791:

ISEE 1

Multi - Coord Ephemeris on OD

77-102A-00M XXNO-00087

Decom Mag Data on OD

77-102A-04X SPMS-00390

Table of Contents

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1. INTRODUCTION:

The documentation for this data set was originally on paper, kept in NSSDC's Data Set Catalogs (DSCs). The paper documentation in the Data Set Catalogs have been made into digital images, and then collected into a single PDF file for each Data Set Catalog. The inventory information in these DSCs is current as of July 1, 2004. This inventory information is now no longer maintained in the DSCs, but is now managed in the inventory part of the NSSDC information system. The information existing in the DSCs is now not needed for locating the data files, but we did not remove that inventory information.

The offline tape datasets have now been migrated from the original magnetic tape to Archival Information Packages (AIP's).

A prior restoration may have been done on data sets, if a requestor of this data set has questions; they should send an inquiry to the request office to see if additional information exists.

2. ERRATA/CHANGE LOG:

NOTE: Changes are made in a text box, and will show up that way when displayed on screen with a PDF reader.

When printing, special settings may be required to make the text box appear on the printed output.

Version	Date	Person	Page	Description of Change
01				
02				

3 LINKS TO RELEVANT INFORMATION IN THE ONLINE NSSDC INFORMATION SYSTEM:

http://nssdc.gsfc.nasa.gov/nmc/

[NOTE: This link will take you to the main page of the NSSDC Master Catalog. There you will be able to perform searches to find additional information]

4. CATALOG MATERIALS:

a. Associated Documents To find associated documents you will need to know the document ID number and then click here. http://nssdcftp.gsfc.nasa.gov/miscellaneous/documents/

b. Core Catalog Materials

ISEE-1
3-S ELECTRIC AND MAGNETIC FIELD DATA

THESE DATA SET CONSIST OF TWENTY OPTIMEN 1000M WRITE-ONCE-READ-MANY (WORM) OPTICAL DISK PLATTERS, COPY TO ONE DLT .

DD#	DATA SET ID	DSC#	TIME SPAM
DD109639	ISEE-1 77-102A-07K	710	SPMS-00531
	ISEE-1 77-102A-04X	791	SPMS-00390
	ISEE-1 77-102A-00M	791	XXNO-00087
	ISEE-2 77-102B-00K	708	XXNO-00032

CONTAIN 20 OPTICAL
PLATTERS SIDES

FILES: 8346

ISEE 1

MULTI-COORDINATE EPHEMERIS (MER)
77-102A-00M XXNO-00087

DOCOMMUTATED (DECOM) MAGNETOMETER DATA
77-102A-04X SPMS-00390

These data sets consist of ten Optimem 1000M Write-Once-Read-Many (WORM) optical disk platters. A copy of the format has been included.

77-102A-00M

KV#	MCE LOG VOL INDENT	DATA GRPS	TIME SPAN
KV000033	USA_NASA_NSSD_IC10_0001A	0001-0534	10/22/77 - 01/02/83
	0001B	0535-1028	01/02/83 - 09/26/87

77-102A-04X

KV#	MCE LOG VOL INDENT	DATA GRPS	TIME SPAN
KV000035	UAS_NASA_NSSD_IC1D_0001A	0001-0036	10/22/77 - 03/26/78
	0001B	0037-0093	03/26/78 - 10/11/78
KV000036	UAS_NASA_NSSD_IC1D_0002A	0094-0104	10/11/78 - 11/18/78
		0106-0151	11/22/78 - 05/02/79
	0002B	0152-0207	05/02/79 - 11/14/79
KV000037	UAS_NASA_NSSD_IC1D_0003A	0208-0224	11/14/79 - 01/12/80
		0226-0261	01/16/80 - 05/20/80
	0003B	0262-0311	05/21/80 - 11/12/80
KV000038	UAS_NASA_NSSD_IC1D_0004A	0312-0315	11/12/80 - 11/25/80
		0317-0347	11/30/80 - 03/18/80
		0349-0366	03/22/81 - 05/24/81
	0004B	0367-0426	05/24/81 - 12/20/81

KV#	MCE LOG VOL INDENT	DATA GRPS	TIME SPAN
KV000039	UAS_NASA_NSSD_IC1D_0005A	0429-0491	12/27/81 - 08/04/82
	0005B	0492-0569	08/04/82 - 05/03/83
KV000040	UAS_NASA_NSSD_IC1D_0006A	0570-0573	05/04/83 - 05/18/83
		0575-0637	05/22/83 - 12/27/83
	0006B	0638-0701	12/28/83 - 08/07/84
KV000041	UAS_NASA_NSSD_IC1D_0007A	0704-0781	08/15/84 - 05/15/85
	0007B	0782-0860	05/15/85 - 02/15/86
KV000042	UAS_NASA_NSSD_IC1D_0008A	0861-0893	02/16/86 - 06/11/86
	0008B	0894-0947	06/11/86 - 12/16/86
KV000043	UAS_NASA_NSSD_IC1D_0009A	0948-1009	12/17/86 - 07/18/87
	0009B	1010-1029	07/19/87 - 09/26/87
		0105	11/19/78 - 11/22/78
		0225	01/13/80 - 01/16/80
		0316	11/26/80 - 11/30/80
		0348	03/18/81 - 03/22/81
		0427	12/20/81 - 12/22/81
		0428	12/23/81 - 12/27/81
		0574	05/18/83 - 05/22/83
		0702	08/08/84 - 08/12/84
		0703	08/12/84 - 08/15/84

DSC 791
77-102A-00M
77-102A-04X

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October 4, 1993

Enclosed in this box are 10 Optimem 1000M Write-Once-Read-Many (WORM) optical disk platters containing International Sun-Earth Explorer #1 (ISEE-1) Multi-Coordinate Ephemeris (MCE) data [1 disk] and Decommutated (DECOM) Magnetometer data [9 disks] at highest resolution as received from Goddard Space Flight Center.

These disks were written using NSSDC SOAR software and may be accessed using DEC/VMS files-11 commands, for example, "MOUNT/NOWRITE DUCO: ISEE1DEC". Each disk logical volume (one side of a disk) contains a volume description file in Standard Formatted Data Units (SFDU) and has the file name "[000000]VOLDESC.SFD". Also, each logical volume includes a file containing the structure of the data files in SFDU format. These files are named "[000000]MCE.SFD" for the MCE logical volumes and "[000000]DECOM1.SFD" for the DECOM logical volumes. Finally, software has been archived on each logical volume that demonstrates how to read and process these datasets. For a description of the software see the file "[000000]AAREADME.TXT" on the MCE logical volumes and the file "[SOURCE]AAREADME.TXT" on the DECOM logical volumes. Printed copies of all the VOLDESC.SFD files, along with one copy of MCE.SFD, DECOM1.SFD and the AAREADME.TXT files have been included for reference.

Please note that each logical volume has an NSSDC logical volume identification number. Technical support for the preparation of SFDU documentation was provided by Doug Gross of the NSSDC Standards Office, (310)513-1693. Included on the next page is a list of logical volume ID numbers and the data coverage on each logical volume.

If you have any questions please contact:

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77-102A-00M
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MCE LOG VOL IDENT	DATA GROUPS	TIME COVERAGE
USA_NASA_NSSD_IC10_0001A	0001 - 0534	10/22/77 14:49 - 01/02/83 05:59
USA_NASA_NSSD_IC10_0001B	0535 - 1028	01/02/83 00:00 - 09/26/87 05:59

DECOM LOG VOL IDENT	DATA GROUPS	TIME COVERAGE
USA_NASA_NSSD_IC1D_0001A	0001 - 0036	10/22/77 19:13 - 03/26/78 00:54
USA_NASA_NSSD_IC1D_0001B	0037 - 0093	03/26/78 00:55 - 10/11/78 01:09
USA_NASA_NSSD_IC1D_0002A	0094 - 0104	10/11/78 01:48 - 11/18/78 19:52
	0106 - 0151	11/22/78 01:10 - 05/02/79 01:50
USA_NASA_NSSD_IC1D_0002B	0152 - 0207	05/02/79 01:50 - 11/14/79 00:00
USA_NASA_NSSD_IC1D_0003A	0208 - 0224	11/14/79 00:00 - 01/12/80 23:43
	0226 - 0261	01/16/80 00:43 - 05/20/80 23:38
USA_NASA_NSSD_IC1D_0003B	0262 - 0311	05/21/80 00:01 - 11/12/80 00:08
USA_NASA_NSSD_IC1D_0004A	0312 - 0315	11/12/80 01:08 - 11/25/80 23:59
	0317 - 0347	11/30/80 00:00 - 03/18/81 00:51
	0349 - 0366	03/22/81 02:01 - 05/24/81 00:28
USA_NASA_NSSD_IC1D_0004B	0367 - 0426	05/24/81 01:09 - 12/20/81 00:03
USA_NASA_NSSD_IC1D_0005A	0429 - 0491	12/27/81 00:01 - 08/04/82 00:34
USA_NASA_NSSD_IC1D_0005B	0492 - 0569	08/04/82 00:34 - 05/03/83 23:43
USA_NASA_NSSD_IC1D_0006A	0570 - 0573	05/04/83 02:03 - 05/18/83 00:08
	0575 - 0637	05/22/83 00:01 - 12/27/83 23:23
USA_NASA_NSSD_IC1D_0006B	0638 - 0701	12/28/83 01:48 - 08/07/84 23:59
USA_NASA_NSSD_IC1D_0007A	0704 - 0781	08/15/84 01:13 - 05/15/85 00:30
USA_NASA_NSSD_IC1D_0007B	0782 - 0860	05/15/85 00:24 - 02/15/86 22:31
USA_NASA_NSSD_IC1D_0008A	0861 - 0893	02/16/86 01:56 - 06/11/86 00:00
USA_NASA_NSSD_IC1D_0008B	0894 - 0947	06/11/86 00:00 - 12/16/86 23:52
USA_NASA_NSSD_IC1D_0009A	0948 - 1009	12/17/86 01:43 - 07/18/87 23:29
USA_NASA_NSSD_IC1D_0009B	1010 - 1029	07/19/87 00:37 - 09/26/87 06:07
	0105	11/19/78 01:49 - 11/22/78 00:55
	0225	01/13/80 00:45 - 01/16/80 00:43
	0316	11/26/80 01:44 - 11/30/80 00:00
	0348	03/18/81 00:54 - 03/22/81 01:53
	0427	12/20/81 01:40 - 12/22/81 22:48
	0428	12/23/81 00:12 - 12/27/81 00:00
	0574	05/18/83 00:08 - 05/22/83 00:01
	0702	08/08/84 03:43 - 08/12/84 00:38
	0703	08/12/84 00:38 - 08/15/84 01:13

DSC 791

CCSD3FF0000500000001CCSD3CS00004markeraa
ADIDNAME=NSSD0070;
CCSD$$MARKERmarkeraaCCSD3KS00002markerbb

TYPE_OF_FILE_NAME: Multi-Coordinate Ephemeris (MCE) Data
DATA_SOURCES: International Sun-Earth Explorer 1 (ISEE-1)

TECHNICAL_CONTACT: Harry Herbert
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Los Angeles, CA 90025-1567
(310) 825-3188
NSI=ctrussel@igpp.ucla.edu
NSI-DECnet=BRUNET::CTRUSSELL

CCSD$$MARKERmarkerbbCCSD3DF0000200000001

RECORD_TYPE_NAMES: ATTITUDE/ORBIT DATA

FILE_ATTRIBUTES: SEQUENTIAL, FIXED_RECORD_LENGTH
FIXED_RECORD_TYPE_LENGTH: 3384 BYTES
FIELD_SYNTAX_OF_ALL_DATA_FIELDS: 4-BYTE IBM_FLOATING_POINT

FILE_STRUCTURE:
Each file consists of a header record followed by a number of data records. Both types of records are 3384 bytes long and consist of 4-byte (32-bit) floating point numbers in IBM/360 format. IBM/360 floating point format has the following bit structure:

```
IBM bit position  --> 3 3222222 22221111111111
                      1 0987654 32109876543210

IBM bit structure --> 0 0000000 00000000000000000000
                      |    |    |
                  1 bit sign   |  24 bit magnitude
                 of mantissa   |    of mantissa
                               |
                  7 bit exponent (in base 16)
                    +64 (range is 0 to 128)
```

The implied binary point is just to the left of the mantissa. The decimal value of the IBM number is computed as:

```
(mantissa * (16 ** (exponent - 64))) * (-1 ** sign bit)
```

Thus, if the sign bit is set, the value is the negative of the number.
NOTE: Two's complement arithmetic is not used with the IBM mantissa and the IBM exponent is never negative.

CONTENTS_OF_EACH_FILE_HEADER_RECORD:

Table 2
ISEE-A or B Attitude/MCE Header Record

Word No.	Description	
1-45	GSFC TAG (1440 bits)	
46	Spare	
47-48	Satellite identification	7710201.0 for ISEE-1 7710202.0 for ISEE-2
49	Date (YYMMDD.0)	UT start time of satellite data
50	Day of year (Jan. 1 = 001)	
51	Seconds of day	

52	Date (YYMMDD.0)	UT stop time of satellite data
53	Day of year (Jan. 1 = 001)	
54	Seconds of day	
55	= delta t in seconds, if tape has equal intervals between data records (60) = 0 if tape has unequal intervals	
56-58	Spares	
59	Number of words per data record	Should be 846, incorrectly set to 75
60	Mean anomaly	
61-71	Run identification data	
72	Date (YYMMDD.0)	Coordinate system reference data
73	Day of year (Jan. 1 = 001)	
74	Apparent sidereal time in radians	
75-85	Harmonics (if applicable)	
86	Date (YYMMDD.0)	Epoch for orbit
87	Day of year (Jan. 1 = 001)	
88	Seconds of day	
89	Semi-major axis, a (km)	
90	Eccentricity, e	
91	Inclination, I (deg)	

Table 2 (Continued)

Word No.	Description
92	Right ascension of the ascending node, OMEGA (deg)
93	Time rate of change of OMEGA (deg/day)
94	Argument of perigee, omega (deg)
95	Time rate of change of omega (deg/day)
96	Period, RHO (min)
97	Time Rate of change of RHO (min/day)
98-298	Orbital elements, coefficients of drag, etc., as applicable to individual orbit generators.
299-846	Fill to same record length as data records.

CONTENTS_OF_EACH_DATA_POINT_RECORD:

Table 3
ISEE-A or B Attitude/MCE Data Record

Word No.	Description	
1	Day of year (Jan. 1 = 001)	time of orbit data
2	Milliseconds of day	in this record
3	Longitude (deg)	satellite position in

4	Latitude (deg)	geocentric coordinates
5	Longitude (deg)	satellite position in
6	Latitude (deg)	geomagnetic coordinates
7	Ro (Earth radii) a geomagnetic coordinate of the satellite position, CUL	
8	r, radial distance of the satellite from the center of the Earth (km)	
9	GSEx	Satellite position in Geocentric
10	GSEy	Solar Ecliptic Coordinates (km)
11	GSEz	
12	GSMx	Satellite position in Geocentric
13	GSMy	Solar Magnetosphere
14	GSMz	Coordinates (km)
15	GSEx	Moon position in Geocentric Solar
16	GSEy	Ecliptic Coordinates (km)
17	GSEz	
18	GSMx	Moon position in Geocentric Solar
19	GSMy	Magnetospheric Coordinates (km)
20	GSMz	
21	GEIx	Satellite position Geocentric
22	GEIy	Equatorial Inertial (km)
23	GEIz	

Word No.	Description	
24	GEIx	Sun position in Geocentric
25	GEIy	Equatorial Inertial (AU)
26	GEIz	
27	Longitude	Sub-solar point in geomagnetic
28	Latitude	coordinates (deg)
29	Distance from the satellite to the moon (km)	
30	Distance parallel to the x-axis from the satellite to the moon (km)	
31	1st row, 1st column	Geocentric Solar Ecliptic-to-Geocentric Solar Magnetospheric transformation matrix.
32	1st row, 2nd column	
33	1st row, 3rd column	
34	2nd row, 1st column	
35	2nd row, 2nd column	
36	2nd row, 3rd column	
37	3rd row, 1st column	

38	3rd row, 2nd column	Geocentric Equatorial Inertial-to-Geocentric Solar Ecliptic transformation matrix.
39	3rd row, 3rd column	
40	1st row, 1st column	
41	1st row, 2nd column	
42	1st row, 3rd column	
43	2nd row, 1st column	
44	2nd row, 2nd column	
45	2nd row, 3rd column	
46	3rd row, 1st column	
47	3rd row, 2nd column	
48	3rd row, 3rd column	

Table 3 (Continued)

Word No.	Description
49	Right Ascension — Satellite position in
50	Declination — celestial inertial (deg)
51	Right Ascension — Velocity vector in
52	Declination — celestial inertial (deg)
53	Magnitude of the velocity (km/sec)
54	L McIlwain parameter (Earth radii)
55	B Magnetic field strength (nanoteslas)
56	B/Bo Ratio of the magnetic field strength at the satellite to the field strength at the invariant equator
57	Satellite-Earth-Sun angle, Lsep (deg)
58	Satellite-Earth-Moon angle (deg)
59	Right ascension — Magnetic vector in
60	Declination — celestial inertial
61	Longitude — Sub-solar point in (deg)
62	Latitude — Geocentric Equatorial Inertial
63	GSEx — Theoretical geomagnetic field in
64	GSEy — Geocentric Solar Ecliptic
65	GSEz — coordinates (in nanoteslas)
66	Undefined
67	Date of data (YR MO DA)
68	Longitude — Geodetic satellite position (deg)
69	Latitude — Geodetic satellite position (deg)
70	Height above spheroid (km)
71	Ascending node number (pass number)
72	Year of data

Table 3 (continued)

Word No.	Description
73	Delta x — Separation vector in GSE (km) (ISEE-A to ISEE-B)
74	Delta y — Separation vector in GSE (km) (ISEE-A to ISEE-B)
75	Delta z — Separation vector in GSE (km) (ISEE-A to ISEE-B)
76	Delta r — Separation Distance (km)
77	Vx — Velocity components of Separation vector in GSE (km/sec)
78	Vy — Velocity components of Separation vector in GSE (km/sec)
79	Vz — Velocity components of Separation vector in GSE (km/sec)
80	V — Separation rate (km/sec)
81	Spin period (seconds)
82	Ecliptic Longitude — Spin axis orientation in GSE (degrees)
83	Ecliptic Latitude — Spin axis orientation in GSE (degrees)
84	Attitude Quality Indicator
85-840	NINE MORE 84-WORD ITEMS
841-846	FILL for record size compatibility

Interpreting the Definitive Output Quality Indicator for ISEE-A and -B

Value*	Interpretation
1.	Spacecraft is in daylight; attitude accuracy is good; spin period accuracy is good.
2.	Spacecraft is in daylight; attitude accuracy is good; spin period accuracy is degraded.
3.	Spacecraft is in daylight; attitude accuracy is good; spin period contains fill**.
4.	Spacecraft is in daylight; attitude accuracy is degraded; spin period accuracy is good.
5.	Spacecraft is in daylight; attitude accuracy is degraded; spin period accuracy is degraded.
6.	Spacecraft is in daylight; attitude accuracy is degraded; spin period contains fill.
7.	Spacecraft is in daylight; attitude contains fill; spin period accuracy is good.
8.	Spacecraft is in daylight; attitude contains fill; spin period accuracy is degraded.
10.	Spacecraft is in shadow; attitude is estimated; spin period is estimated.
11.	Spacecraft is in shadow; attitude is estimated; spin period contains fill.

12.	Spacecraft is in shadow; attitude contains fill; spin period is estimated.
13.	Event occurred; spacecraft is in daylight (attitude and spin period contain fill).
14.	Event occurred; spacecraft is in shadow (attitude and spin period contain fill).
9999999.	Attitude contains fill; spin period contains fill.

* As with all data fields in the Multi-Coordinate Ephemeris data file, the quality indicator value is in IBM S/360 floating point format (Real * 4).

** Fill data items will contain a value of 9999999 (seven 9's).

MISCELLANEOUS_ATTRIBUTES:
The documentation included in the CONTENTS_OF_EACH_FILE_HEADER_RECORD and the CONTENTS_OF_EACH_DATA_POINT_RECORD were keypunched directly from the documentation originally received from GSFC, with some modifications for clarity.

/* EOF */

CCSD3FF0000500000001CCSD3CS00004markeraa
ADIDNAME=NSSD0187;
CCSD$$MARKERmarkeraaCCSD3KS00002markerbb

TYPE_OF_FILE_NAME: ISEE-1 DECOM Magnetometer Data
DATA_SOURCES: International Sun-Earth Explorer 1 (ISEE-1)

TECHNICAL_CONTACT: Harry Herbert
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NSI=ctrussel@igpp.ucla.edu
NSI-DECnet=BRUNET::CTRUSSELL

CCSD$$MARKERmarkerbbCCSD3DF0000200000001

RECORD_TYPE_NAMES: MAGNETIC_FIELD

FILE_ATTRIBUTES: SEQUENTIAL, FIXED_RECORD_LENGTH
FIXED_RECORD_TYPE_LENGTH: 2520 BYTES
SYNTAX_OF_ALL_DATA_ELEMENTS: 4-BYTE IBM_INTEGER

DISK_FILE_STRUCTURE:

Disk File Attributes: Sequential, fixed record length.
Physical Record length: 2520 bytes per block.

Data organization:

- ISEE-1 DECOM data has a total of 1028 disk files where each file contains one group of data as shipped by GSFC. The group numbers range from 0001 to 0999, and from 1001 to 1029.

Each disk file contains several internal 'tape files':

- Tape File 1
  . Header block. (The first block of the tape file)
  . Data blocks. (The rest of the blocks of the tape file)
    Each data block contains four logical records, each with a length of 628 bytes, for a total of 2512 bytes. Bytes 2513 to 2520 are used to indicate the sequential block number of the tape file.
  . EOF trailer block. (The last block of the tape file)

- Tape File 2
  . Header block. (The first block of the tape file)
  . Data blocks. (The rest of the blocks of the tape file)
    Each data block contains four logical records, each with a length of 628 bytes, for a total of 2512 bytes. Bytes 2513 to 2520 are used to indicate the sequential block number of the tape file.
  . EOF trailer block. (The last block of the tape file)

  ... ...

- Tape File N -- the last tape file
  . Header block. (The first block of the tape file)
  . Data blocks. (The rest of the blocks of the tape file)
    Each data block contains four logical records, each with a length of 628 bytes, for a total of 2512 bytes. Bytes 2513 to 2520 are used to indicate the sequential block number of the tape file.
  . EOF trailer block. (The last block of the tape file)

- EOF trailer block. (Repeat of the EOF trailer block)

CONTENTS_OF_EACH_FILE_HEADER_BLOCK:

Note: All integer numbers are in IBM integer format.
For example: 21 will be in hexadecimal '0015'
11 will be in hexadecimal '000B'

- Header block:
A total of 2520 bytes, with 264 bytes data and 2256 bytes of filler.

Tape file header block format:

Item No.	Word Offset	Byte Count From	- to	Size bits	Content
1	0	1	180	1440	GSFC Tag. 180 bytes for Goddard Space Flight Center internal use
2	45	181	184	32	Satellite ID number
3	46	185	188	32	Recording station ID number
4	47	189	192	32	Experiment ID number, ISEE-A, 11; ISEE-B, 21
5	48	193	196	32	Start time of data: Year, two digits
6	49	197	200	32	Start time of data: Day of year, "Jan. 1"=1
7	50	201	204	32	Start time of data: Millisecond of day
8	51	205	208	32	Stop time of data: Year, two digits
9	52	209	212	32	Stop time of data: Day of year
10	53	213	216	32	Stop time of data: Millisecond of day
11	54	217	220	32	Last spacecraft time clock in the tape file
12	55	221	224	32	Start time of next tape file: Year
13	56	225	228	32	Start time of next tape file: Day of year
14	57	229	232	32	Start time of next tape file: Millisecond
15	58	233	236	32	Next tape file spacecraft clock time start
16	59	237	240	32	%of data recovered=(Actual/anticipated)*1000
17	60	241	244	32	Number of minor frames in the tape file
18	61	245	248	32	Bit rate (4096, 16384, etc.)
19	62	249	252	32	Shipping group number (Run number)
20	63	253	256	32	Reel sequence number (Part number)
21	64	257	260	32	File sequence number on the reel
22	65	261	264	32	Orbital position data flag 0 = definitive orbit 2 = predicted orbit 3 = no orbit, propagation delay not commuted
23	66	265	2520	18048	Fill with all integer number zeros

CONTENTS_OF_EACH_DATA_BLOCK:

Note: All integer numbers are in IBM integer format.
For example: 21 will be in hexadecimal '0015'
11 will be in hexadecimal '000B'

- Data block:
The data block has a total of 2520 bytes. It contains 4 logical records, each with a length of 628 bytes, for a total of 2512 bytes. There is an 8 byte block sequential number indicator at the end of each block. Each logical record has an identical format and contains 52 bytes of logical record header, 384 bytes of 64 6-byte minor data frames, 64 bytes of analog subcom sequence-1, 64 bytes of analog subcom sequence-2 and 64 bytes of digital subcom sequence.

The logical record format:

Item No.	Word Offset	Byte Count From	- to	Size bits	Content
					Logical record header - 52 bytes
1	0	1	4	32	Experiment ID number, ISEE-A 11, ISEE-B 21
2	1	5	8	32	Day of year of first bit of the minor frame
3	2	9	12	32	Millisecond of day of first bit of the minor frame
4	3	13	16	32	Spacecraft clock time for the minor frame
5	4	17	20	32	Average minor frame rate in microseconds
6	5	21	21	8	Frame counter
7		22	22	8	Fill flag in hexadecimal format

					00 = fill data at some point in logical record 11 = no fill data in logical record
8		23	23	8	Bit rate flag in hexadecimal format 00 = other 01 = low bit rate 10 = high bit rate 11 = other
9		24	24	8	Time quality flag in hexadecimal format 00 = quick look 01 = fraction smoothed and delay corrected, but unverified by other stations 10 = smoothed, delay corrected and verified after adjusting the ground station time 11 = same as 10 above, but no adjustment required to ground station time
10	6	25	40	128	Data quality flag in hexadecimal format Total 16 bytes for 64 minor frames, each 2 bits for a minor frame 00 = fill data 01 = unused 10 = good (undecoded) 11 = excellent (decoded)
11	10	41	44	32	Orbital position in Geocentric Solar Ecliptic(GSE) coordinates, X component in meters.
12	11	45	48	32	Orbital position in Geocentric Solar Ecliptic(GSE) coordinates, Y component in meters.
13	12	49	52	32	Orbital position in Geocentric Solar Ecliptic(GSE) coordinates, Z component in meters.

Item No.	Word Offset	Byte Count From - to		Size bits	Content
64 Minor data frames - 6 bytes for each minor frame word, total 384 bytes					
14	13	53	436	3072	Minor frame word (MFW) Each MFW has 6 bytes for X, Y and Z components. The arrangement of the 6 bytes is: |byte0|byte1|byte2|byte3|byte4|byte5| | X1 | Y1 | Z1 | X2 | Y2 | Z2 | Note: The Serial Command byte within Digital Subcom (byte 595 of each logical data record) provides the SENSITIVITY, PRECISION and number of bits to shift left (in SINGLE PRECISION MODE). A DOUBLE PRECISION datum is a pair of bytes (16 bits) such as X2X1, Y2Y1 or Z2Z1 where the sign bit is the left most bit of X2, Y2 Z2. The sign bit is reversed to create an IBM integer value since the magnetometer used a sign bit of 1 to indicate a positive number and a sign bit of 0 to indicate a negative number. A SINGLE PRECISION datum is an 8 bit value stored anywhere within the two byte (16 bit) pairs X2X1, Y2Y1 and Z2Z1. The 8 bits are right justified in the 2 byte pair and then shifted N bits left according to the bit shift value stored in the serial command indicator. Please see the ISEE magnetometer data processing software included in this archive for an example of how to unpack this datum.

Proj ID	Word Offset	Byte Count From - to		Size bits	Content
Analog Subcom Sequence No. 1, total 64 bytes					

Word offset 109, from byte 437 to 500

Proj ID	Word Offset	Byte Count From	Byte Count to	Size bits	Content
BA	109	437	437	8	Power monitor, Solar Wind Housekeeping
BA		438	438	8	"
BA		439	439	8	Poser monitor, Fast Plasma Housekeeping
BA		440	440	8	"
AN	110	441	441	8	Monitors; 0, +6V, +12V, PT1
AN		442	442	8	Monitors; 200V, -6V, -12V, PT2
OG		443	443	8	A1, A2, B1, B2
GU		444	444	8	Summed Voltage
HO	111	445	445	8	+15KV Monitor
HO		446	446	8	4.5KV Monitor, -7.5 Cold Plate(T), Det Bias
HO		447	447	8	TBD
HO		448	448	8	TBD
HO	112	449	449	8	TBD
OG		450	450	8	A Step Supply
OG		451	451	8	B Step Supply
FR		452	452	8	+7.5V, -7.5V, +12V, +27V, A System
BA	113	453	453	8	Temperature, SWE Electronics
BA		454	454	8	Temperature, FPE electronics
SE		455	455	8	Temperature, Upper Center Column - A DHU; Lower Center Column - B DHU
AM		456	456	8	Temperature, PAS Scanner
AN	114	457	457	8	Temperature, SST Box
AN		458	458	8	Temperature, FVA box
FR		459	459	8	Temperature, Detectors(channeltrons)
WI		460	460	8	Temperature, (Detector)
GU	115	461	461	8	Temperature, Main Box electrons
HO		462	462	8	Temperature
HO		463	463	8	Temperature
HP		464	464	8	Temperature, +Pre-Amp (-Pre-Amp ON B DHU)
HP	116	465	465	8	Temperature, Electronics Box
RU		466	466	8	Temperature, Flipper
RU		467	467	8	Temperature, Electronics (Sensor temperature)
HA		468	468	8	Temperature, Main Electronics M2 - Redundant Thermistor in M1
FR	117	469	469	8	Temperature, L. V. Power Supply
WI		470	470	8	Supply Monitors Commutate by 64
WI		471	471	8	Supply Monitors Commutate by 64
WI		472	472	8	Supply Monitors Commutate by 64
WI	118	473	473	8	Supply Monitors Commutate by 64
HA		474	474	8	Supply Monitors Commutate by 8(Harvey Status)
GU		475	475	8	Power Monitor
HA		476	476	8	Propagation/Saunder monitor(Five level signal showing state of Experiment)
HE	119	477	477	8	Power Monitor
HP		478	478	8	Power Monitor 1
HP		479	479	8	Power Monitor 2
MO		480	480	8	4 Hz filter output
MO	120	481	481	8	+5 Volt Bus Monitor
MO		482	482	8	+50 Volt Bus Monitor
MO		483	483	8	Commutate by 4 (Gun 1 + 2 currents; Ant 1 + 2 lengths)
OG		484	484	8	LV Supply
CM	121	485	485	8	-10V Monitor CMD DEC A
HA		486	486	8	Supply Monitors Commutate by 8
HP		487	487	8	E Cos
HP		488	488	8	E Sin
HP	122	489	489	8	DC Detector
SH		490	490	8	Monitor Voltages Commutate by 4
SH		491	491	8	Housekeeping, Commutate by 4 (Head 1)
SH		492	492	8	Housekeeping, Commutate by 4 (Head 1)
SH	123	493	493	8	Monitor Voltages Commutate by 4
SH		494	494	8	Housekeeping, Commutate by 4 (Head 2)
SH		495	495	8	Housekeeping, Commutate by 4 (Head 2)
MO		496	496	8	Experiment Current Monitor
OG	124	497	497	8	Det A 4KV Monitor
OG		498	498	8	Det B 4KV Monitor
RU		499	499	8	Power Monitor
FR		500	500	8	+7.5V, -7.5V, +12V, +27V, B System

Analog Subcom Sequence No. 2, total 64 bytes
Word offset 125, from byte 501 to 564

Proj ID	Word Offset	Byte Count From	Byte Count to	Size bits	Content
RU	125	501	501	8	Flipper Power
AT		502	502	8	Tank Pressure High

AT		503	503	8	Tank Pressure Low
AN		504	504	8	Power monitor
AN	126	505	505	8	Converter Voltages TBD
AN		506	506	8	Converter Voltages TBD
AN		507	507	8	Converter Voltages TBD
AM		508	508	8	+5V Mon-(SAS)
AM	127	509	509	8	+10V Mon-(PAS)
CM		510	510	8	+10V Mon-Dec A
CM		511	511	8	+10V Mon-Dec B
PW		512	512	8	SA Thermistor ID
HO	128	513	513	8	+15KV and two others Subcommed
HO		514	514	8	+4.5KV, -7.5, Cold Plate(T), Detector Bias
WI		515	515	8	Scan Platform Position
FR		516	516	8	Log Amplifier (H V Mon)
GU	129	517	517	8	Temperature, Search Coils
FU		518	518	8	Temperature, Short Electric
MO		519	519	8	Temperature, Commutate by 4
AT		520	520	8	Temperature, AOCS Boom (+y A DHU; -y B DHU)
AT	130	521	521	8	Temperature, AOCS Tank (#1 A DHU; #2 B DHU)
AM		522	522	8	Temperature, SAS Electronics
AM		523	523	8	Temperature, PAS Electronics
CM		524	524	8	Temperature, GMD Decoder A
PW	131	525	525	8	Temperature, Battery
PW		526	526	8	Temperature, Power Module
PW		527	527	8	Temperature, MAM
SD		528	528	8	Temperature, Transponder A
SD	132	529	529	8	Temperature, Transponder B
SE		530	530	8	Temperature, S/C Structure - Upper Surface of Shelf
SD		531	531	8	Temperature, Power Amplifier Transmitter A
SD		532	532	8	Temperature, Power Amplifier Transmitter B
FR	133	533	533	8	Log Amplifier (H V Mon)
SD		534	534	8	MGANT Current, HP +V Length
SD		535	535	8	MGANT Current, HP -V Length
CM		536	536	8	-10V MON CMD DEC B
TL	134	537	537	8	Radiation Monitor (Bar Graph)
TL		538	538	8	A/D Ramp (Bar Graph)
PW		539	539	8	Solar Array Current
PW		540	540	8	Shunt Dump Current
PW	135	541	541	8	Battery Charge
PW		542	542	8	Battery Discharge
PW		543	543	8	Battery Voltage
PW		544	544	8	Main Bus Voltage
PW	136	545	545	8	Non-Essential Course Current(0-8 amp)
PW		546	546	8	Essential Current
WI		547	547	8	Scan Platform Position
FR		548	548	8	Log Amplifier (H V Mon)
SD	137	549	549	8	Signal Strength A (AGC)
SD		550	550	8	Signal Strength B (AGC)
SD		551	551	8	Static Phase Error A
SD		552	552	8	Static Phase Error B
SD	138	553	553	8	Receiver A Converter Voltage
SD		554	554	8	Transmitter A Converter Voltage
SD		555	555	8	Receiver B Converter Voltage
SD		556	556	8	Transmitter B Converter Voltage
SD	139	557	557	8	RF Power Transmitter A
SD		558	558	8	RF Power Transmitter B
TL		559	559	8	+2.5V @ 2 meg
TL		560	560	8	+2.5V
TL	140	561	561	8	+5.0V cal
TL		562	562	8	+0.1V cal
TL		563	563	8	+3.2V cal
FR		564	564	8	Log Amplifier (H V Mon)

Proj ID	Word Offset	Byte Count From - to		Size bits	Content
Digital Subcom					total 64 bytes Word offset 141, from byte 565 to 628
AM	141	565	565	8	Attitude Measurement PAS Data - Status Bits
AM		566	566	8	and 6 - 10 bit words for LOS3, AOS3, LOS2, AOS2,
AM		567	567	8	LOS1, AOS1
AM		568	568	8	LOS1
AM	142	569	569	8	LOS1
AM		570	570	8	LOS1
AM		571	571	8	LOS1
AM		572	572	8	LOS1

AM	143	573	573	8	LOS1
AM		574	574	8	LOS1
AT		575	576	16	Valves enabled, Manuever Complete, Prime
PW	144	577	577	8	Status Reg, Boost Reg, Battery, Auto Load, BUV
TL		578	578	8	Transponder A, B, Status
TL		579	579	8	Transponder A, B, Status
CM		580	580	8	CMD Counter A
CM	145	581	581	8	CMD Counter B
CM		582	582	8	Antenna Status, SD, MO, HP
CM		583	583	8	BAM Back-up and MOM Spheres EED's (1=ARM)
CM		584	584	8	BAM Prime and MOM Sphere Covers EED (1=ARM)
AN	146	585	585	8	FVA, SST Status
HA		586	586	8	Dig. HK, Subcom with item 192 to give 8 words per Major Frame
CM		587	587	8	HA/HE Flag (0=HE, 1=HA)
**		588	588	8	Spare
MO	147	589	592	32	Subcommutated by 8 in the Experiment, giving a total of 256 monitor bits (flags)
FR	148	593	593	8	DPU Status
**		594	594	8	Spare
RU		595	595	8	DMD Readout (Magnetometer) Status - Serial Command
TL		596	596	8	Data System ID (1 = DHU-B)
TL	149	597	597	8	Suntime (MSB)
TL		598	598	8	Suntime
TL		599	599	8	Spin Period (MSB)
TL		600	600	8	Spin Period
TL	150	601	601	8	Mag Time (MSB)
TL		602	602	8	Mag Time
TL		603	603	8	Mag Period (MSB)
TL		604	604	8	Mag Period
TL	151	605	605	8	SSC CMD Reg Status, All but 4 MSB's
TL		606	606	8	SSC CMD Reg Status, All but 4 MSB's
TL		607	607	8	SSC CMD Reg Status, All but 4 MSB's
AM		608	608	8	SAS Angle Data (MSB)
AM	152	609	609	8	SAS Angle Data (MSB)
HE		610	610	8	Gain of each of 6 channels + Mode, Cal Status
HE		611	611	8	Gain of each of 6 channels
HE		612	612	8	Gain of each of 6 channels
HE	153	613	613	8	Gain of each of 6 channels
CM		614	614	8	Antenna Status, SD, MO, HP
AT		615	616	16	Valves enabled, Manuever Complete, Prime
AN	154	617	617	8	FVA, SST Status
HA		618	618	8	Dig. HK, Subcom with item 163 to give 8 words per Major Frame
CM		619	619	8	CMD Counter A
CM		620	620	8	CMD Counter B
WI	155	621	621	8	Subcom of Heavy Ion Data
WI		622	622	8	Subcom of Heavy Ion Data
WI		623	623	8	Subcom of Heavy Ion Data
WI		624	624	8	Subcom of Heavy Ion Data
HP	156	625	625	8	+V Limit Flags (1 = stored/fully deployed, 0 = Mid-length)
HP		626	626	8	-V Limit Flags (1 = stored/fully deployed, 0 = Mid-length)
CM		627	627	8	Battery Present (1=3 SSS or Bypass is closed)
CM		628	628	8	Transmitter B Status (1 = on)

CONTENTS_OF_EACH_LOGICAL_EOF_BLOCK:

Note: All integer numbers are in IBM integer format.
For example: 21 will be in hexadecimal '0015'
11 will be in hexadecimal '000B'

- Logical EOF block:
The logical EOF block has a total 2520 bytes made up of 630 4-byte words filled with the number -999 in IBM integer format. Two consecutive logical EOF blocks are used to indicate the end of the disk file.

Tape FILE EOF Block Format:

Item No.	Word Offset	Byte Count From - to	Size bits	Content

1	0	1	2520	2520*8	Each word is filled with number -999 in IBM integer format

ISEE-1_EXPERIMENTER_ID_CODES:

Exp ID	Project Code	Investigator
01	ANM	Dr. Anderson
02	BAM	Dr. Bame
03	FRM	Dr. Frank
04	GUM	Dr. Gurnett
05	HAM	Dr. Harvey
06	HEM	Dr. Helliwell
07	HOM	Dr. Hovestadt
08	HPM	Dr. Heppner
09	MOM	Dr. Mozer
00	OGM	Dr. Ogilvie
11	RUM	Dr. Russell
12	SHM	Dr. Sharp
13	WIM	Dr. Williams

MISCELLANEOUS_ATTRIBUTES:
The information included in the CONTENTS_OF_EACH_DATA_BLOCK section above were keypunched directly from the documentation originally received from GSFC. Occasionally, text has been inserted to explain items of importance to ISEE magnetometer data processing. Also, on some occasions, the original documentation was incomplete or unreadable. In these instances, every effort has been made to fill in the information gaps and all items required to process ISEE magnetometer data have been documented.

Throughout this document, the data have been referred to as "4-BYTE IBM_INTEGER" format. This is only partially true in that most of the data items are only a few bits or bytes in length and must be unpacked into full four byte values. The tables above clearly indicate the size of each item in bits and include the word and byte location of each item in the logical data record. The ISEE magnetometer data processing software archived on this disk demonstrates how to unpack this data. The term "4-BYTE IBM_INTEGER" describes a format for storing whole numbers on a variety of computer systems. This includes the IEEE integer format used by most UNIX computer systems. In this representation, the highest order bit is the sign bit (0 for a positive number and 1 for a negative number) and the remaining 31 bits are the magnitude of the datum with the highest order bit being the most significant bit and a negative number being represented by its two's complement.

/* EOF */

```
* ------------------------------------------------------------------------ *
*                                                                          *
* aareadme.txt - This file contains a list of the files in the [000000]    *
*                directory of the Optimem 1000 Write-Once Read-Many disk   *
*                platters containing the Multi-Coordinate Ephemeris (MCE)  *
*                data set of the International Sun-Earth Explorers (ISEE)  *
*                1 and 2 spacecraft of the United States National          *
*                Aeronautics and Space Adminstration (NASA).               *
*                                                                          *
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*                                                                          *
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*     Telephone:          (310)825-3188                                    *
*                                                                          *
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*     Telephone:          (310)825-9030                                    *
*                                                                          *
* ------------------------------------------------------------------------ *
```

AAREADME.TXT

This file contains a map showing how the files in the [000000] directory of the ISEE MCE WORM disk are used to read and interpret the ISEE MCE dataset. Included herein is a brief description of the purpose of each file. The files themselves contain more complete documentation.

WORM disk files:

voldesc.sfd - SFDU volume description file for this disk. This file contains spacecraft and instrument descriptions, an overview of the MCE dataset, a list of the data files included on the disk with their start and stop times, and a list of the support files that have been included on the disk. These support files are described more fully in this AAREADME.TXT file.

mce.sfd - SFDU detailed dataset description. This file provides a detailed layout of the MCE dataset including a description of each item in the MCE dataset and its word location in the header or data records.

DEC VMS files:

mce - Program to read ISEE MCE data files and write their contents to SYS$OUTPUT. It is contructed from these files:

MCE.COM - Compile and link command file MCE.FOR
MCE.FOR - FORTRAN program to write out ISEE MCE data files
CTIME.FOR - FORTRAN time subroutines used by MCE.FOR

IGPP.FOR - FORTRAN general subroutines used by MCE.FOR

Sun UNIX files:

Makefile - Input file for the UNIX "make" command. It builds the library libIGPP.a and compiles and links all Sun MCE programs.

libIGPP.a - Subroutine library created by Makefile and used by all Sun MCE programs. It is constructed from these files:

```
convert.c  - C language data conversion functions
ctime.c    - C language time functions
flat.F     - FORTRAN UCLA-IGPP flat file subroutines
flatcom.f  - FORTRAN include file for flat.F
igppfort.f - FORTRAN general subroutines
igpplib.c  - C language general functions
```

mce - Program to read ISEE MCE data files and write their contents to standard output. It is contructed from these files:

```
mce.f      - FORTRAN program to write out ISEE MCE data files
libIGPP.a  - UCLA-IGPP subroutine library described above
```

atorb - Program to read and interpret ISEE MCE data and write out a UCLA-IGPP flat file (Please refer to comments in the source code for furthur details concerning flat files). It is contructed from the first three files listed below and uses the last four files:

```
atorb.f    - FORTRAN program to read and interpret MCE data
aolib.f    - FORTRAN subroutines included in atorb.f
libIGPP.a  - UCLA-IGPP subroutine library described above

aperigee.dat - ISEE 1 perigee times & altitude, read by atorb
bperigee.dat - ISEE 2 perigee times & altitude, read by atorb
iseelmce.dat - ISEE 1 MCE start/stop times, read by atorb
isee2mce.dat - ISEE 2 MCE start/stop times, read by atorb
```

ao2ascii - Program to read a UCLA-IGPP flat file containing ISEE MCE data and write the information to standard output. It is contructed from these files:

```
ao2ascii.f - FORTRAN program to write out ISEE MCE Flat files
libIGPP.a  - UCLA-IGPP subroutine library described above
```

USAGE NOTES - To use the Sun UNIX programs, FTP in ASCII mode the source code from VMS to UNIX. Rename the FORTRAN file "flat.f" to "flat.F" for use by cpp (the makefile will attempt to do this automatically). Type "make all" to compile and link all the ISEE MCE programs. To move the ISEE MCE data files use the BINARY mode of FTP.

To determine which ISEE MCE data groups are needed to process certain ISEE orbits with ATORB, cross reference the MCE data file start and stop times in the "iseeXmce.dat" files with the ISEE orbital start times in the "Xperigee.dat" files.

For information about this software please contact:

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This file contains a list of the files in the [SOURCE] directory of the Optimum 1000 Write-Once Read-Many disk platters containing the raw DECOM data set of the fluxgate magnetometers on the International Sun-Earth Explorers (ISEE) 1 and 2 spacecraft of the United States National Aeronautics and Space Administration(NASA).

ADDITIONAL DOCUMENTATION

Additional documentation resides in the [000000] directory of this WORM disk in the files VOLDESC.SFD and DECOM1.SFD or DECOM2.SFD.

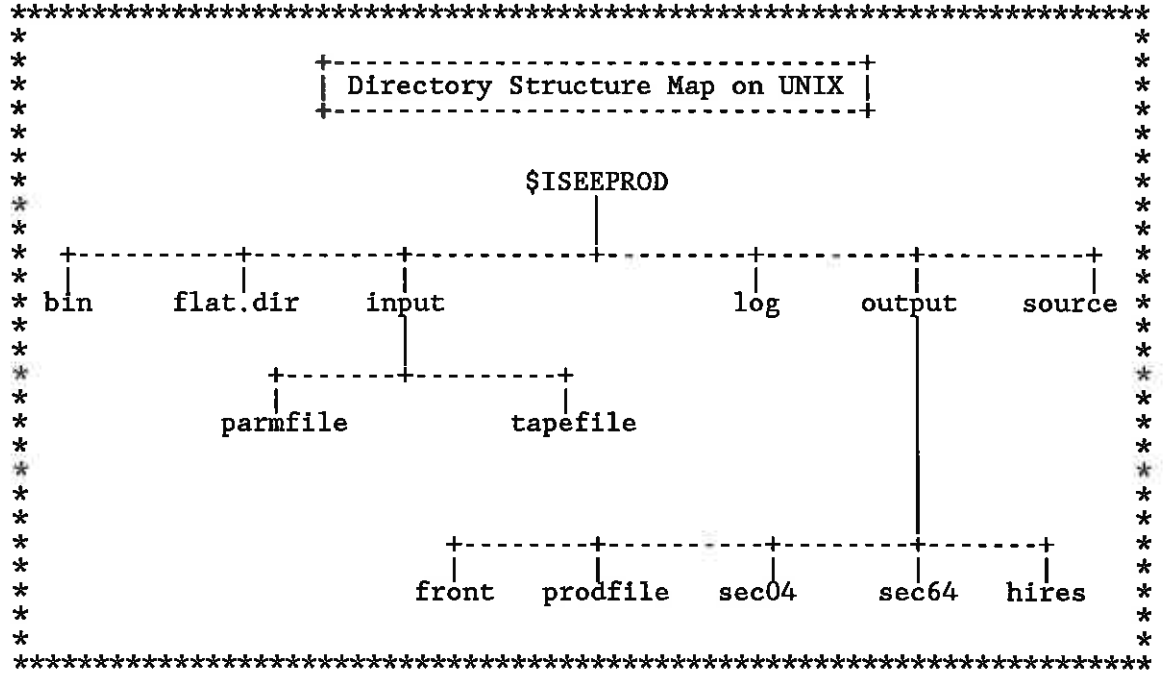
*voldesc.sfd - SFDU volume description file for this disk. This file contains spacecraft and instrument descriptions, an overview of the DECOM dataset, a list of the data files included on the disk with their start and stop times, and a list of the support files that have been included on the disk. These support files are described more fully in this AAREADME.TXT file.

decom1.sfd or decom2.sfd - SFDU detailed dataset descriptions. These files provide a detailed layout of the DECOM datasets including a description of each item in the DECOM datasets and their word and byte locations in the header or data records. decom1.sfd is included on WORM disks of ISEE-1 magnetometer DECOM data and decom2.sfd in included on WORM disks of ISEE-2 magnetometer DECOM data.

AAREADME.TXT

NAME: AAREADME.TXT
PURPOSE: This file contains a map showing how the files in the

```
*           [SOURCE] directory of the ISEE magnetometer DECOM WORM    *
*           disk are used to make the ISEE production dataset.        *
*           Included herein is a brief description of the purpose of  *
*           each file along with the Sun/UNIX directory structure for *
*           ISEE magnetometer DECOM data processing.                  *
* INPUT:    N/A                                                       *
* OUTPUT:   N/A                                                       *
**********************************************************************
```




```
*                  +-----------------------------+                  *
*                  |  File Structure Map on UNIX |                  *
*                  +-----------------------------+                  *
*                                                                   *
* bin       -- Contains executable files for the source code files  *
*              in the source directory.                             *
* flat.dir  -- ATIMES.ffh, ATIMES.ffd, BTIMES.ffh, BTIMES.ffd (DECOM*
*              group start/stop times); and aperigee.ffh, aperigee.ffd,*
*              bperigee.ffh, bperigee.ffd (ISEE perigee times)      *
* parmfile  -- ainput.dat and binput.dat (input parameter file for  *
*              program parmedit.f)                                  *
* tapefile  -- Contains the magnetometer DECOM data files, e.g.     *
*              dec20604.dat, ready for use by the production programs*
* log       -- Log message files from program makeprod_a or makeprod_b,*
*              e.g. pkb0604.  And, Log message files from program   *
*              iseeprodff.c, e.g. b0604.  It contains the working   *
*              parameter files for program icat.F, e.g. parm####.icat.*
* front     -- Brief information files("Front Page") from makeprod_a or*
*              makeprod_b, e.g. BF0604.                             *
* prodfile  -- The output file for makeprod_a or makeprod_b, e.g.    *
*              B00604.                                              *
* hires     -- The default directory for iseeprodff.c high resolution*
*              output data, e.g.  bhi0604.ffh, bhi0604.ffd.         *
* sec04     -- The default directory for iseeprodff.c 4 sec resolution*
*              output data, e.g.  b4s0604.ffh, b4s604.ffd.          *
* sec64     -- The default directory for iseeprodff.c 64 sec resolution*
*              output data, e.g.  b64s0604.ffh, b64s0604.ffd.       *
* source    -- The source code for ISEE production programs:        *
*                                                                   *
*              AAREADME.TXT   flat2ascii.c   parmlist.c    yams.f   *
*              Makefile       flatcom.f      qbms.f        yas1.f   *
*              convert.c      icat.F         qbs1.f        yas2.f   *
*              convert.for    igppfort.f     qbs2.f        yas3.f   *
*              ctime.c        igpplib.c      qbs3.f                 *
*              ff_igpp.c      iseeprodff.c   time_igpp.c             *
*              ff_igpp.h      jtlib.f        time_igpp.h            *
*              flat.F         parmedit.f     whowner.c              *
*                                                                   *
```

```
**********************************************************************

**********************************************************************
*                    Library Files and Resource Files                *
*--------------------------------------------------------------------*
*  flat.dir      - The directory containing the resource data files in *
*                  UCLA-IGPP flat file format.  ATIMES and BTIMES     *
*                  contain DECOM group start and stop times.  aperigee *
*                  and bperigee contain ISEE orbital perigee times.  *
*                                                                    *
*  ff_igpp.c     - UCLA-IGPP flat file subroutines for C language     *
*                  programs.                                         *
*                                                                    *
*  ff_igpp.h     - C language header file for ff_igpp.c.              *
*                                                                    *
*  time_igpp.c   - Time function subroutines for C language programs. *
*                                                                    *
*  time_igpp.h   - C language header file for time_igpp.c.            *
*                                                                    *
*  ctime.c       - Time function subroutines for C or FORTRAN programs.*
*                                                                    *
*  flat.F        - UCLA-IGPP flat file subroutines for C or FORTRAN   *
*                  programs.                                         *
*                                                                    *
*  igppfort.f    - FORTRAN language general subroutines.             *
*                                                                    *
*  igpplib.c     - C language general functions.                     *
*                                                                    *
*  convert.c     - C language data conversion functions.             *
*                                                                    *
*  convert.for   - FORTRAN data conversion subroutines for VMS.      *
*                                                                    *
*  jtlib.f       - Perigee time and orbit information functions, the  *
*                  input resource files are under isee/flat.dir      *
*                                                                    *
*  whowner.f     - function to extract user ID for icat parameter file.*
*                                                                    *
**********************************************************************

**********************************************************************
*                           ISEE-TAR.Z                               *
*--------------------------------------------------------------------*
* NAME:     isee-tar.Z                                               *
* PURPOSE:  Input file for the UNIX "tar" command.   The "tar" command*
*           uses this file to create the ISEE DECOM production file  *
*           structure described above in the "file structure map"    *
*           section.                                                 *
* FUNCTION: UNIX "tar" file containing the ISEE production file      *
*           structure.                                               *
**********************************************************************

**********************************************************************
*                           Makefile                                 *
*--------------------------------------------------------------------*
* NAME:     makefile                                                 *
* PURPOSE:  Input file for the UNIX "make" command.  It compiles and *
*           links all ISEE production programs for Sun/UNIX systems. *
* FUNCTION: An ASCII text file used by the UNIX "make" command.      *
* INPUT:    The source code files under $ISEEPROD/isee/source        *
* OUTPUT:   The executable UNIX binary files under $ISEEPROD/isee/bin *
* NOTE:     See the UNIX manuals for a description of "make".        *
**********************************************************************

**********************************************************************
*                           parmedit.f                               *
*--------------------------------------------------------------------*
* NAME:     parmedit.f   (Old name: yiput.f)                         *
* PURPOSE:  Display and edit the input parameters for the ISEE DECOM  *
*           production program.  The parameters include:  spacecraft *
*           ID, group number, start/stop time, spin period, flip     *
*           state, etc.                                              *
* INPUT:    $ISEEPROD/input/parmfile/ainput.dat or $ISEEPROD/input/  *
*           parmfile/binput.dat.                                     *
* OUTPUT:   None, except updating the above input files.             *
* FUNCTION: This program asks for a group number then allows the     *
*           parameters for this group to be edited.                  *
```

```
* LIB:      ctime.c convert.c                                              *
*********************************************************************

*********************************************************************
*                          parmlist.c                                 *
*-------------------------------------------------------------------*
* NAME:     parmlist.c                                                 *
* PURPOSE:  Reads the ISEE production input parameter files and writes*
*           an ASCII version of the information.                       *
* INPUT:    $ISEEPROD/input/parmfile/ainput.dat or $ISEEPROD/input/    *
*           parmfile/binput.dat.                                       *
* OUTPUT:   An ASCII file specified by the user.                       *
* FUNCTION: This program reads the binary production input parameter   *
*           files and writes out the information as ASCII text.  This *
*           allows the user to more easily review the information.     *
* LIB:      time_igpp.c                                                *
*********************************************************************

*********************************************************************
*              makeprod_a(yams.f, yas1.f, yas2.f and yas3.f)          *
*-------------------------------------------------------------------*
* NAME:     makeprod_a (includes yams.f, yas1.f, yas2.f and yas3.f)    *
* PURPOSE:  Reads in a magnetometer DECOM file, processes the data     *
*           and creates an ISEE production disk file.  The program     *
*           also creates a front page file, which is a log file of     *
*           the production run.                                        *
* INPUT:    $ISEEPROD/input/tapefile/dec1GGGG.dat, where GGGG is the   *
*           group number.                                              *
* OUTPUT:  -$ISEEPROD/output/prodfile/AOGGGG, where GGGG is the group  *
*           number.  This is the magnetometer production output file.  *
*          -$ISEEPROD/output/front/AFGGGG, where GGGG is the group     *
*           number.  This is the "front page" information file.        *
*          -$ISEEPROD/log/pkaGGGG, where GGGG is the group number.     *
*           This file is updated periodically to show how far the      *
*           program has progressed through the input data file.        *
* FUNCTION: This is the main program for ISEE-A data processing.       *
* LIB:      ctime.c flat.F igppfort.c igpplib.f convert.c jtlib.f      *
*********************************************************************

*********************************************************************
*              makeprod_b(qbms.f, qbs1.f, qbs2.f and qbs3.f)          *
*-------------------------------------------------------------------*
* NAME:     makeprod_b (includes qbms.f, qbs1.f, qbs2 and qbs3.f)      *
* PURPOSE:  Reads in a magnetometer DECOM file, processes the data     *
*           and creates an ISEE production disk file.  The program     *
*           also creates a front page file, which is a log file of     *
*           the production run.                                        *
* INPUT:    $ISEEPROD/input/tapefile/dec2GGGG.dat, where GGGG is the   *
*           group number.                                              *
* OUTPUT:  -$ISEEPROD/output/prodfile/BOGGGG, where GGGG is the group  *
*           number.  This is the magnetometer production output file.  *
*          -$ISEEPROD/output/front/BFGGGG, where GGGG is the group     *
*           number.  This is the "front page" information file.        *
*          -$ISEEPROD/log/pkbGGGG, where GGGG is the group number.     *
*           This file is updated periodically to show how far the      *
*           program has progressed through the input data file.        *
* FUNCTION: This is the main program for ISEE-B data processing.       *
* LIB:      ctime.c, flat.F, igppfort.f igpplib.f, convert.c, jtlib.f  *
*********************************************************************

*********************************************************************
*                            iseeprodff.c                             *
*-------------------------------------------------------------------*
* NAME:     iseeprodff.c                                               *
* PURPOSE:  Reads ISEE production output files created by programs     *
*           makeprod_a or makeprod_b and creates three data files,     *
*           one with 64 second resolution data, one with 4 second      *
*           resolution data and one with undespun high resolution      *
*           sensor data (usually there is a value every ~0.25 seconds  *
*           but every fifth orbit there is a value every 1/16 second).*
*           The user has the option to write the three files in either*
*           ASCII format or as a UCLA-IGPP flat file.                  *
* INPUT:    $ISEEPROD/output/prodfile/XOGGGG, where X is spacecraft    *
*           ID (A or B) and GGGG is the group number.                  *
* OUTPUT:   -By default, the output files are placed in the directories*
*           $ISEEPROD/output/[sec04,sec64,hires].  The user is allowed*
```

```
*           to specify an alternate directory path where all output   *
*           data files will be located.  The files are named X64sGGGG,*
*           X4sGGGG and XhiGGGG, where X is the spacecraft ID (a or b)*
*           and GGGG is the group number.  If the user selects ASCII  *
*           output format, the files have the type extension ".asc",  *
*           if the user selects the UCLA-IGPP flat file format then a *
*           pair of files are written, an ASCII file containing meta  *
*           data with the type extension ".ffh" and a binary file     *
*           containing a flat table of time-tagged data records with  *
*           the type extension ".ffd".                                *
*          -$ISEEPROD/log/XGGGG, where X is the spacecraft ID (a or b)*
*           and GGGG is the group number.  This file contains any     *
*           notes and problems encountered during the processing.     *
* LIB:      ff_igpp.c time_igpp.c whowner.c                           *
* NOTE:     To generate despun high resolution data, one must use the *
*           program icat.F to read a production output file and create*
*           a UCLA-IGPP flat file.  One may then use the program      *
*           flat2ascii.c to convert the despun data set to ASCII text.*
*************************************************************************


*************************************************************************
*                              icat.F                                   *
*-----------------------------------------------------------------------*
* NAME:     icat.F  (Old name: icat.f)                                  *
* PURPOSE:  Reads ISEE production output files created by programs    *
*           makeprod_a or makeprod_b and creates a UCLA-IGPP flat file*
*           containing user selected portions of the data.  icat.F can*
*           extract 64 second, 4 second or despun high resolution data*
*           for a user specified start and stop time.  It also allows *
*           the user to select an arbitrary averaging interval for the*
*           high resolution data, allows data of any resolution to be *
*           provided in spacecraft, GSE or GSM coordinates and it can *
*           include GSE or GSM trajectory information with the        *
*           magnetometer data, all at the user's option.              *
* INPUT:    $ISEEPROD/output/prodfile/XOGGGG, where X is spacecraft ID*
*           (A or B) and GGGG is the group number.                    *
* OUTPUT:  -User specified UCLA-IGPP flat file containing a user      *
*           selected subset of the ISEE magnetometer data.            *
*          -$ISEEPROD/log/parmXXXX.icat, where XXXX is the four digit *
*           UNIX user ID.  This file contains the responses by a user *
*           to the questions asked by icat during that user's last run*
*           of the program.  These answers are used as the default    *
*           answers for the next run of icat by that user.  This makes*
*           it easier for a user to extract multiple data sets where  *
*           the user's input parameters change very little.           *
* LIB:      ctime.c flat.F igppfort.f igpplib.c convert.c jtlib.f     *
* NOTE:     At UCLA, the production output files are generally stored *
*           on magnetic tape using an HP9000 (HP-UX) computer.  Data  *
*           is extracted from these tapes using the program icat.F.   *
*************************************************************************


*************************************************************************
*                           flat2ascii.c                                *
*-----------------------------------------------------------------------*
* NAME:     flat2ascii.c                                                *
* PURPOSE:  Reads a UCLA-IGPP flat file and writes the contents to an *
*           ASCII file.                                               *
* INPUT:    A UCLA-IGPP flat file, which is made up of two files, an  *
*           ASCII file containing meta data with the type extension   *
*           ".ffh" and a binary file containing a flat table of       *
*           time-tagged data records with the type extension ".ffd".  *
* OUTPUT:   An ASCII file containing the meta data and instrument data*
*           from a UCLA-IGPP flat file with the same filename as the  *
*           input flat file, but with the type extension ".asc".      *
*           The data records in the ASCII file are of the format:     *
*           YY DOY MM DAY HH:MM:SS.MSEC  99999.9  ....   ....  999.99 *
*                                       |--- all columns of data --| *
* LIB:      ff_time.c                                                 *
* NOTE:     This program does not use the UCLA-IGPP flat file library.*
*************************************************************************


*************************************************************************
* USAGE on Sun/UNIX systems:                                            *
* -------------------------                                             *
*  -FTP in binary mode the file ISEE-TAR.Z to a Sun/UNIX system.      *
*   After the transfer the file will have the name isee-tar.z.  Rename*
*   the file by typing "mv isee-tar.z isee-tar.Z".  Uncompress the    *
```

```
*   file by typing "uncompress isee-tar.Z".  You now have the file    *
*   "isee-tar".                                                       *
*  -Select a directory as the ISEE production root directory and "cd" *
*   there.  Extract the ISEE production files and directory structure *
*   by typing "tar -xvf /path/isee-tar", where /path is the full path *
*   to where the file "isee-tar" is located.                          *
*  -Define the environment variable ISEEPROD to be the full directory *
*   path to the root directory of the ISEE production structure.  For *
*   example, if you typed "tar -vxf /path/isee-tar" while in the      *
*   directory /someroot/anysubdir/isee and you are using the C-shell, *
*   you should type "setenv ISEEPROD /someroot/anysubdir/isee".       *
*      !!!!!!!!!!!!!!!   This step must always be performed for the   *
*      !!!!!!!!!!!!!!!   ISEE magnetometer software to work.  You may *
*      !!! WARNING !!!   wish to add this command to your .login file *
*      !!!!!!!!!!!!!!!   or your .cshrc file so that it is done       *
*      !!!!!!!!!!!!!!!   automatically for you.                       *
*  -Type "make all" to compile and link all the ISEE production      *
*   programs.  One may also compile and link each program seperately  *
*   by typing "make <program name>".                                  *
*  -FTP in binary mode the magnetometer DECOM data file you want to   *
*   process to the directory $ISEEPROD/input/tapefile.                *
*  -Run $ISEEPROD/bin/makeprod a for ISEE-1 data and run $ISEEPROD/   *
*   bin/makeprod b for ISEE-2 data.  The output from these programs   *
*   will be $ISEEPROD/output/prodfile/XOGGGG, where X is 'A' or 'B'   *
*   and GGGG is the group number.                                     *
*  -Use the programs $ISEEPROD/bin/iseeprodff or $ISEEPROD/bin/icat to*
*   extract all or part of the data in the production output file.    *
*   Program iseeprodff will create UCLA-IGPP flat files or ASCII files*
*   of all the 64 sec data, 4 sec data and undespun high resolution   *
*   sensor data in the production output file.  Program icat will     *
*   create UCLA-IGPP flat files of a user specified portion of the    *
*   64 second, 4 second or despun high resolution data.  The user has *
*   the option to specify the start and stop time of the data, whether*
*   to average the high resolution data, whether to rotate the data to*
*   GSE or GSM coordinates and whether to include spacecraft position *
*   in the output data file.  Please note that a UCLA-IGPP flat file  *
*   is made up of two files, an ASCII file containing meta data with  *
*   the type extension ".ffh" and a binary file containing a flat     *
*   table of time-tagged data records with the type extension ".ffd". *
*  -Use the program $ISEEPROD/bin/flat2ascii to convert a UCLA-IGPP   *
*   flat file to an ASCII file.  The ASCII file will include both the *
*   meta data and the instrument data.  When using this program one   *
*   should exclude the file type extension when entering the name of  *
*   the flat file to be converted.  For example, if the flat file is  *
*   made up of the two files b64s0604.ffh (meta data file) and         *
*   b64s0604.ffd (instrument data file) one should enter "b64s0604" as*
*   the input file name to the program flat2ascii.  The output ASCII  *
*   file will have the name "b64s0604.asc".                           *
*                                                                     *
*  -Use parmlist.c to make an ASCII listing of the ISEE production    *
*   input parameter files.  Use parmedit.c to edit the ISEE production*
*   input parameter files.  The input parameters include spacecraft   *
*   ID, group number, group Start/Stop time, initial flip state,      *
*   inital spin period, offset values for X/Y/Z sensors, total number *
*   of tape files in the group, Bz adjustment values, Coupling        *
*   matrices, etc.                                                    *
*                                                                     *
*  -Type "make clearobj" to delete the object code files.             *
*                                                                     *
* USAGE on VAX/VMS systems:                                          *
* -------------------------                                          *
*   The UCLA magnetometer production software is only supported on Sun*
*   UNIX computer systems.  The file ISEE-TAR.Z in the [SOURCE]       *
*   directory has been provided to facilitate software installation on*
*   Sun computer systems.  All the files included in the Sun "tar"    *
*   file have also been included in the [SOURCE] directory in their   *
*   native form.  This includes both FORTRAN and C source code and    *
*   binary data files in Sun/UNIX format including IEEE floating point*
*   values.  The file convert.for includes FORTRAN subroutines to     *
*   convert from IEEE and IBM floating point to VMS floating point.   *
*   These subroutines can be used to modify the provided programs to  *
*   allow them to read IEEE binary data files on VMS.  Please contact *
*   the magnetometer team at UCLA for furthur details.                *
**********************************************************************
```

CCSD3ZF0000100000001CCSD3VS00002markeraa

LOG_VOL_IDENT: USA_NASA_NSSD_IC10_0001A
LOG_VOL_NSSDC_EXPT_ID: 77-I02A-00
LOG_VOL_INITIATION_DATE: 1989-09-18
LOG_VOL_CLOSING_DATE: 1993-09-21
LOG_VOL_CAPACITY: 1GB/Logical volume
LOG_VOL_FILE_STRUCTURE: Files-11

VOLUME_DIAMETER: 12 inches
VOLUME_DRIVE_MFGR_AND_MODEL: Optimem 1000
COMPUTER_MFGR: Digital Equipment Corporation
OPERATING_SYSTEM: MicroVMS 4.7
COMPUTER_SYSTEM: MicroVAX II
TRANSFER_SOFTWARE: SOAR Version 3.1

TECHNICAL_CONTACT:
Harry Herbert
University of California at Los Angeles
Institute of Geophysics and Planetary Physics
5833 Slichter Hall
Los Angeles, CA 90025-1567
(310) 825-9030
NSI=hherbert@igpp.ucla.edu
NSI-DECnet=BRUNET::HARRY

PREV_LOG_VOLS: None

CCSD$$MARKERmarkeraaCCSD3SS00002markerab

DATA_SET_NAME: Multi-Coordinate Ephemeris Data
DATA_SOURCES: International Sun-Earth Explorer 1 (ISEE-1)

SCIENTIFIC_CONTACT:
Dr. Christopher Russell
University of California at Los Angeles
Institute of Geophysics and Planetary Physics
6871 Slichter Hall
Los Angeles, CA 90025-1567
(310) 825-3188
NSI=ctrussel@igpp.ucla.edu
NSI-DECnet=BRUNET::CTRUSSELL

SOURCE_CHARACTERISTICS:

A. DESCRIPTION_OF_SPACECRAFT:
The Explorer-class spacecraft, ISEE-1 and ISEE-2 were part of the mother/daughter/heliocentric mission which consisted of ISEE-1, ISEE-2, and ISEE-3 spacecraft. These were spin stabilized spacecraft with their spin axes usually normal to the ecliptic plane. The spin axis of ISEE-1 was within 1 degree of the ecliptic pole throughout the mission. The spin axis of ISEE-2 was usually close to the ecliptic pole but was up to 90 degrees from the ecliptic pole on a few occasions. Solar panels provided the power for the instruments.

B. ORBIT_INFORMATION:
The mother/daughter portion of the mission consisted of two spacecraft, one with station-keeping capability, in a highly eccentric earth orbit with apogee at 23 earth radii. The spacecraft maintained a small, but variable, separation distance and made simultaneous coordinated measurements to permit separation of spatial from temporal irregularities in the near-earth solar wind, the bow shock, and inside the magnetosphere. The spin rate of ISEE-1 was set at 19.75 rpm, differing slightly from that of the ISEE-2 spacecraft, whose spin rate was set at 19.8 rpm.

C. PERFORMANCE:
The ISEE-1 and ISEE-2 spacecraft operated continuously from launch on October 22, 1977 to September 27, 1987 when they both reentered the Earth's atmosphere.

INVESTIGATION_OBJECTIVES:
The purposes of the mission were (1) to investigate solar/terrestrial relationships at the outermost boundaries of the earth's magnetosphere, (2) to examine in detail the structure of the solar wind near the earth and the shock wave that forms the interface between the solar wind and earth, and (3) to continue the investigation of cosmic rays and solar flares in the interplanetary region near 1 AU.

INSTRUMENT_ATTRIBUTES:
A. DESCRIPTION_OF_INSTRUMENT:
Not applicable.

B. OPERATIONAL_MODE:
Not applicable.

C. MEASURED_PARAMETERS:
Satellite position, speed, spin axis orientation and spin rate were determined.

D. PERFORMANCE_OF_THE_INSTRUMENT:
The instruments functioned with undiminished accuracy until re-entry.

E. RESOLUTION:
The temporal resolution of the data is one sample per minute.

PARAMETERS:
The archive includes the original MCE data as received from Goddard Space Flight Center.

DATA_SET_QUALITY:
The data submitted on this disk are of the same quality as was originally received from GSFC. During the copying process from magnetic tape to disk, a very small number of unrecoverable tape errors (parity errors) occurred which would result in the loss of 1 tape block (10 minutes) of data.

DATA_PROCESSING_OVERVIEW:
The MCE data was received on 9-track magnetic tapes written at 1600 BPI with one week of data on each tape. These tapes were copied to 9-track magnetic tapes at 6250 BPI with 25 weeks of data per copy tape. No changes were made to the data so the data retained its original blocking factor format. These copy tapes were then written to optical disk, again one disk file for each week of data, without any alteration to the data. Thus, the data contained on this optical disk is as close as possible to the original MCE data that was received from GSFC.

At UCLA the MCE data is processed on Sun/UNIX workstations by the FORTRAN program ATORB. ATORB reads the MCE data, calculates model field values and field line intercepts to 15 RE and then writes the data to UCLA-IGPP flat files. A UCLA-IGPP flat file is made up of a pair of data files. One contains ASCII metadata, the other contains a flat table of time-tagged binary data records. One flat file is written per orbit for each spacecraft where an orbit is from perigee to perigee. This file is later merged with 60 second averages of the ISEE-1 and ISEE-2 magnetometer data to produce the UCLA magnetometer one minute resolution summary dataset. ATORB and other UCLA programs to read and interpret the MCE data have been archived on this disk in the directory [000000]. The file AAREADME.TXT gives an overview of the various files. The individual source code files include more complete documentation.

DATA_USAGE:
The data in this archive are stored in IBM floating point format. Therefore, any computer program that reads this data on a VMS or UNIX system must convert the data to its native floating point format in order to utilize the information. Otherwise, the data are in standard geophysical units and are easily accessible and interpretable. The software archived on this disk demonstrates how to read these datasets, including conversion of floating point formats.

DATA_ORGANIZATION:
Each logical volume, one side of an optical disk, includes the MCE data for approximately one half of the entire mission for either ISEE-1 or ISEE-2. Thus, one optical disk, two logical volumes, contains the entire mission for one spacecraft and two optical disks include all the MCE data for ISEE-1 and ISEE-2.

TYPE_OF_FILE_RELATIONSHIPS:
There is only one type_of_file, which is the original MCE data measured every 60 seconds.

CCSD$$MARKERmarkerabCCSD3KS00002markerac

LOG_VOL_TIME_COVERAGE: 1977-10-22T14:49:00 TO 1983-01-02T05:59:00

TYPE_OF_FILE_TIME_COVERAGE:
Multi-Coordinate Ephemeris Data 1977-10-22T14:49:00 TO 1983-01-02T05:59:00

FILE_NAMING_CONVENTION:
File names are of the form MCE#XXXX.DAT where MCE is the type of data, # is a "1" for ISEE-1 data or a "2" for ISEE-2 data and XXXX is the four digit ISEE group number of the first group in that file with leading zeroes as needed.

Groups were sequentially numbered chunks of DECOM data. Groups 1 through 12

varied in length from 3 to 8 days. Starting with group 13 and continuing through the end of the mission, groups alternated between 3 days and 4 days of data. The original MCE data were distributed by Goddard Space Flight Center to the Principal Investigator teams using these same group numbers, however, beginning with groups 13 and 14, two data groups, 7 days of data, were included on each magnetic tape.

For example, the file MCE10013.DAT includes MCE data from January 1, 1978 at 00:00:00 through January 8, 1978 at 05:59:00. This covers the same basic time range as ISEE-1 DECOM data groups 13 and 14 since ISEE-1 DECOM group 13 includes data from January 1, 1978 at 00:00:00 through January 4, 1978 at 00:23:00 and ISEE-1 DECOM group 14 includes data from January 4, 1978 at 00:24:00 through January 8, 1978 at 00:01:00.

LOG VOL FILE TIME COVERAGE:

MCE1000I.DAT	1977-10-22T14:49:00	TO	1977-10-25T00:29:00
MCE10002.DAT	1977-10-25T00:08:00	TO	1977-11-01T09:00:00
MCE10003.DAT	1977-11-01T03:56:00	TO	1977-11-06T05:00:00
MCE10004.DAT	1977-11-05T22:47:00	TO	1977-11-11T17:00:00
MCE10005.DAT	1977-11-11T17:00:00	TO	1977-11-17T21:47:00
MCE10006.DAT	1977-11-17T21:47:00	TO	1977-11-23T06:00:00
MCE10007.DAT	1977-11-23T00:00:00	TO	1977-11-27T05:59:00
MCE10008.DAT	1977-11-27T00:00:00	TO	1977-12-04T05:59:00
MCE10009.DAT	1977-12-04T00:00:00	TO	1977-12-11T05:59:00
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MCE10011.DAT	1977-12-18T00:00:00	TO	1977-12-25T05:59:00
MCE10012.DAT	1977-12-25T00:00:00	TO	1978-01-01T05:59:00
MCE10013.DAT	1978-01-01T02:00:00	TO	1978-01-08T05:59:00
MCE10015.DAT	1978-01-08T00:00:00	TO	1978-01-15T05:59:00
MCE10017.DAT	1978-01-15T00:00:00	TO	1978-01-22T05:59:00
MCE10019.DAT	1978-01-22T00:00:00	TO	1978-01-29T05:59:00
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MCE10031.DAT	1978-03-05T00:00:00	TO	1978-03-12T05:59:00
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MCE10047.DAT	1978-04-30T00:00:00	TO	1978-05-07T05:59:00
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PREV_LOG_VOL_COVERAGE: None

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LABEL=NSSD3IF0007000000001;
REFERENCE="/ISEE1MCE/MCE1*.DAT";

LABEL=CCSD3SF0000200000001;
REFERENCE="AAREADME.TXT";
REFERENCE="AO2ASCII.F";
REFERENCE="AOLIB.F";
REFERENCE="APERIGEE.DAT";
REFERENCE="ATORB.F";
REFERENCE="BPERIGEE.DAT";
REFERENCE="CONVERT.C";
REFERENCE="CTIME.C";
REFERENCE="CTIME.FOR";
REFERENCE="FLAT.F";
REFERENCE="FLATCOM.F";
REFERENCE="IGPP.FOR";
REFERENCE="IGPPFORT.F";
REFERENCE="IGPPLIB.C";
REFERENCE="ISEE1MCE.DAT";
REFERENCE="ISEE2MCE.DAT";
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REFERENCE="MCE.COM";
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REFERENCE="MCE.F";
REFERENCE="MCE.FOR";

/* EOF */
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LOG_VOL_NSSDC_EXPT_ID: 77-I02A-00
LOG_VOL_INITIATION_DATE: 1989-09-27
LOG_VOL_CLOSING_DATE: 1993-09-21
LOG_VOL_CAPACITY: 1GB/Logical volume
LOG_VOL_FILE_STRUCTURE: Files-11

VOLUME_DIAMETER: 12 inches
VOLUME_DRIVE_MFGR_AND_MODEL: Optimem 1000
COMPUTER_MFGR: Digital Equipment Corporation
OPERATING_SYSTEM: MicroVMS 4.7
COMPUTER_SYSTEM: MicroVAX II
TRANSFER_SOFTWARE: SOAR Version 3.1

TECHNICAL_CONTACT: Harry Herbert
University of California at Los Angeles
Institute of Geophysics and Planetary Physics
5833 Slichter Hall
Los Angeles, CA 90025-1567
(310) 825-9030
NSI=hherbert@igpp.ucla.edu
NSI-DECnet=BRUNET::HARRY

PREV_LOG_VOLS: USA_NASA_NSSD_IC10_0001A

CCSD$$MARKERmarkeraaCCSD3SS00002markerab

DATA_SET_NAME: Multi-Coordinate Ephemeris Data
DATA_SOURCES: International Sun-Earth Explorer 1 (ISEE-1)

SCIENTIFIC_CONTACT: Dr. Christopher Russell
University of California at Los Angeles
Institute of Geophysics and Planetary Physics
6871 Slichter Hall
Los Angeles, CA 90025-1567
(310) 825-3188
NSI=ctrussel@igpp.ucla.edu
NSI-DECnet=BRUNET::CTRUSSELL

SOURCE_CHARACTERISTICS:

A. DESCRIPTION_OF_SPACECRAFT:
The Explorer-class spacecraft, ISEE-1 and ISEE-2 were part of the mother/daughter/heliocentric mission which consisted of ISEE-1, ISEE-2, and ISEE-3 spacecraft. These were spin stabilized spacecraft with their spin axes usually normal to the ecliptic plane. The spin axis of ISEE-1 was within 1 degree of the ecliptic pole throughout the mission. The spin axis of ISEE-2 was usually close to the ecliptic pole but was up to 90 degrees from the ecliptic pole on a few occasions. Solar panels provided the power for the instruments.

B. ORBIT_INFORMATION:
The mother/daughter portion of the mission consisted of two spacecraft, one with station-keeping capability, in a highly eccentric earth orbit with apogee at 23 earth radii. The spacecraft maintained a small, but variable, separation distance and made simultaneous coordinated measurements to permit separation of spatial from temporal irregularities in the near-earth solar wind, the bow shock, and inside the magnetosphere. The spin rate of ISEE-1 was set at 19.75 rpm, differing slightly from that of the ISEE-2 spacecraft, whose spin rate was set at 19.8 rpm.

C. PERFORMANCE:
The ISEE-1 and ISEE-2 spacecraft operated continuously from launch on October 22, 1977 to September 27, 1987 when they both reentered the Earth's atmosphere.

INVESTIGATION_OBJECTIVES:
The purposes of the mission were (1) to investigate solar/terrestrial relationships at the outermost boundaries of the earth's magnetosphere, (2) to examine in detail the structure of the solar wind near the earth and the shock wave that forms the interface between the solar wind and earth, and (3) to continue the investigation of cosmic rays and solar flares in the interplanetary region near 1 AU.

INSTRUMENT_ATTRIBUTES:
A. DESCRIPTION_OF_INSTRUMENT:
Not applicable.

B. OPERATIONAL_MODE:
Not applicable.

C. MEASURED_PARAMETERS:
Satellite position, speed, spin axis orientation and spin rate were determined.

D. PERFORMANCE_OF_THE_INSTRUMENT:
The instruments functioned with undiminished accuracy until re-entry.

E. RESOLUTION:
The temporal resolution of the data is one sample per minute.

PARAMETERS:
The archive includes the original MCE data as received from Goddard Space Flight Center.

DATA_SET_QUALITY:
The data submitted on this disk are of the same quality as was originally received from GSFC. During the copying process from magnetic tape to disk, a very small number of unrecoverable tape errors (parity errors) occurred which would result in the loss of 1 tape block (10 minutes) of data.

DATA_PROCESSING_OVERVIEW:
The MCE data was received on 9-track magnetic tapes written at 1600 BPI with one week of data on each tape. These tapes were copied to 9-track magnetic tapes at 6250 BPI with 25 weeks of data per copy tape. No changes were made to the data so the data retained its original blocking factor format. These copy tapes were then written to optical disk, again one disk file for each week of data, without any alteration to the data. Thus, the data contained on this optical disk is as close as possible to the original MCE data that was received from GSFC.

At UCLA the MCE data is processed on Sun/UNIX workstations by the FORTRAN program ATORB. ATORB reads the MCE data, calculates model field values and field line intercepts to 15 RE and then writes the data to UCLA-IGPP flat files. A UCLA-IGPP flat file is made up of a pair of data files. One contains ASCII metadata, the other contains a flat table of time-tagged binary data records. One flat file is written per orbit for each spacecraft where an orbit is from perigee to perigee. This file is later merged with 60 second averages of the ISEE-1 and ISEE-2 magnetometer data to produce the UCLA magnetometer one minute resolution summary dataset. ATORB and other UCLA programs to read and interpret the MCE data have been archived on this disk in the directory [000000]. The file AAREADME.TXT gives an overview of the various files. The individual source code files include more complete documentation.

DATA_USAGE:
The data in this archive are stored in IBM floating point format. Therefore, any computer program that reads this data on a VMS or UNIX system must convert the data to its native floating point format in order to utilize the information. Otherwise, the data are in standard geophysical units and are easily accessible and interpretable. The software archived on this disk demonstrates how to read these datasets, including conversion of floating point formats.

DATA_ORGANIZATION:
Each logical volume, one side of an optical disk, includes the MCE data for approximately one half of the entire mission for either ISEE-1 or ISEE-2. Thus, one optical disk, two logical volumes, contains the entire mission for one spacecraft and two optical disks include all the MCE data for ISEE-1 and ISEE-2.

TYPE_OF_FILE_RELATIONSHIPS:
There is only one type_of_file, which is the original MCE data measured every 60 seconds.

CCSD$$MARKERmarkerabCCSD3KS00002markerac

LOG_VOL_TIME_COVERAGE: 1983-01-02T00:00:00 TO 1987-09-26T05:59:00

TYPE_OF_FILE_TIME_COVERAGE:
Multi-Coordinate Ephemeris Data 1983-01-02T00:00:00 TO 1987-09-26T05:59:00

FILE_NAMING_CONVENTION:
File names are of the form MCE#XXXX.DAT where MCE is the type of data, # is a "1" for ISEE-1 data or a "2" for ISEE-2 data and XXXX is the four digit ISEE group number of the first group in that file with leading zeroes as needed.

Groups were sequentially numbered chunks of DECOM data. Groups 1 through 12

varied in length from 3 to 8 days. Starting with group 13 and continuing through the end of the mission, groups alternated between 3 days and 4 days of data. The original MCE data were distributed by Goddard Space Flight Center to the Principal Investigator teams using these same group numbers, however, beginning with groups 13 and 14, two data groups, 7 days of data, were included on each magnetic tape.

For example, the file MCE10013.DAT includes MCE data from January 1, 1978 at 00:00:00 through January 8, 1978 at 05:59:00. This covers the same basic time range as ISEE-1 DECOM data groups 13 and 14 since ISEE-1 DECOM group 13 includes data from January 1, 1978 at 00:00:00 through January 4, 1978 at 00:23:00 and ISEE-1 DECOM group 14 includes data from January 4, 1978 at 00:24:00 through January 8, 1978 at 00:01:00.

LOG VOL FILE TIME COVERAGE:

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MCE10545.DAT	1983-02-06T00:00:00	TO	1983-02-13T05:59:00
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MCE11009.DAT  1987-07-19T00:00:00 TO 1987-07-26T05:59:00
MCE11011.DAT  1987-07-26T00:00:00 TO 1987-08-02T05:59:00
MCE11013.DAT  1987-08-02T00:00:00 TO 1987-08-09T05:59:00
MCE11015.DAT  1987-08-09T00:00:00 TO 1987-08-16T05:59:00
MCE11017.DAT  1987-08-16T00:00:00 TO 1987-08-23T05:59:00
MCE11019.DAT  1987-08-23T00:00:00 TO 1987-08-30T05:59:00
MCE11021.DAT  1987-08-30T00:00:00 TO 1987-09-06T05:59:00
MCE11023.DAT  1987-09-06T00:00:00 TO 1987-09-13T05:59:00
MCE11025.DAT  1987-09-13T00:00:00 TO 1987-09-20T05:59:00
MCE11027.DAT  1987-09-20T00:00:00 TO 1987-09-26T05:59:00

PREV_LOG_VOL_COVERAGE: 1977-10-22T14:49:00 TO 1983-01-02T05:59:00

CCSD$$MARKERmarkeracCCSD3RF0000200000001

REFERENCETYPE=$CCSDS2;
LABEL=ATTACHED;
REFERENCE="MCE.SFD";

LABEL=NSSD3IF0007000000001;
REFERENCE="/ISEE1MCE/MCE1*.DAT";

LABEL=CCSD3SF0000200000001;
REFERENCE="AAREADME.TXT";
REFERENCE="AO2ASCII.F";
REFERENCE="AOLIB.F";
REFERENCE="APERIGEE.DAT";
REFERENCE="ATORB.F";
REFERENCE="BPERIGEE.DAT";
REFERENCE="CONVERT.C";
REFERENCE="CTIME.C";
REFERENCE="CTIME.FOR";
REFERENCE="FLAT.F";
REFERENCE="FLATCOM.F";
REFERENCE="IGPP.FOR";
REFERENCE="IGPPFORT.F";
REFERENCE="IGPPLIB.C";
REFERENCE="ISEE1MCE.DAT";
REFERENCE="ISEE2MCE.DAT";
REFERENCE="MAKEFILE.";
REFERENCE="MCE.COM";
REFERENCE="MCE.F";
REFERENCE="MCE.FOR";

/* EOF */
```

CCSD3ZF0000100000001CCSD3VS00002markeraa

LOG_VOL_IDENT: USA_NASA_NSSD_IC1D_0001A
LOG_VOL_NSSDC_EXPT_ID: 77-102A-04
LOG_VOL_INITIATION_DATE: 1991-11-05
LOG_VOL_CLOSING_DATE: 1993-09-23
LOG_VOL_CAPACITY: 1GB/Logical volume
LOG_VOL_FILE_STRUCTURE: Files-11

VOLUME_DIAMETER: 12 inches
VOLUME_DRIVE_MFGR_AND_MODEL: Optimem 1000
COMPUTER_MFGR: Digital Equipment Corporation
OPERATING_SYSTEM: MicroVMS 4.7
COMPUTER_SYSTEM: MicroVAX II
TRANSFER_SOFTWARE: SOAR Version 4.2

TECHNICAL_CONTACT:
Harry Herbert
University of California at Los Angeles
Institute of Geophysics and Planetary Physics
5833 Slichter Hall
Los Angeles, CA 90025-1567
(213)825-9030
NSI=hherbert@igpp.ucla.edu
NSI-DECnet=BRUNET::HARRY

PREV_LOG_VOLS: None

CCSD$$MARKERmarkeraaCCSD3SS00002markerab

DATA_SET_NAME: DECOM Magnetometer Data
DATA_SOURCES: International Sun-Earth Explorer 1 (ISEE-1) and Fluxgate Magnetometer Instrument

SCIENTIFIC_CONTACT:
Dr. Christopher Russell
University of California at Los Angeles
Institute of Geophysics and Planetary Physics
6871 Slichter Hall
Los Angeles, CA 90025-1567
(213)825-3188
NSI=ctrussel@igpp.ucla.edu
NSI-DECnet=BRUNET::CTRUSSELL

SOURCE_CHARACTERISTICS:

A. DESCRIPTION_OF_SPACECRAFT:
The Explorer-class spacecraft, ISEE-1 and ISEE-2 were part of the mother/daughter/heliocentric mission which consisted of ISEE-1, ISEE-2, and ISEE-3 spacecraft. These were spin stabilized spacecraft with their spin axes usually normal to the ecliptic plane. The spin axis of ISEE-1 was within 1 degree of the ecliptic pole throughout the mission. The spin axis of ISEE-2 was usually close to the ecliptic pole but was up to 90 degrees from the ecliptic pole on a few occasions. Solar panels provided the power for the instruments.

B. ORBIT_INFORMATION:
The mother/daughter portion of the mission consisted of two spacecraft, one with station-keeping capability, in a highly eccentric earth orbit with apogee at 23 earth radii. The spacecraft maintained a small, but variable, separation distance and made simultaneous coordinated measurements to permit separation of spatial from temporal irregularities in the near-earth solar wind, the bow shock, and inside the magnetosphere. The spin rate of ISEE-1 was set at 19.75 rpm, differing slightly from that of the ISEE-2 spacecraft, whose spin rate was set at 19.8 rpm

C. PERFORMANCE:
The ISEE-1 and ISEE-2 spacecraft operated continuously from launch on October 22, 1977 to September 27, 1987 when they both reentered the Earth's atmosphere.

INVESTIGATION_OBJECTIVES:
The purposes of the mission were (1) to investigate solar/terrestrial relationships at the outermost boundaries of the earth's magnetosphere, (2) to examine in detail the structure of the solar wind near the earth and the shock wave that forms the interface between the solar wind and earth, and (3) to continue the investigation of cosmic rays and solar flares in the interplanetary region near 1 AU.

INSTRUMENT_ATTRIBUTES:
A. DESCRIPTION_OF_INSTRUMENT:
In this triaxial fluxgate magnetometer, three ring-core sensors in an

orthogonal triad were enclosed in a flipper mechanism at the end of the magnetometer boom. The electronics unit was on the main body of the spacecraft at the foot of the boom. For a complete description of the instrument see the paper Geoscience Electronics GE-16, 239-242, 1978.

B. OPERATIONAL_MODE:
The magnetometer had two operating ranges of plus or minus 8192 nT and plus or minus 256 nT in each vector component. The data were digitized and averaged within the instrument to provide increased resolution and to provide Nyquist filtering. There were two modes for the transmission of the averaged data. In the double-precision mode of operation, 16-bit samples of data were transmitted. This provided a maximum resolution of plus or minus 1/4 nT or 1/128 nT in the low-sensitivity and high-sensitivity ranges. In the single-precision mode, any 8 consecutive bits of the above 16-bits were selected by ground command for transmission and the telemetry bandwidths of the magnetometer were doubled. This bandwidth varied from 2 Hz for the low-telemetry rate, double-precision experiment mode to 32 Hz for the high-telemetry rate, single precision mode.

C. MEASURED_PARAMETERS:
The instrument measured 3 components of the magnetic field. The data were despun to give the magnetic field along the spin axis, Bz, and the two components in the spin plane. The component along the projection of the sun-earth line onto the spin plane was called the Bx component.

D. PERFORMANCE_OF_THE_INSTRUMENT:
The instruments continued to function with undiminished accuracy until re-entry. Variation of the zero levels has been removed in processing. Occasionally latch up of a sensor occurred during range changes. Because three components of the field could be measured from the two remaining sensors due to the spin of the spacecraft this latch up does not usually affect the calculation of low temporal resolution data.

E. RESOLUTION:
The temporal resolution of the data is generally 4 or 16 samples per second. A single precision mode giving lower amplitude resolution but twice the temporal resolution was seldom used. The analog to digital converter of the magnetometer had a resolution of +/- 2 nT and +/- 1/16 nT in high range and low range. Averaging was used to increase the resolution to +/- 1/8 nT and +/- 1/256 nT. The accuracy of the analog to digital conversion was +/- 1/2 nT and +/- 1/64 nT.

PARAMETERS:
The archive includes the original DECOM magnetometer data as received from Goddard Space Flight Center.

DATA_SET_QUALITY:
The data submitted on this disk is of the same quality as was originally received from GSFC. During the copying process from magnetic tape to disk, a very small number of unrecoverable tape errors (parity errors) occurred which would result in the loss of 1 tape block of data.

DATA_PROCESSING_OVERVIEW:
The DECOM data was received on 9-track magnetic tapes written at 1600 BPI, usually with three or four days of data on each tape. These tapes were copied to 9-track magnetic tapes at 6250 BPI with two to four weeks of data per copy tape. No changes were made to the data itself so the data retained its original blocking factor and data format. These copy tapes were then written to optical disk, with one disk file for each three or four days of data, without any alteration of the data. Thus, the data contained on this optical disk is as close as possible to the original DECOM data that was received from GSFC.

At UCLA the DECOM data are processed on Sun/UNIX workstations by the FORTRAN programs makeprod_a (ISEE-1) and makeprod_b (ISEE-2). The makeprod programs read the DECOM data for their respective spacecraft, and convert them into meaningful magnetic field values. The output of the programs is a UNIX binary file. This file may be written to magnetic tape for storage or converted into a UCLA-IGPP flat files or into ASCII text files. The entire suite of UCLA programs to read and interpret the DECOM data have been archived on this disk in the directory [SOURCE]. The file AAREADME.TXT gives an overview of the various files. The individual source code files include more complete documentation.

DATA_USAGE:
The data in this archive are stored in IBM integer format. Because the data is raw information from the magnetometer instrument, a computer program is required to unpack and convert the data into a format that is scientifically meaningful. The complete suite of UCLA Sun/UNIX DECOM processing programs have been archived on this disk to demonstrate how to interpret these datasets.

DATA_ORGANIZATION:
Each logical volume, one side of an optical disk, includes as much ISEE-1 or ISEE-2 DECOM data as would comfortably fit on that logical volume. The only separation criteria that was used was that if a data group did not fit on the current logical volume it became the first data group of the next logical volume with the groups being placed on logical volumes in ascending order. Occasionally, a problem would occur with either the Write-Once media or the magnetic tapes holding the original DECOM data that would necessitate skipping a data group at the time of writing adjacent data groups to the WORM disk. At the end of the archival process, these data groups were written to the final logical volume for their respective spacecraft.

TYPE_OF_FILE_RELATIONSHIPS:
There is only one type of file, which is the original DECOM data from the magnetometer instrument.

CCSD$$MARKERmarkerabCCSD3KS00002markerac

LOG_VOL_TIME_COVERAGE: 1977-10-22T19:13:19.729 TO 1978-03-26T00:54:59.716

TYPE_OF_FILE_TIME_COVERAGE:
DECOM Magnetometer Data 1977-10-22T19:13:19.729 TO 1978-03-26T00:54:59.716

FILE_NAMING_CONVENTION:
File names are of the form DEC#XXXX.DAT where DEC is the type of data (DECOM), # is a "1" for ISEE-1 data or a "2" for ISEE-2 data and XXXX is the four digit ISEE group number with leading zeroes as needed. Groups were sequentially numbered chunks of DECOM data. Groups 1 through 12 varied in length from 3 to 8 days. Starting with group 13 and continuing through the end of the mission, groups alternated between 3 days and 4 days of data.

LOG_VOL_FILE_TIME_COVERAGE:
DEC10001.DAT 1977-10-22T19:13:19.729 TO 1977-10-24T23:49:16.169
DEC10002.DAT 1977-10-25T01:06:04.249 TO 1977-11-01T01:10:50.616
DEC10003.DAT 1977-11-01T01:10:57.613 TO 1977-11-07T23:09:11.126
DEC10004.DAT 1977-11-08T02:00:30.186 TO 1977-11-12T00:00:33.802
DEC10005.DAT 1977-11-12T00:35:01.070 TO 1977-11-17T23:59:58.811
DEC10006.DAT 1977-11-18T00:00:01.809 TO 1977-11-23T01:01:14.997
DEC10007.DAT 1977-11-23T01:12:58.414 TO 1977-11-28T00:43:32.497
DEC10008.DAT 1977-11-28T00:43:34.746 TO 1977-12-04T01:09:58.969
DEC10009.DAT 1977-12-04T01:10:17.211 TO 1977-12-11T00:12:58.289
DEC10010.DAT 1977-12-11T00:05:00.017 TO 1977-12-18T00:47:38.999
DEC10011.DAT 1977-12-18T00:56:38.242 TO 1977-12-22T00:49:59.824
DEC10012.DAT 1977-12-25T00:13:00.946 TO 1977-12-31T23:59:59.214
DEC10013.DAT 1978-01-01T00:00:00.587 TO 1978-01-04T00:23:59.561
DEC10014.DAT 1978-01-04T00:24:30.296 TO 1978-01-08T00:01:04.536
DEC10015.DAT 1978-01-08T00:01:07.035 TO 1978-01-11T01:44:58.831
DEC10016.DAT 1978-01-11T01:22:19.980 TO 1978-01-15T00:34:59.914
DEC10017.DAT 1978-01-15T00:24:47.706 TO 1978-01-18T00:01:14.661
DEC10018.DAT 1978-01-17T23:59:59.696 TO 1978-01-22T00:17:57.506
DEC10019.DAT 1978-01-22T00:11:59.428 TO 1978-01-25T00:24:19.958
DEC10020.DAT 1978-01-25T00:24:22.394 TO 1978-01-29T00:43:52.998
DEC10021.DAT 1978-01-29T00:43:54.747 TO 1978-02-01T00:23:00.958
DEC10022.DAT 1978-02-01T00:17:45.609 TO 1978-02-05T00:15:55.232
DEC10023.DAT 1978-02-05T00:16:00.541 TO 1978-02-08T01:25:35.145
DEC10024.DAT 1978-02-08T01:25:37.644 TO 1978-02-11T22:41:03.793
DEC10025.DAT 1978-02-12T00:14:06.176 TO 1978-02-15T00:44:58.891
DEC10026.DAT 1978-02-15T00:45:31.876 TO 1978-02-19T00:23:00.025
DEC10027.DAT 1978-02-19T02:32:44.307 TO 1978-02-22T01:25:59.078
DEC10028.DAT 1978-02-22T01:28:53.744 TO 1978-02-26T00:57:37.909
DEC10029.DAT 1978-02-26T00:57:46.654 TO 1978-03-01T01:25:01.406
DEC10030.DAT 1978-03-01T01:20:29.786 TO 1978-03-05T00:55:59.404
DEC10031.DAT 1978-03-05T00:56:06.900 TO 1978-03-08T01:35:59.487
DEC10032.DAT 1978-03-08T01:36:04.984 TO 1978-03-12T00:11:58.697
DEC10033.DAT 1978-03-12T00:12:04.444 TO 1978-03-14T23:00:19.907
DEC10034.DAT 1978-03-15T00:10:00.849 TO 1978-03-18T23:59:58.927
DEC10035.DAT 1978-03-19T00:28:22.516 TO 1978-03-22T00:19:59.255
DEC10036.DAT 1978-03-22T00:20:00.754 TO 1978-03-26T00:54:59.716

PREV_LOG_VOL_COVERAGE: None

CCSD$$MARKERmarkeracCCSD3RF0000200000001

REFERENCETYPE=$CCSDS2;

LABEL=ATTACHED;
REFERENCE="DECOM1.SFD";

LABEL=NSSD3IF0018700000001;

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REFERENCE="/ISEE1DEC/DEC1*.DAT";

LABEL=CCSD3SF0000200000001;
REFERENCE="/SOURCE/AAREADME.TXT";
REFERENCE="/SOURCE/AINPUT.DAT";
REFERENCE="/SOURCE/APERIGEE.FFD";
REFERENCE="/SOURCE/APERIGEE.FFH";
REFERENCE="/SOURCE/ATIMES.FFD";
REFERENCE="/SOURCE/ATIMES.FFH";
REFERENCE="/SOURCE/BINPUT.DAT";
REFERENCE="/SOURCE/BPERIGEE.FFD";
REFERENCE="/SOURCE/BPERIGEE.FFH";
REFERENCE="/SOURCE/BTIMES.FFD";
REFERENCE="/SOURCE/BTIMES.FFH";
REFERENCE="/SOURCE/CONVERT.C";
REFERENCE="/SOURCE/CONVERT.FOR";
REFERENCE="/SOURCE/CTIME.C";
REFERENCE="/SOURCE/FF_IGPP.C";
REFERENCE="/SOURCE/FF_IGPP.H";
REFERENCE="/SOURCE/FLAT.F";
REFERENCE="/SOURCE/FLAT2ASCII.C";
REFERENCE="/SOURCE/FLATCOM.F";
REFERENCE="/SOURCE/ICAT.F";
REFERENCE="/SOURCE/IGPPFORT.F";
REFERENCE="/SOURCE/IGPPLIB.C";
REFERENCE="/SOURCE/ISEEPRODFF.C";
REFERENCE="/SOURCE/ISEE-TAR.Z";
REFERENCE="/SOURCE/JTLIB.F";
REFERENCE="/SOURCE/MAKEFILE.";
REFERENCE="/SOURCE/PARMEDIT.F";
REFERENCE="/SOURCE/PARMLIST.C";
REFERENCE="/SOURCE/QBMS.F";
REFERENCE="/SOURCE/QBS1.F";
REFERENCE="/SOURCE/QBS2.F";
REFERENCE="/SOURCE/QBS3.F";
REFERENCE="/SOURCE/TIME_IGPP.C";
REFERENCE="/SOURCE/TIME_IGPP.H";
REFERENCE="/SOURCE/WHOWNER.C";
REFERENCE="/SOURCE/YAMS.F";
REFERENCE="/SOURCE/YAS1.F";
REFERENCE="/SOURCE/YAS2.F";
REFERENCE="/SOURCE/YAS3.F";

/* EOF */
```

CCSD3ZF0000100000001CCSD3VS00002markeraa

LOG_VOL_IDENT:	USA_NASA_NSSD_IC1D_0001B
LOG_VOL_NSSDC_EXPT_ID:	77-102A-04
LOG_VOL_INITIATION_DATE:	1991-11-05
LOG_VOL_CLOSING_DATE:	1993-09-24
LOG_VOL_CAPACITY:	1GB/Logical volume
LOG_VOL_FILE_STRUCTURE:	Files-11
VOLUME_DIAMETER:	12 inches
VOLUME_DRIVE_MFGR_AND_MODEL:	Optimem 1000
COMPUTER_MFGR:	Digital Equipment Corporation
OPERATING_SYSTEM:	MicroVMS 4.7
COMPUTER_SYSTEM:	MicroVAX II
TRANSFER_SOFTWARE:	SOAR Version 4.2

TECHNICAL_CONTACT:

Harry Herbert
University of California at Los Angeles
Institute of Geophysics and Planetary Physics
5833 Slichter Hall
Los Angeles, CA 90025-1567
(213)825-9030
NSI=hherbert@igpp.ucla.edu
NSI-DECnet=BRUNET::HARRY

PREV_LOG_VOLS: USA_NASA_NSSD_IC1D_0001A

CCSD$$MARKERmarkeraaCCSD3SS00002markerab

DATA_SET_NAME:	DECOM Magnetometer Data
DATA_SOURCES:	International Sun-Earth Explorer 1 (ISEE-1) and Fluxgate Magnetometer Instrument

SCIENTIFIC_CONTACT:

Dr. Christopher Russell
University of California at Los Angeles
Institute of Geophysics and Planetary Physics
6871 Slichter Hall
Los Angeles, CA 90025-1567
(213)825-3188
NSI=ctrussel@igpp.ucla.edu
NSI-DECnet=BRUNET::CTRUSSELL

SOURCE_CHARACTERISTICS:

A. DESCRIPTION_OF_SPACECRAFT:
The Explorer-class spacecraft, ISEE-1 and ISEE-2 were part of the mother/daughter/heliocentric mission which consisted of ISEE-1, ISEE-2, and ISEE-3 spacecraft. These were spin stabilized spacecraft with their spin axes usually normal to the ecliptic plane. The spin axis of ISEE-1 was within 1 degree of the ecliptic pole throughout the mission. The spin axis of ISEE-2 was usually close to the ecliptic pole but was up to 90 degrees from the ecliptic pole on a few occasions. Solar panels provided the power for the instruments.

B. ORBIT_INFORMATION:
The mother/daughter portion of the mission consisted of two spacecraft, one with station-keeping capability, in a highly eccentric earth orbit with apogee at 23 earth radii. The spacecraft maintained a small, but variable, separation distance and made simultaneous coordinated measurements to permit separation of spatial from temporal irregularities in the near-earth solar wind, the bow shock, and inside the magnetosphere. The spin rate of ISEE-1 was set at 19.75 rpm, differing slightly from that of the ISEE-2 spacecraft, whose spin rate was set at 19.8 rpm

C. PERFORMANCE:
The ISEE-1 and ISEE-2 spacecraft operated continuously from launch on October 22, 1977 to September 27, 1987 when they both reentered the Earth's atmosphere.

INVESTIGATION_OBJECTIVES:
The purposes of the mission were (1) to investigate solar/terrestrial relationships at the outermost boundaries of the earth's magnetosphere, (2) to examine in detail the structure of the solar wind near the earth and the shock wave that forms the interface between the solar wind and earth, and (3) to continue the investigation of cosmic rays and solar flares in the interplanetary region near 1 AU.

INSTRUMENT_ATTRIBUTES:
A. DESCRIPTION_OF_INSTRUMENT:
In this triaxial fluxgate magnetometer, three ring-core sensors in an

orthogonal triad were enclosed in a flipper mechanism at the end of the magnetometer boom. The electronics unit was on the main body of the spacecraft at the foot of the boom. For a complete description of the instrument see the paper Geoscience Electronics GE-16, 239-242, 1978.

B. OPERATIONAL_MODE:
The magnetometer had two operating ranges of plus or minus 8192 nT and plus or minus 256 nT in each vector component. The data were digitized and averaged within the instrument to provide increased resolution and to provide Nyquist filtering. There were two modes for the transmission of the averaged data. In the double-precision mode of operation, 16-bit samples of data were transmitted. This provided a maximum resolution of plus or minus 1/4 nT or 1/128 nT in the low-sensitivity and high-sensitivity ranges. In the single-precision mode, any 8 consecutive bits of the above 16-bits were selected by ground command for transmission and the telemetry bandwidths of the magnetometer were doubled. This bandwidth varied from 2 Hz for the low-telemetry rate, double-precision experiment mode to 32 Hz for the high-telemetry rate, single precision mode.

C. MEASURED_PARAMETERS:
The instrument measured 3 components of the magnetic field. The data were despun to give the magnetic field along the spin axis, Bz, and the two components in the spin plane. The component along the projection of the sun-earth line onto the spin plane was called the Bx component.

D. PERFORMANCE_OF_THE_INSTRUMENT:
The instruments continued to function with undiminished accuracy until re-entry. Variation of the zero levels has been removed in processing. Occasionally latch up of a sensor occurred during range changes. Because three components of the field could be measured from the two remaining sensors due to the spin of the spacecraft this latch up does not usually affect the calculation of low temporal resolution data.

E. RESOLUTION:
The temporal resolution of the data is generally 4 or 16 samples per second. A single precision mode giving lower amplitude resolution but twice the temporal resolution was seldom used. The analog to digital converter of the magnetometer had a resolution of +/- 2 nT and +/- 1/16 nT in high range and low range. Averaging was used to increase the resolution to +/- 1/8 nT and +/- 1/256 nT. The accuracy of the analog to digital conversion was +/- 1/2 nT and +/- 1/64 nT.

PARAMETERS:
The archive includes the original DECOM magnetometer data as received from Goddard Space Flight Center.

DATA_SET_QUALITY:
The data submitted on this disk is of the same quality as was originally received from GSFC. During the copying process from magnetic tape to disk, a very small number of unrecoverable tape errors (parity errors) occurred which would result in the loss of 1 tape block of data.

DATA_PROCESSING_OVERVIEW:
The DECOM data was received on 9-track magnetic tapes written at 1600 BPI, usually with three or four days of data on each tape. These tapes were copied to 9-track magnetic tapes at 6250 BPI with two to four weeks of data per copy tape. No changes were made to the data itself so the data retained its original blocking factor and data format. These copy tapes were then written to optical disk, with one disk file for each three or four days of data, without any alteration of the data. Thus, the data contained on this optical disk is as close as possible to the original DECOM data that was received from GSFC.

At UCLA the DECOM data are processed on Sun/UNIX workstations by the FORTRAN programs makeprod_a (ISEE-1) and makeprod_b (ISEE-2). The makeprod programs read the DECOM data for their respective spacecraft, and convert them into meaningful magnetic field values. The output of the programs is a UNIX binary file. This file may be written to magnetic tape for storage or converted into a UCLA-IGPP flat files or into ASCII text files. The entire suite of UCLA programs to read and interpret the DECOM data have been archived on this disk in the directory [SOURCE]. The file AAREADME.TXT gives an overview of the various files. The individual source code files include more complete documentation.

DATA_USAGE:
The data in this archive are stored in IBM integer format. Because the data is raw information from the magnetometer instrument, a computer program is required to unpack and convert the data into a format that is scientifically meaningful. The complete suite of UCLA Sun/UNIX DECOM processing programs have been archived on this disk to demonstrate how to interpret these datasets.

DATA_ORGANIZATION:
Each logical volume, one side of an optical disk, includes as much ISEE-1 or ISEE-2 DECOM data as would comfortably fit on that logical volume. The only separation criteria that was used was that if a data group did not fit on the current logical volume it became the first data group of the next logical volume with the groups being placed on logical volumes in ascending order. Occasionally, a problem would occur with either the Write-Once media or the magnetic tapes holding the original DECOM data that would necessitate skipping a data group at the time of writing adjacent data groups to the WORM disk. At the end of the archival process, these data groups were written to the final logical volume for their respective spacecraft.

TYPE_OF_FILE_RELATIONSHIPS:
There is only one type_of_file, which is the original DECOM data from the magnetometer instrument.

CCSD$$MARKERmarkerabCCSD3KS00002markerac

LOG_VOL_TIME_COVERAGE: 1978-03-26T00:55:01.465 TO 1978-10-11T01:09:58.890

TYPE_OF_FILE_TIME_COVERAGE:
DECOM Magnetometer Data 1978-03-26T00:55:01.465 TO 1978-10-11T01:09:58.890

FILE_NAMING_CONVENTION:
File names are of the form DEC#XXXX.DAT where DEC is the type of data (DECOM), # is a "1" for ISEE-1 data or a "2" for ISEE-2 data and XXXX is the four digit ISEE group number with leading zeroes as needed. Groups were sequentially numbered chunks of DECOM data. Groups 1 through 12 varied in length from 3 to 8 days. Starting with group 13 and continuing through the end of the mission, groups alternated between 3 days and 4 days of data.

LOG_VOL_FILE_TIME_COVERAGE:
DEC10037.DAT 1978-03-26T00:55:01.465 TO 1978-03-29T01:23:59.497
DEC10038.DAT 1978-03-29T01:24:26.984 TO 1978-04-01T22:19:02.998
DEC10039.DAT 1978-04-02T00:16:06.402 TO 1978-04-05T00:54:59.259
DEC10040.DAT 1978-04-05T00:55:21.526 TO 1978-04-09T00:02:21.803
DEC10041.DAT 1978-04-09T00:02:41.266 TO 1978-04-11T23:59:58.611
DEC10042.DAT 1978-04-12T00:00:01.109 TO 1978-04-16T00:22:58.787
DEC10043.DAT 1978-04-16T00:40:01.551 TO 1978-04-18T01:59:59.385
DEC10044.DAT 1978-04-19T00:00:38.160 TO 1978-04-22T23:49:11.691
DEC10045.DAT 1978-04-23T00:20:00.561 TO 1978-04-26T02:09:36.288
DEC10046.DAT 1978-04-26T02:09:42.535 TO 1978-04-30T00:06:04.271
DEC10047.DAT 1978-04-30T00:06:06.332 TO 1978-05-03T00:59:30.560
DEC10048.DAT 1978-05-03T00:59:32.247 TO 1978-05-07T01:07:00.158
DEC10049.DAT 1978-05-07T00:45:59.759 TO 1978-05-10T00:00:04.944
DEC10050.DAT 1978-05-10T00:03:46.339 TO 1978-05-14T01:29:59.204
DEC10051.DAT 1978-05-14T01:18:22.282 TO 1978-05-17T00:25:59.613
DEC10052.DAT 1978-05-17T00:26:29.599 TO 1978-05-21T00:13:00.537
DEC10053.DAT 1978-05-21T00:13:08.036 TO 1978-05-24T00:54:59.744
DEC10054.DAT 1978-05-24T00:55:02.492 TO 1978-05-28T00:08:59.296
DEC10055.DAT 1978-05-28T00:09:05.543 TO 1978-05-31T00:44:59.983
DEC10056.DAT 1978-05-31T00:45:02.232 TO 1978-06-03T23:59:58.907
DEC10057.DAT 1978-06-04T00:00:07.153 TO 1978-06-07T00:29:54.376
DEC10058.DAT 1978-06-07T00:25:17.758 TO 1978-06-11T00:34:59.126
DEC10059.DAT 1978-06-11T00:30:03.017 TO 1978-06-14T01:24:55.965
DEC10060.DAT 1978-06-14T01:25:07.209 TO 1978-06-17T22:38:16.236
DEC10061.DAT 1978-06-18T00:31:03.018 TO 1978-06-20T23:42:15.077
DEC10062.DAT 1978-06-21T00:44:55.808 TO 1978-06-25T01:59:58.777
DEC10063.DAT 1978-06-25T01:53:58.698 TO 1978-06-28T00:13:23.171
DEC10064.DAT 1978-06-28T00:31:21.659 TO 1978-07-02T00:01:19.101
DEC10065.DAT 1978-07-02T02:38:04.380 TO 1978-07-05T00:21:07.633
DEC10066.DAT 1978-07-05T00:06:38.047 TO 1978-07-08T23:59:07.325
DEC10067.DAT 1978-07-09T00:26:34.042 TO 1978-07-11T22:08:38.498
DEC10068.DAT 1978-07-12T05:43:54.813 TO 1978-07-16T02:00:45.574
DEC10069.DAT 1978-07-16T02:00:55.069 TO 1978-07-18T23:15:00.030
DEC10070.DAT 1978-07-19T00:19:40.434 TO 1978-07-23T00:46:25.793
DEC10071.DAT 1978-07-23T00:46:36.975 TO 1978-07-25T22:55:17.390
DEC10072.DAT 1978-07-25T23:59:59.791 TO 1978-07-30T00:47:35.284
DEC10073.DAT 1978-07-30T00:47:40.532 TO 1978-08-02T00:05:03.390
DEC10074.DAT 1978-08-02T00:05:15.634 TO 1978-08-06T00:47:59.144
DEC10075.DAT 1978-08-06T00:29:30.922 TO 1978-08-09T00:00:10.619
DEC10076.DAT 1978-08-09T00:01:15.090 TO 1978-08-13T01:00:00.635
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DEC10078.DAT 1978-08-16T01:07:25.046 TO 1978-08-20T00:29:58.178
DEC10079.DAT 1978-08-20T00:30:22.416 TO 1978-08-23T01:05:00.438
DEC10080.DAT 1978-08-23T00:51:56.562 TO 1978-08-27T00:10:23.498
DEC10081.DAT 1978-08-27T00:21:56.418 TO 1978-08-30T00:31:07.177
DEC10082.DAT 1978-08-30T00:55:14.986 TO 1978-09-03T00:50:45.350
DEC10083.DAT 1978-09-03T00:50:49.536 TO 1978-09-06T01:34:19.794

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DEC10084.DAT  1978-09-06T01:34:23.293 TO 1978-09-10T00:03:15.511
DEC10085.DAT  1978-09-10T00:03:19.072 TO 1978-09-13T00:13:58.792
DEC10086.DAT  1978-09-13T00:14:10.286 TO 1978-09-17T00:18:22.243
DEC10087.DAT  1978-09-16T23:39:48.348 TO 1978-09-19T23:54:57.893
DEC10088.DAT  1978-09-20T01:15:19.281 TO 1978-09-24T00:29:31.490
DEC10089.DAT  1978-09-24T00:30:59.698 TO 1978-09-26T23:45:18.433
DEC10090.DAT  1978-09-27T00:43:59.320 TO 1978-10-01T01:33:50.015
DEC10091.DAT  1978-10-01T01:25:58.990 TO 1978-10-04T00:20:09.213
DEC10092.DAT  1978-10-04T00:20:28.391 TO 1978-10-08T02:05:24.490
DEC10093.DAT  1978-10-08T02:05:38.983 TO 1978-10-11T01:09:58.890

PREV_LOG_VOL_COVERAGE: 1977-10-22T19:13:19.729 TO 1978-03-26T00:54:59.716

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LABEL=CCSD3SF0000200000001;
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REFERENCE="/SOURCE/AINPUT.DAT";
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REFERENCE="/SOURCE/ATIMES.FFD";
REFERENCE="/SOURCE/ATIMES.FFH";
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REFERENCE="/SOURCE/FF_IGPP.H";
REFERENCE="/SOURCE/FLAT.F";
REFERENCE="/SOURCE/FLAT2ASCII.C";
REFERENCE="/SOURCE/FLATCOM.F";
REFERENCE="/SOURCE/ICAT.F";
REFERENCE="/SOURCE/IGPPFORT.F";
REFERENCE="/SOURCE/IGPPLIB.C";
REFERENCE="/SOURCE/ISEEPRODFF.C";
REFERENCE="/SOURCE/ISEE-TAR.Z";
REFERENCE="/SOURCE/JTLIB.F";
REFERENCE="/SOURCE/MAKEFILE.";
REFERENCE="/SOURCE/PARMEDIT.F";
REFERENCE="/SOURCE/PARMLIST.C";
REFERENCE="/SOURCE/QBMS.F";
REFERENCE="/SOURCE/QBS1.F";
REFERENCE="/SOURCE/QBS2.F";
REFERENCE="/SOURCE/QBS3.F";
REFERENCE="/SOURCE/TIME_IGPP.C";
REFERENCE="/SOURCE/TIME_IGPP.H";
REFERENCE="/SOURCE/WHOWNER.C";
REFERENCE="/SOURCE/YAMS.F";
REFERENCE="/SOURCE/YAS1.F";
REFERENCE="/SOURCE/YAS2.F";
REFERENCE="/SOURCE/YAS3.F";

/* EOF */
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CCSD3ZF0000100000001CCSD3VS00002markeraa

LOG_VOL_IDENT: USA_NASA_NSSD_IC1D_0002A
LOG_VOL_NSSDC_EXPT_ID: 77-102A-04
LOG_VOL_INITIATION_DATE: 1991-11-11
LOG_VOL_CLOSING_DATE: 1993-09-24
LOG_VOL_CAPACITY: 1GB/Logical volume
LOG_VOL_FILE_STRUCTURE: Files-11

VOLUME_DIAMETER: 12 inches
VOLUME_DRIVE_MFGR_AND_MODEL: Optimem 1000
COMPUTER_MFGR: Digital Equipment Corporation
OPERATING_SYSTEM: MicroVMS 4.7
COMPUTER_SYSTEM: MicroVAX II
TRANSFER_SOFTWARE: SOAR Version 4.2

TECHNICAL_CONTACT: Harry Herbert
University of California at Los Angeles
Institute of Geophysics and Planetary Physics
5833 Slichter Hall
Los Angeles, CA 90025-1567
(213)825-9030
NSI=hherbert@igpp.ucla.edu
NSI-DECnet=BRUNET::HARRY

PREV_LOG_VOLS: USA_NASA_NSSD_IC1D_0001A
USA_NASA_NSSD_IC1D_0001B

CCSD$$MARKERmarkeraaCCSD3SS00002markerab

DATA_SET_NAME: DECOM Magnetometer Data
DATA_SOURCES: International Sun-Earth Explorer 1 (ISEE-1)
and Fluxgate Magnetometer Instrument

SCIENTIFIC_CONTACT: Dr. Christopher Russell
University of California at Los Angeles
Institute of Geophysics and Planetary Physics
6871 Slichter Hall
Los Angeles, CA 90025-1567
(213)825-3188
NSI=ctrussel@igpp.ucla.edu
NSI-DECnet=BRUNET::CTRUSSELL

SOURCE_CHARACTERISTICS:

A. DESCRIPTION_OF_SPACECRAFT:
The Explorer-class spacecraft, ISEE-1 and ISEE-2 were part of the mother/daughter/heliocentric mission which consisted of ISEE-1, ISEE-2, and ISEE-3 spacecraft. These were spin stabilized spacecraft with their spin axes usually normal to the ecliptic plane. The spin axis of ISEE-1 was within 1 degree of the ecliptic pole throughout the mission. The spin axis of ISEE-2 was usually close to the ecliptic pole but was up to 90 degrees from the ecliptic pole on a few occasions. Solar panels provided the power for the instruments.

B. ORBIT_INFORMATION:
The mother/daughter portion of the mission consisted of two spacecraft, one with station-keeping capability, in a highly eccentric earth orbit with apogee at 23 earth radii. The spacecraft maintained a small, but variable, separation distance and made simultaneous coordinated measurements to permit separation of spatial from temporal irregularities in the near-earth solar wind, the bow shock, and inside the magnetosphere. The spin rate of ISEE-1 was set at 19.75 rpm, differing slightly from that of the ISEE-2 spacecraft, whose spin rate was set at 19.8 rpm

C. PERFORMANCE:
The ISEE-1 and ISEE-2 spacecraft operated continuously from launch on October 22, 1977 to September 27, 1987 when they both reentered the Earth's atmosphere.

INVESTIGATION_OBJECTIVES:
The purposes of the mission were (1) to investigate solar/terrestrial relationships at the outermost boundaries of the earth's magnetosphere, (2) to examine in detail the structure of the solar wind near the earth and the shock wave that forms the interface between the solar wind and earth, and (3) to continue the investigation of cosmic rays and solar flares in the interplanetary region near 1 AU.

INSTRUMENT_ATTRIBUTES:
A. DESCRIPTION_OF_INSTRUMENT:

In this triaxial fluxgate magnetometer, three ring-core sensors in an orthogonal triad were enclosed in a flipper mechanism at the end of the magnetometer boom. The electronics unit was on the main body of the spacecraft at the foot of the boom. For a complete description of the instrument see the paper Geoscience Electronics GE-16, 239-242, 1978.

B. OPERATIONAL_MODE:
The magnetometer had two operating ranges of plus or minus 8192 nT and plus or minus 256 nT in each vector component. The data were digitized and averaged within the instrument to provide increased resolution and to provide Nyquist filtering. There were two modes for the transmission of the averaged data. In the double-precision mode of operation, 16-bit samples of data were transmitted. This provided a maximum resolution of plus or minus 1/4 nT or 1/128 nT in the low-sensitivity and high-sensitivity ranges. In the single-precision mode, any 8 consecutive bits of the above 16-bits were selected by ground command for transmission and the telemetry bandwidths of the magnetometer were doubled. This bandwidth varied from 2 Hz for the low-telemetry rate, double-precision experiment mode to 32 Hz for the high-telemetry rate, single precision mode.

C. MEASURED_PARAMETERS:
The instrument measured 3 components of the magnetic field. The data were despun to give the magnetic field along the spin axis, Bz, and the two components in the spin plane. The component along the projection of the sun-earth line onto the spin plane was called the Bx component.

D. PERFORMANCE_OF_THE_INSTRUMENT:
The instruments continued to function with undiminished accuracy until re-entry. Variation of the zero levels has been removed in processing. Occasionally latch up of a sensor occurred during range changes. Because three components of the field could be measured from the two remaining sensors due to the spin of the spacecraft this latch up does not usually affect the calculation of low temporal resolution data.

E. RESOLUTION:
The temporal resolution of the data is generally 4 or 16 samples per second. A single precision mode giving lower amplitude resolution but twice the temporal resolution was seldom used. The analog to digital converter of the magnetometer had a resolution of +/- 2 nT and +/- 1/16 nT in high range and low range. Averaging was used to increase the resolution to +/- 1/8 nT and +/- 1/256 nT. The accuracy of the analog to digital conversion was +/- 1/2 nT and +/- 1/64 nT.

PARAMETERS:
The archive includes the original DECOM magnetometer data as received from Goddard Space Flight Center.

DATA_SET_QUALITY:
The data submitted on this disk is of the same quality as was originally received from GSFC. During the copying process from magnetic tape to disk, a very small number of unrecoverable tape errors (parity errors) occurred which would result in the loss of 1 tape block of data.

DATA_PROCESSING_OVERVIEW:
The DECOM data was received on 9-track magnetic tapes written at 1600 BPI, usually with three or four days of data on each tape. These tapes were copied to 9-track magnetic tapes at 6250 BPI with two to four weeks of data per copy tape. No changes were made to the data itself so the data retained its original blocking factor and data format. These copy tapes were then written to optical disk, with one disk file for each three or four days of data, without any alteration of the data. Thus, the data contained on this optical disk is as close as possible to the original DECOM data that was received from GSFC.

At UCLA the DECOM data are processed on Sun/UNIX workstations by the FORTRAN programs makeprod_a (ISEE-1) and makeprod_b (ISEE-2). The makeprod programs read the DECOM data for their respective spacecraft, and convert them into meaningful magnetic field values. The output of the programs is a UNIX binary file. This file may be written to magnetic tape for storage or converted into a UCLA-IGPP flat files or into ASCII text files. The entire suite of UCLA programs to read and interpret the DECOM data have been archived on this disk in the directory [SOURCE]. The file AAREADME.TXT gives an overview of the various files. The individual source code files include more complete documentation.

DATA_USAGE:
The data in this archive are stored in IBM integer format. Because the data is raw information from the magnetometer instrument, a computer program is required to unpack and convert the data into a format that is scientifically meaningful. The complete suite of UCLA Sun/UNIX DECOM processing programs

have been archived on this disk to demonstrate how to interpret these datasets.

DATA_ORGANIZATION:
Each logical volume, one side of an optical disk, includes as much ISEE-1 or ISEE-2 DECOM data as would comfortably fit on that logical volume. The only separation criteria that was used was that if a data group did not fit on the current logical volume it became the first data group of the next logical volume with the groups being placed on logical volumes in ascending order. Occasionally, a problem would occur with either the Write-Once media or the magnetic tapes holding the original DECOM data that would necessitate skipping a data group at the time of writing adjacent data groups to the WORM disk. At the end of the archival process, these data groups were written to the final logical volume for their respective spacecraft.

TYPE_OF_FILE_RELATIONSHIPS:
There is only one type_of_file, which is the original DECOM data from the magnetometer instrument.

CCSD$$MARKERmarkerabCCSD3KS00002markerac

LOG_VOL_TIME_COVERAGE: 1978-10-11T01:48:28.535 TO 1978-11-18T19:52:04.539
1978-11-22T01:10:03.576 TO 1979-05-02T01:50:13.112

TYPE_OF_FILE_TIME_COVERAGE:
DECOM Magnetometer Data 1978-10-11T01:48:28.535 TO 1978-11-18T19:52:04.539
1978-11-22T01:10:03.576 TO 1979-05-02T01:50:13.112

FILE_NAMING_CONVENTION:
File names are of the form DEC#XXXX.DAT where DEC is the type of data (DECOM), # is a "1" for ISEE-1 data or a "2" for ISEE-2 data and XXXX is the four digit ISEE group number with leading zeroes as needed. Groups were sequentially numbered chunks of DECOM data. Groups 1 through 12 varied in length from 3 to 8 days. Starting with group 13 and continuing through the end of the mission, groups alternated between 3 days and 4 days of data.

LOG_VOL_FILE_TIME_COVERAGE:
DEC10094.DAT 1978-10-11T01:48:28.535 TO 1978-10-15T00:27:23.642
DEC10095.DAT 1978-10-15T00:21:44.617 TO 1978-10-18T00:42:03.429
DEC10096.DAT 1978-10-18T00:35:59.103 TO 1978-10-22T01:50:58.344
DEC10097.DAT 1978-10-22T01:50:59.843 TO 1978-10-25T01:20:12.463
DEC10098.DAT 1978-10-25T01:18:02.025 TO 1978-10-29T01:12:00.794
DEC10099.DAT 1978-10-29T01:09:58.852 TO 1978-10-31T23:59:59.568
DEC10100.DAT 1978-11-01T04:30:53.289 TO 1978-11-05T01:00:59.978
DEC10101.DAT 1978-11-05T01:54:58.928 TO 1978-11-08T00:29:58.386
DEC10102.DAT 1978-11-08T00:24:27.292 TO 1978-11-11T23:59:59.282
DEC10103.DAT 1978-11-11T23:59:59.282 TO 1978-11-15T00:20:29.114
DEC10104.DAT 1978-11-15T00:20:34.861 TO 1978-11-18T19:52:04.539
DEC10106.DAT 1978-11-22T01:10:03.576 TO 1978-11-25T23:59:58.811
DEC10107.DAT 1978-11-25T23:59:58.811 TO 1978-11-28T23:59:58.413
DEC10108.DAT 1978-11-29T04:06:25.328 TO 1978-12-03T00:07:07.863
DEC10109.DAT 1978-12-03T02:07:30.663 TO 1978-12-05T22:29:58.262
DEC10110.DAT 1978-12-06T01:26:12.946 TO 1978-12-10T00:23:58.650
DEC10111.DAT 1978-12-10T00:17:08.596 TO 1978-12-12T23:44:59.315
DEC10112.DAT 1978-12-13T00:30:39.253 TO 1978-12-17T00:59:58.843
DEC10113.DAT 1978-12-17T01:00:00.343 TO 1978-12-19T23:14:03.956
DEC10114.DAT 1978-12-20T01:04:05.295 TO 1978-12-24T00:54:58.916
DEC10115.DAT 1978-12-24T00:55:07.412 TO 1978-12-27T01:55:27.934
DEC10116.DAT 1978-12-27T02:55:41.455 TO 1978-12-31T00:30:02.980
DEC10117.DAT 1978-12-31T00:23:58.905 TO 1979-01-03T00:30:16.448
DEC10118.DAT 1979-01-03T00:59:28.358 TO 1979-01-07T00:30:17.258
DEC10119.DAT 1979-01-07T00:30:18.694 TO 1979-01-09T23:59:58.492
DEC10120.DAT 1979-01-10T00:14:01.838 TO 1979-01-14T00:37:27.898
DEC10121.DAT 1979-01-14T00:51:58.481 TO 1979-01-16T23:59:59.436
DEC10122.DAT 1979-01-17T00:00:01.185 TO 1979-01-20T23:49:58.954
DEC10123.DAT 1979-01-21T00:16:58.678 TO 1979-01-24T00:04:58.995
DEC10124.DAT 1979-01-24T00:05:21.984 TO 1979-01-28T01:59:01.056
DEC10125.DAT 1979-01-28T01:59:04.804 TO 1979-01-30T23:57:00.206
DEC10126.DAT 1979-01-31T00:24:28.292 TO 1979-02-03T23:39:58.677
DEC10127.DAT 1979-02-04T00:47:19.992 TO 1979-02-06T23:06:58.695
DEC10128.DAT 1979-02-07T00:10:15.127 TO 1979-02-09T09:57:53.684
DEC10129.DAT 1979-02-11T01:00:01.392 TO 1979-02-14T00:50:09.426
DEC10130.DAT 1979-02-14T00:45:03.822 TO 1979-02-18T00:02:38.460
DEC10131.DAT 1979-02-18T00:02:47.206 TO 1979-02-21T01:21:54.796
DEC10132.DAT 1979-02-21T02:16:10.488 TO 1979-02-25T01:02:00.817
DEC10133.DAT 1979-02-25T00:56:03.988 TO 1979-02-27T23:25:59.196
DEC10134.DAT 1979-02-28T01:01:42.697 TO 1979-03-04T01:22:58.848
DEC10135.DAT 1979-03-04T01:17:56.743 TO 1979-03-07T00:54:06.198
DEC10136.DAT 1979-03-07T01:49:03.871 TO 1979-03-11T01:38:59.858
DEC10137.DAT 1979-03-11T02:29:58.891 TO 1979-03-14T01:10:00.867
DEC10138.DAT 1979-03-14T01:34:14.172 TO 1979-03-18T00:21:09.679

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DEC10139.DAT  1979-03-18T01:17:03.326 TO 1979-03-21T01:10:01.712
DEC10140.DAT  1979-03-21T01:05:04.354 TO 1979-03-25T01:15:58.302
DEC10141.DAT  1979-03-25T01:13:55.611 TO 1979-03-28T00:33:20.813
DEC10142.DAT  1979-03-28T00:25:04.300 TO 1979-04-01T00:02:24.317
DEC10143.DAT  1979-04-01T00:02:29.377 TO 1979-04-04T00:09:03.676
DEC10144.DAT  1979-04-04T00:09:14.921 TO 1979-04-08T00:43:24.093
DEC10145.DAT  1979-04-08T00:43:26.092 TO 1979-04-10T23:44:58.713
DEC10146.DAT  1979-04-11T00:05:48.115 TO 1979-04-15T01:49:24.062
DEC10147.DAT  1979-04-15T01:49:27.810 TO 1979-04-18T01:28:34.018
DEC10148.DAT  1979-04-18T01:31:00.473 TO 1979-04-22T00:05:21.810
DEC10149.DAT  1979-04-22T00:07:40.543 TO 1979-04-24T22:56:34.587
DEC10150.DAT  1979-04-25T03:49:00.559 TO 1979-04-29T02:14:30.616
DEC10151.DAT  1979-04-29T01:59:18.895 TO 1979-05-02T01:50:13.112

/* NOTE:                                                              */
/*  The file below is located on LOG_VOL_IDENT: USA_NASA_NSSD_IC1D_0009B  */
/*  DEC10105.DAT  1978-11-19T01:49:04.726 TO 1978-11-22T00:55:03.507      */

PREV_LOG_VOL_COVERAGE: 1978-03-26T00:55:01.465 TO 1978-10-11T01:09:58.890

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REFERENCE="/ISEE1DEC/DEC1*.DAT";

LABEL=CCSD3SF0000200000001;
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REFERENCE="/SOURCE/AINPUT.DAT";
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REFERENCE="/SOURCE/APERIGEE.FFH";
REFERENCE="/SOURCE/ATIMES.FFD";
REFERENCE="/SOURCE/ATIMES.FFH";
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REFERENCE="/SOURCE/BPERIGEE.FFD";
REFERENCE="/SOURCE/BPERIGEE.FFH";
REFERENCE="/SOURCE/BTIMES.FFD";
REFERENCE="/SOURCE/BTIMES.FFH";
REFERENCE="/SOURCE/CONVERT.C";
REFERENCE="/SOURCE/CONVERT.FOR";
REFERENCE="/SOURCE/CTIME.C";
REFERENCE="/SOURCE/FF_IGPP.C";
REFERENCE="/SOURCE/FF_IGPP.H";
REFERENCE="/SOURCE/FLAT.F";
REFERENCE="/SOURCE/FLAT2ASCII.C";
REFERENCE="/SOURCE/FLATCOM.F";
REFERENCE="/SOURCE/ICAT.F";
REFERENCE="/SOURCE/IGPPFORT.F";
REFERENCE="/SOURCE/IGPPLIB.C";
REFERENCE="/SOURCE/ISEEPRODFF.C";
REFERENCE="/SOURCE/ISEE-TAR.Z";
REFERENCE="/SOURCE/JTLIB.F";
REFERENCE="/SOURCE/MAKEFILE.";
REFERENCE="/SOURCE/PARMEDIT.F";
REFERENCE="/SOURCE/PARMLIST.C";
REFERENCE="/SOURCE/QBMS.F";
REFERENCE="/SOURCE/QBS1.F";
REFERENCE="/SOURCE/QBS2.F";
REFERENCE="/SOURCE/QBS3.F";
REFERENCE="/SOURCE/TIME_IGPP.C";
REFERENCE="/SOURCE/TIME_IGPP.H";
REFERENCE="/SOURCE/WHOWNER.C";
REFERENCE="/SOURCE/YAMS.F";
REFERENCE="/SOURCE/YAS1.F";
REFERENCE="/SOURCE/YAS2.F";
REFERENCE="/SOURCE/YAS3.F";

/* EOF */
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CCSD3ZF0000100000001CCSD3VS00002markeraa

LOG_VOL_IDENT:	USA_NASA_NSSD_IC1D_0002B
LOG_VOL_NSSDC_EXPT_ID:	77-102A-04
LOG_VOL_INITIATION_DATE:	1991-11-11
LOG_VOL_CLOSING_DATE:	1993-09-24
LOG_VOL_CAPACITY:	1GB/Logical volume
LOG_VOL_FILE_STRUCTURE:	Files-11
VOLUME_DIAMETER:	12 inches
VOLUME_DRIVE_MFGR_AND_MODEL:	Optimem 1000
COMPUTER_MFGR:	Digital Equipment Corporation
OPERATING_SYSTEM:	MicroVMS 4.7
COMPUTER_SYSTEM:	MicroVAX II
TRANSFER_SOFTWARE:	SOAR Version 4.2
TECHNICAL_CONTACT:	Harry Herbert University of California at Los Angeles Institute of Geophysics and Planetary Physics 5833 Slichter Hall Los Angeles, CA 90025-1567 (213)825-9030 NSI=hherbert@igpp.ucla.edu NSI-DECnet=BRUNET::HARRY
PREV_LOG_VOLS:	USA_NASA_NSSD_IC1D_0001A USA_NASA_NSSD_IC1D_0001B USA_NASA_NSSD_IC1D_0002A

CCSD$$MARKERmarkeraaCCSD3SS00002markerab

DATA_SET_NAME:	DECOM Magnetometer Data
DATA_SOURCES:	International Sun-Earth Explorer 1 (ISEE-1) and Fluxgate Magnetometer Instrument
SCIENTIFIC_CONTACT:	Dr. Christopher Russell University of California at Los Angeles Institute of Geophysics and Planetary Physics 6871 Slichter Hall Los Angeles, CA 90025-1567 (213)825-3188 NSI=ctrussel@igpp.ucla.edu NSI-DECnet=BRUNET::CTRUSSELL

SOURCE_CHARACTERISTICS:

A. DESCRIPTION_OF_SPACECRAFT:
The Explorer-class spacecraft, ISEE-1 and ISEE-2 were part of the mother/daughter/heliocentric mission which consisted of ISEE-1, ISEE-2, and ISEE-3 spacecraft. These were spin stabilized spacecraft with their spin axes usually normal to the ecliptic plane. The spin axis of ISEE-1 was within 1 degree of the ecliptic pole throughout the mission. The spin axis of ISEE-2 was usually close to the ecliptic pole but was up to 90 degrees from the ecliptic pole on a few occasions. Solar panels provided the power for the instruments.

B. ORBIT_INFORMATION:
The mother/daughter portion of the mission consisted of two spacecraft, one with station-keeping capability, in a highly eccentric earth orbit with apogee at 23 earth radii. The spacecraft maintained a small, but variable, separation distance and made simultaneous coordinated measurements to permit separation of spatial from temporal irregularities in the near-earth solar wind, the bow shock, and inside the magnetosphere. The spin rate of ISEE-1 was set at 19.75 rpm, differing slightly from that of the ISEE-2 spacecraft, whose spin rate was set at 19.8 rpm

C. PERFORMANCE:
The ISEE-1 and ISEE-2 spacecraft operated continuously from launch on October 22, 1977 to September 27, 1987 when they both reentered the Earth's atmosphere.

INVESTIGATION_OBJECTIVES:
The purposes of the mission were (1) to investigate solar/terrestrial relationships at the outermost boundaries of the earth's magnetosphere, (2) to examine in detail the structure of the solar wind near the earth and the shock wave that forms the interface between the solar wind and earth, and (3) to continue the investigation of cosmic rays and solar flares in the interplanetary region near 1 AU.

INSTRUMENT_ATTRIBUTES:

A. DESCRIPTION_OF_INSTRUMENT:
In this triaxial fluxgate magnetometer, three ring-core sensors in an orthogonal triad were enclosed in a flipper mechanism at the end of the magnetometer boom. The electronics unit was on the main body of the spacecraft at the foot of the boom. For a complete description of the instrument see the paper Geoscience Electronics GE-16, 239-242, 1978.

B. OPERATIONAL_MODE:
The magnetometer had two operating ranges of plus or minus 8192 nT and plus or minus 256 nT in each vector component. The data were digitized and averaged within the instrument to provide increased resolution and to provide Nyquist filtering. There were two modes for the transmission of the averaged data. In the double-precision mode of operation, 16-bit samples of data were transmitted. This provided a maximum resolution of plus or minus 1/4 nT or 1/128 nT in the low-sensitivity and high-sensitivity ranges. In the single-precision mode, any 8 consecutive bits of the above 16-bits were selected by ground command for transmission and the telemetry bandwidths of the magnetometer were doubled. This bandwidth varied from 2 Hz for the low-telemetry rate, double-precision experiment mode to 32 Hz for the high-telemetry rate, single precision mode.

C. MEASURED_PARAMETERS:
The instrument measured 3 components of the magnetic field. The data were despun to give the magnetic field along the spin axis, Bz, and the two components in the spin plane. The component along the projection of the sun-earth line onto the spin plane was called the Bx component.

D. PERFORMANCE_OF_THE_INSTRUMENT:
The instruments continued to function with undiminished accuracy until re-entry. Variation of the zero levels has been removed in processing. Occasionally latch up of a sensor occurred during range changes. Because three components of the field could be measured from the two remaining sensors due to the spin of the spacecraft this latch up does not usually affect the calculation of low temporal resolution data.

E. RESOLUTION:
The temporal resolution of the data is generally 4 or 16 samples per second. A single precision mode giving lower amplitude resolution but twice the temporal resolution was seldom used. The analog to digital converter of the magnetometer had a resolution of +/- 2 nT and +/- 1/16 nT in high range and low range. Averaging was used to increase the resolution to +/- 1/8 nT and +/- 1/256 nT. The accuracy of the analog to digital conversion was +/- 1/2 nT and +/- 1/64 nT.

PARAMETERS:
The archive includes the original DECOM magnetometer data as received from Goddard Space Flight Center.

DATA_SET_QUALITY:
The data submitted on this disk is of the same quality as was originally received from GSFC. During the copying process from magnetic tape to disk, a very small number of unrecoverable tape errors (parity errors) occurred which would result in the loss of 1 tape block of data.

DATA_PROCESSING_OVERVIEW:
The DECOM data was received on 9-track magnetic tapes written at 1600 BPI, usually with three or four days of data on each tape. These tapes were copied to 9-track magnetic tapes at 6250 BPI with two to four weeks of data per copy tape. No changes were made to the data itself so the data retained its original blocking factor and data format. These copy tapes were then written to optical disk, with one disk file for each three or four days of data, without any alteration of the data. Thus, the data contained on this optical disk is as close as possible to the original DECOM data that was received from GSFC.

At UCLA the DECOM data are processed on Sun/UNIX workstations by the FORTRAN programs makeprod_a (ISEE-1) and makeprod_b (ISEE-2). The makeprod programs read the DECOM data for their respective spacecraft, and convert them into meaningful magnetic field values. The output of the programs is a UNIX binary file. This file may be written to magnetic tape for storage or converted into a UCLA-IGPP flat files or into ASCII text files. The entire suite of UCLA programs to read and interpret the DECOM data have been archived on this disk in the directory [SOURCE]. The file AAREADME.TXT gives an overview of the various files. The individual source code files include more complete documentation.

DATA_USAGE:
The data in this archive are stored in IBM integer format. Because the data is raw information from the magnetometer instrument, a computer program is required to unpack and convert the data into a format that is scientifically

meaningful. The complete suite of UCLA Sun/UNIX DECOM processing programs have been archived on this disk to demonstrate how to interpret these datasets.

DATA_ORGANIZATION:
Each logical volume, one side of an optical disk, includes as much ISEE-1 or ISEE-2 DECOM data as would comfortably fit on that logical volume. The only separation criteria that was used was that if a data group did not fit on the current logical volume it became the first data group of the next logical volume with the groups being placed on logical volumes in ascending order. Occasionally, a problem would occur with either the Write-Once media or the magnetic tapes holding the original DECOM data that would necessitate skipping a data group at the time of writing adjacent data groups to the WORM disk. At the end of the archival process, these data groups were written to the final logical volume for their respective spacecraft.

TYPE_OF_FILE_RELATIONSHIPS:
There is only one type_of_file, which is the original DECOM data from the magnetometer instrument.

CCSD$$MARKERmarkerabCCSD3KS00002markerac

LOG_VOL_TIME_COVERAGE: 1979-05-02T01:50:33.822 TO 1979-11-14T00:00:00.539

TYPE_OF_FILE_TIME_COVERAGE:
DECOM Magnetometer Data 1979-05-02T01:50:33.822 TO 1979-11-14T00:00:00.539

FILE_NAMING_CONVENTION:
File names are of the form DEC#XXXX.DAT where DEC is the type of data (DECOM), # is a "1" for ISEE-1 data or a "2" for ISEE-2 data and XXXX is the four digit ISEE group number with leading zeroes as needed. Groups were sequentially numbered chunks of DECOM data. Groups 1 through 12 varied in length from 3 to 8 days. Starting with group 13 and continuing through the end of the mission, groups alternated between 3 days and 4 days of data.

LOG_VOL_FILE_TIME_COVERAGE:
DEC10152.DAT 1979-05-02T01:50:33.822 TO 1979-05-06T00:04:59.230
DEC10153.DAT 1979-05-06T00:05:00.542 TO 1979-05-09T00:45:18.461
DEC10154.DAT 1979-05-09T00:39:18.633 TO 1979-05-12T23:59:58.954
DEC10155.DAT 1979-05-13T00:00:11.948 TO 1979-05-16T00:00:04.407
DEC10156.DAT 1979-05-16T01:09:54.661 TO 1979-05-20T00:53:01.630
DEC10157.DAT 1979-05-20T02:09:31.443 TO 1979-05-23T00:21:27.774
DEC10158.DAT 1979-05-23T00:21:13.779 TO 1979-05-27T00:53:40.148
DEC10159.DAT 1979-05-27T00:53:44.146 TO 1979-05-30T00:33:59.966
DEC10160.DAT 1979-05-30T00:34:01.777 TO 1979-06-03T00:09:58.755
DEC10161.DAT 1979-06-03T00:10:14.747 TO 1979-06-06T01:14:59.193
DEC10162.DAT 1979-06-06T01:15:01.692 TO 1979-06-10T00:06:16.773
DEC10163.DAT 1979-06-10T00:06:17.960 TO 1979-06-13T00:24:09.103
DEC10164.DAT 1979-06-13T00:24:16.850 TO 1979-06-16T23:09:29.426
DEC10165.DAT 1979-06-17T00:31:40.570 TO 1979-06-20T01:06:49.839
DEC10166.DAT 1979-06-20T01:06:55.337 TO 1979-06-24T01:00:11.937
DEC10167.DAT 1979-06-24T00:57:11.648 TO 1979-06-27T00:56:02.564
DEC10168.DAT 1979-06-27T00:48:44.023 TO 1979-07-01T00:26:06.087
DEC10169.DAT 1979-07-01T02:31:09.012 TO 1979-07-04T00:44:05.138
DEC10170.DAT 1979-07-04T00:44:07.949 TO 1979-07-08T00:46:00.160
DEC10171.DAT 1979-07-08T00:40:00.081 TO 1979-07-11T00:48:01.887
DEC10172.DAT 1979-07-11T00:48:04.136 TO 1979-07-15T00:12:00.026
DEC10173.DAT 1979-07-15T00:06:21.188 TO 1979-07-18T00:00:00.189
DEC10174.DAT 1979-07-18T00:23:19.084 TO 1979-07-21T23:59:58.498
DEC10175.DAT 1979-07-22T00:00:03.496 TO 1979-07-25T00:19:19.244
DEC10176.DAT 1979-07-25T00:19:20.743 TO 1979-07-28T23:59:59.907
DEC10177.DAT 1979-07-29T00:00:01.843 TO 1979-08-01T01:20:57.853
DEC10178.DAT 1979-08-01T01:21:00.602 TO 1979-08-05T00:36:45.731
DEC10179.DAT 1979-08-05T00:28:59.453 TO 1979-08-07T23:31:49.582
DEC10180.DAT 1979-08-07T23:31:52.831 TO 1979-08-12T01:13:06.971
DEC10181.DAT 1979-08-12T01:41:14.167 TO 1979-08-15T02:00:00.094
DEC10182.DAT 1979-08-15T01:54:46.743 TO 1979-08-19T00:20:55.465
DEC10183.DAT 1979-08-19T00:14:28.649 TO 1979-08-21T23:55:12.343
DEC10184.DAT 1979-08-22T00:02:00.024 TO 1979-08-26T00:59:57.965
DEC10185.DAT 1979-08-26T00:53:59.636 TO 1979-08-29T01:00:59.565
DEC10186.DAT 1979-08-29T00:56:02.957 TO 1979-09-02T00:29:00.724
DEC10187.DAT 1979-09-02T00:23:59.867 TO 1979-09-04T19:59:58.853
DEC10188.DAT 1979-09-05T00:17:02.991 TO 1979-09-09T00:59:47.580
DEC10189.DAT 1979-09-09T00:59:51.328 TO 1979-09-12T00:34:06.327
DEC10190.DAT 1979-09-12T00:32:21.377 TO 1979-09-16T00:17:14.099
DEC10191.DAT 1979-09-16T00:17:24.095 TO 1979-09-19T01:07:39.168
DEC10192.DAT 1979-09-19T01:01:08.106 TO 1979-09-23T00:28:26.768
DEC10193.DAT 1979-09-23T00:21:59.202 TO 1979-09-26T00:33:01.038
DEC10194.DAT 1979-09-26T00:27:37.630 TO 1979-09-30T00:25:02.528
DEC10195.DAT 1979-09-30T00:26:50.854 TO 1979-10-03T01:10:06.534
DEC10196.DAT 1979-10-03T01:08:59.067 TO 1979-10-07T01:15:52.184

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DEC10197.DAT  1979-10-07T01:15:57.182 TO 1979-10-09T23:59:58.263
DEC10198.DAT  1979-10-10T00:00:01.262 TO 1979-10-13T22:33:57.495
DEC10199.DAT  1979-10-14T00:32:41.087 TO 1979-10-17T00:51:57.581
DEC10200.DAT  1979-10-17T00:46:58.474 TO 1979-10-21T00:05:57.987
DEC10201.DAT  1979-10-21T00:05:59.487 TO 1979-10-23T23:35:14.866
DEC10202.DAT  1979-10-24T00:19:08.105 TO 1979-10-28T01:43:40.009
DEC10203.DAT  1979-10-28T01:43:45.507 TO 1979-10-31T00:41:59.168
DEC10204.DAT  1979-10-31T00:42:01.916 TO 1979-11-04T00:52:45.833
DEC10205.DAT  1979-11-04T00:52:48.832 TO 1979-11-07T00:00:01.172
DEC10206.DAT  1979-11-07T01:34:02.219 TO 1979-11-11T00:15:58.192
DEC10207.DAT  1979-11-11T00:16:00.941 TO 1979-11-14T00:00:00.539

PREV_LOG_VOL_COVERAGE: 1978-10-11T01:48:28.535 TO 1978-11-18T19:52:04.539
                       1978-11-22T01:10:03.576 TO 1979-05-02T01:50:13.112

CCSD$$MARKERmarkeracCCSD3RF0000200000001

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REFERENCE="DECOM1.SFD";

LABEL=NSSD3IF0018700000001;
REFERENCE="/ISEE1DEC/DEC1*.DAT";

LABEL=CCSD3SF0000200000001;
REFERENCE="/SOURCE/AAREADME.TXT";
REFERENCE="/SOURCE/AINPUT.DAT";
REFERENCE="/SOURCE/APERIGEE.FFD";
REFERENCE="/SOURCE/APERIGEE.FFH";
REFERENCE="/SOURCE/ATIMES.FFD";
REFERENCE="/SOURCE/ATIMES.FFH";
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REFERENCE="/SOURCE/BPERIGEE.FFD";
REFERENCE="/SOURCE/BPERIGEE.FFH";
REFERENCE="/SOURCE/BTIMES.FFD";
REFERENCE="/SOURCE/BTIMES.FFH";
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REFERENCE="/SOURCE/CONVERT.FOR";
REFERENCE="/SOURCE/CTIME.C";
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REFERENCE="/SOURCE/FF_IGPP.H";
REFERENCE="/SOURCE/FLAT.F";
REFERENCE="/SOURCE/FLAT2ASCII.C";
REFERENCE="/SOURCE/FLATCOM.F";
REFERENCE="/SOURCE/ICAT.F";
REFERENCE="/SOURCE/IGPPFORT.F";
REFERENCE="/SOURCE/IGPPLIB.C";
REFERENCE="/SOURCE/ISEEPRODFF.C";
REFERENCE="/SOURCE/ISEE-TAR.Z";
REFERENCE="/SOURCE/JTLIB.F";
REFERENCE="/SOURCE/MAKEFILE.";
REFERENCE="/SOURCE/PARMEDIT.F";
REFERENCE="/SOURCE/PARMLIST.C";
REFERENCE="/SOURCE/QBMS.F";
REFERENCE="/SOURCE/QBS1.F";
REFERENCE="/SOURCE/QBS2.F";
REFERENCE="/SOURCE/QBS3.F";
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REFERENCE="/SOURCE/TIME_IGPP.H";
REFERENCE="/SOURCE/WHOWNER.C";
REFERENCE="/SOURCE/YAMS.F";
REFERENCE="/SOURCE/YAS1.F";
REFERENCE="/SOURCE/YAS2.F";
REFERENCE="/SOURCE/YAS3.F";

/* EOF */
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CCSD3ZF0000100000001CCSD3VS00002markeraa

LOG_VOL_IDENT: USA_NASA_NSSD_IC1D_0003A
LOG_VOL_NSSDC_EXPT_ID: 77-I02A-04
LOG_VOL_INITIATION_DATE: 1991-11-20
LOG_VOL_CLOSING_DATE: 1993-09-24
LOG_VOL_CAPACITY: 1GB/Logical volume
LOG_VOL_FILE_STRUCTURE: Files-11

VOLUME_DIAMETER: 12 inches
VOLUME_DRIVE_MFGR_AND_MODEL: Optimem 1000
COMPUTER_MFGR: Digital Equipment Corporation
OPERATING_SYSTEM: MicroVMS 4.7
COMPUTER_SYSTEM: MicroVAX II
TRANSFER_SOFTWARE: SOAR Version 4.2

TECHNICAL_CONTACT:
Harry Herbert
University of California at Los Angeles
Institute of Geophysics and Planetary Physics
5833 Slichter Hall
Los Angeles, CA 90025-1567
(213)825-9030
NSI=hherbert@igpp.ucla.edu
NSI-DECnet=BRUNET::HARRY

PREV_LOG_VOLS:
USA_NASA_NSSD_IC1D_0001A
USA_NASA_NSSD_IC1D_0001B
USA_NASA_NSSD_IC1D_0002A
USA_NASA_NSSD_IC1D_0002B

CCSD$$MARKERmarkeraaCCSD3SS00002markerab

DATA_SET_NAME: DECOM Magnetometer Data
DATA_SOURCES: International Sun-Earth Explorer 1 (ISEE-1) and Fluxgate Magnetometer Instrument

SCIENTIFIC_CONTACT:
Dr. Christopher Russell
University of California at Los Angeles
Institute of Geophysics and Planetary Physics
6871 Slichter Hall
Los Angeles, CA 90025-1567
(213)825-3188
NSI=ctrussel@igpp.ucla.edu
NSI-DECnet=BRUNET::CTRUSSELL

SOURCE_CHARACTERISTICS:

A. DESCRIPTION_OF_SPACECRAFT:
The Explorer-class spacecraft, ISEE-1 and ISEE-2 were part of the mother/daughter/heliocentric mission which consisted of ISEE-1, ISEE-2, and ISEE-3 spacecraft. These were spin stabilized spacecraft with their spin axes usually normal to the ecliptic plane. The spin axis of ISEE-1 was within 1 degree of the ecliptic pole throughout the mission. The spin axis of ISEE-2 was usually close to the ecliptic pole but was up to 90 degrees from the ecliptic pole on a few occasions. Solar panels provided the power for the instruments.

B. ORBIT_INFORMATION:
The mother/daughter portion of the mission consisted of two spacecraft, one with station-keeping capability, in a highly eccentric earth orbit with apogee at 23 earth radii. The spacecraft maintained a small, but variable, separation distance and made simultaneous coordinated measurements to permit separation of spatial from temporal irregularities in the near-earth solar wind, the bow shock, and inside the magnetosphere. The spin rate of ISEE-1 was set at 19.75 rpm, differing slightly from that of the ISEE-2 spacecraft, whose spin rate was set at 19.8 rpm

C. PERFORMANCE:
The ISEE-1 and ISEE-2 spacecraft operated continuously from launch on October 22, 1977 to September 27, 1987 when they both reentered the Earth's atmosphere.

INVESTIGATION_OBJECTIVES:
The purposes of the mission were (1) to investigate solar/terrestrial relationships at the outermost boundaries of the earth's magnetosphere, (2) to examine in detail the structure of the solar wind near the earth and the shock wave that forms the interface between the solar wind and earth, and (3) to continue the investigation of cosmic rays and solar flares in the interplanetary region near 1 AU.

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C. MEASURED PARAMETERS:
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DATA SET QUALITY:
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required to unpack and convert the data into a format that is scientifically meaningful. The complete suite of UCLA Sun/UNIX DECOM processing programs have been archived on this disk to demonstrate how to interpret these datasets.

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TYPE_OF_FILE_RELATIONSHIPS:
There is only one type_of_file, which is the original DECOM data from the magnetometer instrument.

CCSD$$MARKERmarkerabCCSD3KS00002markerac

LOG_VOL_TIME_COVERAGE: 1979-11-14T00:00:01.851 TO 1980-01-12T23:43:00.339
1980-01-16T00:43:50.904 TO 1980-05-20T23:38:49.506

TYPE_OF_FILE_TIME_COVERAGE:
DECOM Magnetometer Data 1979-11-14T00:00:01.851 TO 1980-01-12T23:43:00.339
1980-01-16T00:43:50.904 TO 1980-05-20T23:38:49.506

FILE_NAMING_CONVENTION:
File names are of the form DEC#XXXX.DAT where DEC is the type of data (DECOM), # is a "1" for ISEE-1 data or a "2" for ISEE-2 data and XXXX is the four digit ISEE group number with leading zeroes as needed. Groups were sequentially numbered chunks of DECOM data. Groups 1 through 12 varied in length from 3 to 8 days. Starting with group 13 and continuing through the end of the mission, groups alternated between 3 days and 4 days of data.

LOG_VOL_FILE_TIME_COVERAGE:
DEC10208.DAT 1979-11-14T00:00:01.851 TO 1979-11-18T00:13:59.097
DEC10209.DAT 1979-11-18T00:14:02.845 TO 1979-11-21T01:07:05.543
DEC10210.DAT 1979-11-21T02:14:29.358 TO 1979-11-25T00:37:59.143
DEC10211.DAT 1979-11-25T00:38:01.829 TO 1979-11-28T00:55:58.728
DEC10212.DAT 1979-11-28T03:30:54.023 TO 1979-12-01T23:59:58.484
DEC10213.DAT 1979-12-02T00:48:54.826 TO 1979-12-05T00:00:08.750
DEC10214.DAT 1979-12-05T00:00:12.998 TO 1979-12-09T00:06:57.875
DEC10215.DAT 1979-12-09T00:17:21.076 TO 1979-12-12T00:39:57.397
DEC10216.DAT 1979-12-12T00:41:42.347 TO 1979-12-16T00:33:58.348
DEC10217.DAT 1979-12-16T01:35:33.327 TO 1979-12-19T01:05:04.831
DEC10218.DAT 1979-12-19T02:47:53.935 TO 1979-12-23T01:22:51.349
DEC10219.DAT 1979-12-23T02:15:46.821 TO 1979-12-25T20:58:06.380
DEC10220.DAT 1979-12-26T01:49:57.732 TO 1979-12-30T00:00:02.615
DEC10221.DAT 1979-12-30T01:20:58.406 TO 1980-01-02T00:28:58.155
DEC10222.DAT 1980-01-02T02:08:59.027 TO 1980-01-06T00:29:59.102
DEC10223.DAT 1980-01-06T00:30:03.350 TO 1980-01-08T23:24:58.095
DEC10224.DAT 1980-01-09T00:09:28.814 TO 1980-01-12T23:43:00.339
DEC10226.DAT 1980-01-16T00:43:50.904 TO 1980-01-20T00:26:15.625
DEC10227.DAT 1980-01-20T00:26:20.123 TO 1980-01-23T01:13:30.555
DEC10228.DAT 1980-01-23T01:13:33.491 TO 1980-01-27T00:04:59.424
DEC10229.DAT 1980-01-27T00:05:01.923 TO 1980-01-30T01:35:58.772
DEC10230.DAT 1980-01-30T01:36:01.270 TO 1980-02-02T23:45:03.019
DEC10231.DAT 1980-02-03T00:08:03.857 TO 1980-02-06T00:00:11.820
DEC10232.DAT 1980-02-06T00:00:13.756 TO 1980-02-10T01:27:27.634
DEC10233.DAT 1980-02-10T01:27:32.631 TO 1980-02-13T00:03:01.593
DEC10234.DAT 1980-02-13T01:41:15.769 TO 1980-02-17T00:05:22.941
DEC10235.DAT 1980-02-17T00:55:41.745 TO 1980-02-19T23:03:59.454
DEC10236.DAT 1980-02-20T00:03:15.498 TO 1980-02-24T00:01:47.961
DEC10237.DAT 1980-02-24T01:14:44.365 TO 1980-02-27T00:59:51.897
DEC10238.DAT 1980-02-27T00:55:40.268 TO 1980-03-02T00:43:13.821
DEC10239.DAT 1980-03-02T00:46:07.738 TO 1980-03-04T23:30:16.565
DEC10240.DAT 1980-03-05T02:44:59.725 TO 1980-03-09T01:57:58.369
DEC10241.DAT 1980-03-09T01:58:00.118 TO 1980-03-12T00:32:27.457
DEC10242.DAT 1980-03-12T00:25:57.892 TO 1980-03-16T01:27:25.299
DEC10243.DAT 1980-03-16T01:27:29.048 TO 1980-03-19T00:17:33.814
DEC10244.DAT 1980-03-19T00:16:02.857 TO 1980-03-23T00:38:52.263
DEC10245.DAT 1980-03-23T00:43:42.749 TO 1980-03-26T00:30:43.907
DEC10246.DAT 1980-03-26T00:32:32.855 TO 1980-03-30T00:09:44.529
DEC10247.DAT 1980-03-30T00:09:50.276 TO 1980-04-02T00:42:58.673
DEC10248.DAT 1980-04-02T00:36:59.344 TO 1980-04-06T00:37:18.980
DEC10249.DAT 1980-04-06T00:37:19.730 TO 1980-04-09T00:26:04.455
DEC10250.DAT 1980-04-09T00:26:10.952 TO 1980-04-12T23:02:47.910

```
DEC10251.DAT  1980-04-13T00:13:58.874 TO 1980-04-16T00:44:00.614
DEC10252.DAT  1980-04-16T00:38:05.097 TO 1980-04-20T00:32:58.513
DEC10253.DAT  1980-04-20T01:41:06.813 TO 1980-04-23T00:59:14.789
DEC10254.DAT  1980-04-23T00:01:42.937 TO 1980-04-27T02:46:26.838
DEC10255.DAT  1980-04-27T02:40:11.517 TO 1980-04-29T23:59:58.697
DEC10256.DAT  1980-04-30T00:07:49.223 TO 1980-05-04T00:17:35.422
DEC10257.DAT  1980-05-04T00:07:06.722 TO 1980-05-06T23:58:07.932
DEC10258.DAT  1980-05-07T00:23:03.718 TO 1980-05-11T00:22:22.769
DEC10259.DAT  1980-05-11T00:22:25.706 TO 1980-05-14T01:48:51.200
DEC10260.DAT  1980-05-14T01:48:58.945 TO 1980-05-18T01:55:18.307
DEC10261.DAT  1980-05-18T01:48:58.987 TO 1980-05-20T23:38:49.506

/* NOTE:                                                          */
/*  The file below is located on LOG_VOL_IDENT: USA_NASA_NSSD_IC1D_0009B  */
/*  DEC10225.DAT  1980-01-13T00:45:59.589 TO 1980-01-16T00:43:47.905      */

PREV_LOG_VOL_COVERAGE: 1979-05-02T01:50:33.822 TO 1979-11-14T00:00:00.539

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REFERENCETYPE=$CCSDS2;

LABEL=ATTACHED;
REFERENCE="DECOM1.SFD";

LABEL=NSSD3IF0018700000001;
REFERENCE="/ISEE1DEC/DEC1*.DAT";

LABEL=CCSD3SF0000200000001;
REFERENCE="/SOURCE/AAREADME.TXT";
REFERENCE="/SOURCE/AINPUT.DAT";
REFERENCE="/SOURCE/APERIGEE.FFD";
REFERENCE="/SOURCE/APERIGEE.FFH";
REFERENCE="/SOURCE/ATIMES.FFD";
REFERENCE="/SOURCE/ATIMES.FFH";
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REFERENCE="/SOURCE/BPERIGEE.FFD";
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REFERENCE="/SOURCE/BTIMES.FFD";
REFERENCE="/SOURCE/BTIMES.FFH";
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REFERENCE="/SOURCE/CONVERT.FOR";
REFERENCE="/SOURCE/CTIME.C";
REFERENCE="/SOURCE/FF_IGPP.C";
REFERENCE="/SOURCE/FF_IGPP.H";
REFERENCE="/SOURCE/FLAT.F";
REFERENCE="/SOURCE/FLAT2ASCII.C";
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REFERENCE="/SOURCE/ICAT.F";
REFERENCE="/SOURCE/IGPPFORT.F";
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REFERENCE="/SOURCE/ISEE-TAR.Z";
REFERENCE="/SOURCE/JTLIB.F";
REFERENCE="/SOURCE/MAKEFILE.";
REFERENCE="/SOURCE/PARMEDIT.F";
REFERENCE="/SOURCE/PARMLIST.C";
REFERENCE="/SOURCE/QBMS.F";
REFERENCE="/SOURCE/QBS1.F";
REFERENCE="/SOURCE/QBS2.F";
REFERENCE="/SOURCE/QBS3.F";
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REFERENCE="/SOURCE/WHOWNER.C";
REFERENCE="/SOURCE/YAMS.F";
REFERENCE="/SOURCE/YAS1.F";
REFERENCE="/SOURCE/YAS2.F";
REFERENCE="/SOURCE/YAS3.F";

/* EOF */
```

CCSD3ZF0000100000001CCSD3VS00002markeraa

LOG_VOL_IDENT: USA_NASA_NSSD_IC1D_0003B
LOG_VOL_NSSDC_EXPT_ID: 77-102A-04
LOG_VOL_INITIATION_DATE: 1991-11-20
LOG_VOL_CLOSING_DATE: 1993-09-24
LOG_VOL_CAPACITY: 1GB/Logical volume
LOG_VOL_FILE_STRUCTURE: Files-11

VOLUME_DIAMETER: 12 inches
VOLUME_DRIVE_MFGR_AND_MODEL: Optimem 1000
COMPUTER_MFGR: Digital Equipment Corporation
OPERATING_SYSTEM: MicroVMS 4.7
COMPUTER_SYSTEM: MicroVAX II
TRANSFER_SOFTWARE: SOAR Version 4.2

TECHNICAL_CONTACT: Harry Herbert
University of California at Los Angeles
Institute of Geophysics and Planetary Physics
5833 Slichter Hall
Los Angeles, CA 90025-1567
(213)825-9030
NSI=hherbert@igpp.ucla.edu
NSI-DECnet=BRUNET::HARRY

PREV_LOG_VOLS: USA_NASA_NSSD_IC1D_0001A
USA_NASA_NSSD_IC1D_0001B
USA_NASA_NSSD_IC1D_0002A
USA_NASA_NSSD_IC1D_0002B
USA_NASA_NSSD_IC1D_0003A

CCSD$$MARKERmarkeraaCCSD3SS00002markerab

DATA_SET_NAME: DECOM Magnetometer Data
DATA_SOURCES: International Sun-Earth Explorer 1 (ISEE-1)
and Fluxgate Magnetometer Instrument

SCIENTIFIC_CONTACT: Dr. Christopher Russell
University of California at Los Angeles
Institute of Geophysics and Planetary Physics
6871 Slichter Hall
Los Angeles, CA 90025-1567
(213)825-3188
NSI=ctrussel@igpp.ucla.edu
NSI-DECnet=BRUNET::CTRUSSELL

SOURCE_CHARACTERISTICS:

A. DESCRIPTION_OF_SPACECRAFT:
The Explorer-class spacecraft, ISEE-1 and ISEE-2 were part of the mother/daughter/heliocentric mission which consisted of ISEE-1, ISEE-2, and ISEE-3 spacecraft. These were spin stabilized spacecraft with their spin axes usually normal to the ecliptic plane. The spin axis of ISEE-1 was within 1 degree of the ecliptic pole throughout the mission. The spin axis of ISEE-2 was usually close to the ecliptic pole but was up to 90 degrees from the ecliptic pole on a few occasions. Solar panels provided the power for the instruments.

B. ORBIT_INFORMATION:
The mother/daughter portion of the mission consisted of two spacecraft, one with station-keeping capability, in a highly eccentric earth orbit with apogee at 23 earth radii. The spacecraft maintained a small, but variable, separation distance and made simultaneous coordinated measurements to permit separation of spatial from temporal irregularities in the near-earth solar wind, the bow shock, and inside the magnetosphere. The spin rate of ISEE-1 was set at 19.75 rpm, differing slightly from that of the ISEE-2 spacecraft, whose spin rate was set at 19.8 rpm

C. PERFORMANCE:
The ISEE-1 and ISEE-2 spacecraft operated continuously from launch on October 22, 1977 to September 27, 1987 when they both reentered the Earth's atmosphere.

INVESTIGATION_OBJECTIVES:
The purposes of the mission were (1) to investigate solar/terrestrial relationships at the outermost boundaries of the earth's magnetosphere, (2) to examine in detail the structure of the solar wind near the earth and the shock wave that forms the interface between the solar wind and earth, and (3) to continue the investigation of cosmic rays and solar flares in the interplanetary region near 1 AU.

INSTRUMENT ATTRIBUTES:
A. DESCRIPTION OF INSTRUMENT:
In this triaxial fluxgate magnetometer, three ring-core sensors in an orthogonal triad were enclosed in a flipper mechanism at the end of the magnetometer boom. The electronics unit was on the main body of the spacecraft at the foot of the boom. For a complete description of the instrument see the paper Geoscience Electronics GE-16, 239-242, 1978.

B. OPERATIONAL MODE:
The magnetometer had two operating ranges of plus or minus 8192 nT and plus or minus 256 nT in each vector component. The data were digitized and averaged within the instrument to provide increased resolution and to provide Nyquist filtering. There were two modes for the transmission of the averaged data. In the double-precision mode of operation, 16-bit samples of data were transmitted. This provided a maximum resolution of plus or minus 1/4 nT or 1/128 nT in the low-sensitivity and high-sensitivity ranges. In the single-precision mode, any 8 consecutive bits of the above 16-bits were selected by ground command for transmission and the telemetry bandwidths of the magnetometer were doubled. This bandwidth varied from 2 Hz for the low-telemetry rate, double-precision experiment mode to 32 Hz for the high-telemetry rate, single precision mode.

C. MEASURED PARAMETERS:
The instrument measured 3 components of the magnetic field. The data were despun to give the magnetic field along the spin axis, Bz, and the two components in the spin plane. The component along the projection of the sun-earth line onto the spin plane was called the Bx component.

D. PERFORMANCE OF THE INSTRUMENT:
The instruments continued to function with undiminished accuracy until re-entry. Variation of the zero levels has been removed in processing. Occasionally latch up of a sensor occurred during range changes. Because three components of the field could be measured from the two remaining sensors due to the spin of the spacecraft this latch up does not usually affect the calculation of low temporal resolution data.

E. RESOLUTION:
The temporal resolution of the data is generally 4 or 16 samples per second. A single precision mode giving lower amplitude resolution but twice the temporal resolution was seldom used. The analog to digital converter of the magnetometer had a resolution of +/- 2 nT and +/- 1/16 nT in high range and low range. Averaging was used to increase the resolution to +/- 1/8 nT and +/- 1/256 nT. The accuracy of the analog to digital conversion was +/- 1/2 nT and +/- 1/64 nT.

PARAMETERS:
The archive includes the original DECOM magnetometer data as received from Goddard Space Flight Center.

DATA SET QUALITY:
The data submitted on this disk is of the same quality as was originally received from GSFC. During the copying process from magnetic tape to disk, a very small number of unrecoverable tape errors (parity errors) occurred which would result in the loss of 1 tape block of data.

DATA PROCESSING OVERVIEW:
The DECOM data was received on 9-track magnetic tapes written at 1600 BPI, usually with three or four days of data on each tape. These tapes were copied to 9-track magnetic tapes at 6250 BPI with two to four weeks of data per copy tape. No changes were made to the data itself so the data retained its original blocking factor and data format. These copy tapes were then written to optical disk, with one disk file for each three or four days of data, without any alteration of the data. Thus, the data contained on this optical disk is as close as possible to the original DECOM data that was received from GSFC.

At UCLA the DECOM data are processed on Sun/UNIX workstations by the FORTRAN programs makeprod_a (ISEE-1) and makeprod_b (ISEE-2). The makeprod programs read the DECOM data for their respective spacecraft, and convert them into meaningful magnetic field values. The output of the programs is a UNIX binary file. This file may be written to magnetic tape for storage or converted into a UCLA-IGPP flat files or into ASCII text files. The entire suite of UCLA programs to read and interpret the DECOM data have been archived on this disk in the directory [SOURCE]. The file AAREADME.TXT gives an overview of the various files. The individual source code files include more complete documentation.

DATA USAGE:
The data in this archive are stored in IBM integer format. Because the data

is raw information from the magnetometer instrument, a computer program is required to unpack and convert the data into a format that is scientifically meaningful. The complete suite of UCLA Sun/UNIX DECOM processing programs have been archived on this disk to demonstrate how to interpret these datasets.

DATA_ORGANIZATION:
Each logical volume, one side of an optical disk, includes as much ISEE-1 or ISEE-2 DECOM data as would comfortably fit on that logical volume. The only separation criteria that was used was that if a data group did not fit on the current logical volume it became the first data group of the next logical volume with the groups being placed on logical volumes in ascending order. Occasionally, a problem would occur with either the Write-Once media or the magnetic tapes holding the original DECOM data that would necessitate skipping a data group at the time of writing adjacent data groups to the WORM disk. At the end of the archival process, these data groups were written to the final logical volume for their respective spacecraft.

TYPE_OF_FILE_RELATIONSHIPS:
There is only one type_of_file, which is the original DECOM data from the magnetometer instrument.

CCSD$$MARKERmarkerabCCSD3KS00002markerac

LOG_VOL_TIME_COVERAGE: 1980-05-21T00:01:06.119 TO 1980-11-12T00:08:21.696

TYPE_OF_FILE_TIME_COVERAGE:
DECOM Magnetometer Data 1980-05-21T00:01:06.119 TO 1980-11-12T00:08:21.696

FILE_NAMING_CONVENTION:
File names are of the form DEC#XXXX.DAT where DEC is the type of data (DECOM), # is a "1" for ISEE-1 data or a "2" for ISEE-2 data and XXXX is the four digit ISEE group number with leading zeroes as needed. Groups were sequentially numbered chunks of DECOM data. Groups 1 through 12 varied in length from 3 to 8 days. Starting with group 13 and continuing through the end of the mission, groups alternated between 3 days and 4 days of data.

LOG_VOL_FILE_TIME_COVERAGE:
DEC10262.DAT 1980-05-21T00:01:06.119 TO 1980-05-25T00:16:44.513
DEC10263.DAT 1980-05-25T00:16:48.261 TO 1980-05-28T00:39:14.959
DEC10264.DAT 1980-05-28T00:32:58.369 TO 1980-05-31T23:59:57.750
DEC10265.DAT 1980-06-01T00:00:02.747 TO 1980-06-04T00:05:00.376
DEC10266.DAT 1980-06-04T00:05:05.686 TO 1980-06-08T00:35:23.748
DEC10267.DAT 1980-06-08T01:02:37.721 TO 1980-06-11T00:22:58.713
DEC10268.DAT 1980-06-11T00:23:02.461 TO 1980-06-15T00:19:52.760
DEC10269.DAT 1980-06-15T00:20:06.253 TO 1980-06-18T00:20:59.510
DEC10270.DAT 1980-06-18T00:14:59.931 TO 1980-06-22T00:55:11.647
DEC10271.DAT 1980-06-22T00:49:59.795 TO 1980-06-24T23:37:08.751
DEC10272.DAT 1980-06-25T02:12:57.054 TO 1980-06-29T01:04:57.929
DEC10273.DAT 1980-06-29T01:05:22.917 TO 1980-07-02T01:59:58.220
DEC10274.DAT 1980-07-02T02:03:35.367 TO 1980-07-06T00:15:01.195
DEC10275.DAT 1980-07-06T00:09:59.588 TO 1980-07-08T23:59:57.894
DEC10276.DAT 1980-07-09T00:00:01.455 TO 1980-07-13T00:25:44.683
DEC10277.DAT 1980-07-13T00:25:48.182 TO 1980-07-16T01:57:58.845
DEC10278.DAT 1980-07-16T01:58:02.093 TO 1980-07-20T00:14:46.671
DEC10279.DAT 1980-07-20T00:19:58.773 TO 1980-07-23T01:27:09.369
DEC10280.DAT 1980-07-23T01:27:15.865 TO 1980-07-27T01:11:35.454
DEC10281.DAT 1980-07-27T01:11:13.715 TO 1980-07-29T23:59:15.043
DEC10282.DAT 1980-07-30T00:29:05.691 TO 1980-08-03T00:11:13.949
DEC10283.DAT 1980-08-03T00:11:25.007 TO 1980-08-06T00:58:53.514
DEC10284.DAT 1980-08-06T00:58:55.262 TO 1980-08-10T00:06:00.131
DEC10285.DAT 1980-08-10T00:04:17.183 TO 1980-08-13T01:12:07.961
DEC10286.DAT 1980-08-13T00:25:16.918 TO 1980-08-17T00:01:13.672
DEC10287.DAT 1980-08-17T00:01:15.921 TO 1980-08-20T01:14:58.862
DEC10288.DAT 1980-08-20T02:03:58.961 TO 1980-08-24T01:50:58.802
DEC10289.DAT 1980-08-24T01:44:15.994 TO 1980-08-27T00:10:19.749
DEC10290.DAT 1980-08-27T00:10:53.670 TO 1980-08-31T00:35:48.007
DEC10291.DAT 1980-08-31T00:35:49.756 TO 1980-09-03T00:04:59.081
DEC10292.DAT 1980-09-03T02:54:04.992 TO 1980-09-07T00:04:14.559
DEC10293.DAT 1980-09-07T00:04:24.180 TO 1980-09-10T00:03:02.949
DEC10294.DAT 1980-09-10T00:26:47.519 TO 1980-09-14T00:54:44.879
DEC10295.DAT 1980-09-14T00:55:13.365 TO 1980-09-16T23:12:00.148
DEC10296.DAT 1980-09-17T01:15:59.345 TO 1980-09-20T23:59:59.049
DEC10297.DAT 1980-09-21T01:00:14.073 TO 1980-09-23T23:59:57.552
DEC10298.DAT 1980-09-24T00:13:58.900 TO 1980-09-28T00:09:58.004
DEC10299.DAT 1980-09-28T00:10:04.001 TO 1980-09-30T23:43:01.932
DEC10300.DAT 1980-10-01T00:40:59.581 TO 1980-10-05T00:00:03.329
DEC10301.DAT 1980-10-05T00:44:00.071 TO 1980-10-08T00:03:57.581
DEC10302.DAT 1980-10-08T07:24:34.188 TO 1980-10-12T00:16:59.536
DEC10303.DAT 1980-10-12T00:17:20.589 TO 1980-10-15T00:18:44.514
DEC10304.DAT 1980-10-15T00:11:54.710 TO 1980-10-19T00:53:01.788

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DEC10305.DAT  1980-10-19T01:46:59.745 TO 1980-10-22T00:11:56.520
DEC10306.DAT  1980-10-22T00:13:44.218 TO 1980-10-26T01:12:20.230
DEC10307.DAT  1980-10-26T01:12:26.976 TO 1980-10-29T01:24:57.957
DEC10308.DAT  1980-10-29T02:13:58.799 TO 1980-11-02T01:07:58.703
DEC10309.DAT  1980-11-02T01:08:00.453 TO 1980-11-05T00:12:59.280
DEC10310.DAT  1980-11-05T00:13:00.279 TO 1980-11-09T00:39:01.237
DEC10311.DAT  1980-11-09T00:39:02.549 TO 1980-11-12T00:08:21.696

PREV_LOG_VOL_COVERAGE: 1979-11-14T00:00:01.851 TO 1980-01-12T23:43:00.339
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REFERENCETYPE=$CCSDS2;

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REFERENCE="DECOM1.SFD";

LABEL=NSSD3IF0018700000001;
REFERENCE="/ISEE1DEC/DEC1*.DAT";

LABEL=CCSD3SF0000200000001;
REFERENCE="/SOURCE/AAREADME.TXT";
REFERENCE="/SOURCE/AINPUT.DAT";
REFERENCE="/SOURCE/APERIGEE.FFD";
REFERENCE="/SOURCE/APERIGEE.FFH";
REFERENCE="/SOURCE/ATIMES.FFD";
REFERENCE="/SOURCE/ATIMES.FFH";
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REFERENCE="/SOURCE/BTIMES.FFD";
REFERENCE="/SOURCE/BTIMES.FFH";
REFERENCE="/SOURCE/CONVERT.C";
REFERENCE="/SOURCE/CONVERT.FOR";
REFERENCE="/SOURCE/CTIME.C";
REFERENCE="/SOURCE/FF_IGPP.C";
REFERENCE="/SOURCE/FF_IGPP.H";
REFERENCE="/SOURCE/FLAT.F";
REFERENCE="/SOURCE/FLAT2ASCII.C";
REFERENCE="/SOURCE/FLATCOM.F";
REFERENCE="/SOURCE/ICAT.F";
REFERENCE="/SOURCE/IGPPFORT.F";
REFERENCE="/SOURCE/IGPPLIB.C";
REFERENCE="/SOURCE/ISEEPRODFF.C";
REFERENCE="/SOURCE/ISEE-TAR.Z";
REFERENCE="/SOURCE/JTLIB.F";
REFERENCE="/SOURCE/MAKEFILE.";
REFERENCE="/SOURCE/PARMEDIT.F";
REFERENCE="/SOURCE/PARMLIST.C";
REFERENCE="/SOURCE/QBMS.F";
REFERENCE="/SOURCE/QBS1.F";
REFERENCE="/SOURCE/QBS2.F";
REFERENCE="/SOURCE/QBS3.F";
REFERENCE="/SOURCE/TIME_IGPP.C";
REFERENCE="/SOURCE/TIME_IGPP.H";
REFERENCE="/SOURCE/WHOWNER.C";
REFERENCE="/SOURCE/YAMS.F";
REFERENCE="/SOURCE/YAS1.F";
REFERENCE="/SOURCE/YAS2.F";
REFERENCE="/SOURCE/YAS3.F";

/* EOF */
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CCSD3ZF0000100000001CCSD3VS00002markeraa

LOG_VOL_IDENT:	USA_NASA_NSSD_IC1D_0004A
LOG_VOL_NSSDC_EXPT_ID:	77-102A-04
LOG_VOL_INITIATION_DATE:	1991-12-17
LOG_VOL_CLOSING_DATE:	1993-09-24
LOG_VOL_CAPACITY:	1GB/Logical volume
LOG_VOL_FILE_STRUCTURE:	Files-11
VOLUME_DIAMETER:	12 inches
VOLUME_DRIVE_MFGR_AND_MODEL:	Optimem 1000
COMPUTER_MFGR:	Digital Equipment Corporation
OPERATING_SYSTEM:	MicroVMS 4.7
COMPUTER_SYSTEM:	MicroVAX II
TRANSFER_SOFTWARE:	SOAR Version 4.2

TECHNICAL_CONTACT:

Harry Herbert
University of California at Los Angeles
Institute of Geophysics and Planetary Physics
5833 Slichter Hall
Los Angeles, CA 90025-1567
(213)825-9030
NSI=hherbert@igpp.ucla.edu
NSI-DECnet=BRUNET::HARRY

PREV_LOG_VOLS:

USA_NASA_NSSD_IC1D_0001A
USA_NASA_NSSD_IC1D_0001B
USA_NASA_NSSD_IC1D_0002A
USA_NASA_NSSD_IC1D_0002B
USA_NASA_NSSD_IC1D_0003A
USA_NASA_NSSD_IC1D_0003B

CCSD$$MARKERmarkeraaCCSD3SS00002markerab

DATA_SET_NAME:	DECOM Magnetometer Data
DATA_SOURCES:	International Sun-Earth Explorer 1 (ISEE-1) and Fluxgate Magnetometer Instrument

SCIENTIFIC_CONTACT:

Dr. Christopher Russell
University of California at Los Angeles
Institute of Geophysics and Planetary Physics
6871 Slichter Hall
Los Angeles, CA 90025-1567
(213)825-3188
NSI=ctrussel@igpp.ucla.edu
NSI-DECnet=BRUNET::CTRUSSELL

SOURCE_CHARACTERISTICS:

A. DESCRIPTION_OF_SPACECRAFT:
The Explorer-class spacecraft, ISEE-1 and ISEE-2 were part of the mother/daughter/heliocentric mission which consisted of ISEE-1, ISEE-2, and ISEE-3 spacecraft. These were spin stabilized spacecraft with their spin axes usually normal to the ecliptic plane. The spin axis of ISEE-1 was within 1 degree of the ecliptic pole throughout the mission. The spin axis of ISEE-2 was usually close to the ecliptic pole but was up to 90 degrees from the ecliptic pole on a few occasions. Solar panels provided the power for the instruments.

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The mother/daughter portion of the mission consisted of two spacecraft, one with station-keeping capability, in a highly eccentric earth orbit with apogee at 23 earth radii. The spacecraft maintained a small, but variable, separation distance and made simultaneous coordinated measurements to permit separation of spatial from temporal irregularities in the near-earth solar wind, the bow shock, and inside the magnetosphere. The spin rate of ISEE-1 was set at 19.75 rpm, differing slightly from that of the ISEE-2 spacecraft, whose spin rate was set at 19.8 rpm

C. PERFORMANCE:
The ISEE-1 and ISEE-2 spacecraft operated continuously from launch on October 22, 1977 to September 27, 1987 when they both reentered the Earth's atmosphere.

INVESTIGATION_OBJECTIVES:
The purposes of the mission were (1) to investigate solar/terrestrial relationships at the outermost boundaries of the earth's magnetosphere, (2) to examine in detail the structure of the solar wind near the earth and the shock wave that forms the interface between the solar wind and earth, and (3) to continue the investigation of cosmic rays and solar

flares in the interplanetary region near 1 AU.

INSTRUMENT ATTRIBUTES:
A. DESCRIPTION OF INSTRUMENT:
In this triaxial fluxgate magnetometer, three ring-core sensors in an orthogonal triad were enclosed in a flipper mechanism at the end of the magnetometer boom. The electronics unit was on the main body of the spacecraft at the foot of the boom. For a complete description of the instrument see the paper Geoscience Electronics GE-16, 239-242, 1978.

B. OPERATIONAL MODE:
The magnetometer had two operating ranges of plus or minus 8192 nT and plus or minus 256 nT in each vector component. The data were digitized and averaged within the instrument to provide increased resolution and to provide Nyquist filtering. There were two modes for the transmission of the averaged data. In the double-precision mode of operation, 16-bit samples of data were transmitted. This provided a maximum resolution of plus or minus 1/4 nT or 1/128 nT in the low-sensitivity and high-sensitivity ranges. In the single-precision mode, any 8 consecutive bits of the above 16-bits were selected by ground command for transmission and the telemetry bandwidths of the magnetometer were doubled. This bandwidth varied from 2 Hz for the low-telemetry rate, double-precision experiment mode to 32 Hz for the high-telemetry rate, single precision mode.

C. MEASURED PARAMETERS:
The instrument measured 3 components of the magnetic field. The data were despun to give the magnetic field along the spin axis, Bz, and the two components in the spin plane. The component along the projection of the sun-earth line onto the spin plane was called the Bx component.

D. PERFORMANCE OF THE INSTRUMENT:
The instruments continued to function with undiminished accuracy until re-entry. Variation of the zero levels has been removed in processing. Occasionally latch up of a sensor occurred during range changes. Because three components of the field could be measured from the two remaining sensors due to the spin of the spacecraft this latch up does not usually affect the calculation of low temporal resolution data.

E. RESOLUTION:
The temporal resolution of the data is generally 4 or 16 samples per second. A single precision mode giving lower amplitude resolution but twice the temporal resolution was seldom used. The analog to digital converter of the magnetometer had a resolution of +/- 2 nT and +/- 1/16 nT in high range and low range. Averaging was used to increase the resolution to +/- 1/8 nT and +/- 1/256 nT. The accuracy of the analog to digital conversion was +/- 1/2 nT and +/- 1/64 nT.

PARAMETERS:
The archive includes the original DECOM magnetometer data as received from Goddard Space Flight Center.

DATA SET QUALITY:
The data submitted on this disk is of the same quality as was originally received from GSFC. During the copying process from magnetic tape to disk, a very small number of unrecoverable tape errors (parity errors) occurred which would result in the loss of 1 tape block of data.

DATA PROCESSING OVERVIEW:
The DECOM data was received on 9-track magnetic tapes written at 1600 BPI, usually with three or four days of data on each tape. These tapes were copied to 9-track magnetic tapes at 6250 BPI with two to four weeks of data per copy tape. No changes were made to the data itself so the data retained its original blocking factor and data format. These copy tapes were then written to optical disk, with one disk file for each three or four days of data, without any alteration of the data. Thus, the data contained on this optical disk is as close as possible to the original DECOM data that was received from GSFC.

At UCLA the DECOM data are processed on Sun/UNIX workstations by the FORTRAN programs makeprod_a (ISEE-1) and makeprod_b (ISEE-2). The makeprod programs read the DECOM data for their respective spacecraft, and convert them into meaningful magnetic field values. The output of the programs is a UNIX binary file. This file may be written to magnetic tape for storage or converted into a UCLA-IGPP flat files or into ASCII text files. The entire suite of UCLA programs to read and interpret the DECOM data have been archived on this disk in the directory [SOURCE]. The file AAREADME.TXT gives an overview of the various files. The individual source code files include more complete documentation.

DATA_USAGE:

The data in this archive are stored in IBM integer format. Because the data is raw information from the magnetometer instrument, a computer program is required to unpack and convert the data into a format that is scientifically meaningful. The complete suite of UCLA Sun/UNIX DECOM processing programs have been archived on this disk to demonstrate how to interpret these datasets.

DATA_ORGANIZATION:
Each logical volume, one side of an optical disk, includes as much ISEE-1 or ISEE-2 DECOM data as would comfortably fit on that logical volume. The only separation criteria that was used was that if a data group did not fit on the current logical volume it became the first data group of the next logical volume with the groups being placed on logical volumes in ascending order. Occasionally, a problem would occur with either the Write-Once media or the magnetic tapes holding the original DECOM data that would necessitate skipping a data group at the time of writing adjacent data groups to the WORM disk. At the end of the archival process, these data groups were written to the final logical volume for their respective spacecraft.

TYPE_OF_FILE_RELATIONSHIPS:
There is only one type_of_file, which is the original DECOM data from the magnetometer instrument.

CCSD$$MARKERmarkerabCCSD3KS00002markerac

LOG_VOL_TIME_COVERAGE: 1980-11-12T01:08:42.340 TO 1980-11-25T23:59:58.346
1980-11-30T00:00:33.643 TO 1981-03-18T00:51:46.370
1981-03-22T02:01:01.613 TO 1981-05-24T00:28:11.565

TYPE_OF_FILE_TIME_COVERAGE:
DECOM Magnetometer Data 1980-11-12T01:08:42.340 TO 1980-11-25T23:59:58.346
1980-11-30T00:00:33.643 TO 1981-03-18T00:51:46.370
1981-03-22T02:01:01.613 TO 1981-05-24T00:28:11.565

FILE_NAMING_CONVENTION:
File names are of the form DEC#XXXX.DAT where DEC is the type of data (DECOM), # is a "1" for ISEE-1 data or a "2" for ISEE-2 data and XXXX is the four digit ISEE group number with leading zeroes as needed. Groups were sequentially numbered chunks of DECOM data. Groups 1 through 12 varied in length from 3 to 8 days. Starting with group 13 and continuing through the end of the mission, groups alternated between 3 days and 4 days of data.

LOG_VOL_FILE_TIME_COVERAGE:
DEC10312.DAT 1980-11-12T01:08:42.340 TO 1980-11-16T00:11:59.345
DEC10313.DAT 1980-11-16T00:12:20.647 TO 1980-11-18T23:51:27.746
DEC10314.DAT 1980-11-19T00:10:31.508 TO 1980-11-23T00:00:01.355
DEC10315.DAT 1980-11-23T00:01:06.824 TO 1980-11-25T23:59:58.346
DEC10317.DAT 1980-11-30T00:00:33.643 TO 1980-12-03T01:00:05.124
DEC10318.DAT 1980-12-03T01:00:26.613 TO 1980-12-07T00:16:31.160
DEC10319.DAT 1980-12-07T00:16:55.149 TO 1980-12-09T23:52:46.756
DEC10320.DAT 1980-12-10T02:54:59.759 TO 1980-12-14T01:40:01.120
DEC10321.DAT 1980-12-14T01:40:01.622 TO 1980-12-17T01:46:01.850
DEC10322.DAT 1980-12-17T03:20:59.116 TO 1980-12-21T00:14:58.650
DEC10323.DAT 1980-12-21T01:08:11.618 TO 1980-12-23T23:44:03.505
DEC10324.DAT 1980-12-24T00:00:59.268 TO 1980-12-27T23:23:58.539
DEC10325.DAT 1980-12-28T00:08:01.520 TO 1980-12-31T00:01:33.778
DEC10326.DAT 1980-12-31T00:00:00.572 TO 1981-01-04T00:03:05.439
DEC10327.DAT 1981-01-04T00:35:10.952 TO 1981-01-07T00:09:23.940
DEC10328.DAT 1981-01-07T00:09:46.429 TO 1981-01-11T01:55:43.213
DEC10329.DAT 1981-01-11T01:56:05.952 TO 1981-01-13T23:59:57.873
DEC10330.DAT 1981-01-14T04:24:55.495 TO 1981-01-18T00:40:04.307
DEC10331.DAT 1981-01-18T00:40:29.045 TO 1981-01-21T01:49:27.400
DEC10332.DAT 1981-01-21T01:51:19.096 TO 1981-01-25T00:38:34.085
DEC10333.DAT 1981-01-25T00:38:56.574 TO 1981-01-28T00:04:16.538
DEC10334.DAT 1981-01-28T00:04:37.153 TO 1981-02-01T00:34:09.988
DEC10335.DAT 1981-02-01T00:00:21.212 TO 1981-02-04T02:00:00.400
DEC10336.DAT 1981-02-04T02:00:23.139 TO 1981-02-08T01:17:29.394
DEC10337.DAT 1981-02-08T05:10:59.175 TO 1981-02-11T00:56:09.133
DEC10338.DAT 1981-02-11T05:04:59.471 TO 1981-02-14T23:40:59.577
DEC10339.DAT 1981-02-15T02:08:00.099 TO 1981-02-18T01:23:37.316
DEC10340.DAT 1981-02-18T01:23:59.556 TO 1981-02-22T00:30:22.916
DEC10341.DAT 1981-02-22T00:30:42.844 TO 1981-02-25T01:12:02.225
DEC10342.DAT 1981-02-25T01:07:07.117 TO 1981-03-01T00:05:23.268
DEC10343.DAT 1981-03-01T00:05:17.770 TO 1981-03-04T00:17:04.002
DEC10344.DAT 1981-03-04T00:10:59.677 TO 1981-03-08T00:58:07.720
DEC10345.DAT 1981-03-08T00:55:00.809 TO 1981-03-11T00:21:03.899
DEC10346.DAT 1981-03-11T00:55:01.174 TO 1981-03-15T02:00:11.444
DEC10347.DAT 1981-03-15T02:01:01.170 TO 1981-03-18T00:51:46.370
DEC10349.DAT 1981-03-22T02:01:01.613 TO 1981-03-25T00:52:56.716
DEC10350.DAT 1981-03-25T01:55:58.914 TO 1981-03-29T00:31:47.736
DEC10351.DAT 1981-03-29T00:31:49.797 TO 1981-04-01T00:05:57.730

```
DEC10352.DAT  1981-04-01T00:06:01.728 TO 1981-04-05T00:23:07.411
DEC10353.DAT  1981-04-05T00:23:31.650 TO 1981-04-08T00:40:28.726
DEC10354.DAT  1981-04-08T00:40:54.713 TO 1981-04-12T01:33:01.717
DEC10355.DAT  1981-04-12T01:26:02.167 TO 1981-04-15T00:26:44.236
DEC10356.DAT  1981-04-15T00:26:04.259 TO 1981-04-19T01:23:58.680
DEC10357.DAT  1981-04-19T01:24:38.161 TO 1981-04-22T00:56:06.427
DEC10358.DAT  1981-04-22T00:49:59.477 TO 1981-04-26T00:00:00.067
DEC10359.DAT  1981-04-26T01:20:38.998 TO 1981-04-29T01:28:10.467
DEC10360.DAT  1981-04-29T01:28:12.716 TO 1981-05-03T00:06:59.065
DEC10361.DAT  1981-05-03T00:07:00.002 TO 1981-05-06T01:49:33.502
DEC10362.DAT  1981-05-06T01:48:42.527 TO 1981-05-10T00:49:08.522
DEC10363.DAT  1981-05-10T00:50:43.477 TO 1981-05-13T00:51:58.422
DEC10364.DAT  1981-05-13T00:52:18.412 TO 1981-05-17T00:00:41.149
DEC10365.DAT  1981-05-17T00:00:00.481 TO 1981-05-20T00:49:07.351
DEC10366.DAT  1981-05-20T00:43:50.003 TO 1981-05-24T00:28:11.565

/* NOTE:                                                              */
/*  The files below are located on LOG_VOL_IDENT: USA_NASA_NSSD_IC1D_0009B  */
/*   DEC10316.DAT  1980-11-26T01:44:00.601 TO 1980-11-30T00:00:09.717      */
/*   DEC10348.DAT  1981-03-18T00:54:36.788 TO 1981-03-22T01:53:03.592      */

PREV_LOG_VOL_COVERAGE: 1980-05-21T00:01:06.119 TO 1980-11-12T00:08:21.696

CCSD$$MARKERmarkeracCCSD3RF0000200000001

REFERENCETYPE=$CCSDS2;

LABEL=ATTACHED;
REFERENCE="DECOM1.SFD";

LABEL=NSSD3IF0018700000001;
REFERENCE="/ISEE1DEC/DEC1*.DAT";

LABEL=CCSD3SF0000200000001;
REFERENCE="/SOURCE/AAREADME.TXT";
REFERENCE="/SOURCE/AINPUT.DAT";
REFERENCE="/SOURCE/APERIGEE.FFD";
REFERENCE="/SOURCE/APERIGEE.FFH";
REFERENCE="/SOURCE/ATIMES.FFD";
REFERENCE="/SOURCE/ATIMES.FFH";
REFERENCE="/SOURCE/BINPUT.DAT";
REFERENCE="/SOURCE/BPERIGEE.FFD";
REFERENCE="/SOURCE/BPERIGEE.FFH";
REFERENCE="/SOURCE/BTIMES.FFD";
REFERENCE="/SOURCE/BTIMES.FFH";
REFERENCE="/SOURCE/CONVERT.C";
REFERENCE="/SOURCE/CONVERT.FOR";
REFERENCE="/SOURCE/CTIME.C";
REFERENCE="/SOURCE/FF_IGPP.C";
REFERENCE="/SOURCE/FF_IGPP.H";
REFERENCE="/SOURCE/FLAT.F";
REFERENCE="/SOURCE/FLAT2ASCII.C";
REFERENCE="/SOURCE/FLATCOM.F";
REFERENCE="/SOURCE/ICAT.F";
REFERENCE="/SOURCE/IGPPFORT.F";
REFERENCE="/SOURCE/IGPPLIB.C";
REFERENCE="/SOURCE/ISEEPRODFF.C";
REFERENCE="/SOURCE/ISEE-TAR.Z";
REFERENCE="/SOURCE/JTLIB.F";
REFERENCE="/SOURCE/MAKEFILE.";
REFERENCE="/SOURCE/PARMEDIT.F";
REFERENCE="/SOURCE/PARMLIST.C";
REFERENCE="/SOURCE/QBMS.F";
REFERENCE="/SOURCE/QBS1.F";
REFERENCE="/SOURCE/QBS2.F";
REFERENCE="/SOURCE/QBS3.F";
REFERENCE="/SOURCE/TIME_IGPP.C";
REFERENCE="/SOURCE/TIME_IGPP.H";
REFERENCE="/SOURCE/WHOWNER.C";
REFERENCE="/SOURCE/YAMS.F";
REFERENCE="/SOURCE/YAS1.F";
REFERENCE="/SOURCE/YAS2.F";
REFERENCE="/SOURCE/YAS3.F";

/* EOF */
```

CCSD3ZF0000100000001CCSD3VS00002markeraa

LOG_VOL_IDENT:	USA_NASA_NSSD_IC1D_0004B
LOG_VOL_NSSDC_EXPT_ID:	77-I02A-04
LOG_VOL_INITIATION_DATE:	1991-12-17
LOG_VOL_CLOSING_DATE:	1993-09-24
LOG_VOL_CAPACITY:	1GB/Logical volume
LOG_VOL_FILE_STRUCTURE:	Files-11
VOLUME_DIAMETER:	12 inches
VOLUME_DRIVE_MFGR_AND_MODEL:	Optimem 1000
COMPUTER_MFGR:	Digital Equipment Corporation
OPERATING_SYSTEM:	MicroVMS 4.7
COMPUTER_SYSTEM:	MicroVAX II
TRANSFER_SOFTWARE:	SOAR Version 4.2
TECHNICAL_CONTACT:	Harry Herbert University of California at Los Angeles Institute of Geophysics and Planetary Physics 5833 Slichter Hall Los Angeles, CA 90025-1567 (213)825-9030 NSI=hherbert@igpp.ucla.edu NSI-DECnet=BRUNET::HARRY
PREV_LOG_VOLS:	USA_NASA_NSSD_IC1D_0001A USA_NASA_NSSD_IC1D_0001B USA_NASA_NSSD_IC1D_0002A USA_NASA_NSSD_IC1D_0002B USA_NASA_NSSD_IC1D_0003A USA_NASA_NSSD_IC1D_0003B USA_NASA_NSSD_IC1D_0004A

CCSD$$MARKERmarkeraaCCSD3SS00002markerab

DATA_SET_NAME:	DECOM Magnetometer Data
DATA_SOURCES:	International Sun-Earth Explorer 1 (ISEE-1) and Fluxgate Magnetometer Instrument
SCIENTIFIC_CONTACT:	Dr. Christopher Russell University of California at Los Angeles Institute of Geophysics and Planetary Physics 6871 Slichter Hall Los Angeles, CA 90025-1567 (213)825-3188 NSI=ctrussel@igpp.ucla.edu NSI-DECnet=BRUNET::CTRUSSELL

SOURCE_CHARACTERISTICS:

A. DESCRIPTION_OF_SPACECRAFT:
The Explorer-class spacecraft, ISEE-1 and ISEE-2 were part of the mother/daughter/heliocentric mission which consisted of ISEE-1, ISEE-2, and ISEE-3 spacecraft. These were spin stabilized spacecraft with their spin axes usually normal to the ecliptic plane. The spin axis of ISEE-1 was within 1 degree of the ecliptic pole throughout the mission. The spin axis of ISEE-2 was usually close to the ecliptic pole but was up to 90 degrees from the ecliptic pole on a few occasions. Solar panels provided the power for the instruments.

B. ORBIT_INFORMATION:
The mother/daughter portion of the mission consisted of two spacecraft, one with station-keeping capability, in a highly eccentric earth orbit with apogee at 23 earth radii. The spacecraft maintained a small, but variable, separation distance and made simultaneous coordinated measurements to permit separation of spatial from temporal irregularities in the near-earth solar wind, the bow shock, and inside the magnetosphere. The spin rate of ISEE-1 was set at 19.75 rpm, differing slightly from that of the ISEE-2 spacecraft, whose spin rate was set at 19.8 rpm

C. PERFORMANCE:
The ISEE-1 and ISEE-2 spacecraft operated continuously from launch on October 22, 1977 to September 27, 1987 when they both reentered the Earth's atmosphere.

INVESTIGATION_OBJECTIVES:
The purposes of the mission were (1) to investigate solar/terrestrial relationships at the outermost boundaries of the earth's magnetosphere, (2) to examine in detail the structure of the solar wind near the earth and the shock wave that forms the interface between the solar wind and

earth, and (3) to continue the investigation of cosmic rays and solar flares in the interplanetary region near 1 AU.

INSTRUMENT ATTRIBUTES:

A. DESCRIPTION OF INSTRUMENT:
In this triaxial fluxgate magnetometer, three ring-core sensors in an orthogonal triad were enclosed in a flipper mechanism at the end of the magnetometer boom. The electronics unit was on the main body of the spacecraft at the foot of the boom. For a complete description of the instrument see the paper Geoscience Electronics GE-16, 239-242, 1978.

B. OPERATIONAL MODE:
The magnetometer had two operating ranges of plus or minus 8192 nT and plus or minus 256 nT in each vector component. The data were digitized and averaged within the instrument to provide increased resolution and to provide Nyquist filtering. There were two modes for the transmission of the averaged data. In the double-precision mode of operation, 16-bit samples of data were transmitted. This provided a maximum resolution of plus or minus 1/4 nT or 1/128 nT in the low-sensitivity and high-sensitivity ranges. In the single-precision mode, any 8 consecutive bits of the above 16-bits were selected by ground command for transmission and the telemetry bandwidths of the magnetometer were doubled. This bandwidth varied from 2 Hz for the low-telemetry rate, double-precision experiment mode to 32 Hz for the high-telemetry rate, single precision mode.

C. MEASURED PARAMETERS:
The instrument measured 3 components of the magnetic field. The data were despun to give the magnetic field along the spin axis, Bz, and the two components in the spin plane. The component along the projection of the sun-earth line onto the spin plane was called the Bx component.

D. PERFORMANCE OF THE INSTRUMENT:
The instruments continued to function with undiminished accuracy until re-entry. Variation of the zero levels has been removed in processing. Occasionally latch up of a sensor occurred during range changes. Because three components of the field could be measured from the two remaining sensors due to the spin of the spacecraft this latch up does not usually affect the calculation of low temporal resolution data.

E. RESOLUTION:
The temporal resolution of the data is generally 4 or 16 samples per second. A single precision mode giving lower amplitude resolution but twice the temporal resolution was seldom used. The analog to digital converter of the magnetometer had a resolution of +/- 2 nT and +/- 1/16 nT in high range and low range. Averaging was used to increase the resolution to +/- 1/8 nT and +/- 1/256 nT. The accuracy of the analog to digital conversion was +/- 1/2 nT and +/- 1/64 nT.

PARAMETERS:
The archive includes the original DECOM magnetometer data as received from Goddard Space Flight Center.

DATA SET QUALITY:
The data submitted on this disk is of the same quality as was originally received from GSFC. During the copying process from magnetic tape to disk, a very small number of unrecoverable tape errors (parity errors) occurred which would result in the loss of 1 tape block of data.

DATA PROCESSING OVERVIEW:
The DECOM data was received on 9-track magnetic tapes written at 1600 BPI, usually with three or four days of data on each tape. These tapes were copied to 9-track magnetic tapes at 6250 BPI with two to four weeks of data per copy tape. No changes were made to the data itself so the data retained its original blocking factor and data format. These copy tapes were then written to optical disk, with one disk file for each three or four days of data, without any alteration of the data. Thus, the data contained on this optical disk is as close as possible to the original DECOM data that was received from GSFC.

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TYPE_OF_FILE_RELATIONSHIPS:
There is only one type_of_file, which is the original DECOM data from the magnetometer instrument.

CCSD$$MARKERmarkerabCCSD3KS00002markerac

LOG_VOL_TIME_COVERAGE: 1981-05-24T01:09:00.398 1981-12-20T00:03:00.066

TYPE_OF_FILE_TIME_COVERAGE:
DECOM Magnetometer Data 1981-05-24T01:09:00.398 1981-12-20T00:03:00.066

FILE_NAMING_CONVENTION:
File names are of the form DEC#XXXX.DAT where DEC is the type of data (DECOM), # is a "1" for ISEE-1 data or a "2" for ISEE-2 data and XXXX is the four digit ISEE group number with leading zeroes as needed. Groups were sequentially numbered chunks of DECOM data. Groups 1 through 12 varied in length from 3 to 8 days. Starting with group 13 and continuing through the end of the mission, groups alternated between 3 days and 4 days of data.

LOG_VOL_FILE_TIME_COVERAGE:

DEC10367.DAT	1981-05-24T01:09:00.398	TO	1981-05-27T00:29:46.898
DEC10368.DAT	1981-05-27T00:30:05.765	TO	1981-05-31T00:14:13.468
DEC10369.DAT	1981-05-31T00:08:05.644	TO	1981-06-03T00:03:00.165
DEC10370.DAT	1981-06-03T00:14:05.847	TO	1981-06-07T00:59:58.645
DEC10371.DAT	1981-06-07T01:00:22.134	TO	1981-06-10T02:23:30.954
DEC10372.DAT	1981-06-10T02:23:33.515	TO	1981-06-14T00:01:07.180
DEC10373.DAT	1981-06-14T00:01:29.170	TO	1981-06-17T00:31:27.723
DEC10374.DAT	1981-06-17T00:31:49.213	TO	1981-06-21T00:52:24.597
DEC10375.DAT	1981-06-21T00:52:46.336	TO	1981-06-24T01:06:59.028
DEC10376.DAT	1981-06-24T01:01:01.698	TO	1981-06-28T00:59:59.176
DEC10377.DAT	1981-06-28T00:54:00.346	TO	1981-07-01T01:12:30.518
DEC10378.DAT	1981-07-01T01:14:21.465	TO	1981-07-05T00:31:22.229
DEC10379.DAT	1981-07-05T00:25:26.649	TO	1981-07-08T00:31:12.726
DEC10380.DAT	1981-07-08T00:25:01.404	TO	1981-07-12T00:29:57.499
DEC10381.DAT	1981-07-12T00:30:01.497	TO	1981-07-15T00:15:01.525
DEC10382.DAT	1981-07-15T00:16:42.415	TO	1981-07-19T00:01:35.490
DEC10383.DAT	1981-07-19T00:00:24.274	TO	1981-07-22T00:25:27.810
DEC10384.DAT	1981-07-22T00:19:11.490	TO	1981-07-26T00:25:59.379
DEC10385.DAT	1981-07-26T00:26:22.555	TO	1981-07-29T00:29:16.341
DEC10386.DAT	1981-07-29T00:29:33.832	TO	1981-08-02T01:10:00.283
DEC10387.DAT	1981-08-02T01:04:59.426	TO	1981-08-05T01:24:58.493
DEC10388.DAT	1981-08-05T01:19:04.912	TO	1981-08-09T01:07:58.286
DEC10389.DAT	1981-08-09T01:25:01.051	TO	1981-08-12T00:52:00.017
DEC10390.DAT	1981-08-12T00:57:56.599	TO	1981-08-16T01:01:59.118
DEC10391.DAT	1981-08-16T02:02:05.654	TO	1981-08-19T00:26:14.153
DEC10392.DAT	1981-08-19T00:36:03.247	TO	1981-08-23T00:37:01.129
DEC10393.DAT	1981-08-23T00:30:59.552	TO	1981-08-26T00:45:56.499
DEC10394.DAT	1981-08-26T00:46:08.244	TO	1981-08-30T00:01:44.821
DEC10395.DAT	1981-08-30T00:01:46.570	TO	1981-09-02T00:46:01.797
DEC10396.DAT	1981-09-02T00:40:13.963	TO	1981-09-06T00:15:57.101
DEC10397.DAT	1981-09-06T00:36:28.762	TO	1981-09-09T00:10:45.968
DEC10398.DAT	1981-09-09T00:10:48.467	TO	1981-09-13T00:24:59.810
DEC10399.DAT	1981-09-13T01:07:59.951	TO	1981-09-16T00:20:29.282
DEC10400.DAT	1981-09-16T01:09:15.883	TO	1981-09-20T00:35:59.439
DEC10401.DAT	1981-09-20T00:53:01.450	TO	1981-09-22T23:59:57.544
DEC10402.DAT	1981-09-23T00:00:19.533	TO	1981-09-27T00:17:58.561
DEC10403.DAT	1981-09-27T00:12:02.981	TO	1981-09-30T00:08:59.616
DEC10404.DAT	1981-09-30T00:03:00.038	TO	1981-10-03T23:59:26.610
DEC10405.DAT	1981-10-04T01:00:17.363	TO	1981-10-06T23:59:59.357
DEC10406.DAT	1981-10-07T00:00:00.607	TO	1981-10-11T00:15:58.471
DEC10407.DAT	1981-10-11T00:10:26.130	TO	1981-10-14T00:45:01.079

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DEC10408.DAT  1981-10-14T02:46:59.075 TO 1981-10-18T00:00:22.816
DEC10409.DAT  1981-10-18T00:00:42.931 TO 1981-10-21T00:29:26.962
DEC10410.DAT  1981-10-21T00:29:46.702 TO 1981-10-25T00:50:59.144
DEC10411.DAT  1981-10-25T01:39:53.239 TO 1981-10-28T01:45:01.151
DEC10412.DAT  1981-10-28T03:34:58.739 TO 1981-10-31T23:59:59.770
DEC10413.DAT  1981-11-01T00:01:23.980 TO 1981-11-03T23:49:59.100
DEC10414.DAT  1981-11-04T01:32:50.391 TO 1981-11-08T01:21:59.546
DEC10415.DAT  1981-11-08T01:16:59.190 TO 1981-11-10T23:58:02.314
DEC10416.DAT  1981-11-11T00:29:58.519 TO 1981-11-14T20:42:40.076
DEC10417.DAT  1981-11-15T00:03:55.295 TO 1981-11-17T21:00:00.319
DEC10418.DAT  1981-11-18T04:07:54.999 TO 1981-11-22T00:27:20.515
DEC10419.DAT  1981-11-22T01:50:54.227 TO 1981-11-25T00:40:59.305
DEC10420.DAT  1981-11-25T01:26:01.509 TO 1981-11-28T23:44:58.337
DEC10421.DAT  1981-11-29T02:06:01.524 TO 1981-12-01T23:55:56.931
DEC10422.DAT  1981-12-02T01:17:08.095 TO 1981-12-06T00:00:00.426
DEC10423.DAT  1981-12-06T00:00:22.041 TO 1981-12-08T23:12:00.669
DEC10424.DAT  1981-12-09T01:43:32.567 TO 1981-12-13T01:01:05.434
DEC10425.DAT  1981-12-13T02:56:06.870 TO 1981-12-16T00:09:02.078
DEC10426.DAT  1981-12-16T00:08:29.843 TO 1981-12-20T00:03:00.066

PREV_LOG_VOL_COVERAGE: 1980-11-12T01:08:42.340 TO 1980-11-25T23:59:58.346
                       1980-11-30T00:00:33.643 TO 1981-03-18T00:51:46.370
                       1981-03-22T02:01:01.613 TO 1981-05-24T00:28:11.565

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REFERENCE="/ISEE1DEC/DEC1*.DAT";

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REFERENCE="/SOURCE/AINPUT.DAT";
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REFERENCE="/SOURCE/PARMLIST.C";
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REFERENCE="/SOURCE/QBS1.F";
REFERENCE="/SOURCE/QBS2.F";
REFERENCE="/SOURCE/QBS3.F";
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REFERENCE="/SOURCE/WHOWNER.C";
REFERENCE="/SOURCE/YAMS.F";
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REFERENCE="/SOURCE/YAS2.F";
REFERENCE="/SOURCE/YAS3.F";

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LOG_VOL_IDENT:	USA_NASA_NSSD_IC1D_0005A
LOG_VOL_NSSDC_EXPT_ID:	77-102A-04
LOG_VOL_INITIATION_DATE:	1992-01-14
LOG_VOL_CLOSING_DATE:	1993-09-27
LOG_VOL_CAPACITY:	1GB/Logical volume
LOG_VOL_FILE_STRUCTURE:	Files-11
VOLUME_DIAMETER:	12 inches
VOLUME_DRIVE_MFGR_AND_MODEL:	Optimem 1000
COMPUTER_MFGR:	Digital Equipment Corporation
OPERATING_SYSTEM:	MicroVMS 4.7
COMPUTER_SYSTEM:	MicroVAX II
TRANSFER_SOFTWARE:	SOAR Version 4.2

TECHNICAL_CONTACT:

Harry Herbert
University of California at Los Angeles
Institute of Geophysics and Planetary Physics
5833 Slichter Hall
Los Angeles, CA 90025-1567
(213)825-9030
NSI=hherbert@igpp.ucla.edu
NSI-DECnet=BRUNET::HARRY

PREV_LOG_VOLS:

USA_NASA_NSSD_IC1D_0001A
USA_NASA_NSSD_IC1D_0001B
USA_NASA_NSSD_IC1D_0002A
USA_NASA_NSSD_IC1D_0002B
USA_NASA_NSSD_IC1D_0003A
USA_NASA_NSSD_IC1D_0003B
USA_NASA_NSSD_IC1D_0004A
USA_NASA_NSSD_IC1D_0004B

CCSD$$MARKERmarkeraaCCSD3SS00002markerab

DATA_SET_NAME:	DECOM Magnetometer Data
DATA_SOURCES:	International Sun-Earth Explorer 1 (ISEE-1) and Fluxgate Magnetometer Instrument

SCIENTIFIC_CONTACT:

Dr. Christopher Russell
University of California at Los Angeles
Institute of Geophysics and Planetary Physics
6871 Slichter Hall
Los Angeles, CA 90025-1567
(213)825-3188
NSI=ctrussel@igpp.ucla.edu
NSI-DECnet=BRUNET::CTRUSSELL

SOURCE_CHARACTERISTICS:

A. DESCRIPTION_OF_SPACECRAFT:
The Explorer-class spacecraft, ISEE-1 and ISEE-2 were part of the mother/daughter/heliocentric mission which consisted of ISEE-1, ISEE-2, and ISEE-3 spacecraft. These were spin stabilized spacecraft with their spin axes usually normal to the ecliptic plane. The spin axis of ISEE-1 was within 1 degree of the ecliptic pole throughout the mission. The spin axis of ISEE-2 was usually close to the ecliptic pole but was up to 90 degrees from the ecliptic pole on a few occasions. Solar panels provided the power for the instruments.

B. ORBIT_INFORMATION:
The mother/daughter portion of the mission consisted of two spacecraft, one with station-keeping capability, in a highly eccentric earth orbit with apogee at 23 earth radii. The spacecraft maintained a small, but variable, separation distance and made simultaneous coordinated measurements to permit separation of spatial from temporal irregularities in the near-earth solar wind, the bow shock, and inside the magnetosphere. The spin rate of ISEE-1 was set at 19.75 rpm, differing slightly from that of the ISEE-2 spacecraft, whose spin rate was set at 19.8 rpm

C. PERFORMANCE:
The ISEE-1 and ISEE-2 spacecraft operated continuously from launch on October 22, 1977 to September 27, 1987 when they both reentered the Earth's atmosphere.

INVESTIGATION_OBJECTIVES:
The purposes of the mission were (1) to investigate solar/terrestrial relationships at the outermost boundaries of the earth's magnetosphere, (2) to examine in detail the structure of the solar wind near the earth

and the shock wave that forms the interface between the solar wind and earth, and (3) to continue the investigation of cosmic rays and solar flares in the interplanetary region near 1 AU.

INSTRUMENT ATTRIBUTES:
A. DESCRIPTION_OF_INSTRUMENT:
In this triaxial fluxgate magnetometer, three ring-core sensors in an orthogonal triad were enclosed in a flipper mechanism at the end of the magnetometer boom. The electronics unit was on the main body of the spacecraft at the foot of the boom. For a complete description of the instrument see the paper Geoscience Electronics GE-16, 239-242, 1978.

B. OPERATIONAL_MODE:
The magnetometer had two operating ranges of plus or minus 8192 nT and plus or minus 256 nT in each vector component. The data were digitized and averaged within the instrument to provide increased resolution and to provide Nyquist filtering. There were two modes for the transmission of the averaged data. In the double-precision mode of operation, 16-bit samples of data were transmitted. This provided a maximum resolution of plus or minus 1/4 nT or 1/128 nT in the low-sensitivity and high-sensitivity ranges. In the single-precision mode, any 8 consecutive bits of the above 16-bits were selected by ground command for transmission and the telemetry bandwidths of the magnetometer were doubled. This bandwidth varied from 2 Hz for the low-telemetry rate, double-precision experiment mode to 32 Hz for the high-telemetry rate, single precision mode.

C. MEASURED_PARAMETERS:
The instrument measured 3 components of the magnetic field. The data were despun to give the magnetic field along the spin axis, Bz, and the two components in the spin plane. The component along the projection of the sun-earth line onto the spin plane was called the Bx component.

D. PERFORMANCE_OF_THE_INSTRUMENT:
The instruments continued to function with undiminished accuracy until re-entry. Variation of the zero levels has been removed in processing. Occasionally latch up of a sensor occurred during range changes. Because three components of the field could be measured from the two remaining sensors due to the spin of the spacecraft this latch up does not usually affect the calculation of low temporal resolution data.

E. RESOLUTION:
The temporal resolution of the data is generally 4 or 16 samples per second. A single precision mode giving lower amplitude resolution but twice the temporal resolution was seldom used. The analog to digital converter of the magnetometer had a resolution of +/- 2 nT and +/- 1/16 nT in high range and low range. Averaging was used to increase the resolution to +/- 1/8 nT and +/- 1/256 nT. The accuracy of the analog to digital conversion was +/- 1/2 nT and +/- 1/64 nT.

PARAMETERS:
The archive includes the original DECOM magnetometer data as received from Goddard Space Flight Center.

DATA_SET_QUALITY:
The data submitted on this disk is of the same quality as was originally received from GSFC. During the copying process from magnetic tape to disk, a very small number of unrecoverable tape errors (parity errors) occurred which would result in the loss of 1 tape block of data.

DATA_PROCESSING_OVERVIEW:
The DECOM data was received on 9-track magnetic tapes written at 1600 BPI, usually with three or four days of data on each tape. These tapes were copied to 9-track magnetic tapes at 6250 BPI with two to four weeks of data per copy tape. No changes were made to the data itself so the data retained its original blocking factor and data format. These copy tapes were then written to optical disk, with one disk file for each three or four days of data, without any alteration of the data. Thus, the data contained on this optical disk is as close as possible to the original DECOM data that was received from GSFC.

At UCLA the DECOM data are processed on Sun/UNIX workstations by the FORTRAN programs makeprod_a (ISEE-1) and makeprod_b (ISEE-2). The makeprod programs read the DECOM data for their respective spacecraft, and convert them into meaningful magnetic field values. The output of the programs is a UNIX binary file. This file may be written to magnetic tape for storage or converted into a UCLA-IGPP flat files or into ASCII text files. The entire suite of UCLA programs to read and interpret the DECOM data have been archived on this disk in the directory [SOURCE]. The file AAREADME.TXT gives an overview of the various files. The individual source code files include more complete documentation.

DATA_USAGE:
The data in this archive are stored in IBM integer format. Because the data is raw information from the magnetometer instrument, a computer program is required to unpack and convert the data into a format that is scientifically meaningful. The complete suite of UCLA Sun/UNIX DECOM processing programs have been archived on this disk to demonstrate how to interpret these datasets.

DATA_ORGANIZATION:
Each logical volume, one side of an optical disk, includes as much ISEE-1 or ISEE-2 DECOM data as would comfortably fit on that logical volume. The only separation criteria that was used was that if a data group did not fit on the current logical volume it became the first data group of the next logical volume with the groups being placed on logical volumes in ascending order. Occasionally, a problem would occur with either the Write-Once media or the magnetic tapes holding the original DECOM data that would necessitate skipping a data group at the time of writing adjacent data groups to the WORM disk. At the end of the archival process, these data groups were written to the final logical volume for their respective spacecraft.

TYPE_OF_FILE_RELATIONSHIPS:
There is only one type_of_file, which is the original DECOM data from the magnetometer instrument.

CCSD$$MARKERmarkerabCCSD3KS00002markerac

LOG_VOL_TIME_COVERAGE: 1981-12-27T00:01:16.385 TO 1982-08-04T00:34:02.405

TYPE_OF_FILE_TIME_COVERAGE:
DECOM Magnetometer Data 1981-12-27T00:01:16.385 TO 1982-08-04T00:34:02.405

FILE_NAMING_CONVENTION:
File names are of the form DEC#XXXX.DAT where DEC is the type of data (DECOM), # is a "1" for ISEE-1 data or a "2" for ISEE-2 data and XXXX is the four digit ISEE group number with leading zeroes as needed. Groups were sequentially numbered chunks of DECOM data. Groups 1 through 12 varied in length from 3 to 8 days. Starting with group 13 and continuing through the end of the mission, groups alternated between 3 days and 4 days of data.

LOG_VOL_FILE_TIME_COVERAGE:

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DEC10431.DAT	1982-01-03T00:40:34.003	TO	1982-01-05T21:12:58.332
DEC10432.DAT	1982-01-06T05:45:25.565	TO	1982-01-09T23:48:00.212
DEC10433.DAT	1982-01-10T00:55:00.094	TO	1982-01-12T22:21:58.707
DEC10434.DAT	1982-01-13T00:46:04.305	TO	1982-01-16T22:17:59.162
DEC10435.DAT	1982-01-17T00:15:59.514	TO	1982-01-19T20:20:58.981
DEC10436.DAT	1982-01-20T02:28:53.382	TO	1982-01-24T01:36:59.253
DEC10437.DAT	1982-01-24T01:37:05.000	TO	1982-01-27T00:08:58.027
DEC10438.DAT	1982-01-27T00:02:58.950	TO	1982-01-30T22:38:21.589
DEC10439.DAT	1982-01-31T01:11:35.934	TO	1982-02-02T23:26:59.941
DEC10440.DAT	1982-02-03T00:49:48.681	TO	1982-02-07T00:00:00.890
DEC10441.DAT	1982-02-07T00:01:47.840	TO	1982-02-09T23:59:59.123
DEC10442.DAT	1982-02-10T00:00:42.352	TO	1982-02-14T00:33:00.706
DEC10443.DAT	1982-02-14T00:37:48.758	TO	1982-02-17T00:31:01.188
DEC10444.DAT	1982-02-17T01:16:59.367	TO	1982-02-20T22:07:54.157
DEC10445.DAT	1982-02-21T00:08:15.985	TO	1982-02-24T00:19:29.578
DEC10446.DAT	1982-02-24T00:20:16.555	TO	1982-02-28T00:49:02.214
DEC10447.DAT	1982-02-28T01:28:51.439	TO	1982-03-03T00:02:00.838
DEC10448.DAT	1982-03-03T01:07:52.452	TO	1982-03-06T23:39:41.004
DEC10449.DAT	1982-03-07T00:40:03.016	TO	1982-03-10T01:08:18.191
DEC10450.DAT	1982-03-10T01:13:46.909	TO	1982-03-13T23:13:22.440
DEC10451.DAT	1982-03-14T00:09:03.340	TO	1982-03-17T01:44:00.375
DEC10452.DAT	1982-03-17T01:38:22.038	TO	1982-03-21T01:23:54.687
DEC10453.DAT	1982-03-21T01:24:17.426	TO	1982-03-23T23:42:01.464
DEC10454.DAT	1982-03-24T02:31:07.339	TO	1982-03-27T22:58:01.247
DEC10455.DAT	1982-03-28T07:09:58.878	TO	1982-03-31T01:49:06.531
DEC10456.DAT	1982-03-31T02:57:00.831	TO	1982-04-04T02:28:15.749
DEC10457.DAT	1982-04-04T02:30:29.373	TO	1982-04-07T00:54:22.121
DEC10458.DAT	1982-04-07T00:54:24.620	TO	1982-04-11T00:18:57.029
DEC10459.DAT	1982-04-11T00:30:14.706	TO	1982-04-14T00:59:59.915
DEC10460.DAT	1982-04-14T01:00:05.163	TO	1982-04-18T00:00:43.055
DEC10461.DAT	1982-04-18T00:01:50.273	TO	1982-04-21T00:36:48.839
DEC10462.DAT	1982-04-21T00:37:25.821	TO	1982-04-25T00:30:58.795
DEC10463.DAT	1982-04-25T00:31:01.044	TO	1982-04-28T00:19:03.821
DEC10464.DAT	1982-04-28T00:19:39.742	TO	1982-05-02T00:00:12.162
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DEC10466.DAT	1982-05-05T00:28:01.790	TO	1982-05-09T00:12:02.370
DEC10467.DAT	1982-05-09T00:12:05.681	TO	1982-05-12T00:57:23.481
DEC10468.DAT	1982-05-12T00:57:26.729	TO	1982-05-16T00:23:58.906

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DEC10469.DAT  1982-05-16T00:24:04.654 TO 1982-05-19T01:09:58.357
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DEC10471.DAT  1982-05-23T00:44:20.348 TO 1982-05-25T23:58:03.457
DEC10472.DAT  1982-05-26T02:26:01.472 TO 1982-05-30T01:14:58.290
DEC10473.DAT  1982-05-30T01:09:51.187 TO 1982-06-02T00:00:01.589
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DEC10475.DAT  1982-06-06T01:24:29.950 TO 1982-06-08T22:38:01.056
DEC10476.DAT  1982-06-09T01:18:57.464 TO 1982-06-13T00:47:59.448
DEC10477.DAT  1982-06-13T00:48:01.697 TO 1982-06-16T01:07:00.431
DEC10478.DAT  1982-06-16T00:50:14.658 TO 1982-06-20T00:49:58.626
DEC10479.DAT  1982-06-20T00:44:00.547 TO 1982-06-23T00:36:32.610
DEC10480.DAT  1982-06-23T00:36:29.361 TO 1982-06-26T22:52:59.884
DEC10481.DAT  1982-06-27T00:41:05.978 TO 1982-06-30T00:55:58.420
DEC10482.DAT  1982-06-30T00:56:20.409 TO 1982-07-04T01:23:58.552
DEC10483.DAT  1982-07-04T01:23:33.563 TO 1982-07-06T23:57:25.213
DEC10484.DAT  1982-07-07T00:00:28.375 TO 1982-07-11T00:00:01.521
DEC10485.DAT  1982-07-11T00:06:07.096 TO 1982-07-14T01:35:59.623
DEC10486.DAT  1982-07-14T01:29:02.072 TO 1982-07-18T01:35:40.928
DEC10487.DAT  1982-07-18T02:07:03.781 TO 1982-07-21T00:54:59.114
DEC10488.DAT  1982-07-21T00:55:20.167 TO 1982-07-25T00:29:58.692
DEC10489.DAT  1982-07-25T00:30:34.175 TO 1982-07-28T01:27:17.764
DEC10490.DAT  1982-07-28T01:27:40.004 TO 1982-08-01T00:00:01.507
DEC10491.DAT  1982-08-01T00:04:17.073 TO 1982-08-04T00:34:02.405

/* NOTE:                                                                  */
/*  The files below are located on LOG_VOL_IDENT: USA_NASA_NSSD_IC1D_0009B */
/*   DEC10427.DAT  1981-12-20T01:40:04.769 TO 1981-12-22T22:48:08.587      */
/*   DEC10428.DAT  1981-12-23T00:12:57.892 TO 1981-12-27T00:00:53.396      */


PREV_LOG_VOL_COVERAGE: 1981-05-24T01:09:00.398 TO 1981-12-20T00:03:00.066

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LABEL=NSSD3IF0018700000001;
REFERENCE="/ISEE1DEC/DEC1*.DAT";

LABEL=CCSD3SF0000200000001;
REFERENCE="/SOURCE/AAREADME.TXT";
REFERENCE="/SOURCE/AINPUT.DAT";
REFERENCE="/SOURCE/APERIGEE.FFD";
REFERENCE="/SOURCE/APERIGEE.FFH";
REFERENCE="/SOURCE/ATIMES.FFD";
REFERENCE="/SOURCE/ATIMES.FFH";
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REFERENCE="/SOURCE/BPERIGEE.FFH";
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REFERENCE="/SOURCE/BTIMES.FFH";
REFERENCE="/SOURCE/CONVERT.C";
REFERENCE="/SOURCE/CONVERT.FOR";
REFERENCE="/SOURCE/CTIME.C";
REFERENCE="/SOURCE/FF_IGPP.C";
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REFERENCE="/SOURCE/FLATCOM.F";
REFERENCE="/SOURCE/ICAT.F";
REFERENCE="/SOURCE/IGPPFORT.F";
REFERENCE="/SOURCE/IGPPLIB.C";
REFERENCE="/SOURCE/ISEEPRODFF.C";
REFERENCE="/SOURCE/ISEE-TAR.Z";
REFERENCE="/SOURCE/JTLIB.F";
REFERENCE="/SOURCE/MAKEFILE.";
REFERENCE="/SOURCE/PARMEDIT.F";
REFERENCE="/SOURCE/PARMLIST.C";
REFERENCE="/SOURCE/QBMS.F";
REFERENCE="/SOURCE/QBS1.F";
REFERENCE="/SOURCE/QBS2.F";
REFERENCE="/SOURCE/QBS3.F";
REFERENCE="/SOURCE/TIME_IGPP.C";
REFERENCE="/SOURCE/TIME_IGPP.H";
REFERENCE="/SOURCE/WHOWNER.C";
REFERENCE="/SOURCE/YAMS.F";
REFERENCE="/SOURCE/YAS1.F";
```

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REFERENCE="/SOURCE/YAS2.F";
REFERENCE="/SOURCE/YAS3.F";

/* EOF */
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CCSD3ZF0000100000001CCSD3VS00002markeraa

LOG_VOL_IDENT:	USA_NASA_NSSD_IC1D_0005B
LOG_VOL_NSSDC_EXPT_ID:	77-102A-04
LOG_VOL_INITIATION_DATE:	1992-01-14
LOG_VOL_CLOSING_DATE:	1993-09-27
LOG_VOL_CAPACITY:	1GB/Logical volume
LOG_VOL_FILE_STRUCTURE:	Files-11
VOLUME_DIAMETER:	12 inches
VOLUME_DRIVE_MFGR_AND_MODEL:	Optimem 1000
COMPUTER_MFGR:	Digital Equipment Corporation
OPERATING_SYSTEM:	MicroVMS 4.7
COMPUTER_SYSTEM:	MicroVAX II
TRANSFER_SOFTWARE:	SOAR Version 4.2
TECHNICAL_CONTACT:	Harry Herbert University of California at Los Angeles Institute of Geophysics and Planetary Physics 5833 Slichter Hall Los Angeles, CA 90025-1567 (213)825-9030 NSI=hherbert@igpp.ucla.edu NSI-DECnet=BRUNET::HARRY
PREV_LOG_VOLS:	USA_NASA_NSSD_IC1D_0001A USA_NASA_NSSD_IC1D_0001B USA_NASA_NSSD_IC1D_0002A USA_NASA_NSSD_IC1D_0002B USA_NASA_NSSD_IC1D_0003A USA_NASA_NSSD_IC1D_0003B USA_NASA_NSSD_IC1D_0004A USA_NASA_NSSD_IC1D_0004B USA_NASA_NSSD_IC1D_0005A

CCSD$$MARKERmarkeraaCCSD3SS00002markerab

DATA_SET_NAME:	DECOM Magnetometer Data
DATA_SOURCES:	International Sun-Earth Explorer 1 (ISEE-1) and Fluxgate Magnetometer Instrument
SCIENTIFIC_CONTACT:	Dr. Christopher Russell University of California at Los Angeles Institute of Geophysics and Planetary Physics 6871 Slichter Hall Los Angeles, CA 90025-1567 (213)825-3188 NSI=ctrussel@igpp.ucla.edu NSI-DECnet=BRUNET::CTRUSSELL

SOURCE_CHARACTERISTICS:

A. DESCRIPTION_OF_SPACECRAFT:
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The purposes of the mission were (1) to investigate solar/terrestrial relationships at the outermost boundaries of the earth's magnetosphere,

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The instruments continued to function with undiminished accuracy until re-entry. Variation of the zero levels has been removed in processing. Occasionally latch up of a sensor occurred during range changes. Because three components of the field could be measured from the two remaining sensors due to the spin of the spacecraft this latch up does not usually affect the calculation of low temporal resolution data.

E. RESOLUTION:
The temporal resolution of the data is generally 4 or 16 samples per second. A single precision mode giving lower amplitude resolution but twice the temporal resolution was seldom used. The analog to digital converter of the magnetometer had a resolution of +/- 2 nT and +/- 1/16 nT in high range and low range. Averaging was used to increase the resolution to +/- 1/8 nT and +/- 1/256 nT. The accuracy of the analog to digital conversion was +/- 1/2 nT and +/- 1/64 nT.

PARAMETERS:
The archive includes the original DECOM magnetometer data as received from Goddard Space Flight Center.

DATA SET QUALITY:
The data submitted on this disk is of the same quality as was originally received from GSFC. During the copying process from magnetic tape to disk, a very small number of unrecoverable tape errors (parity errors) occurred which would result in the loss of 1 tape block of data.

DATA PROCESSING OVERVIEW:
The DECOM data was received on 9-track magnetic tapes written at 1600 BPI, usually with three or four days of data on each tape. These tapes were copied to 9-track magnetic tapes at 6250 BPI with two to four weeks of data per copy tape. No changes were made to the data itself so the data retained its original blocking factor and data format. These copy tapes were then written to optical disk, with one disk file for each three or four days of data, without any alteration of the data. Thus, the data contained on this optical disk is as close as possible to the original DECOM data that was received from GSFC.

At UCLA the DECOM data are processed on Sun/UNIX workstations by the FORTRAN programs makeprod_a (ISEE-1) and makeprod_b (ISEE-2). The makeprod programs read the DECOM data for their respective spacecraft, and convert them into meaningful magnetic field values. The output of the programs is a UNIX binary file. This file may be written to magnetic tape for storage or converted into a UCLA-IGPP flat files or into ASCII text files. The entire suite of UCLA programs to read and interpret the DECOM data have been archived on this disk in the directory [SOURCE]. The file AAREADME.TXT gives an overview of the various files. The individual source code files

include more complete documentation.

DATA_USAGE:
The data in this archive are stored in IBM integer format. Because the data is raw information from the magnetometer instrument, a computer program is required to unpack and convert the data into a format that is scientifically meaningful. The complete suite of UCLA Sun/UNIX DECOM processing programs have been archived on this disk to demonstrate how to interpret these datasets.

DATA_ORGANIZATION:
Each logical volume, one side of an optical disk, includes as much ISEE-1 or ISEE-2 DECOM data as would comfortably fit on that logical volume. The only separation criteria that was used was that if a data group did not fit on the current logical volume it became the first data group of the next logical volume with the groups being placed on logical volumes in ascending order. Occasionally, a problem would occur with either the Write-Once media or the magnetic tapes holding the original DECOM data that would necessitate skipping a data group at the time of writing adjacent data groups to the WORM disk. At the end of the archival process, these data groups were written to the final logical volume for their respective spacecraft.

TYPE_OF_FILE_RELATIONSHIPS:
There is only one type_of_file, which is the original DECOM data from the magnetometer instrument.

CCSD$$MARKERmarkerabCCSD3KS00002markerac

LOG_VOL_TIME_COVERAGE: 1982-08-04T00:34:22.646 TO 1983-05-03T23:43:03.143

TYPE_OF_FILE_TIME_COVERAGE:
DECOM Magnetometer Data 1982-08-04T00:34:22.646 TO 1983-05-03T23:43:03.143

FILE_NAMING_CONVENTION:
File names are of the form DEC#XXXX.DAT where DEC is the type of data (DECOM), # is a "1" for ISEE-1 data or a "2" for ISEE-2 data and XXXX is the four digit ISEE group number with leading zeroes as needed. Groups were sequentially numbered chunks of DECOM data. Groups 1 through 12 varied in length from 3 to 8 days. Starting with group 13 and continuing through the end of the mission, groups alternated between 3 days and 4 days of data.

LOG_VOL_FILE_TIME_COVERAGE:
DEC10497.DAT 1982-08-04T00:34:22.646 TO 1982-08-08T00:42:02.649
DEC10493.DAT 1982-08-08T00:36:02.820 TO 1982-08-11T01:02:07.304
DEC10494.DAT 1982-08-11T00:56:10.474 TO 1982-08-15T01:14:18.985
DEC10495.DAT 1982-08-15T01:08:02.664 TO 1982-08-18T00:25:02.016
DEC10496.DAT 1982-08-18T00:19:03.937 TO 1982-08-22T00:44:34.378
DEC10497.DAT 1982-08-22T00:44:57.117 TO 1982-08-25T00:09:00.371
DEC10498.DAT 1982-08-25T00:07:53.028 TO 1982-08-29T00:58:41.334
DEC10499.DAT 1982-08-29T02:01:02.053 TO 1982-08-31T23:59:59.204
DEC10500.DAT 1982-09-01T00:00:32.688 TO 1982-09-05T00:10:16.774
DEC10501.DAT 1982-09-05T00:10:17.837 TO 1982-09-08T00:00:07.528
DEC10502.DAT 1982-09-08T02:45:27.542 TO 1982-09-11T23:28:04.539
DEC10503.DAT 1982-09-12T00:42:57.960 TO 1982-09-15T00:20:01.250
DEC10504.DAT 1982-09-15T01:14:01.203 TO 1982-09-19T00:48:57.455
DEC10505.DAT 1982-09-19T00:47:57.921 TO 1982-09-21T23:58:58.875
DEC10506.DAT 1982-09-22T01:52:00.386 TO 1982-09-26T00:41:50.332
DEC10507.DAT 1982-09-26T02:18:01.573 TO 1982-09-29T00:18:46.275
DEC10508.DAT 1982-09-29T01:22:11.837 TO 1982-10-03T00:55:10.885
DEC10509.DAT 1982-10-02T23:57:25.792 TO 1982-10-06T00:23:35.345
DEC10510.DAT 1982-10-06T00:02:42.441 TO 1982-10-09T23:59:57.728
DEC10511.DAT 1982-10-10T00:15:01.795 TO 1982-10-13T00:01:49.145
DEC10512.DAT 1982-10-13T00:02:12.258 TO 1982-10-17T00:29:57.939
DEC10513.DAT 1982-10-17T00:30:17.430 TO 1982-10-20T01:30:01.106
DEC10514.DAT 1982-10-20T01:48:30.575 TO 1982-10-24T00:00:18.816
DEC10515.DAT 1982-10-24T00:01:27.283 TO 1982-10-26T23:59:58.102
DEC10516.DAT 1982-10-27T00:00:00.101 TO 1982-10-31T01:12:01.752
DEC10517.DAT 1982-10-31T01:12:25.240 TO 1982-11-03T00:30:58.952
DEC10518.DAT 1982-11-03T00:31:20.942 TO 1982-11-07T00:39:54.374
DEC10519.DAT 1982-11-07T00:52:17.518 TO 1982-11-10T00:15:38.567
DEC10520.DAT 1982-11-10T00:16:03.555 TO 1982-11-13T23:56:59.696
DEC10521.DAT 1982-11-14T02:34:02.930 TO 1982-11-17T00:09:41.948
DEC10522.DAT 1982-11-17T00:10:20.991 TO 1982-11-21T00:26:58.406
DEC10523.DAT 1982-11-21T01:19:40.143 TO 1982-11-24T01:20:58.166
DEC10524.DAT 1982-11-24T01:14:56.840 TO 1982-11-28T00:44:59.394
DEC10525.DAT 1982-11-28T01:39:55.188 TO 1982-12-01T00:18:03.191
DEC10526.DAT 1982-12-01T00:18:05.190 TO 1982-12-05T00:50:58.346
DEC10527.DAT 1982-12-05T07:59:04.048 TO 1982-12-07T23:42:57.970
DEC10528.DAT 1982-12-08T01:30:58.611 TO 1982-12-11T22:54:59.143
DEC10529.DAT 1982-12-12T00:13:01.166 TO 1982-12-14T23:50:59.849
DEC10530.DAT 1982-12-15T00:35:11.077 TO 1982-12-18T23:06:04.405

```
DEC10531.DAT  1982-12-19T01:04:37.988 TO 1982-12-21T22:32:17.011
DEC10532.DAT  1982-12-22T03:52:20.543 TO 1982-12-26T01:33:58.193
DEC10533.DAT  1982-12-26T01:34:36.924 TO 1982-12-29T00:58:59.341
DEC10534.DAT  1982-12-29T04:46:15.304 TO 1983-01-01T23:49:58.249
DEC10535.DAT  1983-01-02T00:33:38.491 TO 1983-01-04T22:43:01.639
DEC10536.DAT  1983-01-05T04:44:22.514 TO 1983-01-09T00:28:07.442
DEC10537.DAT  1983-01-09T00:28:29.431 TO 1983-01-11T23:58:04.390
DEC10538.DAT  1983-01-12T00:20:35.994 TO 1983-01-15T23:51:58.835
DEC10539.DAT  1983-01-16T01:08:01.205 TO 1983-01-19T00:00:22.190
DEC10540.DAT  1983-01-19T00:00:46.928 TO 1983-01-22T23:59:55.760
DEC10541.DAT  1983-01-23T00:00:18.749 TO 1983-01-25T23:42:58.206
DEC10542.DAT  1983-01-26T02:16:10.045 TO 1983-01-30T01:04:59.059
DEC10543.DAT  1983-01-30T03:45:15.945 TO 1983-02-02T00:34:44.778
DEC10544.DAT  1983-02-02T00:35:06.517 TO 1983-02-05T22:50:04.179
DEC10545.DAT  1983-02-06T01:46:19.357 TO 1983-02-09T00:42:59.791
DEC10546.DAT  1983-02-09T00:44:42.991 TO 1983-02-12T23:59:54.971
DEC10547.DAT  1983-02-13T00:13:53.818 TO 1983-02-16T00:21:58.632
DEC10548.DAT  1983-02-16T00:21:15.153 TO 1983-02-19T22:47:49.443
DEC10549.DAT  1983-02-20T01:31:15.735 TO 1983-02-22T23:36:58.248
DEC10550.DAT  1983-02-23T00:44:02.567 TO 1983-02-27T00:09:41.413
DEC10551.DAT  1983-02-27T00:44:03.424 TO 1983-03-01T22:51:58.527
DEC10552.DAT  1983-03-02T00:14:05.164 TO 1983-03-06T00:30:02.100
DEC10553.DAT  1983-03-06T00:44:02.446 TO 1983-03-08T21:56:01.203
DEC10554.DAT  1983-03-09T00:43:59.871 TO 1983-03-12T23:17:10.082
DEC10555.DAT  1983-03-13T00:05:53.430 TO 1983-03-16T00:02:12.061
DEC10556.DAT  1983-03-16T00:04:05.256 TO 1983-03-19T23:40:00.691
DEC10557.DAT  1983-03-20T00:44:44.326 TO 1983-03-23T00:35:06.364
DEC10558.DAT  1983-03-23T01:24:08.955 TO 1983-03-26T23:43:19.644
DEC10559.DAT  1983-03-27T01:56:01.443 TO 1983-03-29T23:17:39.523
DEC10560.DAT  1983-03-30T00:07:06.602 TO 1983-04-02T20:00:25.659
DEC10561.DAT  1983-04-03T00:43:59.016 TO 1983-04-05T15:31:52.744
DEC10562.DAT  1983-04-06T01:09:03.640 TO 1983-04-09T13:51:18.415
DEC10563.DAT  1983-04-10T00:00:38.797 TO 1983-04-12T23:06:58.877
DEC10564.DAT  1983-04-13T00:08:59.843 TO 1983-04-16T15:05:57.814
DEC10565.DAT  1983-04-17T00:43:59.979 TO 1983-04-19T23:31:40.008
DEC10566.DAT  1983-04-20T06:24:10.082 TO 1983-04-23T18:39:58.538
DEC10567.DAT  1983-04-24T03:30:31.073 TO 1983-04-26T23:22:11.249
DEC10568.DAT  1983-04-27T01:13:44.047 TO 1983-05-01T00:00:09.384
DEC10569.DAT  1983-05-01T00:02:31.316 TO 1983-05-03T23:43:03.143

PREV_LOG_VOL_COVERAGE: 1981-12-27T00:01:16.385 TO 1982-08-04T00:34:02.405

CCSD$$MARKERmarkeracCCSD3RF0000200000001

REFERENCETYPE=$CCSDS2;

LABEL=ATTACHED;
REFERENCE="DECOM1.SFD";

LABEL=NSSD3IF0018700000001;
REFERENCE="/ISEE1DEC/DEC1*.DAT";

LABEL=CCSD3SF0000200000001;
REFERENCE="/SOURCE/AAREADME.TXT";
REFERENCE="/SOURCE/AINPUT.DAT";
REFERENCE="/SOURCE/APERIGEE.FFD";
REFERENCE="/SOURCE/APERIGEE.FFH";
REFERENCE="/SOURCE/ATIMES.FFD";
REFERENCE="/SOURCE/ATIMES.FFH";
REFERENCE="/SOURCE/BINPUT.DAT";
REFERENCE="/SOURCE/BPERIGEE.FFD";
REFERENCE="/SOURCE/BPERIGEE.FFH";
REFERENCE="/SOURCE/BTIMES.FFD";
REFERENCE="/SOURCE/BTIMES.FFH";
REFERENCE="/SOURCE/CONVERT.C";
REFERENCE="/SOURCE/CONVERT.FOR";
REFERENCE="/SOURCE/CTIME.C";
REFERENCE="/SOURCE/FF_IGPP.C";
REFERENCE="/SOURCE/FF_IGPP.H";
REFERENCE="/SOURCE/FLAT.F";
REFERENCE="/SOURCE/FLAT2ASCII.C";
REFERENCE="/SOURCE/FLATCOM.F";
REFERENCE="/SOURCE/ICAT.F";
REFERENCE="/SOURCE/IGPPFORT.F";
REFERENCE="/SOURCE/IGPPLIB.C";
REFERENCE="/SOURCE/ISEEPRODFF.C";
REFERENCE="/SOURCE/ISEE-TAR.Z";
REFERENCE="/SOURCE/JTLIB.F";
REFERENCE="/SOURCE/MAKEFILE.";
REFERENCE="/SOURCE/PARMEDIT.F";
```

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REFERENCE="/SOURCE/PARMLIST.C";
REFERENCE="/SOURCE/QBMS.F";
REFERENCE="/SOURCE/QBS1.F";
REFERENCE="/SOURCE/QBS2.F";
REFERENCE="/SOURCE/QBS3.F";
REFERENCE="/SOURCE/TIME_IGPP.C";
REFERENCE="/SOURCE/TIME_IGPP.H";
REFERENCE="/SOURCE/WHOWNER.C";
REFERENCE="/SOURCE/YAMS.F";
REFERENCE="/SOURCE/YAS1.F";
REFERENCE="/SOURCE/YAS2.F";
REFERENCE="/SOURCE/YAS3.F";

/* EOF */
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CCSD3ZF0000100000001CCSD3VS00002markeraa

LOG_VOL_IDENT:	USA_NASA_NSSD_IC1D_0006A
LOG_VOL_NSSDC_EXPT_ID:	77-102A-04
LOG_VOL_INITIATION_DATE:	1992-01-28
LOG_VOL_CLOSING_DATE:	1993-09-27
LOG_VOL_CAPACITY:	1GB/Logical volume
LOG_VOL_FILE_STRUCTURE:	Files-11
VOLUME_DIAMETER:	12 inches
VOLUME_DRIVE_MFGR_AND_MODEL:	Optimem 1000
COMPUTER_MFGR:	Digital Equipment Corporation
OPERATING_SYSTEM:	MicroVMS 4.7
COMPUTER_SYSTEM:	MicroVAX II
TRANSFER_SOFTWARE:	SOAR Version 4.2

TECHNICAL_CONTACT:

Harry Herbert
University of California at Los Angeles
Institute of Geophysics and Planetary Physics
5833 Slichter Hall
Los Angeles, CA 90025-1567
(213)825-9030
NSI=hherbert@igpp.ucla.edu
NSI-DECnet=BRUNET::HARRY

PREV_LOG_VOLS:

USA_NASA_NSSD_IC1D_0001A
USA_NASA_NSSD_IC1D_0001B
USA_NASA_NSSD_IC1D_0002A
USA_NASA_NSSD_IC1D_0002B
USA_NASA_NSSD_IC1D_0003A
USA_NASA_NSSD_IC1D_0003B
USA_NASA_NSSD_IC1D_0004A
USA_NASA_NSSD_IC1D_0004B
USA_NASA_NSSD_IC1D_0005A
USA_NASA_NSSD_IC1D_0005B

CCSD$$MARKERmarkeraaCCSD3SS00002markerab

DATA_SET_NAME:	DECOM Magnetometer Data
DATA_SOURCES:	International Sun-Earth Explorer 1 (ISEE-1) and Fluxgate Magnetometer Instrument

SCIENTIFIC_CONTACT:

Dr. Christopher Russell
University of California at Los Angeles
Institute of Geophysics and Planetary Physics
6871 Slichter Hall
Los Angeles, CA 90025-1567
(213)825-3188
NSI=ctrussel@igpp.ucla.edu
NSI-DECnet=BRUNET::CTRUSSELL

SOURCE_CHARACTERISTICS:

A. DESCRIPTION_OF_SPACECRAFT:
The Explorer-class spacecraft, ISEE-1 and ISEE-2 were part of the mother/daughter/heliocentric mission which consisted of ISEE-1, ISEE-2, and ISEE-3 spacecraft. These were spin stabilized spacecraft with their spin axes usually normal to the ecliptic plane. The spin axis of ISEE-1 was within 1 degree of the ecliptic pole throughout the mission. The spin axis of ISEE-2 was usually close to the ecliptic pole but was up to 90 degrees from the ecliptic pole on a few occasions. Solar panels provided the power for the instruments.

B. ORBIT_INFORMATION:
The mother/daughter portion of the mission consisted of two spacecraft, one with station-keeping capability, in a highly eccentric earth orbit with apogee at 23 earth radii. The spacecraft maintained a small, but variable, separation distance and made simultaneous coordinated measurements to permit separation of spatial from temporal irregularities in the near-earth solar wind, the bow shock, and inside the magnetosphere. The spin rate of ISEE-1 was set at 19.75 rpm, differing slightly from that of the ISEE-2 spacecraft, whose spin rate was set at 19.8 rpm

C. PERFORMANCE:
The ISEE-1 and ISEE-2 spacecraft operated continuously from launch on October 22, 1977 to September 27, 1987 when they both reentered the Earth's atmosphere.

INVESTIGATION_OBJECTIVES:
The purposes of the mission were (1) to investigate solar/terrestrial

relationships at the outermost boundaries of the earth's magnetosphere, (2) to examine in detail the structure of the solar wind near the earth and the shock wave that forms the interface between the solar wind and earth, and (3) to continue the investigation of cosmic rays and solar flares in the interplanetary region near 1 AU.

INSTRUMENT ATTRIBUTES:

A. DESCRIPTION OF INSTRUMENT:
In this triaxial fluxgate magnetometer, three ring-core sensors in an orthogonal triad were enclosed in a flipper mechanism at the end of the magnetometer boom. The electronics unit was on the main body of the spacecraft at the foot of the boom. For a complete description of the instrument see the paper Geoscience Electronics GE-16, 239-242, 1978.

B. OPERATIONAL MODE:
The magnetometer had two operating ranges of plus or minus 8192 nT and plus or minus 256 nT in each vector component. The data were digitized and averaged within the instrument to provide increased resolution and to provide Nyquist filtering. There were two modes for the transmission of the averaged data. In the double-precision mode of operation, 16-bit samples of data were transmitted. This provided a maximum resolution of plus or minus 1/4 nT or 1/128 nT in the low-sensitivity and high-sensitivity ranges. In the single-precision mode, any 8 consecutive bits of the above 16-bits were selected by ground command for transmission and the telemetry bandwidths of the magnetometer were doubled. This bandwidth varied from 2 Hz for the low-telemetry rate, double-precision experiment mode to 32 Hz for the high-telemetry rate, single precision mode.

C. MEASURED PARAMETERS:
The instrument measured 3 components of the magnetic field. The data were despun to give the magnetic field along the spin axis, Bz, and the two components in the spin plane. The component along the projection of the sun-earth line onto the spin plane was called the Bx component.

D. PERFORMANCE OF THE INSTRUMENT:
The instruments continued to function with undiminished accuracy until re-entry. Variation of the zero levels has been removed in processing. Occasionally latch up of a sensor occurred during range changes. Because three components of the field could be measured from the two remaining sensors due to the spin of the spacecraft this latch up does not usually affect the calculation of low temporal resolution data.

E. RESOLUTION:
The temporal resolution of the data is generally 4 or 16 samples per second. A single precision mode giving lower amplitude resolution but twice the temporal resolution was seldom used. The analog to digital converter of the magnetometer had a resolution of +/- 2 nT and +/- 1/16 nT in high range and low range. Averaging was used to increase the resolution to +/- 1/8 nT and +/- 1/256 nT. The accuracy of the analog to digital conversion was +/- 1/2 nT and +/- 1/64 nT.

PARAMETERS:
The archive includes the original DECOM magnetometer data as received from Goddard Space Flight Center.

DATA SET QUALITY:
The data submitted on this disk is of the same quality as was originally received from GSFC. During the copying process from magnetic tape to disk, a very small number of unrecoverable tape errors (parity errors) occurred which would result in the loss of 1 tape block of data.

DATA PROCESSING OVERVIEW:
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gives an overview of the various files. The individual source code files include more complete documentation.

DATA_USAGE:
The data in this archive are stored in IBM integer format. Because the data is raw information from the magnetometer instrument, a computer program is required to unpack and convert the data into a format that is scientifically meaningful. The complete suite of UCLA Sun/UNIX DECOM processing programs have been archived on this disk to demonstrate how to interpret these datasets.

DATA_ORGANIZATION:
Each logical volume, one side of an optical disk, includes as much ISEE-1 or ISEE-2 DECOM data as would comfortably fit on that logical volume. The only separation criteria that was used was that if a data group did not fit on the current logical volume it became the first data group of the next logical volume with the groups being placed on logical volumes in ascending order. Occasionally, a problem would occur with either the Write-Once media or the magnetic tapes holding the original DECOM data that would necessitate skipping a data group at the time of writing adjacent data groups to the WORM disk. At the end of the archival process, these data groups were written to the final logical volume for their respective spacecraft.

TYPE_OF_FILE_RELATIONSHIPS:
There is only one type_of_file, which is the original DECOM data from the magnetometer instrument.

CCSD$$MARKERmarkerabCCSD3KS00002markerac

LOG_VOL_TIME_COVERAGE: 1983-05-04T02:03:00.444 TO 1983-05-18T00:08:03.548
1983-05-22T00:01:43.679 TO 1983-12-27T23:23:01.228

TYPE_OF_FILE_TIME_COVERAGE:
DECOM Magnetometer Data 1983-05-04T02:03:00.444 TO 1983-05-18T00:08:03.548
1983-05-22T00:01:43.679 TO 1983-12-27T23:23:01.228

FILE_NAMING_CONVENTION:
File names are of the form DEC#XXXX.DAT where DEC is the type of data (DECOM), # is a "1" for ISEE-1 data or a "2" for ISEE-2 data and XXXX is the four digit ISEE group number with leading zeroes as needed. Groups were sequentially numbered chunks of DECOM data. Groups 1 through 12 varied in length from 3 to 8 days. Starting with group 13 and continuing through the end of the mission, groups alternated between 3 days and 4 days of data.

LOG_VOL_FILE_TIME_COVERAGE:
DEC10570.DAT 1983-05-04T02:03:00.444 TO 1983-05-08T00:00:08.033
DEC10571.DAT 1983-05-08T00:02:36.712 TO 1983-05-11T00:00:58.425
DEC10572.DAT 1983-05-11T00:29:03.371 TO 1983-05-15T00:14:48.847
DEC10573.DAT 1983-05-15T00:24:41.752 TO 1983-05-18T00:08:03.548
DEC10575.DAT 1983-05-22T00:01:43.679 TO 1983-05-25T01:10:35.578
DEC10576.DAT 1983-05-25T01:10:58.068 TO 1983-05-28T23:59:55.837
DEC10577.DAT 1983-05-29T00:00:20.076 TO 1983-06-01T01:23:04.895
DEC10578.DAT 1983-06-01T01:23:29.633 TO 1983-06-04T23:30:58.543
DEC10579.DAT 1983-06-05T00:33:01.521 TO 1983-06-08T01:49:00.988
DEC10580.DAT 1983-06-08T01:42:51.415 TO 1983-06-12T00:00:03.228
DEC10581.DAT 1983-06-12T00:00:59.701 TO 1983-06-15T00:00:00.280
DEC10582.DAT 1983-06-15T00:07:03.078 TO 1983-06-18T21:59:35.478
DEC10583.DAT 1983-06-19T00:26:13.836 TO 1983-06-22T01:07:17.457
DEC10584.DAT 1983-06-22T01:07:49.693 TO 1983-06-26T01:19:32.948
DEC10585.DAT 1983-06-26T01:25:17.783 TO 1983-06-29T00:00:03.279
DEC10586.DAT 1983-06-29T01:19:56.742 TO 1983-07-03T01:22:58.508
DEC10587.DAT 1983-07-03T01:23:39.489 TO 1983-07-06T01:39:58.561
DEC10588.DAT 1983-07-06T01:40:19.301 TO 1983-07-10T00:36:49.261
DEC10589.DAT 1983-07-10T00:37:11.501 TO 1983-07-12T21:08:04.463
DEC10590.DAT 1983-07-13T00:10:29.298 TO 1983-07-17T01:08:47.490
DEC10591.DAT 1983-07-17T01:13:55.343 TO 1983-07-20T00:39:59.092
DEC10592.DAT 1983-07-20T00:40:03.590 TO 1983-07-24T00:00:15.055
DEC10593.DAT 1983-07-24T00:23:00.404 TO 1983-07-27T00:23:49.651
DEC10594.DAT 1983-07-27T00:37:49.999 TO 1983-07-31T02:00:03.438
DEC10595.DAT 1983-07-31T02:00:27.677 TO 1983-08-03T00:25:27.176
DEC10596.DAT 1983-08-03T00:52:56.388 TO 1983-08-06T23:22:56.370
DEC10597.DAT 1983-08-07T02:50:06.375 TO 1983-08-10T01:04:35.509
DEC10598.DAT 1983-08-10T01:05:17.489 TO 1983-08-14T00:59:59.548
DEC10599.DAT 1983-08-14T01:00:21.788 TO 1983-08-17T01:30:05.371
DEC10600.DAT 1983-08-17T01:36:09.447 TO 1983-08-21T00:00:42.767
DEC10601.DAT 1983-08-21T00:01:04.257 TO 1983-08-24T00:49:25.506
DEC10602.DAT 1983-08-24T00:49:49.994 TO 1983-08-28T00:40:12.119
DEC10603.DAT 1983-08-28T00:39:47.631 TO 1983-08-31T00:14:59.239
DEC10604.DAT 1983-08-31T00:15:46.653 TO 1983-09-04T01:30:59.811
DEC10605.DAT 1983-09-04T01:24:58.484 TO 1983-09-07T00:44:45.553
DEC10606.DAT 1983-09-07T00:45:09.542 TO 1983-09-11T00:43:27.618

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DEC10607.DAT  1983-09-11T00:34:01.076 TO 1983-09-13T23:59:55.375
DEC10608.DAT  1983-09-14T00:00:16.115 TO 1983-09-18T01:29:24.327
DEC10609.DAT  1983-09-18T01:29:45.816 TO 1983-09-21T01:29:59.664
DEC10610.DAT  1983-09-21T01:30:23.652 TO 1983-09-24T23:59:59.089
DEC10611.DAT  1983-09-25T00:00:21.828 TO 1983-09-28T00:59:58.181
DEC10612.DAT  1983-09-28T01:00:18.921 TO 1983-10-01T23:59:58.518
DEC10613.DAT  1983-10-02T00:00:22.006 TO 1983-10-05T00:09:03.579
DEC10614.DAT  1983-10-05T00:09:25.443 TO 1983-10-09T00:59:58.309
DEC10615.DAT  1983-10-09T01:00:20.549 TO 1983-10-12T02:00:16.179
DEC10616.DAT  1983-10-12T01:59:34.698 TO 1983-10-16T00:24:52.940
DEC10617.DAT  1983-10-16T00:25:14.679 TO 1983-10-19T00:00:00.139
DEC10618.DAT  1983-10-19T00:00:04.387 TO 1983-10-23T00:49:29.211
DEC10619.DAT  1983-10-23T00:28:36.811 TO 1983-10-26T00:49:59.891
DEC10620.DAT  1983-10-26T00:50:20.381 TO 1983-10-30T00:14:35.145
DEC10621.DAT  1983-10-30T00:14:54.823 TO 1983-11-01T23:59:58.997
DEC10622.DAT  1983-11-02T00:00:01.746 TO 1983-11-06T01:38:23.999
DEC10623.DAT  1983-11-06T01:38:47.237 TO 1983-11-08T23:42:58.451
DEC10624.DAT  1983-11-09T00:45:27.452 TO 1983-11-13T00:07:21.079
DEC10625.DAT  1983-11-13T00:07:40.820 TO 1983-11-16T00:50:57.994
DEC10626.DAT  1983-11-16T00:51:16.735 TO 1983-11-20T01:31:01.467
DEC10627.DAT  1983-11-20T01:31:25.456 TO 1983-11-22T22:46:47.454
DEC10628.DAT  1983-11-23T00:01:38.671 TO 1983-11-27T01:09:58.911
DEC10629.DAT  1983-11-27T01:10:45.138 TO 1983-11-30T00:31:52.106
DEC10630.DAT  1983-11-30T00:32:14.096 TO 1983-12-03T21:54:59.936
DEC10631.DAT  1983-12-04T00:04:59.813 TO 1983-12-07T01:34:42.098
DEC10632.DAT  1983-12-07T01:35:06.336 TO 1983-12-11T00:49:58.892
DEC10633.DAT  1983-12-11T00:43:59.315 TO 1983-12-14T01:29:03.442
DEC10634.DAT  1983-12-14T01:29:38.425 TO 1983-12-18T00:04:35.088
DEC10635.DAT  1983-12-18T00:04:56.827 TO 1983-12-21T00:14:37.782
DEC10636.DAT  1983-12-21T00:14:57.522 TO 1983-12-24T18:06:59.551
DEC10637.DAT  1983-12-25T04:32:40.517 TO 1983-12-27T23:23:01.228

/* NOTE:                                                              */
/*  The file below is located on LOG VOL IDENT: USA NASA NSSD IC1D 0009B  */
/*   DEC10574.DAT  1983-05-18T00:08:51.026 TO 1983-05-22T00:01:15.442     */

PREV_LOG_VOL_COVERAGE: 1982-08-04T00:34:22.646 TO 1983-05-03T23:43:03.143

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REFERENCE="/SOURCE/IGPPFORT.F";
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REFERENCE="/SOURCE/JTLIB.F";
REFERENCE="/SOURCE/MAKEFILE.";
REFERENCE="/SOURCE/PARMEDIT.F";
REFERENCE="/SOURCE/PARMLIST.C";
REFERENCE="/SOURCE/QBMS.F";
REFERENCE="/SOURCE/QBS1.F";
REFERENCE="/SOURCE/QBS2.F";
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REFERENCE="/SOURCE/TIME_IGPP.C";
REFERENCE="/SOURCE/TIME_IGPP.H";
REFERENCE="/SOURCE/WHOWNER.C";
REFERENCE="/SOURCE/YAMS.F";
REFERENCE="/SOURCE/YAS1.F";
REFERENCE="/SOURCE/YAS2.F";
REFERENCE="/SOURCE/YAS3.F";

/* EOF */
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CCSD3ZF0000100000001CCSD3VS00002markeraa

LOG_VOL_IDENT: USA_NASA_NSSD_IC1D_0006B
LOG_VOL_NSSDC_EXPT_ID: 77-I02A-04
LOG_VOL_INITIATION_DATE: 1992-01-28
LOG_VOL_CLOSING_DATE: 1993-09-27
LOG_VOL_CAPACITY: 1GB/Logical volume
LOG_VOL_FILE_STRUCTURE: Files-11

VOLUME_DIAMETER: 12 inches
VOLUME_DRIVE_MFGR_AND_MODEL: Optimem 1000
COMPUTER_MFGR: Digital Equipment Corporation
OPERATING_SYSTEM: MicroVMS 4.7
COMPUTER_SYSTEM: MicroVAX II
TRANSFER_SOFTWARE: SOAR Version 4.2

TECHNICAL_CONTACT:
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(213)825-9030
NSI=hherbert@igpp.ucla.edu
NSI-DECnet=BRUNET::HARRY

PREV_LOG_VOLS:
USA_NASA_NSSD_IC1D_0001A
USA_NASA_NSSD_IC1D_0001B
USA_NASA_NSSD_IC1D_0002A
USA_NASA_NSSD_IC1D_0002B
USA_NASA_NSSD_IC1D_0003A
USA_NASA_NSSD_IC1D_0003B
USA_NASA_NSSD_IC1D_0004A
USA_NASA_NSSD_IC1D_0004B
USA_NASA_NSSD_IC1D_0005A
USA_NASA_NSSD_IC1D_0005B
USA_NASA_NSSD_IC1D_0006A

CCSD$$MARKERmarkeraaCCSD3SS00002markerab

DATA_SET_NAME: DECOM Magnetometer Data
DATA_SOURCES: International Sun-Earth Explorer 1 (ISEE-1) and Fluxgate Magnetometer Instrument

SCIENTIFIC_CONTACT:
Dr. Christopher Russell
University of California at Los Angeles
Institute of Geophysics and Planetary Physics
6871 Slichter Hall
Los Angeles, CA 90025-1567
(213)825-3188
NSI=ctrussel@igpp.ucla.edu
NSI-DECnet=BRUNET::CTRUSSELL

SOURCE_CHARACTERISTICS:

A. DESCRIPTION_OF_SPACECRAFT:
The Explorer-class spacecraft, ISEE-1 and ISEE-2 were part of the mother/daughter/heliocentric mission which consisted of ISEE-1, ISEE-2, and ISEE-3 spacecraft. These were spin stabilized spacecraft with their spin axes usually normal to the ecliptic plane. The spin axis of ISEE-1 was within 1 degree of the ecliptic pole throughout the mission. The spin axis of ISEE-2 was usually close to the ecliptic pole but was up to 90 degrees from the ecliptic pole on a few occasions. Solar panels provided the power for the instruments.

B. ORBIT_INFORMATION:
The mother/daughter portion of the mission consisted of two spacecraft, one with station-keeping capability, in a highly eccentric earth orbit with apogee at 23 earth radii. The spacecraft maintained a small, but variable, separation distance and made simultaneous coordinated measurements to permit separation of spatial from temporal irregularities in the near-earth solar wind, the bow shock, and inside the magnetosphere. The spin rate of ISEE-1 was set at 19.75 rpm, differing slightly from that of the ISEE-2 spacecraft, whose spin rate was set at 19.8 rpm

C. PERFORMANCE:
The ISEE-1 and ISEE-2 spacecraft operated continuously from launch on October 22, 1977 to September 27, 1987 when they both reentered the Earth's atmosphere.

INVESTIGATION_OBJECTIVES:

The purposes of the mission were (1) to investigate solar/terrestrial relationships at the outermost boundaries of the earth's magnetosphere, (2) to examine in detail the structure of the solar wind near the earth and the shock wave that forms the interface between the solar wind and earth, and (3) to continue the investigation of cosmic rays and solar flares in the interplanetary region near 1 AU.

INSTRUMENT ATTRIBUTES:

A. DESCRIPTION OF INSTRUMENT:
In this triaxial fluxgate magnetometer, three ring-core sensors in an orthogonal triad were enclosed in a flipper mechanism at the end of the magnetometer boom. The electronics unit was on the main body of the spacecraft at the foot of the boom. For a complete description of the instrument see the paper Geoscience Electronics GE-16, 239-242, 1978.

B. OPERATIONAL MODE:
The magnetometer had two operating ranges of plus or minus 8192 nT and plus or minus 256 nT in each vector component. The data were digitized and averaged within the instrument to provide increased resolution and to provide Nyquist filtering. There were two modes for the transmission of the averaged data. In the double-precision mode of operation, 16-bit samples of data were transmitted. This provided a maximum resolution of plus or minus 1/4 nT or 1/128 nT in the low-sensitivity and high-sensitivity ranges. In the single-precision mode, any 8 consecutive bits of the above 16-bits were selected by ground command for transmission and the telemetry bandwidths of the magnetometer were doubled. This bandwidth varied from 2 Hz for the low-telemetry rate, double-precision experiment mode to 32 Hz for the high-telemetry rate, single precision mode.

C. MEASURED PARAMETERS:
The instrument measured 3 components of the magnetic field. The data were despun to give the magnetic field along the spin axis, Bz, and the two components in the spin plane. The component along the projection of the sun-earth line onto the spin plane was called the Bx component.

D. PERFORMANCE OF THE INSTRUMENT:
The instruments continued to function with undiminished accuracy until re-entry. Variation of the zero levels has been removed in processing. Occasionally latch up of a sensor occurred during range changes. Because three components of the field could be measured from the two remaining sensors due to the spin of the spacecraft this latch up does not usually affect the calculation of low temporal resolution data.

E. RESOLUTION:
The temporal resolution of the data is generally 4 or 16 samples per second. A single precision mode giving lower amplitude resolution but twice the temporal resolution was seldom used. The analog to digital converter of the magnetometer had a resolution of +/- 2 nT and +/- 1/16 nT in high range and low range. Averaging was used to increase the resolution to +/- 1/8 nT and +/- 1/256 nT. The accuracy of the analog to digital conversion was +/- 1/2 nT and +/- 1/64 nT.

PARAMETERS:
The archive includes the original DECOM magnetometer data as received from Goddard Space Flight Center.

DATA SET QUALITY:
The data submitted on this disk is of the same quality as was originally received from GSFC. During the copying process from magnetic tape to disk, a very small number of unrecoverable tape errors (parity errors) occurred which would result in the loss of 1 tape block of data.

DATA PROCESSING OVERVIEW:
The DECOM data was received on 9-track magnetic tapes written at 1600 BPI, usually with three or four days of data on each tape. These tapes were copied to 9-track magnetic tapes at 6250 BPI with two to four weeks of data per copy tape. No changes were made to the data itself so the data retained its original blocking factor and data format. These copy tapes were then written to optical disk, with one disk file for each three or four days of data, without any alteration of the data. Thus, the data contained on this optical disk is as close as possible to the original DECOM data that was received from GSFC.

At UCLA the DECOM data are processed on Sun/UNIX workstations by the FORTRAN programs makeprod_a (ISEE-1) and makeprod_b (ISEE-2). The makeprod programs read the DECOM data for their respective spacecraft, and convert them into meaningful magnetic field values. The output of the programs is a UNIX binary file. This file may be written to magnetic tape for storage or converted into a UCLA-IGPP flat files or into ASCII text files. The entire suite of UCLA programs to read and interpret the DECOM data have been

archived on this disk in the directory [SOURCE]. The file AAREADME.TXT gives an overview of the various files. The individual source code files include more complete documentation.

DATA_USAGE:
The data in this archive are stored in IBM integer format. Because the data is raw information from the magnetometer instrument, a computer program is required to unpack and convert the data into a format that is scientifically meaningful. The complete suite of UCLA Sun/UNIX DECOM processing programs have been archived on this disk to demonstrate how to interpret these datasets.

DATA_ORGANIZATION:
Each logical volume, one side of an optical disk, includes as much ISEE-1 or ISEE-2 DECOM data as would comfortably fit on that logical volume. The only separation criteria that was used was that if a data group did not fit on the current logical volume it became the first data group of the next logical volume with the groups being placed on logical volumes in ascending order. Occasionally, a problem would occur with either the Write-Once media or the magnetic tapes holding the original DECOM data that would necessitate skipping a data group at the time of writing adjacent data groups to the WORM disk. At the end of the archival process, these data groups were written to the final logical volume for their respective spacecraft.

TYPE_OF_FILE_RELATIONSHIPS:
There is only one type of file, which is the original DECOM data from the magnetometer instrument.

CCSD$$MARKERmarkerabCCSD3KS00002markerac

LOG_VOL_TIME_COVERAGE: 1983-12-28T01:48:00.296 TO 1984-08-07T23:59:07.857

TYPE_OF_FILE_TIME_COVERAGE:
DECOM Magnetometer Data 1983-12-28T01:48:00.296 TO 1984-08-07T23:59:07.857

FILE_NAMING_CONVENTION:
File names are of the form DEC#XXXX.DAT where DEC is the type of data (DECOM), # is a "1" for ISEE-1 data or a "2" for ISEE-2 data and XXXX is the four digit ISEE group number with leading zeroes as needed. Groups were sequentially numbered chunks of DECOM data. Groups 1 through 12 varied in length from 3 to 8 days. Starting with group 13 and continuing through the end of the mission, groups alternated between 3 days and 4 days of data.

LOG_VOL_FILE_TIME_COVERAGE:
DEC10638.DAT 1983-12-28T01:48:00.296 TO 1983-12-31T23:30:59.220
DEC10639.DAT 1984-01-01T08:06:40.614 TO 1984-01-04T00:01:58.108
DEC10640.DAT 1984-01-04T02:34:03.225 TO 1984-01-07T21:12:20.836
DEC10641.DAT 1984-01-08T07:47:02.074 TO 1984-01-10T22:54:01.000
DEC10642.DAT 1984-01-11T01:46:42.518 TO 1984-01-14T23:58:07.009
DEC10643.DAT 1984-01-15T00:48:27.804 TO 1984-01-17T21:12:59.394
DEC10644.DAT 1984-01-18T00:58:33.638 TO 1984-01-22T00:10:15.147
DEC10645.DAT 1984-01-22T00:10:34.263 TO 1984-01-24T21:15:00.090
DEC10646.DAT 1984-01-25T00:03:03.242 TO 1984-01-29T00:57:59.842
DEC10647.DAT 1984-01-29T01:10:59.968 TO 1984-02-01T00:45:22.398
DEC10648.DAT 1984-02-01T02:32:53.983 TO 1984-02-05T00:22:59.699
DEC10649.DAT 1984-02-05T04:43:59.662 TO 1984-02-07T20:00:03.481
DEC10650.DAT 1984-02-08T02:32:00.411 TO 1984-02-12T00:13:01.691
DEC10651.DAT 1984-02-12T02:23:14.689 TO 1984-02-15T00:18:58.004
DEC10652.DAT 1984-02-15T00:19:20.743 TO 1984-02-19T00:28:57.970
DEC10653.DAT 1984-02-19T02:46:27.760 TO 1984-02-21T23:23:02.173
DEC10654.DAT 1984-02-22T00:06:00.685 TO 1984-02-25T23:27:59.968
DEC10655.DAT 1984-02-26T01:30:51.306 TO 1984-02-28T22:16:06.508
DEC10656.DAT 1984-02-29T01:12:13.188 TO 1984-03-03T22:33:57.690
DEC10657.DAT 1984-03-04T00:21:08.606 TO 1984-03-06T22:41:33.610
DEC10658.DAT 1984-03-07T00:12:33.242 TO 1984-03-10T22:49:58.528
DEC10659.DAT 1984-03-11T02:15:32.614 TO 1984-03-13T22:20:58.052
DEC10660.DAT 1984-03-14T01:29:47.621 TO 1984-03-18T00:01:03.180
DEC10661.DAT 1984-03-18T00:59:04.511 TO 1984-03-21T00:58:56.173
DEC10662.DAT 1984-03-21T00:58:58.921 TO 1984-03-25T00:34:03.765
DEC10663.DAT 1984-03-25T01:23:18.099 TO 1984-03-28T01:05:00.151
DEC10664.DAT 1984-03-28T01:04:45.158 TO 1984-03-31T23:44:59.893
DEC10665.DAT 1984-04-01T00:05:07.065 TO 1984-04-03T23:42:58.475
DEC10666.DAT 1984-04-04T00:59:28.777 TO 1984-04-07T22:42:04.194
DEC10667.DAT 1984-04-08T00:00:15.696 TO 1984-04-10T22:46:05.468
DEC10668.DAT 1984-04-11T04:52:59.684 TO 1984-04-15T00:00:00.663
DEC10669.DAT 1984-04-15T01:41:09.254 TO 1984-04-17T23:43:40.302
DEC10670.DAT 1984-04-18T00:04:30.954 TO 1984-04-22T00:04:46.617
DEC10671.DAT 1984-04-22T00:05:16.852 TO 1984-04-24T23:43:02.721
DEC10672.DAT 1984-04-25T00:29:45.318 TO 1984-04-28T23:09:13.458
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DEC10675.DAT  1984-05-06T00:32:39.042 TO 1984-05-08T23:42:59.201
DEC10676.DAT  1984-05-09T00:01:04.683 TO 1984-05-12T23:43:00.076
DEC10677.DAT  1984-05-13T01:04:05.753 TO 1984-05-16T01:39:55.367
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DEC10680.DAT  1984-05-23T01:01:00.049 TO 1984-05-27T01:24:42.523
DEC10681.DAT  1984-05-27T01:25:08.011 TO 1984-05-29T23:55:59.287
DEC10682.DAT  1984-05-30T01:14:30.788 TO 1984-06-03T01:38:04.040
DEC10683.DAT  1984-06-03T01:42:05.424 TO 1984-06-05T23:43:01.083
DEC10684.DAT  1984-06-06T00:37:59.010 TO 1984-06-10T00:00:00.823
DEC10685.DAT  1984-06-10T01:11:27.028 TO 1984-06-13T00:44:05.303
DEC10686.DAT  1984-06-13T01:32:59.090 TO 1984-06-16T23:42:58.313
DEC10687.DAT  1984-06-17T00:25:52.085 TO 1984-06-20T00:46:59.514
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DEC10690.DAT  1984-06-27T00:44:11.130 TO 1984-07-01T00:17:23.190
DEC10691.DAT  1984-07-01T00:17:44.930 TO 1984-07-04T00:50:07.792
DEC10692.DAT  1984-07-04T00:50:29.032 TO 1984-07-08T01:20:33.680
DEC10693.DAT  1984-07-08T01:20:58.668 TO 1984-07-11T01:03:08.711
DEC10694.DAT  1984-07-11T02:40:45.916 TO 1984-07-15T00:27:26.748
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DEC10696.DAT  1984-07-18T00:04:04.729 TO 1984-07-22T01:25:03.065
DEC10697.DAT  1984-07-22T01:24:01.594 TO 1984-07-25T00:52:34.244
DEC10698.DAT  1984-07-25T00:52:57.483 TO 1984-07-29T00:08:45.694
DEC10699.DAT  1984-07-29T00:13:25.060 TO 1984-08-01T01:30:58.592
DEC10700.DAT  1984-08-01T01:31:02.840 TO 1984-08-05T00:41:18.486
DEC10701.DAT  1984-08-05T00:35:41.647 TO 1984-08-07T23:59:07.857

PREV_LOG_VOL_COVERAGE: 1983-05-04T02:03:00.444 TO 1983-05-18T00:08:03.548
                       1983-05-22T00:01:43.679 TO 1983-12-27T23:23:01.228

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LABEL=NSSD3IF0018700000001;
REFERENCE="/ISEE1DEC/DEC1*.DAT";

LABEL=CCSD3SF0000200000001;
REFERENCE="/SOURCE/AAREADME.TXT";
REFERENCE="/SOURCE/AINPUT.DAT";
REFERENCE="/SOURCE/APERIGEE.FFD";
REFERENCE="/SOURCE/APERIGEE.FFH";
REFERENCE="/SOURCE/ATIMES.FFD";
REFERENCE="/SOURCE/ATIMES.FFH";
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REFERENCE="/SOURCE/CONVERT.FOR";
REFERENCE="/SOURCE/CTIME.C";
REFERENCE="/SOURCE/FF_IGPP.C";
REFERENCE="/SOURCE/FF_IGPP.H";
REFERENCE="/SOURCE/FLAT.F";
REFERENCE="/SOURCE/FLAT2ASCII.C";
REFERENCE="/SOURCE/FLATCOM.F";
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REFERENCE="/SOURCE/IGPPFORT.F";
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REFERENCE="/SOURCE/ISEE-TAR.Z";
REFERENCE="/SOURCE/JTLIB.F";
REFERENCE="/SOURCE/MAKEFILE.";
REFERENCE="/SOURCE/PARMEDIT.F";
REFERENCE="/SOURCE/PARMLIST.C";
REFERENCE="/SOURCE/QBMS.F";
REFERENCE="/SOURCE/QBS1.F";
REFERENCE="/SOURCE/QBS2.F";
REFERENCE="/SOURCE/QBS3.F";
REFERENCE="/SOURCE/TIME_IGPP.C";
REFERENCE="/SOURCE/TIME_IGPP.H";
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REFERENCE="/SOURCE/YAS3.F";
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LOG_VOL_NSSDC_EXPT_ID:	77-102A-04
LOG_VOL_INITIATION_DATE:	1992-02-07
LOG_VOL_CLOSING_DATE:	1993-09-27
LOG_VOL_CAPACITY:	1GB/Logical volume
LOG_VOL_FILE_STRUCTURE:	Files-11
VOLUME_DIAMETER:	12 inches
VOLUME_DRIVE_MFGR_AND_MODEL:	Optimem 1000
COMPUTER_MFGR:	Digital Equipment Corporation
OPERATING_SYSTEM:	MicroVMS 4.7
COMPUTER_SYSTEM:	MicroVAX II
TRANSFER_SOFTWARE:	SOAR Version 4.2
TECHNICAL_CONTACT:	Harry Herbert University of California at Los Angeles Institute of Geophysics and Planetary Physics 5833 Slichter Hall Los Angeles, CA 90025-1567 (213)825-9030 NSI=hherbert@igpp.ucla.edu NSI-DECnet=BRUNET::HARRY
PREV_LOG_VOLS:	USA_NASA_NSSD_IC1D_0001A USA_NASA_NSSD_IC1D_0001B USA_NASA_NSSD_IC1D_0002A USA_NASA_NSSD_IC1D_0002B USA_NASA_NSSD_IC1D_0003A USA_NASA_NSSD_IC1D_0003B USA_NASA_NSSD_IC1D_0004A USA_NASA_NSSD_IC1D_0004B USA_NASA_NSSD_IC1D_0005A USA_NASA_NSSD_IC1D_0005B USA_NASA_NSSD_IC1D_0006A USA_NASA_NSSD_IC1D_0006B

CCSD$$MARKERmarkeraaCCSD3SS00002markerab

DATA_SET_NAME:	DECOM Magnetometer Data
DATA_SOURCES:	International Sun-Earth Explorer 1 (ISEE-1) and Fluxgate Magnetometer Instrument
SCIENTIFIC_CONTACT:	Dr. Christopher Russell University of California at Los Angeles Institute of Geophysics and Planetary Physics 6871 Slichter Hall Los Angeles, CA 90025-1567 (213)825-3188 NSI=ctrussel@igpp.ucla.edu NSI-DECnet=BRUNET::CTRUSSELL

SOURCE_CHARACTERISTICS:

A. DESCRIPTION_OF_SPACECRAFT:
The Explorer-class spacecraft, ISEE-1 and ISEE-2 were part of the mother/daughter/heliocentric mission which consisted of ISEE-1, ISEE-2, and ISEE-3 spacecraft. These were spin stabilized spacecraft with their spin axes usually normal to the ecliptic plane. The spin axis of ISEE-1 was within 1 degree of the ecliptic pole throughout the mission. The spin axis of ISEE-2 was usually close to the ecliptic pole but was up to 90 degrees from the ecliptic pole on a few occasions. Solar panels provided the power for the instruments.

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The magnetometer had two operating ranges of plus or minus 8192 nT and plus or minus 256 nT in each vector component. The data were digitized and averaged within the instrument to provide increased resolution and to provide Nyquist filtering. There were two modes for the transmission of the averaged data. In the double-precision mode of operation, 16-bit samples of data were transmitted. This provided a maximum resolution of plus or minus 1/4 nT or 1/128 nT in the low-sensitivity and high-sensitivity ranges. In the single-precision mode, any 8 consecutive bits of the above 16-bits were selected by ground command for transmission and the telemetry bandwidths of the magnetometer were doubled. This bandwidth varied from 2 Hz for the low-telemetry rate, double-precision experiment mode to 32 Hz for the high-telemetry rate, single precision mode.

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The data in this archive are stored in IBM integer format. Because the data is raw information from the magnetometer instrument, a computer program is required to unpack and convert the data into a format that is scientifically meaningful. The complete suite of UCLA Sun/UNIX DECOM processing programs have been archived on this disk to demonstrate how to interpret these datasets.

DATA_ORGANIZATION:
Each logical volume, one side of an optical disk, includes as much ISEE-1 or ISEE-2 DECOM data as would comfortably fit on that logical volume. The only separation criteria that was used was that if a data group did not fit on the current logical volume it became the first data group of the next logical volume with the groups being placed on logical volumes in ascending order. Occasionally, a problem would occur with either the Write-Once media or the magnetic tapes holding the original DECOM data that would necessitate skipping a data group at the time of writing adjacent data groups to the WORM disk. At the end of the archival process, these data groups were written to the final logical volume for their respective spacecraft.

TYPE_OF_FILE_RELATIONSHIPS:
There is only one type_of_file, which is the original DECOM data from the magnetometer instrument.

CCSD$$MARKERmarkerabCCSD3KS00002markerac

LOG_VOL_TIME_COVERAGE: 1984-08-15T01:13:30.987 TO 1985-05-15T00:30:07.259

TYPE_OF_FILE_TIME_COVERAGE:
DECOM Magnetometer Data 1984-08-15T01:13:30.987 TO 1985-05-15T00:30:07.259

FILE_NAMING_CONVENTION:
File names are of the form DEC#XXXX.DAT where DEC is the type of data (DECOM), # is a "1" for ISEE-1 data or a "2" for ISEE-2 data and XXXX is the four digit ISEE group number with leading zeroes as needed. Groups were sequentially numbered chunks of DECOM data. Groups 1 through 12 varied in length from 3 to 8 days. Starting with group 13 and continuing through the end of the mission, groups alternated between 3 days and 4 days of data.

LOG_VOL_FILE_TIME_COVERAGE:

DEC10704.DAT	1984-08-15T01:13:30.987	TO	1984-08-19T00:59:58.494
DEC10705.DAT	1984-08-19T01:00:19.234	TO	1984-08-21T23:50:03.169
DEC10706.DAT	1984-08-22T01:20:00.460	TO	1984-08-26T01:15:58.166
DEC10707.DAT	1984-08-26T01:16:20.405	TO	1984-08-29T00:51:59.139
DEC10708.DAT	1984-08-29T03:15:58.998	TO	1984-09-02T02:08:59.381
DEC10709.DAT	1984-09-02T03:09:24.398	TO	1984-09-05T00:17:04.592
DEC10710.DAT	1984-09-05T00:17:36.577	TO	1984-09-09T01:14:14.832
DEC10711.DAT	1984-09-09T01:09:00.732	TO	1984-09-11T23:43:33.901
DEC10712.DAT	1984-09-12T01:34:02.480	TO	1984-09-16T00:59:53.896
DEC10713.DAT	1984-09-16T00:59:57.956	TO	1984-09-19T01:37:22.105
DEC10714.DAT	1984-09-19T01:37:29.602	TO	1984-09-22T23:43:04.609
DEC10715.DAT	1984-09-23T02:38:58.812	TO	1984-09-25T23:43:01.795
DEC10716.DAT	1984-09-26T00:16:55.573	TO	1984-09-30T00:51:04.074
DEC10717.DAT	1984-09-30T01:36:58.256	TO	1984-10-03T01:29:58.219
DEC10718.DAT	1984-10-03T01:30:22.958	TO	1984-10-06T12:54:12.393
DEC10719.DAT	1984-10-07T06:58:58.583	TO	1984-10-10T00:53:34.335
DEC10720.DAT	1984-10-10T00:53:35.959	TO	1984-10-14T00:03:19.486
DEC10721.DAT	1984-10-14T00:03:23.733	TO	1984-10-17T00:22:07.216
DEC10722.DAT	1984-10-17T06:18:18.217	TO	1984-10-20T21:00:56.378
DEC10723.DAT	1984-10-21T00:10:07.639	TO	1984-10-23T23:25:59.304
DEC10724.DAT	1984-10-24T01:30:58.959	TO	1984-10-27T19:58:00.340
DEC10725.DAT	1984-10-28T00:57:00.033	TO	1984-10-30T21:40:01.168
DEC10726.DAT	1984-10-31T01:34:59.415	TO	1984-11-04T00:31:53.641
DEC10727.DAT	1984-11-04T02:16:31.412	TO	1984-11-06T22:29:58.342
DEC10728.DAT	1984-11-07T01:42:59.535	TO	1984-11-11T00:29:58.397
DEC10729.DAT	1984-11-11T01:14:00.129	TO	1984-11-13T20:58:01.750
DEC10730.DAT	1984-11-14T03:02:32.783	TO	1984-11-18T01:22:03.313
DEC10731.DAT	1984-11-18T02:12:19.614	TO	1984-11-20T22:39:00.703
DEC10732.DAT	1984-11-21T06:36:00.241	TO	1984-11-25T01:10:31.146
DEC10733.DAT	1984-11-25T01:10:34.144	TO	1984-11-27T21:42:58.860
DEC10734.DAT	1984-11-28T06:11:30.513	TO	1984-12-02T00:28:02.621
DEC10735.DAT	1984-12-02T03:17:50.721	TO	1984-12-05T00:02:54.163
DEC10736.DAT	1984-12-05T08:29:31.428	TO	1984-12-09T00:51:04.488
DEC10737.DAT	1984-12-09T00:49:59.457	TO	1984-12-11T23:50:12.558
DEC10738.DAT	1984-12-12T02:00:01.563	TO	1984-12-16T01:15:00.360
DEC10739.DAT	1984-12-16T01:08:58.784	TO	1984-12-18T22:26:59.912

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DEC10740.DAT  1984-12-19T08:38:07.354 TO 1984-12-23T00:42:50.250
DEC10741.DAT  1984-12-23T00:51:22.254 TO 1984-12-25T22:28:01.473
DEC10742.DAT  1984-12-26T01:53:57.531 TO 1984-12-29T22:44:58.493
DEC10743.DAT  1984-12-30T01:25:01.376 TO 1985-01-01T22:32:59.594
DEC10744.DAT  1985-01-02T02:16:59.692 TO 1985-01-05T21:28:04.778
DEC10745.DAT  1985-01-06T01:33:32.696 TO 1985-01-08T22:39:18.547
DEC10746.DAT  1985-01-09T00:59:00.016 TO 1985-01-13T01:08:01.825
DEC10747.DAT  1985-01-13T01:01:59.812 TO 1985-01-15T22:44:58.727
DEC10748.DAT  1985-01-16T01:21:59.198 TO 1985-01-19T23:56:58.691
DEC10749.DAT  1985-01-20T00:03:15.760 TO 1985-01-22T22:50:59.461
DEC10750.DAT  1985-01-23T03:16:44.296 TO 1985-01-27T00:23:06.602
DEC10751.DAT  1985-01-27T03:56:26.446 TO 1985-01-29T23:38:57.998
DEC10752.DAT  1985-01-30T03:12:52.830 TO 1985-02-02T22:52:01.716
DEC10753.DAT  1985-02-03T00:31:08.853 TO 1985-02-05T23:03:18.531
DEC10754.DAT  1985-02-06T01:27:37.307 TO 1985-02-09T22:08:08.275
DEC10755.DAT  1985-02-10T00:56:49.902 TO 1985-02-12T22:56:58.281
DEC10756.DAT  1985-02-13T01:51:39.995 TO 1985-02-16T22:03:49.269
DEC10757.DAT  1985-02-17T00:29:06.081 TO 1985-02-19T21:00:59.280
DEC10758.DAT  1985-02-20T02:14:42.736 TO 1985-02-24T01:04:57.530
DEC10759.DAT  1985-02-24T01:13:59.770 TO 1985-02-27T00:06:07.993
DEC10760.DAT  1985-02-27T04:24:07.807 TO 1985-03-03T00:08:01.632
DEC10761.DAT  1985-03-03T07:34:34.646 TO 1985-03-05T20:32:52.777
DEC10762.DAT  1985-03-06T01:03:16.727 TO 1985-03-09T23:17:25.170
DEC10763.DAT  1985-03-10T01:06:11.541 TO 1985-03-13T00:22:08.512
DEC10764.DAT  1985-03-13T00:15:04.341 TO 1985-03-16T23:59:57.795
DEC10765.DAT  1985-03-17T01:14:00.415 TO 1985-03-19T22:17:58.679
DEC10766.DAT  1985-03-20T00:25:58.996 TO 1985-03-24T00:47:57.886
DEC10767.DAT  1985-03-24T01:31:20.388 TO 1985-03-26T23:59:02.648
DEC10768.DAT  1985-03-27T00:49:54.748 TO 1985-03-30T23:29:18.475
DEC10769.DAT  1985-03-31T00:26:08.092 TO 1985-04-03T00:23:32.223
DEC10770.DAT  1985-04-03T01:13:56.025 TO 1985-04-06T23:53:12.745
DEC10771.DAT  1985-04-07T00:42:19.647 TO 1985-04-10T00:46:59.305
DEC10772.DAT  1985-04-10T01:37:48.845 TO 1985-04-14T02:00:25.694
DEC10773.DAT  1985-04-14T03:03:57.370 TO 1985-04-16T23:28:08.982
DEC10774.DAT  1985-04-17T00:19:51.747 TO 1985-04-20T23:43:15.354
DEC10775.DAT  1985-04-21T01:30:11.034 TO 1985-04-23T23:55:19.228
DEC10776.DAT  1985-04-24T00:42:22.376 TO 1985-04-27T22:10:08.627
DEC10777.DAT  1985-04-28T01:44:49.715 TO 1985-04-30T17:03:19.816
DEC10778.DAT  1985-05-01T03:52:54.856 TO 1985-05-05T00:25:01.004
DEC10779.DAT  1985-05-05T00:20:26.886 TO 1985-05-08T00:39:58.131
DEC10780.DAT  1985-05-08T00:34:15.045 TO 1985-05-11T23:43:13.270
DEC10781.DAT  1985-05-12T03:51:48.319 TO 1985-05-15T00:30:07.259

/* NOTE:                                                              */
/*  The files below are located on LOG_VOL_IDENT: USA_NASA_NSSD_IC1D_0009B  */
/*   DEC10702.DAT  1984-08-08T03:43:58.409 TO 1984-08-12T00:38:27.546      */
/*   DEC10703.DAT  1984-08-12T00:38:48.911 TO 1984-08-15T01:13:23.990      */

PREV_LOG_VOL_COVERAGE: 1983-12-28T01:48:00.296 TO 1984-08-07T23:59:07.857

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LABEL=NSSD3IF0018700000001;
REFERENCE="/ISEE1DEC/DEC1*.DAT";

LABEL=CCSD3SF0000200000001;
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REFERENCE="/SOURCE/AINPUT.DAT";
REFERENCE="/SOURCE/APERIGEE.FFD";
REFERENCE="/SOURCE/APERIGEE.FFH";
REFERENCE="/SOURCE/ATIMES.FFD";
REFERENCE="/SOURCE/ATIMES.FFH";
REFERENCE="/SOURCE/BINPUT.DAT";
REFERENCE="/SOURCE/BPERIGEE.FFD";
REFERENCE="/SOURCE/BPERIGEE.FFH";
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REFERENCE="/SOURCE/CONVERT.FOR";
REFERENCE="/SOURCE/CTIME.C";
REFERENCE="/SOURCE/FF_IGPP.C";
REFERENCE="/SOURCE/FF_IGPP.H";
REFERENCE="/SOURCE/FLAT.F";
REFERENCE="/SOURCE/FLAT2ASCII.C";
REFERENCE="/SOURCE/FLATCOM.F";
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REFERENCE="/SOURCE/IGPPFORT.F";
REFERENCE="/SOURCE/IGPPLIB.C";
REFERENCE="/SOURCE/ISEEPRODFF.C";
REFERENCE="/SOURCE/ISEE-TAR.Z";
REFERENCE="/SOURCE/JTLIB.F";
REFERENCE="/SOURCE/MAKEFILE.";
REFERENCE="/SOURCE/PARMEDIT.F";
REFERENCE="/SOURCE/PARMLIST.C";
REFERENCE="/SOURCE/QBMS.F";
REFERENCE="/SOURCE/QBS1.F";
REFERENCE="/SOURCE/QBS2.F";
REFERENCE="/SOURCE/QBS3.F";
REFERENCE="/SOURCE/TIME_IGPP.C";
REFERENCE="/SOURCE/TIME_IGPP.H";
REFERENCE="/SOURCE/WHOWNER.C";
REFERENCE="/SOURCE/YAMS.F";
REFERENCE="/SOURCE/YAS1.F";
REFERENCE="/SOURCE/YAS2.F";
REFERENCE="/SOURCE/YAS3.F";

/* EOF */
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CCSD3ZF0000100000001CCSD3VS00002markeraa

LOG_VOL_IDENT:	USA_NASA_NSSD_IC1D_0007B
LOG_VOL_NSSDC_EXPT_ID:	77-I02A-04
LOG_VOL_INITIATION_DATE:	1992-02-07
LOG_VOL_CLOSING_DATE:	1993-09-27
LOG_VOL_CAPACITY:	1GB/Logical volume
LOG_VOL_FILE_STRUCTURE:	Files-11
VOLUME_DIAMETER:	12 inches
VOLUME_DRIVE_MFGR_AND_MODEL:	Optimem 1000
COMPUTER_MFGR:	Digital Equipment Corporation
OPERATING_SYSTEM:	MicroVMS 4.7
COMPUTER_SYSTEM:	MicroVAX II
TRANSFER_SOFTWARE:	SOAR Version 4.2
TECHNICAL_CONTACT:	Harry Herbert University of California at Los Angeles Institute of Geophysics and Planetary Physics 5833 Slichter Hall Los Angeles, CA 90025-1567 (213)825-9030 NSI=hherbert@igpp.ucla.edu NSI-DECnet=BRUNET::HARRY
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CCSD$$MARKERmarkeraaCCSD3SS00002markerab

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DATA_ORGANIZATION:
Each logical volume, one side of an optical disk, includes as much ISEE-1 or ISEE-2 DECOM data as would comfortably fit on that logical volume. The only separation criteria that was used was that if a data group did not fit on the current logical volume it became the first data group of the next logical volume with the groups being placed on logical volumes in ascending order. Occasionally, a problem would occur with either the Write-Once media or the magnetic tapes holding the original DECOM data that would necessitate skipping a data group at the time of writing adjacent data groups to the WORM disk. At the end of the archival process, these data groups were written to the final logical volume for their respective spacecraft.

TYPE_OF_FILE_RELATIONSHIPS:
There is only one type of file, which is the original DECOM data from the magnetometer instrument.

CCSD$$MARKERmarkerabCCSD3KS00002markerac

LOG_VOL_TIME_COVERAGE: 1985-05-15T00:24:38.167 TO 1986-02-15T22:31:58.862

TYPE_OF_FILE_TIME_COVERAGE:
DECOM Magnetometer Data 1985-05-15T00:24:38.167 TO 1986-02-15T22:31:58.862

FILE_NAMING_CONVENTION:
File names are of the form DEC#XXXX.DAT where DEC is the type of data (DECOM), # is a "1" for ISEE-1 data or a "2" for ISEE-2 data and XXXX is the four digit ISEE group number with leading zeroes as needed. Groups were sequentially numbered chunks of DECOM data. Groups 1 through 12 varied in length from 3 to 8 days. Starting with group 13 and continuing through the end of the mission, groups alternated between 3 days and 4 days of data.

LOG_VOL_FILE_TIME_COVERAGE:
DEC10782.DAT 1985-05-15T00:24:38.167 TO 1985-05-18T23:44:05.921
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DEC10784.DAT 1985-05-22T02:00:15.495 TO 1985-05-26T00:56:59.913
DEC10785.DAT 1985-05-26T03:44:38.601 TO 1985-05-29T01:24:13.521
DEC10786.DAT 1985-05-29T01:24:34.011 TO 1985-06-01T23:37:58.758
DEC10787.DAT 1985-06-02T00:02:59.541 TO 1985-06-05T00:49:44.805
DEC10788.DAT 1985-06-05T01:15:59.928 TO 1985-06-09T00:37:45.911
DEC10789.DAT 1985-06-09T01:04:45.137 TO 1985-06-12T00:07:01.988
DEC10790.DAT 1985-06-12T00:52:07.944 TO 1985-06-15T20:23:14.366
DEC10791.DAT 1985-06-16T01:14:20.029 TO 1985-06-18T22:05:05.863
DEC10792.DAT 1985-06-19T04:04:59.786 TO 1985-06-22T23:43:09.331
DEC10793.DAT 1985-06-23T00:34:18.617 TO 1985-06-26T00:30:01.747
DEC10794.DAT 1985-06-26T00:23:21.438 TO 1985-06-30T00:05:33.207
DEC10795.DAT 1985-06-30T00:06:56.292 TO 1985-07-03T01:52:57.055
DEC10796.DAT 1985-07-03T01:53:18.795 TO 1985-07-07T02:00:01.074
DEC10797.DAT 1985-07-07T02:00:27.561 TO 1985-07-09T23:43:33.482
DEC10798.DAT 1985-07-10T00:00:07.008 TO 1985-07-14T02:00:24.752
DEC10799.DAT 1985-07-14T02:00:37.746 TO 1985-07-17T01:59:59.000
DEC10800.DAT 1985-07-17T02:00:04.247 TO 1985-07-21T00:09:58.563
DEC10801.DAT 1985-07-21T00:04:20.224 TO 1985-07-24T00:42:55.574
DEC10802.DAT 1985-07-24T00:41:26.741 TO 1985-07-28T00:14:22.801
DEC10803.DAT 1985-07-28T00:14:25.050 TO 1985-07-30T23:13:09.989
DEC10804.DAT 1985-07-31T01:44:20.407 TO 1985-08-03T22:44:04.825
DEC10805.DAT 1985-08-04T00:14:15.302 TO 1985-08-07T00:36:48.108
DEC10806.DAT 1985-08-07T00:36:51.356 TO 1985-08-10T23:30:03.102
DEC10807.DAT 1985-08-11T01:18:59.727 TO 1985-08-14T01:14:02.988
DEC10808.DAT 1985-08-14T03:03:58.337 TO 1985-08-17T23:43:09.378
DEC10809.DAT 1985-08-18T01:13:09.544 TO 1985-08-21T00:26:44.947
DEC10810.DAT 1985-08-21T00:20:05.637 TO 1985-08-25T00:59:59.243
DEC10811.DAT 1985-08-25T01:00:00.743 TO 1985-08-28T00:02:00.964
DEC10812.DAT 1985-08-28T00:26:00.463 TO 1985-09-01T00:09:05.376
DEC10813.DAT 1985-09-01T02:57:58.776 TO 1985-09-04T00:05:03.444
DEC10814.DAT 1985-09-04T00:07:18.129 TO 1985-09-08T00:15:55.000
DEC10815.DAT 1985-09-08T00:09:06.695 TO 1985-09-10T23:43:25.323
DEC10816.DAT 1985-09-11T01:18:59.076 TO 1985-09-15T00:07:57.397

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DEC10817.DAT  1985-09-15T00:08:23.884 TO 1985-09-17T22:00:00.437
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DEC10857.DAT  1986-02-02T01:47:39.056 TO 1986-02-04T23:22:58.598
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DEC10860.DAT  1986-02-12T02:27:53.215 TO 1986-02-15T22:31:58.862

PREV_LOG_VOL_COVERAGE: 1984-08-15T01:13:30.987 TO 1985-05-15T00:30:07.259

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REFERENCE="/SOURCE/APERIGEE.FFH";
REFERENCE="/SOURCE/ATIMES.FFD";
REFERENCE="/SOURCE/ATIMES.FFH";
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REFERENCE="/SOURCE/CONVERT.FOR";
REFERENCE="/SOURCE/CTIME.C";
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REFERENCE="/SOURCE/FLATCOM.F";
REFERENCE="/SOURCE/ICAT.F";
REFERENCE="/SOURCE/IGPPFORT.F";
REFERENCE="/SOURCE/IGPPLIB.C";
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REFERENCE="/SOURCE/ISEE-TAR.Z";
REFERENCE="/SOURCE/JTLIB.F";
REFERENCE="/SOURCE/MAKEFILE.";
REFERENCE="/SOURCE/PARMEDIT.F";
REFERENCE="/SOURCE/PARMLIST.C";
REFERENCE="/SOURCE/QBMS.F";
REFERENCE="/SOURCE/QBS1.F";
REFERENCE="/SOURCE/QBS2.F";
REFERENCE="/SOURCE/QBS3.F";
REFERENCE="/SOURCE/TIME_IGPP.C";
REFERENCE="/SOURCE/TIME_IGPP.H";
REFERENCE="/SOURCE/WHOWNER.C";
REFERENCE="/SOURCE/YAMS.F";
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REFERENCE="/SOURCE/YAS2.F";
REFERENCE="/SOURCE/YAS3.F";

/* EOF */
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CCSD3ZF0000100000001CCSD3VS00002markeraa

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LOG_VOL_NSSDC_EXPT_ID:	77-I02A-04
LOG_VOL_INITIATION_DATE:	1992-12-09
LOG_VOL_CLOSING_DATE:	1993-09-29
LOG_VOL_CAPACITY:	1GB/Logical volume
LOG_VOL_FILE_STRUCTURE:	Files-11
VOLUME_DIAMETER:	12 inches
VOLUME_DRIVE_MFGR_AND_MODEL:	Optimem 1000
COMPUTER_MFGR:	Digital Equipment Corporation
OPERATING_SYSTEM:	MicroVMS 4.7
COMPUTER_SYSTEM:	MicroVAX II
TRANSFER_SOFTWARE:	SOAR Version 4.2

TECHNICAL_CONTACT:

Harry Herbert
University of California at Los Angeles
Institute of Geophysics and Planetary Physics
5833 Slichter Hall
Los Angeles, CA 90025-1567
(213)825-9030
NSI=hherbert@igpp.ucla.edu
NSI-DECnet=BRUNET::HARRY

PREV_LOG_VOLS:

USA_NASA_NSSD_IC1D_0001A
USA_NASA_NSSD_IC1D_0001B
USA_NASA_NSSD_IC1D_0002A
USA_NASA_NSSD_IC1D_0002B
USA_NASA_NSSD_IC1D_0003A
USA_NASA_NSSD_IC1D_0003B
USA_NASA_NSSD_IC1D_0004A
USA_NASA_NSSD_IC1D_0004B
USA_NASA_NSSD_IC1D_0005A
USA_NASA_NSSD_IC1D_0005B
USA_NASA_NSSD_IC1D_0006A
USA_NASA_NSSD_IC1D_0006B
USA_NASA_NSSD_IC1D_0007A
USA_NASA_NSSD_IC1D_0007B

CCSD$$MARKERmarkeraaCCSD3SS00002markerab

DATA_SET_NAME:	DECOM Magnetometer Data
DATA_SOURCES:	International Sun-Earth Explorer 1 (ISEE-1) and Fluxgate Magnetometer Instrument

SCIENTIFIC_CONTACT:

Dr. Christopher Russell
University of California at Los Angeles
Institute of Geophysics and Planetary Physics
6871 Slichter Hall
Los Angeles, CA 90025-1567
(213)825-3188
NSI=ctrussel@igpp.ucla.edu
NSI-DECnet=BRUNET::CTRUSSELL

SOURCE_CHARACTERISTICS:

A. DESCRIPTION_OF_SPACECRAFT:
The Explorer-class spacecraft, ISEE-1 and ISEE-2 were part of the mother/daughter/heliocentric mission which consisted of ISEE-1, ISEE-2, and ISEE-3 spacecraft. These were spin stabilized spacecraft with their spin axes usually normal to the ecliptic plane. The spin axis of ISEE-1 was within 1 degree of the ecliptic pole throughout the mission. The spin axis of ISEE-2 was usually close to the ecliptic pole but was up to 90 degrees from the ecliptic pole on a few occasions. Solar panels provided the power for the instruments.

B. ORBIT_INFORMATION:
The mother/daughter portion of the mission consisted of two spacecraft, one with station-keeping capability, in a highly eccentric earth orbit with apogee at 23 earth radii. The spacecraft maintained a small, but variable, separation distance and made simultaneous coordinated measurements to permit separation of spatial from temporal irregularities in the near-earth solar wind, the bow shock, and inside the magnetosphere. The spin rate of ISEE-1 was set at 19.75 rpm, differing slightly from that of the ISEE-2 spacecraft, whose spin rate was set at 19.8 rpm

C. PERFORMANCE:
The ISEE-1 and ISEE-2 spacecraft operated continuously from launch on October 22, 1977 to September 27, 1987 when they both reentered the Earth's

atmosphere.

INVESTIGATION OBJECTIVES:
The purposes of the mission were (1) to investigate solar/terrestrial relationships at the outermost boundaries of the earth's magnetosphere, (2) to examine in detail the structure of the solar wind near the earth and the shock wave that forms the interface between the solar wind and earth, and (3) to continue the investigation of cosmic rays and solar flares in the interplanetary region near 1 AU.

INSTRUMENT ATTRIBUTES:
A. DESCRIPTION OF INSTRUMENT:
In this triaxial fluxgate magnetometer, three ring-core sensors in an orthogonal triad were enclosed in a flipper mechanism at the end of the magnetometer boom. The electronics unit was on the main body of the spacecraft at the foot of the boom. For a complete description of the instrument see the paper Geoscience Electronics GE-16, 239-242, 1978.

B. OPERATIONAL MODE:
The magnetometer had two operating ranges of plus or minus 8192 nT and plus or minus 256 nT in each vector component. The data were digitized and averaged within the instrument to provide increased resolution and to provide Nyquist filtering. There were two modes for the transmission of the averaged data. In the double-precision mode of operation, 16-bit samples of data were transmitted. This provided a maximum resolution of plus or minus 1/4 nT or 1/128 nT in the low-sensitivity and high-sensitivity ranges. In the single-precision mode, any 8 consecutive bits of the above 16-bits were selected by ground command for transmission and the telemetry bandwidths of the magnetometer were doubled. This bandwidth varied from 2 Hz for the low-telemetry rate, double-precision experiment mode to 32 Hz for the high-telemetry rate, single precision mode.

C. MEASURED PARAMETERS:
The instrument measured 3 components of the magnetic field. The data were despun to give the magnetic field along the spin axis, Bz, and the two components in the spin plane. The component along the projection of the sun-earth line onto the spin plane was called the Bx component.

D. PERFORMANCE OF THE INSTRUMENT:
The instruments continued to function with undiminished accuracy until re-entry. Variation of the zero levels has been removed in processing. Occasionally latch up of a sensor occurred during range changes. Because three components of the field could be measured from the two remaining sensors due to the spin of the spacecraft this latch up does not usually affect the calculation of low temporal resolution data.

E. RESOLUTION:
The temporal resolution of the data is generally 4 or 16 samples per second. A single precision mode giving lower amplitude resolution but twice the temporal resolution was seldom used. The analog to digital converter of the magnetometer had a resolution of +/- 2 nT and +/- 1/16 nT in high range and low range. Averaging was used to increase the resolution to +/- 1/8 nT and +/- 1/256 nT. The accuracy of the analog to digital conversion was +/- 1/2 nT and +/- 1/64 nT.

PARAMETERS:
The archive includes the original DECOM magnetometer data as received from Goddard Space Flight Center.

DATA SET QUALITY:
The data submitted on this disk is of the same quality as was originally received from GSFC. During the copying process from magnetic tape to disk, a very small number of unrecoverable tape errors (parity errors) occurred which would result in the loss of 1 tape block of data.

DATA PROCESSING OVERVIEW:
The DECOM data was received on 9-track magnetic tapes written at 1600 BPI, usually with three or four days of data on each tape. These tapes were copied to 9-track magnetic tapes at 6250 BPI with two to four weeks of data per copy tape. No changes were made to the data itself so the data retained its original blocking factor and data format. These copy tapes were then written to optical disk, with one disk file for each three or four days of data, without any alteration of the data. Thus, the data contained on this optical disk is as close as possible to the original DECOM data that was received from GSFC.

At UCLA the DECOM data are processed on Sun/UNIX workstations by the FORTRAN programs makeprod_a (ISEE-1) and makeprod_b (ISEE-2). The makeprod programs read the DECOM data for their respective spacecraft, and convert them into meaningful magnetic field values. The output of the programs is a UNIX

binary file. This file may be written to magnetic tape for storage or converted into a UCLA-IGPP flat files or into ASCII text files. The entire suite of UCLA programs to read and interpret the DECOM data have been archived on this disk in the directory [SOURCE]. The file AAREADME.TXT gives an overview of the various files. The individual source code files include more complete documentation.

DATA_USAGE:
The data in this archive are stored in IBM integer format. Because the data is raw information from the magnetometer instrument, a computer program is required to unpack and convert the data into a format that is scientifically meaningful. The complete suite of UCLA Sun/UNIX DECOM processing programs have been archived on this disk to demonstrate how to interpret these datasets.

DATA_ORGANIZATION:
Each logical volume, one side of an optical disk, includes as much ISEE-1 or ISEE-2 DECOM data as would comfortably fit on that logical volume. The only separation criteria that was used was that if a data group did not fit on the current logical volume it became the first data group of the next logical volume with the groups being placed on logical volumes in ascending order. Occasionally, a problem would occur with either the Write-Once media or the magnetic tapes holding the original DECOM data that would necessitate skipping a data group at the time of writing adjacent data groups to the WORM disk. At the end of the archival process, these data groups were written to the final logical volume for their respective spacecraft.

TYPE_OF_FILE_RELATIONSHIPS:
There is only one type_of_file, which is the original DECOM data from the magnetometer instrument.

CCSD$$MARKERmarkerabCCSD3KS00002markerac

LOG_VOL_TIME_COVERAGE: 1986-02-16T01:56:29.215 TO 1986-06-11T00:00:12.700

TYPE_OF_FILE_TIME_COVERAGE:
DECOM Magnetometer Data 1986-02-16T01:56:29.215 TO 1986-06-11T00:00:12.700

FILE_NAMING_CONVENTION:
File names are of the form DEC#XXXX.DAT where DEC is the type of data (DECOM), # is a "1" for ISEE-1 data or a "2" for ISEE-2 data and XXXX is the four digit ISEE group number with leading zeroes as needed. Groups were sequentially numbered chunks of DECOM data. Groups 1 through 12 varied in length from 3 to 8 days. Starting with group 13 and continuing through the end of the mission, groups alternated between 3 days and 4 days of data.

LOG_VOL_FILE_TIME_COVERAGE:
DEC1086I.DAT 1986-02-16T01:56:29.215 TO 1986-02-18T21:26:58.667
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DEC10863.DAT 1986-02-23T02:21:51.202 TO 1986-02-25T22:44:58.788
DEC10864.DAT 1986-02-26T01:31:52.978 TO 1986-03-01T17:58:04.804
DEC10865.DAT 1986-03-02T02:44:01.875 TO 1986-03-04T22:48:05.179
DEC10866.DAT 1986-03-05T02:08:04.168 TO 1986-03-08T21:51:01.300
DEC10867.DAT 1986-03-09T01:31:04.764 TO 1986-03-11T21:41:02.183
DEC10868.DAT 1986-03-12T02:19:47.406 TO 1986-03-15T22:31:12.378
DEC10869.DAT 1986-03-16T01:54:17.279 TO 1986-03-18T21:13:00.396
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DEC10871.DAT 1986-03-23T02:54:21.188 TO 1986-03-25T23:54:32.159
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DEC10873.DAT 1986-03-30T02:36:27.123 TO 1986-04-01T23:43:09.984
DEC10874.DAT 1986-04-02T01:33:51.419 TO 1986-04-06T00:15:18.558
DEC10875.DAT 1986-04-06T00:15:21.494 TO 1986-04-08T21:58:12.893
DEC10876.DAT 1986-04-09T00:49:04.162 TO 1986-04-13T00:00:10.939
DEC10877.DAT 1986-04-13T00:00:13.437 TO 1986-04-15T23:06:00.318
DEC10878.DAT 1986-04-16T03:07:57.490 TO 1986-04-19T22:53:22.672
DEC10879.DAT 1986-04-20T00:07:51.598 TO 1986-04-22T23:45:51.512
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DEC10881.DAT 1986-04-27T00:02:01.492 TO 1986-04-30T00:10:19.214
DEC10882.DAT 1986-04-30T01:59:06.779 TO 1986-05-03T23:39:18.262
DEC10883.DAT 1986-05-04T00:55:51.440 TO 1986-05-07T00:30:16.368
DEC10884.DAT 1986-05-07T01:08:00.036 TO 1986-05-10T23:59:59.164
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DEC10886.DAT 1986-05-14T00:01:05.131 TO 1986-05-18T00:28:05.228
DEC10887.DAT 1986-05-18T00:29:59.674 TO 1986-05-21T00:23:01.036
DEC10888.DAT 1986-05-21T00:55:09.927 TO 1986-05-25T00:20:57.269
DEC10889.DAT 1986-05-25T00:21:05.640 TO 1986-05-28T00:10:08.098
DEC10890.DAT 1986-05-28T00:10:09.535 TO 1986-06-01T00:59:18.618
DEC10891.DAT 1986-06-01T00:59:29.675 TO 1986-06-04T00:00:01.055
DEC10892.DAT 1986-06-04T00:00:03.366 TO 1986-06-08T00:23:00.558
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PREV_LOG_VOL_COVERAGE: 1985-05-15T00:24:38.167 TO 1986-02-15T22:31:58.862

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REFERENCE="/SOURCE/JTLIB.F";
REFERENCE="/SOURCE/MAKEFILE.";
REFERENCE="/SOURCE/PARMEDIT.F";
REFERENCE="/SOURCE/PARMLIST.C";
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REFERENCE="/SOURCE/WHOWNER.C";
REFERENCE="/SOURCE/YAMS.F";
REFERENCE="/SOURCE/YAS1.F";
REFERENCE="/SOURCE/YAS2.F";
REFERENCE="/SOURCE/YAS3.F";

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LOG_VOL_IDENT:	USA_NASA_NSSD_IC1D_0008B
LOG_VOL_NSSDC_EXPT_ID:	77-102A-04
LOG_VOL_INITIATION_DATE:	1992-12-09
LOG_VOL_CLOSING_DATE:	1993-09-29
LOG_VOL_CAPACITY:	1GB/Logical volume
LOG_VOL_FILE_STRUCTURE:	Files-11
VOLUME_DIAMETER:	12 inches
VOLUME_DRIVE_MFGR_AND_MODEL:	Optimem 1000
COMPUTER_MFGR:	Digital Equipment Corporation
OPERATING_SYSTEM:	MicroVMS 4.7
COMPUTER_SYSTEM:	MicroVAX II
TRANSFER_SOFTWARE:	SOAR Version 4.2

TECHNICAL_CONTACT:

Harry Herbert
University of California at Los Angeles
Institute of Geophysics and Planetary Physics
5833 Slichter Hall
Los Angeles, CA 90025-1567
(213)825-9030
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NSI-DECnet=BRUNET::HARRY

PREV_LOG_VOLS:

USA_NASA_NSSD_IC1D_0001A
USA_NASA_NSSD_IC1D_0001B
USA_NASA_NSSD_IC1D_0002A
USA_NASA_NSSD_IC1D_0002B
USA_NASA_NSSD_IC1D_0003A
USA_NASA_NSSD_IC1D_0003B
USA_NASA_NSSD_IC1D_0004A
USA_NASA_NSSD_IC1D_0004B
USA_NASA_NSSD_IC1D_0005A
USA_NASA_NSSD_IC1D_0005B
USA_NASA_NSSD_IC1D_0006A
USA_NASA_NSSD_IC1D_0006B
USA_NASA_NSSD_IC1D_0007A
USA_NASA_NSSD_IC1D_0007B
USA_NASA_NSSD_IC1D_0008A

CCSD$$MARKERmarkeraaCCSD3SS00002markerab

DATA_SET_NAME:	DECOM Magnetometer Data
DATA_SOURCES:	International Sun-Earth Explorer 1 (ISEE-1) and Fluxgate Magnetometer Instrument

SCIENTIFIC_CONTACT:

Dr. Christopher Russell
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Institute of Geophysics and Planetary Physics
6871 Slichter Hall
Los Angeles, CA 90025-1567
(213)825-3188
NSI=ctrussel@igpp.ucla.edu
NSI-DECnet=BRUNET::CTRUSSELL

SOURCE_CHARACTERISTICS:

A. DESCRIPTION_OF_SPACECRAFT:
The Explorer-class spacecraft, ISEE-1 and ISEE-2 were part of the mother/daughter/heliocentric mission which consisted of ISEE-1, ISEE-2, and ISEE-3 spacecraft. These were spin stabilized spacecraft with their spin axes usually normal to the ecliptic plane. The spin axis of ISEE-1 was within 1 degree of the ecliptic pole throughout the mission. The spin axis of ISEE-2 was usually close to the ecliptic pole but was up to 90 degrees from the ecliptic pole on a few occasions. Solar panels provided the power for the instruments.

B. ORBIT_INFORMATION:
The mother/daughter portion of the mission consisted of two spacecraft, one with station-keeping capability, in a highly eccentric earth orbit with apogee at 23 earth radii. The spacecraft maintained a small, but variable, separation distance and made simultaneous coordinated measurements to permit separation of spatial from temporal irregularities in the near-earth solar wind, the bow shock, and inside the magnetosphere. The spin rate of ISEE-1 was set at 19.75 rpm, differing slightly from that of the ISEE-2 spacecraft, whose spin rate was set at 19.8 rpm

C. PERFORMANCE:
The ISEE-1 and ISEE-2 spacecraft operated continuously from launch on October

22, 1977 to September 27, 1987 when they both reentered the Earth's atmosphere.

INVESTIGATION_OBJECTIVES:
The purposes of the mission were (1) to investigate solar/terrestrial relationships at the outermost boundaries of the earth's magnetosphere, (2) to examine in detail the structure of the solar wind near the earth and the shock wave that forms the interface between the solar wind and earth, and (3) to continue the investigation of cosmic rays and solar flares in the interplanetary region near 1 AU.

INSTRUMENT_ATTRIBUTES:
A. DESCRIPTION_OF_INSTRUMENT:
In this triaxial fluxgate magnetometer, three ring-core sensors in an orthogonal triad were enclosed in a flipper mechanism at the end of the magnetometer boom. The electronics unit was on the main body of the spacecraft at the foot of the boom. For a complete description of the instrument see the paper Geoscience Electronics GE-16, 239-242, 1978.

B. OPERATIONAL_MODE:
The magnetometer had two operating ranges of plus or minus 8192 nT and plus or minus 256 nT in each vector component. The data were digitized and averaged within the instrument to provide increased resolution and to provide Nyquist filtering. There were two modes for the transmission of the averaged data. In the double-precision mode of operation, 16-bit samples of data were transmitted. This provided a maximum resolution of plus or minus 1/4 nT or 1/128 nT in the low-sensitivity and high-sensitivity ranges. In the single-precision mode, any 8 consecutive bits of the above 16-bits were selected by ground command for transmission and the telemetry bandwidths of the magnetometer were doubled. This bandwidth varied from 2 Hz for the low-telemetry rate, double-precision experiment mode to 32 Hz for the high-telemetry rate, single precision mode.

C. MEASURED_PARAMETERS:
The instrument measured 3 components of the magnetic field. The data were despun to give the magnetic field along the spin axis, Bz, and the two components in the spin plane. The component along the projection of the sun-earth line onto the spin plane was called the Bx component.

D. PERFORMANCE_OF_THE_INSTRUMENT:
The instruments continued to function with undiminished accuracy until re-entry. Variation of the zero levels has been removed in processing. Occasionally latch up of a sensor occurred during range changes. Because three components of the field could be measured from the two remaining sensors due to the spin of the spacecraft this latch up does not usually affect the calculation of low temporal resolution data.

E. RESOLUTION:
The temporal resolution of the data is generally 4 or 16 samples per second. A single precision mode giving lower amplitude resolution but twice the temporal resolution was seldom used. The analog to digital converter of the magnetometer had a resolution of +/- 2 nT and +/- 1/16 nT in high range and low range. Averaging was used to increase the resolution to +/- 1/8 nT and +/- 1/256 nT. The accuracy of the analog to digital conversion was +/- 1/2 nT and +/- 1/64 nT.

PARAMETERS:
The archive includes the original DECOM magnetometer data as received from Goddard Space Flight Center.

DATA_SET_QUALITY:
The data submitted on this disk is of the same quality as was originally received from GSFC. During the copying process from magnetic tape to disk, a very small number of unrecoverable tape errors (parity errors) occurred which would result in the loss of 1 tape block of data.

DATA_PROCESSING_OVERVIEW:
The DECOM data was received on 9-track magnetic tapes written at 1600 BPI, usually with three or four days of data on each tape. These tapes were copied to 9-track magnetic tapes at 6250 BPI with two to four weeks of data per copy tape. No changes were made to the data itself so the data retained its original blocking factor and data format. These copy tapes were then written to optical disk, with one disk file for each three or four days of data, without any alteration of the data. Thus, the data contained on this optical disk is as close as possible to the original DECOM data that was received from GSFC.

At UCLA the DECOM data are processed on Sun/UNIX workstations by the FORTRAN programs makeprod_a (ISEE-1) and makeprod_b (ISEE-2). The makeprod programs read the DECOM data for their respective spacecraft, and convert them into

meaningful magnetic field values. The output of the programs is a UNIX binary file. This file may be written to magnetic tape for storage or converted into a UCLA-IGPP flat files or into ASCII text files. The entire suite of UCLA programs to read and interpret the DECOM data have been archived on this disk in the directory [SOURCE]. The file AAREADME.TXT gives an overview of the various files. The individual source code files include more complete documentation.

DATA_USAGE:
The data in this archive are stored in IBM integer format. Because the data is raw information from the magnetometer instrument, a computer program is required to unpack and convert the data into a format that is scientifically meaningful. The complete suite of UCLA Sun/UNIX DECOM processing programs have been archived on this disk to demonstrate how to interpret these datasets.

DATA_ORGANIZATION:
Each logical volume, one side of an optical disk, includes as much ISEE-1 or ISEE-2 DECOM data as would comfortably fit on that logical volume. The only separation criteria that was used was that if a data group did not fit on the current logical volume it became the first data group of the next logical volume with the groups being placed on logical volumes in ascending order. Occasionally, a problem would occur with either the Write-Once media or the magnetic tapes holding the original DECOM data that would necessitate skipping a data group at the time of writing adjacent data groups to the WORM disk. At the end of the archival process, these data groups were written to the final logical volume for their respective spacecraft.

TYPE_OF_FILE_RELATIONSHIPS:
There is only one type_of_file, which is the original DECOM data from the magnetometer instrument.

CCSD$$MARKERmarkerabCCSD3KS00002markerac

LOG_VOL_TIME_COVERAGE: 1986-06-11T00:00:13.887 TO 1986-12-16T23:52:03.182

TYPE_OF_FILE_TIME_COVERAGE:
DECOM Magnetometer Data 1986-06-11T00:00:13.887 TO 1986-12-16T23:52:03.182

FILE_NAMING_CONVENTION:
File names are of the form DEC#XXXX.DAT where DEC is the type of data (DECOM), # is a "1" for ISEE-1 data or a "2" for ISEE-2 data and XXXX is the four digit ISEE group number with leading zeroes as needed. Groups were sequentially numbered chunks of DECOM data. Groups 1 through 12 varied in length from 3 to 8 days. Starting with group 13 and continuing through the end of the mission, groups alternated between 3 days and 4 days of data.

LOG_VOL_FILE_TIME_COVERAGE:
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DEC10895.DAT 1986-06-15T01:59:04.043 TO 1986-06-18T00:52:41.750
DEC10896.DAT 1986-06-18T00:52:54.744 TO 1986-06-21T22:47:06.822
DEC10897.DAT 1986-06-22T03:59:13.180 TO 1986-06-24T23:45:05.313
DEC10898.DAT 1986-06-25T00:14:57.457 TO 1986-06-28T23:24:01.114
DEC10899.DAT 1986-06-29T00:18:08.812 TO 1986-07-01T23:51:08.739
DEC10900.DAT 1986-07-02T00:12:58.613 TO 1986-07-05T23:48:15.040
DEC10901.DAT 1986-07-06T00:27:12.300 TO 1986-07-09T00:58:01.133
DEC10902.DAT 1986-07-09T01:03:52.215 TO 1986-07-13T01:07:58.985
DEC10903.DAT 1986-07-13T01:08:00.484 TO 1986-07-15T23:03:00.721
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DEC10905.DAT 1986-07-20T00:48:05.006 TO 1986-07-23T01:30:19.465
DEC10906.DAT 1986-07-23T01:30:21.214 TO 1986-07-27T01:00:00.023
DEC10907.DAT 1986-07-27T01:00:02.022 TO 1986-07-30T00:38:26.527
DEC10908.DAT 1986-07-30T00:38:27.777 TO 1986-08-03T00:42:18.132
DEC10909.DAT 1986-08-03T02:08:58.899 TO 1986-08-06T00:54:59.203
DEC10910.DAT 1986-08-06T00:55:01.452 TO 1986-08-10T00:00:04.831
DEC10911.DAT 1986-08-10T00:00:05.706 TO 1986-08-13T00:10:05.677
DEC10912.DAT 1986-08-13T00:53:59.419 TO 1986-08-16T23:43:11.993
DEC10913.DAT 1986-08-17T01:26:01.295 TO 1986-08-19T23:43:21.830
DEC10914.DAT 1986-08-20T00:13:00.230 TO 1986-08-24T01:00:06.842
DEC10915.DAT 1986-08-24T00:56:01.710 TO 1986-08-26T23:22:26.188
DEC10916.DAT 1986-08-27T00:19:54.300 TO 1986-08-31T00:05:49.371
DEC10917.DAT 1986-08-31T00:05:50.870 TO 1986-09-03T00:54:57.447
DEC10918.DAT 1986-09-03T00:55:02.820 TO 1986-09-07T00:54:03.420
DEC10919.DAT 1986-09-07T00:53:30.685 TO 1986-09-10T00:01:06.176
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DEC10922.DAT 1986-09-17T00:23:59.036 TO 1986-09-20T23:52:45.690
DEC10923.DAT 1986-09-21T00:03:33.631 TO 1986-09-24T01:04:58.258
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DEC10928.DAT  1986-10-08T00:39:03.478 TO 1986-10-12T00:27:24.210
DEC10929.DAT  1986-10-12T00:21:02.143 TO 1986-10-15T00:14:05.839
DEC10930.DAT  1986-10-15T00:56:59.111 TO 1986-10-19T00:00:01.114
DEC10931.DAT  1986-10-19T00:00:04.613 TO 1986-10-22T00:24:18.313
DEC10932.DAT  1986-10-22T02:48:59.927 TO 1986-10-26T00:12:58.933
DEC10933.DAT  1986-10-26T00:20:54.455 TO 1986-10-29T00:20:10.744
DEC10934.DAT  1986-10-29T00:40:50.399 TO 1986-11-02T00:19:00.871
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DEC10941.DAT  1986-11-23T01:19:56.746 TO 1986-11-26T00:44:59.969
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DEC10944.DAT  1986-12-03T00:23:58.847 TO 1986-12-06T23:27:59.981
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DEC10946.DAT  1986-12-10T03:47:58.909 TO 1986-12-14T01:14:58.653
DEC10947.DAT  1986-12-14T01:57:58.663 TO 1986-12-16T23:52:03.182

PREV_LOG_VOL_COVERAGE: 1986-02-16T01:56:29.215 TO 1986-06-11T00:00:12.700

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REFERENCE="/SOURCE/BPERIGEE.FFH";
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REFERENCE="/SOURCE/ISEE-TAR.Z";
REFERENCE="/SOURCE/JTLIB.F";
REFERENCE="/SOURCE/MAKEFILE.";
REFERENCE="/SOURCE/PARMEDIT.F";
REFERENCE="/SOURCE/PARMLIST.C";
REFERENCE="/SOURCE/QBMS.F";
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REFERENCE="/SOURCE/QBS2.F";
REFERENCE="/SOURCE/QBS3.F";
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REFERENCE="/SOURCE/WHOWNER.C";
REFERENCE="/SOURCE/YAMS.F";
REFERENCE="/SOURCE/YAS1.F";
REFERENCE="/SOURCE/YAS2.F";
REFERENCE="/SOURCE/YAS3.F";

/* EOF */
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LOG_VOL_IDENT:	USA_NASA_NSSD_IC1D_0009A
LOG_VOL_NSSDC_EXPT_ID:	77-102A-04
LOG_VOL_INITIATION_DATE:	1993-01-06
LOG_VOL_CLOSING_DATE:	1993-09-29
LOG_VOL_CAPACITY:	1GB/Logical volume
LOG_VOL_FILE_STRUCTURE:	Files-11
VOLUME_DIAMETER:	12 inches
VOLUME_DRIVE_MFGR_AND_MODEL:	Optimem 1000
COMPUTER_MFGR:	Digital Equipment Corporation
OPERATING_SYSTEM:	MicroVMS 4.7
COMPUTER_SYSTEM:	MicroVAX II
TRANSFER_SOFTWARE:	SOAR Version 4.2

TECHNICAL_CONTACT:

Harry Herbert
University of California at Los Angeles
Institute of Geophysics and Planetary Physics
5833 Slichter Hall
Los Angeles, CA 90025-1567
(213)825-9030
NSI=hherbert@igpp.ucla.edu
NSI-DECnet=BRUNET::HARRY

PREV_LOG_VOLS:

USA_NASA_NSSD_IC1D_0001A
USA_NASA_NSSD_IC1D_0001B
USA_NASA_NSSD_IC1D_0002A
USA_NASA_NSSD_IC1D_0002B
USA_NASA_NSSD_IC1D_0003A
USA_NASA_NSSD_IC1D_0003B
USA_NASA_NSSD_IC1D_0004A
USA_NASA_NSSD_IC1D_0004B
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USA_NASA_NSSD_IC1D_0007A
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USA_NASA_NSSD_IC1D_0008A
USA_NASA_NSSD_IC1D_0008B

CCSD$$MARKERmarkeraaCCSD3SS00002markerab

DATA_SET_NAME:	DECOM Magnetometer Data
DATA_SOURCES:	International Sun-Earth Explorer 1 (ISEE-1) and Fluxgate Magnetometer Instrument

SCIENTIFIC_CONTACT:

Dr. Christopher Russell
University of California at Los Angeles
Institute of Geophysics and Planetary Physics
6871 Slichter Hall
Los Angeles, CA 90025-1567
(213)825-3188
NSI=ctrussel@igpp.ucla.edu
NSI-DECnet=BRUNET::CTRUSSELL

SOURCE_CHARACTERISTICS:

A. DESCRIPTION_OF_SPACECRAFT:
The Explorer-class spacecraft, ISEE-1 and ISEE-2 were part of the mother/daughter/heliocentric mission which consisted of ISEE-1, ISEE-2, and ISEE-3 spacecraft. These were spin stabilized spacecraft with their spin axes usually normal to the ecliptic plane. The spin axis of ISEE-1 was within 1 degree of the ecliptic pole throughout the mission. The spin axis of ISEE-2 was usually close to the ecliptic pole but was up to 90 degrees from the ecliptic pole on a few occasions. Solar panels provided the power for the instruments.

B. ORBIT_INFORMATION:
The mother/daughter portion of the mission consisted of two spacecraft, one with station-keeping capability, in a highly eccentric earth orbit with apogee at 23 earth radii. The spacecraft maintained a small, but variable, separation distance and made simultaneous coordinated measurements to permit separation of spatial from temporal irregularities in the near-earth solar wind, the bow shock, and inside the magnetosphere. The spin rate of ISEE-1 was set at 19.75 rpm, differing slightly from that of the ISEE-2 spacecraft, whose spin rate was set at 19.8 rpm

C. PERFORMANCE:

The ISEE-1 and ISEE-2 spacecraft operated continuously from launch on October 22, 1977 to September 27, 1987 when they both reentered the Earth's atmosphere.

INVESTIGATION_OBJECTIVES:
The purposes of the mission were (1) to investigate solar/terrestrial relationships at the outermost boundaries of the earth's magnetosphere, (2) to examine in detail the structure of the solar wind near the earth and the shock wave that forms the interface between the solar wind and earth, and (3) to continue the investigation of cosmic rays and solar flares in the interplanetary region near 1 AU.

INSTRUMENT_ATTRIBUTES:
A. DESCRIPTION_OF_INSTRUMENT:
In this triaxial fluxgate magnetometer, three ring-core sensors in an orthogonal triad were enclosed in a flipper mechanism at the end of the magnetometer boom. The electronics unit was on the main body of the spacecraft at the foot of the boom. For a complete description of the instrument see the paper Geoscience Electronics GE-16, 239-242, 1978.

B. OPERATIONAL_MODE:
The magnetometer had two operating ranges of plus or minus 8192 nT and plus or minus 256 nT in each vector component. The data were digitized and averaged within the instrument to provide increased resolution and to provide Nyquist filtering. There were two modes for the transmission of the averaged data. In the double-precision mode of operation, 16-bit samples of data were transmitted. This provided a maximum resolution of plus or minus 1/4 nT or 1/128 nT in the low-sensitivity and high-sensitivity ranges. In the single-precision mode, any 8 consecutive bits of the above 16-bits were selected by ground command for transmission and the telemetry bandwidths of the magnetometer were doubled. This bandwidth varied from 2 Hz for the low-telemetry rate, double-precision experiment mode to 32 Hz for the high-telemetry rate, single precision mode.

C. MEASURED_PARAMETERS:
The instrument measured 3 components of the magnetic field. The data were despun to give the magnetic field along the spin axis, Bz, and the two components in the spin plane. The component along the projection of the sun-earth line onto the spin plane was called the Bx component.

D. PERFORMANCE_OF_THE_INSTRUMENT:
The instruments continued to function with undiminished accuracy until re-entry. Variation of the zero levels has been removed in processing. Occasionally latch up of a sensor occurred during range changes. Because three components of the field could be measured from the two remaining sensors due to the spin of the spacecraft this latch up does not usually affect the calculation of low temporal resolution data.

E. RESOLUTION:
The temporal resolution of the data is generally 4 or 16 samples per second. A single precision mode giving lower amplitude resolution but twice the temporal resolution was seldom used. The analog to digital converter of the magnetometer had a resolution of +/- 2 nT and +/- 1/16 nT in high range and low range. Averaging was used to increase the resolution to +/- 1/8 nT and +/- 1/256 nT. The accuracy of the analog to digital conversion was +/- 1/2 nT and +/- 1/64 nT.

PARAMETERS:
The archive includes the original DECOM magnetometer data as received from Goddard Space Flight Center.

DATA_SET_QUALITY:
The data submitted on this disk is of the same quality as was originally received from GSFC. During the copying process from magnetic tape to disk, a very small number of unrecoverable tape errors (parity errors) occurred which would result in the loss of 1 tape block of data.

DATA_PROCESSING_OVERVIEW:
The DECOM data was received on 9-track magnetic tapes written at 1600 BPI, usually with three or four days of data on each tape. These tapes were copied to 9-track magnetic tapes at 6250 BPI with two to four weeks of data per copy tape. No changes were made to the data itself so the data retained its original blocking factor and data format. These copy tapes were then written to optical disk, with one disk file for each three or four days of data, without any alteration of the data. Thus, the data contained on this optical disk is as close as possible to the original DECOM data that was received from GSFC.

At UCLA the DECOM data are processed on Sun/UNIX workstations by the FORTRAN programs makeprod_a (ISEE-1) and makeprod_b (ISEE-2). The makeprod programs

read the DECOM data for their respective spacecraft, and convert them into meaningful magnetic field values. The output of the programs is a UNIX binary file. This file may be written to magnetic tape for storage or converted into a UCLA-IGPP flat files or into ASCII text files. The entire suite of UCLA programs to read and interpret the DECOM data have been archived on this disk in the directory [SOURCE]. The file AAREADME.TXT gives an overview of the various files. The individual source code files include more complete documentation.

DATA_USAGE:
The data in this archive are stored in IBM integer format. Because the data is raw information from the magnetometer instrument, a computer program is required to unpack and convert the data into a format that is scientifically meaningful. The complete suite of UCLA Sun/UNIX DECOM processing programs have been archived on this disk to demonstrate how to interpret these datasets.

DATA_ORGANIZATION:
Each logical volume, one side of an optical disk, includes as much ISEE-1 or ISEE-2 DECOM data as would comfortably fit on that logical volume. The only separation criteria that was used was that if a data group did not fit on the current logical volume it became the first data group of the next logical volume with the groups being placed on logical volumes in ascending order. Occasionally, a problem would occur with either the Write-Once media or the magnetic tapes holding the original DECOM data that would necessitate skipping a data group at the time of writing adjacent data groups to the WORM disk. At the end of the archival process, these data groups were written to the final logical volume for their respective spacecraft.

TYPE_OF_FILE_RELATIONSHIPS:
There is only one type_of_file, which is the original DECOM data from the magnetometer instrument.

CCSD$$MARKERmarkerabCCSD3KS00002markerac

LOG_VOL_TIME_COVERAGE: 1986-12-17T01:43:58.705 TO 1987-07-18T23:29:59.492

TYPE_OF_FILE_TIME_COVERAGE:
DECOM Magnetometer Data 1986-12-17T01:43:58.705 TO 1987-07-18T23:29:59.492

FILE_NAMING_CONVENTION:
File names are of the form DEC#XXXX.DAT where DEC is the type of data (DECOM), # is a "1" for ISEE-1 data or a "2" for ISEE-2 data and XXXX is the four digit ISEE group number with leading zeroes as needed. Groups were sequentially numbered chunks of DECOM data. Groups 1 through 12 varied in length from 3 to 8 days. Starting with group 13 and continuing through the end of the mission, groups alternated between 3 days and 4 days of data.

LOG_VOL_FILE_TIME_COVERAGE:
DEC10948.DAT 1986-12-17T01:43:58.705 TO 1986-12-21T00:46:29.011
DEC10949.DAT 1986-12-21T00:47:32.730 TO 1986-12-24T01:16:59.854
DEC10950.DAT 1986-12-24T04:25:01.178 TO 1986-12-28T00:04:58.810
DEC10951.DAT 1986-12-28T00:05:01.559 TO 1986-12-31T00:11:00.057
DEC10952.DAT 1986-12-31T00:11:02.806 TO 1987-01-04T00:45:01.546
DEC10953.DAT 1987-01-04T02:26:34.340 TO 1987-01-07T00:04:58.046
DEC10954.DAT 1987-01-07T00:05:01.294 TO 1987-01-11T00:00:23.385
DEC10955.DAT 1987-01-11T00:00:26.633 TO 1987-01-14T00:24:00.476
DEC10956.DAT 1987-01-14T01:08:58.677 TO 1987-01-18T00:36:29.623
DEC10957.DAT 1987-01-18T00:36:33.622 TO 1987-01-20T21:09:59.144
DEC10958.DAT 1987-01-21T01:43:01.252 TO 1987-01-25T00:12:11.578
DEC10959.DAT 1987-01-25T01:06:59.872 TO 1987-01-27T22:48:36.896
DEC10960.DAT 1987-01-28T01:42:01.632 TO 1987-02-01T00:06:01.204
DEC10961.DAT 1987-02-01T00:06:04.452 TO 1987-02-03T22:50:00.014
DEC10962.DAT 1987-02-04T00:27:59.188 TO 1987-02-08T00:25:29.561
DEC10963.DAT 1987-02-08T01:02:58.481 TO 1987-02-11T01:29:58.851
DEC10964.DAT 1987-02-11T01:30:04.099 TO 1987-02-15T01:34:58.307
DEC10965.DAT 1987-02-15T01:59:17.857 TO 1987-02-17T23:04:01.067
DEC10966.DAT 1987-02-18T01:25:57.538 TO 1987-02-22T00:52:58.820
DEC10967.DAT 1987-02-22T02:22:22.494 TO 1987-02-24T23:28:58.454
DEC10968.DAT 1987-02-25T01:33:22.369 TO 1987-02-28T23:35:09.648
DEC10969.DAT 1987-03-01T01:27:26.225 TO 1987-03-03T23:34:19.467
DEC10970.DAT 1987-03-04T02:00:24.009 TO 1987-03-07T23:24:01.504
DEC10971.DAT 1987-03-08T01:28:26.420 TO 1987-03-10T23:41:00.056
DEC10972.DAT 1987-03-11T02:17:26.051 TO 1987-03-14T21:55:58.369
DEC10973.DAT 1987-03-15T01:51:54.824 TO 1987-03-17T23:24:58.634
DEC10974.DAT 1987-03-18T00:26:08.124 TO 1987-03-21T23:00:58.949
DEC10975.DAT 1987-03-22T02:14:02.890 TO 1987-03-24T22:42:57.781
DEC10976.DAT 1987-03-25T02:04:11.867 TO 1987-03-29T00:05:03.536
DEC10977.DAT 1987-03-29T00:16:38.209 TO 1987-03-31T22:01:00.735
DEC10978.DAT 1987-04-01T01:50:19.400 TO 1987-04-04T20:03:02.300
DEC10979.DAT 1987-04-05T00:30:20.981 TO 1987-04-07T21:15:00.298

```
DEC10980.DAT  1987-04-08T03:05:24.535 TO 1987-04-12T00:27:00.288
DEC10981.DAT  1987-04-12T01:57:06.940 TO 1987-04-14T21:25:57.701
DEC10982.DAT  1987-04-15T01:40:07.282 TO 1987-04-18T22:20:02.210
DEC10983.DAT  1987-04-19T02:06:01.777 TO 1987-04-21T23:47:13.931
DEC10984.DAT  1987-04-22T01:55:00.757 TO 1987-04-25T23:16:59.547
DEC10985.DAT  1987-04-26T01:18:50.298 TO 1987-04-28T23:43:31.381
DEC10986.DAT  1987-04-29T00:08:05.860 TO 1987-05-02T23:30:04.050
DEC10987.DAT  1987-05-03T01:12:01.373 TO 1987-05-05T23:43:00.856
DEC10988.DAT  1987-05-06T00:40:01.963 TO 1987-05-09T22:22:17.760
DEC10989.DAT  1987-05-10T01:24:09.542 TO 1987-05-12T21:41:00.090
DEC10990.DAT  1987-05-13T03:45:49.923 TO 1987-05-16T20:06:04.250
DEC10991.DAT  1987-05-17T01:58:17.147 TO 1987-05-19T23:38:59.672
DEC10992.DAT  1987-05-20T01:13:16.218 TO 1987-05-23T23:08:57.700
DEC10993.DAT  1987-05-24T00:08:09.752 TO 1987-05-26T22:21:15.382
DEC10994.DAT  1987-05-27T00:28:59.719 TO 1987-05-31T01:03:35.199
DEC10995.DAT  1987-05-31T01:03:36.948 TO 1987-06-03T00:00:00.099
DEC10996.DAT  1987-06-03T00:00:23.089 TO 1987-06-06T23:59:58.107
DEC10997.DAT  1987-06-07T00:00:18.597 TO 1987-06-10T00:00:00.472
DEC10998.DAT  1987-06-10T00:00:20.713 TO 1987-06-14T00:00:01.006
DEC10999.DAT  1987-06-14T00:00:21.122 TO 1987-06-17T00:59:59.166
DEC11001.DAT  1987-06-17T01:00:05.663 TO 1987-06-21T00:29:58.348
DEC11002.DAT  1987-06-21T00:30:05.095 TO 1987-06-24T00:00:04.114
DEC11003.DAT  1987-06-24T00:00:07.112 TO 1987-06-28T00:20:52.607
DEC11004.DAT  1987-06-28T00:20:55.106 TO 1987-07-01T01:59:07.466
DEC11005.DAT  1987-07-01T01:59:44.198 TO 1987-07-05T01:00:03.044
DEC11006.DAT  1987-07-05T02:06:23.640 TO 1987-07-08T00:51:29.071
DEC11007.DAT  1987-07-08T00:51:29.134 TO 1987-07-12T01:19:58.775
DEC11008.DAT  1987-07-12T01:14:09.192 TO 1987-07-15T01:37:51.414
DEC11009.DAT  1987-07-15T01:37:55.912 TO 1987-07-18T23:29:59.492

PREV_LOG_VOL_COVERAGE: 1986-06-11T00:00:13.887 TO 1986-12-16T23:52:03.182

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LABEL=NSSD3IF0018700000001;
REFERENCE="/ISEE1DEC/DEC1*.DAT";

LABEL=CCSD3SF0000200000001;
REFERENCE="/SOURCE/AAREADME.TXT";
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REFERENCE="/SOURCE/APERIGEE.FFH";
REFERENCE="/SOURCE/ATIMES.FFD";
REFERENCE="/SOURCE/ATIMES.FFH";
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REFERENCE="/SOURCE/CONVERT.FOR";
REFERENCE="/SOURCE/CTIME.C";
REFERENCE="/SOURCE/FF_IGPP.C";
REFERENCE="/SOURCE/FF_IGPP.H";
REFERENCE="/SOURCE/FLAT.F";
REFERENCE="/SOURCE/FLAT2ASCII.C";
REFERENCE="/SOURCE/FLATCOM.F";
REFERENCE="/SOURCE/ICAT.F";
REFERENCE="/SOURCE/IGPPFORT.F";
REFERENCE="/SOURCE/IGPPLIB.C";
REFERENCE="/SOURCE/ISEEPRODFF.C";
REFERENCE="/SOURCE/ISEE-TAR.Z";
REFERENCE="/SOURCE/JTLIB.F";
REFERENCE="/SOURCE/MAKEFILE.";
REFERENCE="/SOURCE/PARMEDIT.F";
REFERENCE="/SOURCE/PARMLIST.C";
REFERENCE="/SOURCE/QBMS.F";
REFERENCE="/SOURCE/QBS1.F";
REFERENCE="/SOURCE/QBS2.F";
REFERENCE="/SOURCE/QBS3.F";
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REFERENCE="/SOURCE/TIME_IGPP.H";
REFERENCE="/SOURCE/WHOWNER.C";
REFERENCE="/SOURCE/YAMS.F";
REFERENCE="/SOURCE/YAS1.F";
```

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REFERENCE="/SOURCE/YAS2.F";
REFERENCE="/SOURCE/YAS3.F";

/* EOF */
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CCSD3ZF0000100000001CCSD3VS00002markeraa

LOG_VOL_IDENT:	USA_NASA_NSSD_IC1D_0009B
LOG_VOL_NSSDC_EXPT_ID:	77-102A-04
LOG_VOL_INITIATION_DATE:	1993-01-06
LOG_VOL_CLOSING_DATE:	1993-09-29
LOG_VOL_CAPACITY:	1GB/Logical volume
LOG_VOL_FILE_STRUCTURE:	Files-11
VOLUME_DIAMETER:	12 inches
VOLUME_DRIVE_MFGR_AND_MODEL:	Optimem 1000
COMPUTER_MFGR:	Digital Equipment Corporation
OPERATING_SYSTEM:	MicroVMS 4.7
COMPUTER_SYSTEM:	MicroVAX II
TRANSFER_SOFTWARE:	SOAR Version 4.2
TECHNICAL_CONTACT:	Harry Herbert University of California at Los Angeles Institute of Geophysics and Planetary Physics 5833 Slichter Hall Los Angeles, CA 90025-1567 (213)825-9030 NSI=hherbert@igpp.ucla.edu NSI-DECnet=BRUNET::HARRY
PREV_LOG_VOLS:	USA_NASA_NSSD_IC1D_0001A USA_NASA_NSSD_IC1D_0001B USA_NASA_NSSD_IC1D_0002A USA_NASA_NSSD_IC1D_0002B USA_NASA_NSSD_IC1D_0003A USA_NASA_NSSD_IC1D_0003B USA_NASA_NSSD_IC1D_0004A USA_NASA_NSSD_IC1D_0004B USA_NASA_NSSD_IC1D_0005A USA_NASA_NSSD_IC1D_0005B USA_NASA_NSSD_IC1D_0006A USA_NASA_NSSD_IC1D_0006B USA_NASA_NSSD_IC1D_0007A USA_NASA_NSSD_IC1D_0007B USA_NASA_NSSD_IC1D_0008A USA_NASA_NSSD_IC1D_0008B USA_NASA_NSSD_IC1D_0009A

CCSD$$MARKERmarkeraaCCSD3SS00002markerab

DATA_SET_NAME:	DECOM Magnetometer Data
DATA_SOURCES:	International Sun-Earth Explorer 1 (ISEE-1) and Fluxgate Magnetometer Instrument
SCIENTIFIC_CONTACT:	Dr. Christopher Russell University of California at Los Angeles Institute of Geophysics and Planetary Physics 6871 Slichter Hall Los Angeles, CA 90025-1567 (213)825-3188 NSI=ctrussel@igpp.ucla.edu NSI-DECnet=BRUNET::CTRUSSELL

SOURCE_CHARACTERISTICS:

A. DESCRIPTION_OF_SPACECRAFT:
The Explorer-class spacecraft, ISEE-1 and ISEE-2 were part of the mother/daughter/heliocentric mission which consisted of ISEE-1, ISEE-2, and ISEE-3 spacecraft. These were spin stabilized spacecraft with their spin axes usually normal to the ecliptic plane. The spin axis of ISEE-1 was within 1 degree of the ecliptic pole throughout the mission. The spin axis of ISEE-2 was usually close to the ecliptic pole but was up to 90 degrees from the ecliptic pole on a few occasions. Solar panels provided the power for the instruments.

B. ORBIT_INFORMATION:
The mother/daughter portion of the mission consisted of two spacecraft, one with station-keeping capability, in a highly eccentric earth orbit with apogee at 23 earth radii. The spacecraft maintained a small, but variable, separation distance and made simultaneous coordinated measurements to permit separation of spatial from temporal irregularities in the near-earth solar wind, the bow shock, and inside the magnetosphere. The spin rate of ISEE-1 was set at 19.75 rpm, differing slightly from that of the ISEE-2 spacecraft, whose spin rate was set at 19.8 rpm

C. PERFORMANCE:
The ISEE-1 and ISEE-2 spacecraft operated continuously from launch on October 22, 1977 to September 27, 1987 when they both reentered the Earth's atmosphere.

INVESTIGATION_OBJECTIVES:
The purposes of the mission were (1) to investigate solar/terrestrial relationships at the outermost boundaries of the earth's magnetosphere, (2) to examine in detail the structure of the solar wind near the earth and the shock wave that forms the interface between the solar wind and earth, and (3) to continue the investigation of cosmic rays and solar flares in the interplanetary region near 1 AU.

INSTRUMENT_ATTRIBUTES:
A. DESCRIPTION_OF_INSTRUMENT:
In this triaxial fluxgate magnetometer, three ring-core sensors in an orthogonal triad were enclosed in a flipper mechanism at the end of the magnetometer boom. The electronics unit was on the main body of the spacecraft at the foot of the boom. For a complete description of the instrument see the paper Geoscience Electronics GE-16, 239-242, 1978.

B. OPERATIONAL_MODE:
The magnetometer had two operating ranges of plus or minus 8192 nT and plus or minus 256 nT in each vector component. The data were digitized and averaged within the instrument to provide increased resolution and to provide Nyquist filtering. There were two modes for the transmission of the averaged data. In the double-precision mode of operation, 16-bit samples of data were transmitted. This provided a maximum resolution of plus or minus 1/4 nT or 1/128 nT in the low-sensitivity and high-sensitivity ranges. In the single-precision mode, any 8 consecutive bits of the above 16-bits were selected by ground command for transmission and the telemetry bandwidths of the magnetometer were doubled. This bandwidth varied from 2 Hz for the low-telemetry rate, double-precision experiment mode to 32 Hz for the high-telemetry rate, single precision mode.

C. MEASURED_PARAMETERS:
The instrument measured 3 components of the magnetic field. The data were despun to give the magnetic field along the spin axis, Bz, and the two components in the spin plane. The component along the projection of the sun-earth line onto the spin plane was called the Bx component.

D. PERFORMANCE_OF_THE_INSTRUMENT:
The instruments continued to function with undiminished accuracy until re-entry. Variation of the zero levels has been removed in processing. Occasionally latch up of a sensor occurred during range changes. Because three components of the field could be measured from the two remaining sensors due to the spin of the spacecraft this latch up does not usually affect the calculation of low temporal resolution data.

E. RESOLUTION:
The temporal resolution of the data is generally 4 or 16 samples per second. A single precision mode giving lower amplitude resolution but twice the temporal resolution was seldom used. The analog to digital converter of the magnetometer had a resolution of +/- 2 nT and +/- 1/16 nT in high range and low range. Averaging was used to increase the resolution to +/- 1/8 nT and +/- 1/256 nT. The accuracy of the analog to digital conversion was +/- 1/2 nT and +/- 1/64 nT.

PARAMETERS:
The archive includes the original DECOM magnetometer data as received from Goddard Space Flight Center.

DATA_SET_QUALITY:
The data submitted on this disk is of the same quality as was originally received from GSFC. During the copying process from magnetic tape to disk, a very small number of unrecoverable tape errors (parity errors) occurred which would result in the loss of 1 tape block of data.

DATA_PROCESSING_OVERVIEW:
The DECOM data was received on 9-track magnetic tapes written at 1600 BPI, usually with three or four days of data on each tape. These tapes were copied to 9-track magnetic tapes at 6250 BPI with two to four weeks of data per copy tape. No changes were made to the data itself so the data retained its original blocking factor and data format. These copy tapes were then written to optical disk, with one disk file for each three or four days of data, without any alteration of the data. Thus, the data contained on this optical disk is as close as possible to the original DECOM data that was received from GSFC.

At UCLA the DECOM data are processed on Sun/UNIX workstations by the FORTRAN

programs makeprod_a (ISEE-1) and makeprod_b (ISEE-2). The makeprod programs read the DECOM data for their respective spacecraft, and convert them into meaningful magnetic field values. The output of the programs is a UNIX binary file. This file may be written to magnetic tape for storage or converted into a UCLA-IGPP flat files or into ASCII text files. The entire suite of UCLA programs to read and interpret the DECOM data have been archived on this disk in the directory [SOURCE]. The file AAREADME.TXT gives an overview of the various files. The individual source code files include more complete documentation.

DATA_USAGE:
The data in this archive are stored in IBM integer format. Because the data is raw information from the magnetometer instrument, a computer program is required to unpack and convert the data into a format that is scientifically meaningful. The complete suite of UCLA Sun/UNIX DECOM processing programs have been archived on this disk to demonstrate how to interpret these datasets.

DATA_ORGANIZATION:
Each logical volume, one side of an optical disk, includes as much ISEE-1 or ISEE-2 DECOM data as would comfortably fit on that logical volume. The only separation criteria that was used was that if a data group did not fit on the current logical volume it became the first data group of the next logical volume with the groups being placed on logical volumes in ascending order. Occasionally, a problem would occur with either the Write-Once media or the magnetic tapes holding the original DECOM data that would necessitate skipping a data group at the time of writing adjacent data groups to the WORM disk. At the end of the archival process, these data groups were written to the final logical volume for their respective spacecraft.

TYPE_OF_FILE_RELATIONSHIPS:
There is only one type_of_file, which is the original DECOM data from the magnetometer instrument.

CCSD$$MARKERmarkerabCCSD3KS00002markerac

LOG_VOL_TIME_COVERAGE: 1978-11-19T01:49:04.726 TO 1978-11-22T00:55:03.507
1980-01-13T00:45:59.589 TO 1980-01-16T00:43:47.905
1980-11-26T01:44:00.601 TO 1980-11-30T00:00:09.717
1981-03-18T00:54:36.788 TO 1981-03-22T01:53:03.592
1981-12-20T01:40:04.769 TO 1981-12-22T22:48:08.587
1981-12-23T00:12:57.892 TO 1981-12-27T00:00:53.396
1983-05-18T00:08:51.026 TO 1983-05-22T00:01:15.442
1984-08-08T03:43:58.409 TO 1984-08-12T00:38:27.546
1984-08-12T00:38:48.911 TO 1984-08-15T01:13:23.990
1987-07-19T00:37:14.121 TO 1987-09-26T06:07:59.285

TYPE_OF_FILE_TIME_COVERAGE:
DECOM Magnetometer Data 1978-11-19T01:49:04.726 TO 1978-11-22T00:55:03.507
1980-01-13T00:45:59.589 TO 1980-01-16T00:43:47.905
1980-11-26T01:44:00.601 TO 1980-11-30T00:00:09.717
1981-03-18T00:54:36.788 TO 1981-03-22T01:53:03.592
1981-12-20T01:40:04.769 TO 1981-12-22T22:48:08.587
1981-12-23T00:12:57.892 TO 1981-12-27T00:00:53.396
1983-05-18T00:08:51.026 TO 1983-05-22T00:01:15.442
1984-08-08T03:43:58.409 TO 1984-08-12T00:38:27.546
1984-08-12T00:38:48.911 TO 1984-08-15T01:13:23.990
1987-07-19T00:37:14.121 TO 1987-09-26T06:07:59.285

FILE_NAMING_CONVENTION:
File names are of the form DEC#XXXX.DAT where DEC is the type of data (DECOM), # is a "1" for ISEE-1 data or a "2" for ISEE-2 data and XXXX is the four digit ISEE group number with leading zeroes as needed. Groups were sequentially numbered chunks of DECOM data. Groups 1 through 12 varied in length from 3 to 8 days. Starting with group 13 and continuing through the end of the mission, groups alternated between 3 days and 4 days of data.

LOG_VOL_FILE_TIME_COVERAGE:
DEC10105.DAT 1978-11-19T01:49:04.726 TO 1978-11-22T00:55:03.507
DEC10225.DAT 1980-01-13T00:45:59.589 TO 1980-01-16T00:43:47.905
DEC10316.DAT 1980-11-26T01:44:00.601 TO 1980-11-30T00:00:09.717
DEC10348.DAT 1981-03-18T00:54:36.788 TO 1981-03-22T01:53:03.592
DEC10427.DAT 1981-12-20T01:40:04.769 TO 1981-12-22T22:48:08.587
DEC10428.DAT 1981-12-23T00:12:57.892 TO 1981-12-27T00:00:53.396
DEC10574.DAT 1983-05-18T00:08:51.026 TO 1983-05-22T00:01:15.442
DEC10702.DAT 1984-08-08T03:43:58.409 TO 1984-08-12T00:38:27.546
DEC10703.DAT 1984-08-12T00:38:48.911 TO 1984-08-15T01:13:23.990
DEC11010.DAT 1987-07-19T00:37:14.121 TO 1987-07-22T00:08:36.705
DEC11011.DAT 1987-07-22T00:08:41.952 TO 1987-07-26T01:45:44.539
DEC11012.DAT 1987-07-26T01:45:46.038 TO 1987-07-29T01:12:25.046
DEC11013.DAT 1987-07-29T01:12:27.045 TO 1987-08-02T00:29:59.909

```
DEC11014.DAT  1987-08-02T00:30:00.846 TO 1987-08-05T00:10:21.771
DEC11015.DAT  1987-08-05T00:10:25.519 TO 1987-08-09T00:10:01.679
DEC11016.DAT  1987-08-09T00:10:03.179 TO 1987-08-12T00:18:16.848
DEC11017.DAT  1987-08-12T00:18:57.079 TO 1987-08-16T02:18:47.988
DEC11018.DAT  1987-08-16T02:18:48.238 TO 1987-08-19T00:25:02.755
DEC11019.DAT  1987-08-19T01:52:41.926 TO 1987-08-23T02:14:09.304
DEC11020.DAT  1987-08-23T02:14:09.553 TO 1987-08-26T00:52:25.610
DEC11021.DAT  1987-08-26T00:52:25.673 TO 1987-08-30T01:56:38.905
DEC11022.DAT  1987-08-30T01:56:45.652 TO 1987-09-02T00:30:01.114
DEC11023.DAT  1987-09-02T01:31:00.365 TO 1987-09-06T00:38:02.040
DEC11024.DAT  1987-09-06T00:38:04.040 TO 1987-09-09T02:18:35.328
DEC11025.DAT  1987-09-09T02:18:35.578 TO 1987-09-13T02:18:32.649
DEC11026.DAT  1987-09-13T02:18:32.899 TO 1987-09-16T01:15:34.080
DEC11027.DAT  1987-09-16T01:15:39.827 TO 1987-09-20T01:10:02.789
DEC11028.DAT  1987-09-20T01:03:59.963 TO 1987-09-23T01:08:31.917
DEC11029.DAT  1987-09-23T01:08:32.173 TO 1987-09-26T06:07:59.285

/* NOTE:                                                              */
/*  The files below are located on this logical volume instead of in  */
/*  their normal sequence on previous logical volumes:                */
/*   DEC10105.DAT  1978-11-19T01:49:04.726 TO 1978-11-22T00:55:03.507 */
/*   DEC10225.DAT  1980-01-13T00:45:59.589 TO 1980-01-16T00:43:47.905 */
/*   DEC10316.DAT  1980-11-26T01:44:00.601 TO 1980-11-30T00:00:09.717 */
/*   DEC10348.DAT  1981-03-18T00:54:36.788 TO 1981-03-22T01:53:03.592 */
/*   DEC10427.DAT  1981-12-20T01:40:04.769 TO 1981-12-22T22:48:08.587 */
/*   DEC10428.DAT  1981-12-23T00:12:57.892 TO 1981-12-27T00:00:53.396 */
/*   DEC10574.DAT  1983-05-18T00:08:51.026 TO 1983-05-22T00:01:15.442 */
/*   DEC10702.DAT  1984-08-08T03:43:58.409 TO 1984-08-12T00:38:27.546 */
/*   DEC10703.DAT  1984-08-12T00:38:48.911 TO 1984-08-15T01:13:23.990 */

PREV_LOG_VOL_COVERAGE: 1986-12-17T01:43:58.705 TO 1987-07-18T23:29:59.492

CCSD$$MARKERmarkeracCCSD3RF0000200000001

REFERENCETYPE=$CCSDS2;

LABEL=ATTACHED;
REFERENCE="DECOM1.SFD";

LABEL=NSSD3IF0018700000001;
REFERENCE="/ISEE1DEC/DEC1*.DAT";

LABEL=CCSD3SF0000200000001;
REFERENCE="/SOURCE/AAREADME.TXT";
REFERENCE="/SOURCE/AINPUT.DAT";
REFERENCE="/SOURCE/APERIGEE.FFD";
REFERENCE="/SOURCE/APERIGEE.FFH";
REFERENCE="/SOURCE/ATIMES.FFD";
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REFERENCE="/SOURCE/ISEE-TAR.Z";
REFERENCE="/SOURCE/JTLIB.F";
REFERENCE="/SOURCE/MAKEFILE.";
REFERENCE="/SOURCE/PARMEDIT.F";
REFERENCE="/SOURCE/PARMLIST.C";
REFERENCE="/SOURCE/QBMS.F";
REFERENCE="/SOURCE/QBS1.F";
REFERENCE="/SOURCE/QBS2.F";
REFERENCE="/SOURCE/QBS3.F";
REFERENCE="/SOURCE/TIME_IGPP.C";
REFERENCE="/SOURCE/TIME_IGPP.H";
REFERENCE="/SOURCE/WHOWNER.C";
REFERENCE="/SOURCE/YAMS.F";
REFERENCE="/SOURCE/YAS1.F";
```

```
REFERENCE="/SOURCE/YAS2.F";
REFERENCE="/SOURCE/YAS3.F";

/* EOF */
```