A	(65-058A-04)	BAME	ELECTROSTATIC ANALYZER AND GM TUBES	07/26/65	05/21/70	R	2.000E 02	1.800E 04	EV	GH		115
PIONEER 6	(65-105A-06)	WOLFE	ELECTROSTATIC ANALYZER	12/16/65	08/17/74	R	2.000E 02	1.000E 04	EV	H		103
PIONEER 7	(66-075A-03)	WOLFE	ELECTROSTATIC ANALYZER	08/17/66	08/07/74	R	2.000E 02	1.000E 04	EV	H		107
VELA 3B	(65-058B-04)	BAME	ELECTROSTATIC ANALYZER AND GM TUBES	07/26/65	05/21/70	R	2.000E 02	1.800E 04	EV	GH		116
IMP-F	(67-051A-08)	OGILVIE	ELECTROSTATIC ANALYZER	05/24/67	01/30/68	R	3.100E 02	5.100E 03	EV	H		63
OGO 4	(67-073A-11)	HOFFMAN	LOW-ENERGY AURORAL PARTICLE DETECTOR	07/30/67	01/25/69	R	7.000E 02	7.000E 03	EV	CDEF		89
OGO 3	(66-049A-08)	FRANK	LOW-ENERGY ELECTRONS AND PROTONS	07/14/66	07/16/66	R	1.100E 03	1.100E 04	EV	DEFGH		83
IMP-F	(67-051A-04)	VAN ALLEN	LOW-ENERGY PROTON AND ELECTRON DIFFERENTIAL ENERGY ANALYZER (LEPEDEA)	05/26/67	06/17/68	R	1.100E 03	1.100E 04	EV	DEFGH		65
INJUN 5	(68-066B-01)	FRANK	LOW-ENERGY PROTON AND ELECTRON DIFFERENTIAL ENERGY ANALYZER (LEPEDEA)	08/09/68	05/29/70	R	1.100E 03	1.200E 04	EV	BC		74
APOLLO 14 LM/ALSEP	(71-008C-08)	O'BRIEN	CHARGED PARTICLE LUNAR ENVIRONMENT	01/01/71	12/31/73	P	2.000E 03	2.000E 04	EV	GH	M	44
OGO 4	(67-073A-11)	HOFFMAN	LOW-ENERGY AURORAL PARTICLE DETECTOR	07/30/67	01/25/69	R	7.000E 03	2.380E 04	EV	CDEF		89
OGO 3	(66-049A-08)	FRANK	LOW-ENERGY ELECTRONS AND PROTONS	07/14/66	07/16/66	R	1.100E 04	4.900E 04	EV	DEFGH		83
IMP-F	(67-051A-04)	VAN ALLEN	LOW-ENERGY PROTON AND ELECTRON DIFFERENTIAL ENERGY ANALYZER (LEPEDEA)	05/26/67	06/17/68	R	1.100E 04	4.700E 04	EV	DEFGH		65
INJUN 5	(68-066B-01)	FRANK	LOW-ENERGY PROTON AND ELECTRON DIFFERENTIAL ENERGY ANALYZER (LEPEDEA)	08/09/68	05/29/70	R	1.200E 04	5.000E 04	EV	BC		74
ISIS 2	(71-024A-04)	MCDIARMID	ENERGETIC PARTICLE DETECTORS	04/19/71	03/31/73	R	2.000E 04	2.000E 05	EV	C		75
APOLLO 15 SUBSATELLITE	(71-063D-01)	ANDERSON	LUNAR PARTICLE SHADOWS AND BOUNDARY LAYER	08/04/71	09/18/72	R	2.000E 04	1.500E 05	EV	GH	M	46
APOLLO 16 SUBSATELLITE	(72-031D-01)	ANDERSON	LUNAR PARTICLE SHADOWS AND BOUNDARY LAYER	04/25/72	05/29/72	P	2.000E 04	3.400E 05	EV	GH	M	46
ISIS 1	(69-009A-04)	MCDIARMID	ENERGETIC PARTICLE DETECTORS	02/02/69	04/24/69	R	5.000E 04	5.000E 05	EV	C		75
ATS 5	(69-069A-04)	MOZER	TRI-DIRECTIONAL MEDIUM-ENERGY PARTICLE DETECTOR	09/16/69	04/09/71	R	6.000E 04	1.650E 05	EV	F		50
IMP-G	(69-053A-09)	MCDONALD	LOW-ENERGY PROTON AND ALPHA DETECTOR	09/09/69	11/29/72	R	8.300E 04	2.000E 05	EV	DEFGH		68
OGO 5	(68-014A-06)	WEST, JR.	ELECTRON AND PROTON SPECTROMETER	03/04/68	11/06/71	R	1.000E 05	5.700E 06	EV	DEFGH		95
IMP-H	(72-073A-03)	GLOECKLER	IONS AND ELECTRONS IN THE ENERGY RANGE 0.1 TO 2 MEV	09/25/72	04/13/73	R	1.200E 05	6.500E 05	EV	GH		70
OGO 3	(66-049A-10)	KONRADI	TRAPPED RADIATION SCINTILLATION COUNTER	06/09/66	01/26/67	R	1.200E 05	4.500E 06	EV	EFGH		84
ISIS 1	(69-009A-04)	MCDIARMID	ENERGETIC PARTICLE DETECTORS	02/02/69	04/24/69	R	1.500E 05	3.000E 07	EV	C		75
ISIS 2	(71-024A-04)	MCDIARMID	ENERGETIC PARTICLE DETECTORS	04/19/71	03/31/73	R	1.500E 05	5.500E 07	EV	C		75
ATS 5	(69-069A-04)	MOZER	TRI-DIRECTIONAL MEDIUM-ENERGY PARTICLE DETECTOR	09/16/69	04/09/71	R	1.650E 05	INFINITY	EV	F		50
OGO 6	(69-051A-20)	STONE	COSMIC-RAY STUDY	06/07/69	05/25/70	R	2.000E 05	2.000E 06	EV	C		96

SATELLITE NAME / DESCRIPTIVE EXPERIMENT TITLE	EXPERIMENT ID	EXPERIMENTER	LIMITING DATES OF DATA AT NSSDC EARLIEST MM/DD/YY	LATEST MM/DD/YY	R S	RANGE OF MEASUREMENTS MIN VALUE MAX VALUE	(F OR E) (LAMBDA)	REGION MAX ABCDEFGHI/012345M MIN 6789	PLANET	PAGE
2.2 SENSING PROTONS OR HYDROGEN IONS										
ISIS 2	(71-024A-04)	MCDIARMID								
ENERGETIC PARTICLE DETECTORS			04/19/71	TO 03/31/73	R	2.000E 05 TO 5.000E 05	EV	C		75
IMP-G	(69-053A-09)	MCDONALD								
LOW-ENERGY PROTON AND ALPHA DETECTOR			09/09/69	TO 11/29/72	N	2.000E 05 TO 2.000E 06	EV	DEFGH		68
IMP-I	(71-019A-07)	BOSTROM								
SOLAR PROTON MONITORING EXPERIMENT			03/14/71	TO 05/31/73	R	2.000E 05 TO 2.000E 06	EV	FGH		70
IMP-H	(72-073A-03)	GLOECKLER								
IONS AND ELECTRONS IN THE ENERGY RANGE 0.1 TO 2 MEV			09/25/72	TO 04/13/73	R	2.000E 05 TO 3.000E 06	EV	GH		70
GRS-A	(69-097A-03)	MORITZ								
PROTON TELESCOPE			11/08/69	TO 06/30/70	R	2.500E 05 TO 2.400E 06	EV	CD		52
IMP-D	(66-058A-04)	ANDERSON								
ION CHAMBER AND GM COUNTERS			07/01/66	TO 06/09/67	N	3.000E 05 TO INFINITY	EV	GH		57
IMP-F	(67-051A-02)	ANDERSON								
ION CHAMBER			05/24/67	TO 09/15/67	N	3.000E 05 TO INFINITY	EV	H		61
IMP-E	(67-070A-02)	ANDERSON								
ENERGETIC PARTICLE			07/19/67	TO 07/24/68	N	3.000E 05 TO INFINITY	EV	GH	M	59
INJUN 5	(68-066B-03)	VAN ALLEN								
SOLID-STATE PARTICLE DETECTOR			08/09/68	TO 05/29/70	R	3.060E 05 TO 3.440E 06	EV	C		74
IMP-D	(66-058A-05)	VAN ALLEN								
ELECTRON AND PROTON DETECTORS			07/01/66	TO 12/31/68	P	3.100E 05 TO 1.000E 07	EV	H		58
IMP-E	(67-070A-01)	VAN ALLEN								
ELECTRON AND PROTON DETECTORS			07/19/67	TO 12/31/68	R	3.200E 05 TO 6.300E 06	EV	H		60
APOLLO 15 SUBSATELLITE	(71-063D-01)	ANDERSON								
LUNAR PARTICLE SHADOWS AND BOUNDARY LAYER			08/04/71	TO 09/18/72	P	3.400E 05 TO 2.000E 06	EV	GH	M	46
APOLLO 16 SUBSATELLITE	(72-031D-01)	ANDERSON								
LUNAR PARTICLE SHADOWS AND BOUNDARY LAYER			04/25/72	TO 05/29/72	P	3.400E 05 TO 2.000E 06	EV	GH	M	46
IMP-G	(69-053A-01)	BROWN								
LOW-ENERGY SOLID-STATE TELESCOPE			06/21/69	TO 08/15/70	R	4.700E 05 TO 5.000E 06	EV	DEFGH		67
IMP-E	(67-070A-01)	VAN ALLEN								
ELECTRON AND PROTON DETECTORS			07/19/67	TO 12/31/68	R	4.800E 05 TO 3.000E 06	EV	H		60
IMP-I	(71-019A-09)	SIMPSON								
NUCLEAR COMPOSITION OF COSMIC AND SOLAR PARTICLE RADIATIONS			03/13/71	TO 05/01/72	P	5.000E 05 TO 1.000E 07	EV	GH		71
ALOUETTE 2	(65-098A-04)	MCDIARMID								
ENERGETIC PARTICLE DETECTORS			11/29/65	TO 06/18/69	R	5.000E 05 TO INFINITY	EV	BC		42
IMP-D	(66-058A-05)	VAN ALLEN								
ELECTRON AND PROTON DETECTORS			07/01/66	TO 12/31/68	P	5.000E 05 TO 4.000E 06	EV	H		58
INJUN 5	(68-066B-01)	FRANK								
LOW-ENERGY PROTON AND ELECTRON DIFFERENTIAL ENERGY ANALYZER (LEPEDEA)			08/09/68	TO 05/29/70	N	5.000E 05 TO INFINITY	EV	BC		74
IMP-C	(65-042A-05)	ANDERSON								
ION CHAMBER AND GM COUNTERS			05/29/65	TO 01/03/67	N	5.000E 05 TO INFINITY	EV	H		54
INJUN 4	(64-076B-04)	VAN ALLEN								
SOLID-STATE DETECTOR			11/23/64	TO 07/19/66	R	5.200E 05 TO 4.000E 06	EV	BC		72
IMP-F	(67-051A-01)	BROWN								
LOW-ENERGY SOLID-STATE TELESCOPE			05/24/67	TO 05/03/69	R	5.600E 05 TO 5.000E 06	EV	DEFGH		62
OGO 5	(68-014A-06)	WEST, JR.								
ELECTRON AND PROTON SPECTROMETER			03/04/68	TO 11/06/71	R	5.700E 05 TO 1.300E 06	EV	DEFGH		95
INJUN 4	(64-076B-03)	VAN ALLEN								
GEIGER-MUELLER COUNTER			02/13/65	TO 07/19/66	N	6.000E 05 TO INFINITY	EV	BC		72
PIONEER 6	(65-105A-03)	FAN								
COSMIC-RAY TELESCOPE			12/16/65	TO 03/03/72	R	6.000E 05 TO 1.390E 07	EV	H		101
PIONEER 7	(66-075A-06)	SIMPSON								
COSMIC-RAY TELESCOPE			08/17/66	TO 08/07/71	R	6.000E 05 TO 1.270E 07	EV	H		106
ATS 1	(66-110A-05)	BROWN								
PARTICLE TELESCOPE			12/09/66	TO 03/01/67	R	6.000E 05 TO 5.000E 06	EV	F		47
IMP-G	(69-053A-09)	MCDONALD								
LOW-ENERGY PROTON AND ALPHA DETECTOR			09/09/69	TO 11/29/72	P	6.000E 05 TO 4.000E 06	EV	DEFGH		68
IMP-F	(67-051A-05)	MCCRACKEN								
COSMIC-RAY ANISOTROPY			05/24/67	TO 05/02/69	R	7.000E 05 TO 7.600E 06	EV	DEFGH		62
OGO 2	(65-081A-07)	SIMPSON								
LOW-ENERGY PROTON, ALPHA PARTICLE MEASUREMENT			10/14/65	TO 12/13/66	N	7.200E 05 TO 1.100E 07	EV	C		82
OGO 4	(67-073A-08)	SIMPSON								
LOW-ENERGY PROTON, ALPHA PARTICLE MEASUREMENT			07/28/67	TO 02/02/69	N	7.200E 05 TO 1.100E 07	EV	C		90
IMP-D	(66-058A-05)	VAN ALLEN								
ELECTRON AND PROTON DETECTORS			07/01/66	TO 12/31/68	N	7.300E 05 TO INFINITY	EV	H		58
IMP-E	(67-070A-01)	VAN ALLEN								
ELECTRON AND PROTON DETECTORS			07/19/67	TO 12/31/68	N	7.400E 05 TO INFINITY	EV	H		60
IMP-F	(67-051A-03)	SIMPSON								
COSMIC-RAY PROTON (R VS DE/DX)			05/24/67	TO 05/02/69	R	8.000E 05 TO 9.600E 06	EV	GH		64
IMP-G	(69-053A-03)	SIMPSON								
COSMIC-RAY PROTON (R VS DE/DX)			06/21/69	TO 09/06/71	R	8.000E 05 TO 8.450E 06	EV	GH		69
IMP-D	(66-058A-05)	VAN ALLEN								
ELECTRON AND PROTON DETECTORS			07/01/66	TO 12/31/68	P	8.200E 05 TO 1.900E 06	EV	H		58
INJUN 4	(64-076B-04)	VAN ALLEN								
SOLID-STATE DETECTOR			11/23/64	TO 07/19/66	R	9.000E 05 TO 1.800E 06	EV	BC		72
IMP-F	(67-051A-07)	BOSTROM								
SOLAR PROTON MONITORING EXPERIMENT			05/24/67	TO 05/03/69	R	1.000E 06 TO 1.000E 07	EV	GH		61
PIONEER 9	(68-100A-05)	MCCRACKEN								
COSMIC-RAY ANISOTROPY			11/08/68	TO 09/25/70	R	1.000E 06 TO 8.000E 06	EV	H		113
IMP-G	(69-053A-07)	BOSTROM								
SOLAR PROTON MONITORING EXPERIMENT			06/21/69	TO 12/23/72	R	1.000E 06 TO 1.000E 07	EV	GH		67
PIONEER 8	(67-123A-05)	MCCRACKEN								
COSMIC-RAY ANISOTROPY			12/13/67	TO 12/31/70	R	1.000E 06 TO 8.000E 06	EV	H		110
ALOUETTE 2	(65-098A-04)	MCDIARMID								
ENERGETIC PARTICLE DETECTORS			11/29/65	TO 06/18/69	R	1.000E 06 TO 8.000E 06	EV	BC		42
IMP-F	(67-051A-09)	MCDONALD								
LOW-ENERGY PROTON AND ALPHA DETECTOR			05/25/67	TO 05/02/69	P	1.100E 06 TO 4.000E 06	EV	DEFGH		63
1963-038C	(63-038C-01)	BOSTROM								
ENERGETIC ELECTRON AND PROTON DETECTORS			09/28/63	TO 12/31/68	R	1.200E 06 TO 2.200E 06	EV	C		41
OGO 2	(65-081A-07)	SIMPSON								
LOW-ENERGY PROTON, ALPHA PARTICLE MEASUREMENT			10/14/65	TO 12/13/66	R	1.220E 06 TO 9.300E 06	EV	C		82
OGO 4	(67-073A-08)	SIMPSON								
LOW-ENERGY PROTON, ALPHA PARTICLE MEASUREMENT			07/28/67	TO 02/02/69	R	1.220E 06 TO 9.300E 06	EV	C		90
IMP-H	(72-073A-03)	GLOECKLER								
IONS AND ELECTRONS IN THE ENERGY RANGE 0.1 TO 2 MEV			09/25/72	TO 04/13/73	R	1.300E 06 TO 2.400E 06	EV	GH		70
OGO 1	(64-054A-18)	SIMPSON								
COSMIC-RAY SPECTRA AND FLUXES			09/06/64	TO 11/25/67	R	1.400E 06 TO 8.600E 06	EV	DEFGH		78
GRS-A	(69-097A-02)	HOVESTADT								
PROTON-ALPHA TELESCOPE			11/16/69	TO 03/15/70	R	1.500E 06 TO 1.040E 07	EV	CD		52

ORIGINAL PAGE IS OF POOR QUALITY

SATELLITE NAME / DESCRIPTIVE EXPERIMENT TITLE	EXPERIMENT ID	EXPERIMENTER	LIMITING DATES OF DATA AT NSSDC: EARLIEST MM/DD/YY	LATEST MM/DD/YY	R/S	RANGE OF MEASUREMENTS: MIN VALUE	MAX VALUE	(F OR E) (LAMBDA)	REGION ABCDEFGHI/ MAX MIN	PLANET 0123456789	PAGE
2.2 SENSING PROTONS OR HYDROGEN IONS											
OGO 3	(66-049A-03)	SIMPSON									
COSMIC-RAY SPECTRA AND FLUXES			06/09/66	TO 12/01/69	R	1.600E 06	TO 8.600E 06	EV	DEFGH		84
EPE-D	(64-086A-01)	BROWN									
SOLID-STATE ELECTRON DETECTOR			12/21/64	TO 05/15/67	P	1.700E 06	TO 1.600E 07	EV	B DE		50
OSO 4	(67-100A-04)	WAGGONER									
PROTON ELECTRON DETECTOR			10/23/67	TO 12/30/67	R	1.700E 06	TO 1.200E 07	EV	B		97
OGO 5	(68-014A-27)	SIMPSON									
LOW-ENERGY HEAVY COSMIC-RAY PARTICLES			03/05/68	TO 07/14/72	R	2.000E 06	TO 5.000E 06	EV	DEFGH		93
OGO 6	(69-051A-20)	STONE									
COSMIC-RAY STUDY			06/07/69	TO 05/25/70	R	2.000E 06	TO 2.000E 07	EV	C		96
GRS-A	(69-097A-03)	MORITZ									
PROTON TELESCOPE			11/08/69	TO 06/30/70	R	2.000E 06	TO 2.000E 07	EV	CD		52
IMP-I	(71-019A-07)	BOSTROM									
SOLAR PROTON MONITORING EXPERIMENT			03/14/71	TO 05/31/73	R	2.000E 06	TO 7.500E 06	EV	FGH		70
1963-038C	(63-038C-01)	BOSTROM									
ENERGETIC ELECTRON AND PROTON DETECTORS			09/28/63	TO 12/31/68	R	2.200E 06	TO 8.500E 06	EV	C		41
PIONEER 9	(68-100A-06)	WEBBER									
COSMIC-RAY TELESCOPE			11/08/68	TO 08/18/74	R	2.200E 06	TO 1.000E 07	EV	H		114
IMP-C	(65-042A-03)	SIMPSON									
COSMIC-RAY RANGE VS ENERGY LOSS			05/29/65	TO 05/02/67	R	2.600E 06	TO 1.330E 07	EV	H		55
OGO 3	(66-049A-01)	ANDERSON									
SOLAR COSMIC RAYS			06/24/66	TO 02/27/67	N	3.000E 06	TO 9.000E 07	EV	DEFGH		83
OGO 6	(69-051A-20)	STONE									
COSMIC-RAY STUDY			06/07/69	TO 05/28/70	R	3.000E 06	TO INFINITY	EV	C		96
PIONEER 8	(67-123A-05)	MCCRACKEN									
COSMIC-RAY ANISOTROPY			12/13/67	TO 12/31/70	R	3.300E 06	TO 6.700E 06	EV	H		110
PIONEER 9	(68-100A-05)	MCCRACKEN									
COSMIC-RAY ANISOTROPY			11/08/68	TO 09/25/70	R	3.300E 06	TO 6.700E 06	EV	H		113
INJUN 5	(68-066B-03)	VAN ALLEN									
SOLID-STATE PARTICLE DETECTOR			08/09/68	TO 05/29/70	R	3.440E 06	TO 2.490E 07	EV	C		74
PIONEER 8	(67-123A-06)	WEBBER									
COSMIC-RAY GRADIENT DETECTOR			12/13/67	TO 08/18/74	R	3.500E 06	TO 1.100E 07	EV	H		110
HEOS 1	(68-109A-06)	BAROUCH									
COSMIC-RAY PARTICLE FLUX			01/01/69	TO 12/24/72	P	3.800E 06	TO 2.300E 07	EV	H		53
IMP-F	(67-051A-09)	MCDONALD									
LOW-ENERGY PROTON AND ALPHA DETECTOR			05/25/67	TO 05/02/69	R	4.200E 06	TO 1.910E 07	EV	DEFGH		63
IMP-G	(69-053A-09)	MCDONALD									
LOW-ENERGY PROTON AND ALPHA DETECTOR			09/09/69	TO 11/29/72	R	4.200E 06	TO 1.910E 07	EV	DEFGH		68
PIONEER 8	(67-123A-05)	MCCRACKEN									
COSMIC-RAY ANISOTROPY			12/13/67	TO 12/31/70	P	4.500E 06	TO 4.000E 07	EV	H		110
PIONEER 9	(68-100A-05)	MCCRACKEN									
COSMIC-RAY ANISOTROPY			11/08/68	TO 09/25/70	P	4.500E 06	TO 4.000E 07	EV	H		113
ATS 1	(66-110A-03)	PAULIKAS									
OMNIDIRECTIONAL SPECTROMETER			12/17/66	TO 08/31/72	R	5.000E 06	TO 2.100E 07	EV	F		48
IMP-F	(67-051A-01)	BROWN									
LOW-ENERGY SOLID-STATE TELESCOPE			05/24/67	TO 05/03/69	R	5.000E 06	TO 1.900E 07	EV	DEFGH		62
OGO 5	(68-014A-27)	SIMPSON									
LOW-ENERGY HEAVY COSMIC-RAY PARTICLES			03/05/68	TO 07/14/72	R	5.000E 06	TO 1.500E 07	EV	DEFGH		93
IMP-G	(69-053A-01)	BROWN									
LOW-ENERGY SOLID-STATE TELESCOPE			06/21/69	TO 08/15/70	R	5.000E 06	TO 1.900E 07	EV	DEFGH		67
ATS 1	(66-110A-05)	BROWN									
PARTICLE TELESCOPE			12/09/66	TO 03/01/67	R	5.000E 06	TO 5.000E 07	EV	F		47
EPE-D	(64-086A-02)	MCILWAIN									
OMNIDIRECTIONAL AND UNIDIRECTIONAL ELECTRON AND PROTON FLUXES			12/21/64	TO 05/21/67	R	5.200E 06	TO INFINITY	EV	B DEF		51
IMP-F	(67-051A-03)	SIMPSON									
COSMIC-RAY PROTON (R VS DE/DX)			05/24/67	TO 05/02/69	R	6.000E 06	TO 6.000E 07	EV	GH		64
IMP-G	(69-053A-03)	SIMPSON									
COSMIC-RAY PROTON (R VS DE/DX)			06/21/69	TO 09/06/71	R	6.000E 06	TO 6.000E 07	EV	GH		69
IMP-I	(71-019A-09)	SIMPSON									
NUCLEAR COMPOSITION OF COSMIC AND SOLAR PARTICLE RADIATIONS			03/13/71	TO 05/01/72	R	7.000E 06	TO 2.000E 07	EV	GH		71
PIONEER 7	(66-075A-05)	MCCRACKEN									
COSMIC-RAY ANISOTROPY			08/17/66	TO 01/31/67	P	7.200E 06	TO INFINITY	EV	H		106
PIONEER 6	(65-105A-05)	MCCRACKEN									
COSMIC-RAY ANISOTROPY			12/16/65	TO 02/06/67	P	7.400E 06	TO INFINITY	EV	H		102
PIONEER 8	(67-123A-05)	MCCRACKEN									
COSMIC-RAY ANISOTROPY			12/13/67	TO 12/31/70	P	7.400E 06	TO 6.300E 07	EV	H		110
PIONEER 6	(65-105A-05)	MCCRACKEN									
COSMIC-RAY ANISOTROPY			12/16/65	TO 02/06/67	P	7.400E 06	TO 4.400E 07	EV	H		102
PIONEER 9	(68-100A-05)	MCCRACKEN									
COSMIC-RAY ANISOTROPY			11/08/68	TO 09/25/70	P	7.400E 06	TO 6.300E 07	EV	H		113
IMP-F	(67-051A-05)	MCCRACKEN									
COSMIC-RAY ANISOTROPY			05/24/67	TO 05/02/69	P	7.600E 06	TO 5.500E 07	EV	DEFGH		62
OGO 5	(68-014A-04)	ANDERSON									
ENERGETIC RADIATIONS FROM SOLAR FLARES			03/08/68	TO 11/17/69	U	8.000E 06	TO 3.000E 08	EV	GH		91
INJUN 5	(68-066B-03)	VAN ALLEN									
SOLID-STATE PARTICLE DETECTOR			08/09/68	TO 05/29/70	R	8.420E 06	TO 7.400E 07	EV	C		74
IMP-G	(69-053A-03)	SIMPSON									
COSMIC-RAY PROTON (R VS DE/DX)			06/21/69	TO 09/06/71	R	8.450E 06	TO 3.090E 07	EV	GH		69
1963-038C	(63-038C-01)	BOSTROM									
ENERGETIC ELECTRON AND PROTON DETECTORS			09/28/63	TO 12/31/68	R	8.500E 06	TO 2.500E 07	EV	C		41
OGO 1	(64-054A-18)	SIMPSON									
COSMIC-RAY SPECTRA AND FLUXES			09/06/64	TO 11/25/67	R	8.600E 06	TO 3.300E 07	EV	DEFGH		78
OGO 3	(66-049A-03)	SIMPSON									
COSMIC-RAY SPECTRA AND FLUXES			06/09/66	TO 12/01/69	R	8.600E 06	TO 3.300E 07	EV	DEFGH		84
OGO 2	(65-081A-07)	SIMPSON									
LOW-ENERGY PROTON, ALPHA PARTICLE MEASUREMENT			10/14/65	TO 12/13/66	R	9.300E 06	TO 3.920E 07	EV	C		82
OGO 4	(67-073A-08)	SIMPSON									
LOW-ENERGY PROTON, ALPHA PARTICLE MEASUREMENT			07/28/67	TO 02/02/69	R	9.300E 06	TO 3.920E 07	EV	C		90
IMP-F	(67-051A-03)	SIMPSON									
COSMIC-RAY PROTON (R VS DE/DX)			05/24/67	TO 05/02/69	R	9.600E 06	TO 2.950E 07	EV	GH		64
OGO 2	(65-081A-06)	ANDERSON									
COSMIC-RAY IONIZATION			10/14/65	TO 04/02/66	N	1.000E 07	TO INFINITY	EV	C		82
OGO 4	(67-073A-07)	ANDERSON									
COSMIC-RAY IONIZATION			07/30/67	TO 08/11/67	N	1.000E 07	TO INFINITY	EV	C		88
IMP-I	(71-019A-07)	BOSTROM									
SOLAR PROTON MONITORING EXPERIMENT			03/14/71	TO 05/31/73	P	1.000E 07	TO INFINITY	EV	FGH		70
OGO 1	(64-054A-12)	ANDERSON									
SOLAR COSMIC RAYS			09/30/65	TO 05/03/66	R	1.000E 07	TO 9.000E 07	EV	DEFGH		77
IMP-G	(69-053A-07)	BOSTROM									
SOLAR PROTON MONITORING EXPERIMENT			06/21/69	TO 12/23/72	P	1.000E 07	TO INFINITY	EV	GH		67
EPE-D	(64-086A-01)	BROWN									
SOLID-STATE ELECTRON DETECTOR			12/21/64	TO 05/15/67	P	1.000E 07	TO 2.700E 07	EV	B DE		50

SATELLITE NAME / DESCRIPTIVE EXPERIMENT TITLE	EXPERIMENT ID	EXPERIMENTER	LIMITING DATES OF DATA AT NSSDC: EARLIEST MM/DD/YY	LATEST MM/DD/YY	R S	RANGE OF E MIN VALUE	MAX VALUE	MEASUREMENTS (F OR E) (LAMBDA)	REGION MAX MIN ABCDEFGHI	PLANET 012345M 6789	PAGE
2.2 SENSING PROTONS OR HYDROGEN IONS											
IMP-F	(67-051A-07)	BOSTROM									
SOLAR PROTON MONITORING EXPERIMENT			05/24/67	TO 05/03/69	P	1.000E 07	TO INFINITY	EV	GH		61
PIONEER 9	(68-100A-06)	WEBBER									
COSMIC-RAY TELESCOPE			11/08/68	TO 08/18/74	R	1.000E 07	TO 4.200E 07	EV	H		114
GRS-A	(69-097A-02)	HOVESTADT									
PROTON-ALPHA TELESCOPE			11/16/69	TO 03/15/70	R	1.040E 07	TO 1.000E 08	EV	CD		52
IMP-I	(71-019A-09)	SIMPSON									
NUCLEAR COMPOSITION OF COSMIC AND SOLAR PARTICLE RADIATIONS			03/13/71	TO 05/01/72	R	1.100E 07	TO 6.700E 07	EV	GH		71
PIONEER 8	(67-123A-06)	WEBBER									
COSMIC-RAY GRADIENT DETECTOR			12/13/67	TO 08/18/74	R	1.100E 07	TO 6.400E 07	EV	H		110
IMP-D	(66-058A-04)	ANDERSON									
ION CHAMBER AND GM COUNTERS			07/01/66	TO 06/09/67	N	1.200E 07	TO INFINITY	EV	GH		57
IMP-F	(67-051A-02)	ANDERSON									
ION CHAMBER			05/24/67	TO 09/15/67	N	1.200E 07	TO INFINITY	EV	H		61
IMP-E	(67-070A-02)	ANDERSON									
ENERGETIC PARTICLE			07/19/67	TO 07/24/68	N	1.200E 07	TO INFINITY	EV	GH	M	59
ATS 2	(67-031A-05)	MCILWAIN									
OMNIDIRECTIONAL PROTON AND ELECTRON DETECTORS			04/07/67	TO 10/23/67	R	1.200E 07	TO INFINITY	EV	B DE		49
OGO 1	(64-054A-20)	WINCKLER									
IONIZATION CHAMBER			09/05/64	TO 12/06/67	N	1.200E 07	TO INFINITY	EV	B DEFG		78
OGO 3	(66-049A-23)	WINCKLER									
IONIZATION CHAMBER			06/08/66	TO 08/12/68	N	1.200E 07	TO INFINITY	EV	B DEFG		87
OSO 4	(67-100A-04)	WAGGONER									
PROTON ELECTRON DETECTOR			10/23/67	TO 12/30/67	R	1.200E 07	TO 3.700E 07	EV	B		97
PIONEER 7	(66-075A-06)	SIMPSON									
COSMIC-RAY TELESCOPE			08/17/66	TO 08/07/71	R	1.270E 07	TO 7.300E 07	EV	H		106
IMP-C	(65-042A-03)	SIMPSON									
COSMIC-RAY RANGE VS ENERGY LOSS			05/29/65	TO 05/02/67	R	1.330E 07	TO 2.600E 07	EV	H		55
PIONEER 6	(65-105A-03)	FAN									
COSMIC-RAY TELESCOPE			12/16/65	TO 03/03/72	R	1.390E 07	TO 7.320E 07	EV	H		101
OGO 5	(68-014A-06)	WEST, JR.									
ELECTRON AND PROTON SPECTROMETER			03/04/68	TO 11/06/71	R	1.400E 07	TO 4.600E 07	EV	DEFGH		95
EPE-D	(64-086A-01)	BROWN									
SOLID-STATE ELECTRON DETECTOR			12/21/64	TO 05/15/67	P	1.600E 07	TO INFINITY	EV	B DE		50
IMP-C	(65-042A-05)	ANDERSON									
ION CHAMBER AND GM COUNTERS			05/29/65	TO 01/03/67	N	1.700E 07	TO INFINITY	EV	H		54
IMP-F	(67-051A-10)	MCDONALD									
COSMIC-RAY ENERGY VS ENERGY LOSS			05/25/67	TO 05/02/69	R	1.870E 07	TO 8.160E 07	EV	DEFGH		63
IMP-G	(69-053A-10)	MCDONALD									
COSMIC-RAY ENERGY VS ENERGY LOSS			09/09/69	TO 11/29/72	R	1.870E 07	TO 8.160E 07	EV	DEFGH		68
GRS-A	(69-097A-04)	HOVESTADT									
PROTON-ELECTRON DETECTOR			11/16/69	TO 03/15/70	R	2.000E 07	TO 8.000E 07	EV	CD		52
ATS 2	(67-031A-05)	MCILWAIN									
OMNIDIRECTIONAL PROTON AND ELECTRON DETECTORS			04/07/67	TO 10/23/67	R	2.000E 07	TO INFINITY	EV	B DE		49
OGO 6	(69-051A-20)	STONE									
COSMIC-RAY STUDY			06/07/69	TO 05/25/70	R	2.000E 07	TO 2.000E 08	EV	C		96
ATS 1	(66-110A-03)	PAULIKAS									
OMNIDIRECTIONAL SPECTROMETER			12/17/66	TO 08/31/72	R	2.100E 07	TO 7.000E 07	EV	F		48
OGO 1	(64-054A-18)	SIMPSON									
COSMIC-RAY SPECTRA AND FLUXES			09/06/64	TO 11/25/67	R	2.200E 07	TO 1.030E 08	EV	DEFGH		78
HEOS 1	(68-109A-06)	BAROUCH									
COSMIC-RAY PARTICLE FLUX			01/01/69	TO 12/24/72	P	2.300E 07	TO 6.800E 07	EV	H		53
1963-038C	(63-038C-01)	BOSTROM									
ENERGETIC ELECTRON AND PROTON DETECTORS			09/28/63	TO 12/31/68	R	2.500E 07	TO 1.000E 08	EV	C		41
IMP-C	(65-042A-03)	SIMPSON									
COSMIC-RAY RANGE VS ENERGY LOSS			05/29/65	TO 05/02/67	R	2.600E 07	TO 9.400E 07	EV	H		55
INJUN 4	(64-076B-03)	VAN ALLEN									
GEIGER-MUELLER COUNTER			02/13/65	TO 07/19/66	R	2.700E 07	TO INFINITY	EV	BC		72
EPE-D	(64-086A-01)	BROWN									
SOLID-STATE ELECTRON DETECTOR			12/21/64	TO 05/15/67	P	2.700E 07	TO INFINITY	EV	B DE		50
IMP-F	(67-051A-03)	SIMPSON									
COSMIC-RAY PROTON (R VS DE/DX)			05/24/67	TO 05/02/69	R	2.950E 07	TO 9.420E 07	EV	GH		64
OGO 3	(66-049A-03)	SIMPSON									
COSMIC-RAY SPECTRA AND FLUXES			06/09/66	TO 12/01/69	R	3.000E 07	TO 1.000E 08	EV	DEFGH		84
IMP-G	(69-053A-07)	BOSTROM									
SOLAR PROTON MONITORING EXPERIMENT			06/21/69	TO 12/23/72	R	3.000E 07	TO INFINITY	EV	GH		67
OGO 3	(66-049A-01)	ANDERSON									
SOLAR COSMIC RAYS			06/24/66	TO 02/27/67	R	3.000E 07	TO 9.000E 07	EV	DEFGH		83
IMP-F	(67-051A-07)	BOSTROM									
SOLAR PROTON MONITORING EXPERIMENT			05/24/67	TO 05/03/69	R	3.000E 07	TO INFINITY	EV	GH		61
OGO 4	(67-073A-09)	WEBBER									
GALACTIC AND SOLAR COSMIC RAYS			07/30/67	TO 08/27/67	N	3.000E 07	TO INFINITY	EV	C		90
IMP-I	(71-019A-07)	BOSTROM									
SOLAR PROTON MONITORING EXPERIMENT			03/14/71	TO 05/31/73	P	3.000E 07	TO INFINITY	EV	FGH		70
IMP-G	(69-053A-03)	SIMPSON									
COSMIC-RAY PROTON (R VS DE/DX)			06/21/69	TO 09/06/71	R	3.090E 07	TO 1.190E 08	EV	GH		69
IMP-F	(67-051A-05)	MCCRACKEN									
COSMIC-RAY ANISOTROPY			05/24/67	TO 05/02/69	R	3.150E 07	TO 1.250E 08	EV	DEFGH		62
EPE-D	(64-086A-02)	MCILWAIN									
OMNIDIRECTIONAL AND UNIDIRECTIONAL ELECTRON AND PROTON FLUXES			12/21/64	TO 05/21/67	R	4.000E 07	TO 1.100E 08	EV	B DEF		51
GRS-A	(69-097A-04)	HOVESTADT									
PROTON-ELECTRON DETECTOR			11/16/69	TO 03/15/70	R	4.000E 07	TO 4.000E 08	EV	CD		52
ALOUETTE 2	(65-098A-04)	MCDIARMID									
ENERGETIC PARTICLE DETECTORS			11/29/65	TO 06/18/69	R	4.000E 07	TO INFINITY	EV	BC		42
PIONEER 9	(68-100A-06)	WEBBER									
COSMIC-RAY TELESCOPE			11/08/68	TO 08/18/74	R	4.200E 07	TO 3.200E 08	EV	H		114
PIONEER 6	(65-105A-05)	MCCRACKEN									
COSMIC-RAY ANISOTROPY			12/16/65	TO 02/06/67	P	4.400E 07	TO 7.700E 07	EV	H		102
PIONEER 7	(66-075A-05)	MCCRACKEN									
COSMIC-RAY ANISOTROPY			08/17/66	TO 01/31/67	P	4.700E 07	TO 6.500E 07	EV	H		106
OGO 4	(67-073A-09)	WEBBER									
GALACTIC AND SOLAR COSMIC RAYS			07/30/67	TO 08/27/67	P	5.000E 07	TO 2.000E 08	EV	C		90
ATS 1	(66-110A-05)	BROWN									
PARTICLE TELESCOPE			12/09/66	TO 03/01/67	R	5.000E 07	TO 1.000E 08	EV	F		47
IMP-F	(67-051A-07)	BOSTROM									
SOLAR PROTON MONITORING EXPERIMENT			05/24/67	TO 05/03/69	R	6.000E 07	TO INFINITY	EV	GH		61
IMP-G	(69-053A-07)	BOSTROM									
SOLAR PROTON MONITORING EXPERIMENT			06/21/69	TO 12/23/72	R	6.000E 07	TO INFINITY	EV	GH		67
IMP-I	(71-019A-07)	BOSTROM									
SOLAR PROTON MONITORING EXPERIMENT			03/14/71	TO 05/31/73	P	6.000E 07	TO INFINITY	EV	FGH		70
PIONEER 8	(67-123A-06)	WEBBER									
COSMIC-RAY GRADIENT DETECTOR			12/13/67	TO 08/18/74	R	6.400E 07	TO 1.100E 08	EV	H		110

ORIGINAL PAGE IS
OF POOR QUALITY

SATELLITE NAME / DESCRIPTIVE EXPERIMENT TITLE	EXPERIMENT ID	EXPERIMENTER	LIMITING DATES OF DATA AT NSSDC EARLIEST MM/DD/YY	LATEST MM/DD/YY	R E S	RANGE OF VALUE MIN MAX	VALUE (F OR E) (LAMBDA)	MEASUREMENTS MAX MIN	REGION ABCDEFGHI	PLANET 012345N 6789	PAGE
2.2 SENSING PROTONS OR HYDROGEN IONS											
PIONEER 7	(66-075A-05)	MCCRACKEN									
COSMIC-RAY ANISOTROPY			08/17/66	TO 01/31/67	P	6.500E 07	TO 8.100E 07	EV	H		106
IMP-I	(71-019A-09)	SIMPSON									
NUCLEAR COMPOSITION OF COSMIC AND SOLAR PARTICLE RADIATIONS			03/13/71	TO 05/01/72	R	6.700E 07	TO 2.000E 08	EV	GH		71
HEOS 1	(68-109A-06)	BAROUCH									
COSMIC-RAY PARTICLE FLUX			01/01/69	TO 12/24/72	P	6.800E 07	TO 2.200E 08	EV	H		53
INJUN 4	(64-076B-03)	VAN ALLEN									
GEIGER-MUELLER COUNTER			02/13/65	TO 07/19/66	R	7.000E 07	TO INFINITY	EV BC			72
PIONEER 7	(66-075A-06)	SIMPSON									
COSMIC-RAY TELESCOPE			08/17/66	TO 08/07/71	R	7.300E 07	TO 1.600E 08	EV	H		106
PIONEER 6	(65-105A-03)	FAN									
COSMIC-RAY TELESCOPE			12/16/65	TO 03/03/72	R	7.320E 07	TO 1.750E 08	EV	H		101
OGO 5	(68-014A-04)	ANDERSON									
ENERGETIC RADIATIONS FROM SOLAR FLARES			03/08/68	TO 11/17/69	U	8.000E 07	TO 3.000E 08	EV	GH		91
OGO 5	(68-014A-09)	MEYER									
COSMIC-RAY ELECTRONS			03/05/68	TO 07/14/72	R	9.000E 07	TO 1.800E 08	EV	GH		93
IMP-C	(65-042A-03)	SIMPSON									
COSMIC-RAY RANGE VS ENERGY LOSS			05/29/65	TO 05/02/67	R	9.400E 07	TO 1.900E 08	EV	H		55
ALOUETTE 2	(65-098A-04)	MCDIARMID									
ENERGETIC PARTICLE DETECTORS			11/29/65	TO 06/18/69	R	1.000E 08	TO INFINITY	EV BC			42
IMP-G	(69-053A-03)	SIMPSON									
COSMIC-RAY PROTON (R VS DE/DX)			06/21/69	TO 09/06/71	R	1.190E 08	TO 1.000E 09	EV	GH		69
PIONEER 7	(66-075A-06)	SIMPSON									
COSMIC-RAY TELESCOPE			08/17/66	TO 08/07/71	R	1.650E 08	TO INFINITY	EV	H		106
IMP-F	(67-051A-03)	SIMPSON									
COSMIC-RAY PROTON (R VS DE/DX)			05/24/67	TO 05/02/69	R	1.700E 08	TO INFINITY	EV	GH		64
PIONEER 6	(65-105A-03)	FAN									
COSMIC-RAY TELESCOPE			12/16/65	TO 03/03/72	R	1.750E 08	TO INFINITY	EV	H		101
OGO 5	(68-014A-09)	MEYER									
COSMIC-RAY ELECTRONS			03/05/68	TO 07/14/72	R	1.800E 08	TO 1.800E 09	EV	GH		93
OGO 4	(67-073A-09)	WEBBER									
GALACTIC AND SOLAR COSMIC RAYS			07/30/67	TO 08/27/67	R	2.000E 08	TO 2.000E 09	EV C			90
HEOS 1	(68-109A-06)	BAROUCH									
COSMIC-RAY PARTICLE FLUX			01/01/69	TO 12/24/72	P	2.200E 08	TO 1.200E 09	EV	H		53
PIONEER 8	(67-123A-06)	WEBBER									
COSMIC-RAY GRADIENT DETECTOR			12/13/67	TO 08/18/74	R	2.400E 08	TO 2.200E 09	EV	H		110
PIONEER 9	(68-100A-06)	WEBBER									
COSMIC-RAY TELESCOPE			11/08/68	TO 08/18/74	R	3.200E 08	TO 2.200E 09	EV	H		114
GRS-A	(69-097A-04)	HOVESTADT									
PROTON-ELECTRON DETECTOR			11/16/69	TO 03/15/70	R	4.000E 08	TO 4.500E 08	EV CD			52
OGO 5	(68-014A-12)	VAN DE HULST									
MEASUREMENT OF THE ABSOLUTE FLUX AND ENERGY SPECTRUM OF ELECTRONS			03/05/68	TO 08/31/71	R	2.000E 10	TO 1.000E 11	EV DEFGH			95
2.3 SENSING HELIUM NUCLEI											
PIONEER 10	(72-012A-13)	WOLFE									
PLASMA EXPERIMENT			04/18/72	TO 12/12/73	P	1.000E 02	TO 1.800E 04	EV	H	5	115
IMP-F	(67-051A-08)	OGILVIE									
ELECTROSTATIC ANALYZER			05/24/67	TO 01/30/68	R	3.100E 02	TO 5.100E 03	EV	H		63
IMP-H	(72-073A-03)	GLOECKLER									
IONS AND ELECTRONS IN THE ENERGY RANGE 0.1 TO 2 MEV			09/25/72	TO 04/13/73	R	9.000E 04	TO 5.000E 05	EV	GH		70
OGO 6	(69-051A-20)	STONE									
COSMIC-RAY STUDY			06/07/69	TO 05/25/70	R	2.000E 05	TO 3.000E 08	EV C			96
INJUN 5	(68-066B-03)	VAN ALLEN									
SOLID-STATE PARTICLE DETECTOR			08/09/68	TO 05/29/70	R	3.000E 05	TO 2.000E 06	EV C			74
INJUN 4	(64-076B-04)	VAN ALLEN									
SOLID-STATE DETECTOR			11/23/64	TO 07/19/66	R	5.200E 05	TO 4.000E 06	EV BC			72
IMP-D	(66-058A-05)	VAN ALLEN									
ELECTRON AND PROTON DETECTORS			07/01/66	TO 12/31/68	P	5.900E 05	TO 2.250E 08	EV	H		58
PIONEER 7	(66-075A-06)	SIMPSON									
COSMIC-RAY TELESCOPE			08/17/66	TO 08/07/71	R	6.000E 05	TO 1.300E 07	EV	H		106
PIONEER 6	(65-105A-03)	FAN									
COSMIC-RAY TELESCOPE			12/16/65	TO 03/03/72	R	6.000E 05	TO 1.390E 07	EV	H		101
OGO 2	(65-081A-07)	SIMPSON									
LOW-ENERGY PROTON, ALPHA PARTICLE MEASUREMENT			10/14/65	TO 12/13/66	N	7.200E 05	TO 1.100E 07	EV C			82
OGO 4	(67-073A-08)	SIMPSON									
LOW-ENERGY PROTON, ALPHA PARTICLE MEASUREMENT			07/28/67	TO 02/02/69	N	7.200E 05	TO 1.100E 07	EV C			90
IMP-D	(66-058A-05)	VAN ALLEN									
ELECTRON AND PROTON DETECTORS			07/01/66	TO 12/31/68	P	7.800E 05	TO 9.800E 07	EV	H		58
INJUN 4	(64-076B-04)	VAN ALLEN									
SOLID-STATE DETECTOR			11/23/64	TO 07/19/66	R	9.000E 05	TO 1.800E 06	EV BC			72
IMP-F	(67-051A-01)	BROWN									
LOW-ENERGY SOLID-STATE TELESCOPE			05/24/67	TO 05/03/69	R	1.000E 06	TO 6.000E 06	EV DEFGH			62
IMP-G	(69-053A-01)	BROWN									
LOW-ENERGY SOLID-STATE TELESCOPE			06/21/69	TO 08/15/70	R	1.000E 06	TO 4.400E 06	EV DEFGH			67
IMP-F	(67-051A-07)	BOSTROM									
SOLAR PROTON MONITORING EXPERIMENT			05/24/67	TO 05/03/69	R	1.000E 06	TO 1.000E 07	EV GH			61
IMP-G	(69-053A-07)	BOSTROM									
SOLAR PROTON MONITORING EXPERIMENT			06/21/69	TO 12/23/72	R	1.000E 06	TO 1.000E 07	EV GH			67
IMP-D	(66-058A-05)	VAN ALLEN									
ELECTRON AND PROTON DETECTORS			07/01/66	TO 12/31/68	P	1.130E 06	TO 4.600E 07	EV H			58
OGO 2	(65-081A-07)	SIMPSON									
LOW-ENERGY PROTON, ALPHA PARTICLE MEASUREMENT			10/14/65	TO 12/13/66	R	1.220E 06	TO 9.300E 06	EV C			82
OGO 4	(67-073A-08)	SIMPSON									
LOW-ENERGY PROTON, ALPHA PARTICLE MEASUREMENT			07/28/67	TO 02/02/69	R	1.220E 06	TO 9.300E 06	EV C			90
OGO 1	(64-054A-18)	SIMPSON									
COSMIC-RAY SPECTRA AND FLUXES			09/06/64	TO 11/25/67	R	1.400E 06	TO 8.600E 06	EV DEFGH			78
OGO 5	(68-014A-06)	WEST, JR.									
ELECTRON AND PROTON SPECTROMETER			03/04/68	TO 11/06/71	R	1.500E 06	TO 5.400E 06	EV FGH			95

SATELLITE NAME / DESCRIPTIVE EXPERIMENT TITLE	EXPERIMENT ID	EXPERIMENTER	LIMITING DATES OF DATA AT NSSDC: EARLIEST MM/DD/YY	LATEST MM/DD/YY	R/S	RANGE OF VALUE: MIN	TO MAX	OF VALUE	MEASUREMENTS (F OR E) (LAMBDA)	REGION MIN	REGION ABCDEFGHI	PLANET 012345 6789	PAGE
2.3 SENSING HELIUM NUCLEI													
GRS-A	(69-097A-02)	HOVESTADT											
PROTON-ALPHA TELESCOPE			11/16/69	TO 03/15/70	R	1.600E 06	TO	5.000E 07	EV	CD			52
OGO 3	(66-049A-03)	SIMPSON											
COSMIC-RAY SPECTRA AND FLUXES			06/09/66	TO 12/01/69	R	1.600E 06	TO	8.600E 06	EV	DEFGH			84
IMP-E	(67-070A-01)	VAN ALLEN											
ELECTRON AND PROTON DETECTORS			07/19/67	TO 12/31/68	R	2.000E 06	TO	1.020E 07	EV	H			60
IMP-I	(71-019A-07)	BOSTROM											
SOLAR PROTON MONITORING EXPERIMENT			03/14/71	TO 05/31/73	R	2.000E 06	TO	5.000E 06	EV	FGH			70
OGO 5	(68-014A-27)	SIMPSON											
LOW-ENERGY HEAVY COSMIC-RAY PARTICLES			03/05/68	TO 07/14/72	R	2.000E 06	TO	1.400E 07	EV	DEFGH			93
IMP-D	(66-058A-05)	VAN ALLEN											
ELECTRON AND PROTON DETECTORS			07/01/66	TO 12/31/68	P	2.100E 06	TO	1.700E 07	EV	H			58
ATS 1	(66-110A-05)	BROWN											
PARTICLE TELESCOPE			12/09/66	TO 03/01/67	R	2.400E 06	TO	2.500E 07	EV	F			47
OGO 6	(69-051A-20)	STONE											
COSMIC-RAY STUDY			06/07/69	TO 05/25/70	R	3.000E 06	TO	INFINITY	EV	C			96
PIONEER 8	(67-123A-05)	MCCRACKEN											
COSMIC-RAY ANISOTROPY			12/13/67	TO 12/31/70	R	4.000E 06	TO	8.000E 06	EV	H			110
PIONEER 9	(68-100A-05)	MCCRACKEN											
COSMIC-RAY ANISOTROPY			11/08/68	TO 09/25/70	R	4.000E 06	TO	8.000E 06	EV	H			113
IMP-F	(67-051A-09)	MCDONALD											
LOW-ENERGY PROTON AND ALPHA DETECTOR			05/25/67	TO 05/02/69	R	4.200E 06	TO	1.910E 07	EV	DEFGH			63
IMP-G	(69-053A-09)	MCDONALD											
LOW-ENERGY PROTON AND ALPHA DETECTOR			09/09/69	TO 11/29/72	R	4.200E 06	TO	1.910E 07	EV	DEFGH			68
IMP-G	(69-053A-01)	BROWN											
LOW-ENERGY SOLID-STATE TELESCOPE			06/21/69	TO 08/15/70	R	4.400E 06	TO	1.100E 07	EV	DEFGH			67
ALOUETTE 2	(65-098A-04)	MCDIARMID											
ENERGETIC PARTICLE DETECTORS			11/29/65	TO 06/18/69	R	5.000E 06	TO	2.400E 07	EV	BC			42
PIONEER 9	(68-100A-06)	WEBBER											
COSMIC-RAY TELESCOPE			11/08/68	TO 08/18/74	R	5.800E 06	TO	4.200E 07	EV	H			114
IMP-F	(67-051A-01)	BROWN											
LOW-ENERGY SOLID-STATE TELESCOPE			05/24/67	TO 05/03/69	R	6.000E 06	TO	1.200E 07	EV	DEFGH			62
PIONEER 8	(67-123A-06)	WEBBER											
COSMIC-RAY GRADIENT DETECTOR			12/13/67	TO 08/18/74	R	6.600E 06	TO	6.400E 07	EV	H			110
OGO 1	(64-054A-18)	SIMPSON											
COSMIC-RAY SPECTRA AND FLUXES			09/06/64	TO 11/25/67	R	8.600E 06	TO	3.300E 07	EV	DEFGH			78
OGO 3	(66-049A-03)	SIMPSON											
COSMIC-RAY SPECTRA AND FLUXES			06/09/66	TO 12/01/69	R	8.600E 06	TO	3.300E 07	EV	DEFGH			84
OGO 2	(65-081A-07)	SIMPSON											
LOW-ENERGY PROTON, ALPHA PARTICLE MEASUREMENT			10/14/65	TO 12/13/66	R	9.300E 06	TO	3.920E 07	EV	C			82
OGO 4	(67-073A-08)	SIMPSON											
LOW-ENERGY PROTON, ALPHA PARTICLE MEASUREMENT			07/28/67	TO 02/02/69	R	9.300E 06	TO	3.920E 07	EV	C			90
IMP-F	(67-051A-03)	SIMPSON											
COSMIC-RAY PROTON (R VS DE/DX)			05/24/67	TO 05/02/69	R	1.000E 07	TO	1.000E 08	EV	GH			64
IMP-G	(69-053A-03)	SIMPSON											
COSMIC-RAY PROTON (R VS DE/DX)			06/21/69	TO 09/06/71	R	1.000E 07	TO	1.000E 08	EV	GH			69
IMP-G	(69-053A-01)	BROWN											
LOW-ENERGY SOLID-STATE TELESCOPE			06/21/69	TO 08/15/70	R	1.100E 07	TO	2.100E 07	EV	DEFGH			67
PIONEER 7	(66-075A-06)	SIMPSON											
COSMIC-RAY TELESCOPE			08/17/66	TO 08/07/71	R	1.300E 07	TO	7.000E 07	EV	H			106
PIONEER 6	(65-105A-03)	FAN											
COSMIC-RAY TELESCOPE			12/16/65	TO 03/03/72	R	1.390E 07	TO	7.320E 07	EV	H			101
IMP-F	(67-051A-10)	MCDONALD											
COSMIC-RAY ENERGY VS ENERGY LOSS			05/25/67	TO 05/02/69	R	1.870E 07	TO	8.160E 07	EV	DEFGH			63
ATS 1	(66-110A-05)	BROWN											
PARTICLE TELESCOPE			12/09/66	TO 03/01/67	R	2.500E 07	TO	1.000E 08	EV	F			47
PIONEER 6	(65-105A-05)	MCCRACKEN											
COSMIC-RAY ANISOTROPY			12/16/65	TO 02/06/67	P	3.100E 07	TO	7.600E 07	EV	H			102
IMP-I	(71-019A-09)	SIMPSON											
NUCLEAR COMPOSITION OF COSMIC AND SOLAR PARTICLE RADIATIONS			03/13/71	TO 05/01/72	R	7.000E 07	TO	2.000E 08	EV	GH			71
PIONEER 7	(66-075A-06)	SIMPSON											
COSMIC-RAY TELESCOPE			08/17/66	TO 08/07/71	R	7.000E 07	TO	1.780E 08	EV	H			106
PIONEER 6	(65-105A-03)	FAN											
COSMIC-RAY TELESCOPE			12/16/65	TO 03/03/72	R	7.320E 07	TO	INFINITY	EV	H			101
ATS 1	(66-110A-05)	BROWN											
PARTICLE TELESCOPE			12/09/66	TO 03/01/67	R	1.000E 08	TO	4.000E 08	EV	F			47
OGO 6	(69-051A-20)	STONE											
COSMIC-RAY STUDY			06/07/69	TO 05/25/70	N	3.000E 08	TO	INFINITY	EV	C			96
2.4 SENSING OTHER PARTICLE SPECIES													
OGO 5	(68-014A-18)	SHARP											
LIGHT ION MASS MAGNETIC SPECTROMETER			03/07/68	TO 05/31/69	R	1.000E-02	TO	1.000E 01	EV	DEF			93
APOLLO 12 LM/ALSEP	(69-099C-05)	FREEMAN											
SUPRATHERMAL ION DETECTOR			09/14/71	TO 02/03/73	R	2.000E-01	TO	4.860E 01	EV	GH			42
APOLLO 14 LM/ALSEP	(71-008C-06)	FREEMAN											
SUPRATHERMAL ION DETECTOR			08/26/72	TO 03/03/73	P	2.000E-01	TO	4.860E 01	EV	GH			44
APOLLO 12 LM/ALSEP	(69-099C-05)	FREEMAN											
SUPRATHERMAL ION DETECTOR			09/14/71	TO 02/03/73	P	1.000E 01	TO	3.500E 03	EV	GH			42
VELA 5A	(69-046D-05)	BAME											
SOLAR WIND EXPERIMENT			09/14/69	TO 04/11/72	P	1.000E 03	TO	8.300E 03	EV	GH			117
IMP-H	(72-073A-03)	GLOECKLER											
IONS AND ELECTRONS IN THE ENERGY RANGE 0.1 TO 2 MEV			09/25/72	TO 04/13/73	P	5.000E 04	TO	1.000E 06	EV	GH			70
IMP-E	(67-070A-01)	VAN ALLEN											
ELECTRON AND PROTON DETECTORS			07/19/67	TO 12/31/68	N	4.600E 05	TO	1.080E 07	EV	H			60
OGO 5	(68-014A-27)	SIMPSON											
LOW-ENERGY HEAVY COSMIC-RAY PARTICLES			03/05/68	TO 07/14/72	R	5.000E 05	TO	5.000E 06	EV	DEFGH			93
IMP-C	(65-042A-03)	SIMPSON											
COSMIC-RAY RANGE VS ENERGY LOSS			05/29/65	TO 05/02/67	R	2.600E 06	TO	1.330E 07	EV	H			55
IMP-G	(69-053A-03)	SIMPSON											
COSMIC-RAY PROTON (R VS DE/DX)			06/21/69	TO 09/06/71	R	3.000E 06	TO	3.000E 07	EV	GH			69
OGO 5	(68-014A-27)	SIMPSON											
LOW-ENERGY HEAVY COSMIC-RAY PARTICLES			03/05/68	TO 07/14/72	R	5.000E 06	TO	5.000E 07	EV	DEFGH			93

ORIGINAL PAGE IS OF POOR QUALITY

SATELLITE NAME / DESCRIPTIVE EXPERIMENT TITLE	EXPERIMENT ID	EXPERIMENTER	LIMITING DATES OF DATA AT NSSDC EARLIEST MM/DD/YY	LATEST MM/DD/YY	R E S	RANGE OF VALUE MIN MAX	VALUE (F OR E) (LAMBDA)	MEASUREMENTS MAX MIN	REGION ABCDEFGHI	PLANET 012345M 6789	PAGE
2.4 SENSING OTHER PARTICLE SPECIES											
IMP-I	(71-019A-09)	SIMPSON									
NUCLEAR COMPOSITION OF COSMIC AND SOLAR PARTICLE RADIATIONS			03/13/71	TO 05/01/72	R	1.000E 07	TO 1.000E 08	EV	GH		71
IMP-F	(67-051A-03)	SIMPSON									
COSMIC-RAY PROTON (R VS DE/DX)			05/24/67	TO 05/02/69	R	1.000E 07	TO 1.000E 08	EV	GH		64
IMP-C	(65-042A-03)	SIMPSON									
COSMIC-RAY RANGE VS ENERGY LOSS			05/29/65	TO 05/02/67	R	1.330E 07	TO 2.600E 07	EV	H		55
OGO 1	(64-054A-18)	SIMPSON									
COSMIC-RAY SPECTRA AND FLUXES			09/06/64	TO 11/25/67	R	2.200E 07	TO 1.030E 08	EV	DEFGH		78
IMP-C	(65-042A-03)	SIMPSON									
COSMIC-RAY RANGE VS ENERGY LOSS			05/29/65	TO 05/02/67	R	2.600E 07	TO 9.400E 07	EV	H		55
OGO 3	(66-049A-03)	SIMPSON									
COSMIC-RAY SPECTRA AND FLUXES			06/09/66	TO 12/01/69	R	3.000E 07	TO 1.000E 08	EV	DEFGH		84
IMP-G	(69-053A-03)	SIMPSON									
COSMIC-RAY PROTON (R VS DE/DX)			06/21/69	TO 09/06/71	R	3.000E 07	TO 1.000E 09	EV	GH		69
PIONEER 9	(68-100A-06)	WEBBER									
COSMIC-RAY TELESCOPE			11/08/68	TO 08/18/74	R	4.200E 07	TO 3.200E 08	EV	H		114
OGO 5	(68-014A-27)	SIMPSON									
LOW-ENERGY HEAVY COSMIC-RAY PARTICLES			03/05/68	TO 07/14/72	R	5.000E 07	TO 8.400E 07	EV	DEFGH		93
PIONEER 8	(67-123A-06)	WEBBER									
COSMIC-RAY GRADIENT DETECTOR			12/13/67	TO 08/18/74	R	6.300E 07	TO 1.700E 08	EV	H		110
IMP-C	(65-042A-03)	SIMPSON									
COSMIC-RAY RANGE VS ENERGY LOSS			05/29/65	TO 05/02/67	R	9.400E 07	TO 1.900E 08	EV	H		55
PIONEER 8	(67-123A-06)	WEBBER									
COSMIC-RAY GRADIENT DETECTOR			12/13/67	TO 08/18/74	R	1.700E 08	TO 1.600E 09	EV	H		110
PIONEER 9	(68-100A-06)	WEBBER									
COSMIC-RAY TELESCOPE			11/08/68	TO 08/18/74	R	3.200E 08	TO 2.200E 09	EV	H		114
OGO 6	(69-051A-20)	STONE									
COSMIC-RAY STUDY			06/07/69	TO 05/25/70	R	4.000E 08	TO INFINITY	EV	C		96

Supporting Data Descriptions

5. SUPPORTING DATA DESCRIPTIONS

This section of the catalog contains descriptions of space environment models and codes that are distributed by NSSDC. These are discussed under three major headings: Geomagnetism, Magnetopause and Bow Shock Positions, and Magnetospherically Trapped Particles.

5.1 GEOMAGNETISM

5.1.1 GEOMAGNETIC FIELD MODELS

Except where noted, the following models consist of coefficients (derived allowing for the oblateness of the Earth) and the first time derivatives of these coefficients.

5.1.1.1 Jensen-Cain — This data set is a card deck that contains the coefficients associated with the Schmidt-normalized Legendre polynomials in the potential expansion for the Jensen-Cain geomagnetic field model. The coefficients are for epoch 1960.0 and based on data gathered between 1945 and 1962. There are 48 nonzero coefficients extending up to n = m = 6. No time derivatives of the coefficients are included. The oblateness of the Earth has not been considered in the determination of the coefficients. The accuracy of this model is poor compared to that of other more recent models, and its use is not recommended where accuracy is important. A discussion of this field model can be found in *J. Geophys. Res., 67,* 3586, 1962.

5.1.1.2 GSFC (9/65) — This data set is a card deck that contains the coefficients associated with the Schmidt-normalized Legendre polynomials in the potential expansion for the GSFC (9/65) geomagnetic field model. The coefficients are for epoch 1960.0 and based on data gathered between 1945 and 1964. There are 99 nonzero coefficents extending up to n = m = 9. A discussion of this field model can be found in *J. Geophys. Res., 71,* 346, 1966.

5.1.1.3 GSFC (12/66) — This data set is a card deck that contains the coefficients associated with the Schmidt-normalized Legendre polynomials in the potential expansion for the GSFC (12/66) geomagnetic field model. The coefficients are for epoch 1960.0 and based on data gathered between 1900 and 1966. There are 120 nonzero coefficients extending up to n = m = 10. First and second time derivatives of the coefficients are included. A discussion of this field model can be found in *J. Geomag. Geoelec., 19,* 335, 1967.

5.1.1.4 IGRF 1965.0 (geographic) — This data set is a card deck that contains the coefficients associated with the Schmidt-normalized Legendre polynomials in the potential expansion for the IGRF (International Geomagnetic Reference Field) model. The coefficients are for epoch 1965.0. There are 80 nonzero coefficients extending up to n = m = 8. A discussion of this field model can be found in *J. Geophys. Res., 74,* 4407, 1969.

5.1.1.5 IGRF 1965.0 (geomagnetic) — This data set is a card deck that contains the coefficients associated with the Schmidt-normalized Legendre polynomials in the potential expansion (in geomagnetic dipole coordinates) for the IGRF model. The coefficients are for epoch 1965.0. There are 80 nonzero coefficients extending up to n = m = 8. A discussion of this field model can be found in *J. Geophys. Res., 75,* 4372, 1970.

5.1.1.6 POGO (3/68) — This data set is a card deck that contains the coefficients associated with the Schmidt-normalized Legendre polynomials in the potential expansion for the POGO (3/68) geomagnetic field model. The coefficients are for epoch 1960.0 and based on POGO satellite data. There are 99 nonzero coefficients extending up to n = m = 9.

5.1.1.7 POGO (10/68) — This data set is a card deck that contains the coefficients associated with the Schmidt-normalized Legendre polynomials in the potential expansion for the POGO (10/68) geomagnetic field model. The coefficients are for epoch 1960.0 and based on POGO satellite data. There are 143 nonzero coefficients extending up to n = m = 11.

5.1.1.8 POGO (8/69) — This data set is a card deck that contains the coefficients associated with the Schmidt-normalized Legendre polynomials in the potential expansion for the POGO (8/69) geomagnetic field model. The coefficients are for epoch 1960.0 and based on POGO satellite data gathered between 1965.7 and 1968.4. There are 120 nonzero coefficients extending up to n = m = 10. A discussion of this field model can be found in *J. Geophys. Res., 75,* 4360, 1970.

5.1.1.9 POGO (8/71) — This data set is a card deck that contains the coefficients associated with the Schmidt-normalized Legendre polynomials in the potential expansion for the POGO (8/71) geomagnetic field model. The coefficients are for epoch 1960.0 and based

on POGO satellite data collected during the period December 1965 to March 1970. Data were selected to include only periods with $Kp \leqslant 1$ and when no disturbances were present. There are 120 nonzero coefficients extending up to $n = m = 10$. A discussion of this model can be found in *J. Geophys. Res., 79,* 2363, 1974.

5.1.2 GEOMAGNETIC FIELD COMPUTATIONAL CODES

5.1.2.1 FIELDG – The FIELDG package, generated principally by Dr. J. C. Cain of GSFC, consists of a set of independently usable subroutines to compute the geomagnetic field vector at any specified spatial point, given any of several available spherical harmonic expansions of the Earth's internal-source field. Subroutine FIELDG initializes constants, reads coefficients, and executes transformations between input and output geodetic coordinates and internally used geocentric coordinates. The number of coefficients used in the computation is an input parameter to FIELD. Subroutine FIELD, which may be called FIELDG, computes the geomagnetic field vector (in geocentric spherical polar components that are transformed to local geodetic Cartesian components by FIELDG) and its magnitude for a specified spatial point and time. There are two versions of FIELD: one executes faster, and the other requires less storage. Subroutine CONVRT can be used to convert Gauss-normalized coefficients to Schmidt-normalized coefficients, the former being used internally for computations. Coefficient card decks for the GSFC (12/66), IGRF 1965.0, and POGO (8/69) geomagnetic field models are sent with the FIELDG package to requesters; the full package consists of 542 cards. The subroutines in the FIELDG package are written in FORTRAN IV and available in IBM 7094 and 360 compatible card decks.

5.1.2.2 IGRF/SPHRC – The IGRF/SPHRC subroutine package, generated principally by Dr. J. C. Cain of GSFC, provides the capability of evaluating the IGRF 1965.0 geomagnetic field with a high degree of efficiency. Subroutine IGRF initializes coefficients and executes transformations between input and output geodetic coordinates and internally used geocentric coordinates. The number of coefficients used can be varied, if needed, to speed up calculations. The field is calculated in SPHRC, called by IGRF, in geocentric coordinates. The subroutines in the IGRF/SPHRC package are written in FORTRAN IV and available in IBM 360 compatible card decks.

5.1.2.3 TSFORM AND DIPFLD – TSFORM and DIPFLD subroutines, generated by Dr. G. D. Mead of GSFC, can be used to meet the requirements of those investigators performing studies in which the use of geomagnetic dipole coordinates is convenient. Subroutine TSFORM effects transformations between geographic and geomagnetic dipole coordinates for either positions or vector components. Subroutine DIPFLD computes the vector magnetic field at any spatial point, specified in geomagnetic dipole coordinates, using coefficients for the IGRF 1965.0 geomagnetic field model appropriate to those coordinates (see *J. Geophys. Res., 75,* 4372, 1970). NSSDC has a deck of these coefficients. Used as a package, these subroutines accept an input position given in geographic or geomagnetic coordinates and return vector magnetic field components in geographic or geomagnetic coordinates. NSSDC has a FORTRAN IV, IBM 7094 code deck available for distribution.

5.1.2.4 MDTILT – The MDTILT FORTRAN package, generated by Dr. W. P. Olson of McDonnell-Douglas Corporation, can be used to compute (in solar magnetospheric coordinates) magnetospheric vector magnetic fields separately resulting from magnetopause and magnetotail current systems. The analysis allows for variable incident solar wind pressure and an arbitrary tilt angle of the geomagnetic dipole axis with respect to the incident solar wind. Legendre polynomial expansions are used, with the two coefficients (one for each source current system) for a given n and m expanded as separate power series in the arbitrary tilt angle. The analysis is recommended for geocentric distances out to about 7 Earth radii. The MDTILT package consists of a brief main routine and a series of subroutines in which the actual computations are done. Although the package was initially generated to run on a CDC 6600, it is readily adaptable to other machines because of the use of basic FORTRAN.

5.1.2.5 INVAR – The INVAR package, generated by Prof. C. E. McIlwain of the University of California at San Diego, can be used to compute values of B and L at any desired spatial point (specified in geocentric spherical polar coordinates) with a specified accuracy to some limit. Any one of several spherical harmonic expansions of the Earth's internal-source geomagnetic field can be used. Subroutine INVAR controls the overall execution of the program. Subroutine NEWMAG (replacing the earlier subroutine MAGNET) computes the magnetic field vector at a specified spatial point. This subroutine is called extensively by subroutines START and LINES. For a specified spatial point, subroutine START finds two additional spatial points on the same field line, and subroutine LINES finds additional points on that field line. These points extend essentially from the point of interest to its conjugate point. The input accuracy parameter controls the number of points (up to a maximum of 200). Sub-

routine INTEG determines the value of the integral invariant, I, for the specified point of interest by numerically integrating at the points chosen by START and LINES. Finally, subroutine CARMEL computes the shell parameter, L, from the integral invariant, I, and from B. NSSDC has available for distribution FORTRAN IV, IBM 7094 and 360 compatible code decks for this package. Using an IBM 7094, computation time for one value of L is several hundred milliseconds. For a discussion of B and L, see *J. Geophys. Res., 66,* 3681, 1961.

5.1.2.6 ALLMAG — The ALLMAG package, generated by Mr. E. G. Stassinopoulos of NSSDC and Dr. G. D. Mead of GSFC, condenses seven selected internal-source geomagnetic field models into one operational assembly, thus permitting successive selection of models and/or time periods during execution of a single program. Spatial points of interest may be input and output in geocentric or geodetic coordinates; field components may be output in geocentric or local geodetic Cartesian components. There are two versions of the field computation routine ALLMAG: one executes three times faster than the other. The package also includes a subroutine, LINTRA, for field-line tracing and calculation of conjugate intersect. A modified version of McIlwain's INVAR routine, called INVARA, is also available for computing the shell parameter, L. ALLMAG is available in packages compatible with octal and hexadecimal machines. These FORTRAN IV programs have been successfully executed on UNIVAC 1108, CDC 6600, and IBM 360 machines. Alternate programs ONEMAG and DEKMAG are available for users who require a program using less computer core.

5.1.2.7 SHELL — SHELL is a FORTRAN package generated principally by Dr. G. Kluge of ESRO/ESOC. The package accepts as input the geocentric Cartesian coordinates or geodetic spherical polar coordinates of a spatial point of interest. It also accepts the coefficients (derived allowing for the Earth's oblateness) for any one of several internal-source geomagnetic field models. The magnetic field vector (in geocentric Cartesian components from subroutine FELDC or in geodetic local Cartesian components from subroutine FELDG), the field magnitude, B, and the shell parameter, L, (from subroutine SHELLC or subroutine SHELLG, where the two differ in input coordinates) can be computed. The SHELL package differs from McIlwain's INVAR package in that internal computations are executed in a coordinate system in which two of the independent variables are constants along dipole field lines. The very limited variation in field magnitude along slightly nondipolar, transformed field lines leads to a very limited number of calls from SHELLC or SHELLG to the field code in the computation of the integral invariant, I (from which L can be obtained using McIlwain's CARMEL subroutine). On an IBM 360/75, using an H-level compiler with OPT = 2, a call to SHELLG typically requires 46 milliseconds while a call to INVAR typically requires 70 milliseconds. IBM 7094 and 360 compatible FORTRAN card decks for the SHELL package are available from NSSDC.

5.1.2.8 INTEL — INTEL is a FORTRAN package generated principally by Dr. G. Kluge of ESRO/ESOC. The package requires an input of geocentric Cartesian coordinates or geodetic spherical polar coordinates of a spatial point of interest. It also requires a table of shell parameter, L, values previously evaluated for a discrete set of spatial points, using a specific geomagnetic field model. The package contains the subroutines FELDC and FELDG that compute the magnetic field vector components in geocentric Cartesian coordinates or geodetic local Cartesian components, respectively. The subroutines INTELC and INTELG, which differ in input coordinates, compute L at the point of interest by interpolating among L values from the input table. On an IBM 360/75, using an H-level compiler with OPT = 2, a call to INTELG (which in turn calls FELDG to return both B and L) typically requires 12 milliseconds while calls to SHELLG and INVAR require 46 milliseconds and 70 milliseconds, respectively. IBM 7094 and 360 FORTRAN card decks for the INTEL package are available for distribution from NSSDC. However, only input L tables based on the IGRF 1965.0, GSFC (12/66), and POGO (10/68) models are available from NSSDC.

5.1.2.9 LINTRA — A geomagnetic field-line tracing and conjugate-intersect calculation routine, LINTRA, generated by Mr. E. G. Stassinopoulos of NSSDC, can be used to compute values of a field line passing through any given point on or above the Earth's surface to its conjugate intersect or the intersect with a specified altitude level. LINTRA can use any one of several internal source geomagnetic field models. The program was designed with the intention of following the path of a line of force that starts from a selected position and moves in a direction that leads toward the opposite geomagnetic hemisphere. For origins lying above sea level, the tracing direction can be reversed to obtain the intersects in either hemisphere. The geocentric coordinates of the intersects, with the field strength and the field vector components at these locations, are calculated by LINTRA. The method used in these calculations is described in the NASA-GSFC document *Computer Codes for Geomagnetic Field Line Tracing and Conjugate Intersect Program*, X-642-68-429, November 1968. The LINTRA code was written in FORTRAN IV, and the card decks are available for use

on an IBM 360/91. A version of LINTRA is also included in the ALLMAG package.

5.1.2.10 EFM — Code EFM acts as a driving routine for the model routines that evaluate the Mead-Fairfield Magnetospheric models. EFM allows input in solar magnetospheric, geomagnetic, or geographic coordinates.

Three interrelated subroutines are available in deck form that give the magnetospheric field corresponding to the four models of Mead and Fairfield. The models represent least-squares fits to 12,616 measurements of the vector field in the outer magnetosphere (from 4.5 to 17 Earth radii), averaged over half-Earth-radii intervals, taken from 451 orbits of four IMP satellites between 1966 and 1972. The four models fit subsets of the data sorted according to the Kp value at the time each measurement was made: the super-quiet model (MF73SQ, Kp = 0 or 0^+); the quiet model (MF73Q, Kp < 2); the disturbed model (MF73D, Kp $\geq$ 2); and the super-disturbed model (MF73SD, Kp ≥ 3). Deck #1 (DBXYZ) gives (for any of the four models) the three Cartesian components of the external field (ΔB_X, ΔB_Y, and ΔB_Z) as a function of the three solar magnetic Cartesian coordinates (z axis along the magnetic dipole) and of the tilt angle, T (i.e., the geomagnetic latitude of the subsolar point). Deck #2 (MF73) gives as functions of solar magnetic coordinates and tilt angle: three geomagnetic spherical components (B_r, B_θ, B_ϕ) of the total field, including the dipole; $\Delta B = B_{total} - B_{dipole}$; the inclination, I; and the dipole declination, D (see Mead and Cahill, *J. Geophys. Res.*, *72*, 2737, 1967). Deck #3 (TOTFLD) gives the three geographic spherical components of the total field, including the IGRF model of the internal field as determined by DIPFLD, as a function of geographic latitude and longitude, geocentric distance, day of year, and universal time (UT). From the input quantities, this program calculates the solar magnetic coordinates and tilt angle which are needed to determine the external model field. For further discussion of the models, see *J. Geophys. Res*, *80*, 523, 1975.

5.1.3 GEOMAGNETIC INDICES — DST

Provisional hourly averages of the equatorial Dst indices are distributed on a monthly basis by NSSDC. These values are generated at GSFC by Dr. M. Sugiura. These data are available as hardcopy, including both a list of hourly averages and a plot of finer scale points. The Dst index provides an indirect measure of magnetospheric ring currents and is especially useful during geomagnetic storms. At each of several low latitude, nonequatorial stations, the irregular variation contribution, D, of the horizontal component of the geomagnetic field is determined. Dst is then the global average, over contributing stations, of D. For a more detailed discussion of the significance of Dst, see Sugiura, *Ann. IGY, 35*, 9, 1964.

5.2 MAGNETOPAUSE AND BOW SHOCK POSITIONS

This data set consists of a card deck containing magnetopause or bow shock positions as observed between 1963 and 1968 using the GSFC magnetic field experiments carried on board the first six IMP/AIMP spacecraft. The deck was provided to NSSDC by Dr. D. Fairfield of GSFC. There are 463 magnetopause position cards and 388 bow shock position cards. Each of these subsets is ordered by solar ecliptic longitude. Each card identifies the spacecraft, orbit number, time (to an accuracy of minutes), magnetopause or bow shock indicator, exact or average position indicator ("average" of multiple crossings), solar ecliptic Cartesian coordinates of the crossing point, radial distance and solar ecliptic longitude of the crossing point, distances of the crossing point from the solar ecliptic x and z axes, crossing position as rotated to the ecliptic plane in the original meridian plan (x and y given with z = 0), and values of the immediately preceding position rotated by 4 degrees to allow for solar wind aberration.

5.3 MAGNETOSPHERICALLY TRAPPED PARTICLES

A series of model environments of geomagnetically trapped electrons and protons has been generated by Dr. J. I. Vette of GSFC and several coworkers. Each model environment is the synthesis of data obtained by several spacecraft. Earlier models contain the electron or proton fluxes above a given energy, E_1, and the spectral parameters to be used in determining fluxes above other energies within the specified range of validity of the model. Both the fluxes and spectral parameters are given over wide ranges in B and L space. The newer electron models, AE-4 and AE-5, give fluxes above several selected energies. The following model electron environments are currently available.

Environment Name	E_1 (MeV)	Energy Range (MeV)	Spatial Range	Temporal Range of Data Base	Epoch
AE 1	0 5	>0 3	1 2<L<3 0	1962 – 1963	7/63
AE 2*	0 5	0 04 – 7	1 2<L<6 2	1962 – 1964	8/64
E68	0 5	0 04 – 7	1 2<L<6 2	1962 – 1964	1968
AE 3	–	0 01 – 5	L = 6 6	1959 – 1965	1964/1968
AE-4**	–	0 04 – 5	3 0≤L≤11	1959 – 1968	1964/1967
AE 5*	–	0 04 – 4	1 2≤L≤2 8	1964 – 1967	1967
AE 5** (Sol. Min)	–	0 04 – 4	1 2≤L≤2 8	1964 – 1967	1975

*Supersedes AE-1
**Supersedes AE-2 and E68
*Supersedes E68
**Supersedes AE-2

The following model proton environments are currently available.

Environment Name	E_1 (MeV)	Energy Range (MeV)	Spatial Range	Temporal Range of Data Base
AP1	34	30 – 50	1 2<L<2 8	1958 – 1963
AP2	15	15 – 30	1 2<L<3 0	1958 – 1963
AP3	50	>50	1 2<L<2 8	1958 – 1963
AP4	4	4 – 15	1 2<L<4 2	1962 – 1963
AP5	0 4	0 1 – 4	1 2<L<6 6	1961 – 1965
AP6*	4	4 – 30	1.2<L<4 0	1962 – 1965
AP7**	50	>50	1.15<L<3 0	1961 – 1966

*Supersedes AP2 and AP4
**Supersedes AP3

A new trapped proton environment is currently being generated at NSSDC. This will supersede all previous proton models.

5.3.1 MODEL

Code MODEL is a FORTRAN routine that enables the user to access any of the models available in block data form from NSSDC (AE-4/AE-5 electron models or a smoothed proton model).

MODEL retrieves a flux value as a function of B, L, and E for the arrays of B, L, and E that are input. The output consists of a table of flux versus B for the values in the energy and L arrays. Current models contain omnidirectional integral particle flux. MODEL tables contain both integral and differential fluxes.

5.3.2 ORP

The Orbital Radiation Package is a FORTRAN routine designed to calculate the average geomagnetically trapped radiation accumulated by an Earth-orbiting vehicle. ORP requires an input tape containing the B and L coordinates at each point along the trajectory to be evaluated. Codes for the calculation of the orbit and the B and L values of trajectory points can be supplied by NSSDC. ORP uses a block data interpolation technique compatible with the new electron models but incompatible with AE-1, AE-2, and AE-3. A proton model BLOCKDATA deck compatible with ORP, as well as the AE-4/AE-5 decks for solar maximum or solar minimum, are available. When executed on an IBM 360 computer, ORP requires a region of 160K bytes of core. ORP can produce any of the following optional outputs: the flux encountered at each point in the orbit, the flux encountered in each of 45 bands, the integrated energy spectrum, the flux accumulated in each of eight intensity ranges, a peak flux per orbit table, and tables of energy spectra for standard circular orbits as either listings or tape.

5.3.3 UNIFLUX

The unified orbital flux integration and analysis system is a package of FORTRAN routines designed to calculate the average geomagnetically trapped radiation accumulated by an Earth-orbiting vehicle. UNIFLUX requires an input tape containing time, latitude, longitude, altitude, and B and L coordinates at each point along the trajectory to be evaluated. Time intervals must be integral numbers of minutes and must be the same between all successive points. A package generating the required input is available at NSSDC. UNIFLUX uses the block data interpolation technique that is applicable to AE-4, AE-5, and a proton deck based on the most recent proton models. When executed on an IBM 360 computer, UNIFLUX requires a region of 250K bytes of core. In addition to a listing of the flux encountered at each point, the codes produce tables giving the flux accumulated in 36 bands of L for nine energies, a spectral distribution and exposure index table, peak flux per orbit table, exposure analysis summary table, the time account breakdown table, and a table of physical perigees (for elliptical orbits). In addition, plots containing a time and flux histogram, peak flux encountered in each orbit, world map projection of orbits, and a B and L trace of the orbits are produced.

Appendix: Abbreviations and Acronyms

APPENDIX: ABBREVIATIONS AND ACRONYMS

A	angstrom
ABMA	Army Ballistic Missile Agency
ACAD	Academy
ACIC	Aeronautical Chart and Information Center (now Defense Mapping Agency Aerospace Center)
ACS	attitude control system
AD	Dual Air Density Explorer (satellite, NASA)
A/D	analog to digital
AE	Atmosphere Explorer (satellite, NASA)
AEC	Atomic Energy Commission
AEROPROPUL	aeropropulsion
AEROSAT	Aeronautical Satellite (NASA-ESRO)
AEROSP	aerospace
AFB	Air Force Base
AFCRL	Air Force Cambridge Research Laboratories
AFO	Announcements of Flight Opportunities
AFSC	Air Force Systems Command
AGC	automatic gain control
AGCY	agency
AIMP	Anchored Interplanetary Monitoring Platform (satellite, NASA)
ALOSYN	Alouette topside sounder synoptic (data)
ALPO	Apollo Lunar Polar Orbiter (satellite, NASA); Association of Lunar and Planetary Observers
ALSEP	Apollo Lunar Surface Experiments Package (NASA)
ALT	altitude
AM	amplitude modulation
AMP	ampere
AMPS	Atmosphere, Magnetosphere, and Plasmas in Space (satellite, NASA)
AMS	Army Map Service (now Defense Mapping Agency Topographic Center)
AMSAT	Radio Amateur Satellite Corporation
AMU	atomic mass unit; astronaut maneuvering unit
ANIK	Canadian Telecommunications Satellite; also referred to as TELESAT
ANNA	Army, Navy, NASA, Air Force (geodetic satellite)
ANS	Astronomical Netherlands Satellite (Netherlands-NASA)
AOSO	Advanced Orbiting Solar Observatory
AP	magnetic activity index A_p
APL	Applied Physics Laboratory of Johns Hopkins University
APPL	application
APT	automatic picture transmission
A/R	acquisition/reference
ARC	Ames Research Center (NASA)
ARC-MIN	arc-minute
ARC-SEC	arc-second
ARDC	Air Research and Development Command (now AFSC)
ARPA	Advanced Research Projects Agency
ARSP	Aerospace Research Support Program (USAF)
AS+E	American Science & Engineering, Inc.
ASOS	antimony-sulfide oxy-sulfide
ASTP	Apollo-Soyuz Test Project (USSR-NASA)
ASTROPHYS	astrophysics
AT	atomic
ATCOS	Atmospheric Composition Satellite (NASA)
ATDA	Alternate Target Docking Adapter
ATM	Apollo Telescope Mount
ATMOS	atmosphere; atmospheric
ATS	Applications Technology Satellite (NASA)
AT+T	American Telephone & Telegraph Corp.
AU	astronomical unit
AUST	Australia
AVCS	advanced vidicon camera system
AVG	average
AVHRR	advanced very high resolution radiometer
AWRE	Atomic Weapons Research Establishment (Australia)
BCD	binary coded decimal
BE	Beacon Explorer (satellite, NASA); beryllium
BESYS	Bell System
BEV	billion electron volts
BIC	barium iodide cloud
BIOS	Biological Satellite (NASA)
BPI	bits per inch
BPS	bits per second
BTL	Bell Telephone Laboratories
BUV	backscatter ultraviolet
BV	billion volts
B/W	black and white
BWF	Bundesminister für Wissenschaftliche Forschung (Fed Rep of Germany)
CAL	calorie
CAL TECH	California Institute of Technology
CALSPHERE	calibration sphere

PRECEDING PAGE BLANK NOT FILMED

CAN	Canada
CAS	Cooperative Applications Satellite (France-NASA)
CAV	composite analog video
CBTT	calibrated brightness temperature tape
CC	cubic centimeter
CDA	command and data acquisition (station)
CDC	Control Data Corporation
CDS	cadmium sulfide
CENS	Centre d'Etudes Nucleaires de Saclay (France)
CHEM	chemical
CM	command module; centimeter
CMD	command
CNES	Centre National d'Etudes Spatiales (France)
CNET	Centre National d'Etudes des Telecommunications (France)
CNRS	Centre National de la Recherche Scientifique (France)
COMM	commission
COMSAT	Communications Satellite Corporation
CONIE	Comision Nacional de Investigacion del Espacio (Spain)
CORSA	Cosmic-Ray Satellite (Japan)
COS	Cosmic-Ray Satellite (ESRO); cosmic
COSPAR	Committee on Space Research
COUNC	council
CPS	cycles per second
CPU	central processing unit
CRC	Communications Research Centre (Canada)
CRPL	Central Radio Propagation Laboratories (formerly ITSA or part of ESSA; now NOAA/ERL)
CRREL	Cold Region Research & Engineering Laboratories
CRS	Commission for Space Research (Italy)
CRT	cathode ray tube
CSI	cesium iodide
CSM	command service module
CTR	center
CTS	Canadian Telecommunications Satellite
CZCS	coastal zone ocean color scanner
DAC	data acquisition camera
DADE	Dual Air Density Explorer (satellite, NASA)
DAN	Danish
DAPP	Defense Acquisition and Processing Program (DOD)
DAS	data automation subsystem
DASA	Defense Atomic Support Agency
DATS	Despun Antenna Test Satellite (DOD)
DB	decibel
DCP	data collection platform
DCS	direct couple system; data collection system
DEF	defense
DEG	degree
DENPA	Density Phenomena (satellite, Japan)
DEV	development
DFVLR	Deutsche Forshungs-und Versuchsanstalt fur Luft-und Raumfahrt; English translation, Research Laboratory for Aeronautics and Astronautics, Fed Rep of Germany
DIAL/MIKA	Diament Allemande/Mini Kapsel (satellite, Fed Rep of Germany-France)
DIAL/WIKA	Diament Allemande/Wissenschaftliche Kapsel (satellite, Fed Rep of Germany-France)
DIAM	diameter
DIAPO	Diapason (satellite, France)
DIT	Drexel Institute of Technology
DMAAC	Defense Mapping Agency Aerospace Center
DMATC	Defense Mapping Agency Topographic Center
DME	Direct Measurements Explorer (satellite, NASA)
DMSP	Defense Military Satellite Program (DOD)
DOD	Department of Defense
DODGE	Department of Defense Gravity Experiment (satellite, DOD)
DRID	direct readout image dissector (camera system)
DRIR	direct readout infrared radiometer
DRTE	Defence Research Telecommunications Establishment (now CRC)
DSAP	Defense System Applications Program (DOD)
DSCS	Defense Satellite Communications System (DOD)
DSIR	Department of Science and Industrial Research (England)
DSN	Deep Space Network
DV	digital video
DYN	dynamic
E	energy
EASEP	Early Apollo Scientific Experiment Package
ECA	electric-field component antenna
ECR	electric-field component receiver
ECS	Experimental Communications Satellite (NASA)
EDS	Environmental Data Service (NOAA)
EGO	Eccentric (Orbiting) Geophysical Observatory (satellite, NASA)
EGRS	Engineers Satellite (DOD)
EIRP	effective isotropic radiative power
EL	electric (data camera carried on Apollo)
ELDO	European Launch Development Organization (ESRO)

ELEC	electric
ELECTR	electronics
ELMS	Earth Limb Measurement Satellite (NASA-USAF)
EME	environmental measurement experiment
EMR	Electromechanical Research (Company, England)
ENVIRON	environment; environmental
EOF	end of file
EOGO	Eccentric Orbiting Geophysical Observatory (satellite, NASA)
EOS	Earth Observation Satellite (NASA)
EPE	Energetic Particle Explorer (satellite, NASA)
E/Q	energy per unit charge
ERB	Earth radiation budget (experiment)
ERDC	Earth Resources Data Center
ERGS	Earth Geodetic Satellite (USAF)
ERL	Environmental Research Laboratory (NOAA)
EROS	Earth Resources Observation System
ERS	Environmental Research Satellite (USAF)
ERT	extended range telescope
ERTS	Earth Resources Technology Satellite (NASA)
ESGEO	ESRO Geostationary Earth-Orbiting (satellite)
ESMR	electrically scanning microwave radiometer
ESOC	European Space Operations Centre (ESRO)
ESRO	European Space Research Organization
ESSA	Environmental Science Services Administration (now NOAA)
ESTABL	establishment
ESTEC	European Space Technology Center (ESRO)
ETR	Eastern Test Range (also referred to as Cape Canaveral)
ETS	Engineering Test Satellite
EUV	extreme ultraviolet
EV	electron volt
EVA	extravehicular activity
EVM	Earth viewing (equipment) module
EXOS	Exospheric Satellite (Japan)
EXOSAT	European X-ray Observation Satellite (ESRO)
EXTRATERR	extraterrestrial
FARO	Flare-Activated Radiobiological Observatory (satellite, DOD)
FED	Federal
FLT-SAT	Fleet Satellite (USN)
FM	frequency modulation
FMRT	final meteorological radiation tape
FOUND	foundation
FOV	field of view
FPR	flat plate radiometer
FR	French Research (satellite, France)
FRC	Flight Research Center (NASA)
FSC	FLEETSATCOM (satellite, USN-USAF)
FSK	frequency shift key
FWHM	full width at half maximum
FWS	filter wedge spectrometer
GARP	Global Atmospheric Research Program
GCA	Geophysics Corporation of America
GE	General Electric (Company)
.GE.	greater than or equal to
GEMS	Geostationary European Meteorological Satellite (ESRO)
GEOPHYS	geophysical
GEOS	Geodetic Earth-Orbiting Satellite (NASA); Geostationary Earth-Orbiting Satellite (ESRO)
GES FUR WELTRAUM-FORSCH	Gesellschaft für Weltraumforschung (Center for Space Research, Fed Rep of Germany)
G.E.T.	ground elapsed time
GEV	gigaelectron volt
GGSE	gravity gradient stabilization experiment
GHZ	gigahertz
GISS	Goddard Institute for Space Studies (NASA)
GM	Geiger-Mueller; gram
GMS	Geostationary Meteorological Satellite (Japan)
GMT	Greenwich mean time
GOES	Geosynchronous Operational Environmental Satellite (NASA-NOAA; also called SMS)
GP	Gravitational Redshift Space Probe (NASA)
GRAVR	Gravitational Redshift Space Probe (NASA)
GRE	ground reconstruction equipment; ground reconstruction electronics
GREB	Galactic Radiation Experiment Background (satellite, USN)
GRI	Groupe de Recherche Ionospherique (France)
GROC	Netherlands Committee for Geophysics and Space Research
GRS	German Research Satellite (NASA-Fed Rep of Germany)
GSD	Grid Sphere Drag (satellite, DOD)
GSE	geocentric solar ecliptic (coordinate system)
GSFC	Goddard Space Flight Center (NASA)
GSM	geocentric solar magnetospheric (coordinate system)
.GT.	greater than
GUGMS	Glavnoye Upravleniye Gidrometeorologicheskoi Sluzhby (Main Administration of the Hydrometeorological Service, USSR)

GV	gigavolt
GVHRR	geosynchronous very high resolution radiometer
HAO	High Altitude Observatory
HCMM	Heat Capacity Map Mission (satellite, NASA)
HCMR	Heat Capacity Mapping Radiometer
HCO	Harvard College Observatory
HDRSS	high data rate storage system
HE	helium
HEAO	High-Energy Astrophysical Observatory (NASA)
HEOS	High-Eccentricity Earth-Orbiting Satellite (ESRO)
HEPAT	high-energy proton alpha telescope
HET	health, education, telecommunications (experiment)
HETS	high-energy telescope system
HFE	heat-flow experiment; heat-flow electronics
HR	high resolution; hour
HRIR	high-resolution infrared radiometer
HRIRS	high-resolution infrared radiometer sounder
H.S.	high school
HYDROMET	hydrometeorological
HZ	hertz (cycles per second)
IAP	Institute of Atmospheric Physics (USSR)
IBM	International Business Machines (Corp.)
ICBM	intercontinental ballistic missile
ICSU	International Council of Scientific Unions
ID	identification
IDC	image dissector camera
IDCS	image dissector camera system
IDCSP	Initial (or Interim) Defense Communication Satellite Program (or Project) (DOD)
IDSCS	Initial Defense Satellite Communication System (DOD)
IDT	instrument definition team
IE	Ionospheric Explorer (satellite, NASA-NBS)
IFOV	instrument field of view
IGRF	International Geomagnetic Reference Field
IGY	International Geophysical Year
IME	International Magnetospheric Explorer (satellite, NASA-ESRO)
IMP	Interplanetary Monitoring Platform (satellite, NASA)
IMS	International Magnetospheric Study
INDASAT	Indian Scientific Satellite (ISRO-USSR)
INOP	inoperable
INSAT	Indian National Satellite (ISRO-USSR)
INST	institute
INTA	Instituto Nacional de Tecnica Aeroespacial (Spain); the National Institute of Aerospace Science
INTASAT	satellite (INTA, Spain)
INTELSAT	International Telecommunications Satellite (NASA-COMSAT)
ION COMP	Ionospheric Composition (satellite — see DIAPO)
IPA	Institute for Physics of the Atmosphere (SAS)
IQSY	International Quiet Sun Year
IR	infrared
IRBM	intermediate range ballistic missile
IRIG	Inter-Range Instrumentation Group
IRIS	infrared-interferometer spectrometer; International Radiation Investigation Satellite (NASA-ESRO)
IRLS	interrogation, recording, and location system
IRR	infrared radiometry
IRTRN	infrared transmission
ISAS	Institute of Space & Aeronautical Science (Japan)
ISEE	International Sun-Earth Explorer (satellite, NASA-ESRO)
ISIS	International Satellite for Ionospheric Studies (NASA-Canada)
ISRO	Indian Space Research Organization
ISS	Ionospheric Sounding Satellite (Japan)
ITCZ	intertropical convergence zone
ITOS	Improved TIROS Operational Satellite (NOAA)
ITPR	infrared temperature profile radiometer
ITR	incremental tape recorder
ITSA	Institute for Telecommunication of Sciences and Aeronomy (formerly a subdivision of ESSA; now NOAA-ERL)
IU	instrument unit
IUE	International Ultraviolet Explorer (satellite, NASA-UK-ESRO)
IZMIRAN	Institute of Terrestrial Magnetism and Aeronomy of the Academy of Sciences (USSR)
JGR	Journal of Geophysical Research
JHU	Johns Hopkins University
JPL	Jet Propulsion Laboratory (NASA)
JSC	Johnson Space Center (NASA)
KBS	kilobits per second
KEV	kiloelectron volt
KG	kilogram
KHZ	kilohertz
KM	kilometer
KP	magnetic activity index K_p

KPNO	Kitt Peak National Observatory
KSC	Kennedy Space Center (NASA)
LA	Los Angeles
LAB	laboratory
LACATE	lower atmosphere composition and temperature
LAGEOS	Laser Geodetic Earth-Orbiting Satellite (NASA)
LARC	Langley Research Center (NASA)
LAS	Large Astronomical Satellite (ESRO)
LASL	Los Alamos Scientific Laboratory
LCS	Lincoln Calibration Sphere
.LE.	less than or equal to
LEM	lunar excursion module
LEPAT	low-energy proton alpha telescope
LEPEDEA	low-energy proton and electron differential energy analyzer
LERC	Lewis Research Center (NASA)
LES	Lincoln Experimental Satellite (DOD)
LETS	low-energy telescope system
LL	Lincoln Laboratory (MIT)
LM	lunar module
LMD	Laboratory of Meteorological Dynamics
LOFTI	Low-Frequency Trans-Ionospheric (satellite, USN-NRL)
LOGACS	Low-G Accelerometer Calibration System (USAF)
LPSP	Laboratoire de Physique Stellaire et Planetaire (CNRS)
LRIR	limb radiance inversion radiometer; low-resolution infrared radiometer
LRL	Lunar Receiving Laboratory (JSC)
LRV	lunar roving vehicle
LST	Large Space Telescope (satellite, NASA)
.LT.	less than
LTV	Ling-Temco-Vought (Company)
M	meter, milli- (prefix)
MA	Mercury Atlas
MAPS	measurement of air pollution from satellite
MARENTS	Modified Advanced Research Environmental Test Satellite (USAF)
MAS	Ministry of Aviation Supply (UK)
MASC	magnetic attitude spin coil
MASS	Massachusetts
MATER	material
MB	millibar
MC	megacycle
MCA	Magnetic-field component antenna
MCR	Magnetic-field component receiver
MED	medicine; medical
METEC	Meteoroid Technology (satellite, NASA)
METEOSAT	Meteorological Satellite (ESRO)
MEV	million electron volts
MG	milligram
MHZ	megahertz
MIDAS	Missile Defense Alarm System (USAF)
MIN	minute
MIT	Massachusetts Institute of Technology
MJS	Mariner Jupiter/Saturn (spacecraft, NASA)
MM	millimeter
MMW	millimeter wave
MOL	Manned Orbiting Laboratory (satellite, DOD)
M-P	minus to plus
MPI	Max-Planck-Institut (Fed Rep of Germany)
MR	medium resolution
MRIR	medium-resolution infrared radiometer
MS	microsecond
MSC	Manned Spacecraft Center (now Johnson Space Center)
MSEC	millisecond
MSFC	Marshall Space Flight Center (NASA)
MSN	mission
MSS	Magnetic Storm Satellite (NASA-AFCRL); multispectral scanner
MSSCC	multicolor spin-scan cloudcover camera
MTS	Meteoroid Technology Satellite (NASA)
MUSE	monitor of ultraviolet solar energy
MW	milliwatt
NA	not applicable; Nora Alice (satellite, DOD)
NACE	neutral atmosphere composition experiment
NADUC	Nimbus/ATS Data Utilization Center
NASA	National Aeronautics and Space Administration (Washington, D.C., Headquarters)
NASC	National Aeronautics and Space Council
NASDA	National Space Development Agency (Japan)
NATL	national
NATO	North Atlantic Treaty Organization
NB	narrow band
NBS	National Bureau of Standards
NCAR	National Center for Atmospheric Research
NCC	National Climatic Center (NOAA)
NDRE	Norwegian Defence Research Establishment
NEMS	Nimbus-E microwave spectrometer, Near-Earth Magnetospheric Satellite (ESRO)
NESC	National Environmental Satellite Center (now NESS)
NESS	National Environmental Satellite Service (NOAA)
NGSP	National Geodetic Satellite Program
NHC	National Hurricane Center
NIH	National Institutes of Health
NMC	National Meteorological Center
NMRT	Nimbus meteorological radiation tape

NNN	no national name
NNSS	Navy Navigational Satellite System
NOAA	National Oceanic and Atmospheric Administration (formerly ESSA)
NOMSS	National Operational Meteorological Satellite System
NORAD	North American Air Defense Command
NORW	Norwegian
NOS	National Ocean Survey (NOAA)
NOTS	Naval Ordnance Test Station
N-P	negative to positive
NRC	National Research Council
NRL	Naval Research Laboratory
NSA	National Security Agency
NSF	National Science Foundation
NSSDC	National Space Science Data Center
NUCL	nuclear
NWL	Naval Weapons Laboratory
NWRC	National Weather Records Center (now NCC)
OA	Office of Applications (NASA)
OAO	Orbiting Astronomical Observatory (satellite, NASA)
OAR	Office of Aerospace Research (USAF-AFSC)
OART	Office of Advanced Research and Technology (NASA)
OAST	Office of Aeronautics and Space Technology (NASA)
OBS	observatory
OCC	OPLE Command Center
OFO	Orbiting Frog Otolith (NASA experimental spacecraft)
OGO	Orbiting Geophysical Observatory (satellite, NASA)
OI	other investigator
OMNI	low-resolution omnidirectional radiometer (on Explorer 7)
OMSF	Office of Manned Space Flight (NASA)
ONR	Office of Naval Research
OPEP	orbital-plane experiment package
OPLE	Omega position and location experiment
OP OFF	operational off
ORBIS	Orbiting Radio Beacon Ionospheric Satellite (NASA)
ORS	Octahedral Research Satellite (NASA); Orbiting Research Satellite (DOD)
OSCAR	Orbiting Satellite Carrying Amateur Radio
OSO	Orbiting Solar Observatory (satellite, NASA)
OSS	Office of Space Science (NASA)
OSSA	Office of Space Science and Applications (NASA; now two separate offices)
OT	Operational TIROS (satellite, NASA)
OTDA	Office of Tracking and Data Acquisition (NASA)
OV	Orbiting Vehicle (satellite, USAF)
PAC	Packaged Attitude Control (satellite, NASA)
PAET	Planetary Atmosphere Experiment Test
PAGEOS	Passive Geodetic Earth-Orbiting Satellite (NASA)
PAM	pulse amplitude modulation
PCM	pulse coded modulation
PE	Planetary Explorer
PEP	platform-electronic package
PFM	pulse frequency modulation
PHASR	Personnel Hazards Associated with Space Radiation (satellite, USAF)
PHYS	physics
PI	principal investigator
PIXEL	picture element
PL	prelaunch
PLACE	Position, Location and Aircraft Communication Experiment
PM	pulse modulation; photomultiplier
PMR	pressure modulation radiometer; Pacific Missile Range
PMT	photomultiplier tube
P-N	positive-negative (junction)
POD	proton omnidirectional detector
POGO	Polar Orbiting Geophysical Observatory (satellite, NASA)
PPS	pulses per second
PROT	protection
PS	pressure sensor
PSE	passive seismograph experiment
PTL	Photographic Technology Laboratory (JSC)
QOMAC	quarter-orbit magnetic attitude control (system)
RA	Ranger (spacecraft, NASA)
RAD	radium; radiation
RADCAT	Radar Calibration Target (satellite, ARPA)
RADOSE	Radiation Dosimeter (satellite, DOD)
RAE	Radio Astronomy Explorer (satellite, NASA)
RAM	random access memory (system)
RBV	return beam vidicon (camera)
RC	resistance capacitor
RCA	Radio Corporation of America
R+D	research and development
REP	republic
RES	research
REXS	Radio Exploration Satellite (Japan)
RF	radio frequency

RM	Radiation Meteoroid (satellite, NASA); Radiometric Measurement (satellite, DOD)
RMS	root mean square; Radiation Meteoroid Satellite (NASA); Radiometric Measurement Satellite (DOD)
RPA	retarding potential analyzer
RPM	revolutions per minute
RPS	revolutions per second
RRL	Radio Research Laboratories (Japan)
RSRS	Radio and Space Research Station (England)
RTD	Research Technology Division (USAF)
RTG	radioisotope thermoelectric generator
RTTS	real-time transmission system
SAM	stratospheric aerosol measurement
SAMOS	Satellite Mission Observation System (satellite, USAF)
SAMS	stratospheric and mesospheric sounder
SAMSO	Space and Missile Systems Organization (USAF)
SAO	Smithsonian Astrophysical Observatory
SAPPSAC	spacecraft attitude precision pointing and slewing adaptive control (experiment)
SAS	Small Astronomy Satellite (NASA); Soviet Academy of Sciences
SATAR	Satellite for Aerospace Research (NASA)
SATELL	satellite
SATS	Satellite Antenna Test System (NASA)
SBRC	Santa Barbara Research Center
SCAMS	scanning microwave spectrometer
SCEL	Signal Corps Engineering Laboratories
SCH	school
SCI	science
SCMR	surface composition mapping radiometer
SCORE	Signal Communication by Orbiting Relay Equipment (satellite, DOD)
SCR	selective chopper radiometer
SD	San Diego
SE	Solar Explorer (satellite, NASA)
SEASAT	Ocean Dynamic Satellite (NASA)
SEC	second; secondary electron conduction (vidicon tube)
SECOR	Sequential Collation of Range (satellite, USAF)
SEM	space environment monitor
SERT	Spinning Satellite for Electric Rocket Test (NASA)
SESP	Space Experiment Support Program
SESPO	Space Environmental Support Project Office
SHS	Soviet Hydrometeorological Service
SIBS	Salk Institute for Biological Studies
SIDS	Space Investigations Documentation System (NASA)
SIM	scientific instrument module
SIRS	satellite infrared spectrometer; System for Information Retrieval and Storage (NSSDC)
SM	San Marco (satellite, NASA-Italy)
SMMR	scanning multispectral microwave radiometer
SMS	Synchronous Meteorological Satellite (NASA)
SNAP	systems for nuclear auxiliary power
SOEP	solar-oriented experiment package
SOLRAD	Solar Radiation (satellite, NASA-DOD)
SPADES	Solar Perturbation and Atmospheric Density Measurement Satellite (DOD)
SPHINX	Space Plasma High Voltage Interactive Experiment (satellite, NASA)
SPM	solar proton monitor
SR	Solar Radiation (satellite, NASA); scanning radiometer; sounding rocket
SRATS	Solar Radiation and Thermospheric Satellite (Japan)
SRC	Space Research Council, Science Research Council
SRI	Stanford Research Institute
SRT	supporting research and technology
SSCC	spin-scan cloudcover camera
SSD	Space Science Division (JPL)
SSS	Small Scientific Satellite (NASA)
SST	satellite-to-satellite tracking
STADAN	Spacecraft Tracking and Data Acquisition Network (now STDN)
STARAD	Starfish Radiation (satellite, NASA)
STD	standard
STDN	Spaceflight Tracking and Data Network (NASA)
STER	steradian
STL	Space Technology Laboratories (now TRW Systems Group)
STN	station
STP	Solar Terrestrial Probe (satellite, NASA); Solar Terrestrial Physics
STRATOS	stratosphere
STUD	studies
SUI	State University of Iowa (now University of Iowa)
SURCAL	Surveillance Calibration (satellite, DOD)
SVC	service
SW	southwest
SWRF	Sine Wave Response Filter (program)
SYNCOM	Synchronous Communication (satellite, NASA)
SYST	system
TAC	Technology Application Center
TACOMSAT	Tactical Communications Satellite (DOD)

TATS	Test and Training Satellite (NASA)
TATSACOM	Tactical Satellite Communications (program, DOD)
TD	Thor-Delta (satellite, ESRO); launch vehicle (NASA-USAF)
TDP	Tracking Data Processor (program)
T+DR	tracking & data relay
TDRSS	tracking and data relay satellite system
TEC	telemetry and command; transearth coast; total electron content
TECH	technical; technology
TED	total energy detector
TEI	transearth injection
TELESAT	satellite, Canada (also referred to as ANIK)
TEMP	temporal; temperature
TET	telescope and electron telescope
TETR	Test and Training (satellite, NASA)
THIR	temperature-humidity infrared radiometer
THORAD-AGE	Thor Augmented Delta Agena (launch vehicle)
TIMATION	Time Location System (USN)
TIP	Tracking Impact Prediction (satellite, DOD)
TIROS	Television and Infrared Observation Satellite (NASA)
TL	team leader
TLI	translunar injection
TM	team member
TOMS	total ozone mapping system
TOPO	topographic
TOPS	Thermal Noise Optical Optimization Communication System (NASA)
TOPSI	topside (sounder) (satellite, NASA)
TOS	TIROS Operational Satellite (or System) (NASA)
TOVS	TIROS operational vertical sounder
TR	tape recorder
TRAAC	Transit Research and Attitude Control (satellite, USN)
TRANET	Doppler Tracking Network (USN)
TRANSP	transportation
TRS	Tetrahedral Research Satellite (USAF)
TRW	Thompson, Ramo, Wooldridge, Inc.
TTS	Test and Training Satellite (NASA) (also called TATS, TETR)
TWERLE	tropical wind energy conversion and reference level experiment
U	university
UCLA	University of California at Los Angeles
UHF	ultrahigh frequency
UK	United Kingdom
US	United States
USA	United States Army; United States of America
USAF	United States Air Force
USN	United States Navy
USSR	Union of Soviet Socialist Republics
UT	universal time
UV	ultraviolet
UVNO	ultraviolet nitric-oxide experiment
UVS	ultraviolet spectrometer
V	volt
VAR	variation
VHF	very high frequency
VHRR	very high resolution radiometer
VISSR	visible infrared spin-scan radiometer
VLF	very low frequency
VTPR	vertical temperature profile radiometer
W	watt
WBVTR	wideband video tape recorder
WDC	World Data Center
WDC-A-R&S	World Data Center A for Rockets and Satellites
WEFAX	weather facsimile
WEP	Wisconsin Experiment Package
WFC	Wallops Flight Center (NASA)
WGSPR	Working Group for Space Physics Research
WMO	World Meteorological Organization
WPM	words per minute
WRESAT	Weapons Research Establishment Satellite (Australia)
WS	Wallops Station (NASA, now Wallops Flight Center)
WSMR	White Sands Missile Range
WTR	Western Test Range (also referred to as Vandenberg AFB)
WWW	World Weather Watch
Z	atomic number

NSSDC DATA REQUEST FORM*

Scientists OUTSIDE the United States send order to:	Requesters WITHIN the United States send order to:
WORLD DATA CENTER A ROCKETS AND SATELLITES CODE 601 GODDARD SPACE FLIGHT CENTER GREENBELT, MARYLAND 20771, USA	NATIONAL SPACE SCIENCE DATA CENTER CODE 601.4 GODDARD SPACE FLIGHT CENTER GREENBELT, MARYLAND 20771

REQUESTER INFORMATION (Please print)

NAME	TITLE/POSITION
DIVISION/BRANCH/DEPARTMENT	MAIL CODE
ORGANIZATION	
ADDRESS	
CITY	STATE
ZIP CODE OR COUNTRY	TELEPHONE (Area Code) (Number) (Extension)
DATE OF REQUEST	DATE DATA DESIRED (Our average processing time for a request is 3 to 4 weeks. Please allow ample time for delivery. We will notify you if we cannot meet the date specified.)

INTENDED USE OF DATA (check all that apply)

- ☐ Support of a NASA effort (project, study, etc.); Contract No. _____
- ☐ Support of a U.S. Government effort (other than NASA)
- ☐ Research and analysis project (individual or company sponsored)
- ☐ Educational purposes (explain below)
- ☐ Preparation of Master's thesis
- ☐ Preparation of Doctoral thesis
- ☐ Other:
- ☐ Exhibit or display
- ☐ Reference material
- ☐ Use in publication

NSSDC requests the submission of all publications resulting from studies in which data supplied by NSSDC have been used. Please state briefly the research projects in which you are engaged and if you plan to prepare any articles based on this research.

*NSSDC has available special forms for ordering photographic data from the Surveyor, Lunar Orbiter, Apollo, and Mariner missions. These forms will be provided on request.

NSSDC CHARGE AND SERVICE POLICY

The purpose of the National Space Science Data Center (NSSDC) is to provide data and information from space science flight experiments in support of additional studies beyond those performed by the principal investigators. Therefore, NSSDC will provide data and information upon request to any individual or organization resident in the United States. In addition, the same services are available to scientists outside the United States through the World Data Center A (WDC–A) for Rockets and Satellites. (The addresses for both NSSDC and WDC–A are given on the reverse side.) Normally, a charge is made for the requested data to cover the cost of reproduction and the processing of the request. The requester will be notified of the cost, and payment must be received prior to processing the request. However, the Director of NSSDC may waive, as resources permit, the charge for modest amounts of data when they are to be used for scientific studies or for specific educational purposes and when they are requested by an individual affiliated with: (1) NASA installations, NASA contractors, or NASA grantees; (2) other U.S. Government agencies, their contractors, or their grantees; (3) universities or colleges; (4) state and local governments; and (5) non–profit organizations.

DATA REQUESTED

NSSDC DATA SET ID NUMBER	Spacecraft, Experiment, and Data Set Names	Form of Data* (e.g., 16mm microfilm) Refer to data set brief descriptions.	Timespan Needed

Additional Specifications

*If requesting data on magnetic tape, please supply the necessary information below.

Density	Mode	No. of Tracks	Computer
☐ 556 bpi	☐ BIN	☐ 7	
☐ 800 bpi	☐ BCD	☐ 9	_____
☐ 1600 bpi			

☐ New tapes will be supplied prior to processing.
☐ Original NSSDC tapes will be returned.
☐ I shall pay for new tapes.

Electric and Magnetic Field Data

Particle Data

Spacecraft Name Index

NSSDC ID Index

Original Experiment Institution Index

Investigator Name Index

Phenomenon Ordered Bar Graphs

Phenomenon Measured Index

Supporting Data Descriptions

Appendix: Abbreviations and Acronyms