#759

VOYAGER 1 & 2

77-084A-05O/77-076A-05X

HOURLY AVERAGE INTERPLA MEGNETIC FIELD

VOYAGER 2

HOUR AVERAGE INTERPLANTARY MAGNETIC TAPE

77-076A-05X

THIS DATA SET CONSIST OF ONE MAGNETIC TAPE. THE TAPE IS 9-TRACK, 6250 BPI WRITTEN IN ASCII, CREATED ON THE VAX COMPUTER. A COPY OF THE TAPE FORMAT HAS BEEN INCLUDED IN THE CATALOG. THE D AND C NUMBER ALONG WITH THE TIME SPAN IS LISTED BELOW.

D#	C#	FILES	LABEL	TIME SPAN
D108055	C031779	3	VG2FLU	08/20/77 - 08/25/89

VOYAGER 1

VGRFMT.TXT

Voyager MAG hour average data format:

```
s/c id (1 = Voyager-1, 2 = Voyager-2)
year (0-99)
day  (1 = Jan. 1)
hour (0-23)
x position component (A.U. - IHG coordinates)
y "                  "
z "                  "
r = sqrt(x*x+y*y+z*z)
F1 - field magnitude (nT)   ( avg(F2(48sec)) )
F2 - field modulus (nT)   ( norm (B1,B2,B3) )
delta - latitudinal angle (degrees - HG coordinates)
lambda - longitudinal angle (degrees - HG coordinates)
```

Fill data = 0.0

Data is provided in ASCII format with each field separated by a space to allow a Fortran list directed read.

MAG field components may be recovered using F2, delta and lambda.

```
BR = F2*COS(lambda)*COS(delta)
BT = F2*SIN(lambda)*COS(delta)
BN = F2*SIN(delta)
```

* Fortran users need to convert degrees to radians before using trig fcns.

Contact Sandy Kramer (code 692) for further details.
301-286-4957 NASA GSFC
z1sbk@lepvgr.gsfc.nasa.gov

VOYAGER 1

VGRINFO.TXT

These data sets contain hour averages of the interplanetary magnetic field (IMF) measurements obtained by the dual magnetometer triaxial fluxgate systems on Voyagers 1 and 2. The instruments were designed to measure the IMF between Earth and Saturn (10 AU) during the primary mission of Voyagers 1 and 2. The design and performance yielded absolute accuracies to better than < 0.1 nT. In general, each component of the IMF hourly average has an uncertainty of up to (+/- 0.05 nT) in the region beyond 10 AU. More accurate measurements can be obtained by special processing of the data, but it was not feasible to do this for the entire data set included here. A spacecraft-related noise interference signal is present in the Voyager 2 data at times from 1985 through 1990. The Voyager 2 measurements at these times can have errors larger than those quoted above. The instrument is described by Behannon et al., Space Science Reviews, 21, 235, 1977.

Voyager 2

ASCII LIST OF KM2019

Voyager 1
77-084A-050

FILE 8 RECORD 1 65000 BYTES

00821 77 248 17 -0.0410 -0.9990 0.1270 1.0079 7.441 6.501 11.4 161.300821 77 248 18 -0.0400 -0.9990 0.1270 1.
0078 7.090 6.590 11.7 142.500821 77 248 19 -0.0390 -0.9990 0.1270 1.0078 6.640 6.400 8.4 133.800821 77 248 20
-0.0380 -0.9990 0.1270 1.0078 5.690 5.540 27.8 179.300821 77 248 21 -0.0370 -0.9990 0.1270 1.0077 5.560 5.5
30 23.7 171.200821 77 248 22 -0.0360 -0.9990 0.1270 1.0077 5.820 5.810 27.4 168.100821 77 248 23 -0.0350 -0.9990
0.1270 1.0076 5.940 5.930 25.3 160.400821 77 249 0 -0.0350 -0.9990 0.1270 1.0076 6.150 6.110 25.6 161.50082
1 77 249 1 -0.0340 -0.9990 0.1270 1.0076 5.700 5.670 25.8 155.300821 77 249 2 -0.0330 -0.9990 0.1270 1.0076
5.000 4.920 22.3 164.200821 77 249 3 -0.0320 -0.9990 0.1270 1.0075 5.230 5.170 23.3 143.200821 77 249 4 -0.0
310 -0.9990 0.1270 1.0075 5.110 4.490 23.0 120.500821 77 249 5 -0.0300 -0.9990 0.1270 1.0075 4.950 4.810
12.2 113.100821 77 249 6 -0.0290 -0.9990 0.1270 1.0075 5.250 5.140 2.2 105.300821 77 249 7 -0.0280 -0.9990 0
.1270 1.0074 5.240 4.950 16.6 117.000821 77 249 8 -0.0270 -0.9990 0.1270 1.0074 3.420 3.020 16.9 135.400821 77
249 9 -0.0260 -0.9990 0.1270 1.0074 3.440 2.730 21.7 111.000821 77 249 10 -0.0250 -0.9990 0.1270 1.0073 3
.480 2.810 26.7 122.900821 77 249 11 -0.0240 -0.9990 0.1270 1.0073 4.070 4.020 49.6 137.600821 77 249 12 -0.0230
-0.9990 0.1270 1.0073 2.640 2.030 22.0 123.600821 77 249 13 -0.0220 -0.9990 0.1270 1.0073 3.000 2.870 7.7
129.000821 77 249 14 -0.0210 -1.0000 0.1270 1.0083 3.840 3.680 9.8 133.300821 77 249 15 -0.0200 -1.0000 0.127
0 1.0082 4.840 4.770 12.2 146.100821 77 249 16 -0.0190 -1.0000 0.1270 1.0082 4.620 4.390 8.5 137.300821 77 249
17 -0.0180 -1.0000 0.1270 1.0082 5.040 4.920 17.1 143.900821 77 249 18 -0.0170 -1.0000 0.1270 1.0082 4.520
4.000 35.3 125.900821 77 249 19 -0.0160 -1.0000 0.1270 1.0082 4.390 4.340 14.6 138.200821 77 249 20 -0.0150 -1
.0000 0.1270 1.0081 4.250 4.000 18.7 137.000821 77 249 21 -0.0140 -1.0000 0.1270 1.0081 3.930 3.490 2.4 114
.300821 77 249 22 -0.0130 -1.0000 0.1270 1.0081 4.660 4.130 16.2 136.500821 77 249 23 -0.0130 -1.0000 0.1270
1.0081 5.500 5.370 43.3 179.400821 77 250 0 -0.0120 -1.0000 0.1270 1.0081 5.050 4.660 33.4 165.100821 77 250 1
-0.0110 -1.0000 0.1270 1.0081 5.180 5.070 15.6 126.800821 77 250 2 -0.0100 -1.0000 0.1270 1.0081 4.970 4
.660 5.0 112.700821 77 250 3 -0.0090 -1.0000 0.1270 1.0081 5.820 5.660 -4.3 98.100821 77 250 4 -0.0080 -1.000
0 0.1270 1.0081 6.180 6.090 -10.1 83.600821 77 250 5 -0.0070 -1.0000 0.1270 1.0081 6.390 6.240 -6.7 83.800
821 77 250 6 -0.0060 -1.0000 0.1270 1.0080 6.710 5.760 23.6 142.600821 77 250 7 -0.0050 -1.0000 0.1270 1.00
80 6.940 6.250 12.1 119.500821 77 250 8 -0.0040 -1.0000 0.1280 1.0082 6.620 6.380 -1.1 126.300821 77 250 9 -0
.0030 -1.0000 0.1280 1.0082 6.530 5.080 -13.4 97.000821 77 250 10 -0.0020 -1.0000 0.1280 1.0082 7.060 7.020
-8.2 98.700821 77 250 11 -0.0010 -1.0000 0.1280 1.0082 6.450 6.060 7.0 127.500821 77 250 12 0.0000 -1.0000
0.1280 1.0082 5.100 4.950 15.6 156.200821 77 250 13 0.0000 -1.0000 0.1280 1.0082 5.320 5.240 22.5 159.300821
77 250 14 0.0010 -1.0000 0.1280 1.0082 5.330 5.260 11.9 134.000821 77 250 15 0.0020 -1.0000 0.1280 1.0082
4.580 4.480 -10.1 117.200821 77 250 16 0.0030 -1.0000 0.1280 1.0082 4.490 4.290 0.3 127.500821 77 250 17 0.004
0 -1.0000 0.1280 1.0082 4.210 3.990 -11.7 111.800821 77 250 18 0.0050 -1.0000 0.1280 1.0082 4.240 4.110 -5
.9 123.100821 77 250 19 0.0060 -1.0000 0.1280 1.0082 4.180 4.030 4.8 152.100821 77 250 20 0.0070 -1.0000 0.1
280 1.0082 4.200 4.170 6.3 163.100821 77 250 21 0.0080 -1.0000 0.1280 1.0082 5.750 5.530 23.4 163.600821 77 2
50 22 0.0090 -1.0000 0.1280 1.0082 5.300 5.260 12.2 159.500821 77 250 23 0.0090 -1.0000 0.1280 1.0082 4.5
90 4.340 5.5 167.400821 77 251 0 0.0100 -1.0000 0.1280 1.0082 4.770 4.560 -9.9 152.600821 77 251 1 0.0110
-1.0000 0.1280 1.0082 5.120 4.740 4.2 109.400821 77 251 2 0.0120 -1.0000 0.1280 1.0082 5.210 3.390 -31.1
94.800821 77 251 3 0.0130 -1.0000 0.1280 1.0082 6.170 3.000 -0.4 141.200821 77 251 4 0.0140 -1.0000 0.1280
1.0083 4.970 4.680 0.5 143.700821 77 251 5 0.0150 -1.0000 0.1280 1.0083 5.630 5.390 14.1 137.600821 77 251
6 0.0160 -1.0000 0.1280 1.0083 5.900 5.860 14.7 136.100821 77 251 7 0.0170 -1.0000 0.1280 1.0083 5.530
5.460 1.9 132.300821 77 251 8 0.0180 -1.0010 0.1280 1.0093 5.840 5.590 -14.6 146.400821 77 251 9 0.0190 -1.0
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0.1280 1.0095 4.580 4.440 9.1 138.900821 77 251 18 0.0280 -1.0010 0.1280 1.0095 4.970 4.820 -3.8 128.40082
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1.0105 5.410 4.210 -0.4 250.600821 77 252 18 0.0510 -1.0010 0.1290 1.0106 5.180 3.510 26.8 306.900821 77 252 19
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4.520 2.760 -32.5 264.000821 77 253 10 0.0660 -1.0010 0.1290 1.0114 5.150 3.360 16.7 54.800821 77 253 11 0.067
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.0 279.700821 77 253 13 0.0690 -1.0010 0.1290 1.0116 4.340 4.230 11.5 353.400821 77 253 14 0.0700 -1.0010 0.1
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30 4.240 34.4 255.200821 77 253 18 0.0730 -1.0000 0.1290 1.0109 4.970 4.320 50.1 254.500821 77 253 19 0.0740
-1.0000 0.1290 1.0110 4.870 4.800 56.3 303.100821 77 253 20 0.0750 -1.0000 0.1290 1.0111 4.860 3.970 58.5 1
52.500821 77 253 21 0.0760 -1.0000 0.1290 1.0111 4.940 4.770 7.9 135.100821 77 253 22 0.0770 -1.0000 0.1290
1.0112 3.850 2.950 18.1 119.400821 77 253 23 0.0780 -1.0000 0.1290 1.0113 2.570 2.060 -8.3 175.200821 77 254
0 0.0790 -1.0000 0.1290 1.0114 3.310 2.940 -27.8 193.600821 77 254 1 0.0800 -1.0000 0.1290 1.0115 4.640
4.560 -10.7 150.300821 77 254 2 0.0810 -1.0000 0.1290 1.0115 7.530 6.810 -47.1 161.500821 77 254 3 0.0820 -1.0
000 0.1290 1.0116 7.070 5.020 -24.4 260.200821 77 254 4 0.0820 -1.0000 0.1290 1.0116 8.100 7.780 -22.4 250.6
00821 77 254 5 0.0820 -1.0000 0.1290 1.0116 7.410 6.500 -4.9 268.600821 77 254 6 0.0850 -1.0000 0.1290 1.
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00 0.0 0.000821 77 254 11 0.0900 -1.0000 0.1290 1.0123 6.200 5.520 -35.8 276.900821 77 254 12 0.0910 -1.0000
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1 77 254 14 0.0930 -1.0000 0.1290 1.0126 6.570 5.960 -4.5 263.600821 77 254 15 0.0930 -1.0000 0.1290 1.0126
6.360 5.860 26.2 295.300821 77 254 16 0.0940 -1.0000 0.1290 1.0127 5.730 5.100 -28.3 264.200821 77 254 17 0.0
950 -1.0000 0.1290 1.0128 6.020 5.320 -23.9 285.000821 77 254 18 0.0960 -1.0000 0.1290 1.0128 5.730 5.010 -
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0 1.0138 5.780 5.460 43.0 312.600821 77 255 5 0.1070 -1.0000 0.1300 1.0141 4.950 4.510 17.7 305.200821 77 255
6 0.1080 -1.0000 0.1300 1.0142 4.910 4.790 0.4 340.900821 77 255 7 0.1090 -1.0000 0.1300 1.0143 4.700
4.590 -4.2 339.700821 77 255 8 0.1100 -0.9990 0.1300 1.0134 4.810 4.750 -4.5 353.800821 77 255 9 0.1110 -0
.9990 0.1300 1.0135 4.960 4.920 -5.1 10.700821 77 255 10 0.1120 -0.9990 0.1300 1.0136 4.850 4.710 -18.8 26
.400821 77 255 11 0.1130 -0.9990 0.1300 1.0137 5.070 4.890 1.8 26.900821 77 255 12 0.1140 -0.9990 0.1300
1.0139 4.730 4.690 8.8 8.500821 77 255 13 0.1150 -0.9990 0.1300 1.0140 4.180 4.000 1.4 355.300821 77 255 14
0.1150 -0.9990 0.1300 1.0140 3.510 3.340 18.5 313.800821 77 255 15 0.1160 -0.9990 0.1300 1.0141 3.830 3
.640 27.9 286.300821 77 255 16 0.1170 -0.9990 0.1300 1.0142 3.450 3.260 39.1 321.600821 77 255 17 0.1180 -0.999
0 0.1300 1.0143 3.800 3.860 11.4 256.100821 77 255 18 0.1190 -0.9990 0.1300 1.0144 3.560 1.950 0.9 239.300
821 77 255 19 0.1200 -0.9990 0.1300 1.0145 2.970 2.160 7.7 346.500821 77 255 20 0.1210 -0.9990 0.1300 1.01
47 4.120 4.080 8.4 0.500821 77 255 21 0.1220 -0.9990 0.1300 1.0148 4.170 3.730 37.2 346.900821 77 255 22 0
.1230 -0.9990 0.1300 1.0149 4.390 4.180 40.4 305.200821 77 255 23 0.1240 -0.9990 0.1300 1.0150 4.200 4.010
44.3 355.200821 77 256 0 0.1250 -0.9990 0.1300 1.0151 5.100 5.010 44.0 335.900821 77 256 1 0.1260 -0.9990
0.1300 1.0153 7.080 6.970 48.7 325.700821 77 256 2 0.1270 -0.9990 0.1300 1.0154 5.440 5.170 8.8 339.800821
77 256 3 0.1280 -0.9990 0.1300 1.0155 4.400 4.330 6.7 345.100821 77 256 4 0.1290 -0.9990 0.1300 1.0156
4.680 4.480 -27.0 359.100821 77 256 5 0.1300 -0.9990 0.1300 1.0158 5.150 4.760 -35.3 17.100821 77 256 6 0.131
0 -0.9990 0.1300 1.0159 5.700 5.300 -16.5 355.200821 77 256 7 0.1320 -0.9990 0.1300 1.0160 6.800 6.320 24
.2 330.700821 77 256 8 0.1320 -0.9990 0.1300 1.0160 6.910 5.960 -9.1 328.300821 77 256 10 0.0000 0.0000 0.0
000 0.0000 0.000 0.000 0.0 0.000821 77 256 11 0.1340 -0.9980 0.1300 1.0153 9.310 9.070 -18.1 318.400821 77 2

VOYAGER 2

HOUR AVERAGE INTERPLANTARY MAGNETIC TAPE

77-076A-05X

THIS DATA SET CONSIST OF ONE MAGNETIC TAPE. THE TAPE IS 9-TRACK, 6250 BPI WRITTEN IN ASCII, CREATED ON THE VAX COMPUTER. A COPY OF THE TAPE FORMAT HAS BEEN INCLUDED IN THE CATALOG. THE D AND C NUMBER ALONG WITH THE TIME SPAN IS LISTED BELOW.

D#	C#	FILES	LABEL	TIME SPAN
D108055	C031779	3	VG2FLU	08/20/77 - 08/25/89

VOYAGER 2

VGRINFO.TXT

These data sets contain hour averages of the interplanetary magnetic field (IMF) measurements obtained by the dual magnetometer triaxial fluxgate systems on Voyagers 1 and 2. The instruments were designed to measure the IMF between Earth and Saturn (10 AU) during the primary mission of Voyagers 1 and 2. The design and performance yielded absolute accuracies to better than < 0.1 nT. In general, each component of the IMF hourly average has an uncertainty of up to (+/- 0.05 nT) in the region beyond 10 AU. More accurate measurements can be obtained by special processing of the data, but it was not feasible to do this for the entire data set included here. A spacecraft-related noise interference signal is present in the Voyager 2 data at times from 1985 through 1990. The Voyager 2 measurements at these times can have errors larger than those quoted above. The instrument is described by Behannon et al., Space Science Reviews, 21, 235, 1977.

VOYAGER 2

VGRFMT.TXT

Voyager MAG hour average data format:

```
s/c id (1 = Voyager-1, 2 = Voyager-2)
year (0-99)
day  (1 = Jan. 1)
hour (0-23)
x position component (A.U. - IHG coordinates)
y "                  "
z "                  "
r = sqrt(x*x+y*y+z*z)
F1 - field magnitude (nT)   ( avg(F2(48sec)) )
F2 - field modulus (nT)   ( norm (B1,B2,B3) )
delta - latitudinal angle (degrees - HG coordinates)
lambda - longitudinal angle (degrees - HG coordinates)
```

Fill data = 0.0

Data is provided in ASCII format with each field separated by a space to allow a Fortran list directed read.

MAG field components may be recovered using F2, delta and lambda.

```
BR = F2*COS(lambda)*COS(delta)      * Fortran users need to convert
BT = F2*SIN(lambda)*COS(delta)        degrees to radians before
BN = F2*SIN(delta)                    using trig fcns.
```

Contact Sandy Kramer (code 692) for further details.
301-286-4957 NASA GSFC
z1sbk@lepvgr.gsfc.nasa.gov

ASCII LIST OF KM2013

Voyager 2
77-076A-05X

FILE 8 RECORD 1 65000 BYTES

```
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0107   4.400   3.890  22.6 322.200822 77 232 20   -0.3070   -0.9550    0.1220   1.0105   4.390   4.020  14.2 329.500822 77 232 21
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2 77 233  2   -0.3010   -0.9560    0.1220   1.0097   3.960   3.740  44.6 335.700822 77 233  3   -0.3000   -0.9570    0.1220   1.0103
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990   -0.9570    0.1220   1.0100   3.240   2.810  19.8 321.100822 77 233  6   -0.2980   -0.9570    0.1230   1.0098   3.420   3.260 -
31.6 320.200822 77 233  7   -0.2970   -0.9570    0.1230   1.0095   3.000   2.840 -28.4 319.600822 77 233  8   -0.2960   -0.9570    0
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 233 10   -0.2940   -0.9580    0.1230   1.0096   3.140   2.640  49.1 334.100822 77 233 11   -0.2930   -0.9580    0.1230   1.0093   3
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 296.200822 77 233 15   -0.2900   -0.9590    0.1230   1.0094   3.420   2.850   0.4 303.300822 77 233 16   -0.2890   -0.9590    0.124
0   1.0092   3.890   3.610   9.5 288.100822 77 233 17   -0.2880   -0.9590    0.1240   1.0090   4.030   3.870  13.9 307.300822 77 233
 18   -0.2870   -0.9590    0.1240   1.0087   4.280   4.200  25.1 309.000822 77 233 19   -0.2860   -0.9600    0.1240   1.0093   4.480
   4.410  29.5 322.200822 77 233 20   -0.2850   -0.9600    0.1240   1.0091   3.850   3.190  -3.7 281.000822 77 233 21   -0.2840   -0
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.400822 77 233 23   -0.2820   -0.9600    0.1240   1.0082   3.760   3.710  -2.2 231.500822 77 234  0   -0.2810   -0.9600    0.1240
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  -0.2800   -0.9610    0.1250   1.0087   4.040   3.990 -11.9 231.200822 77 234  3   -0.2790   -0.9610    0.1250   1.0085   4.130   3
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822 77 234  7   -0.2750   -0.9620    0.1250   1.0083   4.500   4.340   4.3 331.300822 77 234  8   -0.2740   -0.9620    0.1250   1.00
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  10.9 333.800822 77 234 12   -0.2700   -0.9630    0.1260   1.0080   3.820   3.730 -20.0 343.800822 77 234 13   -0.2690   -0.9630
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77 234 15   -0.2680   -0.9630    0.1260   1.0075   4.310   4.140   3.4 307.200822 77 234 16   -0.2670   -0.9630    0.1260   1.0072
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.9 345.600822 77 234 20   -0.2630   -0.9640    0.1260   1.0071   4.990   4.550 -20.9 305.200822 77 234 21   -0.2630   -0.9640    0.1
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34 23   -0.2600   -0.9650    0.1270   1.0074   4.530   4.440 -19.1 265.300822 77 235  0   -0.2600   -0.9650    0.1270   1.0074   4.7
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