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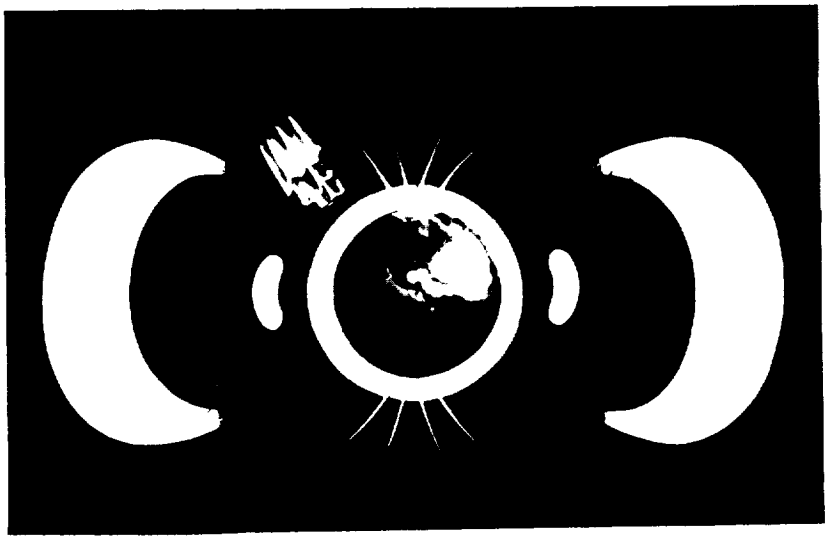
NSSDC NATIONAL SPACE SCIENCE DATA CENTER

WORLD DATA CENTER A for ROCKETS AND SATELLITES 86-01

Data Catalog Series for Space Science and Applications Flight Missions

Volume 3B

Descriptions of Data Sets from Low- and Medium-Altitude Scientific Spacecraft and Investigations



April 1986

NASA

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Categories of Spacecraft Used in This Series

PLANETARY AND HELIOCENTRIC

This category includes probes to the various planets of the solar system and probes designed to make measurements of the characteristics of interplanetary space. Also included are the probes which will pass out of the solar system into interstellar space.

METEOROLOGY AND TERRESTRIAL APPLICATIONS

This category includes geocentric spacecraft whose primary mission is to make remote sensing measurements of the earth and its atmosphere. Spacecraft which carry instrumentation to make geodesy and gravimetry measurements are also included. Technology, engineering, and communications spacecraft or investigations are not included because NSSDC does not archive such data.

ASTRONOMY, ASTROPHYSICS, AND SOLAR PHYSICS

This category consists of scientific satellites designed to conduct investigations of the sun, stellar objects, nonstellar sources, and interstellar phenomena. These satellites are geocentric except for the selenocentric RAE-B.

GEOSTATIONARY AND HIGH-ALTITUDE SCIENTIFIC

This category includes those satellites designed to conduct investigations of the characteristics of near-earth space from orbits with apogees near geostationary altitude and higher. Three of the spacecraft are selenocentric. Communications satellites are not included because NSSDC does not archive such data.

LOW- AND MEDIUM-ALTITUDE SCIENTIFIC

This category includes those spacecraft whose apogees are well below geostationary altitude and whose primary purpose is to conduct investigations in the near-earth environment.

NSSDC/WDC-A-R&S 86-01

DATA CATALOG SERIES FOR SPACE SCIENCE AND APPLICATIONS FLIGHT MISSIONS

Volume 3B

DESCRIPTIONS OF DATA SETS FROM LOW- AND MEDIUM-ALTITUDE SCIENTIFIC SPACECRAFT AND INVESTIGATIONS

Edited by

John E. Jackson
Richard Horowitz

April 1986

National Space Science Data Center (NSSDC)/
World Data Center A for Rockets and Satellites (WDC-A-R&S)
National Aeronautics and Space Administration
Goddard Space Flight Center
Greenbelt, Maryland 20771

PREFACE

This volume is part of a series (see back of front cover) which will describe data sets and related spacecraft and investigations from space science and applications flight investigations. The series will describe the data sets held by the National Space Science Data Center (NSSDC) and some of the data sets held by NASA-funded and other investigators. The series will serve also as pointer documents for extensive data sets held and serviced by other Government agencies. This volume is the second and last volume for the Low- and Medium-Altitude Scientific Spacecraft and Investigations Catalog. The first volume described the spacecraft and investigations along with personnel names and affiliations. This volume describes the data sets associated with the various investigations. As NSSDC is issuing this series, it is starting work towards remote electronic accessibility of its information files.

We would like to thank the many investigators who have submitted their data for archiving at NSSDC. Their cooperation in supplying current status information is gratefully acknowledged. We are particularly indebted to the many past and present NSSDC personnel who interacted with the investigators in bringing to NSSDC the flight data and who provided the initial input for many of the descriptions appearing in this catalog. Thanks are also extended to the other NSSDC personnel, employees of the on-site contractor, Sigma Data Services Corporation, who have been involved in the information handling necessary to produce this volume. Special acknowledgment is given to Mary Elsen for her extensive editorial assistance.

The Data Center is continually striving to increase the usefulness of its data holdings, supporting indexes, and documentation. Scientists are invited to submit their space science data and related documentation to NSSDC. Their comments on and corrections to the present catalog will be greatly appreciated. Catalog recipients are urged to inform potential data users of its availability.

John E. Jackson
Richard Horowitz

April 1986

TABLE OF CONTENTS

	Page
PREFACE	iii
1. INTRODUCTION	1
1.1 Purpose	3
1.2 Organization	4
1.3 NSSDC Purpose, Facilities and Services	7
1.4 Data Acquisition	9
2. DATA SET DESCRIPTIONS	11
1963-030D	13
1963-038C	13
1964-083C	13
1972-032A	13
AD-A	14
AD-B	14
AD-C	14
AE-A	14
AE-B	15
AE-C	15
AE-D	21
AE-E	24
AEROS	27
AEROS 2	27
Alouette 1	27
Alouette 2	32
Ariel 1	36
Ariel 3	36
Ariel 4	38
Cosmos 49	39
Cosmos 321	39
Discoverer 25	39
DME-A	39
ESRO 4	41
Explorer 1	41
Explorer 4	42
Explorer 7	42
Explorer 8	43
Explorer 9	43
FR 1	43
GRS-A	43
IE-A	45
Injun 1	45
Injun 3	46

TABLE OF CONTENTS (Continued)

	Page
Injun 4	48
Injun 5	49
ISIS 1	50
ISIS 2	53
ISS-B	59
Kyokko	59
Magsat	61
Midas 2	66
OGO 2	66
OGO 4	68
OGO 6	73
OV1-2	76
OV1-13	77
OV1-15	78
OV1-19	78
OV3-3	79
Radsat	80
Relay 1	80
Relay 2	81
SME	81
Sputnik 3	82
STS-3/OSS-1	82
Transit 2A	83
Transit 4A	83
Vanguard 1	83
Vanguard 2	83
Vanguard 3	84
3. INDEX OF DATA SETS	85
4. APPENDIX A - STANDARD EPHEMERIS DATA SETS	A-1
5. APPENDIX B - SUPPLEMENT TO VOLUME 3A	B-1
6. APPENDIX C - CHRONOLOGICAL LISTING OF SPACECRAFT	C-1
7. APPENDIX D - DEFINITIONS	D-1
8. NSSDC/WDC-A-R&S DOCUMENT REQUEST FORM	
9. NSSDC DATA REQUEST FORM	

Introduction

1.1 PURPOSE

The National Space Science Data Center (NSSDC) was established by the National Aeronautics and Space Administration (NASA) to provide data and information from space science and applications flight investigations in support of additional studies beyond those performed as the principal part of any flight mission. This volume is one of a series of eleven that will describe (1) the spaceflight investigations for which NSSDC possesses data or can direct people to the data source, (2) all data sets held by NSSDC, (3) some data sets held and serviced by NASA-funded investigators, and (4) some data sets held and serviced by foreign investigators. The series will serve as pointer documents for extensive data sets held and serviced by other Government agencies, particularly the National Oceanographic and Atmospheric Administration (NOAA).

The series consists of (1) five volumes that describe the spacecraft and their associated investigations separated into various categories, (2) five corresponding volumes that describe investigation data sets and the available orbital information, and (3) a master index volume. The five categories of spacecraft are (i) Planetary and Heliocentric, which include planetary flybys and probes, (ii) Meteorology and Terrestrial Applications, (iii) Astronomy, Astrophysics, and Solar Physics, which are all geocentric except the selenocentric RAE-B, (iv) Geostationary and High-Altitude Scientific, and (v) Low- and Medium-Altitude Scientific. It is impossible to provide an organization of categories that separates the investigations cleanly into scientific disciplines, since many missions were multidisciplinary. With the above organization, that is partly discipline-oriented and partly orbit-oriented, it was found that in nearly all cases a given spacecraft belonged clearly to only one of the above five categories. The few exceptions encountered have resulted in some data sets appearing in more than one data set volume.

The organization for each volume is described in the Organization Section. For the standard types of orbital information, i.e., predicted, refined, and extended, the available ephemeris data sets are indicated in tabular form (see Appendix A) to avoid repeating the same brief description an inordinate number of times. The standard description of a data set from an investigation is a free-text brief description, since the wide variety of instruments precludes using a tabular format in most cases.

This catalog series, and the periodic *NSSDC Data Listing* identifying NSSDC data sets very briefly, will be for some time to come the principal off-line sources of information on NSSDC holdings in the disciplines that NSSDC handles. However, NSSDC is endeavoring to bring its information files to a state of remote electronic accessibility such that users can be confident of easy access to the most current information.

1.2 ORGANIZATION

Volumes 3A and 3B of the NSSDC Data Catalog Series deal with earth-orbiting spacecraft whose apogees are well below geostationary altitude and whose primary purpose is to conduct investigations in the near-earth environment. Volume 3A contains descriptions of (1) investigations for which NSSDC has data sets, (2) investigations for which data sets are available elsewhere at a location known to NSSDC, and for which NSSDC has documentation, (3) investigations that have failed to yield data or for which data sets no longer exist, and (4) investigations from which NSSDC expects to receive data, either because the investigations were on recently launched spacecraft or because NSSDC received information during the preparation of Volume 3A that data were forthcoming.

This volume (3B) contains descriptions of available data sets from the investigations described in Volume 3A. In view of the above selection criteria, a number of the investigations described in Volume 3A do not have corresponding data sets in Volume 3B. However, essentially all the spacecraft and investigation descriptions for the data sets in this volume are given in Volume 3A. The only exceptions are a few descriptions that were omitted in Volume 3A. These descriptions are given in Appendix B of the present volume.

For easy reference to Volume 3A, the data set descriptions in Volume 3B are organized in the same manner as the spacecraft and investigation descriptions of Volume 3A. The data set descriptions, therefore, are presented alphabetically by spacecraft common name. Whenever the spacecraft common name is the COSPAR international ID, the headings are arranged according to this COSPAR ID and placed ahead of the alphabetical listing. Under each spacecraft name, the appropriate investigations are given alphabetically by the name of the principal investigator.

Under each investigation heading, the data set descriptions are arranged according to the NSSDC ID which is an identification code (see Appendix D for an explanation of the NSSDC ID system). The data set ID is the investigation ID followed by a letter which is assigned (in alphabetical order) whenever a new data set is received at NSSDC. For various reasons (based usually upon information supplied by the principal investigator, and including considerations such as data that are no longer available, data that are of poor quality, etc.), it sometimes becomes necessary to delete a data set. Whenever this happens, the corresponding ID is not reassigned. Thus, if a data set sequence in this volume follows the order A, B, C, E, it means that data set "D" (which may have been listed in an older NSSDC publication) is now a deleted data set. In a very few cases, data sets have been deleted since the 1983 publication of Volume 3A.

Each data set entry contains the following fixed-field information: the data set short and long names; the NSSDC ID; the time period covered; the quantity of data; and the medium on which the data are stored. The 33-character short name is included because it is the only name that appears in the periodic publication *NSSDC Data Listing*, which for many years has been the principal means for advertising NSSDC data. If data for a given data set were made available since January 1, 1984, an asterisk is printed following the long name of this data set.

The data set description is given below the fixed-field data. An attempt has been made in all cases to indicate first the source of the data set, its basic contents, and its medium. For data contained on magnetic tapes, the stated characteristics are those of the magnetic tapes that currently hold the corresponding data. If these characteristics are not suitable, the data user should discuss his requirements with the NSSDC staff, and NSSDC may be able to provide the same data in a more convenient tape format. Following the above introductory statements, a more detailed description of the data set contents is given. Additional information is often available at NSSDC for the data sets, and this information is provided either on request or with the Information Packet that is sent by NSSDC with the requested data.

Certain publications that contain extensive tables of reduced data have been identified as data sets. As a general rule, NSSDC does not provide such publications. If the publication of interest is not readily available, such as might be the case for an internal agency report, NSSDC can in most cases provide a microfiche of its file copy or, if necessary, provide a photocopy of the original report.

Some data sets fall in a hybrid category where the investigation serves merely as a source of radio signals but where the measurements are actually made on the ground. Measurements of scintillations and of total electron content using radio signals from spacecraft fall in this category. Since ground-based data are normally archived at the World Data Center A for Solar-Terrestrial Physics in Boulder, Colorado, NSSDC does not endeavor to acquire such data. A few NSSDC data sets of this type are included in this catalog, mainly to provide examples of such data and also to acknowledge the success of the corresponding spacecraft investigations.

In many of the NSSDC data sets, the corresponding spacecraft ephemeris data are merged with the data from the investigations. In other cases the ephemeris data must be obtained from separate data sets identified by the spacecraft ID followed by the designation 00A, 00B or 00C. The 00A, 00B and 00C data sets are described only once (in Appendix A) since each type is very uniform in content and format. The availability of such data sets for the spacecraft of interest in this volume is indicated by a table given also in Appendix A. The table is ordered alphabetically by spacecraft common name, and it shows a "Y" if a data set is available and an "N" if not available, under the three headings "A", "B", and "C". These headings represent data sets 00A, 00B, and 00C, respectively. In some cases there may be some additional data sets associated with the spacecraft and designated as 00D, 00E, 00F, etc. These data sets may contain other versions of ephemeris information, or they may provide other spacecraft-related data such as tables showing when the spacecraft was turned on, or indexes providing a comprehensive summary of available data. Spacecraft data sets with designations other than 00A, 00B and 00C are listed after the spacecraft name and ahead of the investigation data sets.

Appendix C provides a chronological listing of the spacecraft for which data sets are available and described in this catalog.

Certain words, phrases, and acronyms used in this volume are defined in Appendix D.

Document Request Forms and Data Request Forms have been provided at the end of this report.

In this volume the principal subject areas are aeronomy, ionospheric physics, radio physics, magnetospheric physics, and particles and fields; but the spacecraft selection was based on the orbit category. No attempt has been made here to reference investigations that are related to the above disciplines but that are described in other volumes of this series.

1.3 NSSDC PURPOSE, FACILITIES, AND SERVICES

The National Space Science Data Center was established by the National Aeronautics and Space Administration to provide data and information from space science and applications investigations in support of additional studies beyond those performed by principal investigators. As part of that support, NSSDC has prepared this series of volumes providing descriptions of archived data, divided into five categories as presented in Section 1.1 (see also inside front cover). In addition to its main function of providing selected data and supporting information for further analysis of space science flight experiments, NSSDC produces other publications. Among these are a report on active and planned spacecraft and experiments, and various users guides.

Virtually all the data available at or through NSSDC result from individual experiments carried on board individual spacecraft. The Data Center has developed an information system utilizing a spacecraft/investigation/data identification hierarchy. This catalog is based on the information contained in that system. The Data Center is initiating an effort to design a new information base, using a Relational Data Base Model, to facilitate easy electronics access by remote users.

NSSDC provides facilities for reproduction of data and for onsite data use. Resident and visiting researchers are invited to study the data while at the Data Center. The Data Center staff will assist users with additional data searches and with the use of equipment. In addition to spacecraft data, the Data Center maintains some supporting information and other supporting data that may be related to the needs of the researchers.

The services provided by NSSDC are available to any individual or organization resident in the United States and to researchers outside the United States through WDC-A-R&S. Normally a charge is made for the requested data to cover the cost of reproduction and the processing of the request. The researcher will be notified of the charge, and payment must be received prior to processing. However, as resources permit, the Director of NSSDC may waive charges for modest amounts of data when they are to be used for scientific studies or for specific educational purposes and when they are requested by an individual affiliated with (1) NASA installations, NASA contractors, or NASA grantees; (2) other U.S. Government agencies, their contractors, or their grantees; (3) universities or colleges; (4) state or local governments; or (5) nonprofit organizations.

Data Request Forms have been provided at the end of this report to facilitate the ordering of data from NSSDC. A researcher may also obtain data described in this catalog by a letter, a telephone request, an onsite visit, electronic mail utilizing the Space Physics Analysis Network (SPAN), or Telemail. Anyone who wishes to obtain data for a scientific study should specify the NSSDC ID and the time span (and/or location) of interest. A researcher should also specify why and when the data are needed, the subject of his work, his affiliation, and any government contracts he may have for performing his study. The Data Center staff is available to help requesters identify data sets for use.

NSSDC would also appreciate receiving copies of all publications resulting from studies in which data supplied by NSSDC have been used. It is further requested that NSSDC be acknowledged as a source of the data.

Data can be provided in a format or medium other than that used here. For example, magnetic tapes can be reformatted; computer printout or microfilmed listings can be reproduced from magnetic tape; enlarged paper prints are available from data on photographic film and microfilm, etc. NSSDC/WDC-A-R&S will provide the requester with an estimate of the response time and, when appropriate, the charge for such requests.

The Data Center's address for information (for the U.S. researchers) follows:

National Space Science Data Center
Code 633.4
Goddard Space Flight Center
Greenbelt, Maryland 20771
Telephone: (301) 344-6695
Telex No.: 89675 NASCOM GBLT
TWX No.: 7108289716
SPAN Address: NSSDC::REQUEST

Researchers who reside outside the U.S. should direct requests for information to the following address:

World Data Center A for Rockets and Satellites
Code 630.2
Goddard Space Flight Center
Greenbelt, Maryland 20771 U.S.A.
Telephone: (301) 344-6695
Telex No.: 89675 NASCOM GBLT
TWX No: 7108289716

NSSDC is a node on SPAN (Space Physics Analysis Network), and it can be reached in two ways. Electronic mail can be directed to NSSDC::REQUEST. For access to a menu of information, limited data directory, and limited data display, requesters may log on to the NSSDC node with NSSDC as user ID. No password is required. If Telemail is used, the current addresses are JLGREEN, JVETTE, or JKING.

1.4 DATA ACQUISITION

NSSDC invites members of the scientific community involved in spaceflight investigations to submit data to the Data Center or to provide information about the data sets that they prefer to make accessible themselves. The Data Center assigns a discipline specialist to work with each investigator or science working team to determine the forms of data that are likely to be most useful to the community of users that obtain data from NSSDC. The pamphlet *Guidelines for Submitting Data to the National Space Science Data Center* can be provided on request.

Data Set Descriptions

********** 1963-030D **********

1963-030D, PRIOR
BALLOON ATMOSPHERIC DRAG DENSITY

Data set name - DRAG DENSITIES + RELATED DATA FROM 300 TO 3464 KM (1964-1965, 1969-1971)

NSSDC ID 63-030D-01A, DRAG DENSITIES + TEMPS, FICHE

Time period covered - 01/02/64 TO 04/13/71
(As verified by NSSDC)

Quantity of data - 1 CARD OF B/W MICROFICHE

This data set of atmospheric density values computed from the atmospheric drag on the 1963-030D (OAS-2) satellite, is in the following report: J. L. Slowey, "Radiation-pressure and air-drag effects on the orbit of the balloon satellite 1963-30D," Smithsonian Astrophys. Obs., Spec. Rept. 356, Cambridge, Mass., Jan. 1974. A single copy of this report is available for use at NSSDC as TRF B27442. On request, individual pages can be copied as required or a microfiche copy can be supplied. From January 1964 to April 1965, density measurements were made in the altitude range from 3112 to 3464 km, and measurements in the altitude range from 300 to 1811 km were made from January 1969 to April 1971. The data are presented in tables. Parameters listed include date, measurement time, drag acceleration, density at perigee and at a reference height, model temperature at perigee height for the calculated density there, and perigee height.

********** 1963-038C **********

1963-038C, BOSTROM
ENERGETIC ELECTRON AND PROTON DETECTORS

Data set name - TIME-ORDERED REDUCED PROTON AND ELECTRON COUNT RATES ON TAPE

NSSDC ID 63-038C-01D, TIME-ORDERED COUNT RATES, TAPE

Time period covered - 09/28/63 TO 12/31/68
(As verified by NSSDC)

Quantity of data - 103 REELS OF TAPE

This time-ordered data set consists of energetic particle data on 9-track, 800-bpi, binary magnetic tapes, written on an IBM 360 computer. The tapes were submitted by the investigator. The data records contain, for each detector, dead-time-corrected count rates with statistical uncertainties, and ephemeris data, including the geomagnetic field value B and McIlwain's L-shell parameter.

Data set name - INDEX TO TIME-ORDERED REDUCED PROTON AND ELECTRON COUNT RATE DATA TAPES

NSSDC ID 63-038C-01E, SORTED INDEX OF DATA, TAPE

Time period covered - 09/28/63 TO 12/31/68
(As verified by NSSDC)

Quantity of data - 6 REELS OF TAPE

Each 9-track, 800-bpi, binary magnetic tape, written on an IBM 360 computer, is a yearly index of the information contained in data set 63-038C-01D. The parameters listed include chronologically ordered start and stop times for individual data passes, the pass number, and relevant orbit information.

Data set name - PLOTS OF PARTICLE COUNT RATES VS TIME OR VS B AT DISCRETE L ON MICROFILM

NSSDC ID 63-038C-01F, COUNT RATES VS T, B (PLOTS),MFILM

Time period covered - 09/28/63 TO 12/31/67
(As verified by NSSDC)

Quantity of data - 2 REELS OF MICROFILM

This investigator-generated 35-mm microfilm data set contains plots of count-rate data from all detectors. Electron data above 3.6 MeV are not included. The format of the data frame varies but is apparent. Some frames show plots of count rates vs time at discrete McIlwain L-shell values between 1.2 and 20, and within a fixed range of geomagnetic field B for each L. Other frames display plots of count rates vs B at discrete L values between 1.2 and 20 for one 15-day interval in each year of a 5-year interval. More description of this data set is contained on several frames in the first reel of data.

Data set name - ELECTRON COUNT RATE PLOTS ON MICROFILM

NSSDC ID 63-038C-01G, L-ORD EL. COUNT RATES,PLOTS,MFILM

Time period covered - 09/28/63 TO 04/16/66
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This data set was generated by the investigator on one reel of 16-mm microfilm, and displays the count rates of electrons above 280 keV and 1.2 MeV as a function of time. These graphs are presented at discrete L-shell values between 2.6 and 8.0 for the 280 keV electrons, and at L-shell values between 2.6 and 4.5 for the 1.2 MeV electrons. Dayside and nightside data are distinguishable with the ephemeris information provided on the film. DST and Kp values are plotted also.

********** 1964-083C **********

1964-083C, ZMUDA
RUBIDIUM VAPOR MAGNETOMETER

Data set name - MAGNETIC FIELD DATA ON MAGNETIC TAPE

NSSDC ID 64-083C-01A, RUBIDIUM VAPOR MAG. DATA, TAPE

Time period covered - 12/17/64 TO 06/30/65
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set consists of magnetic field measurement values on a single 7-track, 556-bpi, card-image, BCD magnetic tape, provided by the experimenter, and written on an IBM 7094 computer. The data include geomagnetic scalar intensity, satellite position (latitude, longitude, and radial distance in spherical geocentric coordinates), and time. These data are for integer latitudes and represent either direct measurements at these latitudes, or points linearly interpolated to these latitudes using consecutive measurements separated by latitudinal arcs of 4.8 km. The error in each field value is estimated by the investigator to be plus or minus 16 nT (gammas). The data consist of 1333 field values (one per card image) ordered according to latitude for December 1964 and April to June 1965.

********** 1972-032A **********

1972-032A, CARTER
NEUTRAL DENSITY (MAGNETRON) GAUGE

Data set name - DENSITY OBSERVATIONS FROM 160 TO 300 KM NEAR NOON + MIDNIGHT IN APR + MAY, 1972

NSSDC ID 72-032A-01A, DENSITY OBS, 160-300<M, FICHE

Time period covered - 04/21/72 TO 05/09/72
(As verified by NSSDC)

Quantity of data - 2 CARDS OF B/W MICROFICHE

This microfiche data set of neutral atmosphere density values was prepared at NSSDC from the published report: B. K. Ching et al., "Upper atmosphere density inferred from Magnetron data from the satellite 1972-32A," Aerosp. Corp., TR-0074(4260-10)-7, El Segundo, Calif., 1974. (NSSDC TRF B22454) The investigators presented the density measurements in two formats: (1) density values plotted as a function of time (UT), and (2) density values plotted as a function of altitude. To distinguish the density profiles (altitude plots) obtained when the satellite was descending to perigee, from those profiles obtained after perigee, the density profiles measured after perigee are displayed one decade below the correct values. The Jacchia-71 model density values are shown on the graphs for comparison with the measurements. Data are available during some part of about 90 orbits.

********** AD-A **********

AD-A, JACCHIA
NONSYSTEMATIC CHANGES OF AIR DENSITY

Data set name - SATELLITE DRAG ATMOSPHERIC DENSITY VALUES

NSSDC ID 63-053A-01A, ATMOS DRAG DEN TABLES, FICHE

Time period covered - 12/23/63 TO 08/25/71
(As verified by NSSDC)

Quantity of data - 6 CARDS OF B/W MICROFICHE

This microfiche data set, of atmospheric density values computed from the atmospheric drag on Explorer 19, was prepared at NSSDC from two reports: (1) L. G. Jacchia et al., "Supplemental catalog of atmospheric densities from satellite-drag analysis," Smithsonian Astrophys. Obs., Spec. Rept. 348, Cambridge, Mass., Dec. 1972; and (2) L. G. Jacchia et al., "A catalog of atmospheric densities from the drag on five balloon satellites," Smithsonian Astrophys. Obs., Spec. Rept. 368, Cambridge, Mass., Aug. 1975. A single copy of each of these reports is available for use at NSSDC as TRF B15428 and B27448, respectively. On request, individual pages can be copied as required or a microfiche copy can be supplied. These density values were computed for heights between 700 and 1050 km. The data are primarily in tabular form, with some summary graphs shown for describing changes in density as a function of diurnal and semiannual mean temperatures, solar 10.7-cm flux, and the daily geomagnetic index. The tabulated density values are listed chronologically, and include among other parameters the observed rate of change of anomalistic period, the acceleration due to solar radiation pressure, and perigee height.

********** AD-B **********

AD-B, JACCHIA
NONSYSTEMATIC CHANGES OF AIR DENSITY

Data set name - SATELLITE DRAG ATMOSPHERIC DENSITY VALUES

NSSDC ID 64-076A-01A, ATMOS DRAG DEN TABLES, FICHE

Time period covered - 11/27/64 TO 10/15/68
(As verified by NSSDC)

Quantity of data - 6 CARDS OF B/W MICROFICHE

This microfiche data set, of atmospheric density values computed from the atmospheric drag on Explorer 24, was prepared at NSSDC from the report: L. G Jacchia et al., "Supplemental catalog of atmospheric densities from satellite-drag analysis," Smithsonian Astrophys. Obs., Spec. Rept. 348, Cambridge, Mass., Dec. 1972. A single copy of this report is available for use at NSSDC as TRF B15428. On request, individual pages can be copied as required or a microfiche copy can be supplied. These density values were computed for heights between and 530 and 630 km. The data are primarily in tabular form, with some summary graphs shown for comparing changes in density as a function of diurnal and semiannual mean temperatures, solar 10.7-cm flux, and the daily geomagnetic index. The tabulated density values are listed chronologically, and include among other parameters the observed rate of change of anomalistic period, the acceleration due to solar radiation pressure, and perigee height.

********** AD-C **********

AD-C, JACCHIA
NONSYSTEMATIC CHANGES OF AIR DENSITY

Data set name - SATELLITE DRAG ATMOSPHERIC DENSITY VALUES

NSSDC ID 68-066A-01A, ATMOS DRAG DEN TABLES, FICHE

Time period covered - 08/08/68 TO 01/13/73
(As verified by NSSDC)

Quantity of data - 6 CARDS OF B/W MICROFICHE

This microfiche data set, of atmospheric density values computed from the atmospheric drag on Explorer 39, was prepared at NSSDC from the report: L. G. Jacchia et al., "Supplemental catalog of atmospheric densities from satellite-drag analysis," Smithsonian Astrophys. Obs., Spec. Rept. 348, Cambridge, Mass., Dec. 1972. A single copy of this report is available for use at NSSDC as TRF B15428. On request, individual pages can be copied as required or a microfiche copy can be supplied. These density values were computed for heights between 800 and 850 km. The data are primarily in tabular form, with some summary graphs shown for comparing changes in density as a function of diurnal and semiannual mean temperatures, solar 10.7-cm flux, and the daily geomagnetic index. The tabulated density values are listed chronologically, and include among other parameters the observed rate of change of anomalistic period, the acceleration due to solar radiation pressure, and perigee height.

********** AE-A **********

AE-A, BRACE
LANGMUIR PROBES

Data set name - TABLES OF ELECTRON TEMPERATURES AND ION DENSITIES ON MICROFILM

NSSDC ID 63-009A-02A, ELEC. TEMP, ION DENSITY, MFILM

Time period covered - 04/04/63 TO 07/10/63
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This data set, which was received from the investigator, consists of electron temperature and ion density values in tabular form on 35-mm microfilm. The tables also include time (UT and local), pass number, station, geographic position, altitude, and solar and magnetic indices. The data which are from 412 4-min interrogations by ground stations, are ordered both by station and by time. A description of the data is contained in a Data Users Note "Explorer 17 (1963 94) Electrostatic Probe Experiment," NSSDC 67-12, 1967.

AE-A, NEWTON
PRESSURE GAUGE

Data set name - NEUTRAL DENSITY DATA IN TABULAR FORM ON MICROFICHE

NSSDC ID 63-009A-03A, NEUTRAL DENS (260KM-900KM), FICHE

Time period covered - 04/03/63 TO 06/08/63
(As verified by NSSDC)

Quantity of data - 1 CARD OF B/W MICROFICHE

This data set based on ionization vacuum gauge measurements, which provide neutral atmospheric density values between 260 km and 900 km, is in printed form. The original document reference is G. P. Newton and R. Horowitz, "Atmospheric densities measured by the Explorer 17 density gauges. Analysis of errors and their effects upon the measurements," NASA-GSFC Technical Note TN-D-5447, Greenbelt, Md., November, 1969, (NSSDC TRF B04349). It contains in tabular form the beginning and ending densities for 4-min turnons over tracking stations. In addition, for these same passes, densities corrected for uncertainties in gas composition and for systematic errors are also listed. Useful data were obtained from three of the four independent gauge systems (two Redhead and two Bayard-Alpert gauges) for 172 passes during the period April 3 to June 8, 1963. This time period represents 65% of the 100-day satellite lifetime.

AE-A, REBER
MASS SPECTROMETER

Data set name - ATMOSPHERIC COMPOSITION DENSITY DATA IN TABULAR FORM ON MICROFICHE

NSSDC ID 63-009A-01A, TAB ATMOS COMP DENSITIES, FICHE

Time period covered - 04/03/63 TO 06/01/63
(As verified by NSSDC)

Quantity of data - 2 CARDS OF B/W MICROFICHE

This data set contains number densities of helium, molecular nitrogen, and atomic oxygen between 250 km and 850 km, and is in tabular form on six printed pages of a published article. The article reference is C. A. Reber, and M. Nicolet, "Investigation of the major constituents of the April-May 1963 heterosphere by the Explorer XVII satellite," Planet. Space Sci., v. 13, n. 7, p. 617, 1965. Additional information given in the publication includes local time, pass number, station, geographic position, altitude, angle of attack, and solar and magnetic indices. The data which are from 114 4-min turnons

are ordered by time. Measurements are available for April 3 to 22, 1963, and for May 20 to June 1, 1963, which represent about 30% coverage based on the satellite 3-month lifetime.

********** AE-B **********

AE-B, BRINTON
ION MASS SPECTROMETER

Data set name - ION MASS SPECTROMETER DATA ON MAGNETIC TAPE

NSSDC ID 66-044A-01A, ION MASS SPECTROM. DATA, TAPE

Time period covered - 06/09/66 TO 01/17/67
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set containing values for ionospheric ion concentrations, was provided by the principal investigator. The 9-track, binary, 1600-bpi, magnetic tape was written on an IBM 360 computer. Each record contains time-ordered data from one experiment turnon which lasted about 4 min. Expressed in units of the number of ions/cc, values are given for the concentrations of H+, He+, N+, and O+. The tape also contains values for time expressed as day of year, and as UT and local time. The satellite location is identified by the values given for geodetic and magnetic latitude and longitude, altitude, and the McIlwain L-shell parameter. Other parameters presented include the solar-zenith angle, and satellite velocity. These data are on microfilm in data set 66-044A-01B.

Data set name - ION MASS SPECTROMETER DATA ON MICROFILM

NSSDC ID 66-044A-01B, ION MASS SPECTROM. DATA, MFILM

Time period covered - 06/09/66 TO 01/17/67
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This 35-mm film data set of ion composition measurements was supplied by the principal investigator. Each film frame contains time-ordered data from three experiment turnons lasting about 4 min per turnon. For each turnon, a two-line heading is given, beneath which are 15 columns. Included in the first line are values for the turnon number and the day of measurement. The second line contains location codes including month, local hour, altitude, and geographic and magnetic latitude and longitude values. The column headings are mass number (amu), UT (s), orbit and attitude (O-A) flag, satellite velocity (km/s), solar-zenith angle, altitude (km), geodetic latitude, geodetic longitude, dipole latitude, dipole longitude, McIlwain's L-shell parameter (earth radii), local time (s), data flag, current (A), and number density (ions/cc). A sample turnon might contain several rows with the mass number column showing values for 14, 16, 4, 1, 14, and 16. O-A and data flag numbers are explained at the bottom of the frame. These data are also on tape in data set 66-044A-01A.

AE-B, REHER
NEUTRAL PARTICLE MAGNETIC MASS SPECTROMETER

Data set name - NEUTRAL PARTICLE DENSITIES IN TABULAR FORM

NSSDC ID 66-044A-02A, NEUTRAL PARTICLE DENSITIES, BOOK

Time period covered - 09/26/66 TO 09/31/66
(As verified by NSSDC)

Quantity of data - 1 BOOK OR BOUND VOLUME

This data set consists of number densities of atomic hydrogen, helium, molecular nitrogen, and atomic oxygen. The data are in tabular form on 10 pages of the publication: C. A. Reber et al., "Neutral composition and density results from the Explorer 32 mass spectrometers," NASA-GSFC Document X-611-70-200, Greenbelt, Md., May 1970. The data presented are based on eighteen 4-min turnons. These turnons yielded the best data during the 7-day lifetime of the experiment. Eight pages of the data set contain a listing of number densities and the associated percentage error for the neutral species mentioned above. Also listed are the weighted averages of the two spectrometer density values. The tabulations also include date, time (UT and local solar time), turnon number, altitude, and geographic latitude and longitude. In this part of the data set, the information is ordered according to time for each of the four atmospheric species. Another part of the data set (two pages) contains a listing of the previously mentioned weighted average density values for each species, interpolated to a common altitude, namely, the altitude of the molecular nitrogen density measurement. Here values for the total mass density and the mean molecular weight of the species in the neutral atmosphere are included.

AE-B, WOLF-MATHIES
SATELLITE DRAG ATMOSPHERIC DENSITY

Data set name - SATELLITE DRAG ATMOSPHERIC DENSITY VALUES

NSSDC ID 66-044A-03A, ATMOS DRAG DEN TABLES, FICHE

Time period covered - 12/23/66 TO 08/25/71
(As verified by NSSDC)

Quantity of data - 4 CARDS OF B/W MICROFICHE

This microfiche data set, of atmospheric density values computed from the atmospheric drag on AE-B (Explorer 32), was prepared at NSSDC from the report: L. G. Jacchia et al., "Supplemental catalog of atmospheric densities from satellite-drag analysis," Smithsonian Astrophys. Obs., Spec. Rept. 348, Cambridge, Mass., Dec. 1972. A single copy of this report is available for use at NSSDC as TRF 315429. On request, individual pages can be copied as required or a microfiche copy can be supplied. The data appear in both tables and graphs. The graphs are all plotted against modified Julian day as abscissa and show, in order, log of atmospheric density reduced to 300 km, diurnal variation, semi-annual variation, solar 10.7-cm flux values, and the Ap geomagnetic field index. Included in the tabular data are values for common logs of atmospheric density at perigee height and at a reference height, and the perigee height. The local exospheric temperature values, taken from the Jacchia '71 Model, that correspond to the measured densities are shown also.

********** AE-C **********

AE-C, BARTH
ULTRAVIOLET NITRIC-OXIDE (UVNO)

Data set name - NITRIC OXIDE DATA ON TAPE
(*)

NSSDC ID 73-101A-13A, NITRIC OXIDE DATA, TAPE

Time period covered - 12/16/73 TO 12/11/78
(As verified by NSSDC)

Quantity of data - 62 REELS OF TAPE

The data from the ultra-violet nitric oxide (UVNO) investigation are on part of the magnetic tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer-C investigations. This 9-track, binary, 1600-bpi magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, the "UA" files (Unified Abstract files), contain one orbit of UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA orbit data at 18-s intervals for the time span specified in the header record. Since there may be gaps in the data, each record contains a corresponding time. Beginning with word 114, values are given for the following parameters: the NO scale height at the spacecraft's altitude, the NO density at that altitude, the NO density at 150 km, the maximum NO density observed during a given limb scan, and the altitude at which this maximum occurs. Some of the other parameters included in the record are date and time of the measurement; time from perigee; sunlight/darkness flag; Greenwich sidereal time; height above geoid; satellite position and velocity; geodetic latitude of the subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both the ingress and egress points of the geomagnetic field line through the satellite.

Data set name - ULTRAVIOLET NITRIC OXIDE DATA ON MICROFILM

NSSDC ID 73-101A-13B, ULTRAVIOLET NITRIC OXIDE, MFILM

Time period covered - 12/19/73 TO 09/23/75
(As verified by NSSDC)

Quantity of data - 8 REELS OF MICROFILM

This time-ordered film data set contains some data from the ultra-violet nitric oxide investigation, and data from some of the other AE-C science investigations. The data are displayed in four-frame sequences: (1) temperature, drift, and potential; (2) ion concentrations; (3) neutral concentrations; and (4) particles and photons. For a given orbit, data may be contained in more than one four-frame sequence. Some frames in this data set show no data points. The following features are common to all frames: 20-min linear abscissa; orbit number; year, month, day; UT in seconds; and UT in hours, minutes and seconds. Beneath the bottom abscissa are values (given every 2 min) for altitude, latitude, longitude, local time, invariant latitude, McIlwain's L-shell parameter, spin rate, and solar zenith angle. In addition, all frame headings show the plotting symbols used for each instrument whose data are displayed on the frame. The UVNO data are shown in frame 3 of the four-frame sequence. This data set was produced in August and September 1975.

AE-C, BRACE
CYLINDRICAL ELECTROSTATIC PROBES (CEP)

Data set name - CYLINDRICAL ELECTROSTATIC PROBE (CEP) DATA ON MAGNETIC TAPE (*)

NSSDC ID 73-101A-01A, CEP DATA, TAPE

Time period covered - 12/16/73 TO 12/11/78
(As verified by NSSDC)

Quantity of data - 62 REELS OF TAPE

The data from the cylindrical electrostatic probe (CEP) investigation are on part of the magnetic tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer-C investigations. Each 9-track, 1600-bpi, binary magnetic tape, written on an XDS 930 computer, contains 1-calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, called "UA" files (Unified Abstract files), contain one orbit of UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA and orbit data at 15-s intervals for the time span specified in the header record. Since there may be gaps in the data, each record contains a corresponding time. Record words 58, 59, and 60 contain the results from this investigation and are, respectively, the electron temperature, the ion density, and the satellite potential. These words are stored as floating point numbers. Some of the other parameters included in the record are date and time of the measurement; time from perigee; sunlight/darkness flag; Greenwich sidereal time; height above the geoid; satellite position and velocity; geodetic latitude of the subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both the ingress and egress points of the geomagnetic field line through the satellite.

Data set name - CYLINDRICAL ELECTROSTATIC PROBE DATA ON MICROFILM

NSSDC ID 73-101A-01B, CYLIND.ELECTROST.PROBE DATA, MFILM

Time period covered - 12/19/73 TO 09/23/75
(As verified by NSSDC)

Quantity of data - 8 REELS OF MICROFILM

This time-ordered film data set contains some data from the cylindrical electrostatic probe (CEP) investigation, and data from some of the other AE-C science investigations. These AE-C data are displayed in four-frame sequences: (1) temperature, drift, and potential; (2) ion concentrations; (3) neutral concentrations; and (4) particles and photons. For a given orbit, the data may be contained in more than one four-frame sequence. Some frames in this data set show no data points. The following features are common to all frames: 20-min linear abscissa; orbit number; year, month, and day; UT in seconds; and UT in hours, minutes, and seconds. Beneath the bottom abscissa are values (given every 2 min) for altitude, latitude, longitude, local time, invariant latitude, McIlwain's L-shell parameter, spin rate, and solar zenith angle. In addition, all frame headings show the plotting symbols used for each instrument whose data are displayed on the frame. The CEP data are shown in frames 1 and 2 of the four-frame sequence. This data set was produced in August and September 1975.

AE-C, BRINTON
BENNETT ION-MASS SPECTROMETER (BIMS)

Data set name - ION SPECIES CONCENTRATIONS ON TAPE (*)

NSSDC ID 73-101A-11A, ION-MASS SPECTROMETER DATA, TAPE

Time period covered - 12/16/73 TO 12/11/78
(As verified by NSSDC)

Quantity of data - 62 REELS OF TAPE

The data from the Bennett ion-mass spectrometer (BIMS) investigation are on part of the magnetic tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer-C investigations. Each 9-track, binary, 1600-bpi magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, the "UA" files (Unified Abstract files), contain one orbit of UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA and orbit data at 15-s intervals for the time span specified in the header record. Since there may be gaps in the data, each point-by-point record contains a corresponding time. Data record word 48 starts the data obtained from this investigation. The data words are the values for the ion concentrations (ions/cc) of the following ion species: H+, He+, N+, O+, N2+, NO+, O2+, and the value for the total ion concentration (ions/cc). Some of the other parameters included in the record are date and time of the measurement; time from perigee; sunlight/darkness flag; Greenwich sidereal time; height above geoid; satellite position and velocity; geodetic latitude of the subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both the ingress and egress points of the geomagnetic field line through the satellite.

Data set name - BENNETT ION-MASS SPECTROMETER DATA ON MICROFILM

NSSDC ID 73-101A-11B, BENNETT ION-MASS SPEC., MFILM

Time period covered - 12/19/73 TO 09/23/75
(As verified by NSSDC)

Quantity of data - 8 REELS OF MICROFILM

This time-ordered film data set contains some data from the Bennett ion-mass spectrometer (BIMS) investigation, and data from some of the other AE-C science investigations. These AE-C data are displayed in four-frame sequences: (1) temperature, drift, and potential; (2) ion concentrations; (3) neutral concentrations; and (4) particles and photons. For a given orbit, the data may be contained in more than one four-frame sequence. Some frames in this data set show no data points. The following features are common to all frames: 20-min linear abscissa; orbit number; year, month, day; UT in seconds; and UT in hours, minutes and seconds. Beneath the bottom abscissa are values (given every 2 min) for altitude, latitude, longitude, local time, invariant latitude, McIlwain's L-shell parameter, spin rate, and solar zenith angle. In addition, all frame headings show the plotting symbols used for each instrument whose data are displayed on the frame. The BIMS data are shown in frame 2 of the four-frame sequence. This data set was produced in August and September 1975.

AE-C, CHAMPION
ATMOSPHERIC DENSITY ACCELEROMETER (MESA)

Data set name - MINIATURE ELECTROSTATIC ACCELEROMETER (MESA) DENSITY DATA (*)

NSSDC ID 73-101A-02A, MESA DENSITY DATA, TAPE

Time period covered - 12/16/73 TO 12/11/78
(As verified by NSSDC)

Quantity of data - 62 REELS OF TAPE

The data from the miniature electrostratic accelerometer (MESA) investigation are one part of the magnetic tape provided

by the project office. The remainder of the tape contains data from other Atmosphere Explorer-C investigations. Each 9-track, binary, 1600-bpi magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, called "UA" files (Unified Abstract files) contain one orbit of UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA and orbit data at 15-s intervals for the time span specified in the header record. Since there may be gaps in the data, each record contains a corresponding time. The MESA density data are contained in record words 70 and 71. The first word is density in g/cc and the second word is the transverse wind component in m/s. Wind data were not available on the earlier tapes. Because the density is proportional to the magnitude of the drag, the data are more accurate at the lower altitude. For data taken when the spacecraft was spinning, the errors are estimated as follows: uncertainty in area-to-mass ratio is plus or minus 1%; attitude uncertainty is negligible; and the filtering error varies from negligible at perigee to plus or minus 2% at 200 km and plus or minus 5% at 250 km. When the spacecraft was despun, there was an additional error of typically plus or minus 2%. For both spinning and despun data there may be a plus or minus 10% systematic error in the assumed free molecular flow drag coefficient of 2.2. Some of the other parameters included in the record are date and time of the measurement; time from perigee; sunlight/darkness flag; Greenwich sidereal time; height above geoid; satellite position and velocity; geodetic latitude of subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both ingress and egress points of the geomagnetic field line through the satellite.

Data set name - MINIATURE ELECTROSTATIC ACCELEROMETER (MESA) DENSITY DATA ON MICROFILM

NSSDC ID 73-101A-02B; MESA DENSITY DATA, MFILM

Time period covered - 12/19/73 TO 09/23/75
(As verified by NSSDC)

Quantity of data - 8 REELS OF MICROFILM

This time-ordered film data set contains some data from the miniature electrostatic accelerometer (MESA) investigation, and data from some of the other AE-C science investigations. These AE-C data are displayed in four-frame sequences: (1) temperature, drift, and potential; (2) ion concentrations; (3) neutral concentrations; and (4) particles and photons. For a given orbit, data may be contained in more than one four-frame sequence. Some frames in this data set show no data points. The following features are common to all frames: 20-min linear abscissa; orbit number; year, month, day; UT in seconds; and UT in hours, minutes and seconds. Beneath the bottom abscissa are values (given every 2 min) for altitude, latitude, longitude, local time, invariant latitude, McIlwain's L-shell parameter, spin rate, and solar zenith angle. In addition, all frame headings show the plotting symbols used for each instrument whose data are displayed on the frame. The MESA data are shown in frame 3 of the four-frame sequence. This data set was produced in August and September 1975.

AE-C, DOERING
PHOTOELECTRON SPECTROMETER (PES)

Data set name - PHOTOELECTRON SPECTROMETER (PES) DATA ON MAGNETIC TAPE (*)

NSSDC ID 73-101A-03A, PES DATA, TAPE

Time period covered - 12/16/73 TO 12/11/78
(As verified by NSSDC)

Quantity of data - 62 REELS OF TAPE

The data from the photoelectron spectrometer (PES) investigation are on part of the magnetic tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer-C investigations. Each 9-track, 1600-bpi, binary magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, the "UA" files (Unified Abstract files), contain one orbit of UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA and orbit data at 15-s intervals for the time span specified in the header record. Because there may be gaps in the data, each record contains a corresponding time. The normal energy ranges included in the six data words: 99, 100, 101, 102, 103, and 104 are, respectively, 2 to 3 eV, 7 to 9 eV, 12 to 17 eV, 25 to 30 eV, 37 to 40 eV, and 100 to 500 eV. In some operating modes, only a partial sampling of the full 1 to 500 eV energy range is obtained. A portion of the data has zero values in all but words 102 and 104. In this case, word 102 contains the average flux from 7 to 42 eV and word 104 contains the average flux in the 100 to 500 eV energy range. In all cases, the data reported are a 15-s average of the flux for the interval beginning with the time associated with the data word. Some of the other parameters included in the record are date and time of the measurement; time from perigee; sunlight/darkness flag; Greenwich sidereal time; height above the geoid; satellite position and velocity; geodetic latitude of the subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both the ingress and egress points of the geomagnetic field line through the satellite.

Data set name - PHOTOELECTRON SPECTROMETER (PES) DATA ON MICROFILM

NSSDC ID 73-101A-03B, PHOTOELEC. SPEC. DATA, MFILM

Time period covered - 12/19/73 TO 09/23/75
(As verified by NSSDC)

Quantity of data - 8 REELS OF MICROFILM

This time-ordered film data set contains some data from the photoelectron spectrometer (PES) investigation, and data from some of the other AE-C science investigations. The data are displayed in four-frame sequences: (1) temperature, drift, and potential; (2) ion concentrations; and (4) particles and photons. For a given orbit, data may be contained in more than one four-frame sequence. Some frames in this data set show no data points. The following features are common to all frames: 20-min linear abscissa; orbit number; year, month, and day; UT in seconds; and UT in hours, minutes, and seconds. Beneath the bottom abscissa are values (given every 2 min) for altitude, latitude, longitude, local time, invariant latitude, McIlwain's L-shell parameter, spin rate, and solar zenith angle. In addition, all frame headings show the plotting symbols used for each instrument whose data are displayed on the frame. The PES data are shown in frame 4 of the four-frame sequence. This data set was produced in August and September 1975.

AE-C, HANSON
RETARDING POTENTIAL ANALYZER/DRIFT METER (RPA)

Data set name - RETARDING POTENTIAL ANALYZER (RPA) DATA ON MAGNETIC TAPE (*)

NSSDC ID 73-101A-04A, RPA DATA, TAPE

Time period covered - 12/16/73 TO 12/11/78
(As verified by NSSDC)

Quantity of data - 62 REELS OF TAPE

The data from the retarding potential analyzer (RPA) investigation are on part of the magnetic tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer-C investigations. Each 9-track, 1600-bpi, binary magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, called "UA" files (Unified Abstract files), contain one orbit of UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA and orbit data at 15-s intervals for the time span specified in the header record. Because there may be gaps in the data, each record contains a corresponding time. Starting with word 105, the investigation data include ion temperature (deg K); ion concentration (ions/cc); ion drift velocity along the + or -X axis of the spacecraft (m/s); the vehicle (ground plane) potential (V); total ion concentration roughness (percent); ion drift velocity along the + or -Y axis of the spacecraft (m/s); and the ion drift velocity along the + or -Z axis of the spacecraft (m/s). The RPA and duct data are obtained every 15 s from 30-s running weighted averages of the individual data points. The drift meter data are represented by the individual data point nearest to the time indicated. In this case, the time difference between the data point and the time indicated is usually less

than 2/3 s. Some of the other parameters included in the record are date and time of the measurement; time from perigee; sunlight/darkness flag; Greenwich sidereal time; height above the geoid; satellite position and velocity; geodetic latitude of the subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both the ingress and egress points of the geomagnetic field line through the satellite.

Data set name - RETARDING POTENTIAL ANALYZER DATA ON MICROFILM

NSSDC ID 73-101A-04B, RET POTENTIAL ANALYZER, MFILM

Time period covered - 12/19/73 TO 09/23/75
(As verified by NSSDC)

Quantity of data - 8 REELS OF MICROFILM

This time-ordered film data set contains some data from the retarding potential analyzer (RPA) investigation, and data from some of the other AE-C science investigations. These AE-C data are displayed in four-frame sequences: (1) temperature, drift, and potential; (2) ion concentrations; (3) neutral concentrations; and (4) particles and photons. For a given orbit, the data may be contained in more than one four-frame sequence. Some frames in this data set show no data points. The following features are common to all frames: 20-min linear abscissa; orbit number; year, month, day; UT in seconds; and UT in hours, minutes and seconds. Beneath the bottom abscissa are values (given every 2 min) for altitude, latitude, longitude, local time, invariant latitude, McIlwain's L-shell parameter, spin rate, and solar zenith angle. In addition, all frame headings show the plotting symbols used for each instrument whose data are displayed on the frame. The RPA data are shown in frames 1 and 2 of the four-frame sequence. This data set was produced in August and September 1975.

AE-C, HAYS
VISIBLE AIRGLOW PHOTOMETER (VAE)

Data set name - VISIBLE AIRGLOW PHOTOMETER DATA ON TAPE
(*)

NSSDC ID 73-101A-14A, VISIBLE AIRGLOW DATA, TAPE

Time period covered - 12/16/73 TO 12/11/78
(As verified by NSSDC)

Quantity of data - 62 REELS OF TAPE

The data from the visible airglow (VAE) investigation are on part of the magnetic tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer-C investigations. Each 9-track, 1600-bpi, binary magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file that specifies the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, the "UA" files (Unified Abstract files), contain one orbit of UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA and orbit data at 15-s intervals for the time span specified in the header record. Since there may be gaps in the data, each record contains a corresponding time. The VAE data words are expressed in rayleighs, and begin in word 119. The values are obtained every 15 s by linearly interpolating data taken on either side of the 15-s point. For each orbit, VAE stores two header records in addition to the data. The first header is a nine-word record giving orbit number and investigation status. If the status word contains "dual", the VAE changes mode in the pass. The second header record defines both modes, which are related to the wavelengths observed, as tabulated in the appendix of a format document that is supplied by NSSDC. In addition to identifying the two wavelengths being measured, the second header record describes for each of the six data words, whether the data are from channel 1 (narrow field-of-view) or channel 2 (large field-of-view), and the direction the instrument was looking when the data were collected. Some of the other parameters included in the record are date and time of the measurement; time from perigee; sunlight/darkness flag; Greenwich sideral time; height above geoid; satellite position and velocity; geodetic latitude of subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both the ingress and egress points of the geomagnetic field line through the satellite.

Data set name - VISIBLE AIRGLOW DATA ON MICROFILM

NSSDC ID 73-101A-14B, VISIBLE AIRGLOW DATA, MFILM

Time period covered - 12/19/73 TO 09/23/75
(As verified by NSSDC)

Quantity of data - 8 REELS OF MICROFILM

This time-ordered film data set contains some data from the visible airglow (VAE) investigation, and data from some of the other AE-C science investigations. The data are displayed in four-frame sequences: (1) temperature, drift, and potential; (2) ion concentrations; (3) neutral concentrations; and (4) particles and photons. For a given orbit, data may be contained in more than one four-frame sequence. Some frames in this data set show no data points. The following features are common to all frames: 20-min linear abscissa; orbit number; year, month, day; UT in seconds; and UT in hours, minutes and seconds. Beneath the bottom abscissa are values (given every 2 min) for altitude, latitude, longitude, local time, invariant latitude, McIlwain's L-shell parameter, spin rate, and solar zenith angle. In addition, all frame headings show the plotting symbols used for each instrument whose data are displayed on the frame. The VAE data are shown in frame 4 of the four-frame sequence. This data set was produced in August and September 1975.

AE-C, HEATH
EXTREME SOLAR UV MONITOR (ESUM)

Data set name - ULTAVIOLET SOLAR FLUX MEASUREMENTS ON MICROFICHE

NSSDC ID 73-101A-05B, SOLAR FLUX MEASUREMENTS, FICHE

Time period covered - 03/14/74 TO 11/27/74
(As verified by NSSDC)

Quantity of data - 1 CARD OF B/W MICROFICHE

These data, on microfiche prepared by NSSDC from hard copy provided by the investigator, are plots of relative solar flux vs time. They are contained on three frames of the fiche. The remaining frames contain a description of the instrumentation, the method of data reduction, the instrument calibration, and a description of the data. Each data frame contains two linear graphs, one above the other. The common abscissa scale is time expressed as year and day of year; i.e., a 5-digit number. The top chart contains as ordinate the solar 10.7-cm flux in usual units. The lower plot has diode counts as ordinate. The three data frames correspond to median wavelengths at 121.6, 80 to 93.5, and 27 to 55 nm, respectively. Questionable data have been removed. After background subtraction, the angular corrections were applied to the intensity data. Gaps in the plots occur whenever the sun's position was outside the detector's field of view, the spacecraft altitude was below 600 km, or no data were recorded on those days.

Data set name - ABSOLUTE ULTRAVIOLET SOLAR FLUX

NSSDC ID 73-101A-05C, ABS. U.V. SOLAR FLUX, FICHE

Time period covered - 12/20/73 TO 12/31/73
(As verified by NSSDC)

Quantity of data - 1 CARD OF B/W MICROFICHE

These data, on microfiche prepared by NSSDC from hardcopy provided by the investigator, contain measurements of the absolute solar ultraviolet flux. The data are presented in tables 8 and 9 of D. F. Heath et al., "Observations of the absolute ultraviolet solar flux by the Extreme Solar Ultraviolet Monitor (ESUM) experiments on board the Atmosphere Explorer -3 and -5," unpublished, GSC/TM-79/6311, undated (NSSDC TRF B32234). They are displayed in the form of a ratio. This ratio is defined as the instrument readings at specific times, corrected for background and angular response; divided by a computed theoretical value, obtained by using an assumed reference spectrum and the instrument parameters at the time of the observation. Also contained on the microfiche card is a description of the instrument, the calibration of the instruments, the method of data reduction, and a discussion of the data and conclusions.

AE-C, HINTEREGGER
SOLAR EUV SPECTROPHOTOMETER (EUVS)

Data set name - ATMOSPHERIC EUV ABSORPTION DATA, ON MAGNETIC TAPE

NSSDC ID 73-101A-06B, EUV ABSORPTION DATA, TAPE

Time period covered - 02/02/74 TO 02/28/74
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

These EUV atmospheric absorption data are on a 9-track 1600-bpi magnetic tape created by the principal investigator on a Xerox Sigma 9 computer. Each record in each file is a printable line of no more than 128 characters. Absorption data at wavelengths of 175 A, 584 A, and 1608 A, are given for three regions -- daylight, sunrise, and sunset. The data include the reference height, optical depth, integral columnar particle density, longitude, latitude, magnetic dipole latitude, local solar time of the reference point used, Greenwich mean time, solar zenith angle, and parameters defining statistically the fit of the data curves.

AE-C, HOFFMAN
MAGNETIC ION-MASS SPECTROMETER (MIMS)

Data set name - MAGNETIC ION MASS SPECTROMETER DATA ON TAPE (*)

NSSDC ID 73-101A-10A, MAG. ION MASS SPEC DATA, TAPE

Time period covered - 12/16/73 TO 12/11/78
(As verified by NSSDC)

Quantity of data - 62 REELS OF TAPE

The data from the magnetic ion-mass spectrometer (MIMS) investigation are on part of the magnetic tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer-C investigations. Each 9-track, binary, 1600-bpi magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, the "UA" files (Unified Abstract files), contain one orbit of UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA and orbit data at 15-s intervals for the time span specified in the header record. Since there may be gaps in the data, each record contains a corresponding time. Beginning with word 72, the records contain the measurements from this investigation. The data values are interpolated from the nearest measurements, which for the data taken when the satellite was not spinning, occur every 2, 4, or 8 s, depending on the instrument mode. For data taken when the satellite was spinning, the measurements were made once each satellite spin period (usually 15 s). Presented in units of ions/cc, the ion concentrations of the following species are given: H+, He+, O+, Mg+, N+, N2+, NO+, O2+, O+, and O++. Data for the last two minor ions species are available for the restricted ranges of geophysical conditions where their abundance is above the instrument threshold for reliable measurement. Some of the other parameters included in the record are date and time of the measurement; time from perigee; sunlight/darkness flag; Greenwich sidereal time; height above geoid; satellite position and velocity; geodetic latitude of the subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both the ingress and egress points of the geomagnetic field line through the satellite.

Data set name - MAGNETIC ION MASS SPECTROMETER DATA ON MICROFILM

NSSDC ID 73-101A-10M, MAG ION MASS SPECTROMETER, MFILM

Time period covered - 12/19/73 TO 09/23/75
(As verified by NSSDC)

Quantity of data - 8 REELS OF MICROFILM

This time-ordered film data set contains some data from the magnetic ion-mass spectrometer (MIMS) investigation, and data from some of the other AE-C science investigations. These AE-C data are displayed in four-frame sequences: (1) temperature, drift, and potential; (2) ion concentrations; (3) neutral concentrations; and (4) particles and photons. For a given orbit, the data may be contained in more than one four-frame sequence. Some frames in this data set show no data points. The following features are common to all frames: 20-min linear abscissa; orbit number; year, month, day; UT in seconds; and UT in hours, minutes and seconds. Beneath the bottom abscissa are values (given every 2 min) for altitude, latitude, longitude, local time, invariant latitude, McIlwain's L-shell parameter, spin rate, and solar zenith angle. In addition, all frame headings show the plotting symbols used for each instrument whose data are displayed on the frame. The MIMS data are shown in frame 2 of the four-frame sequence. This data set was produced in August and September 1975.

AE-C, HOFFMAN
LOW-ENERGY ELECTRONS (LEE)

Data set name - LOW-ENERGY ELECTRON DATA, TAPE (*)

NSSDC ID 73-101A-12A, LEE DATA, TAPE

Time period covered - 12/16/73 TO 12/11/78
(As verified by NSSDC)

Quantity of data - 62 REELS OF TAPE

The data from the low-energy electron (LEE) investigation are on part of the magnetic tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer-C investigations. Each 9-track, 1600-bpi, binary magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, the "UA" files (Unified Abstract files), contain one orbit of UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA and orbit data at 15-s intervals for the time span specified in the header record. Because there may be gaps in the data, each record contains a corresponding time. Beginning with word 62, values are given for the following parameters: total energy flux for electrons, electron density, characteristic electron energy, correlation coefficient for electrons, total energy flux for ions, ion density, characteristic ion energy, and the correlation coefficient for ions. The data are condensed using data from 7.5 s before and 7.5 s after the 15-s time mark, making available 15 stepping sequences for processing. When the spacecraft is in the 15-s spin mode, only data from the upper hemisphere are accepted. Some of the other parameters included in the record are date and time of the measurement; time from perigee; sunlight/darkness flag; Greenwich sidereal time; height above the geoid; satellite position and velocity; geodetic latitude of the subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both the ingress and egress points of the geomagnetic field line through the satellite.

Data set name - LOW ENERGY ELECTRON DATA ON MICROFILM

NSSDC ID 73-101A-12B, LOW ENERGY ELECTRON DATA, MFILM

Time period covered - 12/19/73 TO 09/23/75
(As verified by NSSDC)

Quantity of data - 8 REELS OF MICROFILM

This time-ordered film data set contains some data from the low-energy electron (LEE) investigation, and data from some of the other AE-C science investigations. The data are displayed in four-frame sequences: (1) temperature, drift, and potential; (2) ion concentrations; (3) neutral concentrations; and (4) particles and photons. For a given orbit, the data may be contained in more than one four-frame sequence. Some frames in this data set show no data points. The following features are common to all frames: 20-min linear abscissa; orbit number; year, month, day; UT in seconds; and UT in hours, minutes and seconds. Beneath the bottom abscissa are values (given every 2 min) for altitude, latitude, longitude, local time, invariant latitude, McIlwain's L-shell parameter, spin rate, and solar zenith angle. In addition, all frame headings show the plotting symbols used for each instrument whose data are displayed on the frame. The LEE data are shown in frame 4 of the four-frame sequence. This data set was produced in August and September 1975.

AE-C, NIER
OPEN-SOURCE NEUTRAL MASS SPECTROMETER
(OSS)

Data set name - OSS NEUTRAL ATMOSPHERE CONCENTRATIONS ON TAPE (*)

NSSDC ID 73-101A-07A, OP.SOURCE-NEUT.M.S.DATA, TAPE

Time period covered - 12/16/73 TO 12/11/78
(As verified by NSSDC)

Quantity of data - 62 REELS OF TAPE

The data from the open-source neutral mass spectrometer (OSS) investigation are on part of the magnetic tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer-C investigations. Each 9-track, binary, 1600-bpi magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, called "UA" files (Unified Abstract files), contain one orbit of UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA and orbit data at 15-s intervals for the time period specified in the header record. Since there may be gaps in the data, each record contains a corresponding time. The data begin on record word 93 and include the concentrations of the following neutral atmosphere species (number/cc): N2, O2, He, O, Ar, N, and a value for the equivalent O2 from (O2 + O/2). In all seven words, the 8 lowest order (rightmost) bits have been replaced with a percentage error byte. Masking off these bits gives directly the percentage error of the data value. Some of the other parameters included in the record are date and time of the measurement; time from perigee; sunlight/darkness flag; Greenwich sidereal time; height above geoid; satellite position and velocity; geodetic latitude of subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both the ingress and egress points of the geomagnetic field through the satellite.

Data set name - OPEN SOURCE SPECTROMETER DATA ON MICROFILM

NSSDC ID 73-101A-07B, OPEN SOURCE SPECTROMETER, MFILM

Time period covered - 12/19/73 TO 09/23/75
(As verified by NSSDC)

Quantity of data - 8 REELS OF MICROFILM

This time-ordered film data set contains some data from the open-source neutral mass spectrometer (OSS), and data from some of the other AE-C science investigations. These AE-C data are displayed in four-frame sequences: (1) temperature, drift, and potential; (2) ion concentrations; (3) neutral concentrations; and (4) particles and photons. For a given orbit, the data may be contained in more than one four-frame sequence. Some frames in this data set show no data points. The following features are common to all frames: 20-min linear abscissa; orbit number; year, month, and day; UT in seconds; and UT in hours, minutes, and seconds. Beneath the bottom abscissa are values (given every 2 min) for altitude, latitude, longitude, local time, invariant latitude, McIlwain's L-shell parameter, spin rate, and solar zenith angle. In addition, all frame headings show the plotting symbols used for each instrument whose data are displayed on the frame. The OSS data are shown in frame 3 of the four-frame sequence. This data set was produced in August and September 1975.

AE-C, PELZ
CLOSED-SOURCE NEUTRAL MASS SPECTROMETER

Data set name - CLOSED SOURCE NEUTRAL MASS SPECTROMETER COMPOSITION DATA ON TAPE (*)

NSSDC ID 73-101A-08A, CL.SOURCE-NEUT.M.S.DATA, TAPE

Time period covered - 12/16/73 TO 12/11/78
(As verified by NSSDC)

Quantity of data - 62 REELS OF TAPE

The data from the closed-source neutral mass spectrometer (NACE) investigation are on part of the magnetic tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer-C investigations. Each 9-track, binary, 1600-bpi magnetic tape, written on an XDS 930 computer, contains data for 1 calendar month. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Each one of the subsequent data files, called "UA" files (Unified Abstract files), contains one orbit of UA data and orbit data. These files are arranged in ascending order by orbit number, and a file consists of a header record followed by approximately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. A data record contains UA and orbit data at 15-s intervals for the time span specified in the header record. Since there may be gaps in the data, each record contains a corresponding time. The data from this investigation start in record word 82. Expressed in units of number/cc, the investigation outputs are the concentrations of the following species : N2, O, He, Ar, NO, and the equivalent total O from (O + 2 X O2). The 10 least-significant bits of each of these 6 words provide an estimate of the fractional error. Some of the other parameters included in the record are date and time of the measurement; height above geoid; satellite position and velocity; geodetic latitude of the subsolar point; east longitude of the satellite; local apparent solar time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both the ingress and egress points of the geomagnetic field line through the satellite.

Data set name - NACE NEUTRAL ATMOSPHERE COMPOSITION DATA ON MICROFILM

NSSDC ID 73-101A-08B, NEUT ATMS COMP DATA, MFILM

Time period covered - 12/19/73 TO 09/23/75
(As verified by NSSDC)

Quantity of data - 8 REELS OF MICROFILM

This time-ordered film data set contains some data from the closed-source neutral mass spectrometer (NACE) investigation, and data from some of the other AE-C science investigations. These AE-C data are displayed in four-frame sequences: (1) temperature, drift, and potential; (2) ion concentrations; (3) neutral concentrations; and (4) particles and photons. For a given orbit, the data may be contained in more than one four-frame sequence. Some frames in this data set show no data points. The following features are common to all frames: 20-min linear abscissa; orbit number; year, month, day; UT in seconds; and UT in hours, minutes, and seconds. Beneath the bottom abscissa are values (given every 2 min) for altitude, latitude, longitude, local time, invariant latitude, McIlwain's L-shell parameter, spin rate, and solar zenith angle. In addition, all frame headings show the plotting symbols used for each instrument whose data are displayed on the frame. The NACE data are shown in frame 3 of the four-frame sequence. This data set was produced in August and September 1975.

AE-C, SPENCER
NEUTRAL ATMOSPHERE TEMPERATURE (NATE)

Data set name - NEUTRAL ATMOSPHERE TEMPERATURE AND COMPOSITION (*)

NSSDC ID 73-101A-09A, NEUT.ATMOS.TEMP.AND COMP., TAPE

Time period covered - 12/16/73 TO 12/11/78
(As verified by NSSDC)

Quantity of data - 62 REELS OF TAPE

The data from the neutral atmosphere temperature, composition, and wind (NATE) investigation are on part of the magnetic tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer-C investigations. Each 9-track, binary, 1600-bpi magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, called "UA" files (Unified Abstract files), contain one orbit UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA and orbit data at 15-s intervals for the time span specified in the header record. Since there may be gaps in the data, each record contains a corresponding time. The data from this investigation start in word 98. Values are given for the following parameters : the neutral gas temperature; the concentrations in number/cc of N2, total O from (O + 2 O2), He, Ar; and vertical atmospheric motions. These measurements are all represented as floating point numbers. Whenever any of the values is not being measured, a zero is inserted. Some of the other parameters included in the record are date and time of the measurement; time from perigee; sunlight/darkness flag; Greenwich sidereal time; height above geoid; satellite position and velocity; geodetic latitude of subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both the ingress and egress points of the

geomagnetic field line through the satellite.

Data set name - NEUTRAL ATMOSPHERE TEMPERATURE AND COMPOSITION DATA ON MICROFILM

NSSDC ID 73-101A-09B, NEUT ATMOS TEMP-COMP DATA, MFILM

Time period covered - 12/19/73 TO 09/23/75
(As verified by NSSDC)

Quantity of data - 8 REELS OF MICROFILM

This time-ordered film data set contains some data from the neutral atmosphere temperature, composition, and wind (NATE) investigation, and data from some of the other AE-C science investigations. These AE-C data are displayed in four-frame sequences: (1) temperature, drift, and potential; (2) ion concentrations; (3) neutral concentrations; and (4) particles and photons. For a given orbit, the data may be contained in more than one four-frame sequence. Some frames in this data set show no data points. The following features are common to all frames: 20-min linear abscissa; orbit number; year, month, day; UT in seconds; and UT in hours, minutes and seconds. Beneath the bottom abscissa are values (given every 2 min) for altitude, latitude, longitude, local time, invariant latitude, McIlwain's L-shell parameter, spin rate, and solar zenith angle. In addition, all frame headings show the plotting symbols used for each instrument whose data are displayed on the frame. The NATE data are shown in frame 3 of the four-frame sequence. This data set was produced in August and September 1975.

********** AE-D **********

AE-D, HARTH
ULTRAVIOLET NITRIC-OXIDE EXPERIMENT

Data set name - UV NITRIC OXIDE (UVNO) DATA ON MAGNETIC TAPE

NSSDC ID 75-096A-11A, NITRIC OXIDE DATA, TAPE

Time period covered - 10/06/75 TO 01/29/76
(As verified by NSSDC)

Quantity of data - 4 REELS OF TAPE

The data from the ultraviolet nitric-oxide (UVNO) investigation are on part of the magnetic tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer-D investigations. This 9-track, 1600-bpi, binary magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, the "UA" files (Unified Abstract files), contain one orbit of UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA and orbit data at 15-s intervals for the time span specified in the header record. Since there may be gaps in the data, each record contains a corresponding time. Beginning with data record word 118, values are given for the following parameters: the NO scale height and NO density at the spacecraft altitude, the NO density at 150 km, the maximum NO density observed during a given scan, and the altitude at which this maximum occurred. Some of the other parameters included in the record are date and time of the measurement; time from perigee; sunlight/darkness flag; Greenwich sidereal time; height above the geoid; satellite position and velocity; geodetic latitude of the subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both the ingress and egress points of the geomagnetic field line through the satellite.

AE-D, BRACE
CYLINDRICAL ELECTROSTATIC PROBE (CEP)

Data set name - CYLINDRICAL ELECTROSTATIC PROBE (CEP) DATA ON MAGNETIC TAPE

NSSDC ID 75-096A-01A, CEP DATA, TAPE

Time period covered - 10/06/75 TO 01/29/76
(As verified by NSSDC)

Quantity of data - 4 REELS OF TAPE

The data from the cylindrical electrostatic probe (CEP) investigation are on part of the magnetic tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer-D investigations. Each 9-track, 1600-bpi, binary magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, called "UA" files (Unified Abstract files), contain one orbit of UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA and orbit data at 15-s intervals for the time span specified in the header record. Since there may be gaps in the data, each record contains a corresponding time. Words 58, 59, and 60 contain the results from this investigation and are, respectively, the electron temperature, the ion density, and the satellite potential. The words are stored as floating point numbers. Some of the other parameters included in the record are date and time of the measurement; time from perigee; sunlight/darkness flag; Greenwich sidereal time; height above the geoid; satellite position and velocity; geodetic latitude of the subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both the ingress and egress points of the geomagnetic field line through the satellite.

AE-D, CHAMPION
ATMOSPHERIC DENSITY ACCELEROMETER (MESA)

Data set name - ATMOSPHERIC DENSITY ACCELEROMETER (MESA) DATA ON MAGNETIC TAPE

NSSDC ID 75-096A-02A, MESA DENSITY DATA, TAPE

Time period covered - 10/06/75 TO 01/29/76
(As verified by NSSDC)

Quantity of data - 4 REELS OF TAPE

The data from the miniature electrostatic accelerometer (MESA) investigation are on part of the magnetic tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer-D investigations. Each 9-track, 1600-bpi, binary magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, the "UA" files (Unified Abstract files), contain one orbit of UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contains UA data at 15-s intervals for the time span specified in the header record. Since there may be gaps in the data, each record contains a corresponding time. Words 71 and 72 contain the investigation data and are, respectively, density in g/cc and wind in m/s. Some of the other parameters included in the record are date and time of the measurement; time from perigee; sunlight/darkness flag; Greenwich sidereal time; height above the geoid; satellite position and velocity; geodetic latitude of the subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude on both the ingress and egress points of the geomagnetic field line through the satellite.

AE-D, DOERING
PHOTOELECTRON SPECTROMETER (PES)

Data set name - PHOTOELECTRON SPECTROMETER (PES) DATA ON MAGNETIC TAPE

NSSDC ID 75-096A-03A, PES DATA, TAPE

Time period covered - 10/06/75 TO 01/29/76
(As verified by NSSDC)

Quantity of data - 4 REELS OF TAPE

The data from the photoelectron spectrometer (PES) investigation are on part of the magnetic tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer-D investigations. Each 9-track, 1600-bpi, binary magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, the "UA" files (Unified Abstract files), contain one orbit of UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA data at 15-s intervals for the time span specified in the header record. Since there may be gaps in the data each record contains a corresponding time. The normal energy ranges included in the six data words starting with 102, are as follows: 2 to 3, 7 to 9, 12 to 17, 25 to 30, 37 to 40, and 100 to 500 eV. In some operating modes, only a partial sampling of the full 1 to 500 eV energy range is obtained. A portion of the data has zero values in all but words 106 and 108. In this case, word 106 contains the average flux from 7 to 42 eV and word 108 contains the average flux in the 100 to 500 eV range. In all cases, the data reported are a 15-s average of the flux for the interval beginning with the time associated with the data word. Some of the other parameters included in the record are date and time of the measurement; time from perigee; sunlight/darkness flag; Greenwich sidereal time; height above the geoid; satellite position and velocity; geodetic latitude of the subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both the ingress and egress points of the geomagnetic field line through the satellite.

AE-D, HANSON
RETARDING POTENTIAL ANALYZER/DRIFT METER
(RPA)

Data set name - RETARDING POTENTIAL ANALYZER (RPA) DATA
ON MAGNETIC TAPE

NSSDC ID 75-096A-04A, RPA DATA, TAPE

Time period covered - 10/06/75 TO 01/29/76
(As verified by NSSDC)

Quantity of data - 4 REELS OF TAPE

The data from the retarding potential analyzer (RPA) investigation are on part of the magnetic tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer-D investigations. Each 9-track, 1600-bpi, binary magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, the "UA" files (Unified Abstract files), contain one orbit of UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA and orbit data at 15-s intervals for the time span specified in the header record. Since there may be gaps in the data, each record contains a corresponding time. Starting with word 109, the investigation outputs include ion temperature (deg K), total ion concentration (ions/cc), ion drift velocity along the + or -X axis of the spacecraft (m/s), vehicle (ground plane) potential (V), total ion concentration roughness (percent), the ion drift velocity along the + or -Y axis of the spacecraft (m/s), the ion drift velocity along the + or -Z axis of the spacecraft (m/s). The RPA and duct data are obtained every 15 s from 30-s running weighted averages of the individual data points. The drift meter data are represented by the individual data point nearest to the time indicated. In this case, the time difference between the data point and the time indicated is usually less than 2/3 s. Some of the other parameters included in the record are date and time of the measurement; time from perigee; sunlight/darkness flag; Greenwich sidereal time; height above the geoid; satellite position and velocity; geodetic latitude of the subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both the ingress and egress points of the geomagnetic field line through the satellite.

AE-D, HAYS
VISIBLE AIRGLOW PHOTOMETER (VAE)

Data set name - VISIBLE AIRGLOW EXPERIMENT (VAE) DATA ON
MAGNETIC TAPE

NSSDC ID 75-096A-13A, VISIBLE AIRGLOW DATA, TAPE

Time period covered - 10/06/75 TO 01/29/76
(As verified by NSSDC)

Quantity of data - 4 REELS OF TAPE

The data from the visible airglow (VAE) investigation are on part of the magnetic tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer D-investigations. Each 9-track, 1600-bpi, binary magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point record size, start and stop time of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, the "UA" files (Unified Abstract files), contain one orbit of UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA and orbit data at 15-s intervals for the time span specified in the header record. Since there may be gaps in the data, each record contains a corresponding time. Data record word 123 begins the VAE data words. The values are obtained every 15 s by linearly interpolating data taken on either side of the 15-s point. For each orbit, the VAE stores two header records in addition to the data. The first header is a 9-word record giving orbit number and investigation status. If the status word contains "dual", the VAE changes mode in the pass. The second header record defines both modes, which are related to the wavelengths observed as tabulated in the appendix of a format document that is supplied by NSSDC. In addition to identifying the two wavelengths being measured, the second header record describes for each of the six data words, whether the data are from channel 1 (narrow field of view) or channel 2 (large field of view), and the direction the instrument was looking when the data were collected. Some of the other parameters included in the record are date and time of the measurement; time from perigee; sunlight/darkness flag; Greenwich sidereal time; height above the geoid; satellite position and velocity; geodetic latitude of the subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both the ingress and egress points of the geomagnetic field line through the satellite.

AE-D, HEDIN
NEUTRAL ATMOSPHERE COMPOSITION (NACE)

Data set name - NEUTRAL ATMOSPHERIC COMPOSITION (NACE)
DATA ON MAGNETIC TAPE

NSSDC ID 75-096A-08A, NACE DATA, TAPE

Time period covered - 10/06/75 TO 01/29/76
(As verified by NSSDC)

Quantity of data - 4 REELS OF TAPE

The data from the closed-source neutral mass spectrometer (NACE) investigation are on part of tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer-D investigations. Each 9-track, 1600-bpi, binary magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, the "UA" files (Unified Abstract files), contain one orbit of UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA and orbit data at 15-s intervals for the time span specified in the header record. Since there may be gaps in the data, each record contains a corresponding time. Starting with the record word 93, the data presented include values for the concentrations (number/cc) of the following neutral atmospheric species N2, O, He, Ar, NO, and the equivalent total O from (O + 2xO2). The 10 least-significant bits of each of these 6 words provide an estimate of the fractional error. Some of the other parameters included in the record are date and time of the measurement;

time from perigee; sunlight/darkness flag; Greenwich sidereal time; height above the geoid; satellite position and velocity; geodetic latitude of the subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both the ingress and egress points of the geomagnetic field line through the satellite.

AE-D, HOFFMAN
MAGNETIC ION-MASS SPECTROMETER (MIMS)

Data set name - MAGNETIC ION MASS SPECTROMETER (MIMS)
DATA ON MAGNETIC TAPE

NSSDC ID 75-096A-10A, MAG.ION MASS SPEC DATA, TAPE

Time period covered - 10/06/75 TO 01/29/76
(As verified by NSSDC)

Quantity of data - 4 REELS OF TAPE

The data from the magnetic ion-mass spectrometer (MIMS) investigation are on part of the magnetic tape provided by the project office. The remainder of tape contains data from other Atmosphere Explorer-D investigations. Each 9-track, 1600-bpi, binary magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, the "UA" files (Unified Abstract files), contain one orbit of UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA and orbit data at 15-s intervals for the time span specified in the header record. Since there may be gaps in the data, each record contains a corresponding time. Beginning with record word 73, the investigation measurements give values for the ion concentrations (ions/cc) of the following ion species: H+, He+, N+, O+, N2+, NO+, O2+, O++, O+, and Mg+. Some of the other parameters included in the record are date and time of the measurement; time from perigee; sunlight/darkness flag; Greenwich sidereal time; height above the geoid; satellite position and velocity; geodetic latitude of the subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both the ingress and egress points of the geomagnetic field line through the satellite.

AE-D, HOFFMAN
LOW-ENERGY ELECTRONS (LEE)

Data set name - LOW ENERGY ELECTRON (LEE) DATA ON
MAGNETIC TAPE

NSSDC ID 75-096A-12A, LEE DATA, TAPE

Time period covered - 10/06/75 TO 01/29/76
(As verified by NSSDC)

Quantity of data - 4 REELS OF TAPE

The data from the low energy electrons (LEE) investigation are on part of the magnetic tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer-D investigations. Each 9-track, 1600-bpi, binary magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, the "UA" files (Unified Abstract files), contain one orbit of UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA and orbit data at 15-s intervals for the time span specified in the header record. Because there may be gaps in the data, each record contains a corresponding time. Beginning with word 62, values are given for the following investigation data: total energy flux for electrons in these energy ranges (keV) -- 0.2 to 0.8, 0.8 to 2, 2 to 7, and 7 to 27; average energy for electrons; total electron flux; total energy flux for ions; average energy for ions; and the total ion flux. The data are condensed using data from 7.5 s before and 7.5 s after the 15-s tire mark, making available 15 stepping sequences for processing. When the spacecraft is in the 15-s spin mode, only data from the upper hemisphere are accepted. Some of the other parameters included in the record are date and time of the measurement; time from perigee; sunlight/darkness flag; Greenwich sidereal time; height above the geoid; satellite position and velocity; geodetic latitude of the subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both the ingress and egress points of the geomagnetic field line through the satellite.

AE-D, NIER
OPEN-SOURCE NEUTRAL MASS SPECTROMETER
(OSS)

Data set name - OPEN SOURCE NEUTRAL MASS SPECTROMETER
(OSS) DATA ON MAGNETIC TAPE

NSSDC ID 75-096A-07A, OP.SOURCE-NEUT.M.S.DATA, TAPE

Time period covered - 10/06/75 TO 01/29/76
(As verified by NSSDC)

Quantity of data - 4 REELS OF TAPE

The data from the open-source neutral mass spectrometer (OSS) investigation are on part of tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer-D investigations. Each 9-track, 1600-bpi, binary magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, the "UA" files (Unified Abstract files), contain one orbit of UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA and orbit data at 15-s intervals for the time span specified in the header record. Since there may be gaps in the data, each record contains a corresponding time. Starting with the record word 96, the data presented include the concentrations of the following neutral atmospheric species (number/cc), respectively -- N2, O2, He, O, Ar, N, and a value for the equivalent O2 from (O2 + O/2). In all seven words, the 8 lowest order (rightmost) bits have been replaced with a percentage error byte. Masking off these bits gives directly the percentage error of the data value. Some of the other parameters included in the record are date and time of the measurement; time from perigee; sunlight/darkness flag; Greenwich sidereal time; height above the geoid; satellite position and velocity; geodetic latitude of the subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both the ingress and egress points of the geomagnetic field line through the satellite.

AE-D, SPENCER
NEUTRAL ATMOSPHERE TEMPERATURE (NATE)

Data set name - NEUTRAL ATMOSPHERIC TEMPERATURE (NATE)
DATA ON MAGNETIC TAPE

NSSDC ID 75-096A-09A, NEUT.ATMOS.TEMP.AND COMP., TAPE

Time period covered - 10/06/75 TO 01/29/76
(As verified by NSSDC)

Quantity of data - 4 REELS OF TAPE

The data from the neutral atmosphere temperature, composition, and wind (NATE) investigation are on part of the magnetic tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer-D investigations. Each 9-track, 1600-bpi, binary magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, the "UA" files (Unified Abstract files), contain one orbit of UA data and orbit data and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approxmately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA and orbit data at 15-s intervals for the time span specified in the header record. Since there may be gaps in the data, each record contains a corresponding time. The data from this investigation start in word 89. Values are given for the following parameters: the neutral gas temperature; the concentrations (number/cc) of N2, equivalent total O from (O + 2xO2), He, Ar; vertical motions; and horizontal (normal to the

orbit plane) winds. These measurements are all represented as floating point numbers. Whenever any one of the values is not being measured, a zero is inserted. Some of the other parameters included in the record are date and time of the measurement; time from perigee; sunlight/darkness flag; Greenwich sidereal time; height above the geoid; satellite position and velocity; geodetic latitude of the subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both the ingress and egress points of the geomagnetic field line through the satellite.

********** AE-E **********

AE-E, BRACE
CYLINDRICAL ELECTROSTATIC PROBE (CEP)

Data set name - CYLINDRICAL ELECTROSTATIC PROBE DATA ON MAGNETIC TAPE (*)

NSSDC ID 75-107A-01A, CEP DATA, TAPE

Time period covered - 11/21/75 TO 06/07/81
(As verified by NSSDC)

Quantity of data - 68 REELS OF TAPE

The data from the cylindrical electrostatic probe (CEP) investigation are on part of the magnetic tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer-E investigations. Each 9-track, 1600-bpi, binary magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, the "UA" files (Unified Abstract files), contain one orbit of UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA and orbit data at 15-s intervals for the time span specified in the header record. Since there may be gaps in the data, each record contains a corresponding time. Words 58, 59, and 60 contain the results from this investigation and are, respectively, the electron temperature, the ion density, and the satellite potential. The words are stored as floating point numbers. Some of the other parameters included in the record are date and time of the measurement; time from perigee; sunlight/darkness flag; Greenwich sidereal time; height above the geoid; satellite position and velocity; geodetic latitude of the subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both the ingress and egress points of the geomagnetic field line through the satellite.

AE-E, BRINTON
BENNETT ION-MASS SPECTROMETER (BIMS)

Data set name - BENNETT ION-MASS SPECTROMETER DATA ON MAGNETIC TAPE (*)

NSSDC ID 75-107A-10A, BIMS DATA, TAPE

Time period covered - 11/21/75 TO 06/07/81
(As verified by NSSDC)

Quantity of data - 68 REELS OF TAPE

The data from the Bennett ion-mass spectrometer (BIMS) investigation are on part of the magnetic tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer-E investigations. Each 9-track, 1600-bpi, binary magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, the "UA" files (Unified Abstract files), contain one orbit of UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA and orbit data at 15-s intervals for the time span specified in the header record. Since there may be gaps in the data, each record contains a corresponding time. The data words begin with record number 48 and are the values for the ion concentrations (ions/cc) of the following ion species: H+, He+, N+, O+, N2+, NO+, O2+, and the value for the total ion concentration (ions/cc). Some of the other parameters included in the record are date and time of the measurement; time from perigee; sunlight/darkness flag; Greenwich sidereal time; height above the geoid; satellite position and velocity; geodetic latitude of the subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both the ingress and egress points of the geomagnetic field line through the satellite.

AE-E, CHAMPION
ATMOSPHERIC DENSITY ACCELEROMETER (MESA)

Data set name - MINIATURE ELECTROSTATIC ACCELEROMETER (MESA)DENSITY DATA ON MAGNETIC TAPE (*)

NSSDC ID 75-107A-02A, MESA DATA, TAPE

Time period covered - 11/21/75 TO 06/07/81
(As verified by NSSDC)

Quantity of data - 68 REELS OF TAPE

The data from the miniature electrostatic accelerometer (MESA) investigation are on part of the magnetic tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer-E investigations. Each 9-track, 1600-bpi, binary magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, the "UA" files (Unified Abstract files), contain one orbit of UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA and orbit data at 15-s intervals for the time span specified in the header record. Since there may be gaps in the data, each record contains a corresponding time. Words 70 and 71 contain the investigation data and are, respectively, density in g/cc and wind in m/s. Some of the other parameters included in the record are date and time of the measurement; time from perigee; sunlight/darkness flag; Greenwich sidereal time; height above the geoid; satellite position and velocity; geodetic latitude of the subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both the ingress and egress points of the geomagnetic field line through the satellite.

AE-E, DOERING
PHOTOELECTRON SPECTROMETER (PES)

Data set name - PHOTOELECTRON SPECTROMETER DATA ON MAGNETIC TAPE (*)

NSSDC ID 75-107A-03A, PES DATA, TAPE

Time period covered - 11/21/75 TO 06/07/81
(As verified by NSSDC)

Quantity of data - 68 REELS OF TAPE

The data from the photoelectron spectrometer (PES) investigation are on part of the magnetic tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer-E investigations. Each 9-track, 1600-bpi, binary magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, the "UA" files (Unified Abstract files), contain one orbit of UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA and orbit data at 15-s intervals for the time span specified in the header record. Since there may be gaps in the data, each record contains a corresponding time. The normal energy ranges included in the six data words -- 102, 103, 104, 105, 106, and 107 -- are, respectively, 2 to 3 eV, 7 to 9 eV, 12 to 17 eV, 25 to 30 eV, 37 to 40 eV, and 100 to 500 eV. In some operating modes, only a partial sampling of the full 1 to 500 eV energy range is obtained. A portion of the data has zero values in all but words 105 and 107. In this case, word 105 contains the average flux from 7 to 42 eV and word 107 contains the average flux in

the 100 to 500 eV energy range. In all cases, the data reported are a 15-s average of the flux for the interval beginning with the time associated with the data used. Some of the other parameters included in the record are date and time of the measurement; time from perigee; sunlight/darkness flag; Greenwich sidereal time; height above the geoid; satellite position and velocity; geodetic latitude of the subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both the ingress and egress points of the geomagnetic field line through the satellite.

AE-E, HANSON
RETARDING POTENTIAL ANALYZER/DRIFT METER
(RPA)

Data set name - RETARDING POTENTIAL ANALYZER DATA ON MAGNETIC TAPE (*)

NSSDC ID 75-107A-04A, RPA DATA, TAPE

Time period covered - 11/21/75 TO 06/07/81
(As verified by NSSDC)

Quantity of data - 68 REELS OF TAPE

The data from the retarding potential analyzer (RPA) investigation are on part of the magnetic tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer-E investigations. Each 9-track, 1600-bpi, binary magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, the "UA" files (Unified Abstract files), contain one orbit of UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA and orbit data at 15-s intervals for the time span specified in the header record. Since there may be gaps in the data, each record contains a corresponding time. Starting with word 108, the investigation outputs include ion temperature (deg K); total ion concentration (ions/cc); ion drift velocity along the + or -X axis of the spacecraft (m/s); the vehicle (ground plane) potential (V); total ion concentration roughness (percent); ion drift velocity along the + or -Y axis of the spacecraft (m/s); the ion drift velocity along the + or -Z axis of the spacecraft (m/s). The RPA and duct data are obtained every 15 s from 30-s running weighted averages of the individual data points. The drift meter data are represented by the individual data point nearest to the time indicated. In this case, the time difference between the data point and the time indicated is usually less than 2/3 s. Some of the other parameters included in the record are date and time of the measurement; time from perigee; sunlight/darkness flag; Greenwich sidereal time; height above the geoid; satellite position and velocity; geodetic latitude of the subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both the ingress and egress points of the geomagnetic field line through the satellite.

AE-E, HAYS
VISIBLE AIRGLOW PHOTOMETER (VAE)

Data set name - VISIBLE AIRGLOW PHOTOMETER (VAE) DATA ON MAGNETIC TAPE (*)

NSSDC ID 75-107A-11A, VAE DATA, TAPE

Time period covered - 11/21/75 TO 06/07/81
(As verified by NSSDC)

Quantity of data - 68 REELS OF TAPE

The data from the visible airglow investigation (VAE) investigation are on part of the magnetic tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer-E investigations. Each 9-track, 1600-bpi, binary magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, the "UA" files (Unified Abstract files), contain one orbit of UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA and orbit data at 15-s intervals for the time span specified in the header record. Since there may be gaps in the data, each record contains a corresponding time. Data record word 117 begins the VAE data words. The values are obtained every 15 s by linearly interpolating data taken on either side of the 15-s point. For each orbit, the VAE stores two header records in addition to the data. The first header is a nine-word record giving orbit number and investigation status. If the status word contains "dual", the VAE changed mode in the pass. The second header record defines both modes, which are related to the wavelengths observed, as tabulated in the appendix of a format document that is supplied by NSSDC. In addition to identifying the two wavelengths being measured, the second header record describes for each of the six data words, whether the data are from channel 1 (narrow field of view) or channel 2 (large field of view), and the direction the instrument was looking when the data were collected. Some of the other parameters included in the record are date and time of the measurement; time from perigee; sunlight/darkness flag; Greenwich sidereal time; height above the geoid; satellite position and velocity; geodetic latitude of the subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both the ingress and egress points of the geomagnetic field line through the satellite.

AE-E, HEATH
EXTREME SOLAR UV MONITOR (ESUM)

Data set name - ULTRA VIOLET SOLAR FLUX MEASUREMENTS ON MICROFICHE

NSSDC ID 75-107A-05B, SOLAR FLUX MEASUREMENTS, FICHE

Time period covered - 12/03/75 TO 09/24/76
(As verified by NSSDC)

Quantity of data - 5 CARDS OF B/W MICROFICHE

These data, on microfiche prepared by NSSDC from hardcopy provided by the investigator, contain tables and plots of relative solar flux as a function of time. The data are presented in both tabulated form (tables 2-17) and in graphs (figures 3-18). The table headings include date and time of the measurement, orbit number, solar-zenith angle, count rate, standard deviation of count rate, and the solar 10.7-cm flux. Two graphs per frame are given with the common abscissa being Julian date. The lower ordinate is observed signal count rate (for a particular diode/filter combination). The upper ordinate is the solar 10.7-cm flux in usual units. Also contained on this microfiche is a description of the instrument, and a discussion of the analysis of the data including routine corrections, corrections for both background and angular response, instrument degradation, and the procedures used to reduce the data.

Data set name - ABSOLUTE ULTRAVIOLET SOLAR FLUX

NSSDC ID 75-107A-05C, ABS. UV SOLAR FLUX, FICHE

Time period covered - 12/20/73 TO 12/31/73
(As verified by NSSDC)

Quantity of data - 1 CARD OF B/W MICROFICHE

These data, on microfiche prepared by NSSDC from hardcopy provided by the investigator, contain measurements of the absolute solar ultraviolet flux. The data are presented in tables 8 and 9 of D. F. Heath et al., "Observations of the absolute ultraviolet solar flux by the Extreme Solar Ultraviolet Monitor (ESUM) experiments on board the Atmosphere Explorer -3 and -5" unpublished, GSC/TM-79/6311, undated. (NSSDC TRF B32234). They are displayed in the form of a ratio, defined as the instrument readings at specific times corrected for background and angular response, divided by a computed theoretical value obtained by using an assumed reference spectrum and the instrument parameters at the time of measurement. Also contained on the microfiche card is a description of the instrument, the calibration of the instruments, the method of data reduction, and a discussion of the data and conclusions.

AE-E, HEDIN
NEUTRAL ATMOSPHERE COMPOSITION (NACE)

Data set name - CLOSED-SOURCE NEUTRAL MASS SPECTROMETER DATA ON MAGNETIC TAPE (*)

NSSDC ID 75-107A-08A, NACE DATA, TAPE

Time period covered - 11/21/75 TO 06/07/81
(As verified by NSSDC)

Quantity of data - 68 REELS OF TAPE

The data from the closed-source neutral mass spectrometer (NACE) investigation are on part of the magnetic tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer-E investigations. Each 9-track, 1600-bpi, binary magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, the "UA" files (Unified Abstract files), contain one orbit of UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA and orbit data at 15-s intervals for the time span specified in the header record. Since there may be gaps in the data, each record contains a corresponding time. The data from this investigation begin in record word number 82. Expressed in units of number/cc, the investigation outputs are the number density of the following species: N2, O, He, Ar, NO, and the equivalent total O from (O + 2xO2). The 10 least significant bits of each of these 6 words provide an estimate of the fractional error. Some of the other parameters included in the record are date and time of the measurement; time from perigee; sunlight/darkness flag; Greenwich sidereal time; height above the geoid; satellite position and velocity; geodetic latitude of the subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both the ingress and egress points of the geomagnetic field line through the satellite.

AE-E, HINTEREGGER
SOLAR EUV SPECTROPHOTOMETER (EUVS)

Data set name - EUV ABSORPTION DATA ON MAGNETIC TAPE

NSSDC ID 75-107A-06B, EUV ABSORPTION DATA, TAPE

Time period covered - 12/27/76 TO 12/30/79
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

These investigator supplied solar EUV absorption data are on 9-track, 1600-bpi, EBCDIC magnetic tape created on an XDS 930 computer. The data are contained on 5 files. They consist of preliminary flux data for 7 wavelength groups in the range from 175 to 1216 A, and 13-day and 81-day running mean values of flux data (printed every 3rd and 9th days, respectively) for ten wavelength ranges between 1375 and 1850 A. Included in the files are the nominal number of days of the average, number of days of existing observations, number of observations within the averaging range of days; and the standard deviation, and maximum and minimum average values for each wavelength group. The fifth file contains individual records from all appropriate monochromator #12 EUVS turnons. Flux values are given in units of 1.E6 photons/sq cm/s/wavelength interval.

Data set name - DETAILED REFERENCE SPECTRUM OF EUV
IRRADIANCE DATA ON MAGNETIC TAPE

NSSDC ID 75-107A-06C, EUVS SOLAR-FLUX DATA, TAPE

Time period covered - 06/03/77 TO 09/25/80
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This solar-flux data set provided by the principal investigator, is contained on one 9-track, 1600-bpi, ANSI labelled magnetic tape, written on a XDS 930 computer. Seven different classes of data are contained in a series of files. The dates for each class of data vary. The groups are headed as follows: flux tabulations by time of observation (7 wavelengths: 1216, 1026, 584, 304, 554, 175, 609 A); relative flux tabulations by times of observations; graphical charts of EUVS observations by individual steps; reference spectrum data; input data sets used for generating synthetic reference spectra; synthetic reference spectra; and graphical charts of simulated EUVS responses by individual steps. This is regarded as an intermediate data set, because the data were to be revised subsequent to submission to the NSSDC.

AE-E, NIER

OPEN-SOURCE NEUTRAL MASS SPECTROMETER
(OSS)

Data set name - OPEN-SOURCE NEUTRAL MASS SPECTROMETER
COMPOSITION DATA ON MAGNETIC TAPE (*)

NSSDC ID 75-107A-07A, OSS DATA, TAPE

Time period covered - 11/21/75 TO 06/07/81
(As verified by NSSDC)

Quantity of data - 68 REELS OF TAPE

The data from the open-source neutral mass spectrometer (OSS) investigation are on part of the magnetic tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer-E investigations. Each 9-track, 1600-bpi, binary magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, the "UA " files (Unified Abstract files), contain one orbit of UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA and orbit data at 15-s intervals for the time span specified in the header record. Since there may be gaps in the data, each record contains a corresponding time. Beginning with word 95, the investigation measurements include the concentrations of the following neutral atmosphere species (number/cc): N2, O2, He, O, Ar, N, and a value for the equivalent O2 from (O2 + O/2). These data are interpreted as the 15-s, time-averaged density about the specified abstract time for the altitude crossed by the satellite at the abstract time. In all seven words, the 4 lowest order (rightmost) bits have been replaced with a percentage error byte. Masking off these bits gives directly the percentage error of the data value. Some of the other parameters included in the record are date and time of the measurement; time from perigee; sunlight/darkness flag; Greenwich sidereal time; height above the geoid; satellite position and velocity; geodetic latitude of the subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and longitude of both the ingress and egress points of the geomagnetic field line through the satellite.

AE-E, SPENCER
NEUTRAL ATMOSPHERE TEMPERATURE (NATE)

Data set name - NEUTRAL ATMOSPHERE TEMPERATURE AND
COMPOSITION DATA ON MAGNETIC TAPE (*)

NSSDC ID 75-107A-09A, NATE DATA, TAPE

Time period covered - 11/21/75 TO 06/07/81
(As verified by NSSDC)

Quantity of data - 68 REELS OF TAPE

The data from the neutral atmosphere temperature, composition, and wind (NATE) investigation are on part of the magnetic tape provided by the project office. The remainder of the tape contains data from other Atmosphere Explorer-E investigations. Each 9-track, 1600-bpi, binary magnetic tape, written on an XDS 930 computer, contains 1 calendar month of data. The first file of the tape is a header file specifying the satellite ID, point-by-point data record size, start and stop times of the data contained on the tape, a list of orbit numbers on the tape, and the magnetic and solar activity data for the time period. Subsequent data files, the "UA" files (Unified Abstract files), contain one orbit of UA data and orbit data, and are arranged in ascending order by orbit number. Each data file consists of a header record followed by approximately 145 records. The header record contains the orbit number, orbit start and stop times, UA header data, and orbit parameters corresponding to that orbit. The data records contain UA and orbit data at 15-s intervals for the time span specified in the header record. Since there may be gaps in the data, each record contains a corresponding time. The data from this investigation start in word 89. Values are given for the following parameters: neutral gas temperature (deg K); the concentrations (number/cc) of: N2, equivalent total O from (O + 2xO2), He, Ar; vertical motions; and horizontal (normal to the orbit plane) winds. These measurements are all represented as floating point numbers. Whenever any of the values is not being measured, a zero is inserted. Some of the other parameters included in the record are date and time of the measurement, time from perigee, sunlight/darkness flag; Greenwich sidereal time; height above the geoid; satellite position and velocity; geodetic latitude of the subsolar point; east longitude of the satellite; local apparent solar time; local magnetic time; McIlwain's L-shell parameter; invariant latitude; magnetic field strength; and geodetic latitude and

longitude of both the ingress and egress points of the geomagnetic field line through the satellite.

********** AEROS **********

AEROS, SCHMIDTKE
SOLAR EUV RADIATION

Data set name - EUV SPECTRA DATA ON MAGNETIC TAPE

NSSDC ID 72-100A-04A, EUV SPECTRA DATA, TAPE

Time period covered - 12/23/72 TO 08/05/73
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

These investigator-supplied EUV spectra data are on 9-track, 1600-bpi, binary magnetic tape created on a UNIVAC 1100 computer. Each 116-word logical record contains mission ID; measurement number; solar zenith angle; Kp index; Zurich sunspot number; Covington's solar noise index; date in day, month, and year; universal time in hour, minutes, and second; modified Julian date; Julian microday; energy and photon flux in 42-wavelength ranges and 10 subranges, over the whole range of the instrument from 103 to 16 nm; and the average height of the satellite in meters.

AEROS, SPENCER
NEUTRAL GAS TEMPERATURE IN THE
THERMOSPHERE

Data set name - NEUTRAL DENSITY AND TEMPERATURE DATA ON MICROFILM

NSSDC ID 72-100A-05A, NEUT TEMP + DENSITY DATA, MFILM

Time period covered - 12/26/72 TO 04/09/73
(As verified by NSSDC)

Quantity of data - 15 REELS OF MICROFILM

This microfilm data set was generated at NSSDC from film provided by the investigator. For a selected pass, and for the local daytime, there are several frames which run in sequence as follows: linear plot of exospheric temperature vs geographic latitude (pole to pole) with four sets of points for nitrogen, argon, oxygen, and helium; semi-log plot of density vs geographic latitude for nitrogen with four curves (for altitudes of 120, 200, 250, and 400 km); and a table of nitrogen densities with several parameters including Greenwich mean time, altitude, latitude and longitude. Semi-log density plots and tables for argon, oxygen and helium follow. The entire data format is repeated for the local night time. The details of the data calculations are provided in the accompanying documentation. Date and Greenwich mean time should be used instead of pass number, which is shown incorrectly on the film, in some instances.

AEROS, SPENNER
ENERGY DISTRIBUTION OF IONS AND
ELECTRONS

Data set name - RETARDING POTENTIAL ANALYZER PLASMA MEASUREMENT DATA ON MAGNETIC TAPE

NSSDC ID 72-100A-02A, RPA PLASMA MEASURMNT, TAPE

Time period covered - 01/04/73 TO 04/03/73
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

These investigator-supplied plasma measurements are on a single 9-track, 1600-bpi, binary magnetic tape created on a UNIVAC 1100 computer. Each 15-word logical record contains mission ID, mode number, solar zenith angle, orbit number; mean Julian date; year, day of year, hour and minute of day; McIlwain's L-shell parameter, geomagnetic local time; magnetic indexes (Kp and Ap), Covington's solar noise index, Zurich sunspot number; magnetic field strength, satellite altitude; geodetic, geomagnetic, and magnetic coordinates; plasma density; electron temperature; electron flux; ion density and temperature; light atomic and molecular ions; spacecraft potential; He+ ions; and offset ion density. On Aeros, the data were for 3 am and 3 pm local mean time.

********** AEROS 2 **********

AEROS 2, NESKE
ELECTRON CONCENTRATION IN THE IONOSPHERE

Data set name - ELECTRON DENSITY DATA ON MAGNETIC TAPE

NSSDC ID 74-055A-03A, ELECTRON DENSITY DATA, TAPE

Time period covered - 07/23/74 TO 09/25/75
(As verified by NSSDC)

Quantity of data - 2 REELS OF TAPE

This investigator-supplied electron density data set is on 9-track, 1600-bpi, binary magnetic tape created on a UNIVAC 1100 computer. Each 66-byte logical record contains mission ID; mode designation; solar zenith angle; orbit number; mean Julian date; time in year, day of year, hour, and minute; McIlwain's L-shell parameter; geomagnetic local time, magnetic field intensity; satellite altitude (10m); geodetic and geomagnetic latitude and longitude; magnetic inclination and declination angles; modified dip; invariant latitude; and plasma density.

AEROS 2, SCHMIDTKE
SOLAR EUV RADIATION

Data set name - EUV SPECTRA DATA ON MAGNETIC TAPE

NSSDC ID 74-055A-04A, EUV SPECTRA DATA, TAPE

Time period covered - 07/21/74 TO 07/03/75
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

These investigator-supplied EUV spectra data are on a single 9-track, 1600-bpi, binary magnetic tape created on a UNIVAC 1100 computer. Each 116-word logical record contains mission ID; measurement number; solar zenith angle; Kp index; Zurich sunspot number; Covington's solar noise index; date in day, month, and year; universal time in hour, minute, and second; modified Julian date; Julian microday; energy and photon flux in 42-wavelength ranges and 10 subranges, over the whole range of the instrument from 103 to 16 nm; and the average height of the satellite in meters.

AEROS 2, SPENNER
ENERGY DISTRIBUTION OF IONS AND
ELECTRONS

Data set name - RETARDING POTENTIAL ANALYZER PLASMA MEASUREMENT DATA ON MAGNETIC TAPE

NSSDC ID 74-055A-02A, RPA PLASMA MEASURMNT, TAPE

Time period covered - 07/20/74 TO 09/04/75
(As verified by NSSDC)

Quantity of data - 5 REELS OF TAPE

These investigator-supplied plasma measurements are on a single 9-track, 1600-bpi, binary magnetic tape created on a UNIVAC 1100 computer. Each 15-word logical record contains mission ID, mode number, solar zenith angle, orbit number; mean Julian date; year, day of year, hour and minute of day; McIlwain's L-shell parameter, geomagnetic local time; magnetic indexes (Kp and Ap), Covington's solar noise index, Zurich sunspot number; magnetic field strength, satellite altitude; geodetic, geomagnetic, and magnetic coordinates; plasma density; electron temperature; electron flux; ion density and temperature; light atomic and molecular ions; spacecraft potential; He+ ions; and offset ion density. On Aeros 2, the data were for 3:30 am and 3:30 pm local mean time.

********** ALOUETTE 1 **********

Data set name - TIME CHARTS OF ALOUETTE 1 OPERATIONS ON MAGNETIC TAPE (DRTE DATA)

NSSDC ID 62-049A-00D, TIME CHARTS, TAPE

Time period covered - 09/29/62 TO 12/16/66
(As verified by NSSDC)

Quantity of data - 2 REELS OF TAPE

This data set, prepared at the Defence Research Telecommunications Establishment, Ottawa, Canada, provides a graphical indication of the duration of Alouette 1 operations. The data set is on 7-track, 556-bpi, even-parity, BCD magnetic tapes written on an IBM 7094 computer. The axes of the graph are "day of the year" and "Greenwich mean time." The times during which the satellite was in operation are indicated by a solid line. For every month there is one graph for each telemetry station, followed by a summary graph showing the combined operation of all stations. A second set of graphs shows, in the same manner, the availability of data from the VLF experiment. This data set is also available on microfiche as data set 69-049A-00F.

Data set name - EXTENDED WORLD MAPS ON MAGNETIC TAPE

NSSDC ID 62-049A-00E, EXTENDED WORLD MAPS, TAPE

Time period covered - 12/03/67 TO 02/28/72
(As verified by NSSDC)

Quantity of data - 67 REELS OF TAPE

These data, prepared at GSFC, are listings of satellite position and supporting information for each minute (every 4 min after September 1970) of Greenwich mean time. This data set is on 7-track, 556-bpi, odd-parity, binary magnetic tapes written on an IBM 7094 computer. The information provided includes local time, geodetic location, several varieties of magnetic-field-referenced location, sun position, and special point identification (equator crossing, north or south points, sunlight exit or entrance, and others). For Alouette 1 extended map coverage prior to July 1, 1964, see data set 62-049A-00H.

Data set name - TIME CHARTS OF ALOUETTE 1 OPERATIONS ON MICROFICHE (DRTE DATA)

NSSDC ID 62-049A-00F, TIME CHARTS, FICHE

Time period covered - 09/29/62 TO 12/31/65
(As verified by NSSDC)

Quantity of data - 39 CARDS OF B/W MICROFICHE

This data set, prepared at the Defence Research Telecommunications Establishment (DRTE), Ottawa, Canada, provides on microfiche a graphical indication of the duration of Alouette 1 operations. The axes of the graph are "day of the year" and "Greenwich mean time." The times during which the satellite was in operation are indicated by a solid line. For every month there is one graph for each telemetry station, followed by a summary graph showing the combined operation of all stations. A second set of graphs shows, in the same manner, the availability of data from the VLF experiment. This microfiche data set was prepared at NSSDC from unpublished (undated and unnumbered) internal DRTE reports titled "Alouette 1 Time Charts." A single copy of these reports is available for use at NSSDC as TRF B06231 and B06235. On request, individual pages can be copied as required or the microfiche copy can be supplied. This data set is also available on magnetic tape as data set 62-049A-00J.

Data set name - CRC INDEX OF EXPERIMENT 'DATA AVAILABLE' ON TAPE

NSSDC ID 62-049A-00G, INDEX OF AVAILABLE DATA, TAPE

Time period covered - 01/01/66 TO 12/31/67
(As verified by NSSDC)

Quantity of data - 2 REELS OF TAPE

This data set, prepared at the Communications Research Centre, Ottawa, Canada, provides a tabulation of times during which the four satellite experiments were in operation. The data are on 7-track, 556-bpi, even-parity, BCD magnetic tapes written on an IBM 7094 computer. The information presented includes the name of the telemetry station, telemetry tape identification, day of year, start and stop times (Greenwich and local mean time) of each pass. Also listed are the latitude, longitude, height, magnetic dip, and gyrofrequency at the spacecraft. The same data are on microfiche as data set 62-049A-00I.

Data set name - CRPL EXTENDED WORLD MAPS ON MICROFILM

NSSDC ID 62-049A-00H, CRPL EXTENDED WORLD MAPS, MFILM

Time period covered - 09/29/62 TO 06/30/64
(As verified by NSSDC)

Quantity of data - 17 REELS OF MICROFILM

These data, prepared at the Central Radio Propagation Laboratory (CRPL), Boulder, Colorado, are listings of satellite position and supporting information at approximately 18-s intervals during each telemetry station pass scheduled for satellite transmission. The data are on 100-ft reels of 16-mm microfilm. The 18-s interval corresponds to the time between successive Alouette 1 topside soundings, and consequently the data set provides position and other information once for each ionogram. On July 1, 1964, responsibility for extended world map preparation was transferred to GSFC (reference data set 62-049A-00C), and a different computational procedure and format was adopted. The CRPL maps include, for the satellite position, the local mean time, geodetic location, gyrofrequency, geomagnetic dip, geomagnetic latitude, and solar zenith angle. For ground-based ionosonde stations within 500 km of the subsatellite location, station information is also listed.

Data set name - CRC PUBLISHED INDEX OF EXPERIMENT "DATA AVAILABLE" ON MICROFICHE

NSSDC ID 62-049A-00I, INDEX OF AVAILABLE DATA, FICHE

Time period covered - 01/01/66 TO 12/31/68
(As verified by NSSDC)

Quantity of data - 5 CARDS OF B/W MICROFICHE

This data set, prepared at the Communications Research Centre (CRC), Ottawa, Canada, provides on microfiche a tabulation of times during which the four satellite experiments were in operation. The information presented includes the name of the telemetry station, telemetry tape identification, day of year, start and stop times (Greenwich and local mean time) of each pass. Also listed are the latitude, longitude, height, magnetic dip, and gyrofrequency at the spacecraft. This microfiche data set was prepared at NSSDC from unpublished (undated and unnumbered) internal CRC reports titled "Alouette 1 Data Available." A single copy of these reports is available for use at NSSDC as TRF B06746. On request, individual pages can be copied as required or the microfiche copy can be supplied. The same data are on magnetic tape as data set 62-049A-00G.

Data set name - GSFC ORBIT ELEMENTS AT ABOUT 2 WEEK INTERVALS ON MAGNETIC TAPE

NSSDC ID 62-049A-00J, GSFC ORBITAL ELEMENTS, TAPE

Time period covered - 10/07/62 TO 02/13/72
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set, prepared at GSFC, provides Alouette 1 orbital elements at about 2-week intervals. The data set is on a 7-track, 556-bpi, even-parity, BCD magnetic tape written on an IBM 7094 computer. These data consist of the classical Keplerian elements plus anomalistic period, motion of perigee, and motion of right ascension. Since only a few pages of printout are required to display the tape data, normally hard copy listings are provided with one set of elements listed on each line. Units are in km, radians, radians/day and minutes.

ALOUETTE 1, BELROSE
VLF RECEIVER

Data set name - VLF SPECTROGRAMS ON 35-MM MICROFILM

NSSDC ID 62-049A-03A, VLF SPECTROGRAMS, MFILM

Time period covered - 11/00/62 TO 09/00/72
(Date supplied by experimenter)

This data set, generated by the principal investigator, consists of VLF data in a standard sonogram graphic form (frequency vs time). These sonograms on 35-mm film were prepared by the experimenter from analog data on magnetic tape, recorded at telemetry stations in real time. Approximately 1.6E4 passes were recorded, from which sonograms have been prepared for about 1500 passes. Most of the sonograms have been compiled from passes over the Ottawa station, although over half of the data observed were from other locations. By special arrangement, any data still available on tape (some older tapes have been erased) can be provided in limited quantities in sonogram form. Each pass processed into sonograms consists of three parts, each using different ranges on the frequency scales, i.e., nominally 0 to 20, 0 to 10, and

0 to 2.5 kHz. The time scale for the first two parts is 0.25 in./s, and is 0.125 in./s for the 0- to 2.5-kHz sonograms. Identification information is noted prior to each pass over a station. Universal time is shown at 10-s intervals along the edge of the sonograms. An analog representation of the VLF-receiver AGC level is also shown along the edge of the sonograms. These data can be made available for viewing by contacting the principal investigator, Dr. R. E. Barrington, Communications Research Centre, Dept of Communications, P.O. Box 11490, Station H, Ottawa, Ontario, Canada, K2H 8S2.

ALOUETTE 1, HARTZ
COSMIC RADIO NOISE

Data set name - COSMIC RADIO NOISE - AGC LEVELS PLOTTED ON 35-MM MICROFILM, MERGED WITH IONOGRAMS

NSSDC ID 62-049A-04A, COSMIC RADIO NOISE-AGC LEV.,MFILM

Time period covered - 09/29/62 TO 11/30/70
(As verified by NSSDC)

Quantity of data - 5067 REELS OF MICROFILM

This data set, provided by the principal investigator, consists of the sounder automatic gain control (AGC) level plotted vs time, displayed as plot lines on the ionograms of data set 62-049A-01A. Since the sounder receiver is a sweep-frequency receiver, the AGC data are in effect plotted vs frequency. The frequency resolution is relatively good, but the flux resolution is very poor due to the restricted plot height. These data are also available, with the flux displayed on an expanded scale, from the principal investigator, Dr. H. G. James, Communications Research Centre, Dept of Communications, P.O. Box 11490, Station H, Ottawa, Ontario, Canada, K2H 8S2.

ALOUETTE 1, MCDIARMID
ENERGETIC PARTICLES DETECTORS

Data set name - TEN-SEC AVERAGED COUNT RATES ON TAPE FOR E GT 40 KEV, P GT 500 KEV

NSSDC ID 62-049A-02A, E GT 40-,P GT 500KEV 10S AV.TAPE

Time period covered - 09/29/62 TO 05/26/64
(As verified by NSSDC)

Quantity of data - 2 REELS OF TAPE

This data set, generated by the principal investigator, consists of 40-keV and 500-keV energetic particle data on 9-track, 800-bpi, odd-parity, EBCDIC, unblocked magnetic tapes written on an IBM 360 computer. Each record contains 6600 characters. The first 20 characters are used for pass identification and contain the receiving station name, pass number, number of 10-s averages in the pass, 3-h and daily Kp values, universal time at the midpoint of the ascending (northbound) node, and the satellite spin axis direction. The remaining characters were divided into 90 sets of 72 characters each. Each set contains, for the midpoint of the 10-s interval, the universal time, the day of the year, east geographic longitude, geographic latitude, altitude, pitch angle, invariant latitude, magnitudes of the geomagnetic field from the satellite magnetometer and also from the Jensen and Cain model, invariant radius, and the McIlwain L parameter. Data from each detector in the form of the logarithm of the counting rate averaged over the 10-s interval and corrected for dead time only are also contained in each set. Both tapes are in time order. The first tape contains only those data received at College, Alaska, during the period from September 29, 1962, to March 26, 1964. The second tape contains data received at 11 other stations, grouped by station, during the period from October 17, 1962, to January 17, 1964.

ALOUETTE 1, WARREN
SWEEP-FREQUENCY SOUNDER

Data set name - SWEEP-FREQUENCY IONOGRAMS ON MICROFILM

NSSDC ID 62-049A-01A, SWEEP-FREQUENCY IONOGRAMS, MFILM

Time period covered - 09/29/62 TO 11/30/70
(As verified by NSSDC)

Quantity of data - 5067 REELS OF MICROFILM

This data set, prepared at the Communications Research Centre in Ottawa, Canada, consists of Alouette 1 ionograms on reels of 35-mm microfilm. These ionograms are reduced data plots showing as a function of frequency the echo time delay (virtual range) of pulsed radio signals. They are an original form of the data prepared directly from the telemetry tape. The data are as complete as permitted by the limitations of spacecraft power, lack of onboard tape recording, telemetry station location, telemetry station scheduling, and data processing facilities. The data coverage is primarily near the 80 deg W meridian for periods of time up to 7 h per day. Since only time is noted on each ionogram, position and other related data must be obtained from world maps (NSSDC data sets included under 62-049A-00). A program for the reduction of topside ionograms to electron density profiles is available from NSSDC.

Data set name - ALOUETTE SYNOPTIC (ALOSYN) SCALED DATA ON MICROFILM

NSSDC ID 62-049A-01B, ALOSYN-SCALED DATA, MFILM

Time period covered - 09/29/62 TO 08/31/64
(As verified by NSSDC)

Quantity of data - 9 REELS OF MICROFILM

This data set, prepared at the Communications Research Centre in Ottawa, Canada, consists of Alouette 1 synoptic data (Alosyn) on reels of 35-mm microfilm. The Alosyn data are tabulations of selected ionospheric parameters which were read (scaled) from the ionogram and, in some cases, also calculated from other scaled values. Four parameters are presented chronologically: (1) plasma frequency at the satellite, (2) plasma frequency at the F2 maximum, (3) maximum frequency of observed sporadic E, and (4) strength of ground echoes. Supporting information includes for the spacecraft position: Greenwich and local mean time, location, magnetic dip, solar zenith angle, Kp, and quality and accuracy notations for some of the scalings. These data are also available on magnetic tape as data set 62-049A-01C and on microfiche as data set 62-049A-01K.

Data set name - ALOUETTE SYNOPTIC (ALOSYN) SCALED DATA ON TAPE

NSSDC ID 62-049A-01C, ALOSYN-SCALED DATA, TAPE

Time period covered - 09/29/62 TO 06/30/67
(As verified by NSSDC)

Quantity of data - 6 REELS OF TAPE

This data set, prepared at the Communications Research Centre in Ottawa, Canada, consists of Alouette 1 synoptic data (Alosyn) on 7-track, one-file, magnetic tapes in two forms. Some are 556-bpi, even-parity, BCD magnetic tapes produced on an IBM 7094 computer and the remaining tapes are 800-bpi, odd-parity, EBCDIC produced on an IBM 360 computer. The Alosyn data are tabulations of selected ionospheric parameters which were read (scaled) from the ionogram and, in some cases, also calculated from other scaled values. Four parameters are presented chronologically: (1) plasma frequency at the satellite, (2) plasma frequency at the F2 maximum, (3) maximum frequency of observed sporadic E, and (4) strength of ground echoes. Supporting information includes for the spacecraft position: Greenwich and local mean time, location, magnetic dip, solar zenith angle, Kp, and quality and accuracy notations for some of the scalings. These data are also available on 35-mm microfilm as data set 62-049A-01B and on microfiche as data set 62-049A-01K.

Data set name - RRS ELECTRON DENSITY VALUES AT 10-KM INTERVALS ON MICROFICHE

NSSDC ID 62-049A-01E, RRS N(H) INT PROFILES, FICHE

Time period covered - 11/26/62 TO 07/31/63
(As verified by NSSDC)

Quantity of data - 9 CARDS OF B/W MICROFICHE

This data set, provided by the Radio Research Station (RRS), Slough, U.K., consists of 3 volumes of electron density profiles for the ionosphere above the F2 maximum (topside ionosphere). This data set is on microfiche. The profiles were computed from digital values of frequency and virtual height, which had in turn been scaled from the ionograms. This data set contains profiles from eight passes (254 profiles) over Singapore, and profiles from four passes (123 profiles) over Pt. Stanley, Falkland Islands. The electron densities are given at 10-km geodetic-height intervals and at 20-km geopotential-height intervals. The electron density vs geopotential height is also shown as plots. This microfiche data set was prepared at NSSDC from unpublished, unnumbered internal RRS reports titled "Height distribution of electron concentration in the topside ionosphere as deduced from topside sounder satellite ionograms." v. 1, December 1963; v. 2, December 1964; and v. 3, January 1965. A single copy of these reports is available for use at NSSDC as TRF 8208O6. On request, individual pages can be copied as required or the microfiche copy can be supplied.

Data set name - DRTE ELECTRON DENSITY VALUES AT LAMINA BOUNDARIES ON MICROFICHE

NSSDC ID 62-049A-01F, DRTE N(H) SCALED PROFILES, FICHE

Time period covered - 09/30/62 TO 07/28/68
(As verified by NSSDC)

Quantity of data - 73 CARDS OF B/W MICROFICHE

This data set, provided by the Defence Research Telecommunications Establishment (DRTE) in Ottawa, Canada, consists of 6 volumes of electron density profiles for the ionosphere above the F2 maximum (topside ionosphere). The data are on microfiche. The data set is ordered chronologically, and it includes about 4.E4 profiles. The profiles were computed from digital values of frequency and virtual height that were scaled from ionograms. Profile data consist of electron density and real height values for each point scaled from the ionogram. Each profile occupies about four lines of print, and a cumulative chronological index of all data from all volumes appears in the front of each volume. For interpolated values of electron density at standard increments of real height, see data set 62-049A-01L. Telemetry stations are not identified, but satellite location, time of observation (Greenwich and local mean time), solar zenith angle at the satellite, magnetic dip and gyrofrequency at the satellite, total electron content down to the lowest topside reflection altitude, and other relevant information are listed for each profile. These profiles correspond to about 2% of the 2.E6 Alouette 1 ionograms observed. Data for most latitudes are included, but those data from longitudes near 80 deg W are more numerous than those from other longitudes. This microfiche data set was prepared at NSSDC from DRTE unpublished (undated and unnumbered) internal reports titled "Alouette 1 ionospheric data N(h)." A single copy of these reports is available for use at NSSDC as TRF B06216. On request, individual pages can be copied as required or the microfiche copy can be supplied.

Data set name - NASA-ARC ELECTRON DENSITY AND SCALE HEIGHT SUMMARIES

NSSDC ID 62-049A-01I, ARC N(H)+H SUMMARIES, TAPE

Time period covered - 10/31/62 TO 01/27/64
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set, prepared at the Ames Research Center, consists of average electron density and scale height profiles for the ionosphere above the F2 maximum (topside ionosphere). The data are on a 7-track, 556-bpi, even-parity, BCD magnetic tape written on an IBM 7094 computer. This data set summarizes the results of three separate studies: (1) midlatitude observations using data recorded at Stanford University, (2) pole-to-pole observations using data recorded at various stations over the American continents, and (3) observations recorded at Hawaii. The average profiles were obtained by separating the data into seasons, 1-hour local-time intervals, and 5-deg dip-latitude intervals. Digital electron density values are shown at the satellite and for each 100 km from 1000-km altitude down to the lowest height of topside signal reflection. Scale heights are given at 900, 700, and 500 km along with local time and satellite locations. The original data (about 1.5E4 profiles) that were used to derive the averages are available on microfiche as data set 62-049A-01J.

Data set name - NASA-ARC ELECTRON DENSITY VALUES AT 50-KM INTERVALS ON MICROFICHE

NSSDC ID 62-049A-01J, ARC N(H)+H INT PROFILES, FICHE

Time period covered - 11/01/62 TO 01/28/64
(As verified by NSSDC)

Quantity of data - 71 CARDS OF B/W MICROFICHE

This data set, prepared at the Ames Research Center (ARC), consists of electron density profiles for the ionosphere above the F2 maximum (topside ionosphere). The data are on microfiche. The profiles were computed from digital values that were scaled from ionograms. This data set, which includes about 1.5E4 electron density profiles, is made up of three separate studies: (1) midlatitude observations using data recorded at Stanford University (NASA SP-3026); (2) pole-to-pole observations using data recorded at various stations over the American continents during the 1962-1963 winter (NASA SP-3027 and -3034), during the 1963 spring (NASA SP-3032 and -3034), and during the 1963 summer and autumn (NASA SP-3033 and -3034); and (3) observations recorded at Hawaii (NASA SP-3038). The following data are provided for each of the three studies: (1) electron density values at the satellite and for each 50 km from 1000-km altitude down to the lowest topside reflection height; (2) plasma scale heights over the same altitude range tabulated at 50-km intervals, starting at 950 km; (3) supporting information (location, universal and local time, and magnetic dip at the satellite); and (4) summary graphs. For the summary graphs the data were separated into seasons, 1-hour local-time intervals and averaged at 5-deg dip-latitude intervals. The summary graphs give the electron density at 100-km height intervals and the scale heights at 900-, 700-, and 500-km altitudes. The ionogram quality is indicated in the second and third studies. Additional parameters given only for the third study (data from Hawaii) are magnetic dip, invariant latitude, L shell, Kp, sunlight occurrence at the satellite, and total electron content from the lowest topside reflection height up to 1000-km altitude. This microfiche data set was prepared at NSSDC from the above-mentioned NASA SP documents, published by ARC. A single copy of these documents is available for use at NSSDC as TRF B06051. On request, individual pages can be copied as required or the microfiche copy can be supplied. The "summary graph" portion of this data set is available on magnetic tape as data set 62-049A-01I.

Data set name - ALOUETTE SYNOPTIC (ALOSYN) SCALED DATA ON MICROFICHE

NSSDC ID 62-049A-01K, ALOSYN-SCALED DATA, FICHE

Time period covered - 09/29/62 TO 12/31/69
(As verified by NSSDC)

Quantity of data - 311 CARDS OF B/W MICROFICHE

This data set, provided by the Communications Research Centre in Ottawa, Canada, consists of Alouette 1 synoptic data (Alosyn) on microfiche. The Alosyn data are tabulations of selected ionospheric parameters which were read (scaled) from the ionogram and, in some cases, also calculated from other scaled values. Four parameters are presented chronologically: (1) plasma frequency at the satellite, (2) plasma frequency at the F2 maximum, (3) maximum frequency of observed sporadic E, and (4) strength of ground echoes. Supporting information for the spacecraft position includes: Greenwich and local mean time, location, magnetic dip, solar zenith angle, Kp, and quality and accuracy notations for some of the scalings. These data are also available on 35-mm microfilm as data set 62-049A-01B, and on magnetic tape as data set 62-049A-01C.

Data set name - CRC ELECTRON DENSITY VALUES AT 50-KM INTERVALS ON MICROFICHE

NSSDC ID 62-049A-01L, CRC N(H) INT PROFILES, FICHE

Time period covered - 09/30/62 TO 07/28/68
(As verified by NSSDC)

Quantity of data - 47 CARDS OF B/W MICROFICHE

This data set, provided by the Communications Research Centre (CRC) in Ottawa, Canada, consists of six volumes of electron density profiles for the ionosphere above the F2 maximum (topside ionosphere). The data, which are on microfiche, are ordered chronologically and include about 4.E4 profiles. Profile data consist of density and real height values for each 50 km from 1000 km down to the lowest topside height from which reflections were observed. For values at points from which interpolations were made, see data set 62-049A-01F. Twenty-four profiles are listed on each page. A cumulative chronological index of all data available at publishing date appears in the front of each volume. Telemetry stations are not identified, but satellite location, universal time of observation, satellite local time, dip latitude, and other relevant information are listed for each profile. These profiles correspond to about 2% of the total of over 2.E6 Alouette 1 ionograms obtained. Most latitudes are included, but data from longitudes near 80 deg W are more numerous than from other longitudes. This microfiche data set was prepared at NSSDC from unpublished (undated and unnumbered) internal CRC reports titled "Alouette 1 ionospheric data interpolated N(h)." A single copy of these reports is available for use at NSSDC as TRF B06226. On request, individual pages can be copied as required or the microfiche copy can be supplied.

Data set name - IONOGRAM INVENTORY ON TAPE

NSSDC ID 62-049A-01O, NSSDC IONOGRAM INVENTORY, TAPE

Time period covered - 09/29/62 TO 11/30/70
(As verified by NSSDC)

Quantity of data - 6 REELS OF TAPE

This data set, prepared at NSSDC, indexes the Alouette 1 ionograms (data set 62-049A-01A) by station pass. The data are on a 7-track, 556-bpi, even-parity, BCD magnetic tapes written on an IBM 7094 computer. Information in the data set includes telemetry station, start and stop times for the pass, and orbit number. The index was prepared from an inventory of film received and satellite ephemerides.

Data set name - UCLA INTERPOLATED ELECTRON DENSITY PROFILES AT 25-KM INTERVALS ON TAPE

NSSDC ID 62-049A-01P, UCLA N(H) INT PROFILES,TAPE

Time period covered - 09/30/62 TO 05/02/64
(As verified by NSSDC)

Quantity of data - 2 REELS OF TAPE

This data set, prepared at the UCLA Department of Meteorology, consists of electron density profiles for the ionosphere above the F2 maximum (topside ionosphere). The data are on a 7-track, 800-bpi, odd-parity, binary magnetic tape written on an IBM 360 computer. The electron density profiles were computed from digital values of frequency and virtual height that were scaled from ionograms. Satellite location, satellite height, and time (UT) of observation are listed for each profile. For many profiles the extrapolated maximum density and its real height are included. Profile data consist of density and real height values for each 25 km from 1000 km down to the lowest topside height from which reflections were observed. Electron density is also provided at satellite altitude. This data set consists of chronologically ordered observations, providing 43,781 profiles.

Data set name - INDEX OF IONOGRAMS SHOWING DUCTED ECHOES ON MAGNETIC TAPE

NSSDC ID 62-049A-01Q, CRC INDEX OF DUCTED ECHOES, TAPE

Time period covered - 12/01/62 TO 12/31/64
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set, provided by the Communications Research Centre in Ottawa, Canada, is an index to Quito ionograms containing ducted echoes. The data are on a 9-track, 800-bpi, odd-parity, EBCDIC magnetic tape written on an IBM 360 computer. The criterion for selection was that at least one trace from the conjugate hemisphere appeared on the ionogram. Each record contains the satellite identification, ground station (Quito=5), pass start time (UT), the number of ionograms in the pass showing ducted echoes, and the number not showing ducted echoes. The time period covered is from 1962 through 1968 (1966 missing). For 804 passes (about 4000 ionograms), 116 ionograms with ducted echoes are identified. Similar data for other times and four other stations are stored on the same tape and are described in data sets 65-096A-01N, 69-009A-01E, and 71-084A-01E.

Data set name - RSRS ELECTRON DENSITY (AND SCALE HEIGHT) PLOTS AND LISTINGS WITH PASS SUMMARY PLOTS

NSSDC ID 62-049A-01R, RSRS N(H) INT PROFILES, MFILM

Time period covered - 10/03/62 TO 09/04/66
(As verified by NSSDC)

Quantity of data - 7 REELS OF MICROFILM

This data set, provided by the Radio and Space Research Station, Slough, U.K., consists of electron density profiles for the ionosphere above the F2 maximum (topside ionosphere). This data set is on 16-mm microfilm. The profiles were computed from digital values of frequency and virtual height, which had in turn been scaled from the ionograms. This data set contains several different digital and plotted forms prepared from the Singapore, Winkfield, and Falkland Islands (U.K.-operated) stations receiving Alouette 1 ionograms. For each pass, a number of ionograms have been digitized and plotted (three frames per ionogram). At the end of the data for each pass, there appears a three-frame pass summary in two plots and a listing. Frame 1 for each ionogram shows the subsatellite location with corresponding local time and universal time. The trace used for analysis and gyrofrequency at the satellite (calculated and observed) may also be shown. Also shown on Frame 1 are the raw (uninterpolated) and interpolated (each 10 km) electron density profiles. The input scalings for these profiles are shown in Frame 2. Frame 2 also contains interpolated geopotential scale heights (each 10 km), and total content values for three layers from 350, 400, and 450 km up to 550 km. On Frame 3 is a semi-logarithmic plot of electron density vs geopotential height. The pass summary contains a plot of selected standard N(h) values from each profile vs geographic latitude, and a similar plot for scale heights. Finally, listings are given of total content by latitude, for each of the three layers.

Data set name - IONOSONDE RECEIVER SIGNAL AMPLITUDE VERSUS TIME PLOTS

NSSDC ID 62-049A-01S, SOUNDER AGC VS TIME PLOTS, MFILM

Time period covered - 01/21/63 TO 06/27/64
(As verified by NSSDC)

Quantity of data - 117 REELS OF MICROFILM

This data set, prepared from the ionosonde telemetry tapes at NSSDC, consists of continuous plots of receiver signal amplitude versus time. This data set can be made available on microfilm (16 or 35 mm). The time scale is greatly expanded in comparison to the ionogram so that one ionogram line (16 ms) occupies about 0.5 in. of film record. No amplitude scaling is on the film. In addition to the amplitude records, there are a 1-kHz time signal trace and frequency marker information. Amplitude records for each ionogram require approximately 50 ft of film. Data for a limited number of ionograms were prepared for use in a study of plasma resonance. Additional similar data for other ionograms may be obtained in limited quantity by arrangement with the experiment principal investigator's office as long as original telemetry tapes are on file.

Data set name - CRC ELECTRON DENSITY VS HEIGHT AT SCALED POINTS ONLY, ON MAGNETIC TAPE (*)

NSSDC ID 62-049A-01T, CRC N(H) DATA,SCALED POINTS,TAPE

Time period covered - 09/29/62 TO 03/30/66
(As verified by NSSDC)

Quantity of data - 2 REELS OF TAPE

This data set, prepared by the Communications Research Centre in Ottawa, Canada, consists of electron density profiles for the ionosphere above the F2 maximum (topside ionosphere). The data are on 9-track, 1600-bpi, odd-parity, EBCDIC tape written on a MODCOMP-4 computer. The data set is in chronological order, and it includes about 4.3E4 profiles obtained primarily during the period 1962 to 1965. The profiles were computed from digital values of frequency and virtual height that were scaled from ionograms. Profile data consist of electron density and real height values for each point scaled from the ionogram. Telemetry stations are not identified, but satellite location, time of observation (Greenwich and local mean time), solar zenith angle at the satellite, magnetic dip and gyrofrequency at the satellite, total electron content down to lowest topside reflection altitude, and other relevant information are listed for each profile. These profiles correspond to about 2% of the 2.6E6 Alouette 1 ionograms observed. Data for most latitudes are included, but those data from longitudes near 80 deg W are more numerous than those from other longitudes.

Data set name - CRC N(H) DATA GIVING DENSITY AT END OF LAMINATIONS AND HEIGHT COEFFICIENTS, TAPE (*)

NSSDC ID 62-049A-01U, CRC N(H) DATA, N + HGT COEF, TAPE

Time period covered - 11/19/62 TO 11/06/71
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set, provided by the Communications Research Centre (CRC) in Ottawa, Canada, consists of electron density profiles for the ionosphere above the F2 maximum (topside ionosphere). The data are on 9-track, 1600-bpi, odd-parity, EBCDIC tape written on a MODCOMP-4 computer. The data set is in chronological order, and it includes about 2.7E4 profiles obtained primarily during the period 1963 to 1967. The electron density profiles were computed from digital values of frequency and virtual height, which had in turn been scaled from the ionograms. Profiles were selected because of their scientific interest. Telemetry stations are not identified, but satellite location, time of observation, solar zenith angle at the satellite, magnetic dip at the satellite, total content down to the lowest altitude of topside ionospheric reflection, and other relevant information are listed for each profile. The format gives sequences of numbers for each point scaled from the ionogram. These sequences include electron density at the successive points, and the coefficients a2, b3, b4, b5, etc. from which geometric heights can be calculated, using formulas 40 and 41 in J. E. Jackson, "The reduction of topside ionograms to electron-density profiles," Proceedings of the IEEE, p. 960, June 1969. These formulas can also be used to calculate interpolated density-height values. A CRC interpolation program (available at NSSDC) can be used with this data set. These data make up a very small portion of the recorded Alouette 1 ionograms. Latitudinal coverage is widespread, but data at longitudes near 80 deg W are more numerous than others.

********** ALOUETTE 2 **********

Data set name - EXTENDED WORLD MAPS ON MAGNETIC TAPE

NSSDC ID 65-098A-00D, EXTENDED WORLD MAPS, TAPE

Time period covered - 08/06/67 TO 03/31/73
(As verified by NSSDC)

Quantity of data - 91 REELS OF TAPE

These data, prepared at GSFC, are listings of satellite position and supporting information for each minute (every 2 min after September 1970) of Greenwich mean time. This data set is on 7-track, 556-bpi, odd-parity, binary magnetic tapes written on an IBM 7094 computer. The information given in the listings includes local time, geodetic location, several varieties of magnetic-field-referenced location, and sun position. Data are also given for special times (equator crossings, northernmost and southernmost points, sunlight entrance and exit, etc.).

Data set name - CRC INDEX OF EXPERIMENT 'DATA AVAILABLE' ON TAPE

NSSDC ID 65-098A-00E, CRC INDEX OF DATA AVAILABLE, TAPE

Time period covered - 11/29/65 TO 12/31/66
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set prepared at the Communications Research Centre, Ottawa, Canada, indexes the start and stop times for the operation of all five satellite experiments. The data set is on a 9-track, 800-bpi, odd-parity, EBCDIC magnetic tape written on an IBM 360 computer. The information presented includes the name of the telemetry station, telemetry tape identification, day of year, dip latitude and gyrofrequency at the satellite, start and stop times (Greenwich and local mean time) for each pass, height above the spheroid, and geodetic position.

Data set name - CRC PUBLISHED INDEX OF EXPERIMENT "DATA AVAILABLE", FICHE

NSSDC ID 65-098A-00F, CRC INDEX OF DATA AVAILABLE,FICHE

Time period covered - 11/29/65 TO 12/31/68
(As verified by NSSDC)

Quantity of data - 7 CARDS OF B/W MICROFICHE

This data set, prepared at the Communications Research Centre (CRC), Ottawa, Canada, provides on microfiche a tabulation of times (Greenwich and local mean time) during which the five satellite experiments were in operation. The information presented includes the day of the year, the name of the telemetry station, telemetry tape identification, start and stop times for each pass, start and stop values of latitude, longitude and height, start values of dip latitude and gyrofrequency at the satellite. This microfiche data set was prepared at NSSDC from unpublished (undated and unnumbered) internal CRC reports titled "Alouette 2 Data Available." A single copy of these reports is available for use at NSSDC as TRF B0575A. On request, individual pages can be copied as required or the microfiche copy can be supplied.

Data set name - GSFC ORBIT ELEMENTS AT ABOUT 2 WEEK INTERVALS, ON MAGNETIC TAPE

NSSDC ID 65-098A-00G, GSFC ORBITAL ELEMENTS, TAPE

Time period covered - 12/05/65 TO 03/21/73
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set, prepared at GSFC, provides Alouette 2 orbital elements at about 2-week intervals. The data set is on a 7-track, 556-bpi, even-parity, BCD magnetic tape written on an IBM 7094 computer. These data consist of the classical keplerian elements plus anomalistic period, motion of perigee, and motion of right ascension. Since only a few pages of printout are required to display the tape data, normally, hard copy listings are provided with one set of elements listed on each line. Units are in km, radians, radians/day and minutes.

ALOUETTE 2, MELROSE
VLF RECEIVER

Data set name - VLF SPECTROGRAMS ON 35-MM MICROFILM

NSSDC ID 65-098A-02A, VLF SPECTROGRAMS, MFILM

Time period covered - 12/00/65 TO 06/00/73
(Date supplied by experimenter)

This data set, provided by the principal investigator, consists of VLF data in a standard graphic form (frequency vs time). The data (sonograms) are on 35-mm microfilm. They were prepared from analog data on magnetic tape, recorded at telemetry stations in real time. Approximately 9000 passes were recorded, from which sonograms have been prepared for about 1500 passes. Most of the sonograms have been compiled from passes over the Ottawa station, although over half of the data observed were from other locations. By special arrangement, any data available on tape can be provided in limited quantities in sonogram form. Each pass processed into sonograms consists of three parts, each using different ranges on the frequency scales, i.e., nominally 0 to 20, 0 to 10, and 0 to 2.5 kHz. The time scale for the first two parts is 0.25 in./s, and it is 0.125 in./s for the 0- to 2.5-kHz sonograms. Identification information is noted prior to each pass over a station. Universal time is shown at 10-s intervals along the edge of the sonograms. An analog representation of the VLF-receiver AGC level is also shown along the edge of the sonograms. These data can be made available for viewing by contacting the experimenter, Dr. R. L. Barrington, Communications Research Centre, Dept. of Communications, P.O. Box 11490, Station H, Ottawa, Ontario, Canada, K2H 8S2.

Data set name - VLF EMISSION INTENSITY OBSERVATIONS AT 6 NARROW BAND FREQUENCIES OVER KASHIMA

NSSDC ID 65-098A-02B, KASHIMA VLF DATA, BOOK

Time period covered - 02/25/71 TO 09/26/71
(As verified by NSSDC)

Quantity of data - 1 BOOK OR BOUND VOLUME

This data set, prepared at the Radio Research Laboratories (RRL), Tokyo, Japan, consists of graphical representations of VLF emission intensity at the satellite. The data set is on microfiche. The data set contains data from seven Alouette 2 passes recorded at Kashima, Japan during 1971. There is one strip chart for each of six frequencies (0.3, 1.5, 5, 8, 16, and 25 kHz) on each page. Intensity is graphed on an arbitrary dB scale vs five parameters (satellite altitude, universal and local times, L-value at the satellite, and satellite invariant latitude). This microfiche data set was prepared at NSSDC from an unpublished, unnumbered internal RRL report titled "Radio and Space Data," v. 1, pt. 3, March 1975. A single copy of this report is available for use at NSSDC as TRF B2501A. On request, individual pages can be copied as required or the microfiche copy can be supplied.

ALOUETTE 2, BRACE
CYLINDRICAL ELECTROSTATIC PROBES

Data set name - ELECTRON DENSITY AND TEMPERATURE ON TAPE

NSSDC ID 65-098A-05A, ELECTRON DENSITY + TEMP, TAPE

Time period covered - 02/21/66 TO 11/13/67
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

These reduced data, prepared by the experimenter, list about 21 months of electron number densities and electron temperatures observed at the satellite. The data set is on a 9-track, 800-bpi, odd-parity EBCDIC magnetic tape written on an IBM 360 computer. The data have been calculated from the telemetered retarding potential curves. Included in the listings for each data point are telemetry station, orbit number, date, Greenwich and local mean time, geodetic coordinates, geomagnetic latitude and longitude, invariant latitude, geomagnetic-field intensity and dip angle, solar zenith angle, solar 10.7-cm flux, planetary Ap index, satellite potential, and record count. Temperature data are available for only about 5% of the data points and are scattered throughout the observing period. Electron density values are present at nearly all data points. Gaps in time coverage are usually a few orbits or less. The data have gaps in coverage caused primarily by lack of a tape recorder on the satellite and limitations of experiment scheduling. These same data are available on microfilm as data set 65-098A-05B. The data are summarized in data set 65-098A-05C.

Data set name - ELECTRON DENSITY AND TEMPERATURE ON MICROFILM

NSSDC ID 65-098A-05B, ELECTRON DENSITY + TEMP, MFILM

Time period covered - 02/21/66 TO 11/13/67
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This data set, on 35-mm microfilm, was prepared by the principal investigator and lists about 21 months of electron number densities and electron temperatures observed at the satellite. The data have been calculated from the telemetered retarding potential curves. Included in the listing for each data point are telemetry station, orbit number, date, Greenwich and local mean time, geodetic coordinates, geomagnetic latitude and longitude, invariant latitude, geomagnetic-field intensity and dip angle, solar zenith angle, solar 10.7-cm flux, planetary Ap index, satellite potential, and record count. Temperature data are available for only about 5% of the data points and are scattered throughout the observing period. Electron density values are present at nearly all data points. Gaps in time coverage are usually a few orbits or less. The data gaps in coverage are caused primarily by lack of a tape recorder on the satellite and limitations of experiment scheduling. The same data are available on magnetic tape as data set 65-098A-05A. The data are summarized in data set 65-098A-05C.

Data set name - ELECTRON DENSITY AND TEMPERATURE PLOTS ON MICROFILM

NSSDC ID 65-098A-05C, ELECT DENSITY + TEMP PLOTS, MFILM

Time period covered - 02/21/66 TO 03/31/67
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This data set, on 35-mm microfilm, was prepared by the principal investigator from the data in data set 65-098A-05A (or equivalently 65-098A-05B). It consists of graphs, each showing about 1 week of electron density and temperature observations plotted against an abscissa of linearly spaced dip latitude. The full range of dip from -90 to +90 and back to -90 deg is shown on the abscissa to avoid mixing the observations from opposite sides of the orbit. Also included with each week of data are graphs showing the corresponding altitude and local time variations plotted vs dip latitude. Precession of perigee progresses slowly enough (-1.89 deg/day) so that satellite altitude changes over the 1-week period (for a given latitude) can be considered to be only a minor cause of electron density variation. The orbit plane precession is also slow enough (-0.79 deg/day) that, for most practical purposes, the local time of day for observations at each latitude as plotted would not change significantly over the 1-week period.

ALOUETTE 2, HARTZ
COSMIC RADIO NOISE

Data set name - COSMIC RADIO NOISE - AGC LEVELS PLOTTED ON 35-MM MICROFILM, MERGED WITH IONOGRAMS

NSSDC ID 65-098A-03A, COSMIC RADIO NOISE-AGC LEV.,MFILM

Time period covered - 11/29/65 TO 06/00/73
(As verified by NSSDC)

Quantity of data - 2148 REELS OF MICROFILM

This data set, provided by the office of the principal investigator at the Communications Research Centre in Ottawa, Canada, consists of the sounder automatic gain control (AGC) level plotted vs time, displayed as plot lines on the ionograms of microfilm data set 65-098A-01A. Since the sounder receiver is a sweep-frequency receiver, the AGC data are in effect plotted vs frequency. The frequency resolution is relatively good, but the flux resolution is very poor due to the restricted plot height. These data are also available, with the flux displayed on an expanded scale, from the experimenter.

Data set name - SUMMARY OF COSMIC RADIO NOISE STRIP CHARTS PLUS DOCUMENTATION, ON MICROFILM

NSSDC ID 65-098A-03B, COSMIC RADIO NOISE-SUMMARY, MFILM

Time period covered - 06/30/66 TO 07/01/69
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This data set, provided on microfilm by the principal investigator, includes documentation for the strip charts contained in data set 65-098A-03C and a sample of that data set. This list of data has not been verified by NSSDC.

Data set name - COSMIC RADIO NOISE ON STRIP CHARTS

NSSDC ID 65-098A-03C, COSMIC RADIO NOISE, HC ROLLS

Time period covered - 06/30/66 TO 07/01/69
(As verified by NSSDC)

Quantity of data - 1625 ROLLS OF STRIP OR BRUSH CHARTS

This data set, generated by the principal investigator from data set 65-098A-03A, has an expanded vertical scale which may be analyzed using calibration data given in the documentation. This data set is on rolls of strip charts containing plots of the AGC voltage as a function of time, with both time and frequency markers presented. Each roll, approximately 12.5 cm wide by 6.5 cm in diameter, contains about 30 minutes of data on a horizontal scale of about 2 cm per second of elapsed time. These data are described, documented, and listed in data set 65-098A-03B. The list of data was supplied by the principal investigator, and it has not been verified by NSSDC.

ALOUETTE 2, MCDIARMID
ENERGETIC PARTICLE DETECTORS

Data set name - REDUCED COUNT RATE DATA ON MAGNETIC TAPE

NSSDC ID 65-098A-04A, COUNT RATE DATA, TAPE

Time period covered - 11/29/65 TO 06/18/69
(As verified by NSSDC)

Quantity of data - 8 REELS OF TAPE

This data set, provided by the principal investigator, consists of the count rates measured by the four Geiger-Mueller detectors and by the silicon-junction detector of investigation 65-098A-04. The data are on 9-track, 800-bpi, odd-parity, binary tapes written on an IBM 360 computer. The data set provides orbit and time information, Kp index, altitude, geomagnetic field intensity, invariant latitude, local magnetic time, orientation and pitch angle, count rates for all counting modes with time resolution of 1 s, and miscellaneous other information. The data are stored in chronological order and include only those times when the invariant latitude exceeded 50 deg. There are gaps in the data.

Data set name - ANALYZED SELECTED BOUNDARY DATA ON MAGNETIC TAPE

NSSDC ID 65-098A-04B, PARTICLE BOUNDARY DATA, TAPE

Time period covered - 11/29/65 TO 06/18/69
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set, generated by the principal investigator, provides various high-latitude boundaries of the outer radiation zone as revealed by the Geiger-Mueller detectors and the silicon-junction detector of investigation 65-098A-04. The data are on a 9-track, 800-bpi, odd-parity, EBCDIC magnetic tape written on an IBM 360 computer. The data set provides orbit number, time information, pass direction, interplanetary field polarity, magnetic solar co-declination, Kp and Ap indices, local magnetic time and invariant latitude for various 40-keV electron boundaries; invariant latitude for 250-keV, 3.9-MeV, and 1- to 8-MeV electron boundaries; invariant latitude, local geomagnetic-field intensity, local magnetic time for intensity maxima of 40-keV, 3.9-MeV, and 250-keV electrons, and similar information for intensity minima. In addition to the "background" boundary (where the count rate of a given detector drops to the cosmic-ray background intensity), two additional boundaries (smooth and sharp) are given for the 40-keV detector (See I. B. McDiarmid and J. R. Burrows, "Local time asymmetries in the high-latitude boundary of the outer radiation zone for the different electron energies," Can. J. Phys., v. 46, pp. 49-57, January 1968). The interplanetary field polarity was obtained from J. M. Wilcox and D. S. Colburn, "Interplanetary sector structure in the rising portion of the sunspot cycle," J. Geophys. Res., v. 74, p. 2398, May 1969.

ALOUETTE 2, WARREN
SWEEP-FREQUENCY SOUNDER

Data set name - SWEEP-FREQUENCY IONOGRAMS ON MICROFILM

NSSDC ID 65-098A-01A, SWEEP-FREQUENCY IONOGRAMS, MFILM

Time period covered - 11/29/65 TO 01/31/75
(As verified by NSSDC)

Quantity of data - 2571 REELS OF MICROFILM

This data set, prepared at the Communications Research Centre in Ottawa, Canada, consists of Alouette 2 ionograms on reels of 35-mm microfilm. These ionograms are reduced data plots showing as a function of frequency the echo time delay (virtual range) of pulsed radio signals. They are an original form of the data prepared directly from the telemetry tape. The data are as complete as is permitted by the limitations of spacecraft power, lack of onboard tape recording, telemetry station location, telemetry station scheduling, and data processing facilities. The data coverage is primarily near the 80 deg W meridian for periods of time up to 7-1/2 h per day. Since only time is noted on each ionogram, satellite position and other related data must be obtained from another source, such as NSSDC data set 65-098A-00C. A program for the reduction of topside ionograms to electron density profiles is available from NSSDC.

Data set name - RRL PUBLISHED ELECTRON DENSITY AND SCALE HEIGHT PROFILES ON MICROFICHE

NSSDC ID 65-098A-01D, RRL N(H)+H INT PROFILES, FICHE

Time period covered - 10/12/66 TO 12/27/68
(As verified by NSSDC)

Quantity of data - 22 CARDS OF B/W MICROFICHE

This data set, provided by the Radio Research Laboratories (RRL), Tokyo, Japan, consists of electron density profiles for the ionosphere above the F2 maximum (topside ionosphere). The data are on microfiche. The electron density profiles are computed from the digital values of frequency and virtual height that were scaled from ionograms. The data are ordered chronologically. All data were observed from the Japanese telemetry station at Kashima. Satellite location (geodetic and geomagnetic coordinates), observation time (Universal and local mean time), solar zenith angle at the satellite, height of the F2 maximum, density at the F2 maximum, total electron content between the satellite and the F2 maximum, Kp, and an indication of profile quality are included with each profile. Height of maximum density, electron density at the maximum, and total electron content are missing from a majority of the profiles because of the lack of ionospheric reflections on the ionograms near the F2 critical frequencies. This happens frequently due to weak signals when the satellite altitude is high, i.e., above 1200 to 1500 km. Profile data consist of electron density and real height values interpolated for each 50 km and extending from the highest interpolation level below the satellite down to the lowest interpolation level from which topside reflections were observed. Ten profiles are listed on each page. An index of the passes, by pass, is included with the explanatory text. Similarly formatted scale-height profiles are also included. These profiles appear to include all observations made from Kashima during the last quarter of 1966, all of 1967, 1968, and 1969. They represent a very small portion of the total Alouette 2 ionosonde observations. This microfiche data set was prepared at NSSDC from unpublished internal RRL reports titled "Electron densities and scale heights from Alouette 2 observations over Japan, Volumes 1-6," dated February 1970, February 1971, February 1972, August 1972, February 1974, and February 1977, respectively. A single copy of these reports is available for use at NSSDC as TRF B05669. On request, individual pages can be copied as required or the microfiche copy can be supplied.

Data set name - INDEXING INFORMATION FOR SWEEP-FREQUENCY IONOGRAMS WITH DUCTED ECHOES

NSSDC ID 65-098A-01E, ERC INDEX OF DUCTED ECHOES, TAPE

Time period covered - 12/01/65 TO 04/21/69
(As verified by NSSDC)

Quantity of data - 2 REELS OF TAPE

This data set, prepared at the former Electronics Research Center of NASA, is a catalog of Alouette 2 ionograms showing ducted echoes. The data are on 7-track, 556-bpi, even-parity, BCD magnetic tapes written on an IBM 7094 computer. The cases presented in the data set were selected from a large number of ionograms that included most of the Alouette 2 ionograms observed from launch until April 21, 1969. There are two different formats for the ionograms. Information included on both formats contains universal time and local time, geodetic and geomagnetic location of the satellite, telemetry station, gyrofrequency at the satellite location, and discrete frequencies relating to the ducted echoes. One format also contains additional information relating to the ducted echo characteristics. One tape indexes 6171 ionograms from 17 different telemetry stations. The second tape provides more detailed information on 2922 of these ionograms from Santiago, Singapore, and Orroral. The second tape is ordered chronologically, by station. A description and discussion of some of these data can be found in J. Ramasastry and E. J. Walsh, "Conjugate echoes observed by the Alouette 2 topside sounder at the longitudes of Singapore," J. Geophys. Res., v. 74, pp. 5665-5674, Nov. 1969. Photographic prints showing many of these ducted ionograms can be found in data set 65-098A-01F.

Data set name - PHOTOGRAPHIC PRINTS OF SWEEP-FREQUENCY IONOGRAMS WITH DUCTED ECHOES

NSSDC ID 65-098A-01F, ERC DUCTED ECHOES,8X10-IN. PRINTS

Time period covered - 12/01/65 TO 04/21/69
(As verified by NSSDC)

Quantity of data - 2451 B/W PRINTS

This data set, prepared at the former Electronics Research Center of NASA, is a collection of Alouette 2 ionograms showing ducted echoes. The data are on 8- by 10-in. photographic prints prepared from the ionogram film. Each print covers frequencies from below 0.5 MHz to over 5 MHz. The data consist of 80 books of approximately 40 ionograms per book, from regions near 17 different telemetry stations. These data are a relatively complete collection of ducted echo ionograms observed by Alouette 2 during the time period November 29, 1965, to April 21, 1969. A description and discussion of some of these data can be found in J. Ramasastry and E. J. Walsh, "Conjugate echoes observed by the Alouette 2 topside sounder at the longitudes of Singapore," J. Geophys. Res., v. 74, pp. 5665-5674, Nov. 1969. Since only time is noted on each ionogram, satellite position and other related data must be obtained from another source, such as data set 65-098A-00C or 65-098A-00D. Scaled information for many of these ducted ionograms can be found in data set 65-098A-01E.

Data set name - CRC INTERPOLATED ELECTRON DENSITY PROFILES ON MICROFICHE

NSSDC ID 65-098A-01G, CRR N(H) INT PROFILES, MFICHE

Time period covered - 12/15/65 TO 03/09/70
(As verified by NSSDC)

Quantity of data - 6 CARDS OF B/W MICROFICHE

This data set, provided by the Communications Research Centre (CRC) in Ottawa, Canada, consists of two volumes of electron density profiles for the ionosphere above the F2 maximum (topside ionosphere). The data are on microfiche. The electron density profiles are derived from digital values of frequency and virtual height that were scaled from ionograms. Data are ordered chronologically and include about 8000 profiles. Profile data consist of electron density and real height values for the satellite height and interpolated values at standard heights from the satellite down to the lowest height from which topside ionospheric reflections were observed. Standard heights are for 50-km intervals up to 500 km, for 100-km intervals up to 1600 km, and for 200-km intervals up to 3000 km. Telemetry stations are not identified, but satellite location, universal time of observation, satellite local time, dip latitude at the satellite, and other relevant information are listed for each profile. The ionograms reduced were selected for their scientific interest and comprise a very small sample of the Alouette 2 soundings taken. Profiles from numerous longitudes and latitudes are included, but those from northern hemisphere latitudes near 80 deg W are most numerous. This microfiche data set was prepared at NSSDC from unpublished (undated and unnumbered) internal CRC reports titled "Alouette 2 ionospheric data interpolated N(h)." A single copy of these reports is available for use at NSSDC as TRF B06707. On request, individual pages can be copied as required or the microfiche copy can be supplied. The scaled profiles from which this interpolated data set was obtained can be found in data set 65-098A-01H.

Data set name - CRC ELECTRON DENSITY VALUES AT LAMINA BOUNDARIES ON MICROFICHE

NSSDC ID 65-098A-01H, CRC N(H) SCALED PROFILES, MFICHE

Time period covered - 12/15/65 TO 03/09/70
(As verified by NSSDC)

Quantity of data - 10 CARDS OF B/W MICROFICHE

This data set, provided by the Communications Research Centre (CRC) in Ottawa, Canada, consists of two volumes of electron density profiles for the ionosphere above the F2 maximum (topside ionosphere). The data are on microfiche. The electron density profiles were computed from digital values of frequency and virtual height that were scaled from ionograms. The data are ordered chronologically and include about 9000 profiles. Profile data consist of electron density and real height values for each point scaled from the ionogram. Each profile occupies about four lines of print, and a chronological index of all data is provided. For interpolated values of electron density at standard increments of real height, see

data set 65-098A-01G. Telemetry stations are not identified, but satellite location, Greenwich mean time of observation, solar zenith angle at the satellite, dip latitude at the satellite, total electron content down to the lowest topside reflection altitude, and other relevant information are listed for each profile. The ionograms reduced were selected for their scientific interest and comprise a very small sample of the nearly 1 million Alouette 2 ionograms obtained. Data for most latitudes are included but those data from longitudes near 80 deg W are more numerous than those from other longitudes. This microfiche data set was prepared at NSSDC from unpublished (undated and unnumbered) internal CRC reports titled "Alouette II ionospheric data N(h)." A single copy of these reports is available for use at NSSDC as IRF 806759. On request, individual pages can be copied as required or the microfiche copy can be supplied. This data set is also available on magnetic tape as data set 65-098A-01D. The tape also includes Alouette 2 electron density profiles for the period from March 9, 1970, to July 10, 1972.

Data set name - IONOGRAM INVENTORY ON TAPE

NSSDC ID 65-098A-01I, NSSDC IONOGRAM INVENTORY,TAPE

Time period covered - 11/29/65 TO 04/23/73
(As verified by NSSDC)

Quantity of data - 3 REELS OF TAPE

This data set prepared at NSSDC is an inventory of Alouette 2 ionograms (data set 65-098A-01A) by station pass. The data set is on 7-track, 556-bpi, even-parity, BCD magnetic tapes written on an IBM 7094 computer. The inventory can be sorted by station, by time, or by other methods, as desired. Information in the data set includes telemetry station and start and stop time for the passes and orbit number. The index was prepared from an inventory of film received at NSSDC and from satellite ephemerides.

Data set name - NASA-ARC ELECTRON DENSITIES INTERPOLATED TO 100-KM INTERVALS ON (PACKED) TAPE

NSSDC ID 65-098A-01J, ARC N(H) INT PROFILES,PACKED TAPE

Time period covered - 11/29/65 TO 06/04/72
(As verified by NSSDC)

Quantity of data - 2 REELS OF TAPE

This data set, provided by the Ames Research Center, consists of electron density profiles for the ionosphere above the F2 maximum (topside ionosphere). The data are packed on 7-track, 800-bpi, odd-parity, EBCDIC magnetic tapes, written on an IBM 360 computer. An unpacking routine, called "tape," is available at NSSDC for this data set. These profiles were initially computed from digital values of frequency and virtual range that were scaled from ionograms. Digital electron density values are listed for the satellite location and for each 100 km from satellite altitude down to the lowest height of topside signal reflections (normally near 300 km). These data are part of a collection prepared from the Alouette 2, ISIS 1, and ISIS 2 satellites. From all three satellites, there are about 33,000 profiles listed for times between November 11, 1965, and June 7, 1974, from the vicinity of 15 different ground stations. These data are from a small block of the total ionogram data from the three satellites (less than 1%), but they form one of the largest blocks of reduced satellite ionograms available. These reductions are of optimum quality because extraordinary-, ordinary-, and z-trace values were checked against one another during computation of the density values. The Alouette 2 data obtained prior to March 11, 1970, are available on microfilm as data set 65-098A-01K.

Data set name - NASA-ARC ELECTRON DENSITIES INTERPOLATED TO 100 KM INTERVALS ON MICROFILM

NSSDC ID 65-098A-01K, ARC N(H) INT PROFILES, MFILM

Time period covered - 11/29/65 TO 03/11/70
(As verified by NSSDC)

Quantity of data - 9 REELS OF MICROFILM

This data set, provided by the Ames Research Center, consists of electron density profiles for the ionosphere above the F2 maximum (topside ionosphere). The data are on 16-mm microfilm. The profiles were initially computed from digital values of frequency and virtual range that were scaled from ionograms. Digital electron density values are listed at the satellite and for each 100 km from the satellite altitude down to the lowest height of topside signal reflection (normally near 300 km). These profiles are on the film in date-time sequence. These data represent a small percentage of the total Alouette 2 ionogram data (less than 1%) but form one of the largest blocks of reduced satellite ionograms available. These reductions are of optimum quality because both extraordinary- and ordinary-trace values were checked against one another during computation of the density values. This data set is also available on magnetic tape as data set 65-098A-01J. The tape also includes Alouette 2 electron density profiles obtained during the period March 11, 1970, to February 15, 1972.

Data set name - INDEX OF IONOGRAMS SHOWING DUCTED ECHOES

NSSDC ID 65-098A-01N, CRC INDEX OF DUCTED ECHOES, TAPE

Time period covered - 11/29/65 TO 10/30/71
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set, prepared at the Communications Research Centre in Ottawa, Canada, is an index to low-latitude ionograms containing ducted echoes. The data are on a 9-track, 800-bpi, odd-parity, EBCDIC magnetic tape written on an IBM 360 computer. The criterion for selection was that at least one trace from the conjugate hemisphere appeared on the ionogram. Each record contains the satellite identification, ground station (Quito=5, Santiago=8, Ft. Meyer=3, Orroral=21, Singapore=48), pass start time (UT), the number of ionograms in the pass showing ducted echoes, and the number not showing ducted echoes. For 4452 Alouette 2 passes (about 1.1E5 ionograms), approximately 2000 ionograms with ducted echoes were identified. Similar data for other times are stored on the same tape and are described under data sets 62-049A-01G, 69-009A-01E, and 71-024A-01E.

Data set name - CRC ELECTRON DENSITY PROFILES AT SCALED POINTS ON MAGNETIC TAPES

NSSDC ID 65-098A-01O, CRC N(H) DATA, N + HGT COEF, TAPE

Time period covered - 12/15/65 TO 07/10/72
(As verified by NSSDC)

Quantity of data - 3 REELS OF TAPE

This data set, provided by the Communications Research Centre (CRC) in Ottawa, Canada, consists of electron density profiles for the ionosphere above the F2 maximum (topside ionosphere). The data set is on 9-track, 800-bpi, odd-parity, EBCDIC magnetic tapes, written on an IBM 360 computer. The electron density profiles were computed from digital values of frequency and virtual height, scaled from ionograms. The data are ordered chronologically and include about 11,000 profiles. Telemetry stations are not identified, but satellite location, Greenwich mean time of observation, solar zenith angle at the satellite, dip latitude at the satellite, total electron content down to the lowest height of topside signal reflection (normally near 300 km), and other relevant information is noted with each profile. The format gives sequences of numbers for each point scaled from the ionogram. These sequences include electron density at the successive points, and the coefficients a2, b3, b4, b5, etc. from which geometric heights can be calculated, using formulas 40 and 41 in J. E. Jackson, "The reduction of topside ionograms to electron-density profiles," Proceedings of the IEEE., p. 960, June 1969. These formulas can also be used to calculate interpolated density-height values. A CRC interpolation program (available at NSSDC) can be used with this data set. The ionograms were selected for their scientific interest and comprise only a very small portion of reductions possible from the available ionograms. Data obtained prior to March 9, 1970, are also available on microfiche as data set 65-098A-01H.

Data set name - RSRS ELECTRON DENSITY (AND SCALE HEIGHT) PLOTS AND LISTINGS WITH PASS SUMMARY PLOTS

NSSDC ID 65-098A-01P, RSRS N(H) INT PROFILES, MFILM

Time period covered - 12/12/65 TO 08/11/68
(As verified by NSSDC)

Quantity of data - 5 REELS OF MICROFILM

This data set, provided by the Radio and Space Research Station, Slough, U.K., consists of electron density profiles for the ionosphere above the F2 maximum (topside ionosphere). The data are on 16-mm microfilm. These data consist of several different digital and plotted forms. For each pass, a number of ionograms have been digitized and plotted (three frames per ionogram). At the end of the data for each pass, there appears a three-frame pass summary as two plots and a listing. Frame 1 for each ionogram shows the subsatellite location with corresponding local and universal times. The trace used for analysis and the gyrofrequency at the satellite (calculated and observed) may also be shown. Also shown on Frame 1 are the raw (uninterpolated) and interpolated (each 10 km) electron density profiles. The input scalings for these profiles are shown on Frame 2. Frame 2 also contains interpolated geopotential scale heights (each 10 km), and total content values for up to five layers (350 to 950, 400 to 950, 450 to 950, 950 to 1500, and 950 to 2500 km), depending upon the spacecraft altitude. On

Frame 3 is a semi-logarithmic plot of electron density vs geopotential height. The pass summary contains a plot of selected standard N(h) values from each profile vs geographic latitude, and a similar plot for scale heights. Finally, listings are given of total content by latitude, for each of the five layers.

Data set name - IONOSONDE RECEIVER SIGNAL AMPLITUDE VERSUS TIME PLOTS

NSSDC ID 65-098A-01Q, SOUNDER AGC VS TIME PLOTS, MFILM

Time period covered - (N/A)

This data set, prepared from the ionosonde telemetry tapes at NSSDC, consists of continuous plots of receiver signal amplitude versus time. This data set can be made available on 16- or 35-mm microfilm. The time scale is greatly expanded in comparison to the ionogram so that one ionogram line (16 ms) occupies about 0.5 in. of film record. No amplitude scaling is on the film. In addition to the amplitude records, there are a 1-kHz time signal trace and frequency marker information. Amplitude records for each ionogram require approximately 50 ft of film. Data were prepared for use in a study of plasma resonance. Ionogram data in a similar form may be obtained in limited quantities as long as the original telemetry tapes are on file.

********** ARIEL 1 **********

ARIEL 1, ELLIOT
COSMIC-RAY DETECTOR

Data set name - REDUCED COUNT RATE AND ORBITAL DATA ON MAGNETIC TAPE

NSSDC ID 62-015A-03A, CERENKOV, GEIGER CR DATA, TAPE

Time period covered - 04/27/62 TO 07/12/62
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

The 31-s Cerenkov-counter and Geiger-tube accumulations, and orbital data are on one 7-track, 556-bpi, BCD magnetic tape written on an IBM 360 computer. The data are in chronological order. Each of the 595 files on the tape consists of several physical records. Each physical record has a fixed length of 2460 characters, and each logical record is 55 characters long.

ARIEL 1, SAYERS
RADIO FREQUENCY CAPACITANCE PROBE

Data set name - ELECTRON DENSITY DATA ON TAPE

NSSDC ID 62-015A-01A, ELECTRON DENSITY, TAPE

Time period covered - 04/27/62 TO 07/08/62
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

These electron density data are on one 7-track, 556-bpi, BCD magnetic tape, written on an IBM 7094 computer. They are merged with standard ephemerides, geopotential altitude, local solar time, and values for the geomagnetic field intensity and McIlwain's L-shell parameter. The geodetic latitude coverage varied between plus and minus 54 deg. Measurements were made at all local times. The same data are available on microfilm as data set 62-015A-01B.

Data set name - ELECTRON DENSITY DATA ON MICROFILM

NSSDC ID 62-015A-01B, ELECTRON DENSITY, MFILM

Time period covered - 04/27/62 TO 07/08/62
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

These electron density data are on microfilm merged with standard ephemerides, geopotential altitude, local solar time, and values for the geomagnetic field intensity and McIlwain's L-shell parameter. The geodetic latitude coverage varied between plus and minus 54 deg. Measurements were made at all local times. The same data are available on digital magnetic tape as data set 62-015A-01A.

********** ARIEL 3 **********

ARIEL 3, KAISER
VLF RECEIVER, FIXED-FREQUENCY SIGNAL STRENGTH

Data set name - MINIMUM, MAXIMUM, AND MEAN VLF SIGNAL STRENGTH VALUES ON MICROFILM

NSSDC ID 67-042A-05A, VLF RECEIVER DATA, MFILM

Time period covered - 05/05/67 TO 09/30/67
(As verified by NSSDC)

Quantity of data - 4 REELS OF MICROFILM

This 35-mm microfilm VLF data set was prepared by the investigators. One set of six frames contains data for up to 90 min of satellite operation. The first four frames consist of graphs, one each for the data from the three fixed-frequency receivers operating at 3.2, 9.6, and 16 kHz, and a second graph (frame 4 in the six-frame sequence) for the 16-kHz receiver. On this fourth frame, the signal strengths of the narrow-band and wide-band signals are plotted. On the first three frames, minimum, mean, and maximum signal strengths are plotted in decibels above 1 microgamma vs time. Values for invariant latitude, geographic position, local time, magnetic latitude, and solar zenith angle are shown below the graphs. The fifth frame contains values for the magnetic field strength, the 16-kHz reference index, and for the geocentric altitude of the satellite. The last frame is a map of the subsatellite track with time ticks along the plotted path.

Data set name - MINIMUM, MAXIMUM, AND MEAN VLF SIGNAL STRENGTH VALUES ON TAPE

NSSDC ID 67-042A-05B, VLF SIGNAL STRENTH AT 3 FREQ,TAPE

Time period covered - 05/05/67 TO 04/14/68
(As verified by NSSDC)

Quantity of data - 29 REELS OF TAPE

This VLF tape data set was prepared by the investigators, and is on 7-track, 556-bpi, BCD, magnetic tapes, written on an IBM 7094 computer. Two different types of information appear on the tapes. At the beginning of each tape is an index of the data and a header label. The data records follow the index information. Included in the data records are the maximum, mean, and minimum signal strengths for each of the following three frequencies: 3.2, 9.6, and 16 kHz. The minimum signal strength for the 16-kHz narrow-band receiver is included also, as are values for the following other parameters: universal and local time, geographic and geomagnetic location, invariant latitude, geomagnetic field strength, geocentric distance, solar zenith angle, and the ambient electron density.

ARIEL 3, MURPHY
TERRESTRIAL RADIO (THUNDERSTORM) NOISE

Data set name - THUNDERSTORM NOISE DATA ON MAGNETIC TAPE

NSSDC ID 67-042A-04A, THUNDERSTORM NOISE, TAPE

Time period covered - 05/05/67 TO 04/14/68
(As verified by NSSDC)

Quantity of data - 53 REELS OF TAPE

This data set of thunderstorm noise data was generated at Radio and Space Research Station, Slough, England, and is contained on 7-track, 556-bpi, even-parity, BCD magnetic tapes written on an IBM 7094 computer. There is normally a fixed time interval of 27.92 s between records. Information given at the beginning of each file consists of day number (January 1, 1967, is day number 1), approximate Greenwich mean time in whole hours, telemetry station name, and an error code. Thunderstorm noise data consist of average noise intensity (in decibels above 1 microvolt/m), and pulse counts/s for three pairs of receivers. The receiver frequencies were 15.004 and 14.996, 10.002 and 9.998, and 5.002 and 4.998 MHz. Supplementary information includes the radius of observation in kilometers at 5, 10, and 15 MHz; and the ionospheric attenuation in decibels of the 5-, 10-, and 15-MHz reception. Also included in each record are local and universal time, latitude and longitude (deg), satellite height (km), plasma frequency (MHz) from data set 67-042A-06A, electron temperature (deg K) from data set 67-042A-01A, gyrofrequency (MHz), critical frequency fxF2 (MHz), and height of the F2 maximum (km). These last two ionospheric parameters were obtained from the NOAA ionospheric prediction maps. A graphical version of this data set appears in data set 67-042A-04B.

Data set name - PLOTS OF THUNDERSTORM NOISE VS LATITUDE ON MICROFILM

NSSDC ID 67-042A-04B, PLOTS TSTM NOISE VS. LAT, MFILM

Time period covered - 05/05/67 TO 04/14/68
(As verified by NSSDC)

Quantity of data - 11 REELS OF MICROFILM

This terrestrial radio (thunderstorm) noise data set is a graphical version of the data that are in data set 67-042A-04A. It is contained on 35-mm microfilm. There are usually five frames of data for each pass of the satellite. The title to each frame gives telemetry station name, approximate time (UT) in hours, satellite orbit number, day number (January 1, 1967, is day number 1), right ascension and declination of the satellite spin axis, corrected Zurich sunspot number, and Kp index. The first frame shows a global map with the satellite path superimposed. Shown also on this map, are the limits of radio visibility for the six frequencies of interest, and the area of the earth in darkness. The second frame (and the fourth, which is a continuation of the second) shows plots of measured radio noise intensity in db vs latitude and time, for each pair of receivers in the frequency bands at 15, 10, and 5 MHz. These frames also show plots of pulse counts/s from each pair of receivers. The receiver frequencies in units of MHz are 15.004 and 14.996, 10.002 and 9.998, and 5.002 and 4.998. Six maps are given at the end of each day's passes. Three maps, one each for the 5-, 10-, and 15-MHz paired receivers, show northbound passes at the stated local mean time, and three maps show the southbound passes at another local time. The circled or bracketed regions along an orbit trace show where direct reception of signals affecting both receivers in a band possibly originated.

ARIEL 3, SAYERS
LANGMUIR PROBE

Data set name - ELECTRON TEMPERATURE VALUES ON MAGNETIC TAPE

NSSDC ID 67-042A-01A, ELECTRON TEMPERATURES, TAPE

Time period covered - 05/05/67 TO 10/15/67
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set of electron temperature values is on 7-track, 800-bpi, BCD magnetic tapes written on an IBM 7094 computer. The electron temperature values are expressed in degrees K. There is normally a fixed time interval of 27.92 s between records. Information given at the beginning of each file consists of day number (January 1, 1967, is day number 1), approximate universal time in hours, telemetry station name, and an error code. Additional information in each record consists of local and universal time, and latitude and longitude in degrees. A graphical version of this data set appears in data set 67-042A-01B.

Data set name - ELECTRON TEMPERATURE PLOTS ON MICROFILM

NSSDC ID 67-042A-01B, ELECTRON TEMP PLOTS, MFILM

Time period covered - 05/05/67 TO 04/14/68
(As verified by NSSDC)

Quantity of data - 11 REELS OF MICROFILM

This data set of plots of electron temperature in degrees K vs latitude and time, is on 35-mm microfilm. It is a graphical version of the data in data set 67-042A-01A. Included on the film are the electron density data (67-042A-06B) and the thunderstorm noise data (67-042A-04B). There are usually five frames of data for each pass. The title for each frame gives telemetry station name, approximate universal time in hours, satellite orbit number, day number (January 1, 1967, is day number 1), right ascension and declination of the satellite spin axis, corrected Zurich sunspot number, and the Kp index. The third frame (and the fifth, which is a continuation of the third) contains the electron temperature and density data. Additional data on these frames include plots of the satellite height (km) vs latitude and time, the critical frequency fxF2 (MHz), and the height of the F2 maximum (km).

Data set name - ELECTRON DENSITY AND TEMPERATURE PLOTS ON MICROFILM

NSSDC ID 67-042A-01C, ELECT DENSITY + TEMP PLOTS, MFILM

Time period covered - 05/05/67 TO 04/15/68
(As verified by NSSDC)

Quantity of data - 12 REELS OF MICROFILM

This data set which was prepared by the principal investigator, is organized in pairs of microfilm frames. Each pair of frames contains electron density and temperature data from one orbit. The second frame in each pair is a graphic representation of the subsatellite path. Latitude and longitude are shown on linear scales along with continental outlines and the orbit path. Data start and stop positions are marked along the orbit path. Time marks are present too. The first frame of each pair is divided into three sections. The center part is a logarithmic plot (1.E4 to 2.E6) of electron number density (electrons/cc) vs time. The upper portion of the frame consists of a linear plot of electron temperature (0 to 4500 deg K) vs time. The lowest portion of the frame provides corresponding values of geographic longitude and latitude, invariant latitude, local and magnetic local time, and solar zenith angle. The frame pairs are not in a useful sequence, so an index of the entire data set is available at the front of the microfilm reel. This index shows the time sequence of the data, and of the equator crossing longitudes.

Data set name - ELECTRON DENSITY AND TEMPERATURE LISTINGS ON MICROFILM

NSSDC ID 67-042A-01D, ELECT DENSITY + TEMP LISTS, MFILM

Time period covered - 05/06/67 TO 12/31/67
(As verified by NSSDC)

Quantity of data - 3 REELS OF MICROFILM

This microfilm data set, provided by the principal investigator, consists of a chronologically ordered machine listing of electron number densities (electrons/cc) and electron temperatures (deg K). Included in the listing for each set of these values are universal time in decimal hours, geographic and magnetic longitudes and latitudes (deg), altitude (km), solar zenith angle, McIlwain's L-shell parameter, and model geomagnetic field intensity values.

ARIEL 3, SAYERS
RADIO FREQUENCY CAPACITANCE PROBE

Data set name - PLASMA FREQUENCY VALUES ON MAGNETIC TAPE

NSSDC ID 67-042A-06A, PLASMA FREQUENCY VALUES, TAPE

Time period covered - 05/05/67 TO 04/14/68
(As verified by NSSDC)

Quantity of data - 53 REELS OF TAPE

This electron density data set is contained on 7-track, 556-bpi, BCD magnetic tapes generated on an IBM 7094 computer, at the Radio and Space Research Station, Slough, England. There is normally a fixed time interval of 27.92 s between records. The electron density data are expressed in each record in terms of plasma frequency values in MHz. Information given at the beginning of each file consists of day number (January 1, 1967, is day number 1), approximate universal time in hours, telemetry station name, and an error code. Additional data in each record are local and universal time, latitude and longitude (deg), height of the satellite (km), gyrofrequency (MHz), critical frequency fxF2 (MHz), and height of the F2 maximum (km). These last two parameters were obtained from the NOAA ionospheric prediction maps.

Data set name - PLASMA FREQUENCY PLOTS ON MICROFILM

NSSDC ID 67-042A-06B, PLASMA FREQ PLOTS, MFILM

Time period covered - 05/05/67 TO 04/14/68
(As verified by NSSDC)

Quantity of data - 11 REELS OF MICROFILM

This data set consisting of plots of plasma frequency (MHz) vs latitude and time, is on 35-mm microfilm. It is a graphical version of the data in data set 67-042A-06A. Also included on the film, are the electron temperature data (67-042A-01B) and the thunderstorm noise data (67-042A-04B). There are usually five frames of data for each pass. The title to each frame gives telemetry station name, approximate universal time in hours, satellite orbit number, day number (January 1, 1967, is day number 1), right ascension and declination of the satellite spin axis, corrected Zurich sunspot number, and Kp index. The third frame (and the fifth, which is a continuation of the third) contains the plasma

frequency and electron temperature data. Additional data on these frames include plots of the satellite height (km) vs latitude and time, the critical frequency fxF2 (MHz), and the height of the F2 maximum (km). These last two parameters were obtained from NOAA prediction maps.

ARIEL 3, STEWART
MOLECULAR OXYGEN DISTRIBUTION

Data set name - MOLECULAR OXYGEN SMOOTHED VOLTAGE OUTPUT TAPES

NSSDC ID 67-042A-03A, MOL OXY VOLT OUTPUT, TAPE

Time period covered - 05/05/67 TO 01/12/68
(As verified by NSSDC)

Quantity of data - 2 REELS OF TAPE

This data set, provided by the principal investigator, contains molecular oxygen measurements on 7-track, 556-bpi, BCD magnetic tapes written on an IBM 7094 computer. The tapes contain these oxygen measurements for all sunrise and sunset periods during which data were taken, for the epoch May 5 to November 21, 1967, and for selected times up to January 12, 1968. The tapes also contain some measurements for passes when the spacecraft was in darkness, or in full sunlight. Each tape is headed "Ariel 3 Met Data," followed by files of data (in Fortran). The first block of each file contains the year, day number (January 1, 1967, is day number 1), hour, and ground station code number, followed by zero. This file heading block is followed by a series of data blocks, each containing 30 records. Included in the data records, are universal time, location of the spacecraft, location of the oxygen measurement, and the mean sensor signal (averaged over three satellite rotations) in volts. It should be noted that the overall accuracy of the data is greatest during the first 10 days of the investigation. After this period, the instrument sensitivity deteriorated rapidly, and the data became of considerably poorer quality. After mid-November 1967 the sensors had decayed so much that the usefulness of the data is highly questionable. A method for deducing molecular oxygen profiles from these data is given in K. H. Stewart and P. J. L. Wildman, "Preliminary results of molecular oxygen observations from the Ariel III satellite," Proc. Roy. Soc. A., v. 311, p. 541, 1969.

Data set name - PRINTOUT OF MOLECULAR OXYGEN DENSITY PROFILES ON MICROFILM

NSSDC ID 67-042A-03B, MOL OXY DEN PROFILES, MFILM

Time period covered - 05/05/67 TO 11/21/67
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This 35-mm film data set was generated at NSSDC, from 14 pages of computer printout supplied by the principal investigator. It contains values for molecular oxygen densities measured at selected occasions. The data are not time ordered. Included in the data set are the following: month, day, and universal time of the observation; geographic location; local solar time; magnetic location and time; and the molecular oxygen number density at 10-km intervals from 160 to 240 km. The number density is expressed in units of 1.E9 molecules/cc, and each value is followed by the instrument root mean square error expressed as a percentage. For a discussion about the data reduction techniques used, see the article by R. R. May, "Method of determining the density of thermospheric gases from measurements of solar UV light absorption at grazing-ray and near-vertical incidence," Planet. Space Sci., v. 19, n. 1, p. 27, 1971.

********** ARIEL 4 **********

ARIEL 4, FRANK
LOW ENERGY PROTON AND ELECTRON
DIFFERENTIAL ENERGY ANALYZER (LEPEDEA)

Data set name - PARTICLE COUNT RATES ON MULTI-EXPERIMENT DATA TAPES

NSSDC ID 71-109A-04A, LOW EN. CHARG. PART. DATA, TAPE

Time period covered - 12/01/71 TO 12/09/73
(As verified by NSSDC)

Quantity of data - 476 REELS OF TAPE

This investigator-supplied data set contains Low-Energy Proton and Electron Differential Energy Analyzer (LEPEDEA) data on 7-track, 556-bpi, binary magnetic tapes, written on an ICL 1900 computer. In addition to the LEPEDEA data, the tapes contain data from the following investigations: electron density and temperature (71-109A-01A), radio noise (71-109A-02A), and VLF/ELF propagation (71-109A-03A). Both low-speed (play-back of the tape recorder) and high-speed (a real-time recording over the telemetry station) data tapes are included. Each tape contains a header file with tape generation information, the number of sub-files on tape, and the year, day, and hour of the first and last sub-files. Each data file contains a sub-file header with time and satellite position information. The header is followed by time units which are four or two records long depending on whether the tape contains high-speed or low-speed data, respectively. The first record of each time unit contains universal and local solar times and ephemeris information. The next record (low speed tape) or the next three records (high-speed tape) contain the investigation data. The LEPEDEA data contain measurements of the integral particle intensity (particles/sq cm-s-sr), and of the differential particle intensity (particles/sq cm-s-sr-ev). The last time unit in each sub-file is followed by two "Crib" (investigator's designation) data records, containing low-speed investigation data, numerous error flags, and time.

ARIEL 4, KAISER
VLF-ELF RECEIVER

Data set name - VLF/ELF PROPAGATION MERGED DATA ON MAGNETIC TAPE

NSSDC ID 71-109A-03A, VLF/ELF PROPAG. DATA, TAPE

Time period covered - 12/01/73 TO 12/09/73
(As verified by NSSDC)

Quantity of data - 476 REELS OF TAPE

This investigator-supplied data set contains VLF/ELF propagation data on 7-track, 556-bpi, binary magnetic tapes, written on an ICL 1900 computer. In addition to the VLF/ELF propagation data, the tapes contain data from the following investigations: electron density and temperature (71-109A-01A), radio noise (71-109A-02A), and low energy protons and electrons (71-109A-04A). Both low-speed (play-back of the tape recorder) and high-speed (a real-time recording over the telemetry station) data tapes are included. Each tape contains a header file with tape generation information, the number of sub-files on tape, and the year, day, and hour of the first and last sub-files. Each data file contains a sub-file header with time and satellite position information. The header is followed by time units which are four or two records long depending on whether the tape contains high-speed or low-speed data, respectively. The first record of each time unit contains universal and local solar times and ephemeris information. The next record (low-speed tape) or the next three records (high-speed tape) contain the investigation data. The VLF/ELF propagation data are reported here. The last time unit in each sub-file is followed by two "Crib" (investigator's designation) data records, containing low-speed investigation data, numerous error flags, and time.

ARIEL 4, SMITH
MHZ BAND NOISE (E FIELD)

Data set name - MHZ BAND RADIO NOISE (E-F) MERGED DATA ON MAGNETIC TAPE

NSSDC ID 71-109A-02A, MHZ RADIO NOISE DATA, TAPE

Time period covered - 12/01/71 TO 12/09/73
(As verified by NSSDC)

Quantity of data - 476 REELS OF TAPE

This investigator-supplied data set contains radio noise data on 7-track, 556-bpi, binary magnetic tapes, written on an ICL 1900 computer. In addition to the MHz band radio noise data, the tapes contain data from the following investigations: electron density and temperature (71-109A-01A), VLF-ELF propagation (71-109A-03A), and low energy protons and electrons (71-109A-04A). Both low-speed (play-back of the tape recorder) and high-speed (a real-time recording over the telemetry station) data tapes are included. Each tape contains a header file with tape generation information, the number of sub-files on tape, and the year, day, and hour of the first and last sub-files. Each data file contains a sub-file header with time and satellite position information. The header is followed by time units which are four or two records long depending on whether the tape contains high-speed or low-speed data, respectively. The first record of each time unit contains universal and local solar times and ephemeris information. The next record (low-speed tape) or the next three records (high-speed tape) contain the investigation data. The fourth data record in the time unit contains galactic radio noise data, in the form of noise frequency and temperature measurements. The last time unit in each sub-file is followed by two "Crib" (investigator's designation) data records,

containing low-speed investigation data, numerous error flags, and time.

ARIEL 4, WILLMORE
LANGMUIR PROBE

Data set name - LANGMUIR PROBE MERGED DATA ON MAGNETIC TAPE

NSSDC ID 71-109A-01A, LANGMUIR PROBE DATA, TAPE

Time period covered - 12/01/71 TO 12/09/73
(As verified by NSSDC)

Quantity of data - 476 REELS OF TAPE

This investigator-supplied data set contains electron density and temperature data on 7-track, 556-bpi, binary magnetic tapes, written on an ICL 1900 computer. In addition to this Langmuir probe data, the tapes contain data from the following investigations: radio noise (71-109A-02A), VLF-ELF propagation (71-109-03A), and low-energy protons and electrons (71-109A-04). Both low-speed (play-back of the tape recorder) and high-speed (a real-time recording over the telemetry station) data tapes are included. Each tape contains a header file with tape generation information, the number of sub-files on tape, and the year, day, and hour of the first and last sub-files. Each data file contains a sub-file header with time and satellite position information. The header is followed by time units which are four or two records long depending on whether the tape contains high-speed or low-speed data, respectively. The first record of each time unit contains universal and local solar times and ephemeris information. The next record (low speed tape) or the next three records (high-speed tape) contain the investigation data. During each time unit of 16 sequences, the Langmuir probe goes through eight sawtooth sweeps. In the first four sweeps, both temperature and density measurements are the output. The temperature data may be contaminated by the density experiment. In the latter four sweeps, there are just temperature measurements. The last time unit in each sub-file is followed by two "Crip" (investigator's designation) data records, containing low-speed investigation data, numerous error flags, and time.

********** COSMOS 49 **********

COSMOS 49, DOLGINOV
PROTON PRECESSIONAL MAGNETOMETERS

Data set name - REDUCED SCALAR MAGNETIC FIELD DATA TABLES ON MICROFILM

NSSDC ID 64-069A-01A, SCALAR MAG. FIELD DATA, MFILM

Time period covered - 10/24/64 TO 11/03/64
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

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 were in tables in three unpublished reports, the first of which contained the text describing the measurements, their processing, some results, and the content of the data tables. There are 17,448 field measurements with the following parameters for each measurement: (1) magnetometer number (1 or 2), (2) measurement number, (3) Moscow time of the measurement to the minute (UT plus 3 h), (4) satellite altitude (to a tenth of a km), (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 measurements are distributed rather uniformly as follows: (1) in time from October 24 to November 3, 1964, (2) in latitude from +48 deg to -48 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 - COMPRESSED REDUCED SCALAR MAGNETIC FIELD DATA TABLES ON MAGNETIC TAPE

NSSDC ID 64-069A-01D, MAGNETOMETER DATA, TAPE

Time period covered - 10/24/64 TO 11/03/64
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This time-ordered complete set of reduced scalar magnetic field data is contained on one 7-track, 556-bpi, binary magnetic tape written on an IBM 360 computer. The tape was provided by J. Cain and co-workers at NASA/GSFC. Each physical record contains 2400 characters, comprising 30 logical records. Each logical record contains 80 characters representing one field measurement. The parameters given for each measurement are as follows: magnetometer number, measurement number, day (UT), month (UT), hour (UT), minute (UT), altitude (km), latitude (deg), longitude (deg), measured field (gammas), computed field for GSFC Cosmos 49 model, and the difference between the measured and computed fields.

********** COSMOS 321 **********

COSMOS 321, DOLGINOV
MAGNETOMETER

Data set name - MAGNETIC FIELD MAGNITUDES LISTED VS TIME

NSSDC ID 70-006A-01A, SCALAR MAG FIELD LIST., FICHE

Time period covered - 02/08/70 TO 03/13/70
(As verified by NSSDC)

Quantity of data - 5 CARDS OF B/W MICROFICHE

This microfiche data set was generated at NSSDC from a report received from WDC-B, Moscow. The data set contains time-ordered listings of magnetic field magnitudes at 20-s time intervals. Spacecraft position and time are listed for each data point. The altitude range of the data is from 270 to 450 km, and the latitude range covered is from +70 deg to -70 deg. A few pages of Russian language text, and the spherical harmonic coefficients (through n=9) best fitting all the data are included too.

********** DISCOVERER 25 **********

DISCOVERER 25, MCISAAC
AEROSPACE DENSITY (DENSITY GAUGE-2)

Data set name - DENSITY GAUGE ANALOG VOLTAGE STRIP CHART

NSSDC ID 61-014A-03A, DENSITY GAUGE DATA, MFILM

Time period covered - 06/18/61 TO 06/18/61
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This 16-mm microfilm data set contains atmospheric density data in strip chart format and in units of 0 to 5 V, as a function of system time. The data set also includes the necessary calibration charts and formulas for reducing the manometer measurements into atmospheric densities. The data were taken on orbit 26 at 0400 local time for 158 deg W and 14 deg N (Hawaii).

********** DME-A **********

DME-A, DONLEY
THERMAL ION PROBE

Data set name - GRAPHS OF THERMAL ION PROBE DATA ON MICROFILM

NSSDC ID 65-098B-01A, THERMAL ION PROBE DATA, MFILM

Time period covered - 12/14/65 TO 06/02/69
(As verified by NSSDC)

Quantity of data - 2 REELS OF MICROFILM

This 16-mm microfilm data set, generated at NSSDC from hard copies supplied by the principal investigator, provides graphs of Ti, n(H+), n(He+), and n(O+). The Te and Ne data from investigation 65-098B-06 are also included. These geophysical parameters were determined, where possible, by fitting an appropriate theoretical model to the measured

current (I) vs voltage (V) response function of the instrument. The inferred parameters are plotted vs universal time on a scale of 30 minutes per frame. Only values believed to be valid have been plotted. The numerical data corresponding to these plots are given in data set 65-098B-01B. The measured I-V data are given in data set 65-098B-01C.

Data set name - TABULATED MEASURED GEOPHYSICAL QUANTITIES ON 16MM MICROFILM

NSSDC ID 65-098B-01B, TABULATED MEASUREMENTS, MFILM

Time period covered - 01/01/66 TO 06/09/69
(As verified by NSSDC)

Quantity of data - 3 REELS OF MICROFILM

This 16-mm microfilm data set, generated at NSSDC from hard copies supplied by the principal investigator, provides numerical values of Ti, n(H+), n(He+), n(O+), Te, and Ne. The data set provides also associated variables such as satellite position, altitude, statistical errors of the fit, etc. For each time listed, a fit to the model was attempted. The listing includes the results of many fits which are non-physical, non-convergent, etc. because the user may wish to use different selection criteria, or may wish values for the associated variables. This data set is also available as plots in data set 65-098B-01A. The measured current vs voltage data used to derive this data set are given in data set 65-098B-01C.

Data set name - PARTIALLY REDUCED EXPERIMENT MEASUREMENTS ON MICROFILM

NSSDC ID 65-098B-01C, PARTIALLY RDCD MEASUREMENTS,MFILM

Time period covered - 12/25/65 TO 04/31/67
(As verified by NSSDC)

Quantity of data - 1179 REELS OF MICROFILM

This data set, generated at NSSDC from hard copies supplied by the principal investigator, provides the observed current vs voltage data from which were computed the values of Ti, n(H+), n(He+), n(O+), Te, and Ne given in data sets 65-098B-01A and 65-098B-01B. This data set is on various sizes of microfilm. The basic format of this data set is a direct presentation of the observed current (I) plotted vs the retarding potential (V). Many associated parameters are also listed. In some cases, the I-V curve shows only the data; in other cases, the I-V curve also shows the fitted theoretical function evaluated using the inferred geophysical parameter values. Thus, these plots can be used to assess quality of fit as well as to inspect the I-V data. Sensor aspect angles are also provided.

DME-A, DONLEY
THERMAL ELECTRON PROBE

Data set name - THERMAL ELECTRON PROBE DATA ON MICROFILM

NSSDC ID 65-098B-06B, THERMAL ELECTRON PROBE DATA,MFILM

Time period covered - 12/14/65 TO 06/02/69
(As verified by NSSDC)

Quantity of data - 2 REELS OF MICROFILM

This 16-mm microfilm data set, generated at NSSDC from hard copies supplied by the principal investigator, provides graphs of Te and Ne. The data from investigation 65-098B-01 are also included as graphs of Ti, n(H+), n(He+), and n(O+). These geophysical parameters were determined, where possible, by fitting an appropriate theoretical model to the measured current (I) vs voltage (V) response function of the instrument. The inferred parameters are plotted vs universal time on a scale of 30 minutes per frame. Only values believed to be valid have been plotted. The numerical data corresponding to these plots are given in data set 65-098B-06C. The measured I-V data are given in data set 65-098B-06D.

Data set name - TABULATED MEASURED GEOPHYSICAL QUANTITIES ON MICROFILM

NSSDC ID 65-098B-06C, TABULATED MEASUREMENTS, MFILM

Time period covered - 01/06/66 TO 06/09/69
(As verified by NSSDC)

Quantity of data - 3 REELS OF MICROFILM

This 16-mm microfilm data set, generated at NSSDC from hard copies supplied by the principal investigator, provides numerical values of Ti, n(H+), n(He+), n(O+), Te, and Ne. The data set provides also associated variables such as satellite position, altitude, statistical errors of the fit, etc. For each time listed, a fit to the model was attempted. The listing includes the results of many fits which are non-physical, non-convergent, etc. because the user may wish to use different selection criteria, or may wish values for the associated variables. This data set is also available as plots in data set 65-098B-06B. The measured current vs voltage data used to derive this data set are given in data set 65-098B-06D.

Data set name - PARTIALLY REDUCED EXPERIMENT MEASUREMENTS ON MICROFILM

NSSDC ID 65-098B-06D, PARTIALLY RDCD MEASUREMENTS,MFILM

Time period covered - 12/14/65 TO 06/09/69
(As verified by NSSDC)

Quantity of data - 1179 REELS OF MICROFILM

This data set, generated at NSSDC from hard copies supplied by the principal investigator, provides the observed current vs voltage data from which were computed the values of Ti, n(H+), n(He+), n(O+), Te, and Ne given in data sets 65-098B-06B and 65-098B-06C. The data set is on various sizes of microfilm. The basic format of this data set is a direct presentation of the observed current (I) plotted vs the retarding potential (V). Many associated parameters are also listed. In some cases, the I-V curve shows only the data; in other cases, the I-V curve also shows the fitted theoretical function evaluated using the inferred geophysical parameter values. Thus, these plots can be used to assess quality of fit as well as to inspect the I-V data. Sensor aspect angles are also provided.

DME-A, HOFFMAN
MAGNETIC ION-MASS SPECTROMETER

Data set name - ION COMPOSITION AND DENSITY PLOTS ON MICROFILM

NSSDC ID 65-098B-05A, ION COMP. + DENSITY PLOTS, MFILM

Time period covered - 12/01/65 TO 03/03/68
(As verified by NSSDC)

Quantity of data - 66 REELS OF MICROFILM

This data set, supplied by the principal investigator, contains ion-mass-spectrometer data. The data set is on reels of 35-mm microfilm produced by a Stromberg Carlson SC-4020 plotter. A normal complete pass over a telemetry station produced five graphs. Each graph, a semilog plot with a linear time scale as abscissa, covered a 120-s interval. The ordinate, a 6-decade log scale for ion concentrations in units of number of ions per cc, ranged from 0.1 to 1.E5. The concentrations of 10 positive ion species can be represented on the plots. The ratios of mass to charge measured varied from 1 for the hydrogen ion to 20 for the neon ion. The spin-modulated signals permitted the measurement of phase shifts between times of maximum values for different species. The spacecraft was designed to have its spin axis normal to the orbital plane. However departures (up to 50 deg) from the desired spin-axis orientation occurred, and these introduced large errors in the heavy-ion measurements. Because the effect on the light-ion data was far less severe, these data can be used to study the ambient ionosphere. In addition to the temporal identification of the measurement as given by the printed month, day, year, universal time in hours and minutes, and orbit number, the following information is printed on each frame: the name of the telemetry station receiving the data, local sun and local magnetic times, geographic and geomagnetic latitude and longitude, height, McIlwain's L parameter, and spacecraft velocity. The measurements were taken from December 1965 to March 1968 with several time intervals in which no data were obtained. No data were obtained during the following time intervals: (1) during 1966, on January 1 to 7 and 14 to 24, February 1 to 4, March 17 to 22, 29, and 31, April 8 to 13, May 8 to June 8, June 10 to June 20, July 5 and 22, October 4 to 14 and 21 to 23, November 10, and December 31; (2) during 1967, on January 1 to 3 and 12 to 20, February 9 and 10, and 12 to 14, March 1 and 2, May 8, 12 to 15, 17, 29, June 12, July 21 to 24, September 8 to 14 and 16 and 17, November 5 to 7 and 17, and December 7 to 26; and (3) during 1968 on January 31 and February 1, 2, and 28. There was at least one and as many as 14 data-producing turnons during each of the remaining days. These data are also available in numerical form on magnetic tape as data set 65-098B-05B. An index to the data is given in data set 65-098B-05C.

Data set name - ION COMPOSITION AND DENSITY MEASUREMENTS ON MAGNETIC TAPE

NSSDC ID 65-098B-05B, ION COMP. + DENSITY MEAS., TAPE

Time period covered - 12/01/65 TO 03/03/68
(As verified by NSSDC)

Quantity of data - 100 REELS OF TAPE

This data set, provided by the principal investigator, contains ion composition and density measurements. The data set is on 7-track, 800-bpi, even-parity, BCD magnetic tapes written on an IBM 360 computer. There are 34 files per run and a maximum of 2 runs per tape. The tapes are time ordered and they contain data obtained from December 1965 to March 1968, with several time intervals in which no measurements were taken. Included on the tape are the following parameters: the date and universal time of the measurements, the ground station that received the data and the pass number, the mass numbers of the ion species being measured, their concentrations expressed in units of number per cc, and the location of the measurements (the latitude and longitude, both geographic and magnetic, the altitude in kilometers, and the McIlwain L value in earth radii). The spacecraft was designed to have its spin axis normal to the orbital plane. However departures (up to 50 deg) from the desired spin-axis orientation occurred, and these introduced large errors in the heavy-ion measurements. Because the effect on the light-ion data was far less severe, these data can be used to study the ambient ionosphere. The species concentrations are displayed graphically in data set 65-098B-05A. An index to the data is given in data set 65-098B-05C.

Data set name - INDEX OF ION DENSITY DATA ON MICROFILM

NSSDC ID 65-098B-05C, INDEX OF ION DENSITY DATA, MFILM

Time period covered - 12/01/65 TO 03/03/68
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This data set was microfilmed at NSSDC from tabulated data provided by the principal investigator, and is an index of the ion density data in data sets 65-098B-05A and 65-098B-05B. It shows date and time of measurement, receiving station, and pass number. None of the other parameters shown--tape, file, run number, and film reel number--are applicable to data sets 65-098B-05A and 65-098B-05B respectively.

EME-A, VAIER
ENERGETIC ELECTRON CURRENT MONITOR

Data set name - ENERGETIC ELECTRON CURRENT (RETARDING POTENTIAL ANALYZER) DATA ON MICROFILM

NSSDC ID 65-098B-07A, RETARD. POT. ANAL. DATA, MFILM

Time period covered - 12/02/65 TO 03/06/66
(As verified by NSSDC)

Quantity of data - 42 REELS OF MICROFILM

This 35-mm microfilm data set, generated at NSSDC from hard copies supplied by the principal investigator, is a direct presentation of the observed electron current plotted versus the retarding potential. Many associated parameters are also listed in the adjacent frame. Currents for retarding potentials greater than 300 V should not be used. Sensor aspect angles are also provided.

********** ESRO 4 **********

ESRO 4, RAITT
POSITIVE ION SPECTROMETER

Data set name - ION AND ELECTRON DATA ON TAPE

NSSDC ID 72-082A-01A, POS.ION DATA, TAPE

Time period covered - 11/22/72 TO 04/14/74
(As verified by NSSDC)

Quantity of data - 3 REELS OF TAPE

These positive ion data are on 1600-bpi, 9-track, binary magnetic tape written on an IBM 360/65 computer, and they were supplied by the principal investigator. These are variable length records. The data contain Julian day, calendar day, month, and year; time of day in hours, minutes, seconds; orbit number; sidereal angle; coordinate X, Y, Z spin axis and sun vectors; spin rate; 8.5- and and 10.5-kHz amplitude (mV); positive and negative 6-V monitor; preamplifier and package temperatures; bias voltage and 3.2-kHz amplitude. Also included in each physical record are the amplitude and voltage of the light ion peak, amplitude and voltage of heavy ion peak, electron temperature and density, space potential, elapsed orbital time of sweep in seconds, fluctuations of the spin modulation amplitude, derived scale height, longitude, altitude, velocity, angle of attack of spin axis, invariant latitude, temperature computation status, and the sunlight/darkness flags.

********** EXPLORER 1 **********

EXPLORER 1, JACCHIA
SATELLITE DRAG ATMOSPHERIC DENSITY

Data set name - SATELLITE DRAG ATMOSPHERIC DENSITY VALUES

NSSDC ID 58-001A-03A, ATMOS DRAG DEN TABLES, FICHE

Time period covered - 02/01/58 TO 03/21/70
(As verified by NSSDC)

Quantity of data - 4 CARDS OF B/W MICROFICHE

This microfiche data set of atmospheric density values, computed from the atmospheric drag on Explorer 1, was prepared at NSSDC from Smithsonian Astrophysical Observatory Special Reports numbered 100, 171, 326, and 348 (NSSDC TRF 810138, 805917, 810163, and 815428). The density values were computed for standard heights of 350 and 355 km. The data are primarily in tabular form. There are some summary graphs for comparing changes in density as a function of diurnal and semiannual temperature means, 10.7-cm solar flux, and daily geomagnetic index. The tabulated density values are listed chronologically. Some of the other parameters given are the observed rate of change of anomalistic period, the acceleration due to solar radiation pressure, the perigee height, and the nighttime temperature computed from the perigee value using a Jacchia model of diurnal temperature variation.

EXPLORER 1, MANRING
MICROMETEORITE DETECTOR

Data set name - TRANSDUCER DATA

NSSDC ID 58-001A-02A, TRANSDUCER DATA, FICHE

Time period covered - 02/01/58 TO 02/12/58
(As verified by NSSDC)

Quantity of data - 1 CARD OF B/W MICROFICHE

This microfiche data set prepared at NSSDC, contains data published by M. Dubin, "IGY Micrometeorite Measurements," Space Research, p. 1042, North Holland Publishing Company, Amsterdam, 1960. The data set contains both figures and tables. The figures show transducer output as a function of momentum, the diurnal variation of micrometeorite impacts, and the impact rate by day. The tabulated data show impact measurements arranged chronologically for each receiving station. In addition, there are values for the universal time of the passes with impact, the number of passes, the total telemetry time by the receiving station, the total and corrected number of impulses, and the total time. A total of 145 hits (corrected for impact on liftoff and injection into orbit) are included. The results are compared with those from Pioneer 1. In addition, the space density of cosmic dust in the vicinity of the earth is computed.

Data set name - WIRE GRID DATA

NSSDC ID 58-001A-02B, WIRE GRID DATA, FICHE

Time period covered - 02/01/58 TO 04/01/58
(As verified by NSSDC)

Quantity of data - 1 CARD OF B/W MICROFICHE

This microfiche data set was generated at NSSDC from the report by E. R. Manring, "Micrometeorite measurements from 1958 Alpha and Gamma satellites," Planet. Space Sci. v. 1, p. 27, 1959. In addition to a description of the experiment, instrumentation, operational experience, data analysis, and results, the data set shows five figures as follows: (1) the circuit diagram of the subcarrier generator and grid detectors feeding into the lower power transmitter, (2) the grid detector mounting ring, (3) the subcarrier generator frequency as a function of broken grid detectors, (4) a picture of impact craters on a single layer of 17-micron wires, and (5) the position and threshold sensitivities of the acoustic detector.

During the period of data acquisition, not more than one grid was fractured. A theoretical influx rate that would produce at least one detector hit in the time interval observed was computed and is discussed. In addition, there is a discussion of the computed threshold size for meteorites at hypervelocities, and of the effects of earth shielding of the satellite on the calculated maximum influx rates. A single copy of the report is available for use at NSSDC as TRF H01275. On request, individual pages can be copied as required.

EXPLORER 1, VAN ALLEN
COSMIC-RAY DETECTOR

Data set name - TABULATION OF ANTON 314 GM COUNTS

NSSDC ID 58-001A-01A, ANTON 314 GM COUNTS, FICHE

Time period covered - 02/01/58 TO 03/15/58
(As verified by NSSDC)

Quantity of data - 20 CARDS OF B/W MICROFICHE

This microfiche data set was copied at NSSDC from the report by G. H. Ludwig, "Radiation observations with satellite 1958 Alpha (Explorer 1)," State U. of Iowa, SUI-61-3, 1-5, Mar. 1961 (NSSDC TRF B00260). It contains data listings giving time of observation, geographic position of the satellite, receiving station name, count rate (uncorrected for dead time), and the number of counts (scaled by 32) that occurred during the accumulation time. All recordings of the satellite signals obtained by the receiving station network are listed in a master recording log which is also provided. A 16-mm microfilm version of these data is available at NSSDC as data set 58-001A-01B.

Data set name - TABULATION OF ANTON 314 GM COUNTS ON
MICROFILM

NSSDC ID 58-001A-01B, TAB OF ANTON 314 GM COUNTS, MFILM

Time period covered - 02/01/58 TO 03/15/58
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This one reel 16-mm microfilm data set contains Anton 314 GM counts. The same data are available in microfiche data set 58-001A-01A. These tabulated data give values for time of observation, geographic position of the satellite, receiving station name, count rate (uncorrected for dead time), and number of counts (scaled by 32) that occurred during the accumulation time.

********** EXPLORER 4 **********

EXPLORER 4, VAN ALLEN
CHARGED PARTICLE DETECTOR

Data set name - COUNT RATE DATA (STATION ORDERED) ON
MAGNETIC TAPE

NSSDC ID 58-005A-01A, ST. ORDERED UCSD COUNT RATE, TAPE

Time period covered - 07/26/58 TO 09/21/58
(As verified by NSSDC)

Quantity of data - 2 REELS OF TAPE

This investigator-supplied data set contains values for detector counting rates. It is on 7-track, 556-bpi, binary magnetic tape written on a CDC computer. The data are ordered by satellite telemetry station. Data set 58-005A-01B contains the same data as this data set, except there the tape is time ordered instead of station ordered. There are 120 characters (15 CDC words) per physical and logical record. Values are given for the following additional parameters: time of the measurement (month, day, hour), model magnetic field magnitude B (gauss), McIlwain's L-shell (earth radii), B/Bo, latitude (deg), longitude (deg), and altitude (km). The Jensen-Cain (J-C) model was used for magnetic field values in this data set.

Data set name - COUNT RATE DATA (TIME ORDERED) ON
MAGNETIC TAPE

NSSDC ID 58-005A-01B, TIME ORDERED COUNT RATES, TAPE

Time period covered - 07/26/58 TO 09/21/58
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set was produced at NSSDC and contains values for detector counting rates. It is on a single 7-track, 556-bpi, binary magnetic tape written on an IBM 7094. The data contained here are the same as those in data set 58-005A-01A, except here they are time ordered instead of station ordered. The tape contains 23,866 records, and there are 120 characters per logical and physical record. Values are given for the following additional parameters: time of the measurement (month, day, hr), model magnetic field B (gauss), McIlwain's L-shell (earth radii), B/Bo, latitude (deg), longitude (deg), and altitude (km). The Jensen-Cain (J-C) model was used for magnetic field values in this data set.

Data set name - COUNT RATE DATA (TIME ORDERED) WITH
RECALCULATED B,L COORDINATES ON TAPE

NSSDC ID 58-005A-01C, COUNT RATES-RECAL. B AND L, TAPE

Time period covered - 07/26/58 TO 09/21/58
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set was produced at NSSDC and contains values for detector counting rates. It is a single 7-track, 556-bpi, binary magnetic tape written on an IBM 7094. It contains the same data as in data set 58-005A-01B (time ordered), except that in this data set a 120-term GSFC 1966 model was added to the 48-term Jensen-Cain (J-C) model. The tape has 120 characters per logical and physical record and 23,866 records. Values are given for the following additional parameters: time of the measurement (month, day, hr), model magnetic field B (gauss), McIlwain's L-shell value (earth radii), B/Bo, latitude (deg), longitude (deg), and altitude (km). For further information concerning this data set, see the paper by J. P. Lavine and J. I. Vette, "A recalculation of the magnetic coordinates for Explorer 4," J. Geophys. Res., v. 75, n. 10, p. 1940, 1970.

********** EXPLORER 7 **********

EXPLORER 7, POMERANTZ
HEAVY PRIMARY COSMIC RAYS

Data set name - COUNTING RATES OF HEAVY PRIMARY COSMIC
RAYS ON MAGNETIC TAPE

NSSDC ID 59-009A-03A, ION CHAMBER COUNTS, TAPE

Time period covered - 10/13/59 TO 05/31/60
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set of ion chamber counts is on one 7-track, 556-bpi, binary magnetic tape produced at NSSDC, on an IBM 7094 computer. Approximately 17,250 punched cards submitted by the experimenter were used to generate the tape. The investigator presented the data in this tape data set by defining "boxes" of 5-deg latitude, 10-deg longitude, and 100-km thickness. Data counts obtained during a given spacecraft pass through a given box were accumulated from the 15-s counts. Each 80-character logical record is a card image, and contains the time of measurement, the geographic latitude, longitude, and altitude of the box, accumulated counts for particles with atomic number (Z) greater than 5, accumulation time (time spacecraft is in box, typically 1 to 2 min), and computed and correlative data. The latter includes magnetic cutoff rigidity, neutron monitor data, Ko and Rz indices, and the 10.7-cm solar flux. It should be noted that no data from the Z above 8 or Z above 15 channels are included. Data are contained for the following three time periods -- October 13, 1959, to October 24, 1959; November 1, 1959, to March 15, 1960; and April 12, 1960, to May 31, 1960. In each interval, coverage is about 50% complete.

EXPLORER 7, SUOMI
THERMAL RADIATION

Data set name - SELECTED WHITE SENSOR TEMPERATURE
(NIGHTTIME) VALUES ON TAPE

NSSDC ID 59-009A-01A, WHITE SENSOR TEMP(NIGHT), TAPE

Time period covered - 11/15/59 TO 05/24/60
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

Selected nighttime temperature data from the white sensor (hemispherical bolometer painted white) part of the Explorer 7 Thermal Radiation Experiment, are available on a single 7-track, 200-bpi, binary magnetic tape written on an IBM 7094 computer. In addition to the temperature measurements, the tape contains IR and orbit position data. The tape format is given in the document by W. Suomi, "Explorer 7 (1959 Iota 1) thermal radiation experiment," NASA-GSFC, NSSDC 67-17, Greenbelt, MD, Mar. 1967.

Data set name - TEMPERATURE VALUES FROM ALL SENSORS ON TAPE

NSSDC ID 59-009A-01B, ALL SENSOR TEMP, TAPE

Time period covered - 10/19/59 TO 04/04/60
(As verified by NSSDC)

Quantity of data - 2 REELS OF TAPE

Temperature values taken from all the sensors of the Explorer 7 Thermal Radiation Experiment are available on 7-track, 200-bpi, binary magnetic tapes, written on a CDC 1604 computer. There is one file per tape. The tape contains sensor temperatures for all processed readouts. The complete tape description and format is given in the document by W. Suomi, "Explorer 7 (1959 Iota 1) thermal radiation experiment," NASA-GSFC, NSSDC 67-17, Greenbelt, MD, Mar. 1967.

EXPLORER 7, VAN ALLEN
TRAPPED RADIATION AND SOLAR PROTONS

Data set name - COUNT RATE AND ORBITAL DATA ON MAGNETIC TAPE

NSSDC ID 59-009A-04A, RADIATION+SOLAR PROTON DATA, TAPE

Time period covered - 10/13/59 TO 02/24/61
(As verified by NSSDC)

Quantity of data - 14 REELS OF TAPE

This investigator-supplied, time-ordered data set on 7-track, 556-bpi, binary magnetic tapes written on an IBM 7094 computer, contains the particle counting rates and orbit position data. The logical and physical record lengths are 114 characters.

********** EXPLORER 8 **********

EXPLORER 8, JACCHIA
SATELLITE DRAG ATMOSPHERIC DENSITY

Data set name - SATELLITE DRAG ATMOSPHERIC DENSITY VALUES

NSSDC ID 60-014A-07A, ATMOS DRAG DEN TABLES, FICHE

Time period covered - 11/07/60 TO 03/20/70
(As verified by NSSDC)

Quantity of data - 4 CARDS OF B/W MICROFICHE

This microfiche data set of atmospheric density values, computed from the atmospheric drag on Explorer 8, was prepared at NSSDC from Smithsonian Astrophysical Observatory Special Reports numbered 100, 171, 326, and 348 (NSSDC TRF 810138, 805917, 810163, and 827448). These density values were computed for standard heights of 425 and 452 km. The data are primarily in tabular form. There are some summary graphs for comparing changes in density as a function of diurnal and semiannual temperature means, 10.7-cm solar flux, and daily geomagnetic index. The tabulated density values are listed chronologically. Some of the other parameters given are the observed rate of change of anomalistic period, the acceleration due to solar radiation pressure, the perigee height, and the nighttime temperature computed from the perigee value using a Jacchia model of diurnal temperature variation.

********** EXPLORER 9 **********

EXPLORER 9, O'SULLIVAN, JR.
SATELLITE DRAG ATMOSPHERIC DENSITY

Data set name - SATELLITE DRAG ATMOSPHERIC DENSITY VALUES

NSSDC ID 61-004A-01A, ATMOS DRAG DEN TABLES, FICHE

Time period covered - 02/17/61 TO 04/09/64
(As verified by NSSDC)

Quantity of data - 3 CARDS OF B/W MICROFICHE

This microfiche data set of atmospheric density values, computed from the atmospheric drag on Explorer 9, was prepared at NSSDC from Smithsonian Astrophysical Observatory Special Reports numbered 100, 171, 326, and 348 (NSSDC TRF 810138, 805917, 810163, and 827448). These density values were computed for standard heights between 270 and 760 km. The data are primarily in tabular form. There are some summary graphs for comparing changes in density as a function of diurnal and semiannual temperature means, 10.7-cm solar flux, and daily geomagnetic index. The tabulated density values are listed chronologically. Some of the other parameters given are the observed rate of change of anomalistic period, the acceleration due to solar radiation pressure, the perigee height, and the nighttime temperature computed from the perigee value using a Jacchia model of diurnal temperature variation.

********** FR 1 **********

FR 1, STOREY
VLF RECEIVER

Data set name - QUICK-LOOK VLF MAGNETIC FIELD DATA ON MICROFILM

NSSDC ID 65-101A-01A, QUICK-LOOK VLF MAG FLD DATA,MFILM

Time period covered - 12/07/65 TO 08/01/68
(As verified by NSSDC)

Quantity of data - 2 REELS OF MICROFILM

This investigator-supplied data set consists of "quick-look" VLF analog data on 35-mm microfilm. Each frame shows the satellite trajectory for one pass, superimposed on an outline map of the region over which the satellite travelled. Along the direction of satellite motion, the variation of H (the rms value over one period of oscillation of three component VLF magnetic field strength) is plotted in dB to the right of the trajectory. To the left of the trajectory on a linear scale, the axis ratio of the polarization ellipse is plotted. The satellite altitudes are indicated at the end of each of the 1-min markers that are placed along the orbit. Breaks in the field strength records corresponding to the transmitter code appear every 10 s. Time of the measurement, orbit number, scale factor, etc., are indicated at the left of each tape. The data set covers 1024 passes.

********** GRS-A **********

GRS-A, HOVESTADT
PROTON-ALPHA TELESCOPE

Data set name - PROTON, ALPHA PARTICLE AND ELECTRON COUNT RATES ON MAGNETIC TAPE

NSSDC ID 69-097A-02A, PARTICLE COUNT RATES, TAPE

Time period covered - 11/16/69 TO 03/15/70
(As verified by NSSDC)

Quantity of data - 14 REELS OF TAPE

This data set was supplied by the investigator, and consists of a master file of the particle count rate data (counts/9.875 s) from experiments 69-097A-02, 69-097A-04, and a portion of the data from 69-097A-03 (corresponding to low invariant latitudes). The data are in chronological order on 9-track, 800-bpi, binary magnetic tapes written on an IBM 360. There are two files per tape. At the beginning of each tape there is a tape identification record which is followed by a variable number of physical records. Each orbit of the satellite is identified in the pass header physical record, which is followed by the data records. In addition to the pass number, the pass header record contains the date and time of the pass (year, day, second of the beginning and end of the

pass), station name, and magnetic activity index Kp. Each data record contains the proton, electron, and alpha particle count rates from the three experiments. In addition, the record contains the following: the date and universal time of the measurements (day, hour, minute, and second) local time, magnetic local time, orbit number, geographic latitude and longitude, altitude, right ascension, declination, magnetic latitude and longitude, geomagnetic field strength B, McIlwain's L-shell parameter, invariant latitude, geocentric radial distance (earth radii), angle between the satellite axis and magnetic field, azimuth with respect to magnetic field, solar aspect angle, azimuth with respect to the sun, the three spacecraft spin axis components, the three local magnetic field (X, Y, Z) components, and various housekeeping parameters.

GRS-A, HOVESTADT
PROTON-ELECTRON DETECTOR

Data set name - PROTON AND ELECTRON COUNT RATES ON MAGNETIC TAPE

NSSDC ID 69-097A-04A, PARTICLE COUNT RATES, TAPE

Time period covered - 11/25/69 TO 03/15/70
(As verified by NSSDC)

Quantity of data - 14 REELS OF TAPE

This data set which was supplied by the principal investigator, consists of a master file of the particle count rate data (counts/9.875 s) from investigations 69-097A-02, 69-097A-04, and from a portion of the data from 69-097A-03 (corresponding to low invariant latitudes). The data are in chronological order on 9-track, 800-bpi, binary magnetic tapes written on an IBM 360. There are two files per tape. Each tape begins with a tape identification record containing 81 words followed by an end-of-file mark. The tape identification record is followed by a variable number of physical records. Each orbit of the satellite is noted in the pass header physical record which is followed by the normal data physical records. In addition to the orbit number, the pass header record contains the date and time of the measurement (year, day, second of the beginning and close of the pass), station name, and magnetic activity index Kp. Each data record contains the proton, electron, and alpha particle count rates from the three experiments. In addition, the record contains the following: universal time, date (year, day, milliseconds), local time, magnetic local time, orbit number, geographic latitude and longitude, altitude, right ascension, declination, magnetic latitude and longitude, geomagnetic field strength and McIlwain's L-shell parameter, invariant latitude, geocentric radial distance (earth radii), angle between the satellite axis and magnetic field, azimuth with respect to magnetic field, solar aspect angle, azimuth with respect to the sun, the three spacecraft spin axis components, the three local magnetic field components, and various housekeeping parameters.

GRS-A, MORITZ
PROTON TELESCOPE

Data set name - PROTON AND ALPHA PARTICLE COUNT RATES ORDERED BY INVARIANT LATITUDE ON TAPE

NSSDC ID 69-097A-03A, PROTON + ALPHA COUNT RATES, TAPE

Time period covered - 11/10/69 TO 06/28/70
(As verified by NSSDC)

Quantity of data - 2 REELS OF TAPE

This investigator-supplied data set consists of separate proton and alpha particle count rates (counts/9.875-s interval) stored on 7-track, 800-bpi, binary magnetic tapes written on a CDC 3400 computer. The data are ordered by invariant latitude in intervals of a few degrees, and within a given interval they are chronologically ordered. Each tape has a variable number of physical records. Each physical record contains 79 logical records, with every 79th logical record containing housekeeping information. Each of the other 78 data logical records contains six computer words (one data sample) giving the invariant latitude, time (UT), magnetic field strength (GSFC 12/66 model), magnetic local time, the hemisphere (north or south) in which the data were obtained, and the count rates.

Data set name - VARIOUS PLOTS FOR PROTONS AND FOR ALPHA PARTICLES ON MICROFILM

NSSDC ID 69-097A-03B, COUNT RATE,FLUX,ORBIT PLOTS,MFILM

Time period covered - 11/09/69 TO 06/28/70
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This data set supplied by the principal investigator, contains four sets of plots on microfilm as follows: (1) proton and alpha particle count rates (separately) vs time in the invariant latitude intervals 70 to 74 deg and 75 to 87 deg, (2) proton flux vs time (same latitude intervals as above), (3) proton flux vs time at several B (geomagnetic field) and L (McIlwain's shell parameter) values, and (4) spacecraft orbit passes across the north pole region. The plots of count rate and particle flux as a function of invariant latitude cover the range 70 to 87 deg; however, similar plots for other invariant latitude intervals may be generated from the magnetic tape data set 69-097A-03A. The particle data energy channels are as follows: protons in the energy ranges 0.25 to 0.50, 0.50 to 1.00, 1.00 to 1.65, and 1.65 to 13.5 MeV; and alpha particles in the energy range 2.00 to 6.40 MeV. Values for the Kp index are included. The data set covers the entire time interval for which the spacecraft was operational.

Data set name - TABLE OF PROTON AND ALPHA PARTICLE COUNT RATES AND FLUXES ON MICROFILM

NSSDC ID 69-097A-03C, P,A COUNT RATE,P FLUXES, MFILM

Time period covered - 11/10/69 TO 06/26/70
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This 35-mm microfilm data set, which was submitted by the investigator, consists of listings of the following: (1) proton count rates in energy channels with ranges 1.65 to 13.5 MeV, 0.25 to 12.5 MeV, 0.25 to 1.65 MeV, 0.50 to 1.65 MeV, and 1.0 to 1.65 MeV; and the alpha particle count rate in an energy channel ranging from from 2.0 to 6.4 MeV; and (2) proton fluxes (in units of particles/sq cm-s-sr, and in the energy ranges listed above for protons) for the invariant latitude intervals 55 plus or minus 0.5 deg and 75 plus or minus 0.5 deg. The data within each of these intervals are time ordered. Along with each count rate (counts/9.875 s) and flux value given, there are the following parameters: the invariant latitude, date and universal time of the measurement (day, hour, minute, and second), magnetic latitude (deg), geographic latitude (deg), geomagnetic field strength B and McIlwain's shell parameter L (GSFC geomagnetic field model 12/66), pitch angle alpha, B/BO, radial distance (measured from the center of the earth's dipole in km), latitude of the satellite in dipole coordinates, and an indicator to show in which hemisphere the observation was made (N-north, S-south). A minus sign to the left of the hemisphere indicator for L values greater than 2 means that the data are questionable. The data set is based on all of the acceptable real-time observations made in the two above-defined invariant latitude intervals for the entire mission of GRS-A. A CDC computer program listing is also included at the beginning of the microfilm and may be used with the CDC computer tapes of data set 69-097A-03A to generate similar listings for other invariant latitude intervals.

Data set name - PLOTS OF PROTON AND ALPHA PARTICLE COUNT RATES AND FLUXES ON MICROFILM

NSSDC ID 69-097A-03D, PROTON,ALPHA CT RATE+FLUX, MFILM

Time period covered - 11/09/69 TO 06/28/70
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This data set consists of 12-h-averaged proton and alpha particle count rates (counts/10 s) and fluxes vs time on 16-mm microfilm. The plots are ordered by invariant latitude, and each plot includes a 4-deg increment in invariant latitude for one energy channel. The data cover invariant latitudes from -25 deg to -89 deg and +25 deg to +89 deg, and were generated at NSSDC, using the magnetic tape data set 69-097A-03A. There are five data energy channels for each 4-deg interval of invariant latitude. For protons the energy ranges are 0.25 to 0.50 MeV, 0.50 to 1.00 MeV, 1.00 to 1.65 MeV and 1.65 to 13.5 MeV; and for alpha particles the energy range is from 2.00 to 6.40 MeV. Dotted lines are used in the traces to indicate gaps in the data coverage. Each plot in the data set covers the entire period for which the spacecraft was operational.

GRS-A, MUSMANN
FLUXGATE MAGNETOMETER

Data set name - 9.875-SEC AVERAGED VECTOR MAGNETIC FIELD OBSERVATIONS ON TAPE

NSSDC ID 69-097A-01A, 10-SEC MAG FLD VECTORS, TAPE

Time period covered - 11/08/69 TO 06/28/70
(As verified by NSSDC)

Quantity of data - 30 REELS OF TAPE

This data set was submitted by the principal investigator, and consists of real-time measurements of the 9.875-s averaged magnetic field from the biaxial fluxgate magnetometer. The data are on 7-track, 800-bpi, binary magnetic tapes generated on a CDC 3800 computer. There are a variable number of files per tape. The data within one file are time continuous. The first physical record in a file is a file label record giving the orbit number and time. This record is followed by a variable number of data records. The data within one logical record cover the time of one subcommutated data frame, i.e., 9.875 s. They contain the date (year, day of year, and millisecond of day), universal time of observation, the magnetic field components along the two sensors, spacecraft latitude and longitude, geocentric radial distance, and the solar sensor output.

********** IE-A **********

IE-A, KNECHT
FIXED-FREQUENCY IONOSONDE

Data set name - TIME-ORDERED FIXED-FREQUENCY IONOGRAMS ON MICROFILM

NSSDC ID 64-081A-01A, FF IONOGRAMS,CHRONOLOGICAL,MFILM

Time period covered - 08/25/64 TO 12/29/65
(As verified by NSSDC)

Quantity of data - 1017 REELS OF MICROFILM

This data set, provided by the principal investigator was prepared by recording all reflections for each frequency in a given pass in one set of ionograms. The data set is on 35-mm microfilm. Data for each pass consist of six ionograms, one for each of the six fixed frequencies (7.22, 5.47, 3.72, 2.85, 2.00, and 1.50 MHz). These ionograms show time (subsatellite location) vs echo time delay (virtual range) for each frequency. The resolution on any one ionogram is better than 1 km. This data set is a standard form of reduced data prepared from the original telemetry tapes by the office of the principal investigator. The data are as complete as permitted by limitations of power, lack of satellite tape recorder, and data processing facilities. Most of the data coverage is near the 60 deg W meridian, with some data also observed in areas near Hawaii, England, Singapore, Australia, Central Africa, and South Africa. Time ticks and digital time data appear on the edge of the ionograms. Indexing information for these data is available at NSSDC in data set 64-081A-01D. Appropriate world-map data providing position information appear on each roll of microfilm.

Data set name - SINGAPORE AND WINKFIELD TIME-ORDERED, FIXED-FREQUENCY IONOGRAMS ON MICROFILM

NSSDC ID 64-081A-01C, FF IONOGRAMS, SGP AND WNK, MFILM

Time period covered - 08/27/64 TO 12/22/65
(As verified by NSSDC)

Quantity of data - 110 REELS OF MICROFILM

This data set, provided by the Radio and Space Research Station, Slough, U.K., was prepared by recording all reflections for each frequency during a given pass sequentially in one ionogram. The data set is on 35-mm microfilm. Data for each pass, therefore, consist of six "ionograms," one for each of the six fixed frequencies. The resolution on any one ionogram is better than 1 km. These data are a standard original form of the reduced data. Data were observed near Singapore (279 passes) and Winkfield, England (376 passes). All of these data are included in data set 64-081A-01A. But these ionograms have somewhat more contrast than the ionograms in data set 64-081A-01A. Time ticks and digital time data appear on the edge of the ionograms. World maps are needed to obtain position information. Indexing information for these data is available in data set 64-081A-01D.

Data set name - IONOGRAM INVENTORY ON TAPE

NSSDC ID 64-081A-01D, NSSDC FF IONOGRAM INVENTORY,TAPE

Time period covered - 08/25/64 TO 12/22/65
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set, prepared at NSSDC, indexes the Explorer 20 fixed-frequency ionosonde data (data sets 64-081A-01A and 64-081A-01C) by station pass. The data set is on a 7-track, 556-bpi, even-parity, BCD magnetic tape written on an IBM 7094 computer. Information in the data set for which fixed-frequency ionosonde data can be identified includes pass start and stop times, orbit number, and telemetry station.

********** INJUN 1 **********

INJUN 1, BOSTROM
SOLID-STATE PROTON DETECTOR

Data set name - MASTER TAPE, P-N COUNTS

NSSDC ID 61-015B-06A, P-N COUNTS, TAPE

Time period covered - 06/30/61 TO 08/31/62
(As verified by NSSDC)

Quantity of data - 17 REELS OF TAPE

This investigator-supplied data set of proton count rates is on time-ordered, 7-track, 800-bpi, BCD magnetic tapes written on an IBM 7094 computer. The tapes have 204 characters per logical record and 10 logical records per physical record. These tapes also contain data from the other Injun 1 investigations (61-015B-01, -02, -03, and -05) with the exception of the X-ray study of investigation 61-015B-04. In addition to the count rates shown, the data contain universal and local time of the measurements, the longitude, latitude, altitude, model geomagnetic-field values, McIlwain's L-shell parameter, and B/Bo.

INJUN 1, FRANK
GM COUNTER

Data set name - TABULATION OF 2- TO 12-A SOLAR X-RAY DATA

NSSDC ID 61-015B-01A, TAB. OF GM COUNTS, FICHE

Time period covered - 06/29/61 TO 08/12/62
(As verified by NSSDC)

Quantity of data - 1 CARD OF B/W MICROFICHE

This investigator-supplied data set of Geiger-Mueller (GM) count rates, which is on microfiche, consists of a table of GM tube count rates (counts/s) due to solar X rays in the 2- to 12-A range. The data are chronologically ordered, and show date (month, day, yr), and UT, along with count rates. The X-ray counting rates were distinguished from particle count rates by observing when the CdS optical monitor detector (Investigation 61-015B-02) pointed toward the sun. This optical monitor was aligned parallel to the GM tube.

Data set name - MASTER TAPE, GM COUNTS

NSSDC ID 61-015B-01B, GM COUNTS, TAPE

Time period covered - 06/30/61 TO 08/31/62
(As verified by NSSDC)

Quantity of data - 17 REELS OF TAPE

This investigator-supplied data set of Geiger-Mueller (GM) counts is on time-ordered, 7-track, 800-bpi, BCD magnetic tapes, written on an IBM 7094 computer. The tapes have 204 characters per logical record and 10 logical records per physical record. The tapes also contain data from the other Injun 1 investigations (61-015B-02, -03, -05, and -06) with the exception of the X-ray study of investigation 61-015B-04. In addition to the electron and proton count rates shown, the data contain universal and local time of the measurements, longitude, latitude, altitude, model geomagnetic-field values, McIlwain's L-shell parameter, and B/Bo.

INJUN 1, FREEMAN
CADMIUM SULFIDE DETECTOR

Data set name - MASTER TAPE, CDS COUNTS

NSSDC ID 61-015B-02A, DETECTOR COUNT RATES, TAPE

Time period covered - 06/30/61 TO 08/31/62
(As verified by NSSDC)

Quantity of data - 17 REELS OF TAPE

This investigator-supplied data set of detector count rates of the flux of low energy protons and ions is on time-ordered, 7-track, 800-bpi, BC D magnetic tapes written on an IBM 7094 computer. The tapes have 204 characters per logical record and 10 logical records per physical record. These tapes also contain data from the other Injun 1 investigations (61-015B-01, -03, -05, and -06) with the exception of the X-ray study of the investigation 61-15B-04. In addition to the count rates shown, the data contain universal and local time of the measurements, longitude, latitude, altitude, model geomagnetic-field values, McIlwain's L-shell parameter, and B/Bo.

INJUN 1, KREPLIN
2- TO 8-A AND 8- TO 20-A X-RAY DETECTORS

Data set name - 8- TO 20-A X-RAY FLUXES ON MICROFICHE

NSSDC ID 61-015B-07A, 8-20A FLUXES, FICHE

Time period covered - 06/29/61 TO 12/14/61
(As verified by NSSDC)

Quantity of data - 1 CARD OF B/W MICROFICHE

This microfiche data set is a copy of the published report by L. W. Acton, et al., "Observations of solar X-ray emission in the 8 to 20 A band," J. Geophys. Res., V. 68, n. 11, p. 3335, 1963. The data set consists of X-ray fluxes listed in a tabular form, that were derived from ion-chamber current readings on strip charts. The currents were reduced to fluxes by assuming that the shape of the spectrum is given by a 2-million-deg K "gray body", and by using a conversion factor of 1.3E-10 A sq cm-s/erg. There are 101 measurements of solar X-ray flux listed in the table in units of 1.E-3 erg/(sq cm-s). The date (month, day) and universal time (hour, minute) of the measurement are also given. Another data table shows the uncertainty in the absolute and upper limit fluxes. The values range from plus 75% to minus 50% for fluxes from 0 to 5, to plus or minus 20% for fluxes greater than 25. The uncertainties were caused by the unexpected slow complex tumbling motion of the spacecraft, and the contamination of the detectors by energetic particles. Additional data displays are as follows: (1) a plot of the 8- to 20-A flux vs time, (2) a plot of the fluxes for September, October, and November 1961 along with the 2800-MHz solar flux as a function of time, and (3) a time history of the July 11, 1961, solar flare X-ray event, including plots of ionospheric and solar activity parameters and the 8- to 20-A X-ray flux.

INJUN 1, LAUGHLIN
ELECTRON DIFFERENTIAL ENERGY
SPECTROMETER

Data set name - MASTER TAPE, ELECTRON COUNTS

NSSDC ID 61-015B-03A, ELECTRON COUNT RATES, TAPE

Time period covered - 06/30/61 TO 08/31/62
(As verified by NSSDC)

Quantity of data - 17 REELS OF TAPE

This investigator-supplied data set of electron count rates is on time-ordered, 7-track, 800-bpi, BCD magnetic tapes written on an IBM 7094 computer. The tapes have 204 characters per logical record and 10 logical records per physical record. These tapes also contain data from the other Injun 1 investigations (61-015B-01, -02, -03, -05, and -06) with the exception of the X-ray study of the investigation 61-015B-04. In addition to the electron count rates shown, the data contain universal and local time of the measurements, the longitude, latitude, altitude, model geomagnetic-field values, McIlwain's L-shell parameter, and B/Bo.

INJUN 1, VAN ALLEN
FLUXGATE MAGNETOMETER

Data set name - MASTER TAPE, MONITOR MAGNETOMETER DATA

NSSDC ID 61-015B-05A, MAGNETOMETER DATA, TAPE

Time period covered - 06/30/61 TO 08/31/62
(As verified by NSSDC)

Quantity of data - 17 REELS OF TAPE

This investigator-supplied data set of magnetometer count rates is on time-ordered, 7-track, 800-bpi, BCD magnetic tapes written on an IBM 7094 computer. The tapes have 204 characters per logical record and 10 logical records per physical record. The magnetometer data occupy three bits (one-half word) of word 18 and are expressed as counts/s. These tapes also contain data from the other Injun 1 investigations (61-015B-01, -02, -03, and -06) with the exception of the X-ray study of investigation 61-015B-04. In addition to the count rates shown, the data contain universal and local time of the measurements, the longitude, latitude, altitude, model geomagnetic-field values, McIlwain's L-shell parameter, and B/Bo.

********** INJUN 3 **********

INJUN 3, GURNETT
VLF ELECTROMAGNETIC RADIATION

Data set name - MASTER FILE ON MAGNETIC TAPE, NARROW-BAND DATA

NSSDC ID 62-067B-09A, VLF REC SIG STRENGTH, TAPE

Time period covered - 12/25/62 TO 10/25/63
(As verified by NSSDC)

Quantity of data - 5 REELS OF TAPE

This investigator-supplied VLF data set is on time-ordered, 7-track, 800-bpi, BCD magnetic tapes written on an IBM 7094 computer. The tapes have 408 characters per logical record, and 10 logical records per physical record. In addition to these detector "8-second sum" data outputs, the tapes contain data from the other Injun 3 investigations (62-067B-01, -02, -03, -04, -05, -06, -07, and -08). Included with these detector outputs, these data contain universal and local time, longitude, latitude, invariant latitude, altitude, scalar geomagnetic field, McIlwain's L-shell parameter, B/Bo, and data quality indicators.

INJUN 3, JACCHIA
SATELLITE DRAG ATMOSPHERIC DENSITY

Data set name - SATELLITE DRAG-ATMOSPHERIC DENSITY VALUES

NSSDC ID 62-067B-13A, ATMOS DRAG DENSITY TABLES, FICHE

Time period covered - 12/15/62 TO 04/15/67
(As verified by NSSDC)

Quantity of data - 3 CARDS OF B/W MICROFICHE

This microfiche data set of atmospheric density values, computed from the drag on Injun 3, was prepared at NSSDC from the Smithsonian Astrophys. Obs. Special Report No. 326, Oct., 1970, (NSSDC TRF #10163). These density values were computed for a standard height of 250 km. The data are primarily in tabular form. There are some summary graphs for comparing changes in density as a function of diurnal and semiannual temperature means, 10.7-cm solar flux, and daily geomagnetic index. The tabulated density values are listed chronologically. Some of the other parameters given are the observed rate of change of anomalistic period, the acceleration due to solar radiation pressure, the perigee height, and the nighttime temperature computed from the perigee value, using a Jacchia model of the diurnal temperature variation.

INJUN 3, O'BRIEN
GEIGER TUBE DETECTORS

Data set name - TABULATION OF 2- TO 12-A SOLAR SOFT X-RAY DATA

NSSDC ID 62-067B-01A, SOLAR SOFT X-RAY, FICHE

Time period covered - 12/20/62 TO 10/13/63
(As verified by NSSDC)

Quantity of data - 1 CARD OF B/W MICROFICHE

This investigator-supplied data set contains a list of

detector count rates due to solar X rays. This listing was microfiched at NSSDC and included in a Data User's Note, NSSDC 69-11, "Injun 3 soft X-ray experiment," 1969. Solar sensors indicated the times when the Geiger-Mueller detectors, which were primarily used as particle sensors, detected solar X rays (2- to 12-A range). These times and the associated count rates, which were taken from the main particle data base, form this data set. Hence, these data are a subset of data set 62-067B-01B. Most observations occurred in May, June, and July 1963.

Data set name - MASTER FILE ON MAGNETIC TAPE, GM COUNTS

NSSDC ID 62-067B-01B, GM COUNTS, TAPE

Time period covered - 12/14/62 TO 10/28/63
(As verified by NSSDC)

Quantity of data - 5 REELS OF TAPE

This investigator-supplied data set of Geiger-Mueller (GM) electron and proton counts, is on time-ordered, 7-track, 800-bpi, BCD magnetic tapes written on an IBM 7094 computer. The tapes have 408 characters per logical record, and 10 logical records per physical record. In addition to these Geiger-Mueller detector "8-second sum" data outputs, the tapes contain data from the other Injun 3 investigations (62-067B-02, -03, -04, -05, -06, -07, -08, and -09). Included with these detector outputs, these data contain universal and local time, longitude, latitude, invariant latitude, altitude, scalar geomagnetic field, McIlwain's L-shell parameter, B/Bo, and data quality indicators. Data set 62-067B-01A is a subset of this data set.

Data set name - GM COUNTER PARTICLE FLUX PLOTS
ON MICROFILM

NSSDC ID 62-067B-01C, PARTICLE FLUX PLOTS, MFILM

Time period covered - 01/01/63 TO 10/28/63
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This 16-mm microfilm data set consists of machine-generated particle flux plots for the three 213 Geiger-Mueller (GM) detectors, 01, 04, 05, oriented at 90, 130, and 150 deg to the local magnetic field in the northern hemisphere. The data were generated principally from data set 62-067B-01B. In some cases, Injun 5 telemetry data were used. The GM flux data are divided into three separate time-ordered groups in this data set. The data that were obtained in satellite telemetry mode 1 are divided into the northern hemisphere (group 1) and the southern hemisphere (group 2). The data obtained in satellite telemetry mode 5 in both hemispheres comprise the third group of data. Each page of data i.e., a film frame, consists of two separate plots, one plot for each of the two appropriate detectors. The plots show particle flux (number/sq cm-s-sr) vs invariant latitude, universal time, magnetic local time, and model magnetic field magnitude. Each page also includes a plot of the corresponding ratio of fluxes from 04/01 or 05/01 vs invariant latitude, universal time, magnetic local time, and model magnetic fields. The plots provide continuous time coverage over most of the life of the investigation for invariant latitudes from 55 to 80 deg. Each plot contains data from one pass. The fluxes are based on "8-second sums" of detector outputs, and have been corrected when possible for geometric factors and GM counter saturation.

INJUN 3, O'BRIEN
PULSE SCINTILLATOR

Data set name - MASTER FILE ON MAGNETIC TAPE, PULSE
SCINTILLATOR COUNTS

NSSDC ID 62-067B-02A, SCINT. COUNTS, TAPE

Time period covered - 12/14/62 TO 10/28/63
(As verified by NSSDC)

Quantity of data - 5 REELS OF TAPE

This investigator-supplied data set of pulse-scintillator detector outputs is on time-ordered, 7-track, 800-bpi, BCD magnetic tapes written on an IBM 7094 computer. The tapes have 408 characters per logical record, and 10 logical records per physical record. In addition to these detector "8-second sum" data outputs, the tapes contain data from the other Injun 3 investigations (62-067B-01, -03, -04, -05, -06, -07, -08, and -09). Included with these detector outputs, these data contain universal time, longitude, latitude, invariant latitude, altitude, scalar geomagnetic field, McIlwain's L-shell parameter, B/Bo, and data quality indicators.

INJUN 3, O'BRIEN
MAGNETIC DIFFERENTIAL ELECTRON
SPECTROMETER

Data set name - MASTER FILE ON MAGNETIC TAPE, ELECTRON
SPECTROMETER COUNTS

NSSDC ID 62-067B-03A, ELECTRON COUNT, TAPE

Time period covered - 12/14/62 TO 10/28/63
(As verified by NSSDC)

Quantity of data - 5 REELS OF TAPE

This investigator-supplied data set of electron count rates, is on time-ordered, 7-track, 800-bpi, BCD magnetic tapes written on an IBM 7094 computer. The tapes have 408 characters per logical record, and 10 logical records per physical record. In addition to these detector "8-second sum" data outputs, the tapes contain data from the other Injun 3 investigations (62-067B-01, -02, -04, -05, -06, -07, -08, and -09). Included with these detector outputs, these data contain universal and local time, longitude, latitude, invariant latitude, altitude, scalar geomagnetic field, McIlwain's L-shell parameter, B/Bo, and data quality indicators. Data set 62-067B-03B was generated from this data set.

Data set name - MAGNETIC DIFFERENTIAL ELECTRON
SPECTROMETER FLUX PLOTS ON MICROFILM

NSSDC ID 62-067B-03B, DETECTOR FLUX PLOTS, MFILM

Time period covered - 01/01/63 TO 05/15/63
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

Machine-generated particle-flux plots make up this microfilm data set. The data are from two of the type 213 Geiger-Mueller (GM) counters (SPL and SPH) of the magnetic differential electron spectrometer, which was oriented at 90 deg to the local magnetic field. Detector SPL was sensitive to electrons in the energy range from 40 to 60 keV, and SPH was sensitive to electrons in the energy range 80 to 110 kev. The detectors were not sensitive to protons. The data set was generated from data set 62-067B-03A. Each page of the data set, i.e., a frame of the film, includes a plot for each of the two detectors of particle flux (number/sq cm-s-sr) vs invariant latitude, universal time, magnetic local time, and model geomagnetic field magnitude. Each page also shows a plot of the exponential spectral parameter, Eo, and the power-law spectral parameter, "gamma", vs invariant latitude, universal and magnetic local time, and model geomagnetic field. The plots are time ordered and provide time coverage for most of the life of the investigation, for invariant latitudes from 55 to 90 deg. Each plot covers one satellite pass. The fluxes are based on "8-second sum" detector outputs, in a telemetry mode in which the detectors were sampled once per second. The fluxes have been corrected for geometric factors and GM counter saturation.

INJUN 3, O'BRIEN
INTEGRAL MAGNETIC ELECTRON SPECTROMETER

Data set name - MASTER FILE ON MAGNETIC TAPE, GM COUNTS
(STARFISH)

NSSDC ID 62-067B-04A, ELEC COUNT(STARFISH), TAPE

Time period covered - 12/14/62 TO 10/25/63
(As verified by NSSDC)

Quantity of data - 5 REELS OF TAPE

This investigator-supplied data set of electron count rates is on time-ordered, 7-track, 800-bpi, BCD magnetic tapes written on an IBM 7094 computer. The tapes have 408 characters per logical record, and 10 logical records per physical record. In addition to these detector "8-second sum" data outputs, the tapes contain data from the other Injun 3 investigations (62-067B-01, -02, -03, -05, -06, -07, -08, and -09). Included with these detector outputs, these data contain universal and local time, longitude, latitude, invariant latitude, altitude, scalar geomagnetic field, McIlwain's L-shell parameter, B/Bo, and data quality indicators.

INJUN 3, O'BRIEN
DC SCINTILLATOR

Data set name - MASTER FILE ON MAGNETIC TAPE, DC

SCINTILLATOR COUNTS

NSSDC ID 62-067B-05A, D.C. SCINT. COUNTS, TAPE

Time period covered - 12/14/62 TO 10/31/63
(As verified by NSSDC)

Quantity of data - 5 REELS OF TAPE

This investigator-supplied data set of electron and proton count rates is on time-ordered, 7-track, 800-bpi, BCD magnetic tapes written on an IBM 7094 computer. The tapes have 408 characters per logical record, and 10 logical records per physical record. In addition to these detector "8-second sum" data outputs, the tapes contain data from the other Injun 3 investigations (62-067B-01, -02, -03, -04, -06, -07, -08, and -09). Included with these detector outputs, these data contain universal and local time, longitude, latitude, invariant latitude, altitude, scalar geomagnetic magnetic field, McIlwain's L-shell parameter, B/Bo, and data quality indicators.

INJUN 3, O'BRIEN
ELECTRON MULTIPLIER

Data set name - MASTER FILE ON MAGNETIC TAPE, ELECTRON MULTIPLIER COUNTS

NSSDC ID 62-067B-06A, ELECTRN MULTIP COUNT, TAPE

Time period covered - 12/14/62 TO 10/25/63
(As verified by NSSDC)

Quantity of data - 5 REELS OF TAPE

This investigator-supplied data set of electron density flux is on time-ordered, 7-track, 800-bpi, BCD magnetic tapes written on an IBM 7094 computer. The tapes have 408 characters per logical record, and 10 logical records per physical record. In addition to these detector "8-second sum" data outputs, the tapes contain data from the other Injun 3 investigations (62-067B-01, -02, -03, -04, -05, -07, -08, and -09). Included with these detector outputs, these data contain UT and local time, longitude, latitude, invariant latitude, altitude, scalar geomagnetic-field, McIlwain's L-shell parameter, B/Bo, and data quality indicators.

INJUN 3, O'BRIEN
PROTON SPECTROMETER

Data set name - MASTER FILE ON MAGNETIC TAPE, P-N COUNTS

NSSDC ID 62-067B-07A, P-N COUNTS, TAPE

Time period covered - 12/14/62 TO 10/31/63
(As verified by NSSDC)

Quantity of data - 5 REELS OF TAPE

This investigator-supplied data set of proton energy flux is on time-ordered, 7-track, 800-bpi, BCD magnetic tapes written on an IBM 7094 computer. The tapes have 408 characters per logical record, and 10 logical records per physical record. In addition to these detector "8-second sum" data outputs, the tapes contain data from the other Injun 3 investigations (62-067B-01, -02, -03, -04, -05, -06, -08, and -09). Included with these detector outputs, these data contain universal and local time, longitude, latitude, invariant latitude, altitude, scalar geomagnetic-field McIlwain's L-shell parameter, B/Bo, and data quality indicators.

INJUN 3, O'BRIEN
AURORAL AND AIRGLOW PHOTOMETERS

Data set name - MASTER FILE ON MAGNETIC TAPE, PHOTOMETER COUNTS

NSSDC ID 62-067B-08A, PHOTOMETER COUNT, TAPE

Time period covered - 12/14/62 TO 10/28/63
(As verified by NSSDC)

Quantity of data - 5 REELS OF TAPE

This investigator-supplied data set of detector outputs, is on time-ordered, 7-track, 800-bpi, BCD magnetic tapes written on a 7094 computer. The tapes have 408 characters per logical record, and 10 logical records per physical record. In addition to these detector "8-second sum" data outputs, the tapes contain data from the other Injun 3 investigations (62-067B-01, -02, -03, -04, -05, -06, -07, and -09). Included with these detector outputs, these data contain UT and local time, longitude, latitude, invariant latitude, altitude, scalar magnetic field, McIlwain's L-shell parameter, B/Bo, and data quality indicators.

********** INJUN 4 **********

INJUN 4, VAN ALLEN
GEIGER-MUELLER COUNTER

Data set name - MASTER FILE ON MAGNETIC TAPE, GM COUNTS

NSSDC ID 64-076B-03A, GM COUNTS, TAPE

Time period covered - 02/13/65 TO 07/19/66
(As verified by NSSDC)

Quantity of data - 47 REELS OF TAPE

This investigator-supplied data set of "8-second average" particle fluxes is on time-ordered, 7-track, 800-bpi, BCD magnetic tapes written on an IBM 7094 computer. The tapes have 400 three-character words per logical record, and 10 logical records per physical record. Each tape contains one file of data. In addition to the Geiger-Mueller detector data outputs, the tapes contain data from other Injun 4 investigations (64-076B-04, -05, and -06). Included with the detector outputs, these data contain universal time, longitude, latitude, altitude, geomagnetic longitude and latitude, invariant latitude, McIlwain's L-shell parameter, scalar geomagnetic field strength, B/Bo, various magnetic indices, and data quality indicators.

INJUN 4, VAN ALLEN
SOLID-STATE DETECTOR

Data set name - MASTER FILE ON MAGNETIC TAPE, P-N COUNTS

NSSDC ID 64-076B-04A, P-N COUNTS, TAPE

Time period covered - 02/13/65 TO 07/19/66
(As verified by NSSDC)

Quantity of data - 47 REELS OF TAPE

This investigator-supplied data set of "8-second average" proton and alpha particle fluxes is on time-ordered, 7-track, 800-bpi, BCD magnetic tapes written on an IBM 7094 computer. The tapes have 400 three-character words per logical record, and 10 logical records per physical record. Each tape contains one file of data. In addition to these detector data outputs, the tapes contain data from other Injun 4 investigations (64-076B-03, -05, and -06). Included with the detector outputs, these data contain universal time, longitude, latitude, altitude, geomagnetic longitude and latitude, invariant latitude, McIlwain's L-shell parameter, scalar geomagnetic field strength, B/Bo, various magnetic indices, and data quality indicators.

Data set name - PROTON COUNT RATE PLOTS ON MICROFILM

NSSDC ID 64-076B-04B, PROTON COUNT RATE PLOTS, MFILM

Time period covered - 11/23/64 TO 07/19/66
(As verified by NSSDC)

Quantity of data - 11 REELS OF MICROFILM

This microfilm data set consists of count rate plots (counts/s vs UT, magnetic local time, geomagnetic field B, McIlwain's L-shell parameter, and invariant latitude) of protons in two energy channels, 0.52 to 4 MeV and 0.90 to 1.8 MeV. The upper limits of the energy ranges are for axially incident protons. The plots are chronologically ordered. Note that for some time intervals there is overlapping time coverage due to the use of two slightly different plot formats.

INJUN 4, VAN ALLEN
CADMIUM SULFIDE DETECTORS

Data set name - MASTER FILE ON MAGNETIC TAPE, CDS COUNTS

NSSDC ID 64-076B-05A, COS COUNTS, TAPE

Time period covered - 02/13/65 TO 07/13/66
(As verified by NSSDC)

Quantity of data - 47 REELS OF TAPE

This investigator-supplied data set of "8-second average" particle fluxes is on time-ordered, 7-track, 800-bpi, BCD magnetic tapes written on an IBM 7094 computer. The tapes have 400 three-character words per logical record, and 10 logical records per physical record. Each tape contains one file of data. In addition to these detector data outputs, the tapes contain data from other Injun 4 investigations (64-076B-03, -04, and -06). Included with the detector outputs, these data contain universal time, longitude, latitude, altitude, geomagnetic longitude and latitude, invariant latitude, McIlwain's L-shell parameter, scalar geomagnetic field strength, B/Bo, various magnetic indices, and data quality indicators.

INJUN 4, VAN ALLEN
PLASTIC SCINTILLATOR PARTICLE DETECTORS

Data set name - MASTER FILE ON MAGNETIC TAPE, PLASTIC SCINTILLATOR COUNTS

NSSDC ID 64-076B-06A, SCINTILLATOR COUNTS, TAPE

Time period covered - 02/13/65 TO 07/13/66
(As verified by NSSDC)

Quantity of data - 47 REELS OF TAPE

This investigator-supplied data set of "8-second average" electron fluxes is on time-ordered, 7-track, 800-bpi, BCD magnetic tapes written on an IBM 7094 computer. The tapes have 400 three-character words per logical record, and 10 logical records per physical record. Each tape contains one file of data. In addition to these detector data outputs, the tapes contain data from other Injun 4 investigations (64-076B-03, -04, and -05). Included with the detector outputs, these data contain universal time, longitude, latitude, altitude, geomagnetic longitude and latitude, invariant latitude, McIlwain's L-shell parameter, scalar geomagnetic field strength, B/Bo, various magnetic indices, and data quality indicators.

********** INJUN 5 **********

INJUN 5, FRANK
LOW-ENERGY PROTON AND ELECTRON
DIFFERENTIAL ENERGY ANALYZER (LEPEDEA)

Data set name - MASTER FILE ON MAGNETIC TAPE, LEPEDEA COUNT RATES

NSSDC ID 68-066B-01A, LEPEDEA COUNT RATES, TAPE

Time period covered - 08/09/68 TO 05/29/70
(As verified by NSSDC)

Quantity of data - 949 REELS OF TAPE

This investigator-supplied data set of Low Energy Proton and Electron Differential Energy Analyzer (LEPEDEA) detector outputs is on time-ordered, 7-track, 800-bpi, BCD magnetic tapes written on a UNIVAC 418 computer. The tapes have 696 characters per logical record, 10 logical records per physical record, a variable number of physical records per file, and one file per tape. In addition to the LEPEDEA telemetry output in millivolts (documentation as to conversion to counts/s is not available), the tapes contain data from other Injun 5 investigations (68-066B-02, -03, -04). Included with the detector outputs, these data contain universal and local times, orbit number, geographic coordinates (longitude, latitude, and radial distance), geocentric equatorial inertial coordinates (right ascension of satellite, velocity vector right ascension, declination and magnitude of the satellite velocity, magnetic field right ascension and declination, and celestial right ascension and declination of the sun), geomagnetic coordinates (longitude, latitude, equatorial distance to line of force, and local time of satellite), real geomagnetic-field values (McIlwain's L-shell parameter, magnitude, B/Bo, and invariant latitude), sun eclipse times (times to next sunrise and sunset), and magnetic attitude of the satellite (magnetometer measurements in the X, Y, and Z directions).

INJUN 5, GURNETT
VLF RECEIVER

Data set name - MASTER DATA TAPE, VLF SIGNAL STRENGTH

NSSDC ID 68-066B-02A, VLF SIGNAL STRENGTH, TAPE

Time period covered - 08/09/68 TO 05/29/70
(As verified by NSSDC)

Quantity of data - 949 REELS OF TAPE

This investigator-supplied VLF data set is on time-ordered, 7-track, 800-bpi, BCD magnetic tapes written on a UNIVAC 418 computer. The tapes have 696 characters per logical record, 10 logical records per physical record, a variable number of physical records per file, and one file per tape. In addition to this VLF data, which occur in data words 62 through 65 of each 90-word data frame, and contain signal strength information for the six frequencies received by the VLF receiver, the tapes contain data from other Injun 5 investigations (68-066B-01, -03, -04). Included with the detector outputs, these data contain universal and local times, orbit number, geographic coordinates (longitude, latitude, and radial distance), geocentric equatorial inertial coordinates (right ascension of satellite, velocity vector right ascension, declination and magnitude of the satellite velocity, magnetic field right ascension and declination, and celestial right ascension and declination of the sun), geomagnetic coordinates (longitude, latitude, equatorial distance to line of force, and local time of satellite), real geomagnetic-field values (McIlwain's L-shell parameter, magnitude, and invariant latitude), sun eclipse times (times to next sunrise and sunset), and magnetic attitude of the satellite (magnetometer measurements in the X, Y, and Z directions).

INJUN 5, SAGALYN
SPHERICAL RETARDING POTENTIAL ANALYZER

Data set name - RETARDING POTENTIAL ANALYZER COUNT RATE DATA ON MAGNETIC TAPE

NSSDC ID 68-066B-04A, RET. POT. AN. DATA, TAPE

Time period covered - 08/09/68 TO 05/29/70
(As verified by NSSDC)

Quantity of data - 949 REELS OF TAPE

This investigator-supplied data set of low energy ion and electron (0 to 2 keV) measurements is on time-ordered, 7-track, 800-bpi, BCD magnetic tapes written on a UNIVAC 418 computer. The tapes have 696 characters per logical record, 10 logical records per physical record, a variable number of physical records per file, and one file per tape. The investigation had three telemetry channels for the electron sensor output, the ion sensor output, and an event monitor output, respectively. In addition to these data, the tapes contain data from other Injun 5 investigations (68-066B-01, -02, -03). Included with the detector outputs, these data contain universal and local times, orbit number, geographic coordinates (longitude, latitude, and radial distance), geocentric equatorial inertial coordinates (right ascension of satellite, velocity vector right ascension, declination and magnitude of the satellite velocity, magnetic field right ascension and declination, and celestial right ascension and declination of the sun), geomagnetic coordinates (longitude, latitude, equatorial distance to line of force, and local time of satellite), real geomagnetic-field values (McIlwain's L-shell parameter, magnitude, B/Bo, and invariant latitude), sun eclipse times (times to next sunrise and sunset), and magnetic attitude of the satellite (magnetometer measurements in the X, Y, and Z directions).

INJUN 5, VAN ALLEN
SOLID-STATE PARTICLE DETECTOR

Data set name - MASTER FILE ON MAGNETIC TAPE, PROTON, ELECTRON, AND ALPHA PARTICLE COUNT RATES

NSSDC ID 68-066B-03A, S.S.PROT.AND ELECT.CNT.RATE, TAPE

Time period covered - 08/09/68 TO 05/29/70
(As verified by NSSDC)

Quantity of data - 949 REELS OF TAPE

This investigator-supplied data set of telescope count rates is on time-ordered, 7-track, 800-bpi, BCD magnetic tapes written on a UNIVAC 418 computer. The tapes have 696 characters per logical record, 10 logical records per physical record, a variable number of physical records per file, and one file per tape. The data contain the telescope telemetry output in millivolts. The documentation to convert millivolt outputs to counts/s is available from NSSDC. In addition to these data, the tapes contain data from other Injun 5 investigations (68-066B-01, -02, -04). Included with the detector outputs, these data contain universal and local times, orbit number, geographic coordinates (longitude, latitude, and radial

distance), geocentric equatorial inertial coordinates (right ascension of satellite, velocity vector right ascension, declination and magnitude of the satellite velocity, magnetic field right ascension and declination, and celestial right ascension and declination of the sun), geomagnetic coordinates (longitude, latitude, equatorial distance to line of force, and local time of satellite), real geomagnetic-field values (McIlwain's L-shell parameter, magnitude, B/Bo, and invariant latitude), sun eclipse times (times to next sunrise and sunset), and magnetic attitude of the satellite (magnetometer measurements in the X, Y, and Z directions).

Data set name - 15-SEC AVERAGED PARTICLE COUNT RATES ON MAGNETIC TAPE

NSSDC ID 69-066B-03B, 15-S AVG COUNT RATES, TAPE

Time period covered - 08/29/68 TO 05/30/70
(As verified by NSSDC)

Quantity of data - 17 REELS OF TAPE

This investigator-supplied data set of telescope count rates is on time-ordered, 7-track, 800-bpi, BCD magnetic tapes written on a UNIVAC 418 computer. It consists of particle count rates in 24 energy channels as follows: protons (10 channels), electrons (10 channels), alpha particles (3 channels), and particles of charge > 2 (1 channel). Each physical record contains eight "15-second averages" of the measurements. Each logical record consists of 269 18-bit words, including averaged count rates in each channel (counts/s) during the 15-s period; time; and the following parameters: McIlwain's L-shell, geomagnetic field magnitude, B/Bo, invariant latitude, and the number of counts on which each count rate is based.

********** ISIS 1 **********

Data set name - EXTENDED WORLD MAPS ON MAGNETIC TAPE

NSSDC ID 69-009A-00D, EXTENDED WORLD MAPS, TAPE

Time period covered - 06/06/69 TO 10/19/73
(As verified by NSSDC)

Quantity of data - 100 REELS OF TAPE

These data, prepared at GSFC, are listings of satellite position and supporting information for each minute (every 4 min after December 29, 1972) of Greenwich mean time. This data set is on 7-track, 556-bpi, odd-parity, binary magnetic tapes written on an IBM 7094 computer. The information provided includes local time, geodetic location, several varieties of magnetic-field-referenced location, sun position, and special point identification (equator crossing, north or south points, sunlight exit or entrance, and others).

Data set name - GSFC ORBIT ELEMENTS AT ABOUT 2 WEEK INTERVALS ON MAGNETIC TAPE

NSSDC ID 69-009A-00E, GSFC ORBITAL ELEMENTS, TAPE

Time period covered - 02/07/69 TO 01/23/75
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set, prepared at GSFC, provides ISIS 1 orbital elements at about 2-week intervals. The data set is on a 7-track, 556-bpi, even-parity, BCD magnetic tape written on an IBM 7094 computer. These data consist of the classical Keplerian elements plus anomalistic period, motion of perigee, and motion of right ascension. Since only a few pages of printout are required to display the tape data, normally, hardcopy listings are provided with one set of elements listed on each line. Units are in km, radians, radians/day and minutes.

ISIS 1, BARRINGTON
VLF RECEIVER

Data set name - VLF SPECTROGRAMS

NSSDC ID 69-009A-03A, VLF SPECTROGRAMS, MFILM

Time period covered - 01/30/69 TO 00/00/75
(Date supplied by experimenter)

This data set, provided by the principal investigator, consists of VLF data in a standard sonogram graphic form (frequency vs time). The sonograms are on 35-mm microfilm. They were prepared by the principal investigator from analog data on magnetic tape, recorded at telemetry stations in real time. Approximately 9000 passes were recorded, from which sonograms have been prepared for about 300 passes. By special arrangement, any data available on tape can be provided in limited quantities in sonogram form. The telemetered data processed into sonograms consist of three parts, each using different ranges on the frequency scales, i.e., nominally 0 to 20, 0 to 10, and 0 to 2.5 kHz. The time scale for the first two parts is 0.25 in./s, and it is 0.125 in./s for the 0- to 2.5-kHz sonograms. Identification information is noted prior to each pass over a station. Universal time is shown at 10-s intervals along the edge of the sonograms. An analog representation of the VLF-receiver AGC level is also shown along the edge of the sonograms. These data can be made available for viewing by contacting the principal investigator, Dr. R. E. Barrington, Communications Research Centre, Dept. of Communications, P.O. Box 11490, Station H, Ottawa, Ontario, Canada, K2H 8S2.

Data set name - VLF EMISSION INTENSITY DATA AT 4 NARROW BAND FREQUENCIES FROM KASHIMA AND SYOWA

NSSDC ID 69-009A-03B, KASHIMA AND SYOWA VLF DATA, BOOK

Time period covered - 11/21/72 TO 02/09/82
(As verified by NSSDC)

Quantity of data - 5 BOOKS OR BOUND VOLUMES

This data set, provided by the Radio Research Laboratories (RRL), Tokyo, Japan, consists of RRL reports showing graphs of VLF emission intensity at the satellite. The data set contains data from 230 ISIS 1 passes recorded at Kashima, Japan, during the period 1971 to 1975 and 1980 to 1982, and from 170 ISIS 1 passes recorded at Syowa, Antarctica, during the period 1979 to 1982. There is one strip chart for each of six frequencies (0.3, 1.5, 5, 8, 16, and 25 kHz) on each page. Intensity is graphed on an arbitrary dF scale vs five parameters (satellite altitude, universal and local times, L-shell value at the satellite, and satellite invariant latitude). On the data for the period 1979 to 1982 the upper frequency is 20 kHz instead of 25 kHz, and the geomagnetic latitude is given instead of the L value. This data set was received at NSSDC as unpublished, unnumbered, internal RRL reports titled "Radio and Space Data," v. 1, pt. 3, March 1975; v. 2/3, pt. 3, March 1976; v. 4, pt. 3, March 1977; v. 11, pt. 3, March 1983; and v. 13, May 1983. A single copy of these reports is available for use at NSSDC as TRF 82501A. On request, individual pages can be copied as required or a microfiche copy can be supplied.

ISIS 1, BRACE
CYLINDRICAL ELECTROSTATIC PROBES

Data set name - AVERAGED VALUES OF ELECTRON DENSITY AND TEMPERATURE ON MAGNETIC TAPE

NSSDC ID 69-009A-07A, ELECTRON DENSITY + TEMP, TAPE

Time period covered - 01/30/69 TO 06/01/71
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set, prepared by the principal investigator contains 17 months of electron number densities and electron temperatures observed at the satellite. The data set is on a 9-track, 1600-bpi, odd-parity, EBCDIC magnetic tape written on an IBM 360 computer. The data have been calculated from the telemetered retarding potential curves. Included in the listings for each data point are telemetry station, orbit number, date, Greenwich and local mean time, geodetic coordinates, geomagnetic latitude and longitude, geomagnetic-field intensity and dip angle, solar zenith angle, solar 10.7-cm flux, planetary Ap index, and satellite potential. Temperature data occur about every other data point, alternating with electron density values. Gaps in time coverage are usually a few orbits or less. The data have gaps in coverage caused primarily by limitations (or failure) of the tape recorder, and limitations of experiment scheduling. These same data are available on microfilm as data set 69-009A-07B. Summary plots at 1-week intervals are shown in data set 69-009A-07D.

Data set name - AVERAGED VALUES OF ELECTRON DENSITY AND TEMPERATURE ON MICROFICHE

NSSDC ID 69-009A-07B, ELECTRON DENSITY + TEMP, FICHE

Time period covered - 01/30/69 TO 06/01/71
(As verified by NSSDC)

Quantity of data - 32 CARDS OF B/W MICROFICHE

This data set, prepared on B/W microfiche by the

principal investigator, contains 17 months of electron densities and temperatures observed at the satellite. The data have been calculated from the telemetered retarding potential curves. Each data point represents averaged values from about 15 retarding potential curves. Included in the listings for each data point are telemetry station, orbit number, date, Greenwich and local mean time, geodetic coordinates, geomagnetic latitude and longitude, invariant latitude, intensity and dip angle of the geomagnetic field, solar zenith angle, solar 10.7-cm flux, planetary Ap index, and satellite potential. Temperature data occur about every other data point, alternating with electron density values. Gaps in time coverage are usually a few orbits or less. The data gaps in coverage are caused primarily by limitations of experiment scheduling. These same data are available on tape as data set 69-009A-07A. Summary plots at 1-week intervals are shown in data set 69-009A-07D.

Data set name - ELECTRON DENSITY AND TEMPERATURE PLOTS ON MICROFICHE

NSSDC ID 69-009A-07D, ELECT DENSITY + TEMP PLOTS, FICHE

Time period covered - 01/30/69 TO 06/05/70
(As verified by NSSDC)

Quantity of data - 3 CARDS OF B/W MICROFICHE

This data set, provided by the principal investigator, shows plots of 17 months of observation of electron densities and electron temperature recorded at the satellite. The data have been calculated from the telemetered retarding potential curves, primarily from the boom probe. The data set shows electron density, electron temperature, satellite altitude, and local time as separate graphs each plotted vs dip latitude. Each graph contains 1 week of data. Consecutive measurements during a given pass are connected by solid lines. Because of relatively small changes in altitude and local time at a given latitude during 1 week, a fairly consistent global pattern is obtained from the weekly plots. Gaps in time coverage are usually not noticeable, generally being a few orbits or less. Such gaps were caused by failure of the tape recorder, which occurred about 1 year after launch, and by limitations of experiment/satellite scheduling. This microfiche data set was prepared at NSSDC from an unpublished GSFC document, numbered X-601-73-49, and titled "An overview of the ISIS 1 electrostatic probe measurements of electron temperature and concentration" by L. H. Bruce et al, February 1973. A single copy of this document is available for use at NSSDC as TRF 815844. On request, individual pages can be copied as required, or the microfiche copy can be supplied. The numerical data used to derive this data set are shown in data sets 69-009A-07A or 69-009A-07B.

ISIS 1, CALVERT
FIXED-FREQUENCY SOUNDER

Data set name - FIXED-FREQUENCY IONOGRAMS ON MICROFILM

NSSDC ID 69-009A-02A, FIXED-FREQ IONOGRAMS, MFILM

Time period covered - 01/30/69 TO 10/12/73
(As verified by NSSDC)

Quantity of data - 2422 REELS OF MICROFILM

This data set consists of fixed-frequency ionograms that are contained directly in front of each sweep-frequency ionogram of data set 69-009A-01A. This data set is contained on reels of 35-mm microfilm. Processing has been carried out at several locations: CRC in Ottawa, Canada; RSRS in Slough, England; NOAA in Boulder, Colorado (between launch and May 1972); and after the fall of 1972, at PRL in Tokyo, Japan, and at the Geophysical Observatory in Christchurch, New Zealand. These ionograms are reduced data plots showing at a selected fixed frequency the echo time delay (virtual range) of pulsed radio signals. They are an original form of the data prepared directly from the telemetry tape. Height markers have been placed on each ionogram. The numeral code below the ionogram provides the following information. The first digit represents the satellite (3=ISIS 1). The second digit indicates which fixed frequency was used (0=none, 1=0.25 MHz, 2=0.48 MHz, etc., 7=unknown). The next two digits indicate the telemetry station that acquired the data (e.g., 50=Ottawa). The station number is followed by the year (2 digits), the day number, and the Greenwich mean time (hours, minutes, and seconds). In order to determine satellite location and altitude, satellite ephemerides must be consulted.

ISIS 1, HARTZ
COSMIC RADIO NOISE

Data set name - COSMIC RADIO NOISE, AGC LEVEL PLOTS ON 35-MM MICROFILM MERGED WITH IONOGRAMS

NSSDC ID 69-009A-10A, COSMIC RADIO NOISE-AGC LEV.,MFILM

Time period covered - 01/30/69 TO 10/12/73
(As verified by NSSDC)

Quantity of data - 1196 REELS OF MICROFILM

This data set, provided by the principal investigator at the Communications Research Centre in Ottawa, Canada, consists of the sounder automatic gain control (AGC) level plotted vs time on the ionograms of microfilm data set 69-009A-01A. Since the sounder receiver is a sweep-frequency receiver, the AGC data are in effect plotted vs frequency. The frequency resolution is relatively good, but the flux resolution is very poor due to the restricted plot height. These data are also available, with the flux displayed on an expanded scale, from the experimenter. Temporal coverage is limited to less than 7 h per day. An index to the ionograms which lists times when the AGC voltage was recorded is available as data set 69-009A-01B.

ISIS 1, HEIKKILA
SOFT-PARTICLE SPECTROMETER

Data set name - SOFT PARTICLE SPECTROGRAMS OF ELECTRON AND PROTON DATA ON MICROFILM

NSSDC ID 69-009A-05A, SOFT PARTICLE SPECTROGRAMS, MFILM

Time period covered - 02/03/69 TO 10/27/69
(As verified by NSSDC)

Quantity of data - 32 REELS OF MICROFILM

This data set, provided by the principal investigator, consists of soft-particle spectrograms of electron and proton data on microfilm. The electron data and the proton data are displayed on separate spectrograms and identified by the label above the spectrograms. The same format is used for both types of spectrograms. The top two rows show the dipole magnetic local time and the invariant latitude. The top panel provides an energy-time spectrogram. The ordinate is the log 10 of the particle energy, and the abscissa is universal time. The gray-scale intensity represents the counts per accumulation period (11.1 ms) at a given energy. The small panel labeled theta sub p gives the nominal pitch angle for each spectrum: theta sub p less than 90 deg and theta sub p greater than 90 deg represent the flux in and out of the atmosphere, respectively. The middle and lower panels are the number and energy fluxes obtained by a histogram integration of the observed spectrum from 5 eV to 15 keV. The abscissa of the spectrogram is marked off in minutes of universal time. The day number and the universal time at the beginning of the spectrogram are given in the lower left-hand corner. The geographic latitude and longitude at the beginning and end of the spectrogram are given. The values at the bottom of the spectrogram with the suffix LT represent the local solar time at the beginning of the spectrogram. The year is not indicated on the spectrograms; however, all data in this data set were obtained in 1969.

ISIS 1, MCDIARMID
ENERGETIC PARTICLE DETECTORS

Data set name - REDUCED COUNT RATE DATA ON MAGNETIC TAPE

NSSDC ID 69-009A-04A, ELECTRON + PROTON DATA, TAPE

Time period covered - 02/02/69 TO 12/29/69
(As verified by NSSDC)

Quantity of data - 35 REELS OF TAPE

This data set, generated by the principal investigator, provides the output of 11 electron detectors (yielding the electron energy spectrum in the range 10 to 200 keV), and the output of 7 proton detectors (yielding the proton energy spectrum in the range 50 keV to 55 MeV). The data set is on 9-track, 800-bpi, odd-parity, binary magnetic tapes written on an IBM 360 computer. In addition to the electron and proton data, the data set includes pitch angle values for electrons greater than 20 keV, the date, the Greenwich mean time, the local solar time, the local magnetic time, the geodetic coordinates, the geomagnetic latitude and longitude, the geomagnetic B and L values, and the angle between the spin axis and the geomagnetic field.

ISIS 1, NELMS
SWEEP-FREQUENCY SOUNDER

Data set name - SWEEP-FREQUENCY IONOGRAMS ON MICROFILM

NSSDC ID 69-009A-01A, SWEEP-FREQUENCY IONOGRAMS, MFILM

Time period covered - 03/16/69 TO 12/30/81
(As verified by NSSDC)

Quantity of data - 2422 REELS OF MICROFILM

This data set consists of ISIS 1 ionograms on reels of 35-mm microfilm. Processing has been carried out at several locations: CRC in Ottawa, Canada; RSRS in Slough, England; NOAA in Boulder, Colorado (between launch and May 1972); and after the fall of 1972, at RRL in Tokyo, Japan, and at the Geophysical Observatory in Christchurch, New Zealand. These ionograms are reduced data plots showing as a function of frequency the echo time delay (virtual range) of pulsed radio signals. They are an original form of the data prepared directly from the telemetry tape. Height and frequency markers have been placed on each ionogram. The numeral code below the ionogram provides the following information. The first digit represents the satellite (3=ISIS 1). The second digit indicates which fixed frequency was used (0=none, 1=0.25 MHz, 2=0.48 MHz, etc., 7=unknown). The next two digits indicate the telemetry station that acquired the data (Ex. 50=Ottawa). The station number is followed by the year (2 digits), the day number, and the Greenwich mean time (hours, minutes, and seconds). The data are available to the extent permitted by telemetry station scheduling, location of telemetry stations, tape recorder operation and scheduling. Spacecraft power availability, which was also an important factor in data observation, limited sounder operation to about 7 h per day, of which about 1 h per orbit could be for recorded data. The tape recorder failed on January 30, 1970. Since only time is noted on each ionogram, satellite position and related information must be obtained from another source (NSSDC data set 69-009A-00C). An index of these ionograms is also available as NSSDC data set 69-009A-01B. A program for the reduction of topside ionograms to electron density profiles is available from NSSDC.

Data set name - IONOGRAM INVENTORY ON TAPE

NSSDC ID 69-009A-01B, NSSDC IONOGRAM INVENTORY, TAPE

Time period covered - 01/30/69 TO 10/12/73
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set, prepared at NSSDC, indexes the ISIS 1 ionograms (data sets 69-009A-01A, -02A, and -10A) by station pass. The data are on a 9-track, 1600-bpi, odd-parity, ASCII magnetic tape written on a MODCOMP IV computer. Information in the data set includes ionogram quality, telemetry station, stop and start data for the pass (times and locations), location at which the original telemetry tapes are stored, and experiment mode of operation. Some information relating to investigations 69-009A-02, -03, and -10 are also included since these investigations are closely related to the sounder operation; e.g., the value of the fixed frequency used is given, the presence of AGC trace is noted, and VLF operation is indicated. This index was prepared from an inventory of film received. The data can be provided on hardcopy or on microfilm, sorted according to time or station and time.

Data set name - NASA-ARC ELECTRON DENSITIES INTERPOLATED TO 100-KM INTERVALS ON (PACKED) TAPE

NSSDC ID 69-009A-01C, ARC N(H) INT PROFILES, TAPE

Time period covered - 02/13/69 TO 06/07/72
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set, provided by the Ames Research Center, consists of electron density profiles for the ionosphere above the F2 maximum (topside ionosphere). The data are packed on 7-track, 800-bpi, odd-parity, binary magnetic tapes, written on an IBM 360 computer. An unpacking routine, called "tape," is available at NSSDC for this data set. These profiles were initially computed from digital values of frequency and virtual range that were scaled from ionograms. Digital electron density values are listed for the satellite location and for each 100 km from the satellite altitude down to the lowest height of topside signal reflections (normally near 300 km). These data are part of a collection prepared from the Alouette 2, ISIS 1, and ISIS 2 satellites. From all three satellites, there are 33,000 profiles for the period November 11, 1965, to June 7, 1972, from the vicinity of 18 different ground stations. These data are from a small block of the total ionogram data from the three satellites (less than 1%), but they form one of the largest blocks of reduced satellite ionograms available. These reductions are of optimum quality because extraordinary, ordinary, and z-trace values were checked against one another during computation of the density values.

Data set name - INDEX OF IONOGRAMS SHOWING DUCTED ECHOES

NSSDC ID 69-009A-01E, CRC INDEX OF DUCTED ECHOES, TAPE

Time period covered - 02/01/69 TO 12/27/71
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set, prepared at the Communications Research Centre in Ottawa, Canada, is an index to low-latitude ionograms containing ducted echoes. The data are on a 9-track, 800-bpi, odd-parity, EBCDIC magnetic tape written on an IBM 360 computer. The criterion for selection was that at least one trace from the conjugate hemisphere appeared on the ionogram. Each record contains the satellite identification, ground station (Quito=5, Santiago=6, Ft. Meyer=3, Orroral=21, Singapore=48), pass start time (UT), the number of ionograms in the pass showing ducted echoes, and the number not showing ducted echoes. For 3050 passes (about 1.E5 ionograms), approximately 2000 ionograms with ducted echoes are identified. Similar data for other times are stored on the same tape and are described under data sets 62-049A-01D, 65-098A-01N, and 71-024A-01E.

Data set name - CRC ELECTRON DENSITY PROFILES AT SCALED POINTS ON MAGNETIC TAPES

NSSDC ID 69-009A-01F, CRC N(H) SCALED PROFILES, TAPE

Time period covered - 02/01/69 TO 05/30/80
(As verified by NSSDC)

Quantity of data - 6 REELS OF TAPE

This data set, provided by the Communications Research Centre (CRC) in Ottawa, Canada, consists of electron density profiles for the ionosphere above the F2 maximum (topside ionosphere). The data set is on 9-track, 800-bpi, odd-parity, binary magnetic tapes, written on an IBM 360 computer. The electron density profiles were computed from digital values of frequency and virtual height, scaled from ionograms. The data are ordered chronologically. Telemetry stations are not identified, but satellite location, Greenwich mean time of observation, solar zenith angle at the satellite, dip latitude at the satellite, total electron content down to the lowest height of topside signal reflection (normally near 300 km), and other relevant information is noted with each profile. The format gives sequences of numbers for each point scaled from the ionogram. These sequences include electron density at the successive points, and the coefficients a2, b3, b4, b5, etc. from which geometric heights can be calculated, using formulas 40 and 41 in J. E. Jackson, "The reduction of topside ionograms to electron-density profiles," Proceedings of the IEEE., p. 960, June 1969. These formulas can also be used to calculate interpolated density-height values. A CRC interpolation program (available at NSSDC) can be used with this data set. The ionograms were selected for their scientific interest and comprise only a very small portion of reductions possible from the available ionograms.

Data set name - IONOSONDE RECEIVER SIGNAL AMPLITUDE VERSUS TIME PLOTS

NSSDC ID 69-009A-01G, SOUNDER AGC VS TIME PLOTS, MFILM

Time period covered - (N/A)

This data set, prepared from the ionosonde telemetry tapes at NSSDC, consists of continuous plots of receiver signal amplitude versus time. This data set can be made available on microfilm (16 or 35 mm). The time scale is greatly expanded in comparison to the ionogram so that one ionogram line (16 ms) occupies about 0.5 in. of film record. No amplitude scaling is on the film. In addition to the amplitude records, there are a 1-kHz time signal trace and frequency marker information. Amplitude records for each ionogram require approximately 50 ft of film. Data for a limited number of ionograms were prepared for use in a study of plasma resonance. Additional similar data for other ionograms may be obtained in limited quantity by arrangement with the experiment principal investigator's office as long as original telemetry tapes are on file.

ISIS 1, SAGALYN
SPHERICAL ELECTROSTATIC ANALYZER

Data set name - ION DENSITY ON 35-MM FILM
(*)

NSSDC ID 69-009A-08A, ION DENSITY, MFILM

Time period covered - 01/31/69 TO 11/20/69
(As verified by NSSDC)

Quantity of data - 10 REELS OF MICROFILM

This data set, provided by the principal investigator, contains plots of ion density vs universal time on 35-mm film. The density scale (ordinate) is logarithmic, extends over four decades from 100 to 1.E5, and is expressed in units of number of ions per cc. The linear time scale (abscissa) covers a 30-min time interval per film frame, and has tick marks every 2 minutes. The time span of the data plotted varies from frame to frame. Other parameters shown on each frame include: date of measurement, orbit number, ground station that received the data, altitude, local time, geodetic latitude and longitude, invariant latitude, McIlwain's L-shell parameter, and magnetic local time. The data are available in numerical form in data set 69-009-08B.

Data set name - ION TEMPERATURE AND DENSITY ON MAGNETIC TAPE

NSSDC ID 69-009A-08B, ION TEMP AND DENSITY, TAPE

Time period covered - 01/31/69 TO 11/30/69
(As verified by NSSDC)

Quantity of data - 4 REELS OF TAPE

This data set, provided by the principal investigator, contains ion density and temperature data. The data set is on 7-track, 800-bpi, odd-parity, binary tapes written on a CDC 6600 computer with the scope 3.3 operating system. Each tape contains results of the analysis on the data observed in 1 month (February, March, April, and November 1969). Each record in a file contains ephemeris data and the results from one sweep. The sweeps are obtained once every min and last for 2 s, hence the output parameters represent averaged values over 2-s periods at 1 min intervals. The output parameters presented include ion temperature, ion density, and vehicle potential. Other parameters shown include the following: date of measurement, orbit number, ground station that received the data, altitude, local time, geodetic latitude and longitude, invariant latitude, McIlwain's L-shell parameter, magnetic local time, intensity and orientation of the geomagnetic field, components of the solar position vector, spacecraft velocity, and spacecraft attitude. The data are available in graphical form in data set 69-009-08A.

********** ISIS 2 **********

Data set name - EXTENDED WORLD MAPS ON MAGNETIC TAPE

NSSDC ID 71-024A-00D, EXTENDED WORLD MAPS, TAPE

Time period covered - 04/01/71 TO 10/24/73
(As verified by NSSDC)

Quantity of data - 57 REELS OF TAPE

These data, prepared at GSFC, are listings of satellite position and supporting information for each minute of Greenwich mean time. This data set is on 7-track, 556-bpi, odd-parity, binary magnetic tapes written on an IBM 7094 computer. The information provided includes local time, geodetic location, several varieties of magnetic-fieldreferenced location, sun position, and special point identification (equator crossing, north or south points, sunlight exit or entrance, and others).

Data set name - GSFC ORBIT ELEMENTS AT ABOUT 2 WEEK INTERVALS

NSSDC ID 71-024A-00E, GSFC ORBITAL ELEMENTS, TAPE

Time period covered - 04/08/71 TO 01/23/75
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set, prepared at GSFC, provides ISIS 2 orbital elements at about 2-week intervals. The data set is on a 7-track, 556-bpi, even-parity, BCD magnetic tape written on an IBM 7094 computer. These data consist of the classical Keplerian elements plus anomalistic period, motion of perigee, and motion of right ascension. Since only a few pages of printout are required to display the tape data, normally, hardcopy listings are provided with one set of elements listed on each line. Units are in km, radians, radians/day and minutes.

Data set name - EXPERIMENT OPERATION LOG, TAPE

NSSDC ID 71-024A-00F, EXP OPERATION LOG, TAPE

Time period covered - 12/01/71 TO 12/31/74
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set is a listing of satellite scheduled on-times which were prepared by the ISIS 2 control office near Ottawa. The listing is on a 9-track, 800-bpi, odd-parity, binary tape prepared on an IBM 360 computer. The data set is in chronological order, and it includes station start and stop dates and times, tape file number, status of each investigation, and remarks. The cosmic-noise investigation operates concurrently with the sounder and it is not separately indexed. The same data are available on microfiche as data set 71-024A-00G. These data were used with ephemeris data to prepare data set 71-024A-00H, which consists of chronological plots showing magnetic eccentric-dipole latitude and day/night indication of satellite on-times.

Data set name - EXPERIMENT OPERATION LOG, CHRONOLOGICAL LISTING ON MICROFILM.

NSSDC ID 71-024A-00G, EXP OPERATION LOG, MFILM

Time period covered - 01/01/81 TO 12/31/82
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This data set is a listing on microfilm of satellite scheduled on-times which was prepared by the ISIS 2 control office near Ottawa. The listing is in chronological order and it includes station, start and stop dates and times, tape file number, status of each investigation, and remarks. The cosmic-noise experiment operates concurrently with the sounder, and is not separately indexed. The same data are available on tape in data set 71-024A-00F. The utility of this data set can be appreciably enhanced by coordinated reference to data set 71-024A-00H since its plots index magnetic eccentric-dipole latitude and day/night indication of satellite on-time in a chronological (GMT) sequence.

Data set name - LATITUDE VERSUS TIME PLOTS OF SATELLITE OPERATION (ON MICROFILM)

NSSDC ID 71-024A-00H, EXP OPERATION LOG (PLOTS), MFILM

Time period covered - 12/01/71 TO 06/30/76
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This microfilm data set consists of plots ordered chronologically which index magnetic eccentric-dipole latitude and day/night indication of satellite on-time. These plots were prepared by the ISIS 2 control office near Ottawa. Their utility is appreciably enhanced by coordinated reference to data set 71-024A-00G which indicates the experiment and operating modes that were turned on at the time of interest.

Data set name - COORDINATED IONOSPHERIC + MAGNETOSPHERIC OBSERVATIONS FROM ISIS 2 (IN 4 VOLUMES)

NSSDC ID 71-024A-00I, COORD. ISIS 2 OBSERVATIONS, BOOK

Time period covered - 10/22/71 TO 08/02/72
(As verified by NSSDC)

Quantity of data - 4 BOOKS OR BOUND VOLUMES

This data set, provided by ISIS 2 project personnel, describes the ISIS 2 spacecraft and its two modes of operation. It is part of a 4-volume publication by NSSDC that contains the data obtained from 9 of the 12 ISIS 2 investigations during 135 passes. Data from the spacecraft magnetometer are also included in this data set. Each pass yielded typically 20 minutes of data, corresponding to a latitude range of about 60 degrees. The spacecraft had two modes of operation: (1) the cartwheel (CW) mode (spin axis perpendicular to orbital plane) and the orbit-aligned (OA) mode (spin axis in the orbital plane). The spacecraft was in the OA mode for all the measurements described in Volume 1 and for most of the measurements described in Volume 4. The measurements in Volume 2 and Volume 3 were all obtained in the CW mode. Five of the investigations (listed under Barrington, Brace, Heikkila, McDiarmid and Whitteker) provided data in both OA and CW modes. Of the remaining four investigations, two (listed under Hoffman and Maier) were designed for the cartwheel mode, and two (listed under Anger and Shepherd) were designed to operate primarily in the OA mode. The magnetometer data were most useful in the cartwheel mode. Thus, two groups of simultaneous measurements are available, one for each mode of spacecraft orientation. A chronological list of the data available in the four volumes is given at the end of Volume 4. The data

obtained by the various ISIS 2 investigations are indicated in the descriptions for the following data sets: 71-024A-01I, -03C, -04C, -05B, -06C, -07C, -08C, -11C, and -12C. The data in Volumes 1, 2, 3, and 4 were selected by the ISIS 2 investigators to illustrate specific geophysical phenomena, as explained ahead of each data selection. The NSSDC publication numbers for Volumes 1, 2, 3, and 4 are 80-03, 80-09, 80-05, and 81-01, respectively. These publications will be available upon request until the supply is exhausted, after which time only microfiche copies will be available.

ISIS 2, ANGER
3914- AND 5577-A PHOTOMETER

Data set name - 3914-A AND 5577-A INTENSITY MAPS ON TAPE

NSSDC ID 71-024A-11A, 3914-A AND 5577-A DATA, TAPE

Time period covered - 04/23/71 TO 12/31/71
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set, supplied by the principal investigator, provides auroral and airglow emissions at 5577 and 3914 A over the portion of the dark earth visible from the spacecraft. The data set is on a 9-track, 800-bpi, odd-parity, binary magnetic tape, written on an IBM 370 computer. Each file contains data from one processed pass, and consists of six records. One record contains a table of limb-crossing times and spacecraft orbital parameters. The remaining records consist of spin maps of geographic latitude and longitude, and of intensity measurements at 5577 and 3914 A. The first column of the table gives the spin number. Other column headings include universal time, geographic and magnetic latitude and longitude of the spacecraft, the McIlwain's L-shell value, and the solar zenith angle. The spin maps for the 6300-A emission (data set 71-024A-12A) are on the same magnetic tape. Each spin map is a matrix having 40 columns and a number of rows equal to the number of spacecraft rotations. A given row and column element has the same look point in all spin maps.

Data set name - POLAR PLOTS OF OPTICAL EMISSION
INTENSITIES (3914-A AND 5577-A)

NSSDC ID 71-024A-11B, POLAR EMISSION PLOTS, MFILM

Time period covered - 01/06/73 TO 01/29/74
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This data set, supplied by the principal investigator, provides auroral and airglow emission contours at 5577 and 3914 A over the portion of the dark earth visible from the spacecraft. The 5577-A contours and the 3914-A contours are plotted on separate graphs. The format is a projection onto a plane tangent to the earth's geographic north pole. The circumference is the projection of the equator, and the horizontal line is the Greenwich meridian. There are latitude marks at 10-deg increments, and the position of the sun for the first and last spacecraft rotations is given. The subsatellite track (usually at 250-km altitude) is plotted with marks indicating each spacecraft rotation. Each tenth mark is labeled, and an accompanying table gives the universal time for each spin. The intensity contouring is done at levels indicated in the upper right-hand corner of the graph. The date, orbit number, and the times for the first and last spin numbers of the satellite pass are also indicated.

Data set name - COORDINATED IONOSPHERIC + MAGNETOSPHERIC
OBSERVATIONS FROM ISIS 2 (IN 4 VOLUMES)

NSSDC ID 71-024A-11C, COORD. ISIS 2 OBSERVATIONS, BOOK

Time period covered - 10/17/71 TO 12/13/75
(As verified by NSSDC)

Quantity of data - 4 BOOKS OR BOUND VOLUMES

This data set, supplied by the principal investigator, provides auroral and airglow emissions at 5577 and 3914 A over the portion of the dark earth visible from the spacecraft. The data set is part of a 4-volume publication by NSSDC that includes data from the ISIS 2 spacecraft and from 9 of the 12 ISIS 2 investigations. There are two formats for this data set, one for measurements in the cartwheel (CW) mode (spacecraft spin axis perpendicular to orbital plane), and one for measurements in the orbit-aligned (OA) mode (spacecraft spin axis in orbital plane). In the CW mode the optical scans are repeatedly along the spacecraft track. The corresponding observed 3914- and 5577-A emission intensities are plotted as a function of universal time for a 12-min time interval. On the same graph are also given pitch angle, the 6300-A emission intensities and the soft-particle spectrometer data integrated over four energy bands: 5 to 60 eV, 60 to 300 eV, 300 to 1000 eV and 1000 to 15,000 eV. Supporting orbital information provided with the graphs include the following for every minute of universal time: invariant latitude, invariant time, solar depression angle at the location of the viewed emission, and solar depression angle at the magnetic conjugate point to the viewed emission. Also indicated on the graphs are orbit number, date, and start time. Data obtained in the CW mode are given for 36 ISIS 2 passes. The measurements in the CW mode can be used to derive the equivalent vertical column emission rate. The vertical emission at 5577 A has been plotted versus geographic latitude for a few ISIS 2 passes. The data obtained in the CW mode can also provide some indication of the vertical distribution. A few examples of 5577-A "height" profiles are also given. In the orbit-aligned mode, the photometers sweep out fixed narrow strips perpendicular to the direction of orbital motion. These strips are combined during data processing to provide a gray-scale polar plot of the 3914- and 5577-A emissions. Timing marks on the polar plot are used to provide a time scale and to show the subsatellite track. Data obtained in the OA mode are given for 45 ISIS 2 passes. During these passes, simultaneous correlative measurements were made with other ISIS 2 investigations as explained in the description for data set 71-024A-00I, and as shown in the chronological listing at the end of Volume 4. The NSSDC publication numbers for Volumes 1, 2, 3, and 4 are 80-03, 80-09, 80-05, and 81-01, respectively. These publications will be available upon request until the supply is exhausted, after which time only microfiche copies will be available.

ISIS 2, BARRINGTON
VLF RECEIVER

Data set name - VLF SPECTROGRAMS

NSSDC ID 71-024A-03A, VLF SPECTROGRAMS, MFILM

Time period covered - (N/A)

This data set, provided by the principal investigator, consists of VLF data in a standard sonogram graphic form (frequency vs time). The sonograms are on 35-mm microfilm. They were prepared by the principal investigator from analog data on magnetic tape, recorded at telemetry stations in real time. Approximately 1.7E4 passes were recorded, from which sonograms have been prepared for about 1000 passes. By special arrangement, any data available on tape can be provided in limited quantities in sonogram form. Each pass processed into sonograms consists of three parts, each using different ranges on the frequency scales, i.e., nominally 0 to 20, 0 to 10, and 0 to 2.5 kHz. The time scale for the first two parts is 0.25 in./s, and it is 0.125 in./s for the 0- to 2.5-kHz sonograms. Identification information is noted prior to each pass over a station. Universal time is shown at 10-s intervals along the edge of the sonograms. An analog representation of the VLF-receiver AGC level is also shown along the edge of the sonograms. These data can be made available for viewing by contacting the principal investigator, Dr. R. E. Barrington, Communications Research Centre, Dept. of Communications, P.O. Box 11490, Station H, Ottawa, Ontario, Canada, K2H 8S2.

Data set name - VLF EMISSION INTENSITY DATA AT 6 NARROW
HAND FREQUENCIES FROM KASHIMA AND SYOWA

NSSDC ID 71-024A-03B, KASHIMA AND SYOWA VLF DATA, BOOK

Time period covered - 11/08/72 TO 05/02/82
(As verified by NSSDC)

Quantity of data - 5 BOOKS OR BOUND VOLUMES

This data set, provided by the Radio Research Laboratories (RRL), Tokyo, Japan, consists of RRL reports showing graphs of VLF emission intensity at the satellite. The data set contains data from 62 ISIS 2 passes recorded at Kashima, Japan, during the period 1971 to 1975 and 1980 to 1982, and 170 ISIS 2 passes recorded at Syowa, Antarctica, during the period 1979 to 1982. There is one strip chart for each of six frequencies (0.3, 1.5, 5, 8, 15, and 25 kHz) on each page. Intensity is graphed on an arbitrary dB scale vs five parameters (satellite altitude, universal and local times, L-shell value at the satellite, and satellite invariant latitude). On the data for the period 1979 to 1982 the upper frequency is 20 kHz instead of 25 kHz, and the geomagnetic latitude is given instead of the L value. This data set was received at NSSDC as unpublished, unnumbered, internal RRL reports titled "Radio and Space Data," v. 1, pt. 3, March 1975; v. 2/3, pt. 3, March 1976; v. 4, pt. 3, March 1977; v. 11, pt. 3, March 1983; and v. 13, May 1983. A single copy of these reports is available for use at NSSDC as TRF 825018. On request, individual pages can be copied as required, or a microfiche copy can be supplied.

Data set name - COORDINATED IONOSPHERIC + MAGNETOSPHERIC
OBSERVATIONS FROM ISIS 2 (IN 4 VOLUMES)

NSSDC ID 71-024A-03C, COORD. ISIS 2 OBSERVATIONS, BOOK

Time period covered - 05/15/71 TO 01/01/74
(As verified by NSSDC)

Quantity of data - 4 BOOKS OR BOUND VOLUMES

This data set, provided by the principal investigator, contains VLF data in standard sonogram form (signal frequency vs time.) The data set is part of a 4-volume publication by NSSDC that includes data from the ISIS 2 spacecraft and from 9 of the 12 ISIS 2 investigations. The VLF sonograms were initially prepared on 35-mm film from analog data on magnetic tape. The data set shows VLF data obtained during 25 ISIS 2 passes. For each pass, only a few (4 or less) excerpts of the VLF data are shown. These excerpts are prints of the 35-mm film with either 1X or 2X magnification. They last typically 15 to 20 s and they are identified by the corresponding universal time. During these passes, simultaneous correlative measurements were made with other ISIS 2 investigations as explained in the description for data set 71-024A-00I, and as shown in the chronological listing at the end of Volume 4. The NSSDC publication numbers for Volumes 1, 2, 3, and 4 are 80-03, 80-09, 80-05, and 81-01, respectively. These publications will be available upon request until the supply is exhausted, after which time only microfiche copies will be available.

ISIS 2, BRACE
CYLINDRICAL ELECTROSTATIC PROBES

Data set name - AVERAGED VALUE OF ELECTRON DENSITY AND TEMPERATURE ON MAGNETIC TAPE

NSSDC ID 71-024A-07A, ELECTRON DENSITY + TEMP, TAPE

Time period covered - 04/14/71 TO 03/31/73
(As verified by NSSDC)

Quantity of data - 8 REELS OF TAPE

This data set, prepared by the principal investigator contains a 2-year span of electron number densities and electron temperatures observed at the satellite. The data set is on a 9-track, 1600-bpi, odd-parity, binary magnetic tape written on an IBM 360 computer. The data have been calculated from the telemetered retarding potential curves. Included in the listings for each data point are telemetry station, orbit number, date, Greenwich and local mean time, geodetic coordinates, geomagnetic latitude and longitude, geomagnetic-field intensity and dip angle, solar zenith angle, solar 10.7-cm flux, planetary Ap index, and satellite potential. Temperature data occur about every other data point, alternating with electron density values. Gaps in time coverage are usually a few orbits or less. The data have gaps in coverage caused primarily by limitations (or failure) of the tape recorder, and limitations of experiment scheduling. These same data are available on microfilm as data set 71-024A-07B.

Data set name - AVERAGED VALUES OF ELECTRON DENSITY AND TEMPERATURE ON MICROFILM

NSSDC ID 71-024A-07B, ELECTRON DENSITY + TEMP, MFILM

Time period covered - 04/14/71 TO 03/31/73
(As verified by NSSDC)

Quantity of data - 8 REELS OF MICROFILM

This data set, prepared on 16-mm microfilm by the principal investigator, contains a 2-year span of electron densities and temperatures observed at the satellite. The data have been calculated from the telemetered retarding potential curves. Each data point represents averaged values from about 15 retarding potential curves. Included in the listings for each data point are telemetry station, orbit number, date, Greenwich and local mean time, geodetic coordinates, geomagnetic latitude and longitude, invariant latitude, intensity and dip angle of the geomagnetic field, solar zenith angle, solar 10.7-cm flux, planetary Ap index, and satellite potential. Temperature data occur about every other data point, alternating with electron density values. Gaps in time coverage are usually a few orbits or less. The data gaps in coverage are caused primarily by limitations of experiment scheduling. These same data are available on tape as data set 71-024A-07A.

Data set name - COORDINATED IONOSPHERIC + MAGNETOSPHERIC OBSERVATIONS FROM ISIS 2 (IN 4 VOLUMES)

NSSDC ID 71-024A-07C, COORD. ISIS 2 OBSERVATIONS, BOOK

Time period covered - 05/15/71 TO 12/13/75
(As verified by NSSDC)

Quantity of data - 4 BOOKS OR BOUND VOLUMES

This data set, provided by the principal investigator, contains graphs of electron densities and temperatures observed at the satellite. The data set is part of a 4-volume publication by NSSDC that includes data from the ISIS 2 spacecraft and from 9 of the 12 ISIS 2 investigations. The graphs are for a time span of typically 20 min. The date and orbit number are given above the graphs. Included below the graphs at 2-min intervals are: universal, local-solar, and magnetic times; geodetic latitude and longitude; dip and invariant latitudes; solar zenith angle; and height above the geoid. These graphs are provided for a total of 128 passes. During these passes, simultaneous correlative measurements were made with other ISIS 2 investigations as explained in the description for data set 71-024A-00I, and as shown in the chronological listing at the end of Volume 4. The NSSDC publication numbers for Volumes 1, 2, 3, and 4 are 80-03, 80-09, 80-05, and 81-01, respectively. These publications will be available upon request until the supply is exhausted, after which time only microfiche copies will be available.

ISIS 2, CALVERT
FIXED-FREQUENCY SOUNDER

Data set name - FIXED-FREQUENCY IONOGRAMS ON MICROFILM

NSSDC ID 71-024A-02A, FIXED-FREQ IONOGRAMS, MFILM

Time period covered - 04/08/71 TO 07/03/75
(As verified by NSSDC)

Quantity of data - 2033 REELS OF MICROFILM

This data set consists of fixed-frequency ionograms that are contained directly in front of each sweep-frequency ionogram of data set 71-024A-01A. This data set is contained on reels of 35-mm microfilm. Processing has been carried out at several locations: CRC in Ottawa, Canada; RSRS in Slough, England; NOAA in Boulder, Colorado (between launch and May 1972); and after the fall of 1972, at RRL in Tokyo, Japan, and at the Geophysical Observatory in Christchurch, New Zealand. These ionograms are reduced data plots showing at a selected fixed frequency the echo time delay (virtual range) of pulsed radio signals. They are an original form of the data prepared directly from the telemetry tape. Height markers have been placed on each ionogram. The numeral code below the ionogram provides the following information. The first digit represents the satellite (4=ISIS 2). The second digit indicates which fixed frequency was used (0=none, 1=0.12 MHz, 2=0.48 MHz, etc., 7=unknown). The next two digits indicate the telemetry station that acquired the data (Ex. 50=Ottawa). The station number is followed by the year (2 digits), the day number, and the Greenwich mean time (hours, minutes, and seconds). In order to determine satellite location and altitude, satellite ephemerides must be consulted.

ISIS 2, HARTZ
COSMIC RADIO NOISE

Data set name - COSMIC RADIO NOISE, AGC LEVEL PLOTS ON 35-MM MICROFILM, MERGED WITH IONOGRAMS

NSSDC ID 71-024A-10A, COSMIC RADIO NOISE-AGC LEV, MFILM

Time period covered - 04/08/71 TO 11/30/73
(As verified by NSSDC)

Quantity of data - 1137 REELS OF MICROFILM

This microfilm data set is included as signal strength lines on the ionograms of data set 71-024A-01A. Processing has been carried out at several locations: CRC in Ottawa, Canada; RSRS in Slough, England; NOAA in Boulder, Colorado (between launch and May 1972); and after the fall of 1972, at RRL in Tokyo, Japan and at the Geophysical Observatory in Christchurch, New Zealand. The signal strength is indicated by the automatic gain control level which is plotted vs time (or equivalently vs frequency, as the receiver is a sweep-frequency receiver). The frequency resolution is relatively good, but the flux resolution is very poor due to the restricted plot height. These data are also available, with the flux displayed on an expanded scale, from the principal investigator. Temporal coverage is limited to less than 7 h per day. An index to the ionograms which lists times when the AGC voltage was recovered is available as data set 71-024A-01B.

ISIS 2, HEIKKILA

SOFT-PARTICLE SPECTROMETER

Data set name - SOFT PARTICLE SPECTROGRAMS OF ELECTRON AND PROTON DATA ON MICROFILM

NSSDC ID 71-024A-05A, SOFT PARTICLE SPECTROGRAMS, MFILM

Time period covered - 04/21/71 TO 04/02/73
(As verified by NSSDC)

Quantity of data - 102 REELS OF MICROFILM

This data set, provided by the principal investigator, consists of soft-particle spectrograms of electron and proton data on microfilm. The electron data and the proton data are displayed on separate spectrograms and identified by the label above the spectrograms. The same format is used for both types of spectrograms. The top three rows are, respectively, the magnetic local time, the invariant latitude, and the angle between the spin axis and the geomagnetic field vector. The top panel provides an energy-time spectrogram. The ordinate is the log 10 of the particle energy, and the abscissa is universal time. The gray-scale intensity represents the counts per accumulation period (11.1 ms) at a given energy. The small panel labeled theta sub p gives the nominal pitch angle for each spectrum: theta sub p less than 90 deg and theta sub p greater than 90 deg represent the flux in and out of the atmosphere, respectively. The middle and lower panels are the number and energy fluxes obtained by a histogram integration of the observed spectrum from 5 eV to 15 keV. The abscissa of the spectrogram is marked off in minutes of universal time. The day number and the universal time at the beginning of the spectrogram are given in the lower left-hand corner. The geographic latitude and longitude at the beginning and end of the spectrogram are given. The values at the bottom of the spectrogram with the suffix LT represent the local solar time at the beginning of the spectrogram. The legend ECAL denotes the set of normalization factors used in processing the data.

Data set name - COORDINATED IONOSPHERIC + MAGNETOSPHERIC OBSERVATIONS FROM ISIS 2 (IN 4 VOLUMES)

NSSDC ID 71-024A-05B, COORD. ISIS 2 OBSERVATIONS, BOOK

Time period covered - 07/02/71 TO 10/12/72
(As verified by NSSDC)

Quantity of data - 4 BOOKS OR BOUND VOLUMES

This data set, provided by the principal investigator, consists of soft-particle spectrograms of electron and proton data. The data set is part of a 4-volume publication by NSSDC that includes data from the ISIS 2 spacecraft and from 9 of the 12 ISIS 2 investigations. The duration of the data plots is typically 12 min. The top three rows of each spectrogram are, respectively, the magnetic local time, the invariant latitude, and the angle between the spin axis and the geomagnetic field vector. The top panel provides values of electron energy vs time. The ordinate is the log 10 of the particle energy, and the abscissa is universal time. The gray-scale intensity represents the counts per accumulation period (11.1 ms) at a given energy. The center panel displays the proton data in the same manner. The small panel labeled theta sub p gives the nominal pitch angle for each spectrum: theta sub p less than 90 deg and theta sub p greater than 90 deg represent the flux in and out of the atmosphere, respectively. The lower panel provides average energies computed once each second for electrons and for positive ions, and representing the average energy per particle over the range 5 to 15 keV. The day number and the universal time at the beginning of the spectrogram are given in the lower left-hand corner. The geographic latitude and longitude at the beginning and end of the spectrogram are given. The values at the bottom of the spectrogram with the suffix LT represent the local solar time at the beginning of the spectrogram. The legend ECAL denotes the set of normalization factors used in processing the data. Spectrograms are given for a total of 113 passes. During these passes, simultaneous correlative measurements were made with other ISIS 2 investigations as explained in the description for data set 71-024A-00I, and as shown in the chronological listing at the end of Volume 4. The NSSDC publication numbers for Volumes 1, 2, 3, and 4 are 80-03, 80-09, 80-05, and 81-01, respectively. These publications will be available upon request until the supply is exhausted, after which time only microfiche copies will be available.

ISIS 2, HOFFMAN
ION-MASS SPECTROMETER

Data set name - ION MASS SPECTROMETER DATA ON MICROFILM

NSSDC ID 71-024A-06A, ION MASS SPECTROMETER DATA, MFILM

Time period covered - 04/21/71 TO 11/15/72
(As verified by NSSDC)

Quantity of data - 83 REELS OF MICROFILM

This data set, provided by the principal investigator, shows on 16-mm microfilm the concentration of various ion species as a function of universal time. Ion concentrations are plotted on a five-decade logarithmic scale. One table at the beginning of each roll of film shows the symbols used to identify ion species with mass-to-charge ratios of 1, 2, 4, 7, 8, 14, 16, 18, 28, 30, and 32. This table also identifies the orbital data given at the bottom of each plot. Another table lists locations and names of the ground stations identified on the data plots by letter and number code. The time plots cover 120 s per frame. Data frames show measurement date and time, orbit number, local apparent solar time, absolute velocity, cosine of the ram angle, geodetic height, geocetic and magnetic latitude and longitude, magnetic local time, and invariant latitude.

Data set name - ION MASS SPECTROMETER DATA ON MAGNETIC TAPE

NSSDC ID 71-024A-06B, ION MASS SPECTROMETER DATA, TAPE

Time period covered - 04/21/71 TO 12/31/72
(As verified by NSSDC)

Quantity of data - 18 REELS OF TAPE

This data set, provided by the principal investigator, shows the concentration of various ion species as a function of universal time. The data set is on 9-track, 1600-bpi, odd-parity, binary tapes written on an IBM 360/75 computer. A file contains data taken during one day. Each record contains 61, 4-byte words, and all words are in IBM internal floating point representation. Included in a record are values for the following parameters: the concentration of ion species with mass-to-charge (M/Q) values of 1, 2, 4, 7, 8, 14, 16, 18, 28, 30, and 32; the ram-to-wake ratio, the velocity, and the flux of species with M/Q values of 1, 4, 14, and 16; electron gyrofrequency; date; universal time; orbit; geocetic altitude; absolute and relative spacecraft velocity; spin rate and period; local apparent solar time; local magnetic time; geodetic latitude and longitude; invariant latitude; McIlwain's L-shell parameter; geomagnetic field intensity; geomagnetic dip angle; dip latitude; solar zenith angle; magnetic look angle; and sun angle.

Data set name - COORDINATED IONOSPHERIC + MAGNETOSPHERIC OBSERVATIONS FROM ISIS 2 (IN 4 VOLUMES)

NSSDC ID 71-024A-06C, COORD. ISIS 2 OBSERVATIONS, BOOK

Time period covered - 10/15/71 TO 06/18/73
(As verified by NSSDC)

Quantity of data - 4 BOOKS OR BOUND VOLUMES

This data set, provided by the principal investigator, shows the concentration of various ion species as a function of universal time. The data set is part of a 4-volume publication by NSSDC that includes data from the ISIS 2 spacecraft and from 9 of the 12 ISIS 2 investigations. Ion concentrations are plotted on a five-decade logarithmic scale. Concentrations are shown for species with mass-to-charge ratios of 1, 4, 8, 14, and 16. The following orbital data are given at the bottom of the plots at 2-min intervals: universal time, local apparent solar time, magnetic local time, dip latitude, invariant latitude, geodetic latitude and longitude, solar zenith angle, and height above the geoid. These plots are given for a total of 72 passes. During these passes, simultaneous correlative measurements were made with other ISIS 2 investigations as explained in the description for data set 71-024A-00I, and as shown in the chronological listing at the end of Volume 4. The NSSDC publication numbers for Volumes 1, 2, 3, and 4 are 80-03, 80-09, 80-05, and 81-01, respectively. These publications will be available upon request until the supply is exhausted, after which time only microfiche copies will be available.

ISIS 2, MAIER
RETARDING POTENTIAL ANALYZER

Data set name - PLOTS OF O+, H+, HE+, AND TEMPERATURE VS TIME

NSSDC ID 71-024A-08A, O+,H+,HE+,AND TEMP PLOTS,MFILM

Time period covered - 04/28/71 TO 12/22/72
(As verified by NSSDC)

Quantity of data - 2 REELS OF MICROFILM

This microfilm data set, supplied by the principal investigator, provides graphs of ion temperatures (deg C) and of densities (ions/cu m) for He+, H+, and O+. The graphs are plotted vs universal time. The data result from a least squares fit to the retarding potential curves, assuming these three ions are the only plasma constituents, and are at the same temperature. Logarithmic scales are used except for temperatures which are plotted on a linear scale. Temperature and he+ data appear on one set of plots on one reel of microfilm (with local time and invariant latitude as auxiliary abscissa). The H+ and O+ data appear on another set of plots (with geodetic coordinates as auxiliary abscissa). Each graph is for a 30-min interval. All these data were obtained only while the spacecraft spin axis was perpendicular to the orbit plane (cartwheel mode) so data gaps and data alternate approximately every 3 months. Since tape recorder failure occurred in February 1972, most of the data were obtained in the vicinity of telemetry stations. The numerical data from which these plots were made are available in data set 71-024A-08B.

Data set name - LISTINGS OF O+, H+, HE+, AND TEMPERATURE VS TIME

NSSDC ID 71-024A-08B, O+,H+,HE+,AND TEMP LISTINGS,MFILM

Time period covered - 04/28/71 TO 12/22/72
(As verified by NSSDC)

Quantity of data - 2 REELS OF MICROFILM

This microfilm data set, supplied by the principal investigator, provides listings of ion temperatures (deg C), and of densities (ions/cu m) for He+, H+, and O+. The data result from a least squares fit to the retarding potential curves, assuming the three ions are the only plasma constituents, and are at the same temperature. The H+ and O+ data do not appear prior to May 1971. All data were obtained only while the spacecraft spin axis was perpendicular to the orbit plane (cartwheel mode), so data gaps and data alternate approximately every 3 months. Most of the data are only in the vicinity of the telemetry stations since the tape recorder failed in February 1972. Data plots made from these listings are available in data set 71-024A-08A.

Data set name - COORDINATED IONOSPHERIC + MAGNETOSPHERIC OBSERVATIONS FROM ISIS 2 (IN 4 VOLUMES)

NSSDC ID 71-024A-08C, COORD. ISIS 2 OBSERVATIONS, BOOK

Time period covered - 05/15/71 TO 07/04/73
(As verified by NSSDC)

Quantity of data - 4 BOOKS OR BOUND VOLUMES

This data set, provided by the principal investigator, contains graphs of ion temperatures (deg C) and of densities (ions/cu m) for He+, H+, and O+. The data set is part of a 4-volume publication by NSSDC that includes data from the ISIS 2 spacecraft and from 9 of the 12 ISIS 2 investigations. The data result from a least squares fit to the retarding potential curves, assuming the three ions are the only plasma constituents, and are at the same temperature. The graphs are for a time span of typically 20 min. The date is given above the graphs. Included below the graphs at 2-min intervals are universal, local-solar, and magnetic times; geodetic latitude and longitude; dip and invariant latitudes; solar zenith angle; and height above the geoid. These graphs are given for a total of 85 passes. During these passes, simultaneous correlative measurements were made with other ISIS 2 investigations as explained in the description for data set 71-024A-00I, and as shown in the chronological listing at the end of Volume 4. The NSSDC publication numbers for Volumes 1, 2, 3, and 4 are 80-03, 80-09, 80-05, and 81-01, respectively. These publications will be available upon request until the supply is exhausted, after which time only microfiche copies will be available.

ISIS 2, MCDIARMID
ENERGETIC PARTICLE DETECTORS

Data set name - REDUCED COUNT RATE DATA ON MAGNETIC TAPE

NSSDC ID 71-024A-04A, ELECTRON + PROTON DATA, TAPE

Time period covered - 04/19/71 TO 03/30/78
(As verified by NSSDC)

Quantity of data - 176 REELS OF TAPE

This data set, provided by the principal investigator, contains the output of 10 energetic particle detectors yielding electron data in the 0.15-keV to 2-MeV range and proton data in the 2-keV to 20-MeV range. The data set is on 9-track, 800-bpi, odd-parity, binary magnetic tapes written on an IBM 360/75 computer. The tapes contain varying numbers of files of reduced data. The files contain varying numbers of records. All records are 1.3E4 bytes long, which represents one minute of data. Given are pass number, date and universal time, geodetic and geomagnetic coordinates, invariant latitude, solar and magnetic local time, geomagnetic B and L values, counting rates for every 0.267 s, and miscellaneous housekeeping data. The data are chronologically ordered on most tapes. There are gaps in the data due to experiment-off times, the largest of which are from April 25 to May 12, 1971, July 7 to July 10, 1971, and September 9 to October 26, 1971. An index to this data set is given in data set 71-024A-04B.

Data set name - INDEX OF PROCESSED SATELLITE PASSES FOR ENERGETIC PARTICLE DETECTOR ON ISIS 2

NSSDC ID 71-024A-04B, INDEX OF PROCESSED DATA, MFILM

Time period covered - 04/19/71 TO 04/24/74
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This data set consists of an index on microfilm of satellite passes processed by the National Research Council (NRC) for the energetic particle detector experiment. It is an ordered index that contains the year, day, start-stop time (in hours, minutes and seconds), orbit number, NRC tape number, file number, and WDC copy number. The first orbit in the index is 238 and the last orbit is 13,435.

Data set name - COORDINATED IONOSPHERIC + MAGNETOSPHERIC OBSERVATIONS FROM ISIS 2 (IN 4 VOLUMES)

NSSDC ID 71-024A-04C, COORD. ISIS 2 OBSERVATIONS, BOOK

Time period covered - 07/02/71 TO 12/13/75
(As verified by NSSDC)

Quantity of data - 4 BOOKS OR BOUND VOLUMES

This data set, prepared by the principal investigator, provides plots of energetic particle data from 3 electron differential channels (labelled D) and 3 integral channels (labelled I). The number in parenthesis gives the detected energy for the differential channels and the threshold energy for the integral detectors. The data set is part of a 4-volume publication by NSSDC that includes data from the ISIS 2 spacecraft and from 9 of the 12 ISIS 2 investigations. The duration of the data plots is typically 12 min. The anscissa gives the universal time at 1-min intervals, the invariant latitude, the magnetic local time, the geomagnetic field intensity, and the angle between the spacecraft spin axis and the geomagnetic field vector. The energetic particle data are given for a total of 121 passes. During these passes, simultaneous correlative measurements were made with other ISIS 2 investigations as explained in the description for data set 71-024A-00I, and as shown in the chronological listing at the end of Volume 4. The NSSDC publication numbers for Volumes 1, 2, 3, and 4 are 80-03, 80-09, 80-05, and 81-01, respectively. These publications will be available upon request until the supply is exhausted, after which time only microfiche copies will be available.

ISIS 2, SHEPHERD
6300-A PHOTOMETER

Data set name - 6300-A INTENSITY MAPS ON MAGNETIC TAPE

NSSDC ID 71-024A-12A, 6300-A INTENSITY MAPS, TAPE

Time period covered - 04/23/71 TO 12/31/71
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set, supplied by the principal investigator, provides auroral and airglow emissions at 6300 A over the portion of the dark earth visible from the spacecraft. The data set is on a 9-track, 800-bpi, odd-parity, binary magnetic tape, written on an IBM 370 computer. Each file contains data from one processed pass and consists of six records. One record contains a table of limb-crossing times and spacecraft

orbital parameters. The remaining records consist of spin maps of geographic latitude and longitude, and of intensity measurements at 6300 A. The first column of the table gives the spin number. Other column headings include universal time, geographic and magnetic latitude and longitude of the spacecraft, the McIlwain L-shell parameter, and the solar zenith angle. The spin maps at 5577 and 3914 A (data set 71-024A-11A) are on the same magnetic tape. Each spin map is a matrix having 40 columns and a number of rows equal to the number of spacecraft rotations. A given row and column element has the same look point in all spin maps.

Data set name - POLAR PLOTS OF OPTICAL EMISSION INTENSITIES (6300-A)

NSSDC ID 71-024A-12H, POLAR EMISSION PLOTS, MFILM

Time period covered - 01/06/73 TO 01/29/74
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This data set, supplied by the principal investigator, provides auroral and airglow emission contours at 6300 A over the portion of the dark earth visible from the spacecraft. The format is a projection onto a plane tangent to the earth's geographic north pole. The circumference is the projection of the equator, and the horizontal line is the Greenwich meridian. There are latitude marks at 10-deg increments, and the position of the sun for the first and last spacecraft rotations is given. The subsatellite track (usually at 250-km altitude) is plotted with marks indicating each spacecraft rotation. Each tenth mark is labeled, and an accompanying table gives the universal time for each spin. The intensity contouring is done at levels indicated in the upper right-hand corner of the graph. The date, orbit number, and the times for the first and last spin numbers of the satellite pass are also indicated.

Data set name - COORDINATED IONOSPHERIC + MAGNETOSPHERIC OBSERVATIONS FROM ISIS 2 (IN 4 VOLUMES)

NSSDC ID 71-024A-12C, COORD. ISIS 2 OBSERVATIONS, BOOK

Time period covered - 11/23/71 TO 12/13/75
(As verified by NSSDC)

Quantity of data - 4 BOOKS OR BOUND VOLUMES

This data set, supplied by the principal investigator, provides auroral and airglow emissions at 6300 A over the portion of the dark earth visible from the spacecraft. The data set is part of a 4-volume publication by NSSDC that includes data from the ISIS 2 spacecraft and from 9 of the 12 ISIS 2 investigations. There are two formats for this data set, one for measurements in the cartwheel (CW) mode (spacecraft spin axis perpendicular to orbital plane), and one for measurements in the orbit-aligned (OA) mode (spacecraft spin axis in orbital plane). In the CW mode the optical scans are repeatedly along the spacecraft track. The corresponding observed 6300-A emission intensities are plotted as a function of universal time for a 12-min time interval. On the same graph are also given pitch angle, the 3914- and 5577-A emission intensities, and the soft-particle spectrometer data integrated over four energy bands: 5 to 60 eV, 60 to 300 eV, 300 to 1000 eV, and 1000 to 15,000 eV. Supporting orbital information provided with the graphs include the following for every minute of universal time: invariant latitude, invariant time, solar depression angle at the location of the viewed emission, and solar depression angle at the magnetic conjugate point to the viewed emission. Also indicated on the graphs are orbit number, date, and start time. Data obtained in the CW mode are given for 36 ISIS 2 passes. The measurements in the CW mode can be used to derive the equivalent vertical column emission rate. The vertical emission at 6300 A has been plotted versus geographic latitude for a few ISIS 2 passes. In the orbit-aligned mode, the photometers sweep out fixed narrow strips perpendicular to the direction of orbital motion. These strips are combined during data processing to provide a polar plot of 6300-A emission contours. Timing marks on the polar plot are used to provide a time scale and to show the subsatellite track. Data obtained in the OA mode are given for 34 ISIS 2 passes. During these passes, simultaneous correlative measurements were made with other ISIS 2 investigations as explained in the description for data set 71-024A-00I, and as shown in the chronological listing at the end of Volume 4. The NSSDC publication numbers for Volumes 1, 2, 3, and 4 are 80-03, 80-09, 80-05, and 81-01, respectively. These publications will be available upon request until the supply is exhausted, after which time only microfiche copies will be available.

ISIS 2, WHITTEKER
SWEEP-FREQUENCY SOUNDER

Data set name - SWEEP-FREQUENCY IONOGRAMS ON MICROFILM (*)

NSSDC ID 71-024A-01A, SWEEP-FREQUENCY IONOGRAMS, MFILM

Time period covered - 05/29/71 TO 06/17/83
(As verified by NSSDC)

Quantity of data - 2427 REELS OF MICROFILM

This data set consists of ISIS 2 ionograms on reels of 35-mm microfilm. Processing has been carried out at several locations: CRC in Ottawa, Canada; RSRS in Slough, England; NOAA in Boulder, Colorado (between launch and May 1972); and after the fall of 1972, at RRL in Tokyo, Japan, and at the Geophysical Observatory in Christchurch, New Zealand. These ionograms are reduced data plots showing as a function of frequency the echo time delay (virtual range) of pulsed radio signals. They are an original form of the data prepared directly from the telemetry tape. Height and frequency markers have been placed on each ionogram. The numeral code below the ionogram provides the following information. The first digit represents the satellite (4=ISIS 2). The second digit indicates which fixed frequency was used (0=none, 1=0.12 MHz, 2=0.48 MHz, etc., 7=unknown). The next two digits indicate the telemetry station that acquired the data (Ex. 50=Ottawa). The station number is followed by the year (2 digits), the day number, and the Greenwich mean time (hours, minutes, and seconds). The data are available to the extent permitted by telemetry station scheduling, location of telemetry stations, tape recorder operation and scheduling. Spacecraft power availability, which was also an important factor in data observation, limited sounder operation to about 7 h per day, of which about 1 h per orbit could be for recorded data. The tape recorder failed on February 4, 1972. Since only time is noted on each ionogram, satellite position and related information must be obtained from another source (NSSDC data set 71-024A-00C). An index of these ionograms is also available as NSSDC data set 71-024A-01B. A program for the reduction of topside ionograms to electron density profiles is available from NSSDC.

Data set name - NSSDC INDEX OF IONOGRAMS ON TAPE

NSSDC ID 71-024A-01B, NSSDC IONOGRAM INVENTORY, TAPE

Time period covered - 04/08/71 TO 11/30/73
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set, prepared at NSSDC, indexes the ISIS 2 ionograms (data sets 71-024A-01A, -02A, and -10A) by station pass. The data are on a 9-track, 1600-bpi, odd-parity, ASCII magnetic tape written on a MODCOMP IV computer. Information in the data set includes ionogram quality, telemetry station, stop and start data for the pass (times and locations), location at which the original telemetry tapes are stored, and experiment mode of operation. Some information relating to investigations 71-024A-02, -03, and -10 is also included since these investigations are closely related to the sounder operation; e.g., the value of the fixed frequency used is given, the presence of AGC trace is noted, and VLF operation is indicated. This index was prepared from an inventory of film received. The data can be provided on hardcopy or on microfilm, sorted according to time or station and time.

Data set name - NASA-ARC ELECTRON DENSITIES INTERPOLATED TO 100-KM INTERVALS ON (PACKED) TAPE

NSSDC ID 71-024A-01C, ARC N(H) INT PROFILES, TAPE

Time period covered - 04/09/71 TO 06/07/72
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set, provided by the Ames Research Center, consists of electron density profiles for the ionosphere above the F2 maximum (topside ionosphere). The data are packed on 7-track, 800-bpi, odd-parity, binary magnetic tapes, written on an IBM 360 computer. An unpacking routine, called "tape," is available at NSSDC for this data set. These profiles were initially computed from digital values of frequency and virtual range that were scaled from ionograms. Digital electron density values are listed for the satellite location and for each 100 km from the satellite altitude down to the lowest height of topside signal reflections (normally near 300 km). These data are part of a collection prepared from the Alouette 2, ISIS 1, and ISIS 2 satellites. From all three satellites, there are 33,000 profiles for the period November 11, 1965, to June 7, 1972, from the vicinity of 14 different ground stations. These data are from a small block of the total ionogram data from the three satellites (less than 1%), but they form one of the largest blocks of reduced satellite ionograms available. These reductions are of optimum quality because extraordinary, ordinary, and z-trace values were checked against one another during computation of the density values.

Data set name - INDEX OF IONOGRAMS SHOWING DUCTED ECHOES

NSSDC ID 71-024A-01E, CRC INDEX OF DUCTED ECHOES, TAPE

Time period covered - 04/09/71 TO 06/22/72
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set, prepared at the Communications Research Centre in Ottawa, Canada, is an index to low-latitude ionograms containing ducted echoes. The data are on a 9-track, 800-bpi, odd-parity, EBCDIC magnetic tape written on an IBM 360 computer. The criterion for selection was that at least one trace from the conjugate hemisphere appeared on the ionogram. Each record contains the satellite identification, ground station (Quito=3, Singapore=4A), pass start time (UT), the number of ionograms in the pass showing ducted echoes, and the number not showing ducted echoes. For 209 passes (about 6000 ionograms), 226+ ionograms with ducted echoes are identified. Similar data for other times are stored on the same tape and are described under data sets 62-048A-01G, 68-098A-01N, and 69-009A-01E.

Data set name - CRC ELECTRON DENSITY PROFILES AT SCALED POINTS ON MAGNETIC TAPE

NSSDC ID 71-024A-01F, CRC N(H) INT PROFILES, TAPE

Time period covered - 04/08/71 TO 08/26/79
(As verified by NSSDC)

Quantity of data - 7 REELS OF TAPE

This data set, provided by the Communications Research Centre (CRC) in Ottawa, Canada, consists of electron density profiles for the ionosphere above the F2 maximum (topside ionosphere). The data set is on 9-track, 800-bpi, odd-parity, binary magnetic tapes, written on an IBM 360 computer. The electron density profiles were computed from digital values of frequency and virtual height, scaled from ionograms. The data are ordered chronologically. Telemetry stations are not identified; but satellite location, Greenwich mean time of observation, solar zenith angle at the satellite, dip latitude at the satellite, total electron content down to the lowest height of topside signal reflection (normally near 300 km), and other relevant information are noted with each profile. The format gives sequences of numbers for each point scaled from the ionogram. These sequences include electron density at the successive points, and the coefficients a2, a3, a4, a5, etc. from which geometric heights can be calculated, using formulas 40 and 41 in J. E. Jackson, "The reduction of topside ionograms to electron-density profiles," Proceedings of the IEEE, p. 960, June 1969. These formulas can also be used to calculate interpolated density-height values. A CRC interpolation program (available at NSSDC) can be used with this data set. The ionograms were selected for their scientific interest and comprise only a very small portion of reductions possible from the available ionograms.

Data set name - CRC ELECTRON DENSITY VALUES AT LAMINA BOUNDARIES (ON MICROFICHE)

NSSDC ID 71-024A-01G, CRC N(H) SCALED PROFILES, FICHE

Time period covered - 04/08/71 TO 10/13/72
(As verified by NSSDC)

Quantity of data - 8 CARDS OF B/W MICROFICHE

This data set, provided by the Communications Research Centre (CRC) in Ottawa, Canada, consists of electron density profiles for the ionosphere above the F2 maximum (topside ionosphere). The data set is available as a microfiche, prepared at NSSDC from an unpublished, unnumbered, internal CRC report titled "ISIS 2 ionospheric data N(h)," within the book, the data are arranged chronologically, but time coverage for different volumes is overlapping. Telemetry stations are not identified; but satellite location, Greenwich mean time of observation, solar zenith angle at the satellite, dip latitude at the satellite, total electron content down to the lowest height of topside signal reflections, and other relevant information are listed for each profile. Profile data consist of electron density and geometric height values for each point scaled from the ionogram. For interpolated values of electron density at standard increments of geometric height, use the equivalent profiles on tape data set 71-024A-01F and the CRC interpolation program available from NSSDC. Each of these profiles occupies about four lines of print, and a chronological index of all data from all volumes appears in the front of the book. These ionograms were selected for their scientific interest, and comprise only a very small portion of reductions possible from the available ionograms.

Data set name - IONOSONDE RECEIVER SIGNAL AMPLITUDE VERSUS TIME PLOTS

NSSDC ID 71-024A-01H, SOUNDER AGC VS TIME PLOTS, MFILM

Time period covered - (N/A)

This data set, prepared from the ionosonde telemetry tapes at NSSDC, consists of continuous plots of receiver signal amplitude versus time. This data set can be made available on microfilm (16 or 35 mm). The time scale is greatly expanded in comparison to the ionogram so that one ionogram line (15 ms) occupies about 0.5 in. of film record. No amplitude scaling is on the film. In addition to the amplitude records, there are a 1-kHz time signal trace and frequency marker information. Amplitude records for each ionogram require approximately 50 ft of film. Data for a limited number of ionograms were prepared for use in a study of plasma resonance. Additional similar data for other ionograms may be obtained in limited quantity by arrangement with the experiment principal investigator's office as long as original telemetry tapes are on file.

Data set name - COORDINATED IONOSPHERIC + MAGNETOSPHERIC OBSERVATIONS FROM ISIS 2 (IN 4 VOLUMES)

NSSDC ID 71-024A-01I, COORD. ISIS 2 OBSERVATIONS, BOOK

Time period covered - 10/13/71 TO 12/13/75
(As verified by NSSDC)

Quantity of data - 4 BOOKS OR BOUND VOLUMES

This data set, provided by the principal investigator, contains electron density profiles for the ionosphere above the F2 maximum (topside ionosphere). The data set is part of a 4-volume publication by NSSDC that includes data from the ISIS 2 spacecraft and from 9 of the 12 ISIS 2 investigations. For each chosen value of electron density, the altitude at which that density was observed to occur was plotted as a function of universal time. The duration of these plots was typically 20 min. The spacecraft location can be obtained from the graphs of correlative data given for the same 20-min interval. The constant density contours are shown for a total of 105 passes. During these passes, simultaneous correlative measurements were made with other ISIS 2 investigations as explained in the description for data set 71-024A-00I, and as shown in the chronological listing at the end of Volume 4. The NSSDC publication numbers for Volumes 1, 2, 3, and 4 are 80-03, 80-04, 80-05, and 81-01, respectively. These publications will be available upon request until the supply is exhausted, after which time only microfiche copies will be available.

********** ISS-B **********

ISS-B, IWAMOTO
ION MASS SPECTROMETER

Data set name - ATLAS OF PROTON, HELIUM, AND OXYGEN ION DENSITIES

NSSDC ID 78-018A-04A, AT_AS-H,HE,O, ION DENSITIES,FICHE

Time period covered - 10/22/78 TO 08/22/79
(As verified by NSSDC)

Quantity of data - 1 CARD OF B/W MICROFICHE

This microfiche data set was prepared at NSSDC from the "Atlas of proton, helium ion, and oxygen ion densities obtained from Ionosphere Sounding Satellite-B in situ observations, October 1978 to August 1979," RRL, Japan, March, 1982. (NSSDC TRF 834347), supplied by the principal investigator. It contains world-wide maps of the positive ion concentrations of the following species: hydrogen, helium, and atomic oxygen. The map grids are geographic latitude and longitude. Ion concentration contours in logarithmic scale are superimposed on these grids. The contours represent measurements taken in the topside ionosphere at about 1100 km. It took 4 months of data to complete the full local time map. The data shown were taken for the winter and summer solstices. The measurements presented here were taken with Kp in the range from 0 to 4+.

********** KYOKKO **********

KYOKKO, IWAMOTO
ION MASS SPECTROMETER

Data set name - ION COMPOSITION PLOTS ON MICROFILM

NSSDC ID 78-014A-06A, ION COMPOSITION PLOTS, MFILM

Time period covered - 02/04/78 TO 06/29/79
(As verified by NSSDC)

Quantity of data - 6 REELS OF MICROFILM

This microfilm data set containing ion concentration measurements was generated at NSSDC from hardcopy supplied by the project. The film also contains data from the other KYOKKO investigations -- 78-014A-01, -02, -04, and -05. The data are presented in two-frame sequences, where the first frame in the sequence contains data from -05, -06, and -01. The second frame in the sequence shows the data from -04 and -02. All frames cover a 2-hour interval, and their abscissa scales show values for the following parameters: Greenwich mean time, height, longitude and latitude. Immediately below the frame heading, there are two top abscissa scales. The first scale gives values for McIlwain's L-shell parameter, and the second gives values for magnetic latitude. The quadrupole mass spectrometer measured the positive ion species of the ambient plasma. The concentrations of four ion species are shown: hydrogen, helium, nitrogen, and oxygen. The ordinate is logarithmic counting rate. The plots do not give directly the global distribution of the positive ion composition, because the data are not corrected for variation of spectrometer sensitivity with change in the angle of attack. In the case of KYOKKO, the spectrometer angle of attack changed slowly between 20 and 160 deg. during a satellite revolution.

KYOKKO, MUKAI
ELECTRON ENERGY ANALYZER

Data set name - LOW-ENERGY ELECTRON FLUX SPECTROGRAMS ON MICROFILM

NSSDC ID 78-014A-02A, ELECTRON FLUX SPECTROGRAMS, MFILM

Time period covered - 02/04/78 TO 06/29/79
(As verified by NSSDC)

Quantity of data - 6 REELS OF MICROFILM

This microfilm data set containing electron flux spectrograms was generated at NSSDC from hardcopy supplied by the project. The film also contains data from the other KYOKKO investigations -- 78-014A-01, -04, -05, and -06. The data are presented in two-frame sequences, where the first frame in the sequence contains data from -05, -06, and -01. The second frame in the sequence shows the data from -04 and -02. All frames cover a 2-hour interval, and their abscissa scales show values for the following parameters: Greenwich mean time, height, longitude and latitude. Immediately below the frame heading, there are two top abscissa scales. The first scale gives values for McIlwain's L-shell parameter, and the second gives values for magnetic latitude. Electron fluxes from 3 eV to 9.4 keV are shown as energy-time spectrograms, with gray shading (dot-matrix) to indicate intensity every 16 seconds. Both sensors 1 and 2 measured field-aligned components (upward and downward) of the flux. In the northern hemisphere, sensor 1 measured the downward field-aligned flux and sensor 2 measured the upward one. The level "I" of the gray shading corresponds to the counting rates in the following manner: I=4.33 x log(C), where "C" is the counts per 125 ms. The designation "B.G." identifies the level of the background counting rate. Note that data with a high "B.G." level might be unreliable.

KYOKKO, NAKAMURA
UV GLOW SPECTROPHOTOMETER

Data set name - EXTREME ULTRAVIOLET AIRGLOW PLOTS ON MICROFILM

NSSDC ID 78-014A-05A, ULTRAVIOLET AIRGLOW PLOTS, MFILM

Time period covered - 02/04/78 TO 06/29/79
(As verified by NSSDC)

Quantity of data - 6 REELS OF MICROFILM

This microfilm data set containing ultraviolet airglow plots was generated at NSSDC from hardcopy supplied by the project. The film also contains data from the other KYOKKO investigations -- 78-014A-01, -02, -04, and -06. The data are presented in two-frame sequences, where the first frame in the sequence contains data from -05, -06, and -01. The second frame in the sequence shows the data from -04 and -02. All frames cover a 2-hour interval, and their abscissa scales show values for the following parameters: Greenwich mean time, height, longitude and latitude. Immediately below the frame heading, there are two top abscissa scales. The first scale gives values for McIlwain's L-shell parameter, and the second gives values for magnetic latitude. Time variations of the extreme ultraviolet airglow intensities are shown. Five emission lines O - 1304 A, H - 1217 A (Lyman Alpha), O+ - 834 A, He - 584 A, and He+ - 304 A are plotted every minute. Values for HV, high voltage supply in volts; DC, discriminator level; H and M, universal time; SL, amplitude of entrance slit; and T, temperature of sensor in deg C, are displayed on the right side of the plots.

KYOKKO, OYAMA
ELECTRON PROBES

Data set name - ELECTRON TEMPERATURE AND DENSITY PLOTS ON MICROFILM

NSSDC ID 78-014A-01A, ELECTRON TEMP+DENSITY PLOTS,MFILM

Time period covered - 02/04/78 TO 06/29/79
(As verified by NSSDC)

Quantity of data - 6 REELS OF MICROFILM

This microfilm data set containing ionospheric electron density and electron temperature measurements was generated at NSSDC from hardcopy supplied by the project. The film also contains the data from the other KYOKKO investigations -- 78-014A-02, -04, -05, and -06. The data are presented in two-frame sequences, where the first frame in the sequence contains data from -05, -06, and -01. The second frame in the sequence shows the data from -04 and -02. All frames cover a 2-hour interval, and their abscissa scales show values for the following parameters: Greenwich mean time, height, longitude and latitude. Immediately below the frame heading, there are two top abscissa scales. The first scale gives values for McIlwain's L-shell parameter, and the second gives values for magnetic latitude. Electron temperature was measured by two probes: a planar electrode which was perpendicular to the geomagnetic field lines (T1), and another electrode which was parallel to them (T2). Probe T1 measurements are shown as a thin solid line, and the T2 probe values are presented as a dashed line. Electron density values are displayed by a thick solid line with an arbitrary scale, which is proportional to the probe current at fixed bias voltage.

KYOKKO, YOSHINO
ELECTROSTATIC PLASMA WAVE MEASUREMENT

Data set name - PLASMA TIME-FREQUENCY SPECTROGRAMS ON MICROFILM

NSSDC ID 78-014A-04A, PLASMA SPECTROGRAMS,MFILM

Time period covered - 02/04/78 TO 06/29/79
(As verified by NSSDC)

Quantity of data - 6 REELS OF MICROFILM

This microfilm data set containing plasma wave data, was generated at NSSDC from hardcopy supplied by the project. The film also contains data from the other KYOKKO investigations -- 78-014A-01, -02, -05, and -06. The data are presented in two-frame sequences, where the first frame in the sequence contains data from -05, -06, and -01. The second frame in the sequence shows the data from -04 and -02. All frames cover a 2-hour interval, and their abscissa scales show values for the following parameters: Greenwich Mean Time, height, longitude and latitude. Immediately below the frame heading, there are two top abscissa scales. The first gives values for McIlwain's L-shell parameter, and the second scale gives values for magnetic latitude. The data from the electrostatic plasma wave investigation are plotted as time-frequency spectrograms with a gray shading to indicate intensity. Designations "Faraday Cup 1" and "Faraday Cup 2" identify the spectra of the electron currents collected by two Faraday cups, which were deployed symmetrically in the spacecraft equatorial plane, with about 1-m separation from the spacecraft body. Since the spacecraft attitude was aligned with the geomagnetic field, the Faraday Cup 1 sensor looked in a direction perpendicular to the field lines, and Faraday Cup 2 looked in the direction parallel to the field lines. The AC data were sampled sequentially by 11 band-pass filters to produce data in 11 narrow frequency bands with the center frequencies ranging from 45 kHz to 3 MHz. The time interval between one sequence of the entire measurement was 8 s. After collecting the data over 16 s, an average was calculated for each frequency band, and the intensity was plotted. The ordinate heading "DIPOLE" shows the spectrum of the electric field measured by a 4.5-m tip-to-tip dipole antenna. The frequency coverage and the data processing for the electric field are much the same as those for the AC measurements.

********** MAGSAT **********

Data set name - ORBIT POSITION LISTING ON MICROFICHE

NSSDC ID 79-094A-03D, ORBIT POSITION LISTING, FICHE

Time period covered - 11/02/79 TO 06/08/80
(As verified by NSSDC)

Quantity of data - 1 CARD OF B/W MICROFICHE

This data set, provided by the principal investigator, consists of a microfiche listing giving the Magsat position for eight points per orbit. The listing gives the apex points (latitude extremes), as well as the intersections with the ecuator and the 45-deg parallels. The time to the nearest second, longitude to the nearest degree, and altitude (geodetic) to the nearest kilometer are listed for each of the eight crossovers.

MAGSAT, LANGEL
SCALAR MAGNETOMETER

Data set name - CHRONICLE NORTH, EAST, VERT. COORD.
DATA (INTERMEDIATE-ACCURACY ATTITUDE),TAPE

NSSDC ID 79-094A-01A, CHRONINT(CHRONICLE INTERMED),TAPE

Time period covered - 11/02/79 TO 05/10/80
(As verified by NSSDC)

Quantity of data - 34 REELS OF TAPE

This data set, provided by the principal investigator, consists of scalar and vector magnetometer data on 9-track, 6250-bpi, odd-parity, binary magnetic tapes created on an IBM 360/91 computer. In this data set the vector magnetometer data have been converted to the North, East, and Vertical coordinate system using the intermediate-quality (nominally 20 arc min) attitude data. Each logical record consists of an orbit data record, scalar magnetometer data records, and vector magnetometer component data records. Each record type contains data type, modified Julian day of first observation, milliseconds (ms) of day, time increment between observations (ms), and time offset. The orbit data records contain 128 values of inertial coordinates, invariant latitude, geomagnetic time (hours), and dip latitude. The scalar data records contain 512 values (in nT) of scalar observations. The vector records contain 1024 values (in nT) of vector component data. For additional information see (1) R. A. Langel, "Magsat Data Availability," The IMS Source Book, p. 109, American Geophysical Union, Washington, D.C., 1982, TRF B36471; (2) R. A. Langel et al., "Magsat Data Processing, A Report for Investigators," NASA Technical Memorandum 82160, November 1981, TRF B33279; and (3) "Magsat Preliminary Results," a collection of 56 papers in Geophys. Res. Letters, v. 9, pp. 239-376, April 1982.

Data set name - CHRONICLE SPACECRAFT-COORDINATE
DATA ON MAGNETIC TAPE

NSSDC ID 79-094A-01B, CHRONSC(CHRONICLE SPACECRAFT)TAPE

Time period covered - 11/02/79 TO 05/03/80
(As verified by NSSDC)

Quantity of data - 29 REELS OF TAPE

This data set, provided by the principal investigator, consists of scalar and vector magnetometer data on 9-track, 6250-bpi, odd-parity, binary magnetic tapes created on an IBM 360/91 computer. In this data set the vector magnetometer data are given in the spacecraft coordinate system. Each logical record consists of an orbit data record, scalar magnetometer data records, and vector magnetometer component data records. Each record type contains data type, modified Julian day of first observation, milliseconds (ms) of day, time increment between observations (ms), and time offset. The orbit data records contain 128 values of inertial coordinates, invariant latitude, geomagnetic time (hours), and dip latitude. The scalar data records contain 512 values (in nT) of scalar observations. The vector records contain 1024 values (in nT) of vector component observations. For additional information see references given under NSSDC ID 79-094A-01A.

Data set name - MAGSAT ORBIT RETRIEVAL SUBROUTINES
ON MAGNETIC TAPE

NSSDC ID 79-094A-01C, MAGSAT ORBIT RET. SUBROUT., TAPE

Time period covered - (N/A)

Quantity of data - 1 REEL OF TAPE

This data set, provided by the principal investigator, consists of Magsat user subroutines on a 9-track, 1600-bpi, odd-parity, EBCDIC magnetic tape created on an IBM 360 computer. These subroutines were prepared to permit retrieval of orbit data from orbit records on Magsat chronicle tapes. The spacecraft position in Cartesian (X, Y, and Z in km), geographic (latitude and longitude), and geomagnetic coordinates can be obtained by calling subroutine FLDORB, specifying time as modified Julian day (MJD) and milliseconds of day. Subroutine FLDORB also provides magnetic local time, dip latitude, and a magnetic field value from a field model. An additional subroutine converts from MJD to calendar date and vice versa. Additional information can be obtained from the prologues in the source code listing.

Data set name - PURDUE MAGNETIC FIELD DATA PROCESSING
ROUTINES (CDC VERSION) ON MAGNETIC TAPE

NSSDC ID 79-094A-01D, PURDUE MAG. FLD. ROUTINES, TAPE

Time period covered - (N/A)

Quantity of data - 1 REEL OF TAPE

This data set, provided by the principal investigator, consists of programs for the analysis and interpretation of Magsat data. The data set is on a 9-track, 1600-bpi, odd-parity, binary magnetic tape created on an IBM 360 computer. This data set includes all the programs and subroutines used for the Purdue University study of magnetic and gravity anomaly, including the data used in this study (P. L. Bowman et al., "Magnetic and Gravity Anomaly Correlation and its Application to Satellite Data," Department of Geosciences, Purdue University, West Lafayette, Indiana, August 1978; reprinted as NASA/GSFC TM 79702, TRF B32938).

Data set name - USER PROGRAMS ON MAGNETIC TAPE

NSSDC ID 79-094A-01E, USER PROGRAMS, TAPE

Time period covered - (N/A)

Quantity of data - 1 REEL OF TAPE

This data set was assembled at NSSDC using various Magsat user computer programs provided by the principal investigator. The data set is on a 9-track, 1600-bpi, odd-parity, EBCDIC magnetic tape created on an IBM 360 computer. The tape contains 38 files. File 1 contains subroutine RDCHRN which reads chronicle tapes. File 2 contains subroutine TAB that reads and prints Investigator-B tapes. Files 3 and 4 contain orbit retrieval and time conversion subroutines (see data set 79-094A-01C). File 5 contains the Business and Technological Systems program, FIT, that generates field models from data. File 6 contains the FOG program that computes the geomagnetic field from spherical harmonic coefficients. Files 7-11 contain the GSFC Equivalent Source Magnetic Anomaly program which models the satellite geomagnetic anomaly observations by using sets of magnetic dipoles at the surface of a spherical earth. Files 12, 13, and 14 contain the GSFC DRCOM program and data input for computing magnetic anomalies from sets of dipoles. Files 15-33 are programs (including subroutines) from the Purdue University package (see data set 79-094A-01D). File 34 contains input data for programs in files 15-33. File 35 contains the U.S. Geological Survey program, ADEPT, which determines depth to magnetic basement. File 36 contains the GSFC revision of Purdue program SPHERE. File 37 contains the MGST (6/80) geomagnetic field model coefficients and subroutine FIELD. File 38 contains the MGST (4/81-2) geomagnetic field model coefficients. For additional information see references given under NSSDC ID 79-094A-01A.

Data set name - CHRONICLE NORTH, EAST, VERT. COORD.
DATA (FINE-ACCURACY ATTITUDE), TAPE

NSSDC ID 79-094A-01F, CHRONFIN (CHRONICLE FINE), TAPE

Time period covered - 11/01/79 TO 05/19/80
(As verified by NSSDC)

Quantity of data - 29 REELS OF TAPE

This data set, provided by the principal investigator, consists of scalar and vector magnetometer data on 9-track, 6250-bpi, odd-parity, binary magnetic tapes created on an IBM 360/91 computer. In this data set the vector magnetometer data have been converted to the North, East, and Vertical coordinate system using the fine-quality (nominally 20 arc second) attitude data. Each logical record consists of an orbit data record, scalar magnetometer data records, vector magnetometer component data records, and an attitude-quality record. Each

record type contains data type, modified Julian day of first observation, milliseconds (ms) of day, time increment between observations (ms), and time offset. The orbit data records contain 128 values of inertial coordinates, invariant latitude, geomagnetic time (hours), and dip latitude. The scalar data records contain 512 values (in nT) of scalar observations. The vector records contain 1024 values (in nT) of vector component observations. The attitude-quality record contains attitude-processing flags which denote the type of attitude information used to calculate the attitude. For additional information see references given under NSSDC ID 79-094A-01A.

Data set name - INVESTIGATOR-B, 5-SEC INTERVAL, NEW COORD DATA (MERGED WITH EPHEMERIS) ON TAPE

NSSDC ID 79-094A-01G, INV-B (INVESTIGATOR-B) DATA, TAPE

Time period covered - 11/02/79 TO 05/10/80
(As verified by NSSDC)

Quantity of data - 5 REELS OF TAPE

This data set, provided by the principal investigator, consists of scalar and vector magnetometer data on 9-track, 1600-bpi, odd-parity, binary magnetic tapes created on an IBM 3081 computer. In this data set the vector magnetometer data have been converted to the North, East, and Vertical coordinate system using the best-quality attitude data available. Merged with these data are the spacecraft ephemeris and predicted magnetic field values from a mathematical model. The data are organized by pass (orbit) number. Each pass contains a header record and many data records with 30 data points at approximately 5-s intervals, or about 2-1/2 min of data. The header record contains modified Julian day at start of pass; milliseconds of day, local mean sun time, longitude, magnetic activity index Kp, geocentric solar magnetic field, and disturbance storm-time coefficients at ascending and descending nodes; field-model flag words; time at which coefficients of field model are valid; comments relating to field model; exterior field-model coefficients; and record identification flags. In addition to the data, each data record contains the modified Julian day and milliseconds (ms) of day for the first data point, the current pass number, and the time interval between data points (ms). The following auxiliary information is given for each measured data point: latitude and longitude of spacecraft; radius of spacecraft orbit; magnetic local time; invariant and dip latitudes; magnitudes of measured magnetic field from scalar and vector data in nT; North, East, and Vertical components of measured magnetic field; the average in nT of the magnitude and components of the measured magnetic field for the 40 chronicle-tape input points corresponding to the 5-s interval data point; the standard deviation of the magnitude and components of the measured magnetic field; magnitude and components of magnetic field predicted by model; and an attitude-quality word. For additional information see references given under NSSDC ID 79-094A-01A.

Data set name - CONDENSED ORBIT/ATTITUDE DATA ON MAGNETIC TAPE

NSSDC ID 79-094A-01H, CONDENSED ORBIT/ATTITUDE, TAPE

Time period covered - 11/02/79 TO 05/01/80
(As verified by NSSDC)

Quantity of data - 7 REELS OF TAPE

These investigator-supplied, condensed orbit/attitude data are on 9-track, 6250-bpi, odd-parity, binary magnetic tapes created on an IBM 360 computer. Each tape contains both orbit and attitude records. The 3100-byte orbit record consists of modified Julian day and milliseconds (ms) of day of the first data value; time increment between observations (ms); reference time of coordinate system; Greenwich hour angle at epoch; and 128 values per record for each of the following: position vectors (km), invariant latitude (deg), geomagnetic time (hours), and dip latitude (deg). The 3388-byte attitude record contains an attitude-quality indicator; modified Julian day and milliseconds of day of first observation; time increment between observations (ms); date data were processed and number of times reprocessed; number of sets of quaternions; and 240 values per record for each of the following: first, second, and third components of quaternions that transform from sensor platform coordinates to celestial true-of-date geocentric coordinates at start time, and attitude-quality flags.

Data set name - SELECTED DATA FOR FIELD MODELING WITH EXTERNAL FLD AND ATTITUDE ADJUSTMENTS,TAPE

NSSDC ID 79-094A-01I, SELECT DATA FOR MODEL W/ADJ, TAPE

Time period covered - 11/05/79 TO 04/20/80
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

These investigator-supplied, selected magnetometer data for field modeling are on a 9-track, 1600-bpi, odd-parity, binary magnetic tape created on an IBM 360 computer. The data consist of scalar and vector component data for 15 magnetically quiet days (November 5, 1979, to April 20, 1980), corrected for attitude biases and external magnetic fields. The data for each day are further selected from specified time intervals judged to be undisturbed. These data are identified with a flag set to the value 2. Data for which the flag is set to zero are either vector component data for which no fine attitude information was available, or data which were outsige of the specified time intervals. The scalar data, which are no longer independent data, are calculated from the vector component data after corrections are applied. The attitude- and external-field-correction values were obtained by least-squares fitting a parametric magnetic-field model to the fine-attitude data for the given day. Data for each day are written on a separate file. For additional information see references given under NSSDC ID 79-094A-01A.

Data set name - SELECTED DATA FOR FIELD MODELING WITHOUT EXTERNAL FLD AND ATTITUDE ADJUSTMENTS,TAPE

NSSDC ID 79-094A-01J, SELECT DATA FOR FIELD MODEL, TAPE

Time period covered - 11/05/79 TO 04/20/80
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

These investigator-supplied, selected magnetometer data for field modeling are on a 9-track, 1600-bpi, odd-parity, binary magnetic tape created on an IBM 360 computer. The data consist of scalar and vector component data for 15 magnetically quiet days (November 5, 1979, to April 20, 1980), without corrections for attitude biases and external magnetic fields. The data for each day are further selected from specified time intervals judged to be undisturbed. These data are identified with a flag set to the value 2. Data for which the flag is set to zero are either vector component data for which no fine attitude information was available, or data which were outside of the specified time intervals. The scalar data, which are no longer independent data, are calculated from the vector component data. Data for each day are written on a separate file. For additional information see references given under NSSDC ID 79-094A-01A.

Data set name - INVESTIGATOR-B QUIET TIME DATA ON MAGNETIC TAPE

NSSDC ID 79-094A-01K, INVESTIG.-B QUIET TIME DATA, TAPE

Time period covered - 11/02/79 TO 05/20/80
(As verified by NSSDC)

Quantity of data - 3 REELS OF TAPE

This data set, provided by the principal investigator, consists of scalar and vector magnetometer data on 9-track, 6250-bpi, odd-parity, binary magnetic tapes created on an IBM 360 computer. In this data set the vector magnetometer data have been converted to the North, East, and Vertical coordinate system using the best-quality attitude data available. Merged with these data are the spacecraft ephemeris and predicted magnetic field values from a mathematical model. The data are organized by pass (orbit) number and limited to observations made when the magnetic index Kp was less than 2+. Each pass contains a header record and many data records with 30 data points at approximately 5-s intervals, or about 2-1/2 min of data. The header record contains modified Julian day at start of pass; milliseconds of day, local mean sun time, longitude, magnetic activity index Kp, geocentric solar magnetic field, and disturbance storm-time coefficients at ascending and descending nodes; field-model flag words; time at which coefficients of field model are valid; comments relating to field model; exterior field-model coefficients; and record identification flags. In addition to the data, each data record contains the modified Julian day and milliseconds (ms) of day for the first data point, the current pass number, and the time interval between data points (ms). The following auxiliary information is given for each measured data point: latitude and longitude of spacecraft; radius of spacecraft orbit; magnetic local time; invariant and dip latitudes; magnitudes of measured magnetic field from scalar and vector data in nT; North, East, and Vertical components of measured magnetic field; the average in nT of the magnitude and components of the measured magnetic field for the 40 chronicle-tape input points corresponding to the 5-s interval data point; the standard deviation of the magnitude and components of the measured magnetic field; magnitude and components of magnetic field predicted by model; and an attitude-quality word. For additional information see references given under NSSDC ID 79-094A-01A.

Data set name - LATITUDE PLOTS-INTERMEDIATE ATTITUDE ON MICROFILM

NSSDC ID 79-094A-01L, LATITUDE PLOTS-INT ATT, MFILM

Time period covered - 11/02/79 TO 06/09/80
(As verified by NSSDC)

Quantity of data - 5 REELS OF MICROFILM

This microfilm data set, provided by the principal investigator, consists of plots of measured magnetic field minus a model field. The differences in field magnitude and in the vector components (North, East, and Vertical coordinate system) are plotted vs latitude for one complete orbit per plot. The field magnitude shown is that measured by the scalar magnetometer. Time, longitude, and altitude are indicated at 15-deg increments of latitude. Intermediate-accuracy attitude data are used.

Data set name - LOW-LATITUDE SCALAR ANOMALY VALUES ON MAGNETIC TAPE

NSSDC ID 79-094A-01M, LOW-LATITUDE SCALAR ANOMALY, TAPE

Time period covered - 11/02/79 TO 06/16/80
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set, provided by the principal investigator, consists of low-latitude scalar anomaly value data on a 9-track, 1600-bpi, odd-parity EBCDIC magnetic tape created on an IBM 360 computer. The fixed-block records contain ten 80-byte card images each. The data consist of geocentric latitude and longitude (center of 2 deg by 2 deg area), number of scalar anomaly values in 2 deg by 2 deg average, average scalar anomaly value, average altitude, standard deviation, and standard error of the mean. These data are relative to MGST (4/81) spherical harmonic model version 1 (January 8, 1982). Plots of these data are available in data set 79-094A-01N. For additional information see references given under NSSDC ID 79-094A-01A.

Data set name - LOW-LATITUDE SCALAR ANOMALY PLOTS ON MICROFILM

NSSDC ID 79-094A-01N, LOW-LAT SCALAR ANOMALY DATA,MFILM

Time period covered - (N/A)

Quantity of data - 2 REELS OF MICROFILM

This microfilm data set, provided by the principal investigator, consists of plots of the observed anomaly values relative to the MGST (4/81) spherical harmonic model (version 1). The observed data used were the quiet-time data (see data set 79-094A-01K) but this data set is ordered according to longitude of equator crossing, rather than according to time of observation. There are two reels of microfilm, one with northbound passes and one with southbound passes. Each frame consists of three graphs, covering the latitude range -50 to +50 deg. The data plotted are (1) observed total field residuals (delta B), ring-current correction, and altitude; (2) linear trends and delta B minus the ring-current correction; and (3) delta B minus ring-current correction minus linear trends. The digital data from which these plots were produced are available on magnetic tape (data set 79-094A-01M). Corresponding contour maps are available in data set 79-094A-01O. For additional information see references given under NSSDC ID 79-094A-01A.

Data set name - VECTOR/SCALAR ANOMALY MAPS, ON 4X10-IN. COLOR NEGATIVES

NSSDC ID 79-094A-01O, ANOMALY MAPS, 4X10-IN. NEGATIVES

Time period covered - (N/A)

Quantity of data - 4 FRAMES

This data set, provided by the principal investigator, is on 4- by 10-in. color negatives, and it consists of contour maps of the observed anomaly values relative to the MGST (4/81) spherical harmonic model (version 1). To derive the anomaly fields, (1) the model field was subtracted from data obtained under magnetically quiet conditions (Kp less than 2+), (2) estimated external fields were removed, and (3) a correction was made for any residual linear trends. There are four maps, one for each of the three vector components and one for the scalar field determined from the components. Each map covers the latitude range from -50 to +50 deg. For additional information see references given under NSSDC ID 79-094A-01A.

MAGSAT, LANGEL
VECTOR MAGNETOMETER

Data set name - CHRONICLE NORTH, EAST, VERT. COORD. DATA (INTERMEDIATE-ACCURACY ATTITUDE),TAPE

NSSDC ID 79-094A-02A, CHRONINT(CHRONICLE INTERMED),TAPE

Time period covered - 11/02/79 TO 06/10/80
(As verified by NSSDC)

Quantity of data - 34 REELS OF TAPE

This data set, provided by the principal investigator, consists of scalar and vector magnetometer data on 9-track, 6250-bpi, odd-parity, binary magnetic tapes created on an IBM 360/91 computer. In this data set the vector magnetometer data have been converted to the North, East, and Vertical coordinate system using the intermediate-quality (nominally 20 arc min) attitude data. Each logical record consists of an orbit data record, scalar magnetometer data records, and vector magnetometer component data records. Each record type contains data type, modified Julian day of first observation, milliseconds (ms) of day, time increment between observations (ms), and time offset. The orbit data records contain 123 values of inertial coordinates, invariant latitude, geomagnetic time (hours), and dip latitude. The scalar data records contain 512 values (in nT) of scalar observations. The vector records contain 1024 values (in nT) of vector component data. For additional information see (1) R. A. Langel, "Magsat Data Availability," The IMS Source Book, p. 109, American Geophysical Union, Washington, D.C., 1982, TRF #36471; (2) R. A. Langel et al., "Magsat Data Processing, A Report for Investigators," NASA Technical Memorandum 82160, November 1981, TRF #33579; and (3) "Magsat Preliminary Results," a collection of 35 papers in Geophys. Res. Letters, v. 9, pp. 239-376, April 1982.

Data set name - CHRONICLE SPACECRAFT-COORDINATE DATA ON MAGNETIC TAPE

NSSDC ID 79-094A-02B, CHRONSC(CHRONICLE SPACECRAFT)TAPE

Time period covered - 11/02/79 TO 06/09/80
(As verified by NSSDC)

Quantity of data - 29 REELS OF TAPE

This data set, provided by the principal investigator, consists of scalar and vector magnetometer data on 9-track, 6250-bpi, odd-parity, binary magnetic tapes created on an IBM 360/91 computer. In this data set the vector magnetometer data are given in the spacecraft coordinate system. Each logical record consists of an orbit data record, scalar magnetometer data records, and vector magnetometer component data records. Each record type contains data type, modified Julian day of first observation, milliseconds (ms) of day, time increment between observations (ms), and time offset. The orbit data records contain 128 values of inertial coordinates, invariant latitude, geomagnetic time (hours), and dip latitude. The scalar data records contain 512 values (in nT) of scalar observations. The vector records contain 1024 values (in nT) of vector component observations. For additional information see references given under NSSDC ID 79-094A-01A.

Data set name - MAGSAT ORBIT RETRIEVAL SUBROUTINES ON MAGNETIC TAPE

NSSDC ID 79-094A-02C, MAGSAT ORBIT RET. SUBROUT., TAPE

Time period covered - (N/A)

Quantity of data - 1 REEL OF TAPE

This data set, provided by the principal investigator, consists of Magsat user subroutines on a 9-track, 1600-bpi, odd-parity, EBCDIC magnetic tape created on an IBM 360 computer. These subroutines were prepared to permit retrieval of orbit data from orbit records on Magsat chronicle tapes. The spacecraft position in Cartesian (X, Y, and Z in km), geographic (latitude and longitude), and geomagnetic coordinates can be obtained by calling subroutine FLDORB, specifying time as modified Julian day (MJD) and milliseconds of day. Subroutine FLDORB also provides magnetic local time, dip latitude, and a magnetic field value from a field model. An additional subroutine converts from MJD to calendar date and vice versa. Additional information can be obtained from the prologues in the source code listing.

Data set name - PURDUE MAGNETIC FIELD DATA PROCESSING ROUTINES (CDC VERSION) ON MAGNETIC TAPE

NSSDC ID 79-094A-02D, PURDUE MAG. FLD. ROUTINES, TAPE

Time period covered - (N/A)

Quantity of data - 1 REEL OF TAPE

This data set, provided by the principal investigator, consists of programs for the analysis and interpretation of Magsat data. The data set is on a 9-track, 1600-bpi,

odd-parity, binary magnetic tape created on an IBM 360 computer. This data set includes all the programs and subroutines used for the Purdue University study of magnetic and gravity anomaly, including the data used in this study (P. L. Bowman et al., "Magnetic and Gravity Anomaly Correlation and its Application to Satellite Data," Department of Geosciences, Purdue University, West Lafayette, Indiana, August 1978; reprinted as NASA/GSFC TM 79702, TRF 832938).

Data set name - LATITUDE PLOTS-INTERMEDIATE ATTITUDE ON MICROFILM

NSSDC ID 79-094A-02E, LATITUDE PLOTS-INT ATT, MFILM

Time period covered - 11/02/79 TO 06/09/80
(As verified by NSSDC)

Quantity of data - 5 REELS OF MICROFILM

This microfilm data set, provided by the principal investigator, consists of plots of measured magnetic field minus a model field. The differences in field magnitude and in the vector components (North, East, and Vertical coordinate system) are plotted vs latitude for one complete orbit per plot. The field magnitude is that measured by the scalar magnetometer. Time, longitude, and altitude are indicated at 15-deg increments of latitude. Intermediate-accuracy attitude data are used.

Data set name - USER PROGRAMS ON MAGNETIC TAPE

NSSDC ID 79-094A-02H, USER PROGRAMS, TAPE

Time period covered - (N/A)

Quantity of data - 1 REEL OF TAPE

This data set was assembled at NSSDC using various Magsat user computer programs provided by the principal investigator. The data set is on a 9-track, 1600-bpi, odd-parity, EBCDIC magnetic tape created on an IBM 360 computer. The tape contains 38 files. File 1 contains subroutine RDCHRN which reads chronicle tapes. File 2 contains subroutine TIB that reads and prints Investigator-B tapes. Files 3 and 4 contain orbit retrieval and time conversion subroutines (see data set 79-094A-02C). File 5 contains the Business and Technological Systems program, FIT, that generates field models from data. File 6 contains the FOG program that computes the geomagnetic field from spherical harmonic coefficients. Files 7-11 contain the GSFC Equivalent Source Magnetic Anomaly program which models the satellite geomagnetic anomaly observations by using sets of magnetic dipoles at the surface of a spherical earth. Files 12, 13 and 14 contain the GSFC DECOM program and data input for computing magnetic anomalies from sets of dipoles. Files 15-33 are programs (including subroutines) from the Purdue University package (see data set 79-094A-02D). File 34 contains input data for programs in files 15-33. File 35 contains the U.S. Geological Survey program, ADEPT, which determines depth to magnetic basement. File 36 contains the GSFC revision of Purdue program SPHERE. File 37 contains the MGST (6/80) geomagnetic field model coefficients and subroutine FIELD. File 38 contains the MGST (4/81-2) geomagnetic field model coefficients. For additional information see references given under NSSDC ID 79-094A-02A.

Data set name - CHRONICLE NORTH, EAST, VERT. COORD. DATA (FINE-ACCURACY ATTITUDE), TAPE

NSSDC ID 79-094A-02I, CHRONFIN (CHRONICLE FINE), TAPE

Time period covered - 11/01/79 TO 05/19/80
(As verified by NSSDC)

Quantity of data - 29 REELS OF TAPE

This data set, provided by the principal investigator, consists of scalar and vector magnetometer data on 9-track, 6250-bpi, odd-parity, binary magnetic tapes created on an IBM 360/91 computer. In this data set the vector magnetometer data have been converted to the North, East, and Vertical coordinate system using the fine-quality (nominally 20 arc second) attitude data. Each logical record consists of an orbit data record, scalar magnetometer data records, vector magnetometer component data records, and an attitude-quality record. Each record type contains data type, modified Julian day of first observation, milliseconds (ms) of day, time increment between observations (ms), and time offset. The orbit data records contain 128 values of inertial coordinates, invariant latitude, geomagnetic time (hours), and dip latitude. The scalar data records contain 512 values (in nT) of scalar observations. The vector records contain 1024 values (in nT) of vector component observations. The attitude-quality record contains attitude-processing flags which denote the type of attitude information used to calculate the attitude. For additional information see references given under NSSDC ID 79-094A-02A.

Data set name - INVESTIGATOR-B, 5-SEC INTERVAL, VEH COORD DATA (MERGED WITH EPHEMERIS) ON TAPE

NSSDC ID 79-094A-02J, INV-B (INVESTIGATOR-B) DATA, TAPE

Time period covered - 11/02/79 TO 06/10/80
(As verified by NSSDC)

Quantity of data - 5 REELS OF TAPE

This data set, provided by the principal investigator, consists of scalar and vector magnetometer data on 9-track, 1600-bpi, odd-parity, binary magnetic tapes created on an IBM 3081 computer. In this data set the vector magnetometer data have been converted to the North, East, and Vertical coordinate system using the best-quality attitude data available. Merged with these data are the spacecraft ephemeris and predicted magnetic field values from a mathematical model. The data are organized by pass (orbit) number. Each pass contains a header record and many data records with 30 data points at approximately 5-s intervals, or about 2-1/2 min of data. The header record contains modified Julian day at start of pass; milliseconds of day, local mean sun time, longitude, magnetic activity index Kp, geocentric solar magnetic field, and disturbance storm-time coefficients at ascending and descending nodes; field-model flag words; time at which coefficients of field model are valid; comments relating to field model; exterior field-model coefficients; and record identification flags. In addition to the data, each data record contains the modified Julian day and milliseconds (ms) of day for the first data point, the current pass number, and the time interval between data points (ms). The following auxiliary information is given for each measured data point: latitude and longitude of spacecraft; radius of spacecraft orbit; magnetic local time; invariant and dip latitudes; magnitudes of measured magnetic field from scalar and vector data in nT; North, East, and Vertical components of measured magnetic field; the average in nT of the magnitude and components of the measured magnetic field for the 80 chronicle-tape input points corresponding to the 5-s interval data point; the standard deviation of the magnitude and components of the measured magnetic field; magnitude and components of magnetic field predicted by model; and an attitude-quality word. For additional information see references given under NSSDC ID 79-094A-02A.

Data set name - CONDENSED ORBIT/ATTITUDE DATA ON MAGNETIC TAPE

NSSDC ID 79-094A-02K, CONDENSED ORBIT/ATTITUDE, TAPE

Time period covered - 11/02/79 TO 05/01/80
(As verified by NSSDC)

Quantity of data - 7 REELS OF TAPE

These investigator-supplied, condensed orbit/attitude data are on 9-track, 6250-bpi, odd-parity, binary magnetic tapes created on an IBM 360 computer. Each tape contains both orbit and attitude records. The 3100-byte orbit record consists of modified Julian day and milliseconds (ms) of day of the first data value; time increment between observations (ms); reference time of coordinate system; Greenwich hour angle at epoch; and 128 values per record for each of the following: position vectors (km), invariant latitude (deg), geomagnetic time (hours), and dip latitude (deg). The 3388-byte attitude record contains an attitude-quality indicator; modified Julian day and ms of day of first observation; time increment between observations (ms); date data were processed and number of times reprocessed; number of sets of quaternions; and 240 values per record for each of the following: first, second, and third components of quaternions that transform from sensor platform coordinates to celestial true-of-date geocentric coordinates at start time, and attitude-quality flags.

Data set name - LATITUDE PLOTS-FINE ATTITUDE ON MICROFILM

NSSDC ID 79-094A-02L, LATITUDE PLOTS-FINE ATT, MFILM

Time period covered - 11/02/79 TO 05/19/80
(As verified by NSSDC)

Quantity of data - 3 REELS OF MICROFILM

This microfilm data set, provided by the principal investigator, consists of plots of measured vector magnetic field minus a model field. The differences in field magnitude and in the vector components (North, East, and Vertical coordinate system) are plotted vs latitude for one complete orbit per plot. The field magnitude is that computed from the vector components. Time, longitude, and altitude are indicated at 15-deg increments of latitude. Fine-accuracy attitude data are used.

Data set name - SELECTED DATA FOR FIELD MODELING WITH EXTERNAL FLD AND ATTITUDE ADJUSTMENTS,TAPE

NSSDC ID 79-094A-02Y, SELECT DATA FOR MODEL W/ADJ, TAPE

Time period covered - 11/05/79 TO 04/20/80
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

These investigator-supplied, selected magnetometer data for field modeling are on a 9-track, 1600-bpi, odd-parity, binary magnetic tape created on an IBM 360 computer. The data consist of scalar and vector component data for 15 magnetically quiet days (November 5, 1979, to April 20, 1980), corrected for attitude biases and external magnetic fields. The data for each day are further selected from specified time intervals judged to be undisturbed. These data are identified with a flag set to the value 2. Data for which the flag is set to zero are either vector component data for which no fine-attitude information was available, or data which were outside of the specified time intervals. The scalar data are no longer independent data, but are calculated from the vector component data after corrections are applied. The external-field and attitude-correction values were obtained by least-squares fitting a parametric magnetic-field model to the fine-attitude data for the given day. Data for each day are written on a separate file. For additional information see references given under NSSDC ID 79-094A-02A.

Data set name - SELECTED DATA FOR FIELD MODELING WITHOUT XTERNAL FLD AND ATTITUDE ADJUSTMENTS,TAPE

NSSDC ID 79-094A-02N, SELECT DATA FOR FIELD MODEL, TAPE

Time period covered - 11/05/79 TO 04/20/80
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

These investigator-supplied, selected magnetometer data for field modelin; are on a 9-track, 1600-bpi, odd-parity, binary magnetic tape created on an IBM 360 computer. The data consist of scalar and vector component data for 15 magnetically quiet days (November 5, 1979, to April 20, 1980), without corrections for attitude biases and external magnetic fields. The data for each day are further selected from specified time intervals judged to be undisturbed. These data are identified with a flag set to the value 2. Data for which the flag is set to zero are either vector component data for which no fine attitude information was available or data which were outside of the specified time intervals. The scalar data, which are no longer independent data, are calculated from the vector component data. Data for each day are written on a separate file. For additional information see references given under NSSDC ID 79-094A-02A.

Data set name - INVESTIGATOR-R QUIET TIME DATA ON MAGNETIC TAPE

NSSDC ID 79-094A-02Q, INVESTIG.-R QUIET TIME DATA, TAPE

Time period covered - 11/02/79 TO 03/20/80
(As verified by NSSDC)

Quantity of data - 3 REELS OF TAPE

This data set, provided by the principal investigator, consists of scalar and vector magnetometer data on 9-track, 6250-bpi, odd-parity, binary magnetic tapes created on an IBM 360 computer. In this data set the vector magnetometer data have been converted to the North, East, and Vertical coordinate system using the best-quality attitude data available. Merged with these data are the spacecraft ephemeris and predicted magnetic field values from a mathematical model. The data are organized by pass (orbit) number and limited to observations made when the magnetic index Kp was less than 3+. Each pass contains a header record and many data records with 30 data points at approximately 5-s intervals, or about 2-1/2 min of data. The header record contains modified Julian day at start of pass; milliseconds of day, local mean sun time, longitude, magnetic activity index Kp, geocentric solar magnetic field, and disturbance storm-time coefficients at ascending and descending nodes; field-model flag words; time at which coefficients of field model are valid; comments relating to field model; exterior field-model coefficients; and record identification flags. In addition to the data, each data record contains the modified Julian day and milliseconds (ms) of day for the first data point, the current pass number, and the time interval between data points (ms). The following auxiliary information is given for each measured data point: latitude and longitude of spacecraft; radius of spacecraft orbit; magnetic local time; invariant and dip latitudes; magnitudes of measured magnetic field from scalar and vector data in nT; North, East, and Vertical components of measured magnetic field; the average in nT of the magnitude and components of the measured magnetic field for the 80 chronicle-tape input points corresponding to the 5-s interval data point; the standard deviation of the magnitude and components of the measured magnetic field; magnitude and components of magnetic field predicted by model; and an attitude-quality word. For additional information see references given under NSSDC ID 79-094A-02A.

Data set name - WHOLE-ORBIT PLOTS DELTA F,X,Y,Z VS TIME (USGS) ON MICROFILM

NSSDC ID 79-094A-02P, WHOLE-ORB PLT DELT F,X,Y,Z, MFILM

Time period covered - 11/02/79 TO 04/15/80
(As verified by NSSDC)

Quantity of data - 4 REELS OF MICROFILM

This microfilm data set, provided by the U.S. Geological Survey in Denver, Colorado, consists of plots of magnetometer vector data (components and the resulting magnitude) minus a model field, vs time. The plots were made from a selection of approximately 1900 points (equally spaced) per orbit from data set 79-094A-02I. Each plot includes the orbit number plus geodetic and geomagnetic latitudes, longitude and time for eight equally spaced orbit points (latitude extremes, and intersections with the equator and the 45-deg parallels). There are approximately 90 min per frame and 63 frames (orbits) per fiche. Microfiche data set 79-094A-02Q contains the same plots. For additional information see references given under NSSDC ID 79-094A-02A.

Data set name - WHOLE-ORBIT PLOTS DELTA F,X,Y,Z VS TIME (USGS) ON MICROFICHE

NSSDC ID 79-094A-02Q, WHOLE-ORB PLT DELT F,X,Y,Z, FICHE

Time period covered - 11/02/79 TO 03/06/80
(As verified by NSSDC)

Quantity of data - 32 CARDS OF B/W MICROFICHE

This microfiche data set, provided by the U.S. Geological Survey in Denver, Colorado, consists of plots of magnetometer vector data (components and the resulting magnitude) minus a model field, vs time. The plots were made from a selection of approximately 1900 points (equally spaced) per orbit from data set 79-094A-02I. Each plot includes the orbit number plus geodetic and geomagnetic latitudes, longitude and time for eight equally spaced orbit points (latitude extremes, and intersections with the equator and the 45-deg parallels). There are approximately 90 min per frame and 63 frames (orbits) per fiche. Microfilm data set 79-094A-02P contains the same plots. For additional information see references given under NSSDC ID 79-094A-02A.

Data set name - VECTOR/SCALAR ANOMALY MAPS, 11/81 ON 8X10-IN. COLOR NEGATIVES

NSSDC ID 79-094A-02R, ANOMALY MAPS, 8X10-IN. COLOR NEG

Time period covered - (N/A)

Quantity of data - 4 FRAMES

This data set, provided by the principal investigator, is on 8- by 10-in. color negatives, and it consists of contour maps of the observed anomaly values relative to the MGST (4/81) spherical harmonic model (version #1). To derive the anomaly field, (1) the model field was subtracted from data obtained under magnetically quiet conditions (Kp less than 2+), (2) estimated external fields were removed, and (3) a correction was made for any residual linear trends. There are four maps, one for each of the three vector components and one for the scalar field determined from the components. Each map covers the latitude range from -50 to +50 deg. For additional information see references given under NSSDC ID 79-094A-02A.

Data set name - 65 S - 65 N VECTOR ANOMALY PLOTS ON MICROFILM

NSSDC ID 79-094A-02S, 65S-65N VECTOR ANOMALY PLTS,MFILM

Time period covered - (N/A)

Quantity of data - 4 REELS OF MICROFILM

This microfilm data set, provided by the principal investigator, consists of plots of the observed magnetic vector anomaly values relative to the MGST (4/81) spherical harmonic model. The data used were obtained under magnetically quiet conditions and processed with fine-accuracy attitude information. The data set, however, was ordered according to the longitude of the equator crossings rather than to the time of observation. There are two segments of the data, one with northbound passes (dusk local time) and one with southbound (dawn local time). For each pass there are two frames, comprising a total of 12 plots divided into four groups: delta B, delta X, delta Y, and delta Z. In each group the data plotted are (1) observed anomaly component and ring-current corrections (there is no correction for the delta Y data); (2) linear trends and anomaly component minus the ring-current correction; and (3) anomaly component minus the ring-current

correction minus the linear trends. All quantities are plotted vs latitude, within the range 65 deg south to 65 deg north latitude. Also included are altitude (on delta B plots), three parameters of the equatorial crossings (universal time, local mean time, and longitude), pass number, and number of points in each pass. The altitude is referenced to a 6371.2 km sphere.

********** MIDAS 2 **********

MIDAS 2, MCILRAITH
ATMOSPHERIC NEUTRAL DENSITY

Data set name - ATMOSPHERIC DENSITY ANALOG VOLTAGE STRIP CHARTS

NSSDC ID 60-006A-02A, ATMOSPHERIC DENSITY, MFILM

Time period covered - 05/24/60 TO 05/24/60
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This atmospheric density data set on 16-mm film contains, in strip chart format, sensor measurements ranging from 0 to 5 V plotted vs system time. Some analyzed results, i.e., ambient density values, and the necessary calibration charts and formulas for converting the gauge's output in volts to atmospheric density values, are provided too. The data were taken at approximately noon local time, while the satellite was within the telemetry range of both Hawaii and Vandenberg AFB, California, during orbits 2 and 3.

********** OGO 2 **********

OGO 2, ANDERSON
COSMIC-RAY IONIZATION

Data set name - MICROFILM PLOTS OF TOTAL IONIZATION RATES AND SATELLITE ALT VS INVARIANT LAT

NSSDC ID 65-089A-06A, IONIZATION RATES VS INV LAT,MFILM

Time period covered - 10/14/65 TO 04/02/66
(As verified by NSSDC)

Quantity of data - 5 REELS OF MICROFILM

This data set, supplied by the principal investigator, consists of plots of ionization-chamber total ionization rates (ion pairs/s-cc, STP air) and satellite altitude (km) vs invariant latitude (-90 to +90 deg) on 35-mm microfilm. The corresponding McIlwain L-shell parameter, geographic longitude, and local time of the satellite are indicated along the invariant latitude axis. The orbit number and day number appear at the top of each plot along with the universal time of the first point plotted on the graph and an instrument sensitivity-mode indicator (H for high, L for low). The altitude is plotted using the x symbol, and the ionization rates are plotted using dots. The direction of the spacecraft in its orbit is indicated in the lower left margin for a given plot, e.g., "N-S" means the spacecraft was traveling from the northern hemisphere toward the southern hemisphere. Time coverage was less than 50% from instrument turnon (October 14, 1965) until the instrument ceased operating (April 2, 1966). Further descriptions of the experiment and this data set, including a detailed time coverage chart for the entire lifetime of the experiment, appear on the microfilm along with the data.

OGO 2, CAIN
RUBIDIUM VAPOR MAGNETOMETER

Data set name - UNCOMPRESSED 0.5-SEC MAGNETIC FIELD AVERAGES ON TAPE

NSSDC ID 65-089A-05R, 0.5-SEC MAG FLD AVRG, TAPE

Time period covered - 10/14/65 TO 12/30/66
(As verified by NSSDC)

Quantity of data - 10 REELS OF TAPE

This data set, supplied by the principal investigator, consists of time-ordered, 0.5-s averages of the geomagnetic field magnitude every 0.5 s or every 1 s. Ephemeris information is not included in this data set. The data set is contained on 7-track, 800-bpi, odd-parity, binary magnetic tapes that were produced on an IBM 7094 computer. Each file contains all the good data from a particular day, and each record is 200 words long. A compressed version of this data set is available as data set 65-089A-05E.

Data set name - MICROFILM PLOTS OF REDUCED MAGNETIC AND DELTA FIELD (CAIN 12/66 GSFC MODEL) DATA

NSSDC ID 65-089A-05C, B FLD,DATA + GSFC 12/66 MDL,MFILM

Time period covered - 10/14/65 TO 01/22/66
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This data set, supplied by the principal investigator, consists of plots of 0.5-s averages of the geomagnetic field magnitude and plots of the difference between the measured field and the Cain GSFC 12/66 field model. The data are contained on one reel of 35-mm microfilm and have an 80% coverage for the time period indicated. Apogee, perigee, universal time, longitude, latitude, and satellite altitude are marked on each plot. There are six times and nine altitudes, latitudes, and longitudes indicated on each plot. Each plot covers 1.5 h, or about one orbit.

Data set name - 0.5-SEC MAGNETIC FIELD AVERAGES ON COMPRESSED TAPES

NSSDC ID 65-089A-05E, COMPRESSED MAG FLD AVG DATA, TAPE

Time period covered - 10/14/65 TO 12/22/66
(As verified by NSSDC)

Quantity of data - 4 REELS OF TAPE

This data set, supplied by the principal investigator, consists of 0.5-s averages of the geomagnetic field magnitude every 1 s. The information is contained on 7-track, 800-bpi, odd-parity, binary magnetic tapes generated on an IBM 7094 computer. Each tape contains one file, with variable length records. Also included on the tape are Julian day and milliseconds of Julian day for each record. Ephemeris data are not included in this data set. Each record begins with five integer control words representing universal time, and some record parameters. Following each record header are the data words that are floating point IBM 7094 words packed two-to-one in each 36-bit binary word. These data are a compressed version of data set 65-089A-05R.

Data set name - MICROFILM PLOTS OF REDUCED MAGNETIC AND DELTA FIELD (CAIN 10/68 POGO MODEL) DATA

NSSDC ID 65-089A-05F, B FLD,DATA + POGO 10/68 MDL,MFILM

Time period covered - 10/14/65 TO 10/02/67
(As verified by NSSDC)

Quantity of data - 2 REELS OF MICROFILM

This data set, supplied by the principal investigator, consists of plots of 0.5-s averages of the geomagnetic field magnitude and plots of the difference between the measured field and the POGO 10/68 field model. The data are contained on reels of 35-mm microfilm. Date, Greenwich mean time, apogee, perigee, longitude, latitude, and satellite altitude are marked on each plot. There are six times and nine altitudes, latitudes, and longitudes indicated on each plot. Each plot covers 1.5 h, or about one orbit. The data have an 80% coverage for the following time periods: October 14 to October 24, 1965; October 29, 1965, to April 2, 1966; June 11 to June 12, 1966; June 29 to August 4, 1966; November 22 to December 22, 1966; April 11 to May 6, 1967; and September 19 to October 2, 1967.

Data set name - COMPRESSED 0.5-SEC REDUCED MAGNETIC FIELD AVERAGES ON TAPE

NSSDC ID 65-089A-05G, COMPRESSED HALF SEC MAG FLD, TAPE

Time period covered - 10/14/65 TO 10/02/67
(As verified by NSSDC)

Quantity of data - 4 REELS OF TAPE

This data set, supplied by the principal investigator, consists of 0.5-s averages of the geomagnetic field magnitude every 0.5 s or every 1 s. The data are contained on 7-track, 800-bpi, odd-parity, binary magnetic tapes produced on an IBM 7094 computer. The data on each tape are in one file of variable-length records. The data are time ordered, and time is expressed in Julian day and milliseconds of Julian day. A Fortran IV program is available at NSSDC to compute the difference between the observed field and either the geomagnetic field model that uses the POGO 10/68 coefficients or the model that uses the GSFC 12/66 coefficients. Ephemeris information is not included in the data set. The coefficients and the ephemeris tape required for this program are available at NSSDC.

Data set name - 0.8-SEC AVERAGES OF MAGNETIC FIELD MAGNITUDE SAMPLED EVERY 10 SEC ON TAPE

NSSDC ID 65-081A-05H, 10-SEC MAG FLD AVRG, TAPE

Time period covered - 10/14/65 TO 10/02/67
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set, supplied by the principal investigator, consists of 0.8-s averages of the geomagnetic field magnitude every 10 s. No ephemeris information is included. The data are contained on one 7-track, 800-bpi, odd-parity, binary magnetic tape produced on an IBM 7094 computer. The data are in one file of variable-length records. The data are time ordered, and time is expressed in Julian day and milliseconds of Julian day. A Fortran IV program is available at NSSDC to compute the difference between the observed field and either the geomagnetic field model that uses the POGO 10/65 coefficients or the model that uses the GSFC 12/66 coefficients. Ephemeris information is not included in the data set. The coefficients and the ephemeris tape required for this program are available at NSSDC.

OGO 2, HELLIWELL
VLF NOISE AND PROPAGATION

Data set name - VLF SPECTROGRAMS, LOW RESOLUTION ON 35-MM PAPER ROLLS

NSSDC ID 65-081A-02M, VLF SPECTROGRAMS, 35-MM PAPER

Time period covered - 10/17/65 TO 03/30/66
(As verified by NSSDC)

Quantity of data - 226 ROLLS OF STRIP OR BRUSH CHARTS

This data set, provided by the principal investigator, contains VLF spectrograms produced by Raytheon equipment on 35-mm rolls of paper. They show, for each station pass recorded, the time of signal occurrence vs frequency of the received VLF signal. The relative signal strength can be qualitatively estimated by contrast between the background and the signal traces. These data are in an original form that is prepared directly from the first two channels of the special purpose telemetry tapes. They are records of signals received by the 0.5- to 10.5-kHz broadband receiver and transmitted in real time when in range of a telemetry station. These are low-resolution data that have been photographed with low paper-transport speeds. The primary use for this data form is in identification of data that may provide interesting cases for study with higher resolution processing of the same data. The original tapes and processing at various transport speeds are available through the data set contact at Stanford University. Since only time is noted on the spectrograms, satellite position and other related information must be obtained from the world maps. (See data set 65-081A-00C.)

OGO 2, KREPLIN
SOLAR X-RAYS

Data set name - SOLAR X-RAY DATA
0.5 TO 60A IN 4 RANGES

NSSDC ID 65-081A-16A, SOLAR X-RAY PLOTS, MFILM

Time period covered - 10/14/65 TO 10/23/65
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This data set, provided by the principal investigator, consists of x-ray flux data, contained on 35-mm microfilm. The data are plots of telemetry counts (related to the x-ray flux by a scale factor) vs universal time. Counts are given from the 0.5- to 3-A, 2- to 8-A, and 8- to 16-A (also called 8- to 20-A) detectors, along with the amplifier range in use at that time. Counts are also given from the 44- to 60-A detector. A background rate is also indicated. The data cover the period of October 14 to October 23, 1965, and are time ordered. After October 23, 1965, the spacecraft lost orientation and no more useful data were obtained.

OGO 2, NILSSON
INTERPLANETARY DUST PARTICLES

Data set name - ANALYZED MICROMETEORITE DATA PUBLISHED IN GAO CONTRACT REPORT NAS 5-1107

NSSDC ID 65-081A-14A, MICROMETEORITE DATA, BOOK

Time period covered - 10/15/65 TO 04/08/66
(As verified by NSSDC)

Quantity of data - 1 BOOK OR BOUND VOLUME

This data set, provided by the principal investigator, includes all the useful data obtained with experiment 65-081A-14, namely the identification of two micrometeoroid impacts. The data set is contained in the published report by C. S. Nilsson and D. Wilson, "The micrometeoroid experiment on the OGO 2 satellite," SAO contract report NAS 5-1107, February 1969. The publication includes a discussion of the experiment instrumentation, data arrangement, inflight comparison of data, and a sample of playback data from the master data tape. The playback data consisted of 1370 h of records. Real-time data consisted of about 100 h. The raw data were machine reduced through three levels that gradually eliminated telemetry noise, microphone noise, and other electrical interference signals. The three levels of automated data reduction trimmed the 1370 h of playback data, consisting of about 140,000 records, down to 98 records requiring closer attention. Further reduction by hand was required to eliminate noise of unknown origin, leaving only two records of possible meteoritic origin. A table is given in the report listing the two possible events and their time of occurrence (day, h, min, s) and various sensor information. In view of uncertainty concerning these two possible events, they provide at best, an upper limit to the flux of particles larger than about 1.E-12 g. The flux rates derived from the event data compare favorably with results obtained from experiments on earlier spacecraft.

OGO 2, SIMPSON
LOW-ENERGY PROTON, ALPHA PARTICLE MEASUREMENT

Data set name - REDUCED COSMIC-RAY COUNT RATE AND ORBITAL DATA MERGED ON MAGNETIC TAPE

NSSDC ID 65-081A-07A, COSMIC-RAY COUNT RATES, TAPE

Time period covered - 10/14/65 TO 11/03/65
(As verified by NSSDC)

Quantity of data - 22 REELS OF TAPE

This data set, provided by the principal investigator, consists of reduced cosmic-ray count-rate data merged with orbital data and corresponds to the time period before the spacecraft went into a spin mode. The data are on 7-track, 800-bpi, odd-parity, binary tapes written on an IBM 7094 computer. The data are formatted as follows. Each tape has a 20-word file header record followed by a variable number of physical records (each having a six-word record header). There are a variable number of logical records per physical record, since the 52-word orbital-data logical record was inserted into the stream of four-word count-rate data logical records once every minute in generating this set of tapes. This insertion did not necessarily occur at the beginning or end of a given physical record. Each file contains about 5 min of data. The tapes contain all experiment counting rates, telescope temperatures, universal time, latitude, longitude, height, sun-earth-satellite angle, geomagnetic coordinates, and various data quality flags. The data within a file are always monotonically increasing in time. However, the set of files comprising a data tape is not necessarily time ordered. Redundancies in the data have been deleted.

Data set name - COUNT RATE PLOTS (R VS ENERGY LOSS) AND ORBITAL DATA ON MICROFILM

NSSDC ID 65-081A-07B, COSMIC-RAY COUNT RATES, MFILM

Time period covered - 10/15/65 TO 12/13/66
(As verified by NSSDC)

Quantity of data - 6 REELS OF MICROFILM

This 35-mm microfilm data set, provided by the principal investigator, consists of cosmic-ray data in the form of count rate (both single and coincidence rates) plots. Each plot covers one OGO 2 orbit and contains several different counting rates as well as satellite orbit data, invariant latitude, altitude, scalar geomagnetic field, McIlwain's L-shell parameter, and either dipole local time or magnetic local time. Throughout the microfilm, the relevant scales are included approximately every 100 frames. Each plot contains the following coincidence count rates from the vertical telescope: V3 (proton and alpha particle energies greater than 39.2 MeV/nucleon or electron energies greater than 1 MeV), V1notV3 (corresponds to proton and alpha particle energies from 1.22 to 39.2 MeV/nucleon or electrons from 0.4 to 1 MeV), and V2notV3 and V1V2notV3 (both of which correspond to proton and alpha particle energies from 9.32 to 39.2 MeV/nucleon and only the former to electron energies from 0.7 to 1 MeV). The one horizontal telescope counting rate in the data corresponds to a proton and alpha particle energy threshold of 720 keV/nucleon.

The V3 count rate plotted is an average rate obtained over five readouts whereas the other three rates, as calculated for these plots, have a nominal accumulation time of 15 s. The data set provides a compact sample of the data from this experiment. Since OGO 2 tumbled, the user of these data should consult P. E. Dimotakis, "OGO-C orientation study," Internal report no. 9, Cal Tech Space Radiation Lab., for help in obtaining the correct attitude of the instrument. This document is available from NSSDC as TRF 805160.

OGO 2, WEBBER
GALACTIC AND SOLAR COSMIC RAY

Data set name - REDUCED PARTICLE COUNT RATES
50-2000 MEV/NUCLEON

NSSDC ID 65-081A-08A, PARTICLE COUNT RATES, TAPE

Time period covered - 10/15/65 TO 10/24/65
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set, provided by the principal investigator, consists of cosmic-ray particle count-rate data contained on a 7-track, 556-bpi, odd-parity, binary magnetic tape written on a CDC 1604 computer. The data are ordered by orbit pass, and consist of 37-s averaged telescope rates and 18-s averaged first detector rates. The tape contains telescope rates, first detector rates, the universal time, altitude, latitude, longitude, McIlwain's L-shell parameter, and magnetic field intensity. These data comprise all the useful information obtained from the cosmic-ray experiment. Plots of the count rates are also available on one reel of microfilm (data set 65-081A-09B).

Data set name - PLOTS OF REDUCED PARTICLE COUNT RATES ON MICROFILM

NSSDC ID 65-081A-08B, PARTICLE COUNT-RATE PLOTS, MFILM

Time period covered - 10/15/65 TO 10/24/65
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This data set, provided by the principal investigator, consists of cosmic-ray particle count-rate data, given as plots on 16-mm microfilm. The data are ordered by the orbit pass. The data consist of 37-s averaged telescope rates and 18-s averaged first detector rates plotted against Greenwich mean time. The data include also the altitude, latitude, longitude, McIlwain's L-shell parameter, and magnetic field intensity. These data comprise all the useful information obtained from the cosmic-ray experiment. The data plotted here are the same as those recorded on magnetic tape in data set 65-081A-08A.

********** OGO 4 **********

Data set name - ORBIT ATTITUDE DATA ON MAGNETIC TAPE

NSSDC ID 67-073A-00D, ORBIT ATTITUDE, TAPE

Time period covered - 07/28/67 TO 05/08/68
(As verified by NSSDC)

Quantity of data - 2 REELS OF TAPE

This data set, provided by GSFC, contains orbit and attitude data for OGO 4. The data set is on 9-track, 1600-bpi, odd-parity, binary tapes written on an IBM 360 computer.

OGO 4, ANDERSON
COSMIC-RAY IONIZATION

Data set name - MICROFILM PLOTS OF TOTAL IONIZATION RATES AND SATELLITE ALT. VS INVARIANT LAT.

NSSDC ID 67-073A-07A, IONIZATION RATES VS INV LAT,MFILM

Time period covered - 07/30/67 TO 08/11/67
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This data set, supplied by the principal investigator, consists of plots of ionization-chamber total ionization rates (ion pairs/s-cc, STP air) and satellite altitude (km) vs invariant latitude (-90 to +90 deg) on one reel of 35-mm microfilm. The corresponding McIlwain L-shell parameter, geographic longitude, and local time at the satellite are indicated along the invariant latitude axis. The orbit number and day number appear at the top of each plot along with the universal time of the first point plotted on the graph and an instrument sensitivity-mode indicator (H for high, L for low). The altitude is plotted using the X symbol, and the ionization rates are plotted using dots. The direction of the spacecraft in its orbit is indicated in the lower left margin for a given plot, e.g., "N-S" means the spacecraft was traveling from the northern hemisphere toward the southern hemisphere. The omnidirectional ionization chamber measured the total ionization produced by protons (E>10 MeV) and electrons (E>1 MeV). The time coverage was less than 50% from launch (July 28, 1967) until the instrument's premature failure (August 8, 1967). Further descriptions of the experiment and this data set, including a detailed time coverage chart for the entire lifetime of the experiment, appear on the microfilm along with the data.

OGO 4, BARTH
UV SPECTROMETER 1100-1750A, 1750-3400A

Data set name - OZONE DATA ON MAGNETIC TAPE

NSSDC ID 67-073A-14A, OZONE PROFILES, TAPE

Time period covered - 08/30/67 TO 02/29/68
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set was provided by the principal investigator and it contains calculated ozone profiles. The data are on a 7-track, 556-bpi, even-parity, BCD magnetic tape written on an IBM 7094 computer. Specifically, there are 995 profiles for September 1967, 1508 profiles for October 1967, 647 profiles for November 1967, 514 profiles for December 1967, and 381 profiles for January 1968. Every profile consists of values at 16 different pressure levels, and requires 5 records or card images. The first record in each set gives the tape and record number, the date and time of the measurement (Greenwich and local mean times), the location of the satellite, and the sun's azimuth and zenith angles. The remaining four records each contain four pairs of values. Each pair consists of the pressure (millibars) and the corresponding mixing ratio (gram per gram).

OGO 4, CAIN
MAGNETIC SURVEY, RUBIDIUM VAPOR MAGNETOMETER

Data set name - RUBIDIUM MAGNETOMETER DATA

NSSDC ID 67-073A-06A, MAGNETIC FIELD DATA, TAPE

Time period covered - 07/29/67 TO 01/19/69
(As verified by NSSDC)

Quantity of data - 11 REELS OF TAPE

This data set, provided by the principal investigator, consists of geomagnetic-field data on 9-track, 1600-bpi, odd-parity, binary tapes, written on an IBM 360/91 computer. The records are fixed length with 1624 thirty-two bit bytes containing modified Julian day (obtained by linearly counting, using 15019 as the base day number for Jan. 0, 1900), time in milliseconds of Julian day, difference in milliseconds between successive data values in the record, and 1820 words of geomagnetic field data values.

OGO 4, HELLIWELL
VLF NOISE AND PROPAGATION

Data set name - 0- TO 12.5-KHZ VLF SPECTROGRAMS ON 35-MM PAPER

NSSDC ID 67-073A-02A, VLF SPECTROGRAMS, 35-MM PAPER

Time period covered - 07/28/67 TO 11/01/69
(As verified by NSSDC)

This data set, available only from the principal investigator, consists of standard 0- to 12.5-kHz spectrograms displayed as a function of time on 35-mm paper rolls. The original analog tapes and processing at various transport speeds are available at cost through the data set contact at Stanford University. Since only time is noted on the spectrograms, satellite position and other related information must be obtained from the world maps.

OGO 4, HOFFMAN
LOW-ENERGY AURORAL PARTICLE DETECTOR

Data set name - LOW-ENERGY (AURORAL) PARTICLE COUNT RATES ON MAGNETIC TAPE

NSSDC ID 67-073A-11A, AURORAL PARTICLE COUNT RATES,TAPE

Time period covered - 07/30/67 TO 01/25/69
(As verified by NSSDC)

Quantity of data - 77 REELS OF TAPE

This data set, provided by the principal investigator, consists of particle count rates on 9-track, 800-bpi, odd-parity, binary magnetic tapes written on an IBM 360 computer. There are five possible logical record lengths corresponding to each of the formats used in sampling and telemetering the data, with the maximum logical record being 9000 bytes. All tapes contain a single file of time-ordered data. The following information is contained on each tape: time, experiment mode (electrons, protons, or undetermined --less than 5% of the data were in an undetermined mode), experiment temperatures, calibration voltages, background readouts, data rate (4 kbs, 16 kbs, 64 kbs, or 4 cps recorded), data format (main frame data format or any of the four flexible formats used to sample and telemeter data), and count rates for all detectors. There are at least some data for 95% of the orbits over the time period indicated. Ninety percent of these data were obtained over the north auroral zone and polar caps. The remaining data were obtained at lower latitudes and over the south auroral zone. Of these data, 80% are in the electron mode and the remainder (excluding the small amount with mode undetermined) are in the proton mode.

Data set name - LISTINGS OF DATA ACQUISITION TIMES ON MICROFILM

NSSDC ID 67-073A-11E, DATA ACQUISITION TIMES, MFILM

Time period covered - 07/30/67 TO 01/25/69
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

The data set, generated at NSSDC from a computer printout supplied by the principal investigator, is a listing of data acquisition times on one reel of 16-mm microfilm. Data for each entry of varying time period include calendar date, day count of year, orbit number, universal start and stop times, format number, bit rate, type of particles (electrons or protons), start and stop values of the McIlwain L-shell parameter, hemisphere, pass direction, availability of various plots (summary, analysis, or polar), and availability of printout of the data. Owing to the inclusion of a 13-min timer on the high-voltage power supply that powered the experiment detectors, data acquisition was not continuous. Acquisition was initiated via ground command usually as the satellite approached the auroral zone. Thirteen minutes were nominally sufficient time for the satellite to traverse the auroral zone, pass over the polar cap, and again cross the auroral zone before the detector power was turned off. At other times, the high voltage was commanded off by ground command. Data acquisition for the experiment was complicated by orbital operations requirements of the spacecraft, especially pertaining to spacecraft attitude control and onboard tape recorder use.

Data set name - PLOTS OF 0.576-MIN AVERAGED COUNT RATE DATA FROM THREE DETECTORS ON MICROFILM

NSSDC ID 67-073A-11F, SUMMARY PLOTS (FINAL), MFILM

Time period covered - 07/30/67 TO 01/14/69
(As verified by NSSDC)

Quantity of data - 5 REELS OF MICROFILM

This microfilm data set, provided by the principal investigator, contains plots of the count rates (averaged over 0.576 min) of the 30-deg, 2.3-keV detector, the 0-deg, 0.7-keV detector and the 0-deg, 7.4-keV detector vs universal time (in seconds of day). No corrections for noise have been made. The following information is also contained on each plot: McIlwain's L-shell parameter, the geomagnetic field intensity (calculated from a spherical harmonic expansion), altitude, sun-earth-satellite angle, local time, invariant latitude, and the format in which the data were telemetered. There are at least some data for 95% of the orbits over the time period indicated. Ninety percent of the data were obtained over the north auroral zone and polar caps, and the remaining data were obtained at lower latitudes and over the south auroral zone. Of these data, 80% are in the electron mode, and the remainder are in the proton mode.

Data set name - MICROFILMED PLOTS OF PORTIONS OF THE SATELLITE ORBIT WHERE DATA WERE TAKEN

NSSDC ID 67-073A-11G, DATA ACQSTN LOCATION PLOTS, MFILM

Time period covered - 07/30/67 TO 01/25/69
(As verified by NSSDC)

Quantity of data - 3 REELS OF MICROFILM

This microfilm data set, supplied by the principal investigator, shows the portions of the OGO 4 trajectory where data from the low-energy auroral particles experiment were taken. The data are displayed as polar plots showing the satellite geomagnetic local time (indicated in degrees from 0 to 360) vs the satellite invariant geomagnetic latitude (indicated in degrees from 85 to 60). There is one plot per pass over the auroral zone. On each plot, the following are indicated: pass number, date, the magnitude of the 3-h geomagnetic field index (Kp) during the pass, and the universal start and stop times of the pass.

OGO 4, KREPLIN
SOLAR X-RAY EMISSIONS

Data set name - SOLAR X-RAY PLOTS ON MICROFILM

NSSDC ID 67-073A-21A, SOLAR X-RAY PLOTS, MFILM

Time period covered - 07/29/67 TO 07/16/68
(As verified by NSSDC)

Quantity of data - 19 REELS OF MICROFILM

This data set, provided by the principal investigator, consists of plots of solar X-ray fluxes vs time on 35-mm microfilm. The abscissas of the plots are scaled in hours and minutes of universal time, and the ordinates are logarithmically scaled in flux units of ergs/(sq cm-s). Data for the 0.5- to 3.0-A, 1- to 8-A, 8- to 20-A, and 44- to 60-A passbands are given. Significant data gaps (about 30 min long) occurred during each orbit when the earth occulted the sun.

Data set name - HOURLY AVERAGED SOLAR X-RAY FLUXES ON MAGNETIC TAPE

NSSDC ID 67-073A-21B, HOURLY AVGD SOLAR X-RAY FLUX,TAPE

Time period covered - 07/29/67 TO 07/15/68
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set, provided by the principal investigator, consists of hourly averaged solar X-ray fluxes obtained using two different filtering techniques identified as method H and method D. The data set is on a 7-track, 556-bpi, even-parity, BCD magnetic tape written on an IBM 7094 computer. The data are divided into two subsets, one corresponding to each filter. The data filtered using method H were considered in hourly blocks of universal time. The means and standard deviations of the fluxes observed for each detector were calculated for each 1-h interval. Data points differing from the mean by more than +2.5 or -3 sigma were deleted, and the means and standard deviations were again calculated. This process was iterated with the limits being reduced until, for the fourth pass, the limits were +1 and -1.5 sigma. The remaining points were used to calculate the hourly averages and standard deviations appearing on the tape. This method eliminated data for small flares and trapped-particle contamination from the radiation belts, but did not eliminate data from large flares or trapped-particle contamination from the South Atlantic anomaly. Method D was similar to method H except that the data were treated in daily intervals rather than hourly intervals. The daily average fluxes and standard deviations were calculated and used in the filtering process described above to eliminate flare data and particle contamination. This method eliminated almost all data from flares and trapped particles, including those in the South Atlantic anomaly. The tape lists the year, month, day, and the starting hour (universal time) of the hourly data sample averaged (an hour value of 25 indicates a daily average), the hourly average fluxes in ergs/(sq cm-s) and standard deviations for the 0.5- to 3-A, 1- to 8-A, 8- to 20-A, and 44- to 60-A detectors.

Data set name - HOURLY AVERAGED SOLAR X-RAY FLUXES ON MICROFILM

NSSDC ID 67-073A-21C, HOURLY AVG SOLAR X-RAY FLUX,MFILM

Time period covered - 07/29/67 TO 07/15/68
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This data set, on 16-mm microfilm, was generated at NSSDC from data set 67-073A-21B. It contains hourly averaged solar X-ray fluxes obtained using two different filtering techniques identified as method H and method D. The data are divided into two subsets, one corresponding to each filter. The data filtered using method H were considered in hourly blocks of universal time. The means and standard deviations of the fluxes observed for each detector were calculated for each 1-h interval. Data points differing from the mean by more than +2.5 or -3 sigma were deleted, and the means and standard deviations were again calculated. This process was iterated with the limits being reduced until, for the fourth pass, the limits were +1 and -1.5 sigma. The remaining points were used to calculate the hourly averages and standard deviations shown on the tape. This method eliminated data for small flares and trapped-particle contamination from the radiation belts but did not eliminate data from large flares or trapped-particle contamination from the South Atlantic anomaly. Method D was similar to method H except that the data were treated in daily intervals rather than hourly intervals. The daily average fluxes and standard deviations were calculated and used in the filtering process described above to eliminate flare data and particle contamination. This method eliminated almost all data from flares and trapped particles, including those in the South Atlantic anomaly. The listing contains the year, month, day, and the starting hour (universal time) of the hourly data sample averaged (an hour value of 25 indicates a daily average), the hourly average fluxes in ergs/(sq cm-s), and standard deviations for the 0.5- to 3-A, 1- to 8-A, 8- to 20-A, and 44- to 60-A detectors.

Data set name - PLOTS OF X-RAY FLUXES DURING SOLAR FLARES ON MICROFILM

NSSDC ID 67-073A-21D, X-RAY FLUX DURING FLARES, MFILM

Time period covered - 07/30/67 TO 12/20/67
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This data set, provided by the principal investigator, consists of plots of solar X-ray fluxes vs time on 35-mm microfilm. This data set includes only those data obtained during solar flares. The abscissas of the plots are scaled in hours and minutes of universal time, and the ordinates are logarithmically scaled in flux units of ergs/(sq cm-s). Data for the 0.5- to 3.0-A, 1- to 8-A, 8- to 20-A, and 44- to 60-A passbands are given. Significant data gaps (about 30 min long) occurred during each orbit when the earth occulted the sun. This data set is a subset of data set 67-073A-21A.

Data set name - SOLAR X-RAY FLUXES - FOUR BANDS ON MAGNETIC TAPE

NSSDC ID 67-073A-21E, SOLAR X-RAY FLUXES-4 BANDS, TAPE

Time period covered - 10/02/67 TO 07/15/68
(As verified by NSSDC)

Quantity of data - 4 REELS OF TAPE

This data set was generated on magnetic tape at NSSDC from the punched cards used by the principal investigator to provide the plots of data set 67-073A-21A. The data are contained on 7-track, 800-bpi, even-parity, BCD magnetic tapes written on an IBM 7094 computer. The data set includes the date (month, day, year), and universal time (hour, minute, second) of each point shown on the plots for the period covered. The average flux value, in ergs/(sq cm-s), the number of points in each average, and the amplifier range are given for the 0.5- to 3-A, 1- to 8-A, and 8- to 20-A detectors. The average flux value and the number of points used in each average are given for the 44- to 60-A detector.

OGO 4, MANGE
LYMAN-ALPHA AND UV AIRGLOW STUDY

Data set name - AIRGLOW RADIATION INTENSITY PLOTS ON MICROFILM

NSSDC ID 67-073A-13A, AIRGLOW PLOTS, MFILM

Time period covered - 07/29/67 TO 02/12/68
(As verified by NSSDC)

Quantity of data - 2 REELS OF MICROFILM

This 16-mm microfilm data set was supplied by the principal investigator. It contains 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), which have been converted to radiation intensities by the use of calibration or conversion factors. The 1230- to 1350-A radiation readings are questionable since the far UV detectors lost sensitivity over a 6-week period and eventually became useless. The data consist of strip charts displaying the three radiation intensities (far UV, earth Lyman-alpha, and background space Lyman-alpha) in units of kilorayleighs vs universal time. The time period covered per plot or chart ranges from 15 min to nearly 2 h, with the most frequent interval being about 90 min. Calibration factors are also given (kilorayleighs/V), while the intensities plotted are accurate to + or -0.2 kilorayleigh. The intensity readings were taken at 2-min intervals. No orbital data are included in this data set.

OGO 4, REED
AIRGLOW PHOTOMETER

Data set name - AIRGLOW DATA MAPS AS COLOR TRANSPARENCIES

NSSDC ID 67-073A-12A, AIRGLOW DATA MAPS, TRANSPARENCIES

Time period covered - 08/30/67 TO 01/10/68
(As verified by NSSDC)

Quantity of data - 19 FRAMES

This data set, supplied by the principal investigator, contains a selection of OGO 4 photometer data. These data are displayed on 8- by 10-in. color transparencies. Each transparency is a map giving values for the night airglow emission rate of the atomic oxygen line at 6300 A as a function of latitude between 40 deg S and 40 deg N and as a function of longitude. The month, day, year, and local time of these measurements, to within 20 min, are printed on each map. Most of the figures are centered on 2-day periods for which there were data from at least 10 orbits per day, with some additional measurements from the day preceding and following this period also included. This set contains data taken from August 30, 1967, to January 10, 1968, and within a local time interval of 18 h 36 min to 3 h 36 min. On these maps the contours of the airglow are indicated as the boundaries of the different colors. There are seven emission-rate ranges identified and one "no data" category. Expressed in rayleighs and displayed in different colors, the ranges are divided as follows: greater than 800, 800 to 400, 400 to 200, 200 to 100, 100 to 50, 50 to 25, and less than 25. The minimum geomagnetic field-strength equator at 300 km is plotted as a heavy blue line. The longitudes of the orbits from which data were used are indicated by the location of the orbit numbers on the top abscissa scale.

Data set name - AIRGLOW DATA MAPS AS COLOR NEGATIVES

NSSDC ID 67-073A-12B, AIRGLOW DATA MAPS, NEGATIVES

Time period covered - 08/30/67 TO 01/10/68
(As verified by NSSDC)

Quantity of data - 19 FRAMES

This data set, supplied by the principal investigator, contains a selection of OGO 4 photometer data. These data are displayed on 4- by 5-in. color negatives. Each negative is a map giving values for the night airglow emission rate of the atomic oxygen line at 6300 A as a function of latitude between 40 deg S and 40 deg N and as a function of longitude. The month, day, year, and local time of these measurements, to within 20 min, are printed on each map. Most of the figures are centered on 2-day periods for which there were data from at least 10 orbits per day, with some additional measurements from the day preceding and following this interval also included. This set contains data taken from August 30, 1967, to January 10, 1968, and within a local time interval of 18 h 36 min to 3 h 36 min. On these maps the contours of the airglow are indicated as the boundaries of the different colors. There are seven emission-rate ranges identified and one "no data" category. Expressed in rayleighs and displayed in different colors, the ranges are divided as follows: greater than 800, 800 to 400, 400 to 200, 200 to 100, 100 to 50, 50 to 25, and less than 25. The minimum geomagnetic field-strength equator at 300 km is plotted as a heavy blue line. The longitudes of the orbits from which the measurements were used are indicated by the location of the orbit numbers on the top abscissa scale.

Data set name - AIRGLOW INTENSITIES ON MAGNETIC TAPES

NSSDC ID 67-073A-12C, AIRGLOW EMISSION INTENSITIES, TAPE

Time period covered - 08/19/67 TO 01/19/68
(As verified by NSSDC)

Quantity of data - 9 REELS OF TAPE

This data set was generated at NSSDC from magnetic tapes supplied by the principal investigator. The data set consists of airglow emission data on 9-track, 800-bpi, odd-parity, binary magnetic tapes written on an IBM 360 computer. The number of files per tape does not exceed 250, and consecutive files may not be chronologically ordered. All eight photometer outputs are given in volts, which can be multiplied by the available conversion factors to obtain the measurements in rayleighs. Included with the sensor data are temporal and spatial parameters such as day and seconds of day of both start and end of measurements, local and universal times, and latitude and longitude of the measurements.

Data set name - AIRGLOW DATA MAPS BY ORBIT ON MICROFILM

NSSDC ID 67-073A-12D, AIRGLOW DATA MAPS BY ORBIT, MFILM

Time period covered - 08/19/67 TO 01/29/68
(As verified by NSSDC)

Quantity of data - 11 REELS OF MICROFILM

This data set, supplied by the principal investigator, consists of airglow data on 16-mm microfilm. Each reel of microfilm contains the photometer data for a specific time period within the time range from August 19, 1967, to January 29, 1968, with no data shown for some intervals as long as 1 week. The sequencing of the measurements on each reel is the same, with all channel 1 data given first, followed by channel 2 outputs, then by channel 3, etc. Each frame is a map with the longitude scale ranging from -180 to +180 deg, and the latitude scale covering a 30-deg increment of the plus or minus 90-degree range observed. Measurements taken over a 24-h period are on one frame. The data are displayed as a sequence of decimal numbers which are the values of the photometer outputs expressed in volts, and represent 1-s of measurements. The printed values are positioned at the locations of their respective subsatellite points on the map. Hence, each sequence of numbers corresponds to a particular orbit pass, which is identified by the orbit numbers printed along the top of the map. Several parameters are printed on each frame including channel numbers being displayed, dates at start and end of measurements, eclipse latitudes, and local time.

Data set name - SECOND BY SECOND AIRGLOW DATA ON FILM

NSSDC ID 67-073A-12E, SEC. BY SEC. AIRGLOW DATA, MFILM

Time period covered - 07/29/67 TO 12/31/68
(As verified by NSSDC)

Quantity of data - 40 REELS OF MICROFILM

This 16-mm microfilm data set, supplied by the principal investigator, contains airglow data in temporal order. The film was generated from tape data set 67-073A-12P. There are two different film formats, namely, "volts vs time," and "stars vs time." The voltage graphs are semilog plots with output voltage as the ordinate scale ranging over 4 decades. The linear abscissa has 5 scales including: universal time in hours and minutes (each frame covers 10 min of data), universal time in seconds of day, geographic latitude, magnetic latitude, and geographic longitude. The graph symbols are (a) numbers 1 to 7, which correspond to the outputs of the mirror positions 1 through 7, respectively, and (b) letters R, Y, and G corresponding respectively, to the red, yellow, and green recombinations of the seven outputs. Printed on the right-hand side of the frame are conversion constants and other parameters, including day and year of the measurement and corresponding tape identifications. The conversion constants are read as follows. For example, a "1-8.61" means that for mirror position 1, the conversion factor is 8.61 rayleighs per nanometer per volt. The frame heading includes year and day of the measurement, orbit number, and corresponding tape identification. The number of star plots are linear graphs, with 10-min of data displayed on each frame. The ordinate scale gives the number of stars seen in each mirror position (identified by plotted symbol) and ranges from 0 to 2000. The abscissa has 1s scales, which includes universal time of measurement in hours and minutes, universal time in seconds of day, declination of spacecraft, right ascension, magnetic latitude, longitude, altitude, sun-earth-satellite angle, solar-hour angle, ecliptic latitude and longitude, and galactic latitude and longitude.

Data set name - CALIBRATION DATA ON FILM

NSSDC ID 67-073A-12F, CALIBRATION DATA, MFILM

Time period covered - 07/29/67 TO 12/30/68
(As verified by NSSDC)

Quantity of data - 6 REELS OF MICROFILM

This 16-mm microfilm data set was generated from tape data set 67-073A-12M provided by the principal investigator. It contains calibration data for experiment 67-073A-12 (Reed). Each calibration cycle is contained on six frames. All plots are linear and show, as abscissa, seconds after ascending node. The abscissa scale ranges from 0 to 6000 seconds. All frames contain two graphs, one above the other, and the frame heading shows year, day, and universal start and stop times in milliseconds of day. The first frame in a cycle contains electrometer zero in volts as the ordinate, with the low- and medium-gain outputs (volts) shown in the upper graph, and the high-gain output shown in the lower graph. The next frame shows dark current (volts) as the abscissa in the upper graph and experiment temperature (deg C) as the ordinate in the lower graph. The next four frames have as the ordinate electrometer output minus dark current in volts, with one frame showing mirror position zero in the upper graph and mirror position 1 in the lower graph. The following three frames show the response for mirror positions 2 and 3, 4 and 5, and 6 and 7. The accompanying documentation describes the calibration procedure.

Data set name - DIRECTORY PLOTS ON FILM

NSSDC ID 67-073A-12G, DIRECTORY PLOTS, MFILM

Time period covered - 07/29/67 TO 07/19/68
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This 16-mm microfilm data set, supplied by the principal investigator, is a directory of the existence of experiment data. Each frame is a linear monthly calendar grid with the ordinate giving day of month, and the abscissa scale giving the universal time in both hours and seconds of day (two scales). For a given day there can be two horizontal lines extending over the time interval for which experiment data exist. On a given day, the upper line shows upward-looking data (mirror position 2) and the lower line shows downward-looking data (mirror positions 1, 3, 4, 5, 6, and 7). On the right-hand side ordinate, are printed for each day, the number of the tape used to generate the plot. Included in the frame heading is the month and year of the measurement. These data were generated from tape data set 67-073A-12N.

Data set name - SYNOPTIC POLAR PLOTS ON FILM

NSSDC ID 67-073A-12H, SYNOPTIC POLAR PLOTS, MFILM

Time period covered - 07/29/67 TO 01/31/68
(As verified by NSSDC)

Quantity of data - 18 REELS OF MICROFILM

This 16-mm microfilm data set was supplied by the principal investigator. It was generated from tape data set 67-073A-12Q, and it contains airglow data on polar plots. There are two frames per day for each mirror position and for the red, yellow, and green data composites. One frame has half of the polar plot, and the second frame shows the remaining half. The radial lines represent each 30 deg in longitude, and the circles represent 10-deg intervals in latitude, ranging from 40 deg to 80 deg. North or south latitude is determined by whether the frame indicates ascending data (northbound) or descending data (southbound). There are film rolls of only ascending data and rolls of only descending data. The airglow values are converted to 36 plotting characters, and the orbit number corresponding to a particular sequence of plotting characters on the grid is printed outside the 40 deg latitude circle. Special event limits are plotted in (sun or moon entry or exit line with label printed on the lighted side of the boundary). At the top of the first of the two frames per day, is printed a table showing (for each mirror position) the value of the output in rayleighs per angstrom for the 36 plotting characters. Also shown are the year and day of the measurement and whether the plots represent ascending data or descending data. In the table on the bottom of the second frame in the pair are printed for each latitude from 40 to 85 deg (in 5-deg steps) the local time of the measurement (in decimal hours), the altitude, shadow height, sun-earth-satellite angle, percent moon, and galactic latitude. Also printed on this frame are several parameters, including year and day of measurement and corresponding magnetic tape identification. For all mirror positions the plotting character "Z" is the largest value. If the output exceeds the value assigned to "Z", an asterisk is printed.

Data set name - LATITUDE-LONGITUDE PLOTS ON FILM

NSSDC ID 67-073A-12I, LATITUDE-LONGITUDE PLOTS, MFILM

Time period covered - 08/19/67 TO 01/29/68
(As verified by NSSDC)

Quantity of data - 19 REELS OF MICROFILM

This 16-mm microfilm data set was supplied by the principal investigator, and it contains airglow measurements shown as voltage output in decimal form printed on a latitude-longitude grid. The decimal points locate the subsatellite position at the time of the measurement. Printed on top of each frame is the constant used to convert volts to rayleighs. The orbit number corresponding to a particular sequence of printed values across the grid is shown. Each film roll contains the output from one mirror position that is identified in the frame title. Each frame contains data from 1 day. The abscissa scale is longitude and ranges from -180 deg to +180 deg. The ordinate scale is latitude and a frame covers just 30 deg of the plus or minus 90 deg traveled by the spacecraft. Hence, there are several frames per orbit. In addition to the calibration constant and mirror position mentioned earlier, the frame heading shows the start and stop parameters (date, Greenwich mean time, orbit, latitude of start and end of eclipse), corresponding tape identification, and local time. There are some additional film data in the same format displaying measurements from all mirror positions on each roll for fixed time intervals. This data set was generated from data set 67-073A-12O.

Data set name - ELECTROMETER OUTPUTS VS LATITUDE ON FILM

NSSDC ID 67-073A-12J, ELECTROMETER OUTPUT VS LAT, MFILM

Time period covered - 08/30/67 TO 01/16/68
(As verified by NSSDC)

Quantity of data - 16 REELS OF MICROFILM

This 35-mm microfilm data set was supplied by the principal investigator, and it contains airglow electrometer output in volts as a function of magnetic latitude and longitude. Printed in the frame heading is the constant to convert from volts to rayleighs. On a film roll there are several orbits of data for each mirror position, and each frame contains one orbit of data. On each frame there are from two to four linear graphs placed one above the other. The lowest graph is a plot of geographic latitude (abscissa) and geographic longitude (ordinate), except for mirror position 2 (upward-looking) data, where the ordinate is right ascension. The remaining graphs are voltage plots with electrometer output in volts as the ordinate and magnetic latitude and longitude as the abscissa (two scales). On some frames there is only one voltage graph ranging from 0 to 1.0 V. Other frames show as many as three voltage graphs with ordinate voltage ranges of 0 to 1, 0 to 10, and, e.g., 0 to 70. The different ranges are provided to permit determination of the signal output regardless of amplitude. In addition to the calibration constant, the frame heading shows the orbit number and channel number (mirror position), corresponding tape identification, latitude at start and end of eclipse, and universal time (in seconds of day) at the start and end of each frame. Since there may be several output displays on a graph, they are identified in the frame title. For example, there may be measured values plotted alone, or the graph may include both observed and smoothed values. This data set was generated from data set 67-073A-12O.

Data set name - ZONAL AVERAGES ON TAPE

NSSDC ID 67-073A-12K, ZONAL AVERAGES, TAPE

Time period covered - 07/29/67 TO 12/21/68
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set, supplied by the principal investigator, consists of zonal averages of the experiment output in volts contained on a 9-track, 1600-bpi, odd-parity, binary magnetic tape written on an IBM 360 computer. The conversion from volts to rayleighs is given in the accompanying documentation. Each record contains the orbit, day of measurement, and for mirror positions 1, 3, 4, 5, and 6, the average outputs for each 5 degrees of latitude from 90 deg S to 85 deg N. There is one averaged zone of 1 deg width from 85 to 86 deg N.

Data set name - CALIBRATION DATA ON TAPE

NSSDC ID 67-073A-12M, CALIBRATION DATA, TAPE

Time period covered - 07/28/67 TO 12/30/68
(As verified by NSSDC)

Quantity of data - 4 REELS OF TAPE

This data set, supplied by the principal investigator, contains experiment calibration data on 9-track, 1600-bpi, odd-parity, binary magnetic tapes written on an IBM 360 computer. Each calibration cycle results in a 20-word set of data. An output record is generated whenever 50 such sets are accumulated. Included in the 20-word calibration cycle are the year, day of year, and millisecond of day of calibration run, the dark current and experiment temperature, the quantity "electrometer output minus dark current for the mirror positions 1 to 7," and the electrometer zero level for low, medium, and high gain. The accompanying documentation gives calibration procedures. The 67-073A-12M tapes were used to generate data set 67-073A-12F.

Data set name - DIRECTORY DATA ON TAPE

NSSDC ID 67-073A-12N, DIRECTORY DATA, TAPE

Time period covered - 07/29/67 TO 11/24/68
(As verified by NSSDC)

Quantity of data - 9 REELS OF TAPE

This data set, supplied by the principal investigator, contains experiment directory data on 9-track, 1600-bpi, odd-parity, binary magnetic tapes written on an IBM 360 computer. The tapes contain several formats and are made up from selected records from data tapes and from attitude-orbit (AO) records. Together the tapes give experiment operating times and identify when the sensor was looking upward and downward. Format statements are provided for (1) AO records, which include various orbit parameters such as the Greenwich mean time (in milliseconds of day) for orbit start and end, and for eclipse start and end; (2) selected minute and special event AO records, which include the Greenwich mean time of measurements (in milliseconds of day), latitude and longitude, sun-earth-satellite angle, magnetic latitude, McIlwain's L-shell parameter, ecliptic and galactic latitude and longitude; (3) label records, which include tape and file identification; (4) minute summary records, which include tape labels, average experiment temperature, minimum and maximum scan angles, and number of seconds for each mirror position and for dark current; and (5) file summary records, which include start and stop times in milliseconds of day, total number of samples, and total number of seconds of photocurrent measurement in each mirror position. This data set was used to generate the microfilm data set 67-073A-12G.

Data set name - PHOTOMETER OUTPUT MAP ON MAGNETIC TAPE

NSSDC ID 67-073A-12O, PHOTOMETER OUTPUT, TAPE

Time period covered - 08/19/67 TO 01/29/68
(As verified by NSSDC)

Quantity of data - 11 REELS OF TAPE

This data set, supplied by the principal investigator, consists of airglow photometer data contained on 9-track, 1600-bpi, odd-parity, binary magnetic tapes written on an IBM 360 computer. Two different time sequences of data are available, one channel (mirror position) per tape in chronological order by file, and all eight channel files for 1 day consecutive and not necessarily chronological. The number of files per tape is variable. Each file contains data for only one channel for less than 1 day, and is composed of a file label and data records. Each record contains one orbit of data. Included in the file label are the mirror position, number of records in the file, year, start and end day, and seconds of file data. Included in a data record are the number of seconds in this record, orbit number, latitude of shadow entry and exit, latitude and longitude of the measurement, value of channel reading dark current, dark current, and right ascension. This data set was used to generate data sets 67-073A-12I and 67-073A-12J.

Data set name - SECOND BY SECOND AIRGLOW DATA ON TAPE

NSSDC ID 67-073A-12P, SEC. BY SEC. AIRGLOW DATA, TAPE

Time period covered - 07/29/67 TO 10/02/68
(As verified by NSSDC)

Quantity of data - 46 REELS OF TAPE

This data set, supplied by the principal investigator, consists of second-by-second airglow photometer data contained on 9-track, 1600-bpi, odd-parity, binary magnetic tapes written

on an IBM 360 computer. Each physical block of 21,676 bytes contains (1) a label record (tape identification data); (2) an attitude-orbit minute and special event record (universal time in milliseconds of day and ephemeris data); (3) a variable number of records containing bias for playback and realtime data, universal time in milliseconds of day, day and year, mirror position, temperatures, average electrometer output, average dark current, average cross talk, average photocurrent, and airglow intensity in volts; (4) a minute summary record; (5) a calibration and file summary record; and (6) a subcom record containing time, volts, temperatures (of -X panel, of OPEP 1 (+Z), of main body photometer and of OPEP package), error signals (pitch, roll, yaw and array), and scan head angles (A, B, C and D).

Data set name - SYNOPTIC AIRGLOW DATA ON TAPE

NSSDC ID 67-073A-12C, SYNOPTIC AIRGLOW DATA, TAPE

Time period covered - 08/01/67 TO 01/31/68
(As verified by NSSDC)

Quantity of data - 6 REELS OF TAPE

This data set, supplied by the principal investigator, consists of synoptic airglow photometer data contained on 9-track, 1600-bpi, odd-parity, binary magnetic tapes written on an IBM 360 computer. Each tape contains data for 1 month except for the first tape which contains data for 2 months. Each file contains all the data for 1 day. The first record of each file is a label record and contains calibration conversion data. There is an orbit label record, one for each orbit preceding the data records. This label record includes the orbit number and the Greenwich mean time (in milliseconds of day) for the start and end of orbit and of eclipse. The data record includes local time of measurement, latitude, longitude, height, magnetic latitude, McIlwain's L-shell parameter, ecliptic and galactic latitude and longitude, the output in volts for the different mirror positions, and the dark current. For latitudes from 82 deg N to 82 deg S there is one record for each 0.5 deg in latitude. For latitude range from 82 to 84 deg both N and S, there is a record for every 0.25 deg in latitude, and for latitudes greater than 85 deg N and S there is a record every 8 s. These 67-073A-12C tapes were used to generate data set 67-073A-12F.

OGO 4, SIMPSON
LOW-ENERGY PROTON, ALPHA PARTICLE
MEASUREMENT

Data set name - REDUCED COSMIC-RAY COUNT RATE AND ORBITAL DATA MERGED ON MAGNETIC TAPE

NSSDC ID 67-073A-04A, COSMIC-RAY COUNT RATES, TAPE

Time period covered - 07/28/67 TO 02/02/69
(As verified by NSSDC)

Quantity of data - 291 REELS OF TAPE

This data set, provided by the principal investigator, consists of reduced cosmic-ray count-rate data merged with orbital data and corresponds to the time period before the spacecraft went into a spin mode. The data are on 9-track, 800-bpi, odd-parity, binary magnetic tapes, written on an IBM 360/75 computer. The data include a 20-word file header record followed by a variable number of physical records (each having a 6-word record header). There are a variable number of logical records per physical record, since the 98-word orbital data logical record was inserted into the stream of four-word count-rate data logical records once every minute. This insertion did not necessarily occur at the beginning or end of a given physical record. Each file contains about 5 min of data. The tapes contain all counting rates, universal time, telescope temperatures, latitude, longitude, height, sun-earth-satellite angle, geomagnetic coordinates, and various data-quality flags. The data within a file are always monotonically increasing in time. However, the set of files comprising a data tape is not necessarily time ordered. Redundancies in the data have been deleted.

Data set name - COUNT RATE PLOTS (R VS ENERGY LOSS) AND ORBITAL DATA ON MICROFILM

NSSDC ID 67-073A-04B, COSMIC-RAY COUNT RATES, MFILM

Time period covered - 07/28/67 TO 12/07/68
(As verified by NSSDC)

Quantity of data - 15 REELS OF MICROFILM

This 16-mm microfilm data set, provided by the principal investigator, consists of cosmic-ray count-rate (both single and coincidence rates) plots. Each plot covers one OGO 4 orbit and contains several different counting rates as well as satellite orbit data, invariant latitude, altitude, scalar magnetic field, McIlwain's L-shell parameter, and either dipole local time or magnetic local time. Throughout the microfilm, the relevant scales are included approximately every 100 frames. Each plot contains the following coincidence count rates from the vertical telescope: V3 (proton and alpha particle E>39.2 MeV/nucleon or E>1 MeV), V1notV3 (corresponding to proton and alpha particle energies from 1.22 to 39.2 MeV/nucleon or electrons from 0.4 to 1 MeV), and V2notV3 and V1V2notV3 (both of which correspond to proton and alpha particle energies from 9.32 to 39.2 MeV/nucleon but with only the former corresponding to electron energies from 0.7 to 1 MeV). The one horizontal telescope counting rate in the data corresponds to a proton and alpha particle energy threshold of 720 keV/nucleon. The V3 count rate plotted is an average rate obtained over five readouts, whereas the other three rates, as calculated for these plots, have a nominal accumulation time of 15 s. The data set provides a compact sample of the data from this experiment.

OGO 4, TAYLOR, JR.
POSITIVE ION COMPOSITION

Data set name - ION DENSITY VERSUS DIP LATITUDE ON 8- X10-IN. PAGES

NSSDC ID 67-073A-16A, ION DENSITY VS DIP LAT., HARDCOPY

Time period covered - 07/28/67 TO 12/29/68
(Date supplied by experimenter)

This data set is held by the principal investigator, and it consists of page-size copies of Calcomp plots of densities of O^+, H^+, He^+ and N^+ vs dip latitude. Date and universal time are included on the plots. Densities are not corrected for angle-of-attack variations. The dip latitude ranges from pole to pole.

OGO 4, WEBBER
GALACTIC AND SOLAR COSMIC RAYS

Data set name - REDUCED COSMIC-RAY DATA ON TAPE
50-2000 MEV/NUCLEON

NSSDC ID 67-073A-09A, PARTICLE COUNT RATES, TAPE

Time period covered - 07/30/67 TO 08/27/67
(As verified by NSSDC)

Quantity of data - 2 REELS OF TAPE

This data set, provided by the principal investigator, consists of cosmic-ray count rates, contained on 7-track, 556-bpi, odd-parity, binary magnetic tapes written on a CDC 1604 computer. The data are ordered by orbit pass, and they consist of 37-s averaged telescope rates and 18-s averaged first detector rates. The tapes contain telescope rates, first detector rates, universal time, altitude, latitude, longitude, McIlwain's L-shell parameter, and the intensity of the geomagnetic field. Plots of the count rates are also available on one reel of microfilm (data set 67-073A-09B).

Data set name - PLOTS OF PARTICLE COUNT RATES ON MICROFILM

NSSDC ID 67-073A-09B, PARTICLE COUNT RATES, MFILM

Time period covered - 07/30/67 TO 08/27/67
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This data set, provided by the principal investigator, consists of particle count rates plotted on one reel of 16-mm microfilm. Both the first detector singles count rates and the telescope rates are plotted on the same scale as a function of universal time. (The telescope rates are scaled by a factor of 100.) The vertical scale on the plots is logarithmic counts per s, and the horizontal scale is linear universal time for one orbit period. In addition to the time scale, McIlwain's L-shell values, altitude, and latitude are indicated. The data plotted are for the same period covered by the cosmic-ray data tapes in data set 67-073A-09A.

********** OGO 6 **********

OGO 6, HARTH
UV PHOTOMETER

Data set name - AIRGLOW INTENSITIES AT 1304 A AND 1216 A

NSSDC ID 69-051A-13A, AIRGLOW DATA (1304A,1216A), TAPE

Time period covered - 06/09/69 TO 07/24/70
(As verified by NSSDC)

Quantity of data - 110 REELS OF TAPE

This data set, supplied by the principal investigator, contains airglow photometer data on 7-track, 556-bpi, odd-parity, binary magnetic tapes, written on an IBM 7094 computer. All tapes contain 50 files of information, i.e., 50 orbits of experiment data and selected attitude-orbit parameters. Each file is composed of one 22-word orbit information record, one 78-word attitude-orbit data record, and approximately one hundred 438-word records, each containing 78 words of attitude-orbit data at 1-min intervals and 360 words of experiment data at 1-s intervals. All words are 36 bits long. The outputs of the two data channels (designated as A and B) are in data numbers, which range in magnitude from 0 to 255. Constants are available to convert these data numbers into kilorayleighs. The parameters provided include date and universal time of the measurements, and the spacecraft position relative to the earth, sun, and geomagnetic field. Some of the airglow measurements are shown as plots in data set 69-051A-13B.

Data set name - CALCOMP PLOTS OF UV AIRGLOW DATA ON MICROFILM

NSSDC ID 69-051A-13B, CALCOMP PLOTS UV AIRGLOW, MFILM

Time period covered - 06/09/69 TO 11/06/70
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This data set, supplied by the principal investigator on 35-mm microfilm, provides Calcomp plots of some of the OGO 6 photometer data contained on tape data set 69-051A-13A. Each film frame shows one orbit of data and is made up of two graphs placed one above the other. Values for four parameters are shown on each graph, and all eight curves are plotted vs true anomaly (angular position of spacecraft measured from perigee). The upper graph contains values for the intensities of the 1216-A and 1304-A emissions, the spacecraft height (km), and the solar zenith angle (deg). The lower graph contains values for the right ascension and declination, geodetic longitude, and magnetic latitude. The orbit number is printed at the bottom of each frame.

OGO 6, CLARK
LYMAN-ALPHA PHOTOMETER

Data set name - REDUCED PHOTOMETER CURRENTS, ATTITUDE AND EPHEMERIS DATA ON MAGNETIC TAPE

NSSDC ID 69-051A-12A, DET. CURRENT,ATTITUDE,ORBIT, TAPE

Time period covered - 06/08/69 TO 08/04/69
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This data set, obtained from the principal investigator, contains Lyman-alpha photometer measurements on a 7-track, 800-bpi, even-parity, BCD magnetic tape, written on an IBM 7094 computer. It consists of an ID record (containing the spacecraft and experiment name, the orbit number in which data starts, the day number, and the date of the background correction data used) followed by one or more data records. Each data record contains 42 data frames. Each data frame includes the Greenwich mean time (milliseconds of day), the scanner angle (deg), both uncorrected and background-corrected count rates (counts per s), electrometer current (amperes), an experiment status flag, the right ascension and declination of the "look" direction (deg), the ecliptic longitude and latitude of the "look" direction (deg), the altitude of the spacecraft (km), the geodetic latitude and longitude of the spacecraft (deg), and the sun-earth-satellite angle (deg). The data are not continuous because either (1) at the start of each input file several seconds of data are needed to initialize the routine that establishes the scanner angle, (2) the count-rate data for scanner angles between 300 and 60 deg are useless and have been edited out, or (3) dropouts in the data still appear in the final tape.

OGO 6, HANSON
PLANAR ION AND ELECTRON TRAP

Data set name - PLOTS OF ION CONCENTRATION, ION TEMPERATURE AND PHOTOELECTRON FLUX-GT 10EV

NSSDC ID 69-051A-03A, ION DEN,COMP,TEMP+EL FLUX, MFILM

Time period covered - 06/07/69 TO 04/23/71
(As verified by NSSDC)

Quantity of data - 9 REELS OF MICROFILM

This data set, provided by the principal investigator, consists of plots on 35-mm microfilm of ion concentration (ions/cc), ion temperature (deg K), and photoelectron flux (E>10 eV) vs dip latitude (linear scale). Also shown in the data set are the Greenwich mean time (in seconds of day) and other position parameters (altitude, latitude, longitude, local time, geomagnetic dip angle, solar zenith angle, McIlwain's L-shell value, angle between the sun and the normal to the sensor's aperture plane, and angle of attack). Each plot covers half an orbit, i.e., approximately from pole to pole. Ion concentration plots are shown for H^+, He^+, O^+, NO^+, and Fe^+ in the upper portion of each frame. The lower portion indicates ion temperature (with error estimates) and photoelectron fluxes.

Data set name - COMPOSITE(ION TEMP,ION/ELEC CONCENTRATION, ETC) 60 MINUTE POLE CROSSING PLOTS

NSSDC ID 69-051A-03B, COMPOSITE ION/EL PLOTS, MFILM

Time period covered - 06/07/69 TO 04/23/71
(As verified by NSSDC)

Quantity of data - 13 REELS OF MICROFILM

This data set, provided by the principal investigator, consists of plots on 35-mm microfilm of ion concentration (ions/cc), ion temperature (deg K), and photoelectron flux (E>10 eV) vs invariant latitude. Although the abscissa is linear in time (Greenwich mean time in seconds of day), the primary abscissa scale is invariant latitude. Each graph displays 60 min of data, starting at midlatitude, crossing the polar cap, and subsequent middle, low, and middle latitude regions. The following position parameters are included: altitude, latitude, longitude, local time, solar zenith angle, angle between the sun and the normal to the sensor's aperture plane, and angle of attack. Five plots are shown on each frame. The first (top) plot is of an ionospheric irregularity index on a log scale of 1 to 100. The next graph has two ordinate scales, one log scale for photoelectron flux and a linear altitude scale used with plots of satellite altitude and earth shadow altitude at the flux tube terminals. The third log plot shows "duct" or "irregularity" size. The next is a log plot indicating concentration of electrons, He^+ and H^+, O^+, NO^+, and Fe^+. The bottom plot shows ion temperature (with error bars) on a linear scale. There is an additional plot (polar coordinates) on the left side of the ion temperature plot, which depicts the variation of ionospheric irregularity index (using three class intervals) vs invariant latitude and dipole local time. This is a different display of information from that which appeared in the first (top) plot.

Data set name - ION DENSITY, FLUX AND TEMPERATURE SUMMARIES ON TAPE

NSSDC ID 69-051A-03C, ION DENSITY, FLUX + TEMP, TAPE

Time period covered - 06/07/69 TO 04/23/71
(As verified by NSSDC)

Quantity of data - 30 REELS OF TAPE

This data set, provided by the principal investigator, consists of photoelectron flux (E>10 eV), ion temperature (deg K) and ion-concentration (ions/cc) for atomic-mass-unit values of 1, 4, 16, 30, 56, and for the total for all masses. The data set is on 9-track, 800-bpi, odd-parity, binary magnetic tapes, generated on an IBM 360 computer. One tape is a print tape which indexes all other tape data by orbit, tape record, start and stop date and time for each orbit, and brief experiment operation information. The data tapes contain 66 words in each logical record. These words provide the data, the Greenwich mean time (in seconds of day) and a variety of position parameters (altitude, latitude, longitude, local time, geomagnetic dip angle, solar zenith angle, McIlwain's L-shell value, angle between the sun and the normal to the sensor's aperture plane, and angle of attack), related experiment operating information, and tape record identification information. Most of the observations are in the fast-sweep (10 s) mode, with very few slow-sweep (40 s) data after August 7, 1969. There was a maximum of 616 sweeps per orbit. Each tape contains over 67,000 logical records (sweeps). Microfilm data sets 69-051A-03A and 69-051A-03B were prepared from these tapes.

OGO 6, HELLIWELL
VLF NOISE AND PROPAGATION

Data set name - 0-TO 12.5-KHZ VLF SPECTROGRAMS

ON 35-MM PAPER

NSSDC ID 69-051A-24A, VLF SPECTROGRAMS, 35-MM PAPER

Time period covered - 06/25/69 TO 06/28/71
(As verified by NSSDC)

This data set, available only from the principal investigator, consists of standard 0- to 12.5-kHz spectrograms displayed as a function of time on 35-mm paper rolls. The original analog tapes and processing at various transport speeds are available at cost through the data set contact at Stanford University. Since only time is noted on the spectrograms, satellite position and other related information must be obtained from the world maps.

OGO 5, LAASPERE
WHISTLER AND LOW-FREQUENCY ELECTRIC
FIELD STUDY

Data set name - SUMMARY PRINTOUTS OF 0.8-1000 KHZ WB AND NB (200 + 500 KHZ) VLF NOISE INTENSITY

NSSDC ID 69-051A-25A, VLF NOISE INTENSITY, MFILM

Time period covered - 12/30/69 TO 12/31/70
(As verified by NSSDC)

Quantity of data - 8 REELS OF MICROFILM

This data set, supplied by the principal investigator on 16-mm microfilm, consists of time-ordered, calibrated listings of all tape-recorded noise intensity data from this experiment. Data are presented at 18.4-s intervals. Narrow-band (NB) intensities at 200 and 540 kHz are given in volts times 1.E-7, and wide-band (WB) intensities in volts times 1.E-4. The listing contains: spacecraft attitude power codes, time, averaged (or instantaneous) intensity values for NB and WB receivers, experiment status codes (columns PHI, L, and I, contain data pertinent only to the impedance observing portion of the experiment), and minimum and maximum intensity values of 10- observations by each NB receiver. To the right of these listings, the data are machine plotted with a linear abscissa scale of intensity and a linear ordinate scale of time. When a sawtooth pattern heads this graph, then the averaged NB data listed and plotted result from the 12H observations taken during the 18.4-s subcommutator interval. When the sawtooth is missing, the NB data are instantaneous values rather than average values. Since only the observation times are listed, locations require reference to world map data in data set 69-051A-30C.

Data set name - VLF WHISTLER WAVE (AND RELATED TWO COMPONENT GROUND) SPECTROGRAMS

NSSDC ID 69-051A-28D, VLF DATA (JAPAN), 8X10-IN. PRINTS

Time period covered - 10/06/71 TO 01/11/72
(As verified by NSSDC)

Quantity of data - 48 B/W PRINTS

This data set, supplied by Japanese researchers, consists of a collection of spectrograms, each covering a frequency range of 0 to 5 kHz and a time period of about 2 min. The spectrograms are shown by 2.5 x 5-in. plots on 8 x 10-in. prints. Expanded time scales (about 5 s per 5-in. plot) are used to provide greater resolution on three of the records. Below each OGO spectrogram, are the VLF ground observations from E-W and N-S loop antennas for corresponding times, from the Kuboshira Space Radio Wave Observatory at 35 deg 31 min N and 139 deg 19 min E. Time codes occur at the top of each spectrogram.

OGO 5, SONWALKO
NEUTRON MONITOR

Data set name - 1-MINUTE AVERAGED NEUTRON MONITOR COUNT RATES ON MAGNETIC TAPE

NSSDC ID 69-051A-14A, 1-MIN AVERAGED COUNT RATES, TAPE

Time period covered - 06/07/69 TO 12/31/69
(As verified by NSSDC)

Quantity of data - 2 REELS OF TAPE

This data set, supplied by the principal investigator, contains 1-min averaged neutron monitor count rates on 9-track, 800-bpi, odd-parity, binary magnetic tapes, written on an IBM 360 computer. Each data file is preceded and followed by a header and trailer file containing file identification information. The data file records contain the day of year, hour, minutes, and seconds of day, suncom word summaries, coincidence guard ratio summaries, and scintillator rates.

OGO 6, MASLEY
LOW-ENERGY COSMIC-RAY MEASUREMENT

Data set name - SOLAR-PARTICLE EVENT SUMMARY PLOTS ON MICROFILM

NSSDC ID 69-051A-19A, SOLAR EVENT SUMMARY PLOTS, MFILM

Time period covered - 06/07/69 TO 08/26/70
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This data set, supplied by the principal investigator, provides on microfilm plots of the time histories of proton and alpha particle fluxes during time of solar particle events. Each plotted point represents the average flux obtained in one polar pass. The points represent approximately 11-min averages obtained every 50 min.

Data set name - POLAR-PASS AND ENERGY-SPECTRAL PLOTS DURING SOLAR EVENTS, ON MICROFILM

NSSDC ID 69-051A-19B, TIME AND SPECTRAL PLOTS, MFILM

Time period covered - 06/07/69 TO 08/26/70
(As verified by NSSDC)

Quantity of data - 28 REELS OF MICROFILM

This data set, supplied by the principal investigator on microfilm, provides plots of the time histories of proton and alpha particle fluxes during selected solar particle event time periods. Each time-history plot covers one polar pass, and displays particle fluxes in various energy channels with 20- to 60-s resolution. The abscissa of each plot shows universal and local time, McIlwain's L-shell parameter, dipole and invariant latitudes and geographic latitude and longitude. Following the time-history plots of a given polar pass are the corresponding particle spectra obtained for accumulation periods of 1 to 3 min.

OGO 6, REBER
NEUTRAL ATMOSPHERE COMPOSITION

Data set name - ATMOSPHERIC COMPOSITION AND TEMPERATURE ON MICROFICHE

NSSDC ID 69-051A-04A, DATA-COMPOSITION, TEMP, FICHE

Time period covered - 06/27/69 TO 05/13/71
(As verified by NSSDC)

Quantity of data - 1 CARD OF B/W MICROFICHE

This data set, generated by a team of investigators, provides a model of N2, O, and He densities at 450 km and a model of inferred exospheric temperatures. The model is presented in the following publication: A. E. Hedin et al., "Empirical model of global thermospheric temperature and composition based on data from the OGO 6 quadrupole mass spectrometer," J. Geophys. Res., v. 79, n. 1, p. 215, January 1974. The spectrometer measurements presented here were obtained when strong magnetic activity was absent. The paper begins with an introduction that includes a description of the data selection, coverage, and accuracy, followed by a presentation of the model formula and data fitting. A discussion of the measurements and of the many data comparisons is also included. Twenty-seven data graphs show the variations of composition and temperature with many parameters including local time, geographic latitude, and solar activity.

Data set name - NEUTRAL ATMOSPHERIC COMPOSITION DATA ON TAPE

NSSDC ID 69-051A-04B, NEUTRAL ATMOS. COMPOSITION, TAPE

Time period covered - 06/06/69 TO 06/26/71
(As verified by NSSDC)

Quantity of data - 6 REELS OF TAPE

This data set, provided by the principal investigator, consists of neutral atmospheric composition and density data on 9-track, 1600-bpi, odd-parity, binary magnetic tapes, written on an IBM 360 computer. Included with the neutral species identification are values for the measured concentration and error, along with many other pertinent parameters. Specifically, each record contains 22 words of data including: year and day of the measurement, universal time of the measurement, mass identification, ambient density, ambient

density error, altitude, latitude, longitude, local time, magnetic latitude, velocity angle, sun angle, invariant latitude, magnetic index (Ap), 10.7-cm solar flux (daily), mean 10.7-cm solar flux (3-month average), calculated temperature (Jacchia, 1965), calculated density, magnetic local time, modified latitude, orbit number, and time from perigee.

OGO 6, SHARP
MICROPHONE ATMOSPHERIC DENSITY GAUGE

Data set name - MICROPHONE DENSITY GAUGE DATA TAPES

NSSDC ID 69-051A-01A, ATMOSPHERIC DENSITY DATA, TAPE

Time period covered - 06/11/69 TO 01/31/70
(As verified by NSSDC)

Quantity of data - 8 REELS OF TAPE

This data set, provided by the principal investigator, consists of atmospheric neutral density measurements contained on 7-track, 800-bpi, even-parity, BCD magnetic tape, written on an IBM 7074 computer. The tapes contain the orbit number, universal time, neutral atmospheric density, altitude, geodetic latitude and longitude, and local time. Good data were obtained from launch until spacecraft deactivation on June 28, 1971. However, the raw data collected after February 1970 (when phase shift in sensor output occurred) were not reduced.

OGO 6, SMITH
TRIAXIAL SEARCH-COIL MAGNETOMETER

Data set name - 36-SEC AVERAGED MAGNETOMETER DATA, MICROFILMED PLOTS

NSSDC ID 69-051A-02A, SEARCH COIL DATA 10-1000 HZ,MFILM

Time period covered - 06/10/69 TO 10/13/70
(As verified by NSSDC)

Quantity of data - 5 REELS OF MICROFILM

This data set, supplied by the principal investigator, consists of 16-mm microfilm plots summarizing the observed fluctuations in the geomagnetic field intensity. Containing 36-s averages, the plotted magnetometer data are readable to about 1.5-min time resolution. The data show as a function of universal time the three geomagnetic field components from each frequency channel of the seven-channel (10 to 1000 Hz) triaxial spectrum analyzer. These plots are useful in identifying the location of the plasmapause. Periodic oscillations in the low-frequency channels are not geophysical data, but are due to vibrations of the magnetometer boom.

OGO 6, STONE
COSMIC-RAY STUDY

Data set name - PARTICLE COUNT RATES AND PULSE HEIGHT ANALYSIS ON MAGNETIC TAPE

NSSDC ID 69-051A-20A, COUNT RATES + PULSE HEIGHT, TAPE

Time period covered - 06/07/69 TO 03/20/70
(As verified by NSSDC)

Quantity of data - 349 REELS OF TAPE

This data set, supplied by the principal investigator, contains particle count rates and pulse-height analyzer data on 9-track, 800-bpi, odd-parity, binary magnetic tapes, written on an IBM 360 computer. There is one file per tape and a variable number of physical records (maximum length = 3678 bytes), each consisting of a variable number of logical records of four types. All coincidence-mode count rates and pulse-height data are found on these tapes. Ephemeris data are also given once per minute. Each tape contains no more than 1 day of data. In some cases more than one tape was needed to cover a 24-h period. Data quality flags are used in the format to point out parity errors and accumulator overflows.

Data set name - PARTICLE COUNT RATES AND EPHEMERIS PLOTS ON MICROFILM

NSSDC ID 69-051A-20B, COUNT RATE PLOTS, MFILM

Time period covered - 06/07/69 TO 03/17/71
(As verified by NSSDC)

Quantity of data - 37 REELS OF MICROFILM

This data set, provided by the principal investigator on 35-mm microfilm, consists of particle coincidence count rates (from the range, flare, and Cerenkov telescopes), satellite altitude, and B-L magnetic coordinates graphed as a function of universal time. Additional information provided with the time scale include magnetic local time, invariant latitude, and orbital data record number on the abstract tapes at the California Institute of Technology. The coincidence count rates plotted include (with indicated proton energy threshold): range telescope D1notD8 (1 MeV), D12notD8 and D2notD8 (3.3 MeV), D23notD8 and D3 (18.5 MeV), D4 (46.6 MeV), D5 (156 MeV), D6 (235 MeV), D7 (315 MeV), ADE (analog ratemeter); flare telescope D5' (3.3 MeV), D6' (18.5 MeV), D5'6' (18.5 MeV), and AD4' (analog ratemeter); Cerenkov telescope D1' (about 1 MeV), D2' (about 3 MeV), D3' (400 MeV), and D1'D2'D3'notD4' (400 MeV). A limited number of pulse-height analyzer plots corresponding to early portions of the mission are also included. The day number, month, day, year, and satellite orbit number (rev) appear at the bottom of each plot. The time coverage is 90% or more through January 1970.

OGO 6, TAYLOR, JR.
ION MASS SPECTROMETER

Data set name - BENNETT ION MASS SPECTROMETER DATA ON TAPE

NSSDC ID 69-051A-05A, BENNETT ION MASS SPECTROMTER,TAPE

Time period covered - 06/11/69 TO 12/31/70
(As verified by NSSDC)

Quantity of data - 10 REELS OF TAPE

This data set, provided by the principal investigator, consists of ion-mass spectrometer measurements on 9-track, 1600-bpi, odd-parity, binary magnetic tapes created on an IBM 360 computer. Each tape contains one month of data with one file for each day. The first record of each file is a 68-byte label record containing the year and day at start of pass; universal and local time (in milliseconds of day) of equator crossing; orbit number; universal time (in milliseconds of day) for pass start and end; orbit direction code; equator crossing code; Kp at time of equator crossing; max Kp in 24 hours preceding the pass; time of max Kp; altitude at equator crossing; geodetic longitude; declination of sun; and alpha (angle between sun-earth line and plane of dipole equator). The data records contain a variable number of 68-byte records consisting of ion-mass code; year, day of year, and universal time in milliseconds of day; eclipse flag (0 = not in eclipse, 1 = in eclipse); density; current; volts; spacecraft charge; OPEP shaft angle; velocity; altitude; geodetic latitude and longitude; geomagnetic latitude; McIlwain's L-shell parameter for the true geomagnetic field; and magnetic local time in seconds of day.

Data set name - ION MASS SPECTROMETER PLOTS ON MICROFILM

NSSDC ID 69-051A-05B, ION MASS SPECTROMETER PLOTS,MFILM

Time period covered - 06/11/69 TO 12/31/70
(As verified by NSSDC)

Quantity of data - 13 REELS OF MICROFILM

This microfilm data set, produced by NSSDC from magnetic tapes supplied by the principal investigator, contains plots of ion mass spectrometer data. Two plots of ambient thermal positive ion densities are shown per frame. The ion species are identified at the top of each frame where the atomic mass unit values are given. The abscissa is the geomagnetic latitude and the plots display alternately northern and southern hemisphere data, starting at a latitude of + or - 30 deg and going polewards. The ordinate is a five-decade log scale with density given in number of ions/cc. The date, and the universal times for the start and stop of each plot also appear at the top of the frame.

********** OV1- 2 **********

Data set name - EPHEMERIS DATA ON TAPE

NSSDC ID 65-078A-00D, EPHEMERIS DATA, TAPE

Time period covered - 10/05/65 TO 12/01/65
(As verified by NSSDC)

Quantity of data - 6 REELS OF TAPE

This investigator-supplied data set containing ephemeris data is on unblocked, 7-track, 556-bpi, binary magnetic tapes written in Fortran IV on an IBM 7094. Except for the identification records, each logical record contains the following parameters: time, latitude, longitude, altitude, geomagnetic field magnitude and components, McIlwain's L-shell parameter, and invariant latitude. Successive sets of ephemeris parameters are given at approximately 10-s intervals. The time coverage is nearly identical to that of data set 65-078A-02A, i.e., 25% of the interval October 5, 1965, to December 1, 1965.

OV1- 2, FARLEY
ELECTRON AND PROTON DETECTORS

Data set name - PROTON AND ELECTRON COUNT RATES AND PULSE HEIGHT DATA ON TAPE

NSSDC ID 65-078A-02A, ELECTRON, PROTON FLUXES, TAPE

Time period covered - 10/05/65 TO 12/01/65
(As verified by NSSDC)

Quantity of data - 79 REELS OF TAPE

This investigator-supplied electron and proton count-rate data set is on 7-track, 556-bpi, BCD magnetic tapes written on an IBM 7094 computer. These tapes contain the data for channels 15 and 16, and show the electron and proton count rates (four for each detector) and electron and proton spectrometer outputs for each 2-s interval. Dosimetry and X-ray data from other experiments are also on the tapes. No ephemeris information is included here; but the ephemeris data are available as data set 65-078A-00D. Time coverage runs from October 5, 1965, to December 1, 1965, with about 25% completeness. The data contained here are merged with the ephemeris data in data set 65-078A-00C.

Data set name - L-ORDERED PERPENDICULAR AND OMNIDIRECTIONAL ELECTRON FLUX ON MICROFILM

NSSDC ID 65-078A-02B, ELECTRON PTCH ANGL DISTRB, MFILM

Time period covered - 10/05/65 TO 11/00/65
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This investigator-supplied data set consists of a computer listing on a single reel of 16-mm microfilm. The listing includes the perpendicular and omnidirectional fluxes of electrons greater than 560 keV as a function of computed magnetic field magnitude, at 12 discrete L-shell values between 1.18 and 1.78. The flux values were derived by the investigator using the appropriate data from data set 65-078A-02A. Fill data, i.e., extrapolations to the equator, and unreliable data, i.e., values for perpendicular fluxes below 5.E4 per sq cm-sr-s, are indicated. Data set 65-078A-02D is contained also on this reel.

Data set name - PARTICLE DATA MERGED WITH EPHEMERIS DATA ON TAPE

NSSDC ID 65-078A-02C, ELECTRON, PROTON FLUXES, TAPE

Time period covered - 10/05/65 TO 12/01/65
(As verified by NSSDC)

Quantity of data - 3 REELS OF TAPE

This NSSDC-generated electron and proton count rate data set is on 7-track, 800-bpi, binary magnetic tapes written on an IBM 7094 computer. Each physical record contains thirty 32-word logical records. From data set 65-078A-02A, channels 15 and 16 data were taken for corresponding 2-s telemetry sequences, and were merged with the ephemeris data from data set 65-078A-00D. Thus, each logical record of this data set contains the time of the measurement, four successive count rates for electrons above 560 keV and for protons between 10 and 23 MeV and between 22 and 50 MeV, and one count rate for each of the five electron pulse-height analyzer channels. In addition, each logical record contains spacecraft latitude, longitude, altitude, computed values of geomagnetic field (total magnitude and components), McIlwain's L-shell parameter, and invariant latitude.

Data set name - PROTON FLUX LISTING ON MICROFILM

NSSDC ID 65-078A-02D, PROTON PITCH ANGLE DISTRIB, MFILM

Time period covered - 11/01/65 TO 11/30/65
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This investigator-supplied data set consists of a listing of perpendicular and omnidirectional fluxes of 10- to 23- MeV and 22- to 50- MeV protons, and of the power-law spectral parameters for both types of fluxes. The data are listed as a function of geomagnetic field magnitude "B", and of the equatorial pitch angle (equivalent) for 13 discrete L-shell values between 1.2 and 2.1. These data are contained on one reel of 16-mm microfilm that also contains data set 65-078A-02B.

OV1- 2, FORTNEY
X-RAY CSI CRYSTAL DOSIMETER

Data set name - TABULATIONS OF DOSIMETER DATA

NSSDC ID 65-078A-03A, DOSIMETRY DATA, FICHE

Time period covered - 10/05/65 TO 12/01/65
(As verified by NSSDC)

Quantity of data - 1 CARD OF B/W MICROFICHE

This data set contains the trapped-particle dose rate measurements on microfiche, which was generated at NSSDC from the article by R. Fortney, "General results from the OV 1-2 satellite," Aerospace Medicine, v. 40, p. 1475, 1969. The data were compiled from 56 orbits of the spacecraft covering the time period October 5, 1965, to December 1, 1965. The data are tables of dose rates, expressed as rad/h for the material of the respective dosimeter, either silicon or cesium iodide. These data are also plotted as isodose contours in McIlwain's B-L coordinates, with B, the geomagnetic field magnitude, ranging from 0.05 to 0.25 gauss, and McIlwain's parameter L ranging from 1.1 to 1.9 earth radii. The data presented are accurate to 30%.

Data set name - DOSIMETER DATA ON MAGNETIC TAPE

NSSDC ID 65-078A-03B, DOSIMETER DATA, TAPE

Time period covered - 10/05/65 TO 12/01/65
(As verified by NSSDC)

Quantity of data - 79 REELS OF TAPE

This investigator-supplied data set of trapped-particle dose rate measurements is on 7-track, 556-bpi, BCD magnetic tapes written in Fortran IV on an IBM 7094 computer. Data for the six dosimeters are given in flux units (number/sq cm-sr-s). The flux values were obtained from the sensors' count rates. In addition to the dosimeter data, the tapes contain electron and proton fluxes and electron and proton spectrometer outputs. The dosimeter and proton-electron data are presented in a time-ordered tabular format, with time given to tenths of seconds. In channel 15, the middle, center, and surface proton dosimeter fluxes appear as words 4, 5, and 6, respectively. They appear again as words 24, 25, and 26. The data from the two-tissue-equivalent ion chamber (TEIC) dosimeters, are given in words 27 and 14, respectively. In channel 16, the middle, center, and surface proton dosimeter fluxes appear as words 14, 15, and 16, respectively. The output from the X-ray dosimeter is word 26, while the TEIC-1 output is given as word 13. No ephemeris information is included here. However, the ephemeris information is available in data set 65-078A-00D. Time coverage extends from October 5, 1965, to December 1, 1965, with approximately 25% completeness.

********** OV1-13 **********

OV1-13, KATZ
ELECTRON SPECTROMETER

Data set name - HIGH-TIME RESOLUTION ELECTRON COUNT RATES ON MAGNETIC TAPE

NSSDC ID 68-026A-02A, HI TIME RES ELCTRN CNT RTES, TAPE

Time period covered - 05/13/68 TO 07/11/68
(As verified by NSSDC)

Quantity of data - 12 REELS OF TAPE

This investigator-supplied data set of high time resolution electron count rates is on 7-track, 556-bpi, binary magnetic tapes written on a CDC 6600 computer. The packed data found on these tapes contain time, ephemeris information, and all the count rates for the lower energy (0.1 to 1 MeV) electron instrument. Data set 68-026A-04A is on the tapes too. Each tape contains data taken during one spacecraft orbit. Quiet time data for five orbits in May and for six orbits in July 1968 are included.

Data set name - HIGH TIME RES. AND HIGH ENERGY ELECTRON COUNT RATES ON CONCATENATED DATA TAPES

NSSDC ID 68-026A-02B, COUNT RATES, TAPE

Time period covered - 05/13/68 TO 07/11/68
(As verified by NSSDC)

Quantity of data - 3 REELS OF TAPE

These concatenated data are on 9-track, 1600-bpi, binary magnetic tapes created on NSSDC's Modcomp IV computer, from the high-time-resolution electron count rates from the magnetic analyzer (data set 68-026A-02A). The data contain high-time-resolution electron count rates. Data from data set 68-026A-04B are included on these tapes. The first logical record of each file is a header containing twenty-two 32-bit words of ephemeris data. All remaining logical records in each file are data records of 2444 32-bit words. Each logical record contains measurements and ephemeris data for 12 one-second time intervals.

OV1-13, KATZ
HIGH ENERGY ELECTRON SCINTILLATOR

Data set name - LIMITED UTILITY HIGH ENERGY ELECTRON COUNT RATES ON MAGNETIC TAPES

NSSDC ID 68-026A-04A, HI ENERGY ELEC. COUNT RATES, TAPE

Time period covered - 05/13/68 TO 07/11/68
(As verified by NSSDC)

Quantity of data - 12 REELS OF TAPE

This investigator-supplied data set of high energy electron count rates is on 7-track, 800-bpi, binary magnetic tapes written on a CDC 6600 computer. The packed data found on the tapes include universal time, ephemeris information, and all the count rates for the higher energy (1 to 10 MeV) electron instrument. Each tape contains data taken during one spacecraft orbit. Quiet time data for five orbits in May and for six orbits in July 1968 are included. This higher energy data set is not readily usable due to proton contamination. Data set 68-026A-02A is on the tapes too.

Data set name - HIGH TIME RES. AND HIGH ENERGY ELECTRON COUNT RATES ON CONCATENATED DATA TAPES

NSSDC ID 68-026A-04B, COUNT RATES, TAPE

Time period covered - 05/13/68 TO 07/11/68
(As verified by NSSDC)

Quantity of data - 3 REELS OF TAPE

These concatenated data are on 9-track, 1600-bpi, binary magnetic tapes created on NSSDC's Modcomp IV computer, from the high-energy electron scintillation spectrometer (68-026A-04). The data contain high energy electron count rates. Data set 68-026A-02B is included on these tapes. The first logical record of each file is a header containing twenty-two 32-bit words of ephemeris data. All remaining logical records in each file are data records of 2444 32-bit words. Each logical record contains measurements and ephemeris data for 12 one-second time intervals. This higher energy data set is not readily usable due to proton contamination.

********** OV1-15 **********

OV1-15, CHAMPION
TRIAXIAL ACCELEROMETER

Data set name - TRIAXIAL ACCELEROMETER ATMOSPHERIC DENSITY PLOTS

NSSDC ID 68-059A-01A, ATMOS DEN PLOTS, FICHE

Time period covered - 07/14/68 TO 09/28/68
(As verified by NSSDC)

Quantity of data - 1 CARD OF B/W MICROFICHE

This microfiche data set contains neutral atmosphere density profiles. It was created at NSSDC from the report by F. A. Marcos et al., "Atmospheric density results derived from the SPADES satellite accelerometer data," AFCRL Report No. 72-0608, Bedford, Mass., 1972 (NSSDC TRF #15436). The density values were determined from accelerometer measurements of satellite deceleration caused by atmospheric drag. Each profile corresponds to one orbit, and consists of numerous measurements taken between the satellite perigee height of 150 km and 250 km. The data are for selected orbits between July 14 and September 28, 1968. There is one significant gap in the data from August 9 to August 28, when the accelerometer was not functioning properly. The geographic latitude and longitude, and time of perigee in both local and universal time are given for each profile. The data can be found in Appendix A of the above cited report. In addition to the measurements, the data set contains a description of the spacecraft operation, the instrumentation, and the data reduction procedure. The measured density values are compared with appropriate values calculated from Jacchia's 1971 Model Atmosphere.

OV1-15, ELLIOTT
RAM ATMOSPHERE DENSITY GAUGE

Data set name - ATMOSPHERIC DENSITY AT 250,300,350 AND 400 KM,FOR 13 AND 14 JUL 1968

NSSDC ID 68-059A-05A, ATMOS DENSITY,250-400 KM, FICHE

Time period covered - 07/13/68 TO 07/14/68
(As verified by NSSDC)

Quantity of data - 1 CARD OF B/W MICROFICHE

This microfiche data set was generated at NSSDC, from the document by W. L. Carter et al., "Atmospheric density above 198 km inferred from magnetron and drag data from the satellite OV1-15 (1968-059A)," Aerospace Corp., TR-0066(5260-10)-1, El Segundo, Ca., 1969, (NSSDC TRF #04487). The data which are on page 21 of this report, consist of four plots of atmospheric density vs time for 250, 300, 350 and 400 km respectively. Each plot contains seven data points.

********** OV1-19 **********

OV1-19, BLAKE
OMNIDIRECTIONAL PROTON AND ELECTRON FLUXES AND SPECTRA

Data set name - OMNIDIRECTIONAL PROTON AND ELECTRON SPECTROMETER DATA ON MAGNETIC TAPE (*)

NSSDC ID 69-025C-01A, OMNI PROT/ELECT SPECTROMETR, TAPE

Time period covered - 03/18/69 TO 01/25/70
(As verified by NSSDC)

Quantity of data - 34 REELS OF TAPE

This data set, provided by the principal investigator, consists of proton and electron flux data on 9-track, 1600-bpi, odd-parity, binary magnetic tapes. These tapes are master tapes containing data from six OV1-19 investigations. The data on the master tapes begin with record 7, and continue on subsequent records with each data record containing 506 frame words 50 bits long. Each second of data consists of 63 frame words. The first 9 words give the universal time, the altitude, the geographic latitude, the east longitude, the magnetic field intensity, the McIlwain L-shell value, the magnetic local time, and the invariant latitude. The next 33 words are split up into 79 data channels. The next 15 words contain aspect data, VLF data, status information, and magnetic field components. The data channels for this experiment (channels 76, 77, and 78) are subcommutated in such a way that each sensor is read once every 4 seconds. The sensors measure the omnidirectional fluxes of protons with energies greater than 9, 21, 41, 80, and 130 MeV, and of electrons with energies greater than 0.7, 1.4, and 4.5 MeV.

OV1-19, BLAKE
PROTON-ALPHA TELESCOPE

Data set name - PROTON AND ALPHA TELESCOPE DATA ON

MAGNETIC TAPE (*)

NSSDC ID 69-025C-11A, PROTON-ALPHA TELESCOPE DATA, TAPE

Time period covered - 03/18/69 TO 01/25/70
(As verified by NSSDC)

Quantity of data - 34 REELS OF TAPE

This data set, provided by the principal investigator, consists of proton and alpha particle measurements displayed on 9-track, 1600-bpi, odd-parity, binary magnetic tapes. These tapes are master tapes containing data from six OV1-19 investigations. The data on the tapes begin with record 7, and continue on subsequent records with each data record containing 506 frame words 60 bits long. Each second of data consists of 63 frame words. The first 9 words give the universal time, the altitude, the geographic latitude, the east longitude, the magnetic field intensity, the McIlwain L-shell value, the magnetic local time, and the invariant latitude. The next 39 words are split up into 78 data channels. The next 15 words contain aspect data, VLF data, status information, and magnetic field components. The data from this investigation are on data channels 73, 74, 76, and 77 which are subcommutated in such a way that each sensor is read once every 4 seconds. The sensors measure the flux of alpha particles in the energy ranges 0.85 to 1.5 MeV, 1.5 to 2.15 MeV, 2.15 to 3.55 MeV, 3.55 to 5.55 MeV, and 5.55 to 9.0 MeV. Proton fluxes are measured in the energy ranges 0.54 to 0.66 MeV, and 0.67 to 0.90 MeV.

OV1-19, FREDEN
HI-ENERGY, HI-RESOLUTION PROTON
MEASUREMENTS WITH A DE/DX TELESCOPE

Data set name - HI-ENERGY, HI-RESOLUTION PROTON
MEASUREMENTS WITH A DE/DX TELESCOPE, TAPE (*)

NSSDC ID 69-025C-04A, HI-ENERGY PROTONS,DE/DX TEL.,TAPE

Time period covered - 03/18/69 TO 01/25/70
(As verified by NSSDC)

Quantity of data - 34 REELS OF TAPE

This data set, provided by the principal investigator, contains high-energy proton flux data displayed on 9-track, 1600-bpi, odd-parity, binary magnetic tapes. These tapes are master tapes containing data from six OV1-19 investigations. The data on the master tapes begin with record 7, and continue on subsequent records with each data record containing 506 frame words 60 bits long. Each second of data consists of 63 frame words. The first 9 words give the universal time, the altitude, the geographic latitude, the east longitude, the magnetic field intensity, the McIlwain L-shell value, the magnetic local time, and the invariant latitude. The next 39 words are split up into 78 data channels. The next 15 words contain aspect data, VLF data, status information, and magnetic field components. Data channels 29 to 51 were used for this investigation. The low-resolution data, obtained once per second, are shown on data channels 29 to 35. The high-resolution data (channels 36 to 51) were subcommutated in such a way that each of the 128 energy channels was read once every 8 seconds.

OV1-19, MCPHERSON
VLF PLASMA WAVE CHARACTERISTICS
MEASUREMENTS

Data set name - VLF PLASMA WAVE CHARACTERISTICS
MEASUREMENTS ON MAGNETIC TAPE (*)

NSSDC ID 69-025C-06A, VLF PLASMA WAVE MEASUREMENTS,TAPE

Time period covered - 03/18/69 TO 07/27/69
(As verified by NSSDC)

Quantity of data - 34 REELS OF TAPE

This data set, provided by the principal investigator, consists of VLF data in the frequency range 0.2 to 14 kHz displayed on 9-track, 1600-bpi, odd-parity, binary magnetic tapes. These tapes are master tapes containing data from six OV1-19 investigations. The data on the master tapes begin with record 7, and continue on subsequent records with each data record containing 506 frame words 60 bits long. Each second of data consists of 63 frame words. The first 9 words give the universal time, the altitude, the geographic latitude, the east longitude, the magnetic field intensity, the McIlwain L-shell value, the magnetic local time, and the invariant latitude. The next 39 words are split up into 78 data channels. The next 15 words contain aspect data, VLF data, status information, and magnetic field components. Data frame words 56 to 59 were used for this investigation. The wide-band data are contained in word 5. The 60-bit words 57, 58, and 59 contain respectively the data for the low-frequency (0.2 to 2 kHz), the mid-frequency (1.5 to 6 kHz), and the high-frequency (3.5 to 14 kHz) ranges. Each 60-bit word is split into four 15-bit words giving low- and high-gain measurements with the electric and with the magnetic antenna.

OV1-19, STEVENS
DIRECTIONAL PROTON SPECTROMETER

Data set name - DIRECTIONAL PROTON SPECTROMETER
DATA ON MAGNETIC TAPE (*)

NSSDC ID 69-025C-02A, DIRECTIONAL PROTON SPECTROM.,TAPE

Time period covered - 03/18/69 TO 01/25/70
(As verified by NSSDC)

Quantity of data - 34 REELS OF TAPE

This data set, provided by the principal investigator, consists of proton flux data on 9-track, 1600-bpi, odd-parity, binary magnetic tapes. These tapes are master tapes containing data from six OV1-19 investigations. The data on the master tapes begin with record 7, and continue on subsequent records with each data record containing 506 frame words 60 bits long. Each second of data consists of 63 frame words. The first 9 words give the universal time, the altitude, the geographic latitude, the east longitude, the magnetic field intensity, the McIlwain L-shell value, the magnetic local time and the invariant latitude. The next 39 words are split up into 78 data channels. The next 15 words contain aspect data, VLF data, status information, and magnetic field components. Data channels 52 to 56 were used for this experiment and these provide, once per second, the proton flux in 12 differential energy ranges.

OV1-19, VAMPOLA
ENERGY SPECTRA, FLUXES, AND PITCH ANGLE
DISTRIBUTIONS OF ELECTRONS

Data set name - ENERGETIC ELECTRON FLUXES IN THE RANGE
53-KEV TO 5.1 MEV ON MAGNETIC TAPE (*)

NSSDC ID 69-025C-05A, ELECTRON SPECTROMETER DATA, TAPE

Time period covered - 03/18/69 TO 01/25/70
(As verified by NSSDC)

Quantity of data - 68 REELS OF TAPE

This data set, provided by the principal investigator, consists of electron flux in the 53-keV to 5.1-MeV energy range on 9-track, 1600-bpi, odd-parity, binary magnetic tapes. These tapes are master tapes containing data from six OV1-19 investigations. The data on the tapes begin with record 7, and continue on subsequent records with each data record containing 506 frame words 60 bits long. Each second of data consists of 63 frame words. The first 9 words give the universal time, the altitude, the geographic latitude, the east longitude, the magnetic field intensity, the McIlwain L-shell value, the magnetic local time, and the invariant latitude. The next 39 words are split up into 78 data channels. The next 15 words contain aspect data, VLF data, status information, and magnetic field components. Data channels 1 to 28 are used for this experiment. Each sensor was read once every second. For additional information see: A. L. Vampola, "Access of solar electrons to closed field lines," J. Geophys. Res., v. 76, pp. 36-43, January 1971; or M. J. Teague et al., "A study of inner zone electron data and their comparison with trapped radiation models," NSSDC/WDC-A-R&S 79-06, August 1979 (TRF B30600). The study in this second reference utilized only the 9 channels of the low-energy spectrometer and the 6 lowest energy ranges of the high-energy spectrometer. The data for the 10 channels above 2.02 MeV were considered questionable because the flux values were less than the background values.

********** OV3-3 **********

OV3-3, JACCHIA
SATELLITE DRAG ATMOSPHERIC DENSITY

Data set name - SATELLITE DRAG--ATMOSPHERIC DENSITY
VALUES

NSSDC ID 66-070A-09A, ATMOS DENSITY TABLES, FICHE

Time period covered - 01/01/69 TO 01/14/70
(As verified by NSSDC)

Quantity of data - 1 CARD OF B/W MICROFICHE

This microfiche data set of neutral atmosphere density values was generated at NSSDC, from the report by L. G. Jacchia et al., "Supplemental catalog of atmospheric densities from satellite-drag analysis," Smithsonian Astrophys. Obs., SAO SR-3458, Cambridge, Mass., 1972, (NSSDC TRF B15429). These

density values were computed from the measured atmospheric drag on the OV3-3 satellite, for the standard heights of 350 and 355 km. They cover the time period from January 1, 1969, to January 14, 1970. The data are primarily in tabular form, with some summary graphs shown for comparing changes in density as a function of diurnal and semiannual temperature means, 10.7-cm solar flux, and daily geomagnetic index. The tabulated density values are listed chronologically. Some of the other parameters given are the observed rate of change of anomalistic period, the acceleration due to solar radiation pressure, the perigee height, and the nighttime temperature computed from the perigee value, using a Jacchia model of diurnal temperature variation.

OV3-3, VAMPOLA
MAGNETIC ELECTRON SPECTROMETER

Data set name - MULTIPITCH ANGLE ELECTRON FLUX ON MAGNETIC TAPE

NSSDC ID 66-070A-05A, ELECTRON FLUXES, TAPE

Time period covered - 08/04/66 TO 09/06/67
(As verified by NSSDC)

Quantity of data - 17 REELS OF TAPE

This investigator-supplied data set of electron flux measurements is on 7-track, 800-bpi, binary magnetic tapes, written on a CDC 6600 computer. Each tape contains 10 to 15 data files, and a file has one orbit of data. Each physical record contains 26 logical records, and each logical record contains, in 19 words, data for 1 second. The data include time, flux levels (number/sq cm-s-sr-keV) for each of nine electron channels, background proton count rate, mean pitch angle, observed and model (Jensen-Cain, 99 terms) geomagnetic field magnitudes, McIlwain's L-shell parameter, altitude, latitude, longitude, and right ascension. The electron data have not been corrected for background. This correction is negligible for L above 2 and is a maximum of 30% at L = 1.5 and E = 2.31 MeV. Data for 183 orbits between launch and September 6, 1967 (orbit 4194) are presented. For the latter half of this period, however, very little magnetic attitude data are available.

Data set name - PERPENDICULAR ELECTRON FLUX ON MAGNETIC TAPE

NSSDC ID 66-070A-05B, PERP ELECTRON FLUXES, TAPE

Time period covered - 08/04/66 TO 09/06/67
(As verified by NSSDC)

Quantity of data - 8 REELS OF TAPE

This investigator-supplied data set of perpendicular electron flux measurements is on 7-track, 800-bpi, binary magnetic tapes written on a CDC 6600 computer. These data, containing the measurements of approximately locally mirroring electrons have been extracted from data set 66-070A-05A. Each tape contains between 14 and 32 data files, and each file has one orbit of data. A physical record contains six logical records of 75 words each. A logical record has time, magnetic spectrometer and magnetometer data, and the following other data: electron count rates and fluxes for each of the nine electron channels, proton background count rate, observed geomagnetic field total magnitude and components, model (Jensen-Cain, 99 terms) field magnitude, McIlwain's L-shell parameter, a measure of the agreement between model and data fields, local pitch angle (between 84 and 100 deg), equatorial pitch angle for locally mirroring particles, spacecraft altitude, latitude, and longitude, and the geomagnetic coordinates of the spacecraft. Data for 183 orbits between launch and September 6, 1967 (orbit 4194) are presented.

Data set name - PERPENDICULAR ELECTRON FLUX AT L LESS THAN 10, ON MAGNETIC TAPE

NSSDC ID 66-070A-05C, PERP ELECTRONS AT L .LT. 10, TAPE

Time period covered - 08/04/66 TO 09/06/67
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This investigator-supplied data set of perpendicular electron flux measurements is on one 7-track, 800-bpi, binary magnetic tape written on a CDC 6600 computer. These data, containing the fluxes of electrons mirroring at L values less than or equal to 10, have been extracted from data set 66-070A-05B. The tape contains 183 data files, and each file has one orbit of data. Each physical record has 33 logical records of 15 words each. These words include time, electron fluxes for each of the nine channels, proton background count rate, model values for the geomagnetic field magnitude and for McIlwain's L-shell parameter, and spacecraft longitude. The 183 orbits represented on the tape occurred between launch and September 6, 1967 (orbit 4194).

Data set name - PERPENDICULAR EQUATORIAL ELECTRON FLUX ON MAGNETIC TAPE

NSSDC ID 66-070A-05D, EQUATORIAL ELECTRON FLUXES, TAPE

Time period covered - 08/04/66 TO 09/06/67
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This investigator-supplied data set of equatorial electron flux values is on 7-track, 800-bpi, binary magnetic tapes written on a CDC 6600 computer. The tape is similar to that of data set 66-070A-05C in both form and content. Specifically, the tapes contain 183 data files, and each file has one orbit of data. Each physical record has 33 logical records of 15 words each. These words include values for time, electron fluxes for each of the nine channels, model values for the geomagnetic field magnitude and for McIlwain's L-shell parameter, and spacecraft longitude. However, here in place of the proton count rate, a flag is used to indicate whether the electron fluxes have been background corrected and reduced to equivalent equatorial values.

********** RADSAT **********

RADSAT, KATZ
SOLAR PROTON, DEUTERON, TRITON
SOLID-STATE TELESCOPE

Data set name - ONE DEGREE LATITUDE-LONGITUDE SORT OF TRAPPED PROTON DATA ON MAGNETIC TAPE

NSSDC ID 72-076B-01A, LAT.LONG.SORT,TRAP.PROT.DATA,TAPE

Time period covered - 10/02/72 TO 02/28/73
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

These investigator-supplied trapped particle data are on a single 9-track, 1600 bpi, BCD magnetic tape created on a CDC computer. The data set is basically a sequential file containing 15600 logical records of thirty-two 60-bit words, with 15 logical records per physical block. Each of the records corresponds to a 1 deg square of latitude and longitude. The first 30 words of a logical record, correspond to the pitch angle intervals of width 2 deg (90 to 88 deg through 32 to 30 deg respectively). word 31 corresponds to the interval 30 to 0 deg. word 32 is an index defining the record's relative position in the data set. Each word (except word 32) contains 6 values in a packed format. The first 5 are the total observed counts for the 5 energy bins: 45.0 to 28.0 MeV, 28.0 to 18.2 MeV, 18.2 to 12.2 MeV, 12.2 to 7.0 MeV, and 7.0 to 5.0 MeV. The sixth value is the total number of observations for that pitch angle interval and that latitude-longitude square. Each observation was of 0.08-s duration. The tape contains 5 identical files in this format to give a built-in redundancy and to improve its readability.

********** RELAY 1 **********

RELAY 1, BROWN
SOLID-STATE ION CHAMBER ELECTRON AND PROTON DETECTOR

Data set name - L-ORDERED ELECTRON AND PROTON DATA ON MAGNETIC TAPE

NSSDC ID 62-068A-02A, L-ORD. ELECTRON-PROTON DATA, TAPE

Time period covered - 12/13/62 TO 03/31/64
(As verified by NSSDC)

Quantity of data - 2 REELS OF TAPE

This investigator-supplied data set containing electron and proton count rates is on 7-track, 800-bpi, BCD magnetic tapes written on an IBM 7094 computer. The tapes have a 167-word block size, and each word contains 36 bits. Both tapes are ordered by McIlwain's L-shell values; one tape contains electron count rates, and the other tape contains proton count rates. There are 62 files dividing the data into L intervals from 1 to 7. Each record on a tape is headed by the maximum and minimum L value for the file, and by the time period included in the file. In addition, the file contains, at discrete intervals, values for McIlwain's L-shell parameter, geomagnetic field value, log B/Bo, and detector counts. On the electron-data tape, count rates for particles with energies greater than 1 MeV, between 0.20 and 0.35 MeV, between 0.35 and 0.55 MeV, between 0.55 and 0.75 MeV, and between 0.75 and 1.00

MeV are given in units of counts per second. On the proton-data tape, counts per second are given for protons with energies between 1.8 and 3.2 MeV, between 3.2 and 4.7 MeV, and greater than 4.7 MeV.

RELAY 1, MCILWAIN
PROTON-ELECTRON DETECTORS

Data set name - L-SORTED 10-S AVERAGED COUNT RATES ON MAGNETIC TAPE

NSSDC ID 62-068A-03B, PROTON-ELECTRON L SORTED, TAPE

Time period covered - 12/14/62 TO 10/20/64
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This investigator-supplied data set of proton and electron count rates is on a single 7-track, 556-bpi, BCD magnetic tape generated on a CDC 3600 computer. Each physical record contains 10 logical records of 27 words (216 characters) each. Ten-second averaged count rates are presented, and are interpolated to discrete McIlwain's L-shell values between 1.15 and 8.20. Data for all discrimination states and background modes are presented for all detectors, and are ordered first by L-shell value and then by geomagnetic field magnitude. Spacecraft position, attitude, and observation time are included in each logical record.

Data set name - TEN-SECOND AVERAGED TIME-ORDERED COUNT RATES ON MAGNETIC TAPE

NSSDC ID 62-068A-03C, 10S AVER.CNT RATES TIME ORD.,TAPE

Time period covered - 12/14/62 TO 10/20/64
(As verified by NSSDC)

Quantity of data - 3 REELS OF TAPE

This detector count-rate data set is on 7-track, 556-bpi, BCD magnetic tape generated at NSSDC on an IBM 7094 computer. This data set represents a time-ordered version of data set 62-068A-03D, except that the 1-s cumulative counts of that data set have not been transcribed to this data set. Each physical record consists of ten 144-character logical records. The logical records contain 12 s of measurements, and they run sequentially. Each logical record contains the 10-s averaged count rates for detector A, and for all the discrimination states (including background counting modes) of one of the other three detectors. Ephemeris information, including values for the geomagnetic field magnitude B and for McIlwain's L-shell parameter, is contained in each logical record. Some B and L data used in investigation 62-068A-02 are also included on these tapes.

Data set name - ONE- AND 10-SECOND COUNT RATES ON MAGNETIC TAPE

NSSDC ID 62-068A-03D, 1C S AVG COUNT RATE, TAPE

Time period covered - 12/14/62 TO 10/20/64
(As verified by NSSDC)

Quantity of data - 5 REELS OF TAPE

This investigator-supplied data set of 10-s averaged electron and proton count rates is on 7-track, 556-bpi, BCD magnetic tapes generated on a CDC 3600 computer. Each 624-character logical record contains data taken by detector "A", and by one of the other three detectors during one 10-s interval. For detector "A" and for all the discrimination states (including background counting modes) of the other detectors, ten 1-s cumulative counts and one 10-s averaged counting rate are given. Ephemeris information, including values for the geomagnetic field magnitude and for McIlwain's L-shell parameter, is included in each logical record. Some data from investigation 62-068A-02 are also found on these tapes. A time-ordered version of this data set is found in data set 62-068A-03C.

Data set name - PLOTS OF LOW-ENERGY PROTON COUNT RATES VS B AT DISCRETE L VALUES ON MICROFILM

NSSDC ID 62-068A-03E, LOW ENERGY PROTON PLOTS, MFILM

Time period covered - 12/14/62 TO 05/10/63
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This microfilm data set, generated at NSSDC from investigator-supplied plots, is contained on one reel of 35-mm film. Each plot shows detector "B" proton count rates vs B (model geomagnetic field magnitude). The data are presented at discrete L values between 1.5 and 4.2, and in one of three energy intervals (1.1 to 14, 1.6 to 7.1, or 2.25 to 4.7 MeV). The count rates are corrected for temperature and radiation damage effects.

Data set name - PLOTS OF HIGH-ENERGY PROTON COUNT RATES VS B AT DISCRETE L VALUES ON MICROFILM

NSSDC ID 62-068A-03F, HIGH-ENERGY PROTON PLOTS, MFILM

Time period covered - 12/14/62 TO 09/22/63
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This microfilm data set, generated at NSSDC from investigator-supplied plots, is contained on one reel of 35-mm film. Each plot shows detector "C" proton count rates vs B (model geomagnetic field value). The data are presented at discrete L values between 1.3 and 3.0 in one of three energy intervals (18.2 to 25, 25 to 35, or 35 to 63 MeV). The count rates were corrected for temperature effects. No radiation damage correction was necessary.

********** RELAY 2 **********

RELAY 2, BROWN
SOLID-STATE ION CHAMBER ELECTRON AND PROTON DETECTOR

Data set name - L-ORDERED ELECTRON AND PROTON DATA ON MAGNETIC TAPE

NSSDC ID 64-003A-02A, ELECTRON-PROTON DATA,L-ORD., TAPE

Time period covered - 01/21/64 TO 12/31/65
(As verified by NSSDC)

Quantity of data - 6 REELS OF TAPE

This investigator-supplied data set containing electron and proton count rates is on 7-track, 800-bpi, BCD magnetic tapes written on an IBM 7094 computer. The tapes have a 157-word block size, and a word contains 36 bits. The heading for each record is the maximum and minimum L values for the file, and the time period included in the file. In addition, the file contains at discrete intervals McIlwain's L-shell parameter, geomagnetic field value, log B/Bo, and detector counts. These count rates are in units of counts per second in each discrimination state for the electron-data tapes, and for each bias mode for the proton-data tapes. There are 62 files, dividing the data into L intervals from 1 to 7.

********** SME **********

SME, BARTH
UV OZONE

Data set name - DAILY AVERAGED OZONE MIXING RATIOS IN 35 5 DEG LATITUDE BINS AT 22 PRESSURE LEVELS (*)

NSSDC ID 81-100A-01A, OZONE DATA, TAPE

Time period covered - 12/30/81 TO 09/30/83
(As verified by NSSDC)

Quantity of data - 2 REELS OF TAPE

This investigator-supplied data set is on 9-track, 1600-bpi, magnetic tape written on a Digital TU 77 drive, and has ANSI STANDARD tape headers and End-of-File (EOF) structure (7-bit ASCII characters) as per VAX 11/780 system software. The second file of the tape contains the ozone mixing ratios derived from the ultraviolet spectrometer measurements. The daily averaged ozone mixing ratios in parts per million by volume are given for pressure levels from 1.0 to 0.1 mb, and from 85 deg S to 85 deg N in 5-deg latitude intervals. Each point represents an average of four or five orbits with a greater number of orbits occurring over the western hemisphere. Some of the data analysis details can be found in the article by D. W. Rusch et al., "Ozone densities in the lower mesosphere measured by a limb-scanning ultraviolet spectrometer," Geophys. Res. Lett., v. 10, p. 241, 1983 (NSSDC TRF 835875).

Data set name - UV OZONE RADIANCE DATA ON MAGNETIC TAPE (*)

NSSDC ID 81-100A-01B, OZONE RADIANCE DATA, TAPE

Time period covered - 12/16/81 TO 09/30/84
(As verified by NSSDC)

Quantity of data - 9 REELS OF TAPE

This investigator-supplied data set is on 9-track, 1600-bpi, magnetic tape written on a Digital TU 77 drive, and has ANSI STANDARD tape headers and End-of-File (EOF) structure (7-bit ASCII characters) as per VAX 11/780 system software. The UV ozone radiance data presented here were taken at 2650.7 A (channel 1), and 2964.3 A (channel 2). The data for both channels are presented as radiances in units of photons/(sq cm-s). For each channel, sets of six consecutive spin profiles are merged together to improve the signal-to-noise ratio for further data processing. Poor quality data were eliminated. The radiance profiles not rejected make up this data set. The radiance data for both channels begin at an altitude of 41.0 km, and the data extend to an altitude of 83.0 km., with a constant spacing of 3.5 km. Analysis details can be found in the article by D. W. Rusch, J. Geophys. Res., v. 89, p. 11677, 1984.

SME, BARTH
1.27 MICROMETER AIRGLOW

Data set name - DAILY AVERAGED OZONE MIXING RATIOS IN 35
5 DEG LATITUDE BINS AT 42 PRESSURE LEVELS (*)

NSSDC ID 81-100A-03A, OZONE DATA, TAPE

Time period covered - 12/30/81 TO 09/30/83
(As verified by NSSDC)

Quantity of data - 2 REELS OF TAPE

This investigator-supplied data set is on 9-track, 1600-bpi, magnetic tape written on a Digital TU 77 drive, and has ANSI STANDARD tape headers and End-of-File (EOF) structure (7-bit ASCII characters) as per VAX 11/780 system software. The first file of the tape contains ozone mixing ratios obtained from the near-infrared spectrometer. The ozone mixing ratios in parts per million by volume are given on pressure surfaces from approximately 50 to 90 km, and between 85 deg N and 85 deg S in 5-deg intervals. Each point is an average of the data obtained for a day from several longitudes. There are not enough samples to consider this a zonal average. The analysis technique is given in the article by R. J. Thomas et al., "Ozone density distribution in the Mesosphere (50 - 90 km) measured by the SME limb scanning near infrared spectrometer," Geophys. Res. Lett., v. 10, p. 245, 1983 (NSSDC TRF 835877).

Data set name - NEAR I.R. RADIANCE DATA ON MAGNETIC TAPE
(*)

NSSDC ID 81-100A-03H, RADIANCE DATA, TAPE

Time period covered - 12/16/81 TO 09/30/84
(As verified by NSSDC)

Quantity of data - 29 REELS OF TAPE

This investigator-supplied data set is on 9-track, 1600-bpi, magnetic tape written on a Digital TU 77 drive, and has ANSI STANDARD tape headers and End-of-File (EOF) structure (7-bit ASCII characters) as per VAX 11/780 system software. The limb altitude radiance profiles with identifying data are on the tapes. Specifically, the data consist of long (1.87 micron) and short (1.27 micron) channel radiances, and information to identify merged spin set position. Each file contains one orbit of data, and each orbit consists of 20 to 60 (approximate range) merged spin sets. The data analysis procedures used can be found in the article by R. J. Thomas et al., "The Solar Mesosphere Explorer near-infrared spectrometer: Part 1. Measurements of 1.27 micron radiances and the inference of mesospheric ozone," in press to J. Geophys. Res., 1984 (NSSDC TRF 835905).

SME, BARTH
VISIBLE NITROGEN DIOXIDE

Data set name - DAILY AVERAGED NO2 COLUMN DENSITIES IN 35
5 DEG LATITUDE BINS

NSSDC ID 81-100A-04A, NITROGEN-DIOXIDE(NO2) DATA, TAPE

Time period covered - 01/01/82 TO 03/31/82
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This investigator-supplied data set is on 9-track, 1600-bpi, magnetic tape written on a Digital TU 77 drive, and has ANSI STANDARD tape headers and End-of-File (EOF) structure (7-bit ASCII characters) as per VAX 11/780 system software. The nitrogen dioxide (NO2) column densities were derived from measurements by the visible spectrometer. These densities, expressed in number per sq cm above 28 km, are given at 5-deg latitude intervals between north and south 85 deg. The analysis technique used is described in the article by G. H. Mount et al., "Measurements of NO2 in the Earth's stratosphere using a limb-scanning visible light spectrometer," Geophys. Res. Lett., v. 10, p. 265, 1983 (NSSDC TRF 835882).

SME, BARTH
SOLAR UV MONITOR

Data set name - DAILY AVERAGED SOLAR IRRADIANCES IN EACH
OF 189 1.0 NM BANDS BET. 116.5-304.5 NM (*)

NSSDC ID 81-100A-05A, SOLAR IRRADIANCE DATA, TAPE

Time period covered - 01/01/82 TO 09/30/83
(As verified by NSSDC)

Quantity of data - 2 REELS OF TAPE

This investigator-supplied data set is on 9-track, 1600-bpi, magnetic tape written on a Digital TU 77 drive, and has ANSI STANDARD tape headers and End-of-File (EOF) structure (7-bit ASCII characters) as per VAX 11/780 system software. The solar irradiance measurements were taken with the solar spectrometer. The full disk solar irradiance was measured daily in the spectral range 115 to 305 nm. The spectrometer resolution is 0.75 nm. The values presented in this data set are integrated in 1-nm intervals. The analysis technique used here is described in the article by G. J. Rottman et al., "Solar spectral irradiance, 120 to 190 nm, October 13, 1981 - January 3, 1982," Geophys. Res. Lett., v. 9, p. 587, 1982 (NSSDC TRF 835883).

********** SPUTNIK 3 **********

SPUTNIK 3, UNKNOWN
BEACON

Data set name - TOTAL ELECTRON CONTENT DATA ON MICROFICHE

NSSDC ID 58-004B-12A, TOTAL ELECTRON CONTENT, FICHE

Time period covered - 08/30/58 TO 12/21/59
(As verified by NSSDC)

Quantity of data - 2 CARDS OF B/W MICROFICHE

This microfiche data set was generated at NSSDC from the article by W. J. Ross, "Ionospheric investigations from satellite radio observations, 2 Doppler effect analysis methods and preliminary data," IGY Satellite Ionospheric Res., IGY Satellite Report, n. 12, p. 1, Dec. 1960, (NSSDC TRF 817132). It contains measurements of ionospheric electron content to the satellite height, using the Doppler effect on the beacon transmissions at frequencies of approximately 20, 40, and 60 MHz. Day-to-day and seasonal variations in the data are discussed. Values for the maximum electron density and the mean electron density are included too.

********** STS-3/OSS-1 **********

STS-3/OSS-1, SHAWHAN
PLASMA DIAGNOSTIC PACKAGE

Data set name - AC WAVE,ION+ELEC SPECTRA,NEUT P,ION COMP+
CURR DEN+FLOW,DC ELEC+MAG FLD+ELEC FLUX

NSSDC ID 82-022A-01A, PLASMA SURVEY, COLOR SLIDES

Time period covered - 03/22/82 TO 03/27/82
(As verified by NSSDC)

Quantity of data - 340 COLOR SLIDES

This 35-mm color slide data set containing the measurements of the Plasma Diagnostic Package was supplied by the principal investigator along with a Data Users Guide (DUG). Each one of these "Plasma Diagnostics Package Survey" slides consists of 15 panels of data covering a 10-min period. Greenwich mean time (GMT) is printed along the bottom of each slide and each slide mount. Vertical black lines such as that found near 21:41 GMT (figure 1 of the DUG) and which persist throughout all data sections indicate loss of data. The color bar found to the right of the processing date in the center of

the slide gives an indication of the relative intensity of the effects. Tick marks indicating 1-min intervals are provided along the bottom of each major section of the slide. In figure 1 of the DUG, panel numbers are shown to identify the different experiment outputs. This panel guide is absent in the data set, because the format of each slide is identical. There are 9 outputs on the left hand side of the slide and 6 on the right. Beginning in sequence with the first output on the left and ending with the last output on the right, the outputs are as follows: Langmuir Probe; S-band Receiver and High Frequency Receiver; Medium Frequency Receiver; Helios (double sphere electric field antenna); IMP-I and Antenna (S, P, L) -- (spectrum analyzer with periodically changing input; uses a dipole electric antenna "L", a magnetic searchcoil "S", and a Langmuir Probe "P"); AGC 1 and AGC 2; Pressure Gauge; Low Energy Proton Electron Differential Energy Analyzer (LEPEDEA) - Electrons and high voltage; LEPEDEA - ions; Ion Mass Spectrometer; Retarding Potential Analyzer; Differential Ion Flux Probe and Retarding Mode; DC Electric Field; Electrometer; and Magnetometer. Descriptions of each output and the data coverage are given in the accompanying DUG.

Data set name - WIDE BAND ANALOG DATA (0-30 KHZ)

NSSDC ID 82-022A-01B, W.B. ANALOG DATA (0-30 KHZ), NEG.

Time period covered - 03/22/82 TO 03/28/82
(As verified by NSSDC)

Quantity of data - 2240 FRAMES

This 70-mm black and white film data set was supplied by the principal investigator along with a "Data Users Guide" (DUG). It contains high time and frequency resolution measurements of the electric and magnetic noise signal (0-30 kHz). These data were obtained with a wideband analog receiver which switched among three different sensors -- electric antenna "L", magnetic searchcoil "S", and Langmuir Probe "P" -- according to a predetermined sequence. Automatic gain control enabled the receiver dynamic range of 110 dB to be displayed onto film having approximately 20 dB of dynamic range. As shown in the figure 1 of the DUG, one complete antenna sequence has the input sensor switching every 51.2 s with an L - S - L - S - L - S - L - P sequence lasting 409.6 s. The top half of the film contains the spectrum for the 0 to 1 kHz range. The bottom half of the film contains the 1 to 30 kHz range. Here, the spectrum is given for 0 to 10 kHz in the first 25.6 s for each sensor, for 20 to 10 kHz in the next 12.8 s, and for 20 to 30 kHz range in the last 12.8 s. The day of the year and the Greenwich mean time (in HHMM) of the measurement is printed in the middle of the frame every minute.

********** TRANSIT 2A **********

TRANSIT 2A, UNKNOWN
TRANSIT 2A-IONOSPHERIC BEACON

Data set name - PLOTS OF ELECTRON CONTENT (AND DOPPLER SHIFT OFFSET) VS TIME NEAR STANFORD

NSSDC ID 60-007A-03A, PLOTS, TEC VS T, NR.STANFORD,FICHE

Time period covered - 07/23/60 TO 10/13/60
(As verified by NSSDC)

Quantity of data - 3 CARDS OF B/W MICROFICHE

This microfiche data set of ionospheric electron column density was prepared at NSSDC from the report by F. De Mendonca, "Ionospheric electron content and variations measured by Doppler shifts in satellite transmissions," J. Geophys. Res., v. 67, p. 2311, 1962 (NSSDC TRF 62000). These data are presented as electron number density per unit cross section of a vertical column, versus time. The Doppler offset is plotted too. The time scale used is a minute before and a minute after the point of closest satellite approach. The data set also includes maps showing the subsatellite track of each pass. Data fro 74 satellite passes near Stanford are given.

********** TRANSIT 4A **********

TRANSIT 4A, UNKNOWN
IONOSPHERIC BEACON

Data set name - IONOSPHERIC TOTAL ELECT. CONTENT ON 35-MM FILM

NSSDC ID 61-015A-03A, IONO.,TOTAL ELECT. CONTENT, MFILM

Time period covered - 09/13/61 TO 12/24/61
(As verified by NSSDC)

Quantity of data - 1 REEL OF MICROFILM

This 35-mm film data set was generated at NSSDC from the paper by L. J. Blumle, "Studies of the equatorial ionosphere using the Faraday effect on satellite radio transmissions," Science Research Report No. 156, Ionosphere Research Laboratory, Pennsylvania State University, University Park, Pennsylvania, 1961 (NSSDC TRF 3149?1). Measurements over a 4-month period, of the total ionospheric electron content (TEC), were obtained using the Faraday rotation technique. They are compared with values obtained from the Dispersive Doppler Method. Data from 125 passes over Huancayo, Peru (12.05 deg S, 75.35 deg W) are presented here. Overall accuracy of the TEC measurements are plus or minus 10% or better. In addition, the film contains a discussion of the diurnal variation of the measurements, and of the day-to-day variation in the maximum electron density values.

Data set name - TOTAL ELECTRON CONTENT AND SLAB THICKNESS NEAR BANGKOK DURING 1964

NSSDC ID 61-015A-03B, TEC + SLAB TH OVER BANGKOK, FICHE

Time period covered - 03/25/64 TO 12/18/64
(As verified by NSSDC)

Quantity of data - 2 CARDS OF B/W MICROFICHE

This microfiche data set of ionospheric total electron content was generated at NSSDC from the publication by C. Rufenach et al., "Faraday rotation measurements of electron content near the magnetic equator, using the Transit 4 A Satellite," SRI Tech Rept. 14, Stanford Res. Instit., Menlo Park, California, 1966 (NSSDC TRF 80113B). The data are tabulated, and give total electron content (TEC) and slab thickness values for 185 passes near Bangkok, Thailand. One TEC value is given per pass at the position of the propagation path transverse to the geomagnetic field line. The mean ionospheric height used was 330 km, and the sub-ionospheric point moved over 10 deg of latitude for these observations. Since only date and time are given in the data tables, geometric computations from ephemerides are required to obtain exact sub-ionospheric latitude information for each value. Further details are contained in the above cited reference.

********** VANGUARD 1 **********

VANGUARD 1, JACCHIA
SATELLITE DRAG ATMOSPHERIC DENSITY

Data set name - ATMOSPHERIC DENSITY VALUES FROM SATELLITE DRAG MEASUREMENTS

NSSDC ID 58-002B-02A, ATMOS DEN TABLES, FICHE

Time period covered - 05/17/58 TO 10/10/61
(As verified by NSSDC)

Quantity of data - 6 CARDS OF B/W MICROFICHE

This microfiche data set of atmospheric density values, computed from the atmospheric drag on Vanguard 1, was prepared at NSSDC from the Smithsonian Astrophysical Observatory Special Reports numbered 100 and 171 (NSSDC TRF B10138 and B05917, respectively). These density values were computed for a standard height of 658 km. The data are primarily in tabular form. There are some summary graphs for comparing changes in density as a function of diurnal and semiannual temperature means, 10.7-cm solar flux, and daily geomagnetic index. The tabulated density values are listed chronologically. Some of the other parameters given are the observed rate of change of anomalistic period, the acceleration due to solar radiation pressure, the perigee height, and the nighttime temperature computed from the perigee value, using a Jacchia model of the diurnal temperature variation.

********** VANGUARD 2 **********

VANGUARD 2, JACCHIA
SATELLITE DRAG ATMOSPHERIC DENSITY

Data set name - ATMOSPHERIC DENSITY VALUES FROM SATELLITE DRAG MEASUREMENTS

NSSDC ID 59-001A-02A, ATMOS DEN TABLES, FICHE

Time period covered - 02/23/59 TO 03/20/70
(As verified by NSSDC)

Quantity of data - 13 CARDS OF B/W MICROFICHE

This microfiche data set of atmospheric density values, computed from the atmospheric drag on Vanguard 2, was prepared at NSSDC from the Smithsonian Astrophysical Observatory Special Reports numbered 100, 171, 326, and 348 (NSSDC TRF B10138, B05917, B10163, and 15428, respectively). These density values were computed for standard heights of 563 and 600 km. The data are primarily in tabular form. There are some summary graphs for comparing changes in density as a function of diurnal and semiannual temperature means, 10.7-cm solar flux, and daily geomagnetic index. The tabulated density values are listed chronologically. Some of the other parameters given are the observed rate of change of anomalistic period, the acceleration due to solar radiation pressure, the perigee height, and the nighttime temperature computed from the perigee value, using a Jacchia model of the diurnal temperature variation.

********** VANGUARD 3 **********

VANGUARD 3, HEPPNER
PROTON PRECESSIONAL MAGNETOMETER

Data set name - SCALAR MAGNETIC FIELD VALUES ON MAGNETIC TAPE

NSSDC ID 59-007A-01A, SCALAR MAGNETIC FIELD VAL., TAPE

Time period covered - 09/18/59 TO 12/11/59
(As verified by NSSDC)

Quantity of data - 1 REEL OF TAPE

This investigator-supplied data set of scalar geomagnetic field values is on a single 7-track, 556-bpi, BCD magnetic tape written on an IBM 7094 computer. The tape contains the complete set of data from the proton precessional magnetometer. There are approximately 4000 records, and each record is 84 characters long. A data record contains (1) the ground station number, (2) the date and time (plus or minus 1 s) of the measurement, (3) the measured geomagnetic field strength in gammas, (4) the standard deviation of the measurement, (5) the position of the satellite, (6) the field strength computed for several reference models, and (7) data-quality flags. Further details, including a description of the investigation and of the tape format, can be found in "Magnetic field measurements data user's manual," NASA-GSFC, unnumbered, Greenbelt, Maryland, 1964 (NSSDC TRF B00965).

Data set name - SCALAR MAGNETIC FIELD VALUES IN PUBLISHED DOCUMENT

NSSDC ID 59-007A-01B, SCALAR MAG. FIELD VAL., FICHE

Time period covered - 09/18/59 TO 12/11/59
(As verified by NSSDC)

Quantity of data - 3 CARDS OF B/W MICROFICHE

This microfiche data set of scalar geomagnetic field values was prepared at NSSDC from the published report by J. C. Cain et al., "Measurements of the geomagnetic field by the Vanguard 3 satellite," TN D-1418, NASA, Washington, D.C., 1962 (NSSDC TRF B00912). In addition to the approximately 4000 geomagnetic scalar field measurements, the microfiche contains a description of the investigation and the data processing procedure. The report also identifies the ground stations receiving the data, the satellite location, the time of the measurement, and the appropriate reference geomagnetic field values.

VANGUARD 3, JACCHIA
SATELLITE DRAG ATMOSPHERIC DENSITY

Data set name - ATMOSPHERIC DENSITY VALUES FROM SATELLITE DRAG MEASUREMENTS

NSSDC ID 59-007A-04A, ATMOS DEN TABLES, FICHE

Time period covered - 09/23/59 TO 09/21/62
(As verified by NSSDC)

Quantity of data - 6 CARDS OF B/W MICROFICHE

This microfiche data set of atmospheric density values, computed from the atmospheric drag on Vanguard 3, was prepared at NSSDC from the Smithsonian Astrophysical Observatory Special Reports numbered 100 and 171 (NSSDC TRF B10138 and B05917, respectively). These density values were computed for a standard height of 516 km. The data are primarily in tabular form. There are some summary graphs for comparing changes in density as a function of diurnal and semiannual temperature means, 10.7-cm solar flux, and daily geomagnetic index. The tabulated density values are listed chronologically. Some of th other parameters given are the observed rate of change of anomalistic period, the acceleration due to solar radiation pressure, the perigee height, and the nighttime temperature computed from the perigee value, using a Jacchia model of the diurnal temperature variation.

Index of Data Sets

SPACECRAFT NAME	LAUNCH DATE	INVESTIGATOR NAME	EXPERIMENT NAME / DATA SET NAME	NSSDC ID	DATA SET INFORMATION: TIME SPAN OF DATA		PAGE
1963-030D	07/19/63			63-030D			
		PRIOR	1963-030D,BALLOON ATMOS DRAG DEN	63-030D-01			
			DRAG DENSITIES + TEMPS, FICHE	63-030D-01A	01/02/64	04/13/71	13
1963-038C	09/28/63			63-038C			
		BOSTROM	1963-038C, CHARGED PARTICLE	63-038C-01			
			TIME-ORDERED COUNT RATES, TAPE	63-038C-01D	09/28/63	12/31/68	13
			SORTED INDEX OF DATA, TAPE	63-038C-01E	09/28/63	12/31/68	13
			COUNT RATES VS T, B (PLOTS),MFILM	63-038C-01F	09/28/63	12/31/67	13
			L-ORD EL. COUNT RATES,PLOTS,MFILM	63-038C-01G	09/28/63	04/16/66	13
1964-083C	12/13/64			64-083C			
		ZMUDA	1964-083C,RUBIDIUM VAPOR MAGNET.	64-083C-01			
			RUBIDIUM VAPOR MAG. DATA, TAPE	64-083C-01A	12/17/64	06/30/65	13
1972-032A	04/19/72			72-032A			
		CARTER	1972-032A, MAGNETRON GAUGE	72-032A-01			
			DENSITY OBS, 160-300KM, FICHE	72-032A-01A	04/21/72	05/09/72	13
AD-A	12/19/63			63-053A			
		JACCHIA	AD-A,NONSYST.CHANGES AIR DENSITY	63-053A-01			
			ATMOS DRAG DEN TABLES, FICHE	63-053A-01A	12/23/63	08/25/71	14
AD-B	11/21/64			64-076A			
		JACCHIA	AD-B,NONSYST.CHANGES AIR DENSITY	64-076A-01			
			ATMOS DRAG DEN TABLES, FICHE	64-076A-01A	11/27/64	10/15/68	14
AD-C	08/08/68			68-066A			
		JACCHIA	AD-C,NONSYST.CHANGES AIR DENSITY	68-066A-01			
			ATMOS DRAG DEN TABLES, FICHE	68-066A-01A	08/08/68	01/13/73	14
AE-A	04/03/63			63-009A			
		BRACE	AE-A,ELECTROSTATIC PROBES	63-009A-02			
			ELEC. TEMP, ION DENSITY, MFILM	63-009A-02A	04/04/63	07/10/63	14
		NEWTON	AE-A,PRESSURE GAUGE	63-009A-03			
			NEUTRAL DENS (260KM-900KM), FICHE	63-009A-03A	04/03/63	06/06/63	14
		REBER	AE-A,MASS SPECTROMETER	63-009A-01			
			TAB ATMOS COMP DENSITIES, FICHE	63-009A-01A	04/03/63	06/01/63	14
AE-B	05/25/66			66-044A			
		BRINTON	AE-B,RF ION MASS	66-044A-01			
			ION MASS SPECTROM. DATA, TAPE	66-044A-01A	06/09/66	01/17/67	15
			ION MASS SPECTROM. DATA, MFILM	66-044A-01B	06/09/66	01/17/67	15
		REBER	AE-B,NEUTRAL MAG MASS SPECT	66-044A-02			
			NEUTRAL PARTICLE DENSITIES, BOOK	66-044A-02A	05/25/66	05/31/66	15
		WULF-MATHIES	AE-B,ATMOSPHERIC DRAG	66-044A-03			
			ATMOS DRAG DEN TABLES, FICHE	66-044A-03A	12/23/66	08/25/71	15
AE-C	12/16/73			73-101A			
		BARTH	AE-C, UV NITRIC OXIDE EXP.(UVNO)	73-101A-13			
			NITRIC OXIDE DATA, TAPE	73-101A-13A	12/16/73	12/11/78	15
			ULTRAVIOLET NITRIC OXIDE, MFILM	73-101A-13B	12/19/73	09/23/75	16
		BRACE	AE-C, CYL.ELECTROST.PROBE (CEP)	73-101A-01			
			CEP DATA, TAPE	73-101A-01A	12/16/73	12/11/78	16
			CYLIND.ELECTROST.PROBE DATA,MFILM	73-101A-01B	12/19/73	09/23/75	16
		BRINTON	AE-C,BENNETT ION MASS SPEC.(BIMS)	73-101A-11			
			ION MASS SPECTROMETER DATA, TAPE	73-101A-11A	12/16/73	12/11/78	16
			BENNET ION-MASS SPEC., MFILM	73-101A-11B	12/19/73	09/23/75	16
		CHAMPION	AE-C, TRI.-AX.ACC.SYS.(MESA)	73-101A-02			
			MESA DENSITY DATA, TAPE	73-101A-02A	12/16/73	12/11/78	16
			MESA DENSITY DATA, MFILM	73-101A-02B	12/19/73	09/23/75	17
		DOERING	AE-C, PHOTOELECT.SPEC.(PES)	73-101A-03			
			PES DATA, TAPE	73-101A-03A	12/16/73	12/11/78	17
			PHOTOELEC. SPEC. DATA, MFILM	73-101A-03B	12/19/73	09/23/75	17
		HANSON	AE-C, RETARD POT'L ANALYZER (RPA)	73-101A-04			
			RPA DATA, TAPE	73-101A-04A	12/16/73	12/11/78	17
			RET POTENTIAL ANALYZER, MFILM	73-101A-04B	12/19/73	09/23/75	18
		HAYS	AE-C, VISIBLE AIRGLOW EXP.(VAE)	73-101A-14			
			VISIBLE AIRGLOW DATA, TAPE	73-101A-14A	12/16/73	12/11/78	18
			VISIBLE AIRGLOW DATA, MFILM	73-101A-14B	12/19/73	09/23/75	18
		HEATH	AE-C,EXTREME SOL.UV MONITOR(ESUM)	73-101A-05			
			SOLAR FLUX MEASUREMENTS, FICHE	73-101A-05B	03/14/74	11/27/74	18
			ABS. U.V. SOLAR FLUX, FICHE	73-101A-05C	12/20/73	12/31/73	18
		HINTEREGGER	AE-C, SOLAR EUV SPECTROM.(EUVS)	73-101A-06			
			EUV ABSORPTION DATA, TAPE	73-101A-06B	02/02/74	02/26/74	19
		HOFFMAN	AE-C, MAG.ION MASS SPEC.(MIMS)	73-101A-10			
			MAG. ION MASS SPEC DATA, TAPE	73-101A-10A	12/16/73	12/11/78	19
			MAG ION MASS SPECTROMETER, MFILM	73-101A-10B	12/19/73	09/23/75	19
		HOFFMAN	AE-C, LOW ENERGY ELECT.EXP.(LEE)	73-101A-12			
			LEE DATA, TAPE	73-101A-12A	12/16/73	12/11/78	19
			LOW ENERGY ELECTRON DATA, MFILM	73-101A-12B	12/19/73	09/23/75	19
		NIER	AE-C, OPEN SOURCE SPECT.(OSS)	73-101A-07			
			OP.SOURCE-NEUT.M.S.DATA, TAPE	73-101A-07A	12/16/73	12/11/78	20
			OPEN SOURCE SPECTROMETER, MFILM	73-101A-07B	12/19/73	09/23/75	20
		PELZ	AE-C, NEUT.ATMOS.COMP.EXP.(NACE)	73-101A-08			
			CL.SOURCE-NEUT.M.S.DATA, TAPE	73-101A-08A	12/16/73	12/11/78	20
			NEUT ATMS COMP DATA, MFILM	73-101A-08B	12/19/73	09/23/75	20
		SPENCER	AE-C, NEUT.ATMOS.TEMP.EXP.(NATE)	73-101A-09			
			NEUT.ATMOS.TEMP.AND COMP., TAPE	73-101A-09A	12/16/73	12/11/78	20
			NEUT ATMOS TEMP-COMP DATA, MFILM	73-101A-09B	12/19/73	09/23/75	21
AE-D	10/06/75			75-096A			
		BARTH	AE-D, UV NITRIC OXIDE EXP.(UVNO)	75-096A-11			
			NITRIC OXIDE DATA, TAPE	75-096A-11A	10/06/75	01/29/76	21
		BRACE	AE-D, CYL.ELECTROST.PROBE (CEP)	75-096A-01			
			CEP DATA, TAPE	75-096A-01A	10/06/75	01/29/76	21
		CHAMPION	AE-D, TRI-AX.ACC.SYS. (MESA)	75-096A-02			
			MESA DENSITY DATA, TAPE	75-096A-02A	10/06/75	01/29/76	21
		DOERING	AE-D, PHOTOELECT.SPEC.(PES)	75-096A-03			
			PES DATA, TAPE	75-096A-03A	10/06/75	01/29/76	22
		HANSON	AE-D, RETARD POT'L ANALYZER (RPA)	75-096A-04			
			RPA DATA, TAPE	75-096A-04A	10/06/75	01/29/76	22
		HAYS	AE-D, VISIBLE AIRGLOW EXP.(VAE)	75-096A-13			
			VISIBLE AIRGLOW DATA, TAPE	75-096A-13A	10/06/75	01/29/76	22
		HEDIN	AE-D, NEUT.ATMOS.COMP.EXP.(NACE)	75-096A-08			
			NACE DATA, TAPE	75-096A-08A	10/06/75	01/29/76	22

SPACECRAFT NAME	LAUNCH DATE	INVESTIGATOR NAME	EXPERIMENT NAME / DATA SET NAME	NSSDC ID	DATA SET INFORMATION: TIME SPAN OF DATA		PAGE
		HOFFMAN	AE-D, MAG.ION MASS SPEC.(MIMS)	75-096A-10			
			MAG.ION MASS SPEC DATA, TAPE	75-096A-10A	10/06/75	01/29/76	23
		HOFFMAN	AE-D,LOW ENERGY ELECTRON EXP(LEE)	75-096A-12			
			LEE DATA, TAPE	75-096A-12A	10/06/75	01/29/76	23
		NIER	AE-D, OPEN SOURCE SPEC.(OSS)	75-096A-07			
			OP.SOURCE-NEUT.M.S.DATA, TAPE	75-096A-07A	10/06/75	01/29/76	23
		SPENCER	AE-D, NEUT.ATMOS.TEMP.EXP.(NATE)	75-096A-09			
			NEUT.ATMOS.TEMP.AND COMP., TAPE	75-096A-09A	10/06/75	01/29/76	23
AE-E	11/20/75			75-107A			
		BRACE	AE-E,CEP-CYL ELECTROSTATIC PROBE	75-107A-01			
			CEP DATA, TAPE	75-107A-01A	11/21/75	06/07/81	24
		BRINTON	AE-E,RENNETT ION MASS SPEC.(BIMS)	75-107A-10			
			BIMS DATA, TAPE	75-107A-10A	11/21/75	06/07/81	24
		CHAMPION	AE-E, TRI-AX.ACC.SYS. (MESA)	75-107A-02			
			MESA DATA, TAPE	75-107A-02A	11/21/75	06/07/81	24
		DOERING	AE-E,PES-PHOTOELECT SPECTROMETER	75-107A-03			
			PES DATA, TAPE	75-107A-03A	11/21/75	06/07/81	24
		HANSON	AE-E,RPA-RETARDING POTENT ANAL	75-107A-04			
			RPA DATA, TAPE	75-107A-04A	11/21/75	06/07/81	25
		HAYS	AE-E, VISIBLE AIRGLOW EXP (VAE)	75-107A-11			
			VAE DATA, TAPE	75-107A-11A	11/21/75	06/07/81	25
		HEATH	AE-E, EXTRM SOLAR UV MONIT (ESUM)	75-107A-05			
			SOLAR FLUX MEASUREMENTS, FICHE	75-107A-05F	12/03/75	09/24/76	25
			ABS. UV SOLAR FLUX, FICHE	75-107A-05C	12/20/73	12/31/73	25
		HEDIN	AE-E, NEUT.ATMOS.COMP.EXP.(NACE)	75-107A-08			
			NACE DATA, TAPE	75-107A-08A	11/21/75	06/07/81	26
		HINTEREGGER	AE-E, SOLAR EUV SPEC. (EUVS)	75-107A-06			
			EUV ABSORPTION DATA, TAPE	75-107A-06B	12/27/74	12/30/75	26
			EUVS SOLAR-FLUX DATA, TAPE	75-107A-06C	04/03/77	09/28/82	26
		NIER	AE-E, OPEN SOURCE SPECTROM.(OSS)	75-107A-07			
			OSS DATA, TAPE	75-107A-07A	11/21/75	06/07/81	26
		SPENCER	AE-E, NEUT.ATMOS.TEMP.EXP.(NATE)	75-107A-09			
			NATE DATA, TAPE	75-107A-09A	11/21/75	06/07/81	26
AEROS	12/16/72			72-100A			
		SCHMIDTKE	AEROS, SOLAR EUV RADIATION	72-100A-04			
			EUV SPECTRA DATA, TAPE	72-100A-04A	12/23/72	08/05/73	27
		SPENCER	AEROS,NEUTRAL DEN.AND TEMPERATURE	72-100A-05			
			NEUT TEMP + DENSITY DATA, MFILM	72-100A-05A	12/26/72	08/09/73	27
		SPENNER	AEROS, RETARDING POTENT ANALYZER	72-100A-02			
			RPA PLASMA MEASURMNT, TAPE	72-100A-02A	01/04/73	08/03/73	27
AEROS 2	07/16/74			74-055A			
		NEUKE	AEROS 2, IMPEDANCE PROBE	74-055A-03			
			ELECTRON DENSITY DATA, TAPE	74-055A-03A	07/23/74	09/25/75	27
		SCHMIDTKE	AEROS 2, EUV SPECTROMETER	74-055A-04			
			EUV SPECTRA DATA, TAPE	74-055A-04A	07/21/74	07/03/75	27
		SPENNER	AEROS 2, RETARDING POT ANALYZER	74-055A-02			
			RPA PLASMA MEASURMNT, TAPE	74-055A-02A	07/20/74	09/04/75	27
ALOUETTE 1	09/29/62			62-049A			
			TIME CHARTS, TAPE	62-049A-00D	09/29/62	12/18/68	28
			EXTENDED WORLD MAPS, TAPE	62-049A-00E	12/03/67	02/28/72	28
			TIME CHARTS, FICHE	62-049A-00F	09/29/62	12/31/65	28
			INDEX OF AVAILABLE DATA, TAPE	62-049A-00G	01/01/66	12/31/67	29
			CRPL EXTENDED WORLD MAPS, MFILM	62-049A-00H	09/29/62	08/30/64	29
			INDEX OF AVAILABLE DATA, FICHE	62-049A-00I	01/01/66	12/31/68	29
			GSFC ORBITAL ELEMENTS, TAPE	62-049A-00J	10/07/62	02/13/72	29
		BELROSE	ALOUETTE 1,VLF RECEIVER	62-049A-03			
			VLF SPECTROGRAMS, MFILM	62-049A-03A	11/29/62	6/ /77	29
		HARTZ	ALOUETTE 1,RADIO ASTRO,1.5-10MHZ	62-049A-04			
			COSMIC RADIO NOISE-AGC LEV.,MFILM	62-049A-04A	09/29/62	11/30/70	29
		MCDIARMID	ALOUETTE 1,ENERGETIC PART. DETECT	62-049A-02			
			E GT 40-,P GT 500KEV 10S AV,TAPE	62-049A-02A	09/29/62	03/16/64	29
		WARREN	ALOUETTE 1, SWEEP FREQ SOUNDER	62-049A-01			
			SWEEP-FREQUENCY IONOGRAMS, MFILM	62-049A-01A	09/29/62	11/30/70	29
			ALOSYN-SCALED DATA, MFILM	62-049A-01F	09/29/62	08/31/64	29
			ALOSYN-SCALED DATA, TAPE	62-049A-01C	09/29/62	06/30/67	29
			RRS N(H) INT PROFILES, FICHE	62-049A-01E	11/26/62	07/31/63	29
			ORTE N(H) SCALED PROFILES, FICHE	62-049A-01F	09/30/62	07/28/68	30
			ARC N(H)+M SUMMARIES, TAPE	62-049A-01I	10/31/62	01/27/64	30
			ARC N(H)+M INT PROFILES, FICHE	62-049A-01J	11/01/62	01/29/64	30
			ALOSYN-SCALED DATA, FICHE	62-049A-01K	09/29/62	12/31/68	30
			CRC N(H) INT PROFILES, FICHE	62-049A-01L	09/30/62	07/28/68	30
			NSSDC IONOGRAM INVENTORY,TAPE	62-049A-01O	09/29/62	12/30/70	30
			UCLA N(H) INT PROFILES,TAPE	62-049A-01P	09/30/62	08/00/64	31
			CRC INDEX OF DUCTED ECHOES, TAPE	62-049A-01Q	12/01/62	12/31/68	31
			RSRS N(H) INT PROFILES, MFILM	62-049A-01R	10/03/62	08/04/68	31
			SOUNDER AGC VS TIME PLOTS, MFILM	62-049A-01S	01/21/63	04/27/64	31
			CRC N(H) DATA,SCALED POINTS,TAPE	62-049A-01T	09/29/62	07/30/68	31
			CRC N(H) DATA, N + MGT COEF, TAPE	62-049A-01U	11/19/62	11/06/71	31
ALOUETTE 2	11/29/65			65-098A			
			EXTENDED WORLD MAPS, TAPE	65-098A-00D	08/06/67	03/31/73	32
			CRC INDEX OF DATA AVAILABLE, TAPE	65-098A-00E	11/29/65	12/31/68	32
			CRC INDEX OF DATA AVAILABLE,FICHE	65-098A-00F	11/29/65	12/31/68	32
			GSFC ORBITAL ELEMENTS, TAPE	65-098A-00G	12/06/65	07/21/73	32
		BELROSE	ALOUETTE 2,VLF RECEIVER	65-098A-02			
			VLF SPECTROGRAMS, MFILM	65-098A-02A	12/00/65	06/00/73	32
			KASHIMA VLF DATA, BOOK	65-098A-02B	02/25/71	09/26/71	32
		BRACE	ALOUETTE 2,LANGMUIR PROBE	65-098A-05			
			ELECTRON DENSITY + TEMP, TAPE	65-098A-05A	02/21/66	11/13/67	32
			ELECTRON DENSITY + TEMP, MFILM	65-098A-05B	02/21/66	11/13/67	33
			ELECT DENSITY + TEMP PLOTS, MFILM	65-098A-05C	02/21/66	03/01/67	33
		HARTZ	ALOUETTE 2,RADIO NOISE,.2-13.5MHZ	65-098A-03			
			COSMIC RADIO NOISE-AGC LEV.,MFILM	65-098A-03A	11/29/65	06/00/73	33
			COSMIC RADIO NOISE-SUMMARY, MFILM	65-098A-03B	06/30/66	07/01/69	33
			COSMIC RADIO NOISE, HC ROLLS	65-098A-03C	06/30/66	07/01/69	33
		MCDIARMID	ALOUETTE 2,ENERGETIC PART. DETECT	65-098A-04			
			COUNT RATE DATA, TAPE	65-098A-04A	11/29/65	08/15/68	33

SPACECRAFT NAME	LAUNCH DATE	INVESTIGATOR NAME	EXPERIMENT NAME / DATA SET NAME	NSSDC ID	DATA SET INFORMATION: TIME SPAN OF DATA		PAGE
			PARTICLE BOUNDARY DATA, TAPE	65-098A-04B	11/29/65	06/18/69	33
		WARREN	ALOUETTE 2, SWEEP FREQ SOUNDER	65-098A-01			
			SWEEP-FREQUENCY IONOGRAMS, MFILM	65-098A-01A	11/29/65	01/31/75	34
			RRL N(H)+H INT PROFILES, FICHE	65-098A-01D	10/12/66	12/27/68	34
			ERC INDEX OF DUCTED ECHOES, TAPE	65-098A-01E	12/01/65	04/21/69	34
			ERC DUCTED ECHOES,8X10-IN. PRINTS	65-098A-01F	12/01/65	04/21/69	34
			CRR N(H) INT PROFILES, MFICHE	65-098A-01G	12/15/65	03/09/70	34
			CRC N(H) SCALED PROFILES, MFICHE	65-098A-01H	12/15/65	03/09/70	34
			NSSDC IONOGRAM INVENTORY,TAPE	65-098A-01I	11/29/65	04/23/73	35
			ARC N(H) INT PROFILES,PACKED TAPE	65-098A-01J	11/29/65	06/08/72	35
			ARC N(H) INT PROFILES, MFILM	65-098A-01K	11/29/65	03/11/70	35
			CRC INDEX OF DUCTED ECHOES, TAPE	65-098A-01N	11/29/65	10/30/71	35
			CRC N(H) DATA, N + HGT COEF, TAPE	65-098A-01O	12/15/65	07/10/72	35
			RSRS N(H) INT PROFILES, MFILM	65-098A-01P	12/12/65	06/11/68	35
			SOUNDER AGC VS TIME PLOTS, MFILM	65-098A-01Q			36
ARIEL 1	04/26/62			62-015A			
		ELLIOT	ARIEL 1,COSMIC RAY DETECTOR	62-015A-03			
			CERENKOV, GEIGER OR DATA, TAPE	62-015A-03A	04/27/62	07/10/62	36
		SAYERS	ARIEL 1,RF CAPACITANCE PROBE	62-015A-01			
			ELECTRON DENSITY, TAPE	62-015A-01A	04/27/62	07/08/62	36
			ELECTRON DENSITY, MFILM	62-015A-01B	04/27/62	07/08/62	36
ARIEL 3	05/05/67			67-042A			
		KAISER	ARIEL 3,VLF RF RECEIVERS	67-042A-05			
			VLF RECEIVER DATA, MFILM	67-042A-05A	05/05/67	08/30/67	36
			VLF SIGNAL STRENTH AT 3 FREQ,TAPE	67-042A-05B	05/05/67	04/14/68	36
		MURPHY	ARIEL 3,H.F. THUNDERSTORM NOISE	67-042A-04			
			THUNDERSTORM NOISE, TAPE	67-042A-04A	05/05/67	04/14/68	36
			PLOTS TSTM NOISE VS. LAT, MFILM	67-042A-04H	05/05/67	04/14/68	37
		SAYERS	ARIEL 3,LANGMUIR PROBE	67-042A-01			
			ELECTRON TEMPERATURES, TAPE	67-042A-01A	05/05/67	10/12/67	37
			ELECTRON TEMP PLOTS, MFILM	67-042A-01B	05/05/67	04/14/68	37
			ELECT DENSITY + TEMP PLOTS, MFILM	67-042A-01C	05/05/67	04/15/68	37
			ELECT DENSITY + TEMP LISTS, MFILM	67-042A-01D	05/06/67	10/31/67	37
		SAYERS	ARIEL 3, RF CAPACITANCE PROBE	67-042A-06			
			PLASMA FREQUENCY VALUES, TAPE	67-042A-06A	05/05/67	04/14/68	37
			PLASMA FREQ PLOTS, MFILM	67-042A-06B	05/05/67	04/14/68	37
		STEWART	ARIEL 3,MOLECULAR OXYGEN	67-042A-03			
			MOL OXY VOLT OUTPUT, TAPE	67-042A-03A	05/05/67	01/12/68	38
			MOL OXY DEN PROFILES, MFILM	67-042A-03B	05/05/67	11/21/67	38
ARIEL 4	12/11/71			71-109A			
		FRANK	ARIEL 4,LOW-ENERGY CHARGED PART.	71-109A-04			
			LOW EN. CHARG. PART. DATA, TAPE	71-109A-04A	12/01/71	12/09/73	38
		KAISER	ARIEL 4,VLF/ELF PROPAGATION	71-109A-03			
			VLF/ELF PROPAG. DATA, TAPE	71-109A-03A	12/01/73	12/09/73	38
		SMITH	ARIEL 4,MHZ BAND RADIO NOISE(E-F)	71-109A-02			
			MHZ RADIO NOISE DATA, TAPE	71-109A-02A	12/01/71	12/09/73	38
		WILLMORE	ARIEL 4,LANGMUIR PROBE	71-109A-01			
			LANGMUIR PROBE DATA, TAPE	71-109A-01A	12/01/71	12/09/73	38
COSMOS 49	10/24/64			64-069A			
		DOLGINOV	COSMOS 49,PROT.PRECS.MAGNETOMTR	64-069A-01			
			SCALAR MAG. FIELD DATA, MFILM	64-069A-01A	10/24/64	11/03/64	39
			MAGNETOMETER DATA, TAPE	64-069A-01C	10/24/64	11/03/64	39
COSMOS 321	01/22/70			70-006A			
		DOLGINOV	COSMOS 321,MAGNETOMETER	70-006A-01			
			SCALAR MAG FIELD LIST., FICHE	70-006A-01A	02/08/70	03/13/70	39
DISCOVERER 25	06/16/61			61-014A			
		MCISAAC	DISCOVERER 25,AEROSPACE DENSITY	61-014A-03			
			DENSITY GAUGE DATA, MFILM	61-014A-03A	06/18/61	06/18/61	39
DME-A	11/29/65			65-098B			
		DONLEY	DME-A,THERMAL ION PROBE	65-098B-01			
			THERMAL ION PROBE DATA, MFILM	65-098B-01A	12/14/65	06/02/69	39
			TABULATED MEASUREMENTS, MFILM	65-098B-01B	01/01/66	06/09/69	40
			PARTIALLY RDCD MEASUREMENTS,MFILM	65-098B-01C	12/25/65	08/31/67	40
		DONLEY	DME-A, THERMAL ELECTRON PROBE	65-098B-06			
			THERMAL ELECTRON PROBE DATA,MFILM	65-098B-06A	12/14/65	06/02/69	40
			TABULATED MEASUREMENTS, MFILM	65-098B-06C	01/06/66	06/09/69	40
			PARTIALLY RDCD MEASUREMENTS,MFILM	65-098B-06D	12/14/65	06/09/69	40
		HOFFMAN	DME-A,MAGNETIC ION MASS SPECT	65-098B-05			
			ION COMP. + DENSITY PLOTS, MFILM	65-098B-05A	12/01/65	03/03/69	40
			ION COMP. + DENSITY MEAS., TAPE	65-098B-05B	12/01/65	03/03/69	41
			INDEX OF ION DENSITY DATA, MFILM	65-098B-05C	12/01/65	03/03/69	41
		MAIER	DME-A,ENERGETIC ELECTRON CURR MON	65-098B-07			
			RETARD. POT. ANAL. DATA, MFILM	65-098B-07A	12/02/65	03/06/68	41
ESRO 4	11/22/72			72-092A			
		RAITT	ESRO 4,POSITIVE-ION SPECTRMTR,S45	72-092A-01			
			POS.ION DATA, TAPE	72-092A-01A	11/22/72	04/14/74	41
EXPLORER 1	02/01/58			58-001A			
		JACCHIA	EXPLORER 1, ATMOS DRAG DENSITY	58-001A-03			
			ATMOS DRAG DEN TABLES, FICHE	58-001A-03A	02/01/58	03/21/70	41
		MANRING	EXPLORER 1, MICROMETEORITE	58-001A-02			
			TRANSDUCER DATA, FICHE	58-001A-02A	02/01/58	02/12/58	41
			WIRE GRID DATA, FICHE	58-001A-02B	02/01/58	04/01/58	41
		VAN ALLEN	EXPL 1, ENERGETIC PARTICLES EXP	58-001A-01			
			ANTON 314 GM COUNTS, FICHE	58-001A-01A	02/01/58	03/15/58	42
			TAB OF ANTON 314 GM COUNTS, MFILM	58-001A-01B	02/01/58	03/15/58	42
EXPLORER 4	07/26/58			58-005A			
		VAN ALLEN	EXPL 4,CHARGED PARTICLE DETECTOR	58-005A-01			
			ST. ORDERED UCSD COUNT RATE, TAPE	58-005A-01A	07/26/58	09/21/58	42
			TIME ORDERED COUNT RATES, TAPE	58-005A-01B	07/26/58	09/21/58	42
			COUNT RATES-RECAL. 9 AND L, TAPE	58-005A-01C	07/26/58	09/21/58	42
EXPLORER 7	10/13/59			59-009A			
		POMERANTZ	EXPL 7,HEAVY PRIMARY COSMIC RAY	59-009A-03			
			ION CHAMBER COUNTS, TAPE	59-009A-03A	10/13/59	05/31/60	42
		SUOMI	EXP 7,THERMAL RADIATION	59-009A-01			
			WHITE SENSOR TEMP(NIGHT), TAPE	59-009A-01A	11/15/59	05/24/60	43
			ALL SENSOR TEMP, TAPE	59-009A-01B	10/19/59	06/04/60	43

SPACECRAFT NAME	LAUNCH DATE	INVESTIGATOR NAME	EXPERIMENT NAME / DATA SET NAME	NSSDC ID	DATA SET INFORMATION: TIME SPAN OF DATA		PAGE
		VAN ALLEN	EXPL 7,RADIATION+SOLAR PROTON	59-009A-04			
			RADIATION+SOLAR PROTON DATA, TAPE	59-009A-04A	10/13/59	02/28/61	43
EXPLORER 8	11/03/60			60-014A			
		JACCHIA	EXPLORER 8,ATMOS DRAG DENSITY	60-014A-07			
			ATMOS DRAG DEN TABLES, FICHE	60-014A-07A	11/07/60	03/20/70	43
EXPLORER 9	02/16/61			61-004A			
		O'SULLIVAN, JR.	EXP 9, ATMOSPHERIC DRAG	61-004A-01			
			ATMOS DRAG DEN TABLES, FICHE	61-004A-01A	02/17/61	04/09/64	43
FR 1	12/06/65			65-101A			
		STOREY	FR 1,VLF RECEIVER	65-101A-01			
			QUICK-LOOK VLF MAG FLD DATA,MFILM	65-101A-01A	12/07/65	08/01/68	43
GRS-A	11/08/69			69-097A			
		HOVESTADT	GRS-A,P.+A. TELE. 1.4-100MEV,EI88	69-097A-02			
			PARTICLE COUNT RATES, TAPE	69-097A-02A	11/16/69	03/15/70	43
		HOVESTADT	GRS-A, PROTON-ELECTRON DET., EI93	69-097A-04			
			PARTICLE COUNT RATES, TAPE	69-097A-04A	11/25/69	03/15/70	44
		MORITZ	GRS-A,PROTON TELE.0.2-20.MEV,EI92	69-097A-03			
			PROTON + ALPHA COUNT RATES, TAPE	69-097A-03A	11/10/69	06/28/70	44
			COUNT RATE,FLUX,ORBIT PLOTS,MFILM	69-097A-03B	11/09/69	06/28/70	44
			P,A COUNT RATE,P FLUXES, MFILM	69-097A-03C	11/10/69	06/26/70	44
			PROTON,ALPHA CT RATE+FLUX, MFILM	69-097A-03D	11/08/69	06/28/70	44
		MUSMANN	GRS-A,2 FLX-GT MAGNETOMETERS,EI15	69-097A-01			
			10-SEC MAG FLD VECTORS, TAPE	69-097A-01A	11/08/69	06/28/70	45
IE-A	08/25/64			64-051A			
		KNECHT	IE-A,FIXED FREQ IONOSONDE	64-051A-01			
			FF IONOGRAMS,CHRONOLOGICAL,MFILM	64-051A-01A	08/25/64	12/29/65	45
			FF IONOGRAMS, SGP AND WNK, MFILM	64-051A-01C	08/27/64	12/22/65	45
			NSSDC FF IONOGRAM INVENTORY,TAPE	64-051A-01D	08/25/64	12/22/65	45
INJUN 1	06/29/61			61-015B			
		POSTROM	INJUN 1-GREB 3, SILICON PN JUNT.	61-015B-06			
			P-N COUNTS, TAPE	61-015B-06A	06/30/61	08/31/62	45
		FRANK	INJUN 1-GREB 3, GEIGER COUNTER	61-015B-01			
			TAB. OF GM COUNTS, FICHE	61-015B-01A	06/29/61	08/12/62	45
			GM COUNTS, TAPE	61-015B-01B	06/30/61	08/31/62	45
		FREEMAN	INJUN 1-GREB 3, CDS DETECTOR	61-015B-02			
			DETECTOR COUNT RATES, TAPE	61-015B-02A	06/30/61	08/31/62	46
		KREPLIN	INJUN 1-GREB3,2-20A X-RAY DET.	61-015B-07			
			2-20A FLUXES, FICHE	61-015B-07A	06/29/61	12/14/61	46
		LAUGHLIN	INJUN 1-GREB 3, GM SPECTROMETER	61-015B-03			
			ELECTRON COUNT RATES, TAPE	61-015B-03A	06/30/61	08/31/62	46
		VAN ALLEN	INJUN 1-GREB 3,FLUXGATE MAGNETOM.	61-015B-05			
			MAGNETOMETER DATA, TAPE	61-015B-05A	06/30/61	08/31/62	46
INJUN 3	12/13/62			62-067B			
		GURNETT	INJUN 3,VLF DETECTORS	62-067B-09			
			VLF REC SIG STRENGTH, TAPE	62-067B-09A	12/25/62	10/25/63	46
		JACCHIA	INJUN 3, ATMOS DRAG DENSITY	62-067B-13			
			ATMOS DRAG DENSITY TABLES, FICHE	62-067B-13A	12/15/62	04/15/67	46
		O'BRIEN	INJUN 3,PROTON-ELECTRON DETECTORS	62-067B-01			
			SOLAR SOFT X-RAY, FICHE	62-067B-01A	12/20/62	10/13/63	46
			GM COUNTS, TAPE	62-067B-01B	12/14/62	10/28/63	47
			PARTICLE FLUX PLOTS, MFILM	62-067B-01C	01/01/63	10/20/63	47
		O'BRIEN	INJUN 3, PULSE SCINTILLATOR	62-067B-02			
			SCINT. COUNTS, TAPE	62-067B-02A	12/14/62	10/28/63	47
		O'BRIEN	INJUN 3,MAG.DIFFRNTIAL-ELEC.SPEC.	62-067B-03			
			ELECTRON COUNT, TAPE	62-067B-03A	12/14/62	10/28/63	47
			DETECTOR FLUX PLOTS, MFILM	62-067B-03B	01/01/63	05/15/63	47
		O'BRIEN	INJUN 3,INTEGRAL MAG ELECTN SPECT	62-067B-04			
			ELEC COUNT(STARFISH), TAPE	62-067B-04A	12/14/62	10/25/63	47
		O'BRIEN	INJUN 3, D.C. SCINTILLATOR	62-067B-05			
			D.C. SCINT. COUNTS, TAPE	62-067B-05A	12/14/62	10/31/63	48
		O'BRIEN	INJUN 3, ELECTRON MULTIPLIER	62-067B-06			
			ELECTRN MULTIP COUNT, TAPE	62-067B-06A	12/14/62	10/25/63	48
		O'BRIEN	INJUN 3, PROTON SPECTROMETER	62-067B-07			
			P-N COUNTS, TAPE	62-067B-07A	12/14/62	10/31/63	48
		O'BRIEN	INJUN 3,AURORA AIRGLOW PHOTOMETER	62-067B-08			
			PHOTOMETER COUNT, TAPE	62-067B-08A	12/14/62	10/28/63	48
INJUN 4	11/21/64			64-076B			
		VAN ALLEN	INJUN 4,GM DETECTORS (7)	64-076B-03			
			GM COUNTS, TAPE	64-076B-03A	02/13/65	07/19/66	48
		VAN ALLEN	INJUN 4,P-NJUNCTION DETECTOR	64-076B-04			
			P-N COUNTS, TAPE	64-076B-04A	02/13/65	07/19/66	48
			PROTON COUNT RATE PLOTS, MFILM	64-076B-04B	11/23/64	07/19/66	48
		VAN ALLEN	INJUN 4,CDS DETECTOR	64-076B-05			
			CDS COUNTS, TAPE	64-076B-05A	02/13/65	07/19/66	49
		VAN ALLEN	INJUN 4,PLASTIC SCINTILLATORS	64-076B-06			
			SCINTILLATOR COUNTS, TAPE	64-076B-06A	02/13/65	07/19/66	49
INJUN 5	08/08/68			68-066B			
		FRANK	INJUN 5,L ENGR PR+EL DIFFEANAL	68-066B-01			
			LEPEDEA COUNT RATES, TAPE	68-066B-01A	08/09/68	05/29/70	49
		GURNETT	INJUN 5,VLF RECEIVER,30CPS-16KC	68-066B-02			
			VLF SIGNAL STRENGTH, TAPE	68-066B-02A	08/09/68	05/29/70	49
		SAGALYN	INJUN 5,SPHERIC.RET.POT.ANAL	68-066B-04			
			RET. POT. AN. DATA, TAPE	68-066B-04A	08/09/68	05/29/70	49
		VAN ALLEN	INJUN 5,S.S.DET.(PROTON,ELEC.)	68-066B-03			
			S.S.PROT.AND ELECT.CNT.RATE, TAPE	68-066B-03A	08/09/68	05/29/70	49
			1E-S AVG COUNT RATES, TAPE	68-066B-03B	08/29/68	05/30/70	50
ISIS 1	01/30/69			69-009A			
			EXTENDED WORLD MAPS, TAPE	69-009A-00D	06/06/69	10/19/73	50
			GSFC ORBITAL ELEMENTS, TAPE	69-009A-00E	02/07/69	01/23/75	50
		BARRINGTON	ISIS 1, VLF EXPERIMENT	69-009A-03			
			VLF SPECTROGRAMS, MFILM	69-009A-03A	01/30/69	00/00/75	50
			KASHIMA AND SYOWA VLF DATA, BOOK	69-009A-03B	11/21/72	02/09/82	50
		BRACE	ISIS 1,CYL. ELECTROSTATIC PROBE	69-009A-07			
			ELECTRON DENSITY + TEMP, TAPE	69-009A-07A	01/30/69	06/01/71	50
			ELECTRON DENSITY + TEMP, FICHE	69-009A-07B	01/30/69	06/01/71	50
			ELECT DENSITY + TEMP PLOTS, FICHE	69-009A-07D	01/30/69	06/05/70	51

SPACECRAFT NAME	LAUNCH DATE	INVESTIGATOR NAME	EXPERIMENT NAME / DATA SET NAME	NSSDC ID	DATA SET INFORMATION: TIME SPAN OF DATA		PAGE
		CALVERT	ISIS 1,FIXED FREQ SOUNDER	69-009A-02			
			FIXED-FREQ IONOGRAMS, MFILM	69-009A-02A	01/30/69	10/12/73	51
		HARTZ	ISIS 1,COSMIC RADIO NOISE	69-009A-10			
			COSMIC RADIO NOISE-AGC LEV.,MFILM	69-009A-10A	01/30/69	10/12/73	51
		HEIKKILA	ISIS 1,SOFT PARTICLE SPECTROMETER	69-009A-05			
			SOFT PARTICLE SPECTROGRAMS, MFILM	69-009A-05A	02/03/69	10/27/69	51
		MCDIARMID	ISIS 1,ENERGETIC PART.DETECTORS	69-009A-04			
			ELECTRON + PROTON DATA, TAPE	69-009A-04A	02/02/69	12/29/69	51
		NELMS	ISIS 1, SWEEP FREQ SOUNDER	69-009A-01			
			SWEEP-FREQUENCY IONOGRAMS, MFILM	69-009A-01A	03/16/69	12/30/81	52
			NSSDC IONOGRAM INVENTORY, TAPE	69-009A-01B	01/30/69	10/12/73	52
			ARC N(H) INT PROFILES, TAPE	69-009A-01C	02/13/69	06/07/72	52
			CRC INDEX OF DUCTED ECHOES, TAPE	69-009A-01E	02/01/69	12/27/71	52
			CRC N(H) SCALED PROFILES, TAPE	69-009A-01F	02/01/69	05/30/80	52
			SOUNDER AGC VS TIME PLOTS, MFILM	69-009A-01G			52
		SAGALYN	ISIS 1,SPHER. ELECTRO. ANALYZER	69-009A-08			
			ION DENSITY, MFILM	69-009A-08A	01/31/69	11/20/69	53
			ION TEMP AND DENSITY, TAPE	69-009A-08B	01/31/69	11/30/69	53
ISIS 2	04/01/71			71-024A			
			EXTENDED WORLD MAPS, TAPE	71-024A-00D	04/01/71	10/24/73	53
			GSFC ORBITAL ELEMENTS, TAPE	71-024A-00E	04/08/71	01/23/75	53
			EXP OPERATION LOG, TAPE	71-024A-00F	12/01/71	12/31/74	53
			EXP OPERATION LOG, MFILM	71-024A-00G	01/01/81	12/31/82	53
			EXP OPERATION LOG (PLOTS), MFILM	71-024A-00H	12/01/71	06/30/76	53
			COORD. ISIS 2 OBSERVATIONS, BOOK	71-024A-00I	10/22/71	08/02/72	53
		ANGER	ISIS 2, 3914-5577 A PHOTOMETER	71-024A-11			
			3914-A AND 5577-A DATA, TAPE	71-024A-11A	04/23/71	12/31/71	54
			POLAR EMISSION PLOTS, MFILM	71-024A-11B	01/06/73	01/29/74	54
			COORD. ISIS 2 OBSERVATIONS, BOOK	71-024A-11C	10/17/71	12/13/75	54
		BARRINGTON	ISIS 2, VLF EXPERIMENT	71-024A-03			
			VLF SPECTROGRAMS, MFILM	71-024A-03A			54
			KASHIMA AND SYOWA VLF DATA, BOOK	71-024A-03B	11/08/72	05/02/82	54
			COORD. ISIS 2 OBSERVATIONS, BOOK	71-024A-03C	05/15/71	01/01/74	55
		BRACE	ISIS 2,CYLIND. ELECTROSTATIC PROB	71-024A-07			
			ELECTRON DENSITY + TEMP, TAPE	71-024A-07A	04/14/71	03/31/73	55
			ELECTRON DENSITY + TEMP, MFILM	71-024A-07B	04/14/71	03/31/73	55
			COORD. ISIS 2 OBSERVATIONS, BOOK	71-024A-07C	05/15/71	12/13/75	55
		CALVERT	ISIS 2, FIXED FREQUENCY SOUNDER	71-024A-02			
			FIXED-FREQ IONOGRAMS, MFILM	71-024A-02A	04/08/71	07/09/75	55
		HARTZ	ISIS 2,COSMIC RADIO NOISE	71-024A-10			
			COSMIC RADIO NOISE-AGC LEV, MFILM	71-024A-10A	04/08/71	11/30/73	55
		HEIKKILA	ISIS 2,SOFT PARTICLE SPECTROMETER	71-024A-05			
			SOFT PARTICLE SPECTROGRAMS, MFILM	71-024A-05A	04/21/71	04/02/73	55
			COORD. ISIS 2 OBSERVATIONS, BOOK	71-024A-05B	07/02/71	10/12/72	56
		HOFFMAN	ISIS 2,ION-MASS SPECTROMETER	71-024A-06			
			ION MASS SPECTROMETER DATA, MFILM	71-024A-06A	04/21/71	11/15/72	56
			ION MASS SPECTROMETER DATA, TAPE	71-024A-06B	04/21/71	12/31/72	56
			COORD. ISIS 2 OBSERVATIONS, BOOK	71-024A-06C	10/19/71	06/18/73	56
		MAIER	ISIS 2,RETARD. POTEN. ANALYZER	71-024A-08			
			O+,H+,HE+,AND TEMP PLOTS,MFILM	71-024A-08A	04/28/71	12/22/72	57
			O+,H+,HE+,AND TEMP LISTINGS,MFILM	71-024A-08B	04/28/71	12/22/72	57
			COORD. ISIS 2 OBSERVATIONS, BOOK	71-024A-08C	05/15/71	07/04/73	57
		MCDIARMID	ISIS 2,ENERGETIC PARTICLE DETECT.	71-024A-04			
			ELECTRON + PROTON DATA, TAPE	71-024A-04A	04/19/71	03/30/79	57
			INDEX OF PROCESSED DATA, MFILM	71-024A-04B	04/19/71	04/24/74	57
			COORD. ISIS 2 OBSERVATIONS, BOOK	71-024A-04C	07/02/71	12/13/75	57
		OHLHEBER	ISIS 2, 6300 A PHOTOMETER	71-024A-12			
			6300-A INTENSITY MAPS, TAPE	71-024A-12A	04/23/71	12/31/71	57
			POLAR EMISSION PLOTS, MFILM	71-024A-12B	01/06/73	01/29/74	58
			COORD. ISIS 2 OBSERVATIONS, BOOK	71-024A-12C	11/23/71	12/13/75	58
		WHITTEKER	ISIS 2,SWEEP FREQUENCY SOUNDER	71-024A-01			
			SWEEP-FREQUENCY IONOGRAMS, MFILM	71-024A-01A	05/28/71	06/17/83	58
			NSSDC IONOGRAM INVENTORY, TAPE	71-024A-01B	04/08/71	11/30/73	58
			ARC N(H) INT PROFILES, TAPE	71-024A-01C	04/09/71	06/07/72	58
			CRC INDEX OF DUCTED ECHOES, TAPE	71-024A-01E	04/09/71	06/22/72	59
			CRC N(H) INT PROFILES, TAPE	71-024A-01F	04/08/71	08/26/73	59
			CRC N(H) SCALED PROFILES, FICHE	71-024A-01G	04/08/71	10/13/72	59
			SOUNDER AGC VS TIME PLOTS, MFILM	71-024A-01H			59
			COORD. ISIS 2 OBSERVATIONS, BOOK	71-024A-01I	10/13/71	12/13/75	59
ISS-B	02/18/78			78-018A			
		IWAMOTO	ISS-B,BENNETT ION MASS SPECTROM	78-018A-04			
			ATLAS-H,HE,O, ION DENSITIES,FICHE	78-018A-04A	10/22/78	08/22/79	59
KYOKKO	02/04/78			78-014A			
		IWAMOTO	KYOKKO, ION MASS SPECTROMETER	78-014A-06			
			ION COMPOSITION PLOTS, MFILM	78-014A-06A	02/04/78	06/29/79	60
		MUKAI	KYOKKO,ELECTRON ENERGY ANALYZER	78-014A-02			
			ELECTRON FLUX SPECTROGRAMS, MFILM	78-014A-02A	02/04/78	06/29/79	60
		NAKAMURA	KYOKKO,UV GLOW SPECTROMETER	78-014A-05			
			ULTRAVIOLET AIRGLOW PLOTS, MFILM	78-014A-05A	02/04/78	06/29/79	60
		OYAMA	KYOKKO, ELECTRON PROBES	78-014A-01			
			ELECTRON TEMP+DENSITY PLOTS,MFILM	78-014A-01A	02/04/78	06/29/79	60
		YOSHINO	KYOKKO,ES PLASMA WAVE	78-014A-04			
			PLASMA SPECTROGRAMS,MFILM	78-014A-04A	02/04/78	06/29/79	60
MAGSAT	10/30/79			79-094A			
			ORBIT POSITION LISTING, FICHE	79-094A-00D	11/02/79	06/08/80	61
		LANGEL	MAGSAT, SCALAR MAGNETOMETER	79-094A-01			
			CHRONINT(CHRONICLE INTERMED),TAPE	79-094A-01A	11/02/79	06/10/80	61
			CHRONSC(CHRONICLE SPACECRAFT)TAPE	79-094A-01B	11/02/79	06/09/80	61
			MAGSAT ORBIT RET. SUBROUT., TAPE	79-094A-01C			61
			PURDUE MAG. FLD. ROUTINES, TAPE	79-094A-01D			61
			USER PROGRAMS, TAPE	79-094A-01E			61
			CHRONFIN (CHRONICLE FINE), TAPE	79-094A-01F	11/01/79	05/19/80	61
			INV-B (INVESTIGATOR-B) DATA, TAPE	79-094A-01G	11/02/79	06/10/80	62
			CONDENSED ORBIT/ATTITUDE, TAPE	79-094A-01H	11/02/79	05/01/80	62
			SELECT DATA FOR MODEL W/ADJ, TAPE	79-094A-01I	11/05/79	04/20/80	62
			SELECT DATA FOR FIELD MODEL, TAPE	79-094A-01J	11/05/79	04/20/80	62

SPACECRAFT NAME	LAUNCH DATE	INVESTIGATOR NAME	EXPERIMENT NAME / DATA SET NAME	NSSDC ID	DATA SET INFORMATION: TIME SPAN OF DATA		PAGE
			INVESTIG.-B QUIET TIME DATA, TAPE	79-094A-01K	11/02/79	05/20/80	62
			LATITUDE PLOTS-INT ATT, MFILM	79-094A-01L	11/02/79	06/09/80	63
			LOW-LATITUDE SCALAR ANOMALY, TAPE	79-094A-01M	11/02/79	05/16/80	63
			LOW-LAT SCALAR ANOMALY DATA,MFILM	79-094A-01N			63
			ANOMALY MAPS, 8X10-IN. NEGATIVES	79-094A-01O			63
		LANGEL	MAGSAT, VECTOR MAGNETOMETER	79-094A-02			
			CHRONINT(CHRONICLE INTERMED),TAPE	79-094A-02A	11/02/79	06/10/80	63
			CHRONSC(CHRONICLE SPACECRAFT)TAPE	79-094A-02B	11/02/79	06/09/80	63
			MAGSAT ORBIT REF. SUBROUT., TAPE	79-094A-02C			63
			PURDUE MAG. FLD. ROUTINES, TAPE	79-094A-02D			63
			LATITUDE PLOTS-INT ATT, MFILM	79-094A-02E	11/02/79	06/09/80	64
			USER PROGRAMS, TAPE	79-094A-02H			64
			CHRONFIN (CHRONICLE FINE), TAPE	79-094A-02I	11/01/79	05/19/80	64
			INV-B (INVESTIGATOR-B) DATA, TAPE	79-094A-02J	11/02/79	06/10/80	64
			CONDENSED ORBIT/ATTITUDE, TAPE	79-094A-02K	11/02/79	05/01/80	64
			LATITUDE PLOTS-FINE ATT, MFILM	79-094A-02L	11/02/79	05/19/80	64
			SELECT DATA FOR MODEL W/ADJ, TAPE	79-094A-02M	11/05/79	04/20/80	65
			SELECT DATA FOR FIELD MODEL, TAPE	79-094A-02N	11/05/79	04/20/80	65
			INVESTIG.-B QUIET TIME DATA, TAPE	79-094A-02O	11/02/79	05/20/80	65
			WHOLE-ORB PLT DELT F,X,Y,Z, MFILM	79-094A-02P	11/02/79	04/15/80	65
			WHOLE-ORB PLT DELT F,X,Y,Z, FICHE	79-094A-02Q	11/02/79	07/06/80	65
			ANOMALY MAPS, 8X10-IN. COLOR NEG	79-094A-02R			65
			65S-65N VECTOR ANOMALY PLTS,MFILM	79-094A-02S			65
MIDAS 2	05/24/60			60-006A			
	MCISAAC		MIDAS 2,AEROSPACE DENSITY	60-006A-02			
			ATMOSPHERIC DENSITY, MFILM	60-006A-02A	05/24/60	05/24/60	66
OGO 2	10/14/65			65-081A			
	ANDERSON		OGO 2, COSMIC RAY IONIZATION	65-081A-06			
			IONIZATION RATES VS INV LAT,MFILM	65-081A-06A	10/14/65	04/02/66	66
	CAIN		OGO 2,RUBIDIUM VAPOR MAGNETOMETER	65-081A-05			
			0.6-SEC MAG FLD AVRG, TAPE	65-081A-05B	10/14/65	10/30/66	66
			H FLD,DATA + GSFC 12/66 MDL,MFILM	65-081A-05C	10/14/65	01/27/67	66
			COMPRESSED MAG FLD AVG DATA, TAPE	65-081A-05E	10/14/65	10/22/66	66
			H FLD,DATA + POGO 10/68 MDL,MFILM	65-081A-05F	10/14/65	10/02/67	66
			COMPRESSED HALF SEC MAG FLD, TAPE	65-081A-05G	10/14/65	10/02/67	66
			10-SEC MAG FLD AVRG, TAPE	65-081A-05H	10/14/65	10/02/67	67
	HELLIWELL		OGO 2,VLF RECEIVERS(012-100KHZ)	65-081A-02			
			VLF SPECTROGRAMS, 35-MM PAPER	65-081A-02B	10/17/65	09/02/66	67
	KREPLIN		OGO 2,SOLAR X-RAYS	65-081A-16			
			SOLAR X-RAY PLOTS, MFILM	65-081A-16A	10/14/65	10/03/67	67
	NILSSON		OGO 2,MICROMETEORITES	65-081A-14			
			MICROMETEORITE DATA, BOOK	65-081A-14A	10/16/65	04/08/66	67
	SIMPSON		OGO 2,ENERGETIC PARTICLE SURVEY	65-081A-07			
			COSMIC-RAY COUNT RATES, TAPE	65-081A-07A	10/14/65	11/01/65	67
			COSMIC-RAY COUNT RATES, MFILM	65-081A-07B	10/15/65	12/13/65	67
	WEBBER		OGO 2,GALACTIC + SOLAR COSMIC RAY	65-081A-08			
			PARTICLE COUNT RATES, TAPE	65-081A-08A	10/15/65	10/24/65	68
			PARTICLE COUNT-RATE PLOTS, MFILM	65-081A-08B	10/15/65	10/24/65	68
OGO 4	07/24/67			67-073A			
			ORBIT ATTITUDE, TAPE	67-073A-00C	07/26/67	01/08/68	68
	ANDERSON		OGO 4,COSMIC RAY+POLAR REGION ION	67-073A-07			
			IONIZATION RATES VS INV LAT,MFILM	67-073A-07A	07/30/67	09/11/67	68
	BARTH		OGO 4, UV AIRGLOW SPECTROMETER	67-073A-14			
			OZONE PROFILES, TAPE	67-073A-14A	08/30/67	02/29/68	69
	CAIN		OGO 4,MAGNETIC FIELD SURVEY	67-073A-06			
			MAGNETIC FIELD DATA, TAPE	67-073A-06A	07/28/67	01/15/68	69
	HELLIWELL		OGO 4,VLF RECEIVER	67-073A-02			
			VLF SPECTROGRAMS, 35-MM PAPER	67-073A-02A	07/28/67	11/01/69	69
	HOFFMAN		OGO 4,LOW ENERGY AURORAL PART.	67-073A-11			
			AURORAL PARTICLE COUNT RATES,TAPE	67-073A-11A	07/30/67	01/25/69	69
			DATA ACQUISITION TIMES, MFILM	67-073A-11E	07/30/67	01/25/69	69
			SUMMARY PLOTS (FINAL), MFILM	67-073A-11F	07/30/67	01/14/69	69
			DATA ACQSTN LOCATION PLOTS, MFILM	67-073A-11G	07/30/67	01/25/68	69
	KREPLIN		OGO 4,SOLAR X-RAY	67-073A-21			
			SOLAR X-RAY PLOTS, MFILM	67-073A-21A	07/29/67	07/15/68	69
			HOURLY AVGD SOLAR X-RAY FLUX,TAPE	67-073A-21B	07/29/67	07/15/68	69
			HOURLY AVG SOLAR X-RAY FLUX,MFILM	67-073A-21C	07/29/67	07/15/68	70
			X-RAY FLUX DURING FLARES, MFILM	67-073A-21D	07/30/67	10/20/67	70
			SOLAR X-RAY FLUXES-4 BANDS, TAPE	67-073A-21E	10/02/67	07/15/68	70
	MANGE		OGO 4,GEO LYMAN ALPHA + UV AIRGLO	67-073A-13			
			AIRGLOW PLOTS, MFILM	67-073A-13A	07/29/67	02/12/68	70
	REED		OGO 4,AIRGLOW PHOTOMETER	67-073A-12			
			AIRGLOW DATA MAPS, TRANSPARENCIES	67-073A-12A	07/29/67	12/25/68	70
			AIRGLOW DATA MAPS, NEGATIVES	67-073A-12B	08/30/67	01/10/68	70
			AIRGLOW EMISSION INTENSITIES,TAPE	67-073A-12C	08/19/67	01/19/68	71
			AIRGLOW DATA MAPS BY ORBIT, MFILM	67-073A-12D	08/19/67	01/29/68	71
			SEC. BY SEC. AIRGLOW DATA, MFILM	67-073A-12E	07/29/67	12/21/69	71
			CALIBRATION DATA, MFILM	67-073A-12F	07/28/67	12/30/68	71
			DIRECTORY PLOTS, MFILM	67-073A-12G	07/29/67	07/19/69	71
			SYNOPTIC POLAR PLOTS, MFILM	67-073A-12H	07/29/67	01/31/68	71
			LATITUDE-LONGITUDE PLOTS, MFILM	67-073A-12I	08/19/67	01/29/69	72
			ELECTROMETER OUTPUT VS LAT, MFILM	67-073A-12J	08/30/67	01/16/68	72
			ZONAL AVERAGES, TAPE	67-073A-12K	07/29/67	12/21/68	72
			CALIBRATION DATA, TAPE	67-073A-12M	07/28/67	12/30/68	72
			DIRECTORY DATA, TAPE	67-073A-12N	07/29/67	11/24/69	72
			PHOTOMETER OUTPUT, TAPE	67-073A-12O	08/19/67	01/29/68	72
			SEC. BY SEC. AIRGLOW DATA, TAPE	67-073A-12P	07/29/67	10/02/68	72
			SYNOPTIC AIRGLOW DATA, TAPE	67-073A-12Q	08/01/67	01/31/68	73
	SIMPSON		OGO 4,ENERGETIC PARTICLES SURVEY	67-073A-08			
			COSMIC-RAY COUNT RATES, TAPE	67-073A-08A	07/28/67	02/02/69	73
			COSMIC-RAY COUNT RATES, MFILM	67-073A-08B	07/29/67	12/07/68	73
	TAYLOR, JR.		OGO 4,ION COMPOSITION	67-073A-16			
			ION DENSITY VS DIP LAT., HARDCOPY	67-073A-16A	07/28/67	12/29/69	73
	WEBBER		OGO 4,GALACTIC+SOLAR COSMIC RAYS	67-073A-09			
			PARTICLE COUNT RATES, TAPE	67-073A-09A	07/30/67	08/27/67	73
			PARTICLE COUNT RATES, MFILM	67-073A-09E	07/30/67	08/27/67	73

SPACECRAFT NAME	LAUNCH DATE	INVESTIGATOR NAME	EXPERIMENT NAME / DATA SET NAME	NSSDC ID	DATA SET INFORMATION: TIME SPAN OF DATA		PAGE
OGO 6	06/05/69			69-051A			
				69-051A-13			
		EARTH	OGO 6,UV PHOTOMTR,1304A+1216A AIRGLOW DATA (1304A,1216A), TAPE	69-051A-13A	06/09/69	07/24/70	74
			CAL_COMP PLOTS UV AIRGLOW, MFILM	69-051A-13B	06/09/69	11/05/70	74
				69-051A-12			
		CLARK	OGO 6,LYMAN-ALPHA PHOTOMETER DET. CURRENT,ATTITUDE,ORBIT, TAPE	69-051A-12A	06/08/69	06/08/69	74
				69-051A-03			
		HANSON	OGO 6,PLANAR ION TRAP ION DEN,COMP,TEMP+EL FLUX, MFILM	69-051A-03A	06/07/69	04/23/71	74
			COMPOSITE ION/EL PLOTS, MFILM	69-051A-03B	06/07/69	04/23/71	74
			ION DENSITY, FLUX + TEMP, TAPE	69-051A-03C	06/07/69	04/23/71	74
				69-051A-24			
		HELLIWELL	OGO 6,VLF RECEIVER,20HZ-30KHZ VLF SPECTROGRAMS, 35-MM PAPER	69-051A-24A	06/25/69	06/28/71	75
				69-051A-25			
		LAASPERE	OGO 6,VLF RECEIVER,50HZ-540KHZ VLF NOISE INTENSITY, MFILM	69-051A-25B	12/30/69	12/31/70	75
			VLF DATA (JAPAN), 8X10-IN. PRINTS	69-051A-25D	10/06/71	01/11/72	75
				69-051A-18			
		LOCKWOOD	OGO 6,NEUTRON MONITOR 1-MIN AVERAGED COUNT RATES, TAPE	69-051A-18A	06/07/69	12/31/69	75
				69-051A-19			
		MASLEY	OGO 6,LOW ENERG COSMIC RAY MEAS. SOLAR EVENT SUMMARY PLOTS, MFILM	69-051A-19A	06/07/69	08/26/70	75
			TIME AND SPECTRAL PLOTS, MFILM	69-051A-19B	06/07/69	08/26/70	75
				69-051A-04			
		REIER	OGO 6,NEUT. ATM.COMP,QUADRUP ANA DATA-COMPOSITION, TEMP, FICHE	69-051A-04A	06/27/69	05/13/71	75
			NEUTRAL ATMOS. COMPOSITION, TAPE	69-051A-04B	06/06/69	06/26/71	75
				69-051A-01			
		SHARP	OGO 6,MICROPHONE ATM DEN GAGE ATMOSPHERIC DENSITY DATA, TAPE	69-051A-01A	06/11/69	01/31/70	76
				69-051A-22			
		SMITH	OGO 6,TRIAX.SRCH. COIL MAGNETOM SEARCH COIL DATA 10-1000 HZ,MFILM	69-051A-22A	06/10/69	10/13/70	76
				69-051A-20			
		STONE	OGO 6,COSMIC RAY EXPERIMENT COUNT RATES + PULSE HEIGHT, TAPE	69-051A-20A	06/07/69	05/25/70	76
			COUNT RATE PLOTS, MFILM	69-051A-20B	06/07/69	03/17/71	76
				69-051A-05			
		TAYLOR, JR.	OGO 6,BENNETT ION MASS SPECTROMET BENNETT ION MASS SPECTROMTER,TAPE	69-051A-05A	06/11/69	12/31/70	76
			ION MASS SPECTROMETER PLOTS,MFILM	69-051A-05B	06/11/69	12/31/70	76
				65-078A			
OV1- 2	10/05/65		EPHEMERIS DATA, TAPE	65-078A-00D	10/05/65	12/31/65	77
				65-078A-02			
		FARLEY	OV1-2,ELECTRON+PROTON DETECTORS ELECTRON, PROTON FLUXES, TAPE	65-078A-02A	10/05/65	12/01/65	77
			ELECTRON PITCH ANGL DISTRB, MFILM	65-078A-02H	10/05/65	11/00/65	77
			ELECTRON, PROTON FLUXES, TAPE	65-078A-02C	10/05/65	12/01/65	77
			PROTON PITCH ANGLE DISTRIB, MFILM	65-078A-02D	11/01/65	11/30/65	77
				65-078A-03			
		FORTNEY	OV1-2, SI,CSI,AND TEIC DOSIMETERS DOSIMETRY DATA, FICHE	65-078A-03A	10/05/65	12/01/65	77
			DOSIMETER DATA, TAPE	65-078A-03B	10/05/65	12/01/65	77
				68-026A			
OV1-13	04/06/68			68-026A-02			
		KATZ	OV1-13, MAGNETIC ANAL, ELECTRONS HI TIME RES ELCTRN CNT RTES, TAPE	68-026A-02A	05/13/68	07/11/68	78
			COUNT RATES, TAPE	68-026A-02B	05/13/68	07/11/68	78
		KATZ	OV1-13, 1-10MEV, EL SPCNT SPEC.	68-026A-04			
			HI ENERGY ELEC. COUNT RATES, TAPE	68-026A-04A	05/13/68	07/11/68	78
			COUNT RATES, TAPE	68-026A-04B	05/13/68	07/11/68	78
				68-059A			
OV1-15	07/11/68			68-059A-01			
		CHAMPION	OV1-15, TRIAXIAL ACCELEROMETER ATMOS DEN PLOTS, FICHE	68-059A-01A	07/14/68	09/26/68	78
		ELLIOTT	OV1-15, RAM ATMOS DENSITY	68-059A-05			
			ATMOS DENSITY,250-400 KM, FICHE	68-059A-05A	07/13/68	07/14/68	78
				69-025C			
OV1-19	03/14/69			69-025C-01			
		BLAKE	OV1-19,FLIGHT OMNI PROT/ELECT DET. OMNI PROT/ELECT SPECTROMETR, TAPE	69-025C-01A	03/18/69	01/25/70	79
		BLAKE	OV1-19, PROTON-ALPHA TELESCOPE PROTON-ALPHA TELESCOPE DATA, TAPE	69-025C-11			
				69-025C-11A	03/18/69	01/25/70	79
		FREDEN	OV1-19, HIGH RESOLUTION TELESCOPE HI-ENERGY PROTONS,DE/DX TEL.,TAPE	69-025C-04			
				69-025C-04A	03/18/69	01/25/70	79
		MCPHERRON	OV1-19, VLF PLASMA WAVE CHARACT. VLF PLASMA WAVE MEASUREMENTS,TAPE	69-025C-06			
				69-025C-06A	03/18/69	07/27/69	79
		ST.WENT	OV1-19, DIR PROTON SPECT .2-3MEV DIRECTIONAL PROTON SPECTROM.,TAPE	69-025C-02			
				69-025C-02A	03/18/69	01/25/70	79
		VAMPOLA	OV1-19, DIST. OF ELECT 53KEV-2MEV ELECTRON SPECTROMETER DATA, TAPE	69-025C-05			
				69-025C-05A	03/18/69	01/25/70	79
OV3-3	08/04/66			66-070A			
		JACCHIA	OV3-3, ATMOS DRAG DENSITY ATMOS DENSITY TABLES, FICHE	66-070A-09			
				66-070A-09A	01/01/69	01/14/70	79
		VAMPOLA	OV3-3,MAG. ELECT SPECT ELECTRON FLUXES, TAPE	66-070A-05			
				66-070A-05A	08/04/66	09/06/67	80
			PERP ELECTRON FLUXES, TAPE	66-070A-05B	08/04/66	09/06/67	80
			PERP ELECTRONS AT L .LT. 10, TAPE	66-070A-05C	08/04/66	09/06/67	80
			EQUATORIAL ELECTRON FLUXES, TAPE	66-070A-05D	08/04/66	09/06/67	80
				72-076B			
RADSAT	10/02/72			72-076B-01			
		KATZ	RADSAT,TRAPPD,PRECIP PROTS,ALPHAS LAT.LONG.CORT,TRAP.PROT.DATA,TAPE	72-076B-01A	10/02/72	02/28/73	80
				62-069A			
RELAY 1	12/13/62			62-069A-02			
		BROWN	RELAY 1,CHARGED PARTICLE DETS L-ORD. ELECTRON-PROTON DATA, TAPE	62-069A-02A	12/13/62	03/31/64	80
		MCILWAIN	RELAY 1,PROTON-ELECTRON COUNTERS	62-069A-03			
			PROTON-ELECTRON L SORTED, TAPE	62-069A-03A	12/14/62	10/20/64	81
			10S AVER.CNT RATES TIME ORD.,TAPE	62-069A-03C	12/14/62	10/20/64	81
			10 S AVG COUNT RATE, TAPE	62-069A-03D	12/14/62	10/20/64	81
			LOW ENERGY PROTON PLOTS, MFILM	62-069A-03E	12/14/62	05/10/63	81
			HIGH-ENERGY PROTON PLOTS, MFILM	62-069A-03F	12/14/62	09/20/63	81
				64-003A			
RELAY 2	01/21/64			64-003A-02			
		BROWN	RELAY 2,P-N JUNCT ELEC,PROT DETS ELECTRON-PROTON DATA,L-ORD., TAPE	64-003A-02A	01/21/64	12/31/65	81
				81-100A			
SME	10/06/81			81-100A-01			
		EARTH	SME, U.V. OZONE OZONE DATA, TAPE	81-100A-01A	12/30/81	09/30/83	81
			OZONE RADIANCE DATA, TAPE	81-100A-01B	12/16/81	09/30/84	82
		EARTH	SME, 1.27 MICRON AIRGLOW	81-100A-03			

SPACECRAFT NAME	LAUNCH DATE	INVESTIGATOR NAME	EXPERIMENT NAME / DATA SET NAME	NSSDC ID	DATA SET INFORMATION: TIME SPAN OF DATA		PAGE
			OZONE DATA, TAPE	81-100A-03A	12/30/81	09/30/83	B2
			RADIANCE DATA, TAPE	81-100A-03B	12/16/81	09/30/84	B2
		BARTH	SME, VISIBLE NITROGEN DIOXIDE	81-100A-04			
			NITROGEN-DIOXIDE(NO2) DATA, TAPE	81-100A-04A	01/01/82	03/31/82	B2
		BARTH	SME, SOLAR UV MONITOR	81-100A-05			
			SOLAR IRRADIANCE DATA, TAPE	81-100A-05A	01/01/82	09/30/83	B2
SPUTNIK 3	05/15/58			58-004B			
		UNKNOWN	SPUTNIK 3, BEACON	58-004B-12			
			TOTAL ELECTRON CONTENT, FICHE	58-004B-12A	08/30/58	12/21/59	B2
STS-3/OSS-1	03/22/82			82-022A			
		SHAWHAN	STS-3,PLASMA DIAGNOSTIC PACKAGE	82-022A-01			
			PLASMA SURVEY, COLOR SLIDES	82-022A-01A	03/22/82	03/27/82	B2
			W.B. ANALOG DATA (0-30 KHZ), NEG.	82-022A-01B	03/22/82	03/28/82	B3
TRANSIT 2A	06/22/60			60-007A			
		UNKNOWN	TRANSIT 2A, IONOSPHERIC BEACON	60-007A-03			
			PLOTS, TEC VS T, NR.STNFORD,FICHE	60-007A-03A	07/23/60	10/13/60	B3
TRANSIT 4A	06/29/61			61-015A			
		UNKNOWN	TRANSIT 4A, IONOSPHERIC BEACON	61-015A-03			
			IONO.,TOTAL ELECT. CONTENT, MFILM	61-015A-03A	09/13/61	12/24/61	B3
			TEC + SLAB TH OVER BANGKOK, FICHE	61-015A-03B	03/25/64	12/18/64	B3
VANGUARD 1	03/17/58			58-002B			
		JACCHIA	VANGUARD 1, ATMOS DRAG DENSITY	58-002B-02			
			ATMOS DEN TABLES, FICHE	58-002B-02A	05/17/58	10/10/61	B3
VANGUARD 2	02/17/59			59-001A			
		JACCHIA	VANGUARD 2,ATMOS DRAG DENSITY	59-001A-02			
			ATMOS DEN TABLES, FICHE	59-001A-02A	02/23/59	03/20/70	B4
VANGUARD 3	09/18/59			59-007A			
		HEPPNER	VANGUARD 3,PROT PREC MAGNETOMETER	59-007A-01			
			SCALAR MAGNETIC FIELD VAL., TAPE	59-007A-01A	09/18/59	12/11/59	B4
			SCALAR MAG. FIELD VAL., FICHE	59-007A-01B	09/18/59	12/11/59	B4
		JACCHIA	VANGUARD 3, ATMOS DRAG DENSITY	59-007A-04			
			ATMOS DEN TABLES, FICHE	59-007A-04A	09/23/59	09/21/62	B4

Appendices

APPENDIX A - STANDARD EPHEMERIS DATA SETS

In many of the NSSDC data sets, the spacecraft (S/C) position data (altitude, latitude, and longitude vs time) and various position-related geophysical parameters are merged with the data from the investigations. In such cases the investigation data sets provide essentially all the information needed for the analysis of the data. In other cases, however, the S/C ephemeris must be obtained from separate data sets, called "world maps", and identified by the spacecraft ID followed by one of the following designations: 00A, 00B, or 00C. Thus, the NSSDC IDs 69-009A-00A, 69-009A-00B and 69-009A-00C represent ephemeris data for the ISIS 1 spacecraft (69-009A). Typically, the 00A data sets contain predicted S/C positions (based upon earlier tracking information), the OOB data sets provide more accurate S/C ephemeris (based upon tracking data obtained during the corresponding orbits), and the 00C data sets provide 00B ephemeris data merged with corresponding geophysical parameters. Although the 00A, 00B and 00C data sets are not completely uniform in their respective contents and formats, the following brief descriptions provide the main features of each type of data set.

00A PREDICTED WORLD MAPS LISTED ON MICROFILM

Each 00A data set contains a list of predicted spacecraft positions and is usually produced on reels of 16-mm microfilm at GSFC. The positions, which are listed at 1-min intervals, are based on predicted orbital elements. Each line of data contains the Greenwich mean time (to 1 s) and the geodetic altitude, latitude, and longitude. An asterisk identifies each position at which the satellite was in sunlight.

00B REFINED WORLD MAPS OR INTERIM DEFINITIVE WORLD MAPS LISTED ON MICROFILM

Each 00B data set contains a list of spacecraft (S/C) positions based on actual tracking data and is usually produced on reels of 16-mm microfilm at GSFC. Each 00B data set is either a Refined World Map or an Interim Definitive World Map. Each type lists S/C positions at 1-min intervals. The Refined World Maps also list six special S/C position points in each orbit: sunlight entrance and exit points, the northbound and southbound equatorial crossing points, and the northernmost and southernmost points. Each type contains the date, Greenwich mean time (to 1 min), and geodetic altitude, latitude and longitude. The Refined World Maps include a flag on each point at which the S/C was in sunlight. The Interim Definitive World Maps use the word "TWILIGHT" to flag the points for which the upper limb of the sun was between 0 and 6 deg below the visual horizon. The Interim Definitive World Maps also include lines of tracking station data which contain the station name, Greenwich mean time (to 0.001 s), zenith angle of the S/C, distance from station to S/C, and direction of travel of the S/C. There is usually a line of tracking station data for each station's acquisition and loss of the S/C signal, inserted chronologically between the S/C position data lines. In the early 1960's the Interim Definitive World Maps were phased out and superseded by the Refined World Maps.

00C MASTER ORBIT OR EXTENDED WORLD MAPS LISTED ON MICROFILM

Each 00C data set contains a list of spacecraft (S/C) positions and other parameters based on actual tracking station data and is produced on reels of 16- or 35-mm microfilm at GSFC. Each 00C data set is either a Master Orbit World Map or an Extended World Map. Each type lists S/C positions at 1-min intervals. The Extended World Maps also list six special S/C position points in each orbit: the sunlight entrance and exit points, the northbound and southbound equatorial crossing points, and the northernmost and southernmost points. Each Master Orbit World Map contains the following: (1) the date, and the Greenwich mean time (to 1 min); (2) the geocentric longitude, latitude and distance; (3) the S/C right ascension; (4) the right ascension, declination, and magnitude of the S/C velocity; (5) the geomagnetic latitude and equatorial radius; (6) the geomagnetic field strength and its ratio to the field strength at the equator of the line of force; (7) the McIlwain L-shell value; and (8) the right ascension and declination of the geomagnetic field vector. Each extended World Map contains the following: (1) the date, the orbit number, the Greenwich mean time (to 1 s), and the local mean time (to 1 s); (2) the geodetic altitude, latitude, and longitude; (3) the S/C right ascension; (4) the geomagnetic latitude and longitude (in a geocentric coordinate system with its north pole at the geodetic coordinates of 78.6 deg N and 289.5 deg E); (5) the geomagnetic dip angle and latitude; (6) the electron gyrofrequency; (7) the geomagnetic field strength, and McIlwain's L-shell value; (8) the invariant latitude and radius; (9) the solar zenith angle; and (10) an identifier for the six special S/C position points mentioned above. The position data on some Extended World Maps include an identifier for the closest ionospheric sounding station and the distance from the station to the subsatellite point.

TABLE OF AVAILABLE 00A, 00B AND 00C EPHEMERIS DATA SETS

S/C COMMON NAME	A	B	C
1963-030D	N	N	N
1963-038C	N	N	N
1964-083C	N	N	N
1972-032A	N	N	N
AD-A	Y	N	N
AD-B	Y	Y	N
AD-C	Y	N	N
AE-A	Y	Y	N
AE-B	N	Y	N
AE-C	Y	N	N
AE-D	Y	N	N
AE-E	Y	N	N
AEROS	Y	N	N
AEROS 2	Y	N	N
ALOUETTE 1	Y	Y	Y
ALOUETTE 2	Y	Y	Y
ARIEL 1	Y	Y	N
ARIEL 3	Y	N	N
ARIEL 4	Y	N	N
COSMOS 49	N	N	N
COSMOS 321	N	N	N
DISCOVERER 25	N	N	N
DME-A	Y	Y	N
ESRO 4	Y	N	N
EXPLORER 1	N	N	N
EXPLORER 4	N	N	N
EXPLORER 7	Y	Y	N
EXPLORER 8	N	Y	N
EXPLORER 9	N	Y	N
FR 1	Y	N	N

S/C COMMON NAME	A	B	C
GRS-A	Y	N	N
IE-A	Y	Y	Y
INJUN 1	Y	Y	N
INJUN 3	Y	Y	N
INJUN 4	Y	Y	N
INJUN 5	Y	N	N
ISIS 1	Y	Y	Y
ISIS 2	Y	Y	Y
ISS-B	N	N	N
KYOKKO	N	N	N
MAGSAT	Y	N	N
MIDAS 2	N	N	N
OGO 2	Y	N	Y
OGO 4	Y	N	Y
OGO 6	Y	N	Y
OV1-2	N	N	N
OV1-13	N	N	N
OV1-15	N	N	N
OV1-19	N	N	N
OV3-3	N	N	N
RADSAT	N	N	N
RELAY 1	Y	N	N
RELAY 2	Y	Y	N
SME	N	N	N
SPUTNIK 3	N	N	N
STS-3/OSS-1	N	N	N
TRANSIT 2A	Y	Y	N
TRANSIT 4A	Y	Y	N
VANGUARD 1	Y	Y	N
VANGUARD 2	N	N	N
VANGUARD 3	N	N	Y

------- AEROS 2, NESKE----------

INVESTIGATION NAME- ELECTRON CONCENTRATION IN THE IONOSPHERE

NSSDC ID- 74-055A-03

INVESTIGATIVE PROGRAM
CODE EE/CO-OP, SCIENCE

INVESTIGATION DISCIPLINE(S)
IONOSPHERES

PERSONNEL
PI - E. NESKE — INST FUR PHYS WELTRAUM
OI - R. KIST — INST FUR PHYS WELTRAUM

BRIEF DESCRIPTION
The impedance probe and the vehicle body comprised two plates of a capacitor. Impedance changes due to the change in dielectric (plasma) characteristics of the capacitor were observed by measuring the resonance frequency of the capacitor (and series inductor) using a variable-frequency driving signal. The electron density was computed from the observed resonance frequency. Frequencies ranged from 0.6 to 10 MHz, which corresponded to electron densities from 5.E3 to 1.E6 electrons/cc.

------- OV1-19, BLAKE----------

INVESTIGATION NAME- OMNIDIRECTIONAL PROTON AND ELECTRON FLUXES AND SPECTRA

NSSDC ID- 69-025C-01

INVESTIGATIVE PROGRAM
SPACE TEST PROGRAM

INVESTIGATION DISCIPLINE(S)
PARTICLES AND FIELDS

PERSONNEL
PI - J.B. BLAKE — AEROSPACE CORP
OI - S.C. FREDEN — NASA-GSFC
OI - G.A. PAULIKAS — AEROSPACE CORP

BRIEF DESCRIPTION
An array of silicon semiconductor detectors measured separately the omnidirectional fluxes of protons with energies greater than 9, 21, 41, 80, and 130 MeV, and of electrons with energies greater than 0.7, 1.4, and 4.5 MeV. The detectors worked well from launch to the end of the spacecraft life (March 1970). Additional information concerning the omnidirectional spectrometer can be found in D. R. Croley Jr. et al., "Radial diffusion of inner-zone protons: observations and variational analysis," J. Geophys. Res., v. 81, p. 585, 1976.

------- OV1-19, BLAKE----------

INVESTIGATION NAME- PROTON-ALPHA TELESCOPE

NSSDC ID- 69-025C-11

INVESTIGATIVE PROGRAM
SPACE TEST PROGRAM

INVESTIGATION DISCIPLINE(S)
PARTICLES AND FIELDS

PERSONNEL
PI - J.B. BLAKE — AEROSPACE CORP
OI - G.A. PAULIKAS — AEROSPACE CORP

BRIEF DESCRIPTION
Semiconductor detectors separately measured directional fluxes of 340-keV to 900-keV protons in two energy channels, and 850-keV to 9.0-MeV alpha particles in five energy channels. The instrument looked in the direction perpendicular to the spacecraft spin axis. The detectors worked well from launch to the end of the spacecraft life (March 1970). For additional information see J. B. Blake and G. A. Paulikas, "Geomagnetically trapped alpha particles, 1. Off-equator particles in the outer zone," J. Geophys. Res., v. 77, p. 3431, July 1972.

------- OV1-19, MCPHERSON----------

INVESTIGATION NAME- VLF PLASMA WAVE CHARACTERISTICS MEASUREMENTS

NSSDC ID- 69-025C-06

INVESTIGATIVE PROGRAM
SPACE TEST PROGRAM

INVESTIGATION DISCIPLINE(S)
PARTICLES AND FIELDS

PERSONNEL
PI - D.A. MCPHERSON — AEROSPACE CORP

BRIEF DESCRIPTION
A very low frequency experiment measured electromagnetic waves in the frequency range from 0.2 to 14 kHz. The instrumentation included both electric and magnetic antennas. The last useful data were obtained on July 27, 1969.

------- OV1-19, MIZERA----------

INVESTIGATION NAME- LOW ENERGY PARTICLES

NSSDC ID- 69-025C-03

INVESTIGATIVE PROGRAM
SPACE TEST PROGRAM

INVESTIGATION DISCIPLINE(S)
PARTICLES AND FIELDS

PERSONNEL
PI - P.F. MIZERA — AEROSPACE CORP

BRIEF DESCRIPTION
The electrostatic analyzer was a modified Faraday cup that provided essentially no useful data because it admitted atmospheric ions that contaminated the data.

------- OV1-19, STEVENS----------

INVESTIGATION NAME- DIRECTIONAL PROTON SPECTROMETER

NSSDC ID- 69-025C-02

INVESTIGATIVE PROGRAM
SPACE TEST PROGRAM

INVESTIGATION DISCIPLINE(S)
PARTICLES AND FIELDS

PERSONNEL
PI - J.R. STEVENS — AEROSPACE CORP

BRIEF DESCRIPTION
A proton spectrometer consisting of a silicon detector and a Pilot B scintillator measured directional fluxes of 200 keV to 2.8 MeV protons in 12 differential energy channels. The detector looked in the direction perpendicular to the spacecraft spin axis, and worked well from launch to the end of the spacecraft life (March 1970). A detailed description of the instrument has been given by J. R. Stevens et al., "Proton energy distributions from 0.060 to 3.3 MeV at 6.6 earth radii," J. Geophys. Res., v. 75, p. 5373, 1970.

------- OV1-19, VAMPOLA----------

INVESTIGATION NAME- ENERGY SPECTRA, FLUXES, AND PITCH ANGLE DISTRIBUTIONS OF ELECTRONS

NSSDC ID- 69-025C-05

INVESTIGATIVE PROGRAM
SPACE TEST PROGRAM

INVESTIGATION DISCIPLINE(S)
PARTICLES AND FIELDS

PERSONNEL
PI - A.L. VAMPOLA — AEROSPACE CORP

BRIEF DESCRIPTION
Two magnetic electron spectrometers and 26 lithium-drift detectors measured the directional fluxes of electrons in the energy range 53 keV to 5.1 MeV. The low-energy spectrometer had 9 channels and covered the 53- to 444-keV energy range. The high-energy spectrometer had 17 channels and covered the 537-keV to 5.1-MeV energy range. The instrument looked in the direction perpendicular to the spacecraft spin axis. The orientation with respect to the geomagnetic field was also measured. The detectors worked well from launch to the end of the spacecraft life (March 1970).

********** STS-3/OSS-1**********

SPACECRAFT COMMON NAME- STS-3/OSS-1
ALTERNATE NAMES- SHUTTLE OFT-3, 13106
OSS-1/STS-3, SPACE TRANSPORT SYS-3

NSSDC ID- 82-022A

LAUNCH DATE- 03/22/82 — WEIGHT- 3730. KG
LAUNCH SITE- KENNEDY SPACE CENTER, UNITED STATES
LAUNCH VEHICLE- SHUTTLE

SPONSORING COUNTRY/AGENCY
UNITED STATES — NASA-OSSA

INITIAL ORBIT PARAMETERS
ORBIT TYPE- GEOCENTRIC — EPOCH DATE- 03/23/82
ORBIT PERIOD- 89.3 MIN — INCLINATION- 38. DEG
PERIAPSIS- 240. KM ALT — APOAPSIS- 240. KM ALT

PERSONNEL
MM - K. KISSIN — NASA-GSFC
MS - W.M. NEUPERT — NASA-GSFC

BRIEF DESCRIPTION
The experiments selected to be part of the OSS-1/STS-3 payload had several objectives which included the following: (a) to conduct supplementary observations of the Orbiter's environment that have specific applicability to plasma physics and astronomical payloads; (b) to conduct scientific

observations that demonstrate the Space Shuttle's research capabilities and are appropriate for flight on an early mission; and (c) to evaluate technology that may have application in future experiments in space. Three hours after liftoff, Columbia's payload bay doors were opened and the payload pallet was exposed to the space environment. Eight experiments were mounted on the U-shaped pallet, and the plant lignification experiment was mounted in the cabin area. The parameters measured by the payload included (1) plasma, waves, and fields; (2) polarization in solar X-ray bursts; (3) solar flux in the wavelength range 120-400 nanometers; (4) electrical charging properties of the Orbiter vehicle; (5) thermal properties of the canister experiment; (6) optical properties of the Shuttle-induced atmosphere; and (7) micrometeorite impacts. In addition, there were measurements of plant lignification in weightlessness, and of the induced contamination environment of the Orbiter bay.

------- STS-3/OSS-1, SHAWHAN----------

INVESTIGATION NAME- PLASMA DIAGNOSTIC PACKAGE

NSSDC ID- 82-022A-01

INVESTIGATIVE PROGRAM
CODE EE, SCIENCE

INVESTIGATION DISCIPLINE(S)
SPACE PLASMAS
PARTICLES AND FIELDS

PERSONNEL

PI - S.D.	SHAWHAN	NASA HEADQUARTERS
CI - L.A.	FRANK	U OF IOWA
OI - D.A.	GURNETT	U OF IOWA
OI - N.	D'ANGELO	U OF IOWA
OI - H.C.	BRINTON	NASA HEADQUARTERS
OI - D.L.	REASONER	NASA-MSFC
OI - N.H.	STONE	NASA-MSFC

BRIEF DESCRIPTION

The objectives of the Plasma Diagnostic Package (PDP) experiment were (1) to study the Orbiter-magnetoplasma interactions within 15 m of the Orbiter by measurement of electric and magnetic fields, ionized particle wakes, and generated waves; (2) to measure and locate the sources of fields, electromagnetic interference (EMI), and plasma contamination in the environment of the Orbiter out to 15 m; (3) to demonstrate the operation of the PDP prior to its flight on Spacelab 2; and (4) to determine the characteristics of the electron beam emitted from the Fast-Pulse Electron Gun (FPEG) of Experiment 82-022A-04 out to a range of 15 m from the Orbiter, and to measure the results of beam-plasma interactions in terms of fields, waves, and particle distribution functions. The electromagnetic interference and plasma contamination within the Orbiter bay were mapped using the remote manipulator arm to scan the PDP over the bay area. The following instruments were in the PDP: (1) a low-energy proton and electron differential energy analyzer (LEPEDEA) to measure nonthermal electron and ion energy spectra and pitch angle distributions for particle energies between 2 eV and 50 keV; (2) an ac magnetic wave search coil sensor to measure magnetic fields with a frequency range of 10 Hz to 30 kHz; (3) an ac electric and electrostatic wave analyzers to measure electric fields with a frequency range of 10 Hz to 1 GHz; (4) a dc electrostatic double probe with spherical sensors to measure electric fields in one axis from 2 mV/m to 2 V/m; (5) a dc triaxial fluxgate magnetometer to measure magnetic fields from 1.2E3 to 1.5E5 nT; (6) a Langmuir probe to measure thermal electron densities between 1.E4 and 1.E7 per cubic cm and density irregularities with 10-m to 10-km scale size; (7) a retarding potential analyzer/differential velocity probe to measure ion number density from 1.E2 to 1.E7 per cubic cm, the energy distribution function below 16 eV, and directed ion velocities up to 15 km/s; (8) an ion mass spectrometer to measure ion densities from 20 to 2.E7 ions per cubic cm in the mass range from 1 to 64 u (atomic mass units); and (9) a pressure gauge to measure ambient pressure from 1.E-3 to 1.E-7 torr.

APPENDIX C - CHRONOLOGICAL LISTING OF SPACECRAFT

This appendix lists by NSSDC ID the spacecraft for which data sets are described in this catalog. Since the NSSDC ID corresponds to the COSPAR international designation, this appendix shows the temporal ordering of the spacecraft launch dates. For example, 59-001A is the designation for the first satellite launched in 1959. The common name used in this catalog is also given following each NSSDC ID.

NSSDC ID	S/C COMMON NAME	PAGE NUMBER
58-001A	EXPLORER 1	41
58-002B	VANGUARD 1	83
58-004B	SPUTNIK 3	82
58-005A	EXPLORER 4	42
59-001A	VANGUARD 2	83
59-007A	VANGUARD 3	84
59-009A	EXPLORER 7	42
60-006A	MIDAS 2	66
60-007A	TRANSIT 2A	83
60-014A	EXPLORER 8	43
61-004A	EXPLORER 9	43
61-014A	DISCOVERER 25	39
61-015A	TRANSIT 4A	83
61-015B	INJUN 1	45
62-015A	ARIEL 1	36
62-049A	ALOUETTE 1	27
62-067B	INJUN 3	46
62-068A	RELAY 1	80
63-009A	AE-A	14
63-030D	1963-030D	13
63-038C	1963-038C	13
63-053A	AD-A	14
64-003A	RELAY 2	81
64-051A	IE-A	45
64-069A	COSMOS 49	39
64-076A	AD-B	14
64-076B	INJUN 4	48
64-083C	1964-083C	13
65-078A	OV1-2	76
65-081A	OGO 2	66

NSSDC ID	S/C COMMON NAME	PAGE NUMBER
65-098A	ALOUETTE 2	32
65-098B	DME-A	39
65-101A	FR 1	43
66-044A	AE-B	15
66-070A	OV3-3	79
67-042A	ARIEL 3	36
67-073A	OGO 4	68
68-026A	OV1-13	77
68-059A	OV1-15	78
68-066A	AD-C	14
68-066B	INJUN 5	49
69-009A	ISIS 1	50
69-025C	OV1-19	78
69-051A	OGO 6	73
69-097A	GRS-A	43
70-006A	COSMOS 321	39
71-024A	ISIS 2	53
71-109A	ARIEL 4	38
72-032A	1972-032A	13
72-076B	RADSAT	80
72-092A	ESRO 4	41
72-100A	AEROS	27
73-101A	AE-C	15
74-055A	AEROS 2	27
75-096A	AE-D	21
75-107A	AE-E	24
78-014A	KYOKKO	59
78-018A	ISS-B	59
79-094A	MAGSAT	61
81-100A	SME	81
82-022A	STS-3/OSS-1	82

APPENDIX D - DEFINITIONS

B - Geomagnetic field strength at the spacecraft location.

Bo - Geomagnetic field strength at the equator of the line of force.

Investigation Discipline - The subject to which an investigation pertains. The possible entries are limited, and the NSSDC information files can be searched using this field.

Investigative Program - Code of the cognizant NASA Headquarters office, or name of other sponsoring agency program. "CO-OP" added to a code indicates a cooperative effort with another agency or a foreign country.

Ne - Electron density (Refers to thermal ionospheric electrons).

N(h) - Electron density (N) as function of height (h) (Refers to thermal ionospheric electrons).

n(H+) - Density of positive hydrogen ions (Refers to thermal ionospheric ions).

n(He+) - Density of positive helium ions (Refers to thermal ionospheric ions).

n(O+) - Density of positive oxygen ions (Refers to thermal ionospheric ions).

NLA - No Longer Affiliated. Used in the spacecraft personnel section to indicate that the person had the specified affiliation at the time of his participation in the project, but is no longer there. Used in the investigation personnel sections to indicate that the affiliation shown is the last known scientific affiliation and that the given person is no longer there.

NSSDC ID - An identification code used in the NSSDC information system. In this system, each successfully launched spacecraft and experiment is assigned a code based on the launch sequence of the spacecraft. This code (e.g., 69-009A for the spacecraft ISIS 1) corresponds to the COSPAR international designation. The experiment codes are based on the spacecraft code. For example, the experiments carried aboard the spacecraft 69-009A are numbered 69-009A-01, 69-009A-02, etc. Similarly, data sets corresponding to experiment 69-009A-01 are coded 69-009A-01A, -01B, etc. Each prelaunch spacecraft and experiment is also assigned an NSSDC ID code based on the name of the spacecraft. Prior to launch, for example, the approved NASA launch, Solar Mesosphere Explorer, was coded SME. The experiments carried aboard this

spacecraft were coded SME -01, SME -02, etc. Once it was launched, its prelaunch designation was changed to a postlaunch one: 81-100A.

OI - Other Investigator.

PI - Principal Investigator.

PM - Project Manager. If a spacecraft has had several project managers, the initial and the latest project managers are both indicated in the spacecraft personnel section. For international programs there is usually a project manager in each of the two principal participating nations. The current or more recent PM is listed first.

PS - Project Scientist. The above comment for project managers also applies to project scientists.

Te - Electron temperature (Refers to thermal ionospheric electrons).

Ti - Ion temperature (Refers to thermal ionospheric ions).

NASA
National Aeronautics and Space Administration

Goddard Space Flight Center
Greenbelt, Maryland 20771

NSSDC/WDC-A-R&S DOCUMENT REQUEST FORM

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REQUESTER INFORMATION (Please print)

NAME	TITLE
ORGANIZATION	
ADDRESS	
CITY	STATE
ZIP CODE OR COUNTRY	
TELEPHONE (Area Code) (Number) (Ext.)	
DATE OF REQUEST	DATE DESIRED

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INTENDED USE OF MATERIAL (Check all that apply)

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  - ☐ Particles and Fields
  - ☐ Planetary Atmospheres
  - ☐ Planetology
  - ☐ Solar Physics
  - ☐ Earth Resources Survey
- ☐ Report on Active and Planned Spacecraft and Experiments
- ☐ Spacecraft Program Bibliographies
- ☐ Reports on Models of the Near-Earth Environment
- ☐ World Data Center A for Rockets and Satellites Launch Summaries
- ☐ SPACEWARN Bulletin
- ☐ NSSDC Newsletter
- ☐ Crustal Dynamics mailings
- ☐ Pilot Climate mailings
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SPECIFIC DOCUMENTS

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REQUESTER INFORMATION (Please print)

NAME (First, Middle Initial, Last)	TITLE/POSITION (Dr., Prof., Mr., Ms., Graduate Student, Research Associate, etc.)
DIVISION/BRANCH/DEPARTMENT	MAIL CODE
ORGANIZATION	
ADDRESS	
CITY	STATE
ZIP CODE OR COUNTRY	TELEPHONE (Area Code) (Number) (Extension)
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633-28 (2/85)

NSSDC CHARGE AND SERVICE POLICY

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DATA REQUESTED

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Additional Specifications (Negatives, Positives, Paper Prints, etc.)

*If requesting data on magnetic tape, please supply the necessary information below.

Density	Mode		No. of Tracks	Computer (Type/Model)
☐ 800 bpi	☐ BIN	☐ EBCDIC	☐ 7	
☐ 1600 bpi	☐ BCD	☐ ASCII	☐ 9	
☐ 6250 bpi	Maximum block size _____			_____

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☐ 1600 bpi	☐ BCD	☐ ASCII	☐ 9	
☐ 6250 bpi		Maximum block size	_____	_____

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