



545

ISEE 3  
78-079A-02E  
HIGH RESOLUTION DATA



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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 This inventory information is now no longer maintained in the DSCs, but is now managed in the inventory part of the NSSDC information system.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 3

HI-RES. REDUCED B-FIELD DATA (RDR)

78-079A-02E SPHE-00672

THIS DATA SET HAS BEEN RESTORED.  ORIGINALLY IT CONTAINED ONE 9-TRACK, 1600 BPI TAPE WRITTEN IN BINARY.  THERE IS ONE RESTORED TAPE.  THE DR TAPE IS A 3480 CARTRIDGE AND THE DS TAPE IS 9-TRACK, 6250 BPI.  THE ORIGINAL TAPE WAS CREATED ON A SEL32 COMPUTER AND WAS RESTORED ON THE MRS SYSTEM.  THE DR AND DS NUMBER ALONG WITH THE CORRESPONDING D NUMBER AND TIME SPAN IS AS FOLLOWS:

| DR#      | DS#      | D#      | FILES | TIME SPAN           |
|----------|----------|---------|-------|---------------------|
| DR005283 | DS005283 | D047394 | 1-4   | 01/01/81 - 01/04/81 |

REQ AGENT

DEW

REQ NO

V0147

ACQ AGENT

HKH

ISEE 3

78-079A-02E

HIGH RESOLUTION DATA

This data set catalog consists of 1 tape. The tape has 4 files of data, one for each day. The tape is 1600 bpi, 9 track, and binary. It was created on a SEL32 computer. The D and C numbers are as follows:

| <u>D#</u> | <u>C#</u> | <u>TIME SPAN</u> |
|-----------|-----------|------------------|
|-----------|-----------|------------------|

|         |         |                   |
|---------|---------|-------------------|
| D-47394 | C-22440 | 01/01/81-01/04/81 |
|---------|---------|-------------------|

### Reduced Data Record Tape Format (ISEE-3)

These tapes, known as RDR tapes, contain high-resolution reduced data from the ISEE-3 Vector Helium Magnetometer. They are 9-track 1600 bpi tapes, written in binary form by an SEL 32 computer. (If these tapes are to be read by an IBM 360, negative real numbers must be converted from the two's complement form used by SEL to the sign-and-magnitude representation employed by IBM.)

There is one file per day, and there may be any number of files on a single tape. All records are 780 words (3120 bytes) in length.

The first record of each file is a header record. All other records are data records.

#### Structure of Header Record

|              |                     |                                                       |
|--------------|---------------------|-------------------------------------------------------|
| Word 1       | INTEGER*4           | Last two digits of year.                              |
| Word 2       | INTEGER*4           | Day of year (Jan. 1 = Day 1).                         |
| Word 3       | 4 ASCII characters  | Spacecraft ID (G = Pioneer 11), followed by 3 blanks. |
| Words 4-8    | 20 ASCII characters | Program version identification.                       |
| Word 9       | 4 ASCII characters  | Coordinate system identification.                     |
| Word 10      | INTEGER*4           | Date of reduction (YYMMDD).                           |
| Words 11-524 |                     | are now filled with zeros.                            |

#### Structure of Data Record

|         |           |                                                                                         |
|---------|-----------|-----------------------------------------------------------------------------------------|
| Word 1  | INTEGER*4 | 0                                                                                       |
| Word 2  | INTEGER*4 | Number of data points (NPTS).                                                           |
| Word 3  | INTEGER*4 | Spacecraft clock.                                                                       |
| Word 4  | INTEGER*4 | Avg frame period in microseconds.                                                       |
| Word 5  | INTEGER*4 | Frame counter.                                                                          |
| Word 6  | INTEGER*4 | Fill flag.                                                                              |
| Word 7  | INTEGER*4 | Bit rate flag.                                                                          |
| Word 8  | INTEGER*4 | Time quality flag.                                                                      |
| Word 9  | REAL*4    | Position of spacecraft (X) in GSE.                                                      |
| Word 10 | REAL*4    | Position of spacecraft (Y) in GSE.                                                      |
| Word 11 | REAL*4    | Position of spacecraft (Z) in GSE.                                                      |
| Word 12 | INTEGER*4 | Spacecraft position flag.                                                               |
|         |           | (For a fuller description of Words 3-12, see format description of ISEE-3 Decom tapes.) |
| Word 13 | INTEGER*4 | Ground received time (ms).                                                              |
| Word 14 | REAL*4    | X component of magnetic field.                                                          |
| Word 15 | REAL*4    | Y component of magnetic field.                                                          |
| Word 16 | REAL*4    | Z component of magnetic field.                                                          |

Repeat Words 13-16 for each data point.

If NPTS < 192, the remainder of the data record is filled with zeros.

## SEL Representation of Floating-Point Numbers \*

The SEL single precision floating-point representation of a number (REAL\*4) uses one word of 32 bits, or 4 bytes.

Consider the leftmost bit to be Bit 0, and the rightmost to be Bit 31.

Bit 0 is the sign bit; 0 for positive and 1 for negative.

Bits 1-7 contain 64 (binary 1000000) + the base 16 exponent of the number.

Bits 8-31 contain the fraction; the binary point is considered to be just to the left of Bit 8.

For example, consider the number 192.0, which is equal to  $(1/2 + 1/4) * 16^{**2}$ . The SEL REAL\*4 representation of 192.0 is 01000010110000000000000000000000, or hexadecimal 42C00000.

To represent a negative real number, take the two's complement of the 32-bit representation of the positive number; for example, the SEL representation of -192.0 is the two's complement of the number above, which is 10111101010000000000000000000000, or hex BD400000.

\* Same as IBM 360/370 floating point

## DUMP OF TAPE D03

 INPUT TAPE D03 ON RT2  
 DATA INPUT HY NF 4 FL 4 1 C

 047394  
 ISEE-3  
 01/01/81 - 01/04/81

| FILE     | 1        | RECORD   | 1        | LENGTH   | 3120BYTES |
|----------|----------|----------|----------|----------|-----------|
| ( 0 )    | 00000051 | 00000001 | 33202020 | 50524F47 | 5241402   |
| ( 40 )   | 20202020 | 20202020 | 20202020 | 20202020 | 20202020  |
| ( 80 )   | 20202020 | 20202020 | 20202020 | 20202020 | 20202020  |
| ( 120 )  | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 160 )  | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 200 )  | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 240 )  | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 280 )  | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 320 )  | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 360 )  | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 400 )  | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 440 )  | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 480 )  | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 520 )  | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 560 )  | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 600 )  | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 640 )  | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 680 )  | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 720 )  | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 760 )  | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 800 )  | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 840 )  | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 880 )  | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 920 )  | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 960 )  | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 1000 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 1040 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 1080 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 1120 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 1160 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 1200 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 1240 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 1280 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 1320 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 1360 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 1400 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 1440 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 1480 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 1520 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 1560 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 1600 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 1640 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 1680 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 1720 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 1760 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 1800 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 1840 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 1880 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 1920 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 1960 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 2000 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 2040 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 2080 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 2120 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 2160 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 2200 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 2240 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |
| ( 2280 ) | 00000000 | 00000000 | 00000000 | 00000000 | 00000000  |

