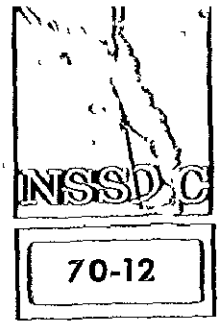

DATA CATALOG

SATELLITE EXPERIMENTS

SUPPLEMENT NO. 2 TO NSSDC 69-01

OCTOBER 1970

NATIONAL SPACE SCIENCE DATA CENTE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION • GODDARD SPACE FLIGHT CENTER, GREENBELT, M

NATIONAL SPACE SCIENCE DATA CENTER

SUPPLEMENT TO

DATA CATALOG

OF

SATELLITE EXPERIMENTS

(NSSDC 69-01)

NSSDC 70-12

OCTOBER 1970

National Aeronautics and Space Administration
Goddard Space Flight Center
Greenbelt, Maryland 20771

CONTENTS

DATA DESCRIPTION

This Supplement contains descriptions of experimental data that have been received by NSSDC but that have not been previously described in a Catalog. Spacecraft and experiment descriptions are given as background information. The descriptions are arranged in chronological order, which is indicated by the NSSDC ID number.

Orbital parameters, names of experimenters, and affiliations are listed in the heading material for each brief description. Orbital parameters are for the specified epoch date. Each heading that precedes a data set brief description contains a descriptive indicator of the availability of the data. The indicator "Data at NSSDC Ready for Distribution" designates a data set for which cataloging, verification, and documentation are complete enough to provide a comprehensible set of data to satisfy routine requests. "Data in Published Report(s)" indicates that all or a significant portion of the data are contained in a published report or journal or that the only available source of any reduced data from an experiment is the published document. The publications are cited in the brief descriptions and are normally available through scientific libraries or document distribution centers. NSSDC provides copies of the publications only if they cannot be obtained through these sources. If the data set is designated "Data at Another Center," the name and address of this data center and the data set name and catalog number used by that center are given in the brief description. Another indicator that appears in the Supplement is "Data at NSSDC Being Processed." Documentation and verification of such a data set is currently in progress, and the work may be complete enough to satisfy limited requests.

The general index at the rear of the supplement provides a key to the satellite and experiment common names, major discipline categories, and experiment affiliations. Two additional indexes are included: an index to experimenters and an index by name or category to the data sets described in this Supplement. This latter index should aid the user in identifying specific data sets in a request to NSSDC.

DATA AVAILABILITY AND COSTS

Data listed in the Catalog and Supplement are provided for use in scientific investigations. Data are available in the forms listed under each data set description. As resources permit, the Data Center

INTRODUCTION

PURPOSE

The purpose of the Data Catalog of Satellite Experiments is to announce the availability of experimental space science data, to describe these data, and to inform potential users of the services provided by the National Space Science Data Center (NSSDC).

This Supplement to the complete Catalog, last published in January 1969, has been redesigned to reflect the contents of the computerized NSSDC information system. This system provides an efficient method for announcing the availability of data when processing is complete and for announcing the acquisition of new data. A cumulative edition of the Catalog will be issued at a later date. NSSDC is currently investigating the feasibility of a Selective Dissemination of Information (SDI) system. The SDI system would enable the Data Center to notify interested individuals of data sets or experiments in a particular scientific discipline as soon as they become available for distribution.

USE OF THE NSSDC INFORMATION SYSTEM

The NSSDC information system initially was formulated for the internal management of satellite data. Through the use of data retrieval programs, selected portions of the information in the system can be displayed in the manner used in this Catalog Supplement or for other purposes.

Each spacecraft, experiment, and data set handled by NSSDC is assigned an identification number (the NSSDC ID No.) that is based on the launch sequence of the spacecraft. Subsequent to 1962, the NSSDC ID No. for a spacecraft (e.g., 65-042A) corresponds to the COSPAR (Committee on Space Research) international designation (1965 42A). The Data Center has provided corresponding numbers for satellites that were launched during the years 1958 to 1962. The experiment and data set ID numbers are based on the spacecraft number. For example, the experiments carried aboard spacecraft 67-031A (ATS 2) are numbered 67-031A-01, 67-031A-02, etc. Data sets derived from experiment 67-031A-01 are designated 67-031A-01A, 67-031A-01B, etc. Spacecraft, experiments, and data sets appear in this Supplement only if the data are held at NSSDC.

can fill small requests for data without cost to users. Charges may be necessary, however, in which case the requester will receive notification of the cost before the request is filled.

ORDERING PROCEDURES

A user may obtain data in any of the following ways·

1. Letter request
2. Data Request Form (see the rear of the Supplement)
3. Telephone request
4. On-site request (see Facilities and Services section)

Anyone who wishes to obtain data for a scientific study should specify the NSSDC data set identification number, the common name and/or number of the satellite and the experiment, the form of data, and the timespan of data requested. A user should also specify why the data are needed, the subject of his work, the name of the organization with which he is connected, and any Government contracts he may have for performing his study. To avoid delay, the requester should use the Data Request Form provided at the end of this document.

When a user requests data on magnetic tape, he should provide additional information concerning his plans for using the data, e.g., what computers and operating systems will be used. In this context, the Data Center is compiling a library of routines which can unpack or transform the contents of many of the data sets into formats which are most appropriate for the user's computer. NSSDC will provide information concerning the services it can perform for any given data set.

When requesting data on magnetic tape, the user must specify whether he will:

1. Supply new tapes prior to the processing,
2. Return the original NSSDC tapes after the data have been copied, or
3. Pay for new tapes.

LOCATION

NSSDC is located in Building 26 at the Goddard Space Flight Center in Greenbelt, Maryland. The Data Center's official 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 held in NSSDC to the World Data Center A for Rockets and Satellites. Also, since WDC-A now maintains the listings of rocket experiments, all requests for information about rocket launchings and the experiments flown should be directed to this institution:

World Data Center A for Rockets and Satellites
Code 601
Goddard Space Flight Center
Greenbelt, Maryland, U.S.A. 20771

Phone: 301 982-6695

FACILITIES AND SERVICES

The Data Center has data on file in the forms specified in each data set description. Resident and visiting scientists are invited to study the data while visiting the Data Center. In addition to having reproduction capabilities, NSSDC provides facilities for on-site data use. The Data Center staff will assist users with individual data searches and with the use of equipment.

PARTICIPATION

The National Space Science Data Center invites members of the scientific community to contribute data from satellite experiments. NSSDC 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 will be 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 transferral of the data may be arranged.

As a part of its information system, NSSDC collects publications that relate to the satellite data in its holdings. These documents are cataloged and keyworded for computer sort purposes in a Technical Reference File. NSSDC seeks, in particular, copies of published papers resulting from a user's study of data provided by NSSDC. Information from the Technical Reference File may also be furnished to the user on a special request basis; however, NSSDC is not a document distribution center.

The Data Center is continually striving to increase the usefulness of the Data Catalog by improving the data descriptions and including all pertinent information. 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. The Data Center is attempting to distribute the Catalog to all interested scientific personnel. Recipients are urged to inform potential data users of its availability. Anyone wishing to receive a copy of this publication can have his name added to the distribution list by phone or letter request.

ABBREVIATIONS

Abbreviations used in the Catalog Supplement are listed below. All abbreviations are given in upper case to correspond to the computer-produced Catalog entries. Note that the same abbreviation is used for both the singular and plural forms.

A	-	angstrom
AIMP	-	anchored IMP
ALT	-	altitude
AM SCI + ENG	-	American Science and Engineering, Inc.
ARC	-	Ames Research Center
ARPA	-	Advanced Research Projects Agency
ATS	-	Applications Technology Satellite
AU	-	astronomical unit
AVG	-	average
BCD	-	binary coded decimal
BERK	-	Berkeley
BPI	-	bits per inch
BTL	-	Bell Telephone Laboratories
B/W	-	black and white
CALIF	-	California
CAL TECH	-	California Institute of Technology
CDC	-	Control Data Corporation

CIN	-	color interior
CM	-	centimeter; Command Module
CO	-	company
CORP	-	corporation
COSPAR	-	Committee on Space Research
CRT	-	cathode ray tube
CSI	-	cesium iodide
CSM	-	Command Service Module
DB	-	decibel
D.C.	-	District of Columbia
DC	-	direct current
DEG	-	degree
DRTE	-	Defence Research Telecommunications Establishment
E	-	east; energy
E.G.	-	for example
EGO	-	Eccentric (Orbiting) Geophysical Observatory
EME	-	environmental measurement experiment
ESSA	-	Environmental Science Services Administration
ETC.	-	et cetera
EV	-	electron volt
FM	-	frequency modulation
FT	-	foot
GM	-	Geiger-Mueller
GMT	-	Greenwich mean time
GSFC	-	Goddard Space Flight Center
HR	-	hour
HRIR	-	high-resolution infrared radiometer
HZ	-	Hertz
IBM	-	International Business Machines
ID	-	identification
I.E.	-	that is
IMP	-	Interplanetary Monitoring Platform
IN.	-	inch
INC	-	incorporated
IQSY	-	International Years of the Quiet Sun
IR	-	infrared
IRIG	-	Inter-Range Instrumentation Group
IRIS	-	infrared interferometer spectrometer
JPL	-	Jet Propulsion Laboratory
K	-	Kelvin
KBS	-	kilobits per second
KEV	-	kiloelectron volt
KG	-	kilogram
KHZ	-	kilohertz
KM	-	kilometer
LAB	-	laboratory

LARC	-	Langley Research Center
LEPEDEA	-	low-energy proton and electron differential energy analyzer
LM	-	Lunar Module
M	-	meter
MD	-	Maryland
MEV	-	million electron volts
MG	-	milligram
MHZ	-	megahertz
MIN	-	minute
MIT	-	Massachusetts Institute of Technology
MM	-	millimeter
MRIR	-	medium-resolution infrared radiometer
MSC	-	Manned Spacecraft Center
MSEC	-	millisecond
MW	-	milliwatts
N	-	north
NASA	-	National Aeronautics and Space Administration
N.H.	-	New Hampshire
N.J.	-	New Jersey
NO.	-	number
NSSDC	-	National Space Science Data Center
OGO	-	Orbiting Geophysical Observatory
OPEP	-	orbital-plane experiment package
OSO	-	Orbiting Solar Observatory
OSSA	-	Office of Space Science and Applications
PAM	-	pulse amplitude modulation
PCM	-	pulse coded modulation
PFM	-	pulse frequency modulation
PM	-	pulse modulation; photomultiplier
POGO	-	Polar Orbiting Geophysical Observatory
RAD	-	radius
RMS	-	root mean square
RPM	-	revolutions per minute
SD	-	San Diego
SEC	-	second
SIRS	-	satellite infrared spectrometer
SOEP	-	solar oriented experiment package
SQ	-	square
TV	-	television
U	-	university
UCLA	-	University of California, Los Angeles
U.S.	-	United States
USAF	-	United States Air Force
USSR, U.S.S.R.	-	Union of Soviet Socialist Republics
UT	-	universal time
UV	-	ultraviolet

V	-	volt
VA	-	Virginia
VLF	-	very low frequency
VS	-	versus
W	-	watt
WDC	-	World Data Center
Z	-	atomic number

NATIONAL SPACE SCIENCE DATA CENTER
SATELLITE EXPERIMENT DATA CATALOG ENTRIES
(DATED 09/24/70)

SPACECRAFT NAME- EXPLORER 17 NSSDC ID 63-009A
OTHER NAMES- AE A, S 6, 1963 9A

LAUNCH DATE- 04/03/63 DATE LAST SCIENTIFIC DATA RECORDED- 07/10/63

AGENCY- NASA-GSFC SPACECRAFT WEIGHT IN ORBIT- 184 KG

ORBIT TYPE- GEOCENTRIC EPOCH- 04/03/63 ORBIT PERIOD- 96.39 MIN.
APOCEE- 916. KM ALT PERIGEE- 255. KM ALT INCLINATION- 57.626 DEGREES

SPACECRAFT BRIEF DESCRIPTION
EXPLORER 17 WAS A SPIN-STABILIZED SPHERE 0.95 M IN DIAMETER. THE SPACECRAFT WAS VACUUM SEALED IN ORDER TO PREVENT CONTAMINATION OF THE LOCAL ATMOSPHERE. EXPLORER 17 CARRIED FOUR PRESSURE GAUGES FOR THE MEASUREMENT OF TOTAL NEUTRAL PARTICLE DENSITY, TWO MASS SPECTROMETERS FOR THE MEASUREMENT OF CERTAIN NEUTRAL PARTICLE CONCENTRATIONS, AND TWO ELECTROSTATIC PROBES FOR ION CONCENTRATION AND ELECTRON TEMPERATURE MEASUREMENTS. BATTERY POWER FAILED ON JULY 10, 1963. THREE OF THE FOUR PRESSURE GAUGES AND BOTH ELECTROSTATIC PROBES OPERATED NORMALLY. ONE SPECTROMETER MALFUNCTIONED, AND THE OTHER OPERATED INTERMITTENTLY.

EXPERIMENT NAME- PRESSURE GAUGE NSSDC ID 63-009A-03

ORIGINAL EXPERIMENT INSTITUTION- NASA-GSFC

INVESTIGATORS- G.P. NEWTON, NASA-GSFC , GREENBELT, MD.

DATE LAST USEFUL DATA RECORDED- 06/08/63

EXPERIMENT BRIEF DESCRIPTION
TWO REDHEAD (COLD CATHODE) AND TWO BAYARD-ALPERT (HOT FILAMENT) IONIZATION VACUUM GAUGES WERE USED TO MEASURE THE NEUTRAL PARTICLE DENSITY AND AMBIENT PRESSURE OF THE UPPER ATMOSPHERE BETWEEN 260 KM AND 900 KM. THE NEUTRAL PARTICLES WERE IONIZED BY ELECTRON BOMBARDMENT, AND LOGARITHMIC ELECTROMETERS CONVERTED THE RESULTING ION CURRENTS TO VOLTAGES SUITABLE FOR TELEMETRY. THESE TWO TYPES OF SENSORS TOGETHER WERE CAPABLE OF MEASURING OVER THE PRESSURE RANGE 10 TO THE MINUS 4 POWER TORR (10 TO THE TWELFTH POWER MOLECULES/CM CUBED) TO 10 TO THE MINUS 11 POWER TORR (10 TO THE FIFTH POWER MOLECULES/CM CUBED). ONE BAYARD-ALPERT GAUGE SUFFERED A LOSS IN SENSITIVITY, AND NO USEFUL DATA WERE OBTAINED FROM IT. THE REMAINING THREE GAUGES OPERATED NORMALLY AND YIELDED DATA DURING THE PERIOD APRIL 3 TO JUNE 8, 1963.

DATA SET NAME- NEUTRAL DENSITIES (260 KM TO 900 KM) NSSDC ID 63-009A-03A

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

TIME SPAN OF DATA- 04/03/63 TO 06/08/63

DATA SET BRIEF DESCRIPTION
THE ANALYZED DATA SET, BASED ON IONIZATION VACUUM GAUGE INFORMATION BETWEEN 260 KM AND 900 KM, IS IN PRINTED FORM ON 16 PAGES OF NASA TECHNICAL NOTE TN D-5447. THE DOCUMENT, ENTITLED "ATMOSPHERIC DENSITIES MEASURED BY THE EXPLORER 17 DENSITY GAUGES. ANALYSIS OF ERRORS AND THEIR EFFECTS UPON THE MEASUREMENTS," BY G.P. NEWTON AND R. HOROWITZ, WAS PUBLISHED IN NOVEMBER 1969. IT LISTS, IN TABULAR FORM, THE BEGINNING AND END DENSITIES FOR 4-MIN PASSES OVER TRACKING STATIONS. IN ADDITION, DENSITIES CORRECTED FOR UNCERTAINTIES IN GAS COMPOSITION AND FOR SYSTEMATIC ERRORS ARE ALSO LISTED FOR THESE SAME PASSES. USEFUL DATA WERE OBTAINED FROM THREE OF THE FOUR INDEPENDENT GAUGE SYSTEMS (TWO REDHEAD AND TWO BAYARD-ALPERT GAUGES) FOR 170 PASSES DURING THE PERIOD APRIL 3 TO JUNE 8, 1963. THIS TIME PERIOD REPRESENTS 65 PERCENT OF THE 100-DAY SATELLITE LIFETIME. ONE BAYARD-ALPERT GAUGE SUFFERED A LOSS IN SENSITIVITY AND YIELDED NO USEFUL DATA.

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SPACECRAFT NAME- ERS 13 NSSDC ID 64-040C
OTHER NAMES- 1964 40C, TRS 6, TRS MARK II, FLIGHT NO. 2

LAUNCH DATE- 07/17/64 DATE LAST SCIENTIFIC DATA RECORDED- 12/08/64

AGENCY- ARPA-USAF SPACECRAFT WEIGHT IN ORBIT- 2 KG

ORBIT TYPE- GEOCENTRIC EPOCH- 07/17/64 ORBIT PERIOD- 2352 MIN.
APOGEE-104400. KM ALT PERIGEE- 230. KM ALT INCLINATION- 31.9 DEGREES

SPACECRAFT BRIEF DESCRIPTION
ERS 13 WAS A SPIN-STABILIZED TETRAHEDRON THAT WEIGHED 2 KG AND MEASURED 9 IN. ALONG EACH TRIANGULAR EDGE. THE SPIN RATE WAS APPROXIMATELY 10 RPM, AND POWER WAS OBTAINED BY SOLAR CELLS. THE SATELLITE CARRIED A SCINTILLATION COUNTER AND A SOLID-STATE DETECTOR TO MEASURE ELECTRONS AND PROTONS IN THE RADIATION BELTS. THE ORBIT OF THE SATELLITE WAS HIGHLY ECCENTRIC WITH A 230-KM PERIGEE AND 104,400-KM APOGEE ALTITUDE. BECAUSE OF THE LOW (100 MW) TRANSMITTER POWER AT 136 MHZ, NO DATA WERE OBTAINED BEYOND 6 EARTH RADII. THE TRANSMISSION WAS NORMAL FROM LAUNCH UNTIL OCTOBER 20, 1964, WHEN THE TRANSMITTER BECAME INTERMITTENT. FROM THIS TIME UNTIL JANUARY 4, 1965, SOME TRANSMISSIONS WERE RECEIVED. A PAM/FM/PM TELEMETRY SYSTEM USING IRIG CHANNEL 5 WAS EMPLOYED.

EXPERIMENT NAME- CHARGED PARTICLE DETECTORS NSSDC ID 64-040C-01

ORIGINAL EXPERIMENT INSTITUTION- AEROSPACE CORP

INVESTIGATORS- J.I. VETTE, NASA-GSFC , GREENBELT, MD.
J.B. GARDNER, TRW SYSTEMS INC , REDONDO BEACH, CALIF.

DATE LAST USEFUL DATA RECORDED- 12/08/64

EXPERIMENT BRIEF DESCRIPTION
THE EXPERIMENT CONSISTED OF (1) A LITHIUM DRIFTED SILICON DETECTOR TO MEASURE SEPARATELY ELECTRONS ABOVE 700 KEV AND PROTONS BETWEEN 12 AND 23 MEV AND (2) A PLASTIC SCINTILLATION COUNTER TO MEASURE SEPARATELY ELECTRONS ABOVE 3.5 MEV AND PROTONS BETWEEN 39 AND 50 MEV IN THE RADIATION BELTS. THE PHOTOMULTIPLIER TUBE USED WITH THE SCINTILLATION COUNTER SHOWED A CHANGE IN GAIN AROUND SEPTEMBER 27, 1964. BOTH DETECTOR SYSTEMS WERE OMNIDIRECTIONAL AND USED LOGARITHMIC COUNT-RATE METERS TO CONVERT RATES INTO ANALOG SIGNALS. TWO PULSE HEIGHT DISCRIMINATORS WERE USED WITH EACH DETECTOR TO PROVIDE THE FOUR MEASUREMENTS.

DATA SET NAME- ORIGINAL CORRECTED COUNT RATES ON BINARY TAPE NSSDC ID 64-040C-01A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 07/17/64 TO 12/08/64

DATA SET BRIEF DESCRIPTION
THE COUNT RATES FROM THE FOUR DISCRIMINATORS WERE SCALED FROM THE ANALOG STRIP CHARTS. EACH RATE CHANNEL WAS SAMPLED FOR APPROXIMATELY 10 SEC IN SEQUENCE. A SINGLE RATE AVERAGED OVER THIS SAMPLE PERIOD WAS DETERMINED. BOTH TEMPERATURE AND VOLTAGE CORRECTIONS WERE MADE BEFORE THE SUBCARRIER OSCILLATOR FREQUENCY WAS CONVERTED TO A COUNT RATE. APPROXIMATELY 20,000 DATA POINTS FROM OVER 400 HR OF DATA WERE OBTAINED AND PUT ON PUNCHED CARDS. BESIDES THE COUNT RATES, THE TIME OF YEAR (DECIMAL DAYS), LONGITUDE (DEG), RADIAL DISTANCE (KM), GEOMAGNETIC EQUATORIAL RADIUS (EARTH RADII), GEOMAGNETIC LATITUDE (DEG), L SHELL (EARTH RADII), B/B SUBSCRIPT 0, AND THE CARD NUMBER APPEAR. THE DATA SET CONSISTS OF A SINGLE 7-TRACK, 556-BPI, CDC 3600, BINARY MAGNETIC TAPE CONTAINING THESE CARD IMAGES.

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SPACECRAFT NAME- COSMOS 49 NSSDC ID 64-069A
OTHER NAMES- 1964 69A

LAUNCH DATE- 10/24/64 DATE LAST SCIENTIFIC DATA RECORDED- 11/06/64

AGENCY- USSR SPACECRAFT WEIGHT IN ORBIT- 400 KG

ORBIT TYPE- GEOCENTRIC EPOCH- 10/24/64 ORBIT PERIOD- 91.78 MIN.
APOGEE- 466. KM ALT PERIGEE- 264. KM ALT INCLINATION- 48.99 DEGREES

SPACECRAFT BRIEF DESCRIPTION
COSMOS 49 WAS INSTRUMENTED WITH PROTON MAGNETOMETERS TO MAP THE EARTH'S MAGNETIC FIELD. THIS SPACECRAFT, ALONG WITH COSMOS 26, REPRESENTED THE U.S.S.R. CONTRIBUTION TO THE IQSY WORLD MAGNETIC SURVEY. THE CORRESPONDING U.S. MEASUREMENTS WERE PERFORMED ON OGO 2 AND OGO 4. COSMOS 49 WAS AN ELLIPSOID ABOUT 1.8 M LONG AND 1.2 M IN DIAMETER. IT APPEARS TO HAVE BEEN BATTERY POWERED FOR ABOUT 30 DAYS OPERATION. A BOOM 3.3 M LONG WAS ATTACHED TO ONE END OF THE SPACECRAFT TO CARRY THE MAGNETOMETERS. THE PERFORMANCE OF THE SPACECRAFT WAS SATISFACTORY.

EXPERIMENT NAME- PROTON PRECESSIONAL MAGNETOMETERS NSSDC ID 64-069A-01

ORIGINAL EXPERIMENT INSTITUTION- U.S.S.R.-IZMIRAN

INVESTIGATORS- SH.SH. DOLGINOV, U.S.S.R.-IZMIRAN ,
P-O AKADEMGORODOK, MOSCOW REGION, U.S.S.R.
V.I. NALIVAYKO, U.S.S.R.-IZMIRAN ,
P-O AKADEMGORODOK, MOSCOW REGION, U.S.S.R

DATE LAST USEFUL DATA RECORDED- 11/06/64

EXPERIMENT BRIEF DESCRIPTION
THE COSMOS 49 SPACECRAFT CARRIED TWO PROTON MAGNETOMETERS WITH THE AXES OF THEIR POLARIZE-SENSE COILS ORIENTED AT AN ANGLE OF 90 DEG TO EACH OTHER. AN ONBOARD TIMER TURNED ON THE TWO MAGNETOMETERS ALTERNATELY, AND ONE OR THE OTHER WAS SAMPLED ONCE EVERY 32.76 SEC. THE MAGNETOMETER SIGNALS WERE DIGITIZED BY MEASURING THE NUMBER OF CYCLES FROM A 100-KHZ REFERENCE QUARTZ OSCILLATOR WHICH OCCURRED DURING 512 CYCLES OF THE PROTON PRECESSION SIGNAL. THE MEASURED SCALAR TOTAL FIELD VALUES ALONG WITH TIME SIGNALS WERE STORED IN A MEMORY DEVICE WHICH COULD HOLD UP TO 800 MIN OF DATA. THE DATA WERE THEN READ OUT AS THE SPACECRAFT FLEW OVER THE RECEIVING STATIONS. THE EXPERIMENT PERFORMED SATISFACTORILY, AND THE REPORTED ACCURACY OF THE DATA IS WITHIN 2 GAMMAS.

DATA SET NAME- ORIGINAL REDUCED SCALAR FIELD DATA ON MICROFILM NSSDC ID 64-069A-01A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 10/24/64 TO 11/03/64

DATA SET BRIEF DESCRIPTION
THIS DATA SET CONTAINS THE COMPLETE SET OF ORIGINAL REDUCED SCALAR MAGNETIC

FIELD DATA AND DOCUMENTATION AS RECEIVED FROM WDC-B1, MOSCOW, ALONG WITH AN ENGLISH TRANSLATION OF THE DOCUMENTATION, ALL ON ONE REEL OF 35-MM MICROFILM. THE DATA CONSIST OF 17,489 FIELD MEASUREMENTS WITH THE FOLLOWING PARAMETERS FOR EACH MEASUREMENT -- (1) MAGNETOMETER NUMBER (1 OR 2), (2) MEASUREMENT NUMBER, (3) MOSCOW TIME (UT PLUS 3 HR) OF MEASUREMENT TO THE MINUTE, (4) SATELLITE ALTITUDE (TO A TENTH OF A KM) RELATIVE TO A GIVEN BIAXIAL ELLIPSOID, (5, 6) GEOGRAPHIC LATITUDE AND LONGITUDE TO ONE HUNDREDTH OF A DEGREE, (7) THE MEASURED FIELD INTENSITY IN GAMMAS, (8) THE COMPUTED FIELD INTENSITY FOR A GIVEN MODEL, AND (9) THE DIFFERENCE BETWEEN THE MEASURED AND COMPUTED FIELDS. THE DATA ARE CONTAINED IN TABLES IN THREE UNPUBLISHED REPORTS, THE FIRST OF WHICH CONTAINS TEXT DESCRIBING THE MEASUREMENTS, THEIR PROCESSING, CERTAIN RESULTS, AND THE CONTENT OF THE DATA TABLES. THE MEASUREMENTS ARE SCATTERED RATHER UNIFORMLY -- (1) IN TIME FROM OCTOBER 24 TO NOVEMBER 3, 1964, (2) IN LATITUDE FROM +49 DEG TO -49 DEG, (3) IN LONGITUDE, AND (4) IN ALTITUDE FROM 260 KM TO 436 KM. FALSE READINGS WHICH OCCURRED IN CASES OF UNFAVORABLE POSITIONS OF EITHER TRANSDUCER AXIS RELATIVE TO THE FIELD HAVE BEEN REMOVED. THE MICROFILM CONTAINS 360 MEASUREMENTS FROM ONE MAGNETOMETER ORDERED BY TIME, AND THEN 360 MEASUREMENTS FROM THE OTHER MAGNETOMETER, ETC.

DATA SET NAME- REDUCED SCALAR FIELD DATA ON BINARY MAGNETIC TAPE — NSSDC ID 64-069A-01B

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 10/24/64 TO 11/03/64

DATA SET BRIEF DESCRIPTION

THIS DATA SET CONTAINS THE COMPLETE SET OF REDUCED SCALAR MAGNETIC FIELD DATA ON AN IBM 7094, 7-TRACK, BINARY MAGNETIC TAPE, WITH ODD PARITY AT 556 BPI, COPIED FROM THE ORIGINAL DATA SET (64-069A-01A). THE TAPE WAS PRODUCED BY DR. J. C. CAIN AND CO-WORKERS AT GODDARD SPACE FLIGHT CENTER. EACH PHYSICAL RECORD CONTAINS 240 DATA WORDS PLUS ONE FORTRAN CONTROL WORD. EACH PHYSICAL RECORD CONTAINS 20 LOGICAL RECORDS. EACH LOGICAL RECORD CONSISTS OF THE 12 FLOATING POINT NUMBERS CHARACTERIZING ONE FIELD MEASUREMENT. THE PARAMETERS IN EACH LOGICAL RECORD ARE -- MAGNETOMETER NUMBER, DAY OF MONTH, MONTH, MEASUREMENT NUMBER, HOUR, MINUTE (DATE AND TIME IN UT), ALTITUDE (KM), LATITUDE (DEG), LONGITUDE, MEASURED FIELD (GAMMAS), COMPUTED FIELD FOR GSFC COSMOS 49 MODEL, AND THE DIFFERENCE BETWEEN THE MEASURED AND COMPUTED FIELDS. THE DATA ARE TIME ORDERED.

DATA SET NAME- REDUCED SCALAR FIELD DATA ON BCD MAGNETIC TAPE — NSSDC ID 64-069A-01C

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 10/24/64 TO 11/03/64

DATA SET BRIEF DESCRIPTION

THIS DATA SET CONTAINS THE COMPLETE SET OF REDUCED SCALAR MAGNETIC FIELD

DATA ON 7-TRACK, BCD MAGNETIC TAPE, WITH EVEN PARITY AT 800 BPI, COPIED AT NSSDC FROM THE BINARY TAPE OF DATA SET 64-069A-01B, WHICH IS A COPY OF THE DATA ON MICROFILM IN DATA SET 64-069A-01A. EACH PHYSICAL RECORD CONTAINS 1380 CHARACTERS, COMPRISING 20 LOGICAL RECORDS. EACH LOGICAL RECORD CONTAINS 69 CHARACTERS REPRESENTING 12 FLOATING POINT NUMBERS WHICH CHARACTERIZE ONE FIELD MEASUREMENT. THE PARAMETERS GIVEN FOR EACH MEASUREMENT ARE AS FOLLOWS -- MAGNETOMETER NUMBER, DAY OF MONTH, MONTH, MEASUREMENT NUMBER, HOUR, MINUTE (DATE AND TIME IN UT), ALTITUDE (KM), LATITUDE (DEG), LONGITUDE, MEASURED FIELD (GAMMAS), COMPUTED FIELD FOR GSFC COSMOS 49 MODEL, AND THE DIFFERENCE BETWEEN THE MEASURED AND COMPUTED FIELDS. THE DATA ARE TIME ORDERED.

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SPACECRAFT NAME- MARINER 4 NSSDC ID 64-077A
OTHER NAMES- 1964 77A

LAUNCH DATE- 11/28/64 DATE LAST SCIENTIFIC DATA RECORDED- 12/20/67

AGENCY- NASA-JPL SPACECRAFT WEIGHT IN ORBIT- 262 KG

ORBIT TYPE- HELIOCENTRIC EPOCH- 07/15/65 ORBIT PERIOD- 567 DAYS
APOGEE- 1.58 AU RAD PERIGEE- 1.1 AU RAD INCLINATION- 0 DEGREES

SPACECRAFT BRIEF DESCRIPTION
MARINER 4 WAS THE FOURTH IN A SERIES OF SPACECRAFT USED FOR PLANETARY EXPLORATION IN THE FLYBY, OR NONLANDING, MODE. THE SPACECRAFT WAS ORIENTED BOTH TOWARD THE SUN AND THE STAR CANOPUS. IT WAS LAUNCHED ON NOVEMBER 28, 1964, AND PASSED WITHIN 9846 KM OF THE PLANET MARS ON JULY 15, 1965. IN ADDITION TO TELEVISING PICTURES OF THE MARTIAN SURFACE, THE SPACECRAFT INSTRUMENTS MEASURED THE MAGNETIC FIELDS, CHARGED PARTICLES, PLASMA, AND DUST IN INTERPLANETARY SPACE AND IN THE VICINITY OF MARS. THE MISSION IS CONSIDERED A SUCCESS.

EXPERIMENT NAME- MARS TV CAMERA NSSDC ID 64-077A-01

ORIGINAL EXPERIMENT INSTITUTION- CAL TECH

INVESTIGATORS- R.B. LEIGHTON, CAL TECH , PASADENA, CALIF.

DATE LAST USEFUL DATA RECORDED- 07/15/65

EXPERIMENT BRIEF DESCRIPTION
THE TV VIDICON CAMERA USED FOR THIS EXPERIMENT HAD A 12-IN. FOCAL LENGTH, A 1-DEG FIELD OF VIEW, A 0.2- OR 0.08-SEC SHUTTER SPEED, AND USED BOTH RED AND GREEN FILTERS. SCANNING THE IMAGE IN 200 LINES, THE TV CAMERA PRODUCED A DIGITAL SIGNAL OF 240,000 BITS PER PICTURE. THE PICTURES WERE RECORDED ON A 2-TRACK, 1/4-IN., MAGNETIC TAPE LOOP 330 FT LONG. THE TAPE HAD CAPACITY

FOR SLIGHTLY MORE THAN THE 21 PICTURES THAT WERE TRANSMITTED TO EARTH. THIS TAPE WAS USED TO PRODUCE VARIOUS VERSIONS OF MARINER 4 IMAGERY AS NOTED IN THE DATA SET ENTRIES. A DETAILED DESCRIPTION OF THE MARINER 4 TELEVISION PICTURES IS PRESENTED IN JPL TECHNICAL REPORT 32-884 ENTITLED "MARINER IV PICTURES OF MARS." THIS DOCUMENT ALSO CONTAINS CATALOG TYPE PRINTS OF EACH MARINER 4 PICTURE.

DATA SET NAME- CALIBRATED AND GEOMETRICALLY CORRECTED PICTURES — NSSDC ID 64-077A-01A

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME SPAN OF DATA- 07/14/65 TO 07/15/65

DATA SET BRIEF DESCRIPTION
THIS DATA SET CONTAINS 16 PICTURES THAT WERE PRODUCED FROM THE ORIGINAL RECORDED MAGNETIC TAPE, DISPLAYED ON A CATHODE RAY TUBE, PHOTOGRAPHED ON 35-MM FILM, AND ENLARGED TO 4- X 5-IN. TRANSPARENCIES. THESE PHOTOGRAPHS ARE THE CALIBRATED AND GEOMETRICALLY CORRECTED VERSION THAT WAS ENHANCED IN CONTRAST. THIS DATA SET IS THE FIRST OF SIX VERSIONS OF PHOTO ENHANCEMENTS.

DATA SET NAME- CALIBRATED, RECTIFIED, AND SHARPENED PICTURES — NSSDC ID 64-077A-01B

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME SPAN OF DATA- 07/14/65 TO 07/15/65

DATA SET BRIEF DESCRIPTION
THIS DATA SET CONTAINS 21 (AND A FRACTION) PHOTOGRAPHS THAT ARE ESSENTIALLY THE SAME AS THOSE IN DATA SET 64-077A-01A EXCEPT THAT THEY HAVE BEEN PROCESSED TO IMPROVE IMAGE DETAIL.

DATA SET NAME- NEGATIVE VERSION OF CALIBRATED AND UNSHARPENED PICTURES — NSSDC ID 64-077A-01C

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME SPAN OF DATA- 07/14/65 TO 07/15/65

DATA SET BRIEF DESCRIPTION
THIS DATA SET CONTAINS 16 PHOTOGRAPHS IN A NEGATIVE VERSION OF THE CALIBRATED, ENHANCED PICTURES IN THE ORIGINAL PICTURE FORMAT. THIS SET OF PICTURES HAS NOT BEEN GEOMETRICALLY CORRECTED.

DATA SET NAME- CALIBRATED AND CONTRAST-ENHANCED PICTURES NSSDC ID 64-077A-01D

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME SPAN OF DATA- 07/14/65 TO 07/15/65

DATA SET BRIEF DESCRIPTION
THIS DATA SET CONTAINS 16 PHOTOGRAPHS THAT WERE CALIBRATED AND CONTRAST-ENHANCED AND THEN PRODUCED IN 4- X 5-IN. FORMAT FROM THE ORIGINAL 35-MM FILM. THE PHOTOGRAPHS ARE IN THE ORIGINAL PICTURE FORMAT.

DATA SET NAME- SECOND SHARPENED VERSION NSSDC ID 64-077A-01E

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME SPAN OF DATA- 07/14/65 TO 07/15/65

DATA SET BRIEF DESCRIPTION
THIS DATA SET CONTAINS 16 PHOTOGRAPHS THAT ARE ESSENTIALLY THE SAME AS THOSE IN DATA SET 64-077A-01D EXCEPT THAT THEY HAVE BEEN SHARPENED TO ENHANCE IMAGE DETAIL.

DATA SET NAME- VARIANCE PLOT PICTURES NSSDC ID 64-077A-01F

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME SPAN OF DATA- 07/14/65 TO 07/15/65

DATA SET BRIEF DESCRIPTION
THIS DATA SET CONTAINS 16 PHOTOGRAPHS THAT ARE 'FLUCTUATION PLOTS' IN WHICH SMOOTH AREAS ARE RENDERED AS DARK AREAS AND LOCALLY ROUGH AREAS ARE RENDERED AS LIGHT AREAS.

EXPERIMENT NAME- HELIUM MAGNETOMETER NSSDC ID 64-077A-02

ORIGINAL EXPERIMENT INSTITUTION- NASA-JPL

INVESTIGATORS- E.J. SMITH, NASA-JPL , PASADENA, CALIF.

DATE LAST USEFUL DATA RECORDED- 12/20/67

EXPERIMENT BRIEF DESCRIPTION
A VECTOR, LOW FIELD, HELIUM MAGNETOMETER, NOT TO BE CONFUSED WITH THE RUBIDIUM VAPOR OR HELIUM VAPOR MAGNETOMETER, WAS USED TO MEASURE THE INTERPLANETARY MAGNETIC FIELD. THE THREE COMPONENTS OF THE FIELD WERE MEASURED ESSENTIALLY SIMULTANEOUSLY, BUT LATER TRANSMITTED SEQUENTIALLY. EACH OBSERVATION REPRESENTED AN AVERAGE OVER APPROXIMATELY 1 SEC, I.E., THE RESPONSE DROPPED 3 DB FOR FREQUENCIES OF 1 HZ, AND HIGHER FREQUENCY INFORMATION WAS ESSENTIALLY LOST. IN EACH DATA FRAME, FOUR VECTOR MEASUREMENTS WERE MADE, SEPARATED BY INTERVALS OF 1.5, 0.9, AND 2.4 SEC. THE WHOLE FRAME WAS REPEATED EVERY 12.5 SEC. THERE WAS AN UNCERTAINTY OF PLUS OR MINUS 0.3 GAMMA PER COMPONENT. FIELDS WERE MEASURED AS HIGH AS 625 GAMMAS. THE EXPERIMENT OPERATED SUCCESSFULLY FOR THE OPERATIONAL LIFETIME OF THE SPACECRAFT.

DATA SET NAME- ORIGINAL VECTOR MAGNETIC FIELD DATA, 3-HR AVERAGES ON TAPE NSSDC ID 64-077A-02A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 11/28/64 TO 10/01/65

DATA SET BRIEF DESCRIPTION
THESE ANALYZED DATA CONSIST OF ONE 7-TRACK, BCD MAGNETIC TAPE AS SUPPLIED BY THE EXPERIMENTER. THE TAPE CONTAINS 3-HR AVERAGED VALUES OF THE VECTOR COMPONENTS OF THE MAGNETIC FIELD (IN A HELIOCENTRIC SOLAR POLAR COORDINATE SYSTEM), THE FIELD MAGNITUDE, THE RMS DEVIATION OF EACH OF THE AVERAGED VALUES, AND THE NUMBER OF DATA POINTS USED IN THE AVERAGE. THESE DATA COVER HELIOCENTRIC RADIAL DISTANCES FROM 1 TO 1.54 AU AND TIME PERIODS INCLUDING 11 SOLAR ROTATIONS.

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SPACECRAFT NAME- EXPLORER 26 NSSDC ID 64-086A
OTHER NAMES- EPE D, S 3C, 1964 86A

LAUNCH DATE- 12/21/64 DATE LAST SCIENTIFIC DATA RECORDED- 05/26/67

AGENCY- NASA-OSSA SPACECRAFT WEIGHT IN ORBIT- 46.0 KG

ORBIT TYPE- GEOCENTRIC EPOCH- 12/21/64 ORBIT PERIOD- 456 MIN.
APOGEE- 27192. KM ALT PERIGEE- 305. KM ALT INCLINATION- 20.1 DEGREES

SPACECRAFT BRIEF DESCRIPTION
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, AND 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, THE SPIN AXIS DIRECTION 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.

EXPERIMENT NAME- OMNIDIRECTIONAL AND UNIDIRECTIONAL ELECTRON AND PROTON FLUXES — NSSDC ID 64-086A-02

ORIGINAL EXPERIMENT INSTITUTION- U OF CALIFORNIA, SD

INVESTIGATORS- C.E. MCILWAIN, U OF CALIFORNIA, SD , LA JOLLA, CALIF.
R.W. FILLIUS, U OF CALIFORNIA, SD , LA JOLLA, CALIF.

DATE LAST USEFUL DATA RECORDED- 05/25/67

EXPERIMENT BRIEF DESCRIPTION

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- ORIGINAL ANALYZED L-ORDERED PARTICLE COUNT RATES ON MAGNETIC TAPE — NSSDC ID 64-086A-02A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 12/21/64 TO 02/28/66

DATA SET BRIEF DESCRIPTION

THIS ANALYZED DATA SET CONSISTS OF TWO 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- TIME-ORDERED PARTICLE COUNT RATES ON MAGNETIC TAPE — NSSDC ID 64-086A-02B

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 12/21/64 TO 05/24/67

DATA SET BRIEF DESCRIPTION
THIS REDUCED 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 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.

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SPACECRAFT NAME- EXPLORER 28 — NSSDC ID 65-042A
OTHER NAMES- IMP-C, IMP 3, 1965 42A, S 74B

LAUNCH DATE- 05/29/65 DATE LAST SCIENTIFIC DATA RECORDED- 05/12/67

AGENCY- NASA-OSSA SPACECRAFT WEIGHT IN ORBIT- 58.4 KG

ORBIT TYPE- GEOCENTRIC EPOCH- 05/29/65 ORBIT PERIOD- 8400 MIN.
APOGEE-260777. KM ALT PERIGEE- 205. KM ALT INCLINATION- 33.87 DEGREES

SPACECRAFT BRIEF DESCRIPTION
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 OF 81.9 SEC 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.

EXPERIMENT NAME- TOTAL IONIZATION EXPERIMENT — NSSDC ID 65-042A-05

ORIGINAL EXPERIMENT INSTITUTION- U OF CALIFORNIA, BERK

INVESTIGATORS- K.A. ANDERSON, U OF CALIFORNIA, BERK., BERKELEY, CALIF.

DATE LAST USEFUL DATA RECORDED- 01/03/67

EXPERIMENT BRIEF DESCRIPTION

A NEHER-TYPE IONIZATION CHAMBER AND TWO ANTON 213 GM TUBES WERE USED TO STUDY ENERGETIC PARTICLE FLUXES IN THE MAGNETOSPHERE AND INTERPLANETARY SPACE. THE ION CHAMBER MEASURED TOTAL IONIZATION DUE TO ENERGETIC PROTONS GREATER THAN 17 MEV AND ENERGETIC ELECTRONS GREATER THAN 1 MEV. ONE OF THE GM TUBES HAD A 1.7 MG/SQ CM WINDOW AND WAS POINTED PERPENDICULAR TO THE SPIN AXIS. IT MEASURED ELECTRONS SCATTERED OFF A GOLD FOIL. THIS GM TUBE RESPONDED DIRECTIONALLY TO ELECTRONS GREATER THAN 45 KEV, WHILE IT RESPONDED OMNIDIRECTIONALLY TO BACKGROUND PARTICLES GREATER THAN 52 MEV. THE SECOND GM TUBE HAD A 1.2 MG/SQ CM WINDOW AND WAS PARALLEL TO THE FIRST. IT LOOKED DIRECTLY INTO SPACE THROUGH A HOLE IN THE SPACECRAFT SKIN AND RESPONDED DIRECTIONALLY TO ELECTRONS GREATER THAN 40 KEV AND PROTONS GREATER THAN 500 KEV. OMNIDIRECTIONALLY, THIS GM TUBE RESPONDED TO ELECTRONS GREATER THAN 6 MEV. FORTY-SEC ACCUMULATIONS FROM THE ION CHAMBER AND EACH OF THE GM TUBES WERE READ OUT TWICE DURING EACH TELEMETRY SEQUENCE (81.92 SEC). EACH READOUT REQUIRED 1.6 SEC. THE EXPERIMENT PERFORMED NORMALLY THROUGHOUT THE LIFETIME OF THE SPACECRAFT.

DATA SET NAME- ANTON 213 GM AND IONIZATION CHAMBER REDUCED DATA ON TAPE — NSSDC ID 65-042A-05A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 05/29/65 TO 12/31/65

DATA SET BRIEF DESCRIPTION

THIS SET OF REDUCED DATA IS CONTAINED ON TWO 7-TRACK, BCD TAPES WITH 800 CHARACTERS PER IN. THAT WERE GENERATED BY THE EXPERIMENTER ON AN IBM 360/40 SYSTEM. DATA FROM ALL THREE DETECTORS, TWO GM TUBES AND ONE IONIZATION CHAMBER, ARE PRESENTED IN THE FORM OF 40-SEC ACCUMULATIONS. THE DATA ARE TIME ORDERED AND CONTAIN NO EPHEMERIS INFORMATION.

DATA SET NAME- GRAPHS OF GM AND IONIZATION CHAMBER DATA ON MICROFILM — NSSDC ID 65-042A-05B

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 05/29/65 TO 12/31/65

DATA SET BRIEF DESCRIPTION

THIS DATA SET CONSISTS OF ORIGINAL DATA ON ONE ROLL OF 35-MM MICROFILM. THE DATA WERE MICROFILMED AT NSSDC FROM PLOTS SUBMITTED BY THE EXPERIMENTER. EACH FRAME CONTAINS 24 HR OF DATA FROM THE TWO GM TUBES AND ONE IONIZATION CHAMBER. THE DATA ARE PRESENTED IN THE FORM OF LOG COUNTS PER SEC VS TIME. THE DATA ARE TIME ORDERED AND CONTAIN NO EPHEMERIS INFORMATION.

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SPACECRAFT NAME- ERS 17 NSSDC ID 65-058C
OTHER NAMES- 1965 58C, ORS III 1

LAUNCH DATE- 07/20/65 DATE LAST SCIENTIFIC DATA RECORDED- 11/03/65

AGENCY- ARPA-USAF SPACECRAFT WEIGHT IN ORBIT- 6.5 KG

ORBIT TYPE- GEOCENTRIC EPOCH- 07/20/65 ORBIT PERIOD- 2634 MIN.
APOGEE-112200. KM ALT PERIGEE- 192. KM ALT INCLINATION- 34.4 DEGREES

SPACECRAFT BRIEF DESCRIPTION
THE ENVIRONMENTAL RESEARCH SATELLITE 17 CARRIED A SET OF FIVE RADIATION DETECTORS DESIGNED TO MEASURE CHARGED PARTICLES, X RAYS, GAMMA RAYS, AND COSMIC RAYS IN THE NEAR-EARTH ENVIRONMENT. THE SATELLITE WAS LAUNCHED ON JULY 20, 1965, INTO A HIGHLY ELLIPTICAL ORBIT WHOSE INITIAL APOGEE AND PERIGEE ALTITUDES WERE 112,200 KM AND 192 KM. INITIAL LOCAL TIME OF APOGEE WAS 1630 HR. THE SATELLITE WAS SPIN STABILIZED WITH A SPIN RATE OF APPROXIMATELY 6 RPM. A 16-CHANNEL PAM/FM/PM TELEMETER USING A SUBCOMMUTATOR AND IRIG FM CHANNEL 5 WAS EMPLOYED. EACH CHANNEL WAS SAMPLED FOR 4.5 SEC EVERY 72 SEC. DATA COVERAGE WAS OBTAINED AT ABOUT AN 86 PERCENT LEVEL FOR THE INITIAL 4 WEEKS OF OPERATION AND AT ABOUT A 26 PERCENT LEVEL THEREAFTER UNTIL NOVEMBER 3, 1965, WHEN THE TRANSMITTER CEASED. APPROXIMATELY 1500 HR OF DATA WERE OBTAINED.

DATA SET NAME- ORBIT PARAMETERS PLOTTED VS TIME ON MICROFILM NSSDC ID 65-058C-00E

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME SPAN OF DATA- 07/20/65 TO 11/03/65

DATA SET BRIEF DESCRIPTION
THIS DATA SET IS ON ONE ROLL OF 16-MM MICROFILM ALONG WITH TWO OTHER DATA SETS -- HOUSEKEEPING DATA (DATA SET 65-058C-01C) AND DETECTOR COUNT RATES (DATA SET 65-058C-01B). FOR GEOCENTRIC DISTANCES BELOW 12 EARTH RADII, THE LOCAL TIME, GEOCENTRIC DISTANCE, MCILWAIN L PARAMETER, AND THE RATIO OF THE MAGNETIC FIELD TO THE EQUATORIAL VALUE, B(SATELLITE)/B(EQUATOR) SUBSCRIPT 0, ARE PLOTTED ON A SINGLE GRAPH AS A FUNCTION OF UT. EACH PLOT INCLUDES 15 HR OF DATA. FOR GEOCENTRIC DISTANCES ABOVE 12 EARTH RADII, THE LOCAL TIME, GEOCENTRIC DISTANCE, MAGNETIC LATITUDE, AND ECLIPTIC LATITUDE ARE PLOTTED ON A SINGLE GRAPH VS UT.

EXPERIMENT NAME- CHARGED PARTICLE DETECTORS NSSDC ID 65-058C-01

ORICINAL EXPERIMENT INSTITUTION- AERCSPACE CCRP

INVESTIGATORS- J.I. VETTE, NASA-GSFC , GREENBELT, MD.

DATE LAST USEFUL DATA RECORDED- 11/03/65

EXPERIMENT BRIEF DESCRIPTION
DETECTORS SENSITIVE TO TRAPPED PARTICLES INCLUDED A LITHIUM-DRIFTED SILICON DEVICE FOR DETECTING ELECTRONS ABCVE 320 KEV AND PRCTONS FROM 8 TO 21 MEV, A PLASTIC SCINTILLATION COUNTER FOR ELECTRONS ABOVE 100 KEV AND PROTONS FROM 3.5 TO 27 MEV, AND A SHIELDED SODIUM IODIDE SCINTILLATION COUNTER FOR ELECTRONS ABOVE 3.2 MEV AND PROTONS ABOVE 35 MEV. THE PULSE SIGNAL FROM EACH OF THE THREE DETECTORS WAS FED TC TWC INTEGRAL PULSE HEIGHT DISCRIMINATORS. THE PULSE OUTPUTS OF THE LOWER LEVEL DISCRIMINATORS MEASURED ELECTRONS, AND THOSE FRCM THE HIGHER LEVEL DISCRIMINATORS MEASURED PROTONS. FOUR OF THE SIX OUTPUTS WERE FED SEPARATELY INTO TWO LOGARITHMIC COUNT-RATE METERS, ONE FOR HIGH AND ONE FCR LCW COUNT RATES. THE LITHIUM AND SODIUM HIGH-LEVEL DISCRIMINATCR OUTPUTS WERE EACH FED INTO TWO SINGLE-RATE METERS. THE 10 ANALOG VOLTAGES FROM THE RATE METERS AND A QUASI-DIGITAL OUTPUT FROM THE LITHIUM HIGH-LEVEL DISCRIMINATOR WERE EACH TELEMETERED ON A SEPARATE CHANNEL AND SAMPLED FOR 4.5 SEC EVERY 72 SEC. THE LOW-COUNT-RATE CHANNEL FOR ELECTRONS GREATER THAN 3.2 MEV FAILED ON JULY 23, 1965. ALL OTHER CHANNELS OF THIS EXPERIMENT OPERATED UNTIL THE CESSATION OF TELEMETRY. ALL OF THESE DETECTOR SYSTEMS WERE OMNIDIRECTIONAL EXCEPT FOR THE PLASTIC SCINTILLATICN COUNTER, WHICH HAD A CONICAL FIELD OF VIEW WITH A 45-DEG HALF ANGLE.

DATA SET NAME- MERGED COUNT RATES, 4.5-SEC AVG AND .05-SEC MEASUREMENTS CN TAPE NSSDC ID 65-058C-01A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PRCCESSED

TIME SPAN OF DATA- 07/20/65 TO 11/03/65

DATA SET BRIEF DESCRIPTION
THIS DATA SET CONSISTS OF THIRTY-TWO 7-TRACK, 800-BPI, BCD TAPES WHICH CONTAIN IDENTIFICATION AND HEADER INFCRMATION, TIME, SUBCARRIER FREQUENCY, DETECTOR COUNT RATES, FLAGS, CRBITAL COORDINATES, AND ALL OF THE RAW DATA SAMPLED 20 TIMES A SEC. THESE TAPES ALSO CONTAIN DATA SETS 65-058C-02A AND 65-058C-03A. THE DETECTOR COUNT RATES WERE OBTAINED BY AVERAGING OVER EACH 4.5-SEC SAMPLE OF EACH DETECTOR IN THE SATELLITE. THE EPHEMERIS DATA ALSO INCLUDE GEOMAGNETIC AND ECLIPTIC COORDINATES. THE BCD TAPE FORMAT CONSISTS OF EIGHT LOGICAL RECORDS PER PHYSICAL RECCRD. EACH LOGICAL RECORD IS 120 CHARACTERS LONG. THE TIME PERIOD COVERED IS FRCM 0849 UT CN JULY 20, 1965, TO 2332 UT ON NOVEMBER 3, 1965, WITH NUMEROUS TIME GAPS IN THE INTERVAL. APPROXIMATELY 1500 HR OF DATA WERE ACQUIRED IN THIS TIME PERICD.

DATA SET NAME- DETECTOR COUNT RATES PLOTTED VS TIME ON MICROFILM — NSSDC ID 65-058C-01B

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME SPAN OF DATA- 07/20/65 TO 11/03/65

DATA SET BRIEF DESCRIPTION
THE DATA ARE ON ONE ROLL OF 16-MM MICROFILM ALONG WITH TWO OTHER DATA SETS -- ORBIT PARAMETERS (DATA SET 65-058C-00E) AND HOUSEKEEPING DATA (DATA SET 65-058C-01C). THE COUNT RATES FOR ALL DETECTOR CHANNELS OF THE SATELLITE EXCEPT FOR THE QUASI-DIGITAL CHANNELS ARE PLOTTED VS UT. THESE INCLUDE THE FOLLOWING MEASUREMENTS -- (1) ELECTRONS GREATER THAN 100 KEV, (2) ELECTRONS GREATER THAN 320 KEV, (3) ELECTRONS GREATER THAN 3.2 MEV, (4) PROTONS 3.5 TO 27 MEV, (5) PROTONS 8 TO 21 MEV, (6) PROTONS GREATER THAN 35 MEV, (7) X RAYS 30 TO 100 KEV, (8) COSMIC-RAY PROTONS GREATER THAN 30 MEV, AND (9) SOLAR X RAYS 1- TO 14-A OR ELECTRONS ABOVE 40 KEV. THE MEASUREMENTS LISTED IN (7) AND (8) ARE DATA FROM EXPERIMENT 65-058C-03, AND THE MEASUREMENTS LISTED IN (9) ARE FROM EXPERIMENT 65-058C-02. EACH PLOT CONTAINS 15 HR OF DATA.

DATA SET NAME- HOUSEKEEPING DATA PLOTTED VS TIME ON MICROFILM — NSSDC ID 65-058C-01C

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME SPAN OF DATA- 07/20/65 TO 11/03/65

DATA SET BRIEF DESCRIPTION
THE DATA ARE ON ONE ROLL OF 16-MM MICROFILM ALONG WITH TWO OTHER DATA SETS -- ORBIT PARAMETERS (DATA SET 65-058C-00E) AND DETECTOR COUNT RATES (DATA SET 65-058C-01B). THE STRUCTURE TEMPERATURE, HIGH- AND LOW-FREQUENCY REFERENCE VALUES, AND THE SUN SENSOR OUTPUT FREQUENCY ARE PLOTTED VS UT. EACH PLOT INCLUDES 15 HR OF DATA.

EXPERIMENT NAME- X-RAY DETECTORS — NSSDC ID 65-058C-02

ORIGINAL EXPERIMENT INSTITUTION- AEROSPACE CORP

INVESTIGATORS- J.I. VETTE, NASA-GSFC , GREENBELT, MD.
L.E. PETERSON, U OF CALIFORNIA, SD , LA JOLLA, CALIF.
J.L. MATTESON, U OF CALIFORNIA, SD , LA JOLLA, CALIF.

DATE LAST USEFUL DATA RECORDED- 09/15/65

EXPERIMENT BRIEF DESCRIPTION
THREE EON 6213 GEIGER TUBES WERE MOUNTED ALONG THREE MUTUALLY PERPENDICULAR AXES. THE CONICAL FIELD OF VIEW OF EACH DETECTOR WAS APPROXIMATELY A 50-DEG HALF ANGLE. THE OUTPUTS OF THESE THREE DETECTORS WERE ADDED TOGETHER AND CONVERTED BY A LOGARITHMIC COUNT-RATE METER INTO AN ANALOG VOLTAGE. A QUASI-DIGITAL OUTPUT FOR LOW RATES WAS OBTAINED BY MEASURING A SUMMED SCALE OF 4 AND SCALE OF 64. THE ANALOG AND QUASI-DIGITAL CHANNELS WERE SAMPLED FOR 4.5 SEC EVERY 72 SEC. THE DETECTOR SYSTEM WAS SENSITIVE TO SOLAR X RAYS IN THE 1- TO 14-A RANGE AND TO ELECTRONS ABOVE 40 KEV. THIS SYSTEM FAILED ON SEPTEMBER 15, 1965. THE SUM OF THE OUTPUT OF THE THREE ORTHOGONAL SOLAR CELLS, WITH THE SAME LOOK ANGLES AS THE DETECTORS, WAS USED TO GIVE CRUDE SOLAR ASPECT INFORMATION.

DATA SET NAME- MERGED COUNT RATES, 4.5-SEC AVG AND .05-SEC MEASUREMENTS ON TAPE — NSSDC ID 65-058C-02A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 07/20/65 TO 11/03/65

DATA SET BRIEF DESCRIPTION
THIS DATA SET IS COMBINED WITH 65-058C-01A AND 65-058C-03A ON THIRTY-TWO 7-TRACK, 800-BPI, BCD TAPES. THE COUNT-RATE SUM OF THE THREE GEIGER TUBES WAS OBTAINED BY AVERAGING OVER EACH 4.5-SEC SAMPLE. THE .05-SEC SAMPLES OF THE RAW DATA AND THE QUASI-DIGITAL CHANNEL ARE ALSO AVAILABLE. FOR THE TAPE FORMAT SEE BRIEF DESCRIPTION 65-058C-01A. PLOTS OF THE DATA ARE CONTAINED IN DATA SET 65-058C-01B.

EXPERIMENT NAME- GAMMA-RAY DETECTOR — NSSDC ID 65-058C-03

ORIGINAL EXPERIMENT INSTITUTION- AEROSPACE CORP

INVESTIGATORS- J.I. VETTE, NASA-GSFC , GREENBELT, MD.
L.E. PETERSON, U OF CALIFORNIA, SD , LA JOLLA, CALIF.
J.L. MATTESON, U OF CALIFORNIA, SD , LA JOLLA, CALIF.

DATE LAST USEFUL DATA RECORDED- 11/03/65

EXPERIMENT BRIEF DESCRIPTION
AN OMNIDIRECTIONAL PHOSWICH-TYPE SCINTILLATION COUNTER WAS USED TO MEASURE GAMMA RAYS BETWEEN 30 KEV AND 10 MEV AND ALSO TO PROVIDE A MEASURE OF THE TOTAL COSMIC-RAY FLUX FOR PROTONS GREATER THAN 30 MEV. THE FIVE-LEVEL DIFFERENTIAL ANALYZER PROVIDED AN ENERGY LOSS SPECTRUM IN THE 0.03- TO 0.1-MEV, 0.1- TO 0.3-MEV, 0.3- TO 1-MEV, 1- TO 3-MEV, AND 3- TO 10-MEV RANGES. AN INTEGRAL DISCRIMINATOR PROVIDED A COSMIC-RAY CHANNEL FOR ENERGY LOSSES ABOVE 10 MEV. THE LOWEST LEVEL CHANNEL WAS CONVERTED TO AN ANALOG VOLTAGE USING A LOGARITHMIC COUNT-RATE METER. THIS CHANNEL WAS SAMPLED FOR

4.5 SEC EVERY 72 SEC. THE INTEGRAL COSMIC-RAY CHANNEL WAS CONVERTED TO AN ANALOG VOLTAGE IN A SIMILAR FASHION, BUT WAS SAMPLED FOR 4.5 SEC EVERY 576 SEC. ALL OTHER CHANNELS WERE SCALED DOWN, AND THE SUMMED OUTPUT OF SCALERS WAS SAMPLED EVERY 576 SEC. THE CHARGED PARTICLE REJECTION FEATURE OF THE PHOSWICH CIRCUIT FAILED AT LAUNCH, AND THE INTEGRAL DISCRIMINATOR CHANNEL RATE DECREASED TO NEARLY ZERO BY AUGUST 5, 1965, BECAUSE OF AN AMPLIFIER SATURATION. THE INTERPRETATION OF THE DATA FROM THIS DETECTOR IS DIFFICULT BECAUSE OF THE VARIOUS MALFUNCTIONS.

DATA SET NAME- MERGED COUNT RATES, 4.5-SEC AVG AND .05-SEC MEASUREMENTS ON TAPE — NSSDC ID 65-058C-03A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 07/20/65 TO 11/03/65

DATA SET BRIEF DESCRIPTION
THIS DATA SET IS COMBINED WITH 65-058C-01A AND 65-058C-02A ON THIRTY-TWO 7-TRACK, 800-BPI, BCD TAPES. THE COUNT RATES OF THE .03- TO .1-MEV CHANNEL AND THE GREATER THAN 10-MEV CHANNEL WERE OBTAINED BY AVERAGING OVER EACH 4.5-SEC SAMPLE. THE .05-SEC SAMPLES OF THE RAW DATA FROM THESE CHANNELS AND THE FOUR QUASI-DIGITAL CHANNELS ARE AVAILABLE. FOR THE TAPE FORMAT SEE BRIEF DESCRIPTION 65-058C-01A. PLOTS OF A PORTION OF THE DATA ARE CONTAINED IN DATA SET 65-058C-01B.

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SPACECRAFT NAME- OV1 2 — NSSDC ID 65-079A
OTHER NAMES- SATAR, 1965 78A

LAUNCH DATE- 10/05/65 DATE LAST SCIENTIFIC DATA RECORDED- 04/--/67

AGENCY- USAF SPACECRAFT WEIGHT IN ORBIT- 88 KG

ORBIT TYPE- GEOCENTRIC EPOCH- 10/06/65 ORBIT PERIOD- 125.6 MIN.
APOGEE- 3462. KM ALT PERIGEE- 403. KM ALT INCLINATION- 144.3 DEGREES

SPACECRAFT BRIEF DESCRIPTION
THIS SPACECRAFT CARRIED INSTRUMENTATION FOR THE STUDY OF ENERGETIC PARTICLE FLUXES AND SPECTRA AND RESULTING DOSE RATES. A MAJOR OBJECTIVE WAS TO OBTAIN DATA WITH WHICH TO CHECK APPROXIMATIONS MADE IN THEORETICAL DOSE CALCULATIONS. THE SPACECRAFT HAD A SLOWLY VARYING TUMBLE PERIOD OF TENS OF SECONDS. SPACECRAFT PERFORMANCE INITIALLY WAS NORMAL. HOWEVER, THE ONBOARD CLOCK AND TAPE RECORDER FAILED ON DECEMBER 1, 1965, AND ON JANUARY 13, 1966, RESPECTIVELY. LIMITED REAL-TIME OPERATIONS WERE CARRIED OUT UNTIL TOTAL SPACECRAFT FAILURE IN APRIL 1967.

DATA SET NAME- OV1 2 EPHEMERIS TAPES NSSDC ID 65-078A-00D

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 10/05/65 TO 12/01/65

DATA SET BRIEF DESCRIPTION
THE SIX OV1 2 EPHEMERIS TAPES ARE UNBLOCKED, 7-TRACK, 556-BPI, BINARY TAPES WRITTEN IN FORTRAN IV ON AN IBM 7094. EXCEPT FOR IDENTIFICATION RECORDS, EACH LOGICAL RECORD CONTAINS TIME, SPACECRAFT LATITUDE, LONGITUDE, AND ALTITUDE, AND SUCH COMPUTED QUANTITIES AS MAGNETIC FIELD MAGNITUDE AND COMPONENTS, L, AND INVARIANT LATITUDE. THE TIME COVERAGE IS NEARLY IDENTICAL TO THAT OF THE UCLA PARTICLE EXPERIMENT DATA SET 65-078A-02A, I.E., 25 PERCENT OF THE INTERVAL OCTOBER 5, 1965, TO DECEMBER 1, 1965. THESE TAPES WERE PROVIDED TO NSSDC BY DR. T. FARLEY, UCLA.

EXPERIMENT NAME- ELECTRON AND PROTON DETECTORS NSSDC ID 65-078A-02

ORIGINAL EXPERIMENT INSTITUTION- U OF CALIFORNIA, LA

INVESTIGATORS- T.A. FARLEY, U OF CALIFORNIA, LA , LOS ANGELES, CALIF.

DATE LAST USEFUL DATA RECORDED- 12/01/65

EXPERIMENT BRIEF DESCRIPTION
DIRECTIONAL FLUXES OF ELECTRONS WERE MEASURED BY A CSI SCINTILLATOR ATTACHED TO AN RCA 4439 PHOTOMULTIPLIER TUBE. A PLASTIC ANTICOINCIDENCE SCINTILLATOR SURROUNDED THIS DETECTOR. THE ANODE OUTPUT YIELDED COUNT RATES OF ELECTRONS ABOVE 560 KEV. EIGHT-CHANNEL PULSE HEIGHT ANALYSIS WAS APPLIED TO THE LAST DYNODE PULSE FOR EACH APPROPRIATE INCIDENT PARTICLE. A DYNODE OUTPUT GAIN LOSS SHIFTED THE MEASURABLE ELECTRON ENERGIES UPWARD SO THAT ONLY THE LOWEST FIVE CHANNELS YIELDED USEFUL INFORMATION. THE ELECTRON ENERGY RANGE 1.2 TO 4.7 MEV WAS COVERED BY THESE FIVE CHANNELS. ALL LOCAL PITCH ANGLES WERE SAMPLED DURING EACH SPACECRAFT SPIN PERIOD. EXCEPT FOR THE DYNODE GAIN LOSS, THE DETECTOR WORKED WELL FROM LAUNCH UNTIL DECEMBER 1, 1965, WHEN THE ONBOARD CLOCK MALFUNCTIONED. TWO PLASTIC SCINTILLATORS MEASURED THE DIRECTIONAL FLUXES OF PROTONS WITH ALL LOCAL PITCH ANGLES AND IN THE ENERGY INTERVALS 10 TO 23 MEV AND 22 TO 50 MEV, RESPECTIVELY. THE DETECTORS FUNCTIONED NORMALLY OVER THE 18-MONTH PERIOD OF DATA TRANSMISSION, ALTHOUGH DATA AND EPHEMERIS ARE AVAILABLE ONLY BETWEEN OCTOBER 5, 1965, AND DECEMBER 1, 1965. IN ADDITION, THE EXPERIMENTAL PACKAGE CONTAINED A FOUR-CHANNEL PROTON SPECTRUM ANALYZER THAT PRODUCED NO USEFUL INFORMATION. A COMPLETE DATA SAMPLING SEQUENCE REQUIRED 2 SEC. THIS SEQUENCE INCLUDED FOUR READINGS EACH OF THE FLUXES OF ELECTRONS ABOVE 560 KEV AND OF PROTONS BETWEEN 10 AND 23 MEV AND BETWEEN 22 AND 50 MEV, AND ONE READING OF EACH ELECTRON AND PROTON PULSE HEIGHT ANALYSIS CHANNEL. THE DATA WERE TRANSMITTED OVER TELEMETRY CHANNELS 15 AND 16 (ELECTRON AND PROTON DATA, EACH TYPE IN BOTH CHANNELS).

DATA SET NAME- ORIGINAL REDUCED COUNT-RATE AND PULSE HEIGHT DATA ON TAPE — NSSDC ID 65-078A-02A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 10/05/65 TO 12/01/65

DATA SET BRIEF DESCRIPTION
THIS DATA SET CONSISTS OF TWO SUBSETS OF 7-TRACK, 556-BPI, BCD MAGNETIC TAPES GENERATED BY THE EXPERIMENTER. REDUCED DATA FOR CHANNELS 15 AND 16 ARE RECORDED ON 44 AND 35 TAPES, RESPECTIVELY. EACH SUBSET IS NEARLY COMPLETELY TIME ORDERED. TAKEN TOGETHER, THE TAPES CONTAIN ELECTRON AND PROTON EVENT COUNT RATES (FOUR FOR EACH DETECTOR) AND ELECTRON AND PROTON SPECTROMETER OUTPUTS FOR EACH 2-SEC INTERVAL. DOSIMETRY AND X-RAY INFORMATION FROM OTHER EXPERIMENTS IS ALSO FOUND ON THE TAPES. NO EPHEMERIS INFORMATION IS INCLUDED ON THE TAPES, BUT THIS IS AVAILABLE AS DATA SET 65-078A-00D. TIME COVERAGE RUNS FROM OCTOBER 5, 1965, TO DECEMBER 1, 1965, WITH ABOUT 25 PERCENT COMPLETENESS. A NEW SET OF TAPES, ON WHICH CHANNEL 15 AND 16 DATA AND EPHEMERIS DATA HAVE BEEN MERGED, IS AVAILABLE AS DATA SET 65-078A-02C.

DATA SET NAME- L-ORDERED PERPENDICULAR, OMNIDIRECTIONAL ELECTRON FLUXES, MICROFILM LISTING — NSSDC ID 65-078A-02B

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 10/--/65 TO 11/--/65

DATA SET BRIEF DESCRIPTION
THIS DATA SET CONSISTS OF A SINGLE REEL OF 16-MM MICROFILM ON WHICH APPEARS A COMPUTER PRINTOUT LISTING THE PERPENDICULAR AND OMNIDIRECTIONAL FLUXES OF ELECTRONS GREATER THAN 560 KEV VS COMPUTED MAGNETIC FIELD MAGNITUDE AT ABOUT 12 DISCRETE L VALUES BETWEEN 1.18 AND 1.75. THE FLUX VALUES ARE THOSE DERIVED BY THE EXPERIMENTER USING THE APPROPRIATE DATA FROM DATA SET 65-078A-02A.

DATA SET NAME- EPHEMERIS MERGED, EDITED VERSION OF DATA SET 65-078A-02A — NSSDC ID 65-078A-02C

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 10/05/65 TO 12/01/65

DATA SET BRIEF DESCRIPTION
THIS DATA SET CONSISTS OF THREE 7-TRACK, 800-BPI, IBM 7094 BINARY TAPES GENERATED AT NSSDC. EACH PHYSICAL RECORD CONTAINS THIRTY 32-WORD LOGICAL RECORDS, FROM THE TAPES OF CHANNELS 15 AND 16 (DATA SET 65-078A-02A), THE

COOD DATA VALUES FROM THE UCLA PARTICLE DETECTORS WERE TAKEN FOR CORRESPONDING 2-SEC TELEMETRY SEQUENCES AND WERE MERGED TOGETHER WITH EPHEMERIS DATA FROM DATA SET 65-078A-00D. THUS, EACH LOGICAL RECORD OF 65-078A-02C CONTAINS TIME, FOUR SUCCESSIVE COUNT RATES FOR ELECTRONS ABOVE 560 KEV, FOR PROTONS BETWEEN 10 AND 23 MEV, AND FOR PROTONS BETWEEN 22 AND 50 MEV, ONE COUNT RATE FOR EACH OF FIVE ELECTRON PULSE HEIGHT ANALYSIS CHANNELS, SPACECRAFT LATITUDE, LONGITUDE, AND ALTITUDE, AND COMPUTED VALUES OF MAGNETIC FIELD (TOTAL MAGNITUDE AND COMPONENTS), L, AND INVARIANT LATITUDE.

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SPACECRAFT NAME- OGO 2 NSSDC ID 65-081A
OTHER NAMES- OGO-C, POGO 1, S 5C, 1965 81A

LAUNCH DATE- 10/14/65 DATE LAST SCIENTIFIC DATA RECORDED- 10/--/67

AGENCY- NASA-OSSA SPACECRAFT WEIGHT IN ORBIT- 520 KG

ORBIT TYPE- GEOCENTRIC EPOCH- 10/15/65 ORBIT PERIOD- 104 MIN.
APOGEE- 1510. KM ALT PERIGEE- 414. KM ALT INCLINATION- 87.356 DEGREES

SPACECRAFT BRIEF DESCRIPTION

OGO 2 WAS A LARGE OBSERVATORY INSTRUMENTED WITH 20 EXPERIMENTS DESIGNED TO TAKE SIMULTANEOUS, CORRELATIVE OBSERVATIONS OF AURORA AND AIRGLOW EMISSIONS, ENERGETIC PARTICLES, MAGNETIC FIELD VARIATIONS, IONOSPHERIC PROPERTIES, ETC., ESPECIALLY OVER THE POLAR AREAS. THE MAIN BODY OF THE SPACECRAFT WAS ATTITUDE CONTROLLED BY MEANS OF HORIZON SCANNERS AND GAS JETS. ITS ORIENTATION WAS MAINTAINED CONSTANT BOTH WITH RESPECT TO THE EARTH AND WITH RESPECT TO THE DIRECTION OF THE SUN. THE SOLAR PANELS ROTATED ON A HORIZONTAL SHAFT EXTENDING TRANSVERSELY THROUGH THE MAIN BODY. THE ROTATION OF THE PANELS WAS ACTIVATED BY SUN SENSORS SO THAT THE PANELS RECEIVED MAXIMUM SUNLIGHT. FOUR EXPERIMENTS WERE MOUNTED ON THE SOLAR PADDLES. ANOTHER SHAFT ORIENTED VERTICALLY AND MOUNTED AT THE FRONT OF THE SPACECRAFT CARRIED FIVE EXPERIMENTS. NOMINALLY THESE SENSORS OPERATED LOOKING FORWARD IN THE ORBITAL PLANE OF THE SATELLITE. ROTATION OF OVER 90 DEG RELATIVE TO THE NOMINAL POSITION, AND OF OVER 90 DEG BETWEEN THE UPPER AND LOWER EXPERIMENT PACKAGES ON THIS AXIS, WAS POSSIBLE. NEWTON'S PARTICLE EXPERIMENT FAILED ON LAUNCH, AND KREPLIN'S SOLAR X-RAY EXPERIMENT SHORTLY THEREAFTER. SOON AFTER ACHIEVING ORBIT, DIFFICULTIES IN MAINTAINING EARTH LOCK WITH HORIZON SCANNERS CAUSED EXHAUSTION OF ATTITUDE CONTROL GAS BY OCTOBER 23, 10 DAYS AFTER LAUNCH. AT THIS TIME THE SPACECRAFT ENTERED A SPIN MODE (APPROX. 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 THAT 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 SO THAT ONLY ONE THIRD OF THE RECORDED DATA WAS PROCESSABLE. THE SPACECRAFT WAS SHUT DOWN IN OCTOBER 1967 WITH EIGHT EXPERIMENTS STILL OPERATIONAL.

EXPERIMENT NAME- GALACTIC AND SOLAR COSMIC RAY NSSDC ID 65-081A-08

ORIGINAL EXPERIMENT INSTITUTION- U OF MINNESOTA

INVESTIGATORS- W.R. WEBBER, U OF NEW HAMPSHIRE, DURHAM, N.H.

DATE LAST USEFUL DATA RECORDED- 10/24/65

EXPERIMENT BRIEF DESCRIPTION
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 OF 50 TO 2000 MEV PER NUCLEON. THE TELESCOPE HAD A MAXIMUM SAMPLING RATE OF ONE COUNT 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 DETECTOR WERE PULSE HEIGHT ANALYZED. SAMPLE PULSE HEIGHTS, THE COINCIDENCE COUNT RATE, AND THE COUNT RATE OF THE FIRST DETECTOR WERE TELEMETERED. THE NOISE LEVELS OF THE SPACECRAFT INCREASED TO SUFFICIENT AMPLITUDE TO RENDER THE SINGLES RATE DATA UNUSABLE EXCEPT DURING ECLIPSE PERIODS. ALL THE USEFUL DATA FROM THIS EXPERIMENT WERE OBTAINED BETWEEN OCTOBER 15 AND OCTOBER 24, 1965, AND ABOUT 17.4 PERCENT OF THE DATA OBTAINED DURING THIS PERIOD CONTAINS USEFUL INFORMATION.

DATA SET NAME- COSMIC-RAY COUNT-RATE DATA ON TAPE NSSDC ID 65-081A-08A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 10/15/65 TO 10/24/65

DATA SET BRIEF DESCRIPTION
THESE REDUCED DATA CONSIST OF ONE EXPERIMENTER-GENERATED, 556-BPI, BINARY MAGNETIC TAPE WRITTEN ON THE CDC 1604 COMPUTER. THE DATA ON THE TAPE ARE ORDERED BY THE 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. THESE DATA COMPRISE ALL THE USEFUL INFORMATION OBTAINED FROM THE COSMIC-RAY EXPERIMENT. THE TAPE CONTAINS NINE-BIT WORD TELESCOPE RATES, NINE-BIT WORD SINGLES RATES, TIME (UT), ALTITUDE, LATITUDE, LONGITUDE, MCILWAIN L, AND MAGNETIC FIELD.

DATA SET NAME- COSMIC-RAY COUNT-RATE PLOTS ON MICROFILM NSSDC ID 65-081A-08B

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 10/15/65 TO 10/24/65

DATA SET BRIEF DESCRIPTION
THESE DATA CONSIST OF ONE REEL OF FIRST GENERATION 16-MM MICROFILMED PLOTS. BOTH SINGLES COUNT RATES AND TELESCOPE RATES ARE PLOTTED AGAINST TIME. THE DATA PLOTTED HERE ARE THE SAME AS THOSE RECORDED ON MAGNETIC TAPE IN DATA SET 65-081A-08A. THEY ARE ORDERED BY ORBIT PASS.

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SPACECRAFT NAME- PIONEER 6 NSSDC ID 65-105A
OTHER NAMES- PIONEER-A, 1965 105A

LAUNCH DATE- 12/16/65 DATE LAST SCIENTIFIC DATA RECORDED- STILL OPERATIONAL

AGENCY- NASA-OSSA SPACECRAFT WEIGHT IN ORBIT- 63.4 KG

ORBIT TYPE- HELIOCENTRIC EPOCH- 12/16/65 ORBIT PERIOD- 311.3 DAYS
APOGEE- .936 AU RAD PERIGEE- .8143 AU RAD INCLINATION- .1639 DEGREES

SPACECRAFT BRIEF DESCRIPTION
PIONEER 6 IS A SOLAR-ORBITING, SPIN-STABILIZED, SOLAR-CELL-POWERED SATELLITE DESIGNED TO OBTAIN MEASUREMENTS OF INTERPLANETARY PHENOMENA FROM WIDELY SEPARATED POINTS IN SPACE ON A CONTINUING BASIS. ITS SPIN RATE IS APPROXIMATELY 60 RPM, AND THE SPIN AXIS IS ORIENTED APPROXIMATELY NORMAL TO THE ECLIPTIC PLANE. THE BIT RATE AND THE PERCENTAGE OF TIME THAT DATA WERE TRANSMITTED DECREASED AS THE DISTANCE FROM THE EARTH INCREASED. THE PIONEER 6 EXPERIMENTS STUDY 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. EXCEPT FOR 1 MONTH (JULY 1966) WHEN OPERATION WAS INTERMITTENT, DATA RECEPTION HAS BEEN ESSENTIALLY CONTINUOUS TO THE PRESENT.

EXPERIMENT NAME- SOLAR WIND PLASMA FARADAY CUP NSSDC ID 65-105A-02

ORIGINAL EXPERIMENT INSTITUTION- MIT

INVESTIGATORS- H.S. BRIDGE, MIT , CAMBRIDGE, MASS.
A.J. LAZARUS, MIT , CAMBRIDGE, MASS.

DATE LAST USEFUL DATA RECORDED- EXPERIMENT STILL OPERATIONAL

EXPERIMENT BRIEF DESCRIPTION
A MULTIGRID FARADAY CUP WITH TWO SEMICIRCULAR, COPLANAR COLLECTORS IS USED TO STUDY SOLAR WIND IONS AND ELECTRONS. THE INSTRUMENT HAS 14 CONTIGUOUS ENERGY PER CHARGE 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 IS PERPENDICULAR TO THE SPACECRAFT SPIN AXIS AND PARALLEL TO THE ECLIPTIC PLANE. THE LINE SEPARATING THE TWO COLLECTORS LIES 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 IS 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) ARE TELEMETERED, BUT ONLY THE LARGEST MEASUREMENT IN EACH SUCCEEDING 45-DEG INTERVAL (45 DEG TO 270 DEG) IS TELEMETERED. IN ADDITION, DURING THIS ROTATION THE CURRENT FROM ONE OF THE COLLECTORS IS MEASURED IN ALL TWENTY-EIGHT 11.25-DEG SECTORS, AND THE LARGEST IS IDENTIFIED AND TELEMETERED (BOTH MAGNITUDE AND SECTOR). A COMPLETE SET OF POSITIVE ION MEASUREMENTS AND ONE ENERGY CHANNEL OF ELECTRON MEASUREMENTS ARE COMPLETED EVERY 32 SEC. THE TIME BETWEEN EACH 32-SEC GROUP OF MEASUREMENTS VARIES WITH THE BIT RATE. THE EXPERIMENT HAS WORKED WELL FROM LAUNCH TO THE PRESENT (JANUARY 28, 1970).

DATA SET NAME- ORIGINAL AVERAGED SOLAR WIND PLASMA DATA PLOTS ON MICROFILM — NSSDC ID 65-105A-02A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 12/18/65 TO 04/03/69

DATA SET BRIEF DESCRIPTION

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 COVERACE.

EXPERIMENT NAME- PLASMA PROBE (AMES RESEARCH CENTER) — NSSDC ID 65-105A-06

ORICINAL EXPERIMENT INSTITUTION- NASA-ARC

INVESTIGATORS- J.H. WOLFE, NASA-ARC , MOFFETT FIELD, CALIF.

DATE LAST USEFUL DATA RECORDED- EXPERIMENT STILL OPERATIONAL

EXPERIMENT BRIEF DESCRIPTION

A QUADRISPHERICAL ELECTROSTATIC ANALYZER WITH EIGHT CURRENT COLLECTORS IS USED TO STUDY THE DIRECTIONAL INTENSITY OF THE ELECTRONS AND POSITIVE IONS IN THE SOLAR WIND. POSITIVE IONS ARE STUDIED IN 16 ENERGY PER CHARGE WINDOWS FROM 200 TO 10,000 V. ELECTRONS ARE STUDIED IN EIGHT ENERGY PER

CHARGE WINDOWS FROM 2 TO 500 V. ANGULAR INFORMATION AND THE SAMPLING PERIOD VARY WITH THE BIT RATE. THE CURRENT AND ANALYZER PLATE VOLTAGES ARE TELEMETERED. THE EXPERIMENT HAS BEEN OPERATING WELL FROM LAUNCH TO THE PRESENT TIME (JANUARY 8, 1970).

DATA SET NAME- ORIGINAL ANALYZED PLASMA PARAMETER PLOTS ON MICROFILM — NSSDC ID 65-105A-06A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 12/16/65 TO 10/27/68

DATA SET BRIEF DESCRIPTION

THESE FIRST GENERATION ANALYZED DATA CONSIST OF TIME-ORDERED PLOTS OF THE FOLLOWING SOLAR WIND PLASMA PARAMETERS -- (1) PROTON NUMBER DENSITY GIVEN IN PROTONS/CUBIC CM, (2) AZIMUTH GIVEN IN SOLAR ECLIPTIC LONGITUDE OF THE PEAK PARTICLE FLUX FOR IONS GIVEN IN DEG, (3) BULK VELOCITY IN KM/SEC, (4) POLAR ANGLE (SOLAR ECLIPTIC LATITUDE) OF THE PEAK PARTICLE FLUX IN DEG K, (5) PROTON TEMPERATURE AND HELIUM TEMPERATURE IN DEG K, (6) HELIUM/HYDROGEN RATIO (NO. HELIUM IONS/CUBIC CM/NO. PROTONS/CUBIC CM), (7) ELECTRON TEMPERATURE IN DEG K, AND (8) TWO INDICATORS OF THE ANISOTROPY IN THE SOLAR PLASMA ION TEMPERATURE DISTRIBUTION. THE PLOTS ARE AVAILABLE ON SEVEN REELS OF 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 DECEMBER 16, 1965, TO FEBRUARY 1966, WITH A 95 PERCENT COVERAGE, FROM MARCH 1966 TO MAY 1966, WITH A 50 PERCENT COVERAGE, AND FROM JUNE 1966 TO OCTOBER 27, 1968, WITH A 10 PERCENT COVERAGE.

EXPERIMENT NAME- CELESTIAL MECHANICS — NSSDC ID 65-105A-07

ORIGINAL EXPERIMENT INSTITUTION- NASA-JPL

INVESTIGATORS- J.D. ANDERSON, NASA-JPL , PASADENA, CALIF.

DATE LAST USEFUL DATA RECORDED- EXPERIMENT STILL OPERATIONAL

EXPERIMENT BRIEF DESCRIPTION

THE OBJECT OF THIS EXPERIMENT IS TO USE THE TRACKING DATA FROM THE MISSION TO OBTAIN PRIMARY DETERMINATIONS OF THE MASSES OF THE EARTH AND MOON, THE ASTRONOMICAL UNIT, AND THE OSCULATING ELEMENTS OF THE ORBIT OF THE EARTH. THIS IS APPROPRIATE BECAUSE OF THE ABSENCE OF MIDCOURSE ORBIT CORRECTIONS AND NEAR-PLANETARY ENCOUNTERS. ALSO, SOLAR RADIATION PRESSURE EFFECTS ARE SMALL. THE EXPERIMENT USES THE ONBOARD RECEIVER AND TRANSMITTER EQUIPMENT IN CONJUNCTION WITH DEEP SPACE STATION EQUIPMENT TO OBTAIN DOPPLER MEASUREMENTS.

DATA SET NAME- DOPPLER RADIO TRACKING DATA ON TAPE NSSDC ID 65-105A-07A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 12/--/65 TO 12/--/66

DATA SET BRIEF DESCRIPTION
THIS DATA SET CONSISTS OF TWO 7-TRACK, 556-BPI, BINARY MAGNETIC TAPES THAT WERE PRODUCED ON AN IBM 7094 COMPUTER SYSTEM AND USED TO RECORD THE DOPPLER RADIO TRACKING DATA FROM PIONEER 6. THE COVERAGE FOR THE FIRST 6 MONTHS OF RADIO TRACKING IS ON ONE TAPE, AND THE SECOND 6 MONTHS OF DATA ARE ON THE SECOND TAPE. THE INFORMATION CONTAINED ON THESE TAPES IS RANGE, RANGE RATE, ELEVATION, AZIMUTH, DECLINATION, RIGHT ASCENSION, ONE-, TWO-, AND THREE-WAY DOPPLER IN CYCLES PER SEC, TIME RESOLVER, RANGE UNITS, AND PLANETARY RANGE UNITS. THE FREQUENCY OF THE DATA POINTS APPEARING ON THE TAPE VARIES FROM ONE POINT PER MIN TO ONE POINT EVERY 10 MIN.

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SPACECRAFT NAME- OGO 3 NSSDC ID 66-049A
OTHER NAMES- EGO 3, EOGO 3, S 49A, 1966 49A, OGO-B

LAUNCH DATE- 06/07/66 DATE LAST SCIENTIFIC DATA RECORDED- 12/01/69

AGENCY- NASA-OSSA SPACECRAFT WEIGHT IN ORBIT- 601.47 KG

ORBIT TYPE- GEOCENTRIC EPOCH- 06/07/66 ORBIT PERIOD- 2917 MIN.
APOGEE-122220. KM ALT PERIGEE- 295. KM ALT INCLINATION- 30.98 DEGREES

SPACECRAFT BRIEF DESCRIPTION
THE PURPOSE OF THE OGO 3 SPACECRAFT, THE THIRD OF A SERIES OF SIX ORBITING GEOPHYSICAL OBSERVATORIES, WAS TO CONDUCT MANY DIVERSIFIED GEOPHYSICAL EXPERIMENTS IN ORDER 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 20 EXPERIMENTS. TWELVE 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 MASS, AND RADIO ASTRONOMY. REAL-TIME DATA WERE TRANSMITTED AT 1, 8, AND 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. BY JUNE 1969, DATA ACQUISITION WAS LIMITED TO 50 PERCENT OF THE ORBITAL PATH. IN DECEMBER 1969, OGO 3 WAS PLACED IN A SAFE-STANDBY MODE WITH ALL DATA ACQUISITION TERMINATED.

EXPERIMENT NAME- LOW-ENERGY ELECTRONS AND PROTONS NSSDC ID 66-049A-08

ORIGINAL EXPERIMENT INSTITUTION- U OF IOWA

INVESTIGATORS- L.A. FRANK, U OF IOWA , IOWA CITY, IOWA

DATE LAST USEFUL DATA RECORDED- 05/23/67

EXPERIMENT BRIEF DESCRIPTION

THIS EXPERIMENT WAS DESIGNED TO MEASURE, IN 14 CHANNELS, THE DIFFERENTIAL ENERGY SPECTRA OVER THE ENERGY RANGE 50 EV TO 70 KEV IN THE VICINITY OF AND WITHIN THE EARTH'S MAGNETOSPHERE. THE INSTRUMENTATION CONSISTED OF TWO CURVED-PLATE CYLINDRICAL ELECTROSTATIC ANALYZERS (LEPEDEA DETECTORS) COUPLED TO TWO BENDIX CONTINUOUS CHANNEL MULTIPLIERS ('CHANNELTRONS') AND TWO EON TYPE 13 GM TUBES. THE GM TUBES WERE USED TO MEASURE DIRECTIONAL ELECTRON INTENSITIES OF E GREATER THAN 40 KEV AND PROTON INTENSITIES OF E GREATER THAN 500 KEV. THE ENERGY SPECTRA WERE SCANNED IN A PERIOD OF 25 SEC, AND THE SCAN WAS REPEATED AFTER A PERIOD OF 300 SEC. EACH 25-SEC SCAN WAS FOLLOWED BY A 300-SEC SCAN OVER THE RANGE 90 EV TO 70 KEV.

DATA SET NAME- LEPEDEA MOTION PICTURE SURVEY OF THE MAGNETOSPHERE NSSDC ID 66-049A-08A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 07/14/66 TO 07/16/66

DATA SET BRIEF DESCRIPTION

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, EARTH, AND ITS MAGNETOSPHERE IS ALSO GIVEN ON EACH FRAME.

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SPACECRAFT NAME- EXPLORER 33 NSSDC ID 66-058A
OTHER NAMES- IMP-D, AIMP 1, 1966 58A

LAUNCH DATE- 07/01/66 DATE LAST SCIENTIFIC DATA RECORDED- STILL OPERATIONAL

AGENCY- NASA SPACECRAFT WEIGHT IN ORBIT- 57 KG

ORBIT TYPE- GEOCENTRIC EPOCH- 07/01/66 ORBIT PERIOD- 17000 MIN.
APOGEE-443622. KM ALT PERIGEE- 23622. KM ALT INCLINATION- 29.0 DEGREES

SPACECRAFT BRIEF DESCRIPTION
EXPLORER 33 IS A SPIN-STABILIZED SPACECRAFT (SPIN AXIS PARALLEL TO THE ECLIPTIC PLANE) INSTRUMENTED FOR INTERPLANETARY STUDIES AT LUNAR DISTANCES OF THE INTERPLANETARY PLASMA AND MAGNETIC FIELD. IT FAILED TO ACHIEVE LUNAR ORBIT BUT ACHIEVED MISSION OBJECTIVES. THE SPACECRAFT WAS STILL OPERATIONAL AS OF MAY 1970.

EXPERIMENT NAME- ENERGETIC PARTICLES NSSDC ID 66-058A-04

ORIGINAL EXPERIMENT INSTITUTION- U OF CALIFORNIA, BERK

INVESTIGATORS- K.A. ANDERSON, U OF CALIFORNIA, BERK , BERKELEY, CALIF.

DATE LAST USEFUL DATA RECORDED- 06/09/67

EXPERIMENT BRIEF DESCRIPTION
THE EXPLORER 33 ENERGETIC PARTICLES EXPERIMENT CONSISTED OF TWO GEIGER-MUELLER (GM) TUBES AND ONE IONIZATION CHAMBER. GM 1 LOOKED DIRECTLY AT PARTICLE FLUXES WHILE GM 2 SAW THE PARTICLE FLUX BACKSCATTERED OFF A GOLD FOIL. PROTONS LOSE ENERGY IN THE FOIL WITHOUT BACKSCATTERING. IN THIS WAY, PROTON AND ELECTRON FLUXES CAN BE SEPARATED. A 4-IN. SPHERICAL IONIZATION CHAMBER COMPLETED THE DETECTOR COMPLEMENT. DIRECTIONALLY, GM 1 WAS SENSITIVE TO ELECTRONS GREATER THAN 45 KEV, AND GM 2 WAS SENSITIVE TO ELECTRONS GREATER THAN 22 KEV AND PROTONS GREATER THAN 0.3 MEV. THE IONIZATION CHAMBER WAS SENSITIVE TO ELECTRONS GREATER THAN 0.7 MEV AND PROTONS GREATER THAN ABOUT 12 TO 17 MEV. FORTY-SEC ACCUMULATIONS FROM THE ION CHAMBER AND EACH OF THE GM TUBES WERE READ OUT TWICE DURING EACH TELEMETRY SEQUENCE (81.92 SEC). EACH READOUT REQUIRED 1.28 SEC. ON AUGUST 1, 1966, GM 2 BEGAN TO BEHAVE ERRATICALLY AND STOPPED COUNTING ON AUGUST 9. A FEW DAYS LATER, GM 1 ALSO STOPPED COUNTING. THE IONIZATION CHAMBER CONTINUED TO FUNCTION PROPERLY THROUGHOUT THIS PERIOD. THE LAST USEFUL DATA TRANSMISSION OCCURRED ON JUNE 9, 1967.

DATA SET NAME- ION CHAMBER-GEIGER COUNTER REDUCED DATA ON TAPE NSSDC ID 66-058A-04A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- C7/01/66 TO C6/09/67

DATA SET BRIEF DESCRIPTION
THIS DATA SET CONSISTS OF SEVEN 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.

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SPACECRAFT NAME- LUNAR ORBITER 1 NSSDC ID 66-073A
OTHER NAMES- LUNAR ORBITER A, 1966 73A

LAUNCH DATE- 08/10/66 DATE LAST SCIENTIFIC DATA RECORDED- 09/14/66

AGENCY- NASA SPACECRAFT WEIGHT IN ORBIT- 380 KG

ORBIT TYPE- SELENOCENTRIC EPOCH- 08/12/66 ORBIT PERIOD- 210 MIN.
APOGEE- 5333 KM RAD PERIGEE- 3516 KM RAD INCLINATION- 12 DEGREES

SPACECRAFT BRIEF DESCRIPTION
THE LUNAR ORBITER 1 SPACECRAFT WAS DESIGNED FOR PHOTOGRAPHING THE LUNAR TERRAIN. IT WAS LAUNCHED INTO AN ELLIPTICAL LUNAR ORBIT TO PHOTOGRAPH POSSIBLE LANDING SITES FOR SURVEYOR AND APOLLO MISSIONS. IN ADDITION TO THE PHOTOGRAPHIC EQUIPMENT, THE SPACECRAFT CARRIED INSTRUMENTATION FOR DETECTING MICROMETEOROID IMPACTS AND STUDYING THE RADIATION DOSAGE LEVEL IN THE LUNAR ENVIRONMENT. THE SPACECRAFT PERFORMED NORMALLY UNTIL SEPTEMBER 14, 1966, WHEN IT WAS ABANDONED EXCEPT FOR TRACKING PURPOSES. ON GROUND COMMAND, LUNAR ORBITER CRASHED INTO THE LUNAR SURFACE AT 7 DEG N LATITUDE AND 161 DEG E LONGITUDE IN NOVEMBER 1966.

EXPERIMENT NAME- MICROMETEOROID DETECTORS NSSDC ID 66-073A-03

ORIGINAL EXPERIMENT INSTITUTION- NASA-LARC

INVESTIGATORS- C.A. GURTLER, NASA-LARC , HAMPTON, VA.

DATE LAST USEFUL DATA RECORDED- 09/14/66

EXPERIMENT BRIEF DESCRIPTION
THE LUNAR PHOTOGRAPHIC SPACECRAFT CONTAINED SPECIAL INSTRUMENTATION FOR THE DETECTION OF MICROMETEOROIDS IN THE LUNAR ENVIRONMENT. TWENTY MICROMETEOROID DETECTORS WERE LOCATED ON THE TANK DECK PERIPHERY. THESE HALF-CYLINDER-SHAPED DETECTORS WERE PRESSURIZED WITH HELIUM GAS. A RUPTURE OF THE SHELL BY A MICROMETEOROID RELEASED THE GAS PRESSURE, THUS ACTIVATING A MICROSWITCH THAT PROVIDED THE INPUT SIGNAL TO THE TELEMETRY SYSTEM. THE THICKNESS OF THE DETECTOR WALLS WAS .0005 IN.

DATA SET NAME- ANALYZED MICROMETEORCID DETECTORS NSSDC ID 66-073A-03A

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

TIME SPAN OF DATA- 08/10/66 TO 09/14/66

DATA SET BRIEF DESCRIPTION
TELEMETRY DATA OBTAINED DURING THE FIRST 35 DAYS OF THE MISSION INDICATED THAT ALL OF THE MICROMETEOROID DETECTORS WERE INTACT AT THE END OF THAT PERIOD AND THAT NO HITS HAD BEEN RECORDED. THIS INFORMATION IS GIVEN IN "LUNAR ORBITER 1, PHOTOGRAPHIC MISSION SUMMARY," BOEING CO., NASA CR-782, APRIL 1967.

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SPACECRAFT NAME- PIONEER 7 NSSDC ID 66-075A
OTHER NAMES- PIONEER-B, 1966 75A

LAUNCH DATE- 08/17/66 DATE LAST SCIENTIFIC DATA RECORDED- STILL OPERATIONAL

ACENCY- NASA-OSSA SPACECRAFT WEIGHT IN ORBIT- 63.4 KG

ORBIT TYPE- HELIOCENTRIC EPOCH- 08/17/66 ORBIT PERIOD- 402.9 DAYS
APOGEE-1.1250 AU RAD PERIGEE-1.0100 AU RAD INCLINATION- .09767 DEGREES

SPACECRAFT BRIEF DESCRIPTION
PIONEER 7 IS A SOLAR-ORBITING, SPIN-STABILIZED, SOLAR-CELL-POWERED SATELLITE. ITS SPIN RATE IS APPROXIMATELY 60 RPM, AND THE SPIN AXIS IS ORIENTED APPROXIMATELY NORMAL TO THE ECLIPTIC PLANE. THE BIT RATE AND PERCENT OF TIME THAT DATA WERE RECORDED WERE DECREASED AS DISTANCE FROM THE EARTH INCREASED. THE SATELLITE IS DESIGNED TO OBTAIN MEASUREMENTS OF INTERPLANETARY PHENOMENA FROM WIDELY SEPARATED POINTS IN SPACE ON A CONTINUING BASIS. ITS EXPERIMENTS STUDY 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. THE ROLL-INDEX SUN SENSOR OF PIONEER 7 FAILED IN FEBRUARY 1969. OTHERWISE THE SATELLITE HAS BEEN OPERATING NORMALLY AND SENDING BACK DATA CONTINUOUSLY TO DATE (DECEMBER 31, 1969).

EXPERIMENT NAME- SOLAR WIND PLASMA FARADAY CUP NSSDC ID 66-075A-02

ORIGINAL EXPERIMENT INSTITUTION- MIT

INVESTIGATORS- H.S. BRIDGE, MIT , CAMBRIDGE, MASS.

DATE LAST USEFUL DATA RECORDED- EXPERIMENT STILL OPERATIONAL

EXPERIMENT BRIEF DESCRIPTION

A MULTIGRID FARADAY CUP WITH TWO SEMICIRCULAR, COPLANAR COLLECTORS IS USED TO STUDY SOLAR WIND IONS AND ELECTRONS. THE INSTRUMENT HAS 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 IS PERPENDICULAR TO THE SPACECRAFT SPIN AXIS AND PARALLEL TO THE ECLIPTIC PLANE. THE LINE SEPARATING THE TWO COLLECTORS LIES 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 IS 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) ARE TELEMETERED, BUT ONLY THE LARGEST MEASUREMENT IN EACH SUCCEEDING 45-DEG INTERVAL (45 DEG TO 270 DEG) IS TELEMETERED. IN ADDITION, DURING THIS ROTATION THE CURRENT FROM ONE OF THE COLLECTORS IS MEASURED IN ALL TWENTY-EIGHT 11.25-DEG SECTORS, AND THE LARGEST IS IDENTIFIED AND TELEMETERED (BOTH MAGNITUDE AND SECTOR). A COMPLETE SET OF POSITIVE ION MEASUREMENTS AND ONE ENERGY CHANNEL OF ELECTRON MEASUREMENTS ARE COMPLETED EVERY 32 SEC. THE TIME BETWEEN EACH 32-SEC GROUP OF MEASUREMENTS VARIES WITH THE BIT RATE. THE EXPERIMENT HAS WORKED WELL FROM LAUNCH TO THE PRESENT (JANUARY 28, 1970).

DATA SET NAME- ORIGINAL AVERAGED SOLAR WIND PLASMA DATA PLOTS ON MICROFILM NSSDC ID 66-075A-02A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 08/18/66 TO 12/02/68

DATA SET BRIEF DESCRIPTION

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 65-105A-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.

EXPERIMENT NAME- PLASMA PROBE (AMES RESEARCH CENTER) NSSDC ID 66-075A-03

ORIGINAL EXPERIMENT INSTITUTION- NASA-ARC

INVESTIGATORS- J.H. WOLFE, NASA-ARC , MOFFETT FIELD, CALIF.

DATE LAST USEFUL DATA RECORDED- EXPERIMENT STILL OPERATIONAL

EXPERIMENT BRIEF DESCRIPTION
A QUADRISPHERICAL ELECTROSTATIC ANALYZER WITH EIGHT CURRENT COLLECTORS IS USED TO STUDY THE DIRECTIONAL INTENSITY OF THE ELECTRONS AND POSITIVE IONS IN THE SOLAR WIND. POSITIVE IONS ARE STUDIED IN 16 ENERGY PER CHARGE WINDOWS FROM 200 TO 10,000 V. ELECTRONS ARE STUDIED IN EIGHT ENERGY PER CHARGE WINDOWS FROM 0 TO 500 V. ANGULAR INFORMATION AND THE SAMPLING PERIOD VARY WITH THE BIT RATE. CURRENT AND ANALYZER PLATE VOLTAGES ARE THE QUANTITIES TELEMETERED. THE EXPERIMENT HAS BEEN OPERATING WELL FROM LAUNCH TO THE PRESENT TIME (JANUARY 8, 1970).

DATA SET NAME- ORIGINAL ANALYZED PLASMA PARAMETER PLOTS ON MICROFILM NSSDC ID 66-075A-03A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 08/17/66 TO 11/19/68

DATA SET BRIEF DESCRIPTION
THESE FIRST GENERATION ANALYZED DATA CONSIST OF TIME-ORDERED PLOTS OF THE FOLLOWING SOLAR WIND PLASMA 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 (NO. HELIUM IONS/CUBIC CM/NO. PROTONS/CUBIC CM), (7) ELECTRON TEMPERATURE (DEG K), AND (8) TWO INDICATORS OF THE ANISOTROPY IN THE SOLAR PLASMA ION TEMPERATURE DISTRIBUTION. THE PLOTS ARE AVAILABLE ON 10 REELS OF 16-MM MICROFILM. THE PLASMA PARAMETERS WERE DERIVED BY THE EXPERIMENTER BASED ON THE ASSUMPTION OF AN ISOTROPIC MAXWELLIAN DISTRIBUTION FUNCTION IN A REFERENCE 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.

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SPACECRAFT NAME- ATS 1 NSSDC ID 66-110A
OTHER NAMES- ATS-B, 1966 110A

LAUNCH DATE- 12/07/66 DATE LAST SCIENTIFIC DATA RECORDED- STILL OPERATIONAL

AGENCY- NASA-GSFC SPACECRAFT WEIGHT IN ORBIT- 702.63 KG

ORBIT TYPE- GEOCENTRIC EPOCH- 12/10/66 ORBIT PERIOD- 1440 MIN.
APOGEE- 35784. KM ALT PERIGEE- 35717. KM ALT INCLINATION- 0.5 DEGREES

SPACECRAFT BRIEF DESCRIPTION
THE SYNCHRONOUS-ALTITUDE, SPIN-STABILIZED SATELLITE ATS 1 WAS PLACED 151.16 DEC W LONGITUDE OVER THE PACIFIC OCEAN IN A GEOSTATIONARY EQUATORIAL ORBIT. THIS COMMUNICATIONS SATELLITE CONTAINS A SMALL ENVIRONMENTAL MEASUREMENT EXPERIMENT (EME) PACKAGE. THE EME INCLUDES A SEPARATE POWER SUPPLY AND ENCODER. THE INITIAL SPIN PERIOD OF THE SPACECRAFT WAS 0.61 SEC. THE EME HAS MADE MEASUREMENTS OF THE ENERGETIC PARTICLES AND SUPRATHERMAL ION FLUXES AND OF THE AMBIENT MAGNETIC FIELD. AS OF JANUARY 1970, SOME EXPERIMENTS ON ATS 1 CONTINUE TO SEND BACK USEFUL SCIENTIFIC DATA.

EXPERIMENT NAME- PARTICLE TELESCOPE NSSDC ID 66-110A-05

ORIGINAL EXPERIMENT INSTITUTION- BELL TELEPHONE LAB

INVESTIGATORS- W.L. BROWN, BELL TELEPHONE LAB , MURRAY HILL, N.J.

DATE LAST USEFUL DATA RECORDED- EXPERIMENT STILL OPERATIONAL

EXPERIMENT BRIEF DESCRIPTION
THE BTL PARTICLE TELESCOPE EXPERIMENT SENSOR IS A SIX-ELEMENT SEMICONDUCTOR PARTICLE TELESCOPE MOUNTED BEHIND A COLLIMATOR WITH A HALF ANGLE OF ABOUT 20 DEG. THE SIX ELEMENTS ARE OPERATED IN NINE MODES. THE INSTRUMENT CAN DETECT PROTONS FROM 0.6 TO 100 MEV, ALPHA PARTICLES FROM 2.4 TO 400 MEV, AND ELECTRONS FROM 0.4 TO 3 MEV. THE FIRST EIGHT MODES USE COINCIDENCE AND/OR ANTICOINCIDENCE REQUIREMENTS ON THE PULSES IN EACH DETECTOR ELEMENT TO DISCRIMINATE BETWEEN PARTICLE TYPES AND ENERGIES. THE NINTH MODE RECORDS THE SINGLES RATES FOR FIVE DETECTOR ELEMENTS, WHICH PROVIDES DATA ON THE DETECTOR NOISE AND PARTICLE BACKGROUND. ONLY ONE EXPERIMENTAL MODE IS MONITORED DURING ONE TELEMETRY SEQUENCE. PULSES ARE STORED IN A FIVE-CHANNEL REGISTER AND ARE READ OUT AT THE END OF THE STORAGE PERIOD. THE COMPLETE EXPERIMENT SEQUENCE READOUT REQUIRES 32 TELEMETRY SEQUENCES, I.E., TWO 16-TELEMETRY-SEQUENCE PORTIONS THAT DIFFER ONLY BY THE ADDITION OF A PILEUP REJECTOR IN THE OUTPUT. ONCE EVERY 5.8 HR, 5.46 MIN (THE TIME REQUIRED FOR 64 TELEMETRY SEQUENCES) ARE USED TO CALIBRATE THE COUNTERS BY AN EXTERNAL RADIATION SOURCE AND THE ELECTRONICS BY INTERNALLY GENERATED

PULSES.

DATA SET NAME- REDUCED PLOTS OF PARTICLE COUNT RATES ON MICROFILM NSSDC ID 66-110A-05A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 12/09/66 TO 03/01/67

DATA SET BRIEF DESCRIPTION
THESE FIRST GENERATION REDUCED DATA CONSIST OF SEVEN REELS OF 35-MM MICROFILMED PLOTS. THEY CONTAIN DATA IN EACH OF NINE EXPERIMENTAL MODES DESIGNATED 'A' THROUGH 'I'. EACH MODE LETTER IMPLIES A SPECIFIC LOGICAL PROGRAM FOR THE ONBOARD DATA PROCESSING INVOLVING COINCIDENT AND ANTICOINCIDENT CIRCUITS. FOR EACH MODE, THE LOG OF THE COUNT RATE OF EACH TELESCOPE ELEMENT (INVOLVED IN THAT MODE) IS PLOTTED AGAINST TIME. EIGHT HOURS OF DATA ARE PLOTTED ON EACH GRAPH. EACH GRAPH CONTAINS DATA FROM A SINGLE MODE. SINCE 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.

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SPACECRAFT NAME- ATS 2 NSSDC ID 67-031A
OTHER NAMES- ATS-A, 1967 31A

LAUNCH DATE- 04/06/67 DATE LAST SCIENTIFIC DATA RECORDED- 09/22/68

AGENCY- NASA SPACECRAFT WEIGHT IN ORBIT- 319.11 KG

ORBIT TYPE- GEOCENTRIC EPOCH- 04/07/67 ORBIT PERIOD- 219.7 MIN.
APOGEE- 11180. KM ALT PERIGEE- 186. KM ALT INCLINATION- 28.32 DEGREES

SPACECRAFT BRIEF DESCRIPTION
ATS 2 WAS DESIGNED TO FLY IN AN 11,000-KM CIRCULAR EARTH ORBIT TO TEST THE GRAVITY GRADIENT STABILIZATION CONCEPT. IT WAS LAUNCHED APRIL 6, 1967, AND, DUE TO A FUEL SYSTEM FAILURE IN THE AGENA ROCKET, ACHIEVED AN ELLIPTICAL ORBIT OF ECCENTRICITY 0.45. THE SPACECRAFT COULD NOT BE STABILIZED IN THIS TRAJECTORY. HOWEVER, IN SPITE OF THE TUMBLE AND ROLL, IT WAS DETERMINED THAT SOME OF THE SPACE SCIENCE EXPERIMENTS WERE OPERATING CORRECTLY AND SENDING BACK USEFUL DATA. THE EXPERIMENTAL PACKAGE WAS TURNED OPERATIONAL OFF IN OCTOBER 1967. DATA WERE SPORADICALLY RECORDED UNTIL SEPTEMBER 1968, AND THE SATELLITE REENTERED ON SEPTEMBER 2, 1969.

EXPERIMENT NAME- RADIO ASTRONOMY NSSDC ID 67-031A-01

ORIGINAL EXPERIMENT INSTITUTION- NASA-GSFC

INVESTIGATORS- R.G. STONE, NASA-GSFC , GREENBELT, MD.

DATE LAST USEFUL DATA RECORDED- 10/23/67

EXPERIMENT BRIEF DESCRIPTION
THIS EXPERIMENT UTILIZED A 76-M DIPOLE TO OBSERVE RADIO NOISE AT 0.45, 0.7, 0.9, 1.1, 1.6, 2.2, AND 3.0 MHZ. THE RADIOMETER WAS OF THE RYLE-VONBERG TYPE AND STEPPED THROUGH THE SEVEN FREQUENCIES AND AN ANTENNA CAPACITANCE MEASURING CHANNEL IN 40 SEC. SINCE THE ANTENNA WAS SHARED WITH ANOTHER EXPERIMENT, THIS EXPERIMENT WAS TURNED ON ONLY FOR ALTERNATE 10-MIN PERIODS. THE DETECTOR FUNCTIONED NORMALLY.

DATA SET NAME- ORIGINAL REDUCED RADIO FLUX DATA LISTED ON MICROFILM NSSDC ID 67-031A-01B

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 04/07/67 TO 10/23/67

DATA SET BRIEF DESCRIPTION
THIS DATA SET IS A LISTING OF THE OBSERVED RADIO FLUXES, AS A FUNCTION OF TIME, FOR ALL SEVEN CHANNELS. INCLUDED ON THREE REELS OF 35-MM FILM ARE THE SPACECRAFT ALTITUDE, COLATITUDE, AND LONGITUDE.

DATA SET NAME- ORIGINAL REDUCED DATA, PLOTTED, SINGLE FREQUENCY FLUX VS TIME ON MICROFILM NSSDC ID 67-031A-01C

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 04/09/67 TO 10/23/67

DATA SET BRIEF DESCRIPTION
THIS DATA SET IS A SET OF PLOTS ON EIGHT REELS OF 35-MM FILM. EACH PLOT CONTAINS THE SPACECRAFT ALTITUDE AND THE LOGARITHM OF THE OUTPUT FROM ONE RADIOMETER CHANNEL PLOTTED AS A FUNCTION OF TIME. DATA FROM ALL CHANNELS ARE PLOTTED, WITH EACH PLOT CONTAINING 1 HR OF DATA.

DATA SET NAME- ORIGINAL REDUCED DATA, MULTIFREQUENCY FLUXES VS TIME PLOTS ON MICROFILM — NSSDC ID 67-031A-01D

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 04/07/67 TO 10/23/67

DATA SET BRIEF DESCRIPTION
THIS DATA SET IS A SET OF PLOTS ON ONE REEL OF 35-MM FILM. EACH GRAPH CONTAINS THE OUTPUTS OF ALL SEVEN CHANNELS OF THE RADIOMETER PLOTTED AS A FUNCTION OF TIME. EACH PLOT CONTAINS ABOUT 10 MIN OF DATA. THE SPACECRAFT ALTITUDE IS ALSO GIVEN ON EACH PLOT.

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SPACECRAFT NAME- EXPLORER 34 — NSSDC ID 67-051A
OTHER NAMES- IMP-F, IMP 4, 1967 51A

LAUNCH DATE- 05/24/67 DATE LAST SCIENTIFIC DATA RECORDED- 05/03/69

AGENCY- NASA-OSSA SPACECRAFT WEIGHT IN ORBIT- 75 KG

ORBIT TYPE- GEOCENTRIC EPOCH- 05/24/67 ORBIT PERIOD- 6225 MIN.
APOGEE-211112. KM ALT PERIGEE- 278. KM ALT INCLINATION- 67.4 DEGREES

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

EXPERIMENT NAME- LOW-ENERGY ELECTRONS AND PROTONS — NSSDC ID 67-051A-04

ORIGINAL EXPERIMENT INSTITUTION- U OF IOWA

INVESTIGATORS- J.A. VAN ALLEN, U OF IOWA , IOWA CITY, IOWA
L.A. FRANK, U OF IOWA , IOWA CITY, IOWA

DATE LAST USEFUL DATA RECORDED- 05/03/69

EXPERIMENT BRIEF DESCRIPTION
THIS EXPERIMENT WAS DESIGNED TO MEASURE, IN EIGHT CHANNELS, THE DIRECTIONAL

LOW-ENERGY ELECTRON AND PROTON INTENSITIES IN THE RANGE 125 EV TO 52 KEV INSIDE THE EARTH'S MAGNETOSPHERE AND IN THE INTERPLANETARY REGIONS. THE INSTRUMENTATION CONSISTED OF TWO CURVED-PLATE CYLINDRICAL ELECTROSTATIC ANALYZERS (LEPEDEA DETECTORS), TWO BENDIX CONTINUOUS-CHANNEL MULTIPLIERS ('CHANNELTRONS'), AND AN ANTON 213 GM TUBE. THE GM TUBE WAS USED TO MEASURE ELECTRON INTENSITIES (E GREATER THAN 40 KEV) IN THE EARTH'S MAGNETOSPHERE. THE DETECTOR 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). THE INSTRUMENTS PERFORMED NORMALLY FROM LAUNCH UNTIL THE SATELLITE DECAYED FROM ORBIT ON MAY 3, 1969.

DATA SET NAME- LEPEDEA MOTION PICTURE SURVEY OF THE MAGNETOSPHERE — NSSDC ID 67-051A-04A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 06/30/67 TO 07/04/67

DATA SET BRIEF DESCRIPTION

THIS DATA SET CONSISTS OF REDUCED DATA 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 THE TERRESTRIAL MAGNETOSPHERE 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. EACH MOVIE FRAME CONTAINS A GRAPH OF THE OBSERVED ENERGY SPECTRA OF PROTONS AND ELECTRONS FOR A GIVEN TIME AND POINT IN SPACE. A PICTORIAL REPRESENTATION OF THE SATELLITE'S POSITION WITH RESPECT TO THE EARTH AND ITS MAGNETOSPHERE IS ALSO GIVEN ON EACH FRAME.

EXPERIMENT NAME- PLASMA EXPERIMENT — NSSDC ID 67-051A-08

ORICINAL EXPERIMENT INSTITUTION- NASA-GSFC

INVESTIGATORS- K.W. OGILVIE, NASA-GSFC , GREENBELT, MD.
T.D. WILKERSON, U OF MARYLAND , COLLEGE PARK, MD.

DATE LAST USEFUL DATA RECORDED- 01/30/68

EXPERIMENT BRIEF DESCRIPTION

A CYLINDRICAL ELECTROSTATIC ANALYZER, IN CONJUNCTION WITH A CROSSED-FIELD VELOCITY SELECTOR, WAS USED TO STUDY THE DIRECTIONAL INTENSITY AND SPECTRA OF SOLAR WIND PROTONS AND ALPHA PARTICLES. FIFTEEN INTERVALS IN THE ENERGY PER CHARGE RANGE OF 310 TO 5100 EV WERE STUDIED. MEASUREMENTS IN EACH ENERGY PER CHARGE INTERVAL WERE TAKEN IN 16 EQUAL ANGULAR SECTORS OVER A SINGLE REVOLUTION OF THE SPACECRAFT. A COMPLETE SPECTRUM OF IONS OF A SINGLE SPECIES REQUIRED ABOUT 1 MIN AND WAS REPEATED EVERY 3 MIN. THE EXPERIMENT OPERATED NORMALLY FROM LAUNCH UNTIL JANUARY 30, 1968.

DATA SET NAME- ORIGINAL COMPUTER LISTINGS OF DATA ON MICROFILM NSSDC ID 67-051A-08A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 05/27/67 TO 01/30/68

DATA SET BRIEF DESCRIPTION
THESE FIRST GENERATION REDUCED AND ANALYZED DATA ON SIX REELS OF 35-MM MICROFILM CONSIST OF COMPUTER LISTINGS OF COUNTS FOR EACH ENERGY PER CHARGE CHANNEL, THE ANGULAR SECTOR IN WHICH THE LARGEST NUMBER OF COUNTS WAS RECORDED, AND THE PLASMA DENSITY, TEMPERATURE, AND VELOCITY DERIVED FROM EACH COMPLETE SET OF ENERGY PER CHARGE MEASUREMENTS. SEVERAL INDICATORS OF THE DISPERSION IN THE PLASMA SPECTRUM ARE LISTED. ORBIT INFORMATION IS ALSO INCLUDED. DATA ARE AVAILABLE WITH A 95 PERCENT COVERAGE FROM MAY 27, 1967, TO JANUARY 30, 1968.

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SPACECRAFT NAME- MARINER 5 NSSDC ID 67-060A
OTHER NAMES- VENUS, 1967 60A

LAUNCH DATE- 06/14/67 DATE LAST SCIENTIFIC DATA RECORDED- 11/21/67

AGENCY- NASA SPACECRAFT WEIGHT IN ORBIT- 245 KG

ORBIT TYPE- HELIOCENTRIC EPOCH- 06/14/67 ORBIT PERIOD- 292 DAYS
APOGEE- 1.0 AU RAD PERIGEE- .72 AU RAD INCLINATION- 0 DEGREES

SPACECRAFT BRIEF DESCRIPTION
THE MARINER 5 SPACECRAFT WAS THE FIFTH IN A SERIES OF SPACECRAFT USED FOR PLANETARY EXPLORATION IN THE FLYBY, OR NONLANDING, 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 WAS LAUNCHED ON JUNE 14, 1967, AND 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.

EXPERIMENT NAME- CELESTIAL MECHANICS NSSDC ID 67-060A-07

ORIGINAL EXPERIMENT INSTITUTION- NASA-JPL

INVESTIGATORS- J.D. ANDERSON, NASA-JPL , PASADENA, CALIF.

DATE LAST USEFUL DATA RECORDED- 11/20/67

EXPERIMENT BRIEF DESCRIPTION
DEEP SPACE NETWORK TRACKING DATA ON MARINER 5 WERE USED TO OBTAIN IMPROVED DETERMINATIONS OF THE MASSES OF VENUS AND THE MOON, THE ASTRONOMICAL UNIT, AND IMPROVED EPHEMERIDES OF EARTH AND VENUS. THE EXPERIMENT USED THE ONBOARD RECEIVER AND TRANSMITTER EQUIPMENT IN CONJUNCTION WITH DEEP SPACE STATION EQUIPMENT TO OBTAIN DOPPLER MEASUREMENTS.

DATA SET NAME- DOPPLER RADIO TRACKING DATA ON TAPE NSSDC ID 67-060A-07A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 06/14/67 TO 11/20/67

DATA SET BRIEF DESCRIPTION
THIS DATA SET CONSISTS OF TWO 7-TRACK, 556-BPI, BINARY MAGNETIC TAPES THAT WERE PRODUCED ON AN IBM 7094 COMPUTER SYSTEM AND USED TO RECORD THE DOPPLER RADIO TRACKING DATA FROM MARINER 5. ONE TAPE COVERS PRE-MIDCOURSE DATA, AND THE SECOND TAPE COVERS DATA FROM MIDCOURSE TO THE END OF THE MISSION. THE INFORMATION CONTAINED ON THESE TAPES IS RANGE, RANGE RATE, ELEVATION, AZIMUTH, DECLINATION, RIGHT ASCENSION, ONE-, TWO-, AND THREE-WAY DOPPLER IN CYCLES PER SEC, TIME RESOLVER, RANGE UNITS, AND PLANETARY RANGE UNITS. THE FREQUENCY OF THE DATA POINTS APPEARING ON THE TAPE VARIES FROM ONE POINT EVERY 10 SEC TO ONE POINT EVERY 10 MIN.

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SPACECRAFT NAME- EXPLORER 35 NSSDC ID 67-070A
OTHER NAMES- IMP-E, AIMP 2, 1967 70A

LAUNCH DATE- 07/19/67 DATE LAST SCIENTIFIC DATA RECORDED- STILL OPERATIONAL

AGENCY- NASA-OSSA SPACECRAFT WEIGHT IN ORBIT- 104 KG

ORBIT TYPE- SELENOCENTRIC EPOCH- 07/22/67 ORBIT PERIOD- 691.8 MIN.
APOGEE- 9388 KM RAD PERIGEE- 2568 KM RAD INCLINATION- 176 DEGREES

SPACECRAFT BRIEF DESCRIPTION
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, AND THE SPACECRAFT WAS STILL OPERATIONAL IN JANUARY 1970.

EXPERIMENT NAME- AMES MAGNETIC FIELDS NSSDC ID 67-070A-03

ORIGINAL EXPERIMENT INSTITUTION- NASA-ARC

INVESTIGATORS- C.P. SONETT, NASA-ARC , MOFFETT FIELD, CALIF.

DATE LAST USEFUL DATA RECORDED- EXPERIMENT STILL OPERATIONAL

EXPERIMENT BRIEF DESCRIPTION
THE AMES MAGNETOMETER CONSISTS OF A BOOM-MOUNTED TRIAXIAL FLUXGATE MAGNETOMETER AND AN ELECTRONICS PACKAGE. THE SENSORS ARE ORTHOGONALLY MOUNTED, ONE ALONG THE SPIN AXIS OF THE SPACECRAFT, THE OTHER TWO NORMAL TO THE SPIN AXIS. A MOTOR INTERCHANGES THE SENSOR IN THE SPIN PLANE WITH THE SENSOR ALONG THE SPIN AXIS EVERY 24 HR, ALLOWING INFLIGHT CALIBRATION OF THE INSTRUMENT. THE INSTRUMENT PACKAGE INCLUDES A CIRCUIT FOR SPIN DEMODULATING THE OUTPUTS FROM THE SENSORS IN THE SPIN PLANE. THIS SERVES TO EXTEND THE FREQUENCY RANGE COVERABLE BY THOSE TWO SENSORS TO THAT OF THE THIRD SENSOR ALONG THE SPIN AXIS. INFORMATION ABOUT THE DC MAGNETIC FIELD COMPONENT NORMAL TO THE SPIN AXIS IS OBTAINED FROM THE DEMODULATING CIRCUIT. THE MAGNETOMETER MEASURES FIELDS TO 200 GAMMAS IN THREE RANGES. THE NOISE THRESHOLD IS LESS THAN 0.4 GAMMA. THE NYQUIST LIMIT IS 0.08 HZ. INSTRUMENT PERFORMANCE HAS BEEN NORMAL, AND THE EXPLORER 35 PROJECT OFFICE LISTS THIS EXPERIMENT AS OPERATIONAL AS OF JANUARY 1970.

DATA SET NAME- VECTOR MAGNETIC FIELD DATA PLOTS ON MICROFILM NSSDC ID 67-070A-03A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 07/19/67 TO 07/18/68

DATA SET BRIEF DESCRIPTION
THESE FIRST GENERATION 81.8-SEC AVERAGED VECTOR MAGNETIC FIELD DATA ARE ON ONE REEL OF 16-MM MICROFILM. ABOUT 4 HR OF DATA ARE PLOTTED ON EACH FRAME. THE LATITUDE AND LONGITUDE OF THE MAGNETIC FIELD VECTOR, IN EITHER SOLAR EQUATORIAL OR SOLAR MAGNETOSPHERIC COORDINATES DEPENDING ON THE LOCATION OF THE SPACECRAFT, AND THE MAGNITUDE AND STANDARD DEVIATION OF THE VECTOR MAGNETIC FIELD ARE PLOTTED AS A FUNCTION OF TIME. ORBIT PLOTS, WITH ONE ORBIT PER PLOT IN SOLAR MAGNETOSPHERIC COORDINATES, PROJECTED IN AND OUT OF THE ECLIPTIC PLANE, ARE INCLUDED WITH THESE DATA.

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SPACECRAFT NAME- OGO 4 NSSDC ID 67-073A
OTHER NAMES- OGO-D, POGO 2, 1967 73A

LAUNCH DATE- 07/28/67 DATE LAST SCIENTIFIC DATA RECORDED- 03/--/70

AGENCY- NASA SPACECRAFT WEIGHT IN ORBIT- 562.0 KG

ORBIT TYPE- GEOCENTRIC EPOCH- 07/28/67 ORBIT PERIOD- 98 MIN.
APOGEE- 908. KM ALT PERIGEE- 412. KM ALT INCLINATION- 86.011 DEGREES

SPACECRAFT BRIEF DESCRIPTION
OGO 4 IS A LARGE OBSERVATORY INSTRUMENTED WITH 20 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. THE MAIN BODY OF THE SPACECRAFT IS ATTITUDE CONTROLLED BY MEANS OF HORIZON SCANNERS AND GAS JETS SO THAT ITS ORIENTATION IS MAINTAINED CONSTANT WITH RESPECT TO BOTH THE EARTH AND THE SUN. THE SOLAR PANELS ROTATE ON A HORIZONTAL AXIS EXTENDING TRANSVERSELY THROUGH THE MAIN BODY, WITH ROTATION OF THE PANELS ACTIVATED BY SUN SENSORS SO THAT THE PANELS RECEIVE MAXIMUM SUNLIGHT. FOUR EXPERIMENTS ARE ALSO MOUNTED ON THE SOLAR PADDLES (IN TWO SOEP PACKAGES). ANOTHER AXIS, ORIENTED VERTICALLY AND MOUNTED AT THE FRONT OF THE SPACECRAFT, CARRIES FIVE EXPERIMENTS (IN TWO OPEP PACKAGES). THESE SENSORS NOMINALLY OBSERVE IN A FORWARD-LOOKING DIRECTION IN THE ORBITAL PLANE OF THE SATELLITE. THE SENSORS CAN BE ROTATED MORE THAN 90 DEG BETWEEN THE UPPER AND LOWER OPEP PACKAGES ON THIS AXIS. UPON ACHIEVING ORBIT AND DEPLOYMENT 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 PLACED INTO A SPIN-STABILIZED MODE ABOUT THE AXIS WHICH WAS PREVIOUSLY MAINTAINED VERTICALLY. IN THIS MODE, SEVEN OF THE REMAINING EXPERIMENTS WERE TURNED OFF SINCE NO MEANINGFUL DATA COULD BE OBSERVED BY THEM. IN MID-OCTOBER, THE SATELLITE WAS TURNED OFF. IT WAS REACTIVATED AGAIN IN JANUARY 1970 FOR A BRIEF PERIOD IN ORDER TO OBTAIN VLF OBSERVATIONS.

EXPERIMENT NAME- GALACTIC AND SOLAR COSMIC RAY NSSDC ID 67-073A-09

ORIGINAL EXPERIMENT INSTITUTION- U OF MINNESOTA

INVESTIGATORS- W.R. WEBBER, U OF NEW HAMPSHIRE , DURHAM, N.H.

DATE LAST USEFUL DATA RECORDED- 08/27/67

EXPERIMENT BRIEF DESCRIPTION
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 OF 50 TO 2000 MEV PER 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 SHORTLY AFTER 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. APPROXIMATELY 28 DAYS OF DATA WERE OBTAINED.

DATA SET NAME- ORIGINAL REDUCED COSMIC-RAY DATA ON TAPE NSSDC ID 67-073A-09A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 07/30/67 TO 08/27/67

DATA SET BRIEF DESCRIPTION
THESE REDUCED DATA CONSIST OF TWO EXPERIMENTER-GENERATED, 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 FIRST TAPE BEGINS ON JULY 30, 1967, AT 0204 UT AND ENDS ON AUGUST 14, 1967, AT 0150 UT. THE SECOND TAPE BEGINS ON AUGUST 14, 1967, AT 0150 UT AND ENDS ON AUGUST 27, 1967, AT 0307 UT. THE DATA CONSIST OF 37-SEC AVERAGED TELESCOPE RATES AND 15-SEC AVERAGED SINGLES RATES. THE TAPE CONTAINS NINE-BIT WORD TELESCOPE RATES, NINE-BIT WORD SINGLES RATES, TIME (UT), ALTITUDE, LATITUDE, LONGITUDE, MCILWAIN L, AND MAGNETIC FIELD.

DATA SET NAME- ORIGINAL SINGLES AND TELESCOPE RATE PLOTS ON MICROFILM NSSDC ID 67-073A-09B

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 07/30/67 TO 08/27/67

DATA SET BRIEF DESCRIPTION
THESE DATA CONSIST OF ONE REEL OF 16-MM MICROFILM. 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 IS LOGARITHMIC COUNTS PER SEC WHILE THE HORIZONTAL SCALE IS LINEAR UT FOR ONE ORBIT PERIOD. IN ADDITION TO THE TIME SCALE, MCILWAIN L VALUES, ALTITUDE, AND LATITUDE ARE ALSO INDICATED. THE DATA PLOTTED ARE FOR THE SAME PERIOD COVERED BY THE COSMIC-RAY DATA TAPES IN DATA SET 67-073A-09A.

EXPERIMENT NAME- LYMAN-ALPHA AND UV AIRGLOW MEASUREMENT NSSDC ID 67-073A-13

ORIGINAL EXPERIMENT INSTITUTION- NAVAL RESEARCH LAB

INVESTIGATORS- P.W. MANGE, NAVAL RESEARCH LAB , WASHINGTON, D.C.

DATE LAST USEFUL DATA RECORDED- 02/12/68

EXPERIMENT BRIEF DESCRIPTION

THE PURPOSE OF THIS EXPERIMENT WAS TO MEASURE THE LYMAN-ALPHA NIGHT SKYGLOW RADIATION FROM EARTH (1050 TO 1350 A), THE LYMAN-ALPHA BACKGROUND RADIATION FROM SPACE (1050 TO 1350 A), AND THE FAR UV AIRGLOW RADIATION FROM EARTH (1230 TO 1350 A AND 1350 TO 1550 A). THERE WERE EIGHT DETECTORS USED IN THE EXPERIMENT -- SEVEN POINTED TOWARD THE EARTH TO MEASURE THE FAR UV AIRGLOW AND LYMAN-ALPHA NIGHT SKYGLOW AND ONE DIRECTED TOWARD SPACE TO MEASURE THE LYMAN-ALPHA BACKGROUND RADIATION. THE 1050- TO 1350-A DETECTORS HAD LITHIUM FLUORIDE WINDOWS AND NITRIC OXIDE GAS FILLER, THE 1230- TO 1350-A DETECTORS HAD CALCIUM FLUORIDE WINDOWS AND NITRIC OXIDE GAS, AND THE 1350- TO 1550-A DETECTORS HAD BARIUM FLUORIDE WINDOWS AND UNSYMMETRICAL DIMETHYL HYDRAZINE GAS. THESE DETECTORS OBSERVED ZENITH AND NADIR INTENSITIES IN THE NIGHT SKY AT ALTITUDES OF 400 TO 900 KM. THE EXPERIMENT PERFORMED NORMALLY FROM LAUNCH UNTIL THE SATELLITE TAPE RECORDER FAILED ON JANUARY 20, 1969. DATA AFTER THIS DATE WERE RECEIVED IN REAL TIME ONLY. PRIOR TO THIS EQUIPMENT FAILURE, THE RADIATION DETECTORS OPERATED WITH LITTLE IF ANY LOSS OF SENSITIVITY WITH THE EXCEPTION OF THE 1230- TO 1350-A DETECTORS, WHICH, FOR NO KNOWN REASON, STEADILY DECREASED IN SENSITIVITY AND BECAME USELESS AFTER 6 WEEKS OF OPERATION.

DATA SET NAME- AIRGLOW PLOTS ON MICROFILM NSSDC ID 67-073A-13A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 07/29/67 TO 02/12/68

DATA SET BRIEF DESCRIPTION

THE DATA SET CONSISTS OF MEASUREMENTS OF BACKGROUND LYMAN-ALPHA RADIATION FROM SPACE (1050 TO 1350 A), LYMAN-ALPHA NIGHT SKYGLOW RADIATION FROM EARTH (1050 TO 1350 A), AND FAR UV AIRGLOW RADIATION FROM EARTH (1230 TO 1350 A AND 1350 TO 1550 A) THAT HAVE BEEN CONVERTED TO RADIATION INTENSITIES BY USE OF CALIBRATION OR CONVERSION FACTORS. THE DATA ARE ON TWO ROLLS OF 16-MM MICROFILM THAT CONTAIN STRIP CHARTS, IN ANALOG FORM, OF TIME (UT) VS THE THREE RADIATION INTENSITIES IN KILORAYLEIGHS, PLOTTED ON SEPARATE GRAPHS. THE TIME PERIOD COVERED PER CHART RANGES FROM 15 MIN TO NEARLY 2 HR, WITH THE MOST FREQUENT TIME PERIOD BEING ABOUT 90 MIN. THE FIRST ROLL OF MICROFILM COVERS THE PERIOD FROM 1625 UT JULY 29, 1967, TO 0029 UT OCTOBER 31, 1967. THE SECOND ROLL COVERS THE PERIOD FROM 0253 UT NOVEMBER 1, 1967, TO 2111 UT FEBRUARY 12, 1968. CALIBRATION FACTORS ARE ALSO GIVEN IN KILORAYLEIGHS/VOLT, AND THE INTENSITIES SHOWN ARE ACCURATE TO PLUS OR MINUS 0.2 KILORAYLEIGH. NO FORMAL ORBITAL DATA ARE GIVEN ON THE PLOTS. THE 1230- TO 1350-A RADIATION INTENSITIES ARE QUESTIONABLE SINCE THE DETECTORS GRADUALLY LOST SENSITIVITY OVER A PERIOD OF 6 WEEKS AND EVENTUALLY BECAME USELESS.

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SPACECRAFT NAME- OSO 4 NSSDC ID 67-100A
OTHER NAMES- OSO-D, 1967 100A

LAUNCH DATE- 10/18/67 DATE LAST SCIENTIFIC DATA RECORDED- 03/07/70

AGENCY- NASA-OSSA SPACECRAFT WEIGHT IN ORBIT- 272.4 KG

ORBIT TYPE- GEOCENTRIC EPOCH- 01/31/68 ORBIT PERIOD- 96 MIN.
APOGEE- 569. KM ALT PERIGEE- 536. KM ALT INCLINATION- 33 DEGREES

SPACECRAFT BRIEF DESCRIPTION
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.

EXPERIMENT NAME- SOLAR X-RAY TELESCOPE NSSDC ID 67-100A-08

ORIGINAL EXPERIMENT INSTITUTION- AM SCI + ENG

INVESTIGATORS- R. GIACCONI, AM SCI + ENG , CAMBRIDGE, MASS.
A. KREIGER, AM SCI + ENG , CAMBRIDGE, MASS.

DATE LAST USEFUL DATA RECORDED- 03/07/70

EXPERIMENT BRIEF DESCRIPTION
THIS EXPERIMENT WAS DESIGNED TO OBTAIN X-RAY SPECTROHELIOGRAPHS OF GOOD SPATIAL RESOLUTION (1 ARC-MIN) IN FOUR WAVELENGTH BANDS (3 TO 13 A, 3 TO 21 A, 3 TO 20 A, AND 44 TO 70 A) OVER PERIODS OF SOLAR QUIESCENCE AND SOLAR ACTIVITY. THE INSTRUMENT CONSISTED OF A TWO-MIRROR IMAGE-FORMING TELESCOPE WITH A TWO-POSITION APERTURE WHEEL AND A FOUR-POSITION FILTER WHEEL. THE DETECTOR CONSISTED OF A PHOTOCATHODE FROM WHICH PHOTOELECTRONS WERE FOCUSED

AND ACCELERATED BY AN ELECTROSTATIC LENS ONTO AN ANTHRACENE CRYSTAL SCINTILLATION DETECTOR. A COMPLETE RASTER SCAN PRODUCING A 48 BY 40 ARRAY OF COUNT-RATE VALUES WAS PERFORMED EVERY 307 SEC. EXCEPT FOR SLIGHT DEGRADATION OF DATA DUE TO INTERNAL NOISE, THE EXPERIMENT PERFORMED WELL DURING THE LIFE OF THE ONBOARD TAPE RECORDERS.

DATA SET NAME- SCINTILLATION X-RAY DETECTOR COUNT RATES ON MAGNETIC TAPE — NSSDC ID 67-100A-08A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 10/20/67 TO 05/12/68

DATA SET BRIEF DESCRIPTION
THIS DATA SET CONSISTS OF SEVEN 9-TRACK, 800-BPI, IBM 360, BINARY MAGNETIC TAPES WITH VARIABLE LENGTH RECORDS CODED IN PL/1 LANGUAGE. IT CONSISTS OF A SEQUENCE OF 48- BY 40-WORD ARRAYS OF PHOTOEMISSION -- SCINTILLATION X-RAY DETECTOR COUNT RATES (COUNTS/0.14 SEC) AS A FUNCTION OF RASTER POSITION AND UNIVERSAL TIME. ALSO INCLUDED ARE FLAGS INDICATING FILTER AND APERTURE WHEEL POSITIONS AND DATA QUALITY. REDUCED RASTER DATA ARE OBTAINED BY SUBTRACTING THE CORRESPONDING BACKGROUND RASTER VALUES DESCRIBED IN DATA SET 67-100A-08B. PROGRAMMING SUPPORT TO PRODUCE THE REDUCED DATA IS AVAILABLE AT NSSDC AND CAN BE PROVIDED UPON REQUEST.

DATA SET NAME- AVERAGE BACKGROUND COUNT RATES ON MAGNETIC TAPE — NSSDC ID 67-100A-08B

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 10/26/67 TO 05/12/68

DATA SET BRIEF DESCRIPTION
THIS DATA SET PROVIDES BACKGROUND CORRECTION FOR THE RAW RASTER DATA SET 67-100A-08A. IT CONSISTS OF TWO 9-TRACK, 800-BPI, IBM 360, BINARY MAGNETIC TAPES WITH VARIABLE LENGTH RECORDS CODED IN PL/1 LANGUAGE. IT IS MADE UP OF 48- BY 40-WORD ARRAYS GENERATED BY SUMMING ALL CALIBRATION RASTERS WHICH WERE MADE BY SCANNING IN A DIRECTION AWAY FROM THE SUN AND SUBTRACTING THE COUNTING RATE DUE TO THE IRON-55 CALIBRATION SOURCE. FLAG WORDS INDICATING DETECTOR CALIBRATION AND COUNT-RATE STATISTICS ARE ALSO INCLUDED.

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SPACECRAFT NAME- OGO 5 — NSSDC ID 68-014A
OTHER NAMES- OGO-E, EGO 5, EOGO 5, 1968 14A

LAUNCH DATE- 03/04/68 — DATE LAST SCIENTIFIC DATA RECORDED- STILL OPERATIONAL

AGENCY- NASA/OSSA — SPACECRAFT WEIGHT IN ORBIT- 611 KG

ORBIT TYPE- GEOCENTRIC EPOCH- 03/04/68 ORBIT PERIOD- 3796 MIN.
APOGEE-148222. KM ALT PERIGEE- 232. KM ALT INCLINATION- 31.13 DEGREES

SPACECRAFT BRIEF DESCRIPTION
THE PURPOSE OF THE OGO 5 SPACECRAFT, THE FIFTH OF A SERIES OF SIX ORBITING GEOPHYSICAL OBSERVATORIES, IS TO CONDUCT MANY DIVERSIFIED GEOPHYSICAL EXPERIMENTS IN ORDER TO OBTAIN A BETTER UNDERSTANDING OF THE EARTH AS A PLANET AND TO DEVELOP AND OPERATE A STANDARDIZED OBSERVATORY-TYPE SPACECRAFT. OGO 5 CONSISTS OF A MAIN BODY THAT IS 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 IS EARTH POINTING (+Z), AND THE LINE CONNECTING THE TWO SOLAR PANELS (X AXIS) IS PERPENDICULAR TO THE EARTH-SUN-SPACECRAFT PLANE. THE SOLAR PANELS ARE ABLE TO ROTATE ABOUT THE X AXIS. THE OPEP'S ARE MOUNTED ON, AND CAN ROTATE ABOUT, AN AXIS WHICH IS PARALLEL TO THE Z AXIS AND WHICH IS ATTACHED TO THE MAIN BODY. AT LAUNCH, THE LOCAL TIME OF APOGEE WAS 0944 HR. OGO 5 CARRIES 25 EXPERIMENTS. SEVENTEEN OF THESE ARE PARTICLE STUDIES, AND TWO ARE MAGNETIC FIELD STUDIES. IN ADDITION, THERE IS 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 ARE TRANSMITTED AT 1, 8 AND 64 KBS DEPENDING ON THE DISTANCE FROM THE SPACECRAFT TO THE EARTH. PLAYBACK DATA ARE TAPE RECORDED AT 1 KBS AND ARE TRANSMITTED AT 64 KBS. TWO WIDEBAND TRANSMITTERS, ONE FEEDING INTO AN OMNIDIRECTIONAL ANTENNA AND THE OTHER FEEDING INTO A DIRECTIONAL ANTENNA, ARE USED TO TRANSMIT DATA. A SPECIAL-PURPOSE TELEMETRY SYSTEM, FEEDING INTO EITHER ANTENNA, IS ALSO USED TO TRANSMIT WIDEBAND DATA IN REAL TIME ONLY. TRACKING IS ACCOMPLISHED BY USING RADIO BEACONS AND A RANGE AND RANGE-RATE S-BAND TRANSPONDER. AS OF JUNE 1, 1970, DATA ARE STILL BEING ACQUIRED FROM 100 PERCENT OF THE ORBITAL PATH, AND THE SATELLITE IS PERFORMING NORMALLY.

EXPERIMENT NAME- PLASMA WAVE DETECTOR NSSDC ID 68-014A-24

ORIGINAL EXPERIMENT INSTITUTION- TRW SYSTEMS INC

INVESTIGATORS- G.M. CROOK, TRW SYSTEMS INC , REDONDO BEACH, CALIF.
F.L. SCARF, TRW SYSTEMS INC , REDONDO BEACH, CALIF.
R.W. FREDRICKS, TRW SYSTEMS INC , REDONDO BEACH, CALIF.

DATE LAST USEFUL DATA RECORDED- EXPERIMENT STILL OPERATIONAL

EXPERIMENT BRIEF DESCRIPTION
THE PLASMA WAVE DETECTOR INCLUDES FIVE ELECTRIC DIPOLES AND THREE ORTHOGONAL SEARCH-COIL MAGNETOMETERS MOUNTED ON A 22-FT BOOM. THE THREE 0.5-M-LONG ORTHOGONAL ELECTRIC DIPOLES ARE NORMAL TO THE PLANES OF THE MAGNETOMETERS. EACH OF THE ORTHOGONAL COMPONENTS OF THE DIPOLE AND MAGNETOMETER ARE 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 IS 3.26 MIN. ONBOARD AUTOCORRELATION BETWEEN EACH E AND B MEASUREMENT IS PERFORMED. THE REMAINING TWO BOOM-MOUNTED DIPOLES ARE COLINEAR, DIFFERING ONLY IN DIPOLE LENGTH, EACH IS MONITORED THROUGH A 200-HZ 10 PERCENT FILTER FOR 2 SEC ONCE EVERY 9.2 SEC. IN ADDITION TO THESE DIGITAL DATA, 1- TO 22-KHZ ELECTRIC FIELD DATA TAKEN FROM ONE MAIN DIPOLE AND YIELDING POWER SPECTRUM INFORMATION FOR THAT AXIS ARE CONTINUOUSLY MONITORED BY A SPECIAL PURPOSE ANALOG TELEMETRY SYSTEM. THRESHOLD SENSITIVITY OF THESE MEASUREMENTS IS TELEMETERED WITH THE DIGITAL DATA. ALSO, INTENSE EMISSIONS BELOW 1 KHZ AND ABOVE 22 KHZ MAY STILL BE DETECTABLE. THE EXPERIMENT HAS OPERATED NORMALLY. HOWEVER, MUCH OF THE DATA AFTER APRIL 1968 IS OF POOR QUALITY AS A RESULT OF TRANSMITTER FAILURE.

DATA SET NAME- ORIGINAL ELECTRIC FIELD SONOGRAMS ON MICROFILM — NSSDC ID 68-014A-24A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 03/27/68 TO 09/15/68

DATA SET BRIEF DESCRIPTION

THIS DATA SET CONSISTS OF ELECTRIC FIELD SONOGRAMS GENERATED BY THE EXPERIMENTER FROM ANALOG DATA ON NINE ROLLS OF 35-MM MICROFILM. 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 IN. 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.

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SPACECRAFT NAME- MARINER 6 — NSSDC ID 69-014A
OTHER NAMES- PL-691E, MARINER MARS 69A, 1969 14A

LAUNCH DATE- 02/24/69 DATE LAST SCIENTIFIC DATA RECORDED- 07/31/69

AGENCY- NASA SPACECRAFT WEIGHT IN ORBIT- 380 KG

ORBIT TYPE- HELIOCENTRIC EPOCH- 02/24/69 ORBIT PERIOD- 517 DAYS
APOGEE- 1.52 AU RAD PERIGEE- 1.0 AU RAD INCLINATION- 0 DEGREES

SPACECRAFT BRIEF DESCRIPTION

MARINER 6 WAS THE SIXTH IN A SERIES OF SPACECRAFT USED FOR PLANETARY EXPLORATION IN THE FLYBY MODE. MARINER 6 WAS ATTITUDE STABILIZED IN THREE AXES (REFERENCED TO THE SUN AND THE STAR CANOPUS). THE SPACECRAFT WAS SOLAR POWERED AND CAPABLE OF CONTINUOUS TELEMETRY TRANSMISSION. IT WAS FULLY AUTOMATIC IN OPERATION ALTHOUGH IT COULD BE REPROGRAMMED FROM EARTH DURING

THE MISSION. THE SPACECRAFT WAS ORIENTED ENTIRELY TO PLANETARY DATA ACQUISITION, AND DATA WERE OBTAINED ONLY IN THE VICINITY OF MARS. MARINER 6 WAS LAUNCHED ON FEBRUARY 24, 1969, AND PASSED 3431 KM FROM MARS ON JULY 31, 1969. THE SPACECRAFT INSTRUMENTS TOOK TV IMAGES OF MARS AND MEASURED THE RADIO REFRACTIVITY AND UV AND IR EMISSIONS OF THE MARTIAN ATMOSPHERE. THE MISSION WAS TERMED A SUCCESS, AND DATA FROM IT WERE USED TO REPROGRAM MARINER 7.

EXPERIMENT NAME- MARS TV CAMERA NSSDC ID 69-014A-01

ORIGINAL EXPERIMENT INSTITUTION- CAL TECH

INVESTIGATORS- R.B. LEIGHTON, CAL TECH , PASADENA, CALIF.

DATE LAST USEFUL DATA RECORDED- 07/31/69

EXPERIMENT BRIEF DESCRIPTION
TWO TELEVISION VIDICON CAMERAS, ONE OF MEDIUM RESOLUTION (WIDE ANGLE) AND THE OTHER OF HIGH RESOLUTION (NARROW ANGLE) WERE PART OF THE MARINER 6 SCIENTIFIC INSTRUMENTATION. THE WIDE-ANGLE CAMERA, WHICH HAD A FIELD OF VIEW OF 11 DEG BY 14 DEG AND A FOCAL LENGTH OF 50 MM, ENCOMPASSED 100 TIMES MORE SURFACE AREA THAN THE NARROW-ANGLE CAMERA AND WAS USED ONLY FOR NEAR-ENCOUNTER PICTURES. THE NARROW-ANGLE CAMERA, WHICH WAS USED FOR BOTH NEAR- AND FAR-ENCOUNTER PICTURES, HAD A FOCAL LENGTH OF 508 MM AND PROVIDED 10 TIMES THE LINEAR RESOLUTION OF THE WIDE-ANGLE CAMERA. CAMERA SHUTTERS WERE ALTERNATED AND TIMED TO PROVIDE OVERLAPPING OF THE WIDE-ANGLE AND NARROW-ANGLE PICTURES, PROVIDING 75 PICTURES FROM THE TWO SYSTEMS -- 25 NEAR ENCOUNTER AND 50 FAR ENCOUNTER. THE PHOTOGRAPHS WERE PRODUCED FROM THE TELEMETERED VIDEO MAGNETIC TAPE, WHICH WAS DISPLAYED ON A CRT AND PHOTOGRAPHED ON 70-MM FILM.

DATA SET NAME- PHOTOS, RAW-ANALOG NEAR-ENCOUNTER NSSDC ID 69-014A-01A

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME SPAN OF DATA- 07/31/69 TO 07/31/69

DATA SET BRIEF DESCRIPTION
THIS DATA SET CONSISTS OF 25 UNENHANCED PHOTOGRAPHS ON 70-MM POSITIVE FILM. THESE ARE ORIGINAL COPIES, I.E., DIRECT FROM THE CRT, OF THE PHOTOGRAPHS TAKEN BY THE NARROW-ANGLE AND WIDE-ANGLE CAMERAS.

DATA SET NAME- PHOTOS, RAW-ANALOG FAR-ENCOUNTER NSSDC ID 69-014A-01B

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME SPAN OF DATA- 07/29/69 TO 07/31/69

DATA SET BRIEF DESCRIPTION
THIS DATA SET CONSISTS OF 50 UNENHANCED PHOTOGRAPHS TAKEN BY THE NARROW-ANGLE CAMERA. THESE ARE ORIGINAL COPIES ON 70-MM POSITIVE FILM, AS PHOTOGRAPHED FROM THE CRT.

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SPACECRAFT NAME- MARINER 7 NSSDC ID 69-030A
OTHER NAMES- PL-691F, MARINER MARS 69B, 1969 30A

LAUNCH DATE- 03/27/69 DATE LAST SCIENTIFIC DATA RECORDED- 08/05/69

AGENCY- NASA SPACECRAFT WEIGHT IN ORBIT- 380 KG

ORBIT TYPE- HELIOCENTRIC EPOCH- 03/27/69 ORBIT PERIOD- 517 DAYS
APOGEE- 1.52 AU RAD PERIGEE- 1.0 AU RAD INCLINATION- 0 DEGREES

SPACECRAFT BRIEF DESCRIPTION
MARINER 7 WAS THE SEVENTH IN A SERIES OF SPACECRAFT USED FOR PLANETARY EXPLORATION IN THE FLYBY MODE. IT WAS IDENTICAL TO THE MARINER 6 SPACECRAFT. MARINER 7 WAS ATTITUDE STABILIZED IN THREE AXES (REFERENCED TO THE SUN AND THE STAR CANOPUS). THE SPACECRAFT WAS SOLAR POWERED AND CAPABLE OF CONTINUOUS TELEMETRY TRANSMISSION, AND IT WAS FULLY AUTOMATIC IN OPERATION ALTHOUGH IT COULD BE REPROGRAMMED FROM EARTH DURING THE MISSION. THE SPACECRAFT WAS ORIENTED ENTIRELY TO PLANETARY DATA ACQUISITION, AND DATA WERE OBTAINED ONLY IN THE VICINITY OF MARS. MARINER 7 WAS LAUNCHED ON MARCH 27, 1969, AND PASSED 3430 KM FROM MARS ON AUGUST 5, 1969. THE SPACECRAFT INSTRUMENTS TOOK TV IMAGES OF MARS AND MEASURED THE RADIO REFRACTIVITY AND UV AND IR EMISSIONS OF THE MARTIAN ATMOSPHERE. THE MISSION WAS TERMED A SUCCESS.

EXPERIMENT NAME- MARS TV CAMERA NSSDC ID 69-030A-01

ORIGINAL EXPERIMENT INSTITUTION- CAL TECH

INVESTIGATORS- R.B. LEIGHTON, CAL TECH , PASADENA, CALIF.

DATE LAST USEFUL DATA RECORDED- 08/05/69

EXPERIMENT BRIEF DESCRIPTION
TWO TELEVISION VIDICON CAMERAS, ONE OF MEDIUM RESOLUTION (WIDE ANGLE) AND THE OTHER OF HIGH RESOLUTION (NARROW ANGLE) WERE PART OF THE MARINER 7 SCIENTIFIC INSTRUMENTATION. THE WIDE-ANGLE CAMERA, WHICH HAD A FIELD OF VIEW OF 11 DEG BY 14 DEG AND A FOCAL LENGTH OF 50 MM, ENCOMPASSED 100 TIMES MORE SURFACE AREA THAN THE NARROW-ANGLE CAMERA AND WAS USED ONLY FOR NEAR-ENCOUNTER PICTURES. THE NARROW-ANGLE CAMERA, WHICH WAS USED FOR BOTH

NEAR-ENCOUNTER AND FAR-ENCOUNTER PICTURES. HAD A FOCAL LENGTH OF 508 MM AND PROVIDED 10 TIMES THE LINEAR RESOLUTION OF THE WIDE-ANGLE CAMERA. CAMERA SHUTTERS WERE ALTERNATED AND TIMED TO PROVIDE OVERLAPPING OF THE WIDE-ANGLE AND NARROW-ANGLE PICTURES, PROVIDING 126 PICTURES FROM THE TWO SYSTEMS -- 33 NEAR ENCOUNTER AND 93 FAR ENCOUNTER. THE PHOTOGRAPHS WERE PRODUCED FROM THE TELEMETERED VIDEO MAGNETIC TAPE, WHICH WAS DISPLAYED ON A CRT AND PHOTOGRAPHED ON 70-MM FILM.

DATA SET NAME- PHOTOS, RAW-ANALOG NEAR-ENCOUNTER NSSDC ID 69-030A-01A

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME SPAN OF DATA- 08/05/69 TO 08/05/69

DATA SET BRIEF DESCRIPTION
THIS DATA SET CONSISTS OF 33 UNENHANCED PHOTOGRAPHS ON 70-MM POSITIVE FILM. THESE ARE ORIGINAL COPIES, I.E., DIRECT FROM THE CRT, OF THE PHOTGRAPHS BY THE NARROW-ANGLE AND WIDE-ANGLE CAMERAS.

DATA SET NAME- PHOTOS, RAW-ANALOG FAR-ENCOUNTER NSSDC ID 69-030A-01B

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME SPAN OF DATA- 08/03/69 TO 08/05/69

DATA SET BRIEF DESCRIPTION
THIS DATA SET CONSISTS OF 93 UNENHANCED MARS PHOTOGRAPHS TAKEN BY THE NARROW-ANGLE CAMERA. THE PHOTOS ARE ORIGINAL COPIES ON 70-MM POSITIVE FILM, AS PHOTOGRAPHED FROM THE CRT.

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SPACECRAFT NAME- NIMBUS 3 NSSDC ID 69-037A
OTHER NAMES- PL-684G, NIMBUS B2, 1969 37A

LAUNCH DATE- 04/14/69 DATE LAST SCIENTIFIC DATA RECORDED- STILL OPERATIONAL

AGENCY- NASA-OSSA SPACECRAFT WEIGHT IN ORBIT- 576 KG

ORBIT TYPE- GEOCENTRIC EPOCH- 04/14/69 ORBIT PERIOD- 107.3 MIN.
APOGEE- 1132. KM ALT PERIGEE- 1071. KM ALT INCLINATION- 99.922 DEGREES

SPACECRAFT BRIEF DESCRIPTION
NIMBUS 3 IS A STABILIZED, EARTH-ORIENTED SATELLITE WITH A NEARLY CIRCULAR,

SUN-SYNCHRONOUS POLAR ORBIT. ITS ORBIT IS SUCH THAT A GIVEN POINT ON THE SURFACE OF THE EARTH IS VIEWED TWICE DURING EVERY 24-HR PERIOD, ONCE IN DAYLIGHT, ONCE IN DARKNESS. THE SPACECRAFT IS TAILORED TO A METEOROLOGICAL MISSION WITH EXPERIMENTS COVERING THE ELECTROMAGNETIC SPECTRUM FROM THE ULTRAVIOLET THROUGH THE VISIBLE AND INFRARED REGIONS. NIMBUS 3 CONTINUES TO PERFORM NORMALLY AS OF THIS DATE (SEPTEMBER 1970) WITH THE EXCEPTION OF ONE OF THE ONBOARD TAPE RECORDERS THAT FAILED JANUARY 31, 1970.

EXPERIMENT NAME- HIGH-RESOLUTION INFRARED RADIOMETER (HRIR) NSSDC ID 69-037A-02

ORIGINAL EXPERIMENT INSTITUTION- NASA-GSFC

INVESTIGATORS- G.T. CHERRIX, NASA-GSFC , GREENBELT, MD.

DATE LAST USEFUL DATA RECORDED- 01/31/70

EXPERIMENT BRIEF DESCRIPTION

THE HIGH-RESOLUTION INFRARED RADIOMETER (HRIR) DETECTED THE EMITTED THERMAL RADIATION OF THE EARTH AND ITS ATMOSPHERE IN THE 3.4- TO 4.2-MICRON WAVELENGTH REGION TO PRODUCE CLOUDCOVER PICTURES AND TO MEASURE CLOUDTOP TEMPERATURES DURING THE NIGHTTIME PORTION OF THE ORBIT. BY DETECTING THE REFLECTED SOLAR ENERGY IN THE 0.7- TO 1.3-MICRON REGION, THE RADIOMETER ALSO MAPPED THE EARTH'S CLOUDCOVER DURING THE DAYTIME. A ROTATING SCANNING MIRROR CAUSED THE DETECTOR VIEW TO CONTINUOUSLY SWEEP THROUGH A COMPLETE CIRCLE. THE SCAN TIME OF THE MIRROR COINCIDED WITH THE TIME REQUIRED FOR THE SPACECRAFT TO ADVANCE THE WIDTH OF A PICTURE ELEMENT. THE LINES THUS SCANNED FORMED A CONTINUOUS PICTURE. THE HRIR EXPERIMENT PERFORMED NORMALLY UNTIL THE ONBOARD TAPE RECORDER FAILED ON JANUARY 31,1970.

DATA SET NAME- HRIR PHOTOFACSIMILE FILM STRIPS NSSDC ID 69-037A-02A

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME SPAN OF DATA- 04/22/69 TO 01/31/70

DATA SET BRIEF DESCRIPTION

THE 70-MM HRIR PHOTOFACSIMILE FILM STRIPS ARE AVAILABLE AS CONTACT POSITIVE OR NEGATIVE FILM DUPLICATES, CONTACT PAPER PRINTS, OR ENLARGED PRINTS OF SPECIFIC AREAS OR FEATURES OF INTEREST. THESE FILM STRIPS CAN BE VARIABLE DENSITY OR UNIFORM DENSITY MODE. DATA FROM EACH ORBIT IS SEPARATED INTO NIGHTTIME AND DAYTIME SWATHS SO THAT EACH SWATH COVERS A DISTANCE APPROXIMATELY FROM POLE TO POLE. EACH PICTURE IS GRIDDED WITH GEOGRAPHIC COORDINATES.

EXPERIMENT NAME- INFRARED INTERFEROMETER SPECTROMETER (IRIS) NSSDC ID 69-037A-03

ORICINAL EXPERIMENT INSTITUTION- NASA-GSFC

INVESTICATORS- R. HANEL, NASA-GSFC , GREENBELT, MD.

DATE LAST USEFUL DATA RECORDED- 07/22/69

EXPERIMENT BRIEF DESCRIPTION
THE INFRARED INTERFEROMETER SPECTROMETER (IRIS) EXPERIMENT, DESIGNED TO MEASURE THE EARTH'S SPECTRA RADIANCES IN THE 5- TO 20-MICRON WAVELENGTH INTERVAL WITH A SPECTRAL RESOLUTION OF 5 RECIPROCAL CM , WAS USED TO DETERMINE THE CHARACTERISTICS OF OZONE, WATER VAPOR, AND MINOR ATMOSPHERIC CONSTITUENTS AND TO INFER THE TEMPERATURE STRUCTURE OF THE ATMOSPHERE. THE INSTRUMENT USED WAS A MICHELSON INTERFEROMETER WITH THE DESIRED SPECTRAL RESOLUTION AND RADIOMETRIC ACCURACY NEEDED FOR INDIRECT TEMPERATURE SOUNDINGS. THE IRIS EXPERIMENT WORKED SUCCESSFULLY FROM THE APRIL 14, 1969, LAUNCH UNTIL IT FAILED ON JULY 22, 1969.

DATA SET NAME- REDUCED IRIS ATMOSPHERIC SPECTRUM AND RADIANCE DATA ON TAPE NSSDC ID 69-037A-03A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 04/15/69 TO 07/22/69

DATA SET BRIEF DESCRIPTION
IRIS RADIATION DATA ARE ON IBM 360/75 9-TRACK, 1600-BPI, BINARY MAGNETIC TAPES. EACH TAPE CONSISTS OF ONE FILE OF DATA CONTAINING APPROXIMATELY 10 ORBITS, WHICH ARE NOT SORTED ON THE TAPE. DATA RECORDS CONTAIN DOCUMENTATION INFORMATION, REFERENCE CALIBRATION, AVERAGE INSTRUMENT TEMPERATURE, CALIBRATED ATMOSPHERE SPECTRUM, AND A SUMMARY FOR EACH ORBITAL PASS. AT THE PRESENT TIME, 86 OUT OF A POSSIBLE TOTAL OF APPROXIMATELY 100 TAPES ARE AVAILABLE. THE TAPES ARE CONSIDERED AS PRELIMINARY, HOWEVER, AND WILL BE REPLACED BY THE EXPERIMENTER WHEN FINAL TAPES BECOME AVAILABLE.

EXPERIMENT NAME- SATELLITE INFRARED SPECTROMETER (SIRS) NSSDC ID 69-037A-04

ORIGINAL EXPERIMENT INSTITUTION- ESSA

INVESTIGATORS- D. WARK, ESSA , SUITLAND, MD.

DATE LAST USEFUL DATA RECORDED- 06/21/70

EXPERIMENT BRIEF DESCRIPTION
THE SATELLITE INFRARED SPECTROMETER (SIRS) EXPERIMENT WAS DESIGNED TO

MEASURE THE EARTH'S SPECTRAL RADIANCES IN THE CARBON DIOXIDE ABSORPTION BAND THAT ARE NEEDED FOR INFERENCE OF ATMOSPHERIC TEMPERATURES. SEVEN SPECTRAL CHANNELS CENTERED ABOUT THIS 15-MICRON BAND ARE USED. ANOTHER CHANNEL, LOCATED BETWEEN 11 AND 14.5 MICRONS, IS USED TO HELP SOLVE THE CASE WHERE PARTIAL CLOUDS EXIST IN THE FIELD OF VIEW. A NINTH CHANNEL IS USED TO MEASURE THE INTERNAL BLACKBODY REFERENCE FOR INFLIGHT CALIBRATION. THE INSTRUMENT USED IS A FASTIE-EBERT GRATING SPECTROMETER WITH SPECIAL WEDGE-IMMERSED THERMISTOR BOLOMETER DETECTORS. THE SIRS EXPERIMENT WAS SUCCESSFUL, AND GOOD DATA CONTINUE TO BE OBTAINED AS OF JULY 1, 1970.

DATA SET NAME- REDUCED SIRS SPECTRAL RADIANCE DATA ON TAPE — NSSDC ID 69-037A-04A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 04/14/69 TO 05/31/70

DATA SET BRIEF DESCRIPTION

THE SIRS RADIANCE VALUES ARE ON THIRTY-EIGHT 7-TRACK, 556-BPI, MAGNETIC TAPES GENERATED ON A CDC 6600 COMPUTER. THE TAPES ARE WRITTEN IN BINARY MODE, WITH ONE ORBIT OF DATA PER FILE. THE NUMBER OF FILES PER TAPE VARIES FROM 64 TO 118. THE FIRST RECORD OF EACH ORBIT CONTAINS INFORMATION IDENTIFYING THE ORBIT AND A SUMMARY OF THE INSTRUMENT STATUS THROUGHOUT THE ORBIT. SUBSEQUENT RECORDS CONTAIN THE RADIANCE VALUES ALONG WITH CALIBRATION DATA, LATITUDE, LONGITUDE, AND TIME OF EACH OBSERVATION. DATA COVERAGE IS AVAILABLE BEGINNING WITH THE APRIL 14, 1969, LAUNCH, AND GOOD DATA WERE BEING RECEIVED FROM THE EXPERIMENT AS OF JULY 1, 1970.

EXPERIMENT NAME- MEDIUM-RESOLUTION INFRARED RADIOMETER (MRIR) — NSSDC ID 69-037A-05

ORIGINAL EXPERIMENT INSTITUTION- NASA-GSFC

INVESTIGATORS- A.W. MCCULLOCH, NASA-GSFC , GREENBELT, MD.

DATE LAST USEFUL DATA RECORDED- EXPERIMENT STILL OPERATIONAL

EXPERIMENT BRIEF DESCRIPTION

THE MEDIUM-RESOLUTION INFRARED RADIOMETER (MRIR) EXPERIMENT MEASURES THE INTENSITY AND DISTRIBUTION OF THE ELECTROMAGNETIC RADIATION EMITTED AND REFLECTED FROM THE EARTH AND ITS ATMOSPHERE IN FIVE SELECTED WAVELENGTH INTERVALS FROM 0.2 TO 23 MICRONS. DATA FOR HEAT BALANCE OF THE EARTH-ATMOSPHERE SYSTEM ARE OBTAINED, AS WELL AS FOR WATER VAPOR DISTRIBUTION, SURFACE OR NEAR-SURFACE TEMPERATURES, AND SEASONAL CHANGES OF STRATOSPHERIC TEMPERATURE DISTRIBUTION. THE FIVE WAVELENGTH REGIONS ARE (1) THE 6.5- TO 7.0-MICRON CHANNEL WHICH COVERS THE 6.7-MICRON WATER VAPOR ABSORPTION BAND, (2) THE 10- TO 11-MICRON BAND WHICH OPERATES IN THE "ATMOSPHERIC WINDOW," (3) THE 14.5- TO 15.5-MICRON BAND WHICH COVERS THE 15-MICRON CARBON DIOXIDE ABSORPTION BAND, (4) THE 20- TO 23-MICRON CHANNEL WHICH COVERS THE SPECTRAL REGION CONTAINING THE BROAD ROTATIONAL ABSORPTION

BANDS OF WATER VAPOR, AND (5) THE 0.2- TO 4.0-MICRON CHANNEL WHICH YIELDS INFORMATION ON THE INTENSITY OF REFLECTED ENERGY. THE MRIR EXPERIMENT CONTINUES TO PERFORM NORMALLY AS OF APRIL 1970.

DATA SET NAME- MRIR PHOTOFACSIMILE FILMS NSSDC ID 69-037A-05A

AVAILABILITY OF DATA SET- DATA AT NSSDC BEING PROCESSED

TIME SPAN OF DATA- 04/14/69 TO 04/03/70

DATA SET BRIEF DESCRIPTION
THE MRIR PHOTO DISPLAYS ARE AVAILABLE IN 4- X 5-IN. POSITIVE OR NEGATIVE FILM TRANSPARENCIES OR POSITIVE PAPER PRINTS. THE PHOTO DISPLAY IS MADE UP OF PHOTOFACSIMILE FILM STRIPS OF EACH OF THE FIVE CHANNELS, GRIDDING, TIME, AND A CALIBRATION GRAY SCALE STRIP.

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SPACECRAFT NAME- APOLLO 10 NSSDC ID 69-043A
OTHER NAMES- PL-692F, APOLLO, SA-505, 1969 43A

LAUNCH DATE- 05/18/69 DATE LAST SCIENTIFIC DATA RECORDED- 05/26/69

AGENCY- NASA SPACECRAFT WEIGHT IN ORBIT- 9979 KG

ORBIT TYPE- SELENOCENTRIC EPOCH- 05/22/69 ORBIT PERIOD- 88 MIN.
APOGEE- 1861 KM RAD PERIGEE- 1838 KM RAD INCLINATION- 12 DEGREES

SPACECRAFT BRIEF DESCRIPTION
THIS SPACECRAFT MISSION WAS THE SECOND APOLLO MISSION TO ORBIT THE MOON AND SUCCESSFULLY CHECK OUT THE APOLLO SYSTEMS AND TO OBTAIN NUMEROUS PHOTOGRAPHS OF THE LUNAR SURFACE. APOLLO 10 ACCOMPLISHED LUNAR ORBIT 4 DAYS AFTER THE MAY 18, 1969, LAUNCH. BOTH THE COMMAND SERVICE MODULE (CSM) AND LUNAR MODULE (LM), WHICH UNDOCKED AND CAME WITHIN 50,000 FT OF THE SURFACE, PERFORMED SUCCESSFULLY. THE COMMAND MODULE AND CREW RETURNED TO EARTH ON MAY 26, 1969.

EXPERIMENT NAME- APOLLO 10 PHOTOGRAPHIC STUDIES NSSDC ID 69-043A-01

ORIGINAL EXPERIMENT INSTITUTION- NASA-MSC

INVESTIGATORS- R.J. ALLENBY, NASA HEADQUARTERS , WASHINGTON, D.C.
J.H. SASSER, NASA-MSC , HOUSTON, TEXAS

DATE LAST USEFUL DATA RECORDED- 05/26/69

EXPERIMENT BRIEF DESCRIPTION
APOLLO 10 WAS EQUIPPED WITH PHOTOGRAPHIC EQUIPMENT AND MATERIALS TO (1) OBTAIN PHOTOGRAPHS OF THE TRANSPOSITION, DOCKING, LUNAR MODULE EJECTION MANEUVER, AND THE LM RENDEZVOUS SEQUENCE FROM BOTH THE COMMAND AND LUNAR MODULES, (2) OBTAIN PHOTOS OF THE LUNAR GROUND TRACK AND OF LANDING SITE NO. 2 FROM THE LOW POINT OF THE LM FLIGHT PATH, (3) RECORD THE OPERATIONAL ACTIVITIES, AND (4) OBTAIN LONG-DISTANCE EARTH AND LUNAR TERRAIN PHOTOGRAPHS WITH THE 70-MM CAMERAS. CAMERA EQUIPMENT CARRIED ABOARD APOLLO 10 CONSISTED OF TWO 70-MM HASSELBLAD CAMERAS, EACH FITTED WITH 80-MM F/2.8 ZEISS PLANAR LENSES, A 250-MM TELEPHOTO LENS STOWED ABOARD THE COMMAND MODULE, AND ASSOCIATED EQUIPMENT (FILTERS, RINGSIGHT, SPOTMETER, AND AN INTERVALOMETER FOR STEREO STRIP PHOTOGRAPHY). FOR MOTION PICTURES, TWO 16-MM MAURER DATA ACQUISITION CAMERAS (ONE IN THE CSM AND ONE IN THE LM) WITH A VARIABLE FRAME SPEED SELECTION WERE USED. MOTION PICTURE CAMERA ACCESSORIES INCLUDED BAYONET-MOUNTED LENSES OF 75-, 18-, AND 5-MM FOCAL LENGTHS, A RIGHT-ANGLE MIRROR, A COMMAND MODULE BORESIGHT BRACKET, A POWER CABLE, AND AN ADAPTER FOR SHOOTING THROUGH THE SEXTANT. A DATA ANNOUNCEMENT BULLETIN PRESENTING THE PHOTOGRAPHIC COVERAGE AND FORMAT OF AVAILABLE DATA MAY BE OBTAINED FROM NSSDC BY REQUESTING NSSDC 69-14.

DATA SET NAME- PHOTOS, COLOR MASTER POSITIVE, 70-MM NSSDC ID 69-043A-01A

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME SPAN OF DATA- 05/21/69 TO 05/23/69

DATA SET BRIEF DESCRIPTION
THIS DATA SET CONSISTS OF THREE MAGAZINES OF COLOR MASTER POSITIVES PRODUCED FROM THE ORIGINAL 70-MM HASSELBLAD PHOTOGRAPHY OF EKTACHROME COLOR REVERSAL FILM SO-368. THE MAGAZINES CONTAIN 298 FRAMES.

DATA SET NAME- PHOTOS, COLOR "B" WIND MASTER POSITIVE, 16-MM NSSDC ID 69-043A-01B

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME SPAN OF DATA- 05/21/69 TO 05/23/69

DATA SET BRIEF DESCRIPTION
THIS DATA SET WAS PREPARED FROM 10 MAGAZINES OF EKTACHROME COLOR REVERSAL 16-MM FILM TYPE SO-368 AND ONE MAGAZINE OF COLOR SO-168 (CIN) FILM. EACH MAGAZINE WAS 100 FT IN LENGTH. THE MAGAZINES HAVE BEEN SPLICED INTO ONE REEL WITH THE CABIN AND EARTH PHOTOS SPLICED OUT.

DATA SET NAME- PHOTOS, B/W PHOTOMETRIC POSITIVE, 70-MM NSSDC ID 69-043A-01C

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME SPAN OF DATA- 05/21/69 TO 05/23/69

DATA SET BRIEF DESCRIPTION
THIS DATA SET CONTAINS 1021 FRAMES OF BLACK AND WHITE 70-MM PHOTOGRAPHY PRODUCED FROM THE ORIGINAL SIX MAGAZINES OF 3400 PANATOMIC-X AERIAL FILM. THE FILMS WERE PROCESSED ON A NIAGARA PRINTER TO PRODUCE A SET OF PHOTOGRAPHY SUITABLE FOR DETAILED PHOTOMETRIC AND PHOTOGRAMMETRIC INVESTIGATIONS.

DATA SET NAME- PHOTOS, B/W LOGETRONIC POSITIVE, 70-MM NSSDC ID 69-043A-01D

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME SPAN OF DATA- 05/21/69 TO 05/23/69

DATA SET BRIEF DESCRIPTION
THIS DATA SET CONTAINS REPRODUCTIONS OF THE SAME PICTURES FOUND IN DATA SET 69-043A-01C. THE FILMS WERE PROCESSED ON A LOGETRONIC SP 1070 CONTACT PRINTER USING EXPOSURE CONTROL AND DODGING TECHNIQUES. FOR THIS SET OF PICTURES, THE OVERALL CONTRAST IS BETTER, BUT THERE IS A LOSS IN RESOLUTION.

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SPACECRAFT NAME- APOLLO 11 NSSDC ID 69-059A
OTHER NAMES- PL-693H, 1969 59A

LAUNCH DATE- 07/16/69 DATE LAST SCIENTIFIC DATA RECORDED- 07/24/69

AGENCY- NASA SPACECRAFT WEIGHT IN ORBIT- 9979 KG

ORBIT TYPE- SELENOCENTRIC EPOCH- 07/20/69 ORBIT PERIOD- 88 MIN.
APOGEE- 1861 KM RAD PERIGEE- 1838 KM RAD INCLINATION- 32 DEGREES

SPACECRAFT BRIEF DESCRIPTION
THIS SPACECRAFT WAS THE FIRST APOLLO SPACECRAFT TO LAND MEN ON THE LUNAR SURFACE AT THE SEA OF TRANQUILLITY (0.67 DEG N LATITUDE AND 23.49 DEG E LONGITUDE) AND RETURN THEM TO EARTH. THE SPACECRAFT CONSISTED OF THREE MODULES -- A COMMAND MODULE (CM), A LUNAR MODULE (LM), AND A COMMAND SERVICE MODULE (CSM). THE SPACECRAFT ORBITED THE MOON AND SEPARATED.

LANDING TWO MEN IN THE LM ON THE LUNAR SURFACE WHILE ONE REMAINED IN LUNAR ORBIT IN THE COMMAND MODULE. SCIENTIFIC STUDIES WERE PERFORMED, AND SOIL AND ROCK SAMPLES WERE ACQUIRED BY THE ASTRONAUTS DURING THEIR MOONWALK. THE MEN RETURNED TO THE LM, DOCKED THE LM AND THE CSM, AND RETURNED TO EARTH. A LASER RANGING RETRO-REFLECTOR AND PASSIVE SEISMOGRAPH EXPERIMENT WERE LEFT ON THE SURFACE. THE PERFORMANCE OF THE SPACECRAFT WAS EXCELLENT THROUGHOUT THE MISSION.

EXPERIMENT NAME- APOLLO 11 PHOTOGRAPHIC STUDIES NSSDC ID 69-059A-01

ORIGINAL EXPERIMENT INSTITUTION- NASA-MSC

INVESTIGATORS- . MAPPING SCIENCES LABORATORY, NASA-MSC , HOUSTON, TEXAS

DATE LAST USEFUL DATA RECORDED- 07/24/69

EXPERIMENT BRIEF DESCRIPTION

APOLLO 11 WAS EQUIPPED WITH PHOTOGRAPHIC EQUIPMENT AND MATERIALS TO (1) OBTAIN PHOTOGRAPHS OF THE TRANSPOSITION, DOCKING, LUNAR MODULE EJECTION MANEUVER, AND THE LM RENDEZVOUS SEQUENCE FROM BOTH THE COMMAND AND LUNAR MODULES, (2) OBTAIN PHOTOS OF THE LUNAR GROUND TRACK AND OF THE LANDING SITE FROM THE LOW POINT OF THE LM'S FLIGHT PATH, (3) RECORD THE OPERATIONAL ACTIVITIES OF THE CREW, (4) OBTAIN LONG-DISTANCE EARTH AND LUNAR TERRAIN PHOTOGRAPHS WITH 70-MM STILL CAMERAS, AND (5) OBTAIN PHOTOS OF LUNAR SURFACE FEATURES AND ACTIVITIES AFTER LANDING. THE CAMERA EQUIPMENT CARRIED BY APOLLO 11 CONSISTED OF ONE 70-MM HASSELBLAD ELECTRIC CAMERA, TWO HASSELBLAD 70-MM LUNAR SURFACE SUPERWIDE-ANGLE CAMERAS, ONE HASSELBLAD EL DATA CAMERA, TWO 16-MM MAURER DATA ACQUISITION CAMERAS, AND ONE 35-MM LUNAR SURFACE STEREOSCOPIC CAMERA. VARIOUS LENSES WERE USED WITH THESE CAMERAS FOR SPECIFIC TYPES OF PHOTOGRAPHY. THE PHOTOGRAPHY INCLUDED 1359 FRAMES OF 70-MM FORMAT, 58,134 FRAMES OF 16-MM PHOTOGRAPHY, AND 17 PAIRS OF STEREOSCOPIC PHOTOGRAPHS. THE APOLLO 11 DATA USERS' NOTE CONTAINS ALL THE DETAILED INFORMATION ON THE PHOTOGRAPHIC COVERAGE AND EQUIPMENT. THIS DOCUMENT MAY BE OBTAINED FROM NSSDC BY REQUESTING NSSDC 70-06.

DATA SET NAME- PHOTOS, COLOR MASTER POSITIVE, 70-MM NSSDC ID 69-059A-01A

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME SPAN OF DATA- 07/18/69 TO 07/22/69

DATA SET BRIEF DESCRIPTION

THIS DATA SET WAS PREPARED FROM TWO MAGAZINES OF COLOR MASTER POSITIVES OF SO-368 FILM AND TWO MAGAZINES OF SO-168 FILM FROM THE APOLLO 11 PHOTOGRAPHS. THE TWO 70-MM FILM TYPES CONTAIN 299 AND 250 FRAMES, RESPECTIVELY.

DATA SET NAME- PHOTOS, COLOR 'B' WIND MASTER POSITIVE, 16-MM NSSDC ID 69-059A-01B

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME SPAN OF DATA- 07/18/69 TO 07/22/69

DATA SET BRIEF DESCRIPTION
THIS DATA SET WAS PREPARED FROM 13 MAGAZINES OF 16-MM COLOR MASTER POSITIVES. FIVE MAGAZINES WERE OF SO-368 COLOR FILM AND EIGHT WERE SO-168 COLOR FILM. THE MAGAZINES WERE SPLICED INTO TWO REELS WITH THE CABIN AND EARTH PHOTOS SPLICED OUT.

DATA SET NAME- PHOTOS, COLOR STEREO POSITIVE, 35-MM NSSDC ID 69-059A-01C

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME SPAN OF DATA- 07/20/69 TO 07/21/69

DATA SET BRIEF DESCRIPTION
THIS DATA SET CONTAINS 17 STEREO PAIRS OF 35-MM COLOR POSTIVE CLOSEUP SURFACE PHOTOGRAPHY REPRODUCED FROM THE ORIGINAL SO-368 COLOR FILM.

DATA SET NAME- PHOTOS, B/W PHOTOMETRIC POSITIVE, 70-MM NSSDC ID 69-059A-01D

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME SPAN OF DATA- 07/20/69 TO 07/21/69

DATA SET BRIEF DESCRIPTION
THIS DATA SET CONSISTS OF THE BLACK AND WHITE 70-MM PHOTOGRAPHY IN PHOTOMETRIC POSITIVE FORM PRODUCED FROM THE ORIGINAL PANATOMIC-X 3400 FILM. THE FIVE AVAILABLE MAGAZINES CONTAIN 810 PHOTOGRAPHIC FRAMES, WHICH WERE PROCESSED ON THE NIAGARA PRINTER. THIS SET OF FILMS IS MOST SUITABLE FOR PHOTOMETRIC AND PHOTOGRAMMETRIC ANALYSES.

DATA SET NAME- PHOTOS, B/W LOGETRONIC POSITIVE, 70-MM NSSDC ID 69-059A-01E

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME SPAN OF DATA- 07/18/69 TO 07/22/69

DATA SET BRIEF DESCRIPTION
THIS DATA SET CONSISTS OF THE BLACK AND WHITE 70-MM PHOTOGRAPHY PRODUCED FROM THE ORIGINAL FILMS ON A LOGETRONIC SP 1070 CONTACT PRINTER USING EXPOSURE CONTROL AND DODGING TECHNIQUES. THE PICTURES IN THIS DATA SET ARE THE SAME AS THOSE IN DATA SET 69-059A-01D. THE OVERALL CONTRAST OF THESE FILMS HAS BEEN IMPROVED, BUT THE RESOLUTION IS SLIGHTLY LESS.

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SPACECRAFT NAME- APOLLO 12 NSSDC ID 69-099A
OTHER NAMES- PL-6931, 1969 99A

LAUNCH DATE- 11/14/69 DATE LAST SCIENTIFIC DATA RECORDED- 11/24/69

AGENCY- NASA SPACECRAFT WEIGHT IN ORBIT- 9979 KG

ORBIT TYPE- SELENOCENTRIC EPOCH- 11/18/69 ORBIT PERIOD- 88 MIN.
APOGEE- 1861 KM RAD PERIGEE- 1838 KM RAD INCLINATION- 1.25 DEGREES

SPACECRAFT BRIEF DESCRIPTION
THIS SPACECRAFT WAS THE SECOND APOLLO MISSION TO LAND MEN ON THE MOON. IT LANDED IN THE VICINITY OF SURVEYOR 3. THE LUNAR MODULE (LM) LANDED TWO MEN ON THE SURFACE WHILE THE PILOTED COMMAND MODULE (CM) CONTINUED IN ORBIT. THE ALSEP PACKAGE WAS PLACED ON THE SURFACE, SAMPLES WERE ACQUIRED OF THE TERRAIN, AND VARIOUS PHOTOGRAPHS OF 16-, 35-, AND 70-MM FILM SIZES WERE EXPOSED FROM THE LUNAR AND COMMAND MODULES AND BY THE ASTRONAUTS DURING THEIR LUNAR SURFACE ACTIVITIES. THE TWO VEHICLES THEN REJOINED AND RETURNED TO EARTH. PERFORMANCE WAS VERY GOOD FOR ALL ASPECTS OF THE MISSION.

EXPERIMENT NAME- APOLLO 12 PHOTOGRAPHIC STUDIES NSSDC ID 69-099A-01

ORIGINAL EXPERIMENT INSTITUTION- NASA-MSC

INVESTIGATORS- . MAPPING SCIENCES LABORATORY, NASA-MSC , HOUSTON, TEXAS

DATE LAST USEFUL DATA RECORDED- 11/24/69

EXPERIMENT BRIEF DESCRIPTION
APOLLO 12 WAS EQUIPPED WITH PHOTOGRAPHIC EQUIPMENT AND MATERIALS TO (1) OBTAIN PHOTOGRAPHS OF THE TRANSPOSITION, DOCKING, LUNAR MODULE EJECTION MANEUVER, AND THE LM RENDEZVOUS SEQUENCE FROM BOTH THE COMMAND AND LUNAR MODULES, (2) OBTAIN PHOTOS OF THE LUNAR GROUND TRACK AND OF THE LANDING SITE FROM THE LOW POINT OF THE LM'S FLIGHT PATH, (3) RECORD THE OPERATIONAL ACTIVITIES OF THE CREW, (4) OBTAIN LONG-DISTANCE EARTH AND LUNAR TERRAIN PHOTOGRAPHS WITH 70-MM STILL CAMERAS, AND (5) OBTAIN PHOTOS OF LUNAR SURFACE FEATURES AND ACTIVITIES AFTER LANDING. THE CAMERA EQUIPMENT CARRIED BY APOLLO 12 CONSISTED OF ONE 70-MM HASSELBLAD ELECTRIC CAMERA, TWO

HASSELBLAD DATA CAMERAS, TWO 16-MM MAURER DATA ACQUISITION CAMERAS, ONE 35-MM LUNAR SURFACE STEREOSCOPIC CAMERA, AND A FOUR-CAMERA, MULTISPECTRAL, S-158 EXPERIMENT. VARIOUS LENSES WERE USED WITH THESE CAMERAS FOR SPECIFIC TYPES OF PHOTOGRAPHY. THE PHOTOGRAPHY INCLUDED 1584 FRAMES OF 70-MM FORMAT, 69,515 FRAMES OF 16-MM FORMAT, 15 PAIRS OF STEREOSCOPIC PHOTOGRAPHS, AND 564 FRAMES OF PHOTOGRAPHY FROM THE S-158 EXPERIMENT. A USER'S PACKAGE CONTAINING DETAILED INFORMATION ABOUT THE AVAILABILITY, PHOTOGRAPHIC COVERAGE, AND ORDERING PROCEDURES FOR THE APOLLO 12 PHOTOGRAPHY IS AVAILABLE FROM NSSDC. REQUESTERS SHOULD ASK FOR NSSDC 70-09, 70-10, AND 70-11.

DATA SET NAME- PHOTOS, COLOR 'B' WIND MASTER POSITIVE, 16-MM NSSDC ID 69-099A-01A

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME SPAN OF DATA- 11/17/69 TO 11/21/69

DATA SET BRIEF DESCRIPTION
THIS DATA SET WAS PREPARED FROM 15 MAGAZINES OF 16-MM COLOR MASTER POSITIVES. ALL OF THE MAGAZINES WERE OF SC-368 COLOR FILM EXCEPT FOR ONE, WHICH WAS BLACK AND WHITE. THE MAGAZINES WERE SPLICED INTO ONE REEL WITH THE CABIN AND EARTH PHOTOS SPLICED OUT.

DATA SET NAME- PHOTOS, COLOR STEREO POSITIVE, 35-MM NSSDC ID 69-099A-01B

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME SPAN OF DATA- 11/20/69 TO 11/20/69

DATA SET BRIEF DESCRIPTION
THIS DATA SET CONTAINS 15 STEREO PAIRS OF 35-MM COLOR POSITIVE CLOSEUP SURFACE PHOTOGRAPHY REPRODUCED FROM THE ORIGINAL SO-368 COLOR FILM.

DATA SET NAME- PHOTOS, COLOR MASTER POSITIVE, 70-MM NSSDC ID 69-099A-01C

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME SPAN OF DATA- 11/17/69 TO 11/21/69

DATA SET BRIEF DESCRIPTION
THIS DATA SET WAS PREPARED FROM TWO MAGAZINES OF SO-368 COLOR MASTER POSITIVES AND TWO MAGAZINES OF SO-168 FILM FROM THE APOLLO 12 PHOTOGRAPHY. THE TWO 70-MM FILM TYPES CONTAIN 249 AND 307 FRAMES, RESPECTIVELY.

DATA SET NAME- PHOTOS, B/W PHOTOMETRIC POSITIVE, 70-MM NSSDC ID 69-099A-01D

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME SPAN OF DATA- 11/17/69 TO 11/21/69

DATA SET BRIEF DESCRIPTION
THIS DATA SET CONSISTS OF THE BLACK AND WHITE 70-MM PHOTOGRAPHY IN PHOTOMETRIC POSITIVE FORM PRODUCED FROM THE ORIGINAL FILM FROM FOUR MAGAZINES OF SO-164 AND TWO MAGAZINES OF SO-267. THE SIX MAGAZINES CONTAIN A TOTAL OF 1021 FRAMES THAT WERE PROCESSED ON THE NIAGARA PRINTER. RESOLUTION CAN BE ANALYZED BETTER FROM THIS REPRODUCTION.

DATA SET NAME- PHOTOS, B/W LOGETRONIC POSITIVE, 70-MM NSSDC ID 69-099A-01E

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME SPAN OF DATA- 11/17/69 TO 11/21/69

DATA SET BRIEF DESCRIPTION
THIS DATA SET CONSISTS OF THE BLACK AND WHITE 70-MM PHOTOGRAPHY PRODUCED FROM THE ORIGINALS AND PROCESSED FOR EXPOSURE CONTROL AND DODGING. THE PROCESSING OF THESE MAGAZINES FROM THE ORIGINAL FILM (SAME AS 69-099A-01D) WAS PERFORMED ON THE SP 1070 LOGETRONIC PRINTER. IN THIS REPRODUCTION, OVERALL DETAIL IS IMPROVED, BUT THE RESOLUTION IS SLIGHTLY DEGRADED.

EXPERIMENT NAME- MULTISPECTRAL PHOTOS, S-158 NSSDC ID 69-099A-09

ORIGINAL EXPERIMENT INSTITUTION- NASA HEADQUARTERS

INVESTIGATORS- A.F.H. GOETZ, BELLCOMM LABS , WASHINGTON, D.C.

DATE LAST USEFUL DATA RECORDED- 11/20/69

EXPERIMENT BRIEF DESCRIPTION
THE S-158 MULTISPECTRAL EXPERIMENT CAMERA GROUP CONSISTED OF FOUR HASSELBLAD CAMERAS, SIDE-BY-SIDE ON A COMMON MOUNT, EACH FITTED WITH A DIFFERENT FILTER AND TYPE OF FILM. THE OBJECTIVE OF THE EXPERIMENT WAS TO GATHER LUNAR SURFACE COLOR VARIATIONS FOR GEOLOGIC MAPPING AND CORRELATION WITH SURFACE SAMPLES FROM SPECTRAL REFLECTANCE.

DATA SET NAME- PHOTOS, B/W MULTISPECTRAL, 70-MM NSSDC ID 69-099A-09A

AVAILABILITY OF DATA SET- DATA AT NSSDC READY FOR DISTRIBUTION

TIME SPAN OF DATA- 11/18/69 TO 11/20/69

DATA SET BRIEF DESCRIPTION

THIS DATA SET WAS PREPARED FROM ONE MAGAZINE OF INFRARED BLACK AND WHITE SO-246 FILM AND THREE MAGAZINES OF MEDIUM-SPEED BLACK AND WHITE FILM TYPE 3401. THE FILMS WERE EXPOSED WITH BLACK, BLUE, RED, AND GREEN FILTERS. FOUR CAMERAS SIMULTANEOUSLY PHOTOGRAPHED 114 FRAMES. THREE OF THE CAMERAS OBTAINED AN ADDITIONAL 36 FRAMES USING THE 3401-TYPE FILM.

GENERAL INDEX

This General Index is based on satellite and experiment common names, experiment affiliations, and four major discipline categories. The major discipline categories are: fields and particles; interplanetary dust particles, lunar and planetary studies; ionospheric physics and planetary atmospheres; and solar physics and astrophysics. Data set names are included in a separate index beginning on page 71.

INDEX TO DATA SETS

This Index to Data Sets is a key to the data set brief descriptions in the Supplement. The index is arranged alphabetically according to the types of measurements contained in the data sets. This index can be used both as a key to data set brief descriptions and as a verification of the data set name, NSSDC ID, and spacecraft name when completing the Data Request Form (see page 81).

INVESTIGATOR INDEX

NSSDC DATA REQUEST FORM

Scientists OUTSIDE the United States send order to:	Scientists WITHIN the United States send order to.
WORLD DATA CENTER A ROCKETS AND SATELLITES CODE 601 GODDARD SPACE FLIGHT CENTER GREENBELT, MARYLAND, U.S A. 20771	NATIONAL SPACE SCIENCE DATA CENTER CODE 601.4 GODDARD SPACE FLIGHT CENTER GREENBELT, MARYLAND 20771

REQUESTER INFORMATION (Please print)

NAME AND TITLE		POSITION		
DIVISION/ BRANCH			MAIL CODE	
ORGANIZATION				
ADDRESS				
CITY		STATE		
ZIP CODE OR COUNTRY	TELEPHONE	(AREA CODE)	(NUMBER)	(EXTENSION)

DATA REQUESTED
SPACECRAFT NAME(S)
EXPERIMENT NAME(S)
NSSDC DATA SET IDENTIFICATION NUMBER(S)
FORM OF DATA (SEE INDIVIDUAL EXPERIMENT DESCRIPTION FOR FORMS OF DATA AVAILABLE)
TIMESPAN OF DATA
ADDITIONAL SPECIFICATIONS
INTENDED USE OF DATA (GIVE BRIEF STATEMENT)