[redacted]

582

PIONEER 11

73-019A-01D

VECTOR HELIUM MAGNETOMETER DATA AVG

PIONEER 11

SATURN ENCOUNTER MINUTE AVG PE CO

73-019A-01D

THIS DATA SET HAS BEEN RESTORED. ORIGINALLY IT CONTAINED ONE 9-TRACK, 1600 BPI TAPE WRITTEN IN ASCII. 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 AN IBM 360 COMPUTER AND WAS RESTORED ON AN IBM 9021 COMPUTER. THE DR AND DS NUMBER ALONG WITH THE CORRESPONDING D NUMBER AND TIME SPAN IS AS FOLLOWS:

DR#	DS#	D#	FILES	TIME SPAN
DR005405	DS005405	D056410	2	08/30/79 - 09/08/79

REQ. AGENT	REQ NO.	ACQ. AGENT
DEW JFB	V0183 V0371	WSC ~~JW~~ HKM

PIONEER 11

73-019A-01D

VECTOR HELIUM MAGNETOMETER DATA AVG
1 MINUTE SATURN ENCOUNTER

THIS DATA SET CONSISTS OF ONE TAPE. THE TAPE IS 1600 BPI, 9 TRACK, ASCII, WITH TWO FILES OF DATA. THE TAPE WAS CREATED ON AN IBM COMPUTER. THE D AND C NUMBERS ARE AS FOLLOWS:

D#	C#	TIME SPAN
D-56410	C-23087	08/30/79 - 09/08/790

73-019A-01D
056410

JET PROPULSION LABORATORY

INTEROFFICE MEMORANDUM

January 16, 1979

TO: Distribution

FROM: Joyce Wolf

SUBJECT: TAPE FORMAT: Vector Helium Magnetometer Data Averages

The tapes are 9-track, ~~1600~~ 6250 bpi, odd parity, written in ASCII format.

Each file contains an integral number of days of data. There are 50 blocks (physical records) per day. The first block is a header record 240 bytes long. Each of the remaining 49 blocks is 7200 bytes long, and consists of 30 logical records of 240 bytes. The 1440 logical records of blocks 2-49 contain averages for the 1440 minutes of the day.* In block 50, the first 24 logical records contain hour averages; the 25th contains day averages, and the last 5 contain blanks.

Each logical record contains 15 quantities in the format (8E15.6, 15X, 7E15.6). The first quantity is the number of milliseconds for which data exists in the period over which the average was taken; the next 14 are the data averages in the coordinate system identified in the text portion of the header record, as follows:

1. $\langle B_x \rangle$
2. $\langle B_y \rangle$
3. $\langle B_z \rangle$
4. $\langle B_x^2 \rangle$
5. $\langle B_x B_y \rangle$
6. $\langle B_x B_z \rangle$
7. $\langle B_y^2 \rangle$
8. $\langle B_y B_z \rangle$
9. $\langle B_z^2 \rangle$
10. $\langle \cos \alpha \rangle = \langle B_x / |B| \rangle$
11. $\langle \cos \beta \rangle = \langle B_y / |B| \rangle$
12. $\langle \cos \gamma \rangle = \langle B_z / |B| \rangle$
13. $\langle |B| \rangle$
14. $\langle |B|^2 \rangle$

JW:ydj

Attachments

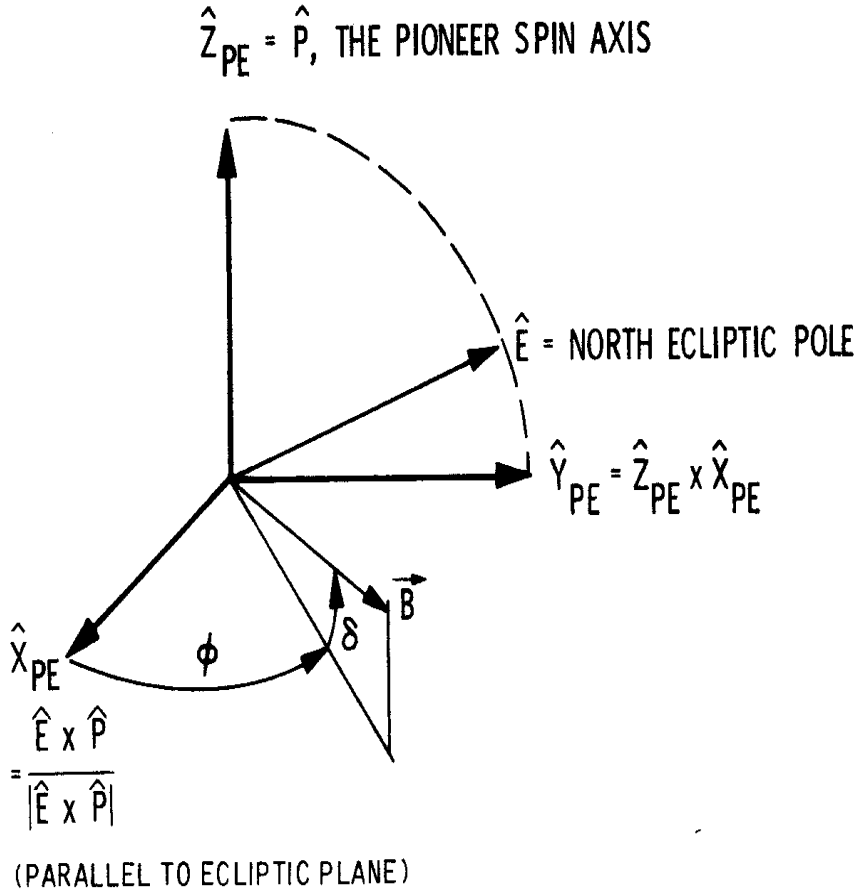
* Ground Received Time.

ATTACHMENT #1

Structure of Header Record

Variable	Format	Meaning
IYR	3X,I2	Last two digits of year
IDAY	2X,I3	Day of year (Jan 1 = Day 1)
ISC	4X,A1	Spacecraft Identifier (F = Pioneer 10, G = Pioneer 11, 3 = ISEE-3)
TRAJ(I),I=1,6	15X,6E15.6	Trajectory parameters May be filled with zeros.
TEXT(I), I=1,30	30A4	Identifying text

PIONEER INERTIAL (PE)
COORDINATES



Pioneer 11 Saturn Encounter Trajectory Tape SATRAJ1
73-019A-01D

A 9 track, 1600 BPI, ASCII tape was created to cover the Saturn Encounter period (days 241 through 258). Each record contains the following perimeter:

SCTIME -- Spacecraft ephemeris time, in decimal days from day 244

GRTIME -- Ground received universal time, in decimal days for day 244

CC -- One-way light time is seconds

WLTAE, WLNAE -- AE System latitude and longitude of the Earth

SLTAE, SLNAE -- AE System latitude and longitude of the Sun

RLTAE, RLNAE -- AE System latitude and longitude of R, the Saturn-centered radius of P11.

RLTKG, RLNKG -- KG System latitude and longitude of R

SDRAA -- The Sun-Saturn-P11 angle

RR -- The magnitude of R, in Saturn radii

The following format was used: (2D20.10, 11F15.6)

The following information, which is not on the tape, may be useful:

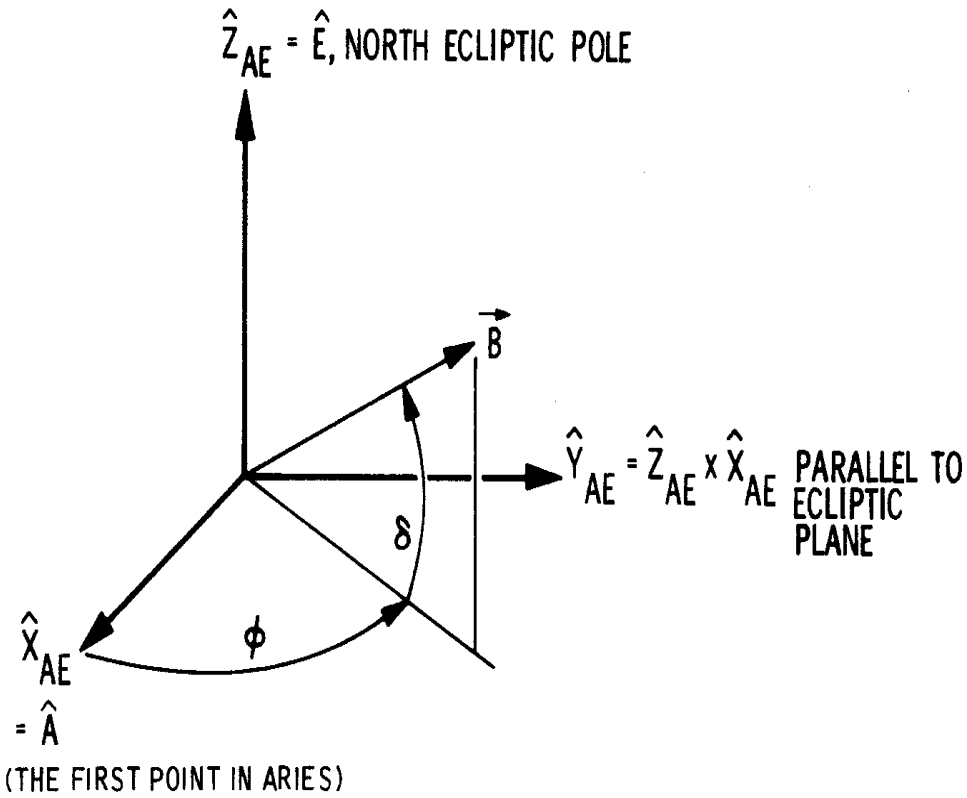
1 R_s = 60,000 km

1 AU = 149,597,871.4 km

c = 299792.458 km/sec

KLNAE = 78.81424 deg Saturn Spin
KLTAE = 61.93242 deg Axis

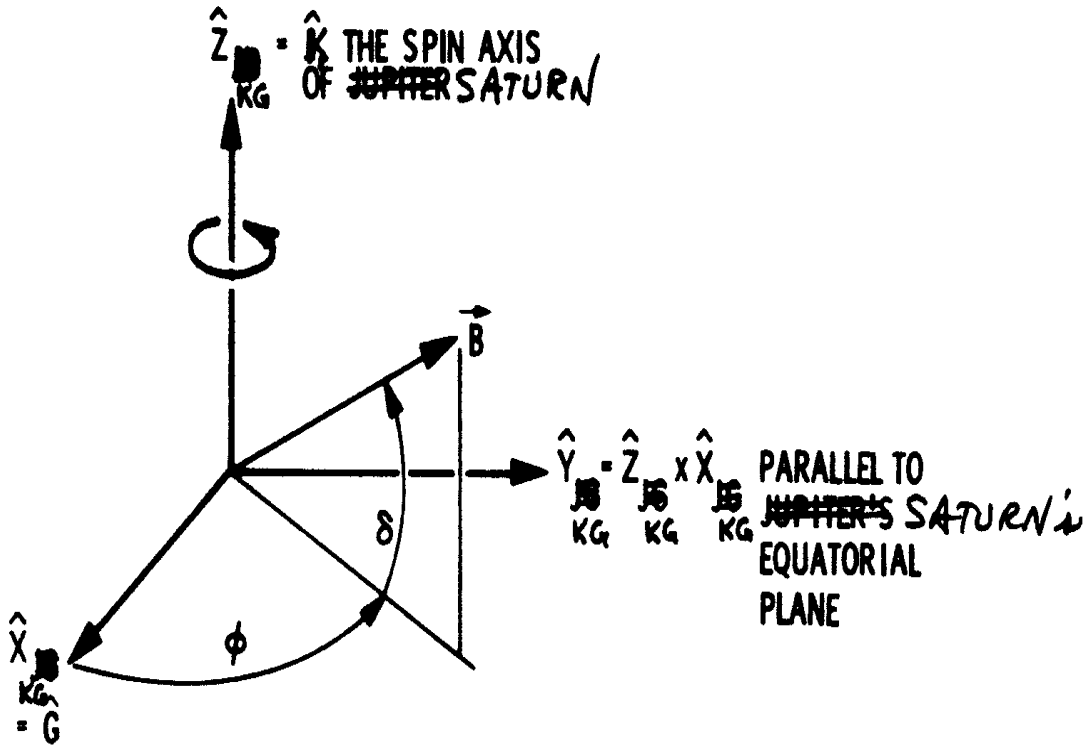
PIONEER CELESTIAL (AE)
COORDINATES



CRONO (KG)

~~JOVI~~GRAPHIC ~~(JG)~~ COORDINATES

Cro·nos (krō′nos), *n.* Cronus.
Cro·nus (krō′nəs), *n.* [L.; Gr. *Kronos*], in *Greek mythology*, a Titan, son of Uranus and Gaea, who overthrew his father to become ruler of the universe and was himself overthrown by his son Zeus: identified by the Romans with Saturn.



(EQUATORIAL VECTOR LYING IN ~~THE~~ SATURN's ~~SYSTEM IN~~ PRIME MERIDIAN, ~~1957.0~~)

D56410
8/30/79 - 9/8/79
Pioneer 11
73-019A-010

```
$NOP
$NOP ********* LIST OF DO-4 **********
$EXE TPLIST BS

INPUT PARAMETERS ARE:  AS FL=1=1 2

 TAPE NO.   1              FILE NO.   1
 RECORD   1                LENGTH   240
  [79] [242]  [G]                    0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.0000
00E 00   0.000000E 00P.E COORDINATES 791025  9.8
              AVEDT 800204

 TAPE NO.   1              FILE NO.   1
 RECORD   500              LENGTH   7200
   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.0000
00E 00   0.000000E 00                   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00
0.000000E 00   0.000000E 00   0.000000E 00   0.660000E 06   0.771119E-01   0.140780E 00  -0.819501E
-01   0.120455E-01   0.124873E-01  -0.635948E-02   0.262014E-01                  -0.128941E-01   0.1
29712E-01   0.363162E 00   0.646461E 00  -0.375989E 00   0.209088E 00   0.512181E-01   0.339600E 07
   0.274090E-01   0.619535E-01  -0.888557E-01   0.237632E-02   0.217635E-02  -0.255156E-02   0.5458
41E-02                  -0.589170E-02   0.110198E-01   0.211861E 00   0.489000E 00  -0.658334E 00
0.126972E 00   0.188545E-01   0.296400E 07   0.243335E-01   0.101778E 00  -0.140902E 00   0.497181E
-02   0.120346E-02  -0.259234E-02   0.165703E-01                 -0.148452E-01   0.248312E-01   0.1
45796E 00   0.482100E 00  -0.680789E 00   0.203217E 00   0.463733E-01   0.271200E 07   0.201830E-01
   0.914140E-01  -0.140638E 00   0.120393E-01   0.287059E-02  -0.634034E-02   0.135242E-01
        -0.133754E-01   0.260573E-01   0.618605E-01   0.433468E 00  -0.670189E 00   0.209121E 00
0.516211E-01   0.127200E 07   0.431767E-02   0.126290E 00  -0.118497E 00   0.111251E-01  -0.362587E
-03  -0.232142E-02   0.217197E-01                 -0.155719E-01   0.231835E-01  -0.263768E-01   0.5
71750E 00  -0.499730E 00   0.221270E 00   0.560282E-01   0.168000E 06  -0.288864E-02   0.602875E-01
  -0.872703E-01   0.910935E-03  -0.239486E-03  -0.489264E-04   0.454775E-02                  -0.5663
20E-02   0.118801E-01  -0.237461E-01   0.500641E 00  -0.633373E 00   0.123109E 00   0.173388E-01
0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E
 00   0.000000E 00                   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.0
00000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00
   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00                  0.000000E 00   0.0000
00E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00
0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E
 00                 0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.0
00000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00
   0.000000E 00   0.000000E 00   0.000000E 00                 0.000000E 00   0.000000E 00   0.0000
00E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00
0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00
      0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.0
00000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00
   0.000000E 00   0.000000E 00                 0.000000E 00   0.000000E 00   0.000000E 00   0.0000
00E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00
0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00                 0.000000E
 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.0
00000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00
   0.000000E 00                 0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.0000
00E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00
0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00                 0.000000E 00   0.000000E
 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.0
00000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00
                 0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.0000
00E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00
0.000000E 00   0.000000E 00   0.000000E 00                 0.000000E 00   0.000000E
 00   0.000000E 00   0.000000E 00   0.000000E 00   0.000000E 00   0.260400E 07  -0.490333E-02  -0.2
95021E-01  -0.355620E-01   0.790245E-03   0.692589E-04   0.134708E-03   0.201043E-02
   0.130515E-02   0.401391E-02  -0.650256E-01  -0.369086E 00  -0.375827E 00   0.763357E-01   0.6614
57E-02   0.333600E 07  -0.334533E-01  -0.347715E-01  -0.472233E-01   0.201304E-02   0.128027E-02
0.160375E-02   0.209815E-02                 0.183390E-02   0.479221E-02  -0.385014E 00  -0.386940E
 00  -0.459942E 00   0.874851E-01   0.890340E-02   0.340800E 07  -0.139540E-01  -0.673112E-01  -0.7
51554E-01   0.104848E-02   0.852276E-03   0.907385E-03   0.530651E-02                 0.523737E-02
   0.870642E-02  -0.137318E 00  -0.609060E 00  -0.586941E 00   0.115743E 00   0.150614E-01   0.3564
00E 07  -0.302018E-01  -0.641489E-01  -0.817985E-01   0.171129E-02   0.187164E-02   0.249727E-02
```

```
0.500776E-02                    0.539389E-02   0.917497E-02  -0.267136E 00  -0.560774E 00  -0.636656E
 00   0.119191E 00   0.158940E-01   0.348000E 07  -0.460168E-01  -0.399120E-01  -0.770419E-01   0.2
69593E-02   0.173063E-02   0.346609E-02   0.290212E-02                   0.329925E-02   0.848476E-02
  -0.435487E 00  -0.360994E 00  -0.627352E 00   0.112901E 00   0.142928E-01   0.340800E 07  -0.3151
64E-01  -0.630176E-01  -0.837796E-01   0.194406E-02   0.199216E-02   0.254771E-02   0.484669E-02
                0.523362E-02   0.983405E-02  -0.267271E 00  -0.538543E 00  -0.629034E 00   0.122666E
 00   0.166248E-01   0.309720E 08  -0.875845E-02   0.618631E-03  -0.862618E-01   0.364393E-02   0.1
72160E-02  -0.730990E-04   0.725302E-02                  -0.173150E-02   0.120621E-01  -0.122011E 00
  -0.126393E 00  -0.586702E 00   0.134367E 00   0.229641E-01
```

```
 TAPE NO.   1              FILE NO.   2
 RECORD   1                LENGTH   208
   -0.2958333333D 01   -0.2899140307D 01    5164.464937      -1.835072      345.299072      -2.03001
1     346.848877      12.259133     337.076172       5.383099    3166.592285      17.005157      58
.838562

 TAPE NO.   1              FILE NO.   2
 RECORD   892              LENGTH   208
    0.1400000000D 02    0.1405935610D 02    5178.550781      -2.041360      347.734619      -2.26041
5     347.780762      33.352585     269.925293       5.705178  -10855.964844      80.360474     184
.070724

***** JOB DONE.
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