

DATA SET CATALOG # 83

Explorer 41
67-053A-00D

Ephemeris
1 tape

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 This inventory information is now no longer maintained in the DSCs, but is now managed in the inventory part of the NSSDC information system.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

EXPLORER 41 Ephemeris

69-053A-00D

556 BPI, BIN, ODD, 7 Track, 1 File, 7094

D#	C#	Start	Stop
D-05769	C-04455	9/15/70	9/18/70

6.3.1.2 File Description and Record Layout—The format of the MGS tape is shown in Figure 4-9. The tape contains the ephemeris, sun, and moon positions computed in geocentric equatorial inertial, geocentric solar ecliptic, and geocentric solar magnetospheric coordinate systems. The tape has a density of 160 bpi written in binary mode, with a title record (Table 4-10), data records (Table 4-13), two end-of-data sentinel records (Table 4-14) following the last data record, and two end-of-file marks at the end of the tape. The number of data records varies from tape to tape and is a function of the time period covered and time interval between data records.



Figure 4-9. MGS Tape Format

Table 4-12
 DDP-1000 Tape File Record

Word No	Form	Notes
0	Fixed 1A	Format II record size indicator (+000075010001) This indicates a word block of 750 words, exclusive of 7 record size indicator words and check sum word.
1	Floating 2A	Form of data identification - 70010001 ₁₀
2-3	Floating 2A	Source identification
4	Floating 2A	Date
5	Floating 2A	Day count of year
6	Floating 2A	Seconds of day
7	Floating 2A	Date
8	Floating 2A	Day count of year
9	Floating 2A	Seconds of day
10	Floating 2A	+ 17 in 64 words, at tape and equal intervals between data records + 6 of tape - has unequal intervals
11-13	Floating 2A	Aperture
14	Floating 2A	Number of words per data record - 75 ₁₀
15	Floating 2A	Spurs (Bar)
16-24	Floating 2A	Data identification date
25	Floating 2A	Date
26	Floating 2A	Day count of year
27	Floating 2A	Aperture aberrant from 18 radians
28-30	Floating 2A	Mathematics (if applicable)
31	Floating 2A	Date
32	Floating 2A	Day Count
33	Floating 2A	Seconds of day
34	Floating 2A	Start-major axis, a (cm)
35	Floating 2A	Excentricity, e

Table 6-13

HSP-1 Data Tape Data Record

Word No	Form	Unit
0	Fixed P.	Current word size indicator (+000113012001) This indicates a total data word count of 75.
1	Floating P.	Day of year
2	Floating P.	Time of day
3	Floating P.	Longitude (deg) satellite position in geocentric coordinates
4	Floating P.	Latitude (deg)
5	Floating P.	Longitude (deg) satellite position in geocentric coordinates
6	Floating P.	Latitude (deg)
7	Floating P.	R_p Earth radius, geocentric coordinates of satellite position, CGL
8	Floating P.	r , r.s.s. distance of the satellite from the center of the earth (km)
9	Floating P.	$GM_{\oplus}$
10	Floating P.	$GM_{\oplus}$ Satellite position in Geocentric Solar Magnetospheric Coordinates (km)
11	Floating P.	$GM_{\oplus}$
12	Floating P.	$GM_{\oplus}$ Satellite position in Geocentric Solar Magnetospheric Coordinates (km)
13	Floating P.	$GM_{\oplus}$
14	Floating P.	$GM_{\oplus}$ Satellite position in Geocentric Solar Magnetospheric Coordinates (km)
15	Floating P.	$GM_{\oplus}$
16	Floating P.	$GM_{\oplus}$ Moon position in Geocentric Solar Magnetospheric Coordinates (km)
17	Floating P.	$GM_{\oplus}$
18	Floating P.	$GM_{\oplus}$
19	Floating P.	$GM_{\oplus}$ Moon position in Geocentric Solar Magnetospheric Coordinates (km)
20	Floating P.	$GM_{\oplus}$

TABLE 3-12 (Continued)

Word No.	Form	Unit	
21	Flattening P_0	GEI_{10}	Baseline position Geocentric Ecliptical Normal (GEC)
22	Flattening P_1	GEI_{11}	
23	Flattening P_2	GEI_{12}	
24	Flattening P_3	GEI_{13}	Sun position in Geocentric Ecliptical Normal (GEC)
25	Flattening P_4	GEI_{14}	
26	Flattening P_5	GEI_{15}	
27	Flattening P_6	Longitude	Sun-ecliptic point in geocentric ecliptic plane (deg)
28	Flattening P_7	Latitude	
29	Flattening P_8	Distance from the apogee to the Moon (km)	Distance parallel to the x-axis from the apogee to the moon (km)
30	Flattening P_9	Distance parallel to the x-axis from the apogee to the moon (km)	
31	Flattening P_{10}	1st row, 1st column	Geocentric Solar Ecliptic-to-Geocentric Solar Magnetospheric transformation matrix.
32	Flattening P_{11}	1st row, 2nd column	
33	Flattening P_{12}	1st row, 3rd column	
34	Flattening P_{13}	2nd row, 1st column	
35	Flattening P_{14}	2nd row, 2nd column	
36	Flattening P_{15}	2nd row, 3rd column	
37	Flattening P_{16}	3rd row, 1st column	
38	Flattening P_{17}	3rd row, 2nd column	
39	Flattening P_{18}	3rd row, 3rd column	

Table 5-13 (Contd.)

Word No.	Term	Unit
40	Floating Pt	1st row, 1st column
41	Floating Pt	1st row, 2nd column
42	Floating Pt	1st row, 3rd column
43	Floating Pt	2nd row, 1st column
44	Floating Pt	2nd row, 2nd column
45	Floating Pt	2nd row, 3rd column
46	Floating Pt	3rd row, 1st column
47	Floating Pt	3rd row, 2nd column
48	Floating Pt	3rd row, 3rd column
49	Floating Pt	Upper Ascension
50	Floating Pt	Declination
51	Floating Pt	Right Ascension
52	Floating Pt	Declination
53	Floating Pt	Magnitude of the velocity (cm/sec)
54	Floating Pt	1. Millimeter parameter (earth radii)
55	Floating Pt	2. Magnetic field strength (Gauss)
56	Floating Pt	Ratio of the magnetic field strength of the satellite to the field strength at the satellite.
57	Floating Pt	Satellite-earth-sun angle, Loop (deg)

Table 2-15 (Continued)

Item No.	Form	Field
18	Floating Pt	azimuth-north-north angle (deg)
19	Floating Pt	Height correction
20	Floating Pt	Declination
21	Floating Pt	Longitude
22	Floating Pt	Latitude
23	Floating Pt	GM_{true}
24	Floating Pt	GM_{true}
25	Floating Pt	GM_{true}
26	Floating Pt	Type of data item indicator
27	Floating Pt	1 = regular satellite data item
28	Floating Pt	2 = ascending node crossing data item
29	Floating Pt	3 = data point data item
30	Floating Pt	4 = descending node data item
31	Floating Pt	5 = south point data item
32	Floating Pt	6 = sunrise entrance data item
33	Floating Pt	7 = sunrise exit data item
34	Floating Pt	Time of day (UT - MO LAG)
35	Floating Pt	Longitude
36	Floating Pt	Latitude
37	Floating Pt	Height above spheroid (km)

TABLE 9-13 (Continued)

Word No.	Form	Data
71	Fixed Pt.	Addressing mode crossing number (base number)
72	Floating Pt.	Year of data (YR)
73-75	Floating Pt.	Year (YY) day spaces
76	Fixed Point	Check sum of data words in words number 1 - 75
77	Fixed Point	FORTRAN record size indicator (40001-010001) This indicates a total data word count of 10,000 words.

Table 9-14
BMP-1 NCE Tape Control Record

Word No.	Form	Data
0	Fixed Pt.	FORTRAN RECORD SIZE INDICATOR (400010010001). This indicates a total data word count of 200 words.
1	Floating Pt.	88000000 ₁₀
2 - 75	Floating Pt.	Irrelevant
76	Fixed Pt.	Check sum of data words in words number 1 - 75.
77	Fixed Pt.	FORTRAN RECORD SIZE INDICATOR (400010010001)

3.3.3.2 Depth/Altitude Tape.--The format and physical characteristics of the depth/altitude tape are the same as those of the NCE tape described in Section 3.3.1.2. The tape contains the NCE data augmented by altitude information supplied by the housekeeping tape.

Partial Listing of C-04455
Explorer 41 Ephemeris
69-053A-00D

FILE 0001 REC 0001 CH 1836

X.421
X.416

0001	000375010001	233434556447	221417466000	000000000000	224526174600	211402000000
0049	211405000000	220553220000	206740000000	204600000000	205520000000	205400000000
0097	215663700000	233446723074	000000000000	000000000000	000000000000	224736044400
0145	232736260134	233444750506	233545067350	224526144200	210712000000	203552767315
0193	000000000000	000000000000	000000000000	000000000000	000000000000	167651514005
0241	000000000000	224526145050	210720000000	221463570000	221562151605	200713446573
0289	567775143464	210625037642	372507054104	215456351761	000000000000	000000000000
0337	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0385	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0433	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0481	202514631460	215644123144	221465045313	000000000000	000000000000	000000000000
0529	000000000000	000000000000	201403000000	000000000000	000000000000	000000000000
0577	000000000000	000000000000	000000000000	000000000000	000000000000	223755463125
0625	202622102245	603725343320	205620120057	204530216340	166505526642	573603764323
0673	174755517476	203475304341	202622127124	201721222731	202704352704	201572205114
0721	173436030071	202622113735	555664551040	553523731512	211547704374	200412761034
0769	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0817	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0865	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0913	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0961	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1009	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1057	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1105	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1153	204400000000	205500000000	205520000000	206650000000	174646165510	000000000000
1201	202400000000	000000000000	000000000000	000000000000	000000000000	000000000000
1249	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1297	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1345	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1393	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1441	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1489	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000

FILE 0001 REC 0002 CH 0468

0001	000113010001	211402000000	227730323000	610435540024	207500077042	610411547515
0049	217574630724	214531115563	615550243743	217557356736	214531115563	213420011100
0097	220402524461	215750670244	623534113031	220411320307	613705472644	613736210254
0145	600775501635	176414611555	174722145210	610440320214	603626275677	223541162441
0193	000000000000	000000000000	000000000000	200753227707	177440176404	000000000000
0241	600772626235	176413214616	174717457756	576443244563	600720754004	57762173707
0289	200725571525	210746044730	207500077036	211445110530	606674345062	203525543011
0337	207617775747	207515764437	207602054377	206542528241	607460476366	210445157720
0385	207605573455	613407311627	201400000000	224526174600	610435540025	207500142006
0433	207430000000	000000000000	000000000000	000000000000	661005221500	000113010001

FILE 0001 REC 0003 CH 0468

0001	000113010001	211402000000	227734046000	610432410062	207476451355	610405407720
0049	217571026035	214513565451	615530765365	217554544653	214513565451	213502630044
0097	220402137761	215751164710	623534116045	220410747013	613706055174	613714341577
0145	600775502150	176414576303	174722121471	610440717522	603630227625	223541053700
0193	000000000000	000000000000	000000000000	200753141742	177440755637	000000000000
0241	600772626577	176413201406	174717434331	576443230344	600720754323	577623174173
0289	200725571525	210751575456	207476451352	211445175356	606676553227	203527507665
0337	207617775747	207516574572	207601104512	206567463246	607456750031	210445557643
0385	210670343600	613420240651	201400000000	224526174600	610432410063	207476516041
0433	207430000000	000000000000	000000000000	000000000000	661024206120	000113010001

FILE 0001 REC 0004 CH 0468

0001	000113010001	211402000000	227737571000	610427425322	207474757445	610401154131
0049	217565216570	214476214345	615511464720	217551707527	214476214345	213565357450
0097	220401553330	215751461330	623534121057	220410375614	613706436454	613672443061
0145	600775502461	176414563031	174722075753	610441317001	603632153312	223540745102
0193	000000000000	000000000000	000000000000	200753053553	177441536040	000000000000
0241	600772627141	176413166140	174717410621	576443214065	600720754643	577623174457
0289	200725571525	210755160725	207474757442	211445264024	606701006573	203531475257

