[redacted]

#486

VOYAGER 1 & 2

HOUR AVERAGE IMF, HG COORD, TAPE

77-084A-05F
77-076A-05F

NEPTUNE ENCOUNTER HG COORD, TAPE

77-076A-05V

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 This inventory information is now no longer maintained in the DSCs, but is now managed in the inventory part of the NSSDC information system.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

VOYAGER 1 & 2

HOUR AVERAGE IMF, HG COORD, TAPE

77-084A-05F SPHE-00685

77-076A-05F

These data sets have been restored. There was originally 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 an IBM 3081 computer and the restored tape was created on an IBM 9021 computer. The DR and DS numbers along with the corresponding D number are as follows:

DR#	DS#	D#	FILES	TIME SPAN	
DR006134	DS006134	D063225	1	08/20/77 - 08/23/81	(VOYAGER 2)
			2	09/01/81 - 12/31/84	(VOYAGER 2)
			3	09/05/77 - 08/23/81	(VOYAGER 1) (a)

(a) D063225: Read error occurred in record 2798 of file 1.

INTERPLANETARY MAGNETIC FIELD DATA

VOYAGER 1 (77-084A-05F)
VOYAGER 2 (77-076A-05F)

This data set contains 1 9-track, 1600 BPI, binary tape created on the Modcomp. D-63225 has 3 files and contains data from both Voyager 1 (file 3) and Voyager 2 (files 1 & 2). The D and C numbers and time spans follow:

D#	C#	FILES	TIME SPAN
D-63225	C-24059	1	08/20/77 - 08/23/81 (VOYAGER 2)
		2	09/01/81 - 12/31/84 (VOYAGER 2)
		3	09/05/77 - 08/23/81 (VOYAGER 1)

Voyager Magnetic Field

Hour Averages

DCB = (RECFM=FB, LREC=32, BLKSIZE=6400, DEN=3)

The tape is unlabeled, 9-track with 1 file, created in binary on the IBM 3081.

WORD	TYPE	MEANING	UNITS/COMMENTS
1	I*4	S/C ID	= 1: Voyager 1 = 2: Voyager 2
2	I*4	Year	77, 78, 79
3	I*4	Day	Jan. 1=1
4	I*4	Hour	(0,1,... 23)
5	R*4	F1	Avg. |B|, (nT)
6	R*4	F2	$(\bar{B}_x^2 + \bar{B}_y^2 + \bar{B}_z^2)^{1/2}$ (nT)
7	R*4	Lat. Angle *	Deg (HG coordinates)
8	R*4	Long. Angle *	Deg. (HG coordinates)

The uncertainty in each component of an hour average of B is in the range from 0.01nT to 0.1nT. The most probable uncertainty is approximately 0.04nT per component for hour averages of B. The uncertainty in long-term averages is appreciably smaller.

* These are computed from Hourly Averaged Cartesian Components of the Magnetic Field
3/20 JMK

```
LEVEL 2.3.0 (MAR  1988)        VS FORTRAN              AUG 10, 1989  14:29:38                                                    PAGE:     1
REQUESTED OPTIONS (EXECUTE): NODECK,NOLIST,OPT(3),NOTRMFLG,NOSDUMP,LINECOUNT(60),MAP,NOXREF
OPTIONS IN EFFECT: NOLIST MAP NOXREF GOSTMT NODECK SOURCE TERM OBJECT FIXED NOTRMFLG SRCFLG NOSYM NORENT
                   NOSDUMP NOSXM NOVECTOR IL(NONE) NOTEST NODC NOICA NODIRECTIVE NODBCS NOSAA
                     OPT(3) LANGLVL(77) NOFIPS   FLAG(I)  AUTODBL(NONE)  NAME(MAIN)     LINECOUNT(60)       CHARLEN(500)
 IF DO   ISN    *....*...1.........2.........3.........4.........5.........6.........7.*.......8
                C
                C PRODUCE VOYAGER 1 TAPE FOR THE DATA CENTER
                C
             1        REAL*4 FIN(35),FOUT(8)
             2        INTEGER*4 IN(35),OUT(8)
             3        EQUIVALENCE (FIN(1),IN(1)),(FOUT(1),OUT(1))
             4        OPEN(10,FILE='/Y3LWK.HOUR1',STATUS='OLD',FORM='UNFORMATTED')
                C     CALL FILEINF(IRET,'RECFM','FB','LRECL',32,'BLKSIZE',6400,
                C    C            'VOLSER','RA2663','DEVICE','1600')
                C     OPEN(11,ACCESS='SEQUENTIAL',STATUS='UNKNOWN',FORM='UNFORMATTED')
             5        IREAD = 0
             6        IWRITE = 0
             7     10 CONTINUE
             8        READ(10,NUM=LEN,END=100,ERR=10) FIN
             9        IREAD = IREAD + 1
            10        IF ( IN(1).NE.1 ) GOTO 10
            11        ITIME = IN(2)*100000 + IN(3)*100 + IN(4)
            12        IF ( ITIME.GE.7723200.AND.ITIME.LT.8123600) THEN
 1          13         OUT(1) = IN(1)
 1          14         OUT(2) = IN(2)
 1          15         OUT(3) = IN(3)
 1          16         OUT(4) = IN(4)
 1          17         FOUT(5) = FIN(9)
 1          18         FOUT(6) = FIN(10)
 1          19         FOUT(7) = FIN(11)
 1          20         FOUT(8) = FIN(12)
 1          21         WRITE(11,NUM=N) FOUT
 1          22         IWRITE = IWRITE + 1
 1          23        ENDIF
            24        GOTO 10
            25    100 CONTINUE
            26        WRITE(6,'('' RECORDS READ    : '',I7)') IREAD
            27        WRITE(6,'('' RECORDS WRITTEN: '',I7)') IWRITE
            28        STOP
            29        END
LEVEL 2.3.0 (MAR  1988)        VS FORTRAN              AUG 10, 1989  14:29:38  NAME:MAIN                                   PAGE:     2
STORAGE MAP - TAGS DEFINED IN MAP ARE:
A-ARGUMENT                I-INTRINSIC FUNCTION S-SET
C-COMMON VARIABLE         K-NAMED CONSTANT     T-STATEMENT FUNCTION
E-EQUIVALENCED            N-ENTRY NAME         V-DATA VALUE(S)
F-REFERENCED              P-PROGRAM NAME       X-SUBPROGRAM
G-ASSIGNED                R-SUBPROGRAM NAME
PROGRAM NAME: MAIN   SIZE OF PROGRAM: 410 HEX BYTES.
 NAME       TYPE  TAG   DISPL.  NAME       TYPE  TAG   DISPL.  NAME       TYPE  TAG   DISPL.  NAME       TYPE  TAG   DISPL.
 FIN        R*4   SFEA  000208  FOUT       R*4   SFEA  000298  IN         I*4   FE    000208  IREAD      I*4   SFA   000188
 ITIME      I*4   SF    00018C  IWRITE     I*4   SFA   000190  LEN        I*4   SFA   000194  N          I*4   SFA   000198
 OUT        I*4   SFE   000298

LABEL INFORMATION.
    LABEL      DEFINED   ADDR.      LABEL      DEFINED   ADDR.      LABEL      DEFINED   ADDR.      LABEL      DEFINED   ADDR.
        10            7  0002FC          100         25  0003B2
```

```
LEVEL 2.3.0 (MAR  1988)        VS FORTRAN            JUL 12, 1989  16:13:02                                                    PAGE:     1
REQUESTED OPTIONS (EXECUTE): NODECK,NOLIST,OPT(3),NOTRMFLG,NOSDUMP,LINECOUNT(60),MAP,NOXREF
OPTIONS IN EFFECT: NOLIST MAP NOXREF GOSTMT NODECK SOURCE TERM OBJECT FIXED NOTRMFLG SRCFLG NOSYM NORENT
                   NOSDUMP NOSXM NOVECTOR IL(NONE) NOTEST NODC NOICA NODIRECTIVE NODBCS NOSAA
                      OPT(3) LANGLVL(77) NOFIPS   FLAG(I)  AUTODBL(NONE)  NAME(MAIN)     LINECOUNT(60)      CHARLEN(500)
 IF DO   ISN    *....*...1.........2.........3.........4.........5.........6.........7.*.......8
                C
                C PRODUCE VOYAGER 2 TAPE FOR THE DATA CENTER
                C
            1         REAL*4 FIN(35),FOUT(8)
            2         INTEGER*4 IN(35),OUT(8)
            3         EQUIVALENCE (FIN(1),IN(1)),(FOUT(1),OUT(1))
            4         OPEN(10,FILE='/Y3LWK.HOUR1',STATUS='OLD',FORM='UNFORMATTED')
                C     CALL FILEINF(IRET,'RECFM','FB','LRECL',32,'BLKSIZE',6400,
                C    C                'VOLSER','RA2663','DEVICE','1600')
                C     OPEN(11,ACCESS='SEQUENTIAL',STATUS='UNKNOWN',FORM='UNFORMATTED')
            5         IREAD = 0
            6         IWRITE = 0
            7      10 CONTINUE
            8         READ(10,NUM=LEN,END=100,ERR=10) FIN
            9         IREAD = IREAD + 1
           10         IF ( IN(1).NE.2 ) GOTO 10
           11         ITIME = IN(2)*100000 + IN(3)*100 + IN(4)
           12         IF ( ITIME.GE.7723200.AND.ITIME.LT.8123600) THEN
  1        13          OUT(1) = IN(1)
  1        14          OUT(2) = IN(2)
  1        15          OUT(3) = IN(3)
  1        16          OUT(4) = IN(4)
  1        17          FOUT(5) = FIN(9)
  1        18          FOUT(6) = FIN(10)
  1        19          FOUT(7) = FIN(11)
  1        20          FOUT(8) = FIN(12)
  1        21          WRITE(11,NUM=N) FOUT
  1        22          IWRITE = IWRITE + 1
  1        23         ENDIF
           24         GOTO 10
           25     100 CONTINUE
           26         WRITE(6,'('' RECORDS READ    : '',I7)') IREAD
           27         WRITE(6,'('' RECORDS WRITTEN: '',I7)') IWRITE
           28         STOP
           29         END
LEVEL 2.3.0 (MAR  1988)        VS FORTRAN            JUL 12, 1989  16:13:02  NAME:MAIN                                   PAGE:     2
STORAGE MAP - TAGS DEFINED IN MAP ARE:
A-ARGUMENT              I-INTRINSIC FUNCTION S-SET
C-COMMON VARIABLE       K-NAMED CONSTANT     T-STATEMENT FUNCTION
E-EQUIVALENCED          N-ENTRY NAME         V-DATA VALUE(S)
F-REFERENCED            P-PROGRAM NAME       X-SUBPROGRAM
G-ASSIGNED              R-SUBPROGRAM NAME
PROGRAM NAME: MAIN   SIZE OF PROGRAM: 414 HEX BYTES.
 NAME       TYPE  TAG   DISPL.  NAME       TYPE  TAG   DISPL.  NAME       TYPE  TAG   DISPL.  NAME       TYPE  TAG   DISPL.

 FIN        R*4   SFEA  000208  FOUT       R*4   SFEA  000298  IN         I*4   FE    000208  IREAD      I*4   SFA   00018C
 ITIME      I*4   SF    000190  IWRITE     I*4   SFA   000194  LEN        I*4   SFA   000198  N          I*4   SFA   00019C
 OUT        I*4   SFE   000298


LABEL INFORMATION.
    LABEL      DEFINED   ADDR.      LABEL      DEFINED   ADDR.      LABEL      DEFINED   ADDR.      LABEL      DEFINED   ADDR.

          10         7  0002FC          100        25  000386
```

D-63225
C-24059

Interplanetary Magnetic Field Data
(2 Files) Voyager 2 8/20/77 - 12/31/84
Voyager 1 9/05/77 - 8/23/81

DUMP OF TAPE LIZ

INPUT TAPE LIZ ON HT1
DATA INPUT H9 NF 3 FL 3 1 1

77 8/20

FILE 1 RECORD 1 LENGTH 6400BYTES

(0)	00000002	0000004D	000000E8	00000012	41528F5C	414028F5	4154CCCC	43139666	00000002	0000004D
(4)	000000E8	00000013	41466666	413E3D70	42169999	43142333	00000002	0000004D	000000E8	00000014
(8)	41463D70	414051EB	41E33333	43149800	00000002	0000004D	000000E8	00000015	4139C28F	4121EB85
(12)	4114CCCC	41B00000	00000002	0000004D	000000E8	00000016	413B851E	4134A3D7	C1680000	422DE666
(16)	00000002	0000004D	000000E8	00000017	414028F5	413B851E	422E9999	41CCCCCC	00000002	0000004D
(20)	000000E9	00000000	413CF5C2	413970A3	42179999	43158B33	00000002	0000004D	000000E9	00000001
(24)	413D47AE	4139EB85	421E1999	41633333	00000002	0000004D	000000E9	00000002	413F5C28	413BD70A
(28)	422C9999	4314EB33	00000002	0000004D	000000E9	00000003	412F851E	412CF5C2	42343333	43157999
(32)	00000002	0000004D	000000E9	00000004	41363D70	412E8F5C	4218CCCC	4312C333	00000002	0000004D
(36)	000000E9	00000005	4133D70A	412CF5C2	4213CCCC	43141199	00000002	0000004D	000000E9	00000006
(40)	4136B851	413428F5	C21F9999	43140333	00000002	0000004D	000000E9	00000007	41300000	412D70A3
(44)	C21C6666	4313F999	00000002	0000004D	000000E9	00000008	412B851E	4124CCCC	C235E666	43112800
(48)	00000002	0000004D	000000E9	00000009	41328F5C	412C0000	C1E33333	42F53333	00000002	0000004D
(52)	000000E9	0000000A	41323D70	412A3D70	42311999	4314E199	00000002	0000004D	000000E9	0000000B
(56)	413547AE	4129EB85	42259999	43149199	00000002	0000004D	000000E9	0000000C	41368F5C	412E6666
(60)	C1D33333	4312EE66	00000002	0000004D	000000E9	0000000D	412FD70A	412CCCCC	41780000	431434CC
(64)	00000002	0000004D	000000E9	0000000E	41335C28	412B5C28	42199999	43128333	00000002	0000004D
(68)	000000E9	0000000F	4136B851	412D9999	40666666	4312F4CC	00000002	0000004D	000000E9	00000010
(72)	413E3D70	4139C28F	41980000	43120199	00000002	0000004D	000000E9	00000011	41407AE1	413DEB85
(76)	41DE6666	431334CC	00000002	0000004D	000000E9	00000012	41447AE1	41433333	42191999	43135000
(80)	00000002	0000004D	000000E9	00000013	4147AE14	41468F5C	421D8000	43142333	00000002	0000004D
(84)	000000E9	00000014	41309999	41330A3D	C13B3333	43119000	00000002	0000004D	000000E9	00000015
(88)	413570A3	4126147A	C1D80000	42E49999	00000002	0000004D	000000E9	00000016	4139EB85	4138CCCC
(92)	C1A00000	42E66666	00000002	0000004D	000000E9	00000017	413C28F5	41335C29	C1233333	42E78000
(96)	00000002	0000004D	000000EA	00000000	413AE147	4138F5C2	C18E6666	42D51999	00000002	0000004D
(100)	000000EA	00000001	4141EB85	413828F5	42111999	42F7E666	00000002	0000004D	000000EA	00000002
(104)	4140A3D7	413FD70A	C1BE6666	42E73333	00000002	0000004D	000000EA	00000003	4142147A	413F851E
(108)	C1A33333	42E9CCCC	00000002	0000004D	000000EA	00000004	4148E1EB	4137851E	415CCCCC	43100333
(112)	00000002	0000004D	000000EA	00000005	415AB851	413CCCCC	42141999	43138800	00000002	0000004D
(116)	000000EA	00000006	41BCA3D7	41AB5C28	4223B333	4313D4CC	00000002	0000004D	000000EA	00000007
(120)	41480000	414570A3	4144CCCC	4314B4CC	00000002	0000004D	000000EA	00000008	414547AE	4144CCCC
(124)	41219999	43150333	00000002	0000004D	000000EA	00000009	4140F5C2	41407AE1	413CCCCC	4315FCCC
(128)	00000002	0000004D	000000EA	0000000A	414028F5	413EB851	42108000	4314D666	00000002	0000004D
(132)	000000EA	0000000B	413EE147	413DEB85	41AE6666	4314DCCC	00000002	0000004D	000000EA	0000000C
(136)	413D1EB8	413BAE14	C2140000	43157CCC	00000002	0000004D	000000EA	0000000D	413CF5C2	413BAE14
(140)	C2163333	43157B33	00000002	0000004D	000000EA	0000000E	41447AE1	41428F5C	C1766666	4313CB33
(144)	00000002	0000004D	000000EA	0000000F	4144F5C2	41423D70	41366666	43133333	00000002	0000004D
(148)	000000EA	00000010	415570A3	4146E147	41400000	43122B33	00000002	0000004D	000000EA	00000011
(152)	4155C28F	41533333	416CCCCC	4312CE66	00000002	0000004D	000000EA	00000012	4153AE14	4148CCCC
(156)	C1533333	43127CCC	00000002	0000004D	000000EA	00000013	414D47AE	414A147A	417E6666	43159999
(160)	00000002	0000004D	000000EA	00000014	414FD70A	4148CCCC	C214E666	43131333	00000002	0000004D
(164)	000000EA	00000015	414CA3D7	4146147A	C2156666	43119800	00000002	0000004D	000000EA	00000016
(168)	414A147A	4145EB85	C1E99999	4310F4CC	00000002	0000004D	000000EA	00000017	41487AE1	41470A3D
(172)	C2131999	431194CC	00000002	0000004D	000000EB	00000000	414C28F5	414B851E	C2133333	43131B33
(176)	00000002	0000004D	000000EB	00000001	414D9999	414D1EB8	C1D00000	43123199	00000002	0000004D
(180)	000000EB	00000002	4147D70A	4147851E	C1833333	43138199	00000002	0000004D	000000EB	00000003
(184)	414B3333	414A8F5C	C1CB3333	43133800	00000002	0000004D	000000EB	00000004	414C7AE1	414C0000
(188)	C1933333	43129B33	00000002	0000004D	000000EB	00000005	414C7AE1	414B851E	C1ACCCCC	4312CCCC
(192)	00000002	0000004D	000000EB	00000006	414D9999	414C7AE1	C1719999	4312F800	00000002	0000004D
(196)	000000EB	00000007	414570A3	414CA3D7	C1733333	43130333	00000002	0000004D	000000EB	00000008
(200)	414828F5	413FAE14	C2308000	43164999	00000002	0000004D	000000EB	00000009	4144F5C2	4143851E
(204)	C2263333	424B8000	00000002	0000004D	000000EB	0000000A	4157851E	4151EB85	C16B3333	4273B333
(208)	00000002	0000004D	000000EB	0000000B	4152B851	41401EB8	41380000	4271E666	00000002	0000004D
(212)	000000EB	0000000C	415D47AE	4157851E	41A66666	426B9999	00000002	0000004D	000000EB	0000000D
(216)	4168851E	4167851E	42330000	427E4CCC	00000002	0000004D	000000EB	0000000E	417B5C28	41766666
(220)	423D1999	428F9333	00000002	0000004D	000000EB	0000000F	4174F5C2	416947AE	41299999	4276CCCC
(224)	00000002	0000004D	000000EB	00000010	416828F5	414FD70A	C2269999	4313E4CC	00000002	0000004D
(228)	000000EB	00000011	4182B851	417EB851	C2258000	43148E66	00000002	0000004D	000000EB	00000012

(2280)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	00000002	0000004D	000000EB	00000012
(2320)	41875C28	418CA3D7	C22A1999	4314C800	00000002	0000004D	000000EB	00000013	41911EB8	4190CCCC
(2360)	C2253333	4313E999	00000002	0000004D	000000EB	00000014	4190F5C2	419451EB	C2206666	43134800
(2400)	00000002	0000004D	000000EC	00000006	00000000	00000000	00000000	00000000	00000002	0000004D
(2440)	000000EC	00000007	418AB851	41875C28	42168000	4314F4CC	00000002	0000004D	000000EC	00000008
(2480)	41847AE1	417D47AE	4210B333	43138B33	00000002	0000004D	000000EC	00000009	41733333	4166B851
(2520)	421A6666	43139666	00000002	0000004D	000000EC	0000000A	4171EB85	416CA3D7	421D3333	4313FCCC
(2560)	00000002	0000004D	000000EC	0000000B	417E147A	417051EB	4210B333	43132333	00000002	0000004D
(2600)	000000EC	0000000C	4187851E	4181C28F	C1A80000	43132000	00000002	0000004D	000000EC	0000000D
(2640)	418DC28F	418CCCCC	C0B33333	43132333	00000002	0000004D	000000EC	0000000E	41875C28	4180F5C2
(2680)	C2139999	4313A800	00000002	0000004D	000000EC	0000000F	417E3D70	417B3333	C2139999	43134E66
(2720)	00000002	0000004D	000000EC	00000010	417EE147	417E147A	C21CB333	43139999	00000002	0000004D
(2760)	000000EC	00000011	4188F5C2	41866666	C2178000	4313A333	00000002	0000004D	000000EC	00000012
(2800)	418AE147	4185C28F	C2289999	4314D800	00000002	0000004D	000000EC	00000013	41863D70	41840000
(2840)	C2294CCC	431564CC	00000002	0000004D	000000EC	00000014	418A147A	418570A3	C2159999	4315C000
(2880)	00000002	0000004D	000000EC	00000015	418BD70A	418AE147	C1600000	4315B333	00000002	0000004D
(2920)	000000ED	00000003	41859999	415A6666	C11B3333	42BE1999	00000002	0000004D	000000ED	00000004
(2960)	41C170A3	418570A3	42211999	42E61999	00000002	0000004D	000000ED	00000005	00000000	00000000
(3000)	00000000	00000000	00000002	0000004D	000000ED	00000006	41C70A3D	41BC0000	42471999	4313DCCC
(3040)	00000002	0000004D	000000ED	00000007	41D59999	41CF3333	4211CCCC	43138333	00000002	0000004D
(3080)	000000ED	00000008	41C35C28	41B99999	41B66666	43138199	00000002	0000004D	000000ED	00000009
(3120)	418CA3D7	417C0000	41180000	4313C4CC	00000002	0000004D	000000ED	0000000A	41730A3D	415DC28F
(3160)	C237B333	43142000	00000002	0000004D	000000ED	0000000B	41635C28	415B851E	C22EB333	425B9999
(3200)	00000002	0000004D	000000ED	0000000C	4166E147	41568F5C	C13B3333	4314F4CC	00000002	0000004D
(3240)	000000ED	0000000D	418CCCCC	417DC28F	421FB333	43142333	00000002	0000004D	000000ED	0000000E
(3280)	41819999	4178A3D7	C1499999	43143B33	00000002	0000004D	000000ED	0000000F	4199C28F	418C0000
(3320)	42324CCC	43135800	00000002	0000004D	000000ED	00000010	41791EB8	416828F5	C21C3333	4312B199
(3360)	00000002	0000004D	000000ED	00000011	418028F5	4159C28F	C0666666	43122666	00000002	0000004D
(3400)	000000ED	00000012	4193D70A	4185C28F	42403333	42F26666	00000002	0000004D	000000ED	00000013
(3440)	418E6666	417E6666	C1BCCCCC	43147199	00000002	0000004D	000000ED	00000014	418E3D70	418A8F5C
(3480)	C21[illegible]4CCC	4314C000	00000002	0000004D	000000ED	00000015	41947AE1	418D47AE	42174CCC	431364CC
(3520)	00000002	0000004D	000000ED	00000016	418170A3	41526666	4246E666	4312BB33	00000002	0000004D
(3560)	000000ED	00000017	4167AE14	4166B851	41366666	43135000	00000002	0000004D	000000EE	00000000
(3600)	41580000	41533333	C2101999	4313C999	00000002	0000004D	000000EE	00000001	415A147A	414828F5
(3640)	41200000	4313F000	00000002	0000004D	000000EE	00000002	4150CCCC	413C0000	42289999	43137999
(3680)	00000002	0000004D	000000EE	00000003	414D9999	413CA3D7	41466666	423A9999	00000002	0000004D
(3720)	000000EE	00000004	41573333	4146147A	42171999	43136333	00000002	0000004D	000000EE	00000005
(3760)	414CA3D7	41333333	C2246666	43138199	00000002	0000004D	000000EE	00000006	4157D70A	414C51EB
(3800)	C1419999	4315ECCC	00000002	0000004D	000000EE	00000007	415976A3	414C0000	421F9999	43123E66
(3840)	00000002	0000004D	000000EE	00000008	4167AE14	4158F5C2	42429999	4310D199	00000002	0000004D
(3880)	000000EE	00000009	415CCCCC	413CCCCC	421D1999	42CD1999	00000002	0000004D	000000EE	0000000C
(3920)	[illegible]	[illegible]	[illegible]	00000000	00000002	0000004D	000000EE	0000000D	416028F5	4151EB85
(3960)	42288000	4312A199	00000002	0000004D	000000EE	0000000E	41630A3D	41451EB8	42178000	43133000
(4000)	00000002	0000004D	000000EE	0000000F	416E3D70	416B3333	C114CCCC	431574CC	00000002	0000004D
(4040)	000000EE	00000010	416C28F5	41680000	42103333	431544CC	00000002	0000004D	000000EE	00000011
(4080)	4166B851	416570A3	C0800000	43152E66	00000002	0000004D	000000EE	00000012	4154CCCC	414AB851
(4120)	422D1999	43159CCC	00000002	0000004D	000000EE	00000013	41547AE1	41535C28	421D1999	4314D000
(4160)	00000002	0000004D	000000EE	00000014	4148A3D7	4142E147	41A99999	43147B33	00000002	0000004D
(4200)	000000EF	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	00000002	0000004D	000000EF	0000000E
(4240)	41775C28	4169EB85	421[illegible]1999	43127333	00000002	0000004D	000000EF	0000000F	41730A3D	416451EB
(4280)	42183333	43118000	00000002	0000004D	000000EF	00000010	416970A3	414B5C28	42133333	43124333
(4320)	00000002	0000004D	000000EF	00000011	416170A3	41533333	41980000	42CC9999	00000002	0000004D
(4360)	000000EF	00000012	415970A3	4147D70A	422A3333	4310F199	00000002	0000004D	000000EF	00000013
(4400)	4157D70A	414AB851	421C8000	4312D800	00000002	0000004D	000000EF	00000014	4159C28F	414FAE14
(4440)	417B3333	431334CC	00000002	0000004D	000000EF	00000015	415AE147	414C0000	411CCCCC	431184CC
(4480)	00000002	0000004D	000000F0	00000005	00000000	00000000	00000000	00000000	00000002	0000004D
(4520)	000000F0	00000006	41430A3D	41400000	42101999	4312CB33	00000002	0000004D	000000F0	00000007
(4560)	413F5C28	413947AE	41719999	43119199	00000002	0000004D	000000F0	00000008	4140F5C2	41311EB8
(4600)	40199999	42F50000	00000002	0000004D	000000F0	00000009	41430A3D	412FD70A	C1B33333	43130800
(4640)	00000002	0000004D	000000F0	0000000A	4151C28F	41459999	421B6666	43147B33	00000002	0000004D
(4680)	000000F0	0000000B	41547AE1	414D47AE	4235CCCC	4314C4CC	00000002	0000004D	000000F0	0000000C
(4720)	4152E147	41470A3D	4238E666	43141E66	00000002	0000004D	000000F0	0000000D	41507AE1	414428F5
(4760)	42374CCC	4313E999	00000002	0000004D	000000F0	0000000E	414E3D70	41411EB8	423A0000	4313C333
(4800)	00000002	0000004D	000000F0	0000000F	414[illegible]7AE1	412C28F5	423[illegible]3333	42EF9999	00000002	0000004D
(4840)	000000F0	00000010	4132B851	40C00000	C2131999	431454CC	00000002	0000004D	000000F0	00000011
(4880)	4136147A	41291EB8	41ECCCCC	43101E66	00000002	0000004D	000000F0	00000012	413D1EB8	412947AE
(4920)	42154CCC	43146333	00000002	0000004D	000000F0	00000013	4148CCCC	41435C28	415ACCCC	422DE666

77-076A-05V PSFP-00031

VOYAGER 2

NEPTUNE ENCOUNTER (HG COOR) TAPE

THIS DATA SET CONSISTS OF THREE MAJOR SUBSETS: "PRE-NEPTUNE", "NEPTUNE", AND "POST-NEPTUNE". THE PRE-NEPTUNE TAPE IS 3480 CARTRIDGE AND WAS CREATED ON AN IBM COMPUTER. THE DD AND THE DC NUMBER AND ITS TIMESPAN IS AS FOLLOWS:

DD#	DC#	FILES	TIMESPAN
D-85860	C-28937	1	08/22/89-08/24/89

Notes on the Voyager 2 Magnetometer Data Set around Neptune Encounter -- R. P. Lepping, NASA/GSFC -- (3/12/92)

This data set consists of three (3) major subsets: "pre-Neptune", "Neptune", and "post-Neptune". The intervals covered by these subsets are the following: pre-Neptune covers Days 234, 235, and 236 of 1989 (where Day 1 is Jan. 1), Neptune covers 1800:00 UT of Day 236 to 0819:48 UT of day 238, but post-Neptune interval has not yet been strictly determined, but will probably start near 0600 UT of Day 238. Hence, there will be some overlap among these subsets. The first and third are rendered in standard conjoint-summary tape format, but the Neptune subset has a different format, developed for the special purpose of planetary field modeling, and described in the attached notes by J.E.P. Connerney; these notes also provide some information about the onboard magnetometer instruments. The first and third subsets, in the summary tape formats, provide 1.92, 9.6 and 48 s averages of the ambient field in Heliographic (R,T,N) coordinates, and where possible spacecraft (S/C) field data.

Because of intermittent electronic interference onboard the spacecraft which led to seriously contaminated outboard magnetometer data [of the dual magnetometer (mag) system], the standard dual-mag system data processing was not possible for those periods. Fortunately, the inner magnetometer data did not possess this contamination, but did suffer a low amplitude magnetic signal originating at the S/C -- and therefore measured by both mags. This interference could not be directly eliminated, because of the unusability of the outer magnetometer data in the usual S/C field elimination scheme, which subtracts from the net field the main (dipole) component of the spacecraft field. Where possible, the dual magnetometer processing scheme is employed and the S/C field is eliminate to a good approximation. However, a large percentage of the overall set is processed in the inner-mag-only mode, including those portions of the "Neptune" set which used the low-field inboard mag data stream. In this mode it cannot be strictly guaranteed that the S/C field did not also possess a slight background drift acting like an instrument zero-level drift. The table below, which applies to the pre- and post-Neptune subsets, shows the start/end times of individual segments, alternating between inner-mag-only mode and dual mag mode, as was necessary. The 'zero level' calibrations were matched at the boundaries of these modes with an attempt to be consistent throughout with an estimated absolute accuracy of the ambient field. The magnetic interference signal has a primary component of an oscillatory nature with a period near 4.5 minutes. Each of the three components of the ambient field for the pre-Neptune set are estimated to be accurate to about ± 0.04 nT in the dual mag mode and close to this when in the inner mag mode, especially when averaged over 4.5 minutes.

The post-Neptune data subset will follow with its descriptive notes.

VOYAGER2 NEPTUNE ENCOUNTER

89/231	00:00	-	89/234 23:59	Dual mag
89/235	00:00	-	89/235 22:59	Secondary only
89/235	23:00	-	89/236 03:59	Dual mag
89/236	04:00	-	89/236 19:59	Secondary only
89/236	20:00	-	89/237 01:59	Dual mag
89/237	02:00	-	89/237 05:59	Secondary only
89/237	06:00	-	89/237 11:59	Dual mag
89/237	12:00	-	89/237 12:59	Secondary only
89/237	13:00	-	89/237 23:59	Dual mag
89/238	00:00	-	89/275 23:59	Secondary only

Common Record Header Block

RELATIVE WORD	TYPE*LEN	DESCRIPTION
1	A*4	Data identifier: "ENG ", "LFM ", "M ", "L ", "E1 ", "E2 ", "HDR1", "HDR3"
2	A*4	Telemetry format
3	A*4	s/c id: "FLT1" or "FLT2"
4	I*2	Year of data - 1900 (time tag for beginning of data block)
	I*2	Day of year (Jan 1 = 1)
5	I*2	Hour of day (0-23)
	I*2	Minute of hour (0-59)
6	I*2	Second of minute (0-59)
	I*2	Millisecond of second (0-999)
7-8	R*8	Decimal day of year of data (Jan 1 = 0)
9-10	R*8	Decimal day count since 20AUG77
11	A*4	Type of time: SCET or ERT
12	R*4	Time period of this data block in seconds
13	I*2	2**16 seq counter of data at time of telemetry readout (increments once in 48 min). This field must be interpreted as an unsigned integer.
	I*2	Modulo 60 seq counter of data readout (increments once in 48 sec)
14	I*2	Line counter of data readout (1-800) (increments once in 60 ms)
	I*2	SPARE
15	Z*4	Status word
16	Z*4	Command
17	I*2	Data identifier: LFM=1, HFM=2, M=3, E1=4, L=5, E2=6, ENG=7, HDR1=8, HDR3=10
	I*2	Data rate: GS3=0, CR1=1, CR2=2, CR3=3, CR4=4, CR5A=5, CR6A=6, CR6B=7, CR5B=8
18		SPARE
19-20	A*8	A character flag which indicates software or s/c hardware intervention reducing confidence in data
21-29		SPARE
30-31	4(I*2)	# of primary data words, # of secondary data words, # of primary full words, # of secondary full words (LFM only)
32	I*2	Record number on tape
	I*2	Number of words remaining in logical record

RELATIVE WORD	TYPE*LEN	DESCRIPTION
	--------	48 sec av (ROTATED) --------
1	R*4	F1: average of 9.6 sec norms in gammas
2	R*4	F2: norm of (B1,B2,B3) in gammas
3	R*4	DELTA: arsin(B3/F2) in degrees
4	R*4	LAMBDA: 180 - atan(B2,-B1) in degrees
5	R*4	B1: average of first 9.6 sec component in gammas
6	R*4	B2: average of second 9.6 sec component in gammas
7	R*4	B3: average of third 9.6 sec component in gammas
8-10	3(R*4)	RMS: rms vector in gammas
11	I*4	N: number of 9.6 sec avs that make up this average (le 5)
	--------	9.6 sec av (ROTATED) --------
12-16	5(R*4)	F1: averages of 1.92 sec norms in gammas
17-21	5(R*4)	F2: norms of (B1,B2,B3) in gammas
22-26	5(R*4)	DELTA: arsin(B3/F2) in degrees
27-31	5(R*4)	LAMBDA: 180 - atan(B2,-B1) in degrees
32-36	5(R*4)	B1: averages of first 1.92 sec component in gammas
37-41	5(R*4)	B2: averages of second 1.92 sec component in gammas
42-46	5(R*4)	B3: averages of third 1.92 sec component in gammas
47-61	15(R*4)	RMS: rms vectors in gammas (3 X 5)
62-66	5(I*4)	N: Number of 1.92 sec avs that make up this average (le 5)
	--------	1.92 sec av (ROTATED) --------
67-91	25(R*4)	F1: averages of detail point norms in gammas
92-116	25(R*4)	F2: norms of (B1,B2,B3) in gammas
117-141	25(R*4)	DELTA: arsin(B3/F2) in degrees
142-166	25(R*4)	LAMBDA: 180 - atan(B2,-B1) in degrees
167-191	25(R*4)	B1: averages of first detail component in gammas
192-216	25(R*4)	B2: averages of second detail component in gammas
217-241	25(R*4)	B3: averages of third detail component in gammas

242-316	75(R*4)	RMS: PAYLOAD rms vectors in gammas (3 X 25)
317-341	25(I*4)	N: number of detail points that make up this average
	-------- s/c field averages (PAYLOAD) --------	
342-488		SPARE
489-491	3(R*4)	RMS: vector rms in gammas
492	I*4	NSC: number of averages in 48 secs
493	R*4	SCX: average of first field component in gammas
494	R*4	SCY: average of second field component in gammas
495	R*4	SXZ: average of third field component in gammas
496	R*4	SCF: norm of (SCX,SCY,SCZ) in gammas

Note: For Jupiter System III and Saturn Longitude System, (B1,B2,B3) are Spherical coordinates (Br,Btheta,Bphi) while the angles DELTA and LAMBDA are derived from Cartesian coordinates (Bx,By,Bz).

Engineering Data Area

RELATIVE WORD	TYPE*LEN	DESCRIPTION
1	I*2	Deck (Eng code 620-672)
	I*2	Value of ENG
2	R*4	"read-out" time of data in seconds past time on record header block
3-240		repeat words 1 and 2 for each new set

Since only engineering parameters which change are entered into the record, the record is of variable length.

RELATIVE WORD	TYPE*LEN	DESCRIPTION
1-2	R*8	TN: epicday of navigation block "closest" to data
3-4	R*8	TP: epicday of pointing vector block "closest" to data
5-10	R*4	Spacecraft relative position vector and velocity vector in HG: Inertial Sun Equator System (AU,km/sec). Time tag is TN. S3: Jupiter Vernal Equinox System (Jupiter radii,km/sec) Time tag is TN. L1: Saturn Vernal Equinox System (Saturn radii,km/sec) Time tag is TN.
11	R*4	Spacecraft distance from HG: Sun in AU. Time tag is TN. S3: Jupiter in Jupiter radii. Time tag is TN. L1: Saturn in Saturn radii. Time tag is TN.
12-13	R*4	Spacecraft relative longitude & latitude in radians in HG: Inertial Sun Equator System. Time tag is TN. S3: Jupiter latitude,Jupiter System III longitude. Time tag is TN. L1: Saturn latitude,Saturn Longitude System longitude. Time tag is TN. Note 0<=longitude<2*pi and -pi/2<latitude<=+pi/2
14-22	R*4	HG: Matrix to rotate data from Inertial Sun Equator System to Inertial Heliographic System. Time tag is TN. S3: Matrix to rotate data from Jupiter System III Cartesian to Jupiter System III Spherical. Time tag is DT. L1: Matrix to rotate data from Saturn Longitude System Cartesian to Saturn Longitude System Spherical. Time tag is DT.
23-31	R*4	HG: Matrix to rotate data from Inertial Heliographic System to Earth-Orbit-True System. Time tag is TN. S3: Matrix to rotate data from payload to Jupiter System III Cartesian. Time tag is DT. L1: Matrix to rotate data from payload to Saturn Longitude System Cartesian. Time tag is DT.
32-40	R*4	HG: Matrix to rotate data from payload

to Inertial Heliographic System. Time tag is DT.

S3: Matrix to rotate data from payload to Jupiter System III Spherical. Time tag is DT.

L1: Matrix to rotate data from payload to Saturn Longitude System Spherical. Time tag is DT.

41-50 SPARE

Matrices are left multiplying with elements in the order:

1	2	3
4	5	6
7	8	9

Time tag TN is relative words 1-2 above. Time tag DT is record header time plus 1/2 the length of the data record. When MAG(28) switch is on and the record is LFM, the time tag for relative words 32-40 above is record header time plus 47.04 seconds.

Coordinates: HG= (BR,BT,BN); S3 or L1 Spherical= (Br,Btheta,Bphi); S3 or L1 Cartesian= (Bx,By,Bz).

```
6 //FT10F001 DD UNIT=(3480,,DEFER),DISP=(OLD,KEEP),
  // DSN=U0#16.VOYAGER.SUMMARY.PRENEP,VOL=(,RETAIN,SER=(PRENEP)),
  // DCB=(RECFM=VB,LRECL=5000,BLKSIZE=32760),LABEL=(1,NL)
```

1 393 393 31868 0 0 0 0 0 0

DOUBLE END OF FILE READ AFTER FILE 1 # OF PERMANENT READ ERRORS 0

START TIME 3/27/92 12:29:2. STOP TIME 3/27/92 12:29:52

(48)	44112110	24276E4A	E2C3C5E3	42300000	2C1FC017	00010000	88A04000	30643054	00010000	00003000
(120)	00000000	E0500028	00100008	5BC10218	40384780	40384A7E	C1C2C1E3	4268DDAF	BFE1B7E6	40352593
(168)	BFBDCE2C	3EE82991	3F2767AA	3F1AB4A6	00000005	4038CE20	4034ED2C	4035C423	403AA533	403B62C3
(216)	4038C71F	4034E9A4	4035BC45	403AA1A4	403B56DF	C1B72290	C1BB10E0	C1A95094	C1CB4658	C1E3213E
(264)	42697FA7	426B411F	42680EEA	42680180	4267B40A	BFEDEC1C	BFF5E773	BFCD3C76	BFDD7C0C	BFDA0B93
(312)	4035A006	40317BAA	40333D89	40377ED9	4037E3D0	BFB44659	BFAB8F1C	BF9DE470	BFCE5020	BFE8D4E9
(360)	3F16F97C	3F166C0D	3E97FD5B	3EB39A3C	3F1BDC83	3EFF2E7A	3EA995D9	3E90CCEE	3F1A9188	3EE582DD
(408)	40386804	4039CE4C	4038ECD4	403A57E2	403721B6	4034DA22	40327F55	40351B78	4034D872	40380A09
(456)	4036738A	40351F57	4035D410	40365701	4035E6C1	4039A8D4	4039E837	4039EDAB	403A4B25	403DFAAC
(504)	4030B874	403B59BF	403A461E	4038DF32	403875BE	40385100	4039B1A5	4038CF69	403A37C1	4036FB22
(552)	4034BDA4	403262FA	4034F60A	4034A93D	4037E131	40363F4C	4034F897	4035A812	403634E8	4035BF1D
(600)	403991FF	4039CCEA	4039CF36	403A2FF4	403DDB0C	403D70A9	403B385C	403A2A52	403DB8A3	40386DEE
(648)	C1B30767	C1C36E3E	C1BC7EDC	C1A3283E	C1C0D286	C1B55800	C1BAC6B2	C1DE1738	C1B449E3	C1A5E46D
(696)	C1A3572D	C1B1840B	C19F33AA	C1806F74	C1DA8EE0	C1BE67C4	C1C4EC2B	C1C539(D	C1C6DAC8	C1E74E7D
(744)	C2109C94	C1C6891A	C1DBECCF	C1F968B4	C1C5B0E0	42697914	4266FBDF	4268AB2F	426A85EB	426BEE3D
(792)	426A5B7E	426B31D2	426B721C	426C2A79	426E1E87	4267E56B	42671302	4268FB2F	4268673B	4267E527
(840)	4268E503	4268D55C	42677433	4266A2A0	4268361A	4269E15C	42685377	42655ED4	4266ECAC	42682877
(888)	BFEBD5EC	BFCAD988	BFE15478	C0104BBF	C0138DCC	BFE90534	BFE95AD7	BFF6A142	C0101A12	C0102E2E
(936)	BFCD2711	BFBC2470	BFDA96B5	BFD5A01C	BFC8AC28	BFE7B34F	BFE752B9	BFD23E2B	BFC6E0FD	BFEB4730
(984)	C011C3F	BFE4FABF	BFB239AD	BFD1B920	BFD78885	40353F57	4036FC4F	4035CD30	4036EEC4	40332889
(1032)	40319EA7	402F23F6	40310CDA	40311280	40348850	40330393	40320258	40330DC0	4033FD2E	4032B2DE
(1080)	40367213	40369762	4036ED74	403772C2	403A1090	4038A138	403809FA	4037642E	4039FD2A	40356680
(1128)	BFAEDCE5	BFCC5926	BFB9957C	BFA4E8AF	BFB7ABBF	BFA5D72C	BFA31E8D	BFCB494C	BFA4A39F	BFA0E919
(1176)	BF99D52F	BFA317D7	BF545771	BF751D18	BFCB14B5	BFB0536B	BFC5162E	BFC575A0	BFC85E71	BFF712EA
(1224)	C011908F	BFCB9A7A	BFDD2098	C01095EF	BFC195B4	3F356286	3F1E1856	3F23E619	3F381B67	3F24004E
(1272)	3F28F6CD	3F362375	3F2172E9	3F2BBCDD	3F397858	3F27D579	3F2A5DA7	3F3633B6	3F2A7E8C	3F318A90
(1320)	3F2CA63F	3F1E29BF	3F2BAF82	3F3B0DDA	3F21B105	3F251F76	3F459CAC	3F1FF9E9	3F2AD8BF	3F3EB093
(1368)	3F2BAC96	3F3402A4	3F35188E	3F26458E	3F30DA5D	3F3E88D2	3F2DE4CB	3F3556CE	3F41D22F	3F276858
(1416)	3F259C50	3F33D129	3F2CABF3	3F2AC387	3F3BBC16	3F203B18	3F3156A6	3F37CB3E	3F2CEAB0	3F27C48D
(1464)	3F36DD2A	3F1ECF89	3F229B55	3F32786E	3F215170	3F2AB2F9	3F466715	3F1C1AEA	3F30D232	3F3AF939
(1512)	3F1F5908	3F2C3E13	3F35D80A	3F2E903D	3F2FF7FC	3F45D5DF	3F2A1DC4	3F1FEF77	3F3A3966	3F2E20BA
(1560)	3F21946C	3F418D31	3F24C36F	3F29233E	3F3F9846	3F2CB77B	3F350587	3F2CC8E3	3F1FBD22	3F2295E0
(1608)	00000020	00000020	00000020	00000020	00000020	00000020	00000020	00000020	00000020	00000020
(1656)	00000020	00000020	00000020	00000020	00000020	00000020	00000020	00000020	00000020	00000020
(1704)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
(1752)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
(1800)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
(1848)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
(1896)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
(1944)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
(1992)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
(2040)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000