

#398

PIONEER 10

ENCOUNTER 1 MIN. AVG DATA PLOTS
72-012A-01E-SPHE-00106

HOURLY & DAILY MAGNETIC FIELD AVG
72-012A-01H-SPHE-00603

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 This inventory information is now no longer maintained in the DSCs, but is now managed in the inventory part of the NSSDC information system.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

Pioneer 10

72-012A-01E **SPHE-00106**

Magnetometer Data

One Minute, Hourly and Daily Magnetic Field Averages

72-012A-01H **SPHE-00603**

Magnetometer Data

Hourly and Daily Magnetic Field Average

The data set 72-012A-01E, has been restored onto four tapes. They were created on the VAX computer, retaining the original IBM format. The tapes are 9 track, 6250 BPI, multi-filed and written in ASCII format. Any tapes which contained read errors were padded to maintain the original data format by execution of [operations.barbara.progs]pio.for. Files 1 & 2 on tape DS02639 contain encounter data, the remaining files on the tape contain cruise data, as do the other tapes.

The 72-012A-01H data set was created by selecting the hourly and daily magnetic field data from the Pioneer 10, 72-012A-01E dataset, after restoration, by execution of the program newpio.for. The format remains the same as 72-012A-01E, except there are no minute averages. Records 1 thru 63 are encounter data, the remaining records on the tape are cruise data.

The DR and DS numbers, files per tape and time spans followed by the D and C numbers being restored and the corresponding file numbers for 72-012A-01H, and the D and C numbers along with the time spans for 72-012A-01E follow:

72-012A-01E One Minute, Hourly and Daily Magnetic Field Averages

DR	DS	D#	FILES	TIME SPAN
-----	-----	-----	-----	-----
DR02639	DS02639	D-29893	1	07/30/72 - 09/02/72
		D-29894	2	09/02/72 - 09/30/72
		D-34416	3	02/27/72 - 04/01/72
		D-34417	4	04/02/72 - 04/29/72
		D-34418	5	04/30/72 - 06/03/72
		D-34419	6	06/04/72 - 07/01/72
		D-34420	7	07/02/72 - 07/29/72
		D-34421	8	07/30/72 - 09/02/72
		D-34422	9	09/03/72 - 09/30/72
		D-34423	10	10/01/72 - 10/28/72
		D-34424	11	10/29/72 - 12/02/72
		D-34425	12	12/03/72 - 12/30/72

DR#	DS#	D#	FILES	TIME SPAN
DR02640	DS02640	D-34426	1	12/31/72 - 02/03/73
		D-34427	2	02/04/73 - 03/03/73
		D-34428	3	03/04/73 - 03/30/73
		D-34429	4	04/01/73 - 04/28/73
		D-34430	5	04/29/73 - 06/02/73
		D-34431	6	06/03/73 - 06/30/73
		D-34432	7	07/01/73 - 07/28/73
		D-34433	8	07/29/73 - 09/01/73
		D-34434	9	09/02/73 - 09/29/73
		D-34435	10	09/30/73 - 11/03/73
		D-34436	11	11/04/73 - 11/24/73
		D-37949	12	11/25/73 - 12/15/73
		D-34437	13	12/16/73 - 12/29/73
DR02641	DS02641	D-34438	1	12/30/73 - 02/02/74
		D-34439	2	02/02/74 - 03/02/74
		D-34440	3	03/03/74 - 03/30/74
		D-34441	4	03/31/74 - 04/27/74
		D-34442	5	04/28/74 - 06/01/74
		D-34443	6	06/02/74 - 06/29/74
		D-34444	7	06/30/74 - 08/03/74
		D-34445	8	08/04/74 - 08/31/74
		D-34446	9	09/01/74 - 09/28/74
		D-34447	10	09/29/74 - 11/02/74
		D-34448	11	11/03/74 - 11/30/74
		D-34449	12	12/04/74 - 12/28/74
		D-43925	13	12/29/74 - 02/01/75
DR02642	DS02642	D-43926	1	02/02/75 - 03/01/75
		D-43927	2	03/02/75 - 03/29/75
		D-43928	3	03/30/75 - 05/03/75
		D-43929	4	05/04/75 - 05/31/75
		D-43930	5	06/01/75 - 06/28/75
		D-43931	6	06/29/75 - 08/02/75
		D-43932	7	08/03/75 - 08/30/75
		D-43933	8	08/31/75 - 09/27/75
		D-43934	9	09/28/75 - 11/01/75
		D-43935	10	11/02/75 - 11/17/75

D29608 WAS REPLACED BY D37949 BEFORE THIS DATA SET WAS RESTORED.

72-012A-01H Hourly and Daily Magnetic Field Averages

D-83151	C-28037	07/30/72 - 09/30/73 Encounter Data
		02/27/72 - 11/17/75 Cruise Data

FORMAT OF PIONEER 10,11 AVERAGE DATA RECORD:
VECTOR HELIUM MAGNETOMETER

72-012A-01E Encounter 1 min. Avg Data Plots

72-012A-01H Hourly & Daily Magnetic Field Avg.

The Pioneer VHM Average data record (ADR) tapes are written on 9-track tapes at 6250 BPI. The data is written on the tape in odd parity, ASCII format.

A data set contains an integral number (usually four or five) weeks of data. Each of the seven days in a week consists of fifty blocks (physical records). The first block for a day is a single logical record of 120 tape characters. The remaining blocks for a day each consist of 30 logical records of 240 tape characters each.

The first logical record for a day is a header. the next 1440 logical records contain minute averages. The next 24 logical records contain hour averages. The next logical record contains daily averages. The last 5 logical records for the day contain blanks.

72-012A-01H

Header is 24 logical records of hour averages, then one logical record of daily averages.

Table 1 - Header Record

Variable -----	Format -----	Description -----
	3X	
IYR	I2 2X	Last two digits of year
IDAY	I3 4X	Day of year
ISC	A1 15X	Spacecraft (F or G)
HRANGP	E15.7	Distance of spacecraft from Sun (km)
CELLTP	E15.7	Heliocentric celestial latitude of spacecraft (degrees)
CELLNP	E15.7	Heliocentric celestial longitude of spacecraft (degrees)
REARSU	E15.7	Distance of earth from the Sun
CELLTE	E15.7	Heliocentric celestial latitude of Earth (degrees)
CELLNE	E15.7	Heliocentric celestial longitude of Earth (degrees)

Table 2 - Average Records

<u>Variable</u>	<u>Format</u>	<u>Description</u>
DT	E15.7	Number of milliseconds for which data exists in the period over which the average was taken.
EV(1)	E15.7	$\langle B_R \rangle$
EV(2)	E15.7	$\langle B_T \rangle$
EV(3)	E15.7	$\langle B_N \rangle$
EV(4)	E15.7	$\langle B_R^2 \rangle$
EV(5)	E15.7	$\langle B_R B_T \rangle$
EV(6)	E15.7	$\langle B_R B_N \rangle$
EV(7)	E15.7	$\langle B_T^2 \rangle$
	15x	
EV(8)	E15.7	$\langle B_T B_N \rangle$
EV(9)	E15.7	$\langle B_N^2 \rangle$
EV(10)	E15.7	$\langle \cos \alpha \rangle = \langle B_R / B \rangle$
EV(11)	E15.7	$\langle \cos \beta \rangle = \langle B_T / B \rangle$
EV(12)	E15.7	$\langle \cos \gamma \rangle = \langle B_N / B \rangle$
EV(13)	E15.7	$\langle B \rangle$
EV(14)	E15.7	$\langle B ^2 \rangle$

June 28, 1977

TO: Pioneer 10 and 11 VHM Co-Investigators

FROM: Bruce Tsurutani and Edward Smith B.T.

SUBJECT: Pioneer 10 Average Tapes for the First 6 Months of 1975, *March*

These seven average tapes are presently enroute to you. The following data anomalies have been detected:

<u>Month</u>	<u>Year</u>	<u>Day</u>	<u>Time</u>	<u>Description</u>	<u>Comment</u>
				After a long gap, a spike in the field orientation sometimes occurs. This can take the form either as a one point spike at the start of the data, or as a few minutes of data, a gap, and then a continuous stream of data at a different field orientation.	The data with the incorrect orientation the point spike or the few minutes of data isolated by gaps, are caused by the lack of an update in the s/c orientation found the AMFs EDR header. We will call this ITC 112 error.
Jan	1975	15	1845UT		
		17	2129		
		18	1329		
		19	1920-1923		
		22	2328-2333		
		26	1820-1823		
		27	1015-1018		
		29	2229-2231		
		30	1505		
		32	1808		
		27	1057	B Magnitude Spike	Bit Error
			1103		
			1106		
			1119		
			1127		
			1135		
			1151		
			1211		
			1215		
			1320		
			1326		
			1348		
			1414		

INTEROFFICE MEMORANDUM

<u>Month</u>	<u>Year</u>	<u>Day</u>	<u>Time</u>	<u>Description</u>	<u>Comment</u>
Feb	1975				
		33	2033-2037	ITC 112 error	
		37	0945		
		37	2303-2308		
		38	1500-1502		
		40	1530		
		40	2255-2258		
		41	1505		
		42	1528		
		42	2100	(listed to nearest hour, i.e., the error occurs between 2100 and 2200 UT)	
		43	0100		
		43	2100		
		44	1500		
		44	2100		
		45	0900		
		46	1400		
		47	0900		
		48	0900		
		48	1800		
		50	1600		
		52	1600		
		54	1100		
		54	2200		
		55	1500		
		57	1600		
		59	2000		
March	1975	61	2100-2400	Wiggly Data	
		63	1600	ITC112 Error, listed to nearest hour	Aliased Instrument Noise
		64	1200		
		65	1600		
		67	1500		
		68	1500		
		69	1600		
		72	1200		
		73	1200		
		75	1200		
		76	1200		
		76	2100		
		78	1500		
		79	1500		
		81	0900		
		84	2000		
		86	0823	B Magnitude Spike	Bit Error
		88	2114	B _y , B _z Spike	too few data points plus incorrect orientation

<u>Month</u>	<u>Year</u>	<u>Day</u>	<u>Time</u>	<u>Description</u>	<u>Comment</u>
April	1975	93	1923	B Magnitude	Incorrect Data inserted into time slot.
		93	2008		
		94	1730		Bit Error
		97	2105-2117	Incorrect Field Orientation	ITC112 Error
		102	2210-2220	" "	
		103	0300-1500		Aliased Instrument noise. Bit Rate 1.
		108	2100-2330		Aliased Instrument noise. Bit Rate 2.
		119	0746	Spike at end of data	1 minute average made from too few data points
		119	0748	One isolated point	
		123	1530-2330		Aliased instrument noise. Bit Rate 1 and 2.
May	1975	124	1423-1429 UT	Field Orientation Error	Incorrect spin in EDR header.
		127	2216-2226		Negative spin period values.
		134	0845	B Magnitude Spike	Bit error in range value.
		134	1129		
		135	1925-1930	Low B Magnitude Fields	Incorrect data inserted into time slot.
		147	1840-1852	Sinusoidal B _y and B _z components	Negative spin periods on EDR header.
		148	0329	B Magnitude Spike	Bit error in range value.
June	1975	155	1037		Possible bit error
		155	1053		
		157	0947		Bit error in range value
		158	1829-1900	Peculiar Fields	Negative spin period on EDR header.
		158	1950	B Magnitude Spike	Bit error
		162	1845-1858	Peculiar Fields	Negative spin periods given on EDR header.
		168	2037-2055	Field Orientation Error	Incorrect sensor flag on EDR header.
		170	0824	B Magnitude Spike	Bit error on z axis
		173	0540		Bit error in range value.
		173	0609		
		173	0623		

JET PROPULSION LABORATORY

INTEROFFICE MEMORANDUM

March 14, 1978

TO: Pioneer 10 Co-Investigators

FROM: Bruce Tsurutani/Ed Smith

CONCERNING: July, August, September, October and November 1975
Pioneer 10 Average Tapes

The above five average data tapes are presently enroute to you. The data anomalies and their causes are listed below:

<u>S/C</u>	<u>Month</u>	<u>Day</u>	<u>Time</u>	<u>Description</u>	<u>Comments</u>
10	July	180	~0200-0600	wave-like data	Aliased instrument noise due to very low field magnitudes and low bit rates. For more details, see memo to the magnetometer team dated 14 April 1977. Bit rate 1
		183	~1000	wave-like data	" " BR 1, 2
		184	~2100-0130	wave-like data	" " BR 5
		186	0120-0700	wave-like data	" " BR 0, 1, 2
		194	~1000-1600	wave-like data	" " BR 1, 2
		202	0900-1600	wave-like data	" " BR 1, 2
		207	~0800-0900	wave-like data	" " BR 1
		208	~0600-0900	wave-like data	" " BR 5
		209	1010-1800	wave-like data	" " BR 0, 1, 2
	August	221	1442-1445	spike in B_y , B_z	Incorrect orientation given in AMEs EDR header
		223	0705	spike in B_z	Too few data points in one minute average
		229	~730-1600	wave-like data	Aliased instrument noise. BR 1
		231	~840-1600	wave-like data	Aliased instrument noise. BR 1, 2
		234	1345	spike in B_z	The anomaly is not completely understood
		236	~0420-0800	wave-like data	Aliased instrument noise. BR 0, 2

<u>S/C</u>	<u>Month</u>	<u>Day</u>	<u>Time</u>	<u>Description</u>	<u>Comments</u>
10	August	239-40	~0900-1300	wave-like data	Aliased instrument noise. BR 0, 1, 2
		241-2	~0530-2000	wave-like data	Aliased instrument noise. BR 1, 2
	Sept.	243-245	0900-1600	wave-like data	Aliased instrument noise. BR 1, 2
		252	1324-1326	spike in B _z component	Spacecraft orientation incorrectly given on AMEs EDR header.
	Oct.	279	~0330-0500	wave-like data	Aliased instrument noise. BR 0
		284	1833	spike in B _y , B _z components	Incorrect attitude information given on AMEs EDR header. See error explanation for Dec. 1974 P/10 data tape.
		290	0405	spike in B _y , B _z	Average made from one data vector.
		298	~0342-0528	wave-like data	Aliased instrument noise. BR 0
	Nov.	315	~1015-1030	wave-like data	Aliased instrument noise. BR 1

BTT:ydj

cc: E. R. Parker

Pioneer 10
D-43926
2/02/75 - 3/01/75

[illegible]

