

E82-10335  
TM-82160



Technical Memorandum 82160

"Made available under NASA sponsorship  
in the interest of early and wide dis-  
semination of Earth Resources Survey  
Program information and without liability  
for any use made thereof."

# MAGSAT DATA PROCESSING: A REPORT FOR INVESTIGATORS

(E82-10335) MAGSAT DATA PROCESSING: A  
REPORT FOR INVESTIGATORS (NASA) 315 p  
HC A14/MF A01 CACL 05B

N82-25597

Unclas  
G3/43 00335

R. Langel, J. Berbert, T. Jennings, and R. Horner

NOVEMBER 1981

National Aeronautics and  
Space Administration

**Goddard Space Flight Center**  
Greenbelt, Maryland 20771



TM 82160

MAGSAT DATA PROCESSING: A REPORT FOR INVESTIGATORS

K. A. Langel

J. Berbert

T. Jennings

R. Horner

November 1981

GODDARD SPACE FLIGHT CENTER

Greenbelt, Maryland 20771

**PRECEDING PAGE BLANK NOT FILMED**

**MAGSAT DATA PROCESSING: A REPORT FOR INVESTIGATORS**

R. Langel, J. Berbert, T. Jennings, and R. Horner

**ABSTRACT**

This report describes the Magsat data processing before submission to the National Space Science Data Center (NSSDC) for distribution to the data users. The in-flight attitude and vector magnetometer data bias recovery techniques and results are described. The attitude bias recoveries are based on comparisons with a magnetic field model and are thought to be accurate to 20 arcsec. The vector magnetometer bias recoveries are based on comparisons with the scalar magnetometer data and are thought to be accurate to 3 nT or better. The Magsat position accuracy goals of 60m radially and 300m horizontally were achieved for all but the last 3 weeks of Magsat lifetime. This claim is supported by ephemeris overlap statistics and by comparisons with ephemerides computed with an independent orbit program using data from an independent tracking network. Magsat time determination accuracy is estimated at 1 ms. Several errors in prelaunch assumptions regarding data time tags, which escaped detection in prelaunch data tests, and were discovered and corrected postlaunch are described. Data formats and products, especially the Investigator-B tapes, which contain auxiliary parameters in addition to the basic magnetometer and ephemeris data, are described.

CONTENTS

	<u>Page</u>
ABSTRACT .....	iii
INTRODUCTION .....	1
DATA ACQUISITION AND DECOMMUTATION .....	1
ATTITUDE DATA .....	1
SCALAR DATA, CALIBRATION OF FLUXGATE MAGNETOMETER .....	6
ACCURACY OF SATELLITE POSITION .....	12
ACCURACY OF TIME DETERMINATION .....	16
DATA AVAILABILITY, FORMATS, AND QUIRKS .....	17
INVESTIGATOR-B PASS SUMMARIES .....	41
DATA PRODUCTS .....	42
ACKNOWLEDGMENTS .....	50
REFERENCES .....	51



## LIST OF TABLES

<u>Table</u>		<u>Page</u>
1	Adjustment to "A" Data Calibrations . . . . .	53
2	Differences Between Fits on March 22, 1980 @ 1200 Hrs . . . . .	54
3-1, 2, 3	Comparison of Scalar and Vector Data (Gammas) . . . . .	55-57
4	Maximum Magnitude in Component Differences for Adjacent Calibrations. . . . .	58
5	Fluxgate Calibration Summary: Intermediate Attitude Data . . . . .	59
6-1, 2 . . . 27	AFL Ephem Overlap Statistics . . . . .	60-86
7	Numerical Verification of the Orbital Effects of the UTC-UT1 Time Correction. . . . .	87
8-1, 2 . . . 5	MAGSAT Spacecraft Clock Time Fit Comparison . . . . .	88-92
9	MAGSAT CHRONSC/CHRONINT Tapes Delivered to NSSDC. . . . .	93
10	MAGSAT CHRONFIN Tapes Delivered to NSSDC . . . . .	94
11-1, 2 . . . 4	Selected Quiet Periods for Anomaly Map Derivation . . . . .	95-98
12	The MGST (6/80) Field Model . . . . .	99
13-1, 2 . . . 5	GSFC (9/80-2) Magnetic Field Model . . . . .	100-104
14	MG680982 Magnetic Field Model (Hybrid) . . . . .	105
15	MGST (4/81-82) Magnetic Field Model . . . . .	106

## LIST OF ILLUSTRATIONS

<u>Figure</u>		<u>Page</u>
1	Block Schematic of the Magsat Fine Attitude System . . . . .	107
2	Correlation of data jumps with changes in the attitude flag . . . . .	108
3	Changes in attitude alignment, data adjustments, for the pitch, roll, and yaw axis. Fine attitude data only . . . . .	109
4, 5 . . . 27	Deviation of W11, W12, . . . A32 estimates from November 5, 1979 estimates. . . . .	110-121
28a, 28b, 28c, . . . 50c	Differences between vector magnetometer data calibrated on successive days . . . . .	122-133
51	Frequency of occurrence of coarse count values of the fluxgate magnetometer . . . . .	134
52	Magsat Apogee and Perigee Heights (Km) vs. Time . . . . .	135
53-1, 2, 3	Radial, along-track, and cross-track RMS differences vs. time . . . . .	136-138
54	18-Hour Radial Position Comparisons Between APL and GTDS Magsat-1 Solutions . . . . .	139
55	18-Hour Cross-Track Position Comparisons Between APL and GTDS Magsat-1 Solutions . . . . .	140
56	18-Hour Along-Track Position Comparisons Between APL and GTDS Magsat-1 Solutions . . . . .	141
57	18-Hour Total Position Comparisons Between APL and GTDS Magsat-1 Solutions . . . . .	142
58-1, 2 . . . 8	Magsat Data Availability of Intermediate Attitude Vector Data – November 1979 through June 1980 . . . . .	143-150
59-1, 2 . . . 7	Magsat data availability of fine attitude vector data – November 1979 through May 1980 . . . . .	151-157
60-1, 2 . . . 7	Magsat data availability of fine attitude vector quiet (KP LT 2+) data – November 1979 through May 1980 . . . . .	158-164
61	Average Magnetic Anomaly Map from the Pogo Data . . . . .	165
62	Scalar Magnetic Anomaly Map from the Pogo Satellites Reduced to 500 KM Altitude . . . . .	166
63	North Polar Anomalies in Scalar Magnetic Field from the Pogo Satellites . . . . .	167

<u>Figure</u>		<u>Page</u>
64	South Polar Anomalies in Scalar Magnetic Field from the Pogo Satellites .....	168
65	Magsat Latitude Plot (LATPLOT) .....	169
66	Magsat Polar Plot (POLEPLOT) – Orbit Trace and Delta-B .....	170
67	Magsat Polar Plot (POLEPLOT) – Orbit Trace and Delta-X .....	171
68	Magsat Polar Plot (POLEPLOT) – Orbit Trace and Delta-Y .....	172
69	Magsat Polar Plot (POLEPLOT) – Orbit Trace and Delta-Z .....	173
70	Magsat Polar Plot (POLEPLOT) – Orbit Trace and Vector .....	174
71	Plots of Low Latitude Scalar Data Used in Anomaly Maps .....	175
72	Magnetic Anomaly Map Using Magsat Data – $\Delta X$ Contours .....	176
73	Magnetic Anomaly Map Using Magsat Data – $\Delta Y$ Contours .....	177
74	Magnetic Anomaly Map Using Magsat Data – $\Delta Z$ Contours .....	178
APPENDIX 1. INVESTIGATOR--B TABLE .....		1-1 through 1-79
APPENDIX 2. MAGNETIC ACTIVITY INDICES Kp AND Dst DURING THE MAGSAT OPERATION .....		2-1 through 2-22
APPENDIX 3. A SPECIAL Dst INDEX .....		3-1 through 3-28

# MAGSAT DATA PROCESSING: A REPORT FOR INVESTIGATORS

## INTRODUCTION

This report summarizes some of the more important characteristics of the Magsat data. It is intended to facilitate intelligent use of the data and should be regarded as a basic *handbook* for all data users.

## DATA ACQUISITION AND DECOMMUTATION

The basic data is acquired on board the spacecraft by the cesium vapor magnetometer, the fluxgate (vector) magnetometer, the associated attitude determination instrumentation and all of the necessary spacecraft instrumentation which supports these measurements. These data are acquired through the National Aeronautics and Space Administration (NASA) Space Tracking and Data Network (STDN) and transmitted to the Goddard Space Flight Center (GSFC) where the Information Processing Division (IPD) sorts the measurements and sends them to the appropriate people.

In addition, the satellite is tracked by the Defense Mapping Agency (DMA) Doppler network. This data is processed and definitive orbits determined by personnel at the Johns Hopkins Applied Physics Laboratory (APL) who then furnish the completed ephemeris tapes to GSFC.

Attitude data is analyzed by the Mission Support Computing and Analysis Division (MSCAD) at GSFC and then sent, via IPD, to the Project in the form of quaternions. The magnetometer and ephemeris data are sent directly to the Data Manager working with the Project Scientist.

## ATTITUDE DATA

Attitude data are of two varieties. The first, called intermediate attitude, is derived from the horizon scanner and sun sensor. Its accuracy, after processing, is on the order of 10-20 arcmin. The second, called fine attitude, is derived from two star cameras, the precision sun sensor, the attitude transfer system (ATS), and a pitch gyro (Figure 1). The sun sensor is attached to the end

of the boom near the vector magnetometer. The star cameras are attached to the optical bench on the spacecraft side of the boom. The ATS optically connects the optical bench and a set of mirrors attached to the vector magnetometer. The mission accuracy goal for the vector measurement was 20 arcsec.

Prior to launch the relative locations of all pertinent instruments were measured to a few arcsec. As will be seen, some shifting took place during and after launch. We will not here describe the details of fine attitude determination. These are available in the form of a specifications document (Magsat Fine Aspect Baseline System Overview and Analysis, CSC document SD-7816067, December 1978).

In the derivation of the magnetometer attitude the solutions may derive from any of five combinations of instrumentation. These are identified to the user in character "d" of the Attitude Processing Flag as follows:

Character "d"	Instrument Combinations
0	Both star cameras and sun sensor
1	Star camera 1 and star camera 2
2	Star camera 1 and sun sensor
3	Star camera 2 and sun sensor
4,5,6	Limited data and model of motion
7	Not computed

The motion model requires measurements from any *one* of the above instruments plus the pitch gyro.

Character "b" of the Attitude Processing Flag gives an indication of the accuracy of the resulting solution. Flag values of 0, 1, 2 or 3 indicate that the attitude data residuals to the solution are less than or equal to 20 arcsec. Flag values higher than 3 indicate that the solution

residuals exceeded 20 arcsec. This could be caused, for example, by an erroneous star identification. The flag will always be 7 when a motion model solution is obtained and in that case it has no meaning.

When the attitude data available switches from one combination to another, a discontinuity will occur in the attitude solution. This is illustrated in Figure 2, furnished by Dr. J. Cain of the United States Geological Survey (USGS). The discontinuity occurs because of imprecise alignments between the three instruments. The magnitude of the discontinuity depends upon the amount of misalignment (which is partially a function of the location of stars and sun in the instrument fields of view) and the location of the spacecraft in orbit.

It should be noted that in spite of these jumps, it appears that the relative rms accuracy is well within 20 arcsec.

An experiment was run to investigate if there is any advantage to smoothing the attitude quaternions. A low pass filter was designed consistent with the known response time of the attitude control system, i.e., consistent with the possible actual movements of the spacecraft. The highest frequency of movement possible is about 0.01 Hz and the filter cutoff was designed to be 0.04 Hz. This filter successfully smoothed the quaternions, and consequently the data, but the filtered data was deceptive in that smoothed features caused by attitude jumps now exhibited similar characteristics to crustal anomalies. It was decided to leave the data unsmoothed.

In using the data, the motion model results are reasonably accurate for short spans of time ( $\leq 0.5$  minutes, say) but become increasingly in error the longer it is used. This can result in large ( $> 20$  nT) jumps in component values when the data switches from motion model to one of the other types of solution.

In order to maximize accuracy and minimize the data jumps due to misalignment of the attitude instrumentation, an in-flight realignment was computed every seven days. This is a *relative*

alignment. It is done relative to star camera two, as follows:

1. Obtain attitude solution from both star cameras.
2. Transfer to sun sensor (via ATS).
3. Derive relative sun sensor alignment.
4. Obtain solution from corrected sun sensor and star camera two.
5. Derive relative star camera one alignment.
6. Iterate until consistency of 2 arcsec is obtained.

This alignment procedure is performed on a limited set of data and the resulting alignment adjustments are used in the routine processing. Note that this gives internal consistency to the solutions but does not give absolute alignment.

Using this method immediately after launch it was found that alignment adjustments of 11 arcsec to star camera one and 220 arcsec to the sun sensor were necessary to obtain a consistent solution. The problem is that from the attitude system data alone there is no way of knowing if it was actually star camera one and the sun sensor which moved. Fortunately the magnetic field measurements themselves provide an independent check. Alignment adjustments are made in the pitch, roll, yaw system relative to the spacecraft. But the spacecraft is moving, and rotating, relative to the main field of the Earth. Thus a bias in the attitude solution, which is fixed relative to the spacecraft, will cause non-constant field changes in the Earth-fixed system. For example, an attitude bias in "roll" will result in a sawtooth wave in the Earth-fixed Y (east) component. We have translated this into the appropriate mathematics in our field modeling software. Specifically, if  $\vec{B}_m$  is a model of the Earth's main field as measured by Magsat, then

$$\vec{R}_m = \vec{B}_m (r, \theta, \phi, \{g_n^m, h_n^m\}, \{\epsilon\}) \quad (1)$$

where  $r, \theta, \phi$ , are the standard spherical coordinates;  $g_n^m$  and  $h_n^m$  are the parameters in a spherical harmonic analysis, and the  $\epsilon$  are transformation angles from the magnetometer coordinates to spacecraft coordinates. The  $\{g_n^m, h_n^m\}$  and  $\{\epsilon\}$  can be solved for in a least-squares sense. We estimate that the solution for the  $\{\epsilon\}$  is accurate to about 20 arcsec.

Using this technique we determined that the apparent 220 arcsec shift in the sun sensor was incorrect, that adjusting the sun sensor alignment in that manner introduced nonphysical biases in the magnetic field measurements. Rather, either the star cameras moved or the ATS roll calibration changed (we cannot distinguish between these). The attitude solutions were readjusted to be consistent with these findings prior to production processing.

As the flight progressed, additional relative adjustments to the instrument alignment, following the six-fold procedure previously outlined, were made every seven days. These resulted in additional cumulative adjustments of about 200 arcsec to the sun sensor relative to star camera two and about 35 arcsec to star camera one relative to star camera two.

It is apparent that the attitude instrumentation was undergoing small, but nevertheless significant, changes in either physical alignment or in electronic calibration. In order to maintain the final measurement accuracy, we have selected a series of magnetically quiet days and solved (1). The resulting adjustments necessary to the pitch, roll and yaw attitude solutions are plotted in Figure 3. Rather than changing the attitude solution, a correction was applied directly to the processed Magsat field data in the form of a suitable rotation in spacecraft coordinates. Application of these results to the data has been as follows:

1. No adjustment was made for data from November 2 through December 1.
2. Adjustments according to the following equations have been made to data between December 2 and March 26 (plotted as Lines -1 in Fig 3):

$$\text{Bias} = A + B \cdot \Delta T \quad (2)$$

where:  $\Delta T$  = days since November 6, 1979.

<u>Axis</u>	<u>A (arcsec)</u>	<u>B (arcsec/day)</u>
Roll	18.1	-0.3262
Pitch	-8.8	0.0351
Yaw	-12.3	0.8382



3. For data after March 26 the adjustment coefficients are (Lines -2, Fig 3):

<u>Axis</u>	<u>A (arcsec)</u>	<u>B (arcsec/day)</u>
Roll	48.8	-0.6720
Pitch	10.1	-0.1533
Yaw	90.0	0.0000

Adjustments are also possible for the intermediate attitude data. For the initial data (November 2, 1979 through March 15, 1979) no adjustments were made. For the remainder of the data corrections of 838.8, -164.4 and -799.2 arcsec were made to roll, pitch and yaw, respectively. The intermediate attitude data in the period May 19 to June 11 is of special interest because no fine attitude data is available. Therefore, *after* the CHRONINT tapes (see later section in report) were completed, an attempt was made to go back and readjust the data for this time period. The following adjustments were determined and applied, using equation (2):

<u>Axis</u>	<u>A (arcsec)</u>	<u>B (arcsec/day)</u>
Roll	800	-10.7
Pitch	1700	-54.8
Yaw	0	0

These are relative to May 15, 1980. The tapes on which the adjustments were made are described in a later section.

### SCALAR DATA, CALIBRATION OF FLUXGATE MAGNETOMETER

Because of the partial failure of the cesium vapor magnetometer, continuous data from that instrument is not available. Sufficient data exists, however, to utilize the cesium vapor magnetometer to calibrate the fluxgate magnetometer. An initial report (Lancaster et al., 1980) is available describing the method of calibration and summarizing calibration results for the first 2 months of operation. Investigators wishing to utilize the scalar field are advised to derive it from the vector data. Note that for the Magsat data tapes, the chronicle tapes include the scalar measurements

from the cesium vapor magnetometer, but on the investigator tapes the scalar field is derived from the fluxgate data.

There are a total of 36 calibration parameters which characterize the vector instrument. Their meaning is as follows: each axis of the fluxgate instrument consists of a fluxgate sensor with range  $\pm 2000$ nT. This range is extended to  $\pm 64,000$  nT by a field offset current generator and coil system surrounding the sensor. The current generator operates in seven "steps" and any combination thereof. The sensor steps and the approximate fields generated are:

<u>Step</u>	<u>Course Count</u>	<u>Field (approximate nT)</u>
1	1	1000
2	2	2000
3	4	4000
4	8	8000
5	16	16000
6	32	32000
7	+64	-64000

The calibration parameters  $W_{ij}$  give the actual values of each step where  $i = 1, 2, 3$  is the axis and  $j = 1, \dots, 7$  is the step. The parameters  $W_{18}$  and  $W_{19}$  take into account non-linearities and cross-talk between axes. These are relatively stable with time and are not plotted. Because the full  $\pm 64,000$  field is not experienced on each axis, not all of the  $W_{ij}$  are determinable with high accuracy. For the "C" or "Z" axis all are well determined, for the "A" or "X" axis  $W_{16}$  and  $W_{17}$  always occur together so only the combination  $W_{17} - W_{16}$  is well determined. For the "B" or "Y" axis  $W_{25}, W_{26}, W_{27}$  always occur together so only the combination  $W_{27} - W_{26} - W_{25}$  is well determined. In general, the "C" axis parameters are the most well determined and the "B" axis parameters the least well determined. Two parameters are determined for each fluxgate sensor:  $b_i$  and  $a_i$ , where  $b_i$  is the bias and  $a_i$  is the sensitivity. Also, included in the solution are a determination of changes in the angle between the axes, denoted as  $A_{12}, A_{21}$  and  $A_{32}$ .

Application of calibration results to the fluxgate magnetometer is being done with some care for the fine attitude data, whereas it was done rather hastily for the intermediate attitude data. For the intermediate attitude data the resulting component errors are much less than the attitude errors so that it matters little which calibration is utilized. However, the resulting scalar values, as computed from the vector components can be in error by 1 - 3 nT and differences in scalar value of that magnitude can be expected between the intermediate and fine attitude data.

Each calibration is derived from data from a single day selected to obtain the best available distribution of vector directions and magnitude relative to the magnetometer. After December 3, 1979, the scalar magnetometer was operated in two modes: either both sensors on (denoted condition "C", or "C" days) or sensor A only on (denoted condition "A", or "A" days). Plots of the calibration parameters showed a distinct offset in solutions from A days compared to C days. This could be caused by (1) interaction between the magnetometers so that changing the state of the scalar instrument changes the vector reading or (2) a change in the accuracy of the scalar instrument alone. Case (1) should be detectable by examining the vector data at those times when the scalar instrument changes state. Instrument interference should appear as a distinct jump in the vector data. Examination of the data revealed no such effects. Case (2) is probable. With sensor B off there are some directions of field for which scalar measurements are no longer available, thus reducing the observability of some of the calibration parameters. At the same time, the overall error distribution for the scalar instrument changes because it is a weighted sum of the error in the two instruments when both are operating, but is strictly the error in the A sensor when it is on alone.

We have chosen to use only calibrations derived from "C" days for the fine attitude data, until late in the mission (late in March) after which only "A" days are available. Each calibration is identified by the date of the data used for its observation. For data between November 2, 1979 and February 21, 1980, a series of 20 calibrations were utilized. Commencing on February 22, a different procedure was used. Each calibration parameter from "C" days between December 11 and

March 23, was fit with a cubic polynomial. The resulting smoothed parameters were then used as the calibration. These smoothed parameters were updated at 2 day intervals. "C" calibrations prior to December 11, 1979 were not included in this smoothing since the calibration parameters had not yet "settled" into near-linear trends.

Noticing that "A" data calibration parameters were generally offset from the same parameters in "C" data calibrations, and assuming a higher confidence in "C" data when compared to "A" data, the "A" calibrations were not included in the curve fits mentioned previously. However, since no "C" data was obtainable after March 23, 1980, "A" calibrations were taken into consideration to extract calibration solutions after March 22, 1980. In order to include the "A" calibrations, an adjustment was made to these calibrations which minimized the offset difference between the "A" calibrations and the "C" calibrations during times when both were available. The adjustment was made with two sets of quadratic polynomial curves fit to the time-varying parameters of the calibration solutions between December 4, 1979 and February 6, 1980. One set of curves was fit using the "A" calibrations only, and the other set of curves was fit using the "C" calibrations only. The reason for choosing calibrations between these dates was that the parameters showed smooth trend-line behavior, and the separation between "A" calibrations and "C" calibrations was distinct. Points were chosen at four day intervals along these curves (seventeen points total), and the average of the difference between the parameters from the "C" calibration curves and the parameters from the "A" calibration curves were then determined for each time-varying parameter. This set of constants was then used to adjust all "A" calibrations. A listing of these constants can be found in Table 1. After making the adjustment to the "A" calibrations, linear fits to the time-varying parameters of all calibrations were made for calibrations between December 11, 1979 and May 7, 1980, with the "C" calibrations weighted twice as heavily as the "A" calibrations. New calibrations were then extracted from the linear fits for every second day between March 23, 1980 and the end of the mission, June 11, 1980. Table 2 lists the differences between the parameters extracted from the two calibration solution curves, as plotted on the following graphs, (Figs.

4-27) on the date in which the quadratic polynomial curve fit was no longer used to create new calibration solutions, March 22, 1980 at 1200 hrs. It is noted here that these differences are well within the noise or scatter level of the parameter in question.

After the calibrated fine attitude data were produced, each day's data were sampled and a comparison made between the scalar field calculated from the calibrated component data and the field measured by the cesium vapor magnetometer. For each day the mean difference and rms difference were calculated. These results are summarized in Table 3. The mean values are very low (0.0 to 0.6 nT) until December 3. Commencing with that date all days are "A" days except the actual days used to derive calibrations. The mean values thereafter are generally in the range 0.6 to 2.0 nT except on calibration days. Our *assumption* is that the scalar values computed from the vector instrument with the "C" calibrations are the more correct values and that the increase in the mean differences for the "A" days is due primarily to increased error in the scalar not the vector magnetometer data. The scatter of the data relative to the calibration is measured by the rms difference which is usually in the range 0.8 to 2.0 nT.

Figures 4 to 27 show the variation of the calibration parameters with time. The plots show some regular long-term trends upon which are superimposed shorter period variations. The long term trends are certainly variations in the calibration parameters. The short period variations may reflect changing parameter observability between solutions (i.e., noise or inaccuracy) or short term calibration changes due to changing spacecraft conditions. We cannot be certain which, but believe that such variations do *not* reflect actual magnetometer changes. Note that the smoothed parabola used in application of the calibration parameters to the data between Feb 22, 1980, and March 22, 1980 and the straight line used between March 23, 1980 and end of mission, are both shown on the plots.

For the Nov 2 through Feb 21 period it is instructive to plot the difference in each component for calibrations which are adjacent in time. This is shown in Figures 28 to 50. The plots are field difference versus modified coarse count, which equals coarse count plus 64. Only modified coarse

counts corresponding to actually observable fields are included. Table 4 gives the maximum magnitude of the differences. These differences are due to two factors: (1) actual changes in the calibration parameters, and (2) inaccuracies in the calibration solutions. In order to properly evaluate Table 4 and Figures 28 to 50 it is useful to know how frequently the different coarse values can occur. Figure 51 shows frequency distributions compiled from a combination of all calibration data sets. It is clear that, for the "A" or "X" axis, values of 31, 32, 96 and 97 occur only rarely. The numbers in parenthesis in Table 4 exclude these coarse values. The "Z" or "C" axis shows small differences, usually less than  $\pm 1\text{nT}$ . Furthermore the plots are systematic and appear to follow the trend of the changing calibration parameters. These parameters would seem to be very well determined, probably to better than  $\pm 0.5\text{nT}$ . The "X" or "A" axis shows larger differences, although still generally within  $\pm 3\text{nT}$ , and often within  $\pm 1.5\text{nT}$ . The plots are less systematic but still reflect mainly the trend of changing calibration parameters. These parameters are moderately well determined, probably to better than  $\pm 1.0\text{nT}$ , in many cases to better than  $\pm 0.5\text{nT}$ . The "Y" or "B" axis is less satisfactory. Prior to mid-February, it is generally within  $\pm 3\text{nT}$ , with some exceptions. The plots do not clearly show changes in calibration trends. The greatest inaccuracies are thus in this axis. We would estimate the "Y" parameters to be usually accurate to  $\pm 2.5\text{nT}$ , often to  $\pm 2.0\text{nT}$ . The instrument as a whole is probably good to about  $\pm 3\text{nT}$ .

Hindsight indicates that our accuracy would have been improved by smoothing the calibration solutions for the entire lifetime. This was not done with the November through January data in order to not delay delivery of these data. As already indicated, we have modified our procedures for data commencing with February 22, 1980, and now utilize smoothed solutions. It should be noted that the differences in Figures 28 to 50 reflect the size of the data jump which occurs at the time calibrations were changed. The actual jump will, of course, depend upon the strength of each component at the time.

As mentioned, less care was taken with the calibration of the intermediate data. For the record, Table 5 shows which calibrations were used for that data.

## ACCURACY OF SATELLITE POSITION

### Introduction

Magsat was launched into a 350 by 550 km near polar orbit, low enough for reasonable sensitivity to small scale crustal magnetic variations, yet high enough to provide a lifetime of over seven months. The actual Magsat lifetime in terms of apogee and perigee heights is plotted in Figure 5.2. The orbital plane precessed at a sun synchronous rate so as to remain nearly normal to the Earth-sun direction.

The position accuracy goal for Magsat was 60 m radially and 300 m horizontally, in order to suppress the magnetic field error due to position error below 1 nT [Langel, 1976].

Simulations conducted prior to the Magsat launch led to the conclusion that a network of at least 10 dedicated and well distributed NASA S-band tracking stations would be required to achieve the project orbital accuracy goals [Argentiero and Loveless, 1976]. Since the NASA S-band network was scheduled to be reduced from 10 to 5 stations during the Magsat era and, furthermore, could not guarantee support on every pass, due to commitments to other missions, the project requested support from the Defense Mapping Agency (DMA) TRANET network of Doppler tracking stations. The request was granted and support was guaranteed from as many of the DMA stations (nominally 12 - 14) as would be needed to achieve the goals. The Johns Hopkins Applied Physics Laboratory (APL), where the TRANET stations were originally developed, was funded by NASA to compute the definitive orbits and to provide position vectors once per minute throughout the mission in the Goddard standard EPHEM format on magnetic tapes.

### Ephemeris Overlap Statistics

The APL generated Magsat ephemeris consists of a chain of separately computed overlapping short orbital arcs linked together at some point during the overlap period. Each orbital arc was long enough to contain a sufficient number of well distributed tracking station passes to adequately define the orbit, but short enough to prevent position errors due to uncertainties in the force model (mainly drag) from growing beyond the allowable limits.

During the first few days of Magsat, API computed orbital arcs of about 30 hours duration with overlaps starting near 0<sup>h</sup> UTC and lasting about 6 hours. Later the arcs were shortened to about 16 hours with overlaps of about 8 hours. Overlap statistics for each overlap interval are compiled in Table 6 as an indication of the self consistency of the API ephemeris. Columns 1, 2, and 3 are respectively the epoch (year, day, hour) of the overlap period, the duration (hours) of the first arc of the pair forming the overlap, and the duration (hours) of the overlap interval. The next four columns are the RMS values (meters) of the differences between the arcs during the overlap interval in the radial component (H), the along track component (L), the cross track component (C), and the total distance (D). Similarly, the next four columns are the mean (meters) and standard deviation (meters) of the same four parameters. The next three columns are the maximum absolute values (meters) of H, L, C during the overlap interval. These occur at different times within the interval. The next column is the minimum total distance (meters) or closest approach of the two arcs in the overlap interval. The next to last column is the minimum value (meters) of a parameter M defined by:

$$M = 2|H| + \sqrt{L^2 + C^2} \text{ (for latitudes between } \pm 45^\circ \text{)}$$

such that the absolute value of the radial difference is weighted twice as much as the horizontal difference. The minimum of parameter M was chosen for the ephemeris transfer point from the first to the second orbital arc in the overlap interval, since the magnetic field change due to the position jump between orbits at this transfer point is usually less than at the point of closest approach of the two orbits. The last column is the minute vector transfer time corresponding to the value of M in the previous column. The asterisks indicate those times which occur on the following day.

To summarize these statistics, the RMS values of H, L, and C from Table 6 are plotted in Figures 53-1, 2, 3 for the duration of the mission. Here it may be seen that these measures fall within the project goals of 60 m radially and 300 m horizontally until the last two to three weeks of the mission when the overlap differences increased due to the rapidly increasing drag effects as



the orbit decayed. These measures are optimistic indicators of the ephemeris accuracy, however, in that they are a measure only of the self consistency of the adjacent orbital arcs. It is still possible that all of the arcs contain systematic biases in the same direction so that differencing the arcs nearly eliminates the biases from these measures.

### Comparison with Independent Ephemeris

As an independent check on the APL Magsat ephemeris accuracy the NASA S-band network provided dense tracking support for several days twice per month during the mission. The Operations Support Computing Division at Goddard used these data with the Goddard Trajectory Determination System (GTDS) to compute independent 18 hour arcs with 6 hour overlaps [Lyubomirsky and Smith, 1981]. These GTDS arcs were then compared with the APL arcs for the same interval by differencing the X, Y, Z inertial position vectors on the GTDS EPHEM tapes from those on the APL EPHEM tapes and computing the previously defined H, L, C, D measures from these differences. Figures 54 through 57 are plots abstracted from Lyubomirsky and Smith [1981] of the absolute values of the maximum APL-GTDS H, L, C, D differences for each 18 hour GTDS arc.

In Figure 54, the absolute values of the maximum radial differences are nearly always within the 60 m project goal. If only those GTDS arcs with 9 or more passes (filled circles) are considered, then they are always within 60 m.

In Figure 55, the absolute values of the maximum cross track differences are plotted in the negative sense when the APL orbit is east of the GTDS orbit at the ascending node and positive otherwise, for reasons which should be clear below. These differences exhibit a strong systematic trend with a discontinuity on January 1, 1980. The systematic part of these differences was found to be caused by a different convention adopted in the APL and GTDS programs for defining the inertial coordinate system in which the orbital arcs are computed. Both the DMA Doppler network and the NASA S-band network use UTC time for data time tags. APL chose the option in their program of also computing the Greenwich Hour Angle (GHA) in UTC time rather than in UT1 time in

order to avoid the additional effort of applying the UTC-UTI corrections, which are published by the U.S. Naval Observatory. The GHA defines the rotation about the Z-axis of the Greenwich meridian relative to the inertial X-axis, thereby, in effect, defining the inertial system used in the orbital arc determinations.

In the GTDS program UTI time is used to compute GHA and hence define the inertial system. Thus, the UTC inertial system used by APL is rotated slightly about the Z-axis with respect to the UTI inertial system used in GTDS. The rotation angle between the two systems changed slowly throughout the year, corresponding to the slow change in the UTC-UTI values, and made a sudden jump on January 1, 1980, corresponding to the leap second in the UTC time on that date. For short arcs, such as were used for Magsat, the cross track displacement of the orbit due to the change in the UTC coordinate system relative to the UTI system during the time span of the arc is only about one meter. Thus, the UTC inertial coordinate system can be used for the orbit computations. If one is consistent and again uses UTC time when computing satellite position (latitude, longitude, height) in the Earth-fixed or rotating coordinate system, which is the system used by the Magsat investigators, the results will be the same as if the UTC-UTI corrections had been applied. A scale was added normal to the systematic trend line in Figure 55 to indicate the amount of scatter which would have been observed if the APL and GTDS Magsat positions had been compared in the Earth-fixed system rather than in two slightly different inertial systems. Practically all of the scatter would have been contained within the two dashed lines at  $\pm 50\text{m}$ .

Table 7 from Lyubomirsky and Smith [1981] shows how the H, C, L, D measures are decreased for an arc on January 6, 1980 when the same UTC defined inertial systems are used. The C-value is primarily affected, but the L-value is also decreased due to its east-west component. The same decrease in the H, C, L, D measures for that date would be observed if positions had been compared in the Earth-fixed system, regardless of which inertial systems were used.

In Figure 56, the L-values are within the project goal of 300m for all the best GTDS arcs (filled circles), in spite of the larger values due to the different inertial systems used in the comparisons.

In Figure 57, the D-values occasionally exceed the project goal of 300 m for horizontal error, but probably would not exceed 300 m if the radial (H) values were removed, and if the cross track (C) differences were computed in the Earth-fixed system or in the same inertial system.

In summary, the comparisons of the APL Magsat ephemeris obtained using TRANET Doppler data with the independent Magsat ephemeris arcs computed at Goddard using the GTDS program and S-band data indicate that the project position accuracy goals were met.

#### ACCURACY OF TIME DETERMINATION

Ability to assign the correct time to a data point is just as important as assigning the correct position. We believe the accuracy of the time for the MAGSAT data is about  $\pm 1$  ms. The key to achieving the accuracy is the existence of a very stable clock (oscillator) onboard the spacecraft. The MAGSAT clock was stable to one part in  $10^{11}$ /hr. (Mobley et al., 1980). To assign UTC to the data the following procedure is used. Periodic real time passes (several per day) are scheduled during which the spacecraft clock readings are transmitted via telemetry to the ground stations and, after correcting for transmission times, compared with the ground station clocks, which are synchronized with UTC. This provides a one-for-one assignment of UTC to spacecraft clock for the period of the real time data. Data from such real-time passes was collected for each day (approximately 6 passes per day) plus one pass each from the preceding and following days. A least squares linear fit was then made to each day's data to determine the functional relationship between UTC and the spacecraft clock.

As an internal check the linear fit coefficients were collected and comparisons made of the UTC computed from adjacent fits for the same clock reading. Table 8 summarizes these results. The table gives the start and end clock readings for each fit and the coefficient values for the fit. The column labeled overlap is the difference between the applicable start time of the later fit and the end time of the earlier fit. If positive, the data for the two fits is non-overlapping and this column gives the length of the gap; if negative, the data for the two fits overlaps by the indicated

amount. The columns labeled COMP Clock and COMP Time give the selected clock value at which the comparison calculation was made and the UTC computed from the later fit. Of most importance is the column labeled "DELTA T" which shows the disagreement between the two fits. We note the following:

1. The procedure had to be "reset" when passing from 1979 to 1980 because of the leap second.
2. "Glitches" occur at fit 167 and 188 when the spacecraft lost power and the clock was reset.
3. Most of the differences are less than 0.5 ms. In only 7 instances are the differences greater than 1 ms and in five of these there was a substantial gap between the fits.

While not a proof of absolute time accuracy, this indicates that the internal consistency of the times associated with the data is generally better than 1 ms. The accuracy is achieved through the accuracy of the ground station atomic clocks, which are synchronized with UTC to about  $\pm 10$  microseconds by means of LORAN-C and periodic checks with portable atomic clocks, and by the accuracy of calculating transmission times from the satellite to the receiving station. We estimate an overall accuracy of about 1-2 ms.

## DATA AVAILABILITY, FORMATS, AND QUIRKS

### Data Availability on Chronicle Tapes

The inputs to the Magsat Data Processing System (MDPS) at Goddard are the scalar and vector magnetometer data, the intermediate and fine attitude data, and the orbit data. The flow of these data to and through the MDPS is outlined in the Magsat Data Management Plan [Langel and Berbert, 1979].

The detailed processing in the MDPS and outputs from the MDPS are described in the Magsat Data Processing System Specifications by Berman et al. (1980). The basic data base produced is on tapes designated chronicle tapes. There are three types of chronicle tapes, all of which contain orbit data, scalar magnetometer (SMAG) data, and vector magnetometer (VMAG) data. The

CHRONSC tapes contain VMAG data in raw coarse and fine count form and are given in the instrument coordinate system as recorded on the satellite; the CHRONINT tapes contain VMAG data converted to gammas and transformed to the North, East, Vertical (NEV) coordinate system using intermediate quality (normally 20 arc min) attitude data; and the CHRONFIN tapes contain the same VMAG data as the CHRONINT tapes, but transformed to the NEV coordinate system using the fine (nominally 20 arc sec) attitude data, whenever available, and the intermediate attitude data, suitably flagged, if fine attitude data are not available.

Figure 58 gives line plots of the availability of VMAG data processed with intermediate attitude data on the CHRONINT tapes. Similar plots for the CHRONFIN (and Investigator-B) tapes are shown in Figure 59). Each output tape normally contains 8 days of Magsat data, except for the first and last tapes which have less.

The CHRONSC and CHRONINT tapes were made available earlier than the CHRONFIN tapes, since the intermediate attitude data were available long before the fine attitude data. Table 9 gives the data time span contained in each CHRONSC and CHRONINT tape, the dates these tapes were released from the MDPS for delivery to the National Space Science Data Center (NSSDC), and the dates these tapes were released by the NSSDC after shipment to the investigators. Table 10 gives similar information for the CHRONFIN tapes.

#### Investigator-B (INV-B) Tapes

The basic data set for MAGSAT is contained on chronicle tapes. These tapes include all measured data and, in separate records, ephemeris information. Because the data rates are 8 samples/second for the cesium vapor magnetometer and 16 samples/second for the vector magnetometer, chronicle tapes contain only eight days of data each. Many investigations do not require such a high rate of sampling and, also, it is often desirable to merge ephemeris data with the magnetic field data. In addition, some investigations are expedited by the inclusion of auxiliary information. The Investigator-B tape is designed to meet some of these needs. On it, the data is organized by

orbit or pass number and is decimated to approximately one point every 5 seconds. For convenience, the start of a pass is defined as the point at which the satellite changes from south-going to north-going, i.e. the southernmost point. Pass numbers are assigned consecutively beginning with the first available data on November 2.

### Chronicle and Investigator-B Test and Production Tapes

Prior to sending the production tapes described in Tables 9 and 10, several test tapes were sent. The first CHRONSC and CHRONINT test tapes were sent on about December 19, 1979. They contained 6 hours of data from November 4, 1979 and used simulated attitude data. The second CHRONSC and CHRONINT test tapes were sent on about March 14, 1980. These contained 2 days of data from November 2 and 3, 1979 with real attitude data. The first test tapes contained some known problems which were then corrected in the second test tapes, as described in the notes dated December 19, 1979 with the first test tapes and in the memo to the Magsat Data Users dated March 14, 1980 with the second test tapes.

The first three production CHRONSC and CHRONINT tapes were sent in May 1980, accompanied by a memo to the Magsat Data Users dated May 7, 1980. This memo stated that the only significant change in the production processing compared to the second test tapes was to subtract the duration of one telemetry minor frame (491.54 ms) from all the magnetometer data time tags in the production tapes. This memo also included brief descriptions of the XYZ, SC, ABC, and NEV coordinate systems, the magnetometer data time tags and time offset between VMAG readings A, B, and C and between VMAG and SMAG, the dipole coordinate system, geomagnetic local time, and dip latitude.

The first CHRONFIN test tape contained 3 days of data (November 4, 5, and 6, 1979) and was sent to the users about September 11, 1980. The second CHRONFIN test tape contained 8 days of data (November 3 - 10, 1979) and was sent on about November 25, 1980. The first four CHRONFIN production tapes, including data for all of November 1979, were shipped out in

February 1981. A memo to the Magsat Investigators dated February 25, 1981 accompanied this first CHRONFIN production shipment. This memo documented some processing changes which occurred during the processing of the November 1979 data. It was intended that, whenever fine attitude data were not available, intermediate attitude data, suitably flagged, should be used. Since this procedure was not implemented until after 5 days of data were processed (November 4, 10, 17, 18, and 20, 1979), these 5 days do not contain intermediate attitude data. Several editing procedures and criteria were also changed during this period, as described in the memo. The memo also identified 6 data dates and times when time backups, each affecting one data record, had occurred on the CHRONINT tapes. These 6 backups were on 11/16/79, 2 on 1/11/80, 2/15/80, 5/01/80, and 5/23/80. A computer program was included for deletion of these backups if desired.

The INV-B data processing and output tapes are described by Coons [1980] and in notes prepared by Dr. Langel titled "Magsat Investigator-B Tapes," dated March 25, 1981. The first INV-B test tape contained 2 days of data (November 4 and 5, 1979) and was sent about October 22, 1980. The second INV-B test tape contained 8 days of data (November 4, 17, 18, and 20-24, 1979) and was sent about December 16, 1980. A third INV-B test tape contained 50 days of data (November 2, 1979 through December 21, 1979) and was sent on about April 2, 1981. This latest INV-B test tape was accompanied by Dr. Langel's March 25, 1981 notes and by a memo to the Magsat Investigators from the Data Manager dated April 2, 1981, which outlined 12 types of errors known to be still included in this tape. Another type of error in this tape, discovered after the memo was written, involves the SMAG data time tags. These time tags are incorrect immediately following every gap or overlap in the SMAG data.

The first production INV-B tape was sent out in late June, 1981. It contained data from November 2, 1979 through January 18, 1980. There were some remaining problems in the program generating these tapes, but the tape is, nevertheless, suitable for analysis purposes. Users should be aware of the following *for this tape only*:

1. The tape contains not only fine attitude data but also intermediate attitude data which is identifiable by an attitude flag of 9999.
2. On the first record of some orbits (about one out of fifteen) an isolated spurious point exists.

The final production INV-B tapes were sent to NSSDC early in September 1981. They contain data from January 19, 1980 through March 26, 1980 and from March 27, 1980 through May 19, 1980. Users should note that these tapes contain *no* intermediate attitude data and also that a slight format change occurred between these and the first production tape (described in the next section on output data formats).

INV-B tapes with data only from relatively quiet magnetic periods are also available. These data are selected from periods where  $K_p < 2+$ . Figure 60 shows the time periods of the available data and Table 11 lists them.

Although the fine attitude data ceased on May 19, data were obtained from the vector magnetometer through June 11. June 10 and 11 posed special problems because the data is sparse and because the spacecraft clock was repeatedly being reset. A significant amount of data from June 10 was recovered and made available to the NSSDC, but none from June 11. Scalar values from May 20 through June 10 may be obtained from the vector magnetometer.

### Output Data Formats

The following pages describe output data tape formats for the chronicle tapes (CHRONSC, CHRONINT, and CHRONFIN), define the fine attitude data processing flags, describe the formats for the condensed orbit (CORB) and condensed orbit/attitude (COA) output tapes, and describe the Magsat "Investigator-B" tapes. The descriptions of the chronicle tape formats, attitude flags, and CORB and COA tape formats are taken from Berman et al. (1980), which was distributed at the December 1980 Principal Investigator Meeting at Goddard and also mailed to all the investigators. The descriptions of the INV-B tapes are taken from Dr. Langel's March 25, 1981 notes, which accompanied the latest INV-B test tape, as mentioned above.



The time system used is called Modified Julian Day (MJD). Our convention is that the day begins and ends at midnight. For reference:

<u>Date</u>	<u>Modified Julian Day</u>
Nov. 1, 1979	44178
Dec. 1, 1979	44208
Jan. 1, 1980	44239
Feb. 1, 1980	44270
Mar. 1, 1980	44299
Apr. 1, 1980	44330
May 1, 1980	44360
June 1, 1980	44391

### Chronicle Tape Format

Chronicle tapes are generated on the IBM 360/91 at GSFC. The DCB for this 9-track, 6250-bpi tape is RECFM = VBS, LRECL = 4126, BLKSIZE = 28886, DEN = 4. Up to nine types of records are merged in time order on this tape: one orbit and one scalar data record, three vector component records (in units of counts, spacecraft coordinates), three vector component records (in units of gammas, NEV coordinates), and one corresponding record for attitude quality.

An orbit data record precedes a group of scalar, vector, and attitude quality data records which lie within the orbit time interval (128 minutes). Scalar and vector data records are also time ordered. A scalar data record is followed by a set of vector component data records if each is available within the time span of the orbit record. A chronicle tape may contain vector component records in either or both coordinate systems. Vector component records in NEV coordinates generated from fire attitude data will be immediately followed by an attitude quality record which will describe the accuracy of the attitude data used in transforming the vector component data to topocentric coordinates.

The orbit data record format is as follows:

<u>Displacement (bytes)</u>	<u>Parameter</u>	<u>Type</u>
0	Data type = 0, indicating satellite position data	L*1
1	Data type of next record (on investigator copy only)	L*1
2	Spare	
4	MJD of first observation	I*4
8	Milliseconds of day for first observation (ms)	I*4
12	Time increment between observations (ms)	I*4
16	Reference time of coordinate system (epoch) for GHA (MJD at 0 <sup>h</sup> 0 <sup>m</sup> 0 <sup>s</sup> UTC)	R*4
20	Greenwich hour angle at epoch (radians)	R*4
24	X inertial coordinate (km, 128 values)	R*4
536	Y inertial coordinate (km, 128 values)	R*4
1048	Z inertial coordinate (km, 128 values)	R*4
1560	Invariant latitude (degrees, 128 values)	R*4
2072	Geomagnetic time (hours, 128 values)	R*4
2584	Dip latitude (degrees, 128 values)	R*4

The CHRONICLE scalar data record format is as follows:

<u>Displacement (bytes)</u>	<u>Parameter</u>	<u>Type</u>
0	Data type = 1, indicating scalar observations	L*1
1	Data type of next record (on investigator copy only)	L*1
2	Spacecraft status (five-digit integer - abcde)	I*2
	a = 1, calibration on	
	b = 1, electronic flip on	
	c = 1, x-coil on	
	d = 1, y-coil on	
	e = 1, z-coil on	

<u>Displacement (bytes)</u>	<u>Parameter</u>	<u>Type</u>
4	MJD of first observation	I*4
8	Milliseconds of day of first observation (ms)	I*4
12	Time increment between observations (ms)	R*4
16	<sup>1</sup> Time offset (ms - correction to measurement time)	R*4
20	Spare	I*4
24	Scalar observations (gammas - 512 values)	R*4
2072	Spare	I*4

The vector data (sensor platform coordinates) CHRONICLE record format is as follows:

<u>Displacement (bytes)</u>	<u>Parameter</u>	<u>Type</u>
0	Data type = 2, 3, 4, indicating vector a, b, or c observations, respectively	L*1
1	Data type of next record (on investigator copy only)	L*1
2	Spacecraft status (five-digit integer - abcde) a = 1, calibration on b = 1, electronic flip on c = 1, x-coil on d = 1, y-coil on e = 1, z-coil on	I*2
4	MJD of first observation	I*4
8	Milliseconds of day of first observation (ms)	I*4
12	Time increment between observations (ms)	R*4
16	<sup>1</sup> Time offset (ms - correction to measurement time)	R*4
20	Spares	I*4
24	Fine counts (1024 values, pad = 9999)	I*2

<u>Displacement (bytes)</u>	<u>Parameter</u>	<u>Type</u>
2072	Coarse counts (1024 values, pad = 255)	L*1
3096	Spare	

The vector data (NEV coordinates) CHRONICLE record format is as follows:

<u>Displacement (bytes)</u>	<u>Parameter</u>	<u>Type</u>
0	Data type: = 5, 6, 7, indicating vector x, y, or z (i.e., NEV) observations, respectively, generated from intermediate attitude data; = 8, 9, 10, for data generated from fine attitude data	L*1
1	Data type of next record	L*1
2	Spacecraft status (see above)	I*2
4	MJD of first observation	I*4
8	Milliseconds of day of first observation (ms)	I*4
12	Time increment between observations (ms)	R*4
16	<sup>1</sup> Time offset (ms - correction to measurement time)	R*4
20	Spare	
24	Vector component observations (gammas; 1024 values, pad = 99999.0)	R*4
4120	Spare	I*2

The attitude quality CHRONICLE record format is as follows:

<u>Displacement (bytes)</u>	<u>Parameter</u>	<u>Type</u>
0	Data type = 16, indicating attitude quality data	L*1
1	Data type of next record (on investigator copy only)	L*1
2	Spare	I*2
4	MJD of first observation	I*4
8	Milliseconds of day of first observation (ms)	I*4

<u>Displacement (bytes)</u>	<u>Parameter</u>	<u>Type</u>
12	Time increment between observations (ms)	R*4
16	<sup>2</sup> Time offset (ms - correction to measurement time)	R*4
20	Spare	I*4
24	Attitude processing flags, 256 values, synchronized with every fourth vector observation starting with first observation of vector record; see next page for flag definition. For an explanation of characters “b” and “d” see the text of “Attitude Data” section	I*2

---

<sup>1</sup>The “time offset” for scalar and vector records represents the amount of time subtracted from the scalar magnetometer time-tags so as to adjust these to be identical to the nearly simultaneous vector magnetometer time-tags. Adding the value of the time offset to the scalar magnetometer time-tags would reproduce the time-tags as they appear after the “relative time” corrections. The observation times for the scalar magnetometer actually occur 0.8 ms after those for the vector magnetometer. The time offset values for the scalar magnetometer of 0, +1, or +2 ms represent the 0.8 ms true offset. In addition, for both scalar and vector, the time offset represents fluctuations due to round-off to the nearest millisecond in the IPD-provided times and to other factors.

<sup>2</sup>For the attitude quality records, the time offset represents the amount subtracted from attitude processing flag time-tags in order to make vector and attitude quality record time (byte 8) identical.

## Fine Attitude Data

### Processing Flag Definition

A five-digit processing flag, #abede, is defined as follows:

<u>Character</u>	<u>Description</u>
a	Smoothing character (level of smoothing of final attitude): = 0, no smoothing = 1, linear smoothing = 2, nonlinear smoothing
b	Residual character: = 0, all residuals within boundaries = 1, QUEST <sup>1</sup> residual and SC1 acceptable, SC2 bad = 2, QUEST residual acceptable, SC1 bad, SC2 acceptable = 3, QUEST residual acceptable, SC1 and SC2 bad = 4, QUEST residual bad, SC1 and SC2 acceptable = 5, QUEST residual bad, SC1 acceptable, SC2 bad = 6, QUEST residual and SC1 bad, SC2 acceptable = 7, QUEST residual, SC1 and SC2 bad
c	Gyro and ATS character: = 0, observed gyro point, observed ATS point = 1, observed gyro point, interpolated ATS point = 2, observed gyro point, default ATS value = 3, interpolated gyro data, observed ATS point = 4, interpolated gyro data, interpolated ATS point = 5, interpolated gyro data, default ATS value = 6, gyro data point invalid, observed ATS point = 7, gyro data point invalid, interpolated ATS point = 8, gyro data point invalid, default ATS value

CharacterDescription

d

Attitude computation character (method of final attitude computation):

= 0, with QUEST, using three vectors

= 1, with QUEST, using SC1 and SC2

= 2, with QUEST, using SC1 and FSS

= 3, with QUEST, using SC2 and FSS

= 4, using SC1 and gyro

= 5, using SC2 and gyro

= 6, using FSS and gyro

= 7, not computed

e

Pattern matching character:

= 0, SC1 and SC2 valid, identified

= 1, SC1 valid, identified; SC2 valid, not identified

= 2, SC1 valid, identified; SC2 not valid

= 3, SC1 valid, not identified; SC2 valid, identified

= 4, SC1 valid, not identified; SC2 valid, not identified

= 5, SC1 valid, not identified; SC2 not valid

= 6, SC1 not valid; SC2 valid, identified

= 7, SC1 not valid; SC2 valid, not identified

= 8, SC1 not valid, SC2 not valid

---

<sup>1</sup>QUEST refers to the attitude determination least-squares program

## Comments on the Attitude Output Processing Flag

<u>Character</u>	<u>Comment</u>						
a	Self-explanatory						
b	<p>Values 0, 1, 2, and 3 indicate that the attitude solution residual is less than or equal to 20".</p> <p>Values 4, 5, 6, and 7 indicate that the attitude solution residual is greater than 20".</p> <p>Comments on SC1 and SC2 (page 27) have no meaning. This flag will always be 7 when a motion model solution is obtained. In that case it has no meaning.</p>						
c	<p>Definition of terms</p> <p>Observed -- A measurement was obtained and the measured value was used in the computations.</p> <p>Interpolated -- Either a measurement was obtained and the measured value was deemed unacceptable or no measurement was obtained. Consequently a linear interpolated value was supplied and used in the computations.</p> <p>Default -- Same as Interpolated except a predetermined default value was supplied and used in the computations.</p> <p>Invalid -- The data was deemed invalid if</p> <ul style="list-style-type: none"><li>• The telemetry was bad</li><li>• the measured value deviated substantially from the mean of the surrounding data.</li></ul>						
d	<p>QUEST is the name of the subroutine in which the attitude was computed based on information from at least two of the three sensors (SC1, SC2, FSS). An alternate solution method determined attitudes by propagating previous attitudes based on information about the motion of the spacecraft (motion model). A QUEST solution was preferable to the motion model. Information for the motion model consisted of a combination of SC1, SC2 or FSS data plus gyro data with the following priority:</p> <table><tbody><tr><td>FSS + gyro</td><td>highest</td></tr><tr><td>SC1 + gyro</td><td></td></tr><tr><td>SC2 + gyro</td><td>lowest</td></tr></tbody></table> <p>No attitude was computed if either</p> <ul style="list-style-type: none"><li>• no data from SC1, SC2 and FSS existed</li><li>• or no attitude from the previous half minor frame was available.</li></ul>	FSS + gyro	highest	SC1 + gyro		SC2 + gyro	lowest
FSS + gyro	highest						
SC1 + gyro							
SC2 + gyro	lowest						



## Condensed Orbit and Condensed Orbit/Attitude Tape Format

This section defines the record formats for the condensed orbit and condensed orbit/attitude tapes. The condensed orbit tape is a 9-track, 6250-bpi tape with the following attributes:

RECFM = FB, LRECL = 3906, BLKSIZE = 15480, DEN = 4. It is made up of orbit records only.

The condensed orbit/attitude tape is a 9-track, 6250-bpi tape with the following attributes:

RECFM = VBS, LRECL = 3388, BLKSIZE = 16944, DEN = 4.

Record formats are as follows:

### ORBIT RECORD:

<u>Offset (bytes)</u>	<u>Parameter</u>	<u>Type</u>	<u>Units</u>
0	Zero fill	I*4	
4	Modified Julian Day of first data value	I*4	MJD
8	Milliseconds of day of first data value	I*4	Milliseconds
12	Time increment between observations	R*4	Milliseconds
16	Reference time of coordinate system (epoch) for GHA	R*4	MJD at 0 <sup>h</sup> 0 <sup>m</sup> 0 <sup>s</sup> UTC
20	Greenwich hour angle (GHA) at epoch	R*4	Radians
24	Position vector X (128 values)	R*4	km
536	Position vector Y (128 values)	R*4	km
1048	Position vector Z (128 values)	R*4	km
1560	Invariant latitude (128 values)	R*4	Degrees
2072	Geomagnetic time (128 values)	R*4	Hours
2584	Dip latitude (128 values)	R*4	Degrees

Attitude Record:

<u>Displacement (bytes)</u>	<u>Parameter</u>	<u>Type</u>	<u>Units</u>
0	Attitude quality indicator = 1, intermediate = 2, fine = 3, quicklook	I*4	--
4	Modified Julian Day of first observation	I*4	MJD
8	Milliseconds of day of first observation	I*4	Milliseconds
12	Time increment between observations	R*4	Milliseconds
16	Date data was processed and number of times reprocessed	I*4	YYDDDHHNN
20	Number of sets of quaternions in the data record	I*4	
<sup>1</sup> 24	First component of quaternion that transforms from sensor platform ( $A_v, B_v, C_v$ ) coordinates to celestial true-of-date geocentric coordinates (CC) at start time (240 values)	R*4	--
<sup>1</sup> 984	Second component of the quaternion defined above (240 values)	R*4	--
<sup>1</sup> 1944	Third component of the quaternion defined above (240 values)	R*4	--
2904	Attitude quality flags (240 values; see page 27)	I*2	--

---

<sup>1</sup>In order to maintain fourth quaternion precision for fine attitude data (byte 0 = 2), all four components of a quaternion set are packed in 12-byte fields. The 12-byte field is defined by concatenating those bytes designated for the three components for a given quaternion set, (e.g., the first set is packed in bytes 24, 984, and 1944; the second set in bytes 28, 988, and 1948).

## Investigator-B Tape Formats

The data from each pass (orbit) is presented in two types of records, header records and data records. Each pass has one header record with that information required only once per pass. Data records will each contain 30 data points, at approximately 5-second intervals, or about 2.5 minutes of data.

The actual data spacing on the INV-B tape is determined by selecting every 40th scalar point and every 80th vector point from the corresponding chronicle tapes. With this format a single INV-B tape is capable of containing about 80 days of data.

### Header Record

Each header record will contain the following information. (The actual format is included in the following pages):

1. A flag (ITYPEX) designating that this is a header record.
2. A flag (NTYPEX) indicating the type of the succeeding record.
3. The modified Julian day for the start of the pass. This is the day on which the actual pass begins, i.e. when the satellite turns northward. This is true even if the data at that time is missing. One implication is that the milliseconds of day in item 6 may be for the next day.
4. The pass number.
5. An estimate of the external field due to the ring-current and other magnetospheric currents and the associated induced field (ASCX and DSCX). This is derived from the *scalar value* of the vector data as follows:
  - a) Derive  $\Delta B = B_{\text{measured}} - B_{\text{computed}}$  for all data within  $\pm 45^\circ$  of the equator.  $B_{\text{computed}}$  is taken from the spherical harmonic analysis whose coefficients are included on the tape.
  - b) Assume that for each half orbit  $\Delta B$  is the perturbation due to a potential function of the form

$$V = [(r/a) E + (a/r)^2 I] \cos \theta \quad (1)$$

where  $a = 6371.2$  km (mean earth radius)

$r$  = radial distance to data point

$\theta = 90^\circ - \lambda$

$\lambda$  = the DIP latitude

then  $\vec{\Delta B} = -\nabla V$

and  $\Delta B = | \vec{B} \text{ computed} + \vec{\Delta B} | - | \vec{B} \text{ computed} |$

From these equations E and I are found by a non-linear least square procedure. The term in (1) in "E" represents the external field while the term in "I" represents the induced field. "E" and "I" are computed each half-orbit and should be associated with the time and position of the ascending and descending nodes.

6. A series of parameters at the ascending and descending nodes (equator crossings):
  - the milliseconds of day
  - the local time
  - the longitude
  - the magnetic Kp index
  - the equatorial disturbance coefficients as supplied by Dr. M. Sugiura at GSFC (i.e. Dst and DS).
  
7. The parameters of the spherical harmonic model used in the relevant calculations for this particular data. The models used will always be referred to a spherical (as opposed to geodetic) coordinate system and will always be Schmidt normalized. The parameters included are:
  - a) a comment field describing the model
  - b) the degree/order of the constant terms
  - c) the degree/order of the first derivation terms
  - d) a flag indicating the presence or absence of external terms
  - e) the epoch of the model

- f) the mean earth radius used in the model derivation
- g) the model coefficients

The parameters are consistent with the program FDG designed to compute the field values at any location. FDG is available from the National Space Science Data Center at GSFC.

### Data Records

In addition to the data itself, each data record contains a flag (ITYPEB) indicating that this is a data record, a flag (NTYPEB) indicating the type of the next successive record, the modified Julian day and milliseconds of day of the first data point, the pass number and the time interval between data points.

The actual measured data is merged with auxiliary information so that each data point includes:

- a) the geocentric position in latitude, longitude and radius
- b) the associated magnetic local time, invariant latitude and dip latitude
- c) the measured data
- d) the average of the data for the  $\pm 40$  data points around the actual measured point
- e) the standard deviations of those averages (production tape #1) or the slope and standard errors of a linear fit to these 80 points (tapes #2 and #3)
- f) the predicted field from the spherical harmonic analysis included in the header record

Note: To conserve computation time the values on the tape are interpolated as follows: three values of the measured field spaced ten seconds apart are calculated. For times between these three, a cubic interpolation is used. The values interpolated are within 10nT of the actual model.

- g) the attitude quality flag

## Description of INV-B Header Record Variables

<u>Variable</u>	<u>Location</u>	<u>Type</u>	<u>Description</u>
ITYPEX	0	I*4	A flag which will be equal to 1 to designate this as a header record.
NTYPEX	4	I*4	A flag which will be equal to 1 if the succeeding record is a header record and equal to 2 if the next record is a data record.
MJDX	8	I*4	The modified Julian day at the start of the pass.
IPASSX	12	I*4	Pass (orbit) number. Pass numbers will be assigned consecutively beginning from the first partial orbit which will be labeled 1. The designation of the start of a pass is the point at which the satellite changes from south-going to north-going.
ASCX(2)	16	R*4	E, I at ascending node. (See page 33)
DSCX(2)	24	R*4	E, I at descending node. (See page 33)
MSECX(2)	32	I*4	Milliseconds of day at 1 -- Ascending Node 2 -- Descending Node
ALTMX(2)	40	R*4	Local Mean Sun time (in hours) at 1 -- Ascending Node 2 -- Descending Node
ALONX(2)	48	R*4	Longitude at 1 -- Ascending Node 2 -- Descending Node
IKP(2)	56	I*4	Magnetic Activity Index at 1 -- Ascending Node 2 -- Descending Node
GSM(2, 3)	64	R*4	Spare -- not computed
DST(2, 6)	88	R*4	Disturbance Storm Time coefficients.  DST (1, J) is at Ascending Node DST (2, J) is at Descending Node

Description of INV-B Header Record Variables (Cont'd.)

<u>Variable</u>	<u>Location</u>	<u>Type</u>	<u>Description</u>										
			$D(T) = A_0(T) + \sum_{n=1}^J A_n(T) \sin$ $(nt + a_n(T))$ <p>Coefficients are</p> <table> <tr> <td><math>A_0, J = 1</math></td> <td>T: Universal time</td> </tr> <tr> <td><math>A_1, J = 2</math></td> <td>t: local time</td> </tr> <tr> <td><math>a_1, J = 3</math></td> <td><math>A_0, A_n</math> in nT</td> </tr> <tr> <td><math>A_2, J = 4</math></td> <td><math>a_n</math> in degrees</td> </tr> <tr> <td><math>a_2, J = 5</math></td> <td></td> </tr> </table> <p>Computed values of D(T) are stored in DST(I, 6).            NOTE: <math>A_0</math> corresponds to Dst, D(T) is the total equatorial disturbance in the H-component at (T, t)</p>	$A_0, J = 1$	T: Universal time	$A_1, J = 2$	t: local time	$a_1, J = 3$	$A_0, A_n$ in nT	$A_2, J = 4$	$a_n$ in degrees	$a_2, J = 5$	
$A_0, J = 1$	T: Universal time												
$A_1, J = 2$	t: local time												
$a_1, J = 3$	$A_0, A_n$ in nT												
$A_2, J = 4$	$a_n$ in degrees												
$a_2, J = 5$													
COMM(30)	136	R*4	Comments relating to the field model.										
NMAX	256	I*4	Maximum value of subscripts in GH (see below)										
NMAXT	260	I*4	Maximum value of subscripts in GHT (see below)										
MODEXT	264	I*4	If MODEXT = 1 use exterior field.										
TZIFRO	268	R*4	Time at which coefficients of field model are valid.										
ABAR	272	R*4	Mean earth radius for field model calculation.										
GH(17, 17)	276	R*4	Field model coefficients for $n \geq m$ .  Units are nT  $g_n^m = GH(n, m)$  $h_n^m = GH(m-1, n)$										
GHT(14, 14)	1432	R*4	Time derivatives of GH (nT/YR)										
F(3)	2216	R*4	Exterior field model coefficients										

### Description of INV-B Data Record Variables

<u>Variable</u>	<u>Location</u>	<u>Type</u>	<u>Description</u>
ITYPFB	0	I*4	A flag which will be equal to 2 to designate this as a data record.
NTYPFB	4	I*4	A flag which will be equal to 1 if the succeeding record is a header record and will be equal to 2 if the next record is a data record.
MJDB	8	I*4	The modified Julian day of the first point in this data record.
MSECB	12	I*4	The milliseconds of day for the first point in the data record.
IPASSB	16	I*4	The current pass number
TINTB	20	I*4	The time interval between points in this data record. (msec)
DATA(30, 25)	24	R*4	Data values for 25 variables at 30 points in time [D(J, I), in the following table J is the data point number.]



Description of INV-B Data Values in Data Record

<u>I</u>	<u>Variable</u>	<u>Description</u>
I = 1	LAT	The latitude of the spacecraft at this data point.
I = 2	LONG	The longitude of the spacecraft at this data point.
I = 3	RAD	The radius (in kilometers) of the spacecraft orbit at this data point.
I = 4	MLT	Magnetic Local Time
I = 5	INVLAT	Invariant latitude
I = 6	DIPLAT	Dip latitude
I = 7	BS	Magnitude of measured magnetic field from scalar data in gammas.
I = 8	BV	Magnitude of measured magnetic field from vector data in gammas.
I = 9	X	X component of measured magnetic field (in NEV coordinates) in gammas.
I = 10	Y	Y component of measured magnetic field (in NEV coordinates) in gammas.
I = 11	Z	Z component of measured magnetic field (in NEV coordinates) in gammas.
I = 12	BVA	The average of the magnitude of measured magnetic field in gammas for the 80 CHRONICLE input points corresponding to this data point.
I = 13	XA } YA } ZA }	The average in gammas of the (X, Y, or Z) component of the measured magnetic field (in NEV coordinates) for the 80 CHRONICLE input points corresponding to this data point.
I = 14		
I = 15		
I = 16	BVSD*	The standard deviation of the magnitude of the measured vector magnetic field in gammas for the 80 CHRONICLE input points corresponding to this data point.
I = 17	XSD* } YSD* } ZSD* }	The standard deviation in gammas of the (X, Y, or Z) component of the measured magnetic field (in NEV coordinates) for the 80 CHRONICLE input points corresponding to this data point.
I = 18		
I = 19		

Description of IN V-B Data Values in Data Record (Cont'd.)

<u>I</u>	<u>Variable</u>	<u>Description</u>
I = 20	BMD	Magnitude of magnetic field predicted from model in gammas.
I = 21	XMD	X component of magnetic field (in NEV coordinates) predicted by model in gammas.
I = 22	YMD	Y component of magnetic field (in NEV coordinates) predicted by model in gammas.
I = 23	ZMD	Z component of magnetic field (in NEV coordinates) predicted by model in gammas.
I = 24	QUAL	Attitude Quality Word
I = 25	SPARE	

\*Standard deviations were computed only for the tape with data from Nov 2 through Jan 18. On the other two tapes this "word" contains a packed combination of the slope and standard deviation of a least squares line fit to the 80 points used in the average. The word should be interpreted as follows:

- The fractional part is the slope (in gammas/millisecond), multiplied by ten and
- The integral part is the standard error of the linear fit (in gammas), multiplied by ten.

## Data Quirks

Several surprises or quirks were found in the data after launch. Some of these quirks might have been detected prior to launch if it had been possible to provide a dynamic rather than a static prelaunch test data tape. The most significant quirks are listed below:

### 1. VMAG One Cycle Time Offset

The VMAG fine counter readings were found to be read out into the telemetry frame one cycle later than had been assumed in the APL telemetry document [Peterson, 1978]. This caused all the VMAG data time tags to be in error by 120 bit durations or by 61.44 ms. When corrected, this means that it is not the first but the second VMAG fine counter reading in a telemetry minor frame (TMF) which is synchronized with the first VMAG coarse counter reading in that frame. Likewise, it is not the second but the third VMAG fine counter reading in a TMF which is synchronized with the second reading of SMAG-1 and the first readings of sun sensors A and B, etc.

The VMAG data time tag corrections given in early versions of the MDPS Specifications Document such as that distributed at the August 1979 Principal Investigator meeting, are consequently in error by 61.44 ms. The correct values are given in the latest version of the MDPS Specifications Document [Berman et al., 1980], which was distributed at the December 1980 Investigator meeting.

This problem is discussed in more detail in memos by the Magsat Data Manager dated January 7, 1980, January 25, 1980, and May 7, 1980.

Incidentally, the idea of designing the spacecraft so that the synchronized VMAG, SMAG, and attitude observations would also be simultaneous, which is very convenient in the data processing, was first suggested by the Magsat Data Manager in the conceptual design stage, and was skillfully implemented by the APL telemetry engineer.

## 2. VMAG Coarse Bits Glich

The VMAG coarse counter is updated for each axis for every fine counter reading, but is read out only for every fourth fine counter reading. To help provide a coarse reading for each fine reading the least significant bit of the coarse counter is read out for every fine counter reading including the readings simultaneous with the coarse counter readings. It was assumed that the higher data rate redundant least significant bit readout would always agree with the least significant bit of the coarse counter readout when these readings were simultaneous. With the real data these bits do not always agree, since they are not exactly simultaneous. The software was modified to accommodate this possibility, as described in the memo by the Magsat Data Manager dated January 25, 1980.

## 3. Telemetry One Minor Frame Time Offset

The Magsat telemetry data processing by the IPD, prior to processing by the MDPS, associated time tags from telemetry minor frames  $n + 1$  with minor frames  $n$ . This was discovered prior to production processing and corrected by subtracting the duration of one telemetry minor frame (491.54 ms) from all the data time tags. However, this error was included in the first two CHRONSC/CHRONINT test tapes. This error and its correction were documented in memos to the Magsat Data Users from the Data Manager on March 14, 1980 and May 7, 1980.

## INVESTIGATOR-B PASS SUMMARIES

To aid data users we have tabulated some key parameters from the Investigator tape on a pass-by-pass basis. This tabulation is found in Appendix 1 and includes the date and start and stop times for each pass. Other parameters are tabulated for the times of the ascending and descending nodes. These include  $K_p$ , the equatorial disturbance ( $D$ ) in the horizontal component from five observatories (from Sugiura), the longitude and  $\Delta B$  at the equator crossing and the "F" and "I" parameters of the external field correction.

## DATA PRODUCTS

In addition to the data tapes described in the previous sections, the Project has made various data sets available to the scientific community. These are available by inquiry at the following addresses:

For Domestic Orders: National Space Science Data Center (NSSDC)

Code 601

NASA/Goddard Space Flight Center

Greenbelt, MD 20771

Telephone: 301-344-6695

For Foreign Orders: World Data Center A for Rockets and Satellite (WDC-A-R&S)

Code 601

NASA/Goddard Space Flight Center

Greenbelt, MD 20771 USA

TELEX: 89675 NASCOM GBLT

### Available Products Include:

- I. Magnetic Data from the magnetic field experiment on board the POGO satellite--This includes (a) the entire data set, (b) the data used in the GSFC derived magnetic anomaly maps (in three subsets:  $\pm 50^\circ$  latitude, northern polar and southern polar regions), (c) a table of the average anomaly values and calculated equivalent source values, (d) the various anomaly maps themselves (color versions of Figures 61, 62, 63, and 64), and (e) the data selected for use at GSFC for deriving spherical harmonic models of the Earth's main magnetic field.
- II. Special MAGSAT data sets. Because of ongoing analyses these data sets are continually changing and, at least at present, are to be regarded as extremely preliminary. They include: (a) A magnetically very quiet data set slated for use in spherical harmonic analyses. This data has had a correction applied for external fields. (b) Averages, in roughly  $2^\circ \times 2^\circ$  blocks, of anomaly data.

This data is selected for moderately quiet magnetic conditions and is corrected for supposed external fields. [These corrections are illustrated in the description of plots in III. b.]

### III. Plots of MAGSAT Data:

- a. Full orbit plots from ascending node to ascending node. An example of fine attitude data is given in Figure 65. At the top of the plot is the plot type "MAGSAT Latitude Plot" followed by the date of the data plotted. The second line indicates the field model used in reducing the data, in this case MG680982, together with a descriptive comment about the model. The third line indicates that the scalar data plotted is derived from the component data. Four plots are included. They are the residuals in B, X, Y and Z from the indicated model where X, Y and Z are north, east and down in a geocentric system. These are plotted versus latitude as the abscissa with labels indicating the universal time (hours, minutes and seconds), the longitude and the altitude (relative to a spherical Earth of radius 6371.2 km). In regions where fine data are not available but intermediate data are, the intermediate data are plotted but the plotting symbol becomes an "X" rather than a "dot."
- b. Plots of data during crossing of the polar regions ("pole plots") are available for either (or both) the northern and southern hemispheres. These come in sets of five, as illustrated in Figures 66 through 70. The five correspond to the residuals in total field (Delta-B), North component (Delta-X), East component (Delta-Y), vertical (down) component (Delta-Z), and a vector plot of the horizontal (Delta-X and Delta-Y) residuals. The plots are in a geographic (geocentric) latitude vs longitude polar format. The satellite track is shown as a solid line with the components (residuals) plotted relative to that line, i.e. the satellite track is the zero line of the plot. Scale lines are spaced along the plot and are labeled with the scale (in nT), the altitude (km) and the U.T. (hours and fraction). For the first four plots the direction of the scale line indicates the positive plotting axis. The top of the plot is captioned so as to indicate which component is plotted, the date, the

U.T. at the plot mid-point (i.e. nearest point to the pole), the hemisphere (north or south) and, for the scalar magnitude, whether or not the source was the vector or scalar magnetometer. At the bottom of each plot a line is printed identifying the source tape (in this case it is a CHRONFIN tape covering the 11/4 to 11/7/79 time period). A subsidiary coordinate system is given on the plot. This is the dipole latitude - magnetic local time (MLT) system. Circles of latitude are given by "dots" (more widely spaced for the "odd" five degree circles). The MLT is indicated on the 65° latitude circle.

These plots illustrate some data features that investigators should be aware of. The delta-B and delta-Z plots have a positive offset. This is because the field model utilized, MGST (4/81), did not contain external field terms. From the standpoint of scalar data, this is a quiet pass. The features on the delta-B and delta-Z plots are crustal anomalies. Yet the delta-X and delta-Y components show clear evidence of field-aligned and ionospheric currents.

- e. Plots of low-latitude ( $\pm 50^\circ$ ) scalar data used at GSFC in the derivation of anomaly maps. An example is given in Figure 71. The three panels are read from left to right. In all panels the abscissa is geographic latitude. In the left panel the hash marks are a plot of the satellite altitude, referenced to the leftmost scale. The dots are a plot of  $\Delta B$ , the scalar residual from the appropriate spherical harmonic model. The solid line is the estimated field from a model ring current. The model ring current is determined to best-fit the individual pass. At the bottom of the first panel are labels. In the first row is given the date, universal time, and local time. In the bottom row is given an internally assigned half-orbit number, the number of points plotted, whether the orbit is descending or ascending (i.e., southbound or northbound), the longitude at the equatorial crossing, and the plot frame number. In the second panel the dots are the difference between the raw  $\Delta B$  and the  $\Delta B$  calculated from the ring current correction. Three straight lines are least-squares fit to the data: one from  $-50^\circ$  to  $0^\circ$  latitude, one from  $-25^\circ$  to  $25^\circ$  latitude and one from  $0^\circ$  to

50° latitude. In the third panel the straight lines have been removed from the data of the second panel and the result is our best approximation of the crustal anomaly field. Under the latitude labels of the second panel are labels of longitude at the first data point, the equator crossing and the last data point. These plots are sorted and ordered by the longitude of their equatorial crossing.

IV. Magnetic Field Models These are spherical harmonic analyses of the Earth's main field. The initial Magsat model (Langel et al., 1980; Table 12) was designated MGST (6/80). It contains terms up to degree and order thirteen, was derived with data from November 5-6, 1979 only, and contains no time terms. The model GSFC (9/80) (Table 13) was derived from observatory, repeat, marine and POGO data from 1960 to 1978, as well as Magsat data from November 5-6, 1979. It contains constant and first (time) derivative terms up to degree and order thirteen, second derivative terms to degree and order six and third derivative terms to degree and order four. The model is preliminary and unpublished but may prove useful. We think it describes the field well from 1960 to 1980. At the Magsat Investigators meeting of December 4-5, 1980, a model designated MGST (12/80) was distributed. This model is to be used with extreme caution. We have since determined that the data selected included effects from substantial ionospheric currents at high latitude -- particularly in the south. Initially, for internal purposes, we have utilized a hybrid model designated MG680982 (Table 14). This uses the constant terms from MGST (6/80) together with the first derivatives from GSFC (9/80). More recently we have utilized a model designated MGST (4/81), (Table 15) derived from fifteen days of selected MAGSAT data. This is the model utilized on the INV-B tape. Because effort is still being given to optimizing the modeling data set, all such models are preliminary.

V. MAGSAT Anomaly Maps. Because the isolation and verification of individual anomalies continues to be a research topic, any map derived for sometime after the present must be regarded as preliminary. Figures 72, 73 and 74 show the current versions of these maps.



VI. Software A variety of software has been advertised in the Magsat Information Bulletin. Some of this has now been revised, additional documentation is now available, and some new software has become available. Accordingly, a new, single, software tape has been generated. Its contents are as follows:

A. Programs which Operate on Magsat Data Tapes

1. Subroutine RDCHRN: Reads a chronicle tape on IBM 360

Documentation: Internal to the Program

2. Subroutine TIB: Reads and prints Investigator-B tape on IBM 360

Documentation: Internal to the Program

3. Programs to Interpret Orbit Records (IBM 360):

FLDORB: The basic program

INTORB: Interpolation routine called by FLDORB

STIROB: Stirling Interpolation, called by FLDORB and by INTORB

SATPOS: Computer altiude, longitude and altitude (geocentric), called by FLDORB and by INTORB

FDG: Computes geomagnetic field. Special version for use with FLDORB

Documentation: (1) Magsat Orbit Retrieval Subroutines Source Listings

(2) Magsat Data Processing System Specifications

4. Programs to Convert Time (IBM 360):

CVTJUL: Converts modified Julian date (MJD) to year and fraction of year

CONDAT: (1) Converts month, day, year to MJD

(2) Converts year, day of year to MJD

(3) Converts MJD to month, day, year and to year and day of year

ADDTIM: Increments or decrements a given time

Documentation: Same as 3.

## B. Programs to Interpret and Analyze Data

1. FIT Program: Program for Derivation of Geomagnetic Spherical Harmonic Analysis. Operates on IBM 360.  
Documentation: Fit Program Description and Users Guide by R. H. Estes.
2. FDG Program: Program for computing the Earth's main magnetic field from Spherical Harmonic Coefficients. Operates on IBM 360. Includes subroutines MAGF and EXTFLP.  
Documentation: Geomagnetic Field Model Evaluation Software.
3. Programs for Derivation of Equivalent Source Representation of Crustal Anomalies (IBM 360).  
Documentation: The Equivalent Source Magnetic Anomaly Program (ESMAP) User's Guide.
4. Program for Computing Crustal Anomaly Fields from an Equivalent Source Representation (IBM 360).  
Documentation: Delta-B Computation Package (DBCMP) Program Description and User's Guide.
5. Purdue University Programs for Analysis of Gravity and Magnetic Anomaly Data (CDC and IBM).
  - Band Pass Filtering
  - Differentiation
  - Continuation
  - Strike Filtering
  - Internal Correspondence Analysis
  - Cluster Analysis
  - 3-D Spherical Earth Modeling.Documentation:
  - (1) Magnetic and Gravity Anomaly Correlation and its Application to Satellite Data, Bowman et al., 1979

- (2) Spherical Earth Gravity and Magnetic Anomaly Modeling by Gauss-Legendre Quadrature Integration, von Frese et al., 1980a
- (3) Spherical Earth Analysis and Modeling of Lithospheric Gravity and Magnetic Anomalies, von Frese et al., 1980b
- 6. Program to Estimate Depth to the Magnetic Basement, ADEPT (IBM 360)  
Documentation: Preliminary Documentation of Program "FFTFIL," Tom Hildenbrand, USGS
- 7. University of Miami (Christopher Harrison) Programs for Magsat Analysis. (Univac, Fortran)

Program Descriptions:

- a. Program TAPERD (TAPE READ)  
translates NASA supplied EBCDIC tape and stores on disk.
- b. Program FILEUP (FILE BREAK DOWN)  
sorts data into specified subfiles based on geographical boundaries supplied by user. Calculates and stores spherical coordinates and direction of main field for each data point resulting in substantial saving of computing in the inversion routine.
- c. Program INVERT (FIELD INVERSION)  
calculates the matrix relating field measurement to equivalent source magnetization. Solves the matrix equation using the Crout variant of the Gauss-Jordan reduction. Provision is made for using either dipoles or spherical prisms as the equivalent sources merely by switching a subroutine. INVERT outputs the magnetization matrix as a separate file.
- d. Program MAGPLT (MAGNETIZATION PLOT)  
uses NCHAR contouring routine to plot the output of INVERT.
- e. Program FLDPLT  
uses the output of INVERT and expands the equivalent source array to a grid of field values at specified altitude. Contours, plots, and stores resultant field.

f. Program FLDFIT

determines how well the calculated field matches the observed field. Produces a series of satellite track plots comparing calculated to observed.

g. Program TRCPLT

calculates, plots, and stores a magnetic profile at given altitude and orientation using the output from INVERT.

## ACKNOWLEDGMENTS

The development and use of the MDPS programs for the basic reformatting and quality checks were accomplished by Computer Sciences Corporation (CSC) under the leadership of Richard Brown, Don Berman, Mae Silbergeld and K. C. Leung. The early development phase was under the direction of Barbara Walton in cooperation with the first two authors. The attitude determination was performed under the leadership of Frank VanLandingham of CSC under the direction of Gary Meyers of the Mission Support Computing and Analysis Division of GSFC. The data tapes were formatted in time order and the clock calculations were performed under the leadership of Eileen Munday of CSC under the direction of Earl Beard of the Information Processing Division at GSFC. The definitive orbits were produced by Bruce Holland of the Johns Hopkins Applied Physics Laboratory (APL). The definitive orbits for comparison purposes were produced under the leadership of Richard Smith of CSC under the direction of Ed Doll of the Operations Support Computing Division of GSFC.  $K_p$  was kindly supplied by the World Data Center-A in Boulder, Colorado,  $Dst$  (and equatorial  $D$ ) were calculated by M. Sugiura of GSFC. The mathematical techniques for the in-flight attitude and scalar magnetometer data bias recoveries were formulated by Ray Lancaster of the Information Extraction Division at GSFC. The special MAGSAT data set for field modeling was selected by Ron Estes of Business and Technological Systems. Invaluable support in the many computer tasks was furnished by Linda Gehrman of Republic Management Systems and by Tom Poddles, Gary Goble and Jim Fry of the University of Maryland. We are grateful to Gil Ousley (GSFC) and D. Eckard (APL) and their fine technical staffs for construction, launch and successful operation of the spacecraft and to the NASA Headquarters support managed by Jim Murphy and Mark Settle without which the mission would not have been possible.

## REFERENCES

1. Argentiero, P., and F. Loveless, Tracking system requirements for Magsat orbit determination, *NASA/GSFC X-922-76-15*, January 1976.
2. Berman, D., R. Gomez, and A. Miller, Magnetic field satellite (Magsat) data processing system specifications, *CSC/TM-80/6214*, NASA Contract NAS5-24391 Task 5025, October 1980.
3. Coons, J., Magsat investigator-B tape generation program requirements, *CSC/TM-80/6178*, NASA Contract NAS5-24391 Task 5025, July 1980.
4. *Computer Sciences Corp. Document SD-7816067*, Magsat fine aspect baseline system overview and analysis, December 1978.
5. Lancaster, E. R., T. Jennings, M. Morrissey, and R. A. Langel, Magsat vector magnetometer calibration using Magsat geomagnetic field measurements, *NASA/GSFC TM 82046*, November 1980.
6. Langel, R., Effects of orbit error on satellite magnetic field experiments, *NASA/GSFC X-922-76-124*, June 1976.
7. Langel, R., and J. Berbert, Magsat data management plan, *NASA/GSFC*, July 1979.
8. Langel, R. A., R. H. Estes, G. D. Mead, F. B. Fabiano, and E. R. Lancaster, Initial geometric field model from Magsat vector data, *Geophys. Res. Letters*, *7*, 793-796, 1980.
9. Lyubomirsky, A., and R. Smith, Magsat-1 definitive orbit computations and accuracy verification, *CSD/TM-81/6025*, NASA Contract NAS5-24300, Task 783, March 1981.
10. Mobley, F. F., L. D. Eckard, G. H. Fountain, and G. W. Ousley, Magsat — a new satellite to survey the Earth's magnetic field, *IEEE Trans. on Magnetism*, *16*, 758-760, 1980.

11. Peterson, M., Design specification for Magsat spacecraft telemetry subsystem, issue A, APL unofficial *doc. code 88898*, April 1978.

TABLE 1: Adjustment to "A" Data Calibrations

<u>Parameter</u>	<u>Adjustment</u>
W11	-0.052 nT
W12	0.149 nT
W13	0.179 nT
W14	0.409 nT
W15	-0.284 nT
W17 - W16	-1.027 nT
W21	-0.530 nT
W22	0.267 nT
W23	-0.509 nT
W24	0.373 nT
W27 - W26 - W25	-2.422 nT
W31	0.031 nT
W32	-0.113 nT
W33	-0.107 nT
W34	-0.192 nT
W35	-0.784 nT
W36	-1.113 nT
W37	-1.737 nT
B1	-0.222 nT
B2	0.303 nT
B3	-0.172 nT
A12	0.984 arc sec
A21	1.063 arc sec
A32	0.803 arc sec



TABLE 2: Differences Between Fits on March 22, 1980 @ 1200 Hrs

Parameter	Difference (linear - polynomial)
W11	-0.177 nT
W12	-0.107 nT
W13	0.174 nT
W14	-0.125 nT
W15	-0.285 nT
W17 - W16	-0.076 nT
W21	-0.405 nT
W22	-0.027 nT
W23	0.337 nT
W24	1.041 nT
W27 - W26 - W25	-0.355 nT
W31	0.084 nT
W32	0.024 nT
W33	0.178 nT
W34	0.172 nT
W35	0.258 nT
W36	0.679 nT
W37	0.449 nT
B1	0.204 nT
B2	0.197 nT
B3	-0.229 nT
A12	-0.935 arc sec
A21	-0.771 arc sec
A32	0.055 arc sec

TABLE 3-1: Comparison of Scalar and Vector Data (Gammas)

Date of Data	Date of Calibration	Comparison of scalar fields between two magnetometers		Date of Data	Date of Calibration	Comparison of scalar fields between two magnetometers		Date of Data	Date of Calibration	Comparison of scalar fields between two magnetometers	
		MEAN DIFF.	RMS DIFF.			MEAN DIFF.	RMS DIFF.			MEAN DIFF.	RMS DIFF.
Nov 2	Nov 2	0.53 C	0.98	Dec 1	Nov 30	0.26 C	0.96	Jan 1	Jan 5	0.81 A	1.10
3	Nov 3	0.03 C	1.16	2	Dec 1	0.13 C	1.06	2	Jan 5	0.99 A	1.30
4	Nov 5	-0.20 C	1.10	3	Dec 1	0.76 A	0.87	3	Jan 5	1.10 A	1.50
5	Nov 5	0.14 C	1.00	4	Dec 1	0.70 A	0.86	4	Jan 5	0.98 A,C	1.33
6	Nov 6	0.07 C	0.89	5	Dec 1	0.87 A	1.06	5	Jan 5	0.12 C,A	1.13
7	Nov 6	0.08 C	0.93	6	Dec 11	0.86 A	0.99	6	Jan 5	1.01 A	1.17
8	Nov 10	-0.15 C	1.12	7	Dec 11	0.82 A	1.00	7	Jan 5	1.07 A	1.39
9	Nov 10	-0.03 C	1.03	8	Dec 11	0.69 A	0.88	8	Jan 5	0.93 A	1.06
10	Nov 10	0.02 C	0.94	9	Dec 11	0.65 A	1.00	9	Jan 5	1.06 A	1.20
11	Nov 10	0.26 C	0.95	10	Dec 11	0.39 A	1.03	10	Jan 5	1.10 A	1.59
12	Nov 14	-0.60 C	1.00	11	Dec 11	0.42 A,C	1.06	11	Jan 17	0.85 A	1.03
13	Nov 14	0.02 C	1.00	12	Dec 11	0.16 C,A	0.98	12	Jan 17	0.70 A	0.85
14	Nov 14	0.05 C	1.00	13	Dec 11	0.83 A	0.89	13	Jan 17	0.92 A	1.06
15	Nov 14	0.09 C	1.00	14	Dec 11	0.67 A	0.90	14	Jan 17	0.79 A	0.99
16	Nov 14	0.26 C,B	1.03	15	Dec 11	0.78 A	0.89	15	Jan 17	0.99 A	1.14
17	Nov 18	0.00 B	0.73	16	Dec 18	0.63 A	0.82	16	Jan 17	0.88 A	1.03
18	Nov 18	0.08 B	0.66	17	Dec 18	0.64 A	0.84	17	Jan 17	0.16 A,C	1.22
19	Nov 18	0.26 B,C	0.79	18	Dec 18	0.08 A,C	1.08	18	Jan 17	1.20 C,A	1.34
20	Nov 22	0.02 C	0.91	19	Dec 18	0.80 C,A	1.20	19	Jan 17	1.08 A	1.25
21	Nov 22	-0.36 C	1.00	20	Dec 18	0.99 A	1.20	20	Jan 22	1.22 A	1.37
22	Nov 22	0.07 C	0.93	21	Dec 18	0.80 A	1.10	21	Jan 22	1.20 A	1.37
23	Nov 22	-0.05 C	0.96	22	Dec 18	0.86 A	1.10	22	Jan 22	0.09 A,C,A	1.51
24	Nov 26	-0.01 C	1.01	23	Dec 18	0.85 A	1.15	23	Jan 22	1.07 A	1.23
25	Nov 26	0.05 C	1.05	24	Dec 18	0.82 A	0.98	24	Jan 22	0.97 A	1.21
26	Nov 26	0.01 C	1.00	25	Dec 18	0.67 A	0.99	25	Jan 22	1.08 A	1.29
27	Nov 26	-0.08 C	1.06	26	Dec 18	0.66 A	0.88	26	Jan 27	1.11 A	1.35
28	Nov 30	0.08 C	1.03	27	Dec 18	0.72 A	0.95	27	Jan 27	0.28 A,C,A	1.17
29	Nov 30	-0.12 C	1.14	28	Jan 5	0.55 A	0.97	28	Jan 27	1.04 A	1.33
30	Nov 30	0.05 C	1.18	29	Jan 5	0.55 A	0.97	29	Jan 22	1.21 A	1.40
				30	Jan 5	0.78 A	1.15	30	Feb 6	1.16 A	1.46
				31	Jan 5	0.81 A	1.10	31	Feb 6	1.14 A	1.42

TABLE 3-2: Comparison of Scalar and Vector Data (Gammas) (Con't.)

Date of Data	Date of Calibration	Comparison of scalar fields between two magnetometers		Date of Data	Date of Calibration	Comparison of scalar fields between two magnetometers		Date of Data	Date of Calibration	Comparison of scalar fields between two magnetometers	
		MEAN DIFF.	RMS DIFF.			MEAN DIFF.	RMS DIFF.			MEAN DIFF.	RMS DIFF.
Feb 1	Feb 6	1.24	1.49	Mar 1	FIT TO	1.31	1.47	Apr 1		0.79	1.00
2	Feb 6	1.07	1.34	2	CALIBS	1.18	1.51	2		0.82	1.11
3	Feb 6	1.12	1.32	3	FROM	1.42	1.60	3		0.53	1.10
4	Feb 6	1.04	1.25	4	"C"	0.32	1.31	4		0.61	0.99
5	Feb 6	1.17	1.28	5	DAYS	0.83	1.32	5		0.61	1.00
6	Feb 6	0.34	1.32	6		0.94	1.27	6		0.60	1.06
7	Feb 6	1.03	1.32	7		1.05	1.39	7		0.70	1.05
8	Feb 6	1.12	1.27	8		1.08	1.33	8		0.83	1.14
9	Feb 11	1.08	1.18	9		1.06	1.33	9		0.86	1.18
10	Feb 11	1.10	1.31	10		1.10	1.42	10		0.81	1.11
11	Feb 11	0.11	1.32	11		0.00	1.50	11		0.87	1.11
12	Feb 11	1.05	1.28	12		1.01	1.40	12		0.70	1.10
13	Feb 11	1.12	1.17	13		1.11	1.40	13		0.65	1.23
14	Feb 16	1.00	1.22	14		1.00	1.29	14		0.80	1.27
15	Feb 16	1.15	1.42	15		1.10	1.37	15		0.90	1.33
16	Feb 16	0.04	1.23	16		1.07	1.35	16		0.99	1.35
17	Feb 16	1.04	1.35	17		1.13	1.30	17		1.70	1.80
18	Feb 16	1.14	1.37	18		0.04	1.39	18		1.68	1.82
19	Feb 16	1.21	1.42	19		0.93	1.33	19		1.77	1.87
20	Feb 16	1.18	1.35	20		1.12	1.30	20		1.59	1.74
21	Feb 16	1.33	1.54	21		1.09	1.33	21		1.53	1.78
22	FIT TO	1.21	1.39	22		1.10	1.24	22		1.78	1.86
23	CALIBS	1.10	1.32	23	FIT TO	0.88	1.07	23		1.65	1.80
24	FROM	1.08	1.32	24	CALIBS	0.71	1.20	24		1.75	1.88
25	"C"	1.10	1.30	25	FROM AD-	0.14	1.42	25		1.16	1.48
26	DAYS	0.39	1.28	26	JUSTED	0.77	1.00	26		1.88	1.85
27		1.08	1.39	27	"A" DAYS	0.91	1.07	27		1.73	1.77
28		1.21	1.53	28	AND	1.03	1.31	28		1.62	1.73
29		1.20	1.47	29	AVAIL-	0.92	1.21	29		1.99	1.87
				30	ABLE "C"	0.92	1.07	30		2.01	1.96
				31	DAYS	0.84	1.06				

TABLE 3-3: Comparison of Scalar and Vector Data (Gammas) (Con't.)

Date of Data	Date of Calibration	Comparison of scalar fields between two magnetometers	
		MEAN DIFF.	RMS DIFF.
May 1		2.04	1.94
2		1.78	1.85
3		2.21	2.03
4		2.10	2.06
5		1.64	1.79
6		1.91	1.97
7		No scalar	
8		↓	↓
9			
10			
11			
12		0.63	2.05
13		1.90	1.92
14		1.72	1.87
15		1.10	1.42
16		1.01	1.42
17		1.17	1.27
18		No scalar	
19		No scalar	
NO FINE ATTITUDE			

TABLE 4: Maximum Magnitude in Component Differences for Adjacent Calibrations

Calibrations	Component Difference					
	X		Y		Z	
	Max	Min	Max	Min	Max	Min
11/2 vs. 11/3, 1979	0.98	-0.77	1.17	-1.89	2.17	-2.50
11/3 vs. 11/5, 1979	1.92	-1.55	1.62	-1.53	0.40	-0.75
11/5 vs. 11/6, 1979	2.53	-2.13	3.19	0.81	0.32	-0.81
11/6 vs. 11/10, 1979	0.99 (0.73)	-1.24 (-1.21)	-0.31	-1.87	1.25	-0.81
11/10 vs. 11/14, 1979	0.44	0.31	1.32	-0.59	0.69	-0.43
11/14 vs. 11/18, 1979	2.59 (1.10)	-2.18 (-0.70)	1.28	-0.43	-0.18	-2.01
11/18 vs. 11/22, 1979	2.44 (-0.03)	-3.66 (-1.17)	1.42	-1.51	1.87	-0.08
11/22 vs. 11/26, 1979	0.01	-0.58	5.00	0.21	0.29	-0.23
11/26 vs. 11/30, 1979	3.57 (0.48)	-3.94 (-.85)	1.00	-2.07	0.88	-0.21
11/30 vs. 12/1, 1979	2.10 (0.85)	-2.29 (-1.03)	2.86	-1.31	0.68	-0.79
12/1 vs. 12/11, 1979	0.88	-0.70	2.60	-1.00	0.33	-0.43
12/11 vs. 12/18, 1979	0.67	-0.79	1.40	-3.00	0.66	-0.43
12/18, 1979 vs. 1/5, 1980	1.06 (-0.12)	-2.89 (-1.72)	6.76	-0.60	0.86	-1.04
1/5 vs. 1/17, 1980	0.93 (0.49)	-0.60 (-0.14)	1.28	-4.47	0.50	-0.31
1/17 vs. 1/22, 1980	1.15	-0.96	1.21	-1.17	0.18	-0.25
1/22 vs. 2/6, 1980	0.43	-2.06	0.76	-2.48	0.59	-0.88
2/6 vs. 2/11, 1980	0.69	-0.15	2.73	-2.43	0.68	-0.51
2/11 vs. 2/16, 1980	6.06 (1.31)	-7.83 (-3.08)	2.64	-2.40	0.83	-0.75
2/16 vs. 2/26, 1980	6.80 (2.66)	-4.45 (-0.32)	0.28	-4.16	0.92	-0.36
2/26 vs. 3/4, 1980	0.58 (0.16)	-2.09 (-1.65)	7.14	-2.25	0.29	-1.11
3/4 vs. 3/11, 1980	3.67 (0.99)	-3.09 (-0.42)	5.36	-2.29	-0.09	-0.79
3/11 vs. 3/18, 1980	0.25	-2.44	1.79	-6.80	1.05	-0.85
3/18 vs. 3/25, 1980	5.15 (4.58)	-2.56 (-1.98)	3.45	-5.11	0.38	-0.78

TABLE 5: Fluxgate Calibration Summary: Intermediate Attitude Data

<u>Dates</u>	<u>Data From Which Calibration Derives</u>
11/2-7, 1979	Nov. 2, 1979
11/8-12, 1979	Nov. 5, 1979
12/18/79-3/30/80*	Nov. 21, 1979*
3/31/80-4/27/80	Jan. 21, 1980
4/28/80-end of mission	Mar. 3, 1981

\*With the exception of

Jan. 25-28, 1980	Jan. 26, 1980
------------------	---------------

TABLE 6-1: APL Ephem Overlap Statistics

Overlap		Epoch		Orbit Span (H)	Overlap (H)	RMS (M)				M/σ (M)				Max (M)			Min (M)		Transfer Time (TM) Minutes	
M	D	D/Y	H			H	L	C	D	H	L	C	D	H	L	C	D	M		
Nov	3	79	307	0.5	28.0	4.5	49	97	28	112	-2/49	-17/95	0/28	108/28	68	41	66	101	33	
	4		308	0.0	29.3	5.8	45	151	45	164	9/44	-95/118	2/45	146/75	70	64	35	50	192	
	5		309	1.0	31.9	6.8	22	81	12	84	-2/22	58/56	-1/12	73/42	29	17	17	18	301	
	6		310	0.4	28.0	4.6	66	161	21	175	-2/66	-95/129	0/21	158/75	92	280	30	62	68	34
	7		311	0.0	29.0	5.5	27	69	24	78	1/27	-40/56	1/24	71/33	42	145	35	23	27	0
				12.8	18.2	5.3	25	60	16	67	-3/25	-29/53	0/16	61/27	39	115	23	25	33	890
	8		312	0.9	16.6	4.6	14	67	27	73	5/13	-41/52	0/27	65/34	25	135	38	22	27	145
				12.3	17.0	5.6	14	29	26	41	-1/14	-6/28	3/26	39/12	25	58	37	12	26	887
				21.0	17.9	9.2	18	40	32	54	-1/18	-10/39	0/32	52/16	31	75	45	18	40	1279
	9		313	3.6	15.5	8.9	20	55	15	61	1/20	-36/42	0/15	55/26	30	102	22	14	17	684
				13.3	14.7	4.9	35	71	22	82	5/35	-5/71	-1/22	78/25	53	144	31	42	53	1057
	10		314	6.0	22.5	5.8	20	56	8	60	3/20	-25/50	0/8	54/26	33	103	11	13	15	650
				15.1	17.1	7.8	25	69	16	75	0/25	-46/51	0/16	67/34	39	126	22	24	26	935
				22.2	14.2	7.1	11	56	10	58	3/11	-15/54	-1/10	47/34	23	129	14	6	7	1435
	11		315	5.9	14.7	7.1	18	47	5	50	-2/18	-14/45	0/5	45/23	29	93	7	6	7	755
				18.1	17.6	5.5	23	50	3	55	4/22	19/46	0/3	51/20	34	93	5	27	35	1131
	12		316	0.2	15.4	9.3	19	48	5	52	-2/19	6/48	0/5	47/23	33	103	7	18	18	23
				6.5	15.1	8.8	21	58	7	62	-1/21	21/55	0/7	56/28	34	142	10	10	10	814
				15.6	14.4	5.3	21	45	5	50	-1/21	-16/43	0/5	47/18	31	82	8	27	40	1146
				23.9	14.8	6.4	29	64	27	76	2/29	-25/59	0/27	71/25	49	130	39	20	28	1795*
	13		317	16.0	22.9	7.9	21	50	8	55	0/21	20/46	0/8	50/22	37	97	11	21	26	1253
				20.4	15.5	11.0	6	18	6	20	0/6	-1/18	0/6	17/9	10	50	8	2	3	1526*
	14		318	5.1	14.8	6.0	25	72	8	77	-4/25	13/71	0/8	69/35	48	160	12	26	33	422
				16.0	15.3	4.4	31	62	13	70	1/31	1/62	0/13	68/16	45	96	18	42	76	981
	15		319	0.1	14.5	6.3	24	56	12	62	-1/24	-26/50	0/12	58/23	36	102	17	30	35	10

TABLE 6-2: APL Ephem Overlap Statistics (Con't)

Overlap		Epoch		Orbit Span	Over-lap	RMS (M)				M/σ (M)				Max (M)			Min (M)		Transfer Time (TM)	
M	D	Y	D/Y	H	(H)	(H)	H	L	C	D	H	L	C	D	H	L	C	D	M	Minutes
Nov 15	79			7.9	13.7	5.8	26	56	19	65	0/26	-9/55	1/19	61/21	42	103	27	26	27	803
				16.1	16.5	8.3	31	67	4	74	1/31	-22/63	0/4	70/23	45	125	5	38	58	1042
16	320			1.0	15.9	6.9	21	48	19	56	2/21	-1/48	-1/19	52/20	36	103	27	25	28	446
				8.5	15.1	7.6	22	47	8	52	-2/22	-4/47	0/8	49/20	33	94	11	20	23	538
17	321			15.5	15.1	8.2	21	56	17	63	-2/21	-3/56	0/17	57/26	32	121	26	22	28	1017
				23.9	17.0	8.6	23	53	21	61	-1/23	-19/49	2/21	58/21	38	118	31	24	32	1935*
				6.8	14.2	7.3	22	57	3	61	-2/22	3/57	0/31	56/26	37	124	4	23	31	498
18	322			14.9	14.4	6.3	34	68	10	76	0/34	9/67	0/10	74/18	49	111	15	47	83	928
				23.9	15.4	6.5	25	57	19	65	-2/25	-26/50	0/19	60/23	36	108	28	26	36	1444*
				8.4	18.2	9.8	15	34	9	38	-1/15	10/32	1/9	36/14	24	77	12	9	10	1074
19	323			15.4	15.7	8.6	27	71	20	79	1/27	46/55	1/20	71/34	40	128	29	25	26	1255
				0.8	17.1	7.7	12	25	19	34	0/12	9/24	0/19	33/8	18	52	27	9	10	487
				8.2	15.1	7.7	16	62	9	64	-3/15	29/55	0/9	53/36	30	151	13	20	26	759
20	324			15.9	15.2	7.5	23	56	9	61	-2/23	22/52	0/9	55/26	35	122	13	17	21	1314
				0.2	16.5	8.2	37	76	27	89	-1/37	-2/76	1/27	85/24	57	146	39	31	37	24
				8.0	12.2	4.3	34	72	25	83	-2/33	-20/69	2/25	78/28	54	141	36	35	48	492
21	325			16.0	16.5	7.6	20	45	23	54	0/20	15/42	1/23	52/17	30	97	33	24	41	1378
				22.2	16.2	10.0	20	52	16	58	1/20	-2/52	-1/16	53/24	35	113	24	18	19	1896*
				4.5	13.6	7.2	15	39	9	43	0/15	1/39	0/9	39/18	27	80	12	13	31	554
22	326			12.6	15.9	7.8	19	48	6	52	-1/18	18/45	0/6	46/25	32	123	9	10	11	1152
				20.4	16.0	8.2	16	33	15	39	1/15	-3/33	0/15	38/10	24	76	21	19	22	1666*
				3.9	14.8	7.3	22	51	7	56	3/22	-8/50	-1/7	52/20	34	103	10	25	35	604
23	327			12.0	16.6	8.5	24	53	12	60	0/24	21/49	-1/12	56/22	35	99	17	30	42	1028
				20.0	16.6	8.6	18	42	2	45	0/18	2/40	0/2	41/18	27	79	3	18	22	1304
				3.9	16.2	8.2	21	47	9	52	1/21	-14/45	1/9	49/18	31	94	13	23	31	666



TABLE 6-3: APL Ephem Overlap Statistics (Con't)

Overlap		Epoch		Orbit Span	Over-lap	RMS (M)				M/σ (M)				Max (M)			Min (M)		Transfer Time (TM)	
M	D	Y	D/Y	H	(H)	(H)	H	L	C	D	H	L	C	D	H	L	C	D	M	Minutes
Nov	23	79		12.9	16.3	7.2	26	52	4	58	-1/26	18/49	0/4	55/20	37	96	6	31	43	1177
				20.8	15.0	7.3	10	31	7	33	1/10	-3/31	0/7	29/16	18	72	10	8	11	1461*
24		328		4.2	14.7	7.2	17	39	15	45	1/17	17/35	1/15	41/17	27	89	22	1	3	674
				12.2	15.4	7.3	10	42	22	48	0/10	-37/20	2/22	45/17	17	72	32	11	23	810
				20.0	16.0	8.2	18	42	13	47	1/18	15/39	-1/13	44/19	28	82	19	18	25	1417
				4.2	16.5	8.3	40	83	4	92	0/40	-9/82	0/4	88/27	62	151	6	43	55	266
25		329		13.3	16.3	7.2	26	54	11	61	-1/26	21/50	-1/11	57/22	38	102	15	31	43	1196
				20.4	15.0	7.8	22	51	23	61	-2/22	-23/46	1/23	57/21	33	108	33	13	17	1240
				4.6	14.5	6.2	17	42	19	50	-2/17	-19/38	0/19	46/18	27	91	28	23	28	279
26		330		12.7	15.9	7.8	22	55	18	62	0/22	21/45	0/18	56/25	36	112	26	19	23	779
				20.3	15.0	7.3	7	24	11	27	1/7	4/24	-1/11	24/12	13	52	16	4	7	1576*
				4.0	15.5	7.8	12	35	3	37	0/12	-22/27	0/3	32/18	20	68	5	4	5	420
				15.0	16.5	5.4	23	57	14	63	3/23	-30/48	1/14	58/24	36	121	20	24	29	1171
28		332		0.1	17.5	8.3	32	81	20	89	2/32	-48/65	-1/20	80/39	47	149	28	30	32	290
				7.9	16.4	8.5	25	63	20	71	0/25	-19/60	0/20	65/27	41	118	29	21	27	672
				16.0	16.4	8.3	15	33	8	37	1/15	11/31	0/8	35/12	22	61	11	20	24	1215
29		333		1.1	16.3	7.3	19	53	4	57	2/19	-35/40	0/4	49/28	29	115	6	8	9	447
				8.6	15.1	8.3	11	28	13	33	-1/11	10/26	0/13	30/13	17	62	19	4	7	860
				16.4	15.2	7.3	12	54	14	58	-2/12	33/44	-1/14	49/30	22	124	21	7	10	1230
				19.9	15.4	11.8	22	75	6	78	1/22	58/48	0/6	67/40	34	137	8	1	2	1326
30		334		4.3	16.4	7.9	17	49	8	52	18/17	-20/44	0/8	46/24	27	117	11	8	10	686
				11.9	16.0	8.3	22	52	13	58	2/22	-9/52	0/13	54/22	34	124	18	18	19	1156
				20.0	16.4	8.3	10	29	3	31	0/10	19/26	0/3	27/15	15	57	5	5	6	1200
Dec	1	79	335	4.2	16.0	7.7	11	42	2	43	-2/11	-29/30	0/2	37/22	18	103	2	6	7	475
				12.7	15.8	7.3	11	29	11	33	-2/11	10/27	-1/11	30/13	19	55	15	8	8	1062

TABLE 6-4: APL Ephem Overlap Statistics (Con't)

Overlap Epoch					Orbit Span	Over-lap	RMS (M)				M/σ (M)				Max (M)			Min (M)		Transfer Time (TM)
M	D	Y	D/Y	H	(H)	(H)	H	L	C	D	H	L	C	D	H	L	C	D	M	Minutes
Dec	1	79		20.3	15.0	7.4	6	15	14	21	0/6	-10/16	1/14	20/7	9	28	19	9	19	1242
	2		336	4.0	15.0	7.3	13	52	9	55	0/13	-37/37	-1/9	48/26	24	99	13	5	5	656
				12.0	16.5	8.5	3	17	17	24	1/3	0/16	0/17	22/10	7	48	25	1	1	929
				16.1	15.1	10.8	15	57	13	60	1/15	-6/56	0/13	49/34	26	156	18	6	7	1223
				19.9	13.6	9.8	15	31	13	37	0/15	4/31	0/13	36/1	22	55	19	20	32	1500*
	3		337	1.9	16.2	10.3	26	55	5	61	2/26	3/55	0/1	57/20	40	125	7	23	25	156
				16.0	16.4	2.2	35	70	17	80	8/34	13/69	1/16	76/24	52	126	24	44	66	1091
	4		338	1.1	16.4	7.3	22	60	34	72	2/22	-38/46	-2/33	67/27	34	130	48	28	45	456
				8.1	15.4	8.5	15	42	14	47	-2/15	21/37	0/14	42/21	23	88	21	6	8	867
				16.4	15.7	7.3	13	38	15	43	1/13	24/30	1/15	39/19	22	77	22	6	9	1147
	5		339	0.4	15.3	7.3	19	57	14	61	3/19	-30/48	-1/14	55/28	33	105	20	6	8	317
				7.9	16.0	8.5	22	60	6	64	-3/21	-5/60	0/6	55/32	37	145	8	11	12	923
				16.1	16.5	8.4	5	39	6	42	1/16	6/38	0/6	38/19	28	80	9	9	9	1434
				23.9	16.2	8.5	13	36	9	40	1/13	-17/32	-1/9	36/18	22	70	13	6	8	1731*
	6		340	8.0	16.6	8.4	14	28	8	32	1/14	2/27	1/8	31/7	21	50	11	19	23	983
				16.1	16.1	8.0	17	48	4	51	0/17	16/45	0/4	44/25	29	98	6	4	4	1253
	7		341	0.7	16.3	7.7	15	33	10	37	1/15	-8/32	0/10	36/11	22	57	14	20	30	444
				8.1	15.1	7.8	15	33	6	37	0/15	-12/31	0/6	35/12	23	61	9	19	27	721
				16.1	15.3	7.4	17	38	2	42	1/17	13/36	0/2	38/18	28	78	4	14	16	1134
				19.9	16.3	12.3	12	39	4	41	1/12	10/38	0/4	36/20	21	77	5	4	5	1401
	8		342	0.1	16.4	12.0	29	67	17	76	0/29	-20/64	-1/17	71/26	46	136	25	29	31	9
				7.9	16.4	8.5	24	60	24	69	-1/24	-6/60	2/24	64/26	37	135	35	22	32	578
				16.0	16.4	8.2	16	51	2	53	2/16	24/45	0/2	46/27	28	98	3	5	5	1075
	9		343	1.0	16.3	7.3	19	52	23	60	2/19	-29/43	-2/22	55/23	30	97	32	14	23	355
				8.0	15.0	8.0	20	47	23	56	-1/20	7/46	1/23	53/17	33	108	33	18	20	958

TABLE 6-5: APL Ephem Overlap Statistics (Con't)

Overlap					Orbit Span (H)	Over- lap (H)	RMS (M)				M/σ (M)				Max (M)			Min (M)		Transfer Time (TM) Minutes
M	D	Y	D/Y	H			H	L	C	D	H	L	C	D	H	L	C	D	M	
Dec	9	79	343	16.4			15.7	7.3	5	12	13	18	1/5	0/12	0/13	17/6	8	35	18	
				19.9	16.0	12.5	14	55	5	57	2/14	-11/54	0/5	47/32	26	156	8	7	8	1396
	10		344	4.2	12.5	4.9	41	93	22	104	-3/41	-34/87	3/22	99/33	63	174	32	51	60	497
				12.4	16.3	8.2	17	45	11	49	1/17	20/40	-1/11	45/2		87	16	14	16	828
				20.1	11.1	3.3	11	7	12	28	-1/11	10/21	1/12	2/		42	17	14	15	1289
	11		345	4.6	15.8	7.2	13	59	15	52	-2/12	-33/49	2/16	54/31	22	129	23	6	9	468
				12.5	15.9	8.0	16	42	7	46	0/16	28/32	0/7	41/22	24	77	10	11	11	778
				20.2	15.1	7.4	9	23	5	25	1/9	-2/23	0/5	23/11	15	53	7	8	9	1215
	12		346	3.9	15.0	7.1	13	29	5	32	1/13	-1/28	0/5	30/12	20	54	7	15	21	334
				12.0	16.6	8.5	16	33	11	39	1/16	4/33	0/11	37/11	24	65	16	17	24	1223
				19.9	16.6	8.6	16	42	12	47	-1/16	17/38	0/12	42/19	27	84	17	9	11	1488*
	13		347	3.9	16.1	8.2	30	61	4	68	2/30	4/61	0/4	66/17	43	105	6	40	63	249
				12.0	16.6	8.4	18	41	11	46	-2/18	13/38	-1/11	41/19	35	117	16	12	22	1182
				20.3	15.9	7.9	18	41	9	46	0/18	4/41	0/9	42/18	32	87	13	10	11	1669*
	14		348	4.2	16.0	7.9	12	33	12	37	-1/12	4/32	0/12	33/15	22	98	17	13	15	675
				12.2	16.3	8.3	3	10	11	15	0/3	0/10	1/11	15/4	5	21	16	1	2	822
				19.9	16.0	8.2	27	60	28	71	2/27	27/53	-2/28	67/24	39	116	39	27	41	1219
	15		349	4.1	16.4	8.3	23	53	8	59	2/23	-12/52	0/8	54/22	35	110	11	25	29	680
				13.2	16.3	7.1	15	30	9	35	-1/15	7/29	-1/9	33/11	22	59	13	17	22	1191
				20.0	14.9	8.1	18	38	6	42	0/18	7/37	0/6	41/12	27	66	8	23	34	1685*
	16		350	4.4	15.6	7.3	11	38	18	44	-1/11	-1/38	0/18	40/18	21	81	25	10	22	589
				12.5	15.6	7.4	4	10	4	11	0/4	0/10	0/4	10/4	7	20	6	2	3	1085
				20.2	15.9	8.2	24	51	4	56	0/24	26/47	0/4	53/19	34	94	5	30	42	1223
	17		351	4.4	16.3	8.3	7	26	4	28	-2/7	-8/25	0/4	24/13	13	52	5	5	5	407
				12.0	16.1	8.5	6	21	11	24	0/6	13/16	-1/11	22/9	10	40	15	5	6	819

TABLE 6-6: APL Ephem Overlap Statistics (Con't)

Overlap		Epoch			Orbit Span	Overlap	RMS (M)				M/σ (M)				Max (M)			Min (M)		Transfer Time (TM)
M	D	Y	DY	H	(H)	(H)	H	L	C	D	H	L	C	D	H	L	C	D	M	Minutes
Dec	17	79	351	20.0	16.4	8.4	10	26	4	28	0/10	6/25	0/4	26/12	16	60	6	8	9	1276
	18		352	4.3	16.5	8.2	5	25	10	28	1/5	-17/18	0/10	25/11	10	45	14	1	3	303
				12.6	15.8	7.5	10	35	19	41	-1/10	10/34	0/19	36/19	20	91	27	12	22	1125
				20.2	15.1	7.4	17	47	18	54	0/17	17/44	1/18	49/22	30	95	26	9	10	1643*
	19		353	4.0	14.9	7.3	12	32	17	38	-2/12	14/29	-2/17	35/15	20	82	25	4	4	607
				12.0	16.6	8.5	17	43	2	46	-1/17	24/35	0/2	41/21	26	81	3	14	15	911
				20.0	16.1	8.2	14	32	10	37	-1/14	12/30	0/10	34/14	22	75	15	15	14	1664*
	20		354	3.9	16.1	8.3	15	30	11	35	0/15	-5/30	0/11	34/9	25	54	16	21	26	247
				12.9	16.5	7.5	4	10	8	13	0/4	-1/10	0/8	12/4	6	20	11	5	9	874
				20.4	15.0	7.4	20	50	10	55	1/20	-6/50	1/10	49/23	32	109	15	14	14	1661*
	21		355	5.4	15.6	6.5	5	17	4	18	-1/4	-1/17	0/4	16/9	8	34	5	3	4	619
				12.2	15.1	8.3	13	27	14	33	-1/13	8/26	1/14	32/9	20	56	20	11	14	1193
				19.1	15.9	8.2	15	31	27	44	1/15	8/30	-2/27	42/15	23	66	38	21	39	1212
	22		356	4.1	16.4	8.2	11	33	11	36	-1/10	-16/29	1/11	36/16	21	67	16	5	6	707
				12.2	16.3	8.2	11	38	19	44	1/11	-31/22	-1/19	40/18	17	73	27	5	6	1093
				20.7	15.9	7.3	21	51	24	60	-1/21	26/43	-2/24	56/22	32	100	35	28	38	1258
	23		357	4.1	15.6	8.1	9	19	19	28	0/9	0/19	-1/19	27/8	14	37	26	12	27	329
				12.3	15.8	7.6	9	20	9	23	-1/9	3/20	0/9	23/6	14	42	12	11	17	1107
				20.1	16.0	8.1	25	64	4	69	-3/25	39/51	0/4	61/33	36	132	6	5	7	1673*
	24		358	4.3	16.4	8.1	15	45	6	48	-3/14	8/44	0/6	40/25	26	138	5	15	18	376
				11.9	16.0	8.4	19	54	51	77	1/19	-34/42	-2/51	72/26	31	124	74	14	32	1096
				20.1	16.4	8.0	21	50	51	75	1/21	16/48	2/51	71/23	34	96	73	27	56	1466*
	25		359	4.3	15.7	7.6	14	32	9	36	0/14	11/30	0/9	33/14	22	67	12	13	16	275
				12.7	15.8	7.4	20	45	6	49	-1/20	-18/41	0/6	45/20	30	87	9	20	25	884
				20.2	15.9	8.3	29	60	8	67	-2/29	13/58	1/8	65/16	43	96	11	41	72	1452*

TABLE 6-7: APL Ephem Overlap Statistics (Con't)

Overlap		Epoch		Over- Start	Over- End	RMS (M)				M G (M)				Max (M)			Min (M)		Transfer Time (TM)		
M	D	Y	D.Y	H	(H)	(H)	H	L	C	D	H	L	C	D	H	L	C	D	M	Minutes	
Dec	25	79	360	1.9	17.6	7.9	19	48	6	52	-1.19	22.42	0.6	47.21	31	168	9	18	19	609	
				12.9	16.6	8.5	14	38	12	42	-1.14	16.34	0.12	39.16	28	84	17	9	9	1210	
				19.9	16.5	8.5	11	25	3	26	-1.11	7.22	0.3	24.9	17	45	4	15	19	1243	
27	361	5.8	16.2	16.2	6.3	3	7	39	31	0.3	3.6	0.39	28.12	5	14	43	4	5	5	608	
			11.9	14.3	8.2	19	24	15	39	1.10	-13.21	0.15	28.10	16	49	21	12	19	1171		
			29.9	15.9	7.8	7	18	14	24	0.7	8.16	0.14	23.8	12	37	29	8	17	1633*		
28	362	4.0	16.9	16.9	7.8	9	25	9	28	-2.9	8.24	0.9	25.12	14	57	12	2	4	4	609	
			12.1	14.8	6.7	17	56	18	61	-4.16	16.53	1.18	52.32	39	166	26	17	33	847		
			20.9	15.9	8.0	8	34	7	36	0.8	2.27	0.7	32.16	15	66	19	6	7	1568*		
29	363	4.0	16.2	16.2	8.1	16	43	7	46	2.15	-6.42	0.7	41.21	25	87	19	4	5	5	246	
			13.9	16.2	7.3	9	82	9	83	5.7	-43.67	-1.9	69.58	19	295	13	3	5	915		
			29.5	14.9	7.5	3	13	5	14	0.3	-11.7	0.5	13.6	5	25	7	1	1	1	1436	
30	364	4.2	14.4	14.4	6.7	4	25	6	26	-2.4	19.23	0.6	29.16	9	74	9	2	3	3	516	
			12.2	15.4	7.4	14	49	12	53	1.14	-36.33	1.12	47.24	23	94	17	8	10	849		
			29.9	16.9	8.1	7	24	7	26	-1.6	9.22	1.7	23.12	11	53	10	8	11	1257		
31	365	4.2	16.4	16.4	8.3	10	26	13	30	-1.10	8.24	0.13	28.11	16	57	19	6	7	7	732	
			12.2	16.3	8.9	8	42	8	44	-1.8	-12.49	0.8	34.27	17	118	11	5	8	8	936	
			—	15.9	—	NO OVERLAP DUE TO 1 SEC (LEAP SEC) ADJUSTMENT IN UTC AT 0 <sup>h</sup> ON JAN 1															
Jan	1	80	1	8.5	15.9	6.9	6	18	9	21	1.6	0.18	0.9	20.8	12	38	14	6	11	11	620
				15.9	15.3	7.8	9	32	32	46	0.9	6.31	1.52	43.16	16	73	46	5	11	11	1098
	2		2	0.5	16.6	8.1	8	47	5	48	2.7	-32.34	0.5	43.29	17	89	7	6	6	6	78
				7.9	16.9	8.5	8	24	4	25	-2.8	-7.23	0.4	22.12	12	57	5	5	5	6	611
	3	3	3	0.9	16.1	8.2	8	34	10	36	1.8	24.24	-1.19	32.17	12	72	14	7	11	11	274
				8.7	16.4	7.6	4	15	12	19	1.4	-1.15	0.12	18.7	8	42	17	3	6	6	727

ORIGINAL FILED IN  
OF PCOR (CONT.)

TABLE 6-8: APL Ephem Overlap Statistics (Con't)

Overlap		Epoch		Orbit Span	Over-lap	RMS (M)				M/σ (M)				Max (M)			Min (M)		Transfer Time (TM)	
M	D	Y	DY	H	(H)	(H)	H	L	C	D	H	L	C	D	H	L	C	D	M	Minutes
Jan	4	80	4	0.0	15.3	20.0	12	141	9	142	-2/12	121/72	0/9	122/71	21	281	12	12	12	51
				8.1	20.0	11.9	6	61	5	62	-2/6	43/44	0/5	47/41	12	156	7	3	3	766
				15.9	15.1	7.4	4	16	28	32	1/4	-7/14	2/28	30/11	7	38	40	5	7	1207
				23.9	16.5	8.4	16	35	38	54	1/16	-2/35	-3/38	52/14	29	68	54	8	12	1909*
	5	5	8.1	16.6	8.4	16	36	10	41	3/16	-2/36	1/9	37/16	24	80	14	12	13	945	
			16.8	15.8	7.3	3	36	19	40	-3/1	-7/35	2/18	38/14	6	64	27	6	12	1253	
	6	6	0.8	15.7	7.7	7	18	12	23	0/7	4/18	0/12	21/9	12	42	17	5	10	94	
			8.1	15.7	8.2	6	15	17	23	0/6	8/13	0/17	22/7	9	29	24	3	5	689	
			16.1	17.5	7.1	7	23	36	44	1/7	13/20	4/36	41/16	12	56	53	9	20	1400	
	7	7	0.1	16.4	8.4	39	85	36	100	4/39	-32/79	-3/36	95/32	62	183	51	22	24	473	
			8.6	16.3	7.8	23	47	15	55	0/23	6/47	0/15	53/13	35	84	21	29	48	533	
			16.0	15.6	8.3	8	26	5	27	0/8	3/26	0/5	23/15	14	62	7	2	2	1357	
8	8	0.9	16.2	7.3	12	33	27	44	0/12	-21/25	-3/27	41/15	18	66	39	9	19	157		
		7.3	15.0	7.9	12	32	23	41	2/12	2/32	1/23	38/14	22	87	33	10	13	915		
		16.2	15.7	7.3	7	19	21	29	-1/7	5/18	0/21	28/9	12	39	29	5	10	1000		
9	9	0.2	16.2	8.0	28	62	27	73	2/28	-27/56	-1/27	69/24	42	127	39	22	24	482		
		7.9	16.3	8.7	16	33	10	38	0/16	-5/33	1/10	36/12	23	63	15	19	27	488		
		16.1	16.5	8.2	12	25	22	35	0/12	1/25	2/22	35/7	19	47	31	11	18	1461*		
10	10	1.1	16.0	7.0	14	29	49	59	2/14	-1/29	-6/49	57/14	22	52	70	23	35	440		
		8.0	14.9	7.9	13	27	21	37	1/13	3/27	0/21	36/7	21	49	30	15	18	1006		
		16.1	15.6	6.8	10	39	40	57	-2/10	5/39	1/40	53/19	18	84	56	6	9	1091		
11	11	0.3	16.5	8.0	30	78	17	85	2/30	-49/61	0/17	76/40	44	153	25	14	17	488		
		8.0	15.9	8.2	6	24	7	26	-1/6	8/22	1/7	21/14	11	75	10	6	10	829		
		16.0	16.3	8.2	6	15	9	18	1/6	3/14	1/9	17/6	10	28	13	3	5	1427		
12	12	1.2	16.1	6.9	12	31	24	41	0/12	-18/25	-3/24	38/14	18	59	34	18	35	183		

TABLE 6-9: APL Ephem Overlap Statistics (Con't)

Overlap		Epoch		Orbit Span	Overlap	RMS (M)				M/σ (M)				Max (M)			Min (M)		Transfer Time (TM)	
M	D	Y	D.Y	H	(H)	(H)	H	L	C	D	H	L	C	D	H	L	C	D	M	Minutes
Jan	12	80	12	8.1	15.0	7.9	12	29	23	39	0/12	- 4/28	1/23	37/12	21	56	33	6	13	515
				16.1	15.7	7.6	3	38	29	48	-3/2	3/38	1/29	45/18	6	86	41	5	10	1237
	13		13	0.4	16.3	7.8	15	40	8	44	2/14	-12/39	0/8	39/20	26	99	11	12	14	397
				7.9	16.0	8.5	11	33	5	36	-3/11	- 1/33	0/5	31/17	17	78	7	7	8	518
	14		14	16.1	15.1	5.9	14	43	14	47	-3/14	- 4/43	0/14	42/22	30	121	20	7	10	1221
				1.3	16.4	7.1	20	59	17	64	5/19	12/58	0/17	55/28	33	151	24	17	22	206
				8.2	15.0	8.0	6	33	9	35	0/6	-20/26	0/9	32/14	17	59	13	13	17	938
				16.2	15.6	7.6	4	27	17	32	-2/3	- 6/26	0/17	30/11	7	53	24	2	4	1247
	15		15	0.0	16.0	8.0	15	111	10	112	6/13	-48/99	0/10	89/68	30	242	15	16	20	163
				8.0	16.2	8.0	9	37	13	41	-3/8	2/37	-1/13	36/19	16	106	19	11	18	699
				16.1	14.9	6.8	18	86	19	90	-7/16	24/83	2/19	76/48	32	216	27	11	18	1089
				9	16.1	8.2	5	28	21	36	0/5	23/16	-1/21	33/13	9	65	30	5	11	325
				8.7	16.3	7.7	15	91	11	92	1/15	-84/35	0/11	86/34	23	165	16	18	18	566
				16.3	15.3	7.6	5	22	12	25	0/5	13/18	0/12	24/9	19	41	17	10	14	1006
	17		17	0.0	15.6	7.9	8	34	6	35	2/8	-12/31	0/6	31/16	17	79	8	6	7	451
				8.1	16.6	8.5	15	40	9	43	-2/14	- 2/40	-1/9	38/20	27	116	13	8	9	717
				16.2	15.5	8.1	11	30	17	36	-1/11	10/28	1/17	33/14	17	67	24	14	24	1316
				23.9	16.1	8.3	11	27	9	31	2/11	1/27	-1/9	28/12	19	63	12	4	5	1902*
	18		18	8.8	16.5	7.6	21	49	10	54	-1/21	- 1/48	0/10	50/22	35	96	14	9	19	984
				16.4	15.3	7.6	7	22	6	24	-1/7	3/22	0/6	21/12	13	58	9	6	8	1273
	19		19	0.8	15.9	7.6	5	16	6	18	1/5	0/16	0/6	16/7	9	34	9	4	5	124
				8.2	15.0	7.5	17	39	6	43	1/17	-18/34	0/6	39/18	28	84	8	18	20	907
				16.0	15.1	7.4	13	47	9	50	-3/13	13/45	0/9	43/26	23	110	13	6	8	986
				0.0	16.5	8.4	22	54	26	64	1/22	-32/44	-2/26	59/26	34	111	37	18	21	474
	20		20	8.5	16.5	8.1	28	61	2	67	2/28	16/59	0/2	62/25	43	132	3	5	7	527

TABLE 6-10: APL Ephem Overlap Statistics (Con't)

Overlap		Epoch			Orbit Span	Overlap	RMS (M)				M/σ (M)				Max (M)			Min (M)		Transfer Time (TM)
M	D	Y	D:Y	H	(H)	(H)	H	L	C	D	H	L	C	D	H	L	C	D	M	Minutes
Jan	20	80	20	16.1	15.7	7.9	10	24	11	28	-1/10	1/24	0/11	27.9	15	45	16	14	23	1375
	21		21	0.8	16.2	7.6	21	44	17	52	-1/21	4/44	0/17	49/17	32	86	24	26	37	495
				8.2	15.6	8.1	13	33	10	37	-2/13	19/27	-1/10	34/15	20	70	14	5	6	951
				16.0	15.1	7.4	26	57	21	66	-2/26	-17/54	1/21	62/22	39	108	30	30	45	1089
	22		22	0.0	16.5	8.4	22	51	25	61	1/22	-26/44	-2/25	57/22	35	104	36	8	12	473
				8.5	16.4	8.2	18	36	9	42	0/18	3/36	0/9	40/9	27	60	13	26	38	529
				15.9	15.6	8.2	31	73	17	81	1/31	-32/65	0/17	75/32	47	137	24	34	45	1138
	23		23	0.0	16.6	7.6	25	58	25	68	-2/25	-15/56	0/25	64/24	40	126	35	34	37	80
				8.5	15.6	7.8	20	49	19	56	-3/19	-4/48	-2/19	51/24	42	115	28	10	11	955
				16.0	14.9	7.2	8	25	9	28	-1/8	16/20	-1/9	25/12	14	50	13	5	8	1224
	24		24	0.1	16.5	8.4	37	80	16	90	2/37	-34/73	-1/16	83/33	58	156	22	30	34	11
				9.0	16.2	7.4	15	39	7	42	0/15	-6/39	1/7	39/17	26	72	9	10	15	762
				16.5	15.2	7.6	16	36	12	41	-1/16	-5/36	0/12	39/13	24	64	17	16	30	1043
	25		25	0.9	15.6	7.3	16	35	23	45	0/16	1/35	-2/22	42/14	29	68	32	19	33	80
				8.2	15.6	8.3	19	48	25	58	-3/19	10/47	-2/25	54/20	34	127	36	21	27	497
				16.1	15.3	7.3	20	52	7	56	-1/20	23/47	0/7	51/24	31	116	10	12	13	1315
	26		26	0.2	16.3	8.2	34	75	38	91	1/34	-28/70	-1/38	86/28	55	157	55	16	18	18
				8.6	16.2	7.8	30	70	16	78	2/30	33/62	0/16	71/31	45	155	23	10	12	534
				16.0	15.6	8.2	9	47	21	52	-1/9	33/33	1/21	47/23	14	99	30	3	3	1179
	27		27	1.1	15.9	6.8	15	32	39	53	2/15	-2/32	-3/39	52/13	25	63	56	10	18	441
				7.9	14.9	7.8	21	42	30	55	0/21	0/42	0/30	55/7	32	66	42	38	48	494
				15.9	15.6	7.6	19	47	9	51	-1/18	21/42	0/9	46/24	31	93	13	10	11	1311
	28		28	0.2	16.6	8.3	26	57	18	65	1/26	-23/52	1/18	61/23	39	109	27	28	30	16
				8.7	16.2	7.8	25	53	12	59	0/25	-16/51	0/12	56/20	38	102	17	31	40	760
				15.9	15.6	8.3	6	25	15	29	0/6	8/23	1/15	27/11	11	44	21	4	7	1078

69

ORIGINAL PAGE IS  
OF POOR QUALITY



TABLE 6-11: APL Ephem Overlap Statistics (Con't)

Overlap					Orbit	Over-	RMS (M)				M/σ (M)				Max (M)			Min (M)		Transfer
M	D	Y	D/Y	H	(H)	(H)	H	L	C	D	H	L	C	D	H	L	C	D	M	Minutes
Jan	29	89	29	1.0	16.1	7.0	16	43	42	63	3/16	-19/39	-4/42	66/20	24	96	61	8	17	435
				7.9	15.0	7.9	15	38	25	48	-1/15	4/37	0/25	45/16	26	87	36	16	30	489
				15.9	15.6	7.6	8	20	41	47	0/8	-2/20	-1/41	44/15	14	56	59	9	19	998
	30	30	0.3	16.6	8.2	36	93	23	102	3/36	-52/69	0/23	91/46	53	172	55	31	36	475	
			0.3	9.8	9.7	14	54	27	62	0/14	-34/42	-1/27	57/24	24	103	38	8	38	525	
			7.9	16.2	8.7	18	48	17	54	-1/18	3/48	1/17	49/22	30	110	24	17	28	902	
31	31	17.0	16.5	7.3	29	64	19	73	0/29	-24/60	1/19	69/25	44	122	27	39	45	1136		
		1.0	15.3	7.3	18	44	27	55	3/18	-9/43	-2/27	52/18	24	106	39	17	31	446		
		8.3	15.0	7.7	24	50	23	60	-1/24	1/50	-1/23	57/17	40	99	32	24	36	756		
Feb	1	32	16.2	15.3	7.4	14	35	16	41	-1/14	2/35	1/15	38/16	22	72	23	4	5	993	
			0.3	16.1	7.9	36	77	21	87	1/36	-25/73	0/21	83/28	55	155	30	31	55	482	
			7.9	16.2	6.9	21	60	13	64	-1/21	-14/58	1/13	58/29	36	118	18	9	11	676	
2	33	16.1	16.5	8.3	21	43	7	48	1/21	-13/41	0/7	46/13	30	73	9	29	46	1229		
		1.0	15.9	6.8	26	70	47	88	3/26	-43/55	-3/47	82/32	42	148	67	15	25	351		
		8.0	15.0	8.1	16	40	16	46	0/16	-3/40	0/16	42/18	28	76	23	10	13	721		
		16.0	15.6	7.6	6	31	38	49	0/6	-22/21	-2/38	46/18	12	88	54	6	8	1100		
3	34	12.3	16.4	11.3	30	110	20	116	-1/30	70/84	0/20	103/53	51	207	28	17	18	1324		
		0.4	23.9	10.2	21	66	17	72	2/21	19/63	0/17	63/34	36	152	25	12	15	664		
		7.9	16.1	8.6	28	69	21	77	1/28	-38/57	2/21	70/33	41	132	30	25	33	863		
4	35	16.1	16.3	8.0	21	42	9	48	2/21	3/41	0/9	46/11	31	73	13	29	44	999		
		1.1	15.9	6.9	24	57	34	70	2/24	-28/49	-2/34	66/23	37	121	48	16	19	442		
		8.0	15.0	8.0	22	46	25	57	0/22	0/46	0/25	55/15	35	82	36	21	28	497		
5	36	16.0	15.6	7.6	14	30	16	37	-1/14	5/30	-1/16	35/11	22	60	23	15	21	999		
		0.3	16.4	8.3	46	102	21	113	2/45	-42/93	1/21	105/43	71	217	31	32	34	481		
				7.9	16.3	8.5	18	43	17	50	0/18	-6/43	1/17	47/18	29	86	24	19	26	674

TABLE 6-12: APL Ephem Overlap Statistics (Con't)

Overlap		Epoch			Orbit Span	Overlap	RMS (M)				M σ (M)				Max (M)			Min (M)		Location
M	D	Y	D-Y	H	(H)	(H)	H	I	C	D	H	I	C	D	H	I	C	D	M	I (TM)
Feb	7	80	36	16.0	16.5	8.3	16	34	11	39	1.16	-1.34	1.11	28/10	25	72	25	25	32	1413
	6		37	1.9	15.9	6.9	24	56	19	61	3.24	-18.53	0/10	56/24	43	141	15	17	19	449
				8.0	15.0	8.0	20	30	21	50	0.20	-4.40	1.21	48/12	29	63	30	23	57	750
				16.0	15.6	8.4	11	39	11	42	2.11	-20.33	0/11	36/20	18	95	15	5	7	1249
	7		38	0.3	16.4	8.0	41	108	16	117	3.41	-70.83	1/16	103/56	61	219	24	27	39	479
				7.9	16.2	8.7	24	89	30	97	1.24	-63/63	1/30	87/42	41	172	43	6	8	589
				16.1	16.5	8.2	21	41	5	47	1.21	-7.41	0/5	45/13	31	75	8	27	45	1291
	8		39	1.2	15.8	6.7	28	59	40	76	4.27	13.57	-2.40	74/20	44	113	57	38	42	113
				8.0	14.8	8.0	28	62	34	76	2.28	20.58	1.34	73/22	44	133	49	9	11	498
				16.6	15.6	7.6	14	38	8	41	-1.14	21.31	0/8	57/19	23	76	12	8	9	1405
	9		40	1.9	15.5	7.5	50	116	23	129	6.50	-53/10	-2/7	120/46	76	208	34	60	86	396
				10.5	15.7	7.5	24	55	24	65	0.24	21.51	0/24	61/20	37	121	33	21	23	629
				19.4	15.7	7.5	27	65	19	73	3.27	18.63	0/19	67/30	49	152	28	22	24	1270
	10		41	2.7	15.7	7.8	20	45	16	51	1.20	4.44	0/16	48/18	31	102	23	22	33	239
				10.2	15.7	7.2	21	54	35	68	2.21	13.52	0/35	61/24	36	130	50	18	33	683
				18.1	14.7	6.8	24	54	27	65	1.24	3/54	2/27	60/17	39	100	38	26	41	1311
	11		42	1.9	16.0	8.2	26	53	18	62	2/26	-13.52	0/18	59/18	38	104	26	30	42	575
				11.6	16.4	6.7	32	63	4	71	2/32	1.63	0/4	69/16	48	100	5	43	78	724
				19.4	14.7	7.0	12	25	12	30	0/12	-4.25	1/12	20/7	19	44	17	16	21	1178
	12		43	2.7	15.1	7.8	26	62	29	73	-1.26	-31.54	0/29	68/26	40	133	41	28	38	165
				10.2	15.2	7.7	26	64	34	77	1.26	8/64	0/34	73/26	45	155	49	31	35	689
				18.1	14.7	6.8	21	45	12	51	1.21	-1.45	-1.12	49/15	34	89	17	19	13	1085
	13		44	1.9	16.0	8.2	27	54	12	61	2/27	-6.53	2/12	59/17	39	101	17	33	46	572
				12.0	16.3	6.8	34	68	2	76	4/34	-4.68	0/2	74/20	53	113	4	42	66	721
				19.3	14.8	7.0	26	58	19	64	1.26	-7.57	1/19	61/20	40	118	15	32	48	1504*

71

ORIGINAL PAGE IS  
OF POOR QUALITY

TABLE 6-13: APL Ephem Overlap Statistics (Con't)

Overlap					Orbit	Over-	RMS (M)				M $\sigma$ (M)				Max (M)			Min (M)		Transfer
M	D	Y	D/Y	H	(H)	(H)	H	L	C	D	H	L	C	D	H	L	C	D	M	Minutes
Feb	14	80	45	2.6	15.1	7.8	14	31	3	34	0/14	- 8/30	0/3	32/15	22	61	5	5	6	170
				10.1	14.8	7.0	21	47	22	56	2/21	3/47	0/22	54/16	32	95	31	30	34	679
				18.1	16.4	8.4	21	84	2	58	0/21	12/53	0/2	53/26	35	108	3	18	19	1400
15		46	2.3	16.0	7.7	29	61	17	70	0/29	- 6/61	1/17	67/21	46	111	24	32	38	157	
			10.5	15.9	7.7	27	58	14	66	1/27	7/58	0/14	62/22	40	119	20	27	29	629	
			19.2	15.7	6.9	9	28	12	31	1/9	- 1/28	0/12	28/14	16	62	16	2	4	1369	
16	47	3.0	14.1	6.8	21	52	42	71	3/21	-14/50	-3/42	67/23	34	113	60	24	52	424		
		10.6	15.2	6.9	12	27	21	36	1/11	-12/25	2/21	34/11	19	52	30	11	24	920		
		18.0	15.8	8.5	15	54	17	59	-1/15	-35/41	1/17	53/26	26	102	25	6	8	1570*		
17	48	2.3	16.0	7.7	35	90	32	102	2/35	-38/81	1/32	91/45	58	181	46	20	27	153		
		11.5	15.8	6.7	42	87	27	97	6/42	- 6/86	1/27	95/30	67	158	39	46	56	718		
18	49	0.9	14.6	1.2	26	68	29	78	7/25	-38/56	-5/28	75/21	39	105	40	49	54	56		
		2.5	9.4	7.7	14	29	13	34	0/14	- 2/28	0/13	33/8	21	52	19	22	30	356		
		10.0	15.2	7.7	12	25	10	30	0/12	- 7/24	0/10	29/7	18	45	15	15	21	626		
		17.9	16.4	8.5	23	49	9	55	2/23	-11/48	0/9	53/18	36	106	13	18	20	1544*		
19	50	2.2	16.0	7.7	34	75	17	84	1/34	- 5/75	1/17	78/31	55	149	25	12	15	159		
		10.4	15.8	7.7	30	61	3	68	0/30	16/59	0/3	65/19	43	103	4	40	64	800		
		18.0	15.7	7.9	13	36	8	39	0/13	-14/33	0/8	34/18	22	86	11	6	7	1406*		
20	51	2.4	15.9	7.5	19	42	8	47	1/19	- 4/42	0/8	44/16	31	84	11	25	35	571		
		14.1	16.1	4.3	24	58	12	64	-5/24	- 3/58	0/12	60/22	37	108	17	31	44	901		
		22.4	16.2	7.9	33	82	25	92	-3/33	-12/81	1/25	85/34	57	190	36	44	49	1445*		
21	52	2.1	15.9	12.0	17	66	13	70	0/17	33/57	1/13	59/37	34	169	19	20	50	340		
		11.2	15.6	6.7	23	47	17	55	3/23	- 7/47	0/17	52/17	36	90	24	28	38	704		
		19.1	14.8	6.8	18	47	13	52	1/18	-27/39	0/13	48/20	28	91	19	20	25	1222		
22	53	2.3	15.5	8.2	14	29	11	34	0/14	- 5/28	0/11	33/9	20	52	16	18	29	619		

ORIGINAL PAGE IS  
OF POOR QUALITY

TABLE 6-14: APL Ephem Overlap Statistics (Con't)

Overlap		Epoch		Orbit Span	Over-lap	RMS (M)				M/σ (M)				Max (M)			Min (M)		Transfer Time (TM)	
M	D	Y	D.Y	H	(H)	(H)	H	L	C	D	H	L	C	D	H	L	C	D	M	Minutes
Feb	22	80	53	11.0	16.1	7.5	20	54	22	62	2/20	23/49	1/22	56/26	33	127	32	19	27	760
				18.0	15.1	8.0	17	61	20	66	4/16	-22/57	0/20	60/28	28	127	29	18	28	1177
	23	54	2.1	16.2	8.2	19	47	13	52	-1/19	-14/45	0/13	48/20	30	111	19	16	20	193	
			10.2	15.7	7.7	25	63	11	68	2/25	18/60	0/11	62/29	38	137	17	22	24	700	
	24	55	18.5	15.6	7.5	5	27	14	31	-1/5	-5/26	0/14	27/15	9	70	20	7	9	1243	
			2.2	15.9	8.2	17	49	14	54	2/17	-5/49	-1/14	48/25	30	117	21	10	16	198	
	25	56	10.3	16.1	7.9	15	34	11	38	2/14	8/33	0/11	36/14	25	91	15	12	13	657	
			17.9	15.8	8.3	13	35	7	38	1/13	-20/29	0/7	36/16	22	72	10	14	16	1534*	
	26	57	1.9	15.7	7.7	20	41	12	47	1/20	-9/40	0/12	45/14	30	76	18	27	39	559	
			10.1	15.8	7.7	15	30	16	37	0/15	9/29	0/16	36/9	21	54	23	21	32	698	
	27	58	20.3	15.2	5.0	13	47	31	58	5/12	6/47	1/31	54/22	26	131	45	19	25	1465*	
			2.1	14.0	8.2	14	30	15	37	-1/14	9/29	-1/15	35/12	21	67	22	19	28	565	
28	59	10.8	16.1	7.5	18	52	8	55	1/18	22/47	0/8	49/25	31	125	12	11	12	748		
		19.5	15.7	7.0	15	39	19	46	0/15	-20/34	0/19	43/17	23	86	27	19	27	1258		
29	60	2.8	14.2	6.8	19	39	29	52	0/19	-3/39	-2/29	50/14	29	69	41	26	52	560		
		10.0	15.1	7.9	18	57	13	61	-3/18	26/51	0/13	54/28	30	132	19	14	15	960		
30	61	18.2	15.2	6.8	12	38	34	53	2/12	-12/37	3/34	50/18	25	121	49	12	24	1232		
		2.0	15.9	8.2	20	50	13	55	-1/20	-3/50	0/13	51/22	34	115	19	21	26	318		
31	62	10.7	16.3	7.7	21	51	11	56	-1/21	-4/51	0/11	52/22	36	199	15	25	29	781		
		19.3	15.2	6.5	28	77	4	82	5/27	-41/65	0/4	73/37	48	169	6	21	25	1430		
Mar	1	2.7	14.0	6.7	34	74	5	82	-2/34	25/70	0/5	78/25	50	134	7	44	63	507		
		10.2	15.4	7.8	27	61	28	72	-2/27	-26/55	0/28	67/25	42	122	39	28	34	733		
2	63	18.1	16.3	8.4	14	41	12	45	-1/14	-16/38	0/12	40/21	24	99	17	6	9	1198		
		1.9	15.6	7.7	31	66	18	75	0/31	22/63	0/18	72/23	46	116	25	41	66	310		
3	64	9.9	16.3	8.1	42	92	11	102	5/41	-27/88	-1/11	94/39	68	180	15	43	57	956		

TABLE 6-15: APL Ephem Overlap Statistics (Con't)

Overlap					Orbit Span (H)	Overlap (H)	RMS (M)				M/o (M)				Max (M)			Min (M)		Transfer Time (TM) Minutes
M	D	Y	D/Y	H			H	L	C	D	H	L	C	D	H	L	C	D	M	
Mar	1	80	61	18.2	16.3	8.1	9	78	37	83	-5/7	32/71	1/37	81/30	19	135	53	15	21	1227
			2	0.9	16.2	9.6	46	115	19	126	-3/46	63/96	0/19	113/55	69	227	28	38	42	487
				10.6	17.1	7.3	31	70	34	83	1/30	-33/62	-1/34	78/30	50	143	48	26	42	814
	3	63		14.6	15.8	11.9	6	15	15	22	0/6	-2/15	0/15	21/7	10	41	22	8	14	1541*
				19.9	19.8	14.5	10	114	5	114	-4/9	76/85	0/5	83/78	18	298	8	7	8	1557*
				0.2	18.6	14.3	41	179	17	185	5/41	-130/123	0/17	160/92	63	392	25	23	26	379
				6.6	16.3	9.9	20	41	22	51	1/20	8/41	-1/22	49/13	30	87	32	18	26	433
				11.3	9.9	5.4	25	49	21	59	2/24	-7/49	-1/21	57/15	37	84	31	31	66	923
				14.1	14.8	12.0	20	43	14	50	0/20	-5/43	1/14	48/12	31	86	21	20	50	1360
	4	64	2.4	19.9	7.5	25	53	15	61	1/25	-13/51	1/15	59/15	39	88	22	38	55	441	
				10.5	16.1	7.8	13	32	3	35	0/13	-11/31	0/3	32/14	22	62	4	12	14	813
				18.0	13.8	7.9	29	84	6	89	5/29	-46/70	0/6	79/41	46	194	9	3	5	1446*
5	65	2.3	14.8	6.8	30	65	13	73	1/30	9/65	-1/13	68/26	49	140	19	15	18	149		
			11.1	15.6	6.8	15	38	5	41	1/15	-23/30	-1/5	37/18	23	82	7	11	12	1025	
			19.0	14.3	6.6	26	55	3	61	4/25	2/55	0/3	56/25	42	121	4	19	20	1486*	
6	66	2.2	15.4	8.3	15	33	10	37	-1/14	11/30	0/10	35/12	21	71	15	15	15	572		
			10.3	16.3	8.1	16	33	21	43	1/16	2/33	1/21	42/7	23	54	30	31	40	922	
			19.5	15.8	6.6	13	28	17	35	2/13	-10/26	-1/17	33/11	20	55	24	15	19	1433	
7	67	2.1	14.0	7.4	15	35	5	38	-1/15	-11/33	0/5	36/13	24	66	8	18	24	374		
			11.0	15.6	6.6	10	23	14	29	0/10	6/22	0/14	27/9	17	56	20	10	10	1046	
			18.2	14.2	7.1	15	34	11	38	0/15	-8/33	1/11	36/13	24	76	16	19	21	1113	
8	68	2.0	15.9	8.2	8	23	5	25	0/8	-6/22	0/5	22/11	14	44	7	4	5	326		
			10.1	16.3	8.3	31	71	30	83	4/31	-32/64	-2/30	78/29	45	153	43	21	23	1056	
			19.3	15.8	6.3	15	35	18	42	2/15	-13/32	1/18	40/13	26	74	25	3	4	1523*	
9	69	2.7	14.0	6.5	13	28	10	32	0/13	-8/27	0/10	31/9	19	50	14	18	22	364		

TABLE 6-16: APL Ephem Overlap Statistics (Con't)

Overlap		Epoch		Orbit Span	Overlap	RMS (M)				1 $\sigma$ (M)				Max (M)			Min (M)		Transfer Time (TM)	
M	D	Y	D/Y	H	(H)	(H)	H	L	C	D	H	L	C	D	H	L	C	D	M	Minutes
Mar	9	80	69	10.8	14.8	6.7	22	51	18	59	3/21	-26/44	2/18	54/23	35	101	25	20	27	912
				18.1	15.7	8.4	22	77	5	80	-3/22	17/75	0/5	70/39	37	147	6	2	4	1421
	10		70	2.3	16.5	8.1	21	46	16	53	2/21	-7/45	-1/16	50/17	32	92	23	26	30	164
				9.8	15.8	8.2	30	68	4	74	2/30	-34/59	0/4	69/28	44	122	6	36	48	854
				18.9	16.3	7.0	14	31	7	35	1/14	-14/28	0/7	33/12	20	60	10	16	23	1231
	11		71	2.5	14.8	7.4	21	43	19	52	1/21	-5/43	1/19	51/10	31	75	27	33	46	0
				10.5	16.0	7.8	15	39	5	42	2/15	-18/35	0/5	37/20	25	77	7	7	8	906
				18.2	15.8	8.1	18	46	6	49	1/18	-28/36	0/6	44/23	25	84	9	17	18	1086
	12		72	2.1	16.2	8.3	21	48	9	53	2/21	10/47	-1/9	49/20	33	106	12	12	12	146
				11.2	15.8	6.8	21	45	9	51	2/21	-19/41	-1/9	48/17	30	88	13	26	36	1026
				18.9	14.7	7.2	21	48	10	53	2/21	-21/43	1/9	50/19	32	88	14	27	34	1318
	13		73	2.3	14.8	7.5	9	27	7	30	1/8	-11/25	0/7	26/15	15	79	10	10	11	438
				10.3	16.3	8.2	4	17	7	18	0/4	-10/13	-1/7	17/74	7	31	9	5	10	906
				17.9	15.8	8.1	8	41	10	43	2/8	-21/35	0/10	35/25	15	107	14	9	14	1347
	14		74	2.0	15.0	6.8	18	53	4	56	0/18	-33/42	0/4	49/28	28	102	5	4	5	297
				11.0	16.1	7.2	3	15	13	20	1/3	0/15	2/13	19/7	6	37	19	2	5	802
				18.3	14.7	7.3	2	20	16	26	-2/1	-1/20	1/16	24/9	4	39	22	1	3	1329
	15		75	2.0	15.2	7.4	12	24	10	28	0/12	-7/23	-1/10	27/8	17	45	15	13	20	148
				10.1	16.2	8.3	11	31	10	34	2/11	-8/30	-1/9	31/15	17	73	14	4	6	962
				19.3	16.3	7.0	1	14	10	18	0/1	-13/5	1/10	17/49	2	23	15	3	4	1534*
	16		76	2.6	14.1	6.8	27	74	17	80	-5/26	-27/69	1/17	71/37	43	151	25	9	12	280
				10.7	14.8	6.7	16	40	19	47	3/16	-10/39	1/18	43/18	28	116	27	21	27	1001
				17.8	15.7	8.4	15	34	11	39	0/15	-2/34	-1/11	37/13	24	69	16	19	30	1284
	17		77	2.3	14.6	6.9	8	17	13	23	0/8	1/17	-1/13	25/4	12	29	19	14	22	527
				11.4	15.7	6.7	16	38	15	44	2/16	-22/32	-2/15	41/16	23	71	22	18	27	1037

75

ORIGINAL PAGE IS  
OF POOR QUALITY

TABLE 6-17: APL Ephem Overlap Statistics (Con't)

Overlap		Epoch		Orbit Span	Overlap	RMS (M)				M/σ (M)				Max (M)			Min (M)		Transfer Time (TM)	
M	D	Y	D/Y	H	(H)	H	L	C	D	H	L	C	D	H	L	C	D	M	Minutes	
Mar	17	80	77	16.8	14.7	7.2	11	26	8	30	0/11	- 9/25	-1.8	27/11	17	54	11	7	14	1232
	18		78	2.4	14.8	7.4	26	57	13	64	1/26	-22/53	1.13	60/23	39	107	19	32	43	370
				10.5	16.0	7.9	15	34	2	37	0/15	-14/31	0/2	34/14	22	70	3	7	8	1099
				18.0	15.7	8.1	12	38	5	41	2/12	26/28	0/5	35/20	19	75	7	6	7	1369
	19		79	2.0	14.9	6.9	8	21	11	25	1/8	- 3/21	-1.11	23/10	14	51	15	6	10	479
				11.0	15.7	6.8	18	57	21	63	5/18	- 1/57	1.21	57/27	35	148	30	21	31	803
				18.6	14.7	7.3	13	34	8	38	0/13	-15/31	0.8	34/17	21	69	11	12	12	1229
	20		80	2.1	15.7	8.1	22	44	11	51	-1/21	-11/43	-1.11	48/15	32	81	16	28	49	341
				10.1	16.3	8.2	16	39	8	45	2/16	-15/36	-1.8	40/17	28	89	12	17	21	1072
				19.4	16.2	7.0	12	28	4	31	1/12	-13/25	1.4	28/12	19	57	6	8	9	1173
	21		81	2.7	14.1	6.8	33	72	3	80	-5/33	- 3/72	0.3	74/29	50	142	4	34	42	194
				10.3	15.1	7.6	9	34	5	35	1/9	-5/33	0.5	28/22	22	110	8	5	5	785
				18.1	16.2	8.4	15	102	6	103	5/15	21/100	0.6	78/68	38	314	8	8	10	1246
	22		82	2.3	15.9	7.7	11	38	5	40	-1/11	- 6/37	0/5	34/22	22	104	7	3	3	408
				13.0	15.8	5.2	10	35	10	38	4/9	- 4/35	-1.10	34/17	17	83	15	6	8	956
				18.9	13.1	7.2	5	18	11	22	-1/5	- 3/18	0.11	20/8	9	37	15	6	11	1341
	23		83	3.1	14.2	6.1	33	66	34	82	-1/33	11/66	0.34	80/15	49	134	48	57	66	590
				9.9	15.4	8.6	18	58	10	61	-2/18	-42/39	1/10	53/30	31	142	14	5	6	733
				18.0	16.2	8.3	18	45	17	51	1/18	-22/39	0/17	47/20	28	85	25	17	17	1368
	24		84	2.0	16.2	8.3	20	44	17	51	2/20	-15/41	-1/17	49/15	32	91	25	15	26	572
				11.1	15.8	6.8	30	74	14	82	6/30	-26/70	0/14	75/33	50	172	21	27	28	1030
				18.4	14.7	7.4	14	35	6	39	-1/14	-18/31	0/6	34/17	21	74	9	6	7	1136
	25		85	2.1	15.9	8.0	39	91	5	99	-2/39	-47/78	0/5	90/42	58	175	7	37	41	342
				10.1	16.3	8.3	20	55	12	60	1/20	-36/42	-1/12	54/27	42	112	18	9	10	713
				19.4	15.7	6.5	24	57	4	61	-4/24	-12/55	0/4	57/24	43	126	5	26	27	1184

TABLE 6-18: APL Ephem Overlap Statistics (Con't)

Overlap			Epoch		Orbit Span (H)	Overlap (H)	RMS (M)				M/σ (M)				Max (M)			Min (M)		Transfer Time (TM) Minutes
M	D	Y	D/Y	H			H	L	C	D	H	L	C	D	H	L	C	D	M	
Mar	26	80	86	2.7	14.1	6.8	20	41	7	46	-2/20	-3/41	-1/7	44/15	33	97	10	19	22	200
				10.2	14.7	7.8	21	67	20	73	5/21	-9/66	0/20	65/33	34	129	28	9	12	690
				18.0	16.2	8.5	27	85	6	89	-2/27	-8/85	0/6	79/42	58	231	9	15	16	1224
	27	87	2.4	16.5	8.1	13	29	6	32	0/13	-8/28	0/6	30/11	19	60	8	14	17	224	
			11.3	18.0	6.7	13	32	5	35	2/13	-8/32	-1/5	33/13	23	73	7	15	18	1049	
			19.1	14.7	6.9	20	57	4	61	1/20	-75/45	0/4	53/30	32	110	6	6	7	1338	
	28	88	2.3	15.5	8.2	36	73	23	84	-4/36	2/72	-2/23	82/20	54	145	33	53	67	587	
			10.4	15.1	7.0	29	59	12	66	2/29	-12/57	0/12	64/17	42	99	17	42	65	1007	
			18.0	15.6	8.2	17	40	13	45	0/17	-17/36	1/13	42/17	25	73	18	22	30	1372	
	29	89	1.9	15.6	7.7	45	98	47	118	-3/45	-25/95	0/48	113/23	68	205	68	37	43	117	
			10.5	15.8	7.2	19	57	34	69	-2/19	16/55	-2/34	64/27	34	107	49	7	14	939	
			18.5	14.7	6.7	29	74	4	80	-3/29	37/65	0/4	72/35	46	177	6	13	13	1455*	
30	90	2.0	15.6	8.2	35	70	6	78	-4/34	11/69	0/6	75/23	54	127	8	42	63	153		
		11.6	16.2	6.7	12	29	13	33	1/12	-15/24	-1/13	31/12	21	57	18	7	10	1064		
		19.3	12.5	4.8	32	77	23	87	-6/31	-8/77	-1/23	78/39	54	189	33	29	31	1167		
31	91	2.6	14.0	6.7	21	47	4	52	-4/20	-7/47	0/4	47/22	31	102	6	15	16	389		
		10.1	14.7	7.3	28	62	23	72	1/28	-14/61	1/23	68/25	46	137	33	23	28	1014		
		17.9	16.3	8.5	18	45	7	49	-1/18	-22/39	0/7	44/21	28	87	10	15	15	1290		
Apr 1	92	2.3	15.9	7.5	12	26	8	30	-1/12	-7/25	0/8	29/8	18	49	12	17	24	210		
		11.3	15.6	6.5	16	41	12	46	1/16	-25/33	-1/12	41/19	27	83	17	9	11	1037		
		18.9	14.1	6.5	31	76	10	83	-5/31	-18/74	1/10	74/36	49	156	15	17	20	1148		
2	93	2.2	15.5	8.0	29	66	5	72	-4/29	19/63	0/5	67/28	48	168	6	11	11	581		
		11.8	16.3	6.7	25	63	8	68	1/25	-38/51	-1/8	60/32	36	115	11	25	28	715		
		19.4	14.1	6.3	27	66	4	71	-5/26	-12/65	0/4	62/34	45	158	5	19	20	1507*		
3	94	2.7	13.9	6.3	41	88	13	98	-7/40	-25/85	1/13	91/38	63	178	19	29	30	199		

ORIGINAL PAGE IS OF POOR QUALITY



TABLE 6-19: APL Ephem Overlap Statistics (Con't)

Overlap		Epoch			Orbit Span	Overlap	RMS (M)				M $\sigma$ (M)				Max (M)			Min (M)		Transfer Time (TM)
M	D	Y	D/Y	H	(H)	(H)	H	L	C	D	H	L	C	D	H	L	C	D	M	Minutes
Apr	3	80	94	10.2	14.7	7.3	22	49	17	56	0.22	-10.48	1.16	52.19	34	90	24	21	31	615
				18.1	14.7	7.1	16	38	6	42	-3.15	-5.37	0.6	38.17	25	76	8	1	2	1117
	4	95	2.4	15.8	7.4	12	29	4	31	0.12	-3.29	0.4	29.13	21	56	6	9	10	578	
			11.4	15.3	6.3	10	23	13	28	0.10	-11.20	0.13	26.10	16	50	18	9	12	685	
			19.0	14.1	6.5	32	84	37	98	0.32	-41.74	-2.37	90.37	53	161	54	27	41	1330	
	5	96	2.3	15.4	8.1	24	58	13	64	-4.23	25.52	-1.13	58.28	40	115	19	13	13	498	
			11.0	16.2	7.6	18	58	20	64	3.18	-17.55	-1.20	58.28	30	127	29	11	12	1000	
			17.9	15.1	8.2	39	105	49	122	-4.39	-57.88	3.49	111.50	65	205	70	8	11	1253	
	6	97	2.2	15.5	7.4	43	107	27	118	-6.43	0.107	1.27	108.48	68	224	39	43	54	527	
			10.9	15.4	6.7	6	42	15	45	3.5	13.39	0.15	41.17	14	95	22	15	27	670	
			18.4	14.2	6.6	16	61	20	66	-5.15	-28.54	2.20	59.29	32	133	28	9	12	1323	
	7	98	1.9	15.6	8.2	11	24	7	28	-1.11	-3.24	0.7	26.9	17	50	10	9	11	135	
			11.5	16.2	6.6	7	15	4	17	1.7	-6.14	0.4	16.7	10	31	6	5	5	1054	
			19.1	14.1	6.5	23	85	5	88	-7.23	26.80	0.5	74.48	40	217	8	9	11	1162	
	8	99	2.4	15.4	8.2	23	48	22	58	-2.23	12.46	-2.22	56.14	36	88	32	33	43	405	
			9.9	14.7	7.2	21	55	11	60	-1.21	-36.42	-1.11	53.29	31	102	16	17	19	912	
			18.0	16.2	8.2	26	76	15	82	-5.25	-30.70	1.15	73.37	41	172	22	9	11	1195	
	9	100	1.9	15.4	7.4	13	59	18	63	-2.13	18.57	1.18	59.24	27	115	26	14	16	261	
			11.0	15.7	6.6	10	49	5	50	5.9	11.47	0.5	44.23	21	114	8	7	12	890	
			18.5	14.1	6.6	30	92	8	97	-9.28	10.91	1.8	83.50	54	260	12	15	16	1147	
	10	101	2.0	15.6	8.1	19	52	3	56	-1.19	-26.45	0.3	49.27	32	107	5	3	3	425	
			10.0	16.2	8.2	5	19	17	26	0.5	0.19	-1.17	24.10	10	47	24	2	4	896	
			19.2	15.7	6.5	25	57	9	63	-4.24	0.57	-1.9	57.26	39	131	12	25	31	1487*	
	11	102	2.5	14.6	6.7	24	58	9	64	-5.23	20.55	-1.9	56.30	37	132	13	9	11	507	
			9.9	16.2	8.5	34	113	16	119	-5.34	2.118	-1.16	101.63	71	327	24	18	18	654	

TABLE 6-20: APL Ephem Overlap Statistics (Con't)

Overlap			Epoch			Orbit Span	Over- lap	RMS (M)				M σ (M)				Max (M)			Min (M)		Transfer Time (TM)
M	D	Y	D	Y	H	(H)	(H)	H	L	C	D	H	L	C	D	H	L	C	D	M	Minutes
Apr 11	102	18.0	16.2	8.2	10	51	19	55	1/10	10/50	1/19	51/20	21	113	27	22	22	1175			
	12	103	2.0	15.4	7.5	7	38	3	39	0/7	-16/34	0/8	35/18	15	77	11	4	8	513		
		11.1	15.7	6.6	11	46	12	49	0/11	-3/46	0/12	42/26	22	99	18	4	4	770			
		14.9	14.1	10.3	6	25	9	27	0/6	6/25	0/9	24/13	13	70	12	6	8	1153			
		18.3	15.2	11.7	33	140	3	142	-5/32	43/123	0/3	123/74	62	364	4	15	16	1656*			
13	104	2.6	15.8	7.5	6	27	8	25	1/6	3/27	0/8	26/13	12	52	11	3	6	491			
	9.9	15.6	8.3	7	42	24	4	1/7	3/42	-1/24	44/22	16	117	34	6	12	714				
	19.2	15.7	6.4	32	105	18	111	-10/30	13/104	1/18	96/55	54	273	26	25	27	1267				
14	105	3.1	14.0	6.1	24	49	16	57	0/23	7/49	0/16	55/14	37	88	23	35	49	409			
	9.9	15.3	8.5	26	51	3	73	-4/26	-25/64	0/3	65/34	43	194	4	14	15	649				
	18.0	16.2	8.1	17	50	7	53	-4/16	2/50	0/7	47/25	26	108	11	9	10	1434				
15	106	3.0	15.6	6.6	7	24	17	30	-1/7	5/23	-1/17	28/11	13	55	24	5	10	266			
	11.0	14.7	6.6	21	44	7	49	-3/21	10/43	0/7	46/16	32	102	11	22	29	1011				
	18.2	14.1	6.9	23	63	3	67	-5/22	1/63	0/3	59/32	36	128	4	11	13	1153				
16	107	1.9	15.6	7.9	8	17	12	22	0/8	6/16	0/12	21/6	11	33	17	7	14	116			
	9.9	16.2	8.3	17	46	4	49	-3/17	6/45	0/4	43/24	29	130	6	12	13	1936				
	19.1	15.7	6.5	4	10	10	15	-1/4	3/10	-1/10	15/4	8	29	15	3	4	1495*				
17	108	2.4	11.2	4.5	34	67	52	91	-7/33	0/67	-3/51	89/19	54	133	73	52	88	183			
	11.9	14.7	5.2	24	52	20	60	-2/24	-19/48	-1/20	57/21	34	96	28	31	47	1018				
	16.2	14.1	9.8	30	88	15	94	-4/29	6/88	1/15	82/46	56	269	22	24	26	1293				
18	109	4.4	17.3	5.1	43	96	16	106	-10/42	19/94	0/16	96/45	67	205	23	32	35	537			
	16.3	17.9	6.0	29	64	9	71	3/29	10/63	0/9	64/30	45	133	13	24	26	1001				
19	110	0.2	18.2	10.4	21	54	22	62	-2/21	20/50	-1/22	58/22	32	123	31	6	10	565			
	4.0	16.3	12.6	20	81	20	86	0/20	37/72	0/20	77/37	36	163	29	20	34	853				
	17.4	18.3	5.0	15	62	18	66	4/15	15/60	-2/18	58/32	28	130	24	12	14	1120				

TABLE 6-21: APL Ephem Overlap Statistics (Con't)

Overlap		Epoch		Orbit Span	Over-lap	RMS (M)				M/σ (M)				Max (M)			Min (M)		Transfer Time (TM)	
M	D	Y	D/Y	H	(H)	(H)	H	L	C	D	H	L	C	D	H	L	C	D	M	Minutes
Apr 20	80	111	2.3	17.1	8.0	45	117	20	127	7/44	-61/100	1/20	113/58	67	254	28	8	11	499	
			6.7	16.2	11.8	21	57	7	61	0/21	22/52	0/7	54/29	33	111	9	6	8	1095	
			10.3	15.0	11.6	10	101	1	101	4/10	50/88	0/1	70/73	24	268	2	1	—	—	
			19.7	15.6	6.4	21	87	14	90	-7/20	50/71	0/14	77/47	34	214	21	15	34	1324	
21	112	2.8	13.8	5.2	44	111	14	120	-8/43	48/100	1/14	105/58	72	222	19	16	16	435		
		9.9	14.7	7.5	28	73	22	81	3/28	23/69	-1/22	73/34	46	196	31	35	43	634		
		18.3	16.5	8.1	20	78	1	80	-5/20	13/76	0/1	65/47	42	246	1	5	6	1223		
22	113	2.3	15.5	7.5	13	43	9	46	-2/13	15/41	0/9	41/21	22	94	13	7	8	453		
		11.2	15.5	6.7	7	52	17	55	4/6	9/51	-1/17	50/23	16	127	24	17	20	907		
		19.0	14.1	6.3	40	106	14	114	-7/40	19/104	0/14	100/55	66	268	20	12	14	1474*		
23	114	2.2	15.2	8.0	36	89	12	97	-5/36	38/81	-1/12	88/42	55	200	17	20	22	490		
		11.6	16.2	6.7	15	37	4	40	0/15	16/33	0/4	37/17	24	85	6	14	16	780		
		19.3	14.0	6.3	27	99	9	103	-9/25	-1/99	0/9	90/50	50	219	13	8	10	1409		
24	115	2.6	14.0	6.7	29	76	16	83	-5/28	47/60	-2/16	74/38	42	154	23	6	8	519		
		10.0	14.6	7.2	9	42	57	72	3/9	-16/39	-4/57	68/23	16	80	82	16	30	687		
		13.6	16.2	12.5	30	116	27	123	-1/30	20/114	0/27	107/62	59	315	40	25	36	1438		
25	116	3.0	18.6	5.2	36	88	35	101	-9/35	28/83	-3/35	93/39	55	185	50	12	19	454		
		11.0	14.6	6.5	13	28	5	31	-1/13	10/26	0/5	30/10	20	64	7	14	17	1013		
		20.2	14.1	4.9	29	71	6	76	-8/28	1/71	0/6	67/37	47	172	9	4	5	1236		
26	117	1.9	13.5	7.8	11	28	7	31	0/11	16/23	0/7	28/13	17	57	9	5	7	116		
		11.4	16.2	6.7	16	37	10	41	-1/16	-17/33	-1/10	38/16	27	75	14	11	12	710		
		19.1	14.1	6.3	17	51	11	55	-2/17	-9/50	0/11	48/27	33	129	16	5	5	1344		
27	118	2.3	14.0	6.7	43	107	9	116	-6/43	62/87	0/9	103/52	63	220	14	17	20	502		
		10.3	16.2	8.0	20	46	20	54	1/20	0/46	-1/20	51/18	33	98	28	27	29	1095		
		19.5	15.6	6.4	21	73	32	82	-4/21	56/47	-1/32	75/34	31	148	46	21	38	1333		

TABLE 6-22: APL Ephem Overlap Statistics (Con't)

Overlap					Orbit Span	Overlap	RMS (M)				M/σ (M)				Max (M)			Min (M)		Transfer Time (TM)
M	D	Y	D/Y	H	(H)	(H)	H	L	C	D	H	L	C	D	H	L	C	D	M	Minutes
Apr 28	86	119	3.4	13.9	6.0	39	94	30	107	-3/39	48/81	0/30	98/42	62	196	43	10	13	526	
			10.2	14.0	7.2	18	38	34	54	-2/18	3/38	-2/34	53/12	28	72	48	29	51	896	
			18.7	16.1	7.7	14	43	4	45	-2/13	12/41	0/4	40/22	22	86	5	6	7	1449*	
29	120	3.2	15.1	6.7	13	43	10	46	4/12	10/41	0/10	40/22	25	115	14	10	13	408		
		11.2	14.6	6.7	9	33	7	35	-2/9	-16/29	0/6	31/16	15	69	9	8	11	873		
		18.9	14.1	6.4	25	64	7	69	-3/25	30/57	0/7	62/30	42	176	10	19	19	1470*		
30	121	2.0	15.2	8.0	30	87	15	93	-1/30	63/59	0/15	80/47	45	162	21	3	4	126		
		10.0	16.2	8.1	16	64	8	66	1/16	50/40	0/8	58/31	25	116	11	8	9	948		
		19.2	15.6	6.5	9	67	37	77	-4/8	36/57	-1/37	64/44	21	202	53	5	6	1258		
May 1	122	2.4	15.3	8.0	42	103	22	113	-4/42	55/87	1/22	102/50	64	206	31	24	25	506		
		10.4	15.9	7.8	16	37	16	43	-1/16	-16/33	0/16	41/14	25	69	23	18	27	827		
		17.9	15.6	7.9	27	75	12	80	-5/27	26/72	-1/12	72/37	46	193	17	16	17	1432		
2	123	2.8	15.5	6.5	50	125	13	135	-6/49	75/100	-1/13	119/63	73	251	18	23	27	532		
		10.3	14.6	7.2	19	52	8	56	-2/19	12/50	-1/8	50/25	34	108	12	16	19	905		
		18.7	16.1	7.7	17	56	6	59	2/17	33/45	0/6	49/31	30	139	8	5	6	1557*		
3	124	3.2	14.8	6.3	11	26	18	34	0/11	12/24	-1/18	32/11	17	51	25	11	20	562		
		11.2	14.6	6.5	17	43	20	51	-3/16	-17/40	0/20	47/18	27	95	29	14	21	788		
		18.9	14.0	6.3	12	36	20	43	-1/12	26/25	-1/20	39/18	20	71	28	7	11	1379		
4	125	2.0	14.5	7.4	57	186	19	195	-3/57	144/117	-1/19	167/100	85	343	27	8	9	490		
		10.0	16.1	8.2	15	79	4	80	-4/14	27/74	0/4	61/52	34	243	6	3	4	851		
		19.1	15.6	6.3	28	95	27	103	-6/27	55/78	0/27	89/51	52	267	39	30	49	1406		
5	126	2.4	13.9	6.7	45	89	16	100	-5/45	11/88	-1/10	97/25	67	150	14	61	107	318		
		10.3	16.1	8.2	34	82	16	90	-5/34	-26/77	-1/16	81/38	52	172	23	29	31	1058		
		19.5	16.1	6.9	40	126	8	153	-1/40	85/93	-1/8	113/69	82	267	12	28	44	1425		
6	127	2.7	13.6	6.3	26	93	21	99	4/26	55/75	-1/21	88/45	46	171	30	24	32	166		

TABLE 6-23: APL Ephem Overlap Statistics (Con't)

Overlap					Epoch	Orbit Span	Overlap	RMS (M)				M <sub>i</sub> σ (M)				Max (M)			Min (M)		Transfer Time (TM)
M	D	Y	D-Y	H	(H)	(H)	H	L	C	D	H	L	C	D	H	L	C	D	M	Minutes	
May	6	89	127	10.7	14.6	6.6	21	53	9	58	-3/21	9/52	6/9	52/26	38	153	13	7	9	989	
				14.9	12.4	8.0	19	50	17	56	-2/19	13/48	-1/16	51/22	32	116	23	18	23	1269	
7			128	6.4	24.6	7.1	18	102	24	106	4/17	56/85	0/24	84/65	35	259	34	23	32	649	
				11.0	11.3	6.7	8	23	6	25	-2/8	0/23	0/6	22/11	14	59	8	0	9	1018	
				19.5	14.1	5.6	23	77	9	81	-6/23	28/71	0/9	71/37	39	155	13	3	4	1377	
8			129	1.9	15.0	7.7	21	70	2	73	-1/21	55/44	0/2	62/39	31	123	2	2	3	122	
				11.3	16.1	6.7	5	14	8	17	0/5	7/12	0/8	15/6	9	28	11	3	5	1076	
				19.1	14.1	6.3	25	78	6	82	0/25	54/56	0/6	71/40	38	170	8	7	9	1393	
9			130	1.0	15.2	8.2	30	113	46	126	-3/30	84/76	-2/46	114/54	50	215	65	12	14	585	
				12.6	17.8	5.7	55	125	44	143	1/55	56/111	3/44	132/54	81	253	64	60	76	780	
				19.2	13.6	6.9	15	34	36	51	-2/15	10/32	16/36	47/17	25	68	51	18	38	1221	
10			131	2.5	13.9	6.5	33	95	34	106	-2/33	69/65	-2/34	96/46	4	173	49	33	44	517	
				9.9	15.8	8.5	20	96	21	101	-2/20	37/89	2/21	83/57	44	293	30	8	16	969	
				15.8	16.6	10.7	39	135	13	142	4/39	-85/106	0/13	123/71	68	266	19	16	19	972	
11			132	2.9	17.6	6.5	32	121	21	127	-2/32	92/79	-1/21	113/58	55	224	31	28	31	266	
				10.3	14.3	6.8	18	63	29	72	1/18	45/44	-3/29	65/30	30	120	41	14	25	628	
				19.9	16.0	6.5	21	70	6	73	-3/21	37/60	0/6	64/36	42	139	9	15	23	1237	
12			133	3.1	13.8	6.7	21	59	15	64	4/21	9/58	0/15	58/27	40	126	22	23	34	433	
				11.1	14.6	6.7	23	72	6	76	-4/23	1/72	0/6	65/39	46	217	8	8	8	788	
				20.2	13.8	4.7	27	55	24	66	-4/27	4/54	1/24	62/21	42	106	34	23	24	1469*	
13			134	1.9	12.3	6.7	22	57	18	64	-2/22	34/46	-1/18	58/26	38	126	26	5	6	119	
				11.4	15.8	6.2	6	16	4	18	0/6	2/16	0/4	16/7	11	32	5	1	2	926	
				19.0	18.8	10.7	39	107	15	115	0/39	50/95	-1/15	100/57	65	225	21	12	14	1547*	
14			135	2.2	15.2	7.9	20	54	20	61	-1/20	29/45	-1/20	55/26	32	108	29	3	5	402	
				11.6	15.7	6.3	16	47	19	53	2/16	-7/46	0/19	47/24	29	107	27	9	10	987	

82

ORIGINAL PAGE IS  
OF POOR QUALITY

TABLE 6-24: APL Ephem Overlap Statistics (Con't)

Overlap		Epoch			Orbit Span	Overlap	RMS (M)				M/σ (M)				Max (M)			Min (M)		Transfer Time (TM)
M	D	Y	D.Y	H	(H)	(H)	H	L	C	D	H	L	C	D	H	L	C	D	M	Minutes
May 14	80	135	19.3	19.3	17.0	9.2	36	105	17	112	-5/36	16/104	0/17	99/54	56	253	24	16	18	1175
			23.3	23.3	15.2	11.3	38	132	17	138	1/38	100/87	-1/17	121/68	60	245	24	22	24	1870*
	15	136	11.9	11.9	17.7	5.2	42	164	34	173	6/41	-138/89	1/33	154/79	66	285	49	35	40	809
			19.4	19.4	18.8	11.3	47	139	23	149	1/47	-100/97	-1/23	130/73	72	289	33	8	10	1272
	16	137	1.2	1.2	11.8	11.7	48	128	43	143	1/48	-47/119	0/43	131/59	81	301	61	14	18	108
			10.0	10.0	16.0	7.2	23	66	54	89	2/22	24/62	-2/54	83/31	37	153	77	24	49	1006
	17	138	19.7	19.7	19.3	8.2	53	179	20	187	-7/52	-21/177	0/20	160/98	88	411	29	5	8	1198
			1.4	1.4	13.8	11.7	26	91	12	96	2/26	30/86	0/12	81/51	45	245	17	15	17	266
	18	139	10.8	10.8	16.1	6.7	35	78	44	96	-1/35	-28/73	2/44	92/28	55	141	64	48	70	849
			21.5	21.5	17.0	6.2	23	80	6	84	-7/22	21/77	0/6	71/45	41	216	8	3	3	1313
	19	140	24.0	24.0	15.7	13.3	17	80	23	85	1/17	26/76	0/23	76/37	32	161	33	11	21	1529*
			3.1	3.1	17.7	14.6	17	86	12	88	-2/17	58/63	0/12	77/43	27	174	17	9	9	566
	20	141	14.9	14.9	21.9	10.2	79	354	17	363	-19/77	8/354	1/17	298/208	144	991	25	22	25	1131
			1.8	1.8	17.5	6.7	16	58	7	60	0/16	-36/45	-1/7	51/32	30	125	10	10	10	407
	21	142	9.4	9.4	15.8	8.3	46	118	21	128	-1/46	69/96	-1/21	115/57	72	260	30	26	31	1014
			17.1	17.1	14.4	6.3	38	110	21	118	-3/38	-74/82	-1/21	105/55	62	230	31	30	36	1401
	22	143	22.9	22.9	12.3	6.5	74	235	31	248	1/74	170/162	0/31	212/129	115	430	46	2	3	1472*
			5.3	5.3	13.3	6.8	46	122	18	132	3/46	-82/91	1/18	115/64	71	235	26	10	10	332
	21	142	8.0	8.0	11.0	8.2	16	53	12	57	-3/16	1/53	-1/12	47/33	48	201	18	12	13	704
			19.1	19.1	14.3	3.1	12	36	3	38	6/10	-4/36	0/3	35/14	35	84	4	17	18	1331
	21	142	1.2	1.2	12.6	6.5	29	102	7	106	-1/29	-74/70	0/7	92/54	45	215	10	14	14	236
			11.6	11.6	15.2	4.8	25	75	9	80	5/24	-47/59	0/9	67/43	41	155	12	7	8	940
	22	143	11.6	11.6	14.5	4.8	55	129	4	140	2/55	-60/114	0/4	128/57	83	236	6	60	74	875
			17.2	17.2	14.4	8.8	32	189	18	193	-7/31	-115/108	2/17	180/72	66	260	20	32	62	1288
			0.9	0.9	14.3	6.4	60	122	19	137	-4/59	33/118	1/19	131/41	92	221	27	71	127	228

TABLE 6-25: APL Ephem Overlap Statistics (Con't)

Overlap		Epoch			Orbit Span	Over-lap	RMS (M)				M/σ (M)				Max (M)			Min (M)		Transfer Time (TM)
M	D	Y	D/Y	H	(H)	(H)	H	L	C	D	H	L	C	D	H	L	C	D	M	Minutes
May	22	80	143	8.2	14.5	7.2	51	115	37	131	2/51	15/114	-2/37	122.48	79	226	54	43	51	897
				15.6	10.1	2.8	22	54	6	59	5/22	-21/50	-1/6	53/25	40	101	8	16	16	1074
				19.3	10.5	6.9	65	221	17	231	-10/64	73/209	-1/17	198/119	106	491	25	35	41	1175
	23		144	2.5	13.8	6.6	92	219	28	239	-11/92	-107/191	-2/28	217/100	137	430	40	89	101	182
				10.4	14.5	6.5	34	88	3	94	0/34	-42/77	0/3	85/41	55	168	4	27	27	820
				17.5	13.8	6.6	64	157	18	171	-7/63	94/126	-1/18	153/76	95	295	26	57	65	1315
	24		145	1.0	14.3	6.9	30	77	24	86	-3/30	-49/59	1/24	77/39	44	146	35	15	18	94
				5.9	14.6	8.0	80	299	25	311	8/80	-217/206	0/25	265/161	132	684	37	24	27	733
				15.9	15.8	5.8	56	131	26	145	-4/56	53/120	1/26	136/50	88	235	37	67	88	1146
	25		146	1.2	16.0	6.4	116	243	58	276	-14/115	-54/237	5/58	261/90	192	537	82	70	82	110
				10.1	15.4	6.1	55	123	33	139	3/55	-15/122	0/33	133/39	89	250	47	83	119	923
				16.2	13.8	8.2	65	151	44	170	-6/64	9/151	-2/44	157/67	113	391	64	56	61	1427
	26		147	1.4	15.7	6.5	128	311	28	337	-16/127	-121/286	0/28	303/149	213	614	41	105	121	296
				12.3	13.0	5.0	46	100	64	127	-5/46	-11/99	5/64	123/35	74	193	92	58	93	756
				17.8	15.3	9.6	205	599	133	647	-15/294	-428/419	6/133	565/316	298	1092	192	77	90	1285
	27		148	1.5	21.6	14.0	52	154	21	164	-3/52	33/151	0/21	144/80	106	423	30	15	19	705
				15.2	23.0	9.2	162	389	111	436	-4/162	-116/372	-2/111	400/177	262	771	160	138	184	1215
	28		149	1.5	17.5	7.3	141	428	20	451	-14/140	-197/380	-1/20	391/225	238	865	28	38	43	520
				10.9	15.7	6.3	114	281	20	304	1/114	-151/237	-1/20	273/134	170	539	28	88	99	1023
				17.9	21.2	13.8	76	177	36	196	-2/76	-90/153	-1/36	181/75	109	324	52	88	129	1471*
	29		150	3.1	14.0	6.5	172	425	48	461	-17/172	-263/333	3/48	410/211	245	762	69	162	188	212
				12.4	18.4	9.2	108	336	18	354	-5/108	-244/231	0/18	300/187	167	661	27	14	18	760
				22.4	17.1	7.0	109	236	81	272	-11/108	44/231	-3/81	261/75	171	440	115	150	232	1623*
	30		151	2.1	13.1	9.6	60	175	14	186	5/60	-129/119	1/14	161/93	88	314	20	26	27	566
				10.9	15.4	6.6	43	157	10	163	4/43	-113/109	1/10	142/81	76	301	15	11	14	751

TABLE 6-26: APL Ephem Overlap Statistics (Con't)

Overlap		Epoch			Orbit Span	Overlap	RMS (M)				M/σ (M)				Max (M)			Min (M)		Transfer Time (TM)
M	D	Y	D/Y	H	(H)	(H)	H	L	C	D	H	L	C	D	H	L	C	D	M	Minutes
May	30	80	151	20.0	15.3	6.5	150	406		435	-22/149	117/389	-2/37	385/203	258	771	53	71	85	1212
	31		152	3.1	12.2	5.2	61	144	40	161	-9/60	70/125	-2/40	147/66	108	369	57	53	57	189
				12.4	14.5	5.0	117	328	18	349	15/116	-233/231	-1/18	301/18	176	669	26	33	40	1017
				19.9	13.8	6.3	82	179	5	196	-3/82	-38/175	0/5	183/72	135	370	7	12	19	1206
June	1	153	2.0	12.3	6.2	136	447	61	471	-5/136	353/274	1/61	409/233	210	813	89	66	73	271	
			13.8	15.9	4.1	150	528	42	550	0/150	419/321	5/41	479/271	239	993	61	22	28	929	
			19.9	12.4	6.3	170	546	103	581	5/170	-408/363	-1/103	499/297	262	979	150	28	40	1377	
2	154	2.3	15.6	9.0	9.0	168	243	87	280	4/108	50/238	3/87	765/90	169	575	124	119	166	188	
			10.8	15.1	6.6	121	734	28	767	7/221	-565/467	1/28	644/415	334	1299	41	13	26	931	
			22.4	16.8	5.3	43	116	8	124	1/43	-58/101	1/8	109/59	67	244	12	21	24	1860*	
3	155	2.0	15.9	12.5	12.5	343	1159	99	1213	12/342	-933/688	-1/99	1035/633	491	2016	143	50	60	568	
			10.7	15.3	6.6	48	124	162	210	6/48	-79/96	7/162	199/67	75	248	234	46	85	654	
			19.7	16.8	7.8	327	843	162	919	-21/327	-428/727	1/162	828/398	508	1868	235	165	174	1194	
4	156	2.8	18.0	10.5	10.5	94	328	82	351	-15/93	-125/303	-3/82	307/171	155	785	116	44	59	376	
			10.7	18.2	10.3	118	286	63	315	-9/117	-15/286	-1/63	284/137	178	591	90	11	29	1237	
			19.6	16.8	7.8	205	575	72	614	10/205	407/405	-2/72	539/294	306	1027	102	136	138	1421	
5	157	2.7	18.5	11.3	11.3	334	797	59	866	13/334	-406/686	3/59	763/371	493	1758	85	95	111	814	
			10.5	18.9	10.6	99	314	115	348	2/99	-225/218	2/115	313/152	158	684	166	41	49	1182	
			19.4	20.0	10.8	246	665	108	717	6/246	-446/493	-3/108	625/351	361	1295	157	62	76	1177	
6	158	2.6	17.1	9.7	9.7	349	1163	72	1217	-14/349	-904/732	3/72	1049/617	539	2404	102	90	114	363	
			11.9	18.9	9.3	164	628	36	650	14/163	-529/338	-2/36	567/319	245	1169	51	49	51	719	
			19.4	18.4	10.7	182	485	126	533	-9/182	-5/485	-5/126	480/231	314	1178	182	153	192	1265	
7	159	2.4	17.0	9.8	9.8	54	286	199	352	8/54	-163/235	7/199	313/163	99	686	283	70	149	342	

85

ORIGINAL PAGE IS  
OF POOR QUALITY



TABLE 6-27: APL Ephem Overlap Statistics (Con't)

Overlap		Epoch		Orbit Span	Over- lap	RMS (M)				M/σ (M)				Max (M)			Min (M)			Transfer Time (TM)
M	D	D:Y	H	(H)	(H)	H	L	C	D	H	L	C	D	H	L	C	D	M	Minutes	
June	7	159	11.7	18.9	9.7	465	2448	159	2497	101/454	-1749/1712	-11/159	2018/1470	858	6308	225	343	408	972	
	8	160	0.7	18.4	5.3	1590	3303	550	3707	149/1583	- 949/3164	6/550	3497/1227	2323	6315	774	1752	2065	328	
			0.7	64.0	22.0	2804	10992	1349	11424	2/2804	-8665/6763	24/1349	10062/5410	4235	20266	1957	485	523	1010	

\* The asterisked times occur on the following day.

TABLE 7: Numerical Verification of the Orbital Effects of the UTC-UT1 Time Correction

Component	Maximum 18-Hour APL-GTDS Positions Differences (Meters)	
	APL Solution Compared With Standard GTDS Solution	APL Solution Compared With GTDS Solution Obtained Using Modified Greenwich Hour Angle
Radial	23.7	23.7
Cross-Track	344.8	48.6
Along-Track	152.1	114.6
Total	352.4	115.0

TABLE 8-1

*** ** * MAGSAT SPACECRAFT CLOCK TIME FIT COMPARISON 03/25/81 * * * * *											
FIT	START CLOCK	END CLOCK	START TIME YYDD.CO	END TIME YYDD.OO	COEF1	COEF2	COEF3	CCMP CLOCK	CCMP TIME YYDD.OO	DIFF- LAP HR.HH	DELTA T (MS)
1	2147623812.	2147624558.	79303.03	79303.04	26182034257.693	491.54338	0.0				
2	2147686720.	2147687415.	79303.39	79303.39	26212956307.221	491.54435	0.0	2147655655.	79303.21	6.48	-8.50
3	2147740552.	2147820191.	79303.70	79304.15	26239436790.365	491.54456	0.0	2147714004.	79303.55	7.26	-0.43
4	2147967488.	2148151361.	79304.99	79306.03	26350966286.105	491.54457	0.0	2147853840.	79304.57	20.11	-1.44
5	2148138512.	2148321818.	79305.96	79307.00	26435032204.051	491.54456	0.0	2148144937.	79306.00	-1.75	-0.11
6	2148493568.	2148690573.	79307.98	79309.10	26609558050.459	491.54456	0.0	2148407693.	79307.49	23.45	0.34
7	2148637120.	2148861366.	79308.80	79310.07	26680120255.953	491.54457	0.0	2148663847.	79308.55	-7.30	-0.12
8	2148820736.	2149032788.	79309.64	79311.05	26770375702.910	491.54456	0.0	2148241051.	79309.56	-5.55	0.00
9	2149192016.	2149387919.	79311.65	79313.07	26952876368.101	491.54456	0.0	2149112401.	79311.50	21.74	0.25
10	2149364208.	2149571685.	79312.93	79314.12	27037516409.808	491.54456	0.0	2149376004.	79313.00	-3.24	0.05
11	2149718864.	2149914014.	79314.55	79316.06	27211845638.349	491.54456	0.0	2149645375.	79314.53	20.07	-0.45
12	2149890192.	2150058006.	79315.93	79317.11	27296060984.835	491.54456	0.0	2149902102.	79315.99	-3.25	-0.06
13	2150054464.	2150265676.	79316.86	79318.09	27376807993.732	491.54456	0.0	2150076235.	79317.00	-5.95	-0.08
14	2150216384.	2150441088.	79317.78	79319.06	27456398888.869	491.54457	0.0	2150243030.	79317.00	-7.28	0.02
15	2150397728.	2150611752.	79318.21	79320.03	27545537546.373	491.54456	0.0	2150415406.	79318.00	-5.92	0.14
16	2150580656.	2150794680.	79319.65	79321.07	27635454810.554	491.54456	0.0	2150556204.	79319.99	-4.25	-0.06
17	2150771024.	2150985767.	79320.54	79322.05	27729029165.661	491.54456	0.0	2150782552.	79321.01	-3.23	0.24
18	2150934816.	2151148777.	79321.67	79323.09	27809540232.760	491.54456	0.0	2150950252.	79321.96	-4.23	0.09
19	2151125391.	2151320285.	79322.55	79324.06	27903216338.018	491.54456	0.0	2151137004.	79323.02	-3.15	0.02
20	2151306944.	2151491758.	79323.59	79325.04	27992457727.875	491.54456	0.0	2151313615.	79324.02	-1.82	0.10
21	2151468304.	2151675277.	79324.50	79326.08	28071773358.533	491.54456	0.0	2151480031.	79324.97	-3.20	0.08
22	2151650912.	2151868206.	79325.54	79327.18	28161533328.036	491.54456	0.0	2151663055.	79326.01	-3.33	0.11
23	2151803456.	2152025649.	79326.81	79328.10	28236515501.955	491.54456	0.0	2151835631.	79327.00	-8.84	-0.08
24	2151936506.	2152200054.	79327.85	79329.07	28326291200.463	491.54456	0.0	2152007873.	79327.97	-5.95	-0.27
25	2152176503.	2152371289.	79328.63	79330.04	28419884725.963	491.54456	0.0	2152188275.	79329.00	-3.22	0.26
26	2152356768.	2152555004.	79329.96	79331.09	28508493006.684	491.54456	0.0	2152364029.	79330.00	-1.98	-0.09
27	2152530605.	2152726191.	79330.95	79332.06	28593941638.594	491.54456	0.0	2152542805.	79331.02	-3.33	-0.08
28	2152717758.	2152896627.	79331.98	79333.03	28683497617.212	491.54456	0.0	2152719455.	79332.02	-1.83	0.01
29	2152858824.	2153079295.	79332.80	79334.07	28753801269.630	491.54456	0.0	2152876226.	79332.91	-5.57	-0.27
30	2153038352.	2153250364.	79333.64	79335.04	28843521915.312	491.54456	0.0	2153058824.	79333.55	-5.59	0.22
31	2153227040.	2153432849.	79334.91	79336.08	28936270475.975	491.54456	0.0	2153238702.	79334.98	-3.18	-0.16
32	2153409536.	2153604158.	79335.55	79337.06	29025975392.491	491.54456	0.0	2153421153.	79336.02	-3.18	-0.32
33	2153556368.	2153775540.	79336.78	79338.03	29098149863.368	491.54456	0.0	2153580263.	79336.92	-6.53	0.05
34	2153760976.	2153970472.	79337.55	79339.14	29198723134.300	491.54456	0.0	2153768256.	79337.99	-1.99	-0.06
35	2153917228.	2154116595.	79338.84	79339.97	29275528633.935	491.54456	0.0	2153943150.	79338.99	-7.27	-0.04
36	2154115888.	2154311593.	79339.67	79341.08	29373178877.160	491.54456	0.0	2154116242.	79339.97	-0.10	0.04
37	2154285504.	2154495031.	79340.53	79342.12	29456749317.004	491.54456	0.0	2154298745.	79341.01	-3.51	-0.32
38	2154459408.	2154653654.	79341.62	79343.03	29542034265.244	491.54456	0.0	2154477220.	79342.02	-4.86	-0.33
39	2154639527.	2154836545.	79342.95	79344.07	29630570780.039	491.54456	0.0	2154646611.	79342.99	-1.93	-0.11
40	2154812880.	21550067505.	79343.63	79345.04	29715781504.391	491.54456	0.0	2154824713.	79344.00	-3.23	-0.25
41	2154994862.	2155189539.	79344.97	79346.08	29805233767.058	491.54456	0.0	2155001184.	79345.00	-1.73	-0.20
42	2155089568.	2155306051.	79345.61	79347.05	29891785986.170	491.54456	0.0	2155135754.	79345.79	-13.70	0.18
43	2155337376.	2155531701.	79346.92	79348.02	29973594661.262	491.54456	0.0	2155319104.	79346.98	-3.22	-0.18
44	2155517392.	2155714160.	79347.64	79349.06	30062080547.054	491.54456	0.0	2155524547.	79347.58	-1.95	-0.28
45	2155690688.	2155885156.	79348.53	79350.03	30147263253.721	491.54456	0.0	2155702424.	79348.99	-3.20	-0.33
46	2155861808.	2156067455.	79349.90	79351.07	30231376358.878	491.54456	0.0	2155873482.	79349.97	-3.19	-0.26
47	2156026830.	2156232227.	79350.84	79352.04	30312492025.131	491.54456	0.0	2156047103.	79350.95	-5.55	0.06
48	2156223568.	2156420233.	79351.66	79353.08	30403354137.255	491.54456	0.0	2156231056.	79352.00	-1.95	0.06
49	2156396976.	2156591114.	79352.94	79354.05	30494435278.689	491.54456	0.0	2156408605.	79353.01	-3.18	-0.19
50	2156550832.	2156762248.	79353.62	79355.02	30570062358.799	491.54456	0.0	2156570573.	79353.53	-5.50	0.07

88

ORIGINAL PAGE IS  
OF POOR QUALITY

TABLE 8-2

* * * * *											
MAGSAT SPACECRAFT CLOCK TIME FIT COMPARISON											
03/25/81 * * * * *											
FIT	START CLOCK	END CLOCK	START TIME YYDD-DD	END TIME YYDD-DD	CDEF1	CDEF2	CDEF3	COMP CLOCK	CCMP TIME YYDD-DD	OVER- LAP HH.HH	DELTA T (MS)
51	2156696944.	2156556029.	79354.65	79356.13	30641882918.154	491.54456	0.0	2156729556.	79354.84	-8.92	0.03
52	2156920592.	2157115015.	79355.92	79357.03	30751815876.444	491.54456	0.0	2156938211.	79356.02	-4.84	-0.14
53	2156956031.	2156556572.	79356.13	79356.13	30769235724.719	491.54460	0.0	2157035523.	79356.58	-21.71	-4.03
54	2157049869.	2157257500.	79356.66	79358.07	30815361282.689	491.54456	0.0	2157003221.	79356.39	12.74	2.69
55	2157273824.	2157467902.	79357.53	79359.04	30925445145.298	491.54455	0.0	2157285662.	79358.00	-3.23	-0.02
56	2157454800.	2157650383.	79358.54	79360.08	31014402912.579	491.54457	0.0	2157461351.	79359.00	-1.79	-0.04
57	2157626288.	2157643555.	79359.54	79361.17	31058696907.530	491.54456	0.0	2157638336.	79360.01	-3.29	0.06
58	2157806553.	2158004252.	79360.98	79362.09	31188288276.772	491.54456	0.0	2157826074.	79361.08	-4.78	0.33
59	2157975680.	2158173753.	79361.55	79363.05	31272404823.506	491.54456	0.0	2157991566.	79362.02	-3.36	0.08
60	2158159360.	2158344813.	79362.57	79364.03	31360725550.330	491.54456	0.0	2158166577.	79363.01	-1.97	-0.40
61	2158330311.	2158526737.	79363.94	79365.06	31444755584.401	491.54456	0.0	2158331562.	79363.99	-1.98	0.06
62	2158538160.	2158694889.	80 0.13	80 0.96	10921630.159	491.54456	0.0	2158532449.	80 0.09	1.56	
63	2158683968.	2158691577.	80 0.56	80 2.14	82592759.442	491.54456	0.0	2158684429.	80 0.96	-0.13	0.11
64	2158855856.	2159050100.	80 1.93	80 3.04	167083371.627	491.54456	0.0	2158873717.	80 2.04	-4.88	-0.14
65	2159026656.	2159221730.	80 2.51	80 4.02	251039182.495	491.54456	0.0	2159036376.	80 2.57	-3.20	-0.06
66	2159207446.	2159402343.	80 3.63	80 5.04	339905523.844	491.54456	0.0	2159214588.	80 3.47	-1.95	-0.03
67	2159379168.	2159584346.	80 4.91	80 6.08	424314539.010	491.54456	0.0	2159390756.	80 4.98	-3.16	-0.09
68	2159561398.	2159767359.	80 5.55	80 7.12	513741240.895	491.54456	0.0	2159572722.	80 6.01	-3.17	0.19
69	2159911264.	2160107877.	80 7.54	80 9.06	685863434.152	491.54456	0.0	2159839312.	80 7.53	19.65	0.19
70	2160065472.	2160301868.	80 8.82	80 10.16	761663537.864	491.54456	0.0	2160056678.	80 8.84	-5.79	-0.07
71	2160254848.	2160460298.	80 9.49	80 11.06	854750280.457	491.54456	0.0	2160276358.	80 10.03	-6.42	0.30
72	2160436624.	2160631662.	80 10.53	80 12.04	944101284.930	491.54456	0.0	2160448461.	80 10.99	-3.23	0.15
73	2160607200.	2160812600.	80 11.90	80 13.07	1027946990.263	491.54456	0.0	2160619431.	80 11.97	-3.34	0.24
74	2160786576.	2160955319.	80 12.52	80 14.11	1116118287.297	491.54456	0.0	2160755586.	80 12.99	-3.55	0.06
75	2160959424.	2161153423.	80 13.90	80 15.01	1201080781.782	491.54456	0.0	2160977372.	80 14.00	-4.90	0.38
76	2161141168.	2161335152.	80 14.54	80 16.04	1290416056.661	491.54456	0.0	2161147258.	80 14.57	-1.67	-0.17
77	2161311632.	2161505580.	80 15.51	80 17.01	1374206708.915	491.54456	0.0	2161323412.	80 15.57	-3.22	-0.08
78	2161493280.	2161688046.	80 16.54	80 18.05	1463494795.291	491.54456	0.0	2161499430.	80 16.57	-1.68	0.12
79	2161672570.	2161875914.	80 17.56	80 19.14	1551623620.224	491.54456	0.0	2161680308.	80 18.09	-2.11	-0.19
80	2162050624.	2162233063.	80 20.11	80 21.15	1737454207.718	491.54456	0.0	2161955269.	80 19.62	23.31	-0.81
81	2162194896.	2162392150.	80 20.53	80 22.05	1808370324.471	491.54456	0.0	2162213560.	80 21.04	-5.21	0.27
82	2162391376.	2162582495.	80 22.05	80 23.02	1904949330.316	491.54456	0.0	2162391763.	80 22.05	-0.11	-0.09
83	2162546960.	2162744063.	80 22.93	80 24.05	1981825469.071	491.54456	0.0	2162554728.	80 22.98	-2.12	-0.09
84	2162676576.	2162924373.	80 23.67	80 25.08	2045137509.734	491.54456	0.0	2162710320.	80 23.86	-9.21	-0.14
85	2162882548.	2163094733.	80 24.54	80 26.05	2146381925.191	491.54456	0.0	2162903461.	80 24.96	-5.71	-0.11
86	2163071472.	2163276382.	80 25.52	80 27.08	2239246490.135	491.54456	0.0	2163083103.	80 25.98	-3.18	-0.13
87	2163252544.	2163447715.	80 26.55	80 28.06	2328251446.573	491.54457	0.0	2163264463.	80 27.02	-3.25	0.07
88	2163447024.	2163603154.	80 28.05	80 28.94	2423847033.843	491.54456	0.0	2163447370.	80 28.06	-0.09	-0.25
89	2163602416.	2163796365.	80 28.54	80 30.05	2500229125.637	491.54456	0.0	2163602785.	80 28.54	-0.10	-0.25
90	2163757512.	2163968645.	80 29.52	80 31.02	2585215214.429	491.54456	0.0	2163756639.	80 29.59	-3.15	-0.11
91	2163954271.	2164150301.	80 30.54	80 32.05	2673181537.511	491.54456	0.0	2163956155.	80 30.98	-1.99	-0.35
92	2164132624.	2164331823.	80 31.78	80 33.09	2746103647.867	491.54456	0.0	2164126461.	80 31.92	-6.51	-0.05
93	2164307072.	2164501601.	80 32.55	80 34.05	2846598950.346	491.54456	0.0	2164319446.	80 33.02	-3.38	-0.18
94	2164489600.	2164671518.	80 33.59	80 35.02	2936319595.893	491.54456	0.0	2164495601.	80 34.02	-1.64	0.07
95	2164658768.	2164853256.	80 34.55	80 36.05	3019473206.365	491.54456	0.0	2164658343.	80 34.99	-1.60	0.03
96	2164849960.	2165023579.	80 35.58	80 37.02	3109028692.980	491.54456	0.0	2164847108.	80 36.02	-1.68	-0.03
97	2164992704.	2165226758.	80 36.55	80 38.18	3183617631.015	491.54456	0.0	2165028142.	80 36.94	-4.22	0.12

ORIGINAL PAGE IS  
OF POOR QUALITY

TABLE 8-3

* * * * *													
MAGSAT SPACECRAFT CLOCK TIME FIT COMPARISON													
03/25/81 * * * * *													
FIT	START CLOCK	END CLOCK	START TIME YYDD.DD	END TIME YYDD.DD	COEF1	COEF2	COEF3	COMP CLOCK	COMP TIME YYDD.DD	OVER- LAP HH.MM	DELTA T (MS)		
99	2165190456.	2165375085.	80 37.97	80 39.02	3280841212.483	491.54456	0.0	2165206627.	80 36.08	-4.95	-0.04		
100	2165360400.	2165556343.	80 38.94	80 40.05	3364356670.126	491.54456	0.0	2165367743.	80 38.58	-2.01	0.00		
101	2165541776.	2165726447.	80 39.57	80 41.02	34535109 6.520	491.54456	0.0	2165545060.	80 40.01	-1.99	0.02		
102	2165685936.	2165867711.	80 40.75	80 42.05	35243727 50.244	491.54456	0.0	2165706152.	80 40.91	-5.53	0.03		
103	2165884575.	2166076593.	80 41.52	80 43.03	3622011970.551	491.54456	0.0	2165896143.	80 41.59	-3.16	0.18		
104	2166046752.	2166256566.	80 42.64	80 44.05	3701729193.039	491.54456	0.0	2166062673.	80 42.93	-4.35	0.06		
105	2166536672.	2166803361.	80 45.52	80 47.15	3967123932.647	491.54456	0.0	2166422619.	80 44.98	44.75	0.14		
106	2166671376.	2166962019.	80 46.40	80 48.25	4008759722.994	491.54456	0.0	2166737365.	80 46.77	-18.02	0.54		
107	2167118368.	2167312871.	80 48.54	80 50.05	4228476209.774	491.54456	0.0	2167040154.	80 48.50	21.35	0.43		
108	2167288622.	2167493154.	80 49.91	80 51.07	4312163637.689	491.54456	0.0	2167300747.	80 49.58	-3.31	-0.17		
109	2167466640.	2167662898.	80 50.93	80 52.04	4400650506.591	491.54456	0.0	2167480657.	80 51.00	-3.35	-0.20		
110	2167635680.	2167844977.	80 51.91	80 53.07	4484724288.193	491.54456	0.0	2167651285.	80 51.97	-3.17	-0.04		
111	2167820672.	2168013887.	80 52.94	80 54.04	4573689922.066	491.54456	0.0	2167832625.	80 53.01	-3.32	-0.09		
112	2167990624.	2168194878.	80 53.90	80 55.07	4657228902.797	491.54456	0.0	2168002256.	80 53.97	-3.18	-0.43		
113	2168180512.	2168364623.	80 54.58	80 56.03	4750567316.319	491.54456	0.0	2168167695.	80 55.02	-1.96	-0.08		
114	2168352928.	2168545596.	80 55.56	80 57.06	4835317463.582	491.54456	0.0	2168356776.	80 56.00	-1.70	0.04		
115	2168522208.	2168715146.	80 56.93	80 58.03	4918528126.889	491.54456	0.0	2168533502.	80 56.99	-3.19	0.21		
116	2168692112.	2168896196.	80 57.89	80 59.06	5002041514.055	491.54456	0.0	2168703625.	80 57.56	-1.15	-0.09		
117	2168872816.	2169065692.	80 58.92	80 60.02	5090865582.379	491.54456	0.0	2168864606.	80 58.59	-3.19	-0.18		
118	2169052474.	2169266801.	80 59.54	80 61.17	5179175495.350	491.54456	0.0	2169056683.	80 59.58	-1.70	0.04		
119	2169233296.	2169427439.	80 60.97	80 62.08	5268057566.012	491.54456	0.0	2169251045.	80 61.67	-4.65	-0.18		
120	2169403632.	2169597333.	80 61.54	80 63.04	5351785300.023	491.54456	0.0	2169415536.	80 62.01	-3.25	0.07		
121	2169566160.	2169760345.	80 62.87	80 64.07	5431675054.920	491.54456	0.0	2169581554.	80 62.95	-4.20	-0.01		
122	2169754032.	2169955134.	80 63.94	80 65.10	5524022514.727	491.54456	0.0	2169766274.	80 64.01	-3.34	0.18		
123	2169916400.	2170128823.	80 64.66	80 66.07	5603833621.854	491.54456	0.0	2169937522.	80 64.98	-5.89	0.40		
124	2170104242.	2170298309.	80 65.53	80 67.03	5696166335.545	491.54456	0.0	2170116533.	80 66.00	-3.36	0.06		
125	2170284528.	2170476143.	80 66.96	80 68.06	5784981556.175	491.54456	0.0	2170291615.	80 66.99	-1.83	-0.08		
126	2170454416.	2170655596.	80 67.92	80 69.09	5868292860.554	491.54456	0.0	2170466280.	80 67.99	-3.24	0.26		
127	2170635214.	2170840312.	80 68.95	80 70.12	5957162734.124	491.54457	0.0	2170647405.	80 69.02	-3.33	0.33		
128	2170802696.	2171005580.	80 69.90	80 71.08	6039487600.714	491.54456	0.0	2170821504.	80 70.01	-5.14	0.32		
129	2170985376.	2171190201.	80 70.94	80 72.11	6129282961.110	491.54456	0.0	2170997478.	80 71.01	-3.30	0.07		
130	2171164801.	2171355293.	80 71.56	80 73.07	6217478344.076	491.54456	0.0	2171177501.	80 72.03	-3.47	0.04		
131	2171335152.	2171551061.	80 72.93	80 74.16	6301213451.685	491.54456	0.0	2171347223.	80 73.00	-3.30	0.24		
132	2171515937.	2171738890.	80 73.56	80 75.06	6390077335.072	491.54456	0.0	2171533495.	80 74.06	-4.80	0.10		
133	2171684880.	2171916133.	80 74.92	80 76.02	6473120347.930	491.54456	0.0	2171656665.	80 74.99	-3.28	0.28		
134	2171865552.	2172057751.	80 75.55	80 77.04	6561928687.297	491.54456	0.0	2171871543.	80 75.68	-1.72	-0.18		
135	2172034351.	2172227916.	80 76.91	80 78.01	6644900917.235	491.54456	0.0	2172046051.	80 76.68	-3.20	-0.20		
136	2172214928.	2172410156.	80 77.54	80 79.04	6733362559.517	491.54456	0.0	2172221422.	80 77.67	-1.77	0.25		
137	2172384128.	2172587647.	80 78.90	80 80.06	6816831899.734	491.54456	0.0	2172396142.	80 78.67	-3.28	-0.40		
138	2172564368.	2172757642.	80 79.52	80 81.02	6905427890.694	491.54456	0.0	2172576008.	80 79.99	-3.18	-0.03		
139	2172733600.	2172933735.	80 80.89	80 82.04	6988612950.182	491.54456	0.0	2172745621.	80 80.96	-3.26	0.25		
140	2172825768.	2173031758.	80 81.42	80 82.92	7034409183.743	491.54456	0.0	2172881752.	80 81.73	-15.01	-0.10		
141	2173091744.	2173286138.	80 82.92	80 84.03	7164656695.746	491.54456	0.0	2173091771.	80 82.52	-0.01	-0.23		
142	2173091829.	2173118121.	80 82.52	80 83.07	7164698476.862	491.54459	0.0	2173168584.	80 83.48	-26.53	-0.92		
143	2173273696.	2173466399.	80 83.96	80 85.06	7255094211.810	491.54456	0.0	2173195509.	80 83.52	21.24	0.91		
144	2173443088.	2173647255.	80 84.52	80 86.05	7337357927.643	491.54456	0.0	2173454744.	80 84.99	-3.16	0.31		
145	2173620560.	2173815322.	80 85.94	80 87.04	7424789942.337	491.54456	0.0	2173634106.	80 86.01	-3.59	-0.11		
146	2173792272.	2173956138.	80 86.91	80 88.07	7508997424.121	491.54456	0.0	2173803757.	80 86.98	-3.15	-0.15		

06

ORIGINAL PAGE IS  
OF POOR QUALITY

TABLE 8-4

MAGSAT SPACECRAFT CLOCK TIME FIT COMPARISON 03/25/81 * * * * *												
FIT	START CLOCK	END CLOCK	START TIME YYDD.DD	END TIME YYDD.DD	COEF1	COEF2	COEF3	COMP CLOCK	COMP TIME YYDD.DD	OVER- LAP HH.HH	DELTA $\gamma$ (MS)	
147	2173572240.	2174176304.	80 87.93	80 89.09	7597459715.919	491.54456	0.0	2173964185.	80 88.00	-3.26	-0.07	
148	2174133568.	2174344213.	80 88.85	80 90.05	7676759616.841	491.54456	0.0	2174154536.	80 88.97	-5.84	0.08	
149	2174321168.	2174512912.	80 89.92	80 91.01	7768973376.563	491.54456	0.0	2174332651.	80 89.98	-3.15	-0.15	
150	2174489916.	2174692730.	80 90.88	80 92.03	7851930368.900	491.54456	0.0	2174501424.	80 90.94	-3.14	-0.13	
151	2174665776.	2174850311.	80 91.90	80 92.93	7940329742.975	491.54456	0.0	2174681253.	80 91.97	-3.13	-0.26	
152	2174649656.	2175041165.	80 92.93	80 94.01	8028768443.427	491.54456	0.0	2174650004.	80 92.92	-0.06	-0.35	
153	2175010848.	2175222201.	80 93.84	80 95.04	8107981829.330	491.54456	0.0	2175026007.	80 93.83	-4.14	0.04	
154	2175208752.	2175413049.	80 94.97	80 96.13	8205260684.154	491.54456	0.0	2175215477.	80 95.01	-0.84	0.21	
155	2175389136.	2175569254.	80 95.99	80 97.02	8293927238.487	491.54456	0.0	2175401053.	80 96.06	-0.27	0.09	
156	2175546576.	2175749284.	80 96.89	80 98.04	8371316014.369	491.54456	0.0	2175557535.	80 96.95	-3.10	-0.38	
157	2175736816.	2175925081.	80 97.97	80 99.07	8464827451.631	491.54456	0.0	2175743050.	80 98.01	-1.70	-0.29	
158	2175905904.	2176109657.	80 98.93	80100.09	8547941738.235	491.54456	0.0	2175917453.	80 99.00	-1.16	-0.32	
159	2176085254.	2176276833.	80 99.96	80101.04	8636217718.812	491.54456	0.0	2176097606.	80100.03	-3.29	0.10	
160	2176253856.	2176466541.	80100.91	80102.14	8718975651.329	491.54456	0.0	2176255345.	80100.98	-3.14	0.02	
161	2176444640.	2176644656.	80102.00	80103.02	8812154489.022	491.54456	0.0	2176456591.	80102.07	-3.26	0.06	
162	2176612416.	2176804217.	80102.95	80104.05	8895223969.164	491.54456	0.0	2176616636.	80102.99	-1.70	-0.08	
163	2176781104.	2176983774.	80103.91	80105.07	8978141538.191	491.54456	0.0	2176792661.	80103.98	-3.16	0.22	
164	2176956701.	2177151917.	80104.84	80106.02	9066421467.133	491.54456	0.0	2176972238.	80105.00	-3.15	-0.28	
165	2177128832.	2177331338.	80105.89	80107.04	9149065345.492	491.54456	0.0	2177140375.	80105.96	-3.15	0.07	
166	2177318800.	2177434374.	80106.87	80107.11	9242443082.891	491.54456	0.0	2177325695.	80107.01	-1.71	-0.01	
167	2177483664.	2177615158.	80107.84	80108.06	9269884453.538	491.54457	0.0	2177413515.	80 22.17	4.27****	0.00	
168	2177637794.	2177787696.	80108.80	80109.02	9330899880.277	491.54456	0.0	2177613476.	80108.03	-1.55	0.23	
169	2177747767.	2177966746.	80109.79	80110.04	9399702846.902	491.54456	0.0	2177767732.	80108.91	-5.45	0.09	
170	2177943920.	2148145859.	80109.91	80111.06	9496120787.867	491.54456	0.0	2177955333.	80109.97	-3.12	-0.05	
171	2148122952.	2148313972.	80110.93	80112.01	9584126555.344	491.54456	0.0	2148134426.	80110.99	-3.12	0.16	
172	2148302176.	2148428255.	80111.81	80113.03	9672219575.939	491.54456	0.0	2148306074.	80111.98	-1.61	0.31	
173	2148453120.	2148671932.	80112.69	80114.05	9746415278.168	491.54456	0.0	2148473005.	80112.92	-5.23	-0.05	
174	2148648432.	2148836556.	80113.52	80115.00	9842419829.211	491.54456	0.0	2148660182.	80113.98	-3.21	0.10	
175	2148809424.	2149030680.	80114.33	80116.09	9921554571.433	491.54456	0.0	2148824540.	80114.92	-4.13	0.23	
176	2148978784.	2149198297.	80115.20	80117.05	10004802558.427	491.54456	0.0	2149004662.	80115.94	-7.07	0.04	
177	2149184288.	2149376144.	80116.07	80118.06	10105816932.658	491.54456	0.0	2149191253.	80117.01	-1.91	-0.03	
178	2149364550.	2149543830.	80117.00	80119.01	10194443399.676	491.54456	0.0	2149370367.	80118.02	-1.58	-0.33	
179	2149531920.	2149722407.	80118.04	80120.03	10276693551.216	491.54456	0.0	2149537675.	80118.98	-1.63	-0.00	
180	2149711024.	2149902037.	80119.06	80121.05	10364731148.012	491.54456	0.0	2149716716.	80119.99	-1.95	-0.31	
181	2149876000.	2150086522.	80120.09	80122.06	10445824204.134	491.54456	0.0	2149889015.	80120.97	-3.56	-0.15	
182	2150056752.	2150248056.	80121.13	80123.02	10534671866.432	491.54456	0.0	2150066587.	80122.00	-3.26	-0.09	
183	2150235280.	2150426507.	80122.14	80124.03	10622426334.018	491.54456	0.0	2150241666.	80122.98	-1.74	-0.23	
184	2150402720.	2150625554.	80123.19	80125.17	10704730555.335	491.54456	0.0	2150414614.	80123.97	-3.25	-0.25	
185	2150581088.	2150782417.	80124.24	80126.06	10792406374.868	491.54456	0.0	2150603341.	80125.04	-6.08	0.14	
186	2150758201.	2150936275.	80125.29	80126.94	10879465307.144	491.54456	0.0	2150770305.	80125.99	-3.31	0.03	
187	2150937088.	2150936275.	80126.04	80126.94	10967396238.549	491.54457	0.0	2150937682.	80126.94	-0.16	0.39	
188	2147483664.	2147662601.	80127.13	80128.15	10983937939.648	491.54455	0.0	2149210970.	80117.12	4.43****	0.00	
189	2147483664.	2147484399.	80127.13	80127.13	10983937940.190	491.54454	0.0	2147573133.	80127.64	-24.43	0.41	
190	2147628304.	2147555269.	80127.90	80129.24	11055034943.960	491.54456	0.0	2147556352.	80127.54	-19.65	0.21	
191	2147805811.	214785685.	80128.96	80129.98	11142287544.641	491.54456	0.0	2147830540.	80129.10	-6.75	-0.26	
192	2147984656.	2148174719.	80129.98	80131.06	11230197831.773	491.54456	0.0	2147984671.	80129.98	-0.06	-0.17	
193	2148329856.	2148515430.	80131.54	80133.02	11359879014.837	491.54456	0.0	2148522288.	80131.50	21.18	-0.48	
194	2148506272.	2148709118.	80132.55	80134.10	11486595339.676	491.54456	0.0	2148512651.	80132.98	-1.80	0.11	

C-2

91

ORIGINAL PAGE IS  
OF POOR QUALITY

TABLE 8-5

* * * * *											
MAGEAT SPACECRAFT CLOCK TIME FIT COMPARISON						03/25/81 * * * * *					
FIT	START CLOCK	END CLOCK	START TIME YYDD.DD	END TIME YYDD.DD	COEF1	COEF2	COEF3	CCMP CLOCK	CCMP TIME YYDD.DD	OVER- LAP HH.HH	DELTA T (MS)
195	2148684912.	2148674737.	80133.96	80135.04	11574404860.439	491.54456	0.0	2148697015.	80134.03	-3.31	0.02
196	2148852000.	2149052270.	80134.91	80136.05	11656536056.457	491.54456	0.0	2148663269.	80134.98	-3.10	0.77
197	2149087584.	2149230178.	80136.26	80137.07	11772532709.521	491.54457	0.0	2149070127.	80136.15	4.88	2.7
198	2149208544.	2149356089.	80136.93	80138.01	11830810233.212	491.54456	0.0	2149218362.	80137.00	-3.23	0.03
199	2149561376.	2149750634.	80138.55	80140.03	12005225972.841	491.54456	0.0	2149478733.	80138.48	22.57	-0.81
200	2149728059.	2149927486.	80139.90	80141.03	12087177756.438	491.54456	0.0	2149739367.	80139.96	-3.58	-0.23
201	2149905184.	2150104335.	80140.91	80142.04	12174222925.239	491.54456	0.0	2149916335.	80140.57	-3.05	-0.27
202	2150082080.	2150281426.	80141.91	80143.05	12261175191.836	491.54456	0.0	2150093208.	80141.98	-3.04	-0.17
203	2150258976.	2150459060.	80142.52	80144.06	12348127458.316	491.54456	0.0	2150270201.	80142.98	-3.07	-0.33
204	2150435608.	2150634707.	80143.92	80145.06	12435048266.929	491.54456	0.0	2150447434.	80143.99	-3.17	-0.11
205	2150594080.	2150823216.	80144.82	80146.13	12512846007.153	491.54456	0.0	2150614354.	80144.94	-5.55	-0.09
206	2150789040.	2150987633.	80145.53	80147.06	12608677535.086	491.54456	0.0	2150806128.	80146.03	-4.67	0.23
207	2150965392.	2151164943.	80146.94	80148.07	12695362401.283	491.54456	0.0	2150976513.	80147.00	-3.04	-0.15
208	2151141648.	2151351883.	80147.54	80149.14	12782000079.896	491.54456	0.0	2151153295.	80148.01	-3.18	-0.04
209	2151317792.	2151516960.	80148.54	80150.08	12868582704.868	491.54456	0.0	2151334838.	80149.04	-4.65	0.05
210	2151493760.	2151692733.	80149.94	80151.08	12955078818.508	491.54456	0.0	2151505360.	80150.01	-3.17	-0.18
211	2151669152.	2151867436.	80150.94	80152.07	13041291802.213	491.54456	0.0	2151680943.	80151.01	-3.22	-0.30
212	2151827104.	2152043789.	80151.84	80153.07	13118932248.116	491.54456	0.0	2151847270.	80151.95	-5.51	0.03
213	2152002608.	2152219043.	80152.84	80154.07	13205200285.418	491.54456	0.0	2152023195.	80152.98	-5.62	-0.18
214	2152177968.	2152394278.	80153.84	80155.07	13291357539.521	491.54456	0.0	2152156506.	80153.55	-5.61	0.17
215	2152370704.	2152569051.	80154.83	80156.06	13386135872.013	491.54456	0.0	2152382491.	80155.00	-3.22	0.03
216	2152545584.	2152742810.	80155.83	80157.05	13472097184.786	491.54456	0.0	2152557318.	80155.99	-3.20	0.22
217	2152720256.	2152917159.	80156.82	80158.04	13557956256.594	491.54456	0.0	2152731533.	80156.98	-3.08	-0.12
218	2152905536.	2153091223.	80157.81	80159.03	13649029632.861	491.54456	0.0	2152911348.	80158.01	-1.59	-0.24
219	2153090800.	2153285069.	80159.03	80160.02	137400995144.549	491.54456	0.0	2153091012.	80159.03	-0.06	-0.19
220	2153253344.	2153449503.	80159.95	80161.07	13819992763.538	491.54456	0.0	2153259207.	80159.99	-1.60	-0.05

TABLE 9: MAGSAT CHRONSC/CHRONINT Tapes Delivered to NSSDC

Split No.	Date Span (YYMMDD)		CSC Release Date (YYMMDD)	NSSDC Release Date (YYMMDD)
	From	Thru		
1	791102	/ 791107	800501	800703
2	791108	/ 791115	800428	"
3	791116	/ 791123	800425	"
4	791124	/ 791201	800429	"
5	791202	/ 791209	800530	"
6	791210	/ 791217	800508	"
7	791218	/ 791225	800522	800716
8	791226	/ 800102	801010	801121
9	800103	/ 800110	800707	800904
10	800111	/ 800118	"	"
11	800119	/ 800126	801018	801121
12	800127	/ 800203	801024	"
13	800204	/ 800211	800918	801104
14	800212	/ 800219	801006	"
15	800220	/ 800227	800918	"
16	800228	/ 800306	"	"
17	800307	/ 800314	810224	810316
18	800315	/ 800322	801004	801104
19	800323	/ 800330	"	"
20	800331	/ 800407	801218	810116
21	800408	/ 800415	801019	801121
22	800416	/ 800423	810107	810121
23	800424	/ 800501	801031	801121
24	800502	/ 800509	810224	810316
25	800510	/ 800517	810102	810202
26	800518	/ 800525	"	810204
27	800526	/ 800602	"	"
28	800603	/ 800609	810224	810316



TABLE 10: MAGSAT CHRONFIN Tapes Delivered to NSSDC

Batch No.	Date Span (YYMMDD)		CSC Release Date (YYMMDD)	NSSDC Release Date (YYMMDD)
	From	Thru		
1	791102	07	810211	810312
2	08	15	"	"
3	16	23	"	"
4	791124	791201	"	"
5	791202	09	810227	"
6	10	17	810324	810409
7	18	25	"	"
8	791226	800102	"	"
9	800103	10	"	"
10	11	18	"	"
11	19	26	"	810512
12	800127	800203	810528	810618
13	800204	11	810508	810529
14	12	19	810615	810630
15	20	27	"	"
16	800228	800306	"	"
17	800307	14	810618	810715
18	15	22	"	"
19	23	30	810720	810831
20	800331	800407	"	"
21	800408	15	"	"
22	16	23	"	"
23	800424	800501	"	"
24	800502	09	"	"
25	10	17	"	"
26	18	19	"	"

ORIGINAL PAGE IS  
OF POOR QUALITY

TABLE 11-1: Selected Quiet Periods for Anomaly Map Derivation

MJD	START HOUR	END HOUR	DATE	START MILLISEC	END MILLISEC
44179	18	24	11/ 2/1979	64800000	86400000
44180	0	6	11/ 3/1979	0	21600000
44181	15	24	11/ 4/1979	54000000	86400000
44182	0	24	11/ 5/1979	0	86400000
44183	0	24	11/ 6/1979	0	86400000
44184	0	9	11/ 7/1979	0	32400000
44185	18	24	11/ 8/1979	64800000	86400000
44187	3	18	11/10/1979	10800000	64800000
44188	9	12	11/11/1979	32400000	43200000
44188	21	24	11/11/1979	75600000	86400000
44189	0	6	11/12/1979	0	21600000
44189	18	21	11/12/1979	64800000	75600000
44191	12	24	11/14/1979	43200000	86400000
44192	0	24	11/15/1979	0	86400000
44194	12	21	11/17/1979	43200000	75600000
44195	0	24	11/18/1979	21600000	86400000
44196	0	18	11/19/1979	0	64800000
44197	3	6	11/20/1979	10800000	21600000
44198	6	24	11/21/1979	21600000	86400000
44199	0	24	11/22/1979	0	86400000
44200	0	21	11/23/1979	0	75600000
44202	9	24	11/25/1979	32400000	86400000
44203	0	18	11/26/1979	0	64800000
44203	21	24	11/26/1979	75600000	86400000
44204	0	6	11/27/1979	0	21600000
44204	9	24	11/27/1979	32400000	86400000
44205	0	24	11/28/1979	0	86400000
44206	0	15	11/29/1979	0	54000000
44206	21	24	11/29/1979	75600000	86400000
44207	0	3	11/30/1979	0	10800000
44207	21	24	11/30/1979	75600000	86400000
44208	0	3	12/ 1/1979	0	10800000
44209	15	24	12/ 2/1979	54000000	86400000
44210	12	24	12/ 3/1979	43200000	86400000
44212	0	6	12/ 5/1979	0	21600000
44212	9	12	12/ 5/1979	32400000	43200000
44212	18	24	12/ 5/1979	64800000	86400000
44213	3	6	12/ 6/1979	10800000	21600000
44213	9	24	12/ 6/1979	32400000	86400000
44214	0	24	12/ 7/1979	0	86400000
44216	0	9	12/ 9/1979	0	32400000
44216	12	24	12/ 9/1979	43200000	86400000
44217	0	12	12/10/1979	0	43200000
44217	21	24	12/10/1979	75600000	86400000
44218	3	18	12/11/1979	10800000	64800000
44218	21	24	12/11/1979	75600000	86400000
44219	0	24	12/12/1979	0	86400000
44220	0	24	12/13/1979	0	86400000
44221	0	24	12/14/1979	0	86400000
44223	9	18	12/16/1979	32400000	64800000
44225	6	9	12/18/1979	21600000	32400000
44225	12	24	12/18/1979	43200000	86400000
44226	0	21	12/19/1979	0	75600000
44227	0	24	12/20/1979	0	86400000
44228	0	18	12/21/1979	0	64800000
44228	0	24	12/21/1979	75600000	86400000
44230	0	24	12/23/1979	0	86400000
44231	0	9	12/24/1979	10800000	32400000
44231	0	24	12/24/1979	75600000	86400000

ORIGINAL PAGE IS  
OF POOR QUALITY

TABLE 11-2: Selected Quiet Periods for Anomaly Map Derivation (Con't)

MJD	START HOUR	END HOUR	DATE	START MILLISEC	END MILLISEC
44232	0	24	12/25/1979	0	86400000
44233	0	12	12/26/1979	0	43200000
44234	21	24	12/27/1979	75600000	86400000
44238	6	18	12/31/1979	21600000	64800000
44240	18	21	1/2/1980	64800000	75600000
44244	9	24	1/6/1980	32400000	86400000
44245	0	18	1/7/1980	0	64800000
44246	6	9	1/8/1980	21600000	32400000
44246	12	24	1/8/1980	43200000	86400000
44247	0	18	1/9/1980	0	64800000
44248	3	24	1/10/1980	10800000	86400000
44249	0	3	1/11/1980	0	10800000
44250	3	24	1/12/1980	10800000	86400000
44252	9	24	1/14/1980	32400000	86400000
44253	0	15	1/15/1980	0	54000000
44254	9	24	1/16/1980	32400000	86400000
44255	0	3	1/17/1980	0	10800000
44255	21	24	1/17/1980	75600000	86400000
44256	0	24	1/18/1980	0	86400000
44257	0	21	1/19/1980	0	75600000
44258	6	21	1/20/1980	21600000	75600000
44259	6	24	1/21/1980	21600000	86400000
44260	0	15	1/22/1980	0	54000000
44262	0	24	1/23/1980	0	86400000
44262	0	15	1/24/1980	0	54000000
44262	21	24	1/24/1980	75600000	86400000
44263	0	9	1/25/1980	0	32400000
44264	6	21	1/26/1980	21600000	75600000
44268	15	24	1/30/1980	54000000	86400000
44269	0	21	1/31/1980	0	75600000
44270	0	9	2/1/1980	0	32400000
44270	12	15	2/1/1980	43200000	54000000
44271	15	24	2/2/1980	54000000	86400000
44272	0	24	2/3/1980	0	86400000
44273	0	6	2/4/1980	0	21600000
44273	9	24	2/4/1980	32400000	86400000
44274	0	24	2/5/1980	0	86400000
44276	0	3	2/7/1980	0	10800000
44279	0	24	2/10/1980	0	86400000
44280	0	3	2/11/1980	0	10800000
44280	6	24	2/11/1980	21600000	86400000
44281	0	24	2/12/1980	0	86400000
44282	0	24	2/13/1980	0	86400000
44286	0	21	2/17/1980	0	86400000
44287	12	15	2/18/1980	43200000	54000000
44288	12	24	2/19/1980	43200000	86400000
44289	0	24	2/20/1980	0	86400000
44290	0	24	2/21/1980	0	86400000
44291	0	24	2/22/1980	0	86400000
44292	0	9	2/23/1980	0	32400000
44293	6	12	2/24/1980	21600000	43200000
44293	18	24	2/24/1980	64800000	86400000
44294	0	9	2/25/1980	0	32400000
44297	15	18	2/28/1980	54000000	64800000
44298	3	12	2/29/1980	10800000	43200000
44298	15	24	2/29/1980	54000000	86400000
44299	0	24	3/1/1980	0	86400000
44300	0	24	3/2/1980	0	86400000
44301	0	12	3/3/1980	0	43200000
44301	21	24	3/3/1980	75600000	86400000

TABLE 11-3: Selected Quiet Periods for Anomaly Map Derivation (Con't)

MJD	START HOUR	END HOUR	DATE	START MILLISEC	END MILLISEC
44302	0	9	3/4/1980	0	32400000
44302	12	24	3/4/1980	43200000	86400000
44303	15	24	3/5/1980	54000000	86400000
44304	0	6	3/6/1980	0	21600000
44304	18	24	3/6/1980	64800000	86400000
44305	6	24	3/7/1980	21600000	86400000
44306	0	3	3/8/1980	0	10800000
44306	9	24	3/8/1980	32400000	86400000
44307	0	3	3/9/1980	0	10800000
44307	12	15	3/9/1980	43200000	54000000
44308	18	24	3/10/1980	64800000	86400000
44309	0	6	3/11/1980	0	21600000
44309	15	24	3/11/1980	54000000	86400000
44310	0	24	3/12/1980	0	86400000
44311	0	3	3/13/1980	0	10800000
44311	12	21	3/13/1980	43200000	75600000
44312	0	3	3/14/1980	0	10800000
44312	6	24	3/14/1980	21600000	86400000
44313	0	24	3/15/1980	0	86400000
44314	0	24	3/16/1980	0	86400000
44315	0	9	3/17/1980	0	32400000
44315	12	24	3/17/1980	43200000	86400000
44316	0	24	3/18/1980	0	86400000
44317	0	3	3/19/1980	0	10800000
44317	21	24	3/19/1980	75600000	86400000
44318	0	24	3/20/1980	0	86400000
44322	1	24	3/23/1980	32400000	86400000
44322	9	24	3/24/1980	0	86400000
44323	0	18	3/25/1980	0	64800000
44325	6	24	3/27/1980	21600000	86400000
44326	9	21	3/28/1980	32400000	75600000
44327	12	21	3/29/1980	43200000	75600000
44328	12	18	3/30/1980	43200000	64800000
44330	0	24	4/1/1980	10800000	86400000
44333	0	24	4/2/1980	0	86400000
44333	12	15	4/3/1980	43200000	54000000
44333	18	24	4/3/1980	64800000	86400000
44333	0	3	4/4/1980	0	10800000
44333	0	12	4/5/1980	0	43200000
44333	21	24	4/5/1980	75600000	86400000
44333	0	3	4/6/1980	0	10800000
44333	18	21	4/10/1980	64800000	75600000
44334	0	12	4/14/1980	0	43200000
44334	9	15	4/17/1980	32400000	54000000
44334	21	24	4/17/1980	75600000	86400000
44334	0	24	4/18/1980	0	86400000
44334	0	24	4/19/1980	0	86400000
44334	0	3	4/20/1980	10800000	86400000
44335	0	21	4/21/1980	0	75600000
44335	18	21	4/22/1980	64800000	75600000
44335	6	21	4/23/1980	21600000	75600000
44335	9	21	4/24/1980	32400000	75600000
44335	18	24	4/25/1980	64800000	86400000
44335	0	24	4/26/1980	0	86400000
44335	0	18	4/27/1980	0	64800000
44335	3	24	4/28/1980	10800000	86400000
44335	0	24	4/29/1980	0	86400000
44335	0	3	4/30/1980	0	10800000
44335	18	21	4/30/1980	64300000	75600000

ORIGINAL PAGE IS  
OF POOR QUALITY

TABLE 11-4: Selected Quiet Periods for Anomaly Map Derivation (Con't)

MJD	START HOUR	END HOUR	DATE	START MILLISEC	END MILLISEC
44360	6	9	5/ 1/1980	21600000	32400000
44360	21	24	5/ 1/1980	75600000	86400000
44361	0	24	5/ 2/1980	0	86400000
44362	0	24	5/ 3/1980	0	86400000
44363	0	24	5/ 4/1980	0	86400000
44364	0	12	5/ 5/1980	0	43200000
44366	3	12	5/ 7/1980	10800000	43200000
44367	9	21	5/ 8/1980	32400000	75600000
44369	6	18	5/ 10/1980	21600000	64800000
44372	12	15	5/ 13/1980	43200000	54000000
44373	9	12	5/ 14/1980	32400000	43200000
44374	0	3	5/ 15/1980	0	10800000
44374	12	24	5/ 15/1980	43200000	86400000
44375	0	24	5/ 16/1980	0	86400000
44376	0	24	5/ 17/1980	0	86400000
44377	0	24	5/ 18/1980	0	86400000
44378	0	9	5/ 19/1980	0	32400000
44378	21	24	5/ 19/1980	75600000	86400000
44379	0	24	5/ 20/1980	0	86400000
44380	0	24	5/ 21/1980	0	86400000
44381	0	12	5/ 22/1980	0	43200000
44381	18	24	5/ 22/1980	64800000	86400000
44382	3	9	5/ 23/1980	10800000	32400000
44382	21	24	5/ 23/1980	75600000	86400000
44383	0	9	5/ 24/1980	0	32400000
44385	15	18	5/ 26/1980	54000000	64800000
44386	3	24	5/ 27/1980	10800000	86400000
44387	0	24	5/ 28/1980	0	86400000
44388	0	15	5/ 29/1980	0	54000000
44392	6	21	6/ 2/1980	21600000	75600000
44393	9	9	6/ 3/1980	21600000	32400000
44394	0	24	6/ 4/1980	0	86400000
44395	0	24	6/ 5/1980	0	86400000
44396	0	9	6/ 6/1980	0	32400000
44399	0	6	6/ 9/1980	0	21600000
44404	6	9	6/ 14/1980	21600000	32400000
44405	3	24	6/ 15/1980	10800000	86400000
44406	0	9	6/ 16/1980	0	32400000
44406	21	24	6/ 16/1980	75600000	86400000
44407	0	24	6/ 17/1980	0	86400000
44408	0	24	6/ 18/1980	0	86400000
44409	0	12	6/ 19/1980	0	43200000
44410	0	15	6/ 20/1980	0	54000000
44410	18	24	6/ 20/1980	64800000	86400000
44411	0	12	6/ 21/1980	0	43200000
44411	21	24	6/ 21/1980	75600000	86400000
44412	0	21	6/ 22/1980	0	75600000
44413	0	12	6/ 23/1980	0	43200000
44413	15	21	6/ 23/1980	54000000	75600000
44415	6	15	6/ 25/1980	21600000	54000000
44416	9	9	6/ 26/1980	21600000	32400000
44417	0	24	6/ 27/1980	0	86400000
44418	0	24	6/ 28/1980	0	86400000
44419	0	21	6/ 29/1980	0	75600000
44420	6	9	6/ 30/1980	21600000	32400000
44420	18	24	6/ 30/1980	64800000	86400000

..... EN DOFJOB.....

**ORIGINAL PAGE IS  
OF POOR QUALITY**

TABLE 12: The MGST (6/80) Field Model

INTERNAL				COEFFICIENTS							
n	m	$g_n^m$	$h_n^m$	n	m	$g_n^m$	$h_n^m$	n	m	$g_n^m$	$h_n^m$
1	0	-29989.6		8	0	18.4		11	5	-0.4	0.6
1	1	-1958.6	5608.1	8	1	6.8	6.9	11	6	-0.3	-0.1
2	0	-1994.8		8	2	-0.1	-17.9	11	7	1.7	-2.4
2	1	3027.2	-2127.3	8	3	-10.8	4.0	11	8	1.8	-0.3
2	2	1661.6	-196.1	8	4	-7.0	-22.3	11	9	-0.6	-1.4
3	0	1279.9		8	5	4.3	9.2	11	10	2.1	-1.6
3	1	-2179.8	-334.4	8	6	2.7	16.1	11	11	3.5	0.6
3	2	1251.4	270.7	8	7	6.3	-13.1	12	0	-1.6	
3	3	833.0	-251.1	8	8	-1.2	-14.8	12	1	0.4	0.6
4	0	938.3		9	0	5.6		12	2	-0.1	0.6
4	1	782.5	211.6	9	1	10.4	-21.1	12	3	-0.1	2.3
4	2	398.4	-256.7	9	2	1.1	15.2	12	4	0.6	-1.5
4	3	-419.2	52.0	9	3	-12.6	8.9	12	5	0.5	0.5
4	4	199.3	-297.6	9	4	9.5	-4.8	12	6	-0.6	0.2
5	0	-217.4		9	5	-3.3	-6.5	12	7	-0.4	-0.4
5	1	357.6	45.2	9	6	-1.3	9.0	12	8	0.1	0.0
5	2	261.0	149.4	9	7	6.8	9.5	12	9	-0.4	0.0
5	3	-73.9	-150.3	9	8	1.4	-5.9	12	10	-0.2	-1.5
5	4	-162.0	-78.1	9	9	-5.1	2.1	12	11	0.7	0.3
5	5	-48.3	91.8	10	0	-3.3		12	12	0.0	0.7
6	0	48.3		10	1	-3.5	1.4	13	0	0.0	
6	1	65.2	-14.5	10	2	2.5	0.4	13	1	-0.5	-0.4
6	2	41.4	93.4	10	3	-5.3	2.6	13	2	0.3	0.4
6	3	-192.2	70.6	10	4	-2.1	5.6	13	3	-0.7	1.6
6	4	3.5	-42.9	10	5	4.6	-4.2	13	4	0.0	0.0
6	5	13.7	-2.4	10	6	3.1	-0.4	13	5	1.2	-0.6
6	6	-107.6	16.9	10	7	0.6	-1.3	13	6	-0.4	-0.1
7	0	71.7		10	8	1.8	3.5	13	7	0.4	0.8
7	1	-59.0	-82.4	10	9	2.8	-0.5	13	8	-0.6	0.2
7	2	1.6	-27.5	10	10	-0.5	-6.2	13	9	0.2	0.8
7	3	20.5	-4.9	11	0	2.4		13	10	0.1	0.5
7	4	-12.6	16.1	11	1	-1.3	0.7	13	11	0.4	-0.1
7	5	0.6	18.1	11	2	-1.9	1.7	13	12	-0.4	0.0
7	6	10.6	-22.9	11	3	2.2	-1.1	13	13	0.0	-0.1
7	7	-2.0	-9.9	11	4	0.1	-2.7				

EXTERNAL COEFFICIENTS

1	0	20.4	
1	1	-0.6	-0.4

All coefficients in nT. Mean radius of the Earth is 6371.2 km. Mean epoch is 1979.85.

TABLE 13-1: GSFC (9/80-2) Magnetic Field Model  
(Mean Radius of the Earth is 6371.2 km; Mean Epoch is 1980.0)

n	m	$g_n^m$	$h_n^m$	$\dot{g}_n^m$	$\dot{h}_n^m$	$\ddot{g}_n^m$	$\ddot{h}_n^m$	$\dddot{g}_n^m$	$\dddot{h}_n^m$
1	0	-29987.9		20.51		-0.408		-0.0151	
1	1	-1957.4	5606.7	9.08	-9.04	-0.224	0.579	-0.0078	0.0319
2	0	-1996.7		-19.53		0.294		0.0064	
2	1	3027.7	-2128.8	4.78	-18.74	0.249	-1.440	0.0044	-0.0479
2	2	1662.9	-198.6	9.86	-26.82	0.347	-0.607	0.0033	-0.0134
3	0	1280.2		4.51		0.652		0.0190	
3	1	-2180.8	-335.5	-3.55	-5.57	0.668	-1.109	0.0189	-0.0306
3	2	1251.3	270.9	-2.19	1.64	0.176	-0.078	0.0089	-0.0028
3	3	832.9	-251.5	3.87	-6.62	0.573	-0.245	0.0140	-0.0115
4	0	937.1		-2.20		-0.124		-0.0040	
4	1	782.3	211.8	-2.24	3.66	-0.043	-0.120	-0.0002	-0.0061
4	2	397.2	-256.8	-10.09	1.08	-0.403	0.033	-0.0084	0.0015
4	3	-419.6	52.4	-3.82	6.77	-0.132	0.554	-0.0009	0.0182
4	4	198.3	-298.0	-5.54	-2.73	-0.224	-0.096	-0.0059	-0.0031
5	0	-217.1		-1.04		-0.080			
5	1	357.0	45.2	-0.86	3.30	-0.048	0.086		
5	2	261.5	149.9	-0.73	0.50	-0.099	-0.067		
5	3	-74.3	-150.7	-4.81	-0.82	-0.136	0.053		
5	4	-161.5	-77.7	0.11	1.09	0.016	-0.018		
5	5	-47.7	91.8	1.49	0.87	0.009	0.009		

TABLE 13-2: GSFC (9/80-2) Magnetic Field Model

n	m	$g_n^m$	$h_n^m$	$\dot{g}_n^m$	$\dot{h}_n^m$	$\ddot{g}_n^m$	$\ddot{h}_n^m$	$\dddot{g}_n^m$	$\dddot{h}_n^m$
6	0	49.1		0.75		0.039			
6	1	65.0	-14.6	-0.04	0.03	-0.031	0.024		
6	2	42.0	93.4	3.49	-1.20	0.078	-0.037		
6	3	-191.4	70.9	2.20	-0.96	-0.012	-0.067		
6	4	3.9	-42.9	0.44	0.11	0.018	0.048		
6	5	14.1	-1.9	1.78	0.56	0.039	0.003		
6	6	-107.1	17.5	1.34	2.72	0.078	0.041		
7	0	71.0		0.08					
7	1	-58.1	-83.2	-0.36	-1.44				
7	2	1.3	-27.1	0.05	-0.03				
7	3	20.1	-5.5	0.45	0.15				
7	4	-13.0	15.9	0.94	0.58				
7	5	0.8	17.8	0.17	-0.37				
7	6	10.8	-23.6	-0.20	0.03				
7	7	-2.7	-9.9	0.09	0.54				
8	0	18.9		0.60					
8	1	7.2	7.5	0.08	-0.08				
8	2	0.9	-17.7	0.22	-0.30				
8	3	-10.4	3.2	0.08	-0.09				
8	4	-7.1	-22.4	-0.24	-0.34				
8	5	4.0	9.4	-0.35	0.31				



TABLE 13-3: GSFC (9/80-2) Magnetic Field Model (Con't)

n	m	$g_n^m$	$h_n^m$	$\dot{g}_n^m$	$\dot{h}_n^m$	$\ddot{g}_n^m$	$\ddot{h}_n^m$	$\dddot{g}_n^m$	$\dddot{h}_n^m$
8	6	3.7	16.3	0.53	-0.54				
8	7	7.1	-13.4	-0.48	-0.67				
8	8	-1.3	-15.2	-0.26	0.05				
9	0	5.2		-0.31					
9	1	10.7	-21.8	0.17	0.08				
9	2	1.0	16.0	-0.04	0.09				
9	3	-12.0	8.9	0.02	0.24				
9	4	9.2	-4.9	-0.12	-0.19				
9	5	-3.9	-7.5	-0.27	-0.27				
9	6	-1.1	9.5	-0.04	-0.02				
9	7	7.1	10.8	0.26	-0.05				
9	8	1.5	-5.3		-0.28				
9	9	-5.0	2.1	-0.45	0.15				
10	0	-3.3		-0.12					
10	1	-4.1	1.0	-0.10	-0.07				
10	2	2.7	-0.1	0.04	-0.08				
10	3	-5.5	2.6	-0.09	0.05				
10	4	-1.6	5.5	0.01	-0.06				
10	5	5.2	-4.3	0.01	-0.01				
10	6	2.6	-1.3	-0.19	-0.14				
10	7	1.3	-1.1	0.18	0.11				

TABLE 13-4: GSFC (9/80-2) Magnetic Field Model (Con't)

n	m	$g_n^m$	$h_n^m$	$\dot{g}_n^m$	$\dot{h}_n^m$	$\ddot{g}_n^m$	$\ddot{h}_n^m$	$\dddot{g}_n^m$	$\dddot{h}_n^m$
10	8	2.4	4.4	0.07	0.14				
10	9	3.2	-0.6	0.09	-0.09				
10	10	-0.3	-6.2	0.03	-0.05				
11	0	2.3		-0.02					
11	1	-0.6	1.1	0.03	-0.03				
11	2	-2.3	2.4	-0.03	-0.04				
11	3	2.1	-2.1	-0.13	-0.02				
11	4	0.3	-2.3	0.08	0.05				
11	5	-0.4	0.4	-0.02	-0.02				
11	6	-0.5	-0.1	-0.01	0.02				
11	7	1.4	-3.5	-0.01	-0.19				
11	8	1.5	-0.2	-0.11	0.05				
11	9	-0.8	-0.7	0.09	0.15				
11	10	1.9	-1.7	-0.10	-0.06				
11	11	3.4	-0.1	0.08	-0.39				
12	0	-2.0		-0.04					
12	1	-0.2	0.5	-0.03					
12	2	0.5	0.5	0.11					
12	3	-0.3	2.9	-0.02	0.08				
12	4	-0.2	-1.9	-0.06	-0.13				
12	5	1.1	0.5	0.04	0.04				

TABLE 13-5: GSFC (9/80-2) Magnetic Field Model (Con't)

n	m	$g_n^m$	$h_n^m$	$\dot{g}_n^m$	$\dot{h}_n^m$	$\ddot{g}_n^m$	$\ddot{h}_n^m$	$\dddot{g}_n^m$	$\dddot{h}_n^m$
12	6	-0.3	0.2	0.03					
12	7	0.1	0.2	0.04	0.03				
12	8	0.2	-0.3	0.01	-0.10				
12	9	-0.5	-0.5	-0.06	-0.09				
12	10	0.5	-0.6	0.01	0.09				
12	11	0.8	0.6	0.09	-0.07				
12	12	0.3	-0.1	-0.03	-0.01				
13	0	0.5		0.02					
13	1	-0.2	0.3	0.03	0.07				
13	2	0.2	0.2	-0.05	-0.01				
13	3	-0.6	1.5		0.03				
13	4	0.2	0.8		0.09				
13	5	0.9	-1.0	0.01	-0.08				
13	6	0.2	0.2	0.03	0.06				
13	7	0.3	1.2	0.03	0.06				
13	8	-0.5	-0.2		-0.01				
13	9	0.2	0.7	-0.01	0.01				
13	10	0.4	-0.1		-0.02				
13	11	0.2	-0.5	0.02	-0.04				
13	12		0.4	0.09	0.08				
13	13	0.6	-0.4	0.07	-0.01				

TABLE 14: MG680982 Magnetic Field Model (Hybrid)

n	m	$a_n^m$	$h_n^m$	$\dot{a}_n^m$	$\dot{h}_n^m$
1	0	4939.60	0.0	23.51	0.0
1	1	-1996.99	0.000000	9.00	-9.04
2	0	1027.29	-2127.11	18.51	0.0
2	1	166.15	196.06	8.73	-18.74
2	2	1274.90	0.0	9.16	-26.85
3	0	2174.94	184.81	9.91	0.0
3	1	1251.92	-270.66	-1.77	9.77
3	2	813.04	201.10	1.07	-1.64
3	3	936.29	0.0	-2.20	0.0
4	0	702.80	-311.63	2.78	1.66
4	1	955.42	-56.75	10.37	14.83
4	2	413.25	10.00	3.62	6.77
4	3	192.26	-12.61	5.19	-2.73
4	4	-37.17	0.0	1.09	0.0
5	0	672.95	95.14	-3.36	1.30
5	1	261.03	149.85	0.73	0.53
5	2	76.59	1.00	9.11	-0.82
5	3	16.01	78.39	3.11	1.09
5	4	-43.29	31.05	1.99	0.87
5	5	49.33	0.0	-0.75	0.0
6	0	65.18	14.50	-0.38	0.31
6	1	81.49	93.14	1.49	-1.20
6	2	14.11	73.61	2.0	-0.96
6	3	1.51	42.85	0.49	0.11
6	4	14.79	-2.17	1.73	0.56
6	5	-107.57	16.87	1.34	2.72
7	0	71.60	0.0	0.0	0.0
7	1	69.03	-0.41	-0.16	-1.48
7	2	1.81	-27.51	0.05	-0.03
7	3	20.51	4.7	0.45	0.15
7	4	-12.61	16.7	3.19	0.53
7	5	0.89	18.00	0.17	-0.17
7	6	10.62	-28.39	-0.20	0.03
7	7	1.97	9.91	0.19	0.04
7	8	16.49	0.0	0.60	0.0
8	0	6.76	6.91	0.08	0.03
8	1	-0.19	-12.13	0.2	-0.16
8	2	-16.40	4.01	0.09	-0.09
8	3	-7.01	-22.23	0.29	-0.14
8	4	4.39	9.17	-0.15	0.11
8	5	2.25	16.11	0.11	-0.09
8	6	6.75	-11.11	-0.46	0.07
8	7	1.17	-14.83	-0.26	0.05
8	8	5.06	0.0	-0.11	0.0
8	9	19.17	-21.05	-0.17	0.03
8	10	1.11	19.19	-0.04	0.04
8	11	-1.03	8.13	0.02	-0.04
8	12	-1.62	4.09	-0.12	-0.19
8	13	-1.10	-6.04	-0.07	-0.27
8	14	1.26	0.98	0.04	0.31
8	15	0.77	9.94	0.2	0.05
8	16	1.16	0.07	-0.10	-0.01
8	17	-0.09	2.11	-0.45	0.15
10	0	-1.28	0.0	-0.12	0.0
10	1	-1.99	1.40	-0.07	-0.17
10	2	0.47	0.40	0.34	-0.01
10	3	-0.14	1.84	-0.09	-0.05
10	4	-0.06	15.60	0.01	-0.06
10	5	4.56	-4.25	0.01	-0.01
10	6	1.11	-0.69	-0.18	0.14
10	7	0.61	-1.26	0.18	0.12
10	8	1.84	1.48	0.07	-0.14
10	9	2.05	-0.51	0.04	-0.04
10	10	-0.55	6.20	0.01	-0.05
10	11	2.49	0.0	-0.02	0.0
10	12	-1.33	0.74	0.01	0.01
10	13	-1.99	3.14	-0.11	-0.04
10	14	-1.22	-1.14	-0.11	0.02
10	15	0.05	7.71	0.08	0.05
10	16	0.44	0.60	-0.02	-0.02
10	17	-0.12	-0.14	-0.01	0.02
10	18	1.69	2.10	-0.01	-0.14
10	19	1.01	-0.11	-0.11	0.05
10	20	-0.59	-1.44	0.37	0.15
10	21	1.12	-1.51	-0.10	-0.06
10	22	1.57	0.62	0.08	-0.19
12	0	-1.39	0.0	-0.04	0.0
12	1	1.39	0.57	-0.01	0.00
12	2	-0.11	0.64	0.11	-0.03
12	3	-0.12	2.12	-0.02	0.00
12	4	0.58	-1.52	-0.06	-0.11
12	5	0.53	0.44	0.04	-0.04
12	6	0.55	0.16	0.01	-0.01
12	7	-0.40	-0.41	0.34	0.01
12	8	-0.13	0.00	0.01	-0.10
12	9	-0.44	-0.01	-0.06	-0.09
12	10	-0.22	-1.87	0.01	0.09
12	11	0.82	0.72	0.09	0.07
12	12	-0.08	0.20	-0.03	-0.01
12	13	0.00	0.0	0.02	0.0
12	14	-0.49	-0.37	0.03	0.07
12	15	0.11	0.34	-0.05	-0.01
12	16	-0.70	1.56	-0.00	0.01
12	17	0.01	0.00	-0.00	0.09
12	18	1.15	-0.23	0.01	-0.08
12	19	-0.42	-0.09	0.03	0.06
12	20	3.44	0.83	0.01	-0.06
12	21	-0.56	0.18	0.00	-0.01
12	22	0.19	0.77	-0.01	0.01
12	23	0.13	0.45	0.00	-0.02
12	24	-0.16	-0.10	0.02	-0.04
12	25	-0.39	-0.05	0.07	0.08
12	26	-0.02	-0.15	0.07	-0.01

EXTEND 20.3506 -57065 -403

TABLE 15

MGST (4/81) (2) Magnetic Field Model (Mean Radius of the Earth is 6371.2 km; Mean Epoch is 1980.0)

n	m	$g_n^m$	$h_n^m$	$\dot{g}_n^m$	$\dot{h}_n^m$	n	m	$g_n^m$	$h_n^m$	$\dot{g}_n^m$	$\dot{h}_n^m$
1	0	-25987.1992	0.0	25.5000	0.0						
1	1	-1956.8499	5604.6992	12.7797	-22.4291						
2	0	-1996.1599	0.0	-10.9121	0.0						
2	1	3027.3999	-2129.4900	0.4997	-12.8701						
2	2	1663.4700	-199.5940	11.0024	-20.7837	10	0	-3.1655	0.0	0.0	0.0
3	0	1279.8358	0.0	-5.5591	0.0	10	1	-3.7985	1.2410	0.0	0.0
3	1	-2181.0098	-334.3179	-6.5558	3.5476	10	2	-2.4283	0.3517	0.0	0.0
3	2	1251.3899	271.1260	-2.8656	1.2512	10	3	-5.6169	2.8965	0.0	0.0
4	0	832.9939	-252.2270	-0.4574	-9.3632	10	4	-1.8245	5.8108	0.0	0.0
4	1	937.7235	0.0	-0.8566	0.0	10	5	4.4932	-4.2533	0.0	0.0
4	2	782.4900	212.1590	-1.7574	-0.4077	10	6	3.3183	-0.1433	0.0	0.0
4	3	396.8805	-256.7009	-6.7219	1.7278	10	7	0.6620	-1.3152	0.0	0.0
4	4	-419.4490	52.3576	0.7458	5.7137	10	8	2.2744	3.1207	0.0	0.0
5	0	198.1100	-297.8259	-7.1757	-4.0504	10	9	3.0744	-0.2220	0.0	0.0
5	1	-217.1930	0.0	0.5506	0.0	10	10	-0.5127	-6.4101	0.0	0.0
5	2	57.8259	45.8589	-1.8311	1.1179	11	0	0.0	2.5306	0.0	0.0
5	3	261.0789	-150.0330	-0.2326	-1.5023	11	1	-1.3179	0.8516	0.0	0.0
5	4	-74.3122	-150.6050	-3.3072	-1.9304	11	2	-1.7512	1.3518	0.0	0.0
5	5	-161.9970	-77.7046	1.5411	3.5556	11	3	2.4466	-1.5451	0.0	0.0
5	6	-48.0779	92.3465	-2.0848	0.6250	11	4	0.1943	-3.2202	0.0	0.0
5	7	48.4670	0.0	2.0848	0.0	11	5	-0.8793	0.4874	0.0	0.0
6	0	65.0140	-14.6005	1.2217	-1.5358	11	6	-0.3620	-0.3112	0.0	0.0
6	1	41.8842	93.2305	0.5549	-2.7061	11	7	1.3595	-2.3564	0.0	0.0
6	2	-191.9640	-70.9701	0.5549	-0.7413	11	8	1.5004	-0.2571	0.0	0.0
6	3	3.4732	-43.0250	0.8678	1.1510	11	9	-0.6277	-1.4790	0.0	0.0
6	4	13.8394	-2.1551	0.5548	0.5146	11	10	1.8995	-1.9808	0.0	0.0
6	5	-107.5630	17.2746	-1.3382	3.9416	11	11	3.5150	1.1033	0.0	0.0
7	0	72.0457	0.0	1.0155	0.0	12	0	-1.6658	0.0	0.0	0.0
7	1	-59.1687	-82.5246	-2.4521	-1.2790	12	1	0.0256	0.4031	0.0	0.0
7	2	1.6301	-27.1109	0.1158	0.9416	12	2	-0.1920	0.6179	0.0	0.0
7	3	-20.9040	-1.1868	-0.6488	0.3903	12	3	-0.1506	2.2822	0.0	0.0
7	4	-12.1437	15.9127	-0.6511	-0.2454	12	4	0.8984	-1.3900	0.0	0.0
7	5	0.4333	17.9332	-1.6620	-0.5056	12	5	0.5401	0.3849	0.0	0.0
7	6	10.2831	-23.0047	1.3556	-0.6845	12	6	-0.4816	-0.1485	0.0	0.0
7	7	-1.8357	-9.9483	1.4643	1.7987	12	7	-0.2130	-0.2573	0.0	0.0
8	0	18.4998	0.0	0.0	0.0	12	8	0.3159	-0.1197	0.0	0.0
8	1	6.7175	-7.2322	0.0	0.0	12	9	-0.5973	-0.0053	0.0	0.0
8	2	-0.2359	-17.5606	0.0	0.0	12	10	-0.1681	-1.3414	0.0	0.0
8	3	10.8967	3.7609	0.0	0.0	12	11	0.8132	0.5022	0.0	0.0
8	4	0.2094	-22.2458	0.0	0.0	12	12	-0.0091	-0.9256	0.0	0.0
8	5	0.1976	9.1350	0.0	0.0	13	0	0.0411	0.0	0.0	0.0
8	6	2.5015	-16.1418	0.0	0.0	13	1	-0.4080	-0.5635	0.0	0.0
8	7	6.0789	-13.3017	0.0	0.0	13	2	0.5084	0.2589	0.0	0.0
9	0	-0.8228	-14.8067	0.0	0.0	13	3	-0.5793	1.2100	0.0	0.0
9	1	5.3647	0.0	0.0	0.0	13	4	-0.1343	-0.2075	0.0	0.0
9	2	10.4460	-20.9417	0.0	0.0	13	5	0.8523	-0.5651	0.0	0.0
9	3	1.4050	10.4728	0.0	0.0	13	6	-0.5145	-0.0883	0.0	0.0
9	4	-12.1238	-8.6556	0.0	0.0	13	7	0.1587	0.3536	0.0	0.0
9	5	9.4872	-5.0625	0.0	0.0	13	8	-0.8705	-0.2600	0.0	0.0
9	6	-3.5681	-6.8346	0.0	0.0	13	9	0.1739	0.3787	0.0	0.0
9	7	-1.0295	8.8911	0.0	0.0	13	10	-0.0871	-0.2089	0.0	0.0
9	8	6.8808	-5.6780	0.0	0.0	13	11	0.3253	-0.1189	0.0	0.0
9	9	1.4149	-5.6725	0.0	0.0	13	12	-0.4895	-0.3603	0.0	0.0
9	10	-5.0474	2.1854	0.0	0.0	13	13	0.4457	-0.9202	0.0	0.0

OFFICIAL RECORD  
OF FCCA QUALITY

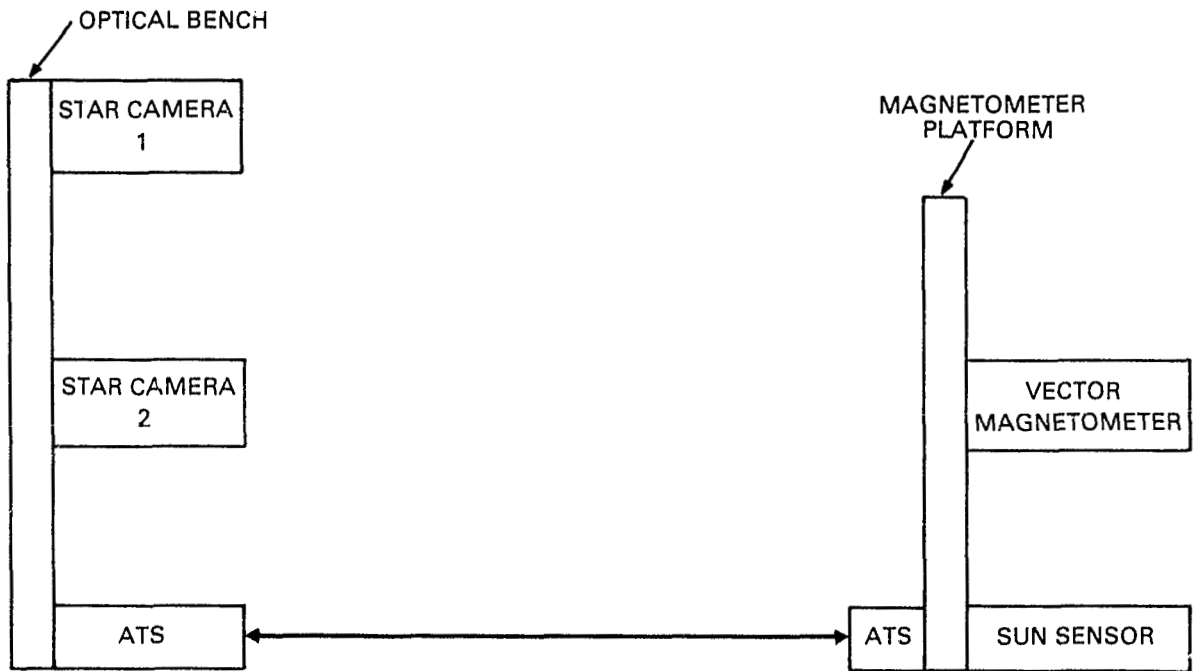


Figure 1. Block Schematic of the Magsat Fine Attitude System

ORIGINAL PAGE IS  
OF POOR QUALITY

GG, GM LAT 3.14  
LONGITUDE -92  
ALTITUDE 504  
TIME 00:04:12

### MAGSAT PLOT

7.18  
-0.3  
497  
00:05:18

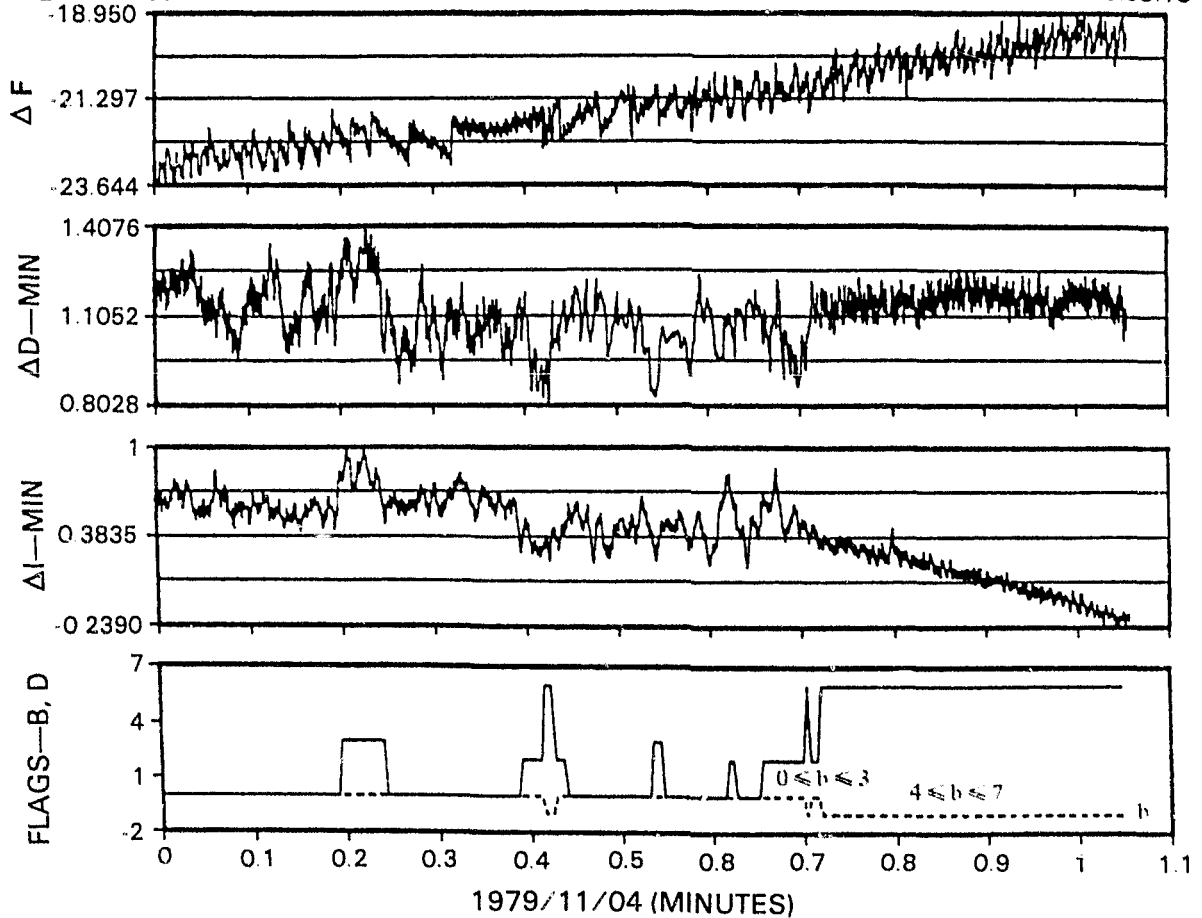


Figure 2. Correlation of data jumps with changes in the attitude flag. The "b" character is plotted as a dotted line with 0 for  $0 \leq b \leq 3$  and -1 for  $4 \leq b \leq 7$ . The "d" character is plotted as a solid line. (Figure furnished by J. C. Cain of the USGS).

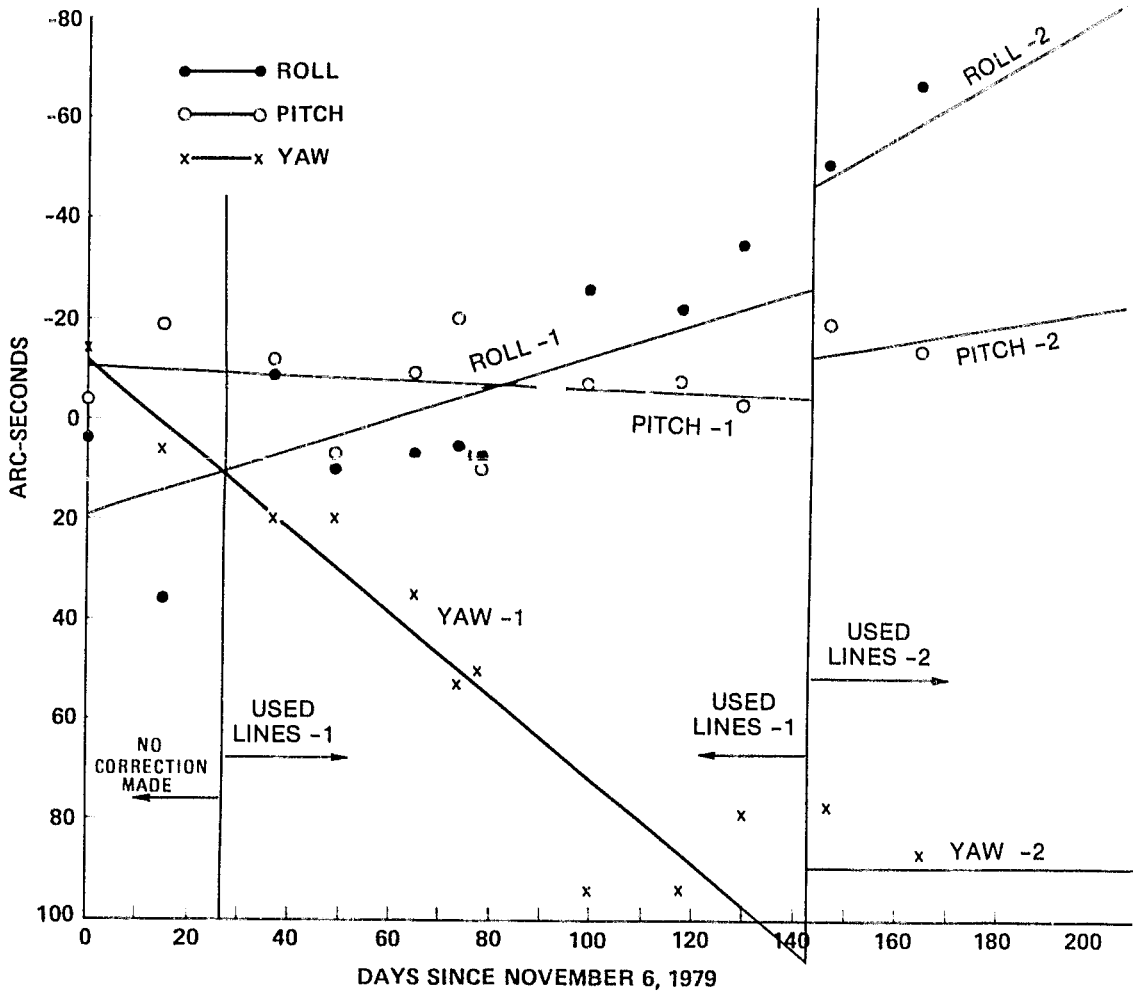


Figure 3. Changes in attitude alignment, data adjustments, for the pitch, roll, and yaw axis. Fine attitude data only.



DEVIATION OF W11 ESTIMATE FROM NOVEMBER 5, 1979 ESTIMATE

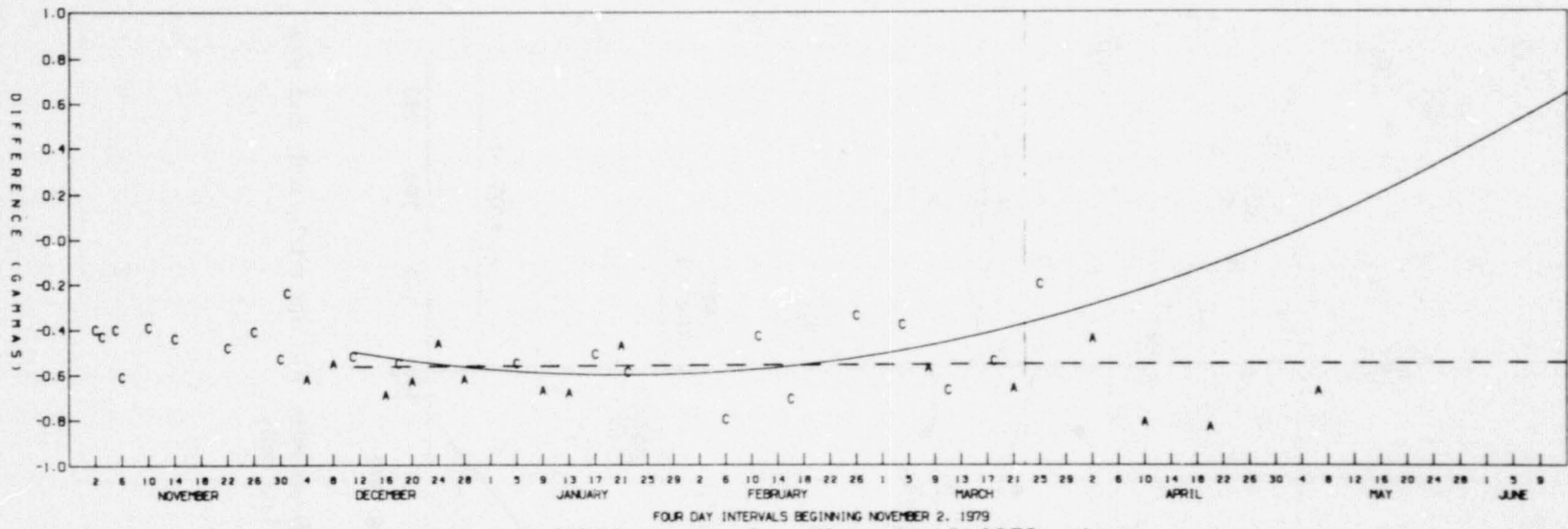


Figure 4. Deviation of W11 estimate from November 5, 1979 estimate.

DEVIATION OF W12 ESTIMATE FROM NOVEMBER 5, 1979 ESTIMATE

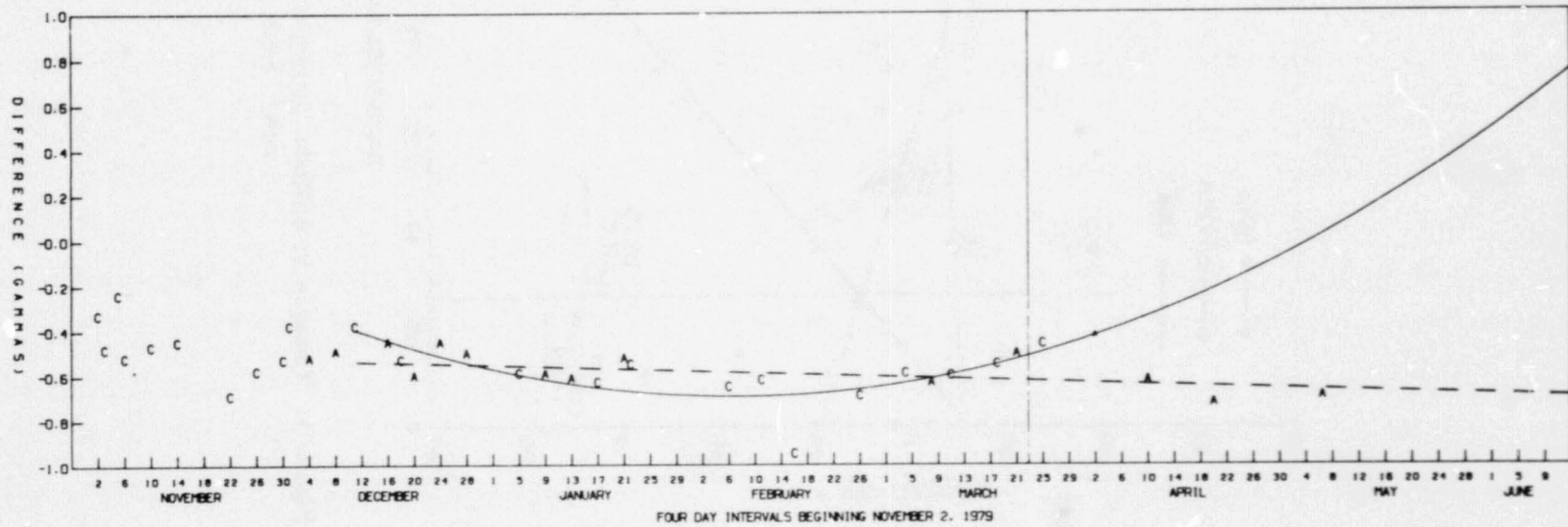


Figure 5. Deviation of W12 estimate from November 5, 1979 estimate.

DEVIATION OF W13 ESTIMATE FROM NOVEMBER 5, 1979 ESTIMATE

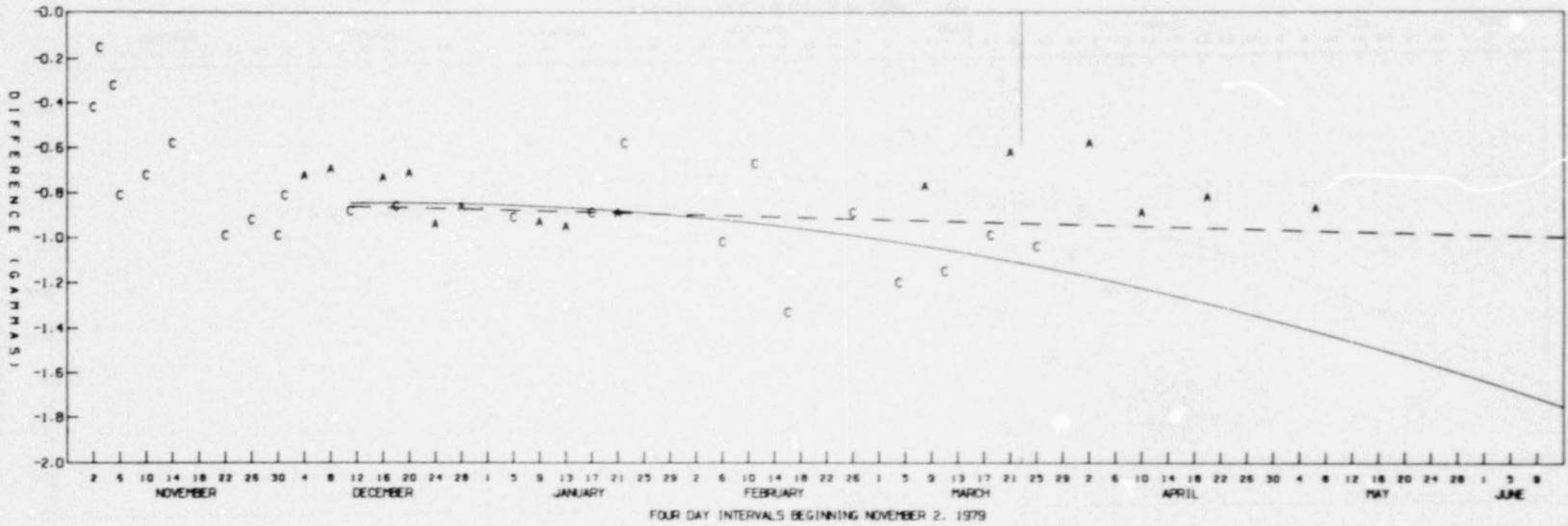


Figure 6. Deviation of W13 estimate from November 5, 1979 estimate.

DEVIATION OF W14 ESTIMATE FROM NOVEMBER 5, 1979 ESTIMATE

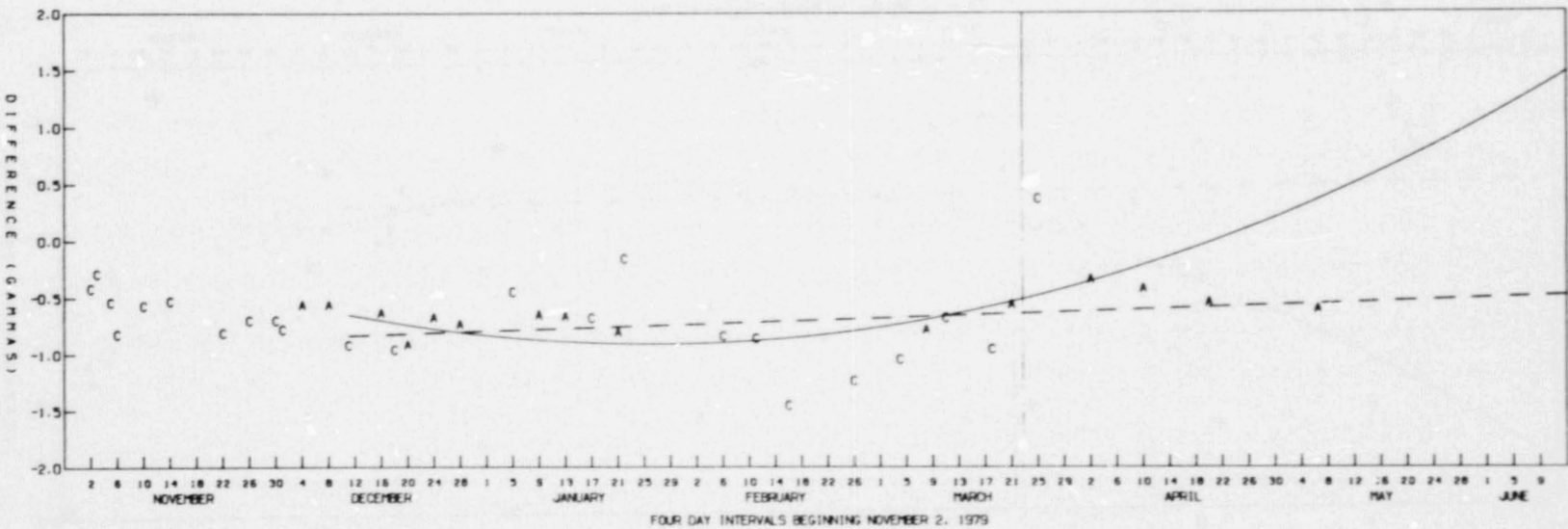


Figure 7. Deviation of W14 estimate from November 5, 1979 estimate.

111

ORIGINAL PAGE IS  
OF POOR QUALITY

DEVIATION OF W15 ESTIMATE FROM NOVEMBER 5, 1979 ESTIMATE

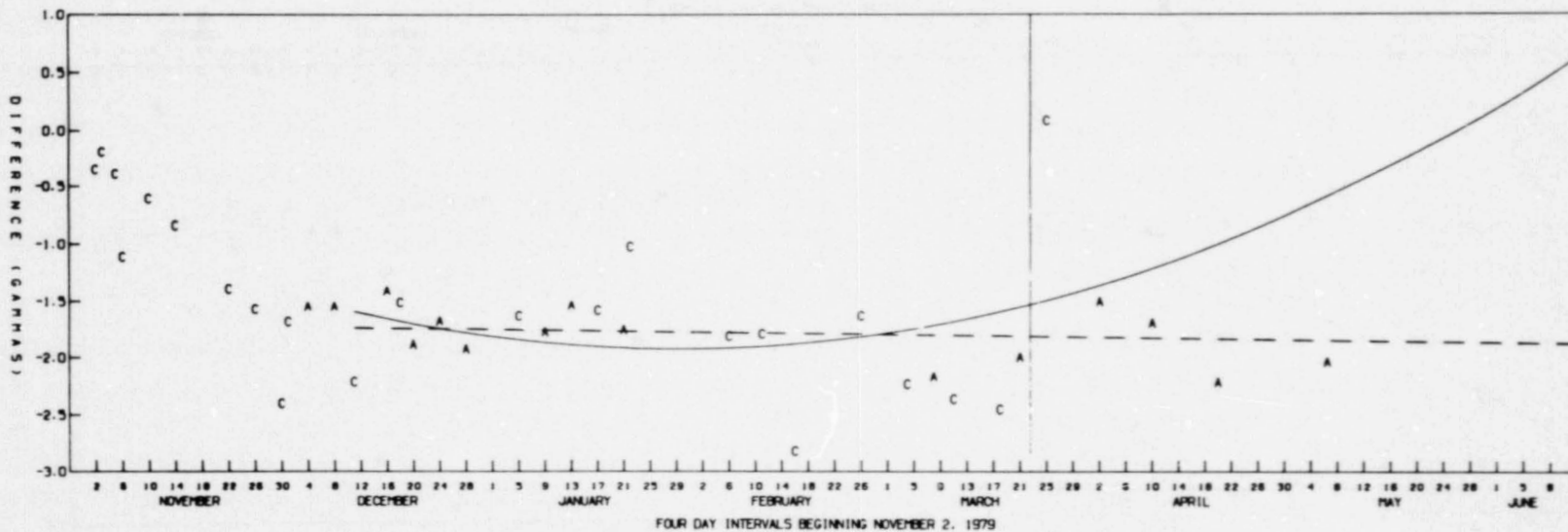


Figure 8. Deviation of W15 estimate from November 5, 1979 estimate.

DEVIATION OF (W17 - W16) ESTIMATE FROM NOVEMBER 5, 1979 ESTIMATE

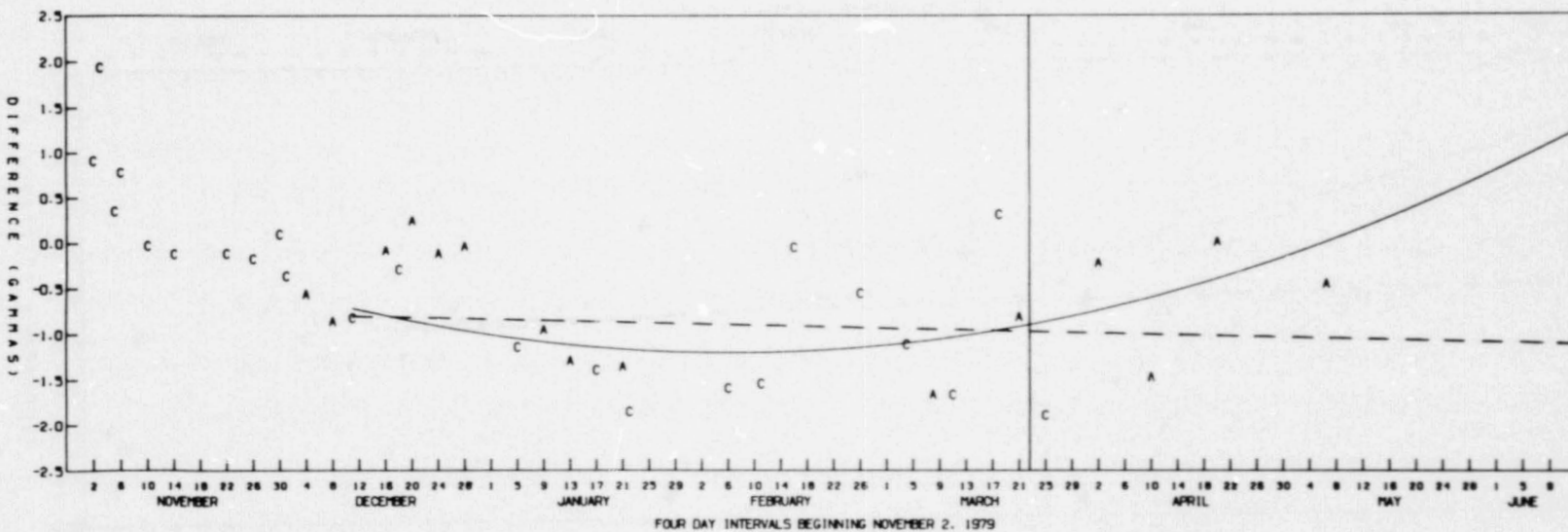


Figure 9. Deviation of (W17 - W16) estimate from November 5, 1979 estimate.

DEVIATION OF W21 ESTIMATE FROM NOVEMBER 5, 1979 ESTIMATE

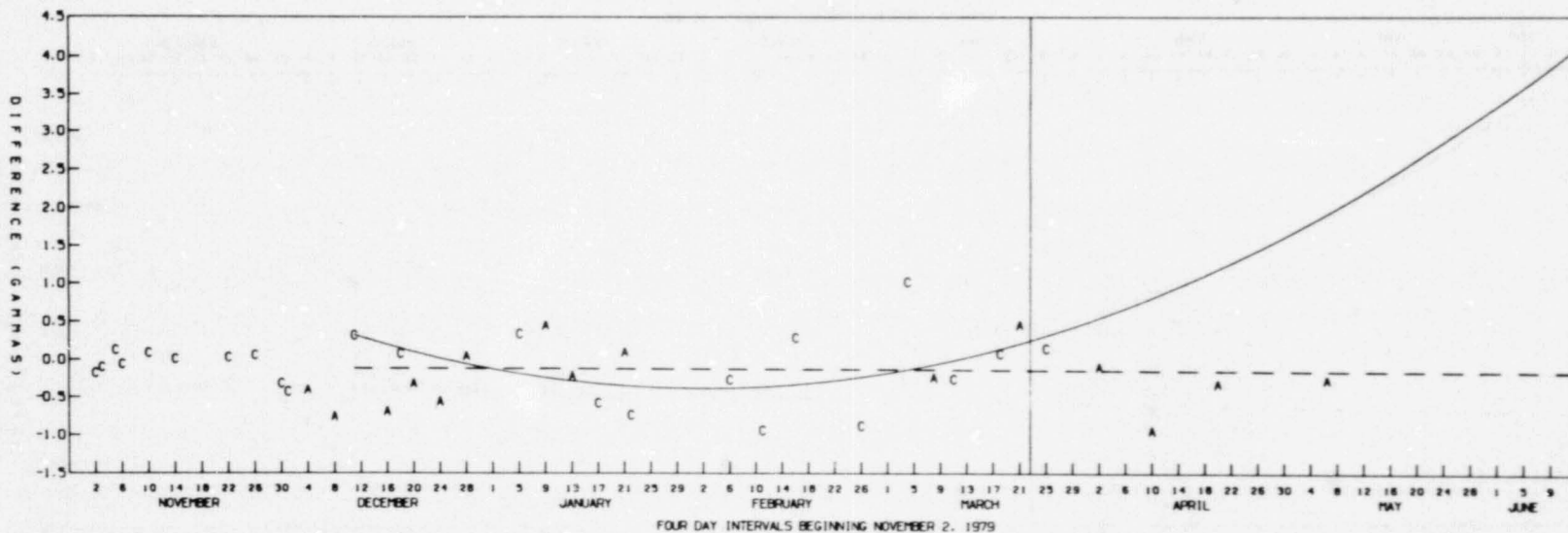


Figure 10. Deviation of W21 estimate from November 5, 1979 estimate.

DEVIATION OF W22 ESTIMATE FROM NOVEMBER 5, 1979 ESTIMATE

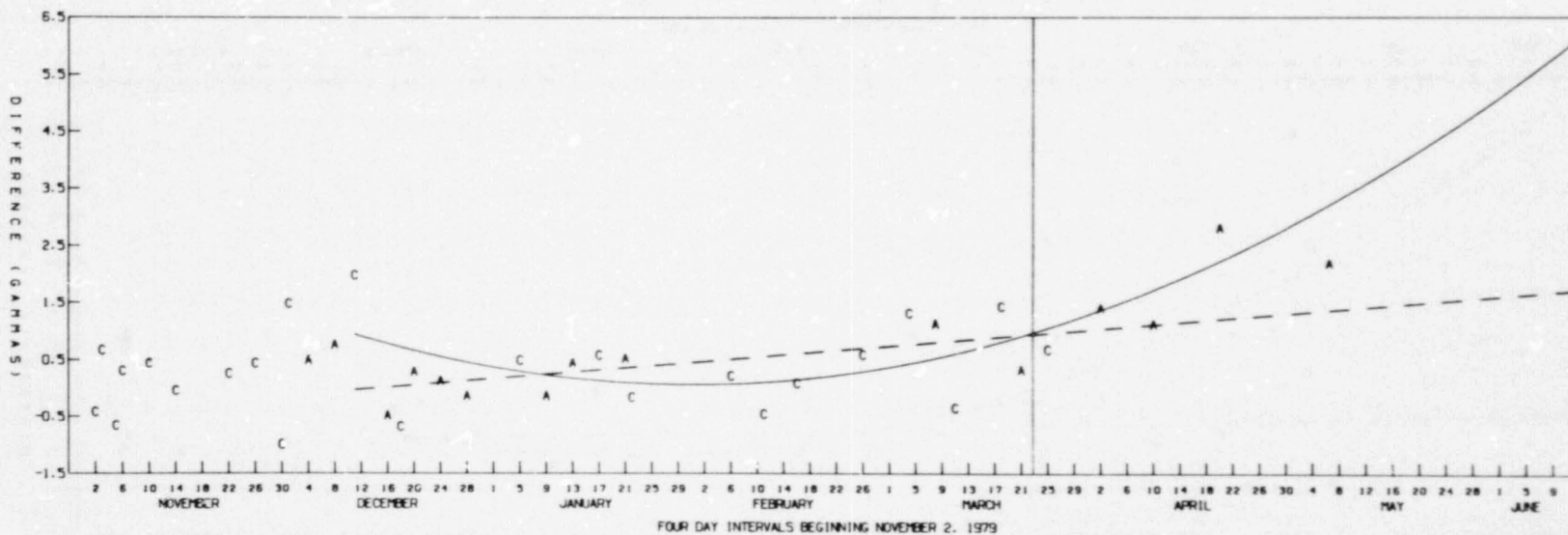


Figure 11. Deviation of W22 estimate from November 5, 1979 estimate.



DEVIATION OF W23 ESTIMATE FROM NOVEMBER 5, 1979 ESTIMATE

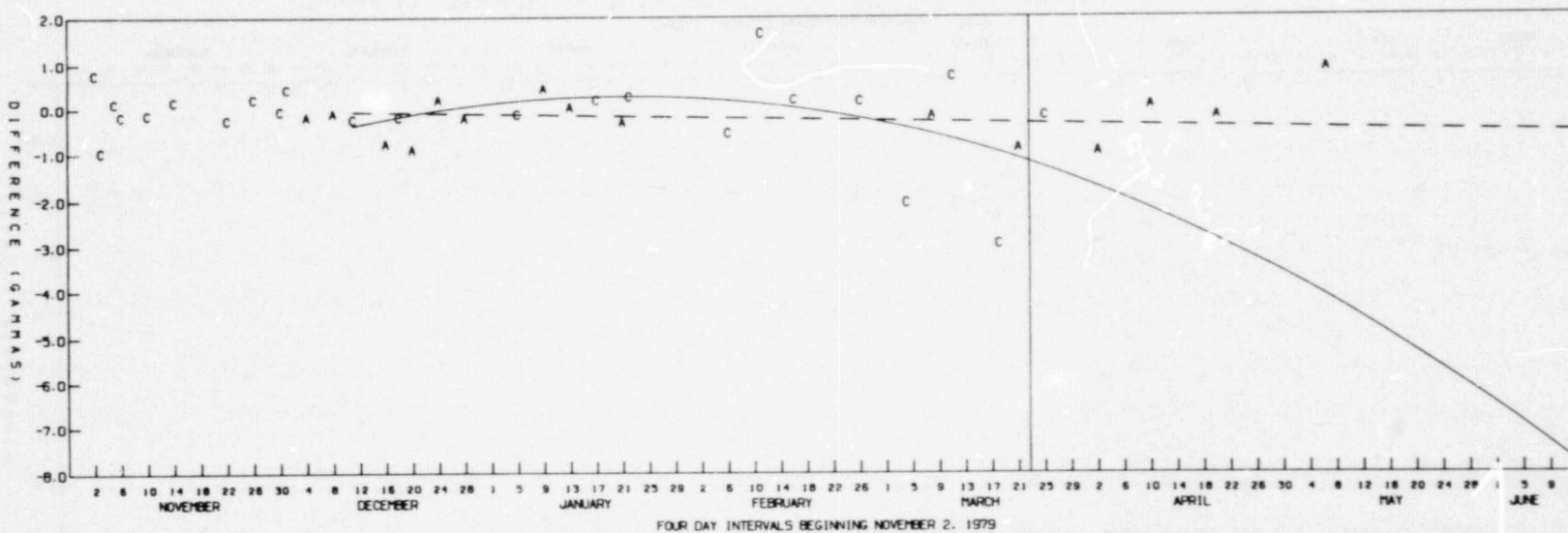


Figure 12. Deviation of W23 estimate from November 5, 1979 estimate.

DEVIATION OF W24 ESTIMATE FROM NOVEMBER 5, 1979 ESTIMATE

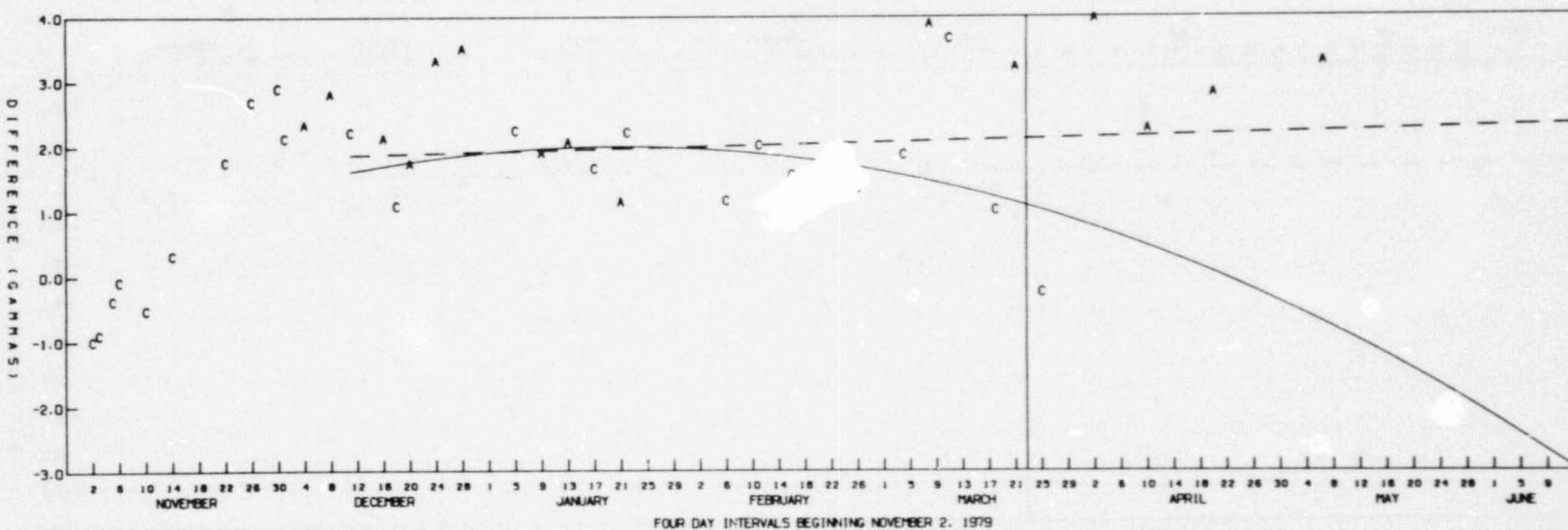


Figure 13. Deviation of W24 estimate from November 5, 1979 estimate.

DEVIATION OF (W27 - W26 - W25) ESTIMATE FROM NOVEMBER 5, 1979 ESTIMATE

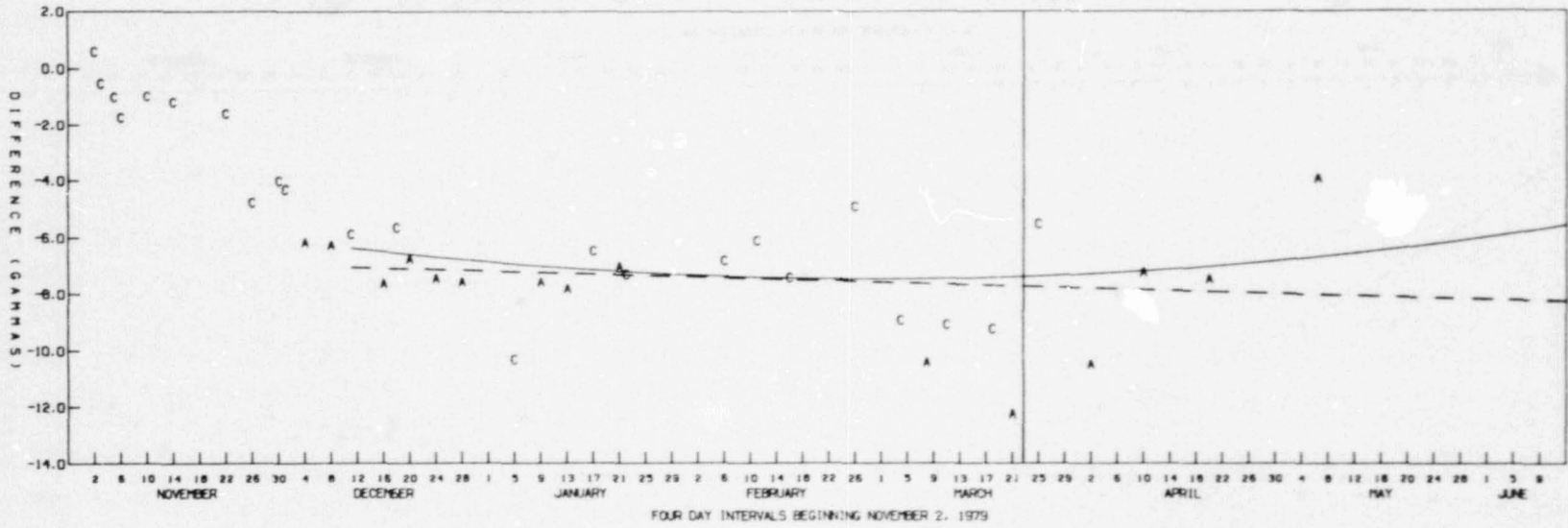


Figure 14. Deviation of (W27 - W26 - W25) estimate from November 5, 1979 estimate.

DEVIATION OF W31 ESTIMATE FROM NOVEMBER 5, 1979 ESTIMATE

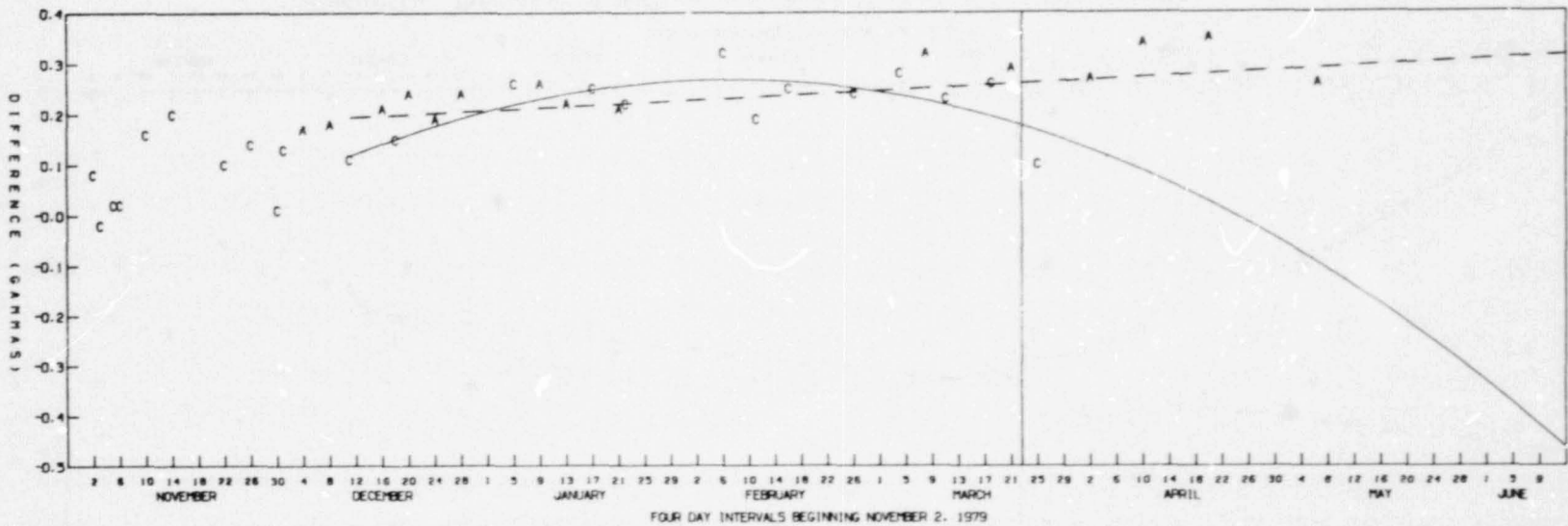


Figure 15. Deviation of W31 estimate from November 5, 1979 estimate.

DEVIATION OF W32 ESTIMATE FROM NOVEMBER 5, 1979 ESTIMATE

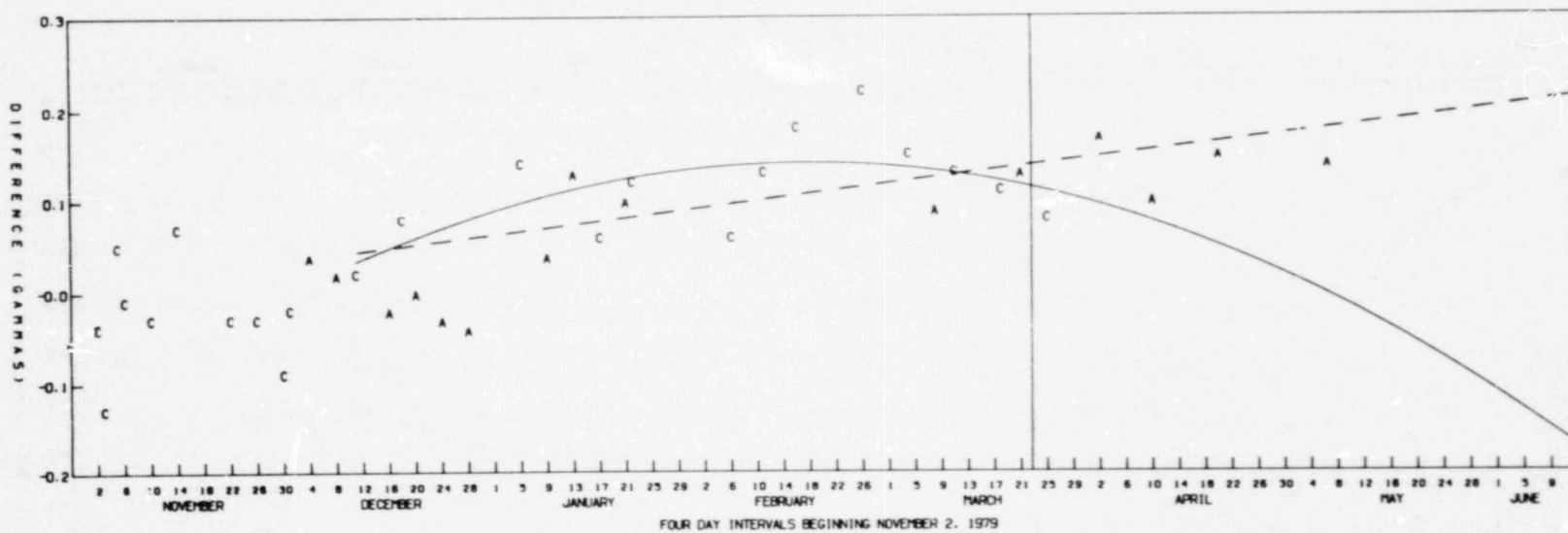


Figure 16. Deviation of W32 estimate from November 5, 1979 estimate.

DEVIATION OF W33 ESTIMATE FROM NOVEMBER 5, 1979 ESTIMATE

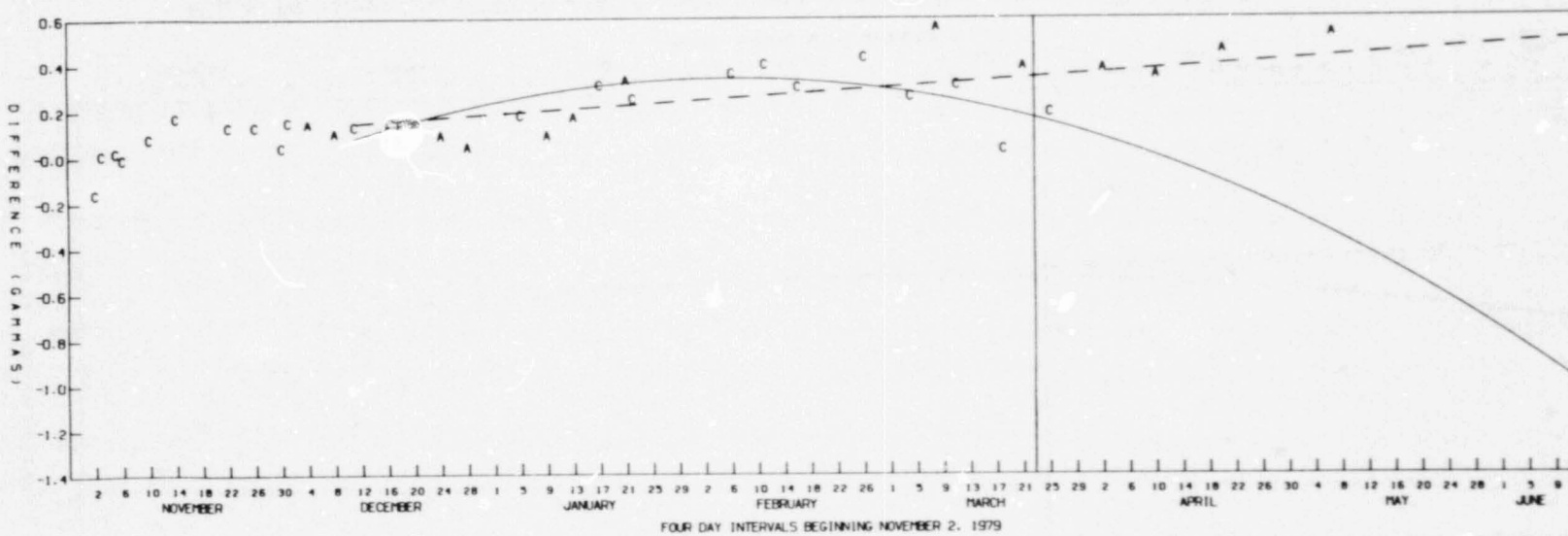


Figure 17. Deviation of W33 estimate from November 5, 1979 estimate.

DEVIATION OF W34 ESTIMATE FROM NOVEMBER 5, 1979 ESTIMATE

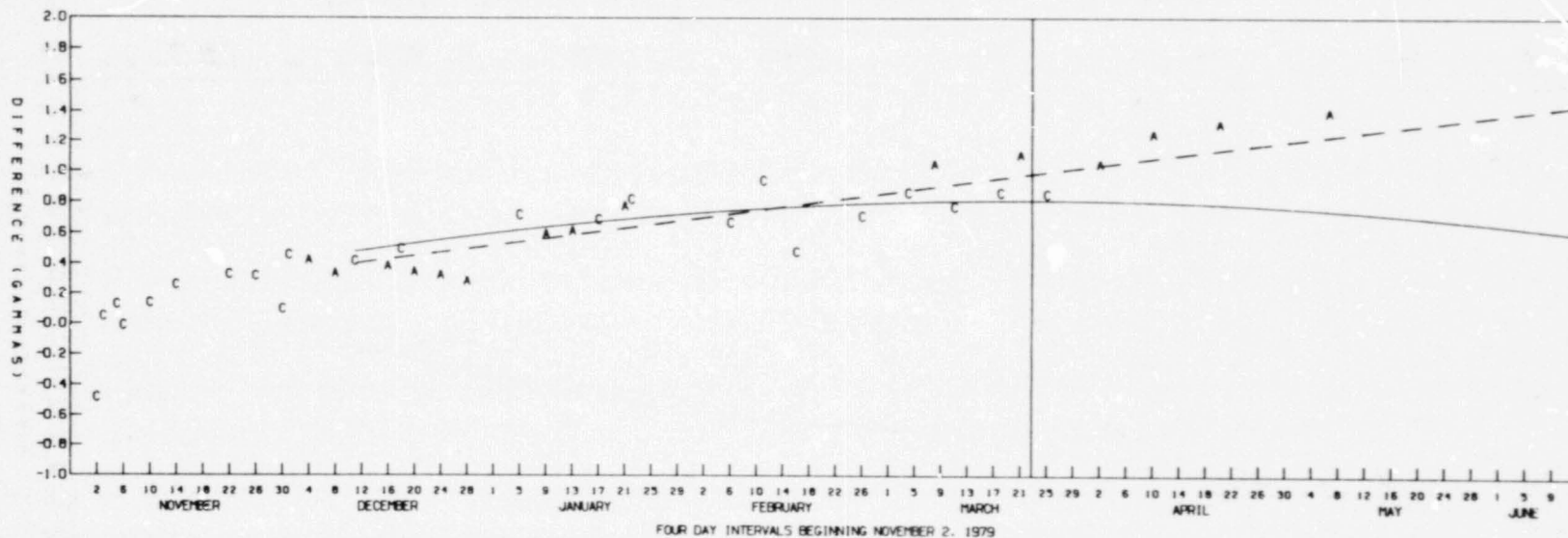


Figure 18. Deviation of W34 estimate from November 5, 1979 estimate.

DEVIATION OF W35 ESTIMATE FROM NOVEMBER 5, 1979 ESTIMATE

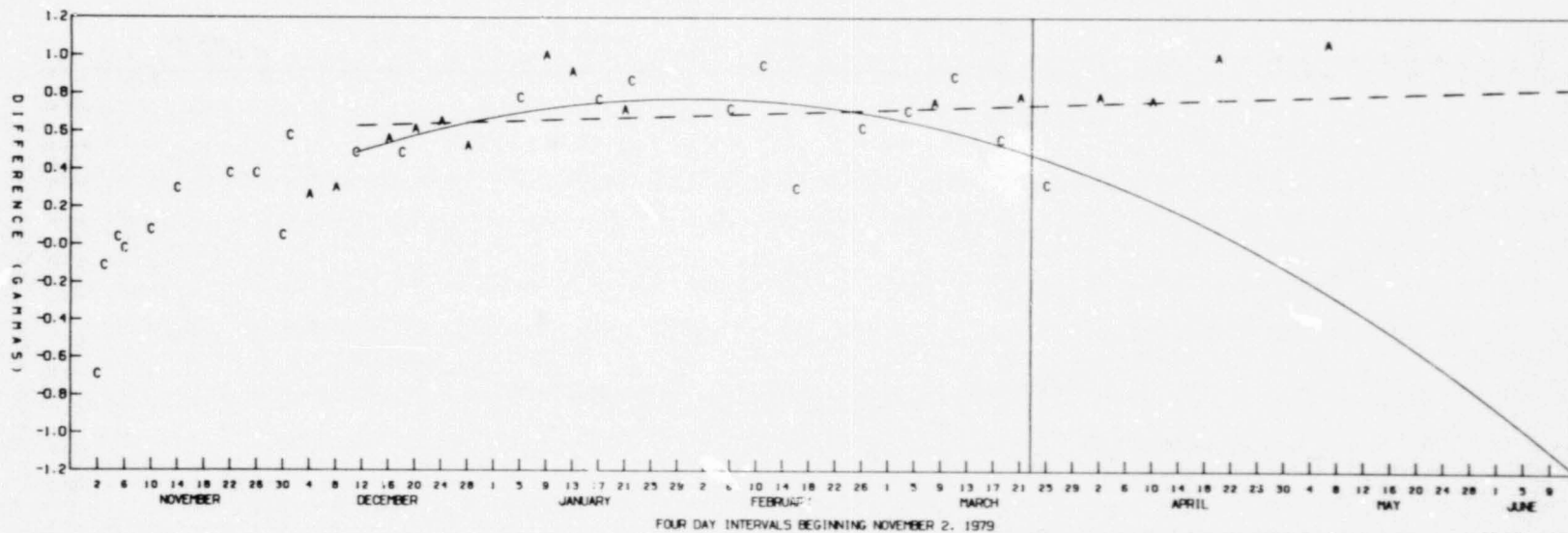


Figure 19. Deviation of W35 estimate from November 5, 1979 estimate.



DEVIATION OF W36 ESTIMATE FROM NOVEMBER 5, 1979 ESTIMATE

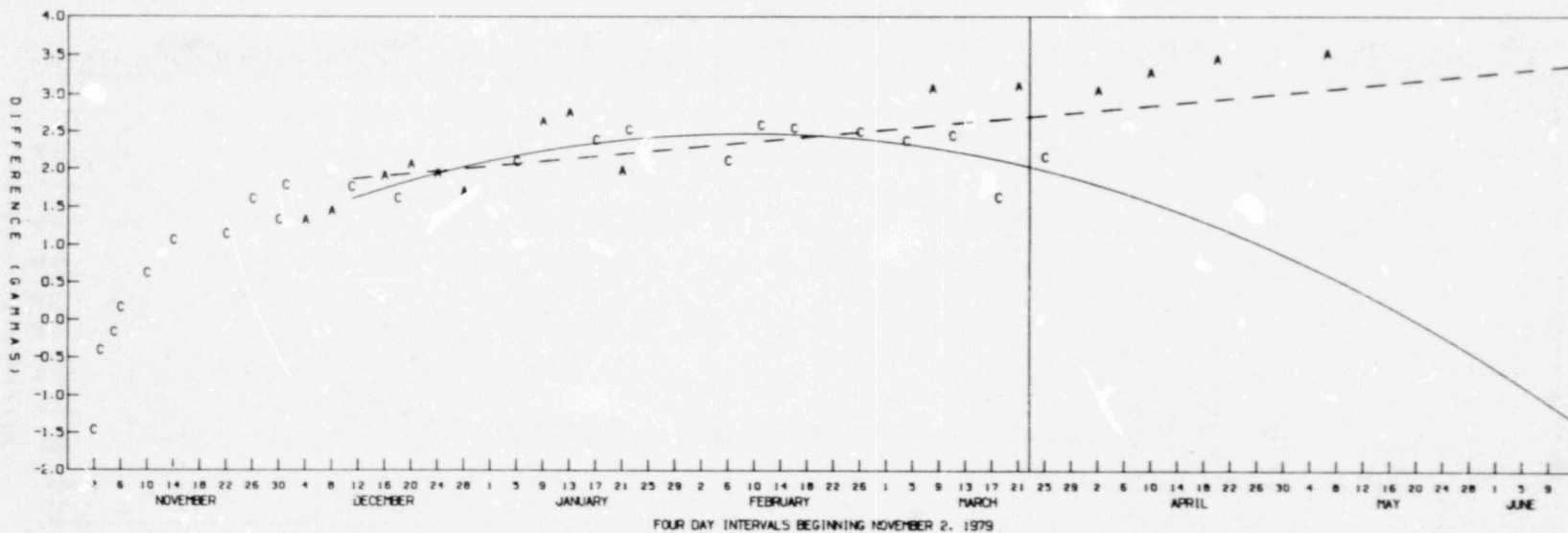


Figure 20. Deviation of W36 estimate from November 5, 1979 estimate.

DEVIATION OF W37 ESTIMATE FROM NOVEMBER 5, 1979 ESTIMATE

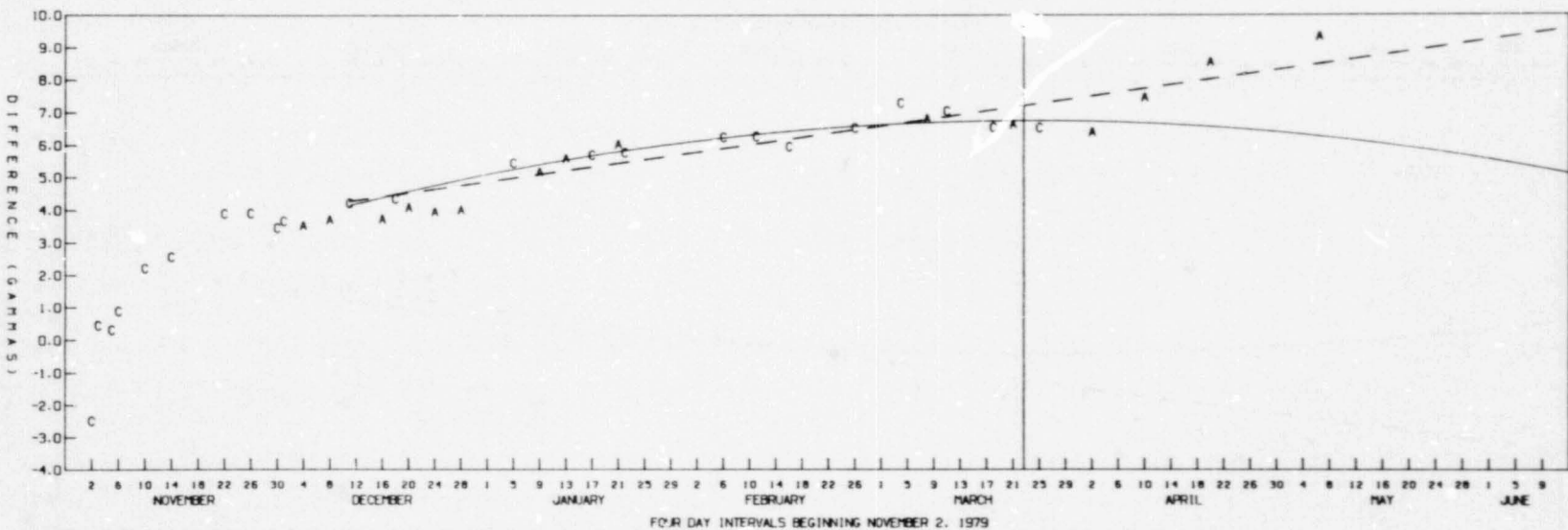


Figure 21. Deviation of W37 estimate from November 5, 1979 estimate.

DEVIATION OF B1 ESTIMATE FROM NOVEMBER 5, 1979 ESTIMATE

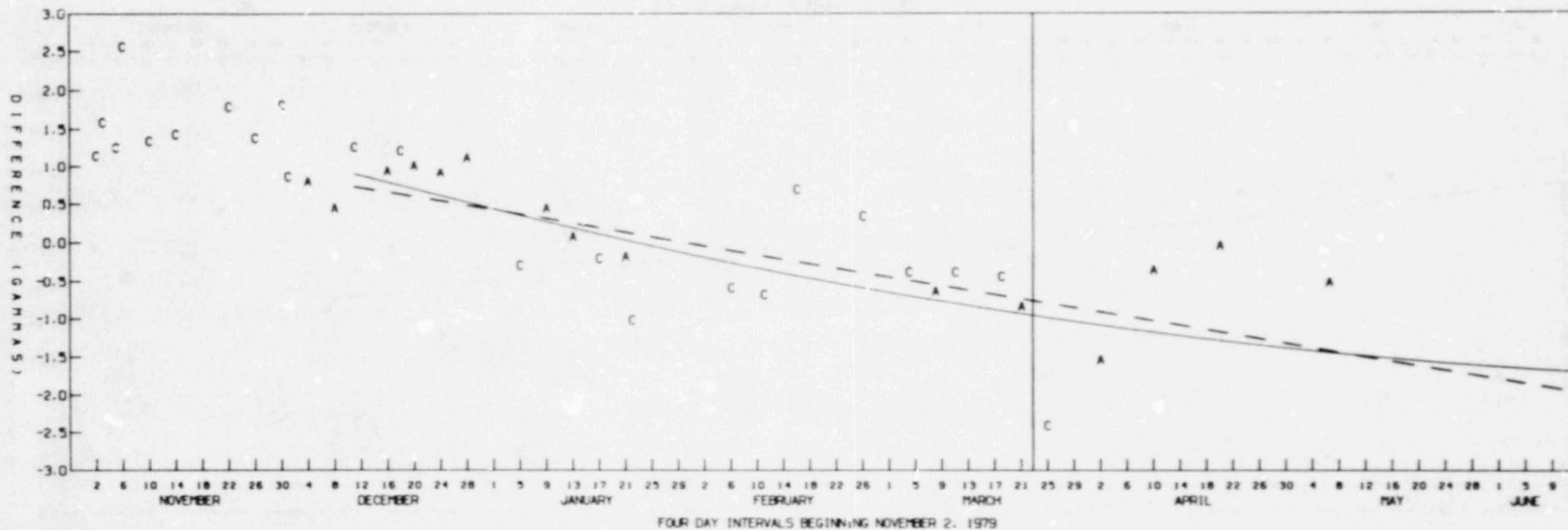


Figure 22. Deviation of B1 estimate from November 5, 1979 estimate.

DEVIATION OF B2 ESTIMATE FROM NOVEMBER 5, 1979 ESTIMATE

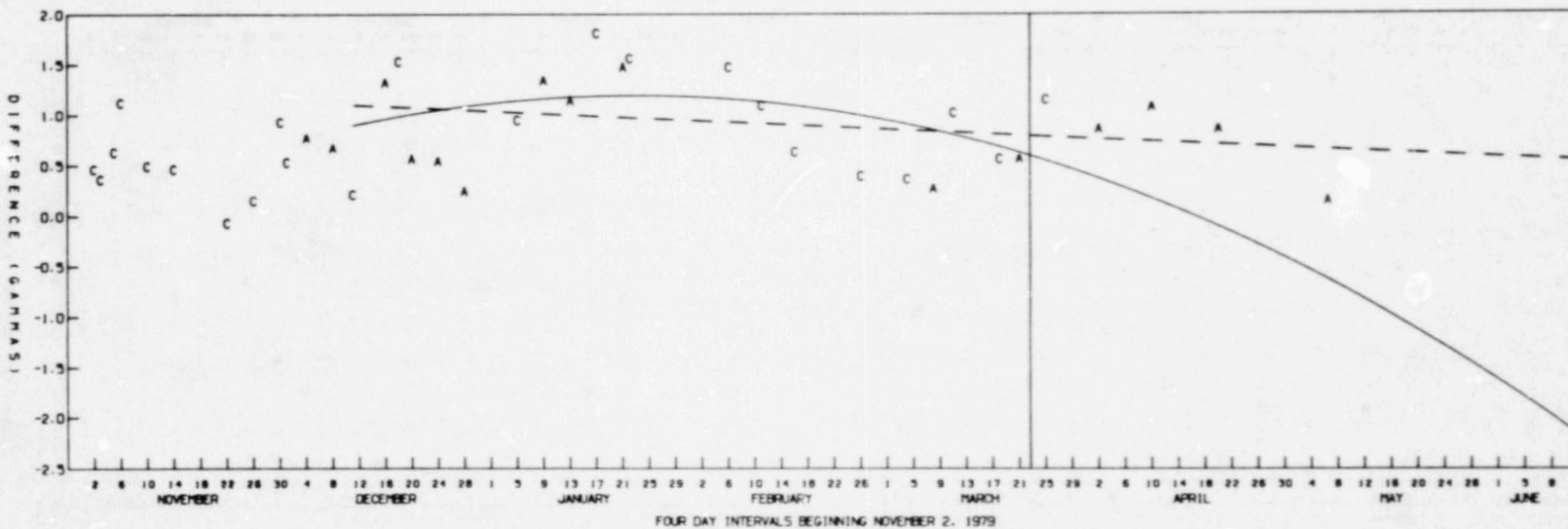


Figure 23. Deviation of B2 estimate from November 5, 1979 estimate.

DEVIATION OF B3 ESTIMATE FROM NOVEMBER 3, 1979 ESTIMATE

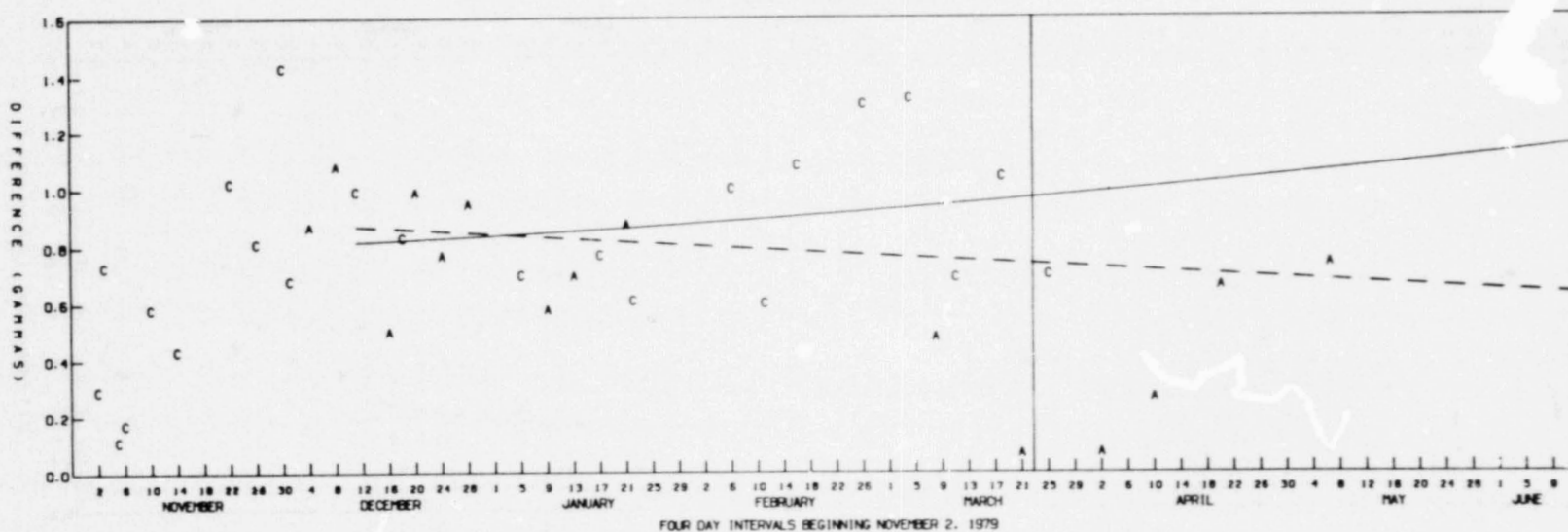


Figure 24. Deviation of B3 estimate from November 5, 1979 estimate.

DEVIATION OF A12 ESTIMATE FROM NOVEMBER 5, 1979 ESTIMATE

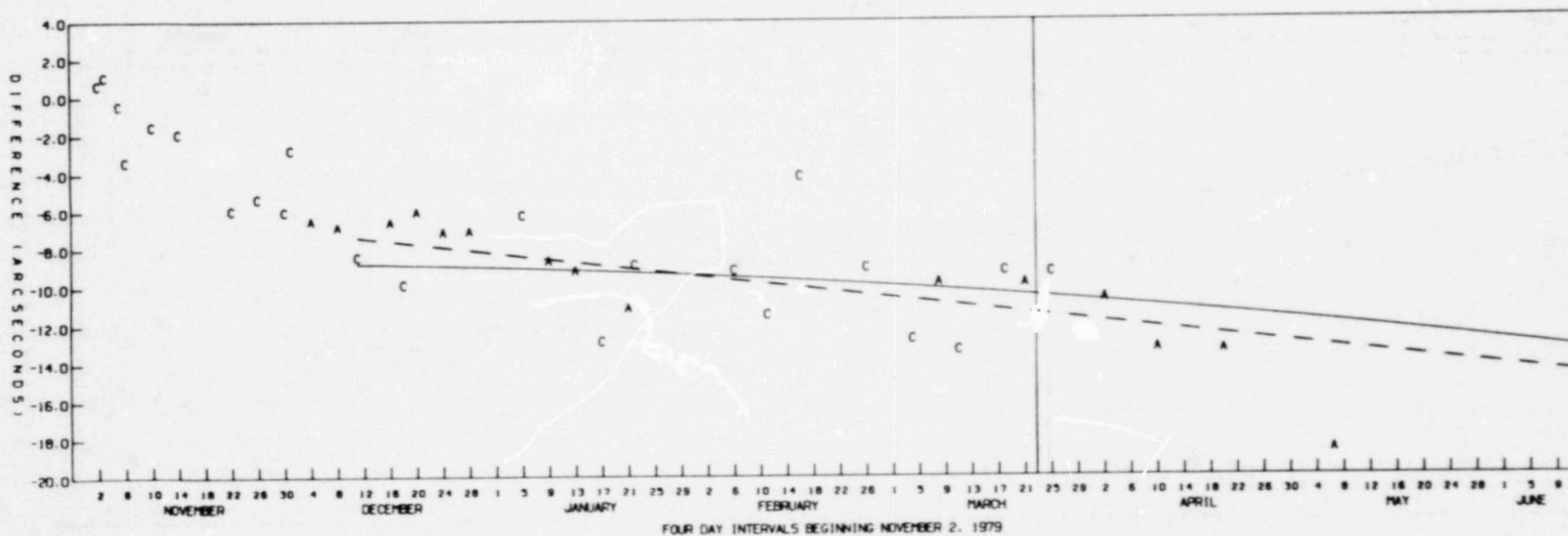


Figure 25. Deviation of A12 estimate from November 5, 1979 estimate.

ORIGINAL PAGE IS  
OF POOR QUALITY

DEVIATION OF A21 ESTIMATE FROM NOVEMBER 5, 1979 ESTIMATE

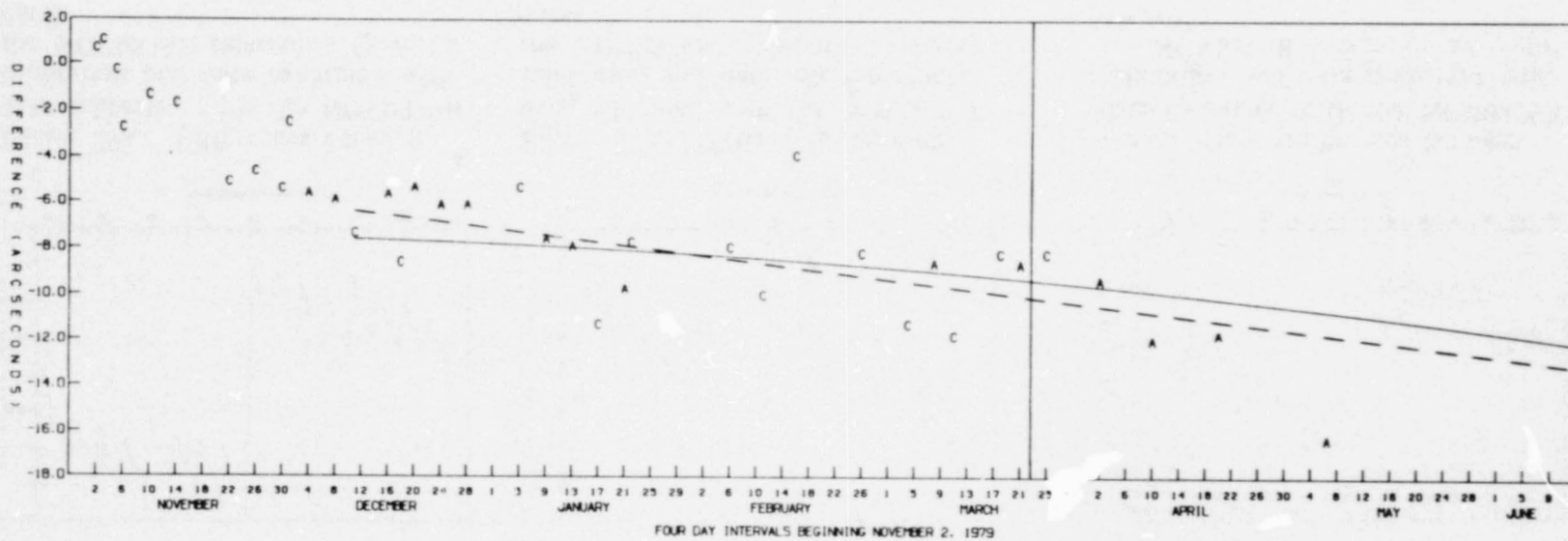


Figure 26. Deviation of A21 estimate from November 5, 1979 estimate.

DEVIATION OF A32 ESTIMATE FROM NOVEMBER 5, 1979 ESTIMATE

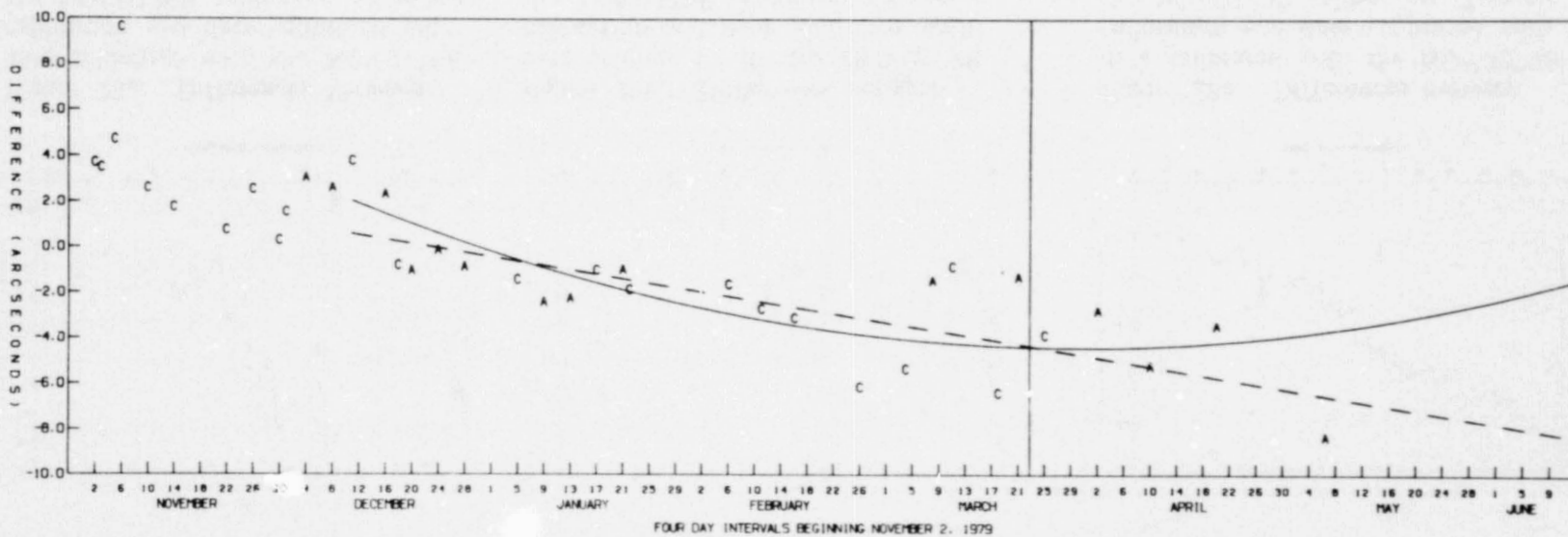


Figure 27. Deviation of A32 estimate from November 5, 1979 estimate.

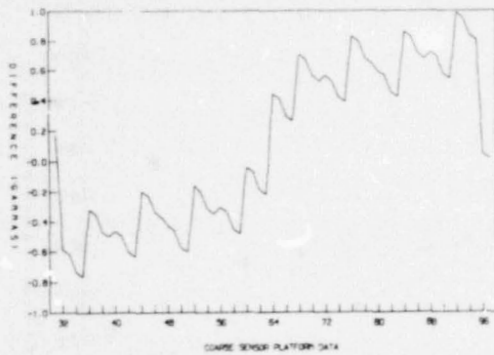


Figure 28a. Differences between data calibrated with the NOV0279B calibration and data calibrated with the NOV0379B calibration (X-vector data).

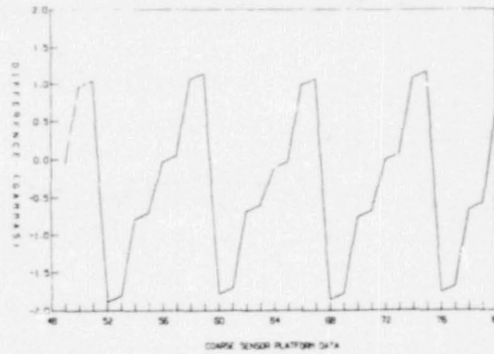


Figure 28b. Differences between data calibrated with the NOV0279B calibration and data calibrated with the NOV0379B calibration (Y-vector data).

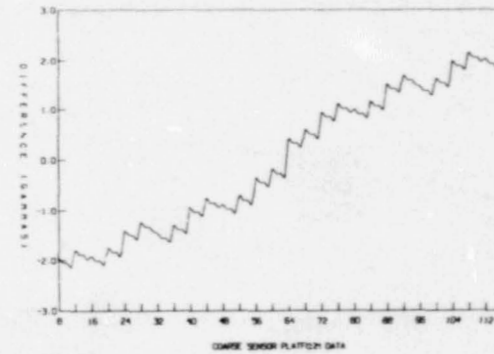


Figure 28c. Differences between data calibrated with the NOV0279B calibration and data calibrated with the NOV0379B calibration (Z-vector data).

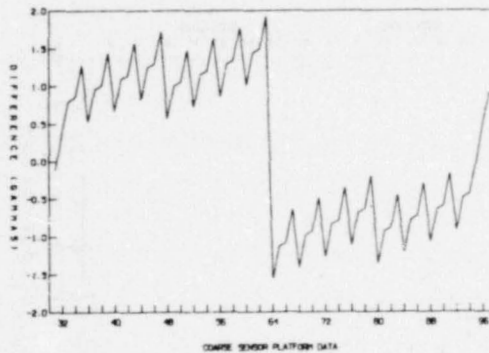


Figure 29a. Differences between data calibrated with the NOV0379B calibration and data calibrated with the NOV0579B calibration (X-vector data).

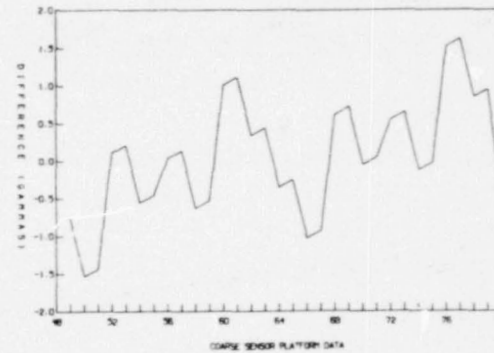


Figure 29b. Differences between data calibrated with the NOV0379B calibration and data calibrated with the NOV0579B calibration (Y-vector data).

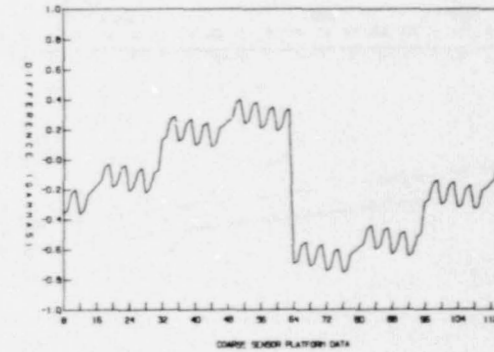


Figure 29c. Differences between data calibrated with the NOV0379B calibration and data calibrated with the NOV0579B calibration (Z-vector data).



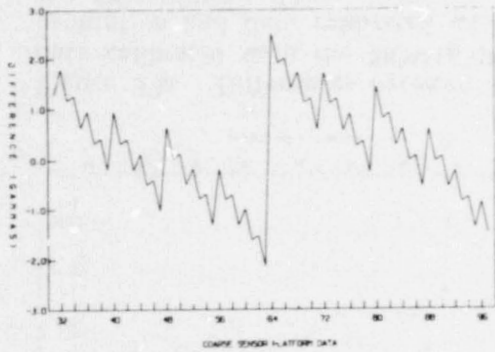


Figure 30a. Differences between data calibrated with the NOV0579B calibration and data calibrated with the NOV0679B calibration (X-vector data).

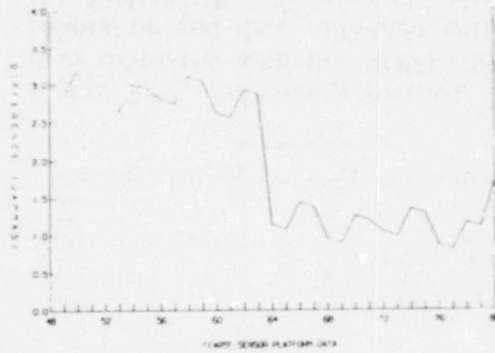


Figure 30b. Differences between data calibrated with the NOV0579B calibration and data calibrated with the NOV0679B calibration (Y-vector data).

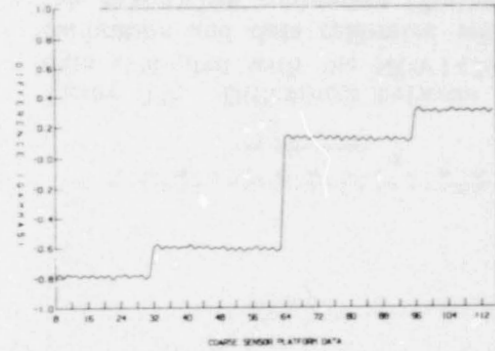


Figure 30c. Differences between data calibrated with the NOV0579B calibration and data calibrated with the NOV0679B calibration (Z-vector data).

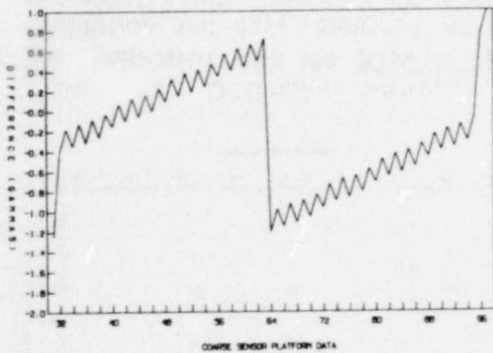


Figure 31a. Differences between data calibrated with the NOV0679B calibration and data calibrated with the NOV1079B calibration (X-vector data).

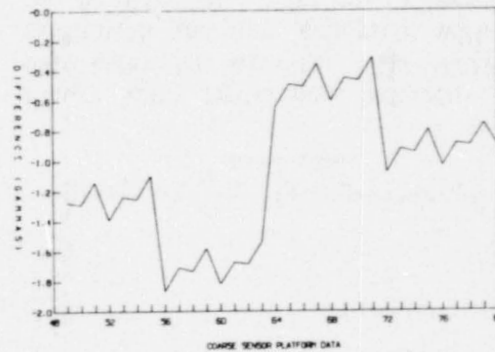


Figure 31b. Differences between data calibrated with the NOV0679B calibration and data calibrated with the NOV1079B calibration (Y-vector data).

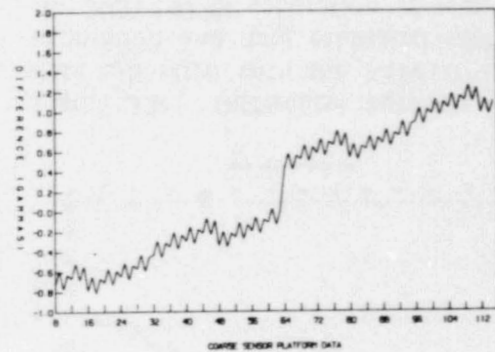


Figure 31c. Differences between data calibrated with the NOV0679B calibration and data calibrated with the NOV1079B calibration (Z-vector data).

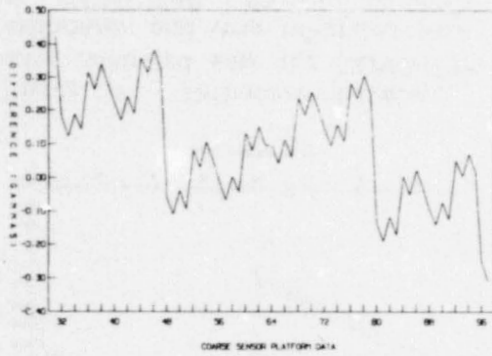


Figure 32a. Differences between data calibrated with the NOV1079B calibration and data calibrated with the NOV1479B calibration (X-vector data).

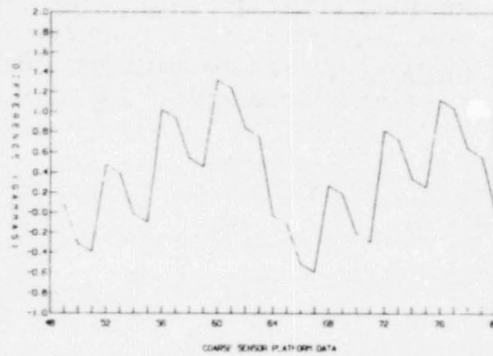


Figure 32b. Differences between data calibrated with the NOV1079B calibration and data calibrated with the NOV1479B calibration (Y-vector data).

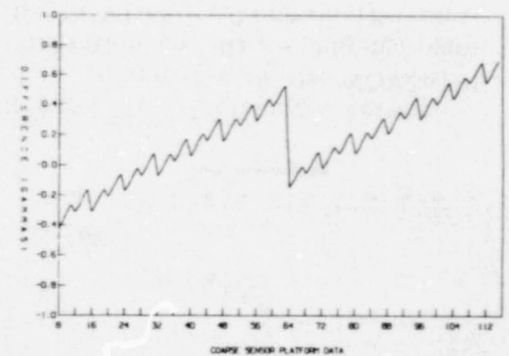


Figure 32c. Differences between data calibrated with the NOV1079B calibration and data calibrated with the NOV1479B calibration (Z-vector data).

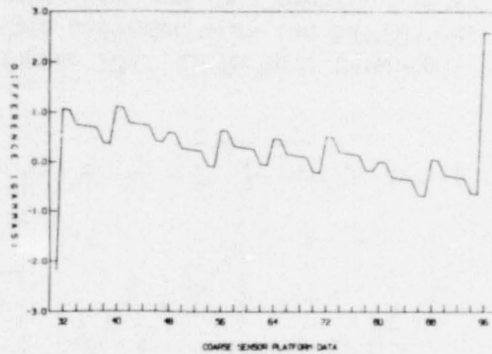


Figure 33a. Differences between data calibrated with the NOV1479B calibration and data calibrated with the NOV1879B calibration (X-vector data).

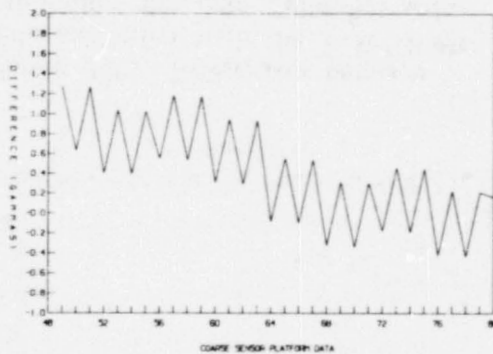


Figure 33b. Differences between data calibrated with the NOV1479B calibration and data calibrated with the NOV1879B calibration (Y-vector data).

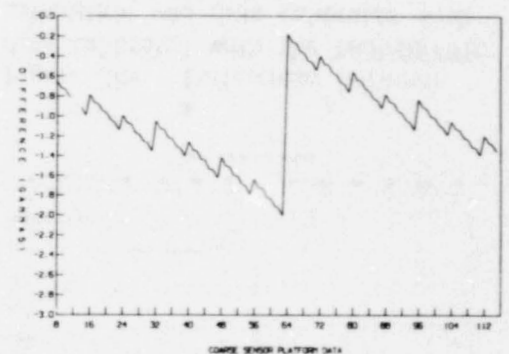


Figure 33c. Differences between data calibrated with the NOV1479B calibration and data calibrated with the NOV1879B calibration (Z-vector data).

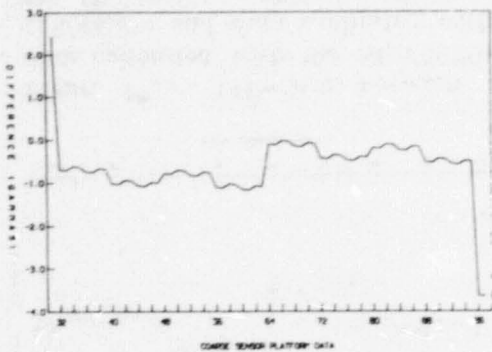


Figure 34a. Differences between data calibrated with the NOV1879B calibration and data calibrated with the NOV2279B calibration (X-vector data).

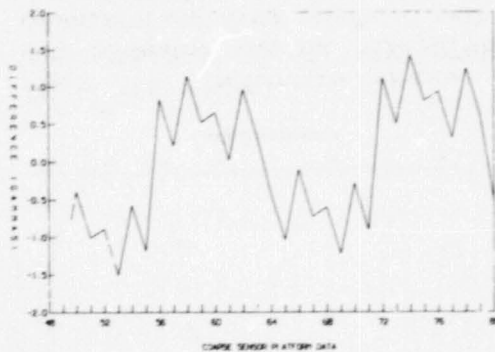


Figure 34b. Differences between data calibrated with the NOV1879B calibration and data calibrated with the NOV2279B calibration (Y-vector data).

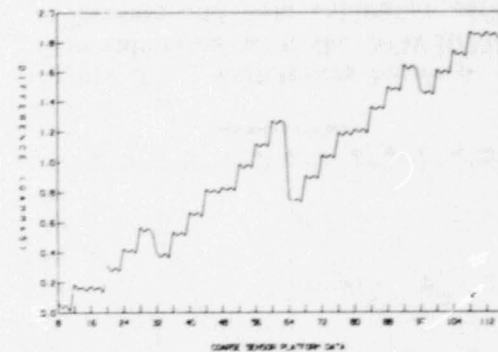


Figure 34c. Differences between data calibrated with the NOV1879B calibration and data calibrated with the NOV2279B calibration (Z-vector data).

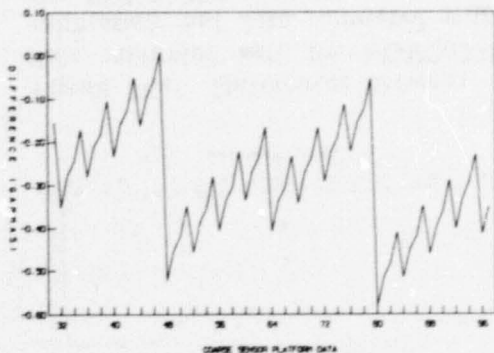


Figure 35a. Differences between data calibrated with the NOV2279B calibration and data calibrated with the NOV2679B calibration (X-vector data).

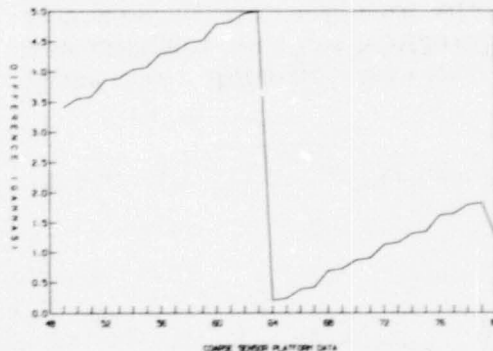


Figure 35b. Differences between data calibrated with the NOV2279B calibration and data calibrated with the NOV2679B calibration (Y-vector data).

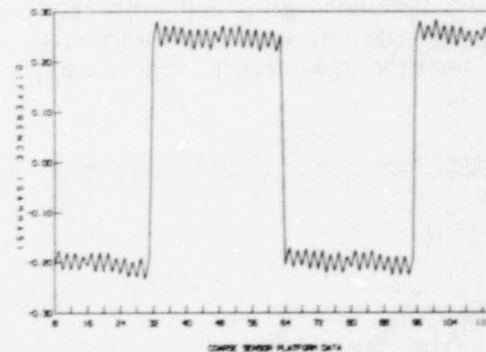


Figure 35c. Differences between data calibrated with the NOV2279B calibration and data calibrated with the NOV2679B calibration (Z-vector data).



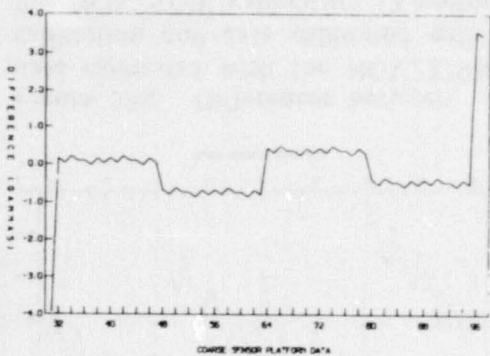


Figure 36a. Differences between data calibrated with the NOV2679B calibration and data calibrated with the NOV3079B calibration (X-vector data).

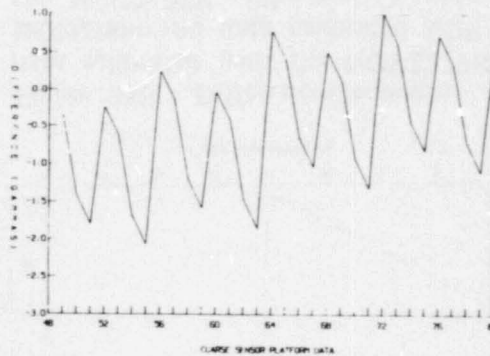


Figure 36b. Differences between data calibrated with the NOV2679B calibration and data calibrated with the NOV3079B calibration (Y-vector data).

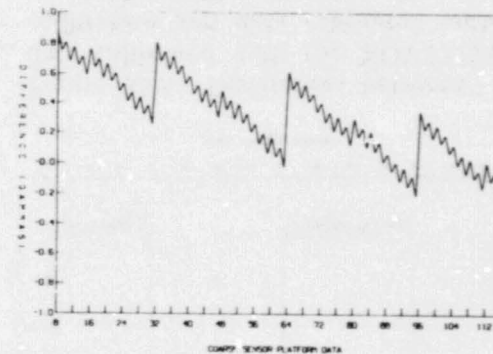


Figure 36c. Differences between data calibrated with the NOV2679B calibration and data calibrated with the NOV3079B calibration (Z-vector data).

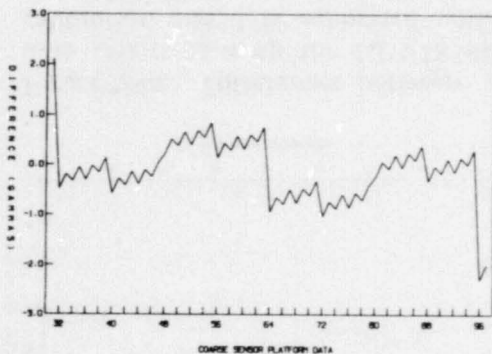


Figure 37a. Differences between data calibrated with the NOV3079B calibration and data calibrated with the DEC0179B calibration (X-vector data).

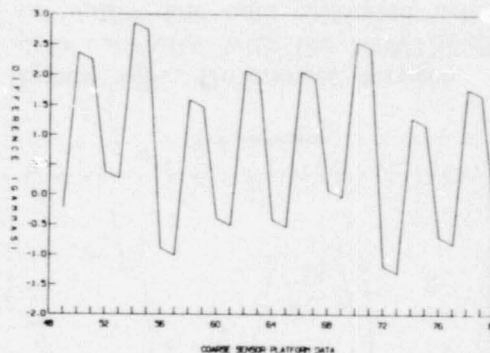


Figure 37b. Differences between data calibrated with the NOV3079B calibration and data calibrated with the DEC0179B calibration (Y-vector data).

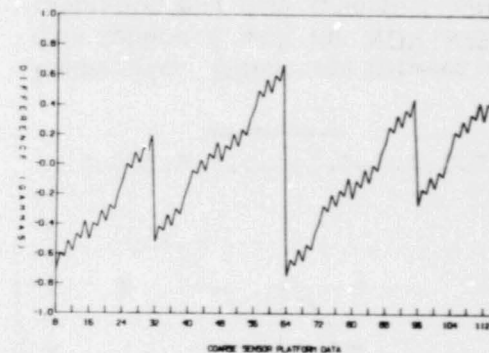


Figure 37c. Differences between data calibrated with the NOV3079B calibration and data calibrated with the DEC0179B calibration (Z-vector data).

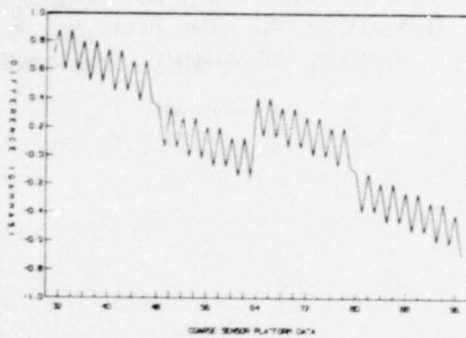


Figure 38a. Differences between data calibrated with the DEC0179B calibration and data calibrated with the DEC1179B calibration (X-vector data).

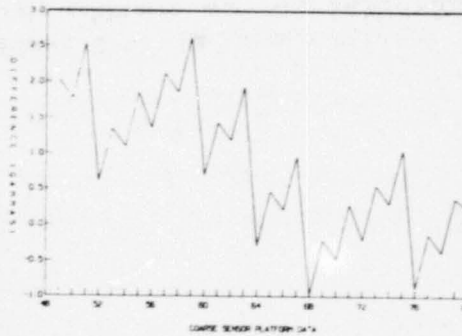


Figure 38b. Differences between data calibrated with the DEC0179B calibration and data calibrated with the DEC1179B calibration (Y-vector data).

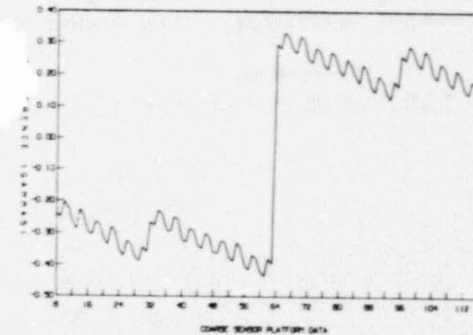


Figure 38c. Differences between data calibrated with the DEC0179B calibration and data calibrated with the DEC1179B calibration (Z-vector data).

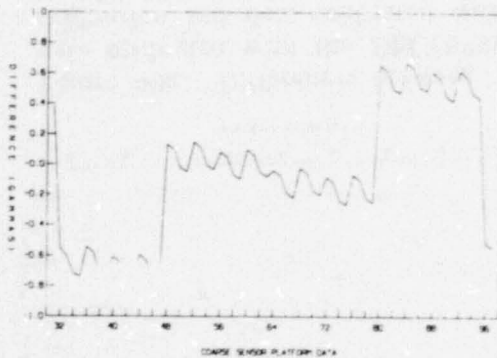


Figure 39a. Differences between data calibrated with the DEC1179B calibration and data calibrated with the DEC1879B calibration (X-vector data).

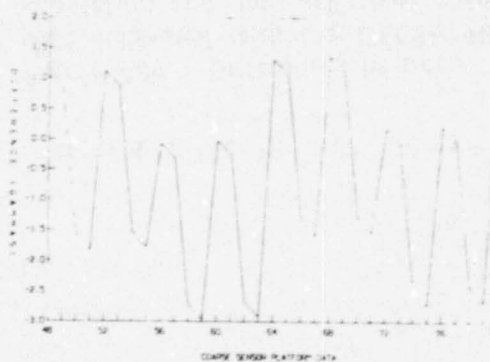


Figure 39b. Differences between data calibrated with the DEC1179B calibration and data calibrated with the DEC1879B calibration (Y-vector data).

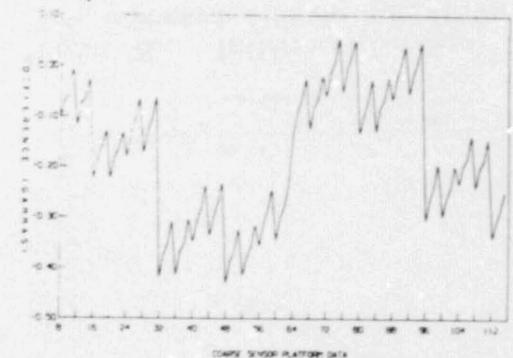


Figure 39c. Differences between data calibrated with the DEC1179B calibration and data calibrated with the DEC1879B calibration (Z-vector data).

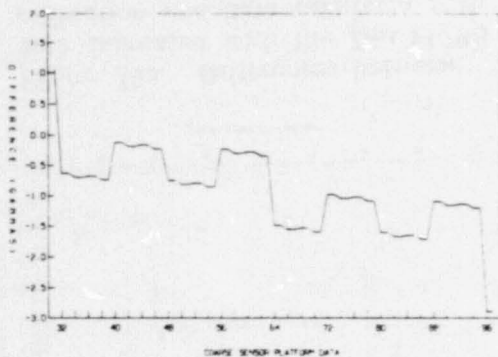


Figure 40a. Differences between data calibrated with the DEC1879B calibration and data calibrated with the JAN0580B calibration (X-vector data).

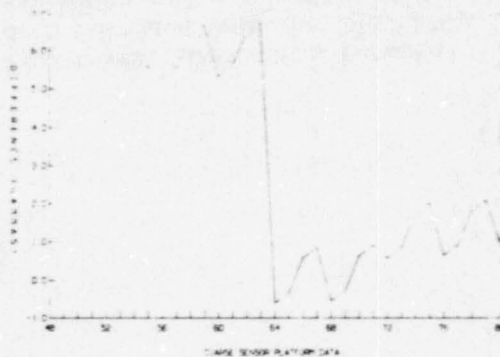


Figure 40b. Differences between data calibrated with the DEC1879B calibration and data calibrated with the JAN0580B calibration (Y-vector data).

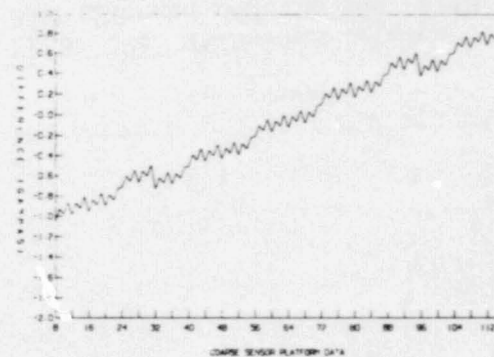


Figure 40c. Differences between data calibrated with the DEC1879B calibration and data calibrated with the JAN0580B calibration (Z-vector data).

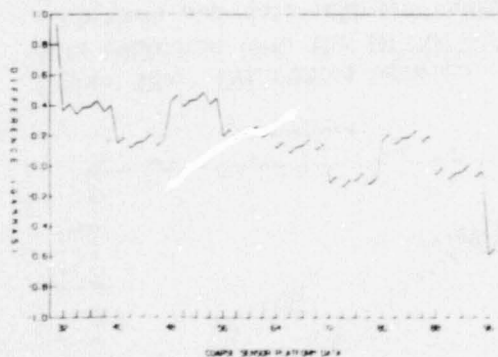


Figure 41a. Differences between data calibrated with the JAN0580B calibration and data calibrated with the JAN1780B calibration (X-vector data).

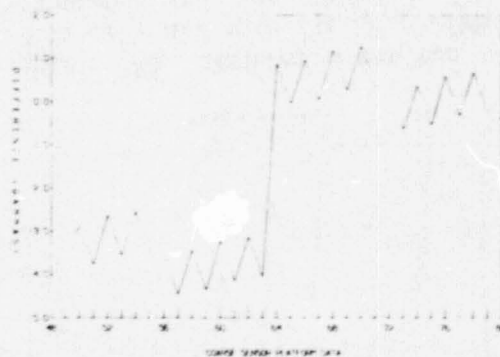


Figure 41b. Differences between data calibrated with the JAN0580B calibration and data calibrated with the JAN1780B calibration (Y-vector data).

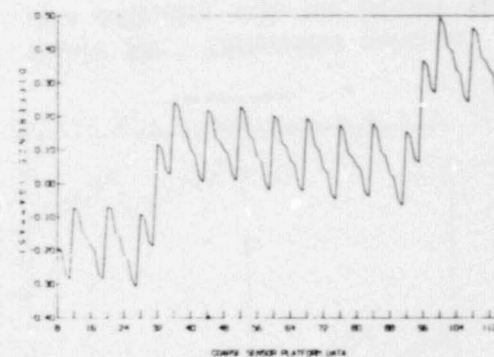


Figure 41c. Differences between data calibrated with the JAN0580B calibration and data calibrated with the JAN1780B calibration (Z-vector data).

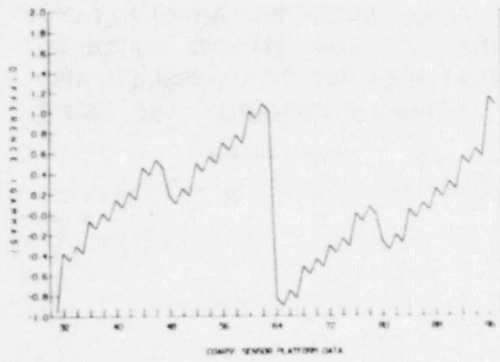


Figure 42a. Differences between data calibrated with the JAN1780B calibration and data calibrated with the JAN2280B calibration (X-vector data).

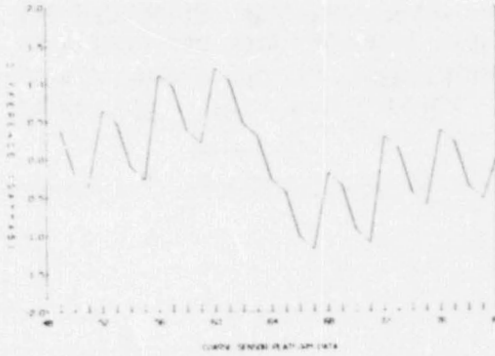


Figure 42b. Differences between data calibrated with the JAN1780B calibration and data calibrated with the JAN2280B calibration (Y-vector data).

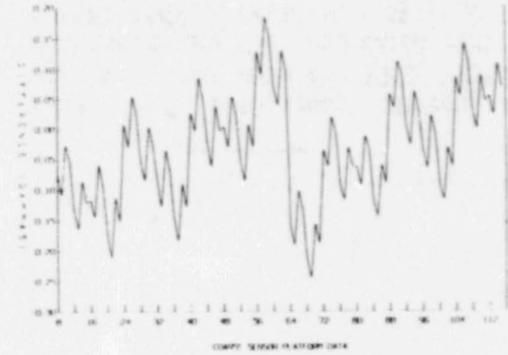


Figure 42c. Differences between data calibrated with the JAN1780B calibration and data calibrated with the JAN2280B calibration (Z-vector data).

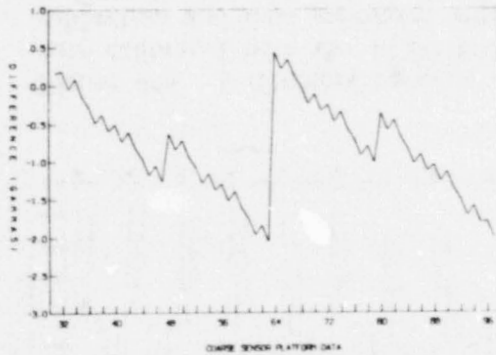


Figure 43a. Differences between data calibrated with the JAN2280B calibration and data calibrated with the FEB0680B calibration (X-vector data).

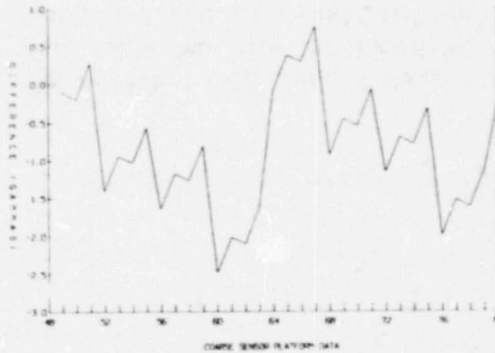


Figure 43b. Differences between data calibrated with the JAN2280B calibration and data calibrated with the FEB0680B calibration (Y-vector data).

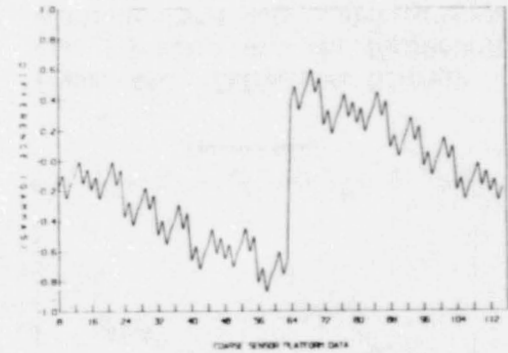


Figure 43c. Differences between data calibrated with the JAN2280B calibration and data calibrated with the FEB0680B calibration (Z-vector data).



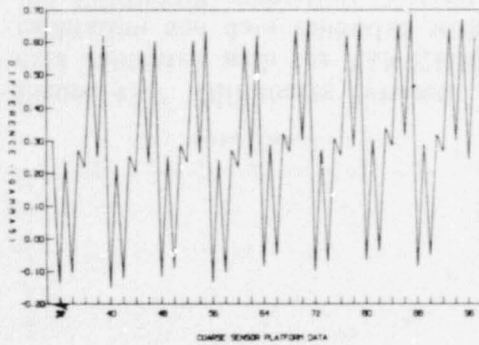


Figure 44a. Differences between data calibrated with the FEB0680B calibration and data calibrated with the FEB1180B calibration (X-vector data).

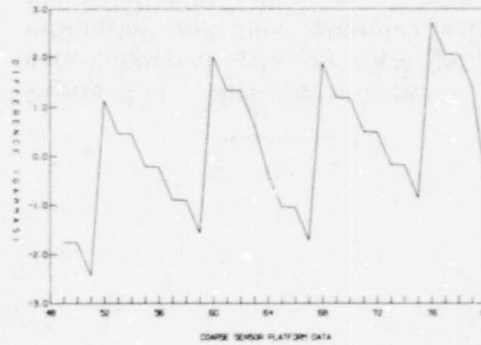


Figure 44b. Differences between data calibrated with the FEB0680B calibration and data calibrated with the FEB1180B calibration (Y-vector data).

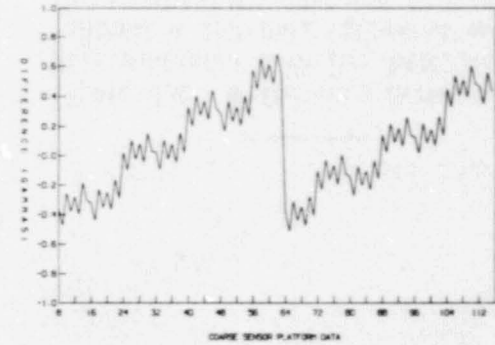


Figure 44c. Differences between data calibrated with the FEB0680B calibration and data calibrated with the FEB1180B calibration (Z-vector data).

ORIGINAL PAGE IS  
OF POOR QUALITY

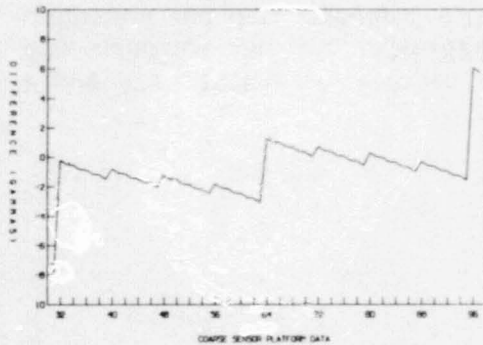


Figure 45a. Differences between data calibrated with the FEB1180B calibration and data calibrated with the FEB1680B calibration (X-vector data).

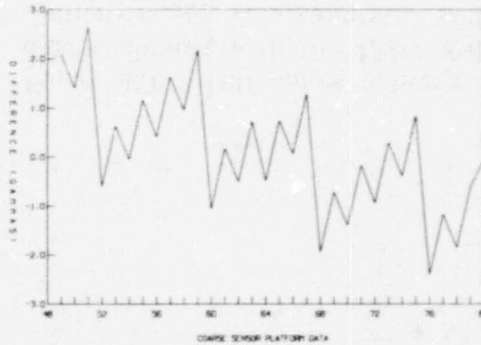


Figure 45b. Differences between data calibrated with the FEB1180B calibration and data calibrated with the FEB1680B calibration (Y-vector data).

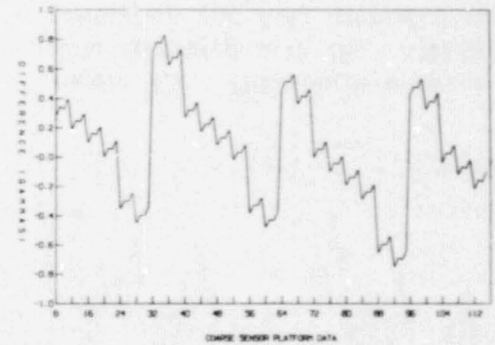


Figure 45c. Differences between data calibrated with the FEB1180B calibration and data calibrated with the FEB1680B calibration (Z-vector data).

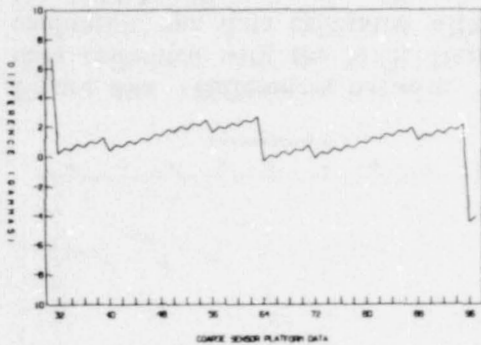


Figure 46a. Differences between data calibrated with the FEB1680B calibration and data calibrated with the FEB2680B calibration (X-vector data).

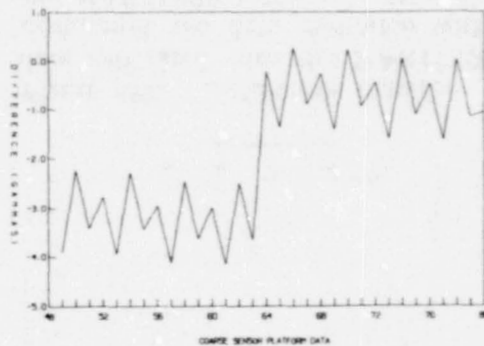


Figure 46b. Differences between data calibrated with the FEB1680B calibration and data calibrated with the FEB2680B calibration (Y-vector data).

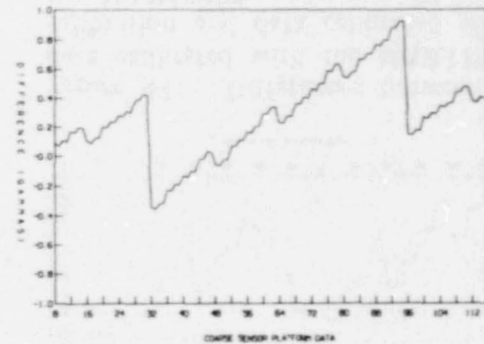


Figure 46c. Differences between data calibrated with the FEB1680B calibration and data calibrated with the FEB2680B calibration (Z-vector data).

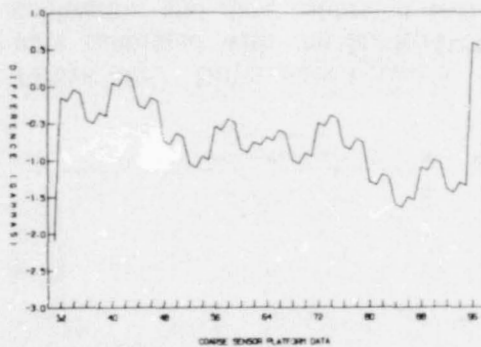


Figure 47a. Differences between data calibrated with the FEB2680B calibration and data calibrated with the MAR0480B calibration (X-vector data).

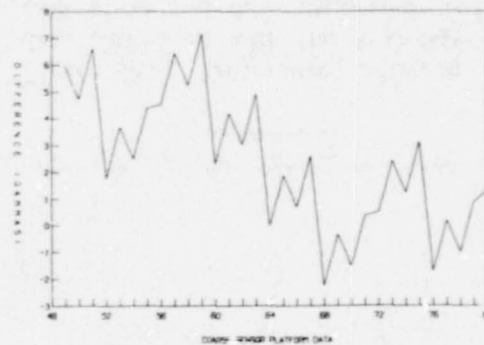


Figure 47b. Differences between data calibrated with the FEB2680B calibration and data calibrated with the MAR0480B calibration (Y-vector data).

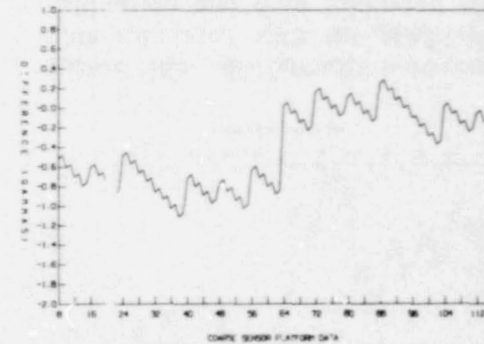


Figure 47c. Differences between data calibrated with the FEB2680B calibration and data calibrated with the MAR0480B calibration (Z-vector data).

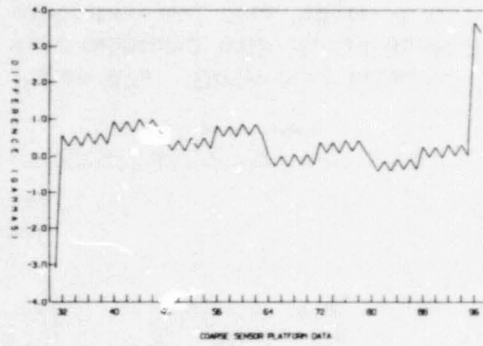


Figure 48a. Differences between data calibrated with the MAR0480B calibration and data calibrated with the MAR1180B calibration (X-vector data).

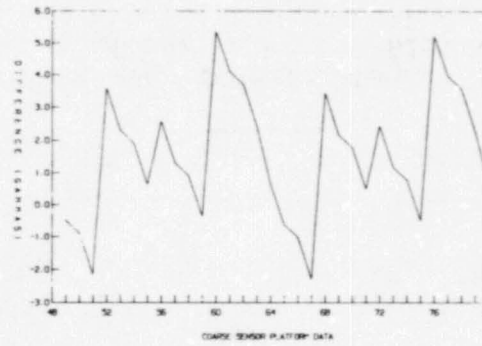


Figure 48b. Differences between data calibrated with the MAR0480B calibration and data calibrated with the MAR1180B calibration (Y-vector data).

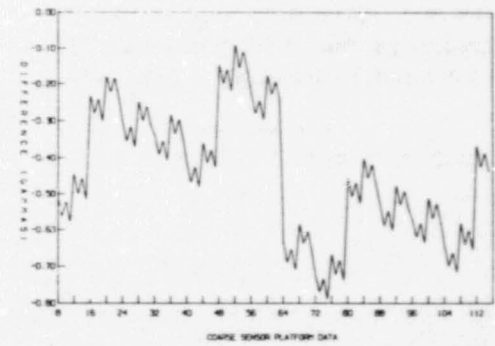


Figure 48c. Differences between data calibrated with the MAR0480B calibration and data calibrated with the MAR1180B calibration (Z-vector data).

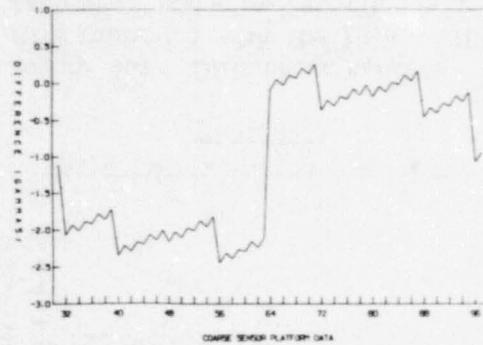


Figure 49a. Differences between data calibrated with the MAR1180B calibration and data calibrated with the MAR1880B calibration (X-vector data).

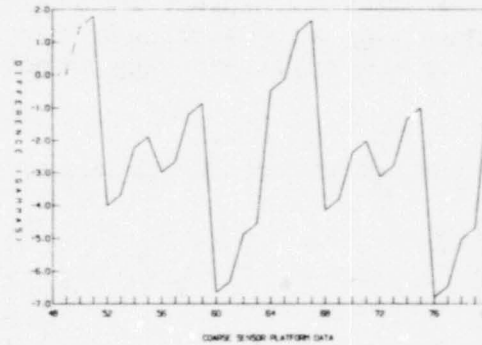


Figure 49b. Differences between data calibrated with the MAR1180B calibration and data calibrated with the MAR1880B calibration (Y-vector data).

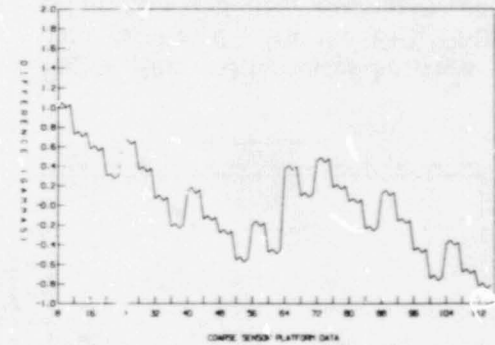


Figure 49c. Differences between data calibrated with the MAR1180B calibration and data calibrated with the MAR1880B calibration (Z-vector data).

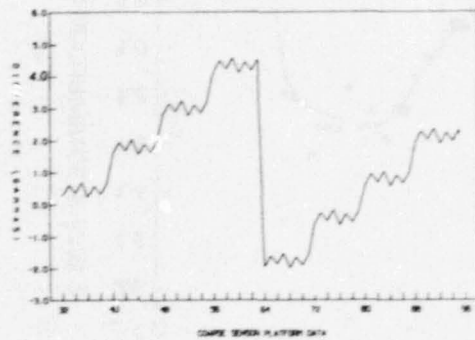


Figure 50a. Differences between data calibrated with the MAR1880B calibration and data calibrated with the MAR2580B calibration (X-vector data).

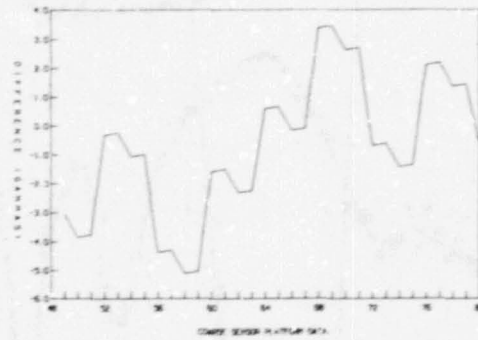


Figure 50b. Differences between data calibrated with the MAR1880B calibration and data calibrated with the MAR2580B calibration (Y-vector data).

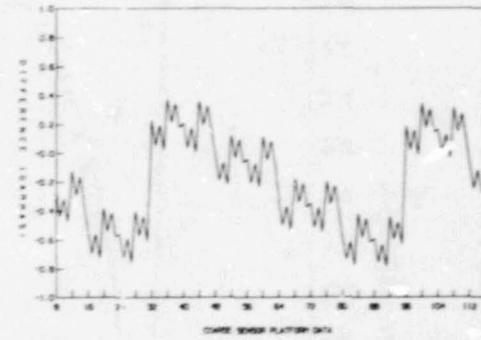


Figure 50c. Differences between data calibrated with the MAR1880B calibration and data calibrated with the MAR2580B calibration (Z-vector data).

ORIGINAL PAGE IS  
OF POOR QUALITY



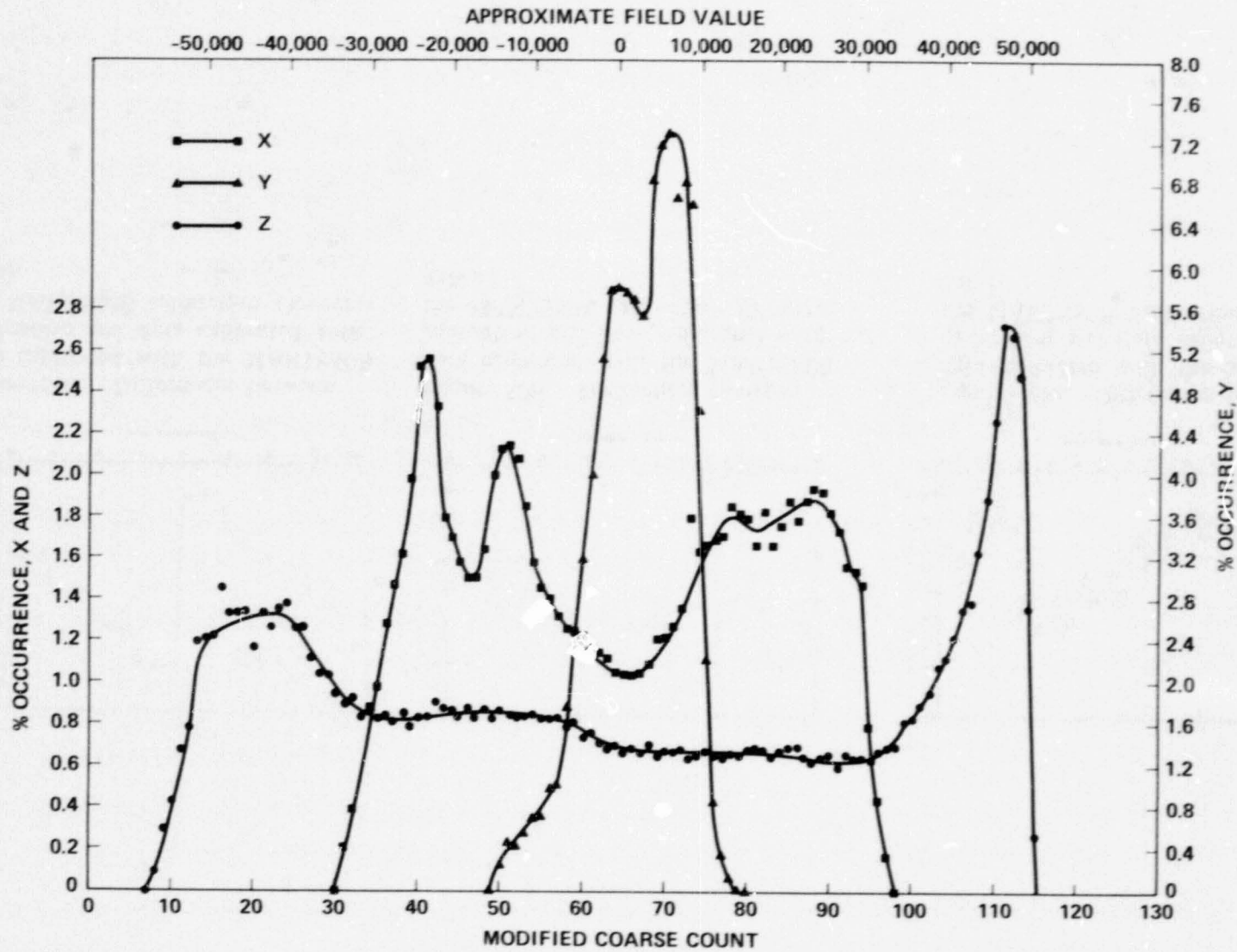


Figure 51. Frequency of occurrence of coarse count values of the fluxgate magnetometer.

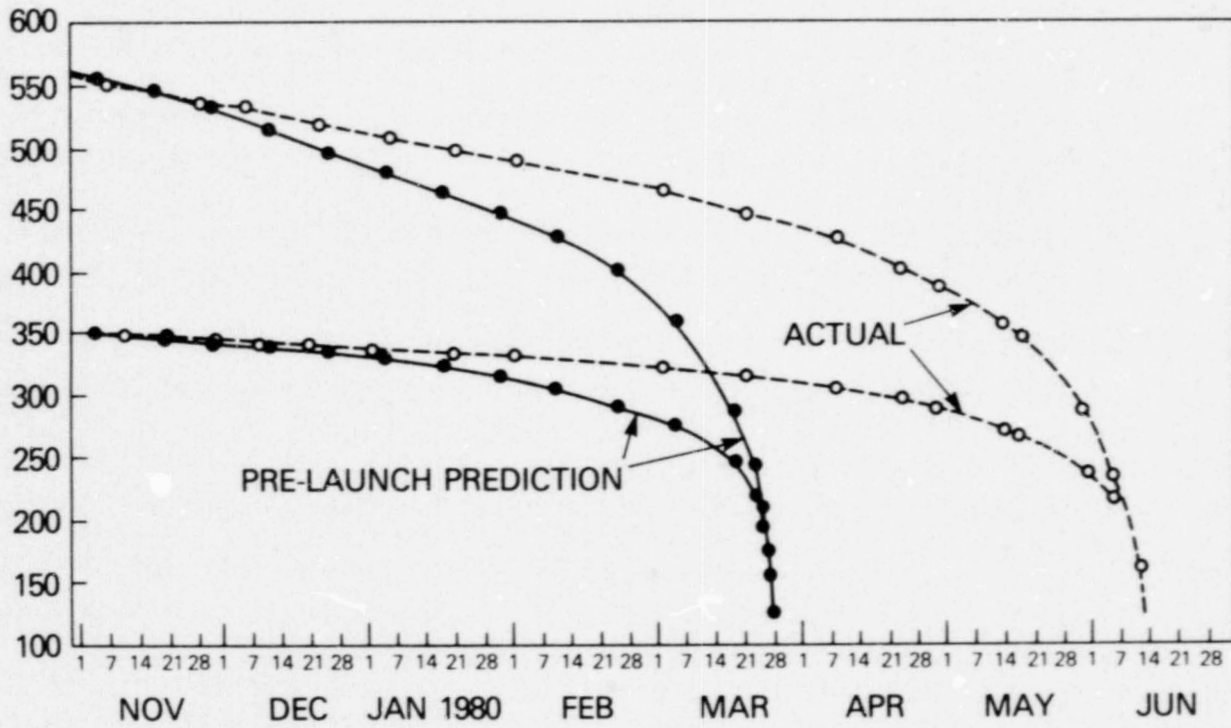
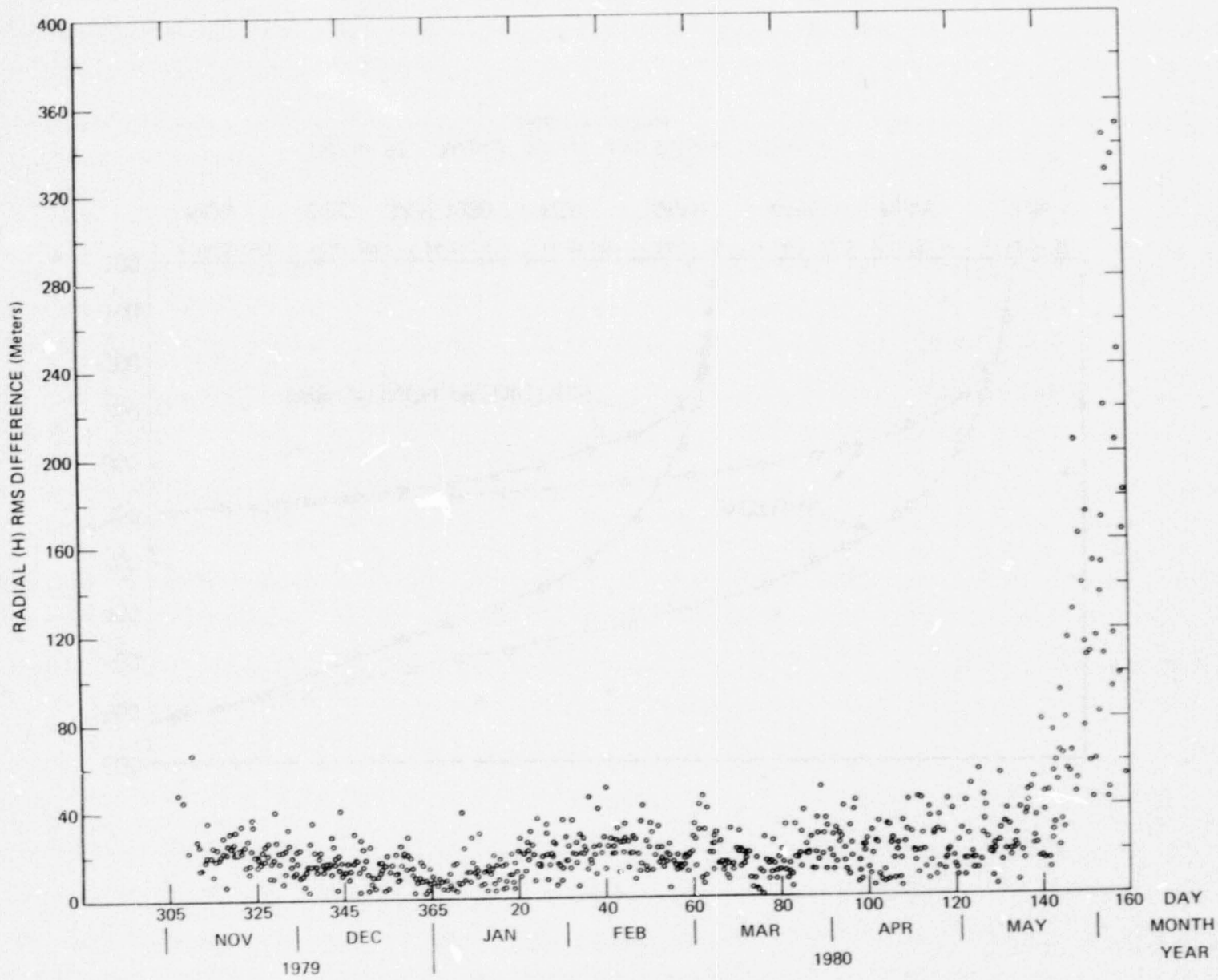


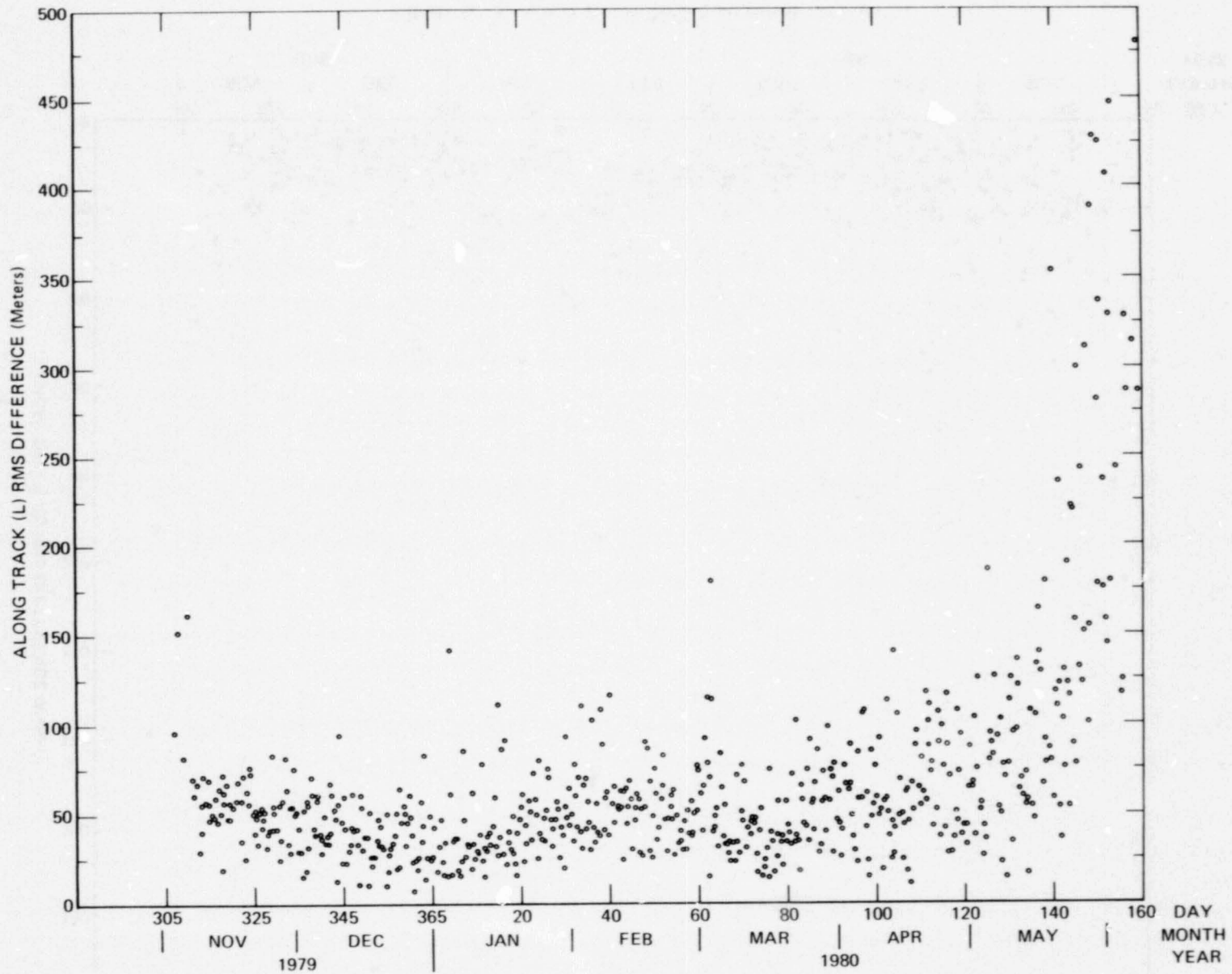
Figure 52. Magsat Apogee and Perigee Heights (Km) vs. Time

ORIGINAL PAGE IS  
OF POOR QUALITY



ORIGINAL PAGE IS  
OF POOR QUALITY

Figure 53-1. Radial RMS difference vs time



ORIGINAL PAGE IS  
OF POOR QUALITY

Figure 53-2. Along track RMS difference vs time

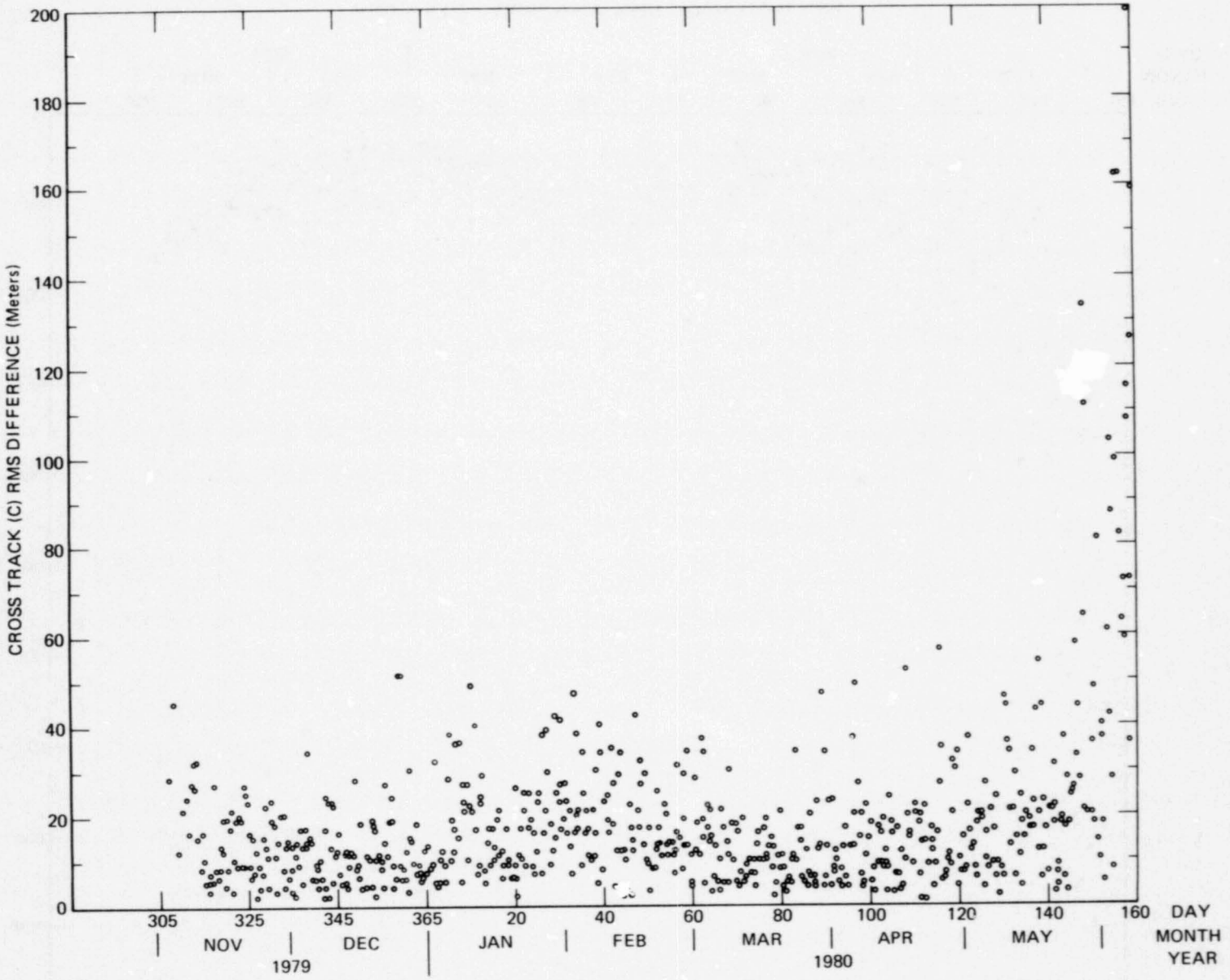


Figure 53-3. Cross track RMS difference vs time

ORIGINAL PAGE IS  
OF POOR QUALITY



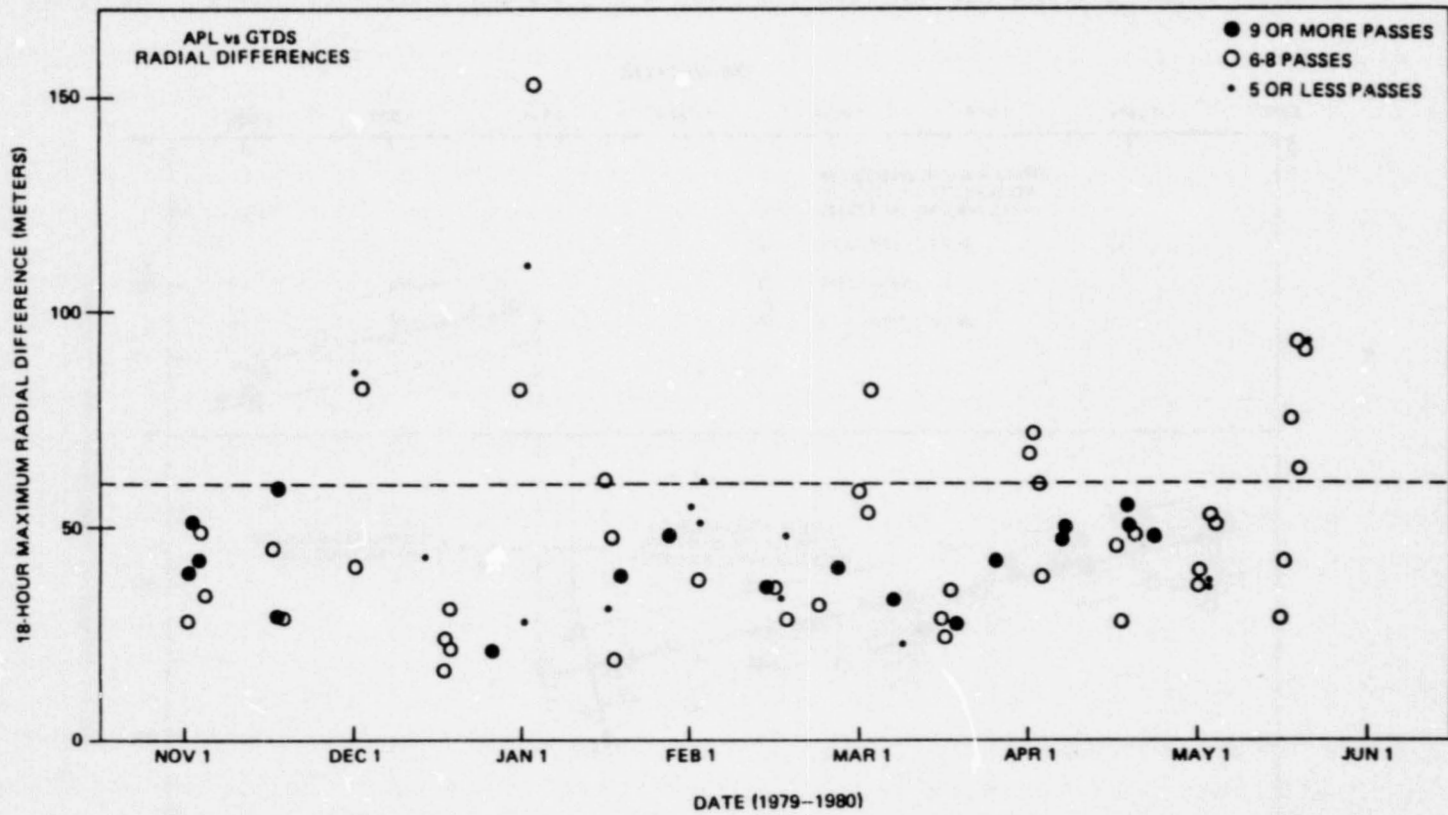


Figure 54. 18-Hour Radial Position Comparisons Between APL and GTDS Magsat-1 Solutions.

ORIGINAL PAGE IS  
OF POOR QUALITY.

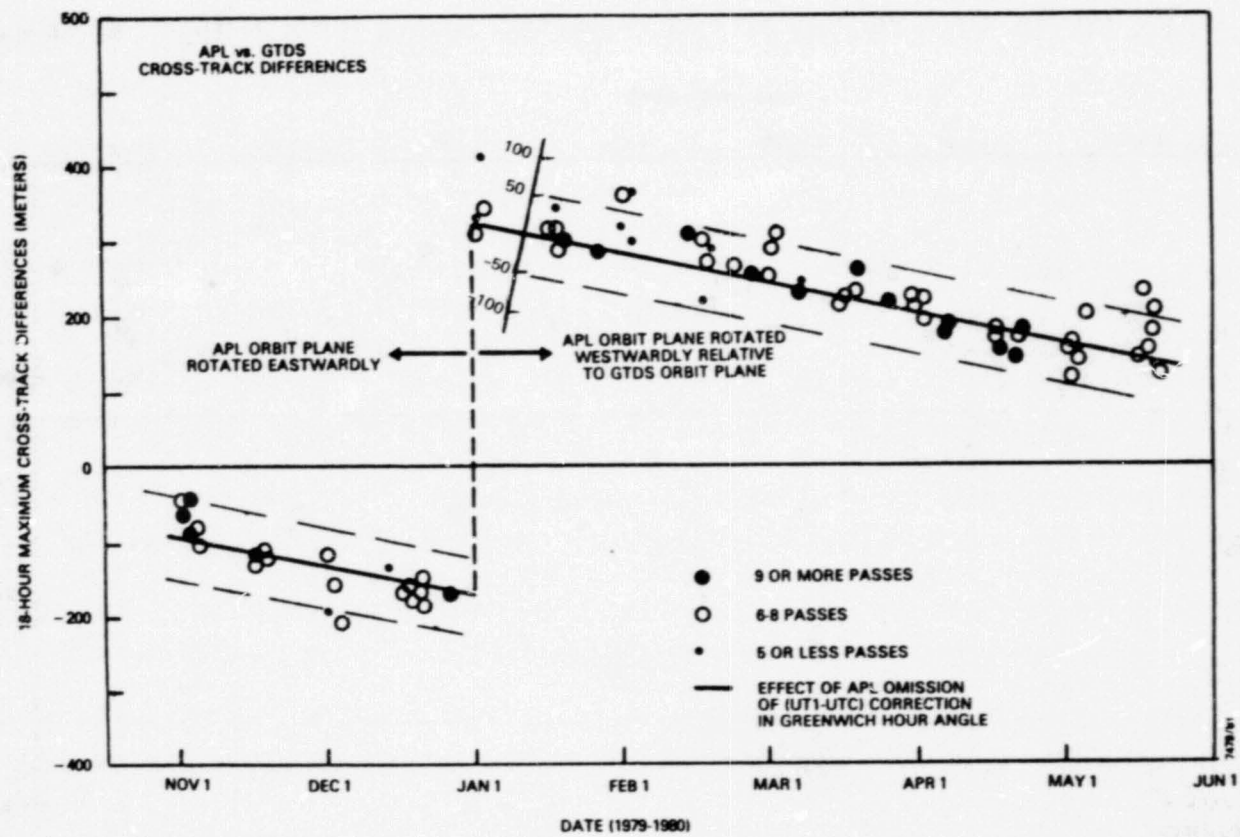
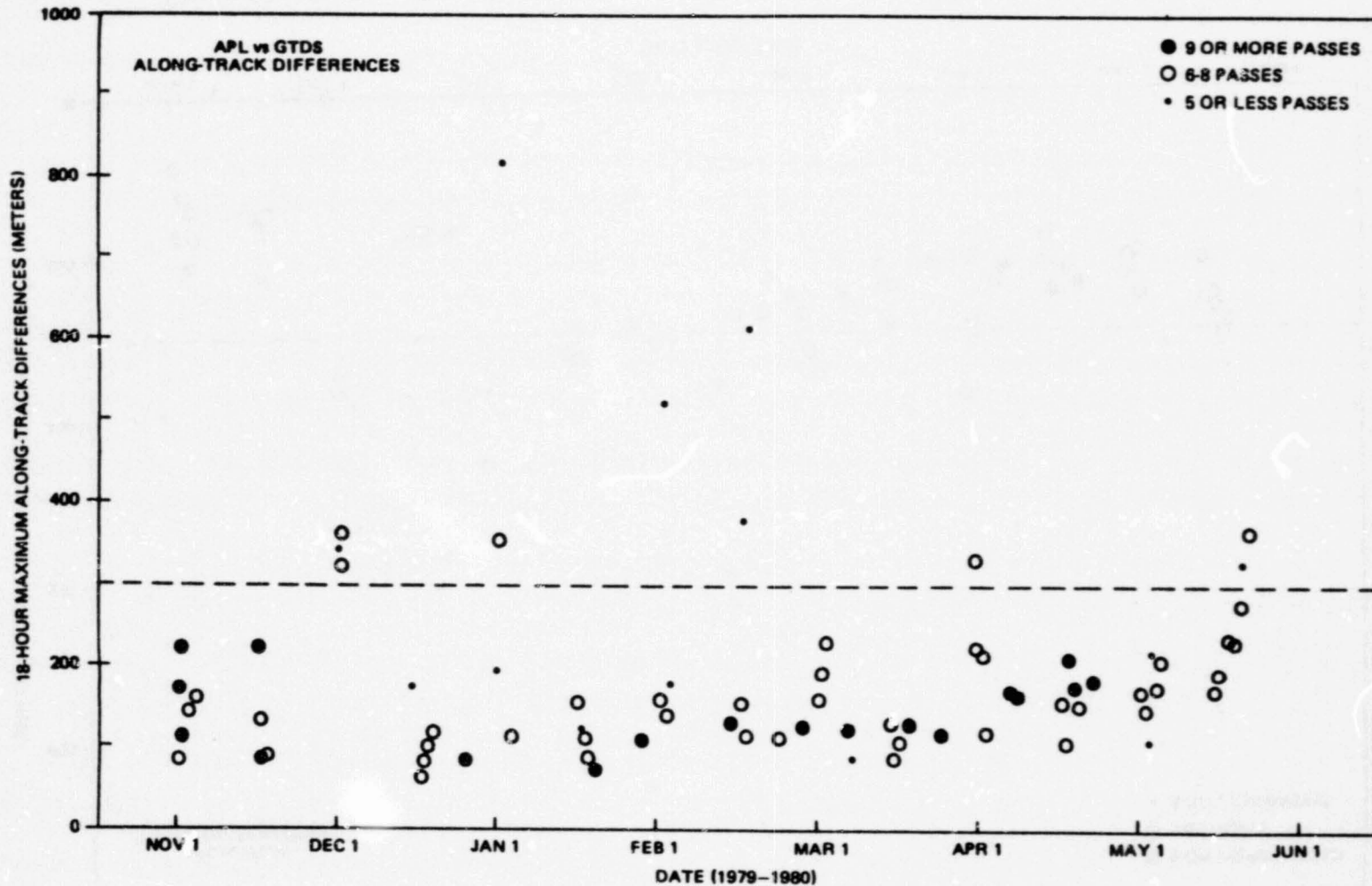

 ORIGINAL PAGE IS  
OF POOR QUALITY

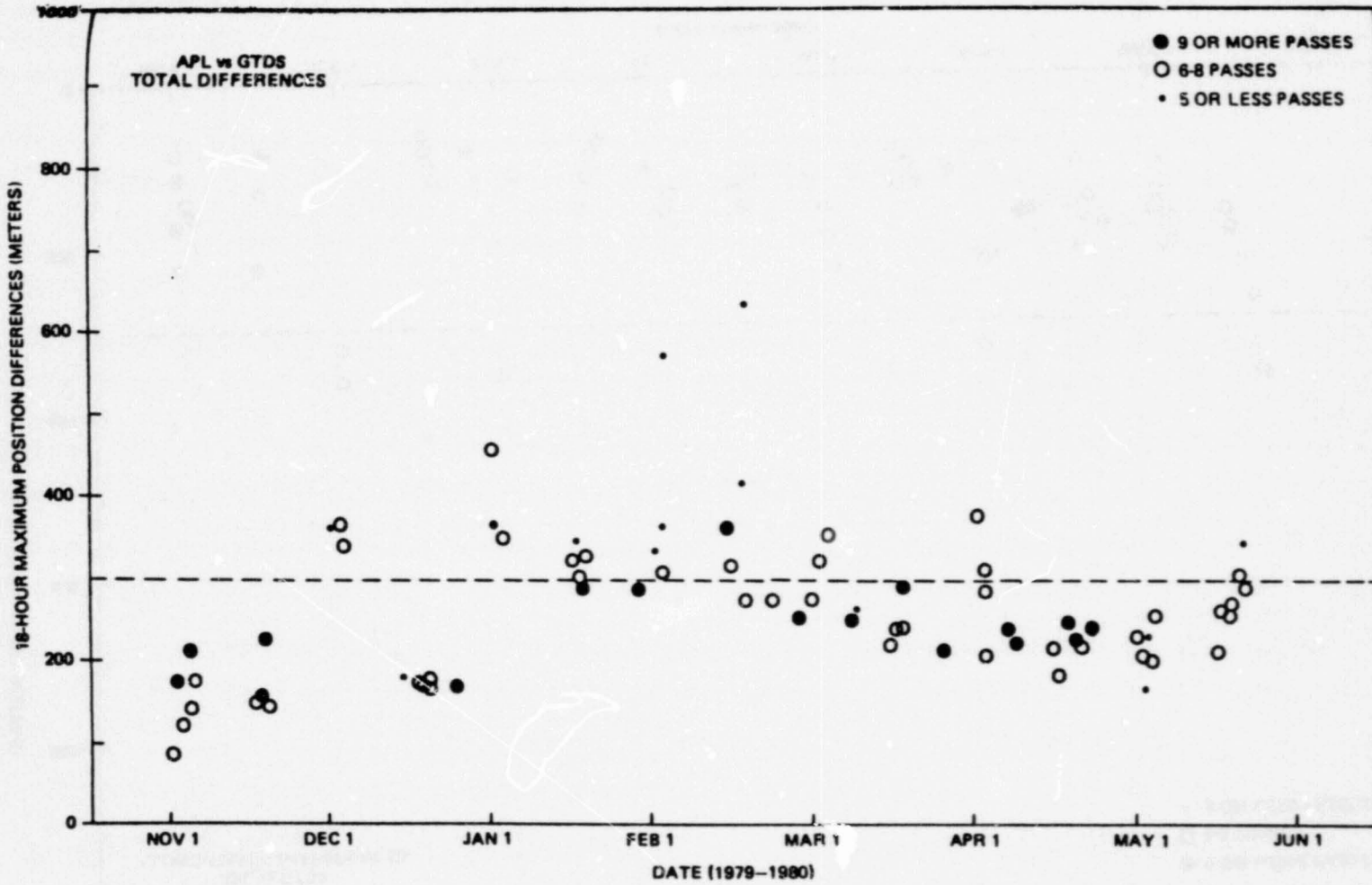
Figure 55. 18-Hour Cross-Track Position Comparisons Between APL and GTDS Magsat-1 Solutions.



ORIGINAL PAGE IS  
OF POOR QUALITY

Figure 56. 18-Hour Along-Track Position Comparisons Between APL and GTDS Magsat-1 Solutions.

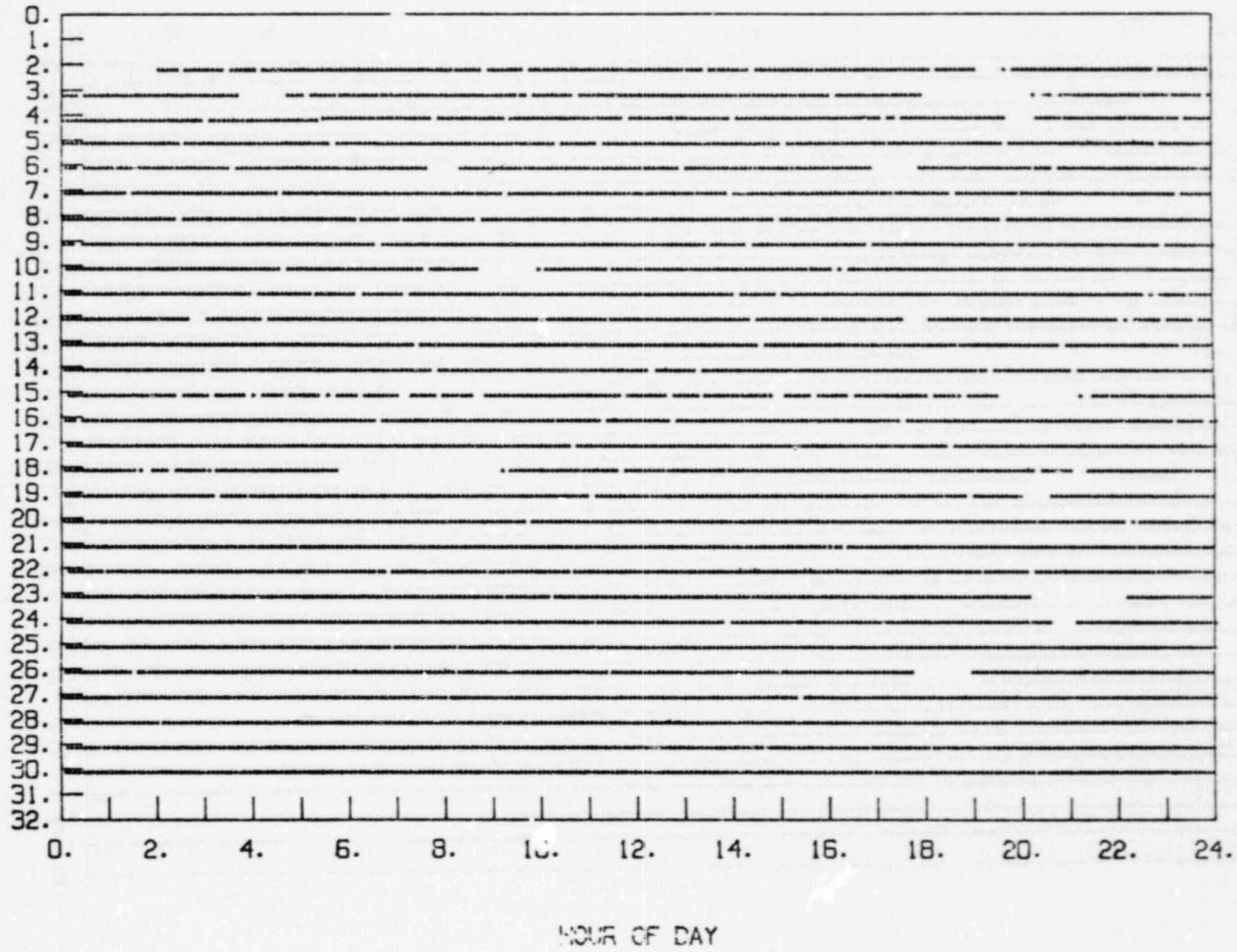




ORIGINAL PAGE IS  
OF POOR QUALITY

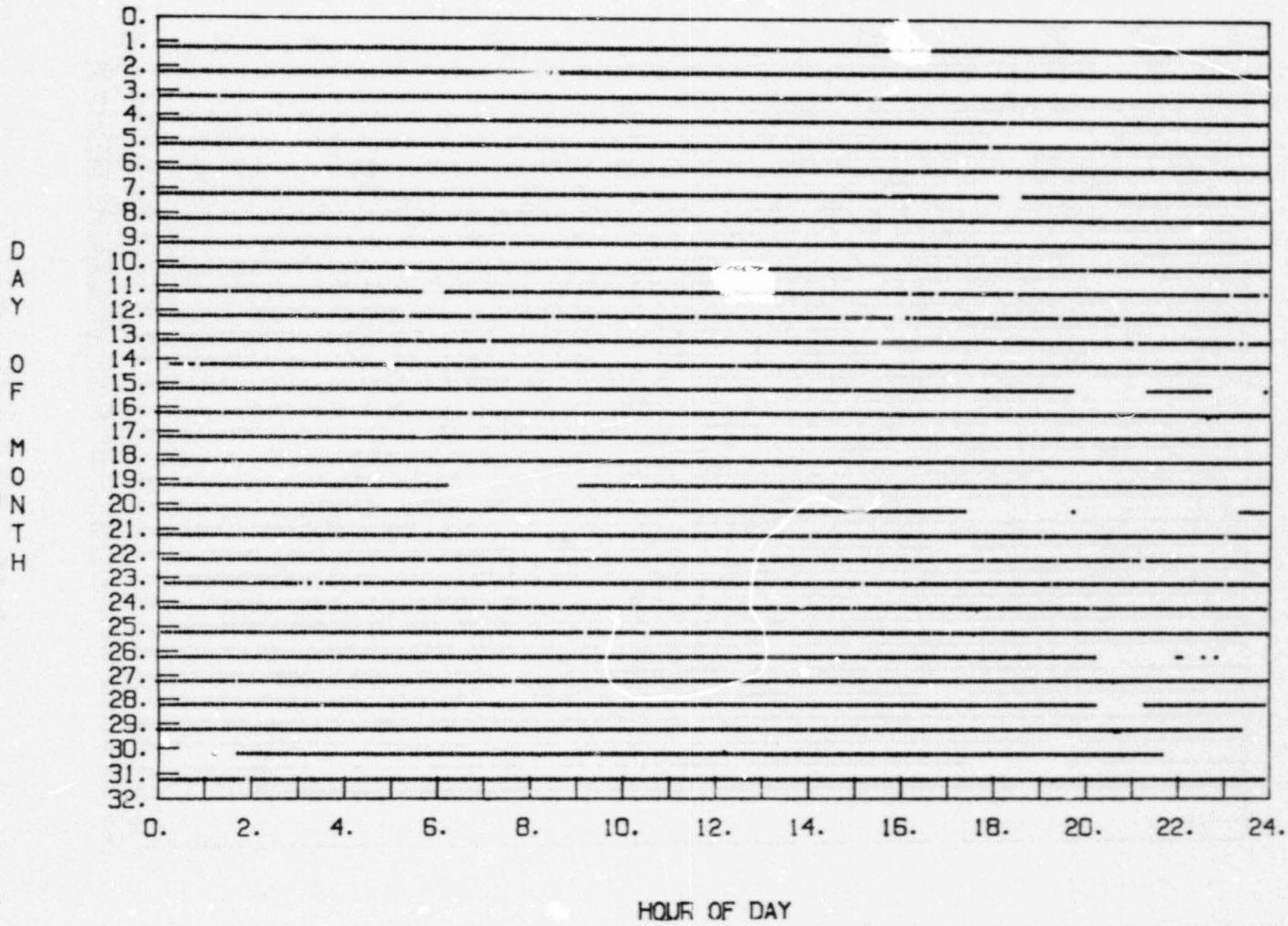
Figure 57. 18-Hour Total Position Comparisons Between APL and GTDS Magsat-1 Solutions.

D  
A  
Y  
O  
F  
M  
O  
N  
T  
H



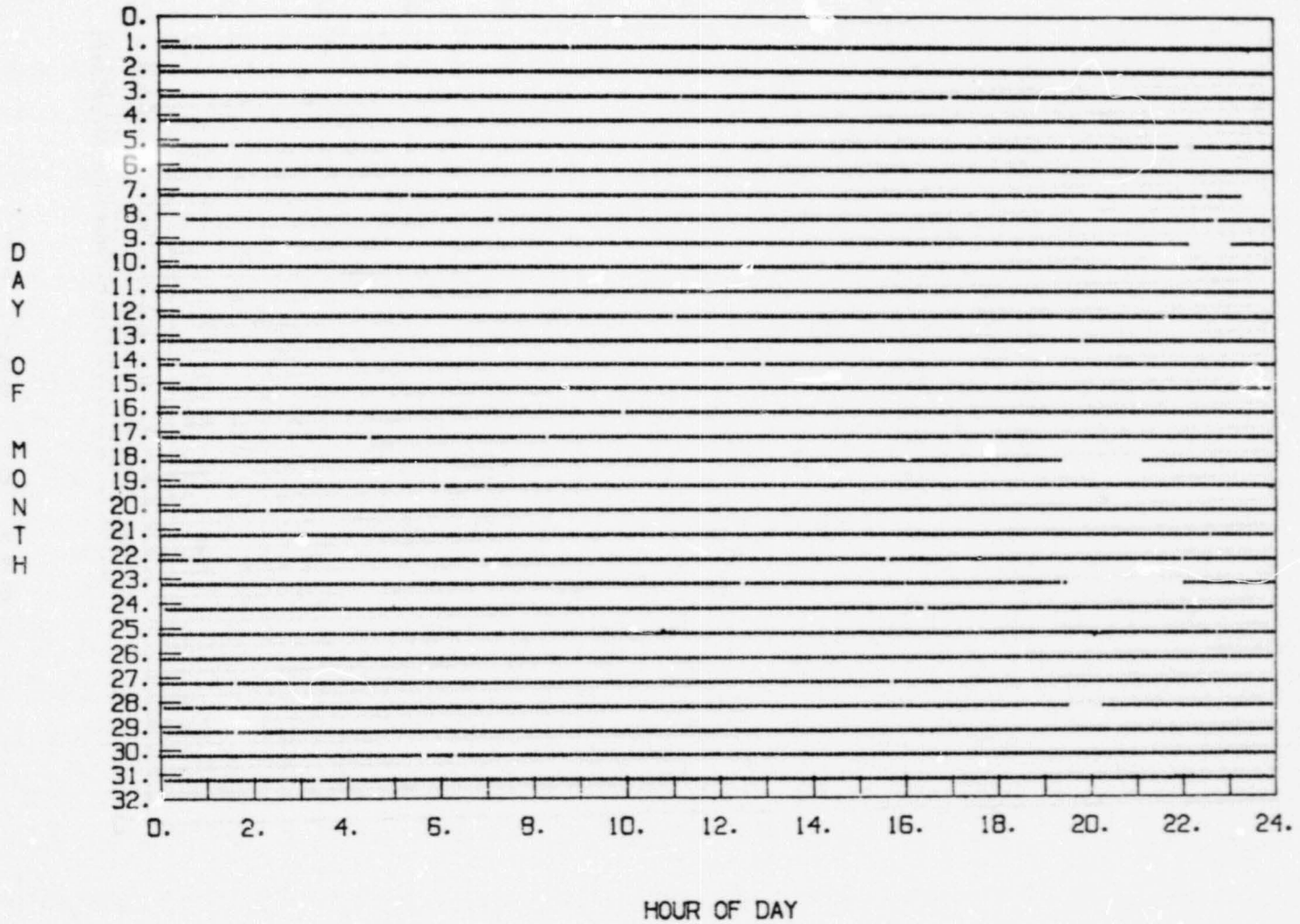
ORIGINAL PAGE IS  
OF POOR QUALITY

Figure 58-1. Magsat Data Availability of Intermediate Attitude Vector Data – November 1979.



ORIGINAL PAGE IS  
OF POOR QUALITY

Figure 58-2. Magsat Data Availability of Intermediate Attitude Vector Data - December 1979.

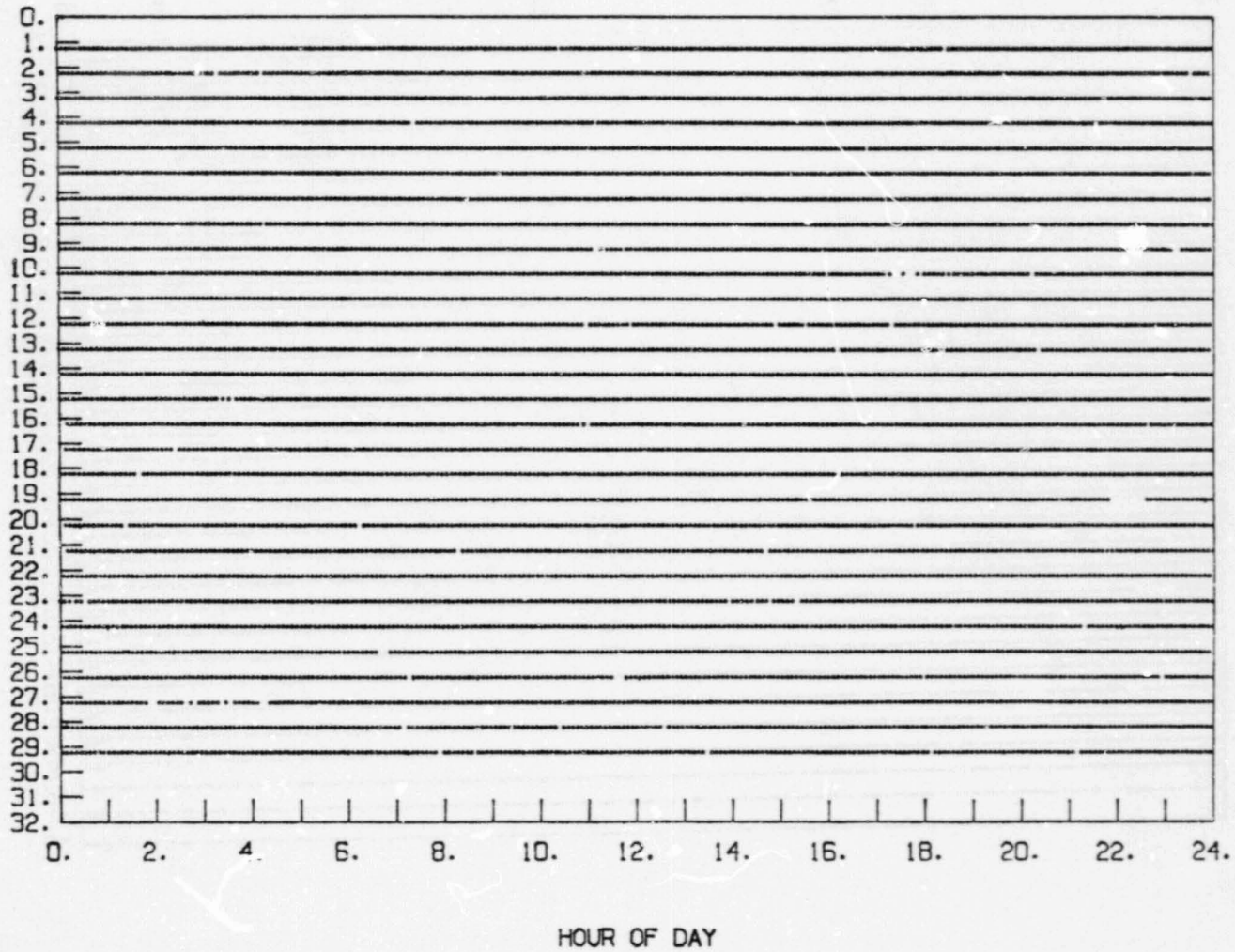


ORIGINAL PAGE IS  
OF POOR QUALITY

Figure 58-3. Magsat Data Availability of Intermediate Attitude Vector Data - January 1980.



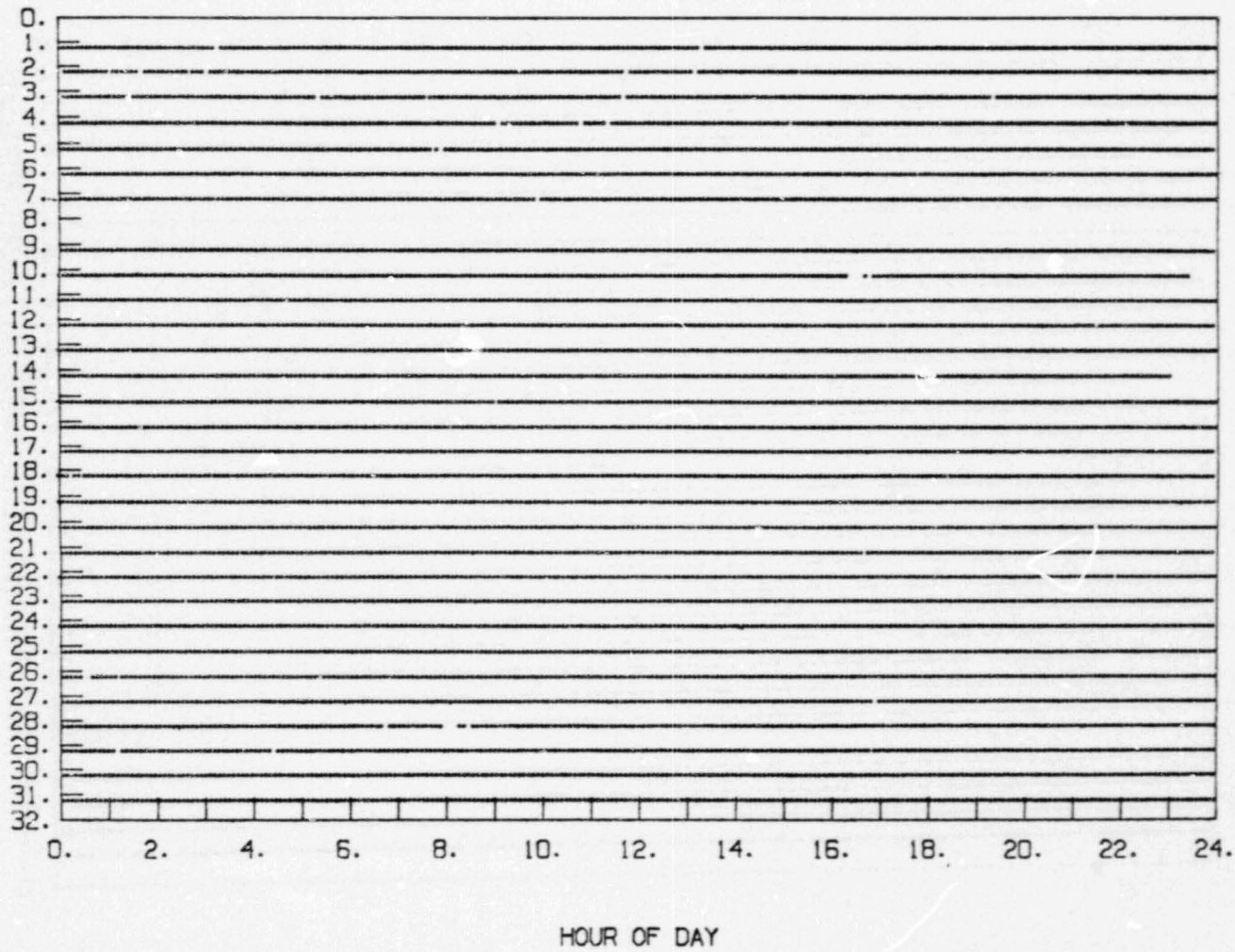
J  
A  
Y  
  
O  
F  
  
M  
O  
N  
T  
H



ORIGINAL PAGE IS  
OF POOR QUALITY

Figure 58-4. Magsat Data Availability of Intermediate Attitude Vector Data – February 1980.

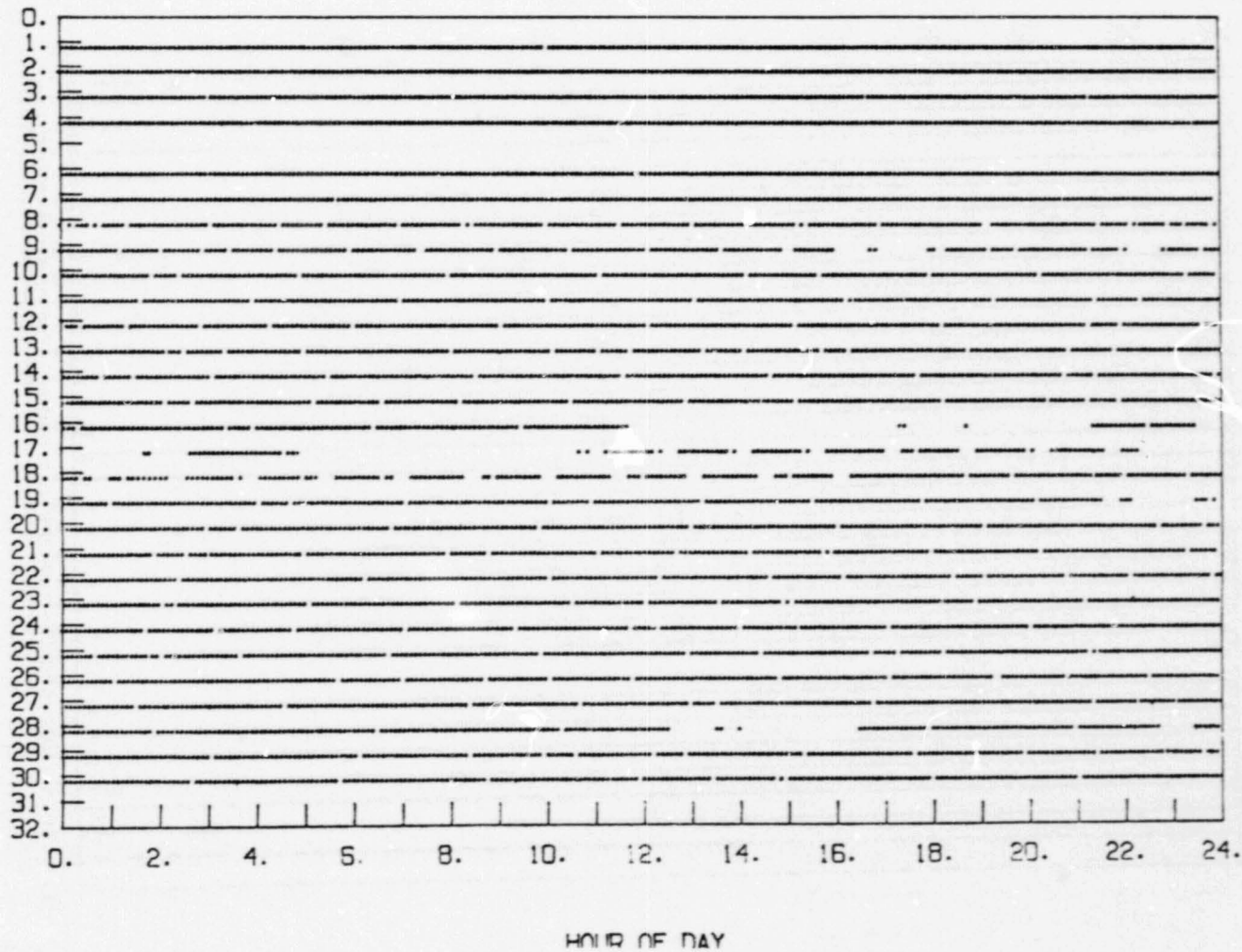
D  
A  
Y  
O  
F  
M  
O  
N  
T  
H



ORIGINAL PAGE IS  
OF POOR QUALITY

Figure 58-5. Magsat Data Availability Intermediate Attitude Vector Data - March 1980.

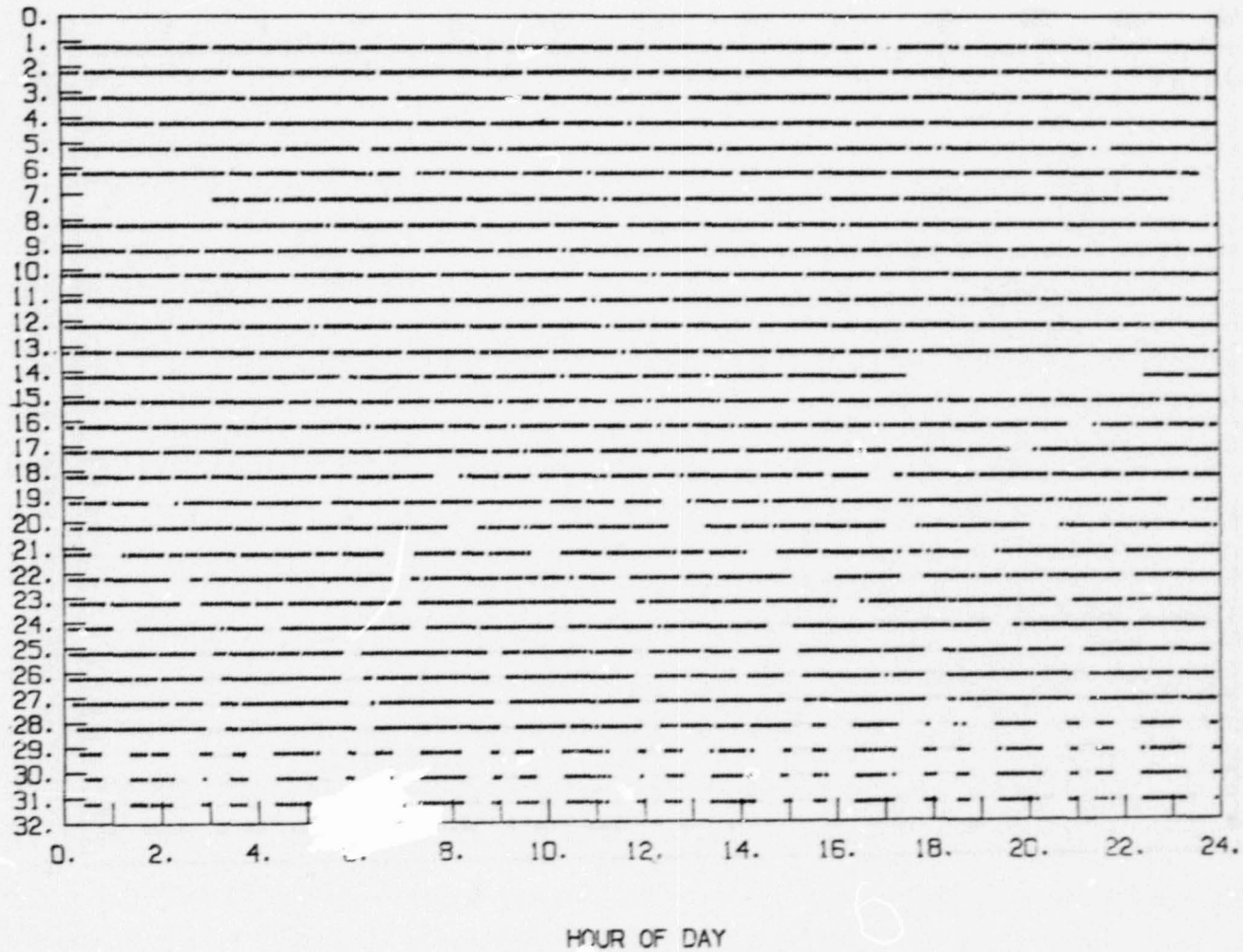
D  
A  
Y  
O  
F  
M  
O  
N  
T  
H



ORIGINAL PAGE IS  
OF POOR QUALITY

Figure 58-6. Magsat Data Availability of Intermediate Attitude Vector Data - April 1980.

D  
A  
Y  
O  
F  
M  
O  
N  
T  
H



ORIGINAL PAGE IS  
OF POOR QUALITY.

Figure 58-7. Magsat Data Availability of Intermediate Attitude Vector Data - May 1980.



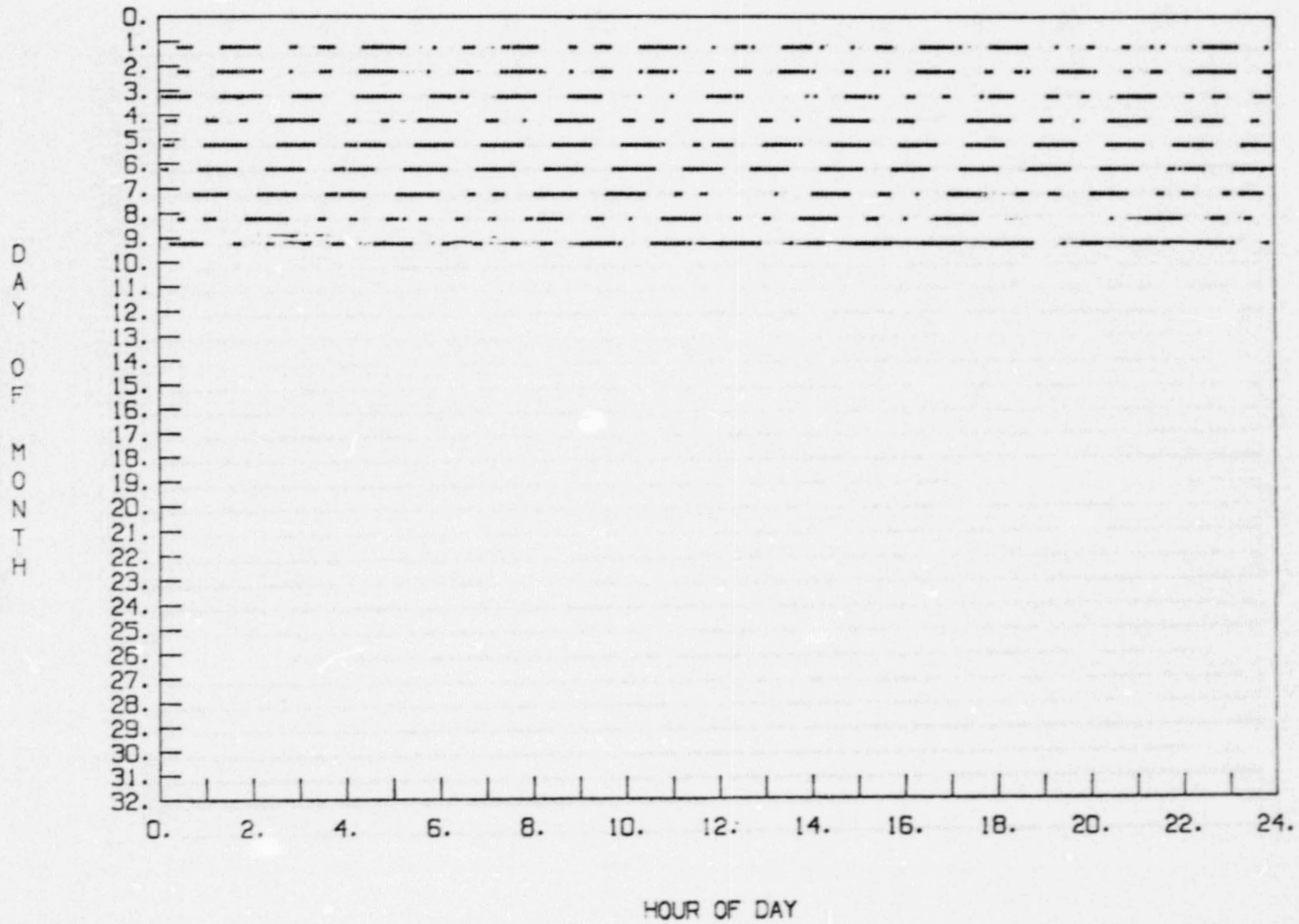
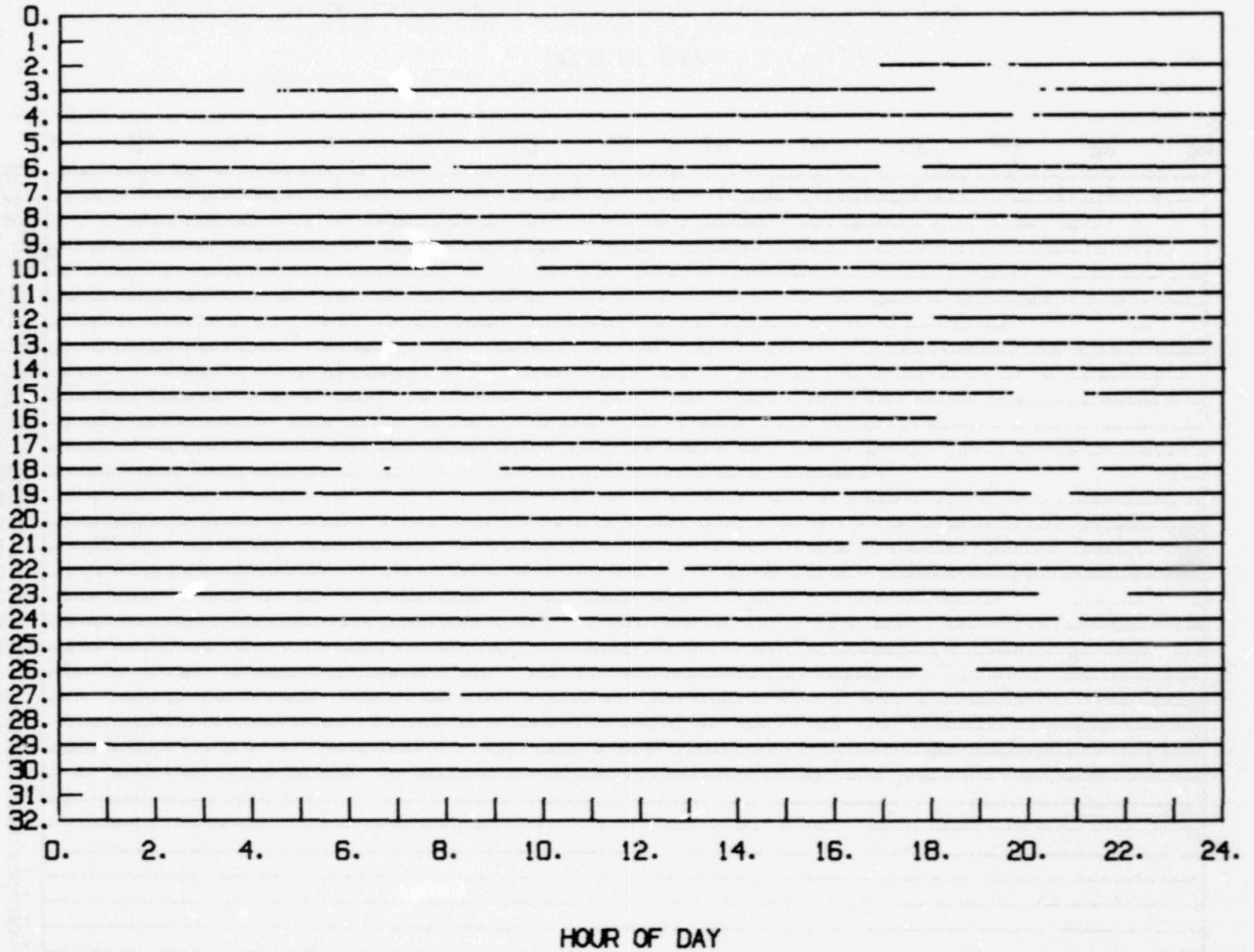
ORIGINAL PAGE IS  
OF POOR QUALITY

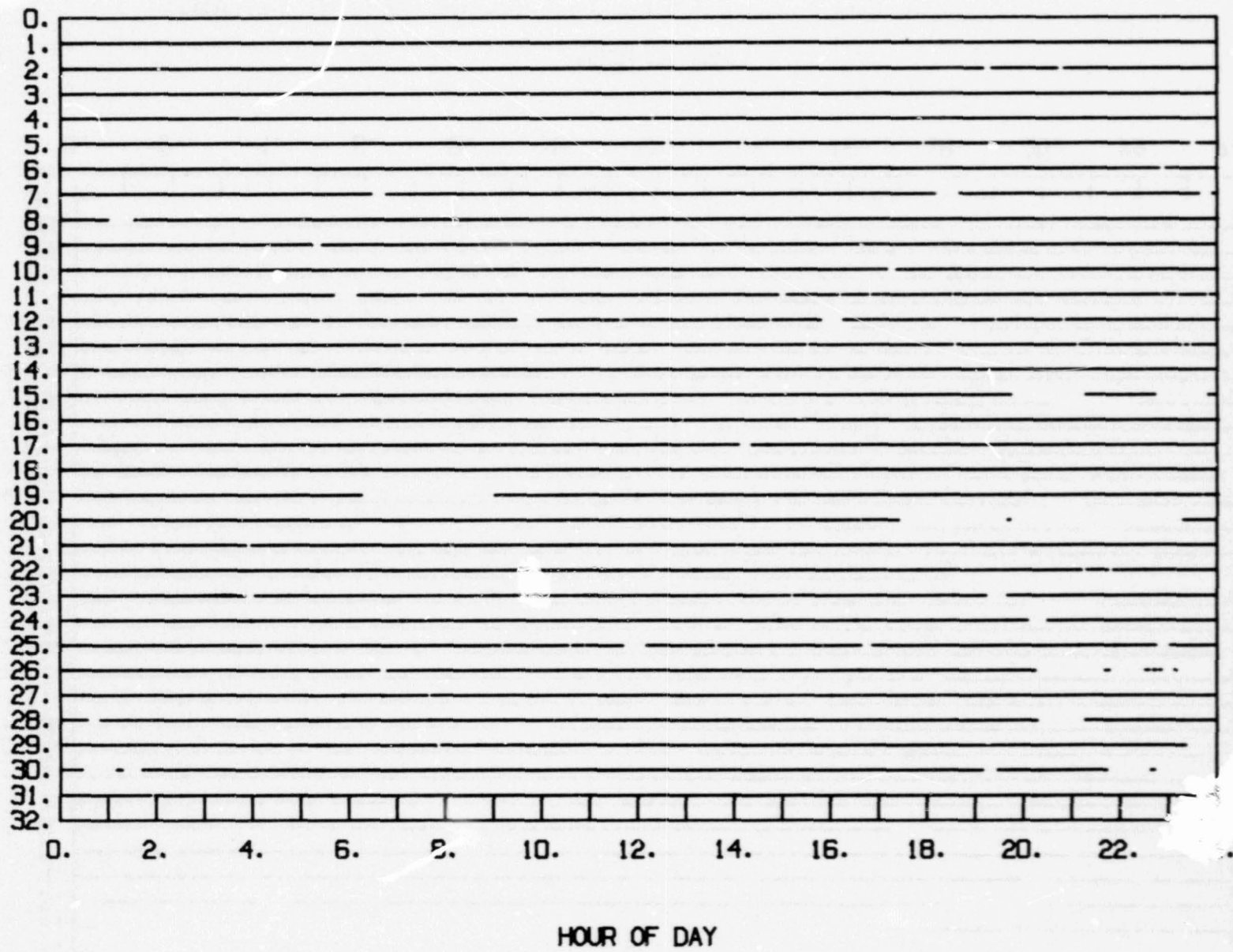
Figure 58-8. Magsat Data Availability of Intermediate Attitude Vector Data - June 1980.

D  
A  
Y  
O  
F  
M  
O  
N  
T  
H



ORIGINAL PAGE IS  
OF POOR QUALITY

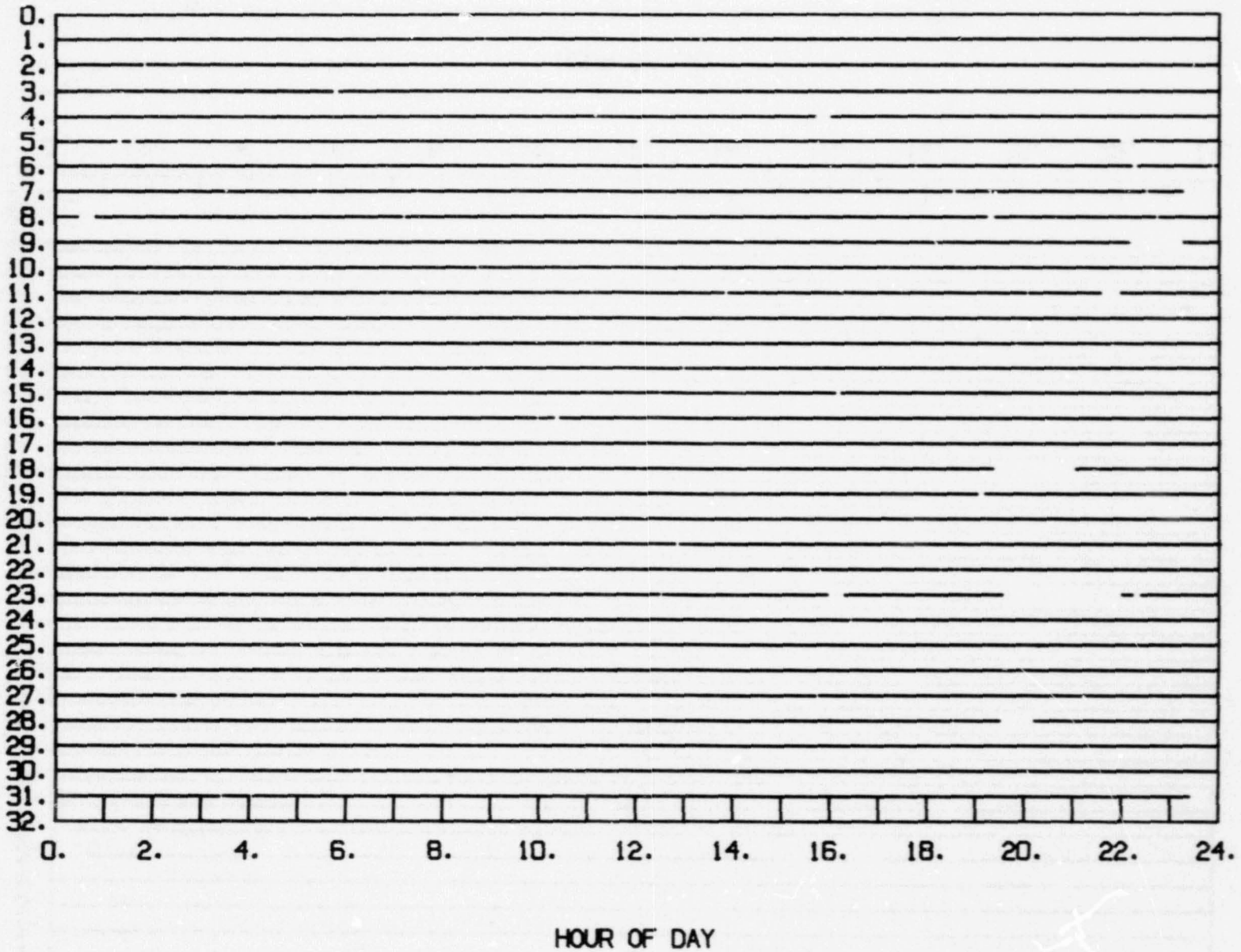
Figure 59-1. Magsat data availability of fine attitude vector data - November 1979



ORIGINAL PAGE IS  
OF POOR QUALITY

Figure 59-2. Magsat data availability of fine attitude vector data – December 1979

D  
A  
Y  
O  
F  
M  
O  
N  
T  
H

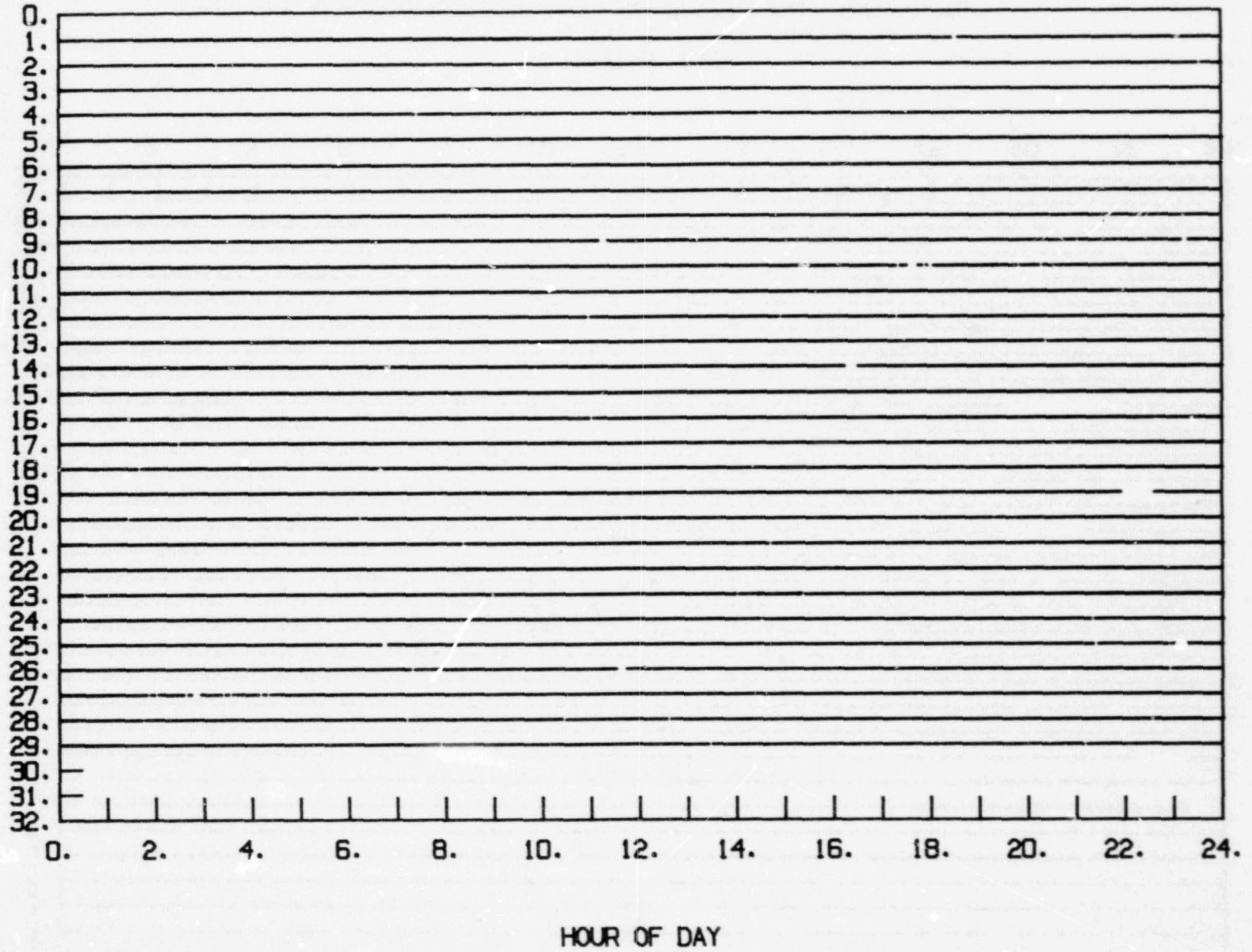


ORIGINAL PAGE IS  
OF POOR QUALITY

Figure 59-3. Magsat data availability of fine attitude vector data - January 1980



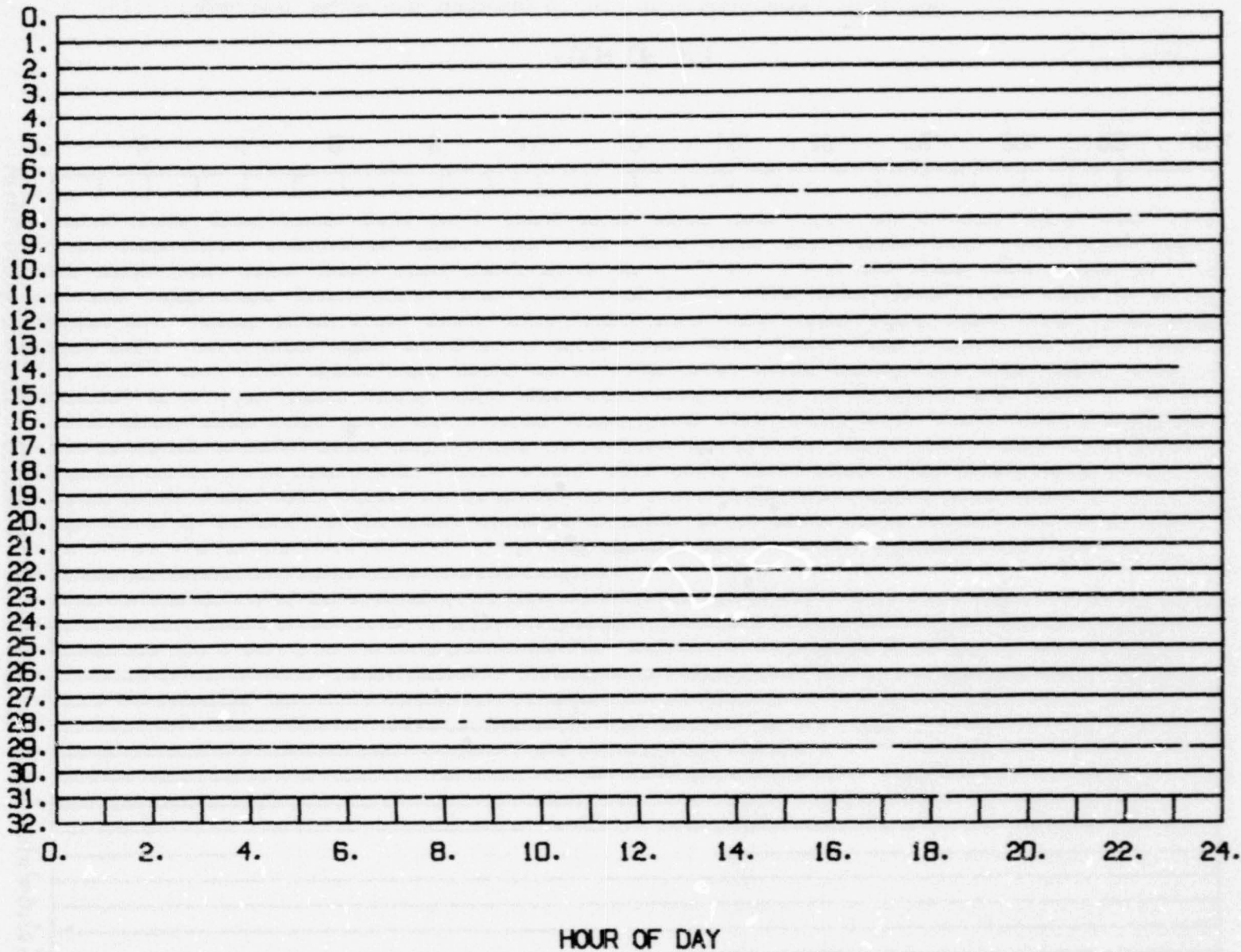
D  
A  
Y  
O  
F  
M  
O  
N  
T  
H



ORIGINAL PAGE IS  
OF POOR QUALITY

Figure 59-4. Magsat data availability of fine attitude vector data – February 1980

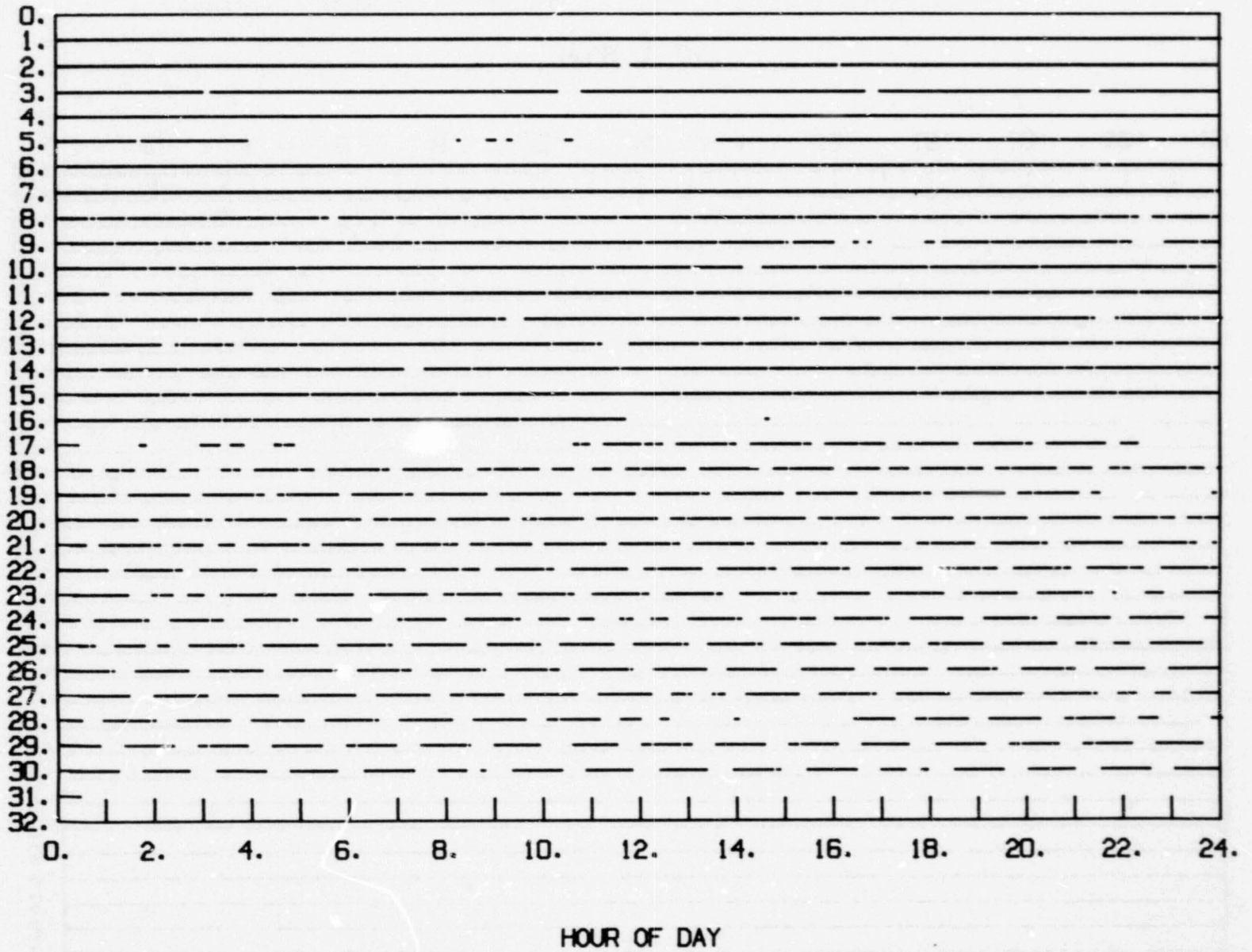
D  
A  
Y  
  
O  
F  
  
M  
O  
N  
T  
H



ORIGINAL PAGE IS  
OF POOR QUALITY

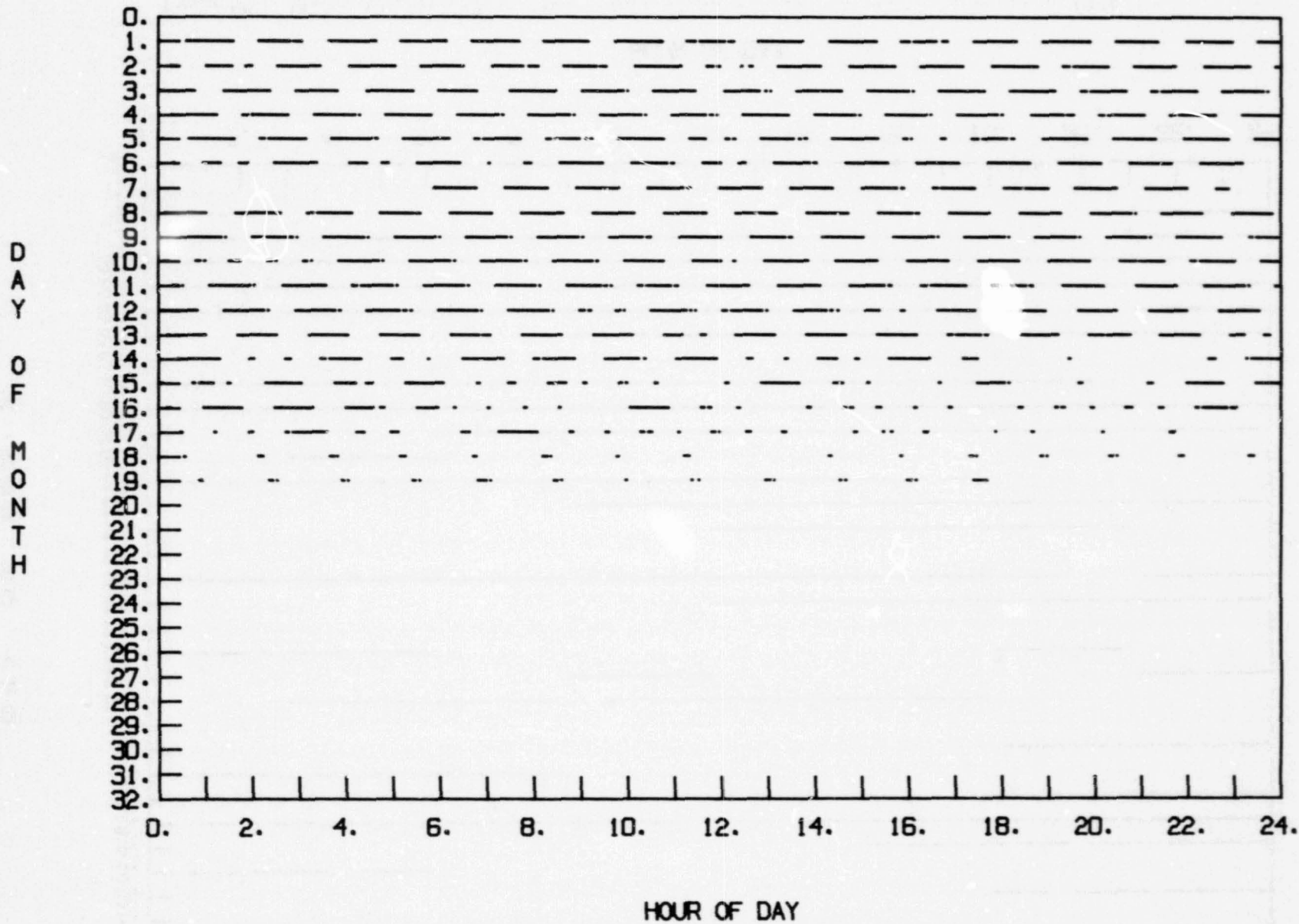
Figure 59-5. Magsat data availability of fine attitude vector data - March 1980

D  
A  
Y  
O  
F  
M  
O  
N  
T  
H



ORIGINAL PAGE IS  
OF POOR QUALITY

Figure 59-6. Magnet data availability of fine attitude vector data - April 1980



ORIGINAL PAGE IS  
OF POOR QUALITY

Figure 59-7. Magsat data availability of fine attitude vector data – May 1980



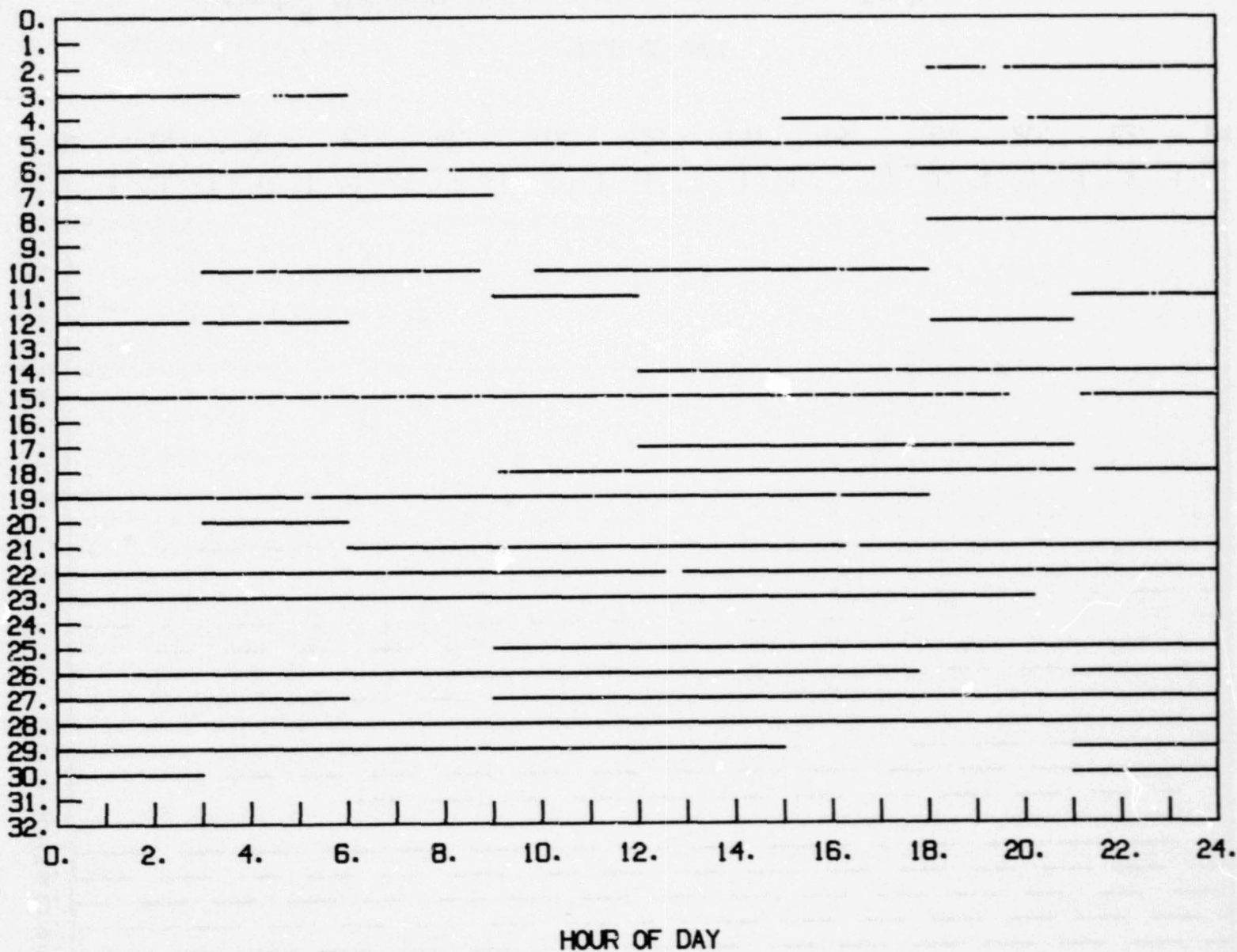
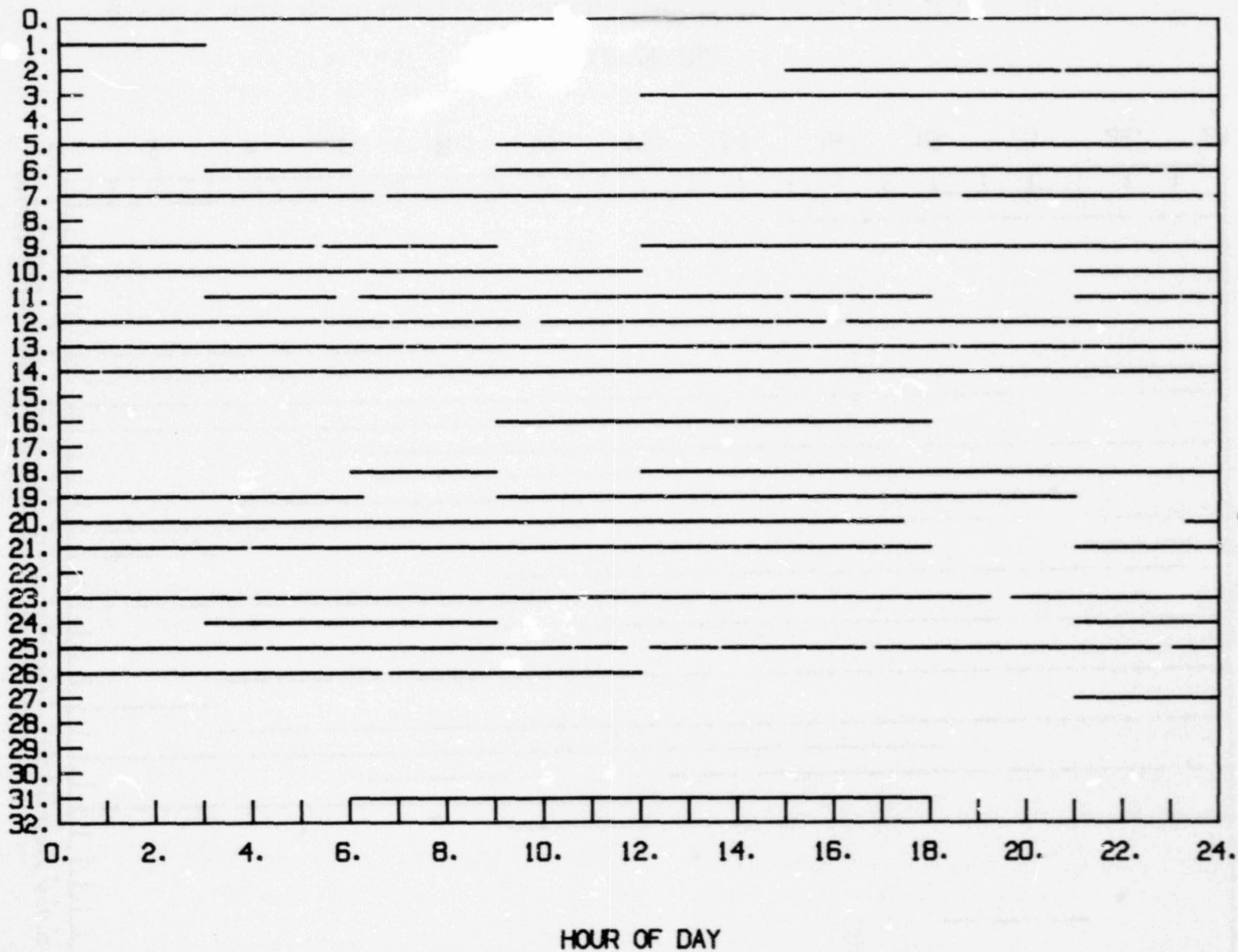
DAY  
OF  
MONTHORIGINAL PAGE IS  
OF POOR QUALITY

Figure 60-1. Magsat data availability of fine attitude vector quiet (KP LT 2+) data - November 1979

D  
A  
Y  
O  
F  
M  
O  
N  
T  
H



ORIGINAL PAGE IS  
OF POOR QUALITY

Figure 60-2. Magsat data availability of fine attitude vector quiet (KP LT 2+) data – December 1979

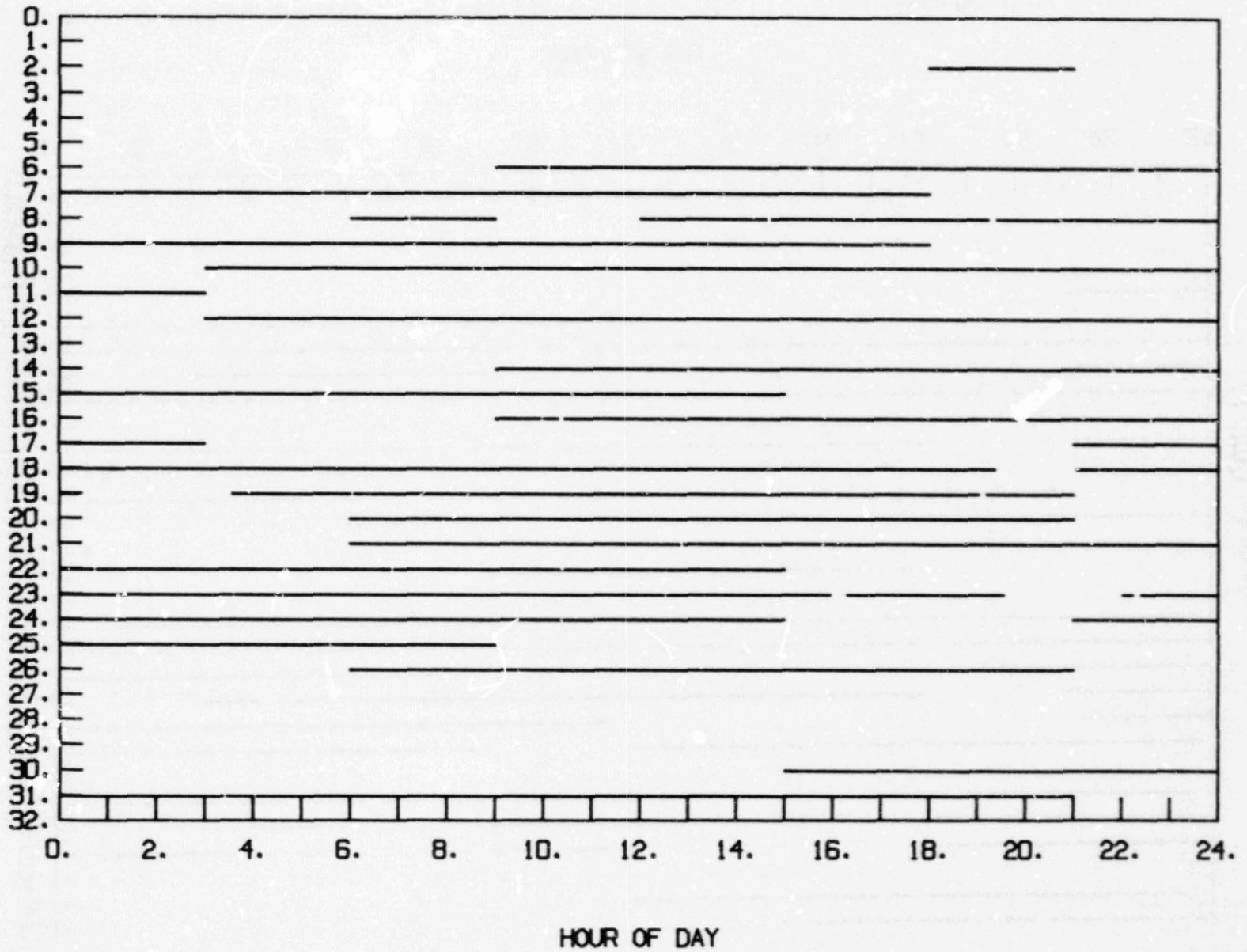
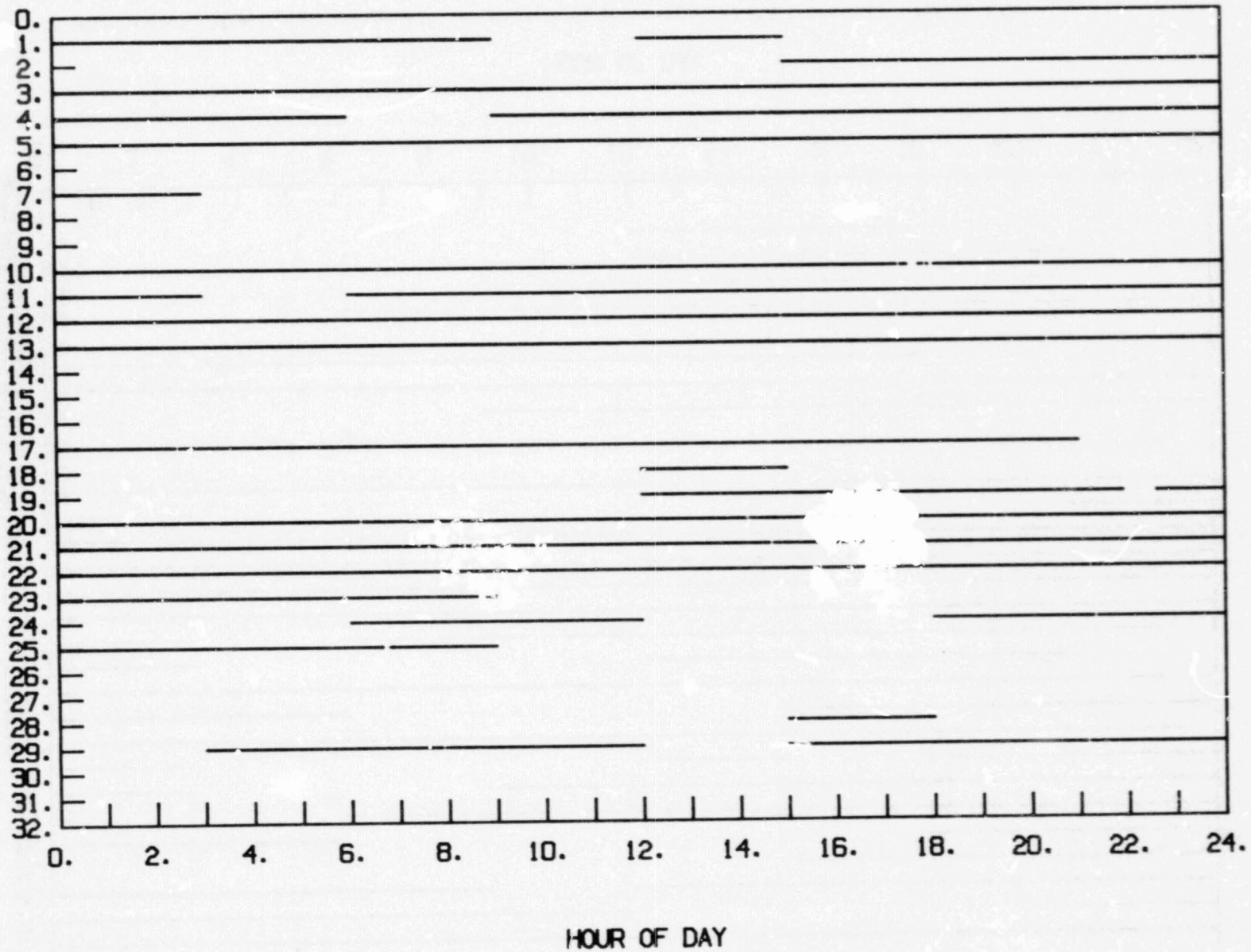
DAY  
OF  
MONTHORIGINAL PAGE IS  
OF POOR QUALITY

Figure 60-3. Magsat data availability of fine attitude vector quiet (KP LT 2+) data - January 1980

D  
A  
Y  
  
O  
F  
  
M  
O  
N  
T  
H



ORIGINAL PAGE IS  
OF POOR QUALITY

Figure 60-4. Magsat data availability of fine attitude vector quiet (KP LT 2+) data - February 1980



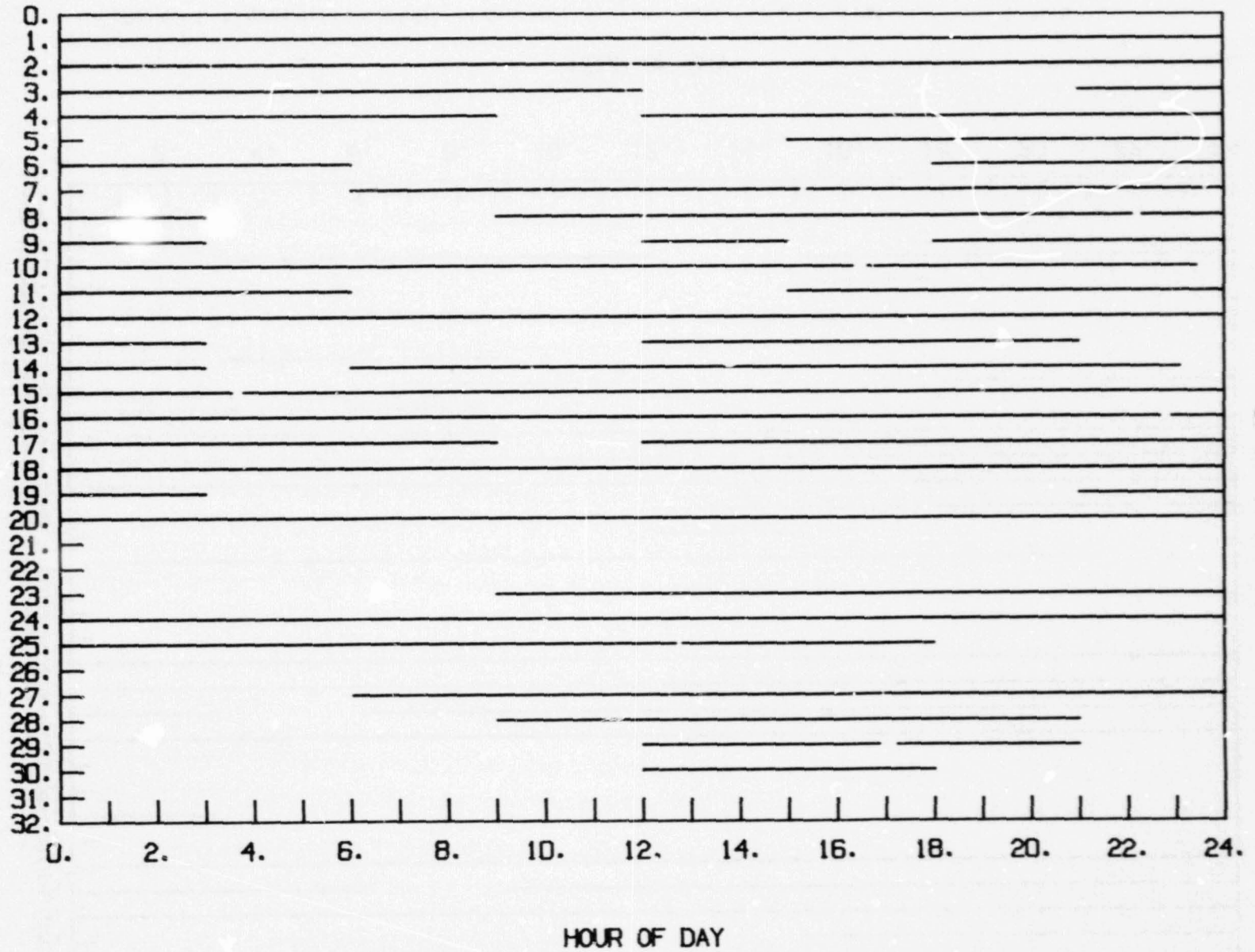
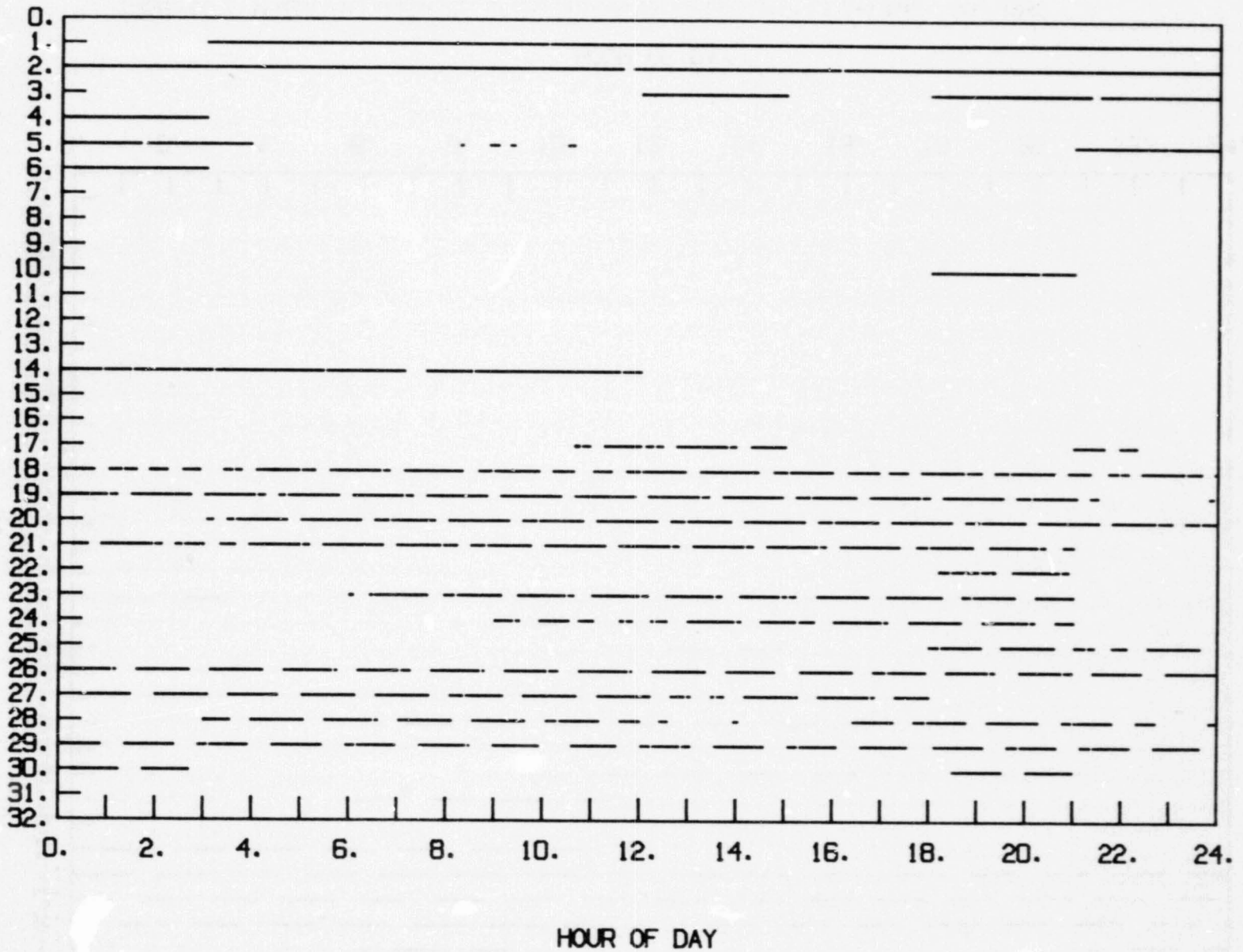
DAY  
OF  
MONTHORIGINAL PAGE IS  
OF POOR QUALITY

Figure 60-5. Magsat data availability of fine attitude vector quiet (KP LT 2+) data - March 1980

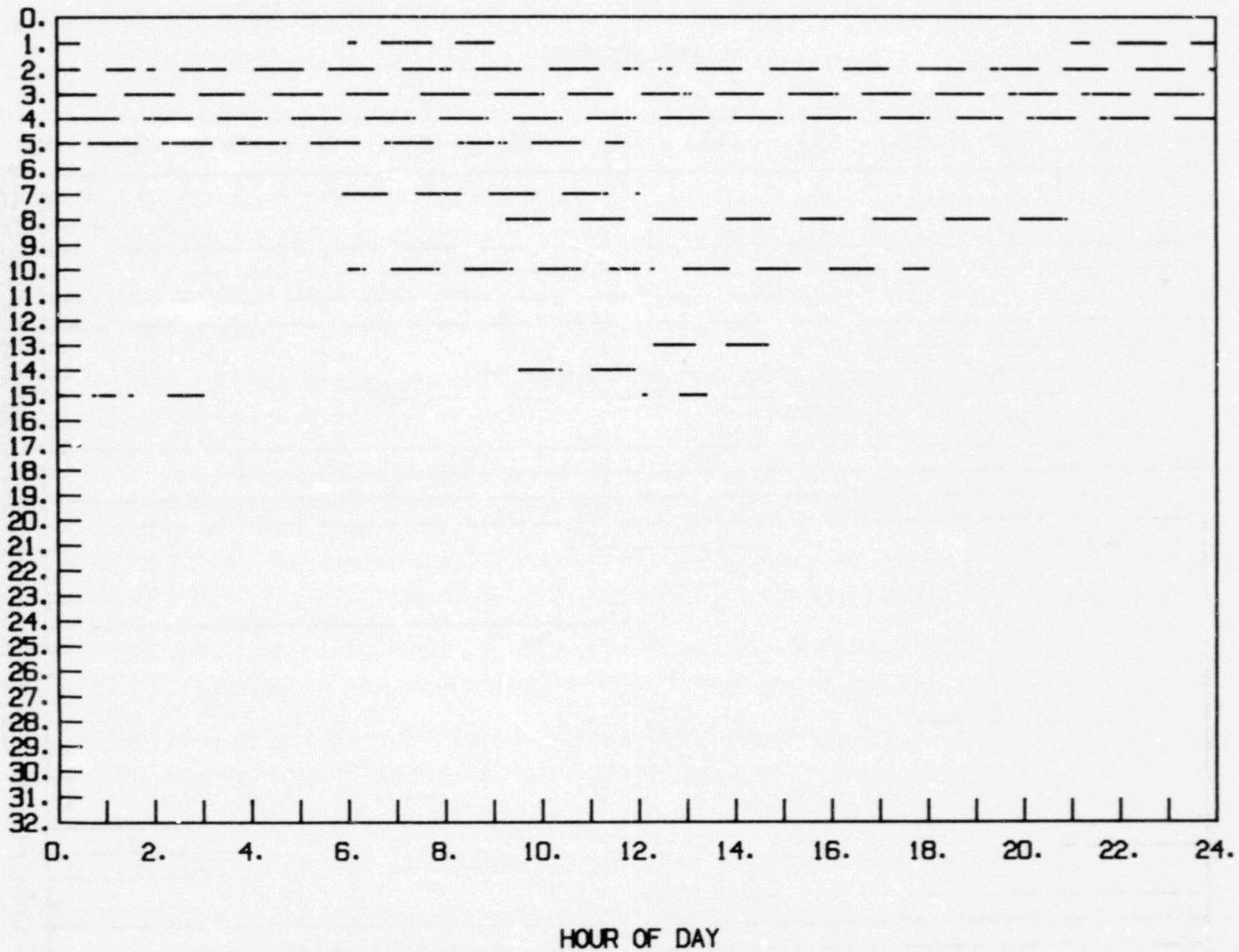
D  
A  
Y  
  
O  
F  
  
M  
O  
N  
T  
H



ORIGINAL PAGE IS  
OF POOR QUALITY

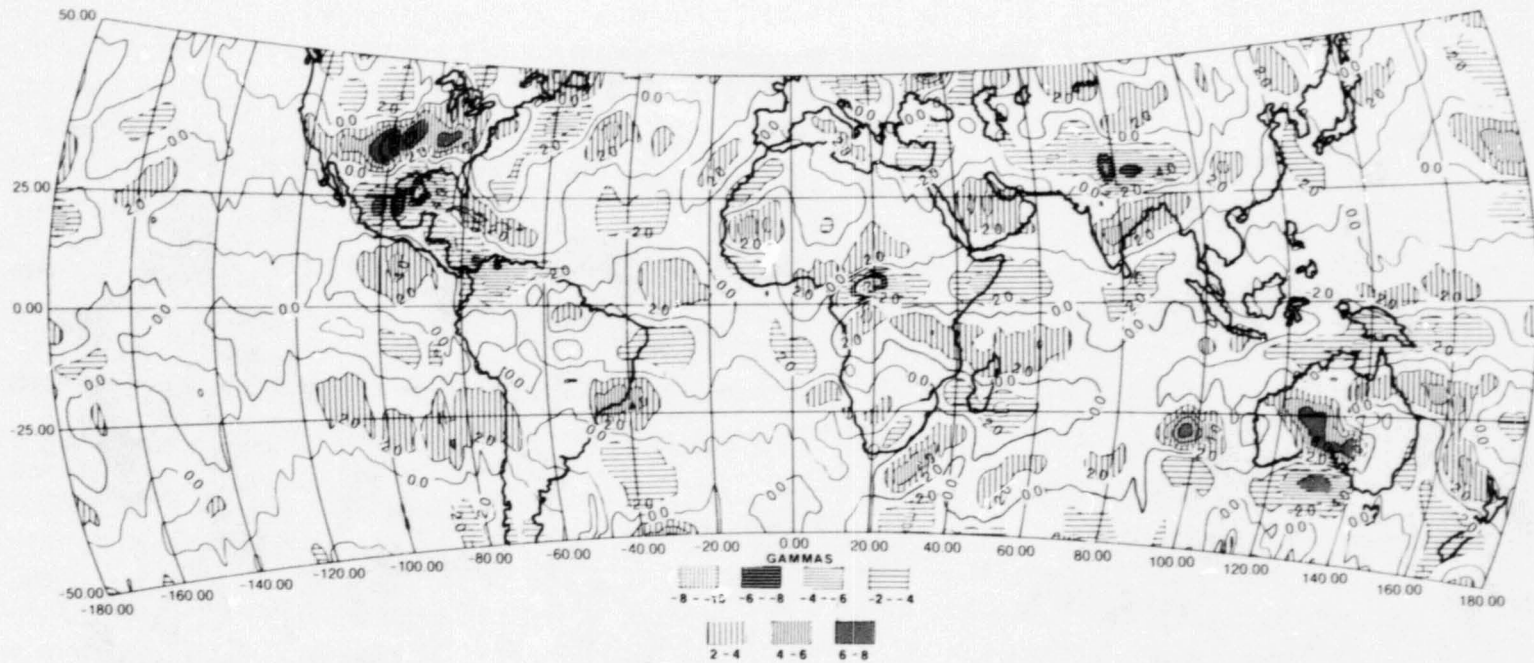
Figure 6C-6. Magsat data availability of fine attitude vector quiet (KP LT 2+) data - April 1980

D  
A  
Y  
  
O  
F  
  
M  
O  
N  
T  
H



ORIGINAL PAGE IS  
OF POOR QUALITY

Figure 60-7. Magsat data availability of fine attitude vector quiet (KP LT 2+) data – May 1980



ORIGINAL PAGE IS  
OF POOR QUALITY

Figure 61. Average Magnetic Anomaly Map from the Pogo Data.



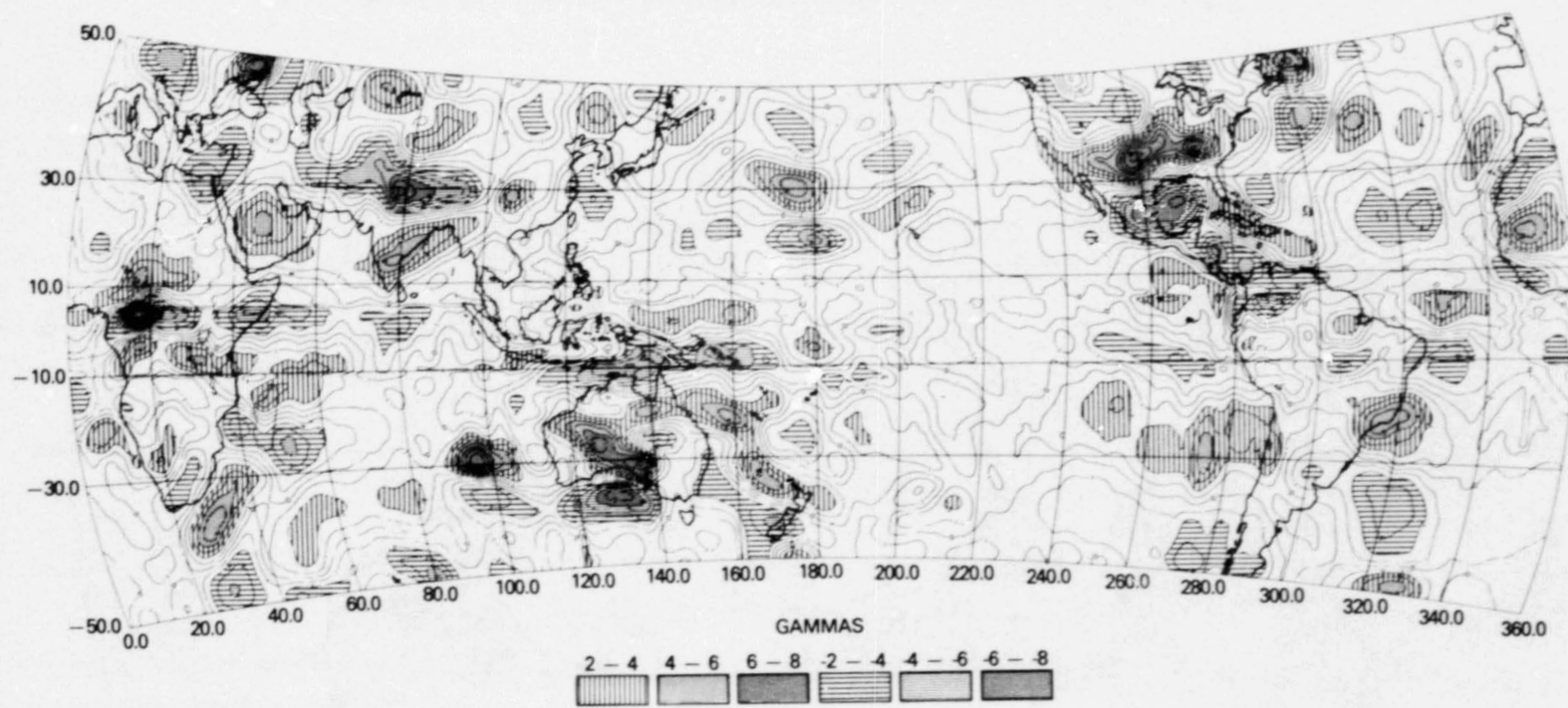


Figure 62. Scalar Magnetic Anomaly Map from the Pogo Satellites Reduced to 500KM Altitude.

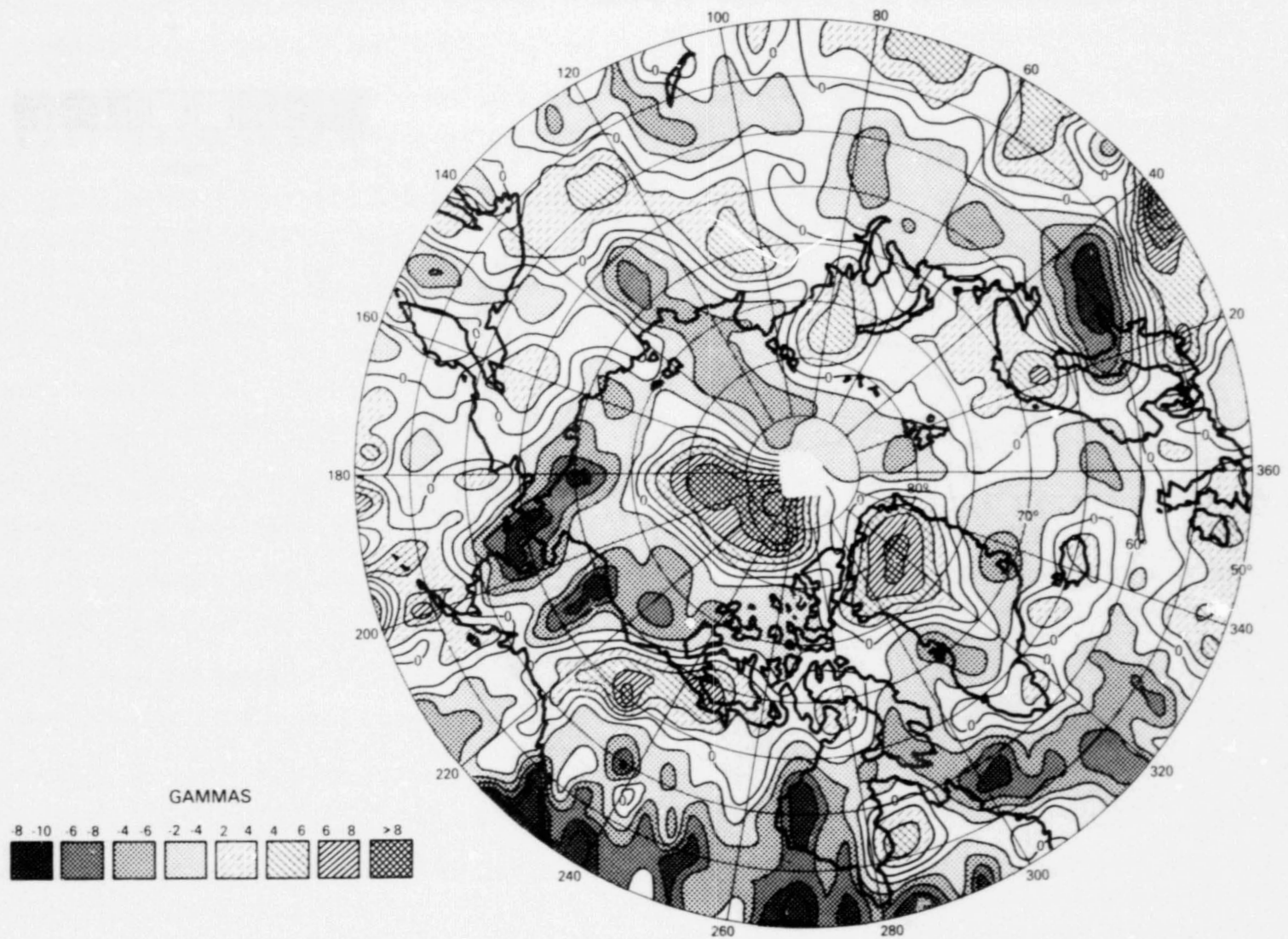


Figure 63. North Polar Anomalies in Scalar Magnetic Field from the Pogo Satellites.

ORIGINAL PAGE IS  
OF POOR QUALITY

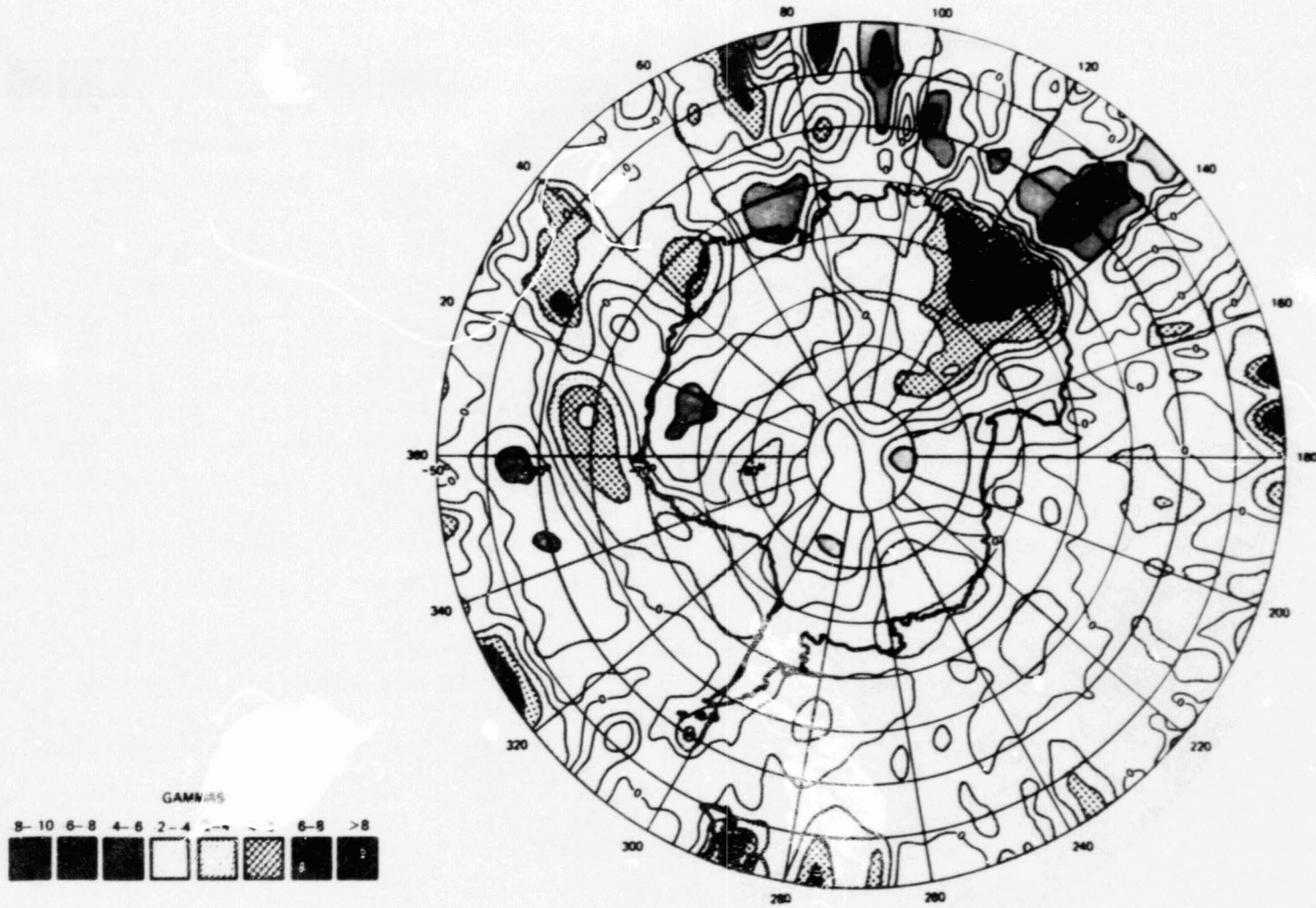


Figure 64. South Polar Anomalies in Scalar Magnetic Field from the Pogo Satellites.

ORIGINAL PAGE IS  
OF POOR QUALITY

ORIGINAL PAGE IS  
OF POOR QUALITY

Magsat Latitude Plot 11J579  
MG680982 Nov. 5, 6 Scalar & Fine Att.  
Scalar Data Calc. From Vector

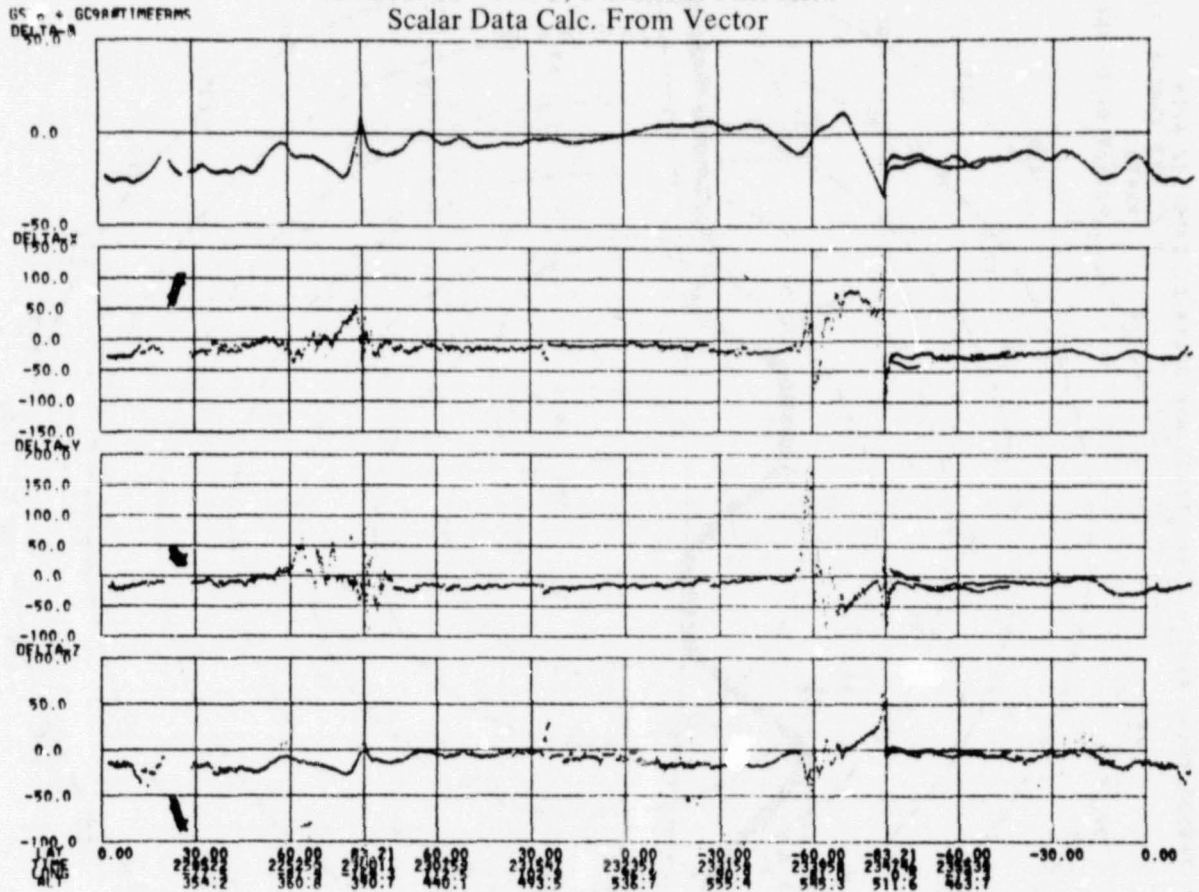


Figure 65. Magsat Latitude Plot (LATPLOT)



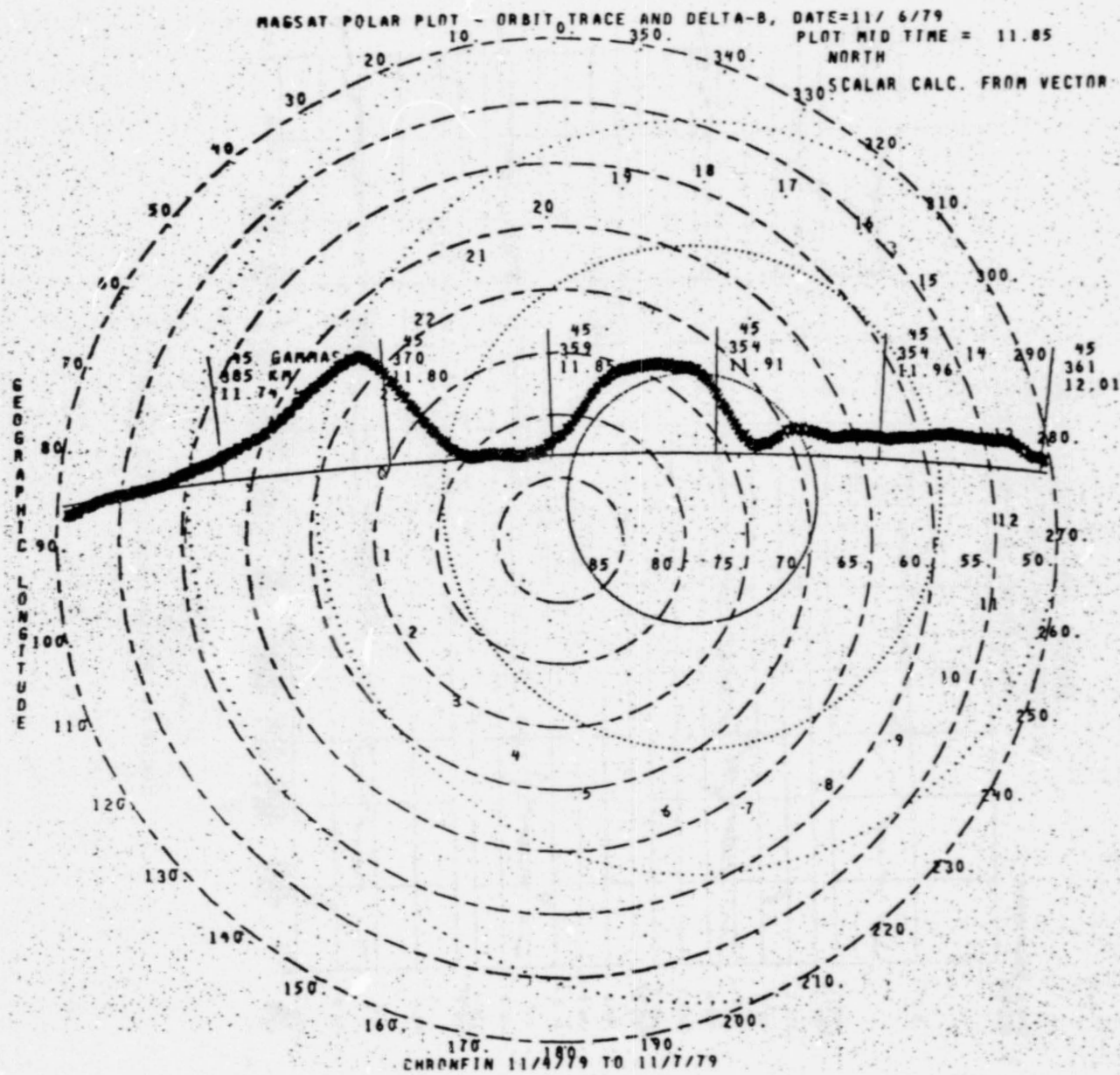
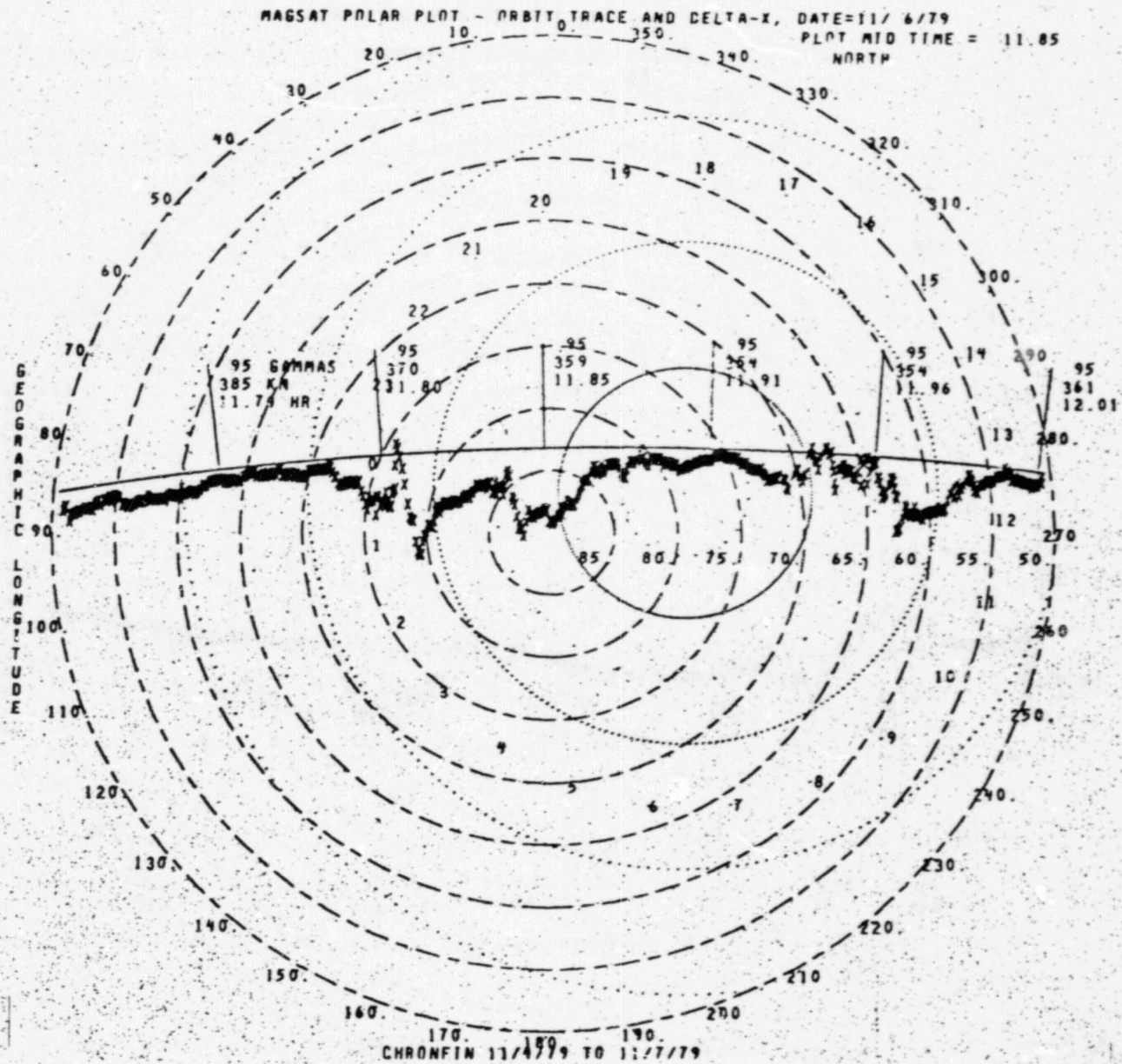


Figure 66. Magsat Polar Plot (POLEPLOT)

ORIGINAL PAGE IS  
 OF POOR QUALITY



ORIGINAL PAGE IS  
 OF POOR QUALITY

Figure 67. Magsat Polar Plot (POLEPLOT)

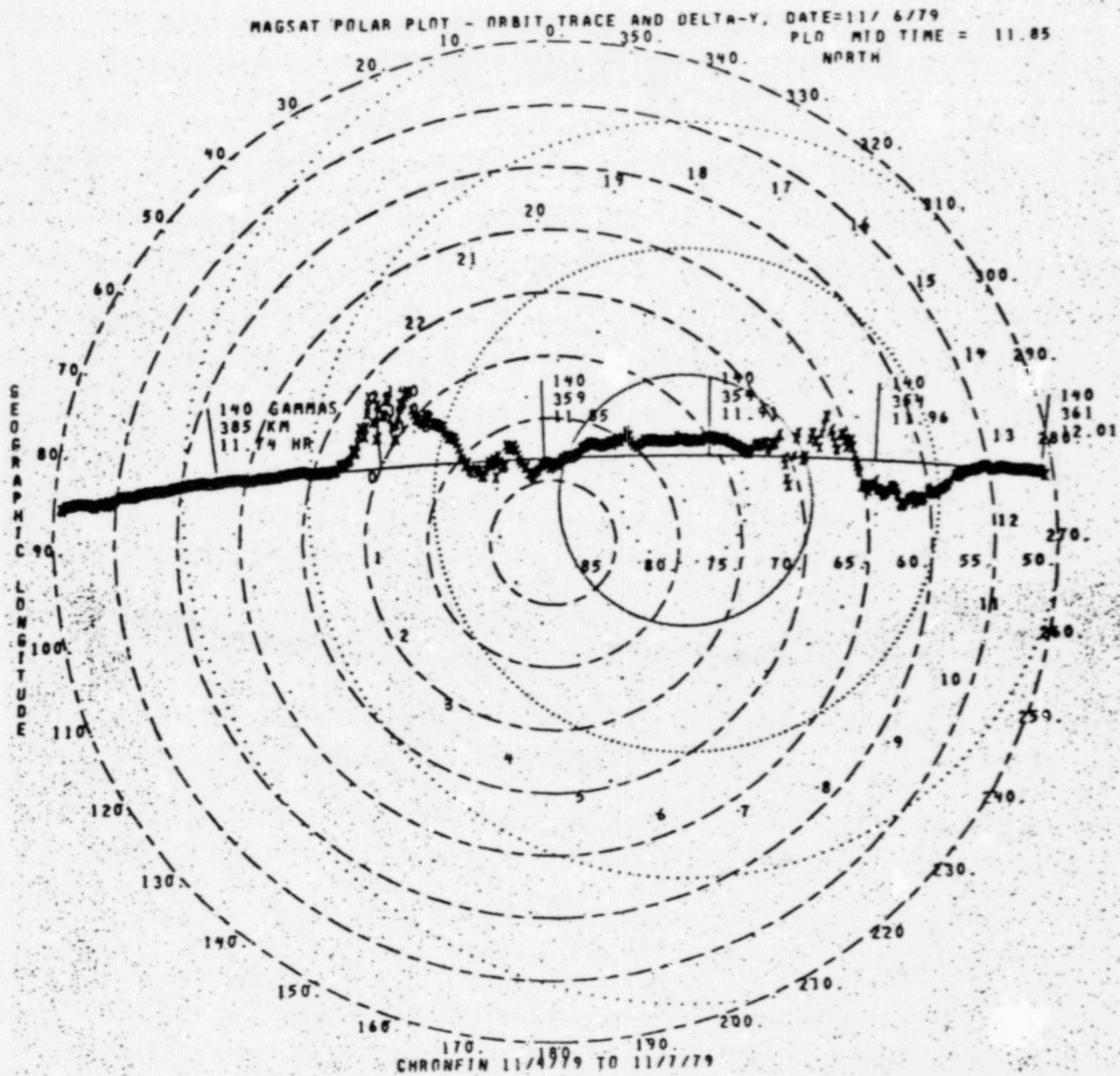
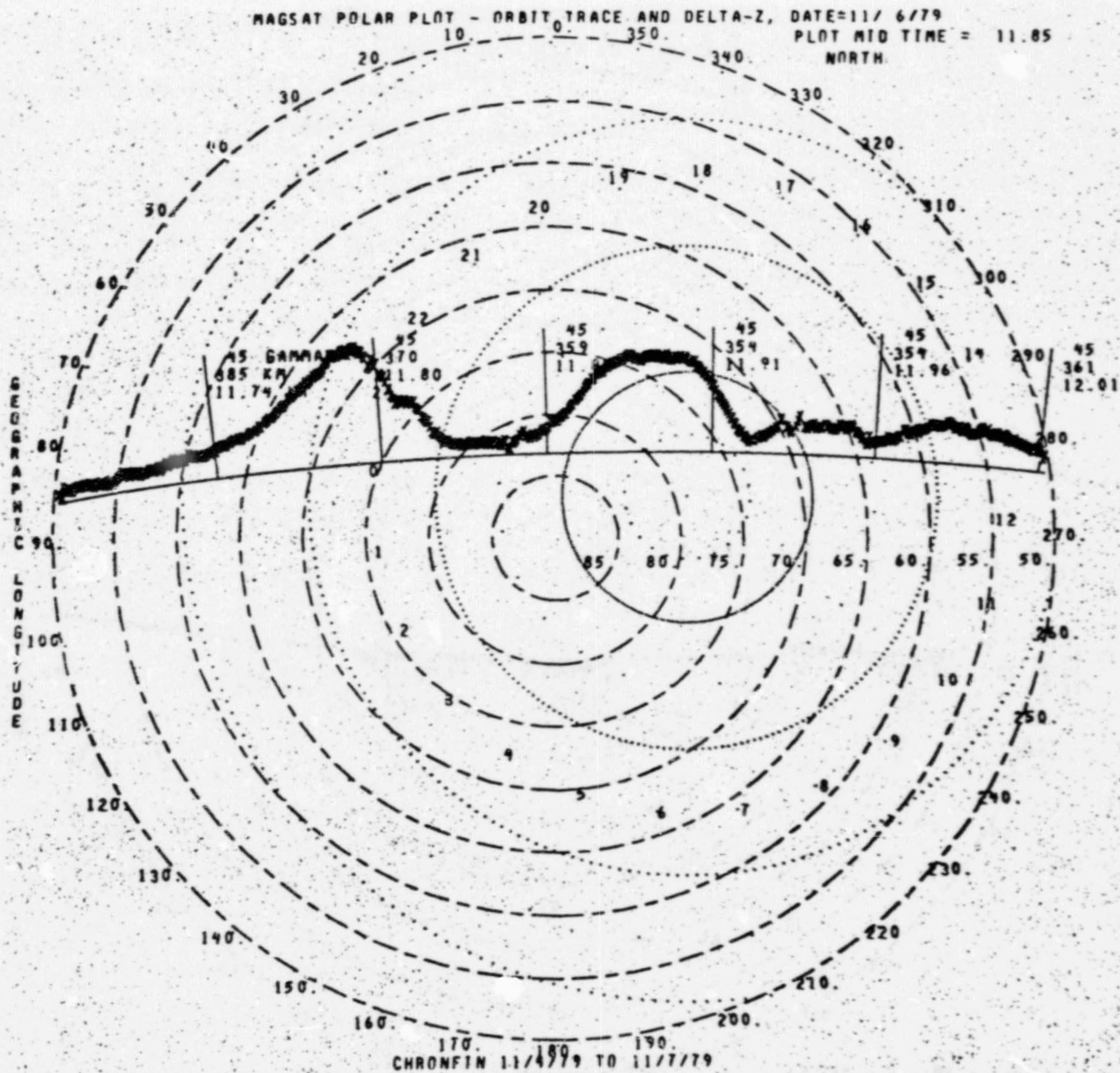


Figure 68. Magsat Polar Plot (POLEPLOT)

ORIGINAL PAGE IS  
OF POOR QUALITY





ORIGINAL PAGE IS  
 OF POOR QUALITY

Figure 69. Magsat Polar Plot (POLEPLOT)





175

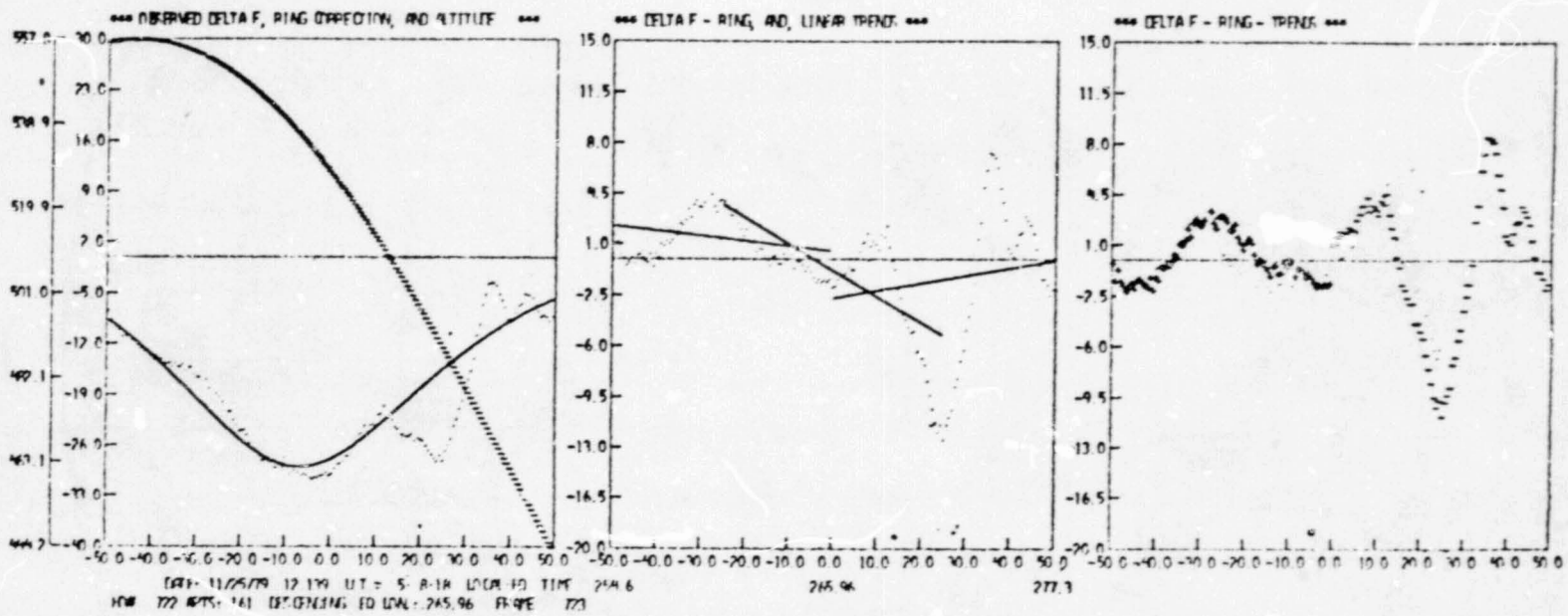
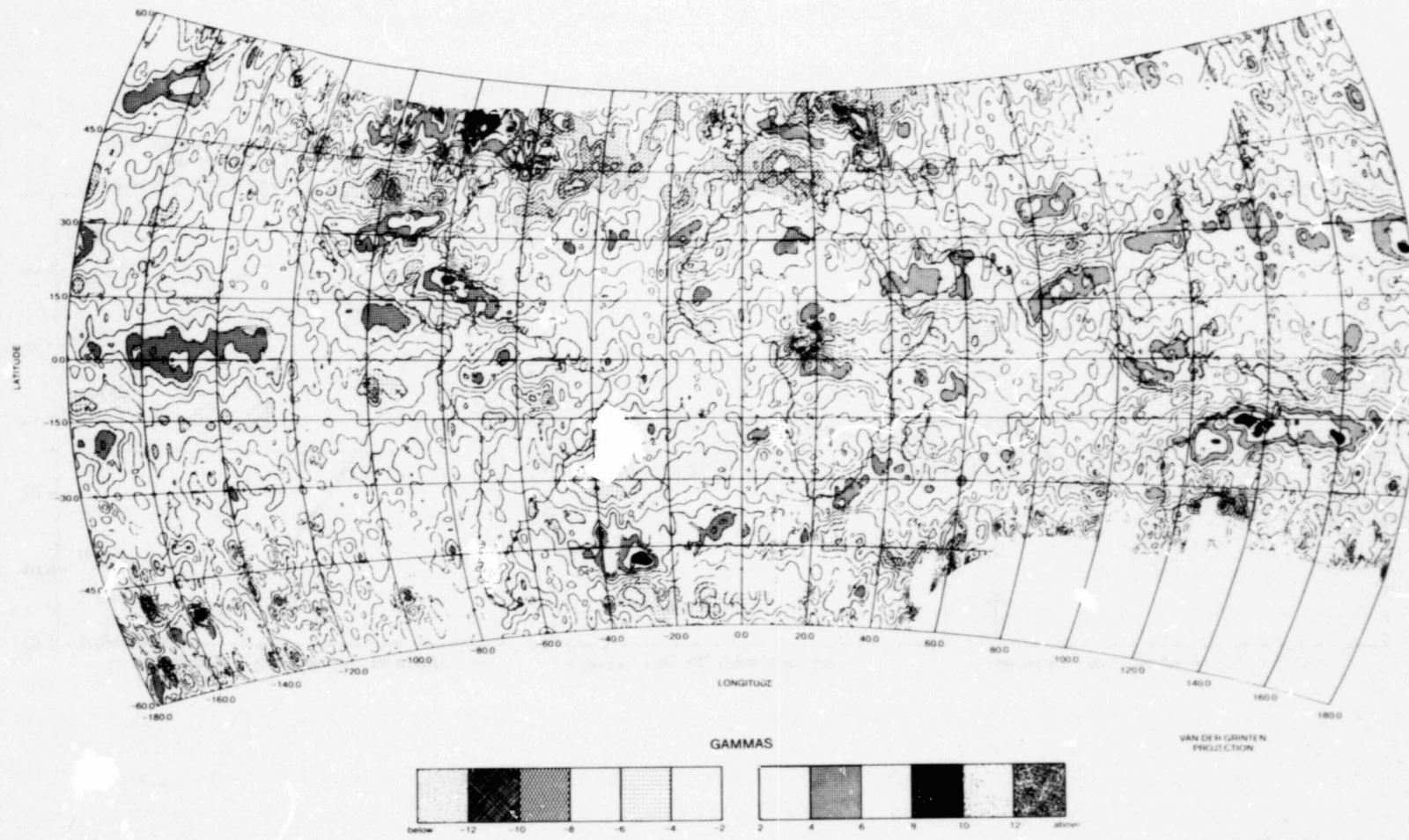


Figure 71. Plots of Low Latitude Scalar Data Used in Anomaly Maps.

ORIGINAL PAGE IS  
OF POOR QUALITY

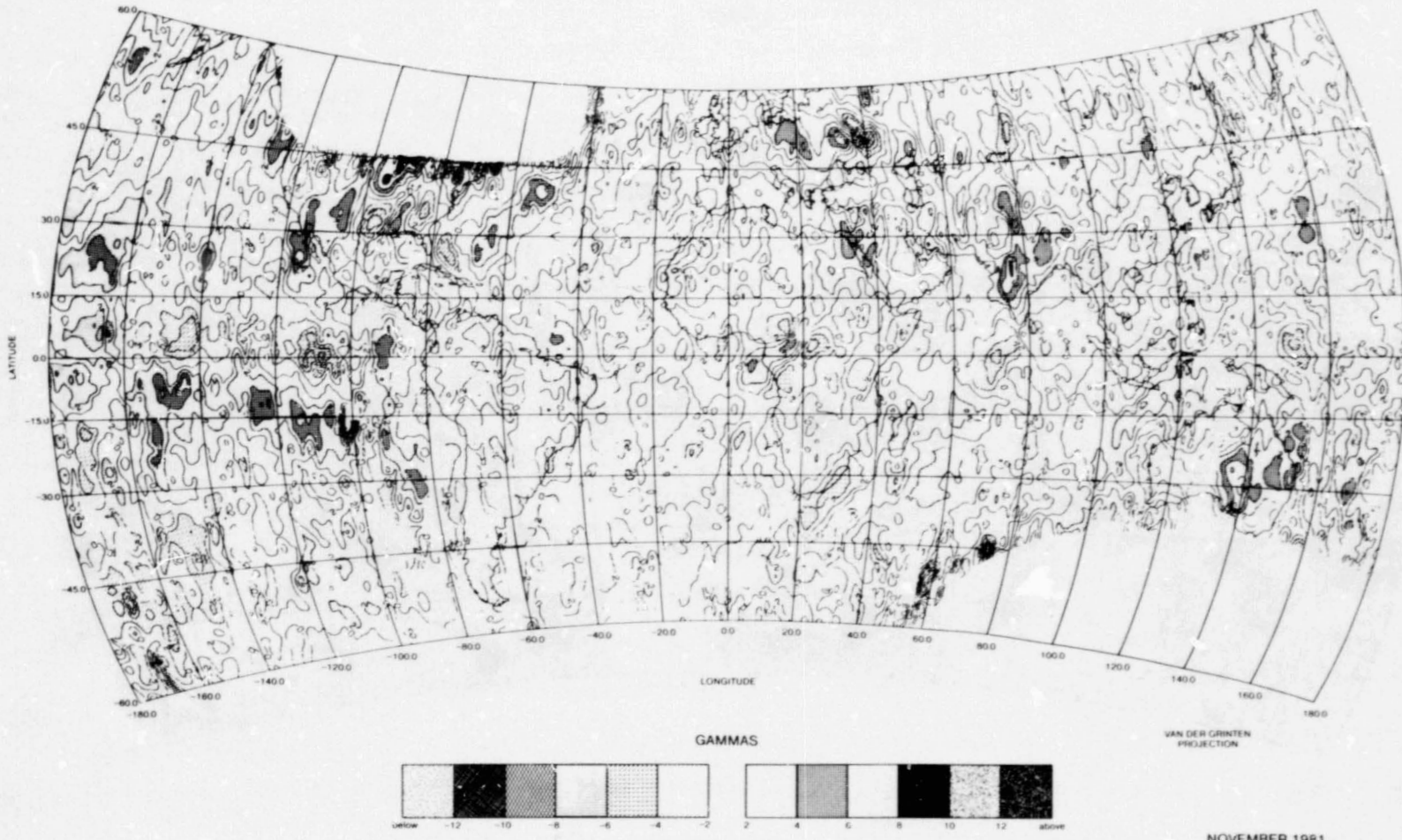


ORIGINAL PAGE IS  
OF POOR QUALITY

NOVEMBER 1981

Figure 72. Magnetic Anomaly Map Using Magsat Data -  $\Delta X$  Contours





ORIGINAL PAGE IS  
OF POOR QUALITY

Figure 73. Magnetic Anomaly Map Using Magsat Data –  $\Delta Y$  Contours

NOVEMBER 1981

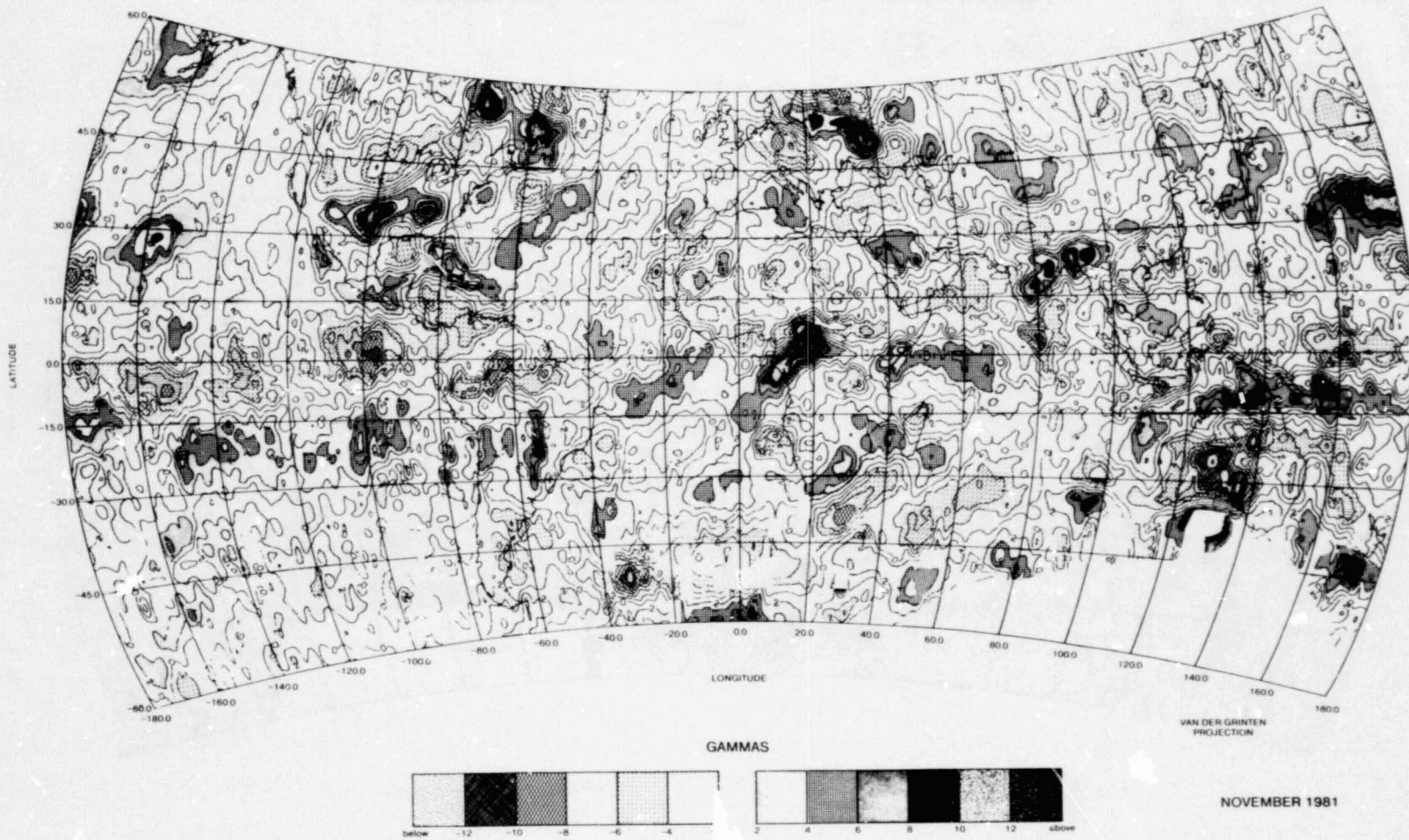


Figure 74. Magnetic Anomaly Map Using Magsat Data -  $\Delta Z$  Contours

## Appendix 1

### INVESTIGATOR-B TABLE

This table is taken from the Investigator-B tape. The listing is ordered by the pass number, and each pass consists of two lines. The first line indicates the time at which the pass began, while the second line indicates the time at which the pass ended. Along with the ending and starting times, the table shows the indicated values at both the ascending and descending nodes. The  $\Delta B$  values are those computed at the ascending and descending nodes at the Dip Equator. Areas in which no data is available are indicated by asterisks.

#### Description of the Titles on the Table

PASS	The pass number on which the data is found on the Investigator-B tape
MJD	The modified Julian day corresponding to the pass
MSEC	The time in milliseconds at the start and end of the pass
DATE	month/day/year
HR:MN:SC	hours:minutes:seconds
KP	Magnetic Activity Index
DEQL	Relative Equatorial Disturbance in horizontal component from observatories
EQ L	The longitude at which the satellite crosses the equator
E	External field due to the ring-current and other magnetosphere currents
I	The associated induced field of the external currents
DELTA B	The $\Delta B$ at the Dip Equator

Investigator-B Table. Pass by Pass Catalog of Auxiliary Parameters (Pages 1-2 through 1-79)

PASS	MJD	HSEC	DATE	HR:MN:SC	ASCENDING				DESCENDING				EQL	E	I	I/E	DELTA B	EQL	E	I	I/E	DELTA B
					KP	D	EQL	E	I	I/E	DELTA B	KP										
1	44 179	3910897	11/2/79	1: 5: 10	33	-73.1	-107.7	*****	*****	*****	*****	33	-32.0	60.8	30.3	3.7	0.12	-32.9				
2	44 179	8238823	11/2/79	2: 18: 13																		
3	44 179	13924879	11/2/79	3: 51: 59	33	-78.0	-131.2	59.5	14.0	0.24	-70.8	37	-14.1	37.3	31.7	5.2	0.17	-65.3				
4	44 179	19552031	11/2/79	5: 25: 52	37	-48.0	-154.6	53.8	18.5	0.34	-66.5	37	3.4	13.8	38.9	7.1	0.18	-34.0				
5	44 179	25180205	11/2/79	6: 59: 40	27	-32.5	-178.1	67.3	14.2	0.21	-77.2	27	1.2	-9.6	38.3	5.2	0.14	-42.7				
6	44 179	30813365	11/2/79	8: 33: 33	27	-23.4	158.4	54.2	13.3	0.25	-59.6	27	-10.6	-33.1	36.7	6.6	0.18	-34.9				
7	44 179	36443515	11/2/79	10: 7: 28	27	-23.8	135.0	55.7	17.4	0.31	-65.6	27	-16.3	-56.5	26.6	6.2	0.23	-64.1				
8	44 179	42071703	11/2/79	11: 41: 11	27	-37.3	111.5	53.3	17.6	0.33	-64.8	27	-18.1	-80.0	25.5	6.0	0.23	-28.9				
9	44 179	47704805	11/2/79	13: 15: 4	30	-48.2	89.1	51.7	15.7	0.30	-60.3	30	-25.1	-103.5	31.6	4.1	0.13	-39.8				
10	44 179	53336923	11/2/79	14: 48: 52	23	-42.8	41.1	56.6	19.1	0.34	-70.0	23	-50.4	-150.4	27.5	1.5	0.06	-28.7				
11	44 179	58960190	11/2/79	16: 22: 40	23	-33.2	17.7	58.7	22.6	0.39	-69.1	23	-22.2	-173.8	34.6	5.4	0.16	-40.1				
12	44 179	64598209	11/2/79	17: 56: 33	17	-20.2	-5.8	55.9	21.3	0.38	*****	17	-21.3	162.7	33.2	9.7	0.29	-40.1				
13	44 179	70600214	11/2/79	19: 36: 40	17	-13.3	-29.2	50.1	9.7	0.19	*****	17	-21.3	139.2	30.8	11.1	0.36	-40.8				
14	44 179	75857528	11/2/79	21: 4: 17	10	-12.2	-52.7	41.9	10.1	0.24	-48.8	10	-25.6	115.8	33.9	6.7	0.20	-35.3				
15	44 179	81480797	11/2/79	22: 38: 5	10	-27.6	-76.2	42.6	7.2	0.17	-48.1	10	-27.4	92.3	26.3	7.2	0.27	-30.6				
16	44 180	7173413	11/3/79	0: 11: 57	7	-34.7	-99.6	43.6	11.3	0.26	-52.9	7	-24.3	68.8	31.5	3.1	0.00	-28.1				
17	44 180	6346017	11/3/79	1: 45: 46	7	-37.5	-123.1	44.9	8.8	0.20	-49.4	7	-16.3	45.4	32.2	3.0	0.09	-32.3				
18	44 180	11969225	11/3/79	3: 19: 29	3	-27.2	-146.6	40.3	8.4	0.21	-43.7	3	-6.9	28.1	31.2	2.7	0.09	-43.0				
19	44 180	17599186	11/3/79	4: 23: 19	3	-18.3	-170.0	37.6	13.4	0.28	-43.2	10	4.9	-1.5	33.5	3.7	0.11	-32.0				
20	44 180	23062125	11/3/79	6: 24: 24	10	-14.6	166.5	37.2	6.5	0.15	-40.6	10	5.8	-25.0	30.0	-4.0	-0.13	-22.9				
21	44 180	28857773	11/3/79	8: 0: 57	10	-3.8	143.1	36.5	6.9	0.19	-40.8	27	-1.2	-48.5	16.3	2.8	0.17	-18.5				
22	44 180	34482595	11/3/79	9: 34: 46	27	-8.1	119.6	29.5	11.5	0.39	-36.7	27	-11.5	-71.9	16.0	2.6	0.17	-35.6				
23	44 180	40116109	11/3/79	11: 8: 36	27	-24.3	96.1	38.2	10.4	0.27	-43.8	23	-30.0	-95.4	25.1	0.9	0.04	-27.7				
24	44 180	45749213	11/3/79	12: 42: 29	23	-27.8	72.7	40.0	14.0	0.35	-47.6	23	-29.8	-118.8	21.0	2.8	0.13	-22.4				
25	44 180	51337336	11/3/79	14: 16: 22	23	-9.4	49.2	28.9	7.8	0.27	36.7	33	-23.3	-142.3	21.9	-1.6	-0.07	-22.1				
26	44 180	57335561	11/3/79	15: 50: 10	33	-14.5	25.8	45.0	18.4	0.41	-56.2	33	-12.5	-165.6	18.4	-7.0	-0.38	-13.6				
27	44 180	62641633	11/3/79	17: 24: 1	33	-20.4	2.3	55.4	23.3	0.42	-65.7	***	*****	*****	*****	*****	*****	-13.6				
28	44 180	72953992	11/3/79	20: 15: 53	***	*****	*****	*****	*****	*****	-65.7	***	*****	*****	*****	*****	*****	-65.2				
29	44 180	74015482	11/3/79	20: 33: 35	33	-3.7	-44.6	52.0	19.2	0.37	-50.7	33	-1.2	123.9	15.5	9.8	0.63	-21.5				
30	44 180	79520278	11/3/79	22: 5: 20	33	-28.1	-68.1	45.6	9.9	0.22	-55.4	33	-30.7	100.4	28.6	3.6	0.34	-35.9				
31	44 180	85153388	11/3/79	23: 33: 13	33	-41.8	-91.5	40.3	11.6	0.29	-55.4	33	-39.9	77.0	30.1	2.5	0.08	*****				
32	44 181	4381319	11/4/79	1: 13: 1	33	-37.9	-115.0	54.8	16.1	0.29	-66.7	33	-20.4	53.5	23.6	-2.8	-0.12	-19.9				
33	44 181	10309513	11/4/79	2: 46: 49	30	-52.5	-138.4	55.2	18.0	0.33	-67.9	30	-10.9	30.0	25.1	3.7	0.15	-25.2				
34	44 181	15639903	11/4/79	4: 20: 39	30	-28.8	-161.9	39.1	8.4	0.21	-44.9	30	13.5	6.6	37.5	5.1	0.14	-37.2				
35	44 181	21258036	11/4/79	5: 54: 45	23	-24.2	174.6	50.5	7.6	0.15	-55.5	23	-9.1	-16.9	37.7	-7.6	-0.20	-30.4				
36	44 181	2696231	11/4/79	7: 28: 16	23	-22.9	151.2	47.2	7.4	0.16	-50.9	23	-3.3	-40.3	23.0	1.1	0.05	-25.0				
37	44 181	3232332	11/4/79	9: 2: 12	27	-14.4	127.7	41.2	9.2	0.22	-43.2	27	-11.4	-63.8	22.6	2.0	0.09	-28.0				
38	44 181	38153133	11/4/79	10: 35: 53	27	-40.2	104.3	51.1	14.5	0.28	-58.5	27	-20.6	-87.2	10.8	-0.7	-0.06	-58.4				
39	44 181	4378377	11/4/79	12: 9: 43	20	-40.1	80.8	41.4	14.7	0.36	-47.4	20	-26.0	-110.7	19.3	2.3	0.12	-22.6				
40	44 181	49411970	11/4/79	13: 43: 31	20	-27.0	57.3	41.1	13.5	0.33	-50.2	20	-24.8	-134.2	20.0	-1.0	-0.05	-18.0				

ORIGINAL PAGE IS  
OF POOR QUALITY



PASS	MJD	MSEC	DATE	ASCENDING					DESCENDING					DELTA			
				KE	D	E	F	I	L/2	DELTA B	KE	D	E	F	I	F	L
41	44181	5547204	11/4/79	17	-13.8	33.9	37.0	12.9	0.54	-43.7	17	-16.8	-157.6	20.9	-2.4	-0.11	-14.4
42	44181	6067052	11/4/79	17	-3.8	10.4	39.8	22.3	0.56	-52.9	20	-7.7	178.9	24.1	2.9	0.12	-24.1
43	44181	6629947	11/4/79	20	5.2	-13.7	37.7	19.1	0.40	-43.6	20	-3.0	155.5	20.2	1.2	0.06	-13.7
44	44181	7073321	11/4/79	20	10.5	-36.5	36.1	7.0	0.19	-35.6	10	-2.9	132.0	13.3	2.4	0.18	-16.0
45	44181	7239653	11/4/79	10	4.3	-39.9	30.4	5.5	0.18	-36.1	10	-9.7	108.6	25.2	2.6	0.10	-24.9
46	44181	7755584	11/4/79	10	-19.8	-83.4	32.7	3.4	0.26	-40.1	3	-22.4	85.1	18.7	1.9	0.10	-21.4
47	44182	8318894	11/5/79	3	-31.5	-126.8	31.8	6.0	0.14	-36.6	3	-20.4	61.6	23.1	-0.2	-0.01	-20.9
48	44182	8048701	11/5/79	3	-34.1	-130.3	27.4	5.5	0.20	-32.6	0	-8.5	38.2	25.5	0.1	0.09	-22.0
49	44182	1367177	11/5/79	0	-11.7	-153.8	26.4	4.9	0.19	-24.9	0	0.8	14.7	27.5	0.2	0.01	-13.9
50	44182	1929967	11/5/79	0	-0.9	-177.2	34.1	3.6	0.10	-32.8	3	8.2	-8.7	26.3	-1.4	-0.05	-22.3
51	44182	2432692	11/5/79	3	3.0	159.3	30.0	7.6	0.25	-33.3	3	11.0	-32.2	10.4	-1.0	-0.09	-8.0
52	44182	3055511	11/5/79	3	0.4	135.9	24.8	9.0	0.32	-30.0	7	9.9	-55.6	11.8	-1.4	-0.12	-13.3
53	44182	3618325	11/5/79	7	-4.7	112.4	25.6	11.3	0.44	-33.3	7	-2.5	-79.1	14.9	3.3	0.22	-35.0
54	44182	4120330	11/5/79	10	-15.6	89.0	27.0	7.4	0.27	-31.9	10	-4.3	-102.5	20.1	1.4	0.07	-23.7
55	44182	4744359	11/5/79	10	-14.5	65.5	28.0	6.7	0.23	-32.9	10	-9.1	-126.0	16.5	-1.5	-0.09	-13.4
56	44182	5307670	11/5/79	7	0.8	42.0	24.6	7.7	0.31	-29.7	7	-10.1	-149.5	9.8	-2.7	-0.28	-4.0
57	44182	5870026	11/5/79	7	9.1	18.6	29.4	7.7	0.26	-28.1	7	0.8	-172.9	14.3	-1.3	-0.09	-10.9
58	44182	6432839	11/5/79	10	24.4	-4.9	26.9	9.4	0.35	-29.1	10	9.7	163.6	11.7	1.7	0.15	-8.9
59	44182	6995654	11/5/79	10	21.6	-28.3	28.6	6.8	0.24	-24.9	10	6.9	140.2	9.9	3.0	0.30	-10.2
60	44182	7558843	11/5/79	3	9.6	-51.8	27.3	7.1	0.26	-31.6	3	-15.4	116.7	21.0	2.0	0.10	-17.8
61	44182	8121177	11/5/79	3	0.3	-75.2	30.7	5.4	0.18	-31.6	3	-22.3	93.3	13.6	2.1	0.15	-14.4
62	44183	4433316	11/6/79	7	-6.2	-98.7	31.9	6.8	0.21	-37.8	7	-9.9	69.8	23.4	-3.1	-0.13	-17.3
63	44183	6067353	11/6/79	7	-13.6	-122.1	27.7	5.6	0.20	-30.4	7	0.1	46.4	23.7	-2.2	-0.09	-19.5
64	44183	1169554	11/6/79	10	-6.7	-145.6	27.7	3.2	0.12	-26.2	10	17.0	22.9	19.3	-3.7	-0.19	-26.9
65	44183	1732664	11/6/79	10	3.2	-169.0	24.1	1.6	0.07	-22.1	10	20.3	-0.5	18.5	-2.7	-0.15	-9.8
66	44183	2295191	11/6/79	7	3.9	167.5	21.6	4.7	0.22	-23.3	7	11.7	-24.0	12.1	1.1	0.09	-9.2
67	44183	2931740	11/6/79	7	9.7	144.1	24.9	1.9	0.08	-26.0	13	7.5	-47.4	6.7	0.5	0.08	-7.2
68	44183	3420729	11/6/79	13	8.0	120.6	23.7	9.9	0.42	-28.2	13	6.6	-70.9	7.0	0.7	0.10	-7.1
69	44183	3983548	11/6/79	13	2.8	97.8	24.6	6.1	0.25	*****	10	-1.0	-94.4	12.9	-2.0	-0.15	-13.5
70	44183	4546367	11/6/79	10	-2.8	73.7	19.7	4.2	0.22	-19.9	10	-7.2	-117.8	10.7	-2.1	-0.19	-6.5
71	44183	5109087	11/6/79	10	1.4	50.2	17.7	6.2	0.35	*****	3	-6.1	-141.3	9.7	-2.4	-0.25	-4.5
72	44183	5671906	11/6/79	3	20.2	26.8	20.1	5.0	0.25	-19.6	***	*****	*****	*****	*****	*****	-4.5
73	44183	6086767	11/6/79	***	*****	*****	*****	*****	*****	*****	3	10.2	171.8	10.0	-0.5	-0.05	-6.8
74	44183	6797641	11/6/79	3	33.1	-20.1	21.3	4.9	0.23	-19.9	3	8.9	148.4	7.7	1.6	0.21	-7.0
75	44183	7360460	11/6/79	3	26.1	-43.6	17.9	3.5	0.20	-17.3	3	2.0	124.9	11.5	0.1	0.01	-6.6
76	44183	7922786	11/6/79	3	10.6	-67.0	19.2	4.3	0.22	-23.3	3	-14.6	101.5	10.6	-2.5	-0.23	-6.5
77	44183	8486097	11/6/79	3	4.6	-90.5	20.8	5.6	0.27	-23.4	10	-11.2	78.0	11.8	-5.0	-0.43	-5.1
78	44184	4084239	11/7/79	10	-5.4	-113.9	32.0	3.2	0.10	-33.9	10	14.9	54.6	17.8	-3.9	-0.22	-15.0
79	44184	4089157	11/7/79	20	-4.5	-137.4	27.0	3.7	0.14	-28.3	20	15.4	31.1	18.4	-2.8	-0.15	-11.0
80	44184	4513804	11/7/79	20	-9.5	-160.8	29.9	7.4	0.25	-33.6	20	24.7	7.7	19.9	-3.5	-0.18	-9.1

ORIGINAL PAGE IS  
OF POOR QUALITY



PASS	MJD	MSEC	DATE	LR	MN	SC	ASCENDING					DESCENDING					I/E DELTA B			
							KE	D	ECL	ECL	E	I	I/E	DELTA B	KE	D	ECL	ECL	E	I
81	44 184	269727J	11/7/79	17	49	32	17	1.2	175.7	29.1	3.3	0.11	-30.5	17	18.2	-15.8	20.7	-0.8	-0.33	-14.9
82	44 184	269959J	11/7/79	7	23	15	17	0.8	152.3	26.9	7.5	0.28	-30.4	17	9.5	-39.2	5.7	0.2	0.03	-6.7
83	44 184	32219208	11/7/79	8	56	59	23	-3.4	128.8	37.7	10.9	0.29	-40.2	23	-4.6	-62.7	17.1	0.7	0.39	-23.4
84	44 184	37855319	11/7/79	10	30	55	23	-17.2	105.4	46.0	15.1	0.33	-54.2	23	5.7	-86.1	15.2	5.0	0.33	-18.2
85	44 184	43478537	11/7/79	12	43	38	23	-22.6	81.9	26.9	13.5	0.39	-30.6	23	-7.9	-109.6	25.0	4.4	0.18	-28.5
86	44 184	49101837	11/7/79	13	38	21	23	-19.5	58.5	29.0	10.7	0.37	-37.0	23	-5.8	-133.9	15.9	-4.7	-0.31	-9.6
87	44 184	54729031	11/7/79	15	12	13	37	-16.6	35.0	31.5	10.5	0.33	-37.4	37	-13.5	-156.5	19.0	-3.3	-0.17	-12.9
88	44 184	60357244	11/7/79	16	46	2	37	-18.7	11.6	70.2	26.6	0.38	-85.4	37	-18.0	-179.9	45.5	12.7	0.28	-55.7
89	44 184	65985430	11/7/79	18	19	45	40	-25.4	-11.9	83.9	36.7	0.44	-104.7	40	-18.6	156.6	28.7	17.9	0.53	-40.4
90	44 184	71016506	11/7/79	19	53	36	40	-13.6	-35.3	60.4	19.8	0.33	****	23	-29.0	133.2	38.4	17.6	0.46	-56.6
91	44 184	77239834	11/7/79	21	27	19	23	-25.1	-58.8	47.7	14.5	0.30	-61.6	23	-36.8	109.7	43.4	10.2	0.24	-52.2
92	44 184	82468019	11/7/79	23	1	8	23	-49.2	-82.2	48.0	16.7	0.35	-59.3	27	-35.7	86.3	31.5	3.3	0.10	-34.4
93	44 184	2091240	11/8/79	0	34	51	27	-54.3	-105.7	52.7	16.4	0.31	15.1	27	-33.7	62.8	40.9	6.7	0.16	-45.9
94	44 184	2996236	11/8/79	2	8	39	27	-54.7	-129.1	50.2	14.7	0.29	-56.5	20	-8.1	39.4	38.0	6.8	0.18	-41.0
95	44 184	7719474	11/8/79	2	8	44	20	-42.3	-152.6	54.6	14.8	0.27	-60.7	20	3.3	15.9	40.6	7.7	0.19	-34.9
96	44 184	13346668	11/8/79	3	42	31	20	-30.3	-176.5	58.8	8.7	0.15	29.2	47	6.4	-7.5	42.5	5.9	0.14	-44.6
97	44 184	13351534	11/8/79	5	10	14	37	-54.3	160.5	58.4	3.5	0.16	-59.6	47	-13.7	-31.0	35.2	-0.2	-0.00	*****
98	44 184	18974861	11/8/79	8	23	46	47	-55.7	137.1	81.2	27.4	0.34	-103.0	37	-11.6	-54.4	20.2	3.0	0.40	-25.3
99	44 184	24558132	11/8/79	8	23	46	37	-74.5	113.6	88.7	26.2	0.30	-103.3	37	-49.3	-77.9	31.2	13.3	0.62	-46.2
100	44 184	30231233	11/8/79	9	57	35	37	-80.6	90.2	88.9	22.2	0.25	-98.3	30	-46.0	-101.3	38.8	14.7	0.38	-55.3
101	44 184	35855477	11/8/79	11	31	18	37	-80.6	90.2	88.9	22.2	0.25	-98.3	30	-46.0	-101.3	38.8	14.7	0.38	-55.3
102	44 184	41483672	11/8/79	13	5	6	23	-39.2	43.3	52.5	17.4	0.33	-65.1	23	-46.9	-148.2	35.4	4.7	0.13	-36.5
103	44 184	47106940	11/8/79	14	38	55	17	2.3	-3.6	43.2	12.8	0.30	-48.7	17	-10.4	164.9	26.1	4.9	0.19	-26.0
104	44 184	52740042	11/8/79	16	12	39	23	-17.9	19.8	47.9	13.6	0.23	-50.9	23	-14.4	-171.6	35.3	3.1	0.09	*****
105	44 184	58459370	11/8/79	17	46	27	17	2.3	-3.6	43.2	12.8	0.30	-48.7	17	-10.4	164.9	26.1	4.9	0.19	-26.0
106	44 184	63992430	11/8/79	19	20	15	17	4.5	-27.1	42.0	10.0	0.24	-0.5	17	-17.7	141.5	26.5	7.8	0.29	-30.9
107	44 184	69610833	11/8/79	20	54	1	17	-12.5	-50.5	37.7	12.6	0.33	-45.8	17	-30.9	118.0	33.4	7.2	0.22	-33.5
108	44 184	75241969	11/8/79	22	27	50	17	-19.2	-73.9	43.5	11.4	0.24	-55.5	17	-31.7	94.6	31.0	6.8	0.22	-34.7
109	44 184	80365239	11/8/79	0	1	28	23	-37.4	-97.4	49.0	15.4	0.33	-63.7	23	-32.1	71.1	37.7	3.9	0.19	-37.1
110	44 184	934225	11/9/79	1	35	14	23	-56.0	-120.8	55.0	17.7	0.32	-68.4	23	-21.6	47.7	34.5	4.3	0.12	-39.2
111	44 184	5714779	11/9/79	3	9	7	23	-41.4	-144.3	48.0	13.5	0.28	-54.6	23	0.5	24.2	34.9	7.4	0.21	-34.4
112	44 184	11342912	11/9/79	3	9	7	23	-21.9	-167.7	49.9	12.2	0.24	-57.7	23	9.4	0.8	35.3	7.4	0.21	-34.0
113	44 184	16371096	11/9/79	4	42	36	27	-22.2	168.8	52.5	11.2	0.21	-60.3	27	3.5	-22.7	40.2	-3.0	-0.07	-31.9
114	44 184	16976014	11/9/79	5	10	39	27	-19.7	145.4	42.9	10.0	0.23	-51.3	13	-4.5	-46.1	22.6	5.0	0.22	-25.1
115	44 184	22593234	11/9/79	7	50	23	13	-15.8	121.9	36.7	12.3	0.33	-44.2	13	-13.4	-69.5	20.9	8.6	0.41	-28.8
116	44 184	28223527	11/9/79	7	50	23	13	-18.9	98.5	34.9	9.4	0.27	-41.9	40	-24.7	-93.0	22.7	0.9	0.04	-22.2
117	44 184	38228432	11/9/79	12	31	38	40	-21.0	75.0	37.9	9.9	0.26	-41.3	40	-31.5	-116.4	36.9	4.2	0.11	-35.8
118	44 184	39474939	11/9/79	14	5	26	40	-67.2	51.6	70.3	28.3	0.40	-93.1	47	-25.7	-139.9	23.3	-3.1	-0.13	-15.2
119	44 184	39479939	11/9/79	15	39	13	47	-60.3	28.2	91.5	33.7	0.37	-113.1	47	-31.6	-163.3	35.2	6.0	0.17	-112.5
120	44 184	45098231	11/9/79	17	12	36	47	-57.4	4.7	73.5	31.4	0.43	-92.0	43	-30.0	173.2	38.8	14.0	0.34	-40.2
121	44 184	45103173	11/9/79	18	40	40	43	3.2	-13.7	49.7	12.0	0.24	-50.6	43	-24.4	149.8	41.8	14.4	0.35	*****

ORIGINAL PAGE IS  
OF POOR QUALITY

PASS	MJD	HSEC	DATE	ASCENDING				DESCENDING				I/P DELTA B						
				HR	MIN	SEC	KP	D	EQL	EQL	E	I	I/P	DELTA	B	EQL	E	I
121	44 186	73232553	11/9/79	20:20:43	43	-13.8	-42.2	70.0	24.6	0.35	-74.4	33	-45.7	102.9	48.1	12.3	0.26	-53.4
122	44 186	78850903	11/9/79	21:54:10	33	-34.8	-65.6	54.9	15.2	0.28	-68.3	33	-45.7	102.9	45.8	8.4	0.18	-54.7
123	44 186	78855823	11/9/79	21:54:15	33	-34.8	-65.6	54.9	15.2	0.28	-68.3	33	-45.7	102.9	45.8	8.4	0.18	-54.7
124	44 187	84476872	11/9/79	23:27:56	33	-47.5	-89.1	51.0	15.0	0.30	-68.1	13	-53.5	79.5	44.0	5.9	0.13	-48.6
125	44 187	3701373	11/10/79	1:1:41	13	-66.3	-112.5	59.0	10.2	0.17	-66.6	13	-41.0	56.0	44.3	7.6	0.17	-50.9
126	44 187	3706294	11/10/79	1:1:46	13	-66.3	-112.5	59.0	10.2	0.17	-66.6	13	-41.0	56.0	44.3	7.6	0.17	-50.9
127	44 187	9329563	11/10/79	2:35:29	13	-67.7	-135.9	55.4	11.4	0.21	-61.5	20	-24.9	32.6	38.3	7.9	0.20	-41.0
128	44 187	9334430	11/10/79	2:35:34	13	-67.7	-135.9	55.4	11.4	0.21	-61.5	20	-24.9	32.6	38.3	7.9	0.20	-41.0
129	44 187	14952833	11/10/79	4:9:12	20	-37.0	-159.4	51.4	12.0	0.23	-61.5	20	13.4	9.1	43.9	7.5	0.17	-40.1
130	44 187	14957749	11/10/79	4:9:17	20	-37.0	-159.4	51.4	12.0	0.23	-61.5	20	13.4	9.1	43.9	7.5	0.17	-40.1
131	44 187	20580773	11/10/79	5:43:09	17	-17.9	177.2	54.6	10.5	0.19	-61.4	17	9.1	-14.3	45.9	3.8	0.08	-47.3
132	44 187	20585689	11/10/79	5:43:05	17	-17.9	177.2	54.6	10.5	0.19	-61.4	17	9.1	-14.3	45.9	3.8	0.08	-47.3
133	44 187	26204047	11/10/79	7:16:44	17	-19.8	153.7	52.5	14.3	0.27	-48.9	17	-3.7	-37.7	30.9	5.8	0.19	-26.2
134	44 187	26208958	11/10/79	7:16:48	17	-19.8	153.7	52.5	14.3	0.27	-48.9	17	-3.7	-37.7	30.9	5.8	0.19	-26.2
135	44 187	31411456	11/10/79	8:43:31	***	*****	*****	*****	*****	*****	-48.9	13	-29.3	-61.2	*****	*****	*****	-31.6
136	44 187	35568950	11/10/79	9:52:48	10	24:16												
137	44 187	37456470	11/10/79	10:24:21	13	-31.5	106.8	46.0	16.5	0.36	-57.6	13	-37.1	-84.6	36.8	5.4	0.15	-38.8
138	44 187	37461330	11/10/79	10:24:21	13	-31.5	106.8	46.0	16.5	0.36	-57.6	13	-37.1	-84.6	36.8	5.4	0.15	-38.8
139	44 187	43081939	11/10/79	11:58:01	13	-30.6	83.4	40.3	11.1	0.28	-47.6	13	-36.8	-106.1	37.5	6.2	0.17	-43.6
140	44 187	43086879	11/10/79	11:58:06	13	-30.6	83.4	40.3	11.1	0.28	-47.6	13	-36.8	-106.1	37.5	6.2	0.17	-43.6
141	44 187	46705232	11/10/79	13:31:45	13	-34.2	60.0	44.9	11.0	0.24	-53.2	13	-35.0	-131.5	36.2	3.5	0.10	-38.2
142	44 187	46710149	11/10/79	13:31:50	13	-34.2	60.0	44.9	11.0	0.24	-53.2	13	-35.0	-131.5	36.2	3.5	0.10	-38.2
143	44 187	54328501	11/10/79	15:05:28	13	-27.9	36.5	41.6	14.4	0.35	-49.8	13	-34.9	-155.0	35.9	4.1	0.12	-47.1
144	44 187	54333408	11/10/79	15:05:33	13	-27.9	36.5	41.6	14.4	0.35	-49.8	13	-34.9	-155.0	35.9	4.1	0.12	-47.1
145	44 187	59956430	11/10/79	16:39:16	13	-4.5	13.1	44.5	14.7	0.33	-50.5	13	-30.5	-178.4	35.5	6.3	0.18	-38.4
146	44 187	59961370	11/10/79	16:39:21	13	-4.5	13.1	44.5	14.7	0.33	-50.5	13	-30.5	-178.4	35.5	6.3	0.18	-38.4
147	44 187	65579710	11/10/79	18:12:59	17	5.5	-10.4	39.0	15.4	0.39	-49.2	17	-22.1	158.2	31.8	6.5	0.20	-31.4
148	44 187	65584626	11/10/79	18:13:04	17	5.5	-10.4	39.0	15.4	0.39	-49.2	17	-22.1	158.2	31.8	6.5	0.20	-31.4
149	44 187	71202940	11/10/79	19:46:42	17	-2.4	-33.8	47.7	10.4	0.22	-46.4	17	-22.2	134.7	33.4	9.4	0.28	-41.1
150	44 187	71207837	11/10/79	19:46:47	17	-2.4	-33.8	47.7	10.4	0.22	-46.4	17	-22.2	134.7	33.4	9.4	0.28	-41.1
151	44 187	76826249	11/10/79	21:20:26	27	-20.1	-57.2	56.5	16.8	0.30	-73.8	27	-41.0	111.3	40.3	13.8	0.34	-48.5
152	44 187	76831166	11/10/79	21:20:31	27	-20.1	-57.2	56.5	16.8	0.30	-73.8	27	-41.0	111.3	40.3	13.8	0.34	-48.5
153	44 187	82454434	11/10/79	22:54:14	27	-43.9	-80.7	58.1	11.5	0.20	-69.5	30	-49.2	57.8	38.9	10.9	0.28	-47.5
154	44 187	82459352	11/10/79	22:54:19	27	-43.9	-80.7	58.1	11.5	0.20	-69.5	30	-49.2	57.8	38.9	10.9	0.28	-47.5
155	44 188	16777062	11/11/79	0:27:57	30	-53.6	-104.1	58.3	14.6	0.25	-70.2	30	-53.8	64.4	38.1	7.3	0.19	-41.4
156	44 188	16826243	11/11/79	0:28:02	30	-53.6	-104.1	58.3	14.6	0.25	-70.2	30	-53.8	64.4	38.1	7.3	0.19	-41.4
157	44 188	7300975	11/11/79	2:1:46	30	-55.6	-127.6	50.0	8.1	0.16	-59.6	33	10.8	41.3	22.1	-1.2	-0.06	-17.6
158	44 188	7305832	11/11/79	2:1:45	30	-55.6	-127.6	50.0	8.1	0.16	-59.6	33	10.8	41.3	22.1	-1.2	-0.06	-17.6
159	44 188	12929160	11/11/79	3:35:29	33	-39.9	-151.0	39.6	6.9	0.17	-59.6	33	26.6	17.5	26.7	2.2	0.08	-18.9
160	44 188	12934078	11/11/79	3:35:34	33	-39.9	-151.0	39.6	6.9	0.17	-59.6	33	26.6	17.5	26.7	2.2	0.08	-18.9
161	44 188	18550454	11/11/79	5:9:10	33	-17.4	-174.4	53.5	7.8	0.15	-56.7	17	48.5	-5.9	28.2	2.2	0.08	-23.0
162	44 188	18555380	11/11/79	5:9:15	33	-17.4	-174.4	53.5	7.8	0.15	-56.7	17	48.5	-5.9	28.2	2.2	0.08	-23.0
163	44 188	24176680	11/11/79	6:42:56	17	-6.0	102.1	40.6	6.3	0.20	-56.7	17	31.9	-29.3	24.8	-0.3	-0.01	-19.7
164	44 188	24181539	11/11/79	6:43:01	17	-6.0	102.1	40.6	6.3	0.20	-56.7	17	31.9	-29.3	24.8	-0.3	-0.01	-19.7
165	44 188	29801909	11/11/79	8:16:41	17	-10.6	138.7	38.5	11.9	0.31	-47.2	20	4.6	-52.8	15.5	2.5	0.16	-17.5
166	44 188	29806835	11/11/79	8:16:46	17	-10.6	138.7	38.5	11.9	0.31	-47.2	20	4.6	-52.8	15.5	2.5	0.16	-17.5
167	44 188	35425188	11/11/79	9:50:25	20	-8.7	115.3	23.5	14.5	0.49	-41.0	20	-6.9	-76.2	13.4	3.7	0.28	-12.8
168	44 188	35430105	11/11/79	9:50:30	20	-8.7	115.3	23.5	14.5	0.49	-41.0	20	-6.9	-76.2	13.4	3.7	0.28	-12.8
169	44 188	41048458	11/11/79	11:24:08	20	-4.7	91.8	22.7	5.1	0.23	-27.6	23	-10.0	-99.7	21.5	0.8	0.04	-26.2
170	44 188	41053374	11/11/79	11:24:13	20	-4.7	91.8	22.7	5.1	0.23	-27.6	23	-10.0	-99.7	21.5	0.8	0.04	-26.2
171	44 188	46671728	11/11/79	12:57:51	20	-8.6	68.4	22.5	3.9	0.17	-26.7	20	-7.2	-123.1	13.6	-5.1	-0.37	-8.5
172	44 188	46676645	11/11/79	12:57:56	20	-8.6	68.4	22.5	3.9	0.17	-26.7	20	-7.2	-123.1	13.6	-5.1	-0.37	-8.5
173	44 188	52295979	11/11/79	14:31:35	20	1.4	44.9	7.6	2.9	0.38	-26.7	30	-4.7	-146.5	6.2	-5.8	-0.93	1.9
174	44 188	52300897	11/11/79	14:31:40	20	1.4	44.9	7.6	2.9	0.38	-26.7	30	-4.7	-146.5	6.2	-5.8	-0.93	1.9
175	44 188	57922192	11/11/79	16:05:22	30	20.9	21.5	10.2	0.3	0.03	-6.7	30	13.6	-170.0	1.6	-7.3	-4.44	7.3
176	44 188	57927117	11/11/79	16:05:27	30	20.9	21.5	10.2	0.3	0.03	-6.7	30	13.6	-170.0	1.6	-7.3	-4.44	7.3
177	44 188	63545469	11/11/79	17:39:05	20	52.2	-1.9	17.5	0.2	0.01	-12.7	20	20.0	166.6	1.4	-1.7	-1.21	4.8
178	44 188	63550386	11/11/79	17:39:10	20	52.2	-1.9	17.5	0.2	0.01	-12.7	20	20.0	166.6	1.4	-1.7	-1.21	4.8
179	44 188	69168740	11/11/79	19:12:48	20	45.5	-25.4	13.9	0.5	0.04	-10.0	20	9.1	143.2	6.8	0.0	0.01	-6.6
180	44 188	69173657	11/11/79	19:12:53	20	45.5	-25.4	13.9	0.5	0.04	-10.0	20	9.1	143.2	6.8			

PASS	MJD	MSEC	DATE	HR	MIN	SEC	ASCENDING							DESCENDING						
							KP	D	EQL	EJL	E	I	I/C	DELTA F	KP	D	EQL	EJL	E	I
161	44 189	33012253	11/12/79	10:50:12	23	-24.9	100.3	36.0	5.5	0.15	-38.1	23	-10.9	-01.2	29.7	-0.3	-0.02	-21.2		
162	44 189	44635523	11/12/79	12:23:55	23	-26.5	76.8	32.6	3.7	0.30	-35.7	23	-18.7	-114.6	23.0	3.1	0.13	-35.1		
163	44 189	50253876	11/12/79	13:57:38	23	-19.4	53.4	36.9	3.4	0.25	-35.7	23	-15.2	-138.1	25.0	1.2	0.05	-26.0		
164	44 189	55877142	11/12/79	15:31:17	23	-14.8	30.0	35.9	12.2	0.34	-42.7	23	-7.5	-161.5	24.3	1.2	0.05	-25.9		
165	44 189	61503415	11/12/79	17:05:00	23	7.1	6.5	40.9	13.4	0.38	-48.0	20	9.9	175.1	24.2	4.4	0.18	-27.7		
166	44 189	67121716	11/12/79	18:39:46	20	24.7	-16.9	32.0	5.5	0.17	-35.6	20	15.8	151.6	13.1	2.0	0.15	-12.1		
167	44 189	72744908	11/12/79	20:12:24	20	20.0	-40.3	18.3	2.5	0.14	*****	17	2.0	126.2	20.0	3.2	0.15	-21.0		
168	44 189	76365258	11/12/79	21:46:08	17	-6.8	-63.8	25.5	3.0	0.31	*****	17	-4.0	104.8	26.2	3.1	0.12	-21.6		
169	44 189	83989552	11/12/79	23:19:49	17	-25.0	-87.2	25.0	10.9	0.44	*****	40	-26.8	81.3	23.9	0.4	0.01	-24.6		
170	44 190	3212828	11/13/79	00:53:32	40	-56.2	-110.6	49.8	10.3	0.33	-67.9	40	-20.6	57.7	37.8	2.7	0.07	-40.9		
171	44 190	6836102	11/13/79	02:27:21	40	-81.8	-134.1	74.1	27.9	0.38	-98.2	47	-21.3	34.5	43.0	10.1	0.23	-50.7		
172	44 190	8841019	11/13/79	04:00:59	47	-83.9	-157.5	77.3	25.4	0.33	-93.0	47	-20.2	11.0	55.3	14.4	0.26	*****		
173	44 190	1445937	11/13/79	05:34:42	47	-80.7	179.1	98.0	26.2	0.27	-115.7	37	-24.6	-12.4	53.5	11.7	0.22	-59.3		
174	44 190	20082641	11/13/79	07:34:47	37	-71.5	155.7	91.6	25.6	0.24	-105.8	37	-23.6	-35.8	45.2	10.7	0.24	-44.2		
175	44 190	25705912	11/13/79	09:08:25	43	-102.5	132.2	107.9	24.1	0.26	-121.8	43	-32.1	-59.3	36.1	7.3	0.21	-40.5		
176	44 190	25719626	11/13/79	10:42:07	43	-122.9	138.8	122.5	37.5	0.31	-145.9	43	-35.9	-82.7	40.6	20.0	0.49	-60.2		
177	44 190	31352131	11/13/79	11:15:55	40	-129.1	85.4	128.7	36.2	0.28	-148.7	40	-60.5	-106.1	60.7	27.4	0.45	-89.2		
178	44 190	36950484	11/13/79	11:49:33	40	-118.3	61.9	128.7	25.8	0.20	-142.7	40	-63.1	-129.5	50.4	15.3	0.31	-136.0		
179	44 190	42578671	11/13/79	13:23:17	40	-127.0	38.5	123.9	38.5	0.31	-151.8	50	-55.2	-153.0	50.7	7.3	0.16	-59.7		
180	44 190	48197024	11/13/79	14:57:03	50	-134.4	15.1	116.0	46.4	0.40	-147.1	50	-52.4	-176.4	65.7	23.3	0.36	-86.0		
181	44 190	53823244	11/13/79	16:30:41	50	-98.6	-8.4	115.4	47.7	0.41	-148.2	53	-50.8	160.2	66.2	24.5	0.37	-87.9		
182	44 190	59441538	11/13/79	18:04:29	53	-83.8	-31.8	128.9	31.5	0.31	-134.6	53	-41.5	136.7	*****	*****	0.39	-89.9		
183	44 190	65008487	11/13/79	19:38:13	43	-86.9	-35.2	97.6	23.2	0.24	-116.2	43	-56.9	113.3	66.4	26.0	0.42	-76.1		
184	44 190	70693054	11/13/79	21:11:46	43	-128.0	-78.6	104.0	30.2	0.29	-135.0	43	-49.1	89.9	53.9	22.8	0.34	-91.8		
185	44 191	76311408	11/14/79	00:45:29	50	-152.1	-102.1	112.2	36.5	0.33	-146.4	50	-81.0	66.4	72.1	24.6	0.33	-132.0		
186	44 191	81929701	11/14/79	01:19:11	50	-158.1	-125.5	110.5	40.0	0.36	-147.1	43	-62.8	43.0	65.9	21.7	0.33	-85.8		
187	44 191	81934678	11/14/79	01:52:55	43	-128.8	-148.9	99.7	30.7	0.31	-123.4	43	-41.4	19.6	72.0	23.8	0.30	-92.4		
188	44 191	6786431	11/14/79	01:53:00	43	-84.5	-172.4	98.7	22.0	0.22	-114.4	27	-32.3	-3.8	76.9	23.0	0.18	-88.8		
189	44 191	12395639	11/14/79	03:26:40	27	-67.3	164.2	81.4	18.9	0.23	-93.2	27	-40.4	-27.3	74.8	13.4	0.26	-78.9		
190	44 191	12400555	11/14/79	05:00:18	88	7:47	27	-57.0	140.8	75.3	19.2	0.26	-90.2	10	-55.0	-50.7	63.4	16.7	0.30	-78.4
191	44 191	16018908	11/14/79	06:34:02	10	-61.9	117.4	69.0	22.8	0.33	-85.1	10	-63.2	-74.1	59.6	18.1	0.08	-77.1		
192	44 191	16023825	11/14/79	08:04:25	10	-64.7	93.9	67.7	18.2	0.27	-78.7	7	-77.8	-97.5	69.0	3.8	0.23	-61.0		
193	44 191	23642178	11/14/79	09:41:30	7	-61.0	70.5	63.0	17.2	0.27	-78.7	7	-82.3	-121.0	53.0	12.2	0.19	-54.2		
194	44 191	23647094	11/14/79	11:15:04	7	-58.2	47.1	57.2	20.4	0.30	-75.4	10	-64.8	-144.4	49.7	9.4	0.15	-55.8		
195	44 191	25262499	11/14/79	12:48:56	10	-40.4	23.6	55.3	20.7	0.37	-70.0	10	-42.8	-167.8	51.0	7.9	0.20	-55.0		
196	44 191	25267415	11/14/79	14:23:57	10	-30.1	0.2	52.7	19.8	0.38	-63.5	3	-39.0	168.7	51.4	10.4	0.25	-60.2		
197	44 191	34885768	11/14/79	15:56:15	3	-27.6	-23.2	63.9	11.0	0.17	-63.9	3	-40.0	145.3	47.8	12.2	0.20	-56.7		
198	44 191	34890635	11/14/79	17:29:49	0	-37.2	-70.1	57.9	13.7	0.24	-74.0	0	-43.8	121.9	51.1	10.4	0.24	-50.2		
199	44 191	40504039	11/14/79	18:53:32	0	-51.2	-93.5	58.5	13.8	0.24	-76.8	0	-52.7	75.0	48.6	6.4	0.13	-50.9		
200	44 191	46126402	11/14/79	20:37:11	0	-28.6	-30.6	*****	*****	*****	20.9	0	-43.8	121.9	51.1	10.4	0.13	-50.9		
	44 191	46131326	11/14/79	22:10:56	0	-37.2	-70.1	57.9	13.7	0.24	-74.0	0	-51.9	98.5	48.7	11.8	0.24	-50.2		
	44 191	46147114	11/14/79	23:44:34	0	-51.2	-93.5	58.5	13.8	0.24	-76.8	0	-52.7	75.0	48.6	6.4	0.13	-50.9		
	44 192	46177114	11/15/79	01:19:17	1	17.4	17.4	17.4	17.4	17.4	17.4	1	17.4	17.4	17.4	17.4	17.4	17.4	17.4	

ORIGINAL PAGE IS OF POOR QUALITY

PASS	MJD	MSEC	DATE	L	B	SC	ASCENDING					DESCENDING								
							AP	D	EQL	E	I	I/E	DELTA	AP	D	EQL	E	I	I/E	DELTA
201	44192	407027	11/15/79	1:16:24	1:16:24	1:16:24	0	-53.0	-110.9	59.0	12.2	0.21	-71.1	0	-41.5	51.0	44.3	7.1	1.16	-49.2
202	44192	103171	11/15/79	2:51:57	2:51:57	2:51:57	10	-53.1	-140.3	53.8	17.5	0.20	-63.3	10	-19.1	28.2	32.7	5.4	0.17	-32.5
203	44192	159364	11/15/79	4:25:36	4:25:36	4:25:36	10	-33.0	-103.6	47.5	0.5	0.14	-51.3	10	-9.7	4.8	41.5	0.6	0.16	-42.4
204	44192	215630	11/15/79	6:59:23	6:59:23	6:59:23	7	-22.5	172.3	46.1	6.1	0.13	-49.6	7	-8.4	-16.7	41.1	-0.6	-0.02	-49.1
205	44192	271840	11/15/79	9:33:28	9:33:28	9:33:28	7	-20.3	149.4	46.2	3.3	0.19	-40.2	7	-10.7	-42.1	32.5	3.0	0.09	-46.3
206	44192	328053	11/15/79	12:06:53	12:06:53	12:06:53	13	-22.5	125.6	42.7	15.2	0.33	-52.3	13	-29.4	-65.5	33.3	7.9	0.24	-40.5
207	44192	384285	11/15/79	14:40:28	14:40:28	14:40:28	13	-33.2	102.6	42.7	14.0	0.33	-53.3	13	-44.7	-38.9	38.1	7.2	0.19	-45.9
208	44192	440469	11/15/79	17:14:11	17:14:11	17:14:11	13	-30.4	79.1	36.0	11.7	0.33	-53.3	13	-36.2	-112.4	35.0	5.9	0.17	-41.2
209	44192	496662	11/15/79	19:47:51	19:47:51	19:47:51	13	-26.2	55.7	41.6	11.4	0.27	-53.7	13	-46.2	-135.3	35.5	2.3	0.06	-47.2
210	44192	552485	11/15/79	22:21:28	22:21:28	22:21:28	7	-19.5	32.3	34.2	12.6	0.37	-42.0	7	-29.2	-159.2	31.8	-0.5	-0.01	-30.6
211	44192	609147	11/15/79	0:55:33	0:55:33	0:55:33	7	-4.6	8.9	37.6	13.8	0.37	-44.1	3	-15.4	177.4	36.1	3.2	0.12	-40.4
212	44192	663351	11/15/79	3:29:50	3:29:50	3:29:50	3	3.5	-14.6	39.4	5.2	0.13	-37.4	3	-11.3	154.0	27.2	5.8	0.21	-28.6
213	44192	702243	11/15/79	6:10:42	6:10:42	6:10:42	10	*****	*****	*****	*****	*****	*****	10	-14.1	130.5	*****	*****	*****	-28.0
214	44192	777750	11/15/79	9:36:15	9:36:15	9:36:15	10	-0.9	-61.4	35.1	5.7	0.16	-42.7	10	-19.9	197.1	30.7	3.0	0.12	-29.2
215	44192	833884	11/15/79	12:09:43	12:09:43	12:09:43	10	-20.4	-84.6	39.4	8.1	0.21	-53.9	23	-19.0	83.7	22.0	-3.9	-0.18	-48.9
216	44193	034933	11/16/79	1:43:37	1:43:37	1:43:37	23	-31.1	-108.3	28.1	1.2	0.04	-30.0	23	-4.6	60.3	23.7	-9.9	-0.42	-14.9
217	44193	201737	11/16/79	4:17:10	4:17:10	4:17:10	23	-29.2	-131.7	20.6	-1.6	-0.08	-20.8	35	13.1	36.8	20.4	-3.3	-0.16	-15.0
218	44193	823573	11/16/79	7:50:54	7:50:54	7:50:54	33	-23.4	-155.1	38.9	5.6	0.14	-40.3	33	-4.7	13.4	35.7	1.1	0.03	-28.4
219	44193	138549	11/16/79	10:24:42	10:24:42	10:24:42	33	-33.2	-178.5	62.4	12.5	0.20	-69.8	37	-0.9	-10.0	*****	*****	*****	-70.9
220	44193	194773	11/16/79	13:58:11	13:58:11	13:58:11	37	-42.0	158.1	71.2	14.3	0.20	-77.0	37	-7.6	-33.4	27.5	0.4	0.01	-20.9
221	44193	250955	11/16/79	17:31:34	17:31:34	17:31:34	37	-37.5	134.0	57.7	11.5	0.20	-63.9	20	-13.7	-56.8	28.1	0.7	0.24	-36.1
222	44193	307143	11/16/79	21:05:32	21:05:32	21:05:32	20	-31.0	111.2	41.0	3.5	0.23	-45.5	20	-21.5	-80.3	20.8	3.1	0.15	-47.6
223	44193	363375	11/16/79	24:39:12	24:39:12	24:39:12	20	-41.4	87.8	42.7	10.9	0.26	-48.6	20	-25.9	-103.7	29.5		0.10	-35.3
224	44193	419527	11/16/79	28:12:54	28:12:54	28:12:54	20	-49.0	04.4	52.5	15.9	0.30	-64.6	20	-32.3	-127.1	30.0	0.	0.03	-30.3
225	44193	475740	11/16/79	31:46:32	31:46:32	31:46:32	27	-43.8	40.9	53.1	18.6	0.35	-67.9	27	-31.9	-150.5	31.3	2.4	0.08	-30.5
226	44193	531973	11/16/79	35:20:15	35:20:15	35:20:15	27	-34.7	17.5	56.8	20.9	0.37	-65.7	27	-23.0	-174.0	39.3	5.5	0.14	-65.0
227	44193	588156	11/16/79	39:03:55	39:03:55	39:03:55	27	-16.9	-5.9	54.0	24.5	0.45	-70.7	27	-14.1	162.6	30.5	9.1	0.30	-36.4
228	44193	644404	11/16/79	42:47:34	42:47:34	42:47:34	27	-9.1	-29.3	57.8	15.8	0.27	-57.5	27	-17.7	139.2	-15.8	7.1	-0.45	-43.7
229	44193	700592	11/16/79	46:31:17	46:31:17	46:31:17	20	-11.5	-52.7	43.4	11.4	0.26	-55.0	20	-26.5	115.3	37.2	0.7	0.18	-39.6
230	44193	756720	11/16/79	50:15:00	50:15:00	50:15:00	20	-25.6	-70.1	46.6	10.6	0.23	-59.8	20	-37.3	92.4	29.4	8.6	0.29	-52.5
231	44194	812959	11/17/79	0:08:33	0:08:33	0:08:33	33	-58.9	-99.6	58.6	15.3	0.26	-79.2	33	-33.3	69.0	41.0	5.7	0.14	-43.9
232	44194	513581	11/17/79	4:05:11	4:05:11	4:05:11	33	-56.2	-123.0	45.7	10.2	0.22	-53.9	33	-22.4	45.5	37.5	3.0	0.15	-41.4
233	44194	613685	11/17/79	8:01:16	8:01:16	8:01:16	23	-40.9	-146.4	42.9	9.8	0.23	-48.7	23	3.7	22.1	37.9	4.2	0.11	-34.7
234	44194	117552	11/17/79	11:49:32	11:49:32	11:49:32	23	-24.4	-169.8	49.4	8.8	0.13	-54.5	23	12.1	-1.3	33.2	1.1	0.03	-27.9
235	44194	173774	11/17/79	15:33:15	15:33:15	15:33:15	27	-21.8	166.8	47.1	9.2	0.19	-53.6	27	26.1	-24.7	34.3	-1.5	-0.05	-28.4
236	44194	229958	11/17/79	19:16:54	19:16:54	19:16:54	27	-17.5	143.3	43.1	7.1	0.16	-47.8	20	-3.6	-48.1	24.4	3.2	0.13	-27.9
237	44194	230007	11/17/79	23:00:37	23:00:37	23:00:37	20	-31.0	119.9	45.3	15.2	0.34	-54.9	20	-16.0	-71.6	23.1	7.5	0.32	-54.6
238	44194	286142	11/17/79	26:45:52	26:45:52	26:45:52	20	-25.8	90.5	36.6	6.4	0.18	-37.4	10	-40.3	-95.0	31.0	5.2	0.17	-38.5
239	44194	342347	11/17/79	30:30:37	30:30:37	30:30:37	10	-21.3	73.1	33.4	8.2	0.25	-38.2	10	-38.9	-118.4	25.5	3.4	0.13	-26.8
240	44194	398526	11/17/79	34:14:12	34:14:12	34:14:12	10	-15.1	49.7	28.3	11.1	0.33	-40.5	7	-25.9	-141.6	24.1	1.0	0.04	-23.1

ORIGINAL PAGE IS OF POOR QUALITY

PASS	M JO	NSFC	DATE	DR	HN	SC	ASCENDING	EQL	E	I	I/3	DELTA	E	I	I/E	DELTA	B				
				RE	D	EQL	KE	D	EQL	E	I	I/3	DELTA	E	I	I/E	DELTA	B			
241	44 19 4	56717525	11/17/79	15:17	45:17	17															
242	44 19 4	62330963	11/17/79	17:18	48:29	18	7	7.6	2.8	28.0	11.1	0.39	-32.1	20	-11.4	171.3	27.2	3.9	0.14	-30.5	
243	44 19 4	62335879	11/17/79	17:18	48:31	18															
244	44 19 4	67951283	11/17/79	18:22	52:36	20	20	24.0	-20.4	38.5	9.5	0.25	-40.4	20	1.1	147.9	22.3	5.3	0.24	-25.4	
245	44 19 4	73509637	11/17/79	20:26	56:14	20	20	14.4	-44.0	30.5	8.6	0.28	-33.3	10	-3.7	124.5	26.2	3.8	0.14	-29.1	
246	44 19 4	73574554	11/17/79	20:26	56:14	20															
247	44 19 4	79187994	11/17/79	21:33	59:32	21	10	-0.6	-67.4	30.0	6.7	0.22	-40.7	10	-13.8	101.1	22.5	3.2	0.14	-21.9	
248	44 19 4	84816347	11/17/79	23:33	63:31	23	10	-19.4	-90.8	29.7	3.3	0.28	*****	27	-25.2	77.7	23.5	0.0	0.00	-21.4	
249	44 19 5	40223905	11/18/79	1:1	7:3	1															
250	44 19 5	40288331	11/18/79	1:7	8	1	27	-29.4	-114.2	35.9	4.2	0.12	-38.7	27	6.6	54.3	18.3	-3.5	-9.36	-13.2	
251	44 19 5	9644039	11/18/79	2:40	44	2															
252	44 19 5	9648955	11/18/79	2:43	48	2	7	-19.5	-137.7	27.7	0.2	0.01	-24.9	7	16.4	30.8	14.9	-2.5	-0.17	-10.1	
253	44 19 5	15262353	11/18/79	4:14	22	4															
254	44 19 5	15267310	11/18/79	4:14	27	4	7	-7.2	-161.1	24.5	0.2	0.31	-20.7	7	31.9	7.4	22.0	-2.2	-0.10	-14.1	
255	44 19 5	20880748	11/18/79	5:48	0	5															
256	44 19 5	20885604	11/18/79	5:48	0	5	***	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	-14.1
257	44 19 5	24500728	11/18/79	6:4	20	6															
258	44 19 5	32755052	11/18/79	6:6	35	6	13	-9.2	128.7	*****	*****	*****	-37.0	13	-3.9	-62.6	17.1	2.9	0.17	-21.1	
259	44 19 5	3773513	11/18/79	10:23	58	10															
260	44 19 5	37743432	11/18/79	10:23	5	10	13	-13.7	105.3	31.5	3.6	0.31	-35.3	13	-8.3	-86.2	17.3	2.8	0.16	-34.8	
261	44 19 5	43358038	11/18/79	12:2	38	12															
262	44 19 5	43303014	11/18/79	12:2	43	12	10	-18.7	81.8	24.2	3.2	0.38	-29.3	10	-20.4	-109.6	22.8	3.7	0.16	-24.1	
263	44 19 5	48976452	11/18/79	13:36	16	13															
264	44 19 5	48981308	11/18/79	13:36	21	13	10	-15.1	58.4	28.9	5.8	0.23	-35.4	10	-17.9	-133.1	22.6	0.6	0.03	-23.5	
265	44 19 5	54594800	11/18/79	15:9	54	15															
266	44 19 5	54599723	11/18/79	15:9	59	15	10	-7.1	35.0	28.0	8.7	0.31	-31.7	10	-9.3	-156.5	19.3	-0.5	-0.03	-16.0	
267	44 19 5	60213101	11/18/79	16:4	33	16															
268	44 19 5	60218077	11/18/79	16:4	38	16	10	14.4	11.6	27.0	9.2	0.34	-31.0	10	-7.5	-179.9	22.9	2.3	0.10	-22.9	
269	44 19 5	65831515	11/18/79	18:17	11	18															
270	44 19 5	65830431	11/18/79	18:17	16	18	3	16.8	-11.8	27.4	3.2	0.34	-33.8	3	4.8	156.7	21.3	1.3	0.06	-17.6	
271	44 19 5	71449870	11/18/79	19:50	49	19															
272	44 19 5	71454786	11/18/79	19:50	54	19	3	17.4	-35.2	32.5	3.2	0.13	-33.8	3	-9.0	133.3	23.8	-2.4	-0.10	-21.2	
273	44 19 5	77067240	11/18/79	19:50	27	19															
274	44 19 5	77072157	11/18/79	19:50	32	19	3	2.8	-58.6	30.3	7.0	0.23	-39.2	3	-10.6	105.9	25.6	3.0	0.12	-26.0	
275	44 19 5	82690510	11/18/79	20:22	16	20															
276	44 19 5	82695427	11/18/79	20:22	15	20	3	-11.6	-82.1	29.0	8.2	0.21	-36.1	3	-16.7	86.5	19.8	1.2	0.06	-22.6	
277	44 19 6	10695427	11/18/79	20:22	46	20															
278	44 19 6	1069887	11/18/79	20:22	46	20	3	-21.6	-105.5	33.3	8.3	0.25	-42.2	3	-14.4	63.0	25.1	-0.5	-0.02	-25.0	
279	44 19 6	1911815	11/18/79	0:31	51	0															
280	44 19 6	7525253	11/19/79	0:31	55	0	3	-55.6	-128.9	28.8	6.0	0.21	-32.7	7	4.1	39.0	21.0	-2.3	-0.11	-27.2	
281	44 19 6	7530169	11/19/79	0:31	59	0															
282	44 19 6	13145576	11/19/79	0:31	10	0	7	-8.2	-102.3	23.4	6.1	0.26	-23.3	7	19.8	16.2	19.3	-5.4	-0.27	-6.3	
283	44 19 6	13150490	11/19/79	0:31	43	0															
284	44 19 6	18763928	11/19/79	5:12	43	5	7	3.3	-175.7	31.8	3.6	0.11	-31.7	1	25.4	-7.2	25.5	-3.2	-0.13	-19.9	
285	44 19 6	18768844	11/19/79	5:12	22	5															
286	44 19 6	24382232	11/19/79	6:46	27	6	1	-5.0	160.9	31.6	3.6	0.27	-34.6	1	12.6	-30.6	20.8	3.4	0.02	-22.4	
287	44 19 6	24387138	11/19/79	6:46	27	6															
288	44 19 6	29995742	11/19/79	8:19	55	8															
289	44 19 6	30000838	11/19/79	8:23	0	8	1	-7.5	137.5	37.0	13.2	0.27	-46.4	302	-4.1	-54.0	21.3	4.2	0.20	-30.3	
290	44 19 6	35614376	11/19/79	9:53	34	9															
291	44 19 6	35618932	11/19/79	9:53	38	9	302	-12.6	114.1	35.8	10.0	0.23	-43.0	302	-11.9	-77.4	16.0	0.4	0.40	-43.5	
292	44 19 6	41234394	11/19/79	11:27	14	11															
293	44 19 6	41239313	11/19/79	11:27	19	11	302	-21.7	90.6	35.2	9.0	0.23	-36.2	2	-27.6	-100.8	23.8	5.8	0.24	-31.7	
294	44 19 6	40052730	11/19/79	13:0	52	13															
295	44 19 6	40857607	11/19/79	13:0	57	13	2	-22.6	67.2	38.5	3.4	0.22	-43.1	2	-20.1	-124.3	18.7	3.0	0.19	*****	
296	44 19 6	52471105	11/19/79	14:34	31	14															
297	44 19 6	52476021	11/19/79	14:34	36	14	2	-13.7	43.8	28.9	6.7	0.23	-34.8	2	-9.2	-147.7	14.8	-3.0	-0.20	-11.1	
298	44 19 6	58089459	11/19/79	16:8	9	16															
299	44 19 6	58094375	11/19/79	16:8	14	16	2	7.8	20.4	27.1	3.9	0.22	-24.6	2	-0.9	-171.1	18.0	-0.2	-0.01	-16.5	
300	44 19 6	63707814	11/19/79	17:41	47	17															
301	44 19 6	63712730	11/19/79	17:41	52	17	2	22.5	-3.0	24.2	7.1	0.29	-27.1	2	1.4	165.5	14.1	1.3	0.09	-21.5	
302	44 19 6	65323218	11/19/79	19:15	23	19															
303	44 19 6	69323135	11/19/79	19:15	23	19	2	23.0	-20.4	27.4	5.9	0.21	15.0	2	4.6	142.4	41.2	2.6	0.55	-19.7	
304	44 19 6	74940025	11/19/79	20:49	0	20															
305	44 19 6	74945753	11/19/79	20:49	5	20	3	0.5	-49.8	29.6	11.4	0.38	-40.2	3	2.7	116.7	17.3	4.0	0.27	-20.6	
306	44 19 6	80559111	11/19/79	22:22	35	22															

PASS	MJD	MSEC	DATE	HR	MIN	SEC	ASCENDING	L/L	E	I	I/E	DELTA B	DESCENDING	ECL	E	I	I/E	DELTA B
							KE	D	BOZ				KP	D	ECL			
282	44197	27872207	11/20/79	7:04:32	23	-10.9	146.3	34.0	6.0	0.18	-40.3	27	3.3	-66.0	12.6	1.2	0.10	-15.0
283	44197	33485790	11/20/79	9:18:5	27	-15.0	122.9	32.3	10.8	1.33	-40.3	27	3.3	-66.0	12.6	1.2	0.10	-15.0
284	44197	39100804	11/20/79	10:51:40	27	-27.9	99.5	31.5	7.7	0.24	-36.2	30	-6.2	-92.0	14.4	-1.2	-0.08	-15.6
285	44197	44715218	11/20/79	12:25:19	30	-28.8	76.1	30.5	8.9	0.29	-34.2	30	-15.0	-115.4	17.3	1.3	0.07	-20.7
286	44197	44724134	11/20/79	12:25:24	30	-28.8	76.1	30.5	8.9	0.29	-34.2	30	-15.0	-115.4	17.3	1.3	0.07	-20.7
287	44197	50335752	11/20/79	13:58:57	30	-18.9	52.7	31.1	11.1	0.36	-42.5	33	-12.8	-138.8	21.3	1.5	0.03	-22.9
288	44197	55951011	11/20/79	15:32:31	33	-13.0	29.3	45.2	15.9	0.35	-53.6	33	-7.5	-162.2	18.0	-1.8	-0.10	-16.7
289	44197	55955927	11/20/79	15:32:35	33	-13.0	29.3	45.2	15.9	0.35	-53.6	33	-7.5	-162.2	18.0	-1.8	-0.10	-16.7
290	44197	61569366	11/20/79	17:6:9	33	2.7	5.9	39.7	12.4	0.31	-45.7	17	-2.0	174.4	19.6	4.9	0.25	-23.3
291	44197	61574282	11/20/79	17:6:14	33	2.7	5.9	39.7	12.4	0.31	-45.7	17	-2.0	174.4	19.6	4.9	0.25	-23.3
292	44197	67187720	11/20/79	18:39:47	17	22.4	-17.6	28.2	6.1	0.22	-31.2	17	-1.3	150.9	17.8	2.9	0.16	-19.2
293	44197	67192637	11/20/79	18:39:52	17	22.4	-17.6	28.2	6.1	0.22	-31.2	17	-1.3	150.9	17.8	2.9	0.16	-19.2
294	44197	72805074	11/20/79	20:13:26	17	19.5	-41.0	19.1	2.6	0.14	-22.0	13	-9.5	127.5	21.1	0.9	0.04	-21.3
295	44197	72810991	11/20/79	20:13:30	17	19.5	-41.0	19.1	2.6	0.14	-22.0	13	-9.5	127.5	21.1	0.9	0.04	-21.3
296	44197	78419514	11/20/79	21:46:59	13	-8.3	-64.4	22.6	6.7	0.10	-32.9	13	-12.9	104.1	21.7	0.4	0.02	-20.7
297	44197	78424430	11/20/79	21:47:4	13	-8.3	-64.4	22.6	6.7	0.10	-32.9	13	-12.9	104.1	21.7	0.4	0.02	-20.7
298	44197	84040079	11/20/79	23:20:40	13	-20.3	-87.8	25.9	0.6	0.37	-37.9	27	-16.5	80.7	18.7	-1.9	-0.10	-15.7
299	44198	84044957	11/21/79	0:51:17	27	-43.4	-111.2	36.8	6.7	0.13	-42.8	27	-6.7	57.3	27.1	-1.0	-0.04	-26.7
300	44198	8875807	11/21/79	2:27:55	27	-50.7	-134.6	41.7	12.9	0.31	-51.5	20	7.6	33.9	21.3	-0.2	-0.01	*****
301	44198	14489245	11/21/79	4:1:29	20	-21.8	-158.0	32.0	10.0	0.30	-37.2	20	49.9	10.5	30.5	-0.7	-0.02	-24.0
302	44198	14494167	11/21/79	4:1:34	20	-21.8	-158.0	32.0	10.0	0.30	-37.2	20	49.9	10.5	30.5	-0.7	-0.02	-24.0
303	44198	20107599	11/21/79	5:32:7	20	-7.1	178.6	42.8	3.0	0.19	-48.4	20	48.6	-12.9	37.3	-2.0	-0.07	-30.2
304	44198	20112516	11/21/79	5:32:12	20	-7.1	178.6	42.8	3.0	0.19	-48.4	20	48.6	-12.9	37.3	-2.0	-0.07	-30.2
305	44198	25721033	11/21/79	7:8:41	20	-7.4	155.2	41.7	10.0	0.24	-45.2	20	8.8	-38.3	17.0	-0.1	-0.00	-17.8
306	44198	25725954	11/21/79	7:8:45	20	-7.4	155.2	41.7	10.0	0.24	-45.2	20	8.8	-38.3	17.0	-0.1	-0.00	-17.8
307	44198	31339332	11/21/79	8:42:19	10	-24.1	131.8	44.4	11.0	0.25	-50.4	10	-3.5	-59.7	20.8	4.0	0.19	-24.9
308	44198	31348309	11/21/79	8:42:24	10	-24.1	131.8	44.4	11.0	0.25	-50.4	10	-3.5	-59.7	20.8	4.0	0.19	-24.9
309	44198	36957746	11/21/79	10:15:57	10	-25.4	108.4	40.1	10.6	0.26	-47.2	10	-16.4	-83.1	20.4	5.2	0.20	-30.8
310	44198	36962663	11/21/79	10:16:2	10	-25.4	108.4	40.1	10.6	0.26	-47.2	10	-16.4	-83.1	20.4	5.2	0.20	-30.8
311	44198	42571186	11/21/79	11:49:31	10	-28.5	85.0	34.4	10.1	0.29	-41.7	10	-27.0	-106.5	27.7	5.4	0.19	*****
312	44198	42576102	11/21/79	11:49:36	10	-28.5	85.0	34.4	10.1	0.29	-41.7	10	-27.0	-106.5	27.7	5.4	0.19	*****
313	44198	48189540	11/21/79	13:23:9	10	-27.2	61.6	36.8	9.7	0.26	-47.0	10	-25.2	-129.9	21.0	0.9	0.05	*****
314	44198	48194457	11/21/79	13:23:14	10	-27.2	61.6	36.8	9.7	0.26	-47.0	10	-25.2	-129.9	21.0	0.9	0.05	*****
315	44198	53837894	11/21/79	14:56:47	13	-17.1	38.2	35.9	11.4	0.32	-43.7	12	-15.1	-153.4	14.1	-3.5	-0.03	-10.8
316	44198	53842011	11/21/79	14:56:52	13	-17.1	38.2	35.9	11.4	0.32	-43.7	12	-15.1	-153.4	14.1	-3.5	-0.03	-10.8
317	44198	59422316	11/21/79	16:30:22	13	-10.3	14.8	37.0	11.0	0.30	-40.6	13	-10.5	-176.8	21.0	4.2	0.20	-23.5
318	44198	59427242	11/21/79	16:30:27	13	-10.3	14.8	37.0	11.0	0.30	-40.6	13	-10.5	-176.8	21.0	4.2	0.20	-23.5
319	44198	65040671	11/21/79	18:4:0	17	6.9	-8.7	34.8	11.7	0.33	-45.3	17	-11.1	159.8	27.3	5.3	0.19	-28.1
320	44198	65045587	11/21/79	18:4:5	17	6.9	-8.7	34.8	11.7	0.33	-45.3	17	-11.1	159.8	27.3	5.3	0.19	-28.1
321	44198	70654111	11/21/79	19:37:34	17	6.0	-32.1	34.4	6.0	0.18	-32.9	17	-12.7	136.4	25.2	7.4	0.21	-33.0
322	44198	70659026	11/21/79	19:37:39	17	6.0	-32.1	34.4	6.0	0.18	-32.9	17	-12.7	136.4	25.2	7.4	0.21	-33.0
323	44198	76272464	11/21/79	21:11:12	3	-1.3	-55.5	31.0	0.2	0.20	-42.7	3	-13.8	113.0	29.7	3.4	0.11	*****
324	44198	76277380	11/21/79	21:11:17	3	-1.3	-55.5	31.0	0.2	0.20	-42.7	3	-13.8	113.0	29.7	3.4	0.11	*****
325	44198	81890818	11/21/79	22:44:30	3	-23.6	-78.9	35.6	3.0	0.03	-41.2	3	-16.2	89.6	20.1	2.7	0.14	-21.7
326	44198	81895735	11/21/79	22:44:35	3	-23.6	-78.9	35.6	3.0	0.03	-41.2	3	-16.2	89.6	20.1	2.7	0.14	-21.7
327	44199	11042556	11/22/79	0:18:28	0	-33.2	-102.3	38.5	2.8	0.07	-44.8	0	-22.8	66.2	25.4	1.3	0.05	-24.8
328	44199	11091771	11/22/79	0:18:29	0	-33.2	-102.3	38.5	2.8	0.07	-44.8	0	-22.8	66.2	25.4	1.3	0.05	-24.8
329	44199	6722610	11/22/79	1:52:2	0	-42.2	-125.7	30.5	3.5	0.11	-32.7	0	-2.4	42.8	21.1	0.3	0.01	-20.2
330	44199	6727526	11/22/79	1:52:7	0	-42.2	-125.7	30.5	3.5	0.11	-32.7	0	-2.4	42.8	21.1	0.3	0.01	-20.2
331	44199	12340963	11/22/79	3:25:40	0	-31.1	-149.1	26.5	4.1	0.15	-24.3	0	11.0	19.4	24.3	0.8	0.03	-19.1
332	44199	12345890	11/22/79	3:25:45	0	-31.1	-149.1	26.5	4.1	0.15	-24.3	0	11.0	19.4	24.3	0.8	0.03	-19.1
333	44199	17954804	11/22/79	4:59:14	0	-6.9	-172.5	34.4	5.7	0.17	-34.8	13	41.2	-4.0	25.0	0.4	0.02	-23.3
334	44199	17959719	11/22/79	4:59:19	0	-6.9	-172.5	34.4	5.7	0.17	-34.8	13	41.2	-4.0	25.0	0.4	0.02	-23.3
335	44199	2357271	11/22/79	6:32:52	13	3.3	164.1	29.0	5.0	0.17	-29.5	13	38.7	-27.4	21.8	-2.9	-0.13	-32.1
336	44199	23577673	11/22/79	6:32:57	13	3.3	164.1	29.0	5.0	0.17	-29.5	13	38.7	-27.4	21.8	-2.9	-0.13	-32.1
337	44199	29185949	11/22/79	8:0:25	1	-8.7	140.7	32.6	8.0	0.25	-40.1	13	10.4	-50.8	16.8	-3.9	-0.06	-18.0
338	44199	29190807	11/22/79	8:0:30	1	-8.7	140.7	32.6	8.0	0.25	-40.1	13	10.4	-50.8	16.8	-3.9	-0.06	-18.0
339	44199	34804304	11/22/79	9:40:4	13	-14.4	117.3	27.6	10.6	0.38	-36.8	13	-2.4	-74.2	14.3	3.3	0.23	-16.7
340	44199	34809221	11/22/79	9:40:9	13	-14.4	117.3	27.6	10.6	0.38	-36.8	13	-2.4	-74.2	14.3	3.3	0.23	-16.7
341	44199	40418973	11/22/79	11:13:38	13	-13.0	93.9	24.8	2.6	0.11	-25.5	7	-23.8	-97.6	21.7			

PASS	HJD	HSEC	LATE	Hk	NA	SC	ASCENDING					DESCENDING					I/E DELTA R				
							KE	D	EGL	EGL	F	I	I/D	DELTA B	KE	D		EGL	EGL	F	I
322	44 199	797363394	11/22/79	4:42	8:	30	0	-5.4	-69.9	26.4	6.4	0.24	-37.7	0	-14.2	98.0	21.8	4.2	0.19	-25.4	
323	44 199	85344749	11/23/79	2:33	4:	30	3	-29.2	-93.3	30.4	6.2	0.20	-39.6	3	-18.9	75.2	21.7	9.9	0.04	-19.7	
324	44 200	4503271	11/23/79	1:15	16:	3	3	-35.4	-116.7	29.5	4.4	0.15	14.3	3	-12.3	51.8	18.7	-1.6	-0.08	-19.7	
325	44 200	10186542	11/23/79	2:49	2:	46	0	-26.2	-140.1	26.0	3.1	0.12	-27.8	0	-2.7	26.3	17.5	0.6	0.04	-16.0	
326	44 200	15795065	11/23/79	4:23	4:	15	0	-16.8	-163.5	24.6	3.6	0.15	-27.7	0	22.3	4.9	21.2	2.0	0.10	-18.8	
327	44 200	21413419	11/23/79	5:56	5:	58	3	-1.1	173.1	27.6	2.7	0.10	14.0	3	26.5	-18.5	25.5	-3.9	-0.15	-20.7	
328	44 200	27026858	11/23/79	7:30	7:	26	3	0.5	149.7	27.3	7.0	0.26	-35.5	3	14.4	-41.9	16.8	0.3	0.02	-15.2	
329	44 200	32645213	11/23/79	9:4	4:	0	17	-11.3	126.3	30.0	8.5	0.29	-34.7	17	-2.6	-65.3	*****	*****	*****	-24.0	
330	44 200	38260863	11/23/79	10:37	10:	35	17	-22.0	102.9	27.4	5.9	0.22	-31.7	17	-12.4	-88.7	17.0	0.6	0.04	-19.2	
331	44 200	4334302	11/23/79	12:11	12:	14	10	-20.7	79.5	20.6	5.7	0.28	-21.5	10	-29.6	-112.1	17.6	1.2	0.07	-17.6	
332	44 200	49492657	11/23/79	13:44	13:	47	10	4.6	50.1	25.2	4.5	0.18	-30.8	10	-22.9	-135.5	16.8	-0.4	-0.02	-15.9	
333	44 200	5511011	11/23/79	15:18	15:	31	10	16.7	32.7	22.7	4.2	0.18	-22.3	10	-2.7	-158.9	12.8	-1.1	-0.11	-10.3	
334	44 200	60719534	11/23/79	16:51	16:	39	10	21.5	9.3	28.6	6.7	0.23	-29.9	17	9.5	177.7	15.6	1.6	0.10	-16.7	
335	44 200	66337883	11/23/79	18:25	18:	42	17	22.4	-14.1	23.9	6.9	0.29	-26.5	17	10.7	154.3	17.4	2.1	0.12	-17.3	
336	44 200	71956243	11/23/79	19:59	19:	16	***	*****	*****	*****	*****	*****	-26.5	***	*****	*****	*****	*****	*****	*****	-17.3
337	44 200	72708305	11/23/79	20:11	20:	43	***	*****	*****	45.6	13.5	0.30	-26.5	20	-0.2	107.5	22.9	3.0	0.13	-24.1	
338	44 200	83187053	11/23/79	22:6	22:	27	20	-39.5	-84.3	36.9	12.1	0.33	-50.5	30	-14.9	84.1	18.7	2.0	0.11	-21.2	
339	44 201	2397541	11/24/79	0:39	0:	57	30	-73.4	-107.7	43.9	12.0	0.27	-57.6	30	-22.3	60.7	27.6	2.6	0.09	-29.4	
340	44 201	2402458	11/24/79	0:40	0:	2	30	-73.4	-107.7	43.9	12.0	0.27	-57.6	30	-22.3	60.7	27.6	2.6	0.09	-29.4	
341	44 201	8010942	11/24/79	2:13	2:	30	30	-73.3	-131.1	41.0	11.0	0.27	-51.8	37	-5.9	37.3	28.5	0.6	0.03	-25.6	
342	44 201	13629335	11/24/79	3:47	3:	9	37	-50.1	-154.5	55.3	15.5	0.28	-65.1	37	8.9	13.9	37.5	4.8	0.13	-34.1	
343	44 201	13634251	11/24/79	3:47	3:	14	37	-50.2	-177.9	70.7	20.6	0.29	-88.6	40	22.3	-9.5	47.2	3.4	0.11	-50.4	
344	44 201	19242775	11/24/79	5:20	5:	42	40	-41.3	158.7	79.1	20.7	0.26	-93.2	40	-3.1	-32.9	50.3	1.1	0.16	-50.8	
345	44 201	19247691	11/24/79	5:20	5:	47	40	-60.7	133.3	79.0	17.6	0.22	-91.0	40	-23.5	-56.3	42.8	1.4	0.13	-46.8	
346	44 201	24856213	11/24/79	6:54	6:	21	40	-68.2	111.9	63.1	17.0	0.27	-72.7	40	-19.9	-79.7	33.1	5.9	0.20	-32.9	
347	44 201	24861129	11/24/79	6:27	6:	59	40	-76.5	88.5	79.7	22.6	0.28	*****	37	-28.9	-103.1	35.4	10.9	0.48	-54.5	
348	44 201	30474567	11/24/79	8:27	8:	28	40	-97.9	65.1	92.0	29.1	0.32	-113.6	37	-43.1	-126.5	31.9	14.6	0.46	-44.6	
349	44 201	30779464	11/24/79	10:1	10:	28	37	-38.1	41.7	51.3	18.7	0.37	-66.	37	-44.8	-149.9	35.8	11.7	0.33	-44.6	
350	44 201	36092922	11/24/79	11:35	11:	5	37	-19.7	18.3	52.5	15.6	0.30	-55.4	37	-12.5	-173.3	32.6	2.8	0.09	-33.1	
351	44 201	41710048	11/24/79	11:35	11:	10	40	-39.1	-5.1	77.0	36.8	0.48	-103.4	40	-9.1	163.3	29.9	14.3	0.48	-40.7	
352	44 201	47318571	11/24/79	13:8	13:	38	40	-21.9	-23.5	51.4	12.4	0.24	-53.0	40	-24.8	139.9	43.3	6.5	0.15	-46.5	
353	44 201	47323487	11/24/79	13:8	13:	43	40	-44.0	-51.9	65.1	26.3	0.40	-89.4	40	-29.3	116.5	37.2	11.5	0.31	-47.4	
354	44 201	52935199	11/24/79	14:42	14:	15	40	-66.5	-75.3	61.4	13.8	0.23	-77.9	40	-37.5	93.1	44.4	13.7	0.31	-56.4	
355	44 201	52940121	11/24/79	14:42	14:	20	43	-111.3	-98.7	77.1	24.5	0.32	-105.7	43	-60.7	69.7	57.9	12.8	0.22	-66.5	
356	44 201	58548644	11/24/79	16:15	16:	48	37	-136.1	-122.1	87.6	31.9	0.36	-35.8	43	-48.9	46.3	45.0	11.3	0.25	-52.2	
357	44 201	58553560	11/24/79	17:49	17:	53	50	-119.2	-145.5	91.5	31.4	0.34	-116.0	50	-0.2	22.9	48.5	15.5	0.32	-57.9	
358	44 201	64162082	11/24/79	17:49	17:	22	50	-51.0	-168.9	73.7	16.9	0.23	-84.1	50	13.4	-0.5	63.8	17.2	0.27	-73.9	
359	44 201	64166939	11/24/79	19:23	19:	26	23	-41.2	167.7	61.7	12.2	0.20	-70.4	23	-2.0	-23.9	61.8	10.3	0.17	-62.4	
360	44 201	69780437	11/24/79	20:36	20:	5	23	-42.6	144.3	*****	*****	*****	-72.2	20	-32.4	-47.3	48.0	13.4	0.28	-57.8	
361	44 201	69785333	11/24/79	21:4	21:	20	20	-48.2	120.9	53.9	20.1	0.37	-69.3	20	-47.1	-70.7	42.4	13.1	0.31	-52.6	
362	44 201	74100091	11/24/79	22:20	22:	7	20	-54.4	97.5	55.0	12.8	0.23	-64.1	17	-65.5	-94.1	45.9	9.2	0.20	-54.5	
363	44 201	75660598	11/24/79	22:30	22:	11	20	-54.4	97.5	55.0	12.8	0.23	-64.1	17	-65.5	-94.1	45.9	9.2	0.20	-54.5	
364	44 201	81037058	11/24/79	0:3	0:	40	43	-111.3	-98.7	77.1	24.5	0.32	-105.7	43	-60.7	69.7	57.9	12.8	0.22	-66.5	
365	44 201	81011985	11/24/79	1:37	1:	18	43	-136.1	-122.1	87.6	31.9	0.36	-35.8	43	-48.9	46.3	45.0	11.3	0.25	-52.2	
366	44 201	220508	11/25/79	1:37	1:	23	50	-119.2	-145.5	91.5	31.4	0.34	-116.0	50	-0.2	22.9	48.5	15.5	0.32	-57.9	
367	44 201	225424	11/25/79	3:10	3:	52	50	-51.0	-168.9	73.7	16.9	0.23	-84.1	50	13.4	-0.5	63.8	17.2	0.27	-73.9	
368	44 201	5838802	11/25/79	4:44	4:	25	23	-41.2	167.7	61.7	12.2	0.20	-70.4	23	-2.0	-23.9	61.8	10.3	0.17	-62.4	
369	44 201	5843779	11/25/79	5:51	5:	37	23	-42.6	144.3	*****	*****	*****	-72.2	20	-32.4	-47.3	48.0	13.4	0.28	-57.8	
370	44 201	11452301	11/25/79	5:25	5:	10	20	-48.2	120.9	53.9	20.1	0.37	-69.3	20	-47.1	-70.7	42.4	13.1	0.31	-52.6	
371	44 201	11457217	11/25/79	9:25	9:	15	20	-48.2	120.9	53.9	20.1	0.37	-69.3	20	-47.1	-70.7	42.4	13.1	0.31	-52.6	
372	44 201	17070656	11/25/79	10:58	10:	44	20	-54.4	97.5	55.0	12.8	0.23	-64.1	17	-65.5	-94.1	45.9	9.2	0.20	-54.5	
373	44 201	22679179	11/25/79	11:58	11:	49	20	-54.4	97.5	55.0	12.8	0.23	-64.1	17	-65.5	-94.1	45.9	9.2	0.20	-54.5	
374	44 201	22684095	11/25/79	12:30	12:	49	20	-54.4	97.5	55.0	12.8	0.23	-64.1	17	-65.5	-94.1	45.9	9.2	0.20	-54.5	
375	44 201	28297533	11/25/79	14:2	14:	37	20	-54.4	97.5	55.0	12.8	0.23	-64.1	17	-65.5	-94.1	45.9	9.2	0.20	-54.5	
376	44 201	28302439	11/25/79	14:32	14:	17	20	-54.4	97.5	55.0	12.8	0.23	-64.1	17	-65.5	-94.1	45.9	9.2	0.20	-54.5	
377	44 201	33910973	11/25/79	14:32	14:	17	20	-54.4	97.5	55.0	12.8	0.23	-64.1	17	-65.5	-94.1	45.9	9.2	0.20	-54.5	
378	44 201	339																			

ORIGINAL PAGE IS  
OF POOR QUALITY

PASS	MJD	TSEC	DATE	P.P.	M.A.	SC	ASCENDING					DESCENDING						
							KE	D	ECL	B/L	Z	I	I/O	JULIAN	FE	D	FCL	ZOL
362	44232	45142764	11/23/79	12:32:42	17	50.4	74.1	54.0	14.1	0.20	-64.9	17	-66.5	-117.5	33.8	7.2	0.19	-45.3
363	44232	50751230	11/23/79	14:35:51	17	-36.0	50.7	40.0	15.1	0.33	-63.4	10	-46.0	-140.4	37.7	0.3	0.17	-43.4
364	44232	50750236	11/23/79	14:35:56	10	-14.1	27.3	42.4	12.4	0.29	*****	10	-35.3	-164.2	37.0	4.8	0.13	-40.9
365	44202	61943003	11/23/79	17:13:31	10	-6.8	3.9	42.4	11.9	0.25	-49.4	13	-23.8	172.4	33.3	6.9	0.20	-40.0
366	44202	67536521	11/23/79	18:46:36	13	2.7	-19.5	44.5	3.1	0.18	-45.5	13	-20.5	149.0	30.6	7.2	0.24	-35.7
367	44202	73249905	11/23/79	20:20:14	13	6.9	-42.9	37.1	0.0	0.16	-36.9	17	-19.0	125.6	37.3	4.9	0.13	-35.0
368	44232	78823430	11/23/79	21:53:43	17	-18.5	-60.3	42.9	3.5	0.20	-55.0	17	-22.1	102.2	36.3	3.7	0.10	-36.6
369	44202	84436836	11/23/79	21:57:46	17	-37.9	-29.7	37.5	3.7	0.23	-48.9	16	-28.5	78.8	33.4	1.9	0.06	-29.0
370	44203	3659371	11/26/79	1:05:59	10	-67.4	-113.1	45.4	4.0	0.09	-49.6	10	-28.5	35.4	33.2	4.0	0.12	-49.5
71	44203	9265675	11/26/79	2:34:25	10	-61.9	-130.5	41.0	5.0	0.12	-45.7	0	-14.2	32.0	32.6	4.5	0.14	-33.3
372	44203	14879122	11/26/79	4:07:59	0	-23.4	-159.9	34.5	4.2	0.12	-39.4	0	30.7	8.6	37.1	2.4	0.07	-34.1
373	44203	20497475	11/26/79	5:41:37	0	1.4	175.7	38.0	3.3	0.09	-41.5	0	39.4	-14.8	33.9	-2.7	-0.08	-32.0
374	44203	20502391	11/26/79	5:41:42	0	2.8	153.3	31.9	6.9	0.22	-36.0	0	30.5	-38.2	18.3	1.0	0.05	-19.1
375	44203	26110914	11/26/79	7:15:10	3	-14.9	129.9	29.2	5.8	0.20	-32.3	3	10.7	-61.6	15.2	2.7	0.18	-18.2
376	44203	31724354	11/26/79	8:48:48	3	-22.9	106.6	26.4	5.4	0.20	-29.4	3	-24.2	-85.0	17.3	3.1	0.17	-19.7
377	44203	37337792	11/26/79	10:22:17	13	-17.0	83.2	20.0	3.5	0.02	-23.5	13	-7.5	-108.4	15.5	1.0	0.16	*****
378	44203	37342733	11/26/79	10:22:22	13	-8.6	59.8	23.3	1.0	0.04	-27.9	13	-21.3	-131.8	11.9	-2.4	-0.20	-10.3
379	44203	42951232	11/26/79	11:55:51	13	0.6	36.4	13.6	5.7	0.29	-23.0	13	-10.4	-155.2	16.4	2.2	0.14	-15.0
380	44203	48504670	11/26/79	13:29:24	13	7.7	13.0	27.2	8.0	0.30	-30.0	13	-3.3	-178.6	24.0	1.1	0.05	-15.0
381	44203	57945523	11/26/79	15:30:31	13	7.7	13.0	27.2	8.0	0.30	-30.0	13	-3.3	-178.6	24.0	1.1	0.05	-15.0
382	44203	57945523	11/26/79	15:36:36	23	7.1	-33.8	46.5	13.0	0.23	-47.5	23	3.3	134.6	21.4	0.0	0.31	-29.6
383	44203	61197099	11/26/79	17:46:39	17	0.3	-57.2	35.5	5.6	0.16	-45.9	17	-9.1	111.2	23.2	3.6	0.12	-30.1
384	44203	71024816	11/26/79	19:43:39	17	-32.5	-80.6	32.0	2.6	0.08	-38.3	20	-21.2	87.8	22.9	0.8	0.04	-23.6
385	44203	76038245	11/26/79	21:17:13	20	-51.7	-104.0	35.0	5.6	0.16	-45.4	20	-22.8	64.5	25.2	-0.1	-0.00	-25.0
386	44204	82446778	11/26/79	22:50:46	20	-46.0	-127.4	31.6	2.5	0.04	-35.6	10	-1.7	41.1	23.9	-0.8	-0.04	-18.6
387	44204	84251617	11/26/79	24:59:51	10	-27.0	-150.8	25.5	1.8	0.07	-24.5	10	9.6	17.7	24.8	-0.5	-0.02	-16.4
388	44204	14602077	11/27/79	0:09:40	10	-10.1	-174.2	34.6	3.3	0.09	-35.1	23	4.3	-5.7	25.7	-1.5	-0.06	-22.3
389	44204	1465133	11/27/79	1:57:43	23	-7.6	162.4	32.5	9.9	0.30	-38.2	23	14.8	-29.1	21.2	-2.6	-0.12	-16.7
390	44204	7073656	11/27/79	3:31:27	23	-11.0	139.0	32.3	6.2	0.13	-40.1	7	5.6	-52.5	19.8	1.6	0.08	-21.1
391	44204	7078577	11/27/79	3:31:32	7	-25.0	115.7	29.9	8.2	0.27	-37.1	7	-0.5	-75.9	21.5	5.3	0.25	-24.0
392	44204	12687095	11/27/79	5:56:09	7	-30.0	92.3	31.3	3.9	0.12	-33.7	10	-27.3	-39.3	25.4	5.0	0.20	-31.5
393	44204	12692011	11/27/79	5:56:09	10	-12.5	45.5	29.3	6.6	0.23	-38.2	7	-15.7	-146.1	17.0	1.0	0.06	*****
394	44204	18300533	11/27/79	7:00:2	7	9.7	22.1	29.8	6.5	0.22	-30.1	7	-1.0	-169.5	22.2	1.9	0.08	-21.7
395	44204	18305449	11/27/79	7:33:30	7	15.3	-1.3	28.0	7.3	0.26	*****	7	1.7	167.1	18.7	3.8	0.20	-30.9
396	44204	23913973	11/27/79	9:31:35	7	22.4	-24.7	30.4	4.9	0.16	-30.6	7	-4.1	143.7	20.0	0.1	0.26	-25.1
397	44204	23918809	11/27/79	9:38:31	3	5.9	48.1	24.2	7.6	0.31	-31.6	3	-7.9	120.3	24.3	1.7	0.07	-24.4
398	44204	2957411	11/27/79	11:12:12	3	-7.7	-71.5	27.1	5.8	0.22	-39.4	3	-12.9	97.0	22.5	2.2	0.10	-23.6
399	44204	29532327	11/27/79	11:12:12	3	-31.1	-94.9	28.9	4.6	0.16	-38.1	3	-14.4	73.6	23.5	-2.5	-0.11	-19.2
400	44204	35140850	11/27/79	12:40:40	3	-37.6	-118.3	28.8	2.0	0.07	*****	3	-12.8	50.2	21.3	-0.2	-0.01	-23.5
401	44204	35145706	11/27/79	12:40:42	3	-37.6	-118.3	28.8	2.0	0.07	*****	3	-12.8	50.2	21.3	-0.2	-0.01	-23.5



PASS	MJD	MSEC	DATE	HR	MIN	SEC	ASCENDING			DESCENDING			ZOL	P	L	I/E	DELTA	B		
							AF	D	ECL	ECL	DELTA	KP							D	ECL
402	44205	4331	11/28/79	2:54	54	54	0	-26.9	-141.7	28.7	1.1	3.0	-30.1	0	17.8	3.4	23.8	1.6	0.12	-20.5
403	44205	4854	11/28/79	4:29	22	22	0	-18.0	-165.1	27.9	3.1	0.11	-30.8	0	17.8	3.4	23.8	1.6	0.07	-22.3
404	44205	7770	11/28/79	6:1	56	1	10	2.9	171.6	26.5	3.2	0.12	-23.6	10	32.6	-20.0	25.4	-4.7	-0.18	-21.0
405	44205	233	11/28/79	6:35	29	29	10	6.4	148.2	23.3	7.0	0.30	-33.6	10	27.9	-43.4	14.7	3.8	0.06	-13.3
406	44205	732	11/28/79	7:35	34	34	0	-12.9	124.8	21.2	8.0	0.38	-29.0	0	-0.8	-66.3	14.5	3.3	0.24	-16.6
407	44205	32943171	11/28/79	10:42	36	36	0	-22.2	101.4	20.2	4.3	0.21	-22.9	0	-9.7	-90.2	18.7	2.5	0.14	-20.2
408	44205	38556639	11/28/79	10:42	41	41	0	-20.6	78.0	17.7	2.7	0.15	-17.7	3	-17.7	-113.6	17.9	2.0	0.15	-15.8
409	44205	44170349	11/28/79	12:16	14	14	3	-2.6	54.6	20.2	3.4	0.17	-27.9	3	-18.5	-137.0	16.7	3.4	0.03	-16.1
410	44205	49783488	11/28/79	13:49	43	43	3	9.7	31.2	18.6	5.3	0.29	*****	3	-5.3	-160.4	13.6	-0.9	-0.07	-12.1
411	44205	55392011	11/28/79	15:23	12	12	3	27.6	7.8	19.0	4.6	0.24	-20.8	7	10.8	176.3	13.5	-1.0	-0.07	*****
412	44205	55396927	11/28/79	16:56	50	50	7	30.3	-15.6	19.2	0.7	0.04	-20.8	7	11.0	152.9	10.5	-0.9	-0.08	-6.7
413	44205	66618883	11/28/79	18:30	18	18	7	33.4	-39.0	15.5	-1.3	-0.08	-14.3	3	5.1	129.5	12.8	1.2	0.09	-13.4
414	44205	66623804	11/28/79	20:33	23	23	3	5.6	-62.3	18.7	3.6	0.13	-26.5	3	8.1	116.1	18.4	-1.5	-0.08	-16.0
415	44205	72237244	11/28/79	21:10	59	59	3	-12.2	-85.7	18.7	4.6	0.25	-28.3	3	-2.9	82.7	12.3	-5.1	-0.41	-8.1
416	44206	77845787	11/28/79	21:37	30	30	3	-33.2	-103.1	23.7	0.4	0.02	-27.9	3	-4.5	59.3	15.0	-4.8	-0.32	-11.4
417	44206	77850683	11/28/79	23:11	4	4	3	-32.5	-132.5	21.8	-3.0	-0.14	-20.9	0	9.1	35.9	14.0	-3.8	-0.27	-8.9
418	44206	83459206	11/29/79	0:44	30	30	0	-2.2	-155.9	15.7	-4.1	-0.26	-8.8	0	45.3	12.5	18.3	-5.7	-0.31	-7.9
419	44206	83464121	11/29/79	3:51	42	42	0	19.5	-179.3	17.0	-3.0	-0.21	-16.7	7	54.7	-10.9	16.5	-9.0	-0.54	-12.0
420	44206	2670679	11/29/79	5:25	10	10	7	22.7	157.3	12.7	0.9	0.07	-11.7	7	31.2	-34.3	4.1	-3.0	-0.41	*****
421	44206	2675594	11/29/79	6:58	39	39	7	11.3	133.9	21.3	6.2	0.29	-29.0	7	16.3	-57.6	8.1	0.8	0.09	-9.3
422	44206	8289033	11/29/79	8:32	17	17	7	-4.9	110.5	15.1	4.9	0.33	-19.2	7	-5.8	-81.0	12.4	3.0	0.24	-13.4
423	44206	13897550	11/29/79	10:5	46	46	7	-5.4	87.2	9.2	-1.8	-0.20	-6.4	7	-18.4	-104.4	8.1	-1.0	-0.13	*****
424	44206	13902472	11/29/79	11:39	19	19	7	3.2	63.8	17.3	-2.1	-0.12	-19.1	7	-16.2	-127.8	9.5	-1.4	-0.14	-8.6
425	44206	19510935	11/29/79	13:12	53	53	23	23.2	40.4	13.9	4.1	0.29	-19.4	23	-4.8	-151.2	3.5	-3.2	-0.90	-0.4
426	44206	19515911	11/29/79	14:46	26	26	23	31.0	17.0	9.1	1.2	0.13	-8.7	23	25.1	-174.0	-3.6	-0.3	1.90	10.3
427	44206	25119519	11/29/79	16:19	55	55	23	54.7	-6.4	2.9	-1.6	-0.55	-6.4	23	25.7	162.0	3.2	-2.7	-0.84	1.1
428	44206	25124434	11/29/79	17:53	28	28	23	43.3	-29.8	20.1	-1.5	-0.08	-18.6	23	25.5	138.6	-3.9	-2.8	0.72	4.4
429	44206	30737873	11/29/79	19:27	7	7	10	26.6	-53.2	10.5	1.7	0.16	-19.4	10	8.1	115.2	11.3	-1.9	-0.17	-8.4
430	44206	30737873	11/29/79	21:1	35	35	10	4.6	-76.6	16.1	0.2	0.01	-22.6	10	5.6	91.9	7.8	-3.7	-0.47	-5.1
431	44207	30737873	11/30/79	22:34	4	4	10	-26.0	-100.0	14.7	0.8	0.05	-22.9	10	4.3	68.5	12.5	-7.9	-0.63	-5.0
432	44207	36413532	11/30/79	0:7	45	45	10	-37.1	123.3	16.0	-1.8	-0.11	-16.5	10	12.6	45.1	10.2	-5.0	-0.55	-5.8
433	44207	405330	11/30/79	1:41	8	8	17	-17.5	-146.7	10.0	-2.1	-0.20	-7.5	17	45.9	21.7	12.2	-6.1	-0.51	-3.9
434	44207	6068989	11/30/79	3:14	42	42	17	13.1	-173.1	15.3	-2.0	-0.13	-13.2	17	67.2	-1.7	12.4	-11.6	-0.93	-1.6
435	44207	6073914	11/30/79	4:48	15	15	50	20.5	166.5	12.4	1.5	0.12	-16.4	50	76.9	-25.1	16.6	-20.9	-1.26	-0.9
436	44207	11682947	11/30/79	6:21	49	49	50	3.2	143.1	8.9	-0.6	-0.74	-4.1	33	38.0	-48.5	1.3	-13.7	-7.41	12.5
437	44207	11687343	11/30/79	7:55	22	22	33	-24.9	119.7	34.7	11.1	0.32	-40.0	33	12.6	-71.9	3.4	3.2	2.44	-10.3
438	44207	17295666	11/30/79	9:29	50	50	33	-12.8	96.3	16.6	2.1	0.13	-13.2	33	-4.4	-95.3	-6.4	-4.5	0.71	5.7
439	44207	17300782	11/30/79	11:2	24	24	33	-1.3	72.9	11.4	1.4	0.12	*****	33	-3.2	-118.6	-1.1	-2.2	2.98	3.2
440	44207	22909305	11/30/79	12:35	56	56	33	19.1	49.0	-2.2	-4.0	1.79	-1.7	27	12.3	-142.0	-11.4	-10.3	0.87	19.0
441	44207	22914221	11/30/79	14:9	31	31	27	14.4	26.2	15.2	4.4	0.29	-18.0	27	7.6	-165.4	5.2	-3.0	-0.58	-3.9

PASS	#	JD	HSEC	DATE	ASCENDING	DELTA	DELTA B	ASCENDING	DELTA	DELTA B	DELTA	DELTA B								
442	44	207	621988462	11/30/79	17:16:38	27	22.1	2.8	15.6	5.9	1.38	-16.7	20	14.7	171.2	13.9	-3.5	1.0	-0.32	-6.3
443	44	207	67802071	11/30/79	18:50:20	20	29.0	-20.6	16.1	2.2	1.14	-19.4	20	14.7	147.8	15.1	2.2	0.15	-16.2	
444	44	207	73415538	11/30/79	20:23:35	20	24.8	-44.0	18.6	5.5	1.33	-24.0	20	2.5	124.4	17.5	1.3	0.07	-17.0	
445	44	207	73420448	11/30/79	20:23:43	20	24.8	-44.0	18.6	5.5	1.33	-24.0	20	2.5	124.4	17.5	1.3	0.07	-17.0	
446	44	207	75028948	11/30/79	21:15:13	20	-5.9	-67.4	19.3	7.9	0.41	-33.7	20	-0.1	101.0	17.5	3.5	0.20	-20.1	
447	44	208	75033864	11/30/79	21:15:30	20	-24.9	-90.8	20.7	7.6	0.37	-33.6	17	-11.8	77.7	17.0	-1.3	-0.08	-13.9	
448	44	208	84642337	11/30/79	22:33:30	17	-26.9	-114.1	25.6	1.5	0.06	-27.3	17	-9.1	54.3	16.7	-0.8	-0.05	-18.3	
449	44	208	9467053	12/1/79	1:4:18	10	-22.3	-137.5	26.4	1.1	0.04	-27.7	10	-0.9	30.9	15.7	0.8	0.05	-15.5	
450	44	208	15080492	12/1/79	4:11:20	10	-12.8	-160.9	22.3	1.0	0.07	-23.1	10	14.7	7.5	21.9	0.9	0.04	-18.9	
451	44	208	20689015	12/1/79	5:44:49	27	-2.1	175.7	35.6	1.7	0.05	-39.1	27	25.7	-15.9	27.9	-1.0	-0.07	-25.8	
452	44	208	26227538	12/1/79	7:18:17	27	-12.4	152.3	40.9	12.9	0.32	-50.1	27	33.7	-39.3	22.4	2.8	0.12	-20.9	
453	44	208	31915833	12/1/79	8:51:55	27	-37.1	128.9	45.4	11.6	0.26	-52.0	27	-7.0	-62.7	20.7	4.3	0.21	-29.0	
454	44	208	37519531	12/1/79	10:25:19	27	-49.9	105.6	41.0	7.6	0.17	-45.4	27	-26.6	-86.1	22.2	6.7	0.30	-29.8	
455	44	208	43132940	12/1/79	11:58:52	23	-49.1	82.2	42.7	9.8	0.23	-46.8	23	-26.5	-109.4	17.2	3.5	0.21	-39.0	
456	44	208	48746379	12/1/79	13:32:26	23	-41.8	58.8	54.9	11.7	0.21	-65.8	23	-22.6	-132.8	16.6	0.1	0.01	-18.9	
457	44	208	54354902	12/1/79	15:5:58	27	-17.6	35.4	42.5	12.7	0.30	-51.0	27	-6.6	-156.2	18.8	0.2	0.01	-19.8	
458	44	208	54359817	12/1/79	15:5:59	27	-17.6	35.4	42.5	12.7	0.30	-51.0	27	-6.6	-156.2	18.8	0.2	0.01	-19.8	
459	44	208	59968341	12/1/79	16:39:28	27	-0.6	12.0	46.4	15.8	0.34	-54.9	27	9.6	-179.6	16.4	-0.6	-0.04	-53.3	
460	44	208	65576804	12/1/79	18:13:11	23	3.6	-11.4	33.8	11.5	0.34	-46.4	23	8.4	157.0	18.9	3.6	0.19	-21.6	
461	44	208	71193033	12/1/79	19:46:30	23	1.8	-34.8	32.6	2.9	0.09	-29.8	23	3.2	133.6	20.1	2.7	0.13	-26.0	
462	44	208	71195219	12/1/79	19:46:35	23	1.8	-34.8	32.6	2.9	0.09	-29.8	23	3.2	133.6	20.1	2.7	0.13	-26.0	
463	44	208	76803748	12/1/79	21:21:8	20	-13.6	-58.1	33.6	8.7	0.26	-47.9	20	-14.0	110.3	24.0	1.1	0.04	-24.0	
464	44	208	82412266	12/1/79	22:53:32	20	-21.7	-81.5	26.2	4.9	0.19	-33.4	33	-38.0	86.5	13.4	0.1	0.01	-19.3	
465	44	209	1623972	12/2/79	0:27:8	33	-22.0	-104.9	31.7	6.5	0.20	-40.4	33	-16.0	63.5	25.2	-1.3	-0.07	*****	
466	44	209	1628900	12/2/79	0:27:8	33	-22.0	-104.9	31.7	6.5	0.20	-40.4	33	-16.0	63.5	25.2	-1.3	-0.07	*****	
467	44	209	7237423	12/2/79	2:0:37	33	-33.2	-128.3	32.0	6.1	0.19	-48.8	30	-0.6	40.1	24.0	1.5	0.06	-25.4	
468	44	209	7242339	12/2/79	2:0:42	33	-33.2	-128.3	32.0	6.1	0.19	-48.8	30	-0.6	40.1	24.0	1.5	0.06	-25.4	
469	44	209	12845946	12/2/79	3:34:5	30	-27.2	-151.7	28.7	5.6	0.19	-39.8	30	4.7	16.7	21.2	-0.8	-0.04	-15.1	
470	44	209	12850862	12/2/79	3:34:10	30	-27.2	-151.7	28.7	5.6	0.19	-39.8	30	4.7	16.7	21.2	-0.8	-0.04	-15.1	
471	44	209	18459385	12/2/79	5:7:39	30	-20.3	-175.1	40.2	4.2	0.11	-42.6	27	19.7	-6.7	23.8	-1.7	-0.07	-22.1	
472	44	209	18464301	12/2/79	5:7:44	30	-20.3	-175.1	40.2	4.2	0.11	-42.6	27	19.7	-6.7	23.8	-1.7	-0.07	-22.1	
473	44	209	24067907	12/2/79	6:41:7	27	-18.4	161.6	41.1	9.4	0.23	-44.9	27	25.0	-30.1	22.1	-3.5	-0.16	-19.2	
474	44	209	24072844	12/2/79	6:41:12	27	-18.4	161.6	41.1	9.4	0.23	-44.9	27	25.0	-30.1	22.1	-3.5	-0.16	-19.2	
475	44	209	29081347	12/2/79	8:14:41	27	-23.2	138.2	40.8	3.1	0.20	-47.2	30	9.9	-53.4	24.5	-0.3	-0.01	-30.0	
476	44	209	29082633	12/2/79	8:14:46	27	-23.2	138.2	40.8	3.1	0.20	-47.2	30	9.9	-53.4	24.5	-0.3	-0.01	-30.0	
477	44	209	35289872	12/2/79	9:48:9	30	-38.1	114.8	36.7	7.6	0.20	-44.2	30	-5.8	-76.8	13.4	2.8	0.21	-17.0	
478	44	209	35294787	12/2/79	9:48:14	30	-38.1	114.8	36.7	7.6	0.20	-44.2	30	-5.8	-76.8	13.4	2.8	0.21	-17.0	
479	44	209	40903310	12/2/79	11:21:43	30	-42.5	91.4	35.3	5.0	0.14	-36.5	23	-31.5	-100.2	21.1	4.5	0.21	-27.5	
480	44	209	40908226	12/2/79	11:21:48	30	-42.5	91.4	35.3	5.0	0.14	-36.5	23	-31.5	-100.2	21.1	4.5	0.21	-27.5	
481	44	209	46511834	12/2/79	12:55:11	23	-22.9	68.0	36.4	3.3	0.09	-40.2	23	-20.0	-123.6	10.6	-0.1	-0.01	-11.2	
482	44	209	46516750	12/2/79	12:55:16	23	-22.9	68.0	36.4	3.3	0.09	-40.2	23	-20.0	-123.6	10.6	-0.1	-0.01	-11.2	
483	44	209	52125272	12/2/79	14:28:45	17	-10.7	44.6	20.0	2.8	0.14	-26.5	17	-13.0	-147.0	11.1	-1.5	-0.14	-9.3	
484	44	209	52130188	12/2/79	14:28:50	17	-10.7	44.6	20.0	2.8	0.14	-26.5	17	-13.0	-147.0	11.1	-1.5	-0.14	-9.3	
485	44	209	57733796	12/2/79	16:2:13	17	15.7	21.3	23.0	5.3	0.23	-21.3	17	4.8	-170.4	14.2	-1.9	-0.14	-12.4	
486	44	209	57738712	12/2/79	16:2:18	17	15.7	21.3	23.0	5.3	0.23	-21.3	17	4.8	-170.4	14.2	-1.9	-0.14	-12.4	
487	44	209	63347235	12/2/79	17:35:47	17	16.6	-2.1	30.7	13.5	0.44	-39.5	17	6.6	166.3	18.6	2.3	0.12	-18.8	
488	44	209	63352151	12/2/79	17:35:52	17	16.6	-2.1	30.7	13.5	0.44	-39.5	17	6.6	166.3	18.6	2.3	0.12	-18.8	
489	44	209	68955733	12/2/79	19:9:20	17	22.4	-25.5	28.2	5.7	0.20	-28.7	17	7.4	142.9	12.9	1.6	0.12	-15.4	
490	44	209	68960674	12/2/79	19:9:25	17	22.4	-25.5	28.2	5.7	0.20	-28.7	17	7.4	142.9	12.9	1.6	0.12	-15.4	
491	44	209	74569113	12/2/79	20:42:49	13	0.3	-48.9	23.0	5.7	0.25	-29.6	13	-0.6	119.5	19.6	-0.2	-0.02	-19.0	
492	44	209	74574113	12/2/79	20:42:54	13	0.3	-48.9	23.0	5.7	0.25	-29.6	13	-0.6	119.5	19.6	-0.2	-0.02	-19.0	
493	44	209	80112666	12/2/79	22:16:17	13	-15.6	-72.3	25.1	5.8	0.23	-37.6	13	-15.8	96.1	17.8	2.1	0.12	-19.4	
494	44	209	85731159	12/2/79	23:44:51	23	-33.7	-90.6	32.3	3.2	0.28	-45.5	23	-18.3	72.7	23.0	-3.0	-0.13	-18.6	
495	44	210	85736075	12/3/79	23:49:50	23	-33.7	-90.6	32.3	3.2	0.28	-45.5	23	-18.3	72.7	23.0	-3.0	-0.13	-18.6	
496	44	210	5002632	12/3/79	1:23:22	23	-43.9	-119.0	40.6	12.5	0.31	-51.8	23	-11.2	49.4	26.5	0.9	0.03	-26.4	
497	44	210	5307549	12/3/79	1:23:27	23	-43.9	-119.0	40.6	12.5	0.31	-51.8	23	-11.2	49.4	26.5	0.9	0.03	-26.4	
498	44	210	10611156	12/3/79	2:56:51	33	-46.5	-142.4	47.3	11.7	0.25	-58.2	33	2.9	26.0	31.6	4.7	0.15	-32.4	
499	44	210	10610072	12/3/79	2:56:56	33	-46.5	-142.4	47.3	11.7	0.25	-58.2	33	2.9	26.0	31.6	4.7	0.15	-32.4	
500	44	210	16219080	12/3/79	4:30:19	33	-47.3	-165.8	55.0	13.2	0.24	-66.8	33	6.7	2.6	31.0	3.5	0.11	-31.1	
501	44	210	16224535	12/3/79	4:30:24	33	-47.3	-165.8	55.0	13.2	0.24	-66.8	33	6.7	2.6	31.0	3.5	0.11	-31.1	
502	44	210	21833113	12/3/79	6:3:53	33	-40.0	170.8	56.5	13.1	0.23	-67.0	33	1.0	-20.8	30.8	-2.2	-0.06	-32.5	
503	44	210	21838044	12/3/79	6:3:58	33	-40.0	170.8	56.5	13.1	0.23	-67.0	33	1.0	-20.8	30.8	-2.2	-0.06	-32.5	
504	44	210	27441642	12/3/79	7:37:21															

ORIGINAL PAGE IS OF POOR QUALITY

ORIGINAL PAGE IS  
OF POOR QUALITY

PASS	MSD	MSZC	DATE	TIME	SC	ASCENDING	E/L	E	T	I/S	DELTA	ASCENDING	E/L	E	T	I/S	DELTA	
						REF	D	ECL				REF	D	ECL				
482	44210	274485530	12/3/79	17:26	33	33	-36.3	147.5	49.9	11.0	3.22	33	-1.2	-48.2	24.5	1.5	1.06	-22.5
483	44210	330550860	12/3/79	17:30	23	23	-35.8	124.1	44.8	11.5	3.26	23	-13.3	-67.5	22.5	4.2	0.19	*****
484	44210	386036734	12/3/79	17:44	23	23	-33.4	100.7	33.2	4.1	3.12	23	-27.9	-90.9	27.5	5.7	3.21	-33.0
485	44210	442770442	12/3/79	17:57	17	17	-30.9	77.3	29.2	7.4	3.25	17	-31.3	-114.3	25.1	4.4	0.18	-26.5
486	44210	498855666	12/3/79	18:11	17	17	-13.8	53.9	32.8	7.7	3.24	10	-19.9	-137.7	22.3	1.5	3.37	-23.7
487	44210	55439190	12/3/79	18:25	10	10	-4.2	30.6	24.4	6.5	3.27	10	-7.2	-161.1	13.0	-1.8	-3.10	-16.5
488	44210	61107128	12/3/79	18:39	10	10	10.9	7.2	28.5	7.0	3.25	10	9.4	175.5	19.0	3.9	0.04	-18.8
489	44210	71717538	12/3/79	18:53	10	10	21.8	-16.2	26.5	7.4	3.28	10	9.4	152.2	15.6	1.0	3.10	-14.6
490	44210	72244575	12/3/79	19:07	10	10	12.3	-39.6	20.2	1.9	3.33	3	-2.2	128.8	10.2	0.7	3.04	-16.1
491	44210	77948014	12/3/79	19:21	3	3	-14.6	-63.0	24.3	5.5	3.23	3	-15.5	105.4	19.9	-3.2	-0.01	-19.2
492	44210	83546539	12/3/79	19:35	3	3	-19.9	-86.3	23.7	3.1	3.34	20	-14.9	42.0	14.7	-1.8	-0.12	-14.1
493	44210	83551454	12/3/79	19:49	2	2	-30.6	-139.7	31.1	7.2	3.23	20	-14.6	58.6	22.9	3.9	0.03	-24.8
494	44210	83771449	12/4/79	0:03	20	20	-41.1	-133.1	39.6	9.6	3.24	33	-1.8	35.3	23.7	3.9	3.04	-22.3
495	44210	13979973	12/4/79	0:17	33	33	-48.4	-150.5	44.7	12.7	3.28	33	7.1	11.9	30.8	1.3	0.04	-26.8
496	44210	19588496	12/4/79	0:31	33	33	-42.0	-179.9	66.7	15.3	3.23	40	14.6	-11.5	38.5	3.2	0.08	-40.5
497	44210	25197320	12/4/79	0:45	40	40	-43.2	156.8	64.3	17.2	3.27	40	-0.3	-34.9	26.4	-1.3	-0.04	-23.3
498	44210	25201936	12/4/79	0:59	40	40	-49.4	133.4	65.8	14.1	3.21	30	-10.8	-58.3	9.8	6.8	0.70	-17.4
499	44210	30810459	12/4/79	1:13	30	30	-62.4	110.0	66.0	13.1	3.20	30	-29.3	-81.6	25.0	9.9	0.40	-33.0
500	44210	36418932	12/4/79	1:27	33	33	-83.4	86.6	71.9	19.7	3.27	33	-34.4	-105.0	24.0	9.9	0.41	-37.5
501	44210	42027536	12/4/79	1:41	33	33	-93.0	63.3	92.9	28.8	3.31	33	-38.7	-128.4	30.5	3.2	0.27	-39.2
502	44210	47636030	12/4/79	1:55	40	40	-78.5	39.9	88.0	32.3	3.37	40	-34.6	-151.8	35.3	5.6	0.27	-44.0
503	44210	52529334	12/4/79	2:09	40	40	-66.2	16.5	88.2	29.8	3.34	40	-34.5	-175.1	47.3	10.4	0.35	-61.7
504	44210	58862938	12/4/79	2:23	27	27	-26.3	-6.9	70.6	24.2	3.34	27	-26.2	161.5	44.8	13.8	0.31	-59.2
505	44210	64471430	12/4/79	2:37	27	27	-28.5	-30.3	77.4	19.7	3.26	27	-29.8	138.1	41.3	9.9	0.24	-53.0
506	44210	70075039	12/4/79	2:51	20	20	-33.8	-53.6	70.1	17.7	3.25	20	-47.9	114.7	50.3	11.5	3.23	-58.3
507	44210	75643393	12/4/79	3:05	20	20	-61.9	-77.0	61.9	13.2	3.21	20	-54.4	91.3	45.9	11.2	0.24	-53.6
508	44210	81301916	12/5/79	0:09	20	20	-61.2	-100.4	58.4	12.4	3.21	20	-52.4	68.0	50.6	6.4	0.13	-52.3
509	44210	85052228	12/5/79	0:23	20	20	-60.6	-123.8	57.3	10.7	3.19	20	-40.9	44.6	46.3	7.0	0.16	-49.7
510	44210	513144	12/5/79	0:37	13	13	-50.9	-147.1	48.2	11.4	3.24	13	-1.7	21.2	46.2	3.3	3.18	-48.4
511	44210	6121667	12/5/79	0:51	13	13	-18.2	-170.5	48.2	13.6	3.22	13	8.6	-2.2	43.9	3.0	0.13	-44.6
512	44210	11725275	12/5/79	1:05	23	23	-13.2	166.1	43.5	11.8	3.27	23	-10.7	-25.5	42.1	-3.4	-0.01	-37.1
513	44210	17333798	12/5/79	1:19	23	23	-30.3	142.7	54.1	14.0	3.26	20	-29.2	-48.9	30.1	4.8	0.16	-31.3
514	44210	17336714	12/5/79	1:33	20	20	-34.9	119.4	49.4	16.4	3.33	20	-31.3	-72.3	32.3	11.0	0.36	-40.9
515	44210	22942322	12/5/79	1:47	20	20	-36.8	96.0	45.5	9.8	3.22	23	-31.9	-95.7	36.3	7.6	0.21	-44.8
516	44210	22947237	12/5/79	2:01	23	23	-36.9	72.6	45.0	11.3	3.25	23	-33.9	-119.0	31.3	5.7	3.18	-35.1
517	44210	28550846	12/5/79	2:15	23	23	-41.5	49.2	49.0	15.4	3.31	23	-26.7	-142.4	26.4	2.9	0.11	-28.1
518	44210	28555761	12/5/79	2:29	23	23	-23.9	25.9	50.0	14.0	3.23	23	-24.0	-165.8	28.2	4.5	0.16	-31.5
519	44210	34164283	12/5/79	2:43	23	23	-8.4	2.5	37.5	12.9	3.34	10	-11.7	170.0	27.6	0.1	0.22	-32.5
520	44210	34169199	12/5/79	2:57	10	10	10.7	-20.9	38.0	11.9	3.31	10	-9.3	147.5	27.4	5.9	0.22	-32.2
521	44210	39772808	12/5/79	3:11	10	10	-5.5	-44.3	40.9	10.7	3.26	17	-24.1	124.1	29.6	4.3	0.14	-30.9



PASS	H JD	AS	SL	DATE	HE	AN	SC	ASCENDING	EOL	P	L	L/E	DELTA	B	DESCENDING	POL	Z	I	I/E	DELTA	B
					AF	D	EGL								KP						
562	44215	44166774	12/8/79	12:46:30	30	-7.0	77.5	15.0	4.2	0.27	-16.5	30	-0.5	-137.5	9.3	-1.3	-0.15	-7.8			
563	44215	49775282	12/8/79	12:49:30	30	-28.0	54.2	32.8	15.0	3.48	-49.1	30	-0.5	-137.5	9.3	-1.3	-0.15	-7.8			
564	44215	55368905	12/8/79	12:52:30	23	-22.5	30.8	30.7	11.3	3.37	-38.3	23	-6.1	-160.9	11.4	0.7	0.06	-11.4			
565	44215	60987429	12/8/79	12:55:00	23	11.2	7.4	35.8	11.7	0.33	-42.2	27	8.2	175.7	8.9	1.8	0.26	-10.5			
566	44215	68843574	12/8/79	12:58:00	27	24.5	-15.9	24.4	5.6	0.23	-29.4	27	8.2	152.4	17.0	3.1	0.18	-19.2			
567	44215	72199503	12/8/79	12:59:30	27	6.9	-39.3	43.1	14.2	0.33	-51.5	23	-11.1	129.0	21.2	3.4	0.25	-25.0			
568	44215	77800094	12/8/79	13:01:30	23	-9.5	-62.7	34.2	12.3	0.30	-50.6	23	-15.6	105.6	23.2	1.8	0.08	-24.5			
569	44215	83264229	12/8/79	13:03:30	23	-34.4	-86.0	32.3	10.2	0.31	-48.9	20	-32.5	82.3	25.8	1.9	0.07	-28.1			
570	44216	2028080	12/9/79	12:04:43	20	-41.7	-109.4	40.6	6.5	0.16	-48.6	20	-30.2	58.9	32.1	3.4	0.17	-37.5			
571	44216	6079319	12/9/79	12:05:14	20	-30.4	-132.8	33.0	5.2	0.16	-41.5	20	-2.7	35.5	25.9	2.8	0.11	-26.2			
572	44216	13835286	12/9/79	12:05:50	20	-12.6	-150.1	20.6	2.5	0.12	-21.8	20	34.4	12.2	29.4	-0.5	-0.02	-23.5			
573	44216	19443820	12/9/79	12:05:55	20	-0.6	-179.5	31.1	3.0	0.10	-35.8	20	37.5	-11.2	29.5	-4.3	-0.15	-25.7			
574	44216	24099900	12/9/79	12:06:54	20	1.0	157.1	28.2	5.6	0.20	-29.5	20	17.7	34.5	19.4	2.2	0.11	-17.6			
575	44216	25052343	12/9/79	12:06:57	20	-0.4	133.8	30.7	6.9	0.22	-37.2	23	-1.8	-57.9	12.8	4.5	0.35	-14.7			
576	44216	30655941	12/9/79	12:08:31	23	-0.4	110.4	23.1	0.1	0.26	-28.9	23	-20.2	-95.3	17.0	5.0	0.34	-18.6			
577	44216	36112037	12/9/79	12:09:10	20	-18.6	87.1	22.4	4.1	0.19	-20	20	-31.3	-128.1	21.1	3.4	0.26	-27.1			
578	44216	41872999	12/9/79	12:11:37	20	-17.4	63.7	35.5	6.9	0.19	-20	20	-13.0	-128.1	16.0	0.1	0.01	-13.1			
579	44216	47481521	12/9/79	12:11:42	13	1.1	40.3	20.9	3.0	0.27	-26.2	13	-9.1	-151.0	7.1	-0.2	-0.03	-3.1			
579	44216	52932752	12/9/79	12:14:18	13	11.7	17.0	20.0	3.2	0.25	-19.2	13	4.0	-174.7	12.8	1.2	0.09	*****			
580	44216	58608738	12/9/79	12:16:18	17	25.9	-6.4	20.4	5.1	0.25	-30.9	17	10.7	161.9	11.0	0.3	0.03	-5.2			
581	44216	64148883	12/9/79	12:17:51	17	26.2	-29.8	25.0	2.2	0.09	-23.6	17	7.7	138.5	9.9	2.5	0.26	-13.2			
582	44216	69505705	12/9/79	12:19:25	17	5.5	-53.1	23.1	5.7	0.25	-37.1	17	-5.9	115.2	15.9	-0.5	-0.03	-14.3			
583	44216	75514306	12/9/79	12:20:58	17	-3.2	-76.5	26.5	4.5	0.17	-32.1	17	-14.7	91.8	15.4	1.3	0.08	-17.9			
584	44217	80965537	12/10/79	12:22:31	10	-11.9	-99.8	25.3	5.3	0.21	-38.2	10	-12.8	68.4	22.9	-1.9	-0.08	-20.9			
585	44217	81117516	12/10/79	12:23:08	10	-25.5	-123.2	23.0	-3.0	-1.00	-26.4	10	-8.2	45.1	22.2	-0.6	-0.03	-21.5			
586	44217	1120944	12/10/79	12:24:00	13	-18.9	-140.6	21.4	1.1	0.05	-20.7	13	13.7	21.7	20.6	-2.0	-0.10	-14.0			
587	44217	324473	12/10/79	12:24:05	13	0.4	-109.9	21.4	4.6	0.22	-24.6	13	28.6	-1.6	22.3	-1.3	-0.06	-17.3			
588	44217	5928081	12/10/79	12:24:13	10	14.0	100.7	13.1	4.4	0.33	-17.7	10	29.2	-25.0	17.6	-3.9	-0.22	-12.5			
589	44217	5942947	12/10/79	12:24:16	10	11.1	143.3	18.7	2.7	0.15	-25.3	10	11.4	-48.4	5.4	1.0	0.29	-5.9			
590	44217	11384227	12/10/79	12:24:28	10	3.4	120.0	15.7	0.8	0.43	-22.8	10	1.6	-71.7	6.9	3.7	0.54	-6.2			
591	44217	11536605	12/10/79	12:24:32	10	-1.8	96.6	15.4	-0.2	-0.01	-14.8	13	-15.0	-95.1	11.5	1.2	0.10	-12.8			
592	44217	17140212	12/10/79	12:24:34	13	-4.8	73.3	16.7	2.0	0.12	-19.3	13	-18.7	-138.5	12.7	0.7	0.00	-11.6			
593	44217	17145123	12/10/79	12:24:45	13	-7.2	49.9	23.0	3.1	0.03	-37.2	27	-8.7	-141.8	12.3	-1.2	-0.09	-11.9			
594	44217	22546358	12/10/79	12:24:48	27	-3.7	26.5	34.0	11.2	0.33	-41.9	27	-4.4	-165.2	16.9	3.5	0.21	-21.8			
595	44217	22748736	12/10/79	12:24:53	27	16.2	3.2	25.0	6.3	0.21	-32.1	17	15.9	171.5	12.5	1.3	0.10	-13.7			
596	44217	28352344	12/10/79	12:24:57	17	24.1	-20.2	31.2	4.2	0.13	-32.1	17	13.0	148.1	9.3	0.9	0.63	-13.8			
597	44217	28352344	12/10/79	12:25:02	17	14.7	-43.5	22.5	2.6	0.12	-32.1	7	-3.8	124.7	14.3	1.0	0.07	-15.0			
598	44217	28352344	12/10/79	12:25:03	7	-23.9	-66.9	21.0	0.0	0.23	-29.0	7	-12.3	101.4	17.3	0.1	0.01	-16.4			
599	44217	28352344	12/10/79	12:25:05	7	-32.3	-90.3	23.0	7.3	0.01	-39.0	23	-17.5	78.0	20.2	-2.9	-0.14	-15.9			
600	44218	3407180	12/11/79	12:25:26	23	-30.9	-113.0	32.8	5.5	0.17	-41.9	23	-3.6	54.7	20.3	-1.2	-0.06	-20.4			
601	44218	3619599	12/11/79	12:25:57																	
	44218	9220951	12/11/79	12:26:00																	

ORIGINAL PAGE IS OF POOR QUALITY

PASS	MJD	MSEC	DATE	HF	MN	SC	ASCENDING						DESCENDING								
							KP	D	EOL	EOL	E	I	I/E	DELTA	KP	D	EOL	EOL	E	I	I/E
602	44218	9225870	12/11/79	23	33	45	23	-23.5	-137.0	24.3	1.2	0.05	-29.3	13	13	9.5	31.3	17.3	-1.5	-1.09	-13.5
603	44218	14677100	12/11/79	4	7	9	13	-9.7	-160.3	19.0	4.6	0.23	-29.2	13	17.0	17.0	7.9	24.3	-2.3	-0.10	*****
604	44218	20433086	12/11/79	7	4.1	176.4	7	4.1	176.4	*****	*****	*****	-29.2	7	25.6	-15.4	26.2	-5.1	-0.20	-22.3	
605	44218	26038661	12/11/79	7	10.3	152.9	7	10.3	152.9	18.7	5.1	0.27	-29.2	7	38.2	-38.8	9.6	0.0	0.00	-10.7	
606	44218	31644235	12/11/79	7	2.5	129.6	7	2.5	129.6	18.0	4.9	0.27	-25.3	7	16.2	-62.1	9.4	2.3	0.24	-14.3	
607	44218	37247843	12/11/79	7	-5.8	106.2	7	-5.8	106.2	15.1	4.3	0.29	-19.2	7	-14.7	-85.5	11.0	3.1	0.28	*****	
608	44218	42856366	12/11/79	7	-8.4	82.0	7	-8.4	82.0	13.0	1.6	0.12	*****	7	-21.4	-108.9	13.5	1.6	0.12	-16.0	
609	44218	48307536	12/11/79	7	-0.2	59.5	7	-0.2	59.5	22.7	1.4	0.06	-25.4	7	-21.4	-132.2	9.7	-1.3	-0.14	-8.1	
610	44218	54064074	12/11/79	7	25.0	36.1	7	25.0	36.1	16.8	6.4	0.38	-20.2	7	2.9	-155.6	9.1	-2.0	-0.22	-17.0	
611	44218	59665220	12/11/79	7	26.1	12.8	7	26.1	12.8	26.9	6.7	0.25	-29.9	7	8.8	-178.9	18.3	3.1	0.17	-19.3	
612	44218	65272765	12/11/79	23	18.8	-10.6	23	18.8	-10.6	20.5	11.5	0.56	-29.9	23	17.2	157.7	7.4	-3.4	-0.47	-1.6	
613	44218	70881288	12/11/79	23	15.6	-33.9	23	15.6	-33.9	20.4	2.8	0.14	-22.1	23	8.3	134.4	9.0	2.6	0.29	-13.3	
614	44218	76484836	12/11/79	13	6.0	-57.3	13	6.0	-57.3	17.5	2.1	0.12	-30.3	13	-15.9	111.0	13.1	-1.0	-0.09	*****	
615	44218	81936125	12/11/79	13	-9.9	-80.6	13	-9.9	-80.6	24.5	2.0	0.08	16.1	13	-17.9	87.6	10.9	-5.2	-0.47	-8.9	
616	44219	1291372	12/12/79	7	-9.0	-104.0	7	-9.0	-104.0	*****	*****	*****	-37.6	7	-9.7	64.3	18.4	-3.5	-0.19	-15.7	
617	44219	6747519	12/12/79	7	-11.2	-127.3	7	-11.2	-127.3	22.3	1.1	0.05	*****	7	6.4	40.9	22.7	-0.5	-0.02	-21.0	
618	44219	12351128	12/12/79	7	-11.4	-150.7	7	-11.4	-150.7	24.3	4.6	0.19	-30.6	7	25.1	17.6	25.7	-0.7	-0.03	-20.1	
619	44219	17454736	12/12/79	7	5.7	-174.1	7	5.7	-174.1	*****	*****	*****	-30.6	3	32.7	-5.8	23.2	-3.1	-0.13	-15.3	
620	44219	23709487	12/12/79	3	12.9	162.6	3	12.9	162.6	22.1	3.1	0.14	-19.6	3	19.3	-29.1	16.1	-4.1	-0.25	-12.9	
621	44219	29314408	12/12/79	3	7.0	139.2	3	7.0	139.2	20.9	5.1	0.25	-19.6	10	5.1	-52.5	10.0	2.7	0.27	-13.1	
622	44219	34916487	12/12/79	10	-5.9	115.9	10	-5.9	115.9	17.4	7.6	0.44	-26.7	10	-2.8	-75.8	9.6	4.5	0.47	-11.9	
623	44219	40373106	12/12/79	10	-12.5	92.5	10	-12.5	92.5	19.3	1.5	0.08	-26.7	10	-27.4	-99.2	15.0	3.8	0.25	-19.7	
624	44219	46128844	12/12/79	10	-5.0	69.2	10	-5.0	69.2	21.6	2.4	0.11	-25.5	10	-25.5	-122.6	11.1	0.2	0.02	-11.7	
625	44219	51580671	12/12/79	10	4.9	45.8	10	4.9	45.8	16.1	6.3	0.39	-25.5	13	-32.8	-145.9	9.9	-0.8	-0.08	-8.0	
626	44219	57362846	12/12/79	13	4.2	22.5	13	4.2	22.5	23.2	3.7	0.16	-25.8	13	-18.5	-169.3	13.2	-0.2	-0.01	-12.1	
627	44219	62939936	12/12/79	13	-1.5	-0.9	13	-1.5	-0.9	23.1	4.9	0.21	-26.2	17	-12.9	167.4	13.1	-0.1	-0.01	-11.8	
628	44219	68544243	12/12/79	17	-6.3	-24.2	17	-6.3	-24.2	26.3	7.5	0.29	-26.2	17	-7.1	144.0	11.5	3.6	0.31	-14.7	
629	44219	74148847	12/12/79	17	-13.0	-47.6	17	-13.0	-47.6	24.2	3.7	0.36	-33.2	17	-1.8	120.7	12.5	-0.3	-0.04	-10.5	
630	44219	79749504	12/12/79	17	-12.8	-71.0	17	-12.8	-71.0	19.7	4.4	0.22	*****	17	-0.2	97.3	13.8	0.4	0.03	-14.1	
631	44219	85205651	12/12/79	3	-13.3	-94.3	3	-13.3	-94.3	23.1	3.4	0.15	-32.8	3	1.2	74.0	14.8	-0.7	-0.38	-7.6	
632	44220	4561636	12/13/79	3	-10.2	-117.7	3	-10.2	-117.7	21.0	1.1	0.05	-26.8	3	6.6	50.6	15.2	-5.0	-0.33	-11.5	
633	44220	10012807	12/13/79	7	-6.4	-141.0	7	-6.4	-141.0	19.4	2.2	0.11	-24.7	7	8.3	27.3	15.8	-2.5	-0.16	-9.9	
634	44220	15616474	12/13/79	7	-10.5	-164.4	7	-10.5	-164.4	17.5	4.8	0.28	-26.4	7	11.6	3.9	17.3	-2.8	-0.16	-11.7	
635	44220	21220083	12/13/79	13	-14.6	172.3	13	-14.6	172.3	21.4	3.4	0.16	-25.5	13	9.5	-19.5	21.4	-0.6	-0.31	-25.0	
636	44220	26977055	12/13/79	13	-7.5	148.9	13	-7.5	148.9	15.8	4.4	0.28	-25.7	13	2.4	-42.8	6.2	0.2	0.04	-5.8	
637	44220	32580600	12/13/79	7	4.1	129.6	7	4.1	129.6	13.6	4.3	0.32	-18.7	7	-5.7	-66.2	5.7	2.0	0.34	-10.0	
638	44220	38031830	12/13/79	7	3.7	102.2	7	3.7	102.2	17.8	1.2	0.06	-20.5	7	-12.1	-89.5	12.6	3.1	0.24	-15.2	
639	44220	43635498	12/13/79	13	4.3	78.9	13	4.3	78.9	20.4	5.9	0.29	-24.2	13	-19.5	-112.9	10.2	1.7	0.16	-10.7	
640	44220	49239106	12/13/79	13	5.9	55.5	13	5.9	55.5	24.5	4.1	0.17	-31.3	13	-21.9	-136.2	11.5	-0.2	-0.01	-11.9	
641	44220	54945093	12/13/79	7	17.0	32.2	7	17.0	32.2	10.9	4.1	0.38	-13.2	7	-25.4	-159.6	6.2	-2.9	-0.47	-2.8	

ORIGINAL PAGE IS  
OF POOR QUALITY

PASS	HJD	MSEC	DATE	ASCENDING	DESCENDING																	
642	442220	66039870	12/13/79	7	7	KE	D	EQL	E	I	1/2	DELTA	B	KE	D	EQL	E	I	1/2	DELTA	B	
	442220	66049930	12/13/79					10.2	8.8	13.5	3.1	0.23	-13.0									
643	442220	66202308	12/13/79	10		6.2		-14.5	15.5	2.7	0.17	-19.3	10	-7.0		153.7	7.6	-1.2		-0.15	-4.1	
644	442220	71653539	12/13/79	10		-11.6		-37.9	19.0	3.7	0.19	-24.0	10	0.9		130.4	7.6	0.4		0.05	-15.4	
645	442220	77401657	12/13/79	10		-16.8		-61.2	20.2	4.9	0.24	-33.3	10	5.4		177.0	13.8	-0.7		-0.05	-12.5	
646	442220	77406575	12/13/79	10		-19.9		-84.6	19.4	7.3	0.38	-31.2	3	-15.1		83.7	11.0	-0.6		-0.60	-12.5	
647	442221	83010783	12/13/79	3		-20.9		-107.9	28.3	3.3	0.12	-38.0	3	-11.6		60.3	20.9	-2.6		-0.13	-19.2	
648	442221	2208609	12/14/79	3		-19.5		-131.3	26.7	0.2	0.01	-33.4	17	16.8		37.0	19.0	-3.5		-0.18	-14.3	
649	442221	13267040	12/14/79	17		-3.7		-154.6	14.7	0.9	0.06	-15.3	17	31.5		13.6	16.8	-6.9		-0.41	-4.9	
650	442221	13420024	12/14/79	17		11.1		-178.0	16.8	-0.5	-0.03	-17.6	10	46.8		-9.7	19.2	-7.3		-0.38	-13.6	
651	442221	18871254	12/14/79	16		15.2		158.7	17.9	1.1	0.00	-14.6	10	27.8		-33.1	4.8	-3.9		-0.81	-1.5	
652	442221	19023632	12/14/79	10		6.9		135.3	19.5	3.4	0.18	-22.8	10	17.2		-56.4	5.6	-1.3		-0.24	-3.2	
653	442221	24474801	12/14/79	10		-1.6		112.0	9.3	1.1	0.12	-9.7	10	-12.7		-79.8	8.3	4.0		0.48	-9.0	
654	442221	24627240	12/14/79	11		-11.0		88.6	12.9	1.3	0.10	-15.3	10	-17.1		-103.1	12.4	1.5		0.12	-16.0	
655	442221	30078470	12/14/79	13		2.4		63.3	15.4	1.2	0.08	-20.4	10	-4.5		-126.5	8.7	-2.5		-0.29	-7.7	
656	442221	30230848	12/14/79	13		15.4		41.9	7.3	1.8	0.24	*****	13	1.0		-149.8	2.9	-3.2		-1.10	0.6	
657	442221	35082078	12/14/79	16		25.7		16.6	10.1	-0.1	-0.01	-4.3	13	13.7		-173.2	7.2	-2.7		-0.37	-4.2	
658	442221	35834456	12/14/79	17		15.7		-4.8	25.0	9.0	0.30	-35.2	17	11.7		163.5	13.6	3.6		0.27	-14.4	
659	442221	41285086	12/14/79	19		12.6		-28.1	22.4	5.9	0.26	-29.4	17	6.3		180.1	11.0	4.4		0.40	-15.7	
660	442221	41438004	12/14/79	20		7.2		-51.5	14.3	5.8	0.40	-27.0	13	-6.9		116.8	13.8	-2.9		-0.21	-10.3	
661	442221	47034050	12/14/79	22		-5.7		-74.8	15.4	1.7	0.11	-26.6	13	-9.1		93.4	8.4	-0.9		-0.11	-9.3	
662	442221	47038968	12/14/79	23		-20.8		-98.1	22.3	3.9	0.17	-36.7	10	-3.7		70.1	16.9	-4.4		-0.26	-12.4	
663	442222	47038968	12/15/79	10		-22.0		-121.5	20.7	0.5	0.02	-25.9	10	2.2		46.8	12.9	-1.5		-0.12	-13.5	
664	442222	52490139	12/15/79	30		-16.9		-144.8	25.4	1.8	0.07	-26.1	30	16.8		23.4	23.1	0.1		0.00	-19.9	
665	442222	52642576	12/15/79	30		-5.0		-168.2	27.7	10.8	0.39	-37.2	10	27.0		0.1	15.8	-1.0		-0.06	-12.0	
666	442222	58093806	12/15/79	17		8.0		168.5	17.9	6.3	0.35	-22.6	17	30.5		-23.3	26.2	-2.9		-0.11	-21.7	
667	442222	58240184	12/15/79	17		-14.0		145.1	38.6	7.2	0.19	-47.7	17	21.0		-46.6	22.6	2.0		0.09	-24.8	
668	442222	63844876	12/15/79	27		-27.9		121.8	42.6	10.8	0.25	-50.0	27	-4.2		-70.0	10.9	0.8		0.07	-7.1	
669	442222	69296107	12/15/79	10		-33.0		98.4	36.1	5.4	0.15	-39.4	20	-21.6		-93.3	27.2	7.6		0.28	-34.1	
670	442222	69448495	12/15/79	20		-26.0		75.1	32.0	7.6	0.24	*****	20	-19.8		-116.7	19.5	3.9		0.20	-32.7	
671	442222	74899714	12/15/79	20		-12.9		51.7	*****	*****	*****	-35.0	23	-11.8		-140.0	17.7	0.6		0.04	-18.2	
672	442222	75052093	12/15/79	17		-8.3		28.4	24.4	6.4	0.26	-26.5	23	-5.5		-163.4	21.3	1.6		0.07	-24.5	
673	442222	80503323	12/15/79	23		6.2		5.1	43.1	16.2	0.38	-52.9	27	15.1		173.3	21.5	0.9		0.04	-22.5	
674	442222	80655700	12/15/79	27		-7.7		-18.3	53.5	21.2	0.40	-163.1	***	*****		*****	*****	*****		*****	-22.5	
675	442222	86255432	12/15/79	21		*****		*****	*****	*****	*****	-163.1	17	-22.7		126.6	*****	*****		*****	-35.3	
676	442222	86255432	12/15/79	17		-31.8		-65.0	30.8	10.2	0.33	-44.7	***	*****		*****	*****	*****		*****	-35.3	
677	442222	87919007	12/15/79	23		*****		*****	*****	*****	*****	-44.7	27	-34.8		79.9	30.0	0.5		0.02	-27.8	
678	442223	87919007	12/16/79	27		-45.8		-111.7	44.3	9.0	0.20	-55.5	27	-20.9		56.0	30.8	5.2		0.17	-35.8	
679	442223	88690109	12/16/79	27		-32.9		-135.0	33.1	3.7	0.11	-39.7	36	-2.9		33.2	27.4	4.0		0.17	-30.0	
680	442223	14283934	12/16/79	30		-28.4		-158.3	37.0	8.0	0.21	-45.5	30	20.8		9.9	32.7	1.1		0.03	-27.2	
681	442223	14286802	12/16/79	30		-19.1		178.3	49.3	11.3	0.23	-64.8	23	17.5		-13.4	30.2	-2.0		-0.07	-59.5	

ORIGINAL PAGE IS OF POOR QUALITY

PASS	BJD	MSEC	DATE	ASCENDING							DESCENDING							
				RP	ECL	ECL	E	I	DELTA	F	RP	ECL	ECL	F	I	DELTA	B	
682	44223	25490917	12/16/79	5:44:50	-5.5	155.0	34.0	3.5	0.10	-36.3	23	11.6	-36.3	24.4	3.3	0.14	-25.2	
683	44223	30942116	12/16/79	7:35:42														
	44223	31054525	12/16/79	8:36:14	17	-19.7	131.6	28.9	3.5	0.12	*****	17	-1.1	-60.1	19.8	2.9	0.13	-26.2
684	44223	36088250	12/16/79	10:11:28														
	44223	36693217	12/16/79	10:11:33	17	-30.2	109.3	29.3	6.4	0.22	*****	17	-20.2	-85.5	20.6	4.2	0.20	-24.9
	44223	42144449	12/16/79	11:44:24														
685	44223	42296826	12/16/79	11:44:56	20	-20.3	64.9	22.3	5.5	0.25	-27.2	20	-13.4	-106.8	11.7	0.9	0.08	-15.7
	44223	47890590	12/16/79	13:18:10														
686	44223	47895518	12/16/79	13:18:15	20	-16.1	61.6	34.6	5.6	0.16	*****	20	-11.5	-130.2	14.7	-1.6	-0.11	-14.9
	44223	53346718	12/16/79	14:49:36														
687	44223	53499126	12/16/79	14:51:52	20	-14.6	38.3	34.3	12.8	0.37	-44.6	20	-2.0	-153.5	11.0	-0.3	-0.03	-13.2
	44223	59492220	12/16/79	16:24:57														
688	44223	59097819	12/16/79	16:25:49	20	-1.6	14.9	29.0	3.2	0.28	-31.9	20	0.1	-176.6	12.9	2.8	0.22	-13.5
	44223	64549048	12/16/79	17:55:41														
689	44223	64701426	12/16/79	17:55:41	20	26.0	-8.4	21.0	9.8	0.45	-36.0	20	11.9	159.8	10.8	-1.6	-0.14	-6.4
	44223	70295191	12/16/79	19:31:33														
690	44223	70300119	12/16/79	19:31:40	20	26.8	-31.8	28.9	5.8	0.20	-32.2	20	9.1	136.5	9.5	-3.4	-0.04	-12.9
	44223	75751348	12/16/79	21:5:31														
691	44223	75903727	12/16/79	21:5:33	33	3.2	-55.1	18.9	6.6	0.35	*****	33	-8.6	113.1	15.6	-4.1	-0.26	-13.4
	44223	81497492	12/16/79	22:30:17														
692	44223	81502420	12/16/79	22:30:22	33	-43.1	-78.4	28.6	8.2	0.2	-46.2	33	-16.8	89.8	11.6	-4.7	-0.40	-8.0
	44224	553649	12/17/79	0:9:13														
693	44224	706027	12/17/79	0:11:46	37	-52.7	-101.8	41.9	12.8	0.31	-63.7	37	-13.1	66.5	25.0	0.3	3.03	-25.1
	44224	6299723	12/17/79	1:44:59														
694	44224	6304720	12/17/79	1:45:4	37	-41.3	-125.1	32.2	2.8	0.39	-38.5	37	-6.6	43.1	27.8	1.2	0.04	-27.8
	44224	11896484	12/17/79	3:18:18														
695	44224	11903413	12/17/79	3:18:23	23	-29.6	-148.5	30.3	5.5	0.18	-32.9	23	14.1	19.8	29.4	-0.3	-0.01	-24.0
	44224	17354642	12/17/79	4:49:14														
696	44224	17507021	12/17/79	4:51:47	23	-11.7	-171.8	36.0	7.0	0.19	-39.6	23	30.9	-3.6	30.3	0.8	0.03	-26.4
	44224	23100786	12/17/79	6:25:0														
697	44224	23105714	12/17/79	6:25:5	30	-7.6	164.9	44.8	8.2	0.18	-48.7	30	31.6	-26.9	27.3	-1.9	-0.07	-23.3
	44224	28556943	12/17/79	7:55:56														
698	44224	2870521	12/17/79	7:55:29	30	-22.8	141.5	44.1	7.5	0.17	-51.5	20	4.9	-50.2	12.0	-0.2	-0.32	-12.3
	44224	34303086	12/17/79	9:31:48														
699	44224	34308014	12/17/79	9:31:43	20	-26.0	118.2	31.3	7.1	0.23	-38.8	20	-10.4	-73.6	17.8	5.8	0.32	-24.8
	44224	39901772	12/17/79	11:5:1														
700	44224	39906707	12/17/79	11:5:1	20	-18.1	94.8	24.7	2.6	0.10	-26.3	27	-16.6	-96.9	22.7	4.0	0.18	*****
	44224	45357936	12/17/79	12:35:57														
701	44224	45510318	12/17/79	12:36:57	27	-27.3	71.5	36.5	13.3	0.28	-45.3	27	-17.9	-120.3	15.9	1.3	0.08	-17.9
	44224	51134479	12/17/79	14:11:44														
702	44224	51105007	12/17/79	14:11:49	27	-21.7	48.2	33.6	10.3	0.31	-46.3	30	-14.2	-143.6	16.2	1.7	0.10	-18.1
	44224	56702772	12/17/79	15:45:4														
703	44224	56707703	12/17/79	15:45:4	30	-5.8	24.8	35.5	11.9	0.33	-45.8	30	-5.4	-166.9	19.2	-3.6	-0.19	-18.0
	44224	62158529	12/17/79	17:15:58														
704	44224	62311307	12/17/79	17:16:31	30	-9.0	1.5	45.8	18.9	0.41	-58.6	23	-6.2	169.7	27.0	9.8	0.36	-35.9
	44224	67905072	12/17/79	18:51:45														
705	44224	67916030	12/17/79	18:51:50	23	2.2	-21.8	41.3	12.4	0.30	-49.2	23	-5.4	146.4	26.0	4.6	0.33	-35.0
	44224	73503705	12/17/79	20:25:3														
706	44224	73508693	12/17/79	20:25:8	23	0.1	-45.2	34.1	9.2	0.27	-40.1	27	-15.3	123.0	25.8	0.8	0.03	-26.6
	44224	78959922	12/17/79	21:55:59														
707	44224	79112300	12/17/79	21:58:32	27	-41.9	-68.5	44.6	17.6	0.40	-71.5	27	-31.4	99.7	23.8	0.1	0.26	-29.6
	44224	84706606	12/17/79	23:31:66														
708	44224	84710953	12/17/79	23:31:50	27	-43.4	-91.9	39.4	10.3	0.29	-59.6	27	-32.5	76.4	29.5	2.6	0.09	-52.9
	44225	3905953	12/18/79	1:5:5														
709	44225	3910177	12/18/79	1:5:10	27	-30.3	-115.2	43.8	11.5	0.26	-58.1	27	-13.9	53.0	24.9	1.9	0.08	-29.7
	44225	9503942	12/18/79	2:38:23														
710	44225	9508992	12/18/79	2:38:28	10	-25.1	-138.5	38.9	4.3	0.11	4.7	10	-0.6	29.7	25.6	4.2	0.16	-27.8
	44225	14960039	12/18/79	4:9:20														
711	44225	15112601	12/18/79	4:11:52	10	-24.2	-161.9	28.8	4.7	0.16	-33.4	10	21.1	6.4	32.1	2.0	0.06	-29.7
	44225	20706242	12/18/79	5:45:6														
712	44225	20711291	12/18/79	5:45:11	13	-4.4	174.8	34.2	2.0	0.06	-37.1	13	19.1	-17.0	31.1	-3.5	-0.11	-27.8
	44225	26304935	12/18/79	7:18:24														
713	44225	26309986	12/18/79	7:18:29	13	-9.1	151.5	31.2	3.1	0.26	-38.3	13	0.2	-40.3	17.4	2.8	0.16	-15.4
	44225	31903627	12/18/79	8:53:43														
714	44225	31908678	12/18/79	8:53:48	23	-10.9	128.1	26.4	6.0	0.23	-32.1	23	-9.4	-63.7	16.2	3.8	0.18	-20.9
	44225	37502320	12/18/79	10:25:7														
715	44225	37507370	12/18/79	10:25:23	23	-20.9	104.8	27.9	4.4	0.16	-32.3	23	-15.9	-87.0	19.3	4.0	0.21	-26.1
	44225	42958418	12/18/79	11:55:58														
716	44225	43110979	12/18/79	11:58:30	20	-24.9	81.5	21.6	7.0	0.33	*****	20	-28.1	-110.3	19.8	5.0	0.25	-25.9
	44225	48704820	12/18/79	13:34:44														
717	44225	48709672	12/18/79	13:34:49	20	-18.7	58.1	36.7	6.8	0.19	-44.7	20	-18.9	-133.7	17.7	1.4	0.08	-20.1
	44225	54303313	12/18/79	15:5:3														
718	44225	54308364	12/18/79	15:5:8	17	-11.0	34.0	28.4	5.1	0.18	-32.8	17	-5.9	-157.0	15.6	-0.1	-0.01	-14.2
	44225	59902096	12/18/79	16:38:2														



PASS	MJD	MSEC	DATE	HR	MIN	SC	ASCENDING					DESCENDING					I/Z DELTA B		
							KE	D	DEL	EQL	E	I	I/E	DELTA B	KE	D		DEL	EQL
722	44225	76705051	12/18/79	17	16	26	17	-9.9	-58.6	27.6	8.4	0.31	-45.3	17	-14.1	109.7	19.4	1.3	0.07 -20.6
723	44225	82306743	12/18/79	17	17	46	17	-30.3	-81.9	27.7	6.6	0.24	8.1	17	-23.3	86.3	16.9	3.4	0.20 -21.5
724	44226	1499156	12/19/79	17	17	4	17	-34.5	-105.2	29.9	4.2	0.14	-39.0	17	-15.6	63.0	22.8	-0.4	-0.02 -22.4
725	44226	7097847	12/19/79	17	17	17	17	-30.5	-128.6	31.7	2.6	0.08	-33.0	20	2.4	39.7	27.9	0.5	0.02 -25.5
726	44226	12594035	12/19/79	20	20	14	20	-26.7	-151.9	32.0	5.4	0.17	-32.9	20	9.9	16.3	23.1	-0.9	-0.03 -20.0
727	44226	18300148	12/19/79	20	20	0	20	-7.8	-175.2	43.6	3.6	0.13	-46.3	17	14.6	-7.0	22.2	3.0	0.22 -26.5
729	44226	22532350	12/19/79	6	6	32	***	*****	*****	*****	*****	*****	-46.3	13	-8.0	-53.7	*****	*****	***** -24.0
730	44226	32459348	12/19/79	9	9	54	13	-16.3	114.8	29.9	7.7	0.26	-38.8	13	-12.9	-77.0	17.1	3.5	0.32 -22.2
731	44226	35398943	12/19/79	11	11	12	13	-12.4	91.4	24.4	3.1	0.13	-20.4	10	-17.1	-109.3	18.4	4.8	0.26 -24.9
732	44226	40692737	12/19/79	12	12	8	10	-15.8	68.1	28.1	4.9	0.17	-34.3	10	-18.5	-123.7	15.8	3.0	0.19 -18.3
733	44226	46301243	12/19/79	14	14	55	10	-10.9	44.8	28.5	5.5	0.19	-35.9	13	-11.1	-147.0	14.7	0.3	0.02 -13.7
734	44226	51895007	12/19/79	15	15	13	13	-1.4	21.4	30.2	7.2	0.24	-33.2	13	-2.0	-170.3	18.3	0.4	0.02 -16.6
735	44226	57493700	12/19/79	17	17	32	13	10.0	-1.9	28.7	3.7	0.30	-34.4	17	5.4	166.3	15.4	1.0	0.07 -15.3
736	44226	63097320	12/19/79	19	19	4	17	22.8	-25.2	30.0	2.6	0.09	-28.1	17	6.6	143.0	14.1	1.5	0.11 -17.9
737	44226	68631085	12/19/79	20	20	9	23	-14.0	-48.5	26.7	3.4	0.35	-36.4	23	-1.4	119.7	14.6	-0.1	-0.01 -14.9
738	44226	74294705	12/19/79	22	22	28	23	-24.0	-71.9	29.3	6.1	0.21	-45.5	23	-17.6	96.3	18.1	3.8	0.32 -24.2
739	44226	79888469	12/19/79	23	23	33	0	-23.7	-95.2	31.4	5.5	0.17	-45.8	0	-20.3	73.0	21.5	1.3	0.06*****
740	44227	85467162	12/20/79	1	1	6	0	-18.6	-118.5	30.6	4.5	0.15	-37.7	0	-9.7	49.7	23.4	3.4	0.02 -24.2
741	44227	4691029	12/20/79	2	2	24	13	-17.8	-141.9	27.3	2.9	0.10	19.3	13	5.8	26.3	24.5	2.1	0.08 -22.3
742	44227	10284733	12/20/79	4	4	43	13	-16.0	-165.2	26.4	3.0	0.11	-31.7	13	11.1	3.0	24.1	1.3	0.05 -23.1
743	44227	15883446	12/20/79	5	5	2	7	1.7	171.5	26.7	2.5	0.09	-26.6	7	16.1	-23.3	24.4	-4.1	-0.17 -20.8
744	44227	214823	12/20/79	7	7	29	7	0.4	148.1	27.2	7.5	0.23	-38.2	7	11.7	-43.7	16.9	1.5	0.03 -17.1
745	44227	27000871	12/20/79	7	7	25	10	-18.6	124.8	30.5	10.0	0.33	-39.8	16	-11.3	-67.0	17.3	4.1	0.04 -23.7
746	44227	32695563	12/20/79	9	9	44	10	-39.2	101.5	37.0	7.4	0.20	-42.8	10	-17.7	-90.3	20.1	4.6	0.11 -25.6
747	44227	32694491	12/20/79	10	10	58	10	-40.2	78.1	36.7	12.1	0.33	-41.8	20	-15.8	-113.7	18.5	4.7	0.25 -24.1
748	44227	38283134	12/20/79	12	12	21	20	-22.1	54.8	39.3	11.2	0.28	-51.8	20	-18.2	-137.0	14.1	-0.9	-0.06 -16.1
749	44227	4380949	12/20/79	13	13	35	17	-18.4	31.5	37.7	14.1	0.37	-48.0	17	-10.8	-160.3	18.5	3.3	0.02 -16.4
750	44227	49490569	12/20/79	15	15	59	17	-2.2	8.1	43.3	13.3	0.31	-52.6	***	*****	*****	*****	*****	***** -18.8
751	44227	55074331	12/20/79	17	17	37	***	*****	*****	*****	*****	*****	-52.6	***	*****	*****	*****	*****	*****
754	44227	60677926	12/20/79	19	19	22	10	-40.3	-85.2	34.9	11.0	0.32	-50.1	3	-33.8	83.0	27.0	4.4	0.16 -31.0
755	44228	62737513	12/21/79	3	3	28	3	-28.0	-108.5	32.7	5.0	0.15	-43.3	3	-27.0	59.7	29.6	4.0	0.14 -33.1
756	44228	70808656	12/21/79	0	0	41	3	-28.0	-111.8	30.4	3.5	0.12	-35.0	0	-10.1	36.4	28.8	3.4	0.12 -26.7
757	44228	7800206	12/21/79	2	2	19	0	-14.9	-155.2	22.3	6.3	0.23	-26.7	0	5.2	13.0	30.2	0.6	0.02 -23.1
758	44228	83903350	12/21/79	5	5	42	0	-5.3	-178.5	29.1	4.7	0.16	-36.1	3	22.9	-10.3	28.9	-2.1	-0.07 -27.5
759	44228	13458959	12/21/79	8	8	56	3	2.2	158.2	26.3	5.5	0.21	-31.3	3	9.3	-33.6	18.3	1.8	0.10 -18.7
760	44228	13463866	12/21/79	6	6	14	3	-0.7	134.9	27.0	6.5	0.24	-36.1	7	-0.5	-56.9	16.4	2.9	0.17 -23.1
761	44228	19057436	12/21/79	9	9	33	7	-18.6	111.5	28.3	3.6	0.20	-35.4	7	-14.7	-80.3	15.7	4.3	0.28 -20.8
762	44228	19062334	12/21/79	11	11	47	7	-27.9	88.2	31.1	5.7	0.18	-36.0	7	-16.3	-193.6	19.0	4.2	0.22 -25.0
763	44228	24661026	12/21/79	13	13	5	7	-28.2	64.9	37.9	6.2	0.16	-44.7	7	-21.2	-126.9	17.3	-0.7	-0.04 -16.0
764	44228	30254791	12/21/79	14	14	23	13	-11.8	41.5	32.1	9.0	0.23	-43.0	13	-13.9	-150.3	14.4	0.7	0.05 -14.3

ORIGINAL PAGE IS OF POOR QUALITY



PASS	HJD	NSEC	DATE	HF	MNF	SC	#ASCENDING					DELTA B	DESCENDING							
							KE	D	E	E21	EOL		E	I	I/E	KP	D	ECL	EOL	Z
805	44231	22936903	12/24/79	6:22	16	13	13	165.2	20.2	3.3	0.17	-23.2	13	13	39.3	-26.6	10.6	-4.3	-0.43	-6.0
806	44231	28530743	12/24/79	7:55	35	13	8.3	141.9	20.9	1.2	0.06	*****	23	18.6	-49.9	12.7	0.7	0.05	-16.7	
807	44231	34127725	12/24/79	9:28	47	23	-4.2	118.6	14.1	5.9	0.42	-21.7	23	-0.6	-33.3	10.1	3.2	0.32	-11.5	
808	44231	39721438	12/24/79	11:25	1	23	-21.3	95.2	21.6	3.6	0.17	-25.3	10	-18.9	-96.6	8.8	0.2	0.03	-12.1	
809	44231	45129130	12/24/79	11:32	20	10	-20.0	71.9	29.1	8.3	0.28	-37.0	10	-8.0	-119.9	12.5	2.8	0.22	-15.6	
810	44231	50913907	12/24/79	14:08	33	10	-9.2	48.6	26.7	12.3	0.46	-43	27	9.9	-143.2	11.8	0.8	0.06	-11.4	
811	44231	56517537	12/24/79	15:41	57	27	-6.7	25.3	41.6	14.8	0.35	-	17	17.3	-166.5	3.1	-3.4	-0.42	-6.4	
812	44231	62106437	12/24/79	17:15	6	27	6.0	1.9	27.8	3.1	0.11	-29.4	10	15.8	170.1	11.0	3.4	0.31	-13.0	
813	44231	67705130	12/24/79	18:48	25	10	25.4	-21.4	26.1	2.2	0.08	-25.9	10	13.4	146.8	10.2	1.7	0.17	-14.0	
814	44231	73308750	12/24/79	20:21	48	10	15.0	-44.7	23.5	8.0	0.34	-31.7	13	-4.4	123.5	15.0	-1.4	-0.09	-13.1	
815	44231	78897539	12/24/79	22:11	54	13	-16.6	-68.0	24.0	10.2	0.43	-41.6	13	-15.2	100.2	16.3	0.5	0.03	-16.8	
916	44231	84496291	12/24/79	23:28	21	13	-22.4	-91.3	22.9	4.7	0.21	-34.8	6	-16.9	76.8	17.2	-3.2	-0.19	-11.7	
817	44232	3630069	12/25/79	1:13	30	0	-8.0	-114.7	25.4	0.8	0.03	-29.1	0	-1.7	53.5	16.0	-1.8	-0.10	-17.8	
818	44232	9288701	12/25/79	2:34	48	0	2.8	-138.0	21.1	-0.8	-0.04	-22.4	0	5.9	30.2	16.3	-0.8	-0.05	-12.3	
819	44232	14882539	12/25/79	4:08	2	0	16.6	-161.3	13.2	1.7	0.13	-16.5	0	13.2	6.9	21.3	-3.4	-0.16	-14.3	
820	44232	20481230	12/25/79	5:41	21	0	23.4	175.4	14.8	0.4	0.02	-16.7	0	25.8	-16.4	18.5	-7.8	-0.42	-12.4	
821	44232	26075008	12/25/79	7:14	35	0	20.9	152.1	16.0	5.5	0.34	-23.5	0	31.5	-39.8	7.8	-2.0	-0.25	-7.1	
822	44232	31673700	12/25/79	8:47	53	0	-2.4	128.7	11.4	3.6	0.31	-23.5	0	17.4	-63.1	6.8	0.0	0.00	-10.1	
823	44232	37270137	12/25/79	10:21	13	0	-11.7	105.4	13.3	2.7	0.20	-18.6	0	-6.0	-86.4	7.0	0.0	0.13	-7.8	
824	44232	42863973	12/25/79	11:54	23	13	-3.2	82.1	8.7	-0.4	-0.04	-10.2	13	-0.9	-109.7	3.7	-2.0	-0.53	-3.7	
825	44232	48462600	12/25/79	13:27	47	13	11.3	58.8	1.2	-7.6	-6.16	0.4	13	5.6	-133.1	-6.3	-6.2	0.98	11.9	
826	44232	54061548	12/25/79	15:01	1	3	30.8	35.4	-1.5	-4.0	3.13	3.0	3	10.2	-156.4	-11.5	-7.1	0.02	19.4	
827	44232	59650203	12/25/79	16:34	10	3	40.8	12.1	3.3	-3.1	-0.92	-1.5	3	20.2	-179.7	-6.8	-4.3	0.03	11.4	
828	44232	65246138	12/25/79	18:07	26	10	47.4	-11.2	9.7	-0.3	-0.03	-14.1	10	23.7	157.0	2.3	-3.3	-1.45	3.6	
829	44232	70844845	12/25/79	19:40	44	10	51.8	-34.5	6.7	-2.3	-0.34	-5.3	10	28.9	133.7	-10.2	-7.0	0.69	12.7	
830	44232	76443550	12/25/79	21:13	58	13	40.3	-57.8	-1.0	-3.7	3.88	-3.9	13	19.3	110.3	0.2	-10.5	-45.13	10.0	
831	44232	82042283	12/25/79	22:47	17	13	-14.7	-81.1	13.1	-1.2	-0.09	-18.1	13	4.2	87.0	4.2	-6.1	-1.44	0.4	
832	44233	1230158	12/26/79	0:20	30	20	-29.1	-104.5	14.2	-3.3	-0.24	-16.7	20	0.5	63.7	11.0	-7.3	-0.72	-4.4	
833	44233	6828842	12/26/79	1:53	48	20	-31.0	-127.8	18.2	-1.7	-0.09	-20.0	13	24.3	40.4	9.6	-5.3	-0.86	0.0	
834	44233	12427547	12/26/79	3:27	7	13	-15.1	-151.1	1.5	-3.0	-2.75	2.4	13	40.4	17.1	11.0	-9.0	-0.82	*****	
835	44233	18019346	12/26/79	5:00	19	13	5.2	-174.4	3.7	-4.8	-1.31	0.9	10	74.0	-6.3	4.8	-12.0	-2.63	5.3	
836	44233	23618033	12/26/79	6:33	38	10	20.9	162.3	-1.6	-2.6	1.61	-1.9	10	79.3	-29.6	-8.3	-3.6	1.15	14.0	
837	44233	29216743	12/26/79	8:06	56	10	28.0	138.9	7.9	-2.3	-0.30	*****	17	38.6	-52.9	-3.0	-2.7	0.91	0.4	
838	44233	34810521	12/26/79	9:40	5	17	13.9	115.6	4.0	1.7	0.42	-9.8	17	9.4	-76.2	-3.6	2.7	-0.75	-0.3	
839	44233	40404235	12/26/79	11:13	24	17	0.1	92.3	19.0	1.7	0.09	-22.3	20	-5.1	-99.5	2.3	0.7	0.29	-4.9	
840	44233	45998003	12/26/79	12:46	38	20	5.5	69.0	9.5	0.4	0.05	-13.9	20	-13.2	-122.9	-1.8	-2.8	1.57	5.2	
841	44233	51596735	12/26/79	14:19	56	20	18.7	45.7	1.4	-2.1	-1.47	*****	33	-10.4	-146.2	-6.3	-3.8	0.90	13.1	
842	44233	57195300	12/26/79	15:53	10	33	26.6	22.3	21.3	3.7	0.17	-24.8	33	2.1	-169.5	-0.9	-4.2	4.73	4.1	
843	44233	62784309	12/26/79	17:26	24	33	22.4	-1.0	42.1	12.8	0.30	-48.5	37	8.3	167.2	3.9	3.2	0.53	-42.6	
844	44233	68383037	12/26/79	19:00	43	37	14.1	-24.3	46.7	13.5	0.31	-53.9	37	4.1	143.9	20.6	2.8	0.13	-22.7	

ORIGINAL PAGE IS  
OF POOR QUALITY

PASS	MJD	MSEC	DATE	ASCENDING						DESCENDING									
				RF	D	ECL	E	I	1/E	DELTA	6	KP	D	ECL	EOL	E	I	1/E	DELTA
845	44233	76001282	12/26/79	1:41:1	27	-25.0	-70.9	*****	*****	*****	*****	*****	27	-24.1	97.2	24.5	3.3	0.34	-22.7
846	44233	79574730	12/26/79	1:41:14	13	-29.3	-94.3	30.2	6.4	0.21	*****	*****	13	-28.4	73.9	26.0	-0.0	-0.00	-23.1
847	44233	84769878	12/26/79	1:41:32	13	-23.1	-117.6	30.0	4.7	0.16	-36.8	13	-11.4	50.6	23.0	0.2	0.01	-34.8	
848	44234	4363031	12/27/79	1:41:43	30	-20.1	-140.9	26.3	0.8	0.03	-28.5	30	5.9	27.3	12.1	-4.4	-0.36	-3.1	
849	44234	4307953	12/27/79	1:41:47	30	-17.7	-164.2	12.4	-4.6	-0.37	-12.2	30	26.8	4.0	22.7	0.0	0.03	-15.7	
850	44234	9959762	12/27/79	1:41:55	30	-1.0	172.5	29.6	2.7	0.09	-33.1	30	24.2	-19.4	27.6	-3.9	-0.14	-23.0	
851	44234	9964681	12/27/79	1:41:57	30	-4.2	149.2	42.7	11.5	0.27	-56.0	30	19.1	-42.7	9.3	-2.7	-0.29	-5.5	
852	44234	15553530	12/27/79	1:41:59	30	-14.4	125.8	30.5	0.5	0.21	-37.1	30	-4.7	-66.0	11.8	3.1	0.26	*****	
853	44234	15558457	12/27/79	1:42:02	30	-13.1	102.5	23.7	2.2	0.09	-28.5	30	-8.2	-89.3	13.1	2.7	0.21	-18.4	
854	44234	21152222	12/27/79	1:42:03	30	-25.0	79.2	22.6	9.1	0.40	-30.1	30	-23.1	-112.6	10.2	1.2	0.1	-12.8	
855	44234	21157159	12/27/79	1:42:05	30	-16.9	55.9	22.2	9.6	0.23	-53.4	30	-24.5	-135.9	15.7	1.6	0.10	-18.2	
856	44234	26745959	12/27/79	1:42:08	33	-23.1	32.6	49.3	16.6	0.34	-63.2	33	-7.2	-159.3	12.3	1.7	0.14	-13.5	
857	44234	26745959	12/27/79	1:42:12	33	2.7	9.2	41.7	9.5	0.23	*****	33	-1.1	177.4	18.2	3.3	0.51	-27.6	
858	44234	32343403	12/27/79	1:42:18	17	13.1	-14.1	33.3	6.4	0.19	-39.7	17	6.5	154.1	16.9	3.7	0.22	-18.3	
859	44234	32343403	12/27/79	1:42:18	17	0.4	-37.4	35.0	6.2	0.18	-36.3	10	-6.2	130.8	19.4	3.3	0.20	-23.4	
860	44234	37937243	12/27/79	1:42:22	10	-7.1	-60.7	25.3	6.4	0.25	-36.0	10	-15.3	107.5	22.6	1.6	0.07	-22.6	
861	44234	37942169	12/27/79	1:42:22	10	-37.5	-84.0	27.5	6.0	0.22	-39.0	10	-23.5	84.2	22.7	0.4	0.03	-24.2	
862	44234	43531019	12/27/79	1:42:22	10	-52.2	-107.3	28.8	4.0	0.14	-38.8	10	-20.4	60.8	26.1	1.3	0.05	*****	
863	44234	43535945	12/27/79	1:42:23	10	-56.5	-130.6	31.6	0.8	0.03	-35.1	27	-8.9	37.5	27.9	-0.2	-0.01	-24.7	
864	44234	49129732	12/27/79	1:42:23	27	-55.4	-154.0	25.8	4.3	0.16	-27.8	27	-3.7	14.2	26.9	-0.8	-0.03	-18.1	
865	44234	49134638	12/27/79	1:42:23	27	-37.2	-177.3	35.0	6.9	0.20	-41.8	17	40.1	-9.1	26.4	0.7	0.03	-26.9	
866	44234	54723487	12/27/79	1:42:23	17	-0.4	159.4	23.7	3.5	0.15	-28.3	17	48.3	-32.4	19.0	1.7	0.09	-18.6	
867	44234	54728414	12/27/79	1:42:23	17	2.1	136.1	22.2	3.4	0.15	-30.7	43	11.8	-55.7	17.1	1.5	0.09	-24.8	
868	44234	60317205	12/27/79	1:42:23	43	-20.1	112.8	25.5	8.2	0.32	-36.1	43	-33.0	-79.1	16.9	7.2	0.42	-23.9	
869	44234	60322192	12/27/79	1:42:23	43	-26.7	89.5	42.0	6.0	0.14	-46.3	40	-34.4	-102.4	4.6	2.2	0.47	-9.1	
870	44234	65911041	12/27/79	1:42:23	40	-31.2	66.1	41.7	6.9	0.16	-49.4	40	-27.9	-125.7	18.8	7.0	0.37	-24.9	
871	44234	65915969	12/27/79	1:42:23	40	-12.1	42.8	30.3	4.0	0.13	-36.1	33	-21.2	-149.0	15.5	3.3	0.21	-16.9	
872	44234	71505734	12/27/79	1:42:23	33	-10.9	19.5	38.1	11.8	0.31	-43.9	33	-7.0	-172.3	17.7	3.5	0.31	-20.5	
873	44234	71509769	12/27/79	1:42:23	33	-19.5	-3.8	29.4	6.9	0.24	-36.0	17	-0.6	164.4	16.5	6.3	0.38	-20.4	
874	44234	77103511	12/27/79	1:42:23	17	25.6	-27.1	34.3	4.4	0.13	-35.1	***	*****	*****	*****	*****	*****	-20.4	
875	44234	77108439	12/27/79	1:42:23	17	36.5	-73.6	38.3	15.1	0.39	-60.8	40	-3.2	94.4	5.7	-0.4	-0.08	-6.9	
876	44234	82697289	12/27/79	1:42:23	40	-100.0	-97.1	68.4	24.6	0.36	-95.9	40	-31.8	71.1	29.0	3.7	0.20	-31.3	
877	44234	82732235	12/27/79	1:42:23	40	-115.7	-120.4	51.0	10.3	0.20	-63.8	40	-23.8	87.6	34.1	4.4	0.13	-39.4	
878	44234	82732235	12/27/79	1:42:23	50	-86.5	-143.7	64.0	15.5	0.24	-77.6	50	-3.7	24.5	27.6	0.0	0.22	-27.9	
879	44234	82732235	12/27/79	1:42:23	50	-70.5	-167.0	55.6	14.5	0.26	-69.7	50	13.1	1.2	35.7	3.9	0.11	-36.3	
880	44236	1892295	12/29/79	1:42:23	40	-47.2	169.7	67.9	19.8	0.29	-85.8	40	-4.0	-22.2	40.5	3.0	0.08	-39.0	
881	44236	1892295	12/29/79	1:42:23	40	-44.1	146.4	59.7	11.0	0.18	-73.3	40	1.2	-45.5	33.2	4.2	0.13	-37.2	
882	44236	1892295	12/29/79	1:42:23	37	-49.2	123.0	56.7	10.5	0.18	-62.2	37	-17.6	-68.8	19.1	3.3	0.33	-62.7	

ORIGINAL PAGE IS  
OF POOR QUALITY

PASS	MJD	MSEC	DATE	ASCENDING					DESCENDING					I/E DELTA B			
				HR	MM	SC	KE	D ECL	ECL	E	I	I/2	DELTA D		KE	D ECL	ECL
885	44236	38582929	12/29/79	10:43:2	J7	-38.1	99.7	47.3	5.0	0.11	-49.3	37	-20.9	-92.1	36.1	10.7	0.30 -46.7
886	44236	44176796	12/29/79	12:16:11	40	-37.7	76.4	37.1	9.4	0.25	-43.3	46	-46.8	-115.4	24.2	5.0	0.21 -30.4
887	44236	49775399	12/29/79	13:49:30	40	-43.3	53.1	60.6	19.7	0.32	-79.2	40	-54.5	-137.7	22.3	3.8	0.17 -27.8
888	44236	55309176	12/29/79	15:22:44	37	-41.1	29.8	75.9	25.8	0.34	-94.2	37	-15.3	-162.0	20.7	4.1	0.20 -25.5
889	44236	60908025	12/29/79	16:55:58	37	-35.4	6.5	80.3	26.3	0.33	-99.1	50	-8.0	174.6	31.1	10.2	0.33 -42.1
890	44236	66551820	12/29/79	18:29:11	50	-40.5	-16.8	83.3	30.0	0.36	-101.6	50	4.1	151.3	9.6	0.7	0.69 -18.4
891	44236	72145530	12/29/79	20:2:25	50	-43.7	-40.2	74.4	16.5	0.22	-136.4	43	-11.7	128.0	10.8	7.8	0.72 -23.8
892	44236	77739356	12/29/79	21:35:39	43	-75.5	-63.5	76.9	26.7	0.35	-137.5	43	-33.7	104.7	22.8	3.3	0.36 -30.1
893	44236	83333134	12/29/79	23:8:53	***	*****	*****	*****	*****	*****	-137.5	***	*****	*****	*****	*****	***** -36.1
894	44236	84193382	12/29/79	23:19:13	***	*****	*****	*****	*****	*****	-137.5	47	-52.2	58.1	58.5	10.4	0.18 -66.0
895	44236	81290822	12/30/79	6:15:29	47	-40.2	-133.4	72.8	18.2	0.25	-91.1	43	-18.6	34.8	38.8	8.1	0.21 -43.3
896	44236	81290822	12/30/79	6:48:37	43	-14.4	-156.7	66.2	18.3	0.28	-82.1	43	-26.4	11.5	55.1	9.0	0.17 -54.2
897	44236	19311663	12/30/79	6:21:56	43	-15.9	180.0	74.0	19.9	0.27	-93.0	33	-31.5	-11.9	51.5	7.2	0.14 -56.5
898	44236	24910388	12/30/79	6:55:10	33	-41.1	156.7	70.7	17.2	0.24	-83.0	33	-34.2	-35.2	46.1	7.8	0.17 -46.7
899	44236	30499238	12/30/79	8:28:19	33	-49.4	133.3	65.6	13.0	0.20	-76.5	33	-32.3	-58.5	39.0	5.6	0.14 -47.3
900	44236	36097942	12/30/79	10:1:33	33	-71.4	110.0	74.2	16.4	0.22	-83.9	33	-34.0	-81.8	34.2	14.2	0.42 -49.2
901	44236	41686792	12/30/79	11:34:46	33	-66.0	86.7	58.4	14.4	0.25	-68.6	27	-14.7	-105.1	9.6	0.7	0.07 -15.2
902	44236	47280508	12/30/79	13:8:5	27	-49.4	63.4	50.0	13.7	0.27	-62.7	27	-18.7	-128.4	27.9	3.1	0.25 -50.9
903	44236	47280508	12/30/79	14:41:19	30	-30.3	40.1	50.3	14.5	0.29	-63.6	30	-17.5	-151.7	17.6	1.8	0.10 -18.0
904	44236	58468123	12/30/79	16:14:28	30	-19.8	16.8	48.7	14.7	0.30	-56.7	30	-3.3	-175.0	32.4	8.8	0.27 -38.0
905	44236	64061900	12/30/79	17:47:41	33	3.3	-6.5	50.4	19.4	0.39	*****	33	-2.0	161.7	30.0	0.0	0.20 -32.3
906	44236	69655677	12/30/79	19:21:55	33	8.6	-29.8	49.0	4.9	0.10	-45.4	33	-4.6	138.3	18.4	3.2	0.17 -24.2
907	44236	75254382	12/30/79	20:54:9	27	-7.3	-53.1	34.1	3.5	0.10	-42.1	***	*****	*****	*****	*****	***** -24.2
908	44236	78311779	12/30/79	21:45:11	***	*****	*****	*****	*****	*****	-42.1	***	*****	*****	-2.5	-0.1	0.06 -33.3
909	44236	81867621	12/30/79	22:44:27	23	-59.6	-99.8	33.7	2.6	0.08	-43.1	23	-24.5	68.4	32.6	-0.1	-0.00 -29.5
910	44236	149.01	12/31/79	0:0:13	23	-49.7	-123.1	39.5	4.7	0.12	-43.1	23	-17.9	45.1	30.6	1.0	0.03 -31.3
911	44236	5638171	12/31/79	1:33:58	23	-35.6	-140.4	31.8	2.9	0.09	-35.5	23	17.7	21.8	22.6	-4.2	-0.18 -13.4
912	44236	11227757	12/31/79	3:7:12	23	-18.5	-169.7	31.4	-2.0	-0.00	-34.4	23	18.2	-1.5	21.3	-3.0	-0.23 -13.4
913	44236	16821535	12/31/79	4:40:21	13	-13.6	167.0	32.1	7.7	0.24	-42.8	13	14.7	-24.8	31.3	-3.9	-0.13 -25.1
914	44236	16821535	12/31/79	6:13:40	13	-6.6	143.7	36.0	4.6	0.13	-44.7	13	13.2	-48.1	21.2	-0.8	-0.04 -21.3
915	44236	22420240	12/31/79	7:46:49	10	-4.0	120.4	22.5	0.8	0.30	-30.8	10	-14.1	-71.5	20.3	5.0	0.25 -26.2
916	44236	28090089	12/31/79	9:20:2	10	-12.1	97.1	22.1	2.5	0.11	-28.3	13	-31.7	-94.8	20.7	2.8	0.14 -25.0
917	44236	33607794	12/31/79	10:53:16	13	-18.1	73.7	23.8	7.3	0.30	-33.2	13	-43.4	-118.1	20.0	3.9	0.20 -22.0
918	44236	39201571	12/31/79	12:26:25	13	-7.2	50.4	23.1	3.5	0.15	-33.8	17	-39.7	-141.4	14.6	-0.4	-0.03 -14.4
919	44236	44785505	12/31/79	13:59:39	17	3.9	27.1	22.0	4.7	0.21	-26.1	17	-27.1	-164.7	14.9	0.4	0.02 -15.0
920	44236	44790433	12/31/79	15:32:57	17	6:6	17	20.8	3.8	0.29	*****	23	-6.7	172.0	19.6	1.3	0.07 -19.5
921	44236	50379282	12/31/79	17:6:11	23	29.1	-19.5	4.5	11.0	0.27	-49.5	23	-1.1	148.7	20.0	5.1	0.26 -26.0
922	44236	50379282	12/31/79	18:39:25	23	15.1	-42.8	7	10.7	0.24	-47.4	37	0.1	125.4	25.8	3.5	0.14 -29.0
923	44236	55973000	12/31/79	20:12:39	37	-64.8	-66.1	35.7	22.2	0.40	-82.1	37	-4.1	102.1	29.6	3.9	0.30 -41.8
924	44236	55977987	12/31/79	21:45:48	37	-94.6	-89.4	45.8	35.4	0.77	-72.7	23	-4.4	78.3	20.3	2.4	0.12 -23.1
	44236	61506836	12/31/79	23:19:1													
	44236	61571764	12/31/79	23:19:6													
	44236	67160614	12/31/79	0:52:13													
	44236	67165541	1/1/80														
	44236	72734331															
	44236	72759318															
	44236	78348168															
	44236	78353096															
	44236	83941945															
	44236	83946872															
	44236	3133028															

PASS	HJD	MSPC	DATE	BT	SC	ASCENDING				DESCENDING				E	I	L/E	DELTA B	
						REF	DELTA	DELTA	DELTA	REF	DELTA	DELTA	DELTA					
925	44239	3779728	1/80	11	23	-74.9	-112.7	32.9	14.1	0.43	-50.4	23	-12.2	55.5	25.6	-4.4	0.17	-25.7
926	44239	8734656	1/80	11	23	-70.9	-136.0	39.8	4.8	0.12	2.1	23	-10.9	32.1	30.3	5.1	0.17	-33.0
927	44239	14318590	1/80	11	23	-56.6	-159.3	39.4	8.2	0.21	-49.3	23	-26.2	6.8	30.6	2.3	0.08	-27.1
928	44239	19917234	1/80	11	23	-49.5	177.3	46.9	9.5	0.16	-57.5	23	-16.3	-14.5	36.0	-0.8	-0.02	-35.4
929	44239	25536144	1/80	11	23	-26.0	154.0	51.8	8.6	0.17	-59.7	23	-11.1	-37.8	26.6	-1.8	-0.07	-21.8
930	44239	31099921	1/80	10	33	-38.9	130.7	62.6	12.8	0.20	*****	33	21.1	-61.1	20.4	1.7	0.24	-35.2
931	44239	36699303	1/80	10	33	-48.9	107.4	62.6	14.5	0.23	-73.2	33	-26.9	-84.4	24.8	3.5	0.38	-35.9
932	44239	42229314	1/80	11	33	-65.1	84.1	67.4	23.2	0.34	-83.6	33	-24.9	-107.7	23.6	6.9	0.29	-33.8
933	44239	47881930	1/80	11	33	-68.3	60.8	84.1	23.3	0.23	-103.2	33	-33.0	-131.0	23.6	2.6	0.12	-2E.1
934	44239	53470852	1/80	14	43	-68.9	37.5	84.5	11.8	0.38	-110.8	43	-36.2	-154.3	32.5	5.6	0.17	-35.8
935	44239	59064628	1/80	16	43	-62.4	14.2	93.9	31.4	0.33	-115.4	43	-39.8	-177.6	47.4	12.8	0.27	-59.3
936	44239	64663333	1/80	17	50	-73.6	-9.1	104.3	41.6	0.43	-136.1	50	-37.2	159.1	48.5	15.3	0.32	-62.6
937	44239	70257171	1/80	19	50	-80.7	-32.4	143.7	50.9	0.35	-161.7	50	-25.3	135.8	22.7	26.6	1.17	*****
938	44239	75840838	1/80	11	50	-116.1	-55.7	134.2	46.1	0.34	-178.0	50	-74.3	112.4	63.0	39.9	0.63	*****
939	44239	81444668	1/80	22	50	-122.5	-79.0	109.4	26.0	0.24	-136.9	50	-78.9	89.1	68.3	32.4	0.47	-100.5
940	44240	6317798	2/80	11	43	-111.1	-102.3	104.6	26.3	0.25	-129.1	43	-67.2	65.8	79.7	21.3	0.27	*****
941	44240	6230898	2/80	11	43	-81.1	-125.7	87.2	14.8	0.17	-59.9	43	-57.1	82.5	64.3	13.5	0.21	-72.1
942	44240	11814433	2/80	16	30	-65.9	-149.0	71.8	14.2	0.20	-83.5	30	-45.8	19.2	62.4	13.5	0.22	-67.0
943	44240	17408209	2/80	3	30	-47.3	-172.3	69.8	13.0	0.19	-79.1	20	-61.0	-4.1	60.7	11.3	0.19	-67.0
944	44240	23001986	2/80	6	20	-38.9	164.4	63.3	14.7	0.23	-76.1	20	-76.5	-27.4	59.5	7.6	0.13	-59.4
945	44240	28555764	2/80	7	20	-40.1	141.1	59.1	14.3	0.24	-74.8	23	-56.3	-50.7	46.6	3.5	0.18	-59.1
946	44240	34184626	2/80	5	23	-35.3	117.8	53.1	16.7	0.31	-72.9	23	-38.6	-74.0	43.5	14.8	0.34	-57.0
947	44240	39778402	2/80	11	23	-49.7	94.5	60.2	14.2	0.24	*****	33	-35.8	-97.3	39.8	11.5	0.29	-55.3
948	44240	45372100	2/80	12	33	-65.2	71.2	78.6	23.6	0.30	-96.6	33	-35.7	-120.6	39.1	11.2	0.29	-48.4
949	44240	50965957	2/80	14	33	-39.9	47.9	53.7	12.5	0.23	-69.7	20	-37.2	-143.9	41.2	10.5	0.26	-49.0
950	44240	56554819	2/80	15	20	-38.3	24.6	55.3	14.7	0.25	-69.1	20	-35.6	-167.2	40.4	6.4	0.16	-46.0
951	44240	62148596	2/80	17	20	-37.5	1.3	51.6	14.9	0.29	-69.9	10	-33.9	169.5	38.8	7.1	0.18	-42.9
952	44240	6733373	2/80	18	10	-30.2	-22.0	50.9	11.3	0.22	-55.6	10	-33.8	146.2	37.0	3.2	0.22	-44.6
953	44240	73534150	2/80	20	10	-23.8	-45.3	49.4	8.6	0.17	-54.2	20	-30.0	122.9	39.4	3.1	0.08	-40.7
954	44240	78925013	2/80	20	20	-23.0	-68.6	45.5	7.7	0.17	-60.3	20	-29.1	99.6	36.2	4.4	0.12	-3E.1
955	44240	84523717	2/80	22	20	-26.7	-91.9	48.9	10.4	0.21	-63.1	27	-17.6	76.2	34.4	1.0	0.05	*****
956	44241	3709617	3/80	1	27	-22.4	-115.2	43.3	2.9	0.07	-46.2	27	-16.0	52.9	33.2	3.8	0.02	-35.9
957	44241	9304623	3/80	2	27	-27.8	-138.5	56.3	10.6	0.19	-64.9	43	-7.4	29.6	25.8	2.3	0.09	-23.6
958	44241	14893485	3/80	4	43	-31.4	-161.8	48.0	11.7	0.24	-59.9	43	23.9	6.3	41.5	7.2	0.17	-41.0
959	44241	20487261	3/80	4	17	-8.6	174.8	42.2	3.4	0.08	-48.2	17	26.7	-17.0	47.7	2.2	0.05	-47.1
960	44241	26081039	3/80	7	17	-3.5	151.5	38.9	6.3	0.16	-46.8	17	-13.3	-40.3	30.5	2.0	0.07	-31.2
961	44241	31609901	3/80	8	33	-12.8	128.2	35.0	6.8	0.20	-42.2	33	-19.3	-63.6	25.4	5.6	0.22	-40.4
962	44241	37263677	3/80	10	33	-12.4	104.9	35.9	5.6	0.16	-44.5	33	-9.2	-86.9	20.9	7.6	0.36	-29.4
963	44241	42857577	3/80	11	37	-27.7	81.6	44.8	14.4	0.32	-55.6	37	-11.6	-110.2	15.3	5.2	0.34	-23.3
964	44241	48451366	3/80	15	37	-19.0	58.3	43.4	3.6	0.20	*****	37	-18.9	-133.5	22.8	4.7	0.21	-27.8

1-25

ORIGINAL PAGE IS  
OF POOR QUALITY

ASS	JD	MS	SEC	E	I	I/E	DELTA	B	ASCENDING				DESCENDING				I/E	DELTA	B
									KP	D	EQL	POL	P	I	I/2	DELTA			
965	44241	590450	279	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.01	-18.5			
966	44241	590338	79	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.06	-24.7			
967	44241	652249	45	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	-0.08	-21.2			
968	44241	708138	35	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.15	-26.5			
969	44241	764075	33	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.17	-21.6			
970	44241	819964	45	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.26	-32.9			
971	44242	118973	32	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.15	-41.4			
972	44242	123723	39	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.04	-35.6			
973	44242	179661	46	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	-0.01	-27.6			
974	44242	233259	45	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	-0.15	-25.8			
975	44242	291187	44	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.04	-25.4			
976	44242	347376	47	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.11	-32.4			
977	44242	403114	23	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.36	-35.2			
978	44242	459303	51	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.21	-29.6			
979	44242	515140	62	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.15	-20.4			
980	44242	571127	66	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.26	-30.7			
981	44242	627016	28	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	-0.17	-15.0			
982	44242	682254	35	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.48	-31.5			
983	44242	738793	40	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.36	-28.2			
984	44242	794682	42	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.18	-35.3			
985	44242	850069	46	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.22	-32.2			
986	44243	906458	51	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.03	-25.6			
987	44243	962847	10	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.03	-32.4			
988	44243	1019236	8	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.11	-24.4			
989	44243	1075625	12	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.06	-31.0			
990	44243	1132014	26	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	-0.11	-31.2			
991	44243	1188403	35	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.09	-19.1			
992	44243	1244792	49	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.27	-36.0			
993	44243	1301181	58	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.22	-30.4			
994	44243	1357570	2	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.25	-37.1			
995	44243	1413959	11	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.07	-18.1			
996	44243	1470348	29	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.11	-19.3			
997	44243	1526737	34	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.21	-23.9			
998	44243	1583126	43	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.15	-24.4			
999	44243	1639515	52	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.13	*****			
1000	44243	1695904	61	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.10	-26.4			
1001	44243	1752293	70	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.04	-22.6			
1002	44244	1808682	79	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.08	-32.6			
1003	44244	1865071	88	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.01	-26.5			
1004	44244	1921460	97	11.5	35.0	35.5	3.4	0.24	-43.4	27	-11.2	-156.8	20.2	1.2	0.05	-27.1			

ORIGINAL PAGE IS  
OF POOR QUALITY

PASS	MJD	MSZC	DATE	15	MN	SC	ASCENDING				DESCENDING				L/F	DELTA B				
							DELTA	D	ECL	E	I	I/E	DELTA	D			ECL	E		
1005	44244	18491651	1/8/80	5	4	11	35	-5.7	-177.0	36.0	4.4	0.12	-42.1	20	7.9	-8.8	34.5	1.0	0.35	-35.4
1006	44244	24075587	1/8/80	6	4	15	20	-5.9	159.7	33.3	6.6	0.20	-37.7	70	7.9	-32.1	23.6	3.2	0.14	-23.3
1007	44244	24080513	1/8/80	6	4	20	20	-11.0	136.4	36.7	5.7	0.16	-44.4	13	-8.9	-55.4	21.3	3.9	0.19	-26.8
1008	44244	29069303	1/8/80	8	14	34	13	-11.2	113.1	29.4	6.0	0.20	-38.5	13	-10.2	-76.7	21.9	3.1	0.37	-25.2
1009	44244	29674291	1/8/80	9	14	38	13	-6.6	89.8	30.5	3.8	0.12	-36.9	20	2.2	-102.0	24.5	5.3	0.22	-30.1
1010	44244	35258225	1/8/80	11	20	47	12	-5.3	53.3	35.5	14	0.17	-42.3	20	-6.8	-125.3	21.1	3.2	0.15	-23.0
1011	44244	35263152	1/8/80	11	20	52	14	-10.2	66.5	34.5	5.7	0.17	-42.3	20	-6.8	-125.3	21.1	3.2	0.15	-23.0
1012	44244	40847087	1/8/80	12	27	55	16	-5.1	13.9	35.5	6.9	0.20	-36.4	20	-4.3	-171.9	20.7	3.0	0.17	-21.7
1013	44244	40852014	1/8/80	12	27	55	16	-5.1	13.9	35.5	6.9	0.20	-36.4	20	-4.3	-171.9	20.7	3.0	0.17	-21.7
1014	44244	46440676	1/8/80	12	27	55	16	-5.1	13.9	35.5	6.9	0.20	-36.4	20	-4.3	-171.9	20.7	3.0	0.17	-21.7
1015	44244	52029725	1/8/80	14	27	14	19	-11.4	-26.6	41.2	6.8	0.17	-40.5	13	-4.9	141.6	13.1	2.9	0.16	-22.5
1016	44244	52034633	1/8/80	14	27	14	19	-11.4	-26.6	41.2	6.8	0.17	-40.5	13	-4.9	141.6	13.1	2.9	0.16	-22.5
1017	44244	57018587	1/8/80	16	0	18	13	-6.2	-43.9	37.9	8.8	0.23	-46.1	13	-7.8	118.3	23.2	3.5	0.02	-23.1
1018	44244	57023514	1/8/80	16	0	23	13	-7.9	-73.2	34.6	5.8	0.17	5.5	13	-14.0	95.0	20.6	2.8	0.13	-22.0
1019	44244	63207445	1/8/80	17	33	27	3	-3.5	-96.5	37.4	5.6	0.15	*****	3	-10.0	71.7	28.2	-0.9	-0.03	-23.4
1020	44244	63212376	1/8/80	17	33	32	3	-7.8	-119.8	33.8	3.2	0.09	-37.3	3	-4.6	48.4	27.6	-0.9	-0.03	-25.8
1021	44244	68796310	1/8/80	19	6	36	0	-5.8	-143.1	32.7	1.9	0.06	-34.8	0	1.2	25.1	23.8	1.6	0.08	-18.1
1022	44244	68801237	1/8/80	19	6	41	4	-5.8	-143.1	32.7	1.9	0.06	-34.8	0	1.2	25.1	23.8	1.6	0.08	-18.1
1023	44244	74390087	1/8/80	20	33	39	4	-9.7	-166.4	29.5	3.7	0.12	-34.8	0	1.4	1.8	26.4	1.0	0.04	-22.0
1024	44244	74395014	1/8/80	20	33	39	4	-9.7	-166.4	29.5	3.7	0.12	-34.8	0	1.4	1.8	26.4	1.0	0.04	-22.0
1025	44244	79371895	1/8/80	22	5	58	7	-9.9	170.3	29.0	5.1	0.18	-37.3	7	15.9	-21.5	29.7	-4.2	-0.14	-22.0
1026	44244	79376826	1/8/80	22	5	58	7	-9.9	170.3	29.0	5.1	0.18	-37.3	7	15.9	-21.5	29.7	-4.2	-0.14	-22.0
1027	44244	85572733	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1028	44244	85577663	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1029	44244	85582694	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1030	44244	85587625	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1031	44244	85592656	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1032	44244	85597687	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1033	44244	85602718	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1034	44244	85607749	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1035	44244	85612780	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1036	44244	85617811	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1037	44244	85622842	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1038	44244	85627873	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1039	44244	85632904	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1040	44244	85637935	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1041	44244	85642966	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1042	44244	85647997	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1043	44244	85653028	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1044	44244	85658059	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1045	44244	85663090	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1046	44244	85668121	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1047	44244	85673152	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1048	44244	85678183	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1049	44244	85683214	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1050	44244	85688245	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1051	44244	85693276	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1052	44244	85698307	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1053	44244	85703338	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1054	44244	85708369	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1055	44244	85713400	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1056	44244	85718431	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1057	44244	85723462	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1058	44244	85728493	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1059	44244	85733524	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1060	44244	85738555	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1061	44244	85743586	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9
1062	44244	85748617	1/8/80	23	32	3	7	0.4	147.0	27.2	4.9	0.18	-37.3	7	12.4	-44.8	16.7	2.1	0.12	-16.9



PASS	MJD	SEC	DATE	HR	MM	SC	ASCENDING	ECL	E	I	I/E	DELTA	ASCENDING	ECL	E	I	I/E	DELTA	
1045	44246	69276342	11/8/80	19	14	36	10	8.2	-23.7	33.0	3.9	0.12	10	2.7	139.5	11.3	0.7	0.06 -13.4	
1046	44246	74860204	11/8/80	20	47	40	7	2.9	-52.0	28.5	3.4	0.19	7	4.2	116.2	17.0	-2.9	-0.17 -12.8	
1047	44246	80449145	11/8/80	22	20	49	7	0.5	-75.3	25.0	1.9	0.38	6.6	7	4.9	92.9	11.6	-1.8	-0.16 -9.2
1048	44246	86039984	11/8/80	23	53	55	13	-2.8	-98.6	28.5	3.1	0.11	-34.9	13	5.3	69.6	19.8	-3.0	-0.25 -12.4
1049	44247	5229032	11/9/80	1	27	9	13	-5.9	-121.9	25.0	0.5	0.02	-23.9	13	4.5	46.3	20.0	-0.4	-0.02 -19.8
1050	44247	10817953	11/9/80	3	0	17	10	-0.6	-145.2	27.9	1.6	0.06	-30.9	10	4.1	23.0	20.3	-0.2	-0.01 -13.4
1051	44247	16401883	11/9/80	4	33	21	10	-3.0	-108.5	28.0	3.2	0.19	-34.1	10	0.5	-0.2	20.2	0.0	0.00 -16.5
1052	44247	21950742	11/9/80	6	0	30	7	-7.9	108.2	*****	*****	*****	-35.7	7	2.7	-23.5	20.4	-3.4	-0.13 -15.7
1053	44247	27584538	11/9/80	7	33	39	7	-1.0	145.0	30.7	3.3	0.11	-39.4	7	5.5	-46.8	19.1	1.7	0.09 -20.9
1054	44247	33173800	11/9/80	9	12	46	7	0.9	121.7	23.7	6.6	0.24	-32.5	7	1.6	-70.1	15.9	4.3	0.27 -30.8
1055	44247	38737334	11/9/80	10	45	57	7	1.4	98.4	24.5	2.9	0.12	-30.7	7	2.6	-93.4	23.0	3.1	0.14 -28.1
1056	44247	44346136	11/9/80	12	19	11	7	-0.3	75.1	26.7	6.8	0.25	-33.7	7	5.9	-116.7	20.0	3.5	0.18 -22.7
1057	44247	49935058	11/9/80	13	52	15	7	-0.0	51.8	27.4	6.0	0.22	-36.6	7	-0.8	-140.0	17.5	2.0	0.16 -19.3
1058	44247	55243919	11/9/80	15	25	23	7	-0.0	28.5	26.9	5.0	0.22	-31.7	7	-0.8	-163.3	15.8	2.2	0.15 -17.9
1059	44247	61117866	11/9/80	16	58	27	7	2.4	5.2	29.0	7.4	0.25	-34.5	10	-3.6	173.5	17.1	4.7	0.27 -21.3
1060	44247	66996737	11/9/80	18	31	36	10	1.5	-18.1	28.8	5.8	0.20	-34.2	10	-1.9	150.2	17.0	3.8	0.22 -20.0
1061	44247	72298051	11/9/80	20	4	44	10	1.4	-41.3	25.9	5.0	0.19	-30.3	33	2.0	126.9	18.3	1.4	0.08 -18.8
1062	44247	77878435	11/9/80	21	37	55	33	-2.4	-64.6	27.8	5.8	0.1	-30.1	*****	*****	*****	*****	*****	***** -32.0
1063	44247	83465045	11/9/80	23	11	5	33	-9.3	-67.9	28.8	6.1	0.21	-38.5	3	-3.2	80.3	17.9	-1.2	-0.06 -18.9
1064	44248	8933936	11/10/80	0	44	13	3	-10.1	-111.2	32.9	3.3	0.10	-38.8	3	-4.3	57.1	22.0	1.9	0.09 -24.5
1065	44248	9527841	11/10/80	2	17	17	3	-8.0	-134.5	33.1	1.2	0.04	-35.3	3	-4.2	33.7	21.4	1.3	0.06 -19.5
1066	44248	13811629	11/10/80	3	50	31	3	-6.7	-157.8	24.4	3.4	0.14	-28.2	3	17.7	10.4	24.3	-2.4	-0.10 -10.6
1067	44248	19420491	11/10/80	5	23	35	3	-4.2	178.9	25.7	4.4	0.17	-33.0	0	22.6	-12.8	25.7	-3.3	-0.13 -26.4
1068	44248	25004426	11/10/80	6	56	44	0	3.2	155.6	21.8	6.5	0.33	-28.9	0	4.1	-36.1	19.0	-0.1	-0.00 -18.8
1069	44248	30588372	11/10/80	8	29	48	0	1.2	132.4	25.7	2.8	0.11	-31.6	7	1.0	-59.4	15.1	3.1	0.21 -16.2
1070	44248	36182101	11/10/80	10	3	2	7	3.2	109.1	21.3	3.5	0.16	-27.9	7	3.7	-82.7	19.2	5.7	0.30 -22.8
1071	44248	41766035	11/10/80	11	30	6	7	5.9	85.8	20.2	3.2	0.16	-25.4	13	4.4	-106.0	20.3	3.7	0.19 -26.3
1072	44248	47354957	11/10/80	13	9	14	13	5.7	62.5	25.4	1.1	0.04	-29.0	13	6.9	-129.3	15.6	-0.8	-0.05 -25.7
1073	44248	52938933	11/10/80	14	42	23	10	-2.1	39.2	26.6	5.2	0.13	-31.3	10	5.3	-152.0	6.3	0.7	0.10 -4.5
1074	44248	58527704	11/10/80	16	15	32	10	2.0	15.9	27.8	5.7	0.20	-32.0	10	4.2	-175.8	11.9	4.0	0.33 -14.2
1075	44248	64116026	11/10/80	17	48	36	7	11.9	-7.4	26.7	5.3	0.20	-34.7	7	0.4	160.9	7.2	0.1	0.01 -4.5
1076	44248	69705408	11/10/80	19	4	45	7	12.6	-30.6	22.4	2.0	0.09	-22.3	7	5.5	137.6	8.4	-0.6	-0.07 -11.6
1077	44248	75299434	11/10/80	21	2	50	13	3.0	-53.9	19.9	4.3	0.22	-29.6	13	-2.8	114.3	16.3	-2.9	-0.19 -12.4
1078	44248	80878296	11/10/80	22	2	58	13	-1.2	-77.2	30.4	3.9	0.13	-30.3	13	-6.3	91.0	11.8	0.8	0.07 -12.4
1079	44248	86334440	11/10/80	23	5	54	7	4.8	-100.5	31.5	3.7	0.12	-34.8	7	-6.4	67.7	23.5	1.4	0.06 -21.5
1080	44249	9172777	11/11/80	0	3	17	7	4.1	-123.8	29.0	0.0	0.00	-29.2	7	-4.8	44.5	22.8	4.3	0.17*****
1081	44249	9652239	11/11/80	1	3	20	17	2.5	-147.1	27.7	0.2	0.01	-25.0	17	-1.0	21.2	23.0	1.8	0.08 -18.6
1082	44249	1026037	11/11/80	4	40	24	17	0.6	-170.3	24.7	5.2	0.21	-30.2	17	0.9	-2.1	21.9	1.4	0.06 -18.5
1083	44249	1083016	11/11/80	6	1	33	30	2.1	166.4	22.5	5.1	0.23	-29.7	30	20.8	-25.4	20.3	-3.5	-0.17 -12.6
1084	44249	1141670	11/11/80	7	46	40	30	0.2	143.1	20.0	-1.7	-0.03	-24.6	30	26.0	-48.7	17.0	-2.3	-0.14 -16.6

PASS	MJD	MSEC	DATE	H:M:SC	ASCENDING					DESCENDING					I/E DELTA B		
					KP	D	BUI	ECL	E	I	A/E	DELTA B	KP	D		ECL	E
1085	44249	33594687	1/11/80	9:19:54	27	-12.6	119.8	26.9	3.3	0.35	-36.6	27	3.4	-72.0	14.3	4.3	0.10 -15.2
1086	44249	39173706	1/11/80	10:52:53	27	-15.7	96.5	33.5	4.5	0.13	-37.0	27	5.1	-95.2	21.7	3.8	0.18 -28.1
1087	44249	44762568	1/11/80	12:26:2	27	-14.1	73.2	34.1	6.8	0.20	-39.9	27	2.2	-116.5	19.5	3.0	0.15 -23.6
1088	44249	50351429	1/11/80	13:59:11	27	-7.9	50.0	33.2	8.5	0.26	-44.7	27	0.3	-141.8	22.1	1.9	0.09*****
1089	44249	55935375	1/11/80	15:32:15	27	-17.3	26.7	42.0	11.6	0.28	-50.2	27	-1.5	-165.1	19.8	-0.5	-0.03 -21.6
1090	44249	61524237	1/11/80	17:5:24	27	-18.2	3.4	45.8	15.2	0.33	-55.0	30	-9.3	171.6	19.9	5.7	0.28*****
1091	44249	67113099	1/11/80	18:38:38	30	-13.6	-19.9	47.3	15.7	0.33	-55.3	30	-10.4	148.8	26.8	6.6	0.25 -33.6
1092	44249	72697045	1/11/80	20:11:37	30	-13.7	-43.2	50.8	18.5	0.36	-59.9	27	-8.2	125.1	13.2	2.8	0.21 -16.9
1093	44249	78285906	1/11/80	21:44:50	27	-24.2	-66.5	44.6	15.8	0.35	-63.3	27	-14.5	101.8	29.2	4.5	0.15 -34.2
1094	44249	83874779	1/11/80	23:17:49	27	-10.8	-89.7	35.9	7.5	0.21	-47.7	7	-18.0	78.5	29.1	0.2	0.01 -25.0
1095	44250	33567114	1/12/80	0:50:58	7	-4.3	-113.0	42.3	5.9	0.14	-49.8	7	-21.1	55.2	29.8	4.2	0.14 -33.6
1096	44250	3063641	1/12/80	0:51:3	7	-11.4	-136.3	39.2	5.1	0.13	*****	10	-13.9	32.0	24.8	5.0	0.20 -25.8
1097	44250	8642664	1/12/80	2:24:2	7	-10.0	-159.6	29.3	5.0	0.17	-34.6	10	-6.7	8.7	33.3	1.2	0.04 -27.6
1098	44250	8647588	1/12/80	3:57:11	10	-11.9	177.1	29.1	5.4	0.19	-36.1	13	-12.2	-14.6	29.5	-3.7	-0.12 -27.6
1099	44250	14231522	1/12/80	5:30:20	10	-8.0	153.9	25.8	7.8	0.30	-32.7	13	-0.5	-37.9	20.4	-1.0	-0.06 -17.5
1100	44250	19815469	1/12/80	7:3:29	13	-7.7	130.6	23.0	6.9	0.30	-31.1	17	-3.4	-61.2	18.2	2.2	0.12 -24.1
1101	44250	19820395	1/12/80	8:36:28	13	-9.2	107.3	20.1	7.3	0.37	-29.6	17	-6.4	-84.4	17.4	3.8	0.22 -22.2
1102	44250	25404333	1/12/80	10:9:37	17	-1.9	84.0	15.7	6.3	0.40	-24.7	13	-7.2	-107.7	20.3	2.7	0.13 -23.9
1103	44250	25409257	1/12/80	11:42:41	13	0.9	60.7	27.2	3.9	0.14	-34.9	13	-4.6	-131.0	18.7	1.3	0.07 -19.7
1104	44250	30948277	1/12/80	13:45:54	10	1.7	37.5	27.6	4.0	0.15	-32.1	10	-1.7	-154.3	12.0	1.1	0.09 -8.8
1105	44250	30993204	1/12/80	14:48:58	10	2.1	14.2	29.2	5.9	0.20	-32.8	10	2.6	-177.6	16.1	4.0	0.25 -18.6
1106	44250	36577133	1/12/80	16:52:7	10	-0.3	-9.1	28.6	8.1	0.28	-38.7	10	3.9	159.2	17.6	0.0	0.03*****
1107	44250	36592065	1/12/80	17:55:6	10	-0.1	-32.4	32.4	3.5	0.11	-33.1	10	-0.2	135.9	11.6	1.4	0.12 -14.9
1108	44250	42101014	1/12/80	19:28:15	10	-5.0	-55.7	28.7	6.6	0.23	-40.5	10	-4.3	112.6	17.3	-2.3	-0.13 -14.3
1109	44250	42166611	1/12/80	21:1:24	10	1.7	-78.9	30.3	2.3	0.37	-39.4	10	-5.2	89.3	12.5	-1.6	-0.13 -12.0
1110	44251	47749946	1/13/80	22:34:26	0	16.8	-102.2	34.4	2.6	0.37	-39.4	0	6.2	66.0	21.9	-3.3	-0.19 -16.5
1111	44251	47754873	1/13/80	0:7:32	0	7.9	-125.5	28.0	1.6	0.36	-28.6	0	3.7	42.8	19.6	-3.2	-0.31 -17.7
1112	44251	53333881	1/13/80	0:7:37	27	2.9	-148.8	28.4	0.6	0.02	-25.5	27	5.4	19.5	21.9	-1.0	-0.05 -13.3
1113	44251	53338819	1/13/80	1:40:41	27	10.4	-172.0	20.0	-0.0	-0.00	-24.1	27	21.2	-3.8	10.4	-9.0	-0.87 1.7
1114	44251	58922768	1/13/80	3:13:45	33	15.2	164.7	10.5	0.5	0.05	-11.7	33	26.8	-27.1	15.2	-7.3	-0.48 -7.3
1115	44251	58927681	1/13/80	3:13:50	33	-10.8	141.4	39.0	10.5	0.27	-49.8	43	8.0	-50.3	18.3	-3.3	-0.16 -17.0
1116	44251	64506701	1/13/80	4:46:53	43	-8.9	118.1	23.3	5.5	0.23	-30.0	43	-2.6	-73.6	17.7	3.3	0.47 -25.0
1117	44251	64511627	1/13/80	6:19:57	43	-43.2	94.8	52.8	14.6	0.26	-64.2	43	-14.1	-96.9	13.6	10.0	0.73 -31.0
1118	44251	70095562	1/13/80	8:20:2	43	-64.2	71.6	84.0	28.6	0.34	-104.1	43	-19.8	-120.2	30.9	17.5	0.56 -50.1
1119	44251	70100489	1/13/80	10:59:14	43	-57.7	49.3	72.5	21.3	0.29	-69.2	40	-25.6	-143.4	31.8	9.2	0.29 -39.2
1120	44251	75679509	1/13/80	12:32:18	40	-60.4	25.0	83.2	26.1	0.31	-101.8	40	-18.0	-166.7	29.8	1.6	0.05 -35.4
1121	44251	75684435	1/13/80	14:5:32	40	-61.3	1.7	88.4	32.8	0.37	-110.3	47	-33.6	170.0	39.5	12.8	0.32 -50.5
1122	44251	81268370	1/13/80	15:38:31	47	-64.2	-21.5	105.3	38.8	0.37	-124.2	47	-20.2	146.7	30.4	22.1	0.73 -59.3
1123	44251	81273297	1/13/80	17:11:35	47	-60.7	-44.8	97.5	27.9	0.29	-106.5	37	-38.3	123.4	40.7	17.6	0.43 -61.6
1124	44251	84236553	1/13/80	18:44:39	37	-93.5	-68.1	88.7	29.9	0.34	-119.0	37	-46.7	100.2	35.5	13.4	0.32 -63.1

1-29

ORIGINAL PAGE IS  
OF POOR QUALITY

PASS	MJD	MSEC	DATE	HR	MM	SC	ASCENDING					DESCENDING					I/E DELTA B				
							KE	D	EQL	EJL	E	I	I/2	DELTA	3	REP		D	FCL	EQL	E
1125	442222	8424979	1/13/80	23	24	1	37	-91.8	-91.4	78.4	23.6	0.30	-102.8	37	-50.8	77.9	56.0	11.2	0.20	-62.3	
1126	442222	3426680	1/14/80	0	57	6	37	-67.2	-114.6	69.9	12.4	0.18	-83.0	37	-47.5	53.6	58.0	11.5	0.19	-69.4	
1127	442222	9010615	1/14/80	2	30	10	37	-66.9	-137.9	73.8	15.4	0.21	-65.3	30	-45.4	30.4	48.3	14.4	0.30	-58.1	
1128	442222	14594561	1/14/80	4	3	14	30	-44.5	-161.2	59.3	13.6	0.23	-69.2	30	-41.2	7.1	51.2	11.7	0.23	-56.3	
1129	442222	20176507	1/14/80	5	36	23	30	-37.4	175.5	56.4	13.2	0.23	-68.9	20	-47.2	-16.2	58.3	4.7	0.08	-61.1	
1130	442222	25762454	1/14/80	7	9	22	20	-35.1	152.3	55.0	15.3	0.29	-68.9	20	-39.1	-39.5	49.5	6.3	0.13	-45.7	
1131	442222	31351327	1/14/80	8	42	26	20	-32.0	129.0	54.1	15.7	0.29	-66.3	20	-30.5	-62.7	34.1	7.5	0.22	-42.9	
1132	442222	36940189	1/14/80	10	15	35	20	-30.8	105.7	48.0	11.5	0.24	-57.0	20	-24.0	-86.0	36.6	9.5	0.26	-46.1	
1133	442222	42524135	1/14/80	11	46	36	17	-28.6	82.4	43.5	11.4	0.20	-52.4	17	-25.4	-109.3	32.4	8.0	0.25	-47.8	
1134	442222	48105129	1/14/80	13	21	45	17	-23.7	59.2	54.7	12.3	0.22	-65.5	17	-27.6	-132.6	40.4	6.8	0.17	-46.1	
1135	442222	53689067	1/14/80	14	54	49	20	-28.0	35.9	50.4	18.1	0.36	-66.4	20	-28.4	-155.8	34.5	6.2	0.18	-37.0	
1136	442222	59277939	1/14/80	16	27	57	20	-33.2	12.6	58.2	21.2	0.36	-75.5	20	-24.0	-179.1	32.7	8.4	0.26	-39.7	
1137	442222	64856960	1/14/80	18	0	56	13	-21.1	-10.7	48.5	16.1	0.33	-62.0	13	-18.1	157.6	31.9	4.3	0.14	-31.1	
1138	442222	64861886	1/14/80	19	34	5	13	-20.8	-33.9	49.3	10.6	0.22	-49.5	13	-19.0	134.3	23.5	4.8	0.21	-30.7	
1139	442222	70440905	1/14/80	1	7	9	17	-22.8	-57.2	41.4	10.1	0.24	-54.6	17	25.1	111.1	30.4	2.5	0.08	-32.2	
1140	442222	76034033	1/14/80	2	40	13	17	-14.1	-80.5	45.2	8.8	0.19	-59.7	17	-21.7	37.8	23.4	1.4	0.06	-26.5	
1141	442222	81613714	1/15/80	0	13	14	7	-1.8	-103.8	38.1	5.2	0.14	-46.5	7	-6.8	64.5	34.5	0.1	0.00	-32.8	
1142	442222	7998662	1/15/80	1	46	23	7	7.1	-127.0	34.5	2.0	0.06	-36.8	7	-6.3	41.3	33.2	2.6	0.08	-31.7	
1143	442222	6388744	1/15/80	1	19	27	3	-4.8	-150.3	37.0	3.2	0.09	-37.3	3	-15.1	18.0	32.4	0.5	0.02	-22.7	
1144	442222	11972690	1/15/80	4	52	36	3	-15.4	-173.6	37.4	4.4	0.12	-41.9	10	-14.8	-5.3	29.5	3.0	0.00	-26.7	
1145	442222	17551710	1/15/80	6	25	30	10	-12.3	163.2	29.1	6.4	0.22	-32.6	10	-16.8	-28.6	28.4	-0.4	-0.01	-24.6	
1146	442222	23135656	1/15/80	7	50	39	10	-10.3	139.9	35.2	3.5	0.16	-41.8	17	-15.7	-51.8	29.0	2.0	0.07	-34.9	
1147	442222	28713637	1/15/80	9	3	43	17	-10.3	116.6	32.6	10.7	0.33	-43.3	17	-13.1	-75.1	23.5	8.3	0.36	-29.0	
1148	442222	34303548	1/15/80	11	4	47	17	-17.0	93.3	36.2	5.5	0.15	-41.2	20	-12.8	-98.4	27.4	7.6	0.28	-36.5	
1149	442222	39887495	1/15/80	12	37	51	20	-19.2	70.1	46.3	12.3	0.26	-58.2	20	-9.5	-121.0	20.6	4.3	0.21	-24.0	
1150	442222	45471440	1/15/80	14	10	55	20	-11.9	46.6	30.6	6.0	0.20	-39.1	23	-6.7	-144.9	16.6	1.5	0.08	-18.4	
1151	442222	51060313	1/15/80	15	43	59	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
1152	442222	56639333	1/15/80	17	17	4	23	-11.0	0.3	39.9	12.8	0.32	-48.6	23	-2.7	168.5	18.2	-0.6	-0.04	-16.0	
1153	442222	62224266	1/15/80	18	50	13	23	-22.4	-23.0	42.0	8.7	0.20	-45.1	23	-12.7	145.3	24.7	5.8	0.23	-32.3	
1154	442222	67806208	1/15/80	20	23	12	23	-6.4	-46.3	45.7	7.9	0.17	-46.1	13	-8.6	122.0	23.5	0.5	0.02	-24.6	
1155	442222	73392155	1/15/80	21	56	16	13	-5.0	-69.6	30.5	5.1	0.17	-43.9	13	-5.9	96.7	16.9	0.1	0.00	-17.1	
1156	442222	78976102	1/15/80	22	29	20	13	-1.9	-92.8	30.3	5.4	0.19	-40.8	43	-10.6	75.5	30.9	-3.5	-0.11	-21.8	
1157	442222	84560048	1/16/80	1	2	26	43	-24.2	-116.1	52.3	13.1	0.25	-65.9	43	-13.5	52.2	33.3	3.6	0.11	-35.6	
1158	442222	84564974	1/16/80	2	35	30	43	-28.5	-139.4	54.8	10.1	0.18	-63.9	30	-9.0	28.9	23.2	9.5	0.19	-22.2	
1159	442222	3746636	1/16/80	4	8	34	30	-25.6	-162.6	46.4	10.2	0.22	-55.5	30	-25.2	5.7	37.4	7.9	0.21	-40.1	
1160	442222	14914590	1/16/80	4	41	38	23	-37.0	174.1	54.4	9.2	0.17	4.0	23	-36.7	-17.6	46.5	2.6	0.06	-46.7	
1161	442222	20533403	1/16/80	7	14	47	23	-36.7	150.8	59.0	13.3	0.23	-72.0	23	-22.7	-40.9	37.9	3.3	0.09	-37.3	
1162	442222	26084622	1/16/80	8	34	46	10	-27.3	127.6	52.4	12.3	0.23	-61.9	10	-21.1	-64.2	30.0	6.6	0.22	-42.7	
1163	442222	31666425	1/16/80	10	20	54	10	-25.0	104.3	43.2	3.7	0.20	-50.6	10	-19.0	-87.4	31.7	7.9	0.25	-39.5	
1164	442222	37254318	1/16/80	11	5	53	13	-20.7	81.0	39.5	12.1	0.31	-46.6	13	-9.6	-110.7	29.3	6.0	0.20	-35.5	

ORIGINAL PAGE IS  
OF POOR QUALITY

PASS	HJD	MJD	SEC	DATE	ASCENDING					DESCENDING										
					REF	D	ECL	B	E	I	I/E	DELTA	B	REF	D	ECL	B	E	I	I/E
1165	44254	482222	11	1/16/80	13	13	-20.8	57.7	44.8	3.7	0.22	-55.2	13	13	-8.3	-134.0	29.4	3.4	0.15	-34.2
1166	44254	540061	157	1/16/80	3	3	-21.8	34.5	34.4	10.2	0.30	-44.2	3	3	-13.6	-157.2	23.4	1.7	0.07	-21.9
1167	44254	593901	133	1/16/80	3	3	-18.9	11.2	36.2	12.5	0.35	-45.6	3	3	-12.2	179.5	27.2	3.7	0.21	-31.5
1168	44254	651640	49	1/16/80	3	3	-19.9	-12.1	37.3	12.5	0.33	-45.6	3	3	-12.7	156.2	25.9	2.5	0.17	-22.7
1169	44254	707579	5	1/16/80	3	3	-9.1	-35.3	43.6	5.9	0.14	-39.5	3	3	-11.2	133.0	21.7	3.4	0.16	-26.7
1170	44254	763419	42	1/16/80	3	3	-6.3	-58.6	36.6	8.1	0.22	-49.5	3	3	-6.9	109.7	24.7	0.1	0.01	-26.0
1171	44254	819258	68	1/16/80	3	3	-5.2	-81.9	37.0	7.2	0.19	-47.6	3	3	-4.8	86.4	19.6	0.7	0.04	-21.5
1172	44255	1103187	1	1/17/80	10	10	-7.4	-105.1	35.4	5.1	0.14	-43.3	10	10	-6.0	63.2	29.3	0.3	0.01	-28.7
1173	44255	6687134	1	1/17/80	10	10	-7.5	-128.4	35.1	-1.1	-0.03	-35.7	20	20	-5.2	39.9	25.8	-1.0	-0.04	-21.2
1174	44255	12271080	1	1/17/80	20	20	-6.6	-151.7	32.2	3.5	0.11	-33.8	20	20	-15.0	16.6	29.2	0.4	0.01	-32.1
1175	44255	17853801	1	1/17/80	20	20	-1.7	-174.9	27.5	-0.7	-0.03	-28.7	43	43	-16.1	-6.6	22.8	-3.7	-0.16	-19.1
1176	44255	23437744	1	1/17/80	43	43	-2.5	161.8	39.3	3.3	0.08	-41.1	43	43	-0.3	-29.9	2.9	-12.5	-4.24	8.1
1177	44255	29026617	1	1/17/80	43	43	-8.6	138.5	38.3	2.9	0.08	-41.9	30	30	-1.2	-53.2	21.6	-0.3	-0.01	-28.0
1178	44255	34609530	1	1/17/80	30	30	-21.3	115.3	28.2	8.2	0.29	-37.3	30	30	-3.5	-76.4	13.2	4.2	0.32	-16.0
1179	44255	40193525	1	1/17/80	30	30	-12.0	92.0	29.4	4.6	0.16	-34.2	33	33	11.3	-99.7	16.3	3.3	0.22	-23.6
1180	44255	45767630	1	1/17/80	33	33	-3.6	68.7	27.7	4.3	0.15	-33.1	33	33	7.6	-123.0	12.8	0.0	0.00	-12.5
1181	44255	51351573	1	1/17/80	33	33	-17.9	45.5	42.0	16.0	0.38	-57.9	30	30	5.7	-146.2	11.1	-0.3	-0.02	-6.4
1182	44255	56935548	1	1/17/80	30	30	-4.0	22.2	26.2	5.4	0.21	-31.7	30	30	1.2	-169.5	11.5	-1.7	-0.15	-9.3
1183	44255	62519499	1	1/17/80	30	30	-11.7	-1.1	33.2	8.8	0.26	-39.1	20	20	-1.0	167.2	14.4	1.3	0.09	-14.4
1184	44255	68104646	1	1/17/80	20	20	-3.3	-24.3	36.7	3.4	0.15	3.3	20	20	-6.3	144.0	19.2	3.2	0.17	-23.0
1185	44255	73883674	1	1/17/80	20	20	-1.8	-47.6	36.6	7.9	0.22	-42.1	13	13	-8.3	120.7	22.8	0.6	0.03	-22.2
1186	44255	79272547	1	1/17/80	13	13	-8.0	-70.9	27.4	6.4	0.24	-39.9	13	13	-2.0	97.4	13.7	1.2	0.09	-16.1
1187	44255	84851567	1	1/17/80	13	13	-5.0	-94.1	27.0	3.7	0.14	-36.2	13	13	-0.5	74.2	20.9	-4.0	-0.19	-10.7
1188	44256	4035512	1	1/18/80	13	13	-0.6	-117.4	34.4	2.1	0.06	-36.6	13	13	2.2	50.9	26.1	-2.1	-0.08	-26.0
1189	44256	4040439	1	1/18/80	7	7	6.2	-140.7	33.6	3.2	0.01	-33.1	7	7	2.2	27.6	24.9	2.2	0.09	-20.4
1190	44256	9624385	1	1/18/80	7	7	-2.2	-163.9	27.2	5.2	0.19	-32.2	7	7	-16.1	4.4	26.2	2.2	0.08	-24.2
1191	44256	15198490	1	1/18/80	10	10	-7.0	172.8	27.9	4.5	0.16	-32.9	10	10	-11.6	-18.9	30.3	-3.8	-0.13	-25.6
1192	44256	20782436	1	1/18/80	10	10	-9.5	149.5	30.9	5.7	0.19	-39.3	10	10	-17.3	-42.1	20.2	0.4	0.02	-19.5
1193	44256	26371309	1	1/18/80	7	7	-0.5	126.3	30.9	7.0	0.23	-38.0	7	7	-1.9	-65.4	19.9	2.9	0.15	-27.4
1194	44256	31952525	1	1/18/80	7	7	0.0	102.0	30.5	3.9	0.13	-35.4	7	7	-3.1	-88.7	22.0	0.2	0.28	-29.3
1195	44256	37529393	1	1/18/80	13	13	-5.9	79.7	27.9	8.9	0.32	-33.8	13	13	-5.6	-111.9	17.7	3.5	0.20	-20.6
1196	44256	41113305	1	1/18/80	13	13	-3.9	56.5	33.0	3.9	0.27	-44.4	13	13	-5.1	-135.2	18.0	1.3	0.10	-18.8
1197	44256	43118232	1	1/18/80	3	3	4.6	33.2	28.9	8.3	0.29	-36.3	3	3	-1.9	-158.5	14.4	0.2	0.01	-10.8
1198	44256	48697251	1	1/18/80	3	3	-5.3	9.9	35.1	8.4	0.24	-42.3	3	3	-0.2	178.3	19.2	2.0	0.11	-19.5
1199	44256	48702179	1	1/18/80	13	13	-7.6	-13.3	33.4	9.5	0.28	-42.3	13	13	-2.7	155.0	14.7	0.2	0.01	-11.7
1200	44256	54281158	1	1/18/80	17	17	2.2	-59.8	28.9	5.1	0.18	-40.0	17	17	-2.8	108.5	12.9	-5.5	-0.43	-7.3
1201	44256	54286124	1	1/18/80	17	17	9.1	-83.1	29.0	4.1	0.14	-35.6	17	17	-0.4	85.2	13.0	-1.9	-0.15	-32.1
1202	44257	59860229	1	1/19/80	17	17	16.4	-106.4	32.2	2.6	0.08	-35.6	17	17	5.7	62.0	20.4	-1.9	-0.19	-17.6
1203	44257	65444174	1	1/19/80	17	17	17.3	-129.6	28.9	-1.8	-0.06	-28.0	0	0	2.1	3F.7	23.5	-1.3	-0.06	-18.4
1204	44257	65449102	1	1/19/80	0	0														

ORIGINAL PAGE IS OF POOR QUALITY

PASS	MJD	MSEC	DATE	HR: MN: SC	ASCENDING								DESCENDING							
					KE	D	ECL	ECL	E	I	I/E	DELTA	B	KP	D	ECL	ECL	E	I	I/E
1205	44257	1254344J	1/19/80	3:29:3	C		8.1	-152.9	*****	*****	*****	*****	0	-1.5	15.4	20.0	-2.8	-0.11	-10.1	
	44257	179455J6	1/19/80	4:59:5																
1206	44257	180728J5	1/19/80	5:11:12	0		6.9	-176.2	25.8	0.6	0.02	-26.0	3	2.3	-7.3	25.8	-3.0	-0.37	-19.2	
	44257	23704694	1/19/80	6:35:4																
1207	44257	237096J2	1/19/80	6:35:9	3		10.6	160.6	23.6	2.6	0.11	12.2	3	4.6	-31.1	8.7	-1.5	-0.17	-7.4	
	44257	29289367	1/19/80	8:8:9																
1208	44257	292942J5	1/19/80	8:8:14	3		8.9	137.3	22.4	2.9	0.13	-25.4	10	5.7	-54.4	12.9	-1.4	-0.11	-16.5	
	44257	348684J3	1/19/80	9:41:8																
1209	44257	348733J26	1/19/80	9:41:13	10		2.4	114.0	20.0	5.2	0.29	-26.8	10	3.6	-77.6	15.9	6.4	0.40	-21.6	
	44257	404523J5	1/19/80	11:14:12																
1210	44257	404572J7	1/19/80	11:14:17	10		5.6	90.8	22.2	2.8	0.12	-26.0	7	6.6	-100.9	14.0	2.1	0.15	-19.9	
	44257	460362J2	1/19/80	12:47:16																
1211	44257	460412J6	1/19/80	12:47:21	7		5.5	67.5	25.6	4.7	0.18	-31.4	7	7.0	-124.2	9.8	3.8	0.08	-28.1	
	44257	516153J2	1/19/80	14:20:19																
1212	44257	516202J9	1/19/80	14:20:25	7		8.3	44.3	23.0	3.1	0.13	-29.1	17	6.8	-147.4	8.2	1.0	0.12	-28.3	
	44257	57199268	1/19/80	15:53:19																
1213	44257	572041J55	1/19/80	15:53:24	17		-0.1	21.0	26.0	3.4	0.13	-27.5	17	0.7	-170.7	11.4	-0.2	-0.02	-8.3	
	44257	627812J50	1/19/80	17:26:3																
1214	44257	627861J5	1/19/80	17:26:26	17		2.4	-2.3	28.3	7.7	0.27	-35.0	17	2.8	166.1	8.2	-0.8	-0.10	-31.0	
	44257	683511J4	1/19/80	18:59:30																
1215	44257	683701J21	1/19/80	18:59:30	17		-0.7	-25.5	32.4	7.2	0.22	-32.5	17	3.6	142.8	10.3	2.4	0.23	-15.9	
	44257	739442J25	1/19/80	20:32:24																
1216	44257	739491J32	1/19/80	20:32:29	17		3.6	-48.8	28.9	6.9	0.24	-36.1	10	4.4	119.5	14.9	-1.1	-0.07	-15.2	
	44257	795271J94	1/19/80	22:5:27																
1217	44257	795321J15	1/19/80	22:5:32	10		5.7	-72.1	20.7	1.9	0.09	-30.5	10	7.1	96.3	8.4	-0.7	-0.08	-8.4	
	44257	851096J62	1/19/80	23:38:29																
1218	44257	851145J86	1/19/80	23:38:34	27		0.3	-95.3	22.6	0.9	0.04	-29.1	27	6.6	73.0	17.1	-0.3	-0.31	-5.9	
	44258	429360J6	1/20/80	1:11:33																
1219	44258	429853J3	1/20/80	1:11:38	27		-9.4	-118.6	30.0	1.8	0.06	15.4	27	3.2	49.8	11.9	-5.3	-0.49	-26.5	
	44258	987338J1	1/20/80	2:44:33																
1220	44258	98783J1	1/20/80	2:44:38	23		1.4	-141.8	27.5	0.7	0.03	-31.0	23	3.9	26.5	18.5	0.5	0.03	-12.8	
	44258	154573J20	1/20/80	4:17:37																
1221	44258	154622J47	1/20/80	4:17:42	23		8.7	-165.1	20.6	1.8	0.09	-24.0	23	17.9	3.2	21.8	0.5	0.02	-18.8	
	44258	210363J2	1/20/80	5:50:36																
1222	44258	210412J79	1/20/80	5:50:41	7		14.2	171.6	22.4	3.7	0.17	-29.1	7	23.9	-20.0	25.3	-4.3	-0.17	-21.2	
	44258	264202J8	1/20/80	7:23:40																
1223	44258	266252J25	1/20/80	7:23:45	7		15.9	148.4	18.0	2.5	0.14	-25.6	7	16.7	-43.3	11.5	-1.6	-0.14	-10.3	
	44258	322042J4	1/20/80	8:56:44																
1224	44258	322091J72	1/20/80	8:56:49	7		3.0	125.1	15.9	1.0	0.06	-18.1	7	5.9	-66.5	10.1	1.3	0.18	-15.5	
	44258	377832J75	1/20/80	10:29:43																
1225	44258	377882J52	1/20/80	10:29:48	7		-1.8	101.8	17.4	-0.3	-0.01	-19.2	7	5.3	-99.8	14.5	1.8	0.12	-16.2	
	44258	433672J1	1/20/80	12:2:47																
1226	44258	433742J43	1/20/80	12:2:52	16		-2.6	78.6	16.1	6.7	0.42	-24.2	10	3.1	-113.1	9.7	1.4	0.15	-11.6	
	44258	489462J52	1/20/80	13:35:46																
1227	44258	489511J78	1/20/80	13:35:51	10		7.1	55.3	16.2	3.1	0.19	-24.6	10	6.0	-136.3	8.3	0.4	0.05	-7.0	
	44258	545401J98	1/20/80	15:8:50																
1228	44258	545351J2	1/20/80	15:8:55	7		15.5	32.1	16.7	3.1	0.13	-21.2	7	11.7	-159.6	4.5	-2.3	-0.52	1.3	
	44258	601092J9	1/20/80	16:41:45																
1229	44258	601141J56	1/20/80	16:41:54	7		8.6	3.8	21.9	2.9	0.13	-24.0	7	12.2	177.2	7.5	-1.2	-0.16	-4.2	
	44258	656431J75	1/20/80	18:14:53																
1230	44258	656481J22	1/20/80	18:14:58	20		1.0	-14.5	27.8	5.1	0.13	-31.8	20	8.9	153.9	8.4	-3.0	-0.35	0.6	
	44258	711277J1	1/20/80	19:47:57																
1231	44258	711282J48	1/20/80	19:48:2	20		2.7	-37.7	28.2	2.3	0.03	-28.1	20	6.3	130.6	6.9	-1.3	-0.19	-6.3	
	44258	768561J53	1/20/80	21:20:56																
1232	44258	768610J79	1/20/80	21:21:1	23		3.4	-61.0	23.6	2.6	0.11	-31.4	23	5.4	107.4	11.1	-0.6	-0.41	-6.6	
	44258	82440J98	1/20/80	22:54:0																
1233	44258	824450J25	1/20/80	22:54:5	23		7.2	-84.2	24.7	3.9	0.16	-32.1	27	9.0	84.1	6.9	-4.7	-0.68	-4.4	
	44259	162035J8	1/21/80	0:27:0																
1234	44259	162528J4	1/21/80	0:27:5	27		8.8	-107.5	29.1	3.6	0.12	-35.6	27	9.9	60.9	15.5	-1.9	-0.12	-13.7	
	44259	71993J3	1/21/80	1:59:59																
1235	44259	72043J15	1/21/80	2:0:4	27		5.6	-130.8	24.8	0.5	0.02	-26.7	10	5.4	37.6	20.4	-1.2	-0.06	-15.5	
	44259	127833J5	1/21/80	3:33:3																
1236	44259	127862J2	1/21/80	3:33:8	10		2.3	-154.0	20.9	1.4	0.07	-19.9	10	2.5	14.3	21.8	-3.7	-0.17	-7.1	
	44259	183672J82	1/21/80	5:0:7																
1237	44259	183722J8	1/21/80	5:0:12	10		0.2	-177.3	21.7	0.1	0.00	-21.6	10	3.1	-8.9	18.2	-4.2	-0.23	-16.1	
	44259	239403J13	1/21/80	6:39:6																
1238	44259	239512J38	1/21/80	6:39:11	16		0.0	159.5	22.3	2.7	0.12	-23.4	10	5.2	-32.2	7.0	-2.3	-0.33	-2.8	
	44259	295402J53	1/21/80	8:12:10																
1239	44259	295451J65	1/21/80	8:12:15	10		7.5	136.2	22.4	3.1	0.14	-27.5	10	11.1	-55.4	12.6	-2.8	-0.22	-16.0	
	44259	351092J7	1/21/80	9:45:9																
1240	44259	351142J16	1/21/80	9:45:14	10		2.6	112.9	20.2											



PASS	MJD	MSEC	DATE	h:	m:	s:	ASCENDING	EQL	E	I	Z/S	DELTA	DESCENDING	EQL	E	I	Δ/E DELTA	B		
1285	44262	27055146	1/24/80	7:	30:	55	7	22.4	146.4	17.3	0.0	0.00	-23.4	7	16.3	-45.2	5.9	0.0	0.10 -7.6	
1286	44262	32639092	1/24/80	9:	3:	59	17	9.6	123.1	16.6	3.1	0.11	-20.6	17	7.5	-68.5	8.3	0.4	0.76 -15.5	
1287	44262	38213197	1/24/80	10:	36:	53	17	9.5	94.9	17.4	2.1	0.12	-23.5	17	16.3	-91.7	10.9	-0.2	-0.02 -13.1	
1288	44262	43792229	1/24/80	12:	9:	52	17	8.7	76.6	11.9	3.7	0.11	-17.1	17	7.1	-115.0	8.3	0.6	0.07 -9.0	
1289	44262	49381100	1/24/80	13:	42:	56	17	8.8	53.3	19.1	3.4	0.18	-28.5	17	6.7	-138.3	10.0	-0.0	0.76 -8.5	
1290	44262	54955205	1/24/80	15:	15:	55	23	2.6	30.1	20.9	6.4	0.31	-26.2	23	8.8	-161.5	7.5	-2.2	-0.29 -24.9	
1291	44262	60535961	1/24/80	16:	48:	55	0	23	1.4	6.8	31.6	6.3	0.20	-35.2	23	10.2	175.2	11.3	1.7	0.15 -11.6
1292	44262	66119914	1/24/80	18:	21:	54	23	-9.4	-16.4	41.5	11.4	0.27	-49.5	23	5.7	152.0	7.2	2.8	0.38 -7.8	
1293	44262	71694018	1/24/80	19:	54:	58	23	0.0	-39.7	28.3	1.3	0.05	-24.9	10	2.8	128.7	9.8	-0.0	-3.07 -10.7	
1294	44262	77273049	1/24/80	21:	27:	53	10	7.6	-62.9	26.4	4.6	0.17	-32.3	10	-3.2	105.5	12.3	-4.4	-0.36 -7.8	
1295	44262	82869994	1/24/80	23:	0:	56	10	9.2	-86.2	28.0	4.7	0.17	-35.6	3	5.8	82.2	10.2	-0.5	-0.54 -6.0	
1296	44263	20352897	1/25/80	0:	33:	55	3	11.2	-109.4	29.7	1.0	0.03	-33.5	3	7.4	59.0	15.9	-1.6	-0.10 -16.4	
1297	44263	76183188	1/25/80	2:	6:	54	3	19.2	-132.7	24.0	-3.6	-0.15	-23.3	0	8.4	35.7	14.0	-1.8	-0.13 -6.7	
1298	44263	13193549	1/25/80	3:	39:	58	0	10.2	-155.9	14.7	-3.4	-0.23	-12.7	0	5.8	12.5	17.3	-6.2	-0.36 -2.0	
1299	44263	18772336	1/25/80	5:	12:	57	0	5.6	-179.2	15.8	-0.0	-0.00	-19.2	7	14.3	-10.9	13.0	-7.2	-0.56 -11.2	
1300	44263	24361253	1/25/80	6:	48:	1	7	15.5	157.6	11.8	2.0	0.17	-12.6	7	12.5	-34.0	1.7	-3.0	-1.82 3.8	
1301	44263	29935357	1/25/80	8:	18:	55	7	20.0	134.3	10.2	-0.9	-0.08	-13.4	23	14.6	-57.3	2.3	-2.0	-6.85 -2.2	
1302	44263	35430831	1/25/80	9:	51:	35	23	21.4	111.1	4.9	-0.5	-0.11	-6.7	23	25.6	-80.5	3.7	1.5	0.41 -6.7	
1303	44263	40946950	1/25/80	11:	22:	26	23	26.4	87.8	1.2	-7.2	-0.39	1.9	23	23.3	-103.8	-1.4	-3.4	2.48 0.4	
1304	44263	46673432	1/25/80	12:	57:	53	23	22.1	64.5	12.9	-2.7	-0.21	-14.3	23	27.6	-127.0	-4.3	-0.2	1.43 5.5	
1305	44263	52257378	1/25/80	14:	30:	57	23	18.3	41.3	16.9	5.2	0.31	-23.8	20	21.9	-150.3	-6.6	-2.5	0.37 9.8	
1306	44263	57836409	1/25/80	16:	3:	56	20	15.3	18.0	11.8	2.5	0.21	-13.8	20	13.9	-173.6	1.7	-1.2	-0.68 2.3	
1307	44263	63420366	1/25/80	17:	36:	55	0	27	2.8	-5.2	17.9	6.0	0.34	-25.8	27	12.8	163.2	3.7	-1.9	-0.51 -0.8
1308	44263	68994471	1/25/80	19:	9:	59	27	-3.8	-28.5	27.5	8.2	0.30	-30.7	27	7.5	139.9	3.9	0.8	0.20 -9.5	
1309	44263	74575232	1/25/80	20:	43:	55	27	15.2	-51.7	15.9	4.1	0.26	-23.9	27	10.8	116.7	8.1	-6.1	-0.76 -2.7	
1310	44263	80154253	1/25/80	22:	15:	54	27	8.6	-75.0	25.7	2.4	0.09	-35.3	27	10.2	93.4	1.3	-3.0	-4.46 4.8	
1311	44263	85736478	1/25/80	23:	49:	56	13	7.7	-98.2	26.0	4.4	0.17	-33.3	13	12.1	70.2	17.9	-6.5	-0.50 -3.5	
1312	44264	49155117	1/26/80	1:	21:	55	0	13	13.8	-121.5	20.1	-0.3	-0.02	-22.0	13	10.7	46.9	15.6	-3.4	-0.22 -14.2
1313	44264	9420436	1/26/80	2:	54:	5	23	10.1	-144.7	22.0	-3.0	-0.14	-16.4	23	10.0	23.7	20.3	1.7	0.09 -15.0	
1314	44264	10499487	1/26/80	4:	25:	26	23	8.5	-168.0	13.1	0.2	0.01	*****	23	23.2	0.4	12.3	-4.1	-0.33 -5.9	
1315	44264	15924107	1/26/80	5:	58:	27	10	17.8	168.8	14.3	0.1	0.01	-15.8	10	22.2	-22.8	13.7	-7.9	-0.58 -5.2	
1316	44264	21059494	1/26/80	6:	0:	59	10	17.5	145.5	18.6	-0.3	-0.02	-22.9	10	17.3	-46.1	10.5	-1.8	-0.18 -10.6	
1317	44264	27255237	1/26/80	7:	34:	15	10	11.6	122.3	10.2	2.0	0.20	-14.6	10	12.1	-69.3	6.3	3.2	0.51 -12.9	
1318	44264	32809632	1/26/80	9:	6:	49	10	5.3	99.0	10.9	1.5	0.14	-19.2	10	13.0	-92.6	14.5	0.8	0.06 -18.3	
1319	44264	38398552	1/26/80	10:	39:	53	16	7.1	75.8	13.5	2.5	0.18	-19.5	17	14.9	-115.8	4.1	-2.1	-0.50 -2.8	
1320	44264	43972657	1/26/80	12:	12:	52	17	14.4	52.5	13.1	1.5	0.12	-22.0	17	10.0	-139.1	6.0	-1.0	-0.15 -4.8	
1321	44264	49556614	1/26/80	13:	45:	56	7	15.5	29.3	13.0	1.7	0.13	-15.3	7	14.6	-162.3	3.9	-2.2	-0.72 -1.4	
1322	44264	55130719	1/26/80	15:	18:	50	7	7.1	6.0	15.8	3.0	0.19	-20.0	20	18.3	174.4	5.4	-0.8	-0.16 -3.7	
1323	44264	60709750	1/26/80	16:	51:	49	7	10.3	-17.2	19.0	0.5	0.03	-21.8	20	18.6	151.2	3.3	-1.3	-0.40 -1.1	
1324	44264	66293780	1/26/80	18:	24:	48	20	15.5	-40.5	17.0	-1.6	-0.10	-16.7	20	12.5	127.9	7.2	-2.4	-0.33 -5.1	
1324	44264	71873229	1/26/80	19:	57:	53	20	15.5	-40.5	17.0	-1.6	-0.10	-16.7	20	12.5	127.9	7.2	-2.4	-0.33 -5.1	
1324	44264	77447333	1/26/80	21:	30:	47														

PASS	HJD	MS&C	DA1P	HR:	MIN:	SEC:	ASCENDING	DELTA	DESCENDING	E L	D	I	I/E	DELTA	E						
1325	442604	774522J9	1/20/80	11:20:43	30:52	23	12.1	-63.7	20.0	0.5	0.44	-32.9	23	12.2	81.4	7.3	-4.8	-0.39	-6.4		
1326	442604	220588A6	1/26/80	11:23:43	31:51	23	3.2	-87.0	22.3	11.5	0.50	-37.7	23	12.2	81.4	7.3	-4.8	-0.66	-4.5		
1327	442604	2213813	1/27/80	11:23:06	30:50	23	-1.0	-110.2	24.3	6.3	0.25	-31.2	23	13.8	58.2	16.7	-5.8	-0.35	-13.9		
1328	442604	7788015	1/27/80	11:23:06	31:43	23	-4.8	-133.5	*****	*****	*****	-31.2	30	15.5	34.9	13.1	-2.4	-0.19	-9.7		
1329	442604	13363704	1/27/80	11:23:06	31:43	30	-9.2	-150.7	29.3	6.8	0.23	-35.5	30	-0.2	11.7	23.8	-0.3	-0.03	-16.0		
1330	442604	18947659	1/27/80	11:23:06	31:42	30	-3.3	-180.0	22.0	1.7	0.08	-15.7	27	-2.3	-11.6	20.8	-0.3	-0.01	-24.7		
1331	442604	24520690	1/27/80	11:23:06	31:40	27	-0.9	150.6	21.4	2.7	0.12	-25.1	27	-3.2	-34.8	19.5	-0.3	-0.02	-14.7		
1332	442604	30100795	1/27/80	11:23:06	31:40	27	-10.2	133.5	36.0	8.0	0.22	-44.8	23	7.6	-58.1	14.4	-4.3	-0.34	-11.4		
1333	442604	35079526	1/27/80	11:23:06	31:39	23	-27.6	110.3	37.0	3.6	0.25	-46.4	23	12.5	-81.3	12.8	7.4	0.57	-23.6		
1334	442604	41250457	1/27/80	11:23:06	31:33	11	27:43	23	-34.3	87.0	37.2	9.6	0.25	-46.8	43	22.0	-104.6	10.1	3.1	0.50	-19.6
1335	442604	46342413	1/27/80	11:23:06	31:36	14	0:42	43	-9.5	63.8	35.5	5.0	0.14	-41.4	43	9.1	-127.8	13.6	-1.5	-0.11	-10.7
1336	442604	52416910	1/27/80	11:23:06	31:36	14	33:41	43	-29.9	40.5	59.2	26.1	0.44	-82.2	43	12.6	-151.1	4.9	-3.4	-1.32	-78.8
1337	442604	57997913	1/27/80	11:23:06	31:36	16	0:42	43	-50.4	17.3	75.5	27.0	0.36	-92.7	43	-9.4	-174.3	13.6	0.7	0.03	-18.4
1338	442604	63576945	1/27/80	11:23:06	31:36	17	39:41	47	-59.3	-6.0	63.1	34.7	0.42	-109.2	47	-29.9	162.5	33.9	13.6	0.46	-48.6
1339	442604	69100902	1/27/80	11:23:06	31:35	19	12:40	47	-50.5	-29.2	96.0	31.9	0.33	-107.1	47	-28.8	139.2	19.3	13.5	0.70	-42.2
1340	442604	74730973	1/27/80	11:23:06	31:36	19	0:45	50	-76.0	-52.5	97.0	39.9	0.41	-123.7	50	-22.0	116.0	32.1	21.5	0.67	-58.7
1341	442604	80310015	1/27/80	11:23:06	31:36	20	18:31	50	-76.9	-75.7	*****	*****	*****	-119.9	50	-35.0	92.7	30.4	13.5	0.44	-46.0
1342	442604	85891102	1/27/80	11:23:06	31:36	23	51:30	30	-53.0	-92.0	69.3	17.9	0.26	-86.3	30	-35.4	69.5	49.6	5.8	0.20	-55.7
1343	442604	5070133	1/28/80	11:23:06	31:35	1	24:30	30	-58.5	-122.2	68.6	17.6	0.20	-87.2	30	-27.0	46.2	49.6	9.1	0.18	-57.1
1344	442604	10649104	1/28/80	11:23:06	31:29	2	57:34	37	-55.4	-145.5	73.8	19.2	0.26	-87.9	37	-18.3	23.0	47.8	7.9	0.17	-47.2
1345	442604	16233122	1/28/80	11:23:06	31:28	4	30:33	37	-52.7	-168.7	68.1	23.6	0.35	-87.0	37	-11.2	-0.3	47.4	7.4	0.16	-50.9
1346	442604	21807225	1/28/80	11:23:06	31:27	6	3:27	23	-30.0	168.0	55.9	12.9	0.23	-66.6	23	-21.3	-23.5	55.5	5.5	0.10	-53.6
1347	442604	27258453	1/28/80	11:23:06	31:24	7	3:18	23	-29.4	144.8	53.3	8.6	0.16	-63.4	23	-26.2	-46.3	40.4	7.3	0.18	-39.8
1348	442604	32791528	1/28/80	11:23:06	31:24	7	36:24	23	-29.4	121.5	46.1	12.1	0.26	-56.9	23	-27.8	-70.0	31.2	11.4	0.36	-46.2
1349	442604	35544571	1/28/80	11:23:06	31:24	10	4:29	23	-33.7	98.3	43.3	9.5	0.22	-54.1	23	-26.3	-93.3	38.2	7.9	0.21	-49.2
1350	442604	38549469	1/28/80	11:23:06	31:23	10	15:23	12	-44.5	75.0	64.4	13.3	0.28	-76.5	37	-2.4	-116.5	11.6	-1.2	-0.11	-12.7
1351	442604	44128520	1/28/80	11:23:06	31:23	12	15:28	37	-44.5	75.0	64.4	13.3	0.28	-76.5	37	-2.4	-116.5	11.6	-1.2	-0.11	-12.7
1352	442604	49702625	1/28/80	11:23:06	31:22	13	48:24	37	-39.7	51.8	49.0	15.2	0.31	-66.5	37	-14.1	-139.8	27.6	3.7	0.13	-32.0
1353	442604	49707551	1/28/80	11:23:06	31:21	15	21:16	50	-31.7	24.5	48.5	19.2	0.40	-63.7	50	-15.6	-163.0	15.1	-4.6	-0.30	-11.3
1354	442604	55276741	1/28/80	11:23:06	31:21	16	5:45	50	-59.9	5.3	65.2	29.0	0.45	-85.2	53	-29.4	173.7	20.2	3.3	0.17	-24.0
1355	442604	60355771	1/28/80	11:23:06	31:20	18	27:14	53	-57.2	-17.9	87.4	38.2	0.44	-116.0	***	*****	*****	*****	*****	*****	-24.0
1356	442604	63860697	1/28/80	11:23:06	31:19	19	30:29	53	-23.8	-41.2	45.2	12.2	0.27	-53.0	43	-38.8	127.3	25.1	5.3	0.21	-31.1
1357	442604	66434802	1/28/80	11:23:06	31:17	20	13:15	43	-26.9	-04.4	41.6	15.5	0.37	-63.8	43	-30.6	104.0	29.1	-0.2	-0.31	-12.5
1358	442604	66439728	1/28/80	11:23:06	31:17	20	33:12	43	-26.9	-04.4	41.6	15.5	0.37	-63.8	43	-30.6	104.0	29.1	-0.2	-0.31	-12.5
1359	442604	70229528	1/28/80	11:23:06	31:16	22	6:11	43	-32.5	-87.7	54.2	19.2	0.35	-81.9	53	-44.1	80.8	47.7	10.5	0.22	-55.5
1360	442604	72795400	1/28/80	11:23:06	31:16	23	6:11	53	-98.9	-110.9	111.0	46.0	0.41	-153.2	53	-36.2	57.5	53.9	3.2	0.15	-62.9
1361	442604	77597790	1/28/80	11:23:06	31:15	23	39:06	53	-97.7	-134.2	112.6	37.4	0.33	-146.1	43	-38.7	34.3	63.7	17.1	0.27	-77.1
1362	442604	83176821	1/29/80	11:23:06	31:12	24	12:12	43	-50.5	-157.4	73.7	14.5	0.20	-85.6	43	-40.4	11.0	73.7	13.9	0.26	-82.8
1363	442604	2346994	1/29/80	11:23:06	31:11	25	12:07	43	-55.5	179.3	76.7	15.8	0.21	44.7	17	-47.1	-12.2	72.0	15.5	0.22	-85.8
1364	442604	2351919	1/29/80	11:23:06	31:11	25	12:07	17	-49.2	156.1	67.2	16.0	0.24	-76.5	17	-55.7	-35.5	64.9	9.6	0.15	-63.9
1365	442604	7927744	1/29/80	11:23:06	31:10	26	50:59	17	-46.7	132.8	63.7	15.0	0.24	-75.4	27	-48.8	-58.7	49.3	13.0	0.26	-64.8
1366	442604	7932670	1/29/80	11:23:06	31:10	26	50:59	17	-46.7	132.8	63.7	15.0	0.24	-75.4	27	-48.8	-58.7	49.3	13.0	0.26	-64.8
1367	442604	13506776	1/29/80	11:23:06	31:09	27	5:57	27	-48.5	109.6	54.7	16.2	0.30	-70.7	27	-39.6	-81.9	45.8	14.9	0.33	*****
1368	442604	13511701	1/29/80	11:23:06	31:09	27	5:57	27	-48.5	109.6	54.7	16.2	0.30	-70.7	27	-39.6	-81.9	45.8	14.9	0.33	*****

ORIGINAL PAGE IS OF POOR QUALITY



PASS	MJD	MSEC	DATE	SC	ASCENDING					DESCENDING								
					KP	D EOL	EOL	E	I	I/E	DELTA B	KP	D EOL	EOL	S	I	I/E DELTA B	
1365	44267	41401939	1/29/80	11:30:56	27	-46.5	86.4	51.0	13.4	0.26	-64.5	37	-22.9	-128.4	39.9	3.0	0.08	-42.1
1366	44267	46980970	1/29/80	11:33:50	37	-35.6	63.1	57.1	13.2	0.23	-71.7	37	-22.9	-128.4	39.9	3.0	0.08	-42.1
1367	44267	52555086	1/29/80	14:35:59	37	-68.3	39.9	69.7	29.0	0.42	-94.6	43	-19.3	-151.7	27.2	1.3	0.05	-25.0
1368	44267	58129190	1/29/80	16:08:54	43	-70.4	16.6	69.5	29.6	0.43	-91.9	43	-37.7	-174.9	34.5	3.8	0.25	-40.6
1369	44267	63718221	1/29/80	17:41:53	37	-33.9	-6.6	57.1	20.2	0.35	-78.2	37	-33.6	161.8	29.6	6.3	0.21	-33.3
1370	44267	69213137	1/29/80	19:14:47	37	-33.6	-29.9	86.7	21.6	0.25	-89.1	37	-35.0	138.6	23.6	17.5	0.74	-47.6
1371	44267	74862522	1/29/80	20:47:41	37	-54.6	-53.1	35.0	26.2	0.31	-105.7	37	-35.0	115.3	31.4	16.0	0.51	-52.0
1372	44267	80445323	1/29/80	22:20:40	37	-50.6	-76.4	65.1	13.7	0.21	-80.8	37	-33.9	92.1	28.7	13.0	0.45	-43.6
1373	44267	86019428	1/29/80	23:53:39	33	-46.8	-99.6	69.0	14.2	0.21	-88.1	33	-36.3	68.9	51.8	10.6	0.21	-57.3
1374	44268	5198705	1/30/80	1:26:43	33	-40.5	-122.8	****	****	****	-63.4	33	-22.0	45.6	38.5	5.7	0.15	-43.3
1375	44268	10777746	1/30/80	2:59:37	23	-21.4	-140.1	41.8	1.7	0.04	-42.8	23	-15.3	22.4	35.5	6.3	0.19	-33.3
1376	44268	16351851	1/30/80	4:32:31	23	-22.2	-109.3	43.6	4.2	0.10	-43.6	23	-22.5	-0.9	34.0	5.4	0.16	-43.2
1377	44268	21928679	1/30/80	6:5:28	20	-26.3	167.4	46.4	7.8	0.17	-53.6	20	-34.9	-24.1	45.8	2.7	0.06	-40.4
1378	44268	27513596	1/30/80	7:38:25	20	-25.7	144.2	51.0	11.9	0.23	-66.6	20	-31.7	-47.3	34.1	4.4	0.13	-37.7
1379	44268	33089091	1/30/80	9:11:24	33	-27.2	120.9	53.9	15.9	0.30	-67.3	33	-28.3	-70.6	33.9	11.0	0.34	-47.0
1380	44268	38663796	1/30/80	10:44:23	33	-43.8	97.7	66.0	12.7	0.19	-73.2	33	-21.3	-93.8	35.4	7.9	0.22	-45.8
1381	44268	44237912	1/30/80	12:17:17	20	-24.9	74.5	46.3	3.8	0.19	-51.6	20	-29.6	-117.1	36.2	8.4	0.23	*****
1382	44268	49821888	1/30/80	13:50:21	20	-24.0	51.2	47.7	9.6	0.20	-60.3	20	-24.4	-140.3	36.3	6.3	0.17	-41.4
1383	44268	55395973	1/30/80	15:23:23	20	-35.6	28.0	50.7	15.7	0.31	-64.5	20	-25.3	-163.6	33.9	5.1	0.15	-39.1
1384	44268	60975069	1/30/80	16:56:10	20	-28.4	4.7	47.5	13.8	0.29	*****	13	-26.4	173.2	35.1	6.6	0.19	*****
1385	44268	66549119	1/30/80	18:29:14	13	-22.4	-18.5	52.8	11.8	0.22	-59.6	13	-23.3	150.0	33.6	7.7	0.23	-40.3
1386	44268	72128153	1/30/80	20:02:13	13	-21.3	-41.7	56.5	10.7	0.19	-59.5	17	-22.2	126.7	32.9	4.2	0.13	-34.8
1387	44268	77707191	1/30/80	21:35:7	17	-23.7	-65.0	48.9	15.3	0.31	-67.7	17	-28.9	103.5	31.3	3.6	0.12	-34.7
1388	44268	83231295	1/30/80	23:08:1	17	-16.4	-88.2	47.3	12.1	0.26	-64.1	17	-24.1	80.2	34.4	5.0	0.14	-36.9
1389	44269	2457622	1/31/80	0:40:57	17	-18.0	-111.5	52.2	8.6	0.17	-61.3	17	-20.0	57.0	35.1	4.6	0.13	-40.2
1390	44269	8036654	1/31/80	2:14:1	17	-23.0	-134.7	46.2	7.6	0.17	-53.1	3	-26.7	33.8	31.9	6.7	0.21	-47.1
1391	44269	13615449	1/31/80	3:46:50	3	-21.9	-158.0	41.1	3.8	0.09	-44.1	3	-27.3	10.5	17.5	4.0	0.11	-35.3
1392	44269	19191522	1/31/80	5:19:51	3	-24.0	178.8	44.6	4.0	0.09	1.4	7	-40.6	-12.7	39.1	2.5	0.07	-43.4
1393	44269	24705636	1/31/80	6:52:45	7	-19.6	155.6	41.8	6.6	0.16	-44.8	7	-28.0	-36.0	33.3	2.9	0.09	-10.5
1394	44269	30344667	1/31/80	8:25:44	7	-13.0	132.3	39.6	9.4	0.23	-49.2	17	-21.4	-59.2	29.7	4.3	0.14	-34.7
1395	44269	35918793	1/31/80	9:58:38	17	-8.7	109.1	32.2	7.1	0.22	-39.4	17	-12.0	-82.4	28.4	8.1	0.29	*****
1396	44269	41497812	1/31/80	11:31:37	17	-17.3	85.8	33.0	6.5	0.21	-42.3	13	-10.4	-105.7	30.1	7.3	0.24	-36.5
1397	44269	47076843	1/31/80	13:04:41	13	-11.0	62.6	40.4	6.0	0.15	-49.6	13	-9.0	-128.9	26.7	3.4	0.13	-26.3
1398	44269	52650539	1/31/80	14:37:30	10	-12.4	39.4	39.0	6.5	0.17	-44.3	10	-10.6	-152.2	18.7	2.7	0.15	-17.0
1399	44269	58229930	1/31/80	16:10:29	16	-15.2	16.1	33.6	7.8	0.23	-40.3	10	-14.4	-175.4	23.5	3.6	0.15	-23.0
1400	44269	63834125	1/31/80	17:43:24	17	-7.0	-7.1	32.5	10.6	0.33	-46.6	17	-14.2	161.4	22.2	2.6	0.09	-19.5
1401	44269	69383135	1/31/80	19:16:23	17	-7.2	-30.4	35.0	3.2	0.18	-47.4	17	-9.7	138.1	18.6	2.9	0.15	-23.9
1402	44269	74957231	1/31/80	20:49:17	23	-12.9	-53.8	33.8	10.5	0.24	-52.9	23	-13.3	114.9	26.7	2.3	0.09	-29.0
1403	44269	80534231	1/31/80	22:22:16	23	-16.6	-76.8	42.8	9.9	0.23	-57.2	23	-13.8	91.6	*****	*****	*****	
1404	44269	86113346	1/31/80	23:55:13	20	-19.3	-100.1	46.9	9.7	0.21	-59.3	20	-18.0	68.4	37.9	3.3	0.15	-40.0

PASS	HJD	MSEC	DATE	HR:MM:SC	ASCENDING					DESCENDING					I/E DELTA δ		
					KE	D	EQL	E	I	I/P	DELTA	B	KE	D		EQL	B
1405	44270	5294231	2/1/80	1:28:14	20	-41.6	-123.3	45.0	5.6	0.12	*****	20	-30.4	45.2	34.2	0.0	0.16*****
	44270	10868335	2/1/80	1:31:14													
1406	44270	10873262	2/1/80	3:1:13	13	-48.6	-146.6	38.9	2.4	0.06	-37.8	13	-1.6	21.9	32.8	0.0	0.15 -30.2
	44270	16442452	2/1/80	4:34:1													
1407	44270	16447377	2/1/80	4:34:7	13	-37.4	-169.8	35.3	2.4	0.07	-32.7	13	6.9	-1.3	30.0	3.8	0.13 -20.5
	44270	22021481	2/1/80	6:7:1													
1408	44270	22026408	2/1/80	6:7:5	17	-20.2	167.0	32.9	5.5	0.17	-37.0	17	0.0	-24.5	30.4	-1.1	-0.04*****
	44270	27595597	2/1/80	7:39:56													
1409	44270	27600523	2/1/80	7:40:09	17	-1.1	143.7	35.8	1.6	0.04	-40.2	17	6.2	-47.8	22.4	-0.3	-0.01 -23.7
	44270	33169713	2/1/80	9:12:49													
1410	44270	33174638	2/1/80	9:17:54	23	0.0	129.5	27.2	5.3	0.19	***-*	23	7.3	-71.0	11.9	4.0	0.34*****
	44270	38748376	2/1/80	10:45:32													
1411	44270	38753301	2/1/80	10:45:32	23	-19.4	97.3	29.0	3.7	0.13	-31.4	23	-1.6	-94.3	19.0	1.1	0.06 -22.4
	44270	44327405	2/1/80	12:18:47													
1412	44270	44332332	2/1/80	12:18:47	17	-22.3	74.0	25.6	6.7	0.26	-30.5	17	-17.6	-117.5	14.9	0.9	0.06 -15.1
	44270	49901521	2/1/80	13:51:41													
1413	44270	49906447	2/1/80	13:51:46	17	-10.1	50.8	26.4	5.7	0.22	-35.4	17	-14.8	-140.7	15.6	1.0	0.07 -16.2
	44270	55480552	2/1/80	15:24:40													
1414	44270	55485478	2/1/80	15:24:45	17	5.1	27.5	25.7	3.8	0.15	-27.7	17	-9.8	-168.0	14.5	-1.0	-0.07 -14.4
	44270	61054668	2/1/80	16:57:34													
1415	44270	61059531	2/1/80	16:57:39	17	14.3	4.3	30.9	7.4	0.24	-37.3	37	1.6	172.8	15.7	0.1	0.00 -14.5
	44270	66422339	2/1/80	18:27:2													
1416	44270	66436412	2/1/80	18:27:2	37	26.6	-18.9	45.4	9.6	0.21	-52.3	37	-2.4	149.6	21.0	4.7	0.22 -25.0
	44270	72205601	2/1/80	20:3:25													
1417	44270	72210527	2/1/80	20:3:25	37	14.4	-42.2	46.5	10.8	0.23	-50.7	33	-12.5	126.3	17.9	4.0	0.22 -20.5
	44270	77782666	2/1/80	22:13:27													
1418	44270	77787591	2/1/80	22:13:27	33	-0.4	-65.4	43.2	13.1	0.30	-59.1	33	-6.9	103.1	13.3	2.9	0.15 -24.0
	44270	83361636	2/1/80	23:9:21													
1419	44270	83366622	2/1/80	23:9:21	33	-16.2	-88.6	37.9	9.6	0.25	-48.5	23	-29.0	79.8	18.7	-0.1	-0.01 -17.9
	44271	2534829	2/2/80	0:42:19													
1420	44271	2535754	2/2/80	0:42:14	23	-22.2	-111.9	39.9	4.1	0.10	-48.5	23	-23.5	56.0	24.5	1.5	0.06 -27.0
	44271	8112874	2/2/80	2:15:12													
1421	44271	8117802	2/2/80	2:15:17	23	-23.4	-135.1	30.6	0.4	0.01	-30.3	33	-7.6	33.4	20.5	1.0	0.04 -24.7
	44271	13689705	2/2/80	3:33:9													
1422	44271	13694621	2/2/80	3:33:14	33	-32.3	-158.4	38.2	4.0	0.11	-41.9	33	5.7	10.1	26.4	-2.5	-0.10 -16.3
	44271	19261854	2/2/80	6:22:1													
1423	44271	19266770	2/2/80	6:22:1	33	-25.7	178.4	40.9	10.0	0.24	-51.5	30	8.0	-13.1	31.3	1.4	0.05 -36.1
	44271	24840875	2/2/80	6:55:0													
1424	44271	24845801	2/2/80	6:55:0	30	-15.0	155.2	44.6	7.3	0.16	-46.9	30	7.9	-36.3	22.8	0.0	0.00 -17.3
	44271	30414939	2/2/80	8:26:6													
1425	44271	30419517	2/2/80	8:26:6	30	-18.1	131.9	42.0	9.1	0.22	-48.3	23	9.2	-59.6	20.2	2.4	0.12 -23.5
	44271	35994021	2/2/80	9:59:59													
1426	44271	35998947	2/2/80	9:59:59	23	-13.2	108.7	33.4	5.9	0.18	-39.9	23	0.0	-82.8	21.9	7.1	0.32*****
	44271	41568137	2/2/80	11:32:22													
1427	44271	41573066	2/2/80	11:32:22	23	-22.9	85.5	32.6	4.6	0.14	-36.7	23	-10.3	-106.0	21.2	3.2	0.15 -27.9
	44271	47142235	2/2/80	13:32:55													
1428	44271	47147178	2/2/80	13:32:55	23	-28.0	62.2	42.0	6.8	0.16	-47.9	23	-20.7	-129.3	20.5	2.2	0.11 -22.0
	44271	52721282	2/2/80	14:38:44													
1429	44271	52726209	2/2/80	14:38:44	13	-9.4	39.0	34.1	4.1	0.12	-37.0	13	-19.3	-152.5	13.2	2.2	0.16 -12.1
	44271	58295398	2/2/80	16:11:40													
1430	44271	58300323	2/2/80	16:11:40	13	9.6	15.8	30.6	8.0	0.26	-34.6	13	-4.6	-175.7	15.9	1.3	0.08 -13.1
	44271	63869514	2/2/80	17:44:29													
1431	44271	63874439	2/2/80	17:44:34	7	20.5	-7.5	31.3	9.6	0.31	-42.5	7	-2.4	161.0	14.4	-0.1	-0.01 -9.4
	44271	69448544	2/2/80	19:17:28													
1432	44271	69453470	2/2/80	19:17:33	7	28.1	-30.7	35.1	4.0	0.11	-33.7	7	1.8	137.8	12.7	0.2	0.02 -14.3
	44271	75022659	2/2/80	20:50:22													
1433	44271	75027586	2/2/80	20:50:27	7	18.4	-54.0	30.3	6.8	0.22	-39.1	7	-16.6	114.6	18.6	-3.0	-0.16 -14.9
	44271	80596775	2/2/80	22:23:16													
1434	44271	80601701	2/2/80	22:23:16	7	4.9	-77.2	33.4	5.2	0.16	*****	7	-23.3	91.3	13.5	0.9	0.07 -39.6
	44271	86174827	2/2/80	23:56:14													
1435	44271	86179749	2/2/80	23:56:19	7	-27.7	-100.4	40.6	6.2	0.15	-50.5	7	-27.4	66.1	27.4	0.4	0.01 -24.8
	44272	5348938	3/80	1:29:8													
1436	44272	5353863	3/80	1:29:13	7	-28.5	-123.7	38.6	1.9	0.05	-40.9	7	-19.1	44.9	28.1	2.0	0.07 -28.6
	44272	10923054	3/80	3:28:3													
1437	44272	10927979	3/80	3:28:7	10	-36.8	-146.9	29.0	0.3	0.01	-26.0	10	8.8	21.6	23.3	1.1	0.05 -17.4
	44272	16502083	3/80	4:35:2													
1438	44272	16507010	3/80	4:35:7	10	-19.0	-170.1	26.0	3.0	0.12	-27.8	10	30.2	-1.6	20.6	0.4	0.02 -17.8
	44272	22076139	3/80	6:7:56													
1439	44272	22081125	3/80	6:8:1	10	12.7	160.6	22.0	2.8	0.13	-24.2	10	39.7	-24.8	21.9	-1.9	-0.09 -17.0
	44272	27650315	3/80	7:40:50													
1440	44272	27655243	3/80	7:40:55	10	3.0	143.4	25.4	2.4	0.10	-29.8	10	27.5	-48.1	21.1	-0.4	-0.02 -22.2
	44272	33224430	3/80	9:13:44													
1441	44272	33229356	3/80	9:13:49	7	-6.9	120.2	23.0	5.7	0.25	*****	7	8.1	-71.3	21.2	6.0	0.28 -27.6
	44272	38803400	3/80	10:46:43													
1442	44272	38808387	3/80	10:46:48	7	-21.0	96.9	22.1	3.9	0.18	-27.5	7	-1.3	-94.5	26.0	3.2	0.12 -30.6

PASS	MJD	TSEC	DATE	H	M	S	ASCENDING					DESCENDING									
							KE	D	ECL	E	I	L/Z	DELTA	B	KE	D	ECL	E	I	L/E	DELTA
1445	44272	55533927	22/03/80	15:25:33	15:25:33	15:25:33	7	21.8	4.0	29.5	2.7	0.09	-30.8	5	7.2	172.5	12.4	1.4	0.12	-12.9	
1446	44272	61108043	22/03/80	16:58:11	16:58:11	16:58:11	3	26.2	-19.2	32.8	4.6	0.14	-36.3	3	6.0	149.3	14.2	1.5	0.11	-15.8	
1447	44272	66672159	22/03/80	20:04:22	20:04:22	20:04:22	3	28.2	-42.5	27.4	3.0	0.11	-29.0	10	-5.3	126.1	14.7	-1.8	-0.12	-10.9	
1448	44272	72256203	22/03/80	22:05:44	22:05:44	22:05:44	10	6.4	-65.7	26.8	7.0	0.26	-36.8	10	-16.0	102.8	12.5	-2.9	-0.23	-9.3	
1449	44272	77830378	22/03/80	22:37:10	22:37:10	22:37:10	10	-3.3	-88.9	33.1	4.9	0.15	-39.2	7	-25.1	79.0	14.9	-0.9	-0.06	-10.9	
1450	44273	83404493	22/03/80	00:43:09	00:43:09	00:43:09	7	-12.3	-112.2	33.0	0.8	0.02	-0.5	7	-23.7	56.4	21.2	1.8	0.09	-24.3	
1451	44273	83409420	22/03/80	02:15:56	02:15:56	02:15:56	7	-17.8	-135.4	27.5	-2.2	-0.08	-29.1	10	0.3	33.1	15.0	-1.3	-0.08	*****	
1452	44273	83409420	22/03/80	03:48:50	03:48:50	03:48:50	10	-13.3	-158.6	20.5	-2.0	-0.10	-18.7	10	15.2	9.9	17.5	-4.3	-0.24	-7.0	
1453	44273	13710777	22/03/80	03:54:48	03:54:48	03:54:48	10	-0.9	178.2	21.1	2.0	0.10	-25.6	23	36.1	-13.3	12.2	-3.6	-0.79	-5.1	
1454	44273	19309813	22/03/80	05:21:49	05:21:49	05:21:49	23	4.3	154.9	60.1	5.3	0.09	-32.0	23	25.3	-36.6	14.2	-2.9	-0.20	-6.6	
1455	44273	24879003	22/03/80	06:27:33	06:27:33	06:27:33	23	0.5	131.7	26.5	3.5	0.13	-30.8	20	24.0	-59.8	10.1	-1.5	-0.15	-11.1	
1456	44273	30453118	22/03/80	08:00:27	08:00:27	08:00:27	20	-4.6	108.5	20.6	4.9	0.24	-27.5	20	10.9	-83.0	*****	*****	-23.7		
1457	44273	36032100	22/03/80	10:00:32	10:00:32	10:00:32	20	-16.1	85.2	24.4	6.2	0.25	-30.9	7	9.0	-106.3	16.7	1.3	0.08	-19.6	
1458	44273	41606267	22/03/80	11:33:26	11:33:26	11:33:26	7	-25.9	62.0	28.3	4.9	0.17	-36.5	7	-1.2	-129.5	14.2	-0.0	-0.00	-12.6	
1459	44273	47180302	22/03/80	13:06:25	13:06:25	13:06:25	3	-13.1	38.8	27.4	4.7	0.17	-30.0	3	-8.4	-152.7	5.9	1.1	0.19	-3.1	
1460	44273	52760403	22/03/80	14:39:20	14:39:20	14:39:20	3	8.0	15.5	26.2	5.9	0.23	-27.6	3	0.8	-175.9	11.2	1.9	0.16	-10.6	
1461	44273	58329594	22/03/80	16:12:14	16:12:14	16:12:14	3	29.5	-7.7	27.3	5.9	0.22	-34.9	3	6.0	160.8	11.9	-0.3	-0.03	-8.1	
1462	44273	63903709	22/03/80	17:45:57	17:45:57	17:45:57	3	32.4	-30.9	27.8	3.2	0.12	-26.8	3	7.5	137.6	8.1	-0.3	-0.03	-5.7	
1463	44273	69477824	22/03/80	19:18:46	19:18:46	19:18:46	3	23.4	-54.2	25.5	5.0	0.20	-33.3	3	-7.5	114.4	11.8	-4.4	-0.37	-5.7	
1464	44273	75049962	22/03/80	20:50:54	20:50:54	20:50:54	3	12.7	-77.4	26.2	0.9	0.03	-32.8	3	-17.8	91.1	8.0	-1.8	-0.23	-6.0	
1465	44273	80633004	22/03/80	22:23:43	22:23:43	22:23:43	0	-2.1	-100.6	30.5	2.5	0.08	-39.2	0	-15.2	67.9	19.7	-2.6	-0.13	-13.7	
1466	44274	86208045	22/03/80	01:56:48	01:56:48	01:56:48	0	-0.7	-123.8	26.3	-0.8	-0.03	-25.7	0	-8.9	44.7	17.7	-1.0	-0.06	-15.4	
1467	44274	9382161	22/03/80	02:29:42	02:29:42	02:29:42	0	-20.3	-147.1	21.3	-1.1	-0.05	-16.9	0	16.8	21.4	15.1	-1.1	-0.07	-8.2	
1468	44274	10951350	22/03/80	04:05:25	04:05:25	04:05:25	0	-12.3	-170.3	17.5	0.8	0.04	-16.5	0	29.8	-1.8	12.3	-1.5	-0.12	-7.2	
1469	44274	16533391	22/03/80	04:35:30	04:35:30	04:35:30	7	7.0	166.5	14.1	0.4	0.03	-14.7	7	31.3	-25.0	13.9	-3.3	-0.24	-7.0	
1470	44274	22045580	22/03/80	06:08:19	06:08:19	06:08:19	7	16.9	143.2	25.0	3.8	0.03	-29.8	7	26.8	-48.2	13.9	-1.8	-0.13	-13.6	
1471	44274	27678622	22/03/80	07:41:13	07:41:13	07:41:13	13	9.4	120.0	22.8	6.2	0.27	-29.9	13	22.1	-71.5	9.2	3.0	0.33	-11.9	
1472	44274	33252736	22/03/80	09:14:12	09:14:12	09:14:12	13	-17.7	96.8	18.7	3.2	0.17	-23.5	13	4.6	-94.7	17.0	1.2	0.07	-19.1	
1473	44274	38821927	22/03/80	10:47:06	10:47:06	10:47:06	10	-23.0	73.5	24.3	7.5	0.31	-31.7	10	-14.3	-117.9	16.5	-1.2	-0.07	-12.8	
1474	44274	44398953	22/03/80	12:19:58	12:19:58	12:19:58	10	-15.6	50.3	29.0	8.3	0.29	-40.9	10	-8.8	-141.2	12.8	1.1	0.08	-12.7	
1475	44274	49973106	22/03/80	13:52:53	13:52:53	13:52:53	10	-9.8	27.1	30.8	7.2	0.23	-35.4	10	-1.3	-164.4	13.1	0.3	0.02	-14.7	
1476	44274	55545256	22/03/80	15:25:50	15:25:50	15:25:50	10	20.1	3.9	31.8	8.3	0.26	-37.2	10	5.8	172.4	13.3	1.9	0.14	-14.3	
1477	44274	61125279	22/03/80	16:58:45	16:58:45	16:58:45	10	25.0	-19.4	32.2	6.9	0.21	-36.9	10	5.7	149.2	13.1	1.0	0.06	-13.8	
1478	44274	66694470	22/03/80	18:31:34	18:31:34	18:31:34	10	24.9	-42.6	27.3	7.4	0.27	-31.1	7	-4.1	125.9	14.4	-1.0	-0.11	-10.1	
1479	44274	72273510	22/03/80	20:03:22	20:03:22	20:03:22	7	11.2	-65.8	26.0	7.0	0.27	-38.3	7	-12.5	102.7	12.2	-4.5	-0.37	-8.2	
1480	44274	77847626	22/03/80	21:36:16	21:36:16	21:36:16	7	-0.8	-89.0	25.7	4.8	0.19	-35.9	0	-17.4	79.5	13.5	-4.1	-0.30	-9.2	
1481	44275	83421743	22/03/80	00:09:10	00:09:10	00:09:10	0	-16.7	-112.3	28.1	-0.9	-0.33	0.4	0	-12.4	56.3	18.8	-0.6	-0.03	-19.6	
1482	44275	83421743	22/03/80	01:50:46	01:50:46	01:50:46	0	-6.0	-135.5	25.6	0.3	0.01	-27.7	37	19.8	33.0	0.0	-8.9	-14.93	18.0	
1483	44275	8195046	22/03/80	03:23:09	03:23:09	03:23:09	37	0.1	-158.7	-0.4	-8.3	23.61	*****	37	45.9	9.8	5.5	-13.9	-2.55	13.7	
1484	44275	13739162	22/03/80	04:48:55	04:48:55	04:48:55															
	44275	13744087	22/03/80	04:49:4	04:49:4	04:49:4															
	44275	19313277	22/03/80	05:21:53	05:21:53	05:21:53															

1-38

ORIGINAL PAGE IS  
OF POOR QUALITY



PASS	MJD	MSEC	DATE	HR:MM:SC	ASCENDING					DESCENDING					I/E DELTA B			
					KE	D EQL	E <sub>L</sub>	E	I	I/E	DELTA B	KE	D EQL	E <sub>L</sub>		E	I	
1525	44277	6943057	2/8/80	19:17:10	17	1.1	-30.9	69.4	15.9	0.23	-73.5	17	-33.4	137.7	40.8	10.0	0.24	-52.4
1526	44277	75000157	2/8/80	20:50:00	30	-0.9	-54.1	54.3	15.7	0.29	-70.5	30	-32.5	114.5	38.3	2.6	0.07	*****
1527	44277	80571315	2/8/80	22:22:51	30	-27.3	-77.3	60.7	17.8	0.29	-84.3	30	-39.9	91.2	33.1	5.8	0.17	-36.8
1528	44277	86140511	2/8/80	22:55:40	17	-50.0	-100.5	57.1	13.5	0.24	-74.8	17	-38.4	68.0	43.4	5.9	0.14	-44.5
1529	44278	5314629	2/9/80	1:28:34	17	-51.3	-123.7	49.0	8.0	0.16	-56.9	17	-31.2	44.8	30.7	6.2	0.17	-40.4
1530	44278	5319554	2/9/80	1:28:39	17	-51.3	-123.7	49.0	8.0	0.16	-56.9	17	-31.2	44.8	30.7	6.2	0.17	-40.4
1530	44278	10883829	2/9/80	3:1:23	30	-57.3	-147.0	50.8	7.2	0.14	-52.8	30	2.5	21.6	27.8	4.5	0.16	-25.3
1531	44278	10888754	2/9/80	3:34:22	30	-39.5	-170.	40.3	3.6	0.09	-41.5	30	25.0	-1.6	29.3	0.1	0.00	-28.2
1532	44278	16457944	2/9/80	4:34:17	30	-39.5	-170.	40.3	3.6	0.09	-41.5	30	25.0	-1.6	29.3	0.1	0.00	-28.2
1532	44278	16462809	2/9/80	4:34:22	30	-39.5	-170.	40.3	3.6	0.09	-41.5	30	25.0	-1.6	29.3	0.1	0.00	-28.2
1532	44278	22027144	2/9/80	6:7:7	30	-21.6	166.6	45.7	9.7	0.21	-55.3	30	36.9	-24.8	34.6	-2.3	-0.07	-25.4
1532	44278	22032070	2/9/80	6:40:0	30	-26.6	143.4	50.9	10.1	0.20	-61.8	30	25.8	-48.1	31.9	1.5	0.05	-33.0
1533	44278	27600763	2/9/80	7:40:5	30	-26.6	143.4	50.9	10.1	0.20	-61.8	30	25.8	-48.1	31.9	1.5	0.05	-33.0
1533	44278	33165908	2/9/80	9:12:49	23	-36.7	120.2	47.9	15.1	0.32	*****	23	-14.0	-71.3	31.9	12.9	0.40	-44.4
1534	44278	33174893	2/9/80	9:12:54	23	-36.7	120.2	47.9	15.1	0.32	*****	23	-14.0	-71.3	31.9	12.9	0.40	-44.4
1535	44278	38744003	2/9/80	10:45:44	23	-51.1	96.9	42.4	6.2	0.15	*****	23	-30.1	-94.5	35.1	7.2	0.21	-43.2
1535	44278	38749008	2/9/80	10:45:49	23	-51.1	96.9	42.4	6.2	0.15	*****	23	-30.1	-94.5	35.1	7.2	0.21	-43.2
1536	44278	44314515	2/9/80	12:18:34	27	-45.5	73.7	47.8	11.6	0.24	-60.2	27	-37	-117.7	27.4	3.7	0.14	-29.9
1537	44278	44319437	2/9/80	12:18:39	27	-45.5	73.7	47.8	11.6	0.24	-60.2	27	-37	-117.7	27.4	3.7	0.14	-29.9
1537	44278	49888626	2/9/80	13:51:33	27	-44.6	50.5	58.4	15.3	0.26	-77.7	27	-	-140.9	22.8	0.8	0.03	-22.3
1537	44278	49893533	2/9/80	13:51:33	27	-44.6	50.5	58.4	15.3	0.26	-77.7	27	-	-140.9	22.8	0.8	0.03	-22.3
1538	44278	5545787	2/9/80	13:54:17	27	-43.1	27.3	59.5	18.8	0.32	-74.4	27	-29.6	-164.1	29.7	1.1	0.17	-36.1
1538	44278	55462752	2/9/80	13:54:22	27	-43.1	27.3	59.5	18.8	0.32	-74.4	27	-29.6	-164.1	29.7	1.1	0.17	-36.1
1539	44278	61031942	2/9/80	14:57:11	27	-15.7	4.1	59.1	18.4	0.31	-73.6	30	-18.0	172.0	30.1	0.6	0.22	-37.4
1539	44278	61036867	2/9/80	14:57:16	27	-15.7	4.1	59.1	18.4	0.31	-73.6	30	-18.0	172.0	30.1	0.6	0.22	-37.4
1540	44278	66601142	2/9/80	18:30:1	30	-8.5	-19.1	57.2	22.1	0.39	-71.3	30	-13.5	149.4	28.0	3.9	0.32	-38.0
1540	44278	66606007	2/9/80	18:30:6	30	-8.5	-19.1	57.2	22.1	0.39	-71.3	30	-13.5	149.4	28.0	3.9	0.32	-38.0
1541	44278	72170342	2/9/80	20:2:50	30	6.3	-42.4	51.0	12.5	0.24	-56.1	20	-18.8	126.2	28.7	3.0	0.10	-30.7
1542	44278	72175207	2/9/80	20:2:55	30	6.3	-42.4	51.0	12.5	0.24	-56.1	20	-18.8	126.2	28.7	3.0	0.10	-30.7
1542	44278	77749382	2/9/80	22:35:44	20	1.6	-65.6	43.1	14.0	0.32	-60.0	20	-21.5	103.0	24.8	-1.0	-0.06	-23.6
1542	44278	77749387	2/9/80	22:35:49	20	1.6	-65.6	43.1	14.0	0.32	-60.0	20	-21.5	103.0	24.8	-1.0	-0.06	-23.6
1543	44278	83313657	2/9/80	22:8:33	20	-32.6	-88.8	45.3	12.7	0.28	-63.9	10	-29.9	79.8	27.8	-0.3	-0.01	-25.1
1543	44279	83318502	2/10/80	0:8:38	20	-32.6	-88.8	45.3	12.7	0.28	-63.9	10	-29.9	79.8	27.8	-0.3	-0.01	-25.1
1544	44279	2483841	2/10/80	0:41:23	10	-46.0	-112.0	48.1	5.2	0.11	5.6	10	-31.3	56.6	32.9	3.9	0.12	-37.4
1544	44279	2488705	2/10/80	0:41:28	10	-46.0	-112.0	48.1	5.2	0.11	5.6	10	-31.3	56.6	32.9	3.9	0.12	-37.4
1545	44279	8057955	2/10/80	14:17	10	-47.5	-135.2	45.0	4.0	0.09	-50.6	17	-15.2	33.3	28.0	4.4	0.16	-27.1
1545	44279	8062003	2/10/80	14:22	10	-47.5	-135.2	45.0	4.0	0.09	-50.6	17	-15.2	33.3	28.0	4.4	0.16	-27.1
1546	44279	13627155	2/10/80	3:47:7	17	-38.7	-158.4	35.8	5.1	0.14	-39.1	17	2.8	10.1	35.6	2.3	0.07	-30.0
1546	44279	13632081	2/10/80	3:47:12	17	-38.7	-158.4	35.8	5.1	0.14	-39.1	17	2.8	10.1	35.6	2.3	0.07	-30.0
1547	44279	19201270	2/10/80	20:1	17	-28.1	178.4	41.0	8.3	0.20	23.8	13	27.5	-13.1	30.7	1.2	0.04	-34.7
1547	44279	19206196	2/10/80	20:6	17	-28.1	178.4	41.0	8.3	0.20	23.8	13	27.5	-13.1	30.7	1.2	0.04	-34.7
1548	44279	24770471	2/10/80	6:52:50	13	-3.6	155.1	36.7	5.6	0.15	-39.6	13	26.7	-36.3	29.2	0.9	0.03	-22.7
1548	44279	24775396	2/10/80	6:52:55	13	-3.6	155.1	36.7	5.6	0.15	-39.6	13	26.7	-36.3	29.2	0.9	0.03	-22.7
1549	44279	30339670	2/10/80	8:23:39	13	-7.9	131.9	36.1	4.2	0.12	-41.7	7	14.7	-59.5	24.0	4.1	0.17	-28.3
1549	44279	30344546	2/10/80	8:23:44	13	-7.9	131.9	36.1	4.2	0.12	-41.7	7	14.7	-59.5	24.0	4.1	0.17	-28.3
1550	44279	35913785	2/10/80	9:56:33	7	-21.0	108.7	28.9	4.9	0.17	-34.5	7	-16.0	-82.7	24.2	0.1	0.25	-29.5
1550	44279	35918711	2/10/80	9:56:38	7	-21.0	108.7	28.9	4.9	0.17	-34.5	7	-16.0	-82.7	24.2	0.1	0.25	-29.5
1551	44279	41487930	2/10/80	11:31:22	7	-24.5	85.5	31.4	5.3	0.17	-36.0	3	-21.9	-105.9	25.4	4.6	0.18	*****
1551	44279	41487935	2/10/80	11:31:27	7	-24.5	85.5	31.4	5.3	0.17	-36.0	3	-21.9	-105.9	25.4	4.6	0.18	*****
1552	44279	47052186	2/10/80	13:4:12	3	-18.0	62.3	36.1	6.8	0.19	-45.9	3	-23.5	-129.2	24.8	2.2	0.09	-24.7
1552	44279	47057110	2/10/80	13:4:17	3	-18.0	62.3	36.1	6.8	0.19	-45.9	3	-23.5	-129.2	24.8	2.2	0.09	-24.7
1553	44279	52626300	2/10/80	14:37:16	7	-11.2	39.1	33.9	7.6	0.22	-41.2	7	-20.7	-152.4	18.2	3.0	0.20	-17.6
1553	44279	52631226	2/10/80	14:37:11	7	-11.2	39.1	33.9	7.6	0.22	-41.2	7	-20.7	-152.4	18.2	3.0	0.20	-17.6
1554	44279	56195529	2/10/80	16:9:55	7	0.4	15.8	31.3	9.9	0.32	-39.4	7	-15.3	-175.6	*****	*****	-17.6	
1554	44279	56200426	2/10/80	16:10:0	7	0.4	15.8	31.3	9.9	0.32	-39.4	7	-15.3	-175.6	*****	*****	-17.6	
1555	44279	63596843	2/10/80	17:39:56	7	32.7	-7.4	37.9	2.6	0.07	-45.7	7	-14.1	161.2	19.2	1.9	0.10	-17.1
1555	44279	63726125	2/10/80	17:42:6	7	32.7	-7.4	37.9	2.6	0.07	-45.7	7	-14.1	161.2	19.2	1.9	0.10	-17.1
1556	44279	69339800	2/10/80	19:15:39	7	39.4	-30.6	39.7	5.1	0.13	-39.9	7	0.6	138.0	19.4	1.8	0.09	-23.5
1556	44279	69344724	2/10/80	19:15:44	7	39.4	-30.6	39.7	5.1	0.13	-39.9	7	0.6	138.0	19.4	1.8	0.09	-23.5
1557	44279	74908752	2/10/80	22:46:28	7	21.1	-53.8	31.6	7.7	0.24	-42.4	7	1.3	114.8	20.8	-3.2	-0.15	-17.4
1557	44279	74913679	2/10/80	22:46:33	7	21.1	-53.8	31.6										

PASS	NJD	MSEC	DATE	ASCENDING				DESCENDING				I/E DELTA B								
				MR	NN	SC	EQL	E	I	I/E	DELTA B	MR	NN	SC	EQL	E	I	I/E	DELTA B	
1565	44280	33077108	2/11/80	9	11	17	10	20.5	20.1	4.1	0.20	-27.5	10	14.1	-70.9	16.3	3.0	0.34	-20.6	
1566	44280	38641383	2/11/80	10	44	1														
	44280	38646309	2/11/80	10	44	6	-6.3	97.3	21.9	2.3	0.11	-27.7	10	1.6	-94.1	20.9	0.9	0.05	-22.7	
1567	44280	44215498	2/11/80	12	17	5														
	44280	44220423	2/11/80	10	17	0	-8.6	74.1	23.8	4.5	0.19	-29.5	10	-16.0	-117.3	19.1	1.7	0.09	-18.3	
	44280	49784658	2/11/80	13	49	44														
1568	44280	49789623	2/11/80	10	49	49														
	44280	55356118	2/11/80	10	22	36														
	44280	55361035	2/11/80	10	22	41														
1569	44280	60925309	2/11/80	16	55	25														
	44280	60930235	2/11/80	10	55	30														
	44280	66494510	2/11/80	18	28	14														
1570	44280	66494510	2/11/80	10	17.1	4.4	17.1	4.4	28.8	6.2	0.22	-33.7	10	3.9	173.0	16.2	0.6	0.03	-15.2	
	44280	66494535	2/11/80	16	28	19														
1571	44280	72063710	2/11/80	20	1	3														
	44280	72063710	2/11/80	10	20	1														
1572	44280	72068635	2/11/80	10	19.2	-42.0	19.2	-42.0	32.8	5.6	0.17	-34.4	3	3.3	126.6	14.7	-2.7	-0.18	-11.9	
	44280	77632910	2/11/80	21	33	52														
1573	44280	77637834	2/11/80	3	33	57														
	44280	83202110	2/11/80	23	6	42														
1574	44280	83207035	2/11/80	3	1.0	-88.4	3	1.0	-88.4	30.1	5.5	0.18	-45.3	7	-13.7	80.2	15.1	-3.4	-0.22	-10.0
	44281	2374259	2/12/80	0	39	37														
1575	44281	2379183	2/12/80	7	39	39														
	44281	7943458	2/12/80	2	12	23														
1576	44281	7948384	2/12/80	7	-30.9	-134.8	7	-30.9	-134.8	31.4	1.9	0.06	-33.9	0	-6.7	33.8	17.3	2.0	0.12	-16.0
	44281	13512658	2/12/80	3	45	12														
1577	44281	13517584	2/12/80	0	-24.2	-158.0	0	-24.2	-158.0	27.1	1.9	0.07	-30.2	0	3.0	10.5	23.3	-0.5	-0.02	-16.2
	44281	19081858	2/12/80	5	18	1														
1578	44281	19086783	2/12/80	0	-15.3	178.8	0	-15.3	178.8	29.2	3.3	0.11	-1.4	3	34.5	-12.7	21.1	-1.5	-0.07	-22.7
	44281	24655973	2/12/80	6	50	55														
1579	44281	24660898	2/12/80	3	-1.9	155.5	3	-1.9	155.5	25.9	3.3	0.13	-30.8	3	27.0	-35.9	19.8	-0.7	-0.04	-12.9
	44281	30225174	2/12/80	8	23	45														
1580	44281	30230099	2/12/80	3	-3.5	132.3	3	-3.5	132.3	26.3	1.6	0.06	-32.6	10	18.9	-59.1	16.4	1.2	0.08	-19.3
	44281	35794373	2/12/80	9	56	34														
1581	44281	35799298	2/12/80	10	-11.3	109.1	10	-11.3	109.1	18.5	2.4	0.13	-25.7	10	5.9	-82.3	19.3	1.8	0.09	-20.1
	44281	41364319	2/12/80	11	29	24														
1582	44281	41369236	2/12/80	10	-12.5	85.9	10	-12.5	85.9	16.9	4.6	0.27	-25.7	13	0.7	-105.5	19.3	0.7	0.19	-24.7
	44281	46931791	2/12/80	13	2	11														
1583	44281	46936715	2/12/80	13	-17.4	62.7	13	-17.4	62.7	30.5	7.3	0.24	-41.4	13	-15.2	-128.7	20.1	1.7	0.08	-19.8
	44281	52500990	2/12/80	14	3	2														
1584	44281	52505915	2/12/80	13	-7.4	39.5	13	-7.4	39.5	27.4	4.5	0.16	-33.7	3	-15.2	-151.9	12.7	2.5	0.20	-11.9
	44281	54920915	2/12/80	16	4	26														
1585	44281	54929293	2/12/80	3	12.1	16.3	3	12.1	16.3	26.2	6.7	0.26	-29.5	3	-4.1	-175.1	14.1	0.5	0.25	-30.7
	44281	63642998	2/12/80	16	40	42														
1586	44281	63647019	2/12/80	3	27.7	-6.9	3	27.7	-6.9	28.2	5.8	0.21	-38.0	3	3.1	161.7	15.0	0.3	0.02	-12.1
	44281	69211293	2/12/80	19	13	31														
1587	44281	69216219	2/12/80	3	29.8	-30.1	3	29.8	-30.1	30.4	6.2	0.20	-32.4	3	5.3	138.5	13.6	-0.0	-0.00	-16.1
	44281	74780493	2/12/80	20	46	20														
1588	44281	74785419	2/12/80	10	21.3	-53.3	10	21.3	-53.3	25.6	7.1	0.28	-38.7	10	1.8	115.2	13.9	-3.9	-0.28	-10.9
	44281	80349654	2/12/80	22	19	9														
1589	44281	80354618	2/12/80	10	11.7	-76.5	10	11.7	-76.5	29.1	3.3	0.11	-41.9	10	-8.0	92.0	0.6	0.1	0.01	-10.2
	44281	85918493	2/12/80	22	51	58														
1590	44281	85923818	2/12/80	3	-9.2	-99.7	3	-9.2	-99.7	29.0	5.6	0.19	-41.5	3	-11.0	68.8	18.1	-3.5	-0.19	-11.0
	44282	5088092	2/13/80	23	52	3														
1591	44282	50930117	2/13/80	3	-17.7	-123.0	3	-17.7	-123.0	24.4	1.5	0.06	-29.1	3	-7.1	45.6	16.1	0.1	0.00	-15.5
	44282	10657233	2/13/80	2	57	37														
1592	44282	10662218	2/13/80	0	-26.7	-146.2	0	-26.7	-146.2	24.8	0.3	0.01	-24.6	0	10.9	22.4	15.3	-0.3	-0.02	-9.2
	44282	16226473	2/13/80	4	30	26														
1593	44282	16231417	2/13/80	0	-19.1	-169.4	0	-19.1	-169.4	25.5	1.6	0.06	-27.7	0	16.2	-0.8	15.7	-1.7	-0.11	-12.1
	44282	21795692	2/13/80	6	3	15														
1594	44282	21800618	2/13/80	0	-11.7	167.4	0	-11.7	167.4	21.7	2.2	0.10	-27.1	0	24.7	-24.0	19.1	-3.8	-0.20	-12.1
	44282	27364892	2/13/80	7	36	4														
1595	44282	27369818	2/13/80	0	-4.1	144.2	0	-4.1	144.2	21.8	0.3	0.01	-28.3	0	27.4	-47.2	16.2	-2.5	-0.14	-15.6
	44282	32934092	2/13/80	9	8	54														
1596	44282	32939017	2/13/80	7	10.3	121.0	7	10.3	121.0	13.1	1.5	0.12	-18.8	7	16.9	-70.4	9.6	0.6	0.40	-13.9
	44282	38503291	2/13/80	10	41	43														
1597	44282	38508217	2/13/80	7	4.3	97.8	7	4.3	97.8	13.3	-2.9	-0.22	-14.5	7	12.8	-93.6	13.2	-1.3	-0.10	-13.9
	44282	44077491	2/13/80	12	14	32														
1598	44282	44077417	2/13/80	7	1.6	74.6	7	1.6	74.6	16.3	2.2	0.13	-17.9	7	0.3	-116.8	9.0	-1.5	-0.17*****	
	44282	49641651	2/13/80	13	47	21														
1599	44282	49646617	2/13/80	7	2.3	51.4	7	2.3	51.4	14.7	3.3	0.22	-23.1	7	-0.9	-140.0	4.9	-2.8	-0.56	-1.4
	44282	552																		

PASS	JD	NS	DATE	ASCENDING	DELTA	E	I	L/R	DELTA B	DESCENDING	E	I	L/E	DELTA B
1605	44282	830028J0	2/13/80	10	12.1	-87.9	12.0	4.6	0.38	13	-24.1	80.7	6.3	-5.0
1606	44283	2225354	2/14/80	13	-22.3	-111.1	23.2	1.8	0.08	13	-6.7	57.5	10.3	-1.7
1607	44283	7794553	2/14/80	13	-22.6	-134.3	27.0	0.9	0.03	33	20.8	34.3	-3.4	0.4
1608	44283	13366712	2/14/80	33	-8.7	-157.5	11.1	-7.2	-0.65	33	30.2	11.1	10.4	-8.1
1609	44283	18930987	2/14/80	33	-5.7	179.3	21.6	-2.4	-0.11	30	34.1	-12.1	6.7	-7.0
1610	44283	24500186	2/14/80	30	8.4	156.1	22.2	-0.8	-0.04	30	40.8	-35.3	8.0	-2.5
1611	44283	30074312	2/14/80	30	6.8	132.9	20.0	-0.1	-0.00	47	41.9	-58.5	5.7	-0.7
1612	44283	35638587	2/14/80	47	-58.4	109.7	56.6	20.4	0.30	47	-1.2	-81.7	14.9	10.0
1613	44283	41207787	2/14/80	47	-70.5	86.5	64.0	25.4	0.40	33	-28.4	-104.9	40.4	17.0
1614	44283	46781912	2/14/80	33	-61.0	63.3	65.0	23.1	0.35	33	-42.0	-128.1	33.7	9.0
1615	44283	52341271	2/14/80	33	-37.3	40.1	57.2	20.2	0.35	40	-36.3	-151.3	29.9	4.9
1616	44283	57910470	2/14/80	40	-53.8	16.9	*****	*****	*****	40	-24.6	-174.5	36.6	9.9
1617	44283	63482629	2/14/80	27	-23.2	-0.3	62.9	29.3	0.47	27	-15.9	162.3	35.7	3.3
1618	44283	69051829	2/14/80	27	-14.6	-29.5	67.7	21.1	0.31	27	-18.4	139.1	34.9	6.8
1619	44283	74621610	2/14/80	17	-15.7	-52.7	48.6	13.8	0.28	17	-22.5	115.9	33.5	1.7
1620	44283	80190230	2/14/80	17	-20.4	-75.9	43.9	8.7	0.20	17	-31.5	92.7	27.2	4.0
1621	44283	85754504	2/14/80	23	-42.1	-99.1	42.3	9.0	0.21	23	-33.5	69.5	40.1	2.0
1622	44284	10489954	2/15/80	23	-49.1	-122.3	39.5	9.4	0.24	23	-22.8	46.3	32.6	3.4
1623	44284	10494879	2/15/80	27	-47.0	-145.5	46.9	9.6	0.20	27	-2.0	23.1	32.3	5.8
1624	44284	16057192	2/15/80	27	-44.0	-168.7	45.8	10.7	0.23	27	5.7	-0.1	35.8	7.0
1625	44284	21626388	2/15/80	20	-30.7	168.1	46.2	11.1	0.24	20	-8.2	-23.3	44.0	3.0
1626	44284	27190673	2/15/80	20	-27.8	144.9	50.5	10.9	0.22	20	-9.6	-46.5	39.3	5.3
1627	44284	32764798	2/15/80	20	-26.0	121.7	43.8	10.3	0.23	20	-16.9	-69.8	30.2	11.5
1628	44284	38333977	2/15/80	20	-35.6	98.5	37.0	4.5	0.12	20	-30.6	-93.0	29.5	4.9
1629	44284	43898272	2/15/80	27	-25.6	75.3	32.0	8.0	0.25	27	-20.5	-116.2	10.2	-1.2
1630	44284	49462556	2/15/80	27	0.8	52.1	11.0	-1.6	-0.15	27	-11.7	-139.4	7.6	-3.7
1631	44284	55031756	2/15/80	30	2.6	28.9	12.5	5.2	0.41	30	-14.5	-162.6	10.4	0.1
1632	44284	60600956	2/15/80	30	18.3	5.7	14.4	5.7	0.39	30	-1.3	174.2	9.1	-2.0
1633	44284	66165241	2/15/80	57	25.9	-17.5	14.5	2.4	0.16	57	4.1	151.0	10.1	-2.4
1634	44284	7173444J	2/15/80	57	-7.4	-40.7	70.0	20.5	0.29	70	-2.6	127.8	-0.6	-0.1
1635	44284	77303640	2/15/80	70	-03.5	-63.9	102.7	35.0	0.34	70	-55.0	104.6	41.6	30.7
1636	44284	82807925	2/15/80	70	-128.3	-87.1	109.1	35.4	0.32	60	-65.6	81.4	46.7	27.1
1637	44284	2038848	2/16/80	60	-111.5	-110.3	64.3	17.8	0.28	60	-79.0	58.2	79.5	27.7
1638	44284	2042173	2/16/80	00	-120.1	-133.5	117.0	39.6	0.34	57	-50.0	35.0	57.8	17.3
1639	44284	13170732	2/16/80	57	-42.7	-156.7	132.4	48.1	0.36	57	-45.3	11.8	64.2	27.5
1640	44284	18733932	2/16/80	57	-140.6	-179.9	148.6	45.3	0.30	57	-61.7	-11.4	85.9	31.2
1641	44284	24304217	2/16/80	57	-146.4	156.9	146.1	39.9	0.27	57	-80.1	-34.6	89.4	7.1
1642	44284	29873540	2/16/80	57	-149.1	133.7	150.0	35.1	0.23	43	-66.1	-57.8	76.8	21.6
1643	44284	35447543	2/16/80	43	-126.5	110.5	115.7	23.4	0.20	43	-54.6	-81.0	76.2	24.2
1644	44284	41014407	2/16/80	43	-130.7	87.3	117.0	26.1	0.22	43	-66.2	-104.1	56.2	20.0

ORIGINAL PAGE IS OF POOR QUALITY

PASS	MJD	TIME	DATE	HR	MIN	SEC	ASCENDING	ECL	E	I	I/R	DELTA	B	DESCENDING	ECL	F	I	I/E	DELTA	H
1645	442885	05:14:39	2/16/80	12:50:19	43	-122.1	64.9	112.8	33.1	0.29	-139.2	30	-77.0	-150.5	62.9	17.3	0.27	-77.5		
1646	442886	05:14:48	2/16/80	14:29:3	43	-111.6	40.9	100.9	32.7	0.32	-127.4	30	-77.0	-150.5	62.9	17.3	0.27	-77.5		
1647	442887	05:14:59	2/16/80	16:1:14	30	-67.8	17.7	96.2	28.6	0.33	-104.8	30	-55.6	-173.7	65.5	15.0	0.23	-103.8		
1648	442888	05:15:13	2/16/80	17:34:37	30	-54.0	-5.5	88.0	31.9	0.36	-115.3	30	-51.4	163.1	65.6	16.2	0.25	-80.4		
1649	442889	05:15:27	2/16/80	19:7:21	30	-35.3	-28.7	97.4	27.6	0.28	-104.0	30	-26.6	139.9	45.8	5.7	0.12	-50.4		
1650	442890	05:15:41	2/16/80	20:40:9	23	-41.8	-51.9	81.4	16.4	0.20	-95.1	23	-40.5	116.7	58.2	8.3	0.14	-62.5		
1651	442891	05:15:55	2/16/80	22:12:54	23	-54.8	-75.1	*****	*****	*****	-86.4	23	-52.5	93.5	49.2	13.0	0.20	-34.0		
1652	442892	05:16:09	2/16/80	23:45:42	20	-98.1	-98.3	69.1	13.5	0.20	-85.3	20	-60.2	70.3	59.8	13.4	0.17	-61.9		
1653	442893	05:16:23	2/17/80	1:18:31	20	-103.6	-121.5	65.3	11.9	0.18	-78.8	20	-56.9	47.1	53.4	14.1	0.26	-68.9		
1654	442894	05:16:37	2/17/80	3:18:36	17	-82.8	-144.7	63.4	9.5	0.15	-69.1	17	-36.9	23.9	44.7	14.4	0.32	-50.6		
1655	442895	05:16:51	2/17/80	5:11:14	17	-70.1	-167.9	62.0	10.0	0.16	-73.6	17	-33.7	0.7	41.7	11.2	0.27	-47.3		
1656	442896	05:17:05	2/17/80	7:24:4	17	-49.3	168.5	50.8	10.3	0.23	-64.8	17	-33.8	-22.5	45.2	3.0	0.07	-40.2		
1657	442897	05:17:19	2/17/80	9:29:37	17	-41.2	145.7	49.4	8.1	0.16	-64.3	17	-25.8	-45.7	45.3	4.8	0.11	-47.7		
1658	442898	05:17:33	2/17/80	11:32:2	7	-29.7	122.5	44.4	10.3	0.23	-58.4	7	-14.7	-68.9	37.9	10.0	0.26	-47.5		
1659	442899	05:17:47	2/17/80	13:35:26	7	-30.1	93.3	39.1	4.7	0.12	-47.1	7	-16.4	-92.1	38.2	4.7	0.12	-42.9		
1660	442900	05:18:01	2/17/80	15:37:52	20	-34.4	76.1	39.5	11.0	0.28	-48.6	20	-28.2	-115.3	34.2	7.9	0.23	-35.7		
1661	442901	05:18:15	2/17/80	17:40:41	20	-44.9	52.9	47.5	13.7	0.29	-65.1	20	-36.0	-138.5	36.7	8.4	0.23	*****		
1662	442902	05:18:29	2/17/80	19:43:25	13	-34.3	29.7	44.0	11.8	0.27	-53.2	13	-38.1	-161.7	35.8	7.0	0.20	-41.0		
1663	442903	05:18:43	2/17/80	21:46:15	13	-43.2	6.5	42.7	13.7	0.32	-53.2	13	-33.6	175.1	34.4	7.3	0.21	-39.7		
1664	442904	05:18:57	2/17/80	23:48:59	13	-4.8	-16.7	48.2	12.5	0.26	-57.5	13	-27.4	151.9	40.3	6.4	0.21	-45.9		
1665	442905	05:19:11	2/17/80	1:51:43	13	3.9	-39.9	52.2	10.0	0.19	*****	13	-21.3	128.7	33.8	4.3	0.13	-36.5		
1666	442906	05:19:25	2/17/80	3:54:32	13	-1.3	-63.0	45.6	12.1	0.26	-60.9	13	-26.4	195.5	30.0	3.8	0.03	-26.0		
1667	442907	05:19:39	2/17/80	5:57:17	13	-33.6	-86.2	46.9	13.9	0.30	-64.1	30	-38.4	82.3	32.8	5.9	0.18	-31.9		
1668	442908	05:19:53	2/18/80	7:59:22	30	-64.2	-109.4	68.8	19.2	0.28	-88.0	30	-41.2	59.2	44.6	11.0	0.25	-68.2		
1669	442909	05:20:07	2/18/80	9:59:9	30	-74.5	-132.6	66.4	12.4	0.19	-78.8	17	-30.6	36.0	41.2	10.8	0.26	-47.6		
1670	442910	05:20:21	2/18/80	11:59:30	17	-68.6	-155.8	50.4	9.7	0.19	-57.5	17	-27.0	12.8	41.7	7.8	0.19	-40.7		
1671	442911	05:20:35	2/18/80	13:59:23	17	-51.1	-179.0	54.1	6.3	0.12	-61.0	27	-18.6	-10.4	38.5	6.2	0.16	-45.9		
1672	442912	05:20:49	2/18/80	15:59:17	27	-46.2	157.8	55.2	3.8	0.18	-63.2	27	-19.6	-33.6	39.1	0.7	0.02	-31.4		
1673	442913	05:21:03	2/18/80	17:59:51	27	-48.4	134.6	68.7	16.7	0.24	-85.2	20	-12.4	-56.8	42.2	3.1	0.07	-46.4		
1674	442914	05:21:17	2/18/80	19:59:56	20	-60.4	111.4	67.8	17.9	0.26	-84.0	20	-12.1	-80.0	39.6	15.8	0.40	-54.2		
1675	442915	05:21:31	2/18/80	21:59:40	20	-67.6	88.2	61.8	15.7	0.25	-76.8	20	-39.7	-103.2	44.3	11.2	0.25	-57.6		
1676	442916	05:21:45	2/18/80	23:59:30	20	-62.4	65.0	70.0	18.8	0.27	-85.4	20	-46.2	-126.4	40.2	9.3	0.23	-46.5		
1677	442917	05:22:00	2/18/80	1:59:9	20	-50.3	41.8	55.8	14.6	0.26	-71.1	20	-42.2	-149.6	34.0	9.5	0.28	-39.7		
1678	442918	05:22:14	2/18/80	3:59:58	20	-21.3	18.6	51.4	13.2	0.26	-57.7	20	-32.1	-172.8	35.5	5.9	0.17	-56.8		
1679	442919	05:22:28	2/18/80	5:59:42	20	-15.2	-4.6	53.0	19.9	0.38	-73.9	27	-23.5	164.0	31.4	1.7	0.05	-32.1		
1680	442920	05:22:42	2/18/80	7:59:32	27	-18.1	-27.7	72.7	22.4	0.31	-82.8	27	-25.3	140.8	34.7	11.6	0.33	-49.3		
1681	442921	05:22:56	2/18/80	9:59:16	27	-21.2	-50.9	67.4	19.8	0.29	-84.7	30	-26.7	117.6	40.0	7.5	0.19	-47.3		
1682	442922	05:23:10	2/18/80	11:59:55	30	-39.6	-74.1	62.0	14.5	0.23	-81.1	30	-41.4	94.5	36.2	8.2	0.23	-40.6		
1683	442923	05:23:24	2/18/80	13:59:49	33	-67.8	-97.3	67.5	14.6	0.22	-82.2	33	-38.5	71.3	39.0	4.3	0.11	-38.7		
1684	442924	05:23:38	2/19/80	15:59:34	33	-72.6	-120.5	59.5	12.0	0.20	-82.2	33	-43.2	48.1	47.9	7.2	0.15	-54.3		

ORIGINAL PAGE IS  
OF POOR QUALITY



PASS	MJD	MSEC	DATE	L.R.	MN	SC	ASCENDING					DESCENDING					I/E DELTA B		
							KE	D	EOL	EVL	E	i	i/E	DELTA B	KP	D			FCL
1685	44288	10024046	2/19/80	4	47	43	-74.9	-143.7	64.7	10.6	0.16	-71.6	43	-31.1	24.9	39.1	3.9	0.10	-38.3
1686	44288	15583035	2/19/80	4	19	43	-66.0	-166.9	68.1	19.8	0.29	-83.8	43	-9.2	1.7	36.4	11.4	0.31	-44.1
1687	44288	21147030	2/19/80	5	52	27	-36.2	169.9	52.9	8.1	0.15	-60.0	27	-19.4	-21.5	45.7	5.7	0.12	-43.8
1688	44288	26716889	2/19/80	7	25	27	-35.6	146.7	53.1	10.5	0.20	-66.1	27	-19.7	-44.7	41.5	4.6	0.11	-43.3
1689	44288	32286099	2/19/80	6	58	7	-26.5	123.5	45.4	11.0	0.24	-57.9	7	-12.6	-67.9	34.3	9.9	0.29	-45.1
1690	44288	37845458	2/19/80	10	30	50	-26.6	100.3	39.9	7.8	0.20	-52.5	7	-13.9	-91.1	39.5	8.2	0.21	-46.9
1691	44288	43409743	2/19/80	12	3	29	-39.9	77.2	42.1	12.0	0.29	-51.8	10	-34.5	-114.3	31.3	5.6	0.18	-35.6
1692	44288	48974027	2/19/80	13	36	18	-39.5	54.0	46.4	10.7	0.23	-58.5	10	-36.0	-137.4	32.9	5.8	0.16	-36.5
1693	44288	54538312	2/19/80	15	8	58	-15.5	30.8	40.0	9.6	0.24	-45.9	3	-28.7	-160.6	27.0	3.7	0.14	-28.8
1694	44288	60107511	2/19/80	16	41	47	5.5	7.6	37.1	8.5	0.23	-44.6	3	-25.5	176.2	27.8	5.0	0.16	-31.6
1695	44288	65667282	2/19/80	17	14	32	19.1	-15.6	39.0	7.8	0.20	-44.4	3	-15.6	153.0	26.6	2.6	0.10	-26.3
1696	44288	71237063	2/19/80	21	47	21	21.0	-38.8	39.9	6.2	0.16	-37.5	3	-9.5	129.8	24.7	1.1	0.04	-26.2
1697	44288	76801349	2/19/80	22	20	1	9.7	-62.0	37.7	6.6	0.17	-45.6	10	-9.0	113.2	-1.0	14.7	14.03	-45.8
1698	44288	82363667	2/19/80	22	52	43	-20.5	-85.2	41.6	8.4	0.20	-52.3	20	-25.9	83.4	27.1	3.9	0.03	-48.5
1699	44289	15318088	2/20/80	0	22	31	-43.1	-108.4	53.0	10.3	0.19	-61.7	20	-30.6	60.2	36.4	2.9	0.08	-39.7
1700	44289	7092989	2/20/80	1	58	12	-45.0	-131.5	47.0	6.2	0.13	-53.1	16	-15.6	37.0	36.4	5.1	0.14	-38.0
1701	44289	12657258	2/20/80	10	30	57	-39.6	-154.7	33.0	5.3	0.16	-53.1	10	-6.0	13.9	34.7	1.8	0.05	-27.2
1702	44289	16223538	2/20/80	10	31	43	-16.0	-177.9	33.2	3.4	0.10	-37.5	17	0.8	-9.3	25.3	0.5	0.02	-36.8
1703	44289	23784333	2/20/80	17	36	26	-4.8	158.9	34.9	5.9	0.17	-40.1	17	-2.8	-32.5	25.1	-0.5	-0.02	-16.6
1704	44289	26351093	2/20/80	8	9	11	2.5	135.7	30.8	4.0	0.13	-37.1	20	10.2	-95.7	20.9	-1.7	-0.08	-22.5
1705	44289	34915378	2/20/80	9	41	55	-3.8	112.5	27.9	6.9	0.25	-36.8	20	13.7	-78.9	15.4	4.6	0.30	-18.4
1706	44289	40479633	2/20/80	11	14	39	-11.4	89.3	****	****	****	-36.8	13	-6.2	-102.1	23.7	4.2	0.18	-30.8
1707	44289	46045910	2/20/80	12	47	25	-16.5	66.1	34.4	6.4	0.19	-40.9	13	-17.4	-125.3	18.3	0.5	0.03	-17.8
1708	44289	51610137	2/20/80	14	20	10	-9.2	43.0	30.2	6.9	0.23	-38.4	20	-16.6	-148.5	14.1	0.9	0.07	-10.9
1709	44289	57179407	2/20/80	15	52	59	4.9	19.8	35.0	9.1	0.26	-36.5	20	-4.4	-171.6	21.5	2.6	0.12	-37.4
1710	44289	62738767	2/20/80	17	25	38	14.9	-3.4	26.6	4.0	0.15	-34.9	10	-1.4	165.2	17.3	2.3	0.13	-17.6
1711	44289	68351329	2/20/80	18	58	21	21.9	-26.6	33.8	6.2	0.13	-32.6	10	-3.0	142.0	22.8	2.2	0.09	-26.2
1712	44289	73874472	2/20/80	20	31	9	16.3	-49.8	28.6	9.0	0.32	-39.4	13	-7.0	118.8	23.0	-1.6	-0.07	-21.7
1713	44289	7943483	2/20/80	22	3	49	-3.3	-73.0	33.8	4.9	0.15	-45.9	13	-18.0	95.6	16.0	-0.8	-0.05	-12.1
1714	44289	84994134	2/20/80	23	36	34	-19.0	-96.2	44.7	6.3	0.14	-53.6	17	-21.1	72.4	29.3	-0.5	-0.02	-25.2
1715	44290	4165333	2/21/80	1	9	23	-30.1	-119.3	44.8	6.1	0.14	-48.9	17	-15.6	49.2	28.0	2.0	0.07	-31.0
1716	44290	9722752	2/21/80	2	42	7	-36.2	-142.5	43.1	3.6	0.08	-41.6	7	-6.2	26.1	19.7	2.7	0.14	-17.9
1717	44290	15287037	2/21/80	4	14	47	-23.4	-165.7	30.5	3.4	0.11	-32.8	7	12.7	2.9	20.7	-0.2	-0.01	-17.6
1718	44290	20851321	2/21/80	5	47	31	-4.5	171.1	27.9	2.0	0.07	-28.9	10	15.7	-20.3	26.5	-2.3	-0.09	-21.0
1719	44290	26415636	2/21/80	7	20	25	3.5	147.9	30.9	3.0	0.10	-38.8	10	7.0	-43.5	21.2	-0.6	-0.04	-18.9
1720	44290	31978609	2/21/80	8	52	58	9.6	124.7	23.7	3.4	0.14	-30.0	10	20.1	-66.7	14.4	4.4	0.31	-20.8
1721	44290	37542846	2/21/80	10	25	42	12.5	101.5	15.4	-1.1	-0.07	-16.5	10	25.2	-89.9	15.0	1.2	0.08	-16.9
1722	44290	43112136	2/21/80	11	58	42	-6.3	78.4	17.6	2.7	0.15	-20.0	10	6.1	-113.1	11.6	-0.5	-0.04	*****
1723	44290	48671515	2/21/80	13	31	11	-3.7	55.2	23.8	1.9	0.08	-25.8	10	-2.2	-136.2	16.6	0.2	0.01	-21.8
1724	44290	54240724	2/21/80	15	4	0	5.8	32.0	20.4	1.3	0.07	-19.2	10	-2.5	-159.4	7.8	-2.1	-0.27	-4.0

ORIGINAL PAGE IS  
OF POOR QUALITY

PASS	MJD	MSEC	DATE	HR:	MM:	SC:	ASCENDING						DESCENDING							
							KE	D	EQL	EQL	E	I	I/E	DELTA B	KE	D	EQL	EQL	E	I
1725	44290	59805008	22/21/80	16:36	39	45	10	28.0	8.8	19.5	0.7	0.04	-18.2	10	2.5	177.4	9.5	-1.3	-0.14	-8.2
1726	44290	65364368	22/21/80	16:36	39	24	10	32.7	-14.4	24.3	2.3	0.10	-22.7	10	9.4	154.2	13.0	-4.1	-0.31	*****
1727	44290	70923737	22/21/80	16:42	42	29	10	35.0	-37.6	27.0	-1.8	-0.07	-20.3	10	9.9	131.0	11.6	-4.4	-0.38	-8.4
1728	44290	76488021	22/21/80	16:42	42	33	17	25.7	-60.7	24.8	5.5	0.22	-33.4	17	13.3	107.8	5.8	-8.2	-1.40	4.7
1729	44290	82052306	22/21/80	16:42	42	32	17	5.0	-83.9	24.4	0.9	0.04	-28.9	17	5.3	84.7	7.5	-5.3	-0.70	-0.2
1730	44291	820517230	22/22/80	16:42	42	35	10	-10.0	-107.1	25.7	0.9	0.04	-29.2	10	-2.9	61.5	13.7	-7.0	-0.51	-7.9
1731	44291	12155853	22/22/80	16:42	42	37	10	-10.1	-130.3	15.8	-5.7	-0.36	-12.5	10	11.8	38.3	10.6	-5.9	-0.56	-3.5
1732	44291	12344422	22/22/80	16:42	42	38	10	-13.7	-153.5	12.7	-6.6	-0.52	-6.5	10	18.2	15.1	13.9	-5.8	-0.41	-0.1
1733	44291	17918706	22/22/80	16:44	44	28	10	5.3	-176.7	16.7	-1.4	-0.08	-19.3	3	28.7	-8.1	10.1	-5.9	-0.59	-5.5
1734	44291	23473000	22/22/80	16:44	44	13	3	8.9	160.2	17.3	-0.0	-0.00	-16.8	3	23.8	-31.3	8.9	-2.5	-0.28	-4.1
1735	44291	29032359	22/22/80	16:44	44	52	3	18.4	137.0	19.1	-0.2	-0.01	-25.2	13	26.8	-54.4	9.2	-2.9	-0.32	-10.5
1736	44291	34596644	22/22/80	16:44	44	36	13	19.7	113.8	7.3	0.3	0.04	-13.5	13	26.2	-77.6	5.6	4.0	0.71	-8.6
1737	44291	40160928	22/22/80	16:44	44	20	13	5.6	90.6	14.0	-1.9	-0.13	-17.7	7	14.4	-100.8	14.2	1.2	0.08	-18.7
1738	44291	45730137	22/22/80	16:44	44	5	7	-5.1	67.4	21.2	1.1	0.05	-27.3	7	5.5	-124.0	10.3	-1.1	-0.11	-8.7
1739	44291	51284583	22/22/80	16:44	44	44	7	-2.0	44.2	19.4	1.6	0.08	-23.6	17	-5.4	-147.2	9.9	0.5	0.05	-7.7
1740	44291	568846905	22/22/80	16:44	44	26	17	16.5	21.1	22.3	4.5	0.20	-20.0	17	0.6	-170.4	9.6	-0.7	-0.08	-8.8
1741	44291	62411184	22/22/80	16:44	44	11	17	29.0	-2.1	22.8	1.8	0.08	-22.4	7	11.9	166.5	7.1	-1.1	-0.16	-6.5
1742	44291	67900394	22/22/80	16:44	44	0	7	37.0	-25.3	21.2	-0.1	-0.01	-18.1	7	16.5	143.3	5.7	-3.9	-0.69	-3.9
1743	44291	73539754	22/22/80	16:44	44	39	7	35.0	-48.5	15.5	5.0	0.32	-20.2	17	17.1	120.1	6.6	-3.1	-1.37	-0.4
1744	44291	79104047	22/22/80	16:44	44	19	17	25.9	-71.7	13.6	0.3	0.02	-20.6	17	13.9	96.9	-4.1	-11.1	2.70	13.9
1745	44291	84663307	22/22/80	16:44	44	3	17	16.8	-94.8	13.9	-3.1	-0.23	-16.9	10	13.2	73.7	4.1	-10.2	-3.98	12.0
1746	44291	88245022	22/23/80	16:44	44	49	10	10.1	-118.0	11.4	-5.8	-0.51	-16.9	10	4.4	50.6	9.3	-5.2	-0.56	-5.0
1747	44291	93397777	22/23/80	16:44	44	29	10	-4.7	-141.2	21.8	-5.2	-0.24	-17.8	3	15.8	27.4	3.7	-3.0	-1.00	*****
1748	44292	14954649	22/23/80	16:44	44	18	3	-0.7	-164.4	14.6	-0.9	-0.06	-14.2	3	30.4	4.2	12.8	-2.8	-0.22	-11.3
1749	44292	20513418	22/23/80	16:44	44	53	13	12.2	172.4	18.5	1.2	0.07	-21.7	13	36.2	-19.0	19.1	-4.2	-0.22	-14.8
1750	44292	26082627	22/23/80	16:44	44	37	13	20.5	149.3	22.3	1.0	0.05	-28.5	13	36.0	-42.2	8.3	-1.8	-0.21	-6.1
1751	44292	31641987	22/23/80	16:44	44	21	20	15.5	126.1	15.6	0.9	0.06	-21.0	20	29.2	-65.3	3.0	5.4	0.68	-17.4
1752	44292	37202343	22/23/80	16:44	44	2	10	-4.5	102.9	27.3	8.4	0.31	-38.0	20	7.1	-88.5	17.1	7.6	0.44	-25.1
1753	44292	42766624	22/23/80	16:44	44	46	11	-19.1	79.7	21.0	7.8	0.37	-28.6	27	-15.7	-111.7	22.8	5.3	0.25	-28.2
1754	44292	48325952	22/23/80	16:44	44	25	13	-20.0	56.5	35.7	7.1	0.20	-47.6	27	-14.6	-134.9	19.2	-1.4	-0.07	-17.5
1755	44292	53890527	22/23/80	16:44	44	10	14	-15.6	33.4	25.2	8.4	0.33	-47.6	33	-19.8	-158.1	17.2	-3.2	-0.19	-13.3
1756	44292	59454567	22/23/80	16:44	44	54	16	-19.7	10.2	45.8	16.5	0.36	-60.6	33	-23.0	178.8	28.2	4.3	0.15	-31.9
1757	44292	65013930	22/23/80	16:44	44	33	18	1.7	-13.0	49.9	18.3	0.37	-67.7	33	-23.5	155.6	23.8	0.0	0.25	-28.5
1758	44292	70578214	22/23/80	16:44	44	38	19	-1.1	-36.2	50.8	15.9	0.31	-56.8	33	-24.3	132.4	29.8	9.2	0.31	-40.8
1759	44292	76137586	22/23/80	16:44	44	23	19	-12.0	-59.3	44.9	19.3	0.43	-70.8	23	-22.5	109.2	28.9	2.9	0.10	-31.4
1760	44292	81701867	22/23/80	16:44	44	41	23	-31.9	-82.5	42.4	12.7	0.30	-61.2	23	-25.1	86.1	27.1	2.5	0.09	-29.4
1761	44293	86541159	22/24/80	16:44	44	26	23	-54.4	-105.7	45.6	12.9	0.28	-61.2	23	-30.9	62.9	37.1	3.1	0.08	-38.8
1762	44293	8703391	22/24/80	16:44	44	4	23	-52.2	-128.9	44.7	5.8	0.13	-50.0	23	-30.3	39.7	37.0	5.7	0.15	-39.4
1763	44293	11989068	22/24/80	16:44	44	49	3	-51.6	-152.1	40.3	7.1	0.18	-40.1	23	-10.6	16.5	37.2	5.6	0.15	-41.0
1764	44293	17548437	22/24/80	16:44	44	28	4	-29.7	-175.2	45.7	10.6	0.23	-49.6	13	4.6	-6.7	28.0	3.5	0.12	-30.7

ORIGINAL PAGE IS OF POOR QUALITY

PASS	MJO	AS SEC	DATE	HR:	MN:	SC:	ASCENDING					DESCENDING												
							KE	D	EGL	E	I	I/E	DELTA	B	KE	D	EGL	B	I	I/E	DELTA	B		
1765	44293	23117646	2/24/80	6:	25:	17:	13	-21.4	161.6	37.9	8.1	0.21	-43.2	13	9.0	-29.3	29.9	2.2	0.07	-26.5				
1766	44293	28677015	2/24/80	7:	57:	52	13	-6.1	138.4	36.3	5.0	J.14	-50.9	20	8.0	-53.0	27.2	2.1	0.08	*****				
1767	44293	34234410	2/24/80	9:	30:	34	20	-5.8	115.2	26.2	4.9	0.19	-38.7	20	5.7	-76.2	21.4	3.9	0.42	-26.3				
1768	44293	39798693	2/24/80	11:	3:	18	20	-12.9	92.1	28.9	2.0	J.07	-34.0	23	3	-99.4	20.8	2.3	0.11	-26.2				
1769	44293	39803018	2/24/80	11:	3:	23	23	-15.1	68.9	27.6	3.5	0.13	-36.6	23		-122.5	18.8	1.0	0.05	-19.4				
1770	44293	45362987	2/24/80	12:	36:	56	23	-16.8	45.7	34.0	9.3	0.27	-46.0	2		-145.7	14.8	-1.0	-0.07	-30.6				
1771	44293	50922346	2/24/80	14:	8:	42	23	3.1	22.5	25.9	7.8	0.30	-31.7	23	-1.6	-168.9	15.7	1.6	0.10	-18.6				
1772	44293	56482702	2/24/80	15:	41:	22	23	17.5	-0.6	27.1	3.9	0.14	-30.8	3	-2.9	167.9	13.4	-0.7	-0.05	-12.3				
1773	44293	56487623	2/24/80	17:	14:	6	18:	46:	46	51	3	30.1	-23.8	26.2	3.1	0.12	9.9	3	2.5	144.3	11.2	-2.1	-0.19	-11.9
1774	44293	62046982	2/24/80	18:	46:	51	20:	19:	25	5	3	J1.0	-47.0	19.3	5.2	0.27	-26.2	3	5.3	121.6	12.3	-0.3	-0.51	-7.5
1775	44293	67610632	2/24/80	20:	19:	25	21:	11:	15	5	3	13.0	-70.2	18.0	5.5	0.30	*****	3	-1.4	98.4	9.1	-4.5	-0.49	-5.5
1776	44293	73165721	2/24/80	22:	22:	10	23	1.9	-93.3	23.5	2.6	0.11	-29.7	10	-8.4	75.2	17.3	-3.7	-0.21	-10.7				
1777	44294	73170646	2/25/80	0:	57:	34	10	-21.5	-116.5	31.2	J.3	J.01	-28.7	10	-7.1	52.1	16.7	-3.3	-0.20	-15.3				
1778	44294	78730749	2/25/80	0:	57:	39	10	-25.3	-139.7	25.2	-3.1	-0.12	*****	3	0.4	28.9	13.0	-0.0	-0.00	-10.9				
1779	44294	78735668	2/25/80	2:	30:	19	10	-8.2	-162.9	*****	*****	*****	*****	3	19.7	5.7	15.7	-3.8	-0.24	-13.1				
1780	44294	84295036	2/25/80	4:	35:	36	3	4.2	174.0	17.0	-0.4	-0.02	-21.0	13	20.0	-17.5	17.5	-3.8	-0.22	-20.3				
1781	44294	90137655	2/25/80	5:	35:	41	3	12.3	150.8	21.7	2.5	0.12	-31.9	13	20.7	-40.6	12.4	-3.8	-0.31	-6.6				
1782	44294	90137655	2/25/80	7:	8:	22	13	6.4	127.6	22.8	3.3	0.14	-33.2	23	18.3	-63.8	16.6	3.7	0.22	-24.0				
1783	44294	14577313	2/25/80	8:	40:	56	10:	13:	40	1	23	6.4	127.6	22.8	3.3	0.14	-33.2	23	18.3	-63.8	16.6	3.7	0.22	-24.0
1784	44294	14577313	2/25/80	10:	13:	40	10:	13:	45	23	23	2.3	104.4	15.2	-0.3	-0.02	-22.9	23	0.1	-87.0	13.2	3.1	0.23	-15.1
1785	44294	20136681	2/25/80	11:	46:	25	27	-1.4	81.3	11.6	2.1	0.18	-15.8	27	-9.8	-110.2	11.2	-0.2	-0.02	-12.4				
1786	44294	25697276	2/25/80	13:	19:	9	13:	19:	9	27	0.1	58.1	20.0	2.6	0.13	-31.2	27	-5.4	-133.3	9.5	-5.6	-0.59	-7.3	
1787	44294	25702204	2/25/80	14:	51:	43	30	15.1	34.9	10.7	2.5	0.24	-14.5	30	-3.6	-156.5	7.2	-4.3	-0.60	-1.5				
1788	44294	31256649	2/25/80	16:	24:	23	30	13.9	11.7	13.9	4.0	0.29	-20.0	30	-4.0	-179.7	10.3	-3.3	-0.32	-7.1				
1789	44294	31256649	2/25/80	17:	57:	7	40	17.0	-11.4	31.7	15.4	0.49	-52.2	40	-2.4	157.1	1.5	-7.6	-5.22	4.9				
1790	44294	36820937	2/25/80	19:	29:	46	40	11.3	-34.6	54.6	15.2	0.28	*****	40	-16.1	134.0	19.6	3.2	0.47	-34.9				
1791	44294	36825857	2/25/80	21:	2:	26	43	-10.3	-57.8	*****	*****	*****	*****	43	-15.1	110.8	21.0	5.6	0.27	-30.3				
1792	44294	36825857	2/25/80	22:	35:	7	43	-22.9	-80.9	33.7	10.4	0.31	*****	43	-14.8	87.6	18.3	0.9	0.05	-22.7				
1793	44295	36825857	2/26/80	0:	7:	49	37	-69.5	-104.1	59.5	15.4	0.26	-74.9	37	-46.5	64.5	48.3	10.7	0.22	-56.7				
1794	44295	474679	2/26/80	1:	40:	28	37	-54.5	-127.3	52.9	10.0	0.19	-61.7	37	-29.9	41.3	36.5	5.9	0.16	-40.1				
1795	44295	60330655	2/26/80	1:	40:	33	30	-50.0	-150.5	43.7	7.9	0.18	-45.0	30	-8.0	18.1	34.9	4.5	0.13	-42.6				
1796	44295	11592424	2/26/80	3:	33:	12	30	-22.6	-173.6	35.0	6.6	0.19	-40.2	30	3.0	-5.1	30.4	4.0	0.13	-31.9				
1797	44295	11597350	2/26/80	4:	45:	5	13	-16.0	163.2	37.3	8.2	0.22	-43.2	13	-5.8	-28.2	38.8	1.0	0.03	-33.1				
1798	44295	17151794	2/26/80	6:	18:	2	13	-6.9	140.0	37.2	4.7	0.13	-51.7	30	1.3	-51.4	26.9	1.5	0.06	-32.9				
1799	44295	17156718	2/26/80	7:	18:	19	30	-6.6	116.9	23.6	3.9	J.16	-34.6	30	-2.8	-74.6	17.9	8.7	0.48	-27.4				
1800	44295	22712152	2/26/80	9:	23:	3	30	-32.2	93.7	33.3	4.4	0.13	-39.5	33	-36.1	-97.7	26.0	6.4	0.24	-34.4				
1801	44295	28274224	2/26/80	10:	23:	3	33	-37.8	70.5	55.2	13.6	0.25	-68.4	33	-39.1	-120.9	24.2	7.7	0.32	-31.5				
1802	44295	33833587	2/26/80	12:	29:	21	33	-25.1	47.3	30.9	12.3	0.32	-56.4	30	-23.7	-144.1	23.3	4.8	0.21	-25.7				
1803	44295	39337848	2/26/80	14:	2:	0	30	-21.3	24.2	31.2	11.3	J.36	-43.2	30	-20.6	-167.3	25.5	4.0	0.16	-30.1				
1804	44295	449562257	2/26/80	15:	34:	34	30	-8.2	1.0	33.5	10.0	0.30	-43.2	27	-11.2	169.6	1.2	2.8	0.11	-29.2				
1805	44295	449562257	2/26/80	17:	7:	14	27	-3.7	-22.2	50.5	14.1	J.28	-61.8	27	-8.3	146.4	23.1	5.1	0.22	-30.1				
1806	44295	50520551	2/26/80	18:	39:	53	27	-3.7	-22.2	50.5	14.1	J.28	-61.8	27	-8.3	146.4	23.1	5.1	0.22	-30.1				
1807	44295	56079920	2/26/80	20:	12:	36	27	-3.7	-22.2	50.5	14.1	J.28	-61.8	27	-8.3	146.4	23.1	5.1	0.22	-30.1				
1808	44295	61034365	2/26/80	20:	12:	36	27	-3.7	-22.2	50.5	14.1	J.28	-61.8	27	-8.3	146.4	23.1	5.1	0.22	-30.1				
1809	44295	61639290	2/26/80	20:	12:	36	27	-3.7	-22.2	50.5	14.1	J.28	-61.8	27	-8.3	146.4	23.1	5.1	0.22	-30.1				
1810	44295	67193096	2/26/80	20:	12:	36	27	-3.7	-22.2	50.5	14.1	J.28	-61.8	27	-8.3	146.4	23.1	5.1	0.22	-30.1				
1811	44295	67197921	2/26/80	20:	12:	36	27	-3.7	-22.2	50.5	14.1	J.28	-61.8	27	-8.3	146.4	23.1	5.1	0.22	-30.1				
1812	44295	72756298	2/26/80	20:	12:	36	27	-3.7	-22.2	50.5	14.1	J.28	-61.8	27	-8.3	146.4	23.1	5.1	0.22	-30.1				

1-46

ORIGINAL PAGE IS  
OF POOR QUALITY

PASS	MJD	MSEC	DATE	REF	RA	SC	ASCENDING	E	I	I/Z	DELTA E	DESCENDING	E	I	I/Z	DELTA B			
				KE	D	EQL	D	EQL	E	I	I/Z	KE	D	EQL	E	I	I/Z		
1805	44295	72761242	2/26/80	20	12	41	27	-6.3	-45.3	40.1	10.5	0.26	20	-22.4	123.2	25.3	1.4	0.05	-28.1
	44295	78315607	2/26/80	21	15	45													
1806	44295	78320591	2/26/80	21	15	45	20	-7.5	-68.5	53.9	10.9	0.22	20	-13.6	100.1	19.9	0.0	0.01	-35.5
	44295	83873811	2/26/80	23	17	58													
1807	44295	83878731	2/26/80	23	17	58	20	-16.1	-91.7	36.1	7.7	0.21	13	-20.9	76.9	23.8	0.0	-3.02	-42.7
	44296	3035143	2/27/80	05	50	35													
1808	44296	30400666	2/27/80	05	50	35	13	-29.9	-114.8	35.6	2.6	0.07	13	-24.0	53.7	*****	*****	*****	-40.0
	44296	8593531	2/27/80	05	50	35													
1809	44296	8598453	2/27/80	05	50	35	13	-28.2	-138.0	*****	*****	*****	30	-3.7	30.6	20.9	3.4	0.16	-40.0
	44296	14155848	2/27/80	05	50	35													
1810	44296	14160771	2/27/80	05	50	35	30	-24.5	-161.2	37.7	9.5	0.25	30	-11.4	7.4	33.1	5.6	0.17	-32.9
	44296	19717185	2/27/80	05	50	35													
1811	44296	19722106	2/27/80	05	50	35	30	-26.7	175.7	40.3	9.3	0.23	33	-2.9	-15.8	26.5	1.4	0.05	-27.7
	44296	25276551	2/27/80	05	50	35													
1812	44296	25281475	2/27/80	05	50	35	33	-8.8	152.5	37.2	6.0	0.16	33	-8.2	-38.9	30.6	-1.8	-0.06	-23.7
	44296	30835919	2/27/80	05	50	35													
1813	44296	30840848	2/27/80	05	50	35	33	-14.9	129.3	43.9	8.8	0.20	33	1.0	-62.1	21.2	3.3	0.16	-27.8
	44296	36352288	2/27/80	05	50	35													
1814	44296	36400213	2/27/80	10	36	60	33	-25.9	106.2	41.5	8.3	0.20	33	-6.9	-85.3	21.3	6.0	0.28	-27.9
	44296	41955640	2/27/80	11	39	65													
1815	44296	41960564	2/27/80	11	39	65	33	-44.6	83.0	41.9	7.5	0.18	33	-2.0	-108.4	23.6	3.7	0.16	*****
	44296	47515011	2/27/80	13	41	65													
1816	44296	47519933	2/27/80	13	41	65	33	-60.3	59.8	71.1	20.2	0.28	33	-25.7	-131.6	25.8	8.9	0.35	-36.1
	44296	53074370	2/27/80	14	44	64													
1817	44296	53079303	2/27/80	14	44	64	27	-23.7	36.7	40.9	12.0	0.29	27	-31.9	-154.8	23.5	7.1	0.30	-27.4
	44296	58633747	2/27/80	16	47	63													
1818	44296	5864172	2/27/80	16	47	63	27	-10.4	13.5	36.0	11.8	0.33	27	-18.5	-177.9	22.7	3.5	0.15	-24.5
	44296	6413116	2/27/80	17	49	53													
1819	44296	64198041	2/27/80	17	49	53	30	-2.3	-9.7	37.6	11.5	0.31	30	-13.7	158.9	20.8	-0.3	-0.01	-19.6
	44296	69752485	2/27/80	19	52	52													
1820	44296	69757410	2/27/80	19	52	52	30	-2.8	-32.8	53.4	10.2	0.19	30	-19.1	135.7	23.5	5.3	0.23	-32.5
	44296	75311854	2/27/80	20	55	11													
1821	44296	75316778	2/27/80	20	55	11	30	-7.9	-56.0	49.1	18.0	0.37	30	-18.6	112.6	17.6	1.5	0.08	-22.8
	44296	80871223	2/27/80	22	57	51													
1822	44296	80876147	2/27/80	22	57	51	30	-14.2	-79.2	45.6	8.4	0.18	30	-25.9	89.4	25.5	8.3	0.32	-34.4
	44296	86342122	2/27/80	23	59	2													
1823	44296	86342122	2/27/80	23	59	2	27	-43.2	-102.3	52.5	12.7	0.24	27	-34.4	66.2	37.1	0.3	0.17	-42.1
	44297	6270	2/28/80	05	50	35													
1824	44297	5590204	2/28/80	15	33	10	27	-43.6	-125.5	44.5	10.1	0.23	27	-27.5	43.1	29.1	4.4	0.15	-31.0
	44297	5595132	2/28/80	15	33	10													
1825	44297	11149576	2/28/80	33	55	54	27	-43.0	-148.7	30.8	10.2	0.33	27	-0.2	19.9	20.4	2.3	0.09	-29.2
	44297	11154500	2/28/80	33	55	54													
1826	44297	16704030	2/28/80	44	38	24	27	-13.5	-171.8	38.9	13.0	0.34	27	19.9	-3.3	25.9	3.1	0.12	-25.9
	44297	16708953	2/28/80	44	38	24													
1827	44297	22263398	2/28/80	65	11	30	27	1.5	165.0	30.2	6.5	0.22	27	18.6	-26.4	30.9	0.8	0.03	-25.7
	44297	22268322	2/28/80	65	11	30													
1828	44297	27823513	2/28/80	75	43	43	27	-15.7	141.8	40.4	7.2	0.18	27	3.6	-49.6	26.4	-1.8	-0.07	-27.2
	44297	27828429	2/28/80	75	43	43													
1829	44297	33383857	2/28/80	95	16	28	27	-30.9	118.7	45.2	15.3	0.34	27	3.7	-72.8	19.5	8.1	0.41	-29.7
	44297	38934230	2/28/80	105	49	3													
1830	44297	3948150	2/28/80	105	49	3	27	-41.3	95.5	42.6	4.9	0.11	27	-14.3	-95.9	27.8	7.4	0.26	*****
	44297	44502595	2/28/80	122	21	42													
1831	44297	44507519	2/28/80	122	21	42	17	-38.7	72.3	36.0	10.6	0.30	17	-25.3	-119.1	28.9	7.1	0.24	-34.6
	44297	50058030	2/28/80	135	54	18													
1832	44297	50062956	2/28/80	135	54	22	17	-21.2	40.2	33.2	5.5	0.17	10	-25.9	-142.3	25.8	5.4	0.21	-30.1
	44297	55617400	2/28/80	155	26	57													
1833	44297	55622325	2/28/80	155	27	2	10	-14.2	26.0	32.6	7.2	0.22	10	-22.1	-165.4	20.4	1.0	0.05	-22.5
	44297	61116769	2/28/80	165	59	36													
1834	44297	61118164	2/28/80	165	59	41	10	2.3	2.9	34.0	9.1	0.27	17	-13.3	171.4	22.3	1.5	0.07	-22.1
	44297	66736138	2/28/80	183	32	16													
1835	44297	66741062	2/28/80	183	32	21	17	11.7	-20.3	33.6	9.6	0.29	17	-6.3	148.3	21.4	1.7	0.08	-23.3
	44297	72295508	2/28/80	205	4	55													
1836	44297	72300431	2/28/80	205	5	0	17	16.4	-43.5	38.0	8.8	0.23	30	3.5	125.1	15.3	-2.3	-0.15	-14.3
	44297	77849962	2/28/80	215	37	29													
1837	44297	77854885	2/28/80	215	37	34	30	-6.1	-66.6	36.3	13.6	0.37	30	1.5	101.9	9.8	-4.0	-0.41	-8.6
	44297	83409330	2/28/80	233	10	9													
1838	44297	83414245	2/28/80	233	10	14	30	-16.2	-89.8	31.5	9.6	0.31	23	-17.5	78.8	21.3	-0.3	-0.02	*****
	44298	2568545	2/29/80	05	42	48													
1839	44298	2573869	2/29/80	05	42	53	23	-41.6	-113.0	47.1	10.9	0.23	23	-20.4	55.6	26.6	2.9	0.11	-29.9
	44298	6128314	2/29/80	22	15	48													
1840	44298	6133238	2/29/80	22	15	53	23	-42.8	-136.1	39.7	8.3	0.21							

PASS	HJD	MSEC	DATE	HR	MIN	SC	ASCENDING					DESCENDING					1/E	DELTA	B	
							KP	D	EQL	E	I	I/E	DELTA	KP	E	EQL				E
1845	44298	35521481	2/29/80	9:58	41	1	20	-12.6	108.1	26.7	5.4	0.20	-38.8	20	-0.4	-83.4	23.8	9.2	0.39	-32.9
1846	44298	41475926	2/29/80	11:31	20	2	20	-16.2	84.9	23.2	5.5	0.24	-31.5	23	-8.1	-106.5	23.7	3.6	0.15	-28.5
1847	44298	47035530	2/29/80	13:40	55	2	20	-19.5	61.8	27.2	7.4	0.27	-31.5	23	-18.3	-129.7	22.3	1.7	0.08	-23.0
1848	44298	52590244	2/29/80	14:36	30	2	23	-14.5	38.6	26.7	5.1	0.19	-30.6	20	-17.3	-152.3	16.1	2.4	0.15	-15.5
1849	44298	52595164	2/29/80	16:09	35	2	20													
1849	44298	58149603	2/29/80	16:09	35	2	20													
1849	44298	58154533	2/29/80	16:09	35	2	20													
1849	44298	63708978	2/29/80	17:41	48	2	20													
1850	44298	63713902	2/29/80	17:41	53	1	13	11.3	-7.7	37.4	13.5	0.36	-53.4	13	-6.2	160.8	18.8	-1.1	-0.06	-15.5
1850	44298	69265891	2/29/80	19:14	25	1	13	16.4	-30.9	35.9	3.4	0.23	-38.1	13	-6.3	137.7	18.0	1.4	0.08	-22.1
1851	44298	69270814	2/29/80	20:00	0	2	20													
1851	44298	74820343	2/29/80	20:00	0	2	20													
1852	44298	74825207	2/29/80	20:00	0	2	20													
1852	44298	80379225	2/29/80	22:00	47	5	13	6.4	-54.0	36.5	10.8	0.30	*****	13	-8.3	114.5	18.4	-2.1	-0.12	-16.3
1853	44298	80384144	2/29/80	22:00	47	5	13	1.7	-77.2	36.8	6.5	0.18	-48.9	13	-13.5	91.4	13.6	0.8	0.06	-14.3
1853	44298	85938589	2/29/80	23:52	18	3	23													
1854	44298	85943514	2/29/80	23:52	23	1	13	-14.9	-100.3	35.2	6.4	0.18	-48.8	13	-17.0	68.2	24.9	-0.2	-0.01	-21.7
1855	44299	5097223	3/1/80	1:24	57	0	13	-19.0	-123.5	28.4	4.2	0.15	-31.2	13	-9.4	45.0	20.4	-0.2	-0.01	-19.2
1855	44299	5100179	3/1/80	1:25	0	1	13													
1856	44299	10654623	3/1/80	2:57	34	1	13	-5.1	-146.7	36.2	5.1	0.14	-31.2	13	14.0	21.9	19.2	1.1	0.06	-15.9
1856	44299	10659547	3/1/80	2:57	39	1	13													
1857	44299	16209819	3/1/80	4:30	9	1	13	-3.8	-169.8	25.5	7.2	0.28	-29.7	13	32.3	-1.3	20.1	2.7	0.13	-26.1
1857	44299	16214739	3/1/80	4:30	14	1	13													
1858	44299	21769183	3/1/80	6:02	49	7	7	11.4	167.0	23.8	4.0	0.17	-2.0	7	37.0	-24.4	22.5	0.6	0.03	-16.7
1858	44299	21774108	3/1/80	6:02	54	7	7													
1859	44299	27323638	3/1/80	7:35	23	7	7	11.4	143.9	28.0	1.1	0.04	-34.0	7	29.4	-47.6	19.7	0.9	0.05	-21.0
1859	44299	27328561	3/1/80	7:35	28	7	7													
1860	44299	32883006	3/1/80	9:08	7	3	3	7.4	120.7	18.3	3.9	0.21	-27.5	3	10.7	-70.7	16.1	0.3	0.39	-22.3
1860	44299	32887930	3/1/80	9:08	7	3	3													
1861	44299	38437400	3/1/80	10:40	37	3	3	-5.5	97.5	18.1	0.2	0.01	-21.9	3	0.8	-93.9	19.3	1.8	0.10	*****
1861	44299	38442384	3/1/80	10:40	42	3	3													
1862	44299	43995850	3/1/80	12:13	15	10	10	-10.7	74.4	21.5	7.2	0.34	-28.0	10	-7.4	-117.1	17.2	1.6	0.09	-24.6
1862	44299	44000770	3/1/80	12:13	20	10	10													
1863	44299	49522467	3/1/80	13:45	52	10	10	-11.4	51.2	19.7	6.5	0.33	-34.5	10	-11.4	-148.2	18.6	2.6	0.14	-19.4
1863	44299	49537145	3/1/80	13:45	57	10	10													
1864	44299	55111644	3/1/80	15:18	31	10	10	-3.3	28.1	23.6	6.6	0.28	-27.6	10	1.1	-163.4	15.3	1.1	0.07	-16.2
1864	44299	55116558	3/1/80	15:18	36	10	10													
1865	44299	60666991	3/1/80	16:51	6	10	10	10.1	4.9	23.9	7.1	0.30	-32.5	3	12.3	173.5	15.9	0.4	0.03	-15.2
1865	44299	60671011	3/1/80	16:51	11	10	10													
1866	44299	66225457	3/1/80	18:23	45	3	3	13.5	-18.2	23.0	6.6	0.29	-33.8	3	12.3	150.3	15.5	-0.4	-0.03	-14.2
1866	44299	66230381	3/1/80	18:23	50	3	3													
1867	44299	71775911	3/1/80	19:56	19	3	3	15.5	-41.4	23.0	4.7	0.21	-25.0	3	1.1	127.2	14.8	-3.3	-0.23	-10.9
1867	44299	71784834	3/1/80	19:56	24	3	3													
1868	44299	77339279	3/1/80	21:28	59	3	3	15.9	-64.5	23.0	8.7	0.38	-33.6	3	-2.7	104.0	12.3	-0.0	-0.41	-7.7
1868	44299	77344233	3/1/80	21:28	4	3	3													
1869	44299	82893733	3/1/80	22:00	13	3	3	8.8	-87.7	25.8	9.1	0.31	-35.8	3	-11.3	80.9	13.8	-2.9	-0.21	-10.4
1869	44300	62898657	3/1/80	22:00	13	3	3													
1870	44300	2053101	3/1/80	0:34	13	3	3	2.7	-110.8	30.7	4.0	0.13	-35.7	3	-12.6	57.7	20.6	0.0	0.00	*****
1870	44300	2058026	3/1/80	0:34	16	3	3													
1871	44300	7609524	3/1/80	2:06	49	3	3	-17.8	-134.0	29.2	4.5	0.16	-32.6	7	-5.5	34.5	19.3	0.1	0.01	-17.0
1871	44300	7614446	3/1/80	2:06	54	3	3													
1872	44300	13162015	3/1/80	3:39	42	7	7	-0.1	-157.2	19.8	5.3	0.27	-20.0	7	9.8	11.4	21.0	-0.4	-0.02	-22.0
1872	44300	13166933	3/1/80	3:39	26	7	7													
1873	44300	18721378	3/1/80	5:12	1	7	7	9.7	179.7	27.8	5.4	0.19	-31.0	3	24.0	-11.8	19.7	-0.4	-0.02	-22.1
1873	44300	18726302	3/1/80	5:12	6	7	7													
1874	44300	24275832	3/1/80	6:44	35	3	3	10.0	150.5	24.9	4.7	0.19	-26.0	3	23.9	-34.9	19.0	1.0	0.05	-14.6
1874	44300	24280755	3/1/80	6:44	40	3	3													
1875	44300	29835230	3/1/80	8:17	15	3	3	11.9	133.4	22.8	1.9	0.08	-26.4	3	21.0	-56.1	16.6	2.2	0.13	-20.4
1875	44300	29840124	3/1/80	8:17	20	3	3													
1876	44300	35389655	3/1/80	9:49	49	3	3	-1.7	110.2	12.9	1.1	0.08	-17.3	3	11.1	-81.2	11.6	4.5	0.39	-14.9
1876	44300	35394579	3/1/80	9:49	54	3	3													
1877	44300	40944138	3/1/80	11:22	29	3	3	-9.0	87.1	*****	*****	*****	-17.3	7	-3.4	-104.4	15.4	0.5	0.03	-18.0
1877	44300	40949032	3/1/80	11:22	29	3	3													
1878	44300	46501515	3/1/80	12:59	6	7	7	-4.9	03.9	19.1	4.6	0.24	-29.0	7	-1.0	-127.5	11.1	-1.5	-0.13	-8.8
1878	44300	46506394	3/1/80	12:59	6	7	7													
1879	44300	52058931	3/1/80	14:27	43	7	7	-0.1	40.8	17.3	3.8	0.22	-22.6	7	2.0	-150.7	5.0	-0.2	-0.04	*****
1879	44300	52063847	3/1/80																	

PASS	HJD	MSEC	DATE	ASCENDING				DESCENDING									
				KE	D	EQL	E	I	I/E	DELTA	KE	D	ECL	EQL	E	I	I/E
1885	44300	85400389	2/80	7	-17.4	-98.1	23.5	3.2	0.13	-32.3	7	-4.7	70.4	17.1	-3.7	-0.22	-10.1
1886	44301	45500164	3/80	7	-27.8	-121.3	23.1	1.2	0.05	-23.7	7	-5.9	47.3	15.0	-2.6	-0.18	-13.3
1887	44301	10104618	3/80	3	-0.7	-144.4	20.3	1.5	0.07	-16.4	3	5.5	24.1	10.3	-2.3	-0.22	-17.4
1888	44301	15659072	4/80	3	6.4	-167.6	14.5	3.3	0.23	-15.8	3	37.4	1.0	11.7	-3.9	-0.34	-5.8
1889	44301	21217218	4/80	3	17.0	169.3	11.8	2.7	0.23	-18.6	3	45.4	-22.2	14.8	-4.5	-0.31	-9.3
1890	44301	26777666	4/80	3	17.5	146.1	20.7	-0.9	-0.04	-28.4	3	37.1	-45.4	9.4	-0.8	-0.08	-9.4
1891	44301	32329069	4/80	7	18.4	123.0	10.2	1.1	0.11	-15.6	7	23.8	-68.5	5.3	2.6	0.49	-8.6
1892	44301	37888446	4/80	7	17.6	99.8	5.6	-2.8	-0.50	-9.5	7	19.2	-91.7	7.5	-1.5	-0.20	-2.3
1893	44301	43441916	4/80	10	2.6	76.7	7.9	3.6	0.45	-14.6	10	5.9	-114.8	6.4	-3.4	-0.52	-3.2
1894	44301	48991446	4/80	10	2.2	53.5	10.4	1.7	0.16	-14.0	10	6.2	-138.0	5.9	-3.4	-0.59	-2.4
1895	44301	54555738	4/80	27	12.3	30.4	13.0	2.6	0.20	-12.2	27	15.7	-161.1	7.0	-1.9	-0.27	-4.1
1896	44301	60110192	4/80	27	11.2	7.2	28.2	9.2	0.33	-33.8	27	24.5	175.8	7.7	-1.4	-0.18	-7.0
1897	44301	65664646	4/80	17	19.7	-15.9	19.2	6.8	0.36	-26.1	17	26.5	152.6	4.2	-3.0	-0.71	-15.6
1898	44301	71215160	4/80	17	23.4	-39.1	17.8	6.0	0.34	-23.2	17	22.4	129.5	9.1	-3.6	-0.39	-7.3
1899	44301	76774532	4/80	13	23.6	-62.2	18.1	9.5	0.52	-30.5	13	11.0	106.3	7.4	-7.0	-0.94	-1.9
1900	44301	82324006	4/80	13	5.7	-85.4	17.7	7.2	0.41	-33.2	7	-3.3	83.2	7.8	-4.0	-0.51	-5.0
1901	44302	14785199	4/80	7	-3.9	-108.5	17.6	6.2	0.35	-32.4	7	-7.1	60.0	13.8	-3.2	-0.23	-11.3
1902	44302	7032972	4/80	7	-10.4	-131.7	12.9	1.1	0.09	-20.6	3	4.8	36.9	11.9	-3.0	-0.26	-7.5
1903	44302	12587426	4/80	3	-1.3	-154.8	7.6	1.1	0.14	-3.1	3	19.5	13.7	11.0	-6.3	-0.57	-5.9
1904	44302	18146804	4/80	3	16.2	-178.0	13.1	-1.2	-0.09	-11.0	13	29.9	-9.4	7.7	-5.0	-0.64	*****
1905	44302	23701258	4/80	13	16.1	158.9	15.1	-2.5	-0.16	-6.8	13	25.5	-32.6	7.0	-1.0	-0.14	-2.3
1906	44302	29250787	4/80	13	12.2	135.7	24.2	0.7	0.03	-28.0	23	23.9	-55.7	17.9	-1.1	-0.06	-18.0
1907	44302	34813113	4/80	23	13.3	112.6	19.6	3.1	0.16	-24.1	23	30.7	-78.9	4.6	4.4	0.96	-11.5
1908	44302	40360679	4/80	23	2.6	89.5	20.5	2.2	0.11	-23.1	13	17.8	-102.0	12.7	1.4	0.11	-16.6
1909	44302	45317134	4/80	13	-8.7	66.3	23.0	6.1	0.27	-27.0	13	0.9	-125.2	9.1	-0.8	-0.09	-8.3
1910	44302	51476475	4/80	13	2.4	43.2	13.4	1.4	0.10	*****	10	8.7	-188.3	1.3	-1.8	-1.39	2.2
1911	44302	57031174	4/80	10	19.9	20.0	12.5	1.1	0.09	-7.4	10	18.2	-171.5	3.5	-3.4	-0.98	0.4
1912	44302	62580703	4/80	10	27.1	-3.1	13.7	2.7	0.20	*****	10	31.5	165.4	2.9	-3.4	-1.14	0.8
1913	44302	68140081	4/80	10	27.1	-26.3	12.5	1.7	0.13	-12.2	10	25.3	142.3	4.7	-4.4	-0.94	-1.5
1914	44302	73689613	4/80	10	27.6	-49.4	12.7	8.0	0.63	-27.6	20	21.1	119.1	6.2	-8.4	-1.36	1.1
1915	44302	79248908	4/80	20	8.1	-72.6	22.5	9.6	0.43	-36.7	20	24.6	96.0	3.5	-3.2	-0.93	-1.8
1916	44302	84733502	4/80	20	17.0	-95.7	28.7	4.2	0.15	-38.2	23	-2.1	72.8	16.5	-2.8	-0.17	-10.4
1917	44302	89490521	4/80	23	-23.7	-118.8	27.1	6.8	0.25	-36.8	23	-8.6	49.7	23.9	0.0	0.00	-24.7
1918	44302	95034852	4/80	27	-11.7	-742.0	30.0	7.9	0.26	-36.1	27	1.0	26.5	19.4	2.0	0.10	-16.7
1919	44302	10089416	4/80	27	-8.4	-165.1	30.0	12.2	0.41	-39.1	27	21.9	3.4	15.1	0.6	0.04	-13.3
1920	44302	10613395	4/80	20	14.6	171.7	23.0	5.6	0.24	-27.3	20	26.6	-19.7	22.4	0.0	0.00	-19.7
1921	44303	11164888	4/80	20	13.6	148.6	22.1	4.0	0.13	-32.8	20	17.7	-42.9	17.9	1.1	0.06	-17.1
1922	44303	11725719	4/80	27	-1.9	125.4	28.6	7.8	0.27	-39.2	27	12.1	-66.0	18.8	0.0	0.48	-25.6
1923	44303	12270353	4/80	27	-7.4	102.3	28.8	6.1	0.21	-38.9	27	25.3	-89.2	16.2	2.2	0.14	-20.2
1924	44303	12831697	4/80	16	-30.2	79.2	31.5	13.5	0.43	-40.4	10	9.2	-112.3	20.9	0.1	0.15	-24.3

PASS	HJD	MSEC	DATE	ASCENDING	EGL	E	I	I/E	DELTA	B	DESCENDING	EGL	E	I	I/E	DELTA	B
				KE	D	EQI					KE	D	EQI				
1925	44303	48386150	5/80	11	-31.9	56.0	29.3	8.6	0.29	-37.1	10	-6.0	-135.5	19.2	1.6	0.08	-20.4
1926	44303	53930765	5/80	7	-8.3	32.9	21.2	7.4	0.35	-28.0	7	4.3	-158.6	10.6	-0.4	-0.04	-8.9
1927	44303	59485218	5/80	7	7.4	9.7	21.9	6.5	0.30	-29.0	7	10.6	178.3	11.4	0.2	0.02	-11.5
1928	44303	65039671	5/80	7	20.7	-13.4	22.9	5.1	0.22	-29.1	7	17.1	155.1	9.6	-4.4	-0.46	-3.1
1929	44303	70599042	5/80	7	24.1	-36.5	23.4	3.8	0.16	-19.9	7	14.1	132.0	8.0	-3.6	-0.45	-6.5
1930	44303	76148587	5/80	7	23.5	-59.7	17.0	8.5	0.50	-32.1	7	10.5	108.8	9.1	-7.8	-0.66	-2.1
1931	44303	81703041	5/80	7	-3.4	-82.8	23.7	4.6	0.19	-32.3	7	0.4	85.7	10.8	-2.6	-0.24	-8.4
1932	44304	853060	6/80	20	-16.1	-106.0	30.8	6.0	0.19	-41.7	20	-3.9	62.6	13.3	-4.3	-0.32	-7.1
1933	44304	6407515	6/80	20	-7.8	-129.1	13.4	-0.9	-0.07	-20.0	20	-1.1	39.4	14.8	-3.2	-0.22	-9.4
1934	44304	11961033	6/80	20	2.1	-152.2	12.6	0.1	0.01	*****	20	20.1	16.3	15.5	-4.0	-0.26	-5.0
1935	44304	17511506	6/80	20	11.8	-175.4	27.5	4.7	0.17	-30.2	23	30.8	-6.9	14.2	-1.1	-0.08	-13.3
1936	44304	2306590	6/80	23	14.8	161.5	16.0	2.3	0.15	-16.5	23	35.1	-30.0	15.0	-0.9	-0.06	-10.5
1937	44304	28620423	6/80	23	12.8	138.3	19.8	1.9	0.10	-27.1	30	28.2	-53.1	11.7	0.0	0.00	-16.6
1938	44304	34169952	6/80	30	12.6	115.2	13.3	2.1	0.16	-20.3	30	25.9	-76.3	6.0	2.9	0.48	-6.3
1939	44304	38174875	6/80	30	6.4	92.1	20.0	3.4	0.17	-22.1	23	24.8	-99.4	15.7	2.8	0.19	-21.4
1940	44304	45273943	6/80	23	-3.2	68.9	25.5	4.3	0.17	-27.1	23	13.2	-122.6	6.8	-1.6	-0.24	-6.0
1941	44304	50833321	6/80	23	-11.3	45.8	21.8	5.8	0.20	-31.5	23	2.2	-145.7	9.4	1.2	0.13	-5.2
1942	44304	56377935	6/80	23	13.9	22.7	17.1	5.7	0.33	-21.1	23	10.7	-168.8	9.6	-0.1	-0.01	-9.4
1943	44304	61930423	6/80	23	16.1	-0.5	19.6	6.0	0.31	-23.9	20	25.4	168.0	6.6	-1.2	-0.18	-5.2
1944	44304	67482939	6/80	20	25.8	-23.6	20.0	4.8	0.23	-20.1	20	18.8	144.9	13.9	-0.6	-0.05	-11.0
1945	44304	73038351	6/80	20	25.8	-46.8	16.7	7.9	0.07	-22.5	17	1.8	121.8	10.3	-3.6	-0.54	-4.6
1946	44304	78587885	6/80	17	16.5	-69.9	20.7	8.7	0.42	7.5	17	-6.8	98.6	6.2	-5.1	-0.83	-2.9
1947	44304	84142338	6/80	17	11.3	-93.0	25.0	7.9	0.32	-38.8	23	-10.2	75.5	15.1	-3.0	-0.20	-7.5
1948	44305	8929783	7/80	23	-6.8	-116.2	24.4	5.8	0.24	-27.4	23	0.4	52.3	13.6	-3.3	-0.24	-10.5
1949	44305	88522313	7/80	23	-16.0	-139.3	28.5	3.5	0.12	-31.4	23	6.2	29.2	9.9	0.6	0.06	-8.0
1950	44305	14396852	7/80	23	0.3	-162.4	18.8	3.7	0.20	-20.8	23	29.7	6.1	13.8	-1.8	-0.13	-16.1
1951	44305	19951305	7/80	23	15.2	174.4	18.8	2.2	0.12	-21.7	10	35.3	-17.1	14.5	-2.0	-0.14	-12.4
1952	44305	25505767	7/80	10	23.4	151.3	16.9	5.2	0.31	-25.3	10	26.4	-40.2	11.2	-1.3	-0.12	-7.2
1953	44305	31096220	7/80	17	15.2	128.2	15.6	3.1	0.20	-19.8	17	26.1	-63.3	10.0	4.3	0.43	-16.4
1954	44305	36602868	7/80	17	5.6	105.0	13.6	2.6	0.19	-21.8	17	20.8	-86.5	11.0	3.9	0.36	-15.1
1955	44305	42157321	7/80	13	-7.4	81.9	11.9	2.9	0.24	-16.2	13	19.8	-109.6	10.3	-1.1	-0.11	-10.9
1956	44305	47711784	7/80	13	-10.9	58.8	19.3	1.5	0.08	-25.8	13	2.5	-132.7	10.0	-1.6	-0.16	-8.2
1957	44305	53266237	7/80	17	5.5	35.6	19.5	3.8	0.19	-20.9	17	4.1	-155.9	5.3	-0.2	-0.05	-2.5
1958	44305	58810848	7/80	17	20.9	12.5	18.2	5.7	0.31	*****	17	19.2	-179.0	6.4	0.2	0.04	-6.3
1959	44305	64305305	7/80	20	21.2	-10.6	21.6	4.6	0.21	-32.4	20	26.9	157.9	6.4	-4.6	-0.72	0.5
1960	44305	69914844	7/80	20	19.0	-33.8	28.8	6.7	0.23	-23.2	20	23.4	134.7	6.6	-1.3	-0.19	-9.1
1961	44305	75464382	7/80	20	16.3	-56.9	23.7	3.9	0.42	-39.4	20	9.3	111.6	8.3	-5.4	-0.64	-4.9
1962	44305	81018834	7/80	20	22.6	-80.0	26.7	4.3	0.16	-30.9	20	4.3	88.5	7.8	-2.9	-0.37	-6.9
1963	44306	168373	8/80	13	17.9	-103.2	23.7	4.3	0.18	-30.6	13	-8.8	65.3	17.5	-1.8	-0.11	-14.4
1964	44306	5717911	8/80	13	17.2	-126.3	18.1	2.2	0.12	-19.3	13	-6.4	42.2	15.2	-0.9	-0.06	-13.1

PASS	MJJ	MSEC	DATE	ASCENDING										DESCENDING									
				RF	MM	SC	KE	D	FOI	EOL	E	I	L/S	DELTA	B	RF	D	ECL	EOL	E	I	I/E	DELTA
1965	44306	1127728J	8/80	3:	7:	57	23	0.3	-149.4	20.9	5.1	J.29	-21.8	23	12.8	19.1	13.8	-1.0		-0.11	-7.2		
1966	44306	16826827	8/80	4:	40:	23	23	-1.7	-172.6	24.1	9.0	J.37	-25.8	23	27.4	-4.1	15.4	0.3		0.02	-13.3		
1967	44306	22371441	8/80	6:	12:	56	23	5.9	104.3	23.4	7.2	J.31	42.0	23	39.6	-27.2	12.4	-1.4		-0.11	-7.4		
1968	44306	27925894	8/80	7:	45:	30	23	11.9	141.2	31.4	3.5	J.11	-36.7	23	31.2	-50.3	13.7	0.3		0.02	-20.8		
1969	44306	33475433	8/80	9:	17:	55	20	3.4	118.0	14.8	4.0	J.31	-23.7	20	18.5	-73.5	11.7	0.0		0.51	-17.4		
1970	44306	39029894	8/80	10:	50:	24	20	-15.4	94.9	23.3	5.5	J.24	-28.0	20	12.4	-96.0	14.0	2.0		0.18	****		
1971	44306	44578442	8/80	12:	23:	3	13	-12.1	71.8	22.2	6.0	J.27	-29.9	13	0.4	-119.7	14.1	J.0		0.09	-13.6		
1972	44306	50127979	8/80	14:	55:	27	13	-9.5	48.7	23.0	5.5	J.28	-31.5	17	-1.2	-142.8	10.9	0.4		0.03	-9.8		
1973	44306	55082441	8/80	15:	28:	4	17	2.2	25.5	21.4	4.1	J.19	-23.7	17	10.5	-166.0	5.9	-2.2		-0.37	-4.3		
1974	44306	61227055	8/80	17:	0:	27	17	22.5	2.4	21.0	2.8	J.13	-22.7	13	26.1	170.9	8.3	-0.3		-0.04	-7.9		
1975	44306	6781510	8/80	18:	33:	3	13	21.8	-20.7	29.0	5.2	J.18	-32.5	13	20.9	147.8	11.0	J.5		0.04	-12.5		
1976	44306	72321048	8/80	20:	59:	3	13	19.1	-43.9	20.9	7.4	0.35	-27.8	13	8.5	124.6	8.8	-4.8		-0.55	-4.9		
1977	44306	77845509	8/80	21:	38:	5	13	17.3	-67.0	25.2	1.2	J.05	-32.3	13	0.9	101.5	7.4	-3.1		-0.69	4.3		
1978	44306	83423145	8/80	23:	10:	23	13	7.4	-90.1	27.8	6.8	0.24	-38.1	20	-9.4	78.4	11.5	-3.1		-0.44	-5.1		
1979	44307	85834064	9/80	0:	42:	58	20	-9.3	-113.2	33.9	3.5	J.10	-34.0	20	-8.7	55.3	15.6	-1.1		-0.07	-10.2		
1980	44307	8133131	9/80	2:	15:	33	20	-10.7	-130.4	26.0	1.8	J.07	6.8	17	0.9	32.1	12.3	2.1		0.17	-12.0		
1981	44307	13082670	9/80	3:	48:	2	17	2.0	-159.5	15.8	2.8	J.18	-16.5	17	11.6	9.0	15.1	-2.5		-0.17	-9.6		
1982	44307	13687593	9/80	5:	20:	32	17	9.6	177.4	21.7	3.5	J.16	-24.9	30	29.5	-14.1	17.2	-1.9		-0.11	-17.6		
1983	44307	19222208	9/80	5:	20:	32	17	9.6	177.4	21.7	3.5	J.16	-24.9	30	29.5	-14.1	17.2	-1.9		-0.11	-17.6		
1984	44307	24781746	9/80	6:	53:	1	30	8.9	154.2	30.3	3.3	J.27	-37.2	30	29.5	-37.3	12.4	-3.8		-0.31	-4.6		
1985	44307	24780669	9/80	8:	25:	31	30	5.5	131.1	20.2	2.6	0.10	-28.3	13	23.6	-60.4	11.5	3.1		0.45	-19.4		
1986	44307	30331284	9/80	8:	25:	36	30	5.5	131.1	20.2	2.6	0.10	-28.3	13	23.6	-60.4	11.5	3.1		0.45	-19.4		
1987	44307	35808222	9/80	9:	58:	0	13	4.2	108.0	11.9	3.5	J.29	-16.2	13	9.1	-83.5	11.0	4.5		0.41	-14.4		
1988	44307	35805746	9/80	11:	30:	30	13	1.2	84.9	10.8	5.0	0.52	-17.6	20	9.5	-106.6	15.0	-0.5		-0.03	-17.2		
1989	44307	41403060	9/80	11:	30:	35	13	1.2	84.9	10.8	5.0	0.52	-17.6	20	9.5	-106.6	15.0	-0.5		-0.03	-17.2		
1990	44307	41435204	9/80	13:	2:	59	20	-20.5	61.7	29.8	7.8	J.26	-36.2	20	-0.2	-129.8	12.5	-1.7		-0.14	-10.0		
1991	44307	46979899	9/80	13:	3:	4	20	-20.5	61.7	29.8	7.8	J.26	-36.2	20	-0.2	-129.8	12.5	-1.7		-0.14	-10.0		
1992	44307	46984822	9/80	14:	35:	29	20	-21.7	38.6	23.3	7.6	0.34	-28.3	23	-0.9	-152.9	7.0	1.1		0.15	-5.6		
1993	44307	52529437	9/80	14:	35:	34	20	-21.7	38.6	23.3	7.6	0.34	-28.3	23	-0.9	-152.9	7.0	1.1		0.15	-5.6		
1994	44307	52534301	9/80	16:	7:	58	23	7.8	15.5	24.0	9.7	J.43	-31.5	23	18.3	-176.0	10.0	1.8		0.18	-11.7		
1995	44307	58035898	9/80	16:	8:	3	23	7.8	15.5	24.0	9.7	J.43	-31.5	23	18.3	-176.0	10.0	1.8		0.18	-11.7		
1996	44307	63638513	9/80	17:	40:	28	10	23.6	-7.6	17.0	6.4	0.36	-34.2	10	21.3	160.9	11.0	-0.7		-0.06	-7.5		
1997	44307	63633436	9/80	17:	40:	33	10	23.6	-7.6	17.0	6.4	0.36	-34.2	10	21.3	160.9	11.0	-0.7		-0.06	-7.5		
1998	44307	69178051	9/80	15:	12:	58	10	24.5	-30.8	21.0	3.8	J.18	-24.4	10	13.5	137.7	8.5	-1.4		-0.17	-9.9		
1999	44307	69182974	9/80	15:	13:	4	10	24.5	-30.8	21.0	3.8	J.18	-24.4	10	13.5	137.7	8.5	-1.4		-0.17	-9.9		
2000	44307	74727589	9/80	20:	45:	27	13	23.3	-53.9	14.3	3.7	0.61	-32.5	13	11.4	114.6	9.2	-5.9		-0.63	-4.4		
2001	44307	74732512	9/80	22:	17:	57	13	12.4	-77.0	22.8	4.0	J.20	9.2	13	2.0	91.5	4.0	-3.3		-0.83	-3.0		
2002	44307	80277127	9/80	22:	18:	2	13	12.4	-77.0	22.8	4.0	J.20	9.2	13	2.0	91.5	4.0	-3.3		-0.83	-3.0		
2003	44307	85826605	9/80	23:	50:	26	3	6.2	-100.1	26.5	4.0	0.15	-33.6	3	-6.8	68.4	17.0	-2.5		-0.15	-12.7		
2004	44308	85831589	10/80	23:	50:	26	3	6.2	-100.1	26.5	4.0	0.15	-33.6	3	-6.8	68.4	17.0	-2.5		-0.15	-12.7		
2005	44308	49791552	10/80	1:	22:	59	3	8.6	-123.3	18.3	2.0	J.14	-21.0	3	0.9	45.2	12.0	-3.2		-0.02	-12.8		
2006	44308	49840705	10/80	1:	22:	59	3	8.6	-123.3	18.3	2.0	J.14	-21.0	3	0.9	45.2	12.0	-3.2		-0.02	-12.8		
2007	44308	10528690	10/80	2:	59:	2	13	3.4	-146.4	18.0	1.3	0.07	-14.0	13	14.2	22.1	10.6	-0.4		-0.04	-13.1		
2008	44308	10533018	10/80	2:	59:	2	13	3.4	-146.4	18.0	1.3	0.07	-14.0	13	14.2	22.1	10.6	-0.4		-0.04	-13.1		
2009	44308	16076225	10/80	4:	28:	36	13	5.6	-169.5	17.2	2.5	0.15	-15.7	13	21.9	-1.0	8.9	-2.2		-0.25	-15.2		
2010	44308	16083154	10/80	4:	28:	37	13	5.6	-169.5	17.2	2.5	0.15	-15.7	13	21.9	-1.0	8.9	-2.2		-0.25	-15.2		
2011	44308	21627701	10/80	6:	7:	52	7	18.2	167.4	16.4	4.5	0.28	-20.5	7	33.7	-24.1	14.8	-2.0		-0.13	-9.1		
2012	44308	21632691	10/80	6:	7:	52	7	18.2	167.4	16.4	4.5	0.28	-20.5	7	33.7	-24.1	14.8	-2.0		-0.13	-9.1		
2013	44308	27177305	10/80	7:	32:	57	7	25.7	144.2	23.5	-1.2	-0.05	-27.9	7	31.3	-47.3	14.1	-0.6		-0.04	-14.6		
2014	44308	27182299	10/80	7:	32:	57	7	25.7	144.2	23.5	-1.2	-0.05	-27.9	7	31.3	-47.3	14.1	-0.6		-0.04	-14.6		
2015	44308	32726543	10/80	9:	5:	26	20	21.1	121.1	8.8	2.6	J.30	-13.2	20	23.6	-70.4	9.2	3.2		0.56	-14.3		
2016	44308	32731766	10/80	9:	5:	31	20	21.1	121.1	8.8	2.6	J.30	-13.2	20	23.6	-70.4	9.2	3.2		0.56	-14.3		
2017	44308	38271466	10/80	10:	37:	51	20	1.4	98.0	13.2	1.4	J.11	-18.9	20	26.6	-93.5	11.8	0.4		0.03	-14.1		
2018	44308	38276339	10/80	10:	37:	56	20	1.4	98.0	13.2	1.4	J.11	-18.9	20	26.6	-93.5	11.8	0.4		0.03	-14.1		
2019	44308	43821004	10/80	12:	10:	21	20	-9.5	74.9	21.7	7.9	J.37	-31.6	20	15.2	-116.6	12.9	0.3		0.03	-12.5		
2020	44308	43825927	10/80	12:	10:	25	20	-9.5	74.9	21.7	7.9	J.37	-31.6	20	15.2	-116.6	12.9	0.3		0.03	-12.5		
2021	44308	49370542	10/80	13:	42:	50	20	-22.3	51.8	23.1	6.8	J.29	-34.9	20	5.7	-139.8	13.4	2.2		0.17	*****		





PASS	HJD	HS EC	DATE	HR	MIN	SEC	ASCENDING	D. ECL	Z J1	Z	T	T/Z	DELTA E	DESCENDING	Z J2	Z	T	DELTA B
2045	44111	23101331	3/13/80	6:20	41	30	30	36.9	165.8	3.2	-1.1	-0.34	11.0	35	55.7	10.2	0.5	0.05 -7.3
2046	44111	28730833	3/13/80	7:58	45	30	20.6	137.7	20.1	1.7	0.08	-26.3	13	28.1	-53.8	11.9	2.9	0.28 -19.6
2047	44111	34270588	3/13/80	9:31	15	10	7.3	114.6	11.3	1.9	0.16	-17.2	10	16.3	-76.3	5.3	7.7	1.44 -12.1
2048	44111	39615211	3/13/80	11:3	35	10	3.1	91.5	14.2	0.2	0.31	-17.0	17	1.6	-100.1	13.4	4.2	0.31 -19.9
2049	44111	45369673	3/13/80	12:36	40	17	-2.5	68.4	16.5	2.3	0.14	-21.7	17	3.7	-123.2	5.1	-1.6	-0.31 -4.6
2050	44111	50909372	3/13/80	14:40	29	17	-1.1	45.3	12.0	3.0	0.25	-14.2	7	6.6	-146.3	4.3	-0.3	-0.07 -2.0
2051	44111	56458513	3/13/80	17:17	23	7	15.2	22.2	6.4	3.9	0.47	-10.7	7	10.7	-169.4	4.1	-2.0	-0.49 -2.5
2052	44111	62093533	3/13/80	19:13	28	7	27.6	-1.0	14.2	1.8	0.13	-14.4	20	23.2	167.5	4.2	-3.1	-0.32 -0.0
2053	44111	67553078	3/13/80	20:20	31	20	25.3	-24.1	29.5	4.0	0.20	-23.6	20	20.2	144.4	3.3	-3.8	-0.71 -3.7
2054	44111	73102816	3/13/80	22:00	19	20	23.3	-47.2	16.7	9.3	0.56	-27.9	23	12.1	121.3	2.2	-7.3	-0.37 3.1
2055	44111	78648222	3/13/80	24:21	51	23	16.7	-75.3	15.4	5.2	0.34	-34.4	23	7.7	98.2	2.1	-2.4	-1.11 -2.1
2056	44111	84187922	3/13/80	26:23	12	23	-1.6	-93.4	34.5	12.2	0.30	-56.0	20	-10.4	75.1	17.3	2.0	0.14 -15.6
2057	44112	8978356	3/14/80	28:05	38	20	-13.2	-116.5	26.9	4.7	0.13	-33.5	20	-8.4	51.9	17.3	1.7	0.10 -19.8
2058	44112	8883319	3/14/80	30:23	3	20	-5.4	-139.0	22.7	4.3	0.19	5.9	23	-2.6	24.8	12.5	2.1	0.17 -11.5
2059	44112	14432857	3/14/80	32:02	27	23	1.1	-162.7	20.1	7.1	0.35	-26.2	23	31.7	5.7	13.3	0.8	0.06 -21.6
2060	44112	19977480	3/14/80	33:52	57	23	13.0	174.2	21.8	3.9	0.18	-26.2	10	54.8	-17.4	17.5	0.6	0.03 -17.3
2061	44112	25522103	3/14/80	35:5	17	10	23.0	151.1	22.9	2.9	0.13	-26.6	10	49.9	-40.5	16.2	0.9	0.06 -13.9
2062	44112	31061802	3/14/80	37:41	46	7	-5.5	127.9	20.0	0.5	0.33	-20.4	7	27.5	-63.6	12.0	2.5	0.20 -14.9
2063	44112	36611348	3/14/80	39:13	6	7	-19.7	104.8	16.1	0.9	0.36	-20.6	7	3.1	-86.7	13.7	5.3	0.39 -19.0
2064	44112	42155962	3/14/80	41:42	35	13	-14.7	81.7	16.3	7.2	0.44	-22.5	13	5.3	-109.8	14.7	1.7	0.12 -16.9
2065	44112	47705509	3/14/80	43:15	0	13	-10.3	58.6	26.3	6.1	0.23	-36.6	13	-2.7	-132.9	16.4	1.6	0.10 -18.4
2066	44112	53245292	3/14/80	44:47	37	17	-10.1	35.5	23.3	4.8	0.38	-32.6	17	-0.9	-156.0	7.4	0.2	0.02 -5.8
2067	44112	58794734	3/14/80	46:19	49	17	4.5	12.4	13.4	9.3	0.50	-30.6	17	11.6	-179.2	8.7	-0.7	-0.09 -8.0
2068	44112	64334454	3/14/80	47:52	14	7	19.0	-17.7	20.0	8.7	0.42	-39.6	7	15.5	157.7	10.2	-4.1	-0.40 -4.5
2069	44112	69883931	3/14/80	49:24	43	7	26.1	-33.8	4.9	5.1	0.21	-26.3	7	16.6	134.6	7.1	-1.7	-0.24 -9.2
2070	44112	75428614	3/14/80	51:00	48	3	22.7	-56.9	16.1	6.2	0.36	-34.1	3	7.5	111.5	7.3	-6.1	-0.35 -3.2
2071	44112	80978160	3/14/80	52:29	28	3	13.3	-89.0	23.1	2.9	0.12	-36.1	3	*****	*****	*****	*****	***** -3.2
2072	44112	121338	3/15/80	0:1	50	0	4.1	-103.1	20.0	5.2	0.25	-35.0	0	-5.4	65.3	15.0	-2.2	-0.15 -11.2
2073	44112	5661098	3/15/80	1:34	21	0	7.5	-126.2	12.4	3.5	0.28	*****	0	1.5	42.2	11.4	-0.7	-0.06 -9.8
2074	44112	11215400	3/15/80	3:06	55	0	12.4	-149.3	9.7	3.1	0.32	-19.1	0	16.3	19.1	13.2	-1.9	-0.13 -3.3
2075	44112	16794187	3/15/80	4:39	14	0	11.9	-172.5	14.9	1.0	0.37	-9.2	0	24.6	-4.0	8.0	-1.6	-0.20 -4.5
2076	44112	22296806	3/15/80	6:11	33	3	16.9	164.4	15.2	2.8	0.19	-14.6	3	36.9	-27.1	9.3	0.3	0.03 -6.1
2077	44112	27843432	3/15/80	7:44	3	3	18.8	141.3	22.1	-0.8	-0.04	-25.9	3	34.6	-50.2	12.0	-1.0	-0.08 -13.7
2078	44112	33392977	3/15/80	9:16	28	3	13.9	112.2	9.3	0.9	0.10	-14.6	3	18.5	-73.3	7.6	5.0	0.74 -13.3
2079	44112	38932676	3/15/80	10:48	57	3	0.5	95.1	13.2	-0.2	-0.02	-14.3	3	5.7	-96.4	12.5	1.2	0.10 -6.7
2080	44112	44482224	3/15/80	12:21	17	3	-4.7	72.0	19.7	7.2	0.37	-26.2	3	3.4	-119.5	5.3	-1.2	-0.14 -7.4
2081	44112	50021921	3/15/80	13:53	41	3	-3.9	48.9	16.8	4.0	0.24	-27.3	3	4.4	-142.6	7.1	-0.0	-0.11 -5.7
2082	44112	55571467	3/15/80	15:26	11	3	2.9	25.8	13.7	3.9	0.28	-16.7	3	8.7	-165.8	2.9	-3.2	-1.13 -1.1
2083	44112	61116090	3/15/80	16:58	36	3	21.6	2.7	13.7	3.3	0.28	-18.2	0	16.3	171.1	5.4	-3.1	-0.57 -2.4
2084	44112	66650712	3/15/80	18:31	0	0	31.7	-29.4	14.3	5.3	0.37	-19.3	0	21.4	148.0	4.3	-3.1	-0.72 -2.5

OF POOR QUALITY

PAGE	AS SEC	DATE	ASCENDING REF	DELTA D	ECL	E	I	I/E	DELTA B	KP	DESCENDING D	ECL	E	I	I/E	DELTA B
2085	722493335	12/29/80	13	29.2	-45.5	15.0	4.4	3.29	-18.2	13	22.4	128.9	4.3	-0.7	-1.57	2.1
2086	777499558	12/30/80	13	29.2	-66.6	12.1	5.8	3.48	-26.5	13	15.6	101.8	-0.2	-7.0	31.87	5.0
2087	832496557	12/31/80	13	19.6	-89.7	13.0	6.3	3.48	-30.0	17	5.3	76.7	1.0	-5.9	-5.75	7.8
2088	443247470	1/1/81	17	2.0	-112.8	10.3	2.0	3.00	-12.9	17	4.6	55.6	4.2	-3.7	-1.38	*****
2089	443797152	1/2/81	17	5.0	-135.9	8.7	-0.6	-3.37	-14.5	10	19.7	32.5	-1.0	-4.0	4.11	*****
2090	135246395	1/3/81	10	22.2	-159.0	-2.0	-1.1	3.44	-1.7	10	25.6	9.4	2.4	-7.1	-2.97	4.1
2091	150713350	1/4/81	10	34.1	177.3	1.0	-2.7	-1.75	-0.6	7	46.2	-13.7	3.6	-0.3	-12.37	1.6
2092	246110550	1/5/81	7	40.8	154.4	5.2	-2.4	-3.45	1.3	7	53.6	-36.8	3.3	-2.2	-2.56	3.1
2093	301635335	1/6/81	7	34.7	131.7	14.3	-1.0	-3.10	-3.5	17	37.6	-54.9	5.2	-3.1	-0.33	-6.0
2094	337602395	1/7/81	17	7.1	101.6	11.7	1.2	3.13	-14.4	17	19.2	-83.0	-0.3	-3.1	0.36	3.7
2095	412449150	1/8/81	17	3.2	85.5	7.3	2.9	3.36	-7.6	10	15.3	-106.1	2.2	-1.0	-0.69	-3.4
2096	467895441	1/9/81	10	5.7	62.4	13.6	2.1	3.15	-19.1	10	6.3	-126.2	1.7	-3.8	-2.28	2.8
2097	523390866	1/10/81	10	3.6	39.3	10.9	2.6	3.24	-15.8	10	12.2	-152.3	-3.5	-2.6	0.73	7.3
2098	576787095	1/11/81	10	19.2	16.2	8.3	3.2	3.35	-11.6	10	17.7	-175.4	-1.7	-2.0	1.15	3.5
2099	634184333	1/12/81	10	20.9	-6.9	8.3	4.0	3.43	-22.3	7	23.2	161.5	-1.5	-3.7	3.89	9.4
2100	689031116	1/13/81	7	52.6	-30.0	9.4	-0.0	-3.00	-8.6	7	27.3	138.4	-4.3	-3.7	1.32	6.9
2101	730077388	1/14/81	17	40.1	-33.1	6.4	4.9	3.77	-19.1	17	18.6	115.3	1.1	-7.0	-6.86	5.2
2102	800572841	1/15/81	17	27.1	-76.2	29.3	-7.3	-3.23	-29.0	17	4.6	92.2	-3.3	-2.0	0.72	3.5
2103	855340388	1/16/81	13	30.2	-99.3	15.3	3.5	3.23	-28.4	13	1.8	69.1	5.4	-3.0	-0.46	-0.6
2104	873964547	1/17/81	13	29.8	-122.4	4.3	2.6	3.22	-6.4	13	5.6	46.0	7.4	-4.0	-3.54	-4.1
2105	102642633	1/18/81	13	17.0	-145.5	7.0	2.4	3.31	-5.3	13	24.6	22.9	2.7	-3.0	-1.11	3.0
2106	1582357106	1/19/81	13	23.0	-168.6	8.2	3.6	3.44	-9.4	13	32.9	-0.2	2.5	-3.0	-1.39	3.7
2107	1582357106	1/20/81	13	23.0	168.3	3.7	3.3	1.44	-3.8	13	41.8	-23.3	4.0	-2.7	-0.69	0.7
2108	213132116	1/21/81	13	31.6	145.2	12.0	-1.6	-2.13	-17.7	13	40.8	-46.4	4.2	-3.3	-0.78	-3.7
2109	259181386	1/22/81	23	20.6	122.1	3.3	1.5	3.37	-11.6	23	27.5	-69.5	1.0	1.6	1.57	-2.6
2110	314827611	1/23/81	23	7.5	95.0	9.7	0.3	3.33	-14.1	23	24.6	-92.6	1.5	-2.3	-1.87	0.0
2111	383024668	1/24/81	17	1.9	75.9	5.0	2.8	3.30	*****	17	9.1	-115.7	2.3	-2.3	-0.38	-0.2
2112	430470311	1/25/81	17	3.9	52.8	12.4	2.3	3.16	-23.4	17	4.5	-138.8	3.9	-2.0	-0.31	-0.9
2113	490867303	1/26/81	10	3.6	29.7	12.9	4.9	3.38	-29.4	10	17.3	-161.3	-1.4	-2.3	1.02	-0.3
2114	546363366	1/27/81	10	24.7	6.6	13.7	3.5	3.26	-29.1	10	18.4	175.0	1.2	-1.3	-1.35	-0.2
2115	601748771	1/28/81	10	37.1	-16.5	12.3	6.6	3.53	-22.1	10	21.1	151.9	4.2	-2.3	-0.69	0.1
2116	657186338	1/29/81	10	30.0	-33.6	13.2	5.2	3.43	*****	10	22.4	128.8	4.0	-3.3	-0.48	-1.1
2117	712630368	1/30/81	7	30.1	-62.7	19.3	7.1	3.63	-22.0	7	13.8	105.7	1.1	-3.3	-7.79	4.4
2118	768049150	1/31/81	7	6.5	-85.8	14.5	7.3	3.91	-27.4	13	1.9	82.6	3.0	-3.3	-1.36	-0.2
2119	823427452	2/1/81	13	3.9	-109.9	18.3	3.4	3.25	-27.5	13	1.6	69.5	10.9	-2.4	-0.22	-4.1
2120	14653631	2/2/81	13	3.0	-132.0	8.0	1.0	3.12	-16.6	10	14.3	36.4	7.3	-3.3	-0.42	-2.9
2121	7034931	2/3/81	10	12.4	-155.1	4.7	0.2	3.34	*****	10	15.5	13.3	9.8	-4.0	-0.50	-0.5
2122	12574631	2/4/81	10	14.8	-178.2	14.3	2.6	3.18	-17.3	7	33.7	-9.8	6.9	-3.6	-0.56	-0.9
2123	16114039	2/5/81	7	20.8	159.7	15.4	2.1	3.23	15.0	7	36.5	-32.9	1.3	3.3	0.53	0.6
2124	16119201	2/6/81	7	26.7	130.0	16.3	3.2	3.31	-19.5	7	33.1	-58.0	6.0	-3.0	-0.46	-7.3

ORIGINAL PAGE IS  
OF POOR QUALITY

DATE	TIME	TYPE	WIND	TEMP	REL	DEW	SEA	WAVE	WIND	TEMP	REL	DEW	SEA	WAVE	WIND	TEMP	REL	DEW	SEA	WAVE		
2125	4416	16	3.4	112.5	0.0	-2.0	-0.70	0.3	7	19.8	-102.0	2.0	-3.0	-1.13	-2.1							
2126	4416	16	4.0	112.5	0.0	-2.0	-0.71	0.3	10	13.3	-125.3	0.0	-4.0	-0.34	4.1							
2127	4416	16	4.5	112.5	0.0	-2.0	-0.71	0.3	10	14.3	-138.4	-4.4	-2.9	0.65	9.2							
2128	4416	16	5.0	112.5	0.0	-2.0	-0.71	0.3	10	18.9	-171.5	-1.2	-3.4	2.72	5.0							
2129	4416	16	5.5	112.5	0.0	-2.0	-0.71	0.3	10	24.8	-165.5	-3.7	-4.0	1.04	8.8							
2130	4416	16	6.0	112.5	0.0	-2.0	-0.71	0.3	10	29.1	-142.4	-1.2	-4.7	3.40	3.5							
2131	4416	16	6.5	112.5	0.0	-2.0	-0.71	0.3	7	41.1	-49.2	3.4	4.2	1.22	-10.4	7	28.3	119.3	-1.1	-3.4	8.56	8.3
2132	4416	16	7.0	112.5	0.0	-2.0	-0.71	0.3	7	24.7	-72.2	9.7	3.2	0.33	-20.3	7	13.1	96.2	-5.3	-6.6	1.25	9.5
2133	4416	16	7.5	112.5	0.0	-2.0	-0.71	0.3	7	16.6	-95.3	17.5	-3.8	-0.35	-24.5	3	7.1	73.1	5.4	-3.4	-1.01	3.1
2134	4416	16	8.0	112.5	0.0	-2.0	-0.71	0.3	3	19.5	-118.4	8.3	1.9	0.23	-12.6	3	9.8	50.0	6.7	-4.4	-0.66	-3.1
2135	4416	16	8.5	112.5	0.0	-2.0	-0.71	0.3	3	19.2	-141.5	10.4	-1.4	-0.33	5.8	7	17.8	26.9	2.5	-2.2	-0.91	2.2
2136	4416	16	9.0	112.5	0.0	-2.0	-0.71	0.3	7	20.8	-164.6	6.2	3.9	0.62	-9.4	7	26.3	3.8	5.1	-2.7	-0.53	-1.3
2137	4416	16	9.5	112.5	0.0	-2.0	-0.71	0.3	33	47.3	-172.3	0.3	3.4	0.54	-9.4	33	41.6	-19.3	-10.2	-13.4	1.31	19.4
2138	4416	16	10.0	112.5	0.0	-2.0	-0.71	0.3	33	53.2	-149.2	6.3	-3.9	-0.37	-5.9	33	47.7	-42.4	-16.2	-7.7	0.48	19.8
2139	4416	16	10.5	112.5	0.0	-2.0	-0.71	0.3	30	43.6	-126.1	-0.7	-3.9	0.73	7.8	30	58.3	-65.5	-14.9	-3.4	0.43	17.4
2140	4416	16	11.0	112.5	0.0	-2.0	-0.71	0.3	30	37.7	-103.0	-10.9	-5.6	0.52	14.7	30	30.8	-88.6	4.9	0.1	0.02	-4.6
2141	4416	16	11.5	112.5	0.0	-2.0	-0.71	0.3	30	-0.2	-79.9	10.1	3.1	0.30	-14.2	30	29.8	-111.7	-0.9	-3.9	4.15	2.9
2142	4416	16	12.0	112.5	0.0	-2.0	-0.71	0.3	30	0.1	-56.6	15.2	3.1	0.20	-22.1	30	21.8	-134.8	-6.7	-5.8	0.87	11.6
2143	4416	16	12.5	112.5	0.0	-2.0	-0.71	0.3	30	22.5	-33.7	-3.3	-3.0	0.90	4.1	30	24.2	-157.9	-7.5	-3.1	0.69	12.4
2144	4416	16	13.0	112.5	0.0	-2.0	-0.71	0.3	30	24.2	-10.6	11.9	4.3	0.37	-19.1	30	26.1	-179.1	-0.9	-3.7	0.73	1.0
2145	4416	16	13.5	112.5	0.0	-2.0	-0.71	0.3	17	33.3	-12.4	14.6	5.9	0.41	-25.2	17	24.8	-156.0	0.3	-3.2	-0.48	-0.8
2146	4416	16	14.0	112.5	0.0	-2.0	-0.71	0.3	17	35.2	-35.5	16.9	4.4	0.26	-20.9	17	27.2	-132.9	-4.3	-7.2	1.48	9.1
2147	4416	16	14.5	112.5	0.0	-2.0	-0.71	0.3	10	36.3	-58.6	6.3	5.0	0.79	-18.5	10	19.8	-109.8	-1.3	-10.4	7.90	10.0
2148	4416	16	15.0	112.5	0.0	-2.0	-0.71	0.3	10	23.6	-81.7	11.0	3.3	0.29	-17.6	10	10.7	-86.7	-1.0	-4.7	4.74	3.9
2149	4416	16	15.5	112.5	0.0	-2.0	-0.71	0.3	10	12.2	-104.6	16.5	4.7	0.23	-25.5	10	0.8	-63.6	10.7	-2.1	-0.20	-6.9
2150	4416	16	16.0	112.5	0.0	-2.0	-0.71	0.3	10	7.2	-127.9	11.9	1.7	0.14	-17.2	10	5.3	-40.5	8.6	-1.3	-0.21	-5.4
2151	4416	16	16.5	112.5	0.0	-2.0	-0.71	0.3	10	8.6	-151.0	8.9	1.7	0.19	-7.1	10	15.5	-17.4	3.8	-3.0	-0.34	-0.6
2152	4416	16	17.0	112.5	0.0	-2.0	-0.71	0.3	10	22.2	-174.1	10.8	4.1	0.38	-12.3	10	23.2	-5.7	6.8	-3.9	-0.14	-3.3
2153	4416	16	17.5	112.5	0.0	-2.0	-0.71	0.3	10	30.2	-162.8	13.0	4.5	0.46	-11.0	10	42.4	-28.7	6.1	0.5	0.08	-3.4
2154	4416	16	18.0	112.5	0.0	-2.0	-0.71	0.3	10	25.0	-139.8	19.1	1.8	0.39	-24.9	10	38.9	-51.8	13.4	-2.6	-0.25	-12.7
2155	4416	16	18.5	112.5	0.0	-2.0	-0.71	0.3	13	22.3	-116.7	2.9	1.0	0.34	-9.6	13	36.2	-74.9	7.3	4.0	0.55	-10.5
2156	4416	16	19.0	112.5	0.0	-2.0	-0.71	0.3	13	13.9	-93.6	11.8	-0.5	-0.05	-14.9	7	31.4	-98.0	9.2	0.5	0.06	-11.7
2157	4416	16	19.5	112.5	0.0	-2.0	-0.71	0.3	7	1.8	-70.5	18.0	3.9	0.21	-24.3	7	21.1	-121.1	5.0	-1.7	-0.33	-2.5
2158	4416	16	20.0	112.5	0.0	-2.0	-0.71	0.3	7	-3.4	-47.4	17.3	3.0	0.18	-25.1	13	18.0	-144.2	3.3	0.4	0.14	-1.5
2159	4416	16	20.5	112.5	0.0	-2.0	-0.71	0.3	13	8.3	-24.3	13.5	3.3	0.25	-15.9	13	20.4	-167.3	-0.9	-2.4	2.02	1.3
2160	4416	16	21.0	112.5	0.0	-2.0	-0.71	0.3	13	34.7	-1.2	13.1	-0.3	-0.12	-12.2	17	29.5	-169.5	-1.6	-1.0	0.59	2.1
2161	4416	16	21.5	112.5	0.0	-2.0	-0.71	0.3	17	47.2	-21.9	15.2	1.7	0.11	-12.1	17	35.7	-146.6	-3.2	-3.7	1.16	4.1
2162	4416	16	22.0	112.5	0.0	-2.0	-0.71	0.3	17	53.2	-44.9	3.2	4.9	1.06	-5.9	13	29.7	-123.5	-4.1	-3.4	2.27	10.2
2163	4416	16	22.5	112.5	0.0	-2.0	-0.71	0.3	13	24.6	-68.0	4.7	7.9	1.70	-19.6	13	15.3	-100.4	-1.1	-7.0	6.61	5.4

ORIGINAL PAGE IS  
OF POOR QUALITY



PASS	RD	RSEC	DATE	KF	KP	C	ASCENDING					DELTA B	DESCENDING					1/2 DELTA b		
							RB	D	EOL	EOL	E		I	1/2	CP	E	EOL		EOL	E
2205	44	44	3/23/80	11	45	4	7	-23.7	65.7	38.1	7.9	0.21	-47.6	7	-13.7	-125.9	20.1	2.5	0.13	-21.1
2206	44	44	3/23/80	14	18	4	7	-21.7	42.6	31.5	7.3	0.23	-43.0	10	-11.0	-149.0	15.2	4.5	0.29	-16.2
2207	44	44	3/23/80	15	50	9	10	-3.4	19.5	27.7	10.8	0.39	-35.3	10	-6.1	-172.1	17.3	3.6	0.21	-29.7
2208	44	44	3/23/80	17	24	3	10	5.7	-1.5	30.7	10.6	0.34	-44.1	10	10.2	164.4	14.6	2.3	0.16	-15.4
2209	44	44	3/23/80	18	55	4	10	17.8	-26.6	36.7	9.9	0.24	-39.2	10	7.3	141.4	14.4	-0.2	-0.02	-16.5
2210	44	44	3/23/80	18	55	4	10	16.5	-49.7	24.0	9.5	0.40	-35.2	0	-2.7	116.7	13.4	-4.6	-0.33	-9.6
2211	44	44	3/23/80	18	55	4	0	11.7	-72.8	25.3	6.7	0.26	-44.4	0	-14.6	95.6	10.6	-1.2	-7.12	-9.7
2212	44	44	3/23/80	18	55	4	0	7.9	-35.6	30.4	6.9	0.22	-54.1	3	-14.4	72.6	20.8	-2.0	-0.09	-13.4
2213	44	44	3/24/80	18	55	4	3	-4.4	-118.9	25.3	3.2	0.21	-37.8	3	-5.5	49.5	17.2	-0.2	-0.01	-16.0
2214	44	44	3/24/80	21	36	2	3	-10.5	-142.0	26.5	4.0	0.15	14.5	7	-2.4	26.4	12.7	3.0	0.23	-10.2
2215	44	44	3/24/80	4	8	4	7	1.9	-165.1	18.3	5.7	0.31	-32.6	7	10.9	3.3	13.6	0.1	0.02	-11.0
2216	44	44	3/24/80	4	41	1	17	7.4	171.9	24.5	7.7	0.31	-36.6	17	17.2	-15.7	22.8		0.04	-19.9
2217	44	44	3/24/80	7	13	2	17	10.1	148.4	26.6	6.4	0.24	-34.0	17	26.9	-42.8	22.6	-0.6	-0.02	-17.8
2218	44	44	3/24/80	8	45	3	17	-2.5	125.7	22.7	4.4	0.19	-28.5	17	24.8	-65.4	12.9	1.9	0.15	-18.7
2219	44	44	3/24/80	10	17	5	17	-12.3	102.7	*****	*****	*****	-32.3	17	9.6	-89.0	16.3	6.6	0.40	-24.3
2220	44	44	3/24/80	11	50	1	13	-14.8	79.6	20.3	3.1	0.40	-27.1	13	9.0	-112.0	19.6	-1.1	-0.06	-18.2
2221	44	44	3/24/80	11	22	1	13	-21.5	56.5	29.9	7.3	0.25	-40.1	13	-2.8	-135.1	18.5	-0.2	-0.01	-18.1
2222	44	44	3/24/80	14	54	4	17	-21.4	33.4	26.7	12.8	0.48	-40.3	17	-2.1	-158.2	11.1	1.3	0.12	-10.9
2223	44	44	3/24/80	16	26	5	17	-2.2	10.4	19.0	9.5	0.50	-31.0	17	4.3	178.8	10.9	3.9	0.08	-11.5
2224	44	44	3/24/80	17	59	1	3	26.8	-12.7	17.7	6.3	0.35	-36.3	3	18.5	155.7	8.2	-5.6	-0.67	0.0
2225	44	44	3/24/80	19	31	3	3	32.9	-35.8	24.6	3.3	0.13	-22.7	3	20.1	132.6	4.9	-4.3	-0.98	-3.3
2226	44	44	3/24/80	19	31	3	10	23.1	-58.8	18.7	9.1	0.49	-35.9	10	10.7	109.5	7.0	-8.0	-1.14	-0.2
2227	44	44	3/24/80	19	35	1	10	13.5	-61.9	22.3	5.0	0.23	-36.0	10	5.3	86.5	5.7	-4.0	-0.70	-3.7
2228	44	44	3/25/80	19	35	1	7	4.4	-105.0	21.9	4.0	0.18	-35.0	7	-2.2	63.4	14.2	-5.0	-0.35	-8.7
2229	44	44	3/25/80	19	40	1	7	0.0	-128.0	14.9	0.9	0.06	-21.6	7	1.0	40.3	10.9	-2.6	-0.24	-6.2
2230	44	44	3/25/80	19	42	5	0	2.2	-151.1	10.4	2.2	0.21	-15.0	0	17.5	17.3	11.8	-3.6	-0.31	-0.1
2231	44	44	3/25/80	19	42	5	0	21.2	-174.2	15.3	3.9	0.26	-23.7	0	27.0	-5.8	11.2	-1.6	-0.14	-8.8
2232	44	44	3/25/80	19	42	5	3	29.9	162.7	10.5	4.0	0.38	-15.9	3	43.7	-26.9	10.1	-0.6	-0.06	-5.5
2233	44	44	3/25/80	19	49	4	3	20.4	139.7	19.0	-0.4	-0.02	-26.0	3	40.0	-51.9	12.6	-0.8	-0.06	-16.8
2234	44	44	3/25/80	19	51	5	10	15.6	116.6	6.5	-0.3	-0.04	-15.6	10	20.9	-75.0	4.4	4.9	1.02	-5.6
2235	44	44	3/25/80	19	54	3	10	11.3	93.5	10.5	-2.2	-0.21	-13.6	13	14.8	-98.1	11.1	-0.8	-0.07	-0.8
2236	44	44	3/25/80	19	26	3	13	4.7	70.5	15.9	2.8	0.17	-20.7	13	12.8	-121.1	5.4	-5.3	-0.95	-0.6
2237	44	44	3/25/80	19	53	3	13	3.5	47.4	7.0	0.4	0.06	-13.3	17	17.3	-144.2	-0.4	-5.9	16.56	7.1
2238	44	44	3/25/80	19	30	5	17	12.7	24.3	2.6	-0.0	-0.00	-5.6	17	18.3	-167.3	-1.9	-6.9	3.62	5.2
2239	44	44	3/25/80	17	3	9	17	32.6	1.3	1.3	-0.1	-0.10	-4.0	20	29.4	169.7	-7.1	-3.0	1.28	14.7
2240	44	44	3/25/80	18	35	2	20	49.6	-21.8	1.6	-0.2	-0.10	-6.6	20	32.7	146.6	-4.6	-7.0	1.52	9.7
2241	44	44	3/25/80	20	7	4	20	43.7	-44.9	2.2	2.8	1.26	-5.3	37	12.9	123.5	7.5	-7.4	-0.98	0.1
2242	44	44	3/25/80	15	30	5	37	10.3	-67.9	32.5	12.3	0.33	-51.5	37	-1.3	100.5	10.1	-0.2	-0.02	-11.0
2243	44	44	3/25/80	15	12	1	37	-18.5	-91.0	57.9	20.0	0.35	-83.1	47	-18.6	77.4	26.8	2.9	0.11	-25.3
2244	44	44	3/26/80	0	44	2	47	-65.2	-114.1	55.0	21.6	0.39	-82.4	47	-26.4	54.3	36.7	6.1	0.17	-43.9

PASS	MSJ	MSEC	DATE	ASCENDING	E	I	L/E	DELTA	DESCENDING	EOL	E	I	I/E	DELTA			
				AMP	EQI	PL			AMP	ECL							
2245	44324	8209008	3/26/80	47	-72.4	-137.1	73.0	33.0	0.45	-108.6	57	-3.7	8.2	54.3	15.0	0.28	-64.9
2246	44324	13739473	3/26/80	57	-75.8	-160.2	91.6	37.7	0.41	-131.1	40	27.3	-14.9	44.4	8.3	0.19	-51.7
2247	44324	19275470	3/26/80	57	-45.4	176.8	67.1	24.8	0.37	-92.3	40	27.3	-14.9	44.4	8.3	0.19	-51.7
2248	44324	24809051	3/26/80	40	-48.3	153.7	87.9	26.2	0.30	-107.6	40	-10.0	-37.9	56.3	8.0	0.14	-54.4
2249	44324	30343853	3/26/80	40	-67.2	130.6	101.7	23.2	0.23	-117.1	40	-34.9	-61.0	48.3	22.2	0.46	-75.9
2250	44324	35878635	3/26/80	40	-77.7	107.6	88.6	20.0	0.23	-105.1	40	-53.0	-84.1	46.6	18.6	0.40	-103.8
2251	44324	41417375	3/26/80	40	-78.3	84.5	84.5	25.1	0.30	-104.6	43	-40.9	-107.1	33.9	5.6	0.28	-48.2
2252	44324	46345205	3/26/80	43	-103.0	61.4	*****	*****	*****	-128.6	43	-44.9	-130.2	49.2	10.0	0.34	-65.4
2253	44324	52483021	3/26/80	43	-81.5	38.4	36.2	19.7	0.35	*****	23	-48.7	-153.2	41.6	14.3	0.34	-52.5
2254	44324	58013883	3/26/80	23	-61.9	15.3	*****	*****	*****	-73.6	23	-39.2	-176.3	39.5	10.7	0.28	-49.0
2255	44324	63551621	3/26/80	30	-34.8	-7.7	51.1	25.4	0.50	-82.0	30	-28.0	160.6	30.7	6.5	0.18	-39.8
2256	44324	69081498	3/26/80	30	-38.7	-30.8	77.3	27.2	0.35	-84.6	30	-25.2	137.6	35.6	10.8	0.30	-48.3
2257	44324	74616239	3/26/80	37	-32.0	-53.9	59.2	20.4	0.34	-80.5	37	-50.1	114.5	36.1	9.9	0.19	-43.4
2258	44324	80151061	3/26/80	37	-37.0	-76.9	74.1	14.2	0.19	-93.9	37	-41.6	91.5	33.5	11.4	0.34	-42.7
2259	44324	85685873	3/26/80	30	-44.6	-103.0	73.3	16.2	0.22	-96.7	30	-41.2	68.4	46.4	10.2	0.22	-45.7
2259	44324	8819927	3/27/80	30	-44.6	-100.0	73.3	16.1	0.22	-96.7	30	-41.2	68.4	46.4	10.2	0.22	-45.7
2260	44324	9824649	3/27/80	30	-50.9	-123.0	60.1	15.3	0.25	-98.6	30	-44.5	45.3	45.7	15.7	0.34	-58.6
2261	44324	10359641	3/27/80	13	-43.9	-146.1	*****	*****	*****	*****	13	-28.7	22.3	38.9	13.9	0.36	-47.0
2262	44324	15889510	3/27/80	13	-38.7	-169.2	51.7	16.1	0.31	-69.0	13	-16.3	-0.8	37.6	13.0	0.34	-46.0
2263	44324	21424337	3/27/80	17	-18.3	167.8	47.7	13.9	0.29	-65.0	17	6.7	-23.8	47.3	10.7	0.23	-46.2
2264	44324	26954178	3/27/80	17	-14.9	144.7	51.0	9.6	0.17	-64.4	17	4.0	-46.9	38.4	6.3	0.16	-41.8
2265	44324	32486970	3/27/80	17	-21.6	121.7	44.5	9.9	0.22	-55.5	17	-10.4	-70.0	29.2	10.3	0.37	-39.2
2266	44324	38028083	3/27/80	17	-24.2	98.6	44.4	7.2	0.16	-52.8	17	-20.0	-93.0	37.3	3.0	0.21	-46.8
2267	44324	43553639	3/27/80	20	-30.0	75.5	40.6	13.9	0.34	*****	20	-19.2	-116.1	33.5	4.4	0.13	-37.5
2268	44324	49093372	3/27/80	20	-44.1	52.5	39.7	12.1	0.30	-57.9	20	-22.1	-139.1	31.9	3.2	0.10	-33.9
2269	44324	54623422	3/27/80	13	-41.5	29.4	37.0	14.3	0.39	-49.5	13	-22.8	-162.2	24.1	2.1	0.09	-26.0
2270	44324	60158020	3/27/80	13	-8.1	6.4	37.3	13.8	0.37	-52.1	13	-19.1	174.8	26.5	3.7	0.14	-25.9
2271	44324	65687650	3/27/80	10	8.4	-16.7	41.5	14.5	0.33	11.7	10	-6.6	151.7	26.4	2.3	0.09	-25.5
2272	44324	71227358	3/27/80	10	8.4	-39.7	42.9	12.3	0.29	-47.1	10	-5.6	128.6	25.9	1.4	0.05	-25.6
2273	44324	76757234	3/27/80	17	2.4	-62.8	39.6	13.5	0.34	-50.2	17	-15.6	105.6	21.8	-1.3	-0.06	-19.0
2274	44324	82292026	3/27/80	17	-20.3	-85.8	46.4	10.3	0.35	-72.0	17	-27.3	82.6	22.7	3.5	0.15	-23.6
2275	44324	1420178	3/28/80	17	-24.6	-158.9	43.3	8.9	0.21	-59.3	17	-24.5	59.5	23.4	3.6	0.12	-31.0
2276	44324	6959879	3/28/80	17	-35.1	-132.0	44.3	7.8	0.18	-58.0	27	-14.5	36.4	25.8	5.2	0.20	-27.2
2277	44324	12484844	3/28/80	27	-38.4	-155.0	39.4	10.9	0.28	-48.6	27	-5.4	13.4	23.1	3.6	0.13	-23.2
2278	44324	18019633	3/28/80	27	-3.5	-178.1	35.3	10.1	0.29	-49.1	23	15.8	-9.7	25.1	3.8	0.15	-29.4
2279	44324	23245443	3/28/80	23	1.1	158.9	*****	*****	*****	-49.1	23	22.4	-32.7	18.9	2.3	0.12	-14.9
2280	44324	29729954	3/28/80	23	11.5	135.8	*****	*****	*****	-49.1	13	15.9	-55.8	21.4	3.3	0.01	-25.3
2281	44324	34617801	3/28/80	13	10.9	112.8	19.9	0.6	0.04	-23.0	13	10.3	-78.9	16.7	3.3	0.32	-20.2
2282	44324	40152665	3/28/80	13	3.6	89.7	28.2	5.0	0.18	-30.5	17	2.1	-111.9	24.8	2.7	0.11	-29.4
2283	44324	45687457	3/28/80	17	-20.1	60.7	35.0	3.7	0.27	-44.6	17	1.6	-125.0	15.0	-2.9	-0.19	-11.6

ORIGINAL PAGE IS OF POOR QUALITY

PASS	MJD	MAG	DATE	ASCENDING					DESCENDING					I/E	DELTA B								
				KE	D	E	L	T	JULIA	B	KE	D	E			L	T						
2284	44326	51217333	3/28/80	14	13	37	17	-17.6	43.0	23.7	7.8	0.20	-32.0	10	2.0	-140.0	10.2	-2.0	-0.19	-6.4			
2285	44326	56747230	3/28/80	15	45	47	10	-3.9	20.6	19.2	7.9	0.41	-23.6	10	0.7	-171.1	0.6	-2.1	-0.22	-6.8			
2286	44326	62277079	3/28/80	17	17	57	10	0.3	-2.5	20.4	9.4	0.46	-29.0	10	9.7	165.9	7.9	-3.7	-0.47	-3.3			
2287	44326	67811877	3/28/80	18	53	6	10	0.0	-25.5	24.0	8.6	0.30	-20.2	10	14.4	142.0	9.4	-4.0	-0.43	-5.7			
2288	44326	73346669	3/28/80	20	22	21	10	30.5	-48.6	17.0	0.2	0.30	-24.1	23	6.7	119.8	5.6	-9.2	-1.05	2.0			
2289	44326	78876546	3/28/80	21	5	31	23	25.5	-71.6	16.7	4.4	0.20	-29.4	23	-8.6	96.7	3.2	-3.3	-1.05	0.4			
2290	44326	84411337	3/28/80	23	26	40	23	22.6	-94.7	20.2	2.7	0.10	-39.2	23	-13.3	73.7	15.3	-2.3	-0.19	-5.1			
2291	44327	3536541	3/29/80	0	59	1	23	-1.7	-117.7	27.6	5.7	0.21	-40.2	23	-16.3	50.6	20.6	1.7	0.08	-22.2			
2292	44327	9067147	3/29/80	2	31	7	23	-9.2	-140.8	30.6	5.4	0.18	-40.6	23	-7.4	27.0	10.1	5.4	0.33	-16.6			
2293	44327	14097047	3/29/80	4	3	17	23	-2.9	-103.9	*****	*****	*****	-40.0	23	2.7	4.5	19.0	4.1	0.22	-19.2			
2294	44327	20131819	3/29/80	5	35	1	23	-8.6	173.1	42.1	15.4	0.30	-58.0	27	9.4	-18.5	27.8	3.4	0.12	-27.5			
2295	44327	25601025	3/29/80	7	7	41	27	-0.5	150.1	35.9	9.4	0.20	-43.8	27	20.9	-41.0	25.6	3.9	0.15	-25.6			
2296	44327	31191571	3/29/80	8	39	50	10	5.1	127.0	29.4	5.6	0.19	-31.5	10	13.2	-64.6	17.0	4.0	0.25	-25.4			
2297	44327	36726363	3/29/80	10	12	11	10	0.7	104.0	20.4	2.1	0.10	-24.6	10	5.3	-87.7	18.7	3.0	0.16	-21.3			
2298	44327	42256243	3/29/80	11	44	16	10	-10.5	80.9	23.6	11.0	0.47	-30.3	10	4.3	-110.7	20.6	1.8	0.09	-22.4			
2299	44327	47791038	3/29/80	13	10	31	10	-21.5	57.9	31.4	9.3	0.26	-41.1	10	-6.5	-133.8	20.3	-0.9	-0.33	-16.1			
2300	44327	53315992	3/29/80	14	40	40	20	-18.3	34.8	29.8	10.8	0.30	-39.5	20	-5.8	-150.8	11.8	-0.2	-0.02	-6.6			
2301	44327	58850784	3/29/80	16	20	50	20	-2.6	11.8	21.5	13.5	0.49	-31.6	20	6.9	-179.9	10.3	-0.0	-0.05	-10.5			
2302	44327	64377906	3/29/80	17	35	57	20	16.5	-11.3	23.0	14.8	0.63	-43.3	20	11.0	157.1	15.1	-3.3	-0.23	-7.4			
2303	44327	69917449	3/29/80	18	0	17	20	25.6	-34.3	39.4	11.6	0.29	-39.6	20	4.9	134.0	18.1	0.3	0.05	-19.9			
2304	44327	75443025	3/29/80	20	0	27	23	0.1	-57.4	38.4	12.3	0.32	-53.9	23	-16.5	111.0	16.1	-3.4	-0.21	-13.9			
2305	44327	80977423	3/29/80	22	2	37	23	-0.3	-80.4	44.7	10.7	0.24	-61.4	23	-21.1	88.0	18.3	3.0	0.19	-21.9			
2306	44328	107300	3/30/80	0	1	47	30	-18.0	-103.5	45.4	14.1	0.31	-60.3	30	-14.8	64.9	27.9	1.0	0.05	-27.1			
2307	44328	5632254	3/30/80	1	33	52	30	-33.2	-126.5	52.7	18.8	0.36	-74.9	30	-14.6	41.9	23.0	1.2	0.05	-22.3			
2308	44328	56371730	3/30/80	3	0	2	37	-50.9	-149.6	60.2	20.6	0.34	-80.1	37	3.5	18.8	29.1	5.0	0.17	-28.3			
2309	44328	11102130	3/30/80	4	38	16	37	-38.4	-172.6	65.8	25.7	0.37	-94.2	37	-2.2	-4.2	31.1	10.4	0.33	-37.6			
2310	44328	16696922	3/30/80	6	10	26	33	-37.1	104.3	64.6	19.8	0.31	-81.5	33	-5.9	-27.3	43.1	0.7	0.16	-40.2			
2311	44328	22221720	3/30/80	7	42	36	33	-32.9	141.3	69.0	13.6	0.20	-81.5	33	-7.2	-50.3	47.0	3.1	0.17	-58.3			
2312	44328	27756675	3/30/80	8	42	41	9	14	51	17	-23.6	118.3	42.3	10.9	0.26	-53.9	17	-16.0	-73.4	33.1	12.7	0.33	-45.2
2313	44328	33286551	3/30/80	10	47	1	17	-19.0	95.2	40.9	9.9	0.24	-50.3	17	-15.7	-96.4	41.1	0.4	0.16	-48.3			
2314	44328	33291472	3/30/80	12	19	6	20	-37.4	72.2	49.9	18.7	0.37	-64.9	20	-17.7	-119.5	31.6	2.5	0.08	-32.9			
2315	44328	38816427	3/30/80	13	5	16	20	-40.8	49.1	39.9	13.3	0.33	-57.2	10	-20.1	-142.5	32.7	4.4	0.14	-35.0			
2316	44328	443346304	3/30/80	14	22	30	10	-33.2	26.1	34.7	13.8	0.40	-46.1	10	-17.3	-165.5	25.9	2.1	0.08	-28.4			
2317	44328	49876180	3/30/80	15	40	40	10	-14.0	3.0	36.4	15.0	0.41	-0.5	7	-5.1	171.4	24.0	2.3	0.09	-26.7			
2318	44328	55406056	3/30/80	16	2	45	7	-3.5	-20.0	41.9	16.2	0.39	-49.5	7	-0.9	148.4	23.3	3.9	0.17	-26.0			
2319	44328	60935932	3/30/80	17	9	50	7	-2.1	-43.0	43.3	11.1	0.26	-46.0	30	-9.7	125.3	20.8	-1.3	-0.07	-18.2			
2320	44328	66408588	3/30/80	20	32	10	30	1.1	-66.1	34.4	9.6	0.27	-48.8	30	-17.6	102.3	13.0	-2.3	-0.13	-15.4			
2321	44328	71955685	3/30/80	30	3	15	30	6.3	-89.1	34.6	9.5	0.27	-51.1	37	-2.9	79.3	5.3	-8.4	-1.59	6.0			
2322	44329	7200067	3/31/80	0	36	27	37	10.2	-112.2	20.8	-0.5	-0.32	-26.7	37	-2.4	56.2	13.7	-0.9	-0.43	-8.0			
2323	44329	7712241	3/31/80	0	36	27	37	-13.6	-135.2	29.6	5.0	0.17	-42.5	40	-4.4	33.2	24.9	0.8	0.24	-30.4			

ORIGINAL PAGE IS  
OF POOR QUALITY



PASS	MJD	MSEC	DATE	HR	MIN	SEC	ASCENDING						DESCENDING						
							KF	D	ECL	E	I	L/E	DELTA	B	KP	D	ECL	E	I
2324	443329	132473.9	31/8/80	40	40	47	-22.2	-158.2	39.6	11.5	0.29	-56.4	40	16.8	-12.3	23.6	0.4	0.02	-18.2
2325	443329	167719.3	31/8/80	40	11	1	-11.1	178.7	39.6	11.5	0.29	-56.4	40	16.8	-12.3	23.6	0.4	0.02	-27.7
2326	443329	243067.1	31/8/80	40	8	6	-29.6	155.7	58.9	17.4	0.30	50.0	40	18.7	-35.9	33.1	-1.9	-0.06	-24.6
2327	443329	298268.1	31/8/80	40	8	17	-39.5	132.6	69.3	14.2	0.20	-77.0	40	8.6	-59.0	34.7	4.2	0.12	-42.8
2328	443329	353567.0	31/8/80	40	9	4	-30.8	109.0	42.4	8.3	0.21	-51.8	40	2.3	-82.0	35.0	13.4	0.30	-45.3
2329	443329	408865.4	31/8/80	40	11	2	-38.6	86.6	58.4	21.3	0.36	-75.5	37	-7.4	-105.1	30.2	10.7	0.35	-44.4
2330	443329	464181.2	31/8/80	37	12	3	-43.7	63.5	52.6	17.3	0.33	-65.4	37	-26.6	-128.1	37.8	0.9	0.17	-43.0
2331	443329	519433.6	31/8/80	37	14	2	-45.4	40.5	50.9	19.1	0.38	-67.0	30	-24.8	-151.1	25.3	5.1	0.23	-28.9
2332	443329	574781.5	31/8/80	30	17	3	-22.4	17.4	38.1	16.4	0.43	-47.7	30	-14.1	-174.2	24.3	5.0	0.23	-43.3
2333	443329	630080.1	31/8/80	30	19	2	-9.4	-5.6	26.6	14.8	0.56	-41.5	20	-7.3	162.8	16.9	-0.0	-0.00	-12.3
2334	443329	685310.4	31/8/80	20	19	2	14.4	-28.6	39.5	9.0	0.23	-38.6	20	-0.3	139.7	21.6	0.9	0.04	-23.8
2335	443329	740580.1	31/8/80	20	24	0	15.6	-51.7	38.7	10.0	0.20	-47.7	33	-7.5	116.7	25.3	0.3	0.01	-23.3
2336	443329	795900.3	31/8/80	33	22	2	-5.8	-74.7	48.4	10.0	0.21	-64.0	33	-26.3	93.7	24.1	7.8	0.33	-30.6
2337	443329	851157.2	31/8/80	20	23	3	-66.6	-97.7	52.2	12.1	0.23	-71.5	20	-31.2	70.6	37.7	3.0	0.21	-38.9
2338	443330	42436.7	1/8/80	20	1	10	-70.5	-120.8	45.7	11.4	0.25	-63.0	20	-33.8	47.6	29.9	5.3	0.18	-35.0
2339	443330	97735.3	1/8/80	7	2	42	-45.3	-143.8	39.1	5.9	0.15	6.0	7	-24.8	24.6	25.4	9.3	0.37	-29.6
2340	443330	152994.7	1/8/80	7	4	15	-27.4	-166.8	36.7	6.5	0.18	-46.6	7	-6.5	1.5	25.1	3.3	0.33	-29.3
2341	443330	208293.7	1/8/80	7	7	19	-15.5	170.1	31.3	9.7	0.28	-41.3	7	-6.6	-21.5	35.1	4.6	0.13	*****
2342	443330	263543.1	1/8/80	7	7	19	-9.7	147.1	35.5	5.8	0.16	-47.5	7	-2.7	-44.5	29.7	1.5	0.05	-27.7
2343	443330	318842.0	1/8/80	3	6	23	-5.8	124.1	27.3	5.5	0.20	*****	3	-13.5	-67.6	21.1	7.1	0.34	*****
2344	443330	374126.0	1/8/80	3	10	0	-15.1	101.0	28.9	4.2	0.15	-37.0	3	-19.9	-90.6	27.6	0.9	0.22	-33.5
2345	443330	429376.5	1/8/80	13	11	5	-22.7	78.0	31.7	12.2	0.39	-39.8	13	-30.1	-113.6	29.3	3.9	0.13	-32.3
2346	443330	484676.1	1/8/80	13	11	5	-27.6	54.9	45.3	13.6	0.30	-60.5	13	-25.6	-136.7	24.0	1.3	0.05	-24.3
2347	443330	539975.7	1/8/80	13	14	5	-27.4	31.9	40.9	17.2	0.42	-56.0	13	-14.7	-159.7	23.2	3.2	0.14	-25.1
2348	443330	595252.9	1/8/80	13	16	3	-13.2	8.9	44.2	13.5	0.42	-60.8	13	-9.8	177.3	27.6	7.3	0.26	-34.9
2349	443330	650474.0	1/8/80	10	18	4	-7.2	-14.1	45.3	22.2	0.49	-60.1	10	-4.5	154.2	30.9	4.4	0.14	-31.6
2350	443330	705818.0	1/8/80	10	19	3	-1.5	-37.2	54.4	13.9	0.25	-51.0	10	-5.3	131.2	25.7	4.2	0.16	-31.5
2351	443330	761013.4	1/8/80	0	21	8	-10.1	-60.2	43.5	11.5	0.27	-57.2	0	-16.3	106.2	24.5	-0.9	-0.04	-23.9
2352	443330	816312.0	1/8/80	0	22	4	-32.8	-83.2	40.9	10.0	0.24	9.3	0	-13.0	95.1	24.1	3.4	0.14	*****
2353	443331	750181.1	2/8/80	7	0	12	-45.2	-106.3	45.8	11.0	0.24	-62.8	7	-35.6	62.1	35.8	5.3	0.16	-38.3
2354	443331	829097.9	2/8/80	7	1	44	-44.8	-129.3	43.9	10.9	0.25	-58.4	7	-35.5	39.1	32.7	7.1	0.22	-34.9
2355	443331	1181101.9	2/8/80	7	1	16	-39.2	-152.3	44.8	11.1	0.25	-52.0	7	-13.0	16.0	32.0	7.0	0.22	-26.9
2356	443331	173354.0	2/8/80	7	4	48	-22.8	-175.4	39.5	8.3	0.21	-47.6	7	-5.0	-7.0	27.4	8.2	0.30	-33.2
2357	443331	228658.5	2/8/80	3	6	21	-15.0	161.6	36.3	9.5	0.23	-41.2	3	6.0	-70.0	30.2	9.7	0.22	-26.7
2358	443331	283908.1	2/8/80	3	7	53	-3.9	133.6	37.3	6.5	0.17	-47.9	7	-4.6	-52.0	30.8	2.1	0.07	-37.1
2359	443331	339256.1	2/8/80	7	9	25	-14.4	115.5	25.5	6.4	0.25	-37.6	7	-14.8	-76.1	24.8	7.9	0.32	-23.4
2360	443331	394505.5	2/8/80	7	10	57	-30.4	92.5	32.3	6.1	0.19	-39.9	7	-27.7	-99.1	28.2	5.2	0.19	-34.6
2361	443331	449728.2	2/8/80	7	12	29	-28.5	69.5	39.3	11.0	0.28	-50.8	7	-27.9	-122.1	23.3	1.6	0.07	-24.4
2362	443331	505027.0	2/8/80	7	14	1	-15.7	46.5	37.0	8.7	0.24	-48.9	7	-20.0	-145.2	21.6	3.3	0.18	-22.1
2363	443331	562276.0	2/8/80	7	15	33	-4.9	23.4	31.5	10.7	0.34	-40.0	7	-10.2	-168.2	13.2	1.5	0.08	-21.3





PASS	MJD	NSFC	DATE	ASCENDING				DESCENDING				DELTA					
				KE	D	EQ1	EQ2	KE	D	FCL	EQ1	EQ2	KE	D	FCL	EQ1	EQ2
2444	44336	71448979	4/7/80	47	3.8	-41.0	48.3	16.7	0.35	-51.5	40	1.4	127.4	16.3	2.3	0.14	-15.2
2445	44336	70904103	4/7/80	40	-1.6	-64.0	38.6	17.9	0.44	-55.9	40	-0.4	104.4	5.9	-5.1	-1.02	-3.3
2446	44336	82485135	4/7/80	40	-34.2	-87.0	49.2	14.5	0.29	-69.3	33	-16.2	81.4	19.3	-2.1	-0.11	-61.1
2447	44337	1006159	4/8/80	33	-51.1	-110.0	47.1	13.7	0.23	-69.3	33	-26.5	58.4	29.2	2.0	0.09	-33.0
2448	44337	7133094	4/8/80	33	-50.3	-133.0	30.7	5.4	0.17	-39.6	37	-15.7	35.4	19.1	4.2	0.22	-38.9
2449	44337	12048216	4/8/80	37	-41.8	-156.0	24.0	4.3	0.17	-32.4	37	-1.1	12.4	23.1	3.5	0.12	-23.9
2450	44337	18175232	4/8/80	37	3.1	-179.0	17.9	0.3	0.02	-32.4	27	26.6	-10.0	25.5	2.4	0.09	-32.1
2451	44337	23689232	4/8/80	27	13.9	158.0	19.4	4.6	0.24	-32.4	27	23.1	-33.6	27.3	5.1	0.19	-23.1
2452	44337	29216224	4/8/80	27	15.9	135.0	18.3	-1.9	-0.10	-32.4	40	13.6	-56.6	8.1	1.7	0.21	-12.4
2453	44337	34732337	4/8/80	40	-3.6	112.0	18.6	2.6	0.15	-32.4	40	2.0	-79.6	5.2	4.1	0.80	-7.0
2454	44337	40248847	4/8/80	40	-30.4	89.0	35.8	8.9	0.25	-32.4	40	-22.1	-102.6	25.9	5.7	0.22	-34.7
2455	44337	45769476	4/8/80	40	-34.9	60.0	45.4	14.7	0.32	-32.4	40	-12.4	-125.6	22.5	0.9	0.31	-28.3
2456	44337	51290505	4/8/80	40	-19.6	43.0	33.1	9.7		-42.5	27	-18.0	-148.6	25.5	0.8	0.27	-37.9
2457	44337	56807598	4/8/80	27	-8.5	20.0	22.8	10.6	0.40	-29.7	27	-14.5	-171.6	20.2	2.4	0.12	-25.3
2458	44337	62325827	4/8/80	27	-3.5	-3.0	32.4	13.0	0.40	-42.4	17	-2.8	165.4	19.4	3.5	0.18	-20.8
2459	44337	67848670	4/8/80	17	20.2	-26.0	36.3	8.1	0.22	-42.4	17	5.1	142.4	13.3	1.3	0.07	-20.8
2460	44337	73369703	4/8/80	17	13.7	-49.0	28.6	9.9	0.35	-38.2	27	3.1	119.4	18.9	-3.2	-0.17	-27.8
2461	44337	78886797	4/8/80	27	-8.1	-32.0	41.6	-7.3	-0.18	-35.3	27	-10.4	96.4	13.3	-1.5	-0.11	-12.9
2462	44337	84411763	4/8/80	27	-13.6	-95.0	30.3	1.3	0.04	-39.3	30	-19.5	73.4	26.7	0.7	0.02	-19.3
2463	44338	3379676	4/9/80	30	-35.0	-118.0	39.3	19.4	0.26	-52.7	30	-26.6	50.4	27.0	3.3	0.12	-43.1
2464	44338	3532054	4/9/80	30	-37.6	-141.0	46.2	12.2	0.26	-52.7	43	-13.5	27.4	17.0	5.5	0.33	-16.4
2465	44338	40547914	4/9/80	43	-22.9	-164.0	37.9	15.9	0.42	-52.7	43	52.7	4.4	16.1	-3.6	-0.53	0.6
2466	44338	14505015	4/9/80	43	-1.1	173.0	36.2	11.0	0.50	-52.7	37	63.1	-18.0	9.0	-0.0	-0.67	-2.9
2467	44338	20089978	4/9/80	37	2.8	150.0	33.7	5.1	0.15	-52.7	37	49.6	-41.6	16.7	-4.5	-0.27	-16.4
2468	44338	25066089	4/9/80	47	-29.0	127.0	33.7	4.7	0.14	-52.7	47	11.3	-64.6	28.1	8.2	0.29	-42.3
2469	44338	31122202	4/9/80	47	-86.2	104.0	95.9	30.8	0.32	-52.7	47	-27.1	-87.6	18.9	21.9	1.16	-48.8
2470	44338	31127120	4/9/80	40	-99.8	81.0	87.8	39.0	0.44	-52.7	40	-43.4	-110.6	20.1	15.5	0.77	-42.7
2471	44338	36642246	4/9/80	40	-78.3	58.0	67.7	22.0	0.32	-52.7	40	-49.2	-133.6	46.4	16.4	0.35	-62.4
2472	44338	42168194	4/9/80	33	-40.3	35.0	50.6	20.0	0.40	-52.7	33	-41.5	-156.6	38.2	4.6	0.12	-42.2
2473	44338	47684307	4/9/80	33	-33.5	12.0	43.1	15.7	0.36	-52.7	***	*****	*****	*****	*****	*****	-42.2
2474	44338	53200417	4/9/80	17	-1.0	-11.0	44.1	12.4	0.28	19.8	17	-15.3	157.4	39.5	3.6	0.09	-40.1
2475	44338	53205336	4/9/80	17	-1.6	-34.0	58.7	15.9	0.27	19.8	17	-7.2	134.4	33.3	5.5	0.17	-41.7
2476	44338	58718499	4/9/80	13	-21.5	-57.0	44.7	12.8	0.29	-64.6	13	-12.7	111.4	38.0	-5.6	-0.15	-41.7
2477	44338	58723417	4/9/80	13	-37.5	-80.0	*****	*****	*****	-64.6	13	-23.5	88.5	28.3	4.5	0.16	-1.7
2478	44338	60624020	4/9/80	40	-62.6	-102.9	50.5	11.8	0.23	-67.6	40	-30.2	65.5	40.4	4.2	0.10	-41.0
2479	44338	64450647	4/10/80	40	-64.8	-125.9	44.6	10.2	0.23	-67.6	40	-35.9	42.5	41.5	3.3	0.20	-43.9
2480	44339	69754410	4/10/80	50	-85.3	-148.9	72.1	20.8	0.37	-97.3	50	1.6	19.5	27.2	4.1	0.15	-23.7
2481	44339	69759328	4/10/80	50	-66.4	-171.9	62.6	26.0	0.42	-57.3	50	5.8	-3.5	29.7	7.3	0.25	-33.3
2482	44339	75274701	4/10/80	40	-32.9	165.1	68.2	19.5	0.29	-84.7	40	26.3	-26.5	41.1	3.7	0.14	-37.6
2483	44339	75279619	4/10/80	40	-64.7	142.1	93.9	19.3	0.21	-84.7	40	9.2	-49.5	40.2	4.3	0.09	-58.3

ORIGINAL PAGE IS  
OF POOR QUALITY

PASS	MJD	MSEC	DATE	HR:MM:SC	ASCENDING	KE	D ECL	ECL	E	I	I/E	DELTA B	DESCENDING	KE	D ECL	ECL	E	I	I/E	DLTTA B
2484	44339	33021333	4/13/80	9:10:21	47	-77.0	119.1	69.8	17.8	0.25	-84.8	47	-37.5	-72.5	27.2	11.6	0.43	-35.7		
	44339	38536428	4/13/80	10:42:16																
2485	44339	38541349	4/10/80	10:42:21	47	-78.6	96.1	74.5	13.5	0.26	-84.8	47	-49.8	-95.5	42.4	15.4	0.36	-61.9		
	44339	44053527	4/10/80	12:14:13																
2486	44339	44058445	4/10/80	12:14:18	27	-52.9	73.1	53.6	13.4	0.25	-62.3	27	-46.1	-118.5	43.5	0.3	0.14	-48.2		
	44339	49573569	4/10/80	13:46:13																
2487	44339	49578490	4/10/80	13:46:18	27	-39.8	50.1	****	****	****	62.3	27	-41.3	-141.5	40.9	5.5	0.13	-44.5		
	44339	55090662	4/10/80	15:18:10																
2488	44339	55095587	4/10/80	15:18:15	23	-35.8	27.1	38.1	17.3	0.45	-62.3	23	-32.5	-164.5	38.5	5.5	0.14	-44.3		
	44339	60603835	4/10/80	16:50:3																
2489	44339	60608751	4/10/80	16:50:8	23	-13.4	4.1	40.2	16.1	0.40	*****	23	-22.4	172.5	28.7	1.8	0.06	-44.4		
	44339	66122892	4/10/80	18:22:2																
2490	44339	66127813	4/10/80	18:22:7	20	1.8	-18.9	41.5	11.8	0.28	20.3	20	-7.4	149.6	32.1	4.2	0.13	-35.4		
	44339	71638022	4/10/80	19:53:58																
2491	44339	71642943	4/10/80	19:54:2	26	-1.5	-41.6	55.0	13.0	0.24	20.3	23	-6.7	126.6	29.2	0.3	0.01	-27.6		
	44339	77159054	4/10/80	21:25:59																
2492	44339	77163971	4/10/80	21:26:3	23	-11.6	-64.8	36.8	13.9	0.39	-52.2	23	-9.4	103.6	23.1	-2.3	-0.10	-20.5		
	44339	82674131	4/10/80	22:57:54																
2493	44339	82675102	4/10/80	22:57:59	23	-44.4	-87.8	41.8	9.1	0.22	-59.0	30	-26.3	80.6	33.0	-2.1	-0.06	-28.3		
	44340	1792510	4/11/80	0:29:52																
2494	44340	1797446	4/11/80	0:29:57	30	-62.1	-110.8	57.2	13.0	0.24	-74.8	30	-29.2	57.6	38.6	3.8	0.23	-71.1		
	44340	7306406	4/11/80	2:11:46																
2495	44340	7311327	4/11/80	2:11:51	30	-50.2	-133.8	48.3	3.8	0.19	-60.6	27	-27.1	34.0	29.5	10.4	0.35	-35.7		
	44340	12826452	4/11/80	3:33:46																
2496	44340	12831372	4/11/80	3:33:51	27	-37.1	-156.8	****	****	****	****	27	-23.8	11.6	37.7	3.1	0.21	-36.5		
	44340	18342560	4/11/80	5:55:42																
2497	44340	18347435	4/11/80	5:55:47	27	-19.5	-179.8	37.3	6.1	0.16	-48.0	43	-11.0	-11.4	34.3	6.5	0.19	-44.2		
	44340	23857696	4/11/80	6:37:37																
2498	44340	23862615	4/11/80	6:37:42	43	-28.3	157.2	66.4	10.8	0.16	-48.0	43	1.1	-34.4	38.7	-1.0	-0.03	-26.0		
	44340	25374934	4/11/80	8:37:34																
2499	44340	25379712	4/11/80	8:37:39	43	-15.9	134.3	46.1	5.0	0.12	-55.6	30	-10.5	-57.3	30.7	0.2	0.20	-40.0		
	44340	34889922	4/11/80	8:41:23																
2500	44340	34894822	4/11/80	9:41:34	30	-28.3	111.3	****	****	****	-55.6	30	-23.2	-80.3	18.6	8.7	0.47	-27.8		
	44340	40407621	4/11/80	11:13:27																
2501	44340	40411938	4/11/80	11:13:31	30	-31.4	88.3	44.1	9.6	0.22	-50.1	30	-26.8	-103.3	28.7	7.2	0.25	-41.4		
	44340	45922148	4/11/80	12:45:22																
2502	44340	45927008	4/11/80	12:45:27	30	-41.1	65.3	49.0	12.9	0.26	-50.1	30	-36.7	-126.3	33.9	4.7	0.14	-39.3		
	44340	51443179	4/11/80	14:17:23																
2503	44340	51448097	4/11/80	14:17:28	30	-38.8	42.3	42.8	13.7	0.32	-57.6	43	-22.5	-149.3	26.4	2.7	0.10	-26.3		
	44340	56956336	4/11/80	15:49:18																
2504	44340	56963227	4/11/80	15:49:23	43	-27.4	19.3	42.1	19.3	0.46	-57.6	43	-20.1	-172.3	30.0	5.6	0.19	-34.4		
	44340	62471713	4/11/80	17:21:11																
2505	44340	62476636	4/11/80	17:21:16	43	-47.9	-3.7	75.2	35.4	0.47	-105.9	57	-15.9	164.7	36.3	1.9	0.05	-40.3		
	44340	67986845	4/11/80	18:53:6																
2506	44340	67991766	4/11/80	18:53:11	57	-54.0	-26.7	123.8	52.5	0.42	-105.9	57	-33.3	141.8	43.9	27.3	0.62	-75.6		
	44340	73506649	4/11/80	20:25:0																
2507	44340	73511506	4/11/80	20:25:11	57	-73.2	-49.0	130.2	44.5	0.34	-154.5	50	-41.3	118.8	32.9	27.6	0.84	-66.7		
	44340	79021777	4/11/80	21:57:1																
2508	44340	79026636	4/11/80	21:57:6	50	-87.4	-72.0	94.6	17.5	0.19	-114.5	50	-58.1	95.8	33.2	20.3	0.61	-57.0		
	44340	84336907	4/11/80	23:28:56																
2509	44340	84341826	4/11/80	23:29:1	50	-83.0	-95.6	****	****	****	-107.9	50	-62.9	72.8	59.1	15.5	0.27	-67.5		
	44341	3654024	4/12/80	1:0:54																
2510	44341	3658922	4/12/80	1:0:58	50	-115.5	-118.6	****	****	****	-107.9	50	-63.3	49.8	44.6	10.7	0.24	-57.0		
	44341	9168149	4/12/80	2:32:46																
2511	44341	9173068	4/12/80	2:32:53	50	-116.1	-141.6	74.1	16.8	0.23	-107.9	37	-45.6	26.8	43.9	18.4	0.42	-57.0		
	44341	14684262	4/12/80	4:4:44																
2512	44341	14689182	4/12/80	4:4:49	37	-67.8	-164.6	80.7	24.5	0.30	-105.7	37	-15.8	3.9	53.3	18.4	0.34	-67.2		
	44341	2020037	4/12/80	5:36:43																
2513	44341	20205235	4/12/80	5:36:45	37	-51.4	172.5	****	****	****	-105.7	30	-5.1	-19.1	53.3	12.9	0.22	-62.0		
	44341	25715506	4/12/80	7:8:35																
2514	44341	25720425	4/12/80	7:8:40	30	-36.2	149.5	73.0	17.0	0.23	-92.3	30	-21.8	-42.1	66.2	13.4	0.20	-73.0		
	44341	31230635	4/12/80	8:40:30																
2515	44341	31235554	4/12/80	8:40:35	33	-54.4	126.5	58.1	11.1	0.19	-92.3	33	-40.1	-65.1	50.1	13.0	0.27	-68.5		
	44341	36743843	4/12/80	10:12:23																
2516	44341	36748719	4/12/80	10:12:28	33	-63.5	103.5	55.8	10.9	0.20	-66.4	33	-65.2	-88.1	45.2	11.3	0.25	-57.1		
	44341	42208928	4/12/80	11:44:18																
2517	44341	42263848	4/12/80	11:44:23	33	-62.3	80.5	58.1	18.9	0.33	-66.4	33	-61.5	-111.0	41.9	10.0	0.24	-52.5		
	44341	47774009	4/12/80	13:16:14																
2518	44341	47778978	4/12/80	13:16:18	33	-53.2	57.6	60.3	12.5	0.21	-72.2	33	-40.5	-134.0	41.8	5.8	0.14	-46.7		
	44341	53289138	4/12/80	14:48:3																
2519	44341	53294108	4/12/80	14:48:4	43	-47.8	34.6	51.1	19.0	0.37	-72.2	43	-35.8	-157.0	37.6	3.5	0.09	-37.9		
	44341	58655877	4/12/80	16:20:8																
2520	44341	58660825	4/12/80	16:20:8	43	-39.5	11.0	57.8	26.4	0.46	-82.9	43	-23.3	-180.0	31.0	3.9	0.13	-35.6		
	44341	64315510	4/12/80	17:51:55																
2521	44341	64320436	4/12/80	17:52:0	32	-20.0	-11.4	58.1	23.7	0.41	-82.9	33	-20.4	157.0	42.0	7.5	0.18	-45.0		
	44341	69328155	4/12/80	19:23:52																
2522	44341	69337533	4/12/80	19:23:57	33	-13.7	-34.4	67.3	7.4	0.14	-62.7	33	-18.7	134.1	32.5	5.0	0.18	-42.1		
	44341	75347742	4/12/80	20:55:47																
2523	44341	75352623	4/12/80	20:55:52	33	-20.9	-57.3	60.2	4.3	0.07	-66.1	53	-37.8	111.1	24.3	-3.5	-0.14	-25.3		
	44341	80559926	4/12/80	22:27:39																

1-64

ORIGINAL PAGE IS  
OF PO

PASS	JD	HSEC	DATE	HR	MIN	SEC	ASCENDING	EOL	E	I	I/E	DELTA	B	DESCENDING	EOL	E	I	I/E	DELTA	E		
							KE	D	EOL	E	I	I/E	DELTA	B	KE	D	EOL	E	I	I/E	DELTA	E
2524	44341	809664843	4/12/80	2:04	57	34	53	-17.9	-80.3	79.8	16.7	0.21		53	-33.9	88.1	11.9	0.8	0.07	-85.5		
2525	44342	843779973	4/12/80	2:05	59	35	47	-97.1	-103.3	111.1	32.8	0.30	-146.8	47	-46.1	65.1	39.8	9.5	0.24	-45.1		
2526	44343	54951132	4/13/80	1:31	31	30	47	-119.0	-126.3	92.1	26.7	0.29	-118.7	47	-55.4	42.2	47.7	17.4	0.36	-118.3		
2527	44344	11007284	4/13/80	3:3	3:22		33	-79.6	-149.2	72.9	15.8	0.22	-118.7	33	-41.1	19.2	47.7	10.2	0.34	-54.4		
2528	44345	16518473	4/13/80	4:35	35:18		33	-65.1	-172.2	66.0	18.8	0.29	-118.7	33	-28.6	-3.8	41.8	11.6	0.28	-48.6		
2529	44346	22032626	4/13/80	6:7	7:12		37	-61.2	164.8	81.9	23.9	0.29	-103.2	37	-16.7	-26.8	54.9	13.7	0.25	-54.6		
2530	44347	27552674	4/13/80	7:39	39:12		37	-48.7	141.8	75.6	12.7	0.17	-103.2	37	-18.3	-49.7	56.0	7.8	0.14	-67.9		
2531	44348	33058954	4/13/80	9:11	10:58		30	-55.9	118.9	69.0	16.9	0.25	-82.6	30	-59.2	-72.7	48.3	17.2	0.36	-65.7		
2532	44349	38571136	4/13/80	10:42	5:57		30	-45.5	95.9	54.6	4.8	0.09	-82.6	30	-61.5	-95.7	59.3	3.6	0.06	-65.0		
2533	44350	44092145	4/13/80	12:14	14:47		27	-43.6	72.9	53.7	17.2	0.32	-64.0	27	-51.5	-118.7	52.0	0.1	0.00	-49.3		
2534	44351	49602338	4/13/80	13:46	46:42		27	-49.3	49.9	45.1	14.5	0.32	-64.0	27	-45.9	-141.6	46.0	6.6	0.14	-48.8		
2535	44352	55112593	4/13/80	15:18	18:32		33	-38.6	27.0	*****	*****	*****	-64.0	33	-34.0	-164.6	40.4	5.2	0.13	-45.6		
2536	44353	60628706	4/13/80	16:50	50:28		33	-28.9	4.0	52.2	19.5	0.37	-68.6	33	-25.0	172.4	36.3	2.3	0.06	-36.0		
2537	44354	66143837	4/13/80	18:22	22:13		27	-35.7	-19.0	62.6	25.3	0.40	-68.6	27	-13.6	149.4	32.5	5.7	0.18	-36.8		
2538	44355	71653066	4/13/80	19:54	54:17		27	-21.2	-42.0	66.8	11.4	0.17	-65.9	17	-18.6	126.5	34.7	2.7	0.68	-34.7		
2539	44356	77165248	4/13/80	21:26	26:5		17	-23.6	-64.9	51.9	10.6	0.20	3.1	17	-28.2	103.5	27.5	1.1	0.04	-34.7		
2540	44357	826840378	4/13/80	22:58	58:0		17	-36.4	-87.9	50.0	10.3	0.21	-66.4	10	-39.0	80.5	33.1	5.4	0.16	-56.8		
2541	44358	1791821	4/14/80	0:29	29:51		10	-47.1	-110.9	52.5	7.5	0.14	-66.4	10	-44.0	57.6	42.2	6.4	0.15	-46.8		
2542	44359	1796738	4/14/80	0:29	29:56		10	-72.3	-133.9	52.9	8.4	0.16	-66.7	20	-35.4	34.6	29.5	8.8	0.30	-66.1		
2543	44360	7304730	4/14/80	2:3	3:44		20	-53.0	-156.8	40.2	11.8	0.29	-54.4	20	-17.1	11.6	34.8	3.7	0.16	-32.7		
2544	44361	7309657	4/14/80	3:3	3:49		20	-24.3	-179.8	44.4	12.3	0.28	-54.4	17	6.0	-11.4	33.5	7.5	0.22	-32.7		
2545	44362	12816915	4/14/80	5:5	5:32		17	-14.0	157.2	52.7	11.4	0.22	-62.6	17	9.9	-34.3	39.4	5.4	0.14	-33.5		
2546	44363	12821837	4/14/80	6:37	37:23		17	-15.5	134.3	44.9	6.7	0.15	-62.6	3	-13.5	-57.3	37.3	3.5	0.09	-41.9		
2547	44364	18332046	4/14/80	8:9	9:20		3	-27.2	111.3	33.4	6.3	0.19	-41.4	3	-26.5	-80.3	29.3	6.3	0.29	-35.7		
2548	44365	22844247	4/14/80	9:41	41:14		3	-30.6	88.3	36.8	8.0	0.22	-41.4	13	-33.4	-103.2	34.3	4.4	0.13	-41.6		
2549	44366	23844165	4/14/80	11:12	12:59		13	-35.6	65.4	45.4	11.3	0.25	-55.1	13	-26.9	-126.2	31.1	2.2	0.07	-31.6		
2550	44367	29355422	4/14/80	12:44	44:55		13	-35.7	42.4	40.7	11.3	0.28	-55.1	27	-21.5	-149.2	24.0	1.9	0.08	-22.0		
2551	44368	29360445	4/14/80	14:16	16:51		27	-17.7	19.4	37.8	14.6	0.39	-48.9	27	-11.0	-172.1	18.2	-3.3	-0.18	-12.7		
2552	44369	34865574	4/14/80	15:48	48:42		27	-1.9	-3.5	*****	*****	*****	-48.9	30	3.3	164.9	14.7	-3.3	-0.22	-10.2		
2553	44370	34874492	4/14/80	17:20	20:38		30	-0.7	-26.5	56.5	13.3	0.23	*****	30	9.9	141.9	17.5	3.4	0.02	-20.9		
2554	44371	40379787	4/14/80	18:52	52:23		30	7.3	-49.5	44.2	12.2	0.28	*****	40	7.7	119.0	17.5	-3.6	-0.21	-16.3		
2555	44372	40384706	4/14/80	20:24	24:13		40	-27.9	-72.4	46.1	12.3	0.27	-62.6	40	-25.5	96.0	13.3	5.5	0.41	-19.4		
2556	44373	45890987	4/14/80	21:56	56:1		40	-43.9	-95.4	64.9	11.8	0.18	-62.6	47	-29.6	73.0	37.5	7.3	0.20	-37.6		
2557	44374	45895904	4/14/80	23:28	28:48		47	-60.8	-118.4	66.0	21.1	0.32	-62.6	47	-21.8	59.1	16.4	-5.7	-0.35	-37.6		
2558	44375	51406114	4/14/80	0:59	59:53		47	-77.4	-141.3	79.3	25.7	0.32	-105.7	40	-28.9	27.1	30.3	12.3	0.41	-36.9		
2559	44376	51411034	4/14/80	2:31	31:40		40	-56.8	-164.3	62.0	20.4	0.33	-82.2	40	-12.7	4.1	32.5	14.7	0.45	-70.6		
2560	44377	56917315	4/14/80	4:3	3:27		40	-38.0	172.7	56.8	13.7	0.24	-71.8	33	-8.7	-18.8	49.2	3.5	0.19	-52.1		
2561	44378	56922232	4/14/80	5:35	35:23		33	-38.2	149.8	59.7	19.2	0.30	-77.1	33	-5.7	-41.8	42.1	3.4	0.08	-65.4		
2562	44379	62427527	4/14/80	7:7	7:19		23	-19.5	126.8	40.0	6.4	0.16	-46.3	23	-13.3	-64.8	32.7	8.9	0.27	-47.5		
2563	44380	62432447	4/14/80	8:39	39:4		23	-23.2	103.8	36.2	5.8	0.16	-46.3	23	-28.6	-87.7	34.3	8.0	0.23	-44.1		

ORIGINAL PAGE IS OF POOR QUALITY

PASS	MJD	MSEC	DATE	ASCENDING					DESCENDING					I/E DELTA B				
				KE	D	EDI	ECL	E	I	I/E	DELTA B	KE	D		ECL	E	I	
2564	44344	42109767	4/15/80	11:42:49	23	-30.5	80.9	34.8	13.1	0.38	-42.5	23	-29.6	-110.7	32.5	2.0	0.06	-36.1
2565	44344	47076044	4/15/80	13:14:36														
2565	44344	47680965	4/15/80	13:14:40	23	-33.1	57.9	42.9	12.0	0.23	-53.7	23	-28.7	-133.7	34.6	2.0	0.06	-36.1
2566	44344	53185276	4/15/80	14:46:25														
2566	44344	53190196	4/15/80	14:46:30	33	-27.9	34.9	34.9	11.1	0.32	-53.7	33	-24.0	-156.6	25.1	-1.0	-0.02	-20.4
2567	44344	58697461	4/15/80	16:18:17														
2567	44344	58702377	4/15/80	16:18:22	33	-32.3	12.0	52.9	22.2	0.42	-72.8	33	-19.0	-179.6	28.2	3.7	0.13	-33.5
2568	44344	64217071	4/15/80	17:53:07														
2568	44344	64212591	4/15/80	17:50:12	37	-38.2	-11.0	51.7	30.2	0.58	-72.8	37	-16.4	157.5	31.3	3.3	0.11	-28.8
2569	44344	69716905	4/15/80	19:21:56														
2569	44344	69721823	4/15/80	19:22:01	37	-21.2	-33.9	79.3	18.7	0.24	-75.4	37	-2.4	134.5	19.0	7.4	0.38	-31.5
2570	44344	75227336	4/15/80	20:53:47														
2570	44344	75232283	4/15/80	20:53:52	40	-25.6	-56.9	63.2	12.7	0.20	*****	40	-13.4	111.5	22.1	0.7	0.03	-26.4
2571	44344	80739301	4/15/80	22:25:39														
2571	44344	80744218	4/15/80	22:25:44	40	-48.9	-79.9	69.4	17.1	0.25	-46.4	40	-34.5	88.6	26.7	11.4	0.43	-35.9
2572	44344	86185634	4/15/80	23:56:25														
2572	44344	10990	4/16/80	0:0:10	30	-50.7	-102.8	53.3	11.4	0.21	-46.4	30	-33.3	65.6	38.8	0.9	0.18	-40.0
2573	44345	5359730	4/16/80	1:29:19														
2573	44345	53046+7	4/16/80	1:29:24	30	-50.6	-125.8	45.2	12.3	0.27	-61.0	30	-33.4	42.7	30.3	8.5	0.26	-38.1
2574	44345	108699+2	4/16/80	3:01:09														
2574	44345	10874862	4/16/80	3:01:14	30	-44.3	-148.7	58.0	12.0	0.20	-61.0	30	-27.7	19.7	34.5	11.1	0.32	-36.0
2575	44345	16381142	4/16/80	4:33:01														
2575	44345	16386000	4/16/80	4:33:06	30	-41.3	-171.7	59.3	18.7	0.32	-79.7	30	-18.3	-3.3	53.5	9.9	0.30	-39.6
2576	44345	21886439	4/16/80	6:09:46														
2576	44345	21891359	4/16/80	6:09:51	27	-22.2	165.3	51.3	14.6	0.28	-79.7	27	-1.4	-26.2	38.8	6.2	0.16	-35.2
2577	44345	27398619	4/16/80	7:36:38														
2577	44345	27403539	4/16/80	7:36:43	27	-19.2	142.4	49.3	5.5	0.11	-56.3	27	-6.4	-49.2	41.6	0.0	0.14	-50.9
2578	44345	32938834	4/16/80	9:08:28														
2578	44345	32913754	4/16/80	9:08:33	13	-10.0	115.4	31.3	5.2	0.17	-56.3	13	-23.4	-72.1	29.8	8.0	0.29	-35.1
2579	44345	38416089	4/16/80	10:49:18														
2579	44345	38422985	4/16/80	10:49:22	13	-25.3	96.5	34.0	3.5	0.10	-37.6	13	-34.6	-95.1	*****	*****	*****	
2580	44345	43138858	4/16/80	11:59:58														
2580	44345	43927548	4/16/80	12:02:07	23	-29.9	73.5	*****	*****	*****	-37.6	23	-35.3	-118.0	*****	*****	*****	
2581	44345	49435541	4/16/80	13:43:55														
2581	44345	49440467	4/16/80	13:44:00	23	-33.1	50.5	*****	*****	*****	-37.6	23	-32.9	-141.0	*****	*****	*****	
2583	44345	53959037	4/16/80	14:59:59														
2583	44345	60619172	4/16/80	16:50:19	30	-10.9	4.6	*****	*****	*****	-37.6	30	-10.4	173.1	*****	*****	*****	
2584	44345	604894620	4/16/80	18:22:28														
2584	44345	66146956	4/16/80	18:22:28	20	-8.0	-18.3	*****	*****	*****	-37.6	20	-1.9	150.1	*****	*****	*****	
2586	44345	79407539	4/16/80	19:26:25														
2586	44345	79413832	4/16/80	19:26:25	30	-1.5	-64.2	*****	*****	*****	*****	30	-17.3	104.2	*****	*****	*****	
2587	44345	81973832	4/16/80	20:46:13														
2587	44345	82731795	4/16/80	20:58:51	30	-21.5	-87.2	*****	*****	*****	*****	37	-20.3	81.3	*****	*****	*****	
2588	44346	1015407	4/17/80	0:16:55														
2588	44346	1888461	4/17/80	0:31:28	37	-39.1	-110.1	*****	*****	*****	*****	37	-17.4	58.3	*****	*****	*****	
2589	44346	6600405	4/17/80	1:59:00														
2589	44346	7415880	4/17/80	2:03:35	37	-49.9	-133.1	*****	*****	*****	*****	40	-24.2	35.4	*****	*****	*****	
2590	44346	12024835	4/17/80	3:20:24														
2590	44346	12847692	4/17/80	3:34:07	***	*****	*****	*****	*****	*****	*****	40	-12.8	12.4	26.9	7.2	0.27	-36.5
2594	44346	17674652	4/17/80	4:54:34														
2594	44346	38253382	4/17/80	10:37:30	***	*****	*****	*****	*****	*****	*****	7	-9.8	-79.4	*****	*****	*****	
2595	44346	39466244	4/17/80	10:56:46														
2595	44346	40531149	4/17/80	11:15:31	7	-18.0	87.2	30.5	5.2	0.17	*****	20	-24.4	-102.4	30.6	0.1	0.20	-39.6
2596	44346	44847635	4/17/80	12:27:27														
2596	44346	45928063	4/17/80	12:45:28	20	-25.6	66.2	38.9	11.5	0.23	-49.4	20	-28.0	-125.3	*****	*****	*****	
2597	44346	504168+2	4/17/80	14:09:16														
2597	44346	51406050	4/17/80	14:17:46	20	-21.4	43.3	31.7	10.5	0.33	-43.4	23	-16.8	-148.3	25.8	3.9	0.15	-31.4
2593	44346	55937871	4/17/80	15:32:17														
2593	44346	56977985	4/17/80	15:49:37	23	-11.9	20.3	30.9	12.2	0.39	-38.0	23	-13.3	-171.2	25.0	0.0	0.00	-21.7
2599	44346	61377297	4/17/80	17:02:57														
2599	44346	62522607	4/17/80	17:22:02	23	-2.9	-2.6	30.7	11.9	0.39	-38.0	23	1.0	165.8	22.8	-0.9	-0.04	-17.9
2600	44346	66851145	4/17/80	18:34:11														
2600	44346	67980718	4/17/80	18:53:05	23	14.5	-25.6	43.5	9.4	0.22	-41.0	23	3.0	182.9	33.2	-4.6	-0.14	-39.4
2601	44346	72435589	4/17/80	20:06:45														
2601	44346	73501746	4/17/80	20:25:01	23	12.9	-48.5	40.1	10.8	0.27	-47.1	20	-2.5	119.9	21.0	-3.9	-0.19	-16.3
2602	44346	77901059	4/17/80	21:38:21														
2602	44346	79030640	4/17/80	21:57:10	20	-9.0	-71.5	53.3	-7.9	-0.15	-48.7	***	*****	*****	*****	*****	*****	
2603	44346	80347967	4/17/80	22:19:07														
2603	44346	7986	4/18/80	0:0:0	***	*****	*****	*****	*****	*****	*****	-48.7	10	-23.1	74.1	*****	*****	
2604	44347	2551954	4/18/80	0:42:31														
2604	44347	3606291	4/18/80	1:02:16	10	-38.8	-117.4	37.6	10.1	0.27	4.7	10	-26.0	51.1	27.4	3.3	0.12	-27.0
2605	44347	7993309	4/18/80	2:13:13														
2605	44347	9177936	4/18/80	3:42:57	10	-35.4	-140.3	45.5	6.1	0.13	*****	20	-16.8	28.2	13.3	0.3	0.48	-52.4
2606	44347	1354781																

PASS	NJD	*SEC	DATE	H:MM:SS	SC	ASCENDING					DELTA B	DESCENDING					I/F DELTA E		
						RE	D	DEL	E	L		E	I	L	E	I		F	
2609	44347	311913.27	4/18/80	8:39:51	7	10	4.9	127.9	26.4	3.1	J.12	-42.7	10	0.1	-63.6	13.5	3.1	0.17	-23.2
2610	44347	356033.97	4/18/80	9:54:23	10	11	2.2	105.0	24.1	3.3	J.01	-21.8	10	-16.3	-86.6	13.2	3.4	0.30	-23.5
2611	44347	367123.56	4/18/80	10:11:52	10	11	2.4	82.0	26.6	3.1	J.31	-21.8	10	-21.3	-109.5	24.3	1.6	0.07	-27.1
2612	44347	415017.39	4/18/80	11:24:11	10	11	2.4	59.1	36.1	3.8	J.24	-44.8	10	-15.2	-132.5	23.0	1.1	0.05	-23.2
2613	44347	422019.25	4/18/80	11:43:21	7	7	12.5	56.1	28.6	3.8	J.31	-44.8	7	-11.1	-155.4	15.5	J.1	0.01	-9.4
2614	44347	465401.92	4/18/80	12:55:46	7	7	18.5	13.2	****	****	****	-35.4	7	0.9	-178.4	13.3	0.3	-0.02	-13.8
2615	44347	476353.63	4/18/80	13:14:59	7	7	17.4	-9.8	30.9	11.0	J.30	-41.0	7	5.5	158.7	17.7	-2.5	-0.14	-27.8
2616	44347	519757.97	4/18/80	14:26:15	7	7	23.3	-32.7	46.3	6.8	J.15	-41.0	7	10.0	135.8	16.6	-3.2	-0.19	-13.5
2617	44347	531739.17	4/18/80	15:53:16	17	17	1.7	-55.7	31.1	7.5	J.24	-43.3	17	7.5	112.8	17.5	-7.2	-0.41	-36.6
2618	44347	575567.90	4/18/80	16:18:45	17	17	-0.7	-73.6	32.7	3.1	J.09	-38.3	17	-7.4	89.9	8.7	-5.4	-0.62	-2.6
2619	44347	587250.88	4/18/80	16:33:11	10	10	-19.7	-101.5	36.2	6.7	J.13	-49.8	10	-9.7	66.9	27.3	0.2	0.01	-50.5
2620	44347	631918.61	4/18/80	17:33:11	10	10	-17.7	-124.5	27.4	7.2	J.20	-42.9	10	-3.0	44.0	17.9	2.6	0.14	-17.6
2621	44347	641995.20	4/18/80	17:49:59	3	3	0.6	-147.4	26.0	3.1	J.12	-32.4	3	6.5	21.0	8.9	0.7	0.07	-24.2
2622	44347	686627.41	4/18/80	18:48:11	3	3	11.2	-170.4	18.3	6.2	J.34	-26.5	3	13.4	-1.9	13.2	2.4	0.18	-11.9
2623	44347	696733.88	4/18/80	19:21:13	10	10	21.4	166.7	24.0	5.8	J.24	-29.8	10	25.2	-24.8	21.3	0.2	0.01	*****
2624	44347	742162.00	4/18/80	20:36:56	10	10	20.8	143.7	31.6	1.6	J.05	-35.4	10	23.8	-47.8	13.3	-2.3	-0.12	-18.4
2625	44347	752629.38	4/18/80	20:52:42	10	10	9.2	120.8	20.1	2.1	J.10	-21.4	10	13.1	-70.7	8.3	3.4	0.41	-8.7
2626	44347	796910.41	4/18/80	22:24:54	10	10	5.3	97.9	20.3	-1.0	J.05	-21.4	10	13.7	-93.7	18.7	-1.6	-0.08	-19.0
2627	44347	806596.36	4/18/80	22:40:11	13	13	-0.9	74.9	23.7	7.5	J.31	-28.1	13	-2.5	-116.6	18.6	-2.2	-0.12	-27.0
2628	44347	852110.68	4/18/80	23:40:11	13	13	-9.6	52.0	24.9	7.9	J.32	-36.8	13	-2.4	-139.5	18.9	-1.9	-0.10	-36.0
2629	44347	861578.16	4/18/80	23:55:57	17	17	-3.2	23.0	18.4	7.5	J.41	-36.9	17	4.4	-162.5	12.6	-3.3	-0.27	-9.7
2630	44347	861639.39	4/18/80	1:11:41	17	17	16.5	0.1	23.9	7.1	J.30	-29.9	17	6.6	174.6	*****	*****	*****	-29.6
2631	44347	531024.34	4/19/80	1:28:30	17	17	20.7	-16.6	28.4	7.9	J.28	-33.9	17	14.9	151.6	15.1	-3.9	-0.26	-6.7
2632	44347	577355.15	4/19/80	2:42:53	17	17	14.8	-39.8	26.4	7.2	J.13	-33.9	17	10.6	128.7	12.9	-0.4	-0.49	-3.3
2633	44347	107841.34	4/19/80	2:59:44	23	23	7.4	-108.6	35.6	9.0	J.25	-52.9	23	-14.2	59.9	21.6	0.3	0.01	-20.5
2634	44347	153122.37	4/19/80	4:15:12	23	23	-13.8	-131.5	36.0	12.1	J.34	-53.5	20	-10.4	37.0	7.3	2.1	0.28	-44.5
2635	44347	163208.22	4/19/80	4:32:0	20	20	10.9	-177.4	28.7	6.2	J.22	-36.4	7	16.3	-8.9	17.3	4.1	0.23	-24.6
2636	44347	208036.08	4/19/80	5:46:41	7	7	16.1	159.7	29.0	5.5	J.19	-36.4	7	16.1	-31.8	21.6	3.9	0.18	-16.1
2637	44347	218134.62	4/19/80	6:33:30	7	7	11.3	136.7	26.0	2.3	J.09	-33.6	7	9.3	-54.8	20.4	2.4	0.12	-26.1
2638	44347	263228.35	4/19/80	7:18:42	10	10	5.5	113.8	19.0	1.3	J.07	-33.6	10	-2.9	-77.7	13.4	7.5	0.56	-15.3
2639	44347	274118.30	4/19/80	8:33:30	10	10	-6.8	90.9	21.3	1.2	J.06	-24.4	13	-12.3	-100.6	20.5	2.9	0.14	-26.4
2640	44347	279595.74	4/19/80	9:53:30	13	13	-12.6	67.9	29.6	6.6	J.22	-24.4	13	-12.0	-123.6	16.0	0.3	0.02	-16.0
2641	44347	317947.11	4/19/80	10:49:54	13	13	-9.0	45.0	23.9	6.1	J.26	-33.7	10	-1.0	-146.5	10.3	-1.3	-0.13	-6.3
2642	44347	333053.30	4/19/80	11:21:40	10	10	8.4	22.1	14.4	5.9	J.41	-30.7	10	5.2	-169.4	9.6	-4.9	-0.51	-4.5
2643	44347	333053.30	4/19/80	11:53:30	10	10	14.5	-0.9	25.1	6.2	J.25	-29.5	20	13.6	167.6	12.7	-3.9	-0.30	-6.9
2644	44347	333053.30	4/19/80	12:24:54	20	20	15.9	-23.8	37.6	11.2	J.33	-29.5	20	13.8	144.7	22.6	-2.8	-0.12	-17.6
2645	44347	333053.30	4/19/80	12:55:46	20	20	8.7	-46.7	38.7	13.6	J.35	-44.3	17	5.3	121.3	18.3	-7.3	-0.41	-9.2

ORIGINAL PAGE IS OF POOR QUALITY



PASS	NO	AZC	DATE	ASCENDING				DESCENDING				I/E DELTA	B				
				USE	DEL	ZOL	B	L	I/S	DRIFT	DEL			B			
2649	44	8025	4/23/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2650	44	8031	4/23/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2651	44	8036	4/21/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2652	44	8041	4/21/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2653	44	8046	4/21/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2654	44	8051	4/21/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2655	44	8056	4/21/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2656	44	8061	4/21/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2657	44	8066	4/21/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2658	44	8071	4/21/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2659	44	8076	4/21/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2660	44	8081	4/21/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2661	44	8086	4/21/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2662	44	8091	4/21/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2663	44	8096	4/21/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2664	44	8101	4/21/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2665	44	8106	4/21/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2666	44	8111	4/22/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2667	44	8116	4/22/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2668	44	8121	4/22/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2669	44	8126	4/22/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2670	44	8131	4/22/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2671	44	8136	4/22/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2672	44	8141	4/22/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2673	44	8146	4/22/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2674	44	8151	4/22/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2675	44	8156	4/22/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2676	44	8161	4/22/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2677	44	8166	4/22/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2678	44	8171	4/22/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2679	44	8176	4/22/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2680	44	8181	4/22/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2681	44	8186	4/22/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2682	44	8191	4/22/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2683	44	8196	4/23/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2684	44	8201	4/23/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2685	44	8206	4/23/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2686	44	8211	4/23/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2687	44	8216	4/23/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9
2688	44	8221	4/23/80	17	4.3	-92.7	34.0	11.9	3.35	-50.7	17	-3.5	50.0	13.2	-7.3	-0.55	-5.9

PASS	#JD	#SC	DATE	ASCENDING							DESCENDING								
				KE	D	ECL	POL	B	I	1/2	DELTA	B	KE	D	ECL	POL	B	I	1/2
2689	443522	39591600	4/23/80	17	-6.0	70.5	12.4	-2.5	-0.20	-12.5	17	2.4	-121.0	11.2	-0.6	-0.07	-7.4		
2690	443522	43835643	4/23/80	17	-6.0	70.5	12.4	-2.5	-0.20	-12.5	17	2.4	-121.0	11.2	-0.6	-0.07	-7.4		
2691	443522	45096939	4/23/80	17	-1.0	47.6	20.1	7.5	0.37	3.7	17	3.6	-143.9	11.2	-0.6	-0.07	-7.4		
2692	443522	50602258	4/23/80	17	7.5	24.7	14.9	9.8	0.66	-25.8	17	1.3	-166.8	11.2	-0.6	-0.21	-11.5		
2693	443522	54830512	4/23/80	17	18.4	1.8	21.3	3.4	0.43	-29.0	7	11.5	170.3	12.7	-0.8	-0.38	-3.5		
2694	443522	56154746	4/23/80	7	28.1	-21.1	21.9	5.8	0.27	-29.0	7	17.3	147.4	13.3	-2.0	-0.15	-11.0		
2695	443522	60233471	4/23/80	7	30.0	-44.1	24.1	6.2	0.26	-26.2	20	11.1	124.5	13.0	-7.4	-0.57	-18.9		
2696	443522	61628586	4/23/80	20	24.6	-67.0	29.6	8.9	0.30	-45.4	20	-0.5	101.6	6.7	-0.4	-0.81	-2.0		
2697	443522	65777220	4/23/80	20	-10.6	-89.9	29.6	8.9	0.30	-45.4	27	-8.9	78.7	7.1	-2.0	-0.29	-2.2		
2698	443522	67165344	4/24/80	27	-32.1	-112.8	38.0	10.6	0.27	-54.0	27	-20.6	55.7	18.6	0.4	0.34	-46.9		
2699	443522	71236270	4/24/80	27	-39.5	-135.7	34.4	10.1	0.29	-50.0	27	-3.5	32.8	8.1	4.1	0.51	-10.0		
2700	443522	72623435	4/24/80	27	-14.5	-158.6	30.0	9.9	0.32	-44.0	27	10.4	9.9	17.4	-1.7	-0.16	-42.3		
2701	443522	76399887	4/24/80	10	23.0	155.6	23.7	7.9	0.33	-40.3	10	39.4	-13.0	17.0	4.2	0.25	-26.8		
2702	443522	78160213	4/24/80	10	12.4	132.7	25.7	-0.6	-0.02	-29.2	10	10.3	-58.8	17.1	3.2	0.19	-19.9		
2703	443522	82129053	4/24/80	10	-4.4	109.8	16.1	0.7	0.05	-21.0	10	-4.3	-81.7	15.3	7.9	0.51	-18.5		
2704	443522	83634053	4/24/80	10	-6.6	86.8	17.8	8.9	0.30	-21.0	10	-20.2	-104.6	27.5	-3.4	-0.12	-26.2		
2705	443522	12505516	4/24/80	10	-16.8	63.5	33.5	9.6	0.29	-42.2	10	-22.4	-127.5	22.8	1.4	0.06	-39.9		
2706	443522	13718431	4/24/80	10	-17.4	41.0	30.9	11.1	0.36	-40.5	20	-11.2	-150.4	16.3	0.4	0.02	-13.8		
2707	443522	17728502	4/24/80	20	-5.0	18.1	28.9	14.5	0.50	-38.3	20	4.7	-173.3	*****	*****	*****	-33.2		
2709	443522	19176032	4/24/80	20	4.3	-4.8	31.9	13.1	0.41	-42.5	10	7.0	163.8	13.5	0.0	0.00	-9.4		
2709	443522	23202347	4/24/80	10	16.5	-27.7	39.9	7.8	0.20	-37.4	10	17.3	140.8	15.6	-4.7	-0.30	-31.5		
2710	443522	24713300	4/24/80	10	16.7	-50.6	25.5	6.7	0.26	-33.5	20	10.0	117.9	6.6	-7.9	-1.20	1.4		
2711	443522	28609955	4/24/80	20	3.6	-73.5	22.5	3.3	0.15	-30.9	20	-6.6	95.0	0.6	-3.3	-5.07	3.8		
2712	443522	30229230	4/24/80	20	-3.6	-96.4	36.3	0.8	0.02	-43.6	27	-6.8	72.1	11.8	-0.2	-0.02	-36.0		
2713	443522	34226670	4/24/80	27	-27.8	-119.3	29.3	7.9	0.27	-40.9	27	0.5	49.2	14.1	-4.3	-0.31	-10.2		
2714	443522	35676770	4/25/80	27	-21.6	-142.2	28.4	4.5	0.16	-38.2	23	2.0	26.3	0.0	2.0	0.45	-30.9		
2715	443522	39702515	4/25/80	23	-2.0	-165.1	26.8	5.8	0.22	-38.1	23	16.0	3.4	16.5	4.0	0.24	-17.4		
2716	443522	45121352	4/25/80	20	19.3	172.0	28.1	7.5	0.27	-36.5	20	35.3	-19.5	17.2	3.7	0.22	-36.0		
2717	443522	46703038	4/25/80	20	24.0	149.1	23.5	2.3	0.10	-30.1	20	33.2	-42.4	13.7	-1.7	-0.13	-11.9		
2718	443522	52176934	4/25/80	27	4.9	126.2	13.1	-2.2	-0.17	-11.2	27	16.8	-65.3	10.5	1.7	0.16	-16.5		
2719	443522	57652090	4/25/80	27	-12.7	103.3	22.5	-4.1	0.16	-27.4	27	-2.0	-86.2	8.0	3.4	0.42	-13.3		
2720	443522	61628586	4/25/80	33	-29.8	80.4	32.8	17.4	0.53	-44.6	33	9.0	-111.1	6.2	7.0	1.12	-36.3		
2721	443522	67165344	4/25/80	33	-24.5	57.5	29.1	9.1	0.23	-38.1	33	-3.6	-134.0	21.4	1.0	0.05	-25.7		
2722	443522	71236270	4/25/80	17	-11.9	34.6	17.4	10.9	0.63	-26.4	17	-7.0	-156.9	15.1	-1.6	-0.11	-11.4		
2723	443522	72623435	4/25/80	17	-3.4	11.7	14.3	0.3	0.66	-26.4	17	6.9	-179.8	14.4	0.1	0.01	-12.8		
2724	443522	76399887	4/25/80	7	20.7	-11.2	25.4	10.0	0.39	-26.4	7	12.7	157.3	15.0	-4.0	-0.27	-12.6		
2725	443522	78160213	4/25/80	7	27.9	-34.1	36.0	7.0	0.19	-33.4	7	14.6	134.4	16.8	-0.4	-0.32	-10.2		
2726	443522	82129053	4/25/80	10	11.5	-57.0	28.3	3.8	0.14	-35.6	10	0.9	111.5	6.8	-3.4	-1.21	-0.0		
2727	443522	83634053	4/25/80	10	0.2	-79.9	24.6	0.0	0.20	-1.9	10	-4.4	86.6	4.3	-1.0	-0.23	-3.4		

ORIGINAL PAGE IS  
OF POOR QUALITY

PASS	M	J	MSEC	DATE	M	H	SC	ASCENDING				DESCENDING				I/F	DELTA	B			
								KE	D	EGL	E	T	A/B	DELTA	E				KE	D	EGL
2729	44	35	420278	4/26/80	05	17	17	7	-17.6	-102.8	27.1	5.8	0.21	-42.9	7	-19.9	65.7	14.1	3.2	0.23	-3.4
2730	44	35	577865	4/26/80	15	10	16	7	-22.8	-125.7	23.7	4.8	0.20	-30.6	7	-15.7	42.8	15.0	3.4	0.22	-16.2
2731	44	35	967654	4/26/80	22	4	15	20	-21.2	-148.6	30.4	5.1	0.17	-40.2	20	6.7	19.9	17.6	-3.9	-0.05	-8.6
2732	44	35	112524	4/26/80	35	7	32	20	-12.9	-171.5	35.0	9.8	0.28	-48.6	20	25.8	-3.0	14.9	2.3	0.15	-6.6
2733	44	35	2068714	4/26/80	45	12	40	13	9.1	165.6	27.6	3.2	0.30	-38.8	13	30.5	-25.9	29.2	2.0	0.07	-23.2
2734	44	35	2220012	4/26/80	65	19	0	13	11.7	142.7	30.4	0.5	0.02	-36.1	13	21.9	-48.3	25.9	2.4	0.09	-23.2
2735	44	35	31616118	4/26/80	85	46	58	3	-7.9	119.8	17.9	2.5	0.14	-22.7	3	-7.5	-71.6	17.4	0.1	0.35	-24.8
2736	44	35	33194935	4/26/80	105	18	58	3	-14.6	96.9	16.5	3.6	0.03	-22.5	3	-10.9	-94.5	14.9	-1.2	-0.08	-20.1
2737	44	35	42612983	4/26/80	115	50	12	20	-14.1	74.0	21.0	3.4	0.40	-25.9	20	0.2	-117.4	14.0	-4.3	-0.00	-21.0
2738	44	35	44126946	4/26/80	135	21	28	20	-19.2	51.1	27.5	10.1	0.37	-40.5	***	*****	*****	*****	*****	*****	-25.6
2739	44	35	48088783	4/26/80	145	47	27	13	-10.5	28.2	18.0	8.2	0.45	7.0	13	7.3	-163.2	12.2	-0.0	-0.37	-12.9
2740	44	35	49663774	4/26/80	155	18	41	13	10.0	5.3	18.3	5.4	0.29	7.0	13	14.0	173.9	19.0	-3.7	-0.44	-11.4
2741	44	35	53247059	4/26/80	165	24	33	10	20.6	-17.6	30.7	6.1	0.20	-31.5	***	*****	*****	*****	*****	*****	-11.4
2742	44	35	5512815	4/26/80	175	55	58	10	27.5	-40.5	27.5	4.0	0.10	-24.6	10	22.5	128.1	4.5	-4.1	-0.92	3.9
2743	44	35	60595655	4/26/80	185	22	12	13	19.1	-63.4	13.4	7.5	0.35	-28.8	***	*****	*****	*****	*****	*****	3.9
2744	44	35	64558477	4/26/80	195	21	57	13	-2.4	-86.2	19.6	5.2	0.20	-32.0	13	-3.5	82.3	3.9	0.0	0.13	-3.4
2745	44	35	66132413	4/27/80	205	27	10	3	-6.5	-109.1	21.0	6.2	0.29	-35.0	***	*****	*****	*****	*****	*****	-3.4
2746	44	35	69717730	4/27/80	215	28	10	3	-15.4	-132.0	22.2	3.5	0.10	-32.6	13	-3.6	36.5	8.1	2.6	0.33	-6.2
2747	44	35	71590524	4/27/80	225	30	22	13	-9.6	-154.9	19.9	-0.5	-0.32	-22.9	***	*****	*****	*****	*****	*****	-8.2
2748	44	35	75537615	4/27/80	235	31	25	13	23.6	-177.8	14.9	3.4	0.03	-19.1	3	42.0	-9.2	0.0	3.5	0.54	-15.5
2749	44	35	77048635	4/27/80	245	37	22	3	31.4	159.3	18.0	-0.3	-0.02	-16.6	3	42.2	-32.1	0.1	-0.9	-0.15	-3.3
2750	44	35	80695805	4/27/80	255	4	51	3	23.6	136.4	15.2	-3.8	-0.25	-15.6	10	22.4	-55.0	13.0	-4.1	-0.31	-3.3
2751	44	35	82569803	4/27/80	265	36	36	10	13.0	113.5	6.3	-1.9	-0.23	-9.2	10	11.6	-77.9	11.3	0.3	0.56	-3.3
2752	44	35	130704	4/27/80	275	41	33	10	-1.5	90.6	15.4	1.3	0.08	-17.6	17	9.8	-100.8	3.9	-0.0	-0.05	-11.8
2753	44	35	1643749	4/27/80	285	12	48	17	-6.5	67.7	20.5	4.2	0.21	-17.8	17	9.6	-123.7	9.7	-3.4	-0.35	-10.5
2754	44	35	5290999	4/27/80	295	10	19	17	-9.5	44.9	20.9	5.0	0.24	-27.6	13	4.9	-146.6	6.5	-3.4	-0.53	-10.5
2755	44	35	7164532	4/27/80	305	16	20	13	12.4	22.0	14.7	5.7	0.39	-18.6	13	10.5	-169.5	2.8	-0.3	-2.25	-17.5
2756	44	35	11062874	4/27/80	315	41	32	13	30.8	-3.9	17.4	2.9	0.17	-20.3	7	20.5	167.7	4.2	-3.0	-0.84	2.8
2757	44	35	12628372	4/27/80	325	18	16	7	42.9	-23.8	25.5	3.8	0.15	-26.4	7	29.0	184.8	8.1	-3.7	-0.70	-2.3
2758	44	35	16280753	4/27/80	335	55	31	7	35.7	-46.7	14.5	3.6	0.26	-18.4	27	13.8	121.9	0.5	-11.6	-1.69	-11.3
2759	44	35	22989142	4/27/80	345	20	43	27	3.9	-69.6	18.3	5.5	0.30	-31.2	27	0.5	99.0	3.7	-3.0	-0.90	-0.6
2760	44	35	33091737	4/27/80	355	58	0	27	-10.2	-92.5	29.3	10.6	0.36	-49.1	17	-4.4	76.1	3.4	2.9	0.34	-2.7
2761	44	35	38493610	4/28/80	365	29	29	17	-32.5	-115.3	24.7	4.8	0.20	-37.1	17	-13.2	53.2	14.6	0.9	0.06	-32.8
2762	44	35	40770491	4/28/80	375	54	41	17	-22.6	-138.2	23.7	1.4	0.30	-33.6	10	-3.3	30.3	4.4	4.9	1.13	-7.6
2763	44	35	43968433	4/28/80	385	26	10	10	-1.0	-161.1	16.7	3.3	0.20	-26.8	10	8.2	7.5	16.3	-3.0	-0.00	-11.4
2764	44	35	45544331	4/28/80	395	3	25	10	11.3	176.0	18.1	0.4	0.02	-24.1	3	31.8	-15.4	6.4	0.2	0.82	-15.9
2765	44	35	49442206	4/28/80	405	35	43	3	22.8	153.1	21.7	0.9	0.04	11.9	3	27.9	-38.3	15.4	-3.9	-0.25	-9.2
2766	44	35	51318171	4/28/80	415	6	56	3	20.2	130.2	18.8	-2.8	-0.15	-17.1	13	16.0	-61.2	14.9	0.3	0.02	-9.2
2767	44	35	54543008	4/28/80	425	32	10	13	13.3	107.4	11.7	-1.8	-0.15	-17.1	13	11.9	-84.1	3.9	-1.0	-0.10	-8.4
2768	44	35	56492011	4/28/80	435	34	52	13	7.5	84.5	21.1	6.5	0.31	-23.0	***	*****	*****	*****	*****	*****	-8.4

ORIGINAL PAGE IS  
OF POOR QUALITY

PASS	MJD	YSEC	DATE	TIME	SC	ASCENDING					DELTA B	DESCENDING					I/E	DELTA P			
						AP	D	EQ1	TOL	E		I	I/O	AP	D	EQ2			TOL	E	I
2769	44357	485204	4/28/80	1:28:40	13	20.6	-7.1	19.3	5.8	0.30	-23.0	20	3.0	-175.6	12.4	-3.3	-0.67	-1.1			
2771	44357	591267	4/28/80	1:25:26	16	20.6	-7.1	19.3	5.8	0.30	-23.1	20	3.0	-175.6	12.4	-3.3	-0.67	-1.1			
2772	44357	621447	4/28/80	1:45:44	17	20.6	-7.1	19.3	5.8	0.30	-23.1	7	14.4	161.5	0.7	-3.3	-0.37	3.5			
2773	44357	630567	4/28/80	1:46:56	18	20.6	-7.1	19.3	5.8	0.30	-23.1	7	14.4	161.5	0.7	-3.3	-0.37	3.5			
2774	44357	641559	4/28/80	1:12:39	7	42.9	-29.9	27.3	3.5	0.13	-23.6	7	22.1	138.6	3.7	-5.4	-0.62	-2.9			
2774	44357	729399	4/28/80	2:06:46	20	36.5	-52.8	13.3	5.0	0.34	*****	7	11.7	115.0	2.5	-10.3	-4.13	7.0			
2774	44357	748185	4/28/80	2:04:38	7	36.5	-52.8	13.3	5.0	0.34	*****	7	11.7	115.0	2.5	-10.3	-4.13	7.0			
2775	44357	785414	4/28/80	2:12:49	1	7	13.2	-75.7	14.7	0.3	0.06	-21.2	***	*****	*****	*****	*****	7.0			
2775	44357	803710	4/28/80	2:13:11	7	13.2	-75.7	14.7	0.3	0.06	-21.2	***	*****	*****	*****	*****	*****	7.0			
2775	44357	817522	4/28/80	2:12:32	2	7	13.2	-75.7	14.7	0.3	0.06	-21.2	***	*****	*****	*****	*****	7.0			
2776	44357	858038	4/28/80	2:23:50	12	-7.1	-93.6	21.1	0.2	0.29	*****	13	-4.0	70.0	14.3	1.3	0.10	-8.0			
2776	44357	858038	4/28/80	2:23:50	12	-7.1	-93.6	21.1	0.2	0.29	*****	13	-4.0	70.0	14.3	1.3	0.10	-8.0			
2777	44357	309037	4/29/80	0:51:30	0	1	21:58	13	-14.4	-121.4	17.0	0.8	0.33	-31.6	13	-11.3	47.1	11.5	-0.7	-0.06	-12.5
2777	44357	431894	4/29/80	1:21:58	13	-14.4	-121.4	17.0	0.8	0.33	-31.6	13	-11.3	47.1	11.5	-0.7	-0.06	-12.5			
2777	44357	850019	4/29/80	2:24:46	4	-8.4	-144.3	19.2	0.6	0.03	-31.6	17	-3.0	24.3	0.0	0.2	0.03	2.4			
2777	44357	103927	4/29/80	4:53:12	17	-8.4	-144.3	19.2	0.6	0.03	-31.6	17	-3.0	24.3	0.0	0.2	0.03	2.4			
2777	44357	140407	4/29/80	3:54:00	3	7.7	-167.2	16.0	1.8	0.11	-23.9	17	31.5	1.4	9.0	-1.2	-0.15	-3.5			
2779	44357	158663	4/29/80	4:24:26	17	7.7	-167.2	16.0	1.8	0.11	-23.9	17	31.5	1.4	9.0	-1.2	-0.15	-3.5			
2779	44357	195745	4/29/80	5:26:14	5	21.9	169.9	14.2	2.8	0.20	-23.9	17	43.4	-21.5	12.0	-2.0	-0.16	-5.6			
2780	44357	214031	4/29/80	5:56:43	17	21.9	169.9	14.2	2.8	0.20	-23.9	17	43.4	-21.5	12.0	-2.0	-0.16	-5.6			
2780	44357	250199	4/29/80	6:56:59	6	23.1	147.0	20.3	0.7	0.04	-24.9	17	42.2	-44.4	5.0	-2.3	-0.46	-5.0			
2781	44357	268455	4/29/80	7:27:25	17	23.1	147.0	20.3	0.7	0.04	-24.9	17	42.2	-44.4	5.0	-2.3	-0.46	-5.0			
2781	44357	405537	4/29/80	8:29:13	8	12.1	124.2	10.4	-0.9	-0.03	-11.2	***	*****	*****	*****	*****	*****	-21.2			
2781	44357	323193	4/29/80	8:58:39	13	12.1	124.2	10.4	-0.9	-0.03	-11.2	***	*****	*****	*****	*****	*****	-21.2			
2781	44357	357129	4/29/80	9:55:12	9	5.0	101.3	2.0	-2.1	-0.78	-0.8	13	-0.3	-90.1	13.5	-2.1	-0.20	-9.5			
2781	44357	382021	4/29/80	10:36:42	13	5.0	101.3	2.0	-2.1	-0.78	-0.8	13	-0.3	-90.1	13.5	-2.1	-0.20	-9.5			
2781	44357	414705	4/29/80	11:31:10	11	-1.9	73.4	*****	*****	*****	-6.8	20	13.7	-113.0	17.0	-11.3	-0.67	-4.3			
2781	44357	432984	4/29/80	12:1:36	20	-1.9	73.4	*****	*****	*****	-6.8	20	13.7	-113.0	17.0	-11.3	-0.67	-4.3			
2781	44357	465939	4/29/80	13:33:13	13	-7.4	55.5	19.4	5.2	0.27	0.7	20	12.1	-135.9	5.0	-4.3	-0.86	-4.9			
2781	44357	488195	4/29/80	13:33:39	20	-7.4	55.5	19.4	5.2	0.27	0.7	20	12.1	-135.9	5.0	-4.3	-0.86	-4.9			
2781	44357	524667	4/29/80	14:34:26	14	-7.4	55.5	19.4	5.2	0.27	0.7	20	12.1	-135.9	5.0	-4.3	-0.86	-4.9			
2781	44357	542330	4/29/80	15:42:53	17	-7.4	55.5	19.4	5.2	0.27	0.7	20	12.1	-135.9	5.0	-4.3	-0.86	-4.9			
2786	44357	579091	4/29/80	16:35:44	16	13.4	9.8	13.6	4.7	0.35	-19.4	***	*****	*****	*****	*****	*****	2.3			
2787	44357	597357	4/29/80	17:35:11	17	13.4	9.8	13.6	4.7	0.35	-19.4	***	*****	*****	*****	*****	*****	2.3			
2787	44357	631912	4/29/80	18:33:11	17	13.4	9.8	13.6	4.7	0.35	-19.4	***	*****	*****	*****	*****	*****	2.3			
2787	44357	631912	4/29/80	18:33:11	17	13.4	9.8	13.6	4.7	0.35	-19.4	***	*****	*****	*****	*****	*****	2.3			
2788	44357	652095	4/29/80	19:9:49	10	49.6	-13.1	18.4	3.1	0.17	-23.6	10	31.2	155.5	1.1	-0.3	-8.22	10.1			
2788	44357	688563	4/29/80	19:9:49	10	49.6	-13.1	18.4	3.1	0.17	-23.6	10	31.2	155.5	1.1	-0.3	-8.22	10.1			
2789	44357	706834	4/29/80	19:31:36	10	50.6	-36.0	24.3	1.8	0.07	-23.6	10	33.1	132.6	3.1	-10.7	-3.41	7.7			
2789	44357	743778	4/29/80	20:39:37	10	50.6	-36.0	24.3	1.8	0.07	-23.6	10	33.1	132.6	3.1	-10.7	-3.41	7.7			
2790	44357	761415	4/29/80	21:32:1	13	29.1	-58.8	7.3	4.2	0.53	-25.1	13	13.9	109.8	-4.6	-11.1	2.42	16.4			
2790	44357	790074	4/29/80	22:11:7	13	29.1	-58.8	7.3	4.2	0.53	-25.1	13	13.9	109.8	-4.6	-11.1	2.42	16.4			
2791	44357	816940	4/29/80	23:41:34	13	12.2	-81.7	12.0	4.1	0.32	-21.9	***	*****	*****	*****	*****	*****	16.4			
2791	44357	851183	4/29/80	23:33:38	13	12.2	-81.7	12.0	4.1	0.32	-21.9	***	*****	*****	*****	*****	*****	16.4			
2792	44359	768111	4/30/80	0:12:48	17	-3.0	-104.7	15.6	4.0	0.29	-27.0	17	-2.4	64.0	9.9	-1.3	-0.13	-4.9			
2792	44359	441530	4/30/80	1:13:35	17	-3.0	-104.7	15.6	4.0	0.29	-27.0	17	-2.4	64.0	9.9	-1.3	-0.13	-4.9			
2793	44359	624195	4/30/80	1:44:1	17	-14.9	-127.4	10.4	1.7	0.10	-19.4	***	*****	*****	*****	*****	*****	-4.9			
2793	44359	969753	4/30/80	2:41:37	4	-14.9	-127.4	10.4	1.7	0.10	-19.4	***	*****	*****	*****	*****	*****	-4.9			
2794	44359	117312	4/30/80	3:15:31	23	-12.1	-150.3	21.6	3.9	0.19	-28.2	23	9.4	18.3	15.5	-3.2	-0.20	-1.1			
2794	44359	153785	4/30/80	4:16:18	23	-12.1	-150.3	21.6	3.9	0.19	-28.2	23	9.4	18.3	15.5	-3.2	-0.20	-1.1			
2795	44359	172511	4/30/80	4:46:45	23	-12.1	-150.3	21.6	3.9	0.19	-28.2	23	9.4	18.3	15.5	-3.2	-0.20	-1.1			
2795	44359	206006	4/30/80	5:44:20	5	21.8	103.9	14.6	2.9	0.17	-19.7	***	*****	*****	*****	*****	*****	-1.1			
2796	44359	227104	4/30/80	6:18:30	10	21.8	103.9	14.6	2.9	0.17	-19.7	***	*****	*****	*****	*****	*****	-1.1			
2796	44359	263576	4/30/80	7:19:17	7	23.0	141.1	17.0	-1.5	-0.08	-22.2	***	*****	*****	*****	*****	*****	-6.7			
2797	44359	281425	4/30/80	7:49:44	10	23.0	141.1	17.0	-1.5	-0.08	-22.2	***	*****	*****	*****	*****	*****	-6.7			
2797	44359	316398	4/30/80	8:47:19	9	13.0	118.2	7.9	0.7	0.09	-12.1	27	10.5	-73.2	12.8	3.5	0.27	-18.6			
2797	44359	336495	4/30/80	9:21:29	27	13.0	118.2	7.9	0.7	0.09	-12.1	27	10.5	-73.2	12.8	3.5	0.27	-18.6			
2797	44359	373368	4/30/80	10:22:16	10	-3.5	95.3	13.1	-1.2	-0.09	-13.4	***	*****	*****	*****	*****	*****	-12.5			
2797	44359	391633	4/30/80	10:52:43	27	-3.5	95.3	13.1	-1.2	-0.09	-13.4	***	*****	*****	*****	*****	*****	-12.5			
2800	44359	420189	4/30/80	11:50:18	11	-12.3	72.5	24.1	10.5	0.44	-29.3	***	*****	*****	*****	*****	*****	-1.3			
2800	44359	440057	4/30/80	12:23:25	30	-12.3	72.5	24.1	10.5	0.44	-29.3	***	*****	*****	*****	*****	*****	-1.3			
2801	44359	481252	4/30/80	13:54:58	13	-22.3	49.6	26.8	11.7	0.44	-40.2	***	*****	*****	*****	*****	*****	-2			
2801	44359	501582	4/30/80	14:53:58	30	-22.3															

PASS	MJD	MSEC	DATE	HR	MIN	SEC	ASCENDING	EQL	E	I	L/Z	DELTA	B	DESCENDING	EQL	E	I	L/E	DELTA	E
			YYYYMMDD	MM	SS	SS	KE	D						KE	D					
2819	44360	13132931	19800101	3	38	52	20	-13.5	-150.2	18.7	0.5	0.03	-21.4	20	13.7	12.4	12.4	-1.0	-0.08	-1.4
2811	44360	16780182	19800101	4	39	40	20	10.3	-179.0	22.0	4.0	0.18	-27.0	***	*****	*****	*****	*****	*****	-1.4
2812	44360	22165552	19800101	5	13	25	7	19.0	158.1	18.1	0.8	0.04	-17.3	7	17.1	-33.3	5.0	-0.3	-0.17	-4.1
2813	44360	24049153	19800101	6	43	49	7	29.7	135.2	17.5	-1.5	-0.39	-17.8	***	*****	*****	*****	*****	*****	-4.1
2814	44360	29585911	19800101	8	13	5	13	28.2	112.4	9.2	0.7	0.08	-13.0	13	21.1	-79.0	10.4	2.9	0.28	-15.4
2815	44360	33041463	19800101	9	10	41	13	9.9	89.5	17.7	3.5	0.20	-13.0	27	11.0	-101.9	15.3	-4.5	-0.30	-15.5
2816	44360	35928292	19800101	10	45	39	27	-11.5	66.6	26.1	8.3	0.32	-31.4	***	*****	*****	*****	*****	*****	-15.5
2817	44360	38735451	19800101	11	16	5	27	-0.5	43.8	18.9	3.7	0.19	-23.0	27	-3.1	-147.6	5.3	-1.5	-0.29	-8.0
2818	44360	40545050	19800101	12	19	51	27	16.0	20.9	12.3	4.5	0.17	-23.0	27	3.0	-170.5	26.6	-20.1	-1.09	-0.3
2819	44360	44211315	19800101	13	44	54	27	24.8	-1.9	26.0	6.9	0.27	*****	***	*****	*****	*****	*****	*****	-0.3
2820	44360	46038800	19800101	14	18	17	23	38.3	-24.8	24.6	4.3	0.18	-19.3	23	23.7	143.8	5.4	-3.1	-0.57	-4.0
2821	44360	49494443	19800101	15	20	8	23	38.1	-47.7	17.8	6.5	0.37	-24.6	***	*****	*****	*****	*****	*****	-4.0
2822	44360	51497001	19800101	16	51	4	10	17.4	-70.5	13.6	4.0	0.29	-23.7	10	2.7	98.1	-3.8	-2.6	0.45	8.0
2823	44360	55208160	19800101	17	23	59	10	15.6	-93.4	22.5	3.0	0.13	-32.0	***	*****	*****	*****	*****	*****	8.0
2824	44361	57033759	19800101	18	19	32	13	13.5	-116.2	19.2	4.7	0.24	-28.3	13	-2.5	52.4	26.4	-10.8	-0.41	-15.2
2825	44361	60664294	19800101	19	55	21	13	4.4	-139.1	19.7	3.9	0.20	-26.7	***	*****	*****	*****	*****	*****	-15.2
2826	44361	62639579	19800101	20	32	19	10	9.6	-161.9	14.5	4.3	0.29	-21.8	10	26.7	6.7	13.6	-3.3	-0.24	-4.6
2827	44361	65972243	19800101	21	15	53	10	13.5	175.2	20.4	2.4	0.12	-27.2	***	*****	*****	*****	*****	*****	-4.6
2828	44361	67977753	19800101	22	33	22	13	14.7	152.3	28.7	5.6	0.19	-36.4	13	34.9	-39.0	10.3	-3.5	-0.32	-6.6
2829	44361	71089650	19800101	23	55	49	13	15.2	129.5	21.5	-1.1	-0.05	-20.8	***	*****	*****	*****	*****	*****	-8.6
2830	44361	73581115	19800101	24	08	21	10	2.6	106.6	9.0	0.4	0.04	-14.0	10	2.8	-84.7	9.3	0.3	0.09	-20.3
2831	44361	76913779	19800101	25	08	22	10	-3.6	83.8	9.3	2.7	0.29	-14.0	10	-6.7	-107.6	25.4	-10.1	-6.63	-11.0
2832	44361	79121244	19800101	26	04	4	10	-6.2	60.9	24.5	5.1	0.21	-33.0	***	*****	*****	*****	*****	*****	-11.0
2833	44361	82664517	19800101	27	08	17	10	-2.1	38.1	20.9	6.7	0.32	-27.0	13	-0.5	-153.3	2.5	-1.8	-7.71	1.3
2834	44361	84575984	19800101	28	09	50	13	17.8	15.2	16.6	6.7	0.40	-29.8	***	*****	*****	*****	*****	*****	1.3
2835	44361	85256107	19800101	29	04	59	13	29.1	-7.6	18.8	6.0	0.32	-27.1	10	15.3	161.0	5.9	-7.8	-1.31	5.1
2836	44361	86539306	19800101	30	00	42	10	50.0	-30.5	29.1	6.0	0.21	-27.1	10	25.0	138.1	9.4	-0.9	-0.74	-1.9
2837	44361	87829499	19800101	31	00	14	7	29.3	-33.3	15.3	5.6	0.36	-26.2	***	*****	*****	*****	*****	*****	-1.9
2838	44361	89113531	19800101	32	00	56	7	17.2	-76.2	16.1	3.4	0.21	-23.3	7	3.6	92.4	-4.7	-1.9	0.40	7.3
2839	44361	90403906	19800101	33	03	39	3	-8.3	-93.0	19.7	5.2	0.27	-31.0	***	*****	*****	*****	*****	*****	7.3
2840	44362	91693309	19800101	34	03	16	3	-10.9	-121.9	17.0	5.7	0.33	-27.4	3	-4.8	46.7	10.1	1.4	0.13	-11.4
2841	44362	92982711	19800101	35	02	39	7	3.6	-144.7	18.4	0.3	0.02	-23.7	***	*****	*****	*****	*****	*****	-11.4
2842	44362	94272113	19800101	36	05	41	7	11.9	-157.6	12.4	3.2	0.26	-20.1	7	31.4	1.0	10.3	-3.0	-0.35	-1.8
2843	44362	95561515	19800101	37	05	53	10	22.6	169.6	13.2	3.3	0.25	-18.5	***	*****	*****	*****	*****	*****	-1.8
2844	44362	96850917	19800101	38	06	11	10	25.2	146.7	18.2	-1.8	-0.10	-23.7	10	31.3	-44.6	10.0	-2.1	-0.22	-12.5
2845	44362	98140319	19800101	39	06	29	10	15.8	123.9	13.0	1.1	0.08	-14.5	10	21.2	-67.5	1.6	3.3	2.13	-16.1
2846	44362	99430721	19800101	40	07	37	10	7.7	101.0	6.8	-3.4	-0.50	-9.1	***	*****	*****	*****	*****	*****	-10.5
2847	44362	10072123	19800101	41	07	37	7	-8.9	78.2	15.8	6.9	0.43	-17.6	7	1.1	-113.2	24.0	-12.3	-0.53	-5.7
2848	44362	10203525	19800101	42	08	35	7	-7.0	55.3	19.5	5.1	0.20	-27.7	7	-0.8	-136.0	7.3	-2.0	-0.25	-8.1
2849	44362	10334927	19800101	43	08	51	7	7.8	32.5	15.1	6.1	0.40	-19.6	7	6.5	-158.9	-3.2	-3.2	13.52	-8.1

ORIGINAL PAGE IS OF POOR QUALITY

PASS	MJD	MSZC	DATE	ASCENDING	EQL	E	T	I/3	DELTA B	EPSCENDING	EQL	E	I	I/3 DELTA B
				KE	D EQL	9.0	17.6	6.6	0.37	7	11.0	178.3	6.7	-19.5
2850	443622	59311447	3/80	7	19.4				-23.5	7				
2851	443622	65421017	3/80	3	40.8	-13.2	19.7	8.2	0.42	3	23.4	155.4	6.7	-0.78 4.6
2852	443622	69004372	3/80	19	10.4				-29.3	3	22.5	132.6	6.3	-1.26 3.9
2853	443622	70844857	3/80	3	46.3	-36.0	25.4	6.0	0.24	3	22.5	132.6	6.3	-7.9 -1.26 3.9
2854	443622	74464443	3/80	10	27.7	-58.9	12.3	5.3	0.43	10	9.4	109.7	1.6	-11.0 -7.43 5.0
2855	443622	76352968	3/80	10	14.7	-81.7	17.2	3.9	0.23	10	2.2	86.9	1.9	-2.9 -1.50 9.0
2856	443622	79954013	3/80	3	-14.5	-104.6	19.7	6.6	0.34	3	-11.0	64.1	14.4	4.1 0.28 -16.0
2857	443623	81842537	4/80	3	11.1	*****	17.3	6.0	0.35	3	-5.1	41.2	13.1	2.0 0.20 -9.9
2858	443623	85440638	4/80	17	-2.8	-159.3	15.3	2.0	0.13	17	18.9	18.4	3.1	3.0 0.02 -9.9
2859	443623	10034527	4/80	17	20.6	-173.1	14.4	5.3	0.37	17	26.6	-4.5	3.3	3.7 0.21 3.2
2860	443623	11926576	4/80	7	29.3	164.1	13.3	2.1	0.16	7	33.9	-27.3	6.9	3.7 0.54 0.2
2861	443623	15493618	4/80	7	26.0	141.2	19.4	-1.7	-0.09	7	27.3	-50.1	15.1	3.4 0.03 -12.2
2862	443623	17385087	4/80	13	18.6	118.4	5.6	-0.8	-0.08	13	13.3	-73.0	8.3	7.1 0.86 -14.6
2863	443623	20968442	4/80	13	4.7	95.5	11.9	-1.2	-0.10	13	9.7	-95.8	16.7	0.2 -0.37 -13.6
2864	443623	22921845	4/80	20	-4.0	72.7	21.6	3.6	0.40	20	-3.8	-118.7	11.9	-3.4 -0.29*****
2865	443623	26520923	4/80	20	-13.7	49.9	24.3	9.5	0.37	20	1.0	-141.5	11.8	-0.9 -0.07*****
2866	443623	28348496	4/80	17	-1.1	27.0	17.2	0.6	0.38	17	4.6	-164.3	1.8	-0.2 -0.13 -35.4
2867	443623	31946597	4/80	17	27.3	4.2	16.9	6.1	0.36	17	9.3	172.8	2.1	-3.0 -1.41 -16.1
2868	443623	33900984	4/80	7	35.9	-18.6	20.3	11.4	0.56	7	20.7	150.0	7.1	3.7 0.10 -2.3
2869	443623	37420437	4/80	7	42.9	-41.5	21.9	8.1	0.37	7	23.8	127.2	3.1	0.1 -1.95 6.2
2870	443623	39374624	4/80	3	33.2	-64.3	10.7	8.8	0.82	3	13.0	104.3	-3.0	-3.4 3.18 12.0
2871	443623	42973902	4/80	3	2.9	-87.2	13.1	7.5	0.57	3	-0.3	61.5	3.1	-2.2 -15.71 12.0
2872	443624	44864394	5/80	3	-8.4	-110.0	17.8	5.2	0.29	3	-5.0	58.7	11.1	3.3 0.02 -11.4
2873	443624	48447749	5/80	3	-8.9	-132.8	13.4	5.0	0.38	3	12.9	35.8	3.6	2.4 0.67 -5.0
2874	443624	50338234	5/80	7	-0.2	-155.7	14.0	-3.1	-0.22	7	22.5	13.0	2.8	-4.8 -1.71 -5.3
2875	443624	53937312	5/80	7	33.6	-178.5	6.7	-9.3	-0.05	7	30.1	-9.8	3.5	-4.9 -13.54 -1.2
2876	443624	55827803	5/80	17	44.0	158.7	5.1	-4.4	-0.87	17	34.8	-32.7	-1.0	-6.1 6.06 11.9
2877	443624	59426882	5/80	17	52.6	135.8	-4.7	-19.5	2.24	17	43.3	-55.5	0.1	0.0 ***** 2.9
2878	443624	61317373	5/80	17	49.3	113.0	-9.8	-9.7	0.39	17	34.6	-78.3	-9.7	2.2 -0.23 10.7
2879	443624	64900722	5/80	17	27.5	90.2	-0.2	-5.8	32.00	17	13.4	-191.2	3.2	-8.3 -2.56 6.9
2880	443624	67042884	5/80	23	15.3	67.3	7.0	1.6	0.27	23	7.9	-124.0	3.6	0.0 -9.26 -3.5
2881	443624	70376531	5/80	23	10.8	44.5	7.4	3.9	0.67	23	14.9	-146.8	-7.1	-4.7 0.66 16.3
2882	443624	72265053	5/80	23	31.4	21.7	3.3	6.6	2.02	23	22.8	-169.7	15.7	-32.0 -2.04 13.7
2883	443624	75830715	5/80	23	41.6	-1.1	3.3	-1.8	-0.45	23	*****	*****	*****	***** 13.7
2884	443624	77838186	5/80	20	39.6	-24.0	12.3	1.3	0.10	20	28.4	134.7	-7.1	-1.2 0.18 7.8
2885	443624	81384186	5/80	20	33.9	-46.6	17.2	1.9	0.11	20	*****	*****	*****	***** 7.8
2886	443624	83335438	5/80	27	13.1	-69.6	22.4	7.8	0.33	27	14.6	99.0	-5.7	-5.0 0.98 10.9
2887	443625	84335438	6/80	27	-5.3	-92.5	39.2	11.7	0.33	27	*****	*****	*****	***** 10.9
2888	443625	1264174	6/80	27	-26.7	-115.3	43.0	12.3	0.29	27	-15.2	53.4	25.7	2.7 0.11 -29.4
2889	443625	14714558	6/80	27	-26.8	-134.1	43.3	13.7	0.25	27	*****	*****	*****	***** -29.4
2890	443625	17732635	6/80	27	-4.9	-160.9	34.4	3.7	0.25	27	*****	*****	14.3	-1.7 -0.09 -50.5

PASS	NO	MSEC	DATE	TIME	MM	SC	ASCENDING				DESCENDING				I/E DELTA B				
							KE	D EQL	COL	E	I	I/E	DELTA B	KE		D EQL	COL	E	I
2890	44365	19089539	5/80	5:31	29	27	9.6	176.2	27.1	6.1	0.23	-37.1	***	*****	*****	*****	*****	*****	-39.0
2891	44365	23195917	5/80	7:20	35	27	9.6	176.2	27.1	6.1	0.23	-37.1	***	*****	*****	*****	*****	*****	-39.0
2892	44366	25363379	5/80	7:52	43	27	3.2	130.6	38.1	7.2	0.19	-46.2	***	*****	*****	*****	*****	*****	-24.9
2893	44366	28074667	5/80	8:57	54	27	0.5	107.8	18.4	2.8	0.15	-25.3	***	*****	*****	*****	*****	*****	-43.7
2894	44366	30837219	5/80	9:29	29	27	-16.1	84.9	36.8	14.0	0.38	-47.0	***	*****	*****	*****	*****	*****	-24.8
2895	44366	34165833	5/80	11:06	40	30	-36.6	62.1	46.6	16.5	0.35	-60.6	***	*****	*****	*****	*****	*****	-45.0
2896	44366	47274469	5/80	13:02	14	30	-30.4	39.3	36.9	15.2	0.41	-49.9	***	*****	*****	*****	*****	*****	-57.6
2897	44366	52572730	5/80	14:07	22	23	-6.7	16.5	31.6	14.5	0.46	-40.1	***	*****	*****	*****	*****	*****	-48.9
2898	44366	56082244	5/80	15:38	52	23	-3.5	-6.3	37.2	17.0	0.46	-53.3	***	*****	*****	*****	*****	*****	-39.8
2899	44366	58222153	5/80	17:10	54	27	-3.2	-29.2	50.1	17.0	0.34	-48.0	***	*****	*****	*****	*****	*****	-50.9
2900	44366	61554814	5/80	18:37	8	27	-1.9	-52.0	39.5	13.1	0.33	-28.6	***	*****	*****	*****	*****	*****	-42.8
2901	44365	63095940	5/80	19:12	49	27	1.2	-74.8	30.4	4.1	0.13	-38.2	***	*****	*****	*****	*****	*****	-35.2
2902	44366	67028334	5/80	20:44	22	20	5.8	171.1	21.2	7.5	0.35	-29.5	***	*****	*****	*****	*****	*****	-37.0
2903	44366	69109830	5/80	21:39	30	20	14.9	149.3	23.6	3.8	0.16	-35.2	***	*****	*****	*****	*****	*****	-18.6
2904	44366	74643670	5/80	22:15	17	17	31.7	125.5	5.0	-2.9	-0.56	-6.4	***	*****	*****	*****	*****	*****	-27.6
2905	44366	77976334	5/80	23:39	30	17	26.4	102.7	-0.9	-5.8	0.50	0.1	***	*****	*****	*****	*****	*****	-0.5
2906	44366	80117511	5/80	24:15	17	17	18.5	79.9	-4.3	-1.1	0.25	8.3	***	*****	*****	*****	*****	*****	3.1
2907	44366	83450174	5/80	25:10	50	17	0.6	57.1	8.7	0.4	0.04	-12.3	***	*****	*****	*****	*****	*****	10.5
2908	44366	88117511	5/80	26:23	10	27	16.7	34.2	6.4	4.0	0.63	-12.2	***	*****	*****	*****	*****	*****	-5.3
2909	44366	91332621	5/80	27:00	2	27	23.6	11.4	11.7	6.0	0.51	-16.7	***	*****	*****	*****	*****	*****	-5.9
2910	44366	94002007	5/80	28:54	25	40	16.5	-11.4	27.1	15.0	0.55	-38.9	40	20.2	157.3	12.3	-5.0	-0.47	-4.6
2911	44366	97265603	5/80	29:30	37	40	8.4	-34.2	45.3	16.5	0.36	-43.1	***	*****	*****	*****	*****	*****	-4.6
2912	44366	99437261	5/80	30:28	37	20	0.7	-57.0	28.9	13.3	0.46	-43.4	***	*****	*****	*****	*****	*****	-42.8
2913	44366	02769928	5/80	31:05	18	20	-6.6	-79.8	30.2	11.8	0.39	-44.1	***	*****	*****	*****	*****	*****	-43.6
2914	44366	04911101	5/80	32:00	19	30	-48.4	-102.6	48.3	12.6	0.26	-66.1	***	*****	*****	*****	*****	*****	-41.8
2915	44366	06430548	5/80	33:00	2	30	-61.7	-125.4	53.5	24.1	0.45	-29.1	30	-25.2	43.2	25.1	4.2	0.17	-66.0
2916	44366	07384941	5/80	34:37	42	30	-42.2	-148.2	49.8	14.9	0.30	-29.1	30	-3.9	20.4	30.4	2.7	0.09	-28.4
2917	44366	08521639	5/80	35:24	12	30	-29.7	-171.0	41.5	21.9	0.53	-64.1	***	*****	*****	*****	*****	*****	-28.4
2918	44366	09442687	5/80	36:05	39	17	-14.9	166.2	39.9	14.7	0.37	-57.0	***	*****	*****	*****	*****	*****	-61.0
2919	44366	11417080	5/80	37:00	31	17	2.3	143.4	35.3	5.0	0.14	-51.5	***	*****	*****	*****	*****	*****	-57.6
2920	44366	14922751	5/80	38:38	44	7	0.7	120.5	18.0	1.8	0.10	-25.1	***	*****	*****	*****	*****	*****	-30.7
2921	44366	17011036	5/80	39:15	28	7	4.3	97.7	15.5	0.5	0.03	-19.5	***	*****	*****	*****	*****	*****	-20.8
2922	44366	18596919	5/80	40:06	41	13	-12.7	74.9	22.9	10.5	0.46	-38.8	***	*****	*****	*****	*****	*****	-9.6
2923	44366	20139265	5/80	41:00	24	13	-19.6	52.1	25.7	9.9	0.33	-41.0	***	*****	*****	*****	*****	*****	-25.0
2924	44366	22380470	5/80	42:00	37	7	-1.5	29.3	22.5	3.0	0.44	-29.5	***	*****	*****	*****	*****	*****	-25.4
2925	44366	25611138	5/80	43:00	33	7	15.3	6.5	25.4	3.2	0.33	-30.0	***	*****	*****	*****	*****	*****	-23.8
2926	44366	27854310	5/80	44:00	33	10	22.6	-16.3	25.9	7.5	0.29	-29.3	***	*****	*****	*****	*****	*****	-22.5
2927	44366	31124051	5/80	45:00	47	10	23.3	-39.1	31.8	7.1	0.22	-30.0	10	14.6	129.6	8.6	-0.8	-0.09	-30.7
2928	44366	33326150	5/80	46:00	50	17	17.6	-61.9	19.3	10.5	0.54	-33.6	***	*****	*****	*****	*****	*****	-29.6
2929	44366	36596919	5/80	47:00	13	17	-21.7	-84.7	23.3	3.7	0.41	*****	***	*****	*****	*****	*****	*****	-34.3

ORIGINAL PAGE IS  
OF POOR QUALITY

PASS	MJD	MSEC	DATE	HR	MIN	SEC	ASCENDING							DESCENDING							
							ΔE	ΔE	ΔE	ΔE	ΔE	ΔE	ΔE	ΔE	ΔE	ΔE	ΔE	ΔE	ΔE	ΔE	ΔE
2934	44 36R	17139.07	5/11/80	0:28:33	3C	-42.8	-107.5	31.1	11.9	0.33	DELTA B	30	-51.9	30	-21.3	DELTA B	17.6	7.1	1/2 DELTA B	0.40	-39.4
2935	44 36R	71718.52	5/11/80	1:26:57	3C	-32.2	-130.3	26.2	7.6	0.29	-40.7	30	-10.5	30	30.4	7.2	7.7	1.08	-40.2		
2936	44 36R	126456.72	5/11/80	2:58:11	3C	-27.9	-153.1	34.3	12.6	0.37	-46.1	30	15.0	30	15.6	0.9	0.3	0.04	-34.5		
2937	44 36R	1610494.16	5/11/80	4:29:09	3C	-11.0	-175.9	46.5	16.7	0.36	-62.9	30	22.0	30	22.0	-7.2	12.9	9.9	0.76	-45.3	
2938	44 36R	235776.43	5/11/80	6:02:24	2C	-6.6	161.3	44.6	13.6	0.31	-55.7	23	9.5	30	-30.0	30.2	10.3	0.34	-52.7		
2939	44 36R	293514.83	5/11/80	7:32:40	2C	1.2	138.5	35.0	0.0	0.17	-47.2	23	6.0	30	-52.8	32.3	10.2	0.32	-53.6		
2940	44 36R	345582.41	5/11/80	8:53:54	3C	-0.8	115.8	20.4	1.0	0.05	-26.5	***	*****	*****	*****	*****	*****	*****	*****	-45.9	
2941	44 36R	399362.46	5/11/80	10:29:57	3C	-25.4	93.0	35.7	12.6	0.35	-51.6	***	*****	*****	*****	*****	*****	*****	*****	-21.2	
2942	44 36R	454100.86	5/11/80	11:50:00	3C	-35.9	73.2	43.4	17.9	0.41	-62.5	***	*****	*****	*****	*****	*****	*****	*****	-40.7	
2943	44 36R	508839.27	5/11/80	13:30:49	3C	-31.4	47.4	41.9	19.2	0.40	-66.3	***	*****	*****	*****	*****	*****	*****	*****	-45.8	
2944	44 36R	541507.30	5/11/80	15:22:30	2C	-29.7	24.6	30.7	16.6	0.34	-47.0	23	-21.4	-166.7	12.0	9.5	0.79	-47.0			
2945	44 36R	618030.66	5/11/80	17:11:33	2C	-21.7	1.8	34.7	15.4	0.44	-47.0	47	-13.5	170.5	10.3	12.9	1.25	-37.0			
2946	44 36R	653825.20	5/11/80	18:09:42	47	-17.2	-21.0	43.9	16.8	0.38	-50.7	47	-1.0	147.7	13.3	3.2	0.60	-33.5			
2947	44 36R	728107.41	5/11/80	19:40:56	47	-6.1	-43.8	44.8	8.4	0.19	-43.5	40	-14.0	124.9	16.5	3.0	0.18	-47.1			
2948	44 36R	782845.87	5/11/80	21:12:10	4C	-8.	-60.6	41.4	12.0	0.23	-54.7	40	-18.6	102.1	10.1	1.8	0.18	-14.8			
2949	44 36R	818030.52	5/11/80	22:43:23	4C	-21.1	-89.4	46.5	13.4	0.29	-51.2	35	-22.2	79.3	18.7	1.1	0.06	-19.0			
2950	44 36R	896799.99	5/10/80	0:14:56	3C	-37.5	-112.2	40.5	23.6	0.33	-50.4	33	-20.0	56.5	17.9	3.0	0.55	-28.1			
2951	44 36R	284822.42	5/10/80	0:47:28	3C	-30.0	-135.0	33.1	-2.6	-0.03	-13.5	13	-5.9	33.7	7.7	8.9	1.15	-28.1			
2952	44 36R	636646.7	5/10/80	1:46:06	3C	-12.9	-157.7	15.8	-1.8	-0.12	-19.0	13	13.3	11.0	10.8	-2.3	-0.22	-28.1			
2953	44 36R	832183.37	5/10/80	2:18:41	3C	13.7	179.5	13.1	2.3	0.17	-22.4	13	33.2	-11.8	10.5	2.9	0.28	-11.0			
2954	44 36R	1180583.2	5/10/80	3:16:49	13	22.9	156.7	23.2	1.6	0.07	-25.8	13	38.6	-34.6	18.9	-0.2	-0.01	-21.1			
2955	44 36R	1382713.66	5/10/80	4:44:27	13	22.1	133.9	14.9	-7.0	-0.47	-12.4	17	31.8	-57.4	9.2	-1.9	-0.20	-16.0			
2956	44 36R	1728367.2	5/10/80	5:50:21	17	1.9	111.1	-0.7	-6.2	0.71	0.7	***	*****	*****	*****	*****	*****	*****	-4.6		
2957	44 36R	2282140.07	5/10/80	7:20:54	17	-1.4	88.3	10.7	0.9	0.08	-11.5	***	*****	*****	*****	*****	*****	*****	1.1		
2958	44 36R	2827748.16	5/10/80	8:51:19	13	0.6	65.5	21.8	5.0	0.23	-26.7	13	-7.5	-125.8	2.4	-1.0	-0.58	-9.5			
2959	44 36R	3082795.18	5/10/80	9:23:42	13	2.5	42.8	18.4	6.0	0.32	-28.7	***	*****	*****	*****	*****	*****	*****	-22.2		
2960	44 36R	3375335.8	5/10/80	9:55:43	13	9.6	23.0	22.1	8.7	0.39	-26.6	***	*****	*****	*****	*****	*****	*****	-12.2		
2961	44 36R	3570676.8	5/10/80	10:47:29	13	20.2	-2.8	22.5	9.6	0.43	-30.7	***	*****	*****	*****	*****	*****	*****	-22.4		
2962	44 36R	3884970.2	5/10/80	11:23:11	2C	27.0	-25.6	18.8	3.0	0.16	-16.3	***	*****	*****	*****	*****	*****	*****	-21.2		
2963	44 36R	4099185.5	5/10/80	12:18:13	2C	21.5	-48.4	13.2	3.7	0.28	-20.9	23	13.3	120.3	-8.9	-15.9	1.79	22.0			
2964	44 36R	4446569.5	5/10/80	12:54:25	2C	32.0	-71.1	2.1	0.2	0.09	-8.7	23	6.3	97.6	-16.8	-12.0	0.75	26.3			
2965	44 36R	4932223.1	5/10/80	13:52:24	2C	41.3	-93.9	-3.2	-5.7	1.79	-0.2	37	14.4	74.8	-7.7	-5.7	0.86	20.3			
2966	44 36R	5200245.3	5/10/80	14:26:42	37	16.3	-116.7	1.2	-2.2	-1.80	-3.9	37	8.6	52.0	-7.0	-3.4	1.20	6.7			
2967	44 36R	5507731.3	5/10/80	15:20:07	37	8.6	-139.5	9.2	4.4	0.47	-15.8	20	12.1	29.2	1.8	1.6	1.01	-1.1			
2968	44 36R	5746650.4	5/10/80	15:57:40	2C	13.5	-162.2	3.7	1.9	0.51	-5.7	20	28.9	6.5	3.5	-3.6	-1.03	-1.1			
2969	44 36R	6066542.9	5/10/80	16:51:05	2C	25.9	175.0	9.7	3.7	0.38	-19.3	37	30.4	-16.3	7.8	3.1	0.40	3.4			
2970	44 36R	6291867.4	5/11/80	17:28:38	37	14.0	152.2	37.4	8.7	0.23	-47.9	37	38.8	-39.1	9.2	-7.0	-0.76	-17.5			
2971	44 36R	6618744.3	5/11/80	18:23:07	J7	-13.1	129.4	65.8	17.0	0.26	-78.4	40	13.9	-61.9	9.2	22.1	2.41	-36.5			
2972	44 36R	6839251.5	5/11/80	18:59:52	37	6.5	106.7	59.4	25.2	0.42	-78.4	***	*****	*****	*****	*****	*****	*****	-68.1		
2973	44 36R	7159737.5	5/11/80	19:53:17	37	83.9	54.0	23.2	0.52	-71.2	***	*****	*****	*****	*****	*****	*****	*****	-68.1		





PASS	ID	HSEC	DATE	HF	RN	SC	ASCENDING				DELTA	DESCENDING				I/P	DELTA	B	
							RF	D	EQL	E		I	I/E	RF	D				FCL
3014	44	10929111	14/80	1	5	29													
3015	44	12571329	14/80	37	81.9	-152.0	*****	*****	*****	-53.8	***	*****	*****	*****	*****	*****	*****	*****	-39.1
3016	44	175713816	14/80	37	-34.3	-174.7	52.3	11.6	0.22	-68.2	***	*****	*****	*****	*****	*****	*****	*****	-63.4
3017	44	23262154	14/80	23	-25.1	162.5	52.0	10.0	0.13	-65.2	***	*****	*****	*****	*****	*****	*****	*****	-43.5
3018	44	28777038	14/80	7	-24.8	133.8	47.2	3.1	0.19	-4.8	***	*****	*****	*****	*****	*****	*****	*****	-65.0
3019	44	31953391	14/80	8	-32.4	117.0	33.6	5.9	0.13	-43.3	***	*****	*****	*****	*****	*****	*****	*****	-42.1
3020	44	37355771	14/80	10	-49.9	94.3	37.0	8.5	0.23	-45.7	***	*****	*****	*****	*****	*****	*****	*****	-42.2
3021	44	45088453	14/80	12	*****	*****	*****	*****	*****	-45.7	***	*****	*****	*****	*****	*****	*****	*****	-39.4
3022	44	50546563	14/80	13	-35.3	48.8	43.9	16.6	0.38	-65.2	***	*****	*****	*****	*****	*****	*****	*****	-39.4
3023	44	56020404	14/80	15	-27.1	20.1	38.5	17.0	0.44	-53.9	***	*****	*****	*****	*****	*****	*****	*****	-46.4
3024	44	61730185	14/80	17	-12.9	3.3	44.4	18.1	0.41	*****	***	*****	*****	*****	*****	*****	*****	*****	-43.5
3025	44	62921680	14/80	17	*****	*****	*****	*****	*****	*****	***	*****	*****	*****	*****	*****	*****	*****	-43.5
3027	44	80702790	14/80	22	*****	*****	*****	*****	*****	*****	23	-26.2	103.8	*****	*****	*****	*****	*****	-25.6
3028	44	81328055	14/80	23	-31.0	-87.6	42.2	8.5	0.20	*****	13	-38.5	81.1	27.7	7.3	0.26	0.26	0.26	-32.2
3029	44	83057005	15/80	0	-31.5	-110.4	45.9	6.7	0.15	*****	***	*****	*****	*****	*****	*****	*****	*****	-32.2
3030	44	87132226	15/80	1	-28.8	-133.1	37.5	11.2	0.30	-56.2	***	*****	*****	*****	*****	*****	*****	*****	-32.2
3031	44	10999605	15/80	3	-32.5	-155.8	33.0	7.6	0.23	-42.6	***	*****	*****	*****	*****	*****	*****	*****	-26.9
3032	44	16461650	15/80	4	-21.7	-178.6	27.8	11.3	0.41	-41.2	***	*****	*****	*****	*****	*****	*****	*****	-26.9
3033	44	24421724	15/80	6	*****	*****	*****	*****	*****	-41.2	***	*****	*****	*****	*****	*****	*****	*****	-41.2
3034	44	27425392	15/80	7	-7.7	136.0	42.9	1.0	0.02	-47.1	***	*****	*****	*****	*****	*****	*****	*****	-41.2
3035	44	32839835	15/80	10	-13.9	133.2	36.0	-2.6	-0.07	-47.1	***	*****	*****	*****	*****	*****	*****	*****	-38.3
3036	44	35357946	15/80	10	*****	*****	*****	*****	*****	-47.1	***	*****	*****	*****	*****	*****	*****	*****	-38.3
3037	44	42557752	15/80	13	-37.0	67.8	42.1	15.8	0.38	-56.6	***	*****	*****	*****	*****	*****	*****	*****	-38.3
3038	44	46238438	15/80	13	-28.0	45.0	37.4	8.1	0.22	-50.0	***	*****	*****	*****	19.8	7.8	0.40	0.40	-50.2
3039	44	59183756	15/80	16	*****	*****	*****	*****	*****	-50.0	***	*****	*****	*****	*****	*****	*****	*****	-50.2
3040	44	62848713	15/80	17	3.1	-0.4	33.0	12.2	0.37	-42.3	***	*****	*****	*****	*****	*****	*****	*****	-44.1
3041	44	69942634	15/80	19	*****	*****	*****	*****	*****	-42.3	***	*****	*****	*****	*****	*****	*****	*****	-44.1
3042	44	71009332	15/80	20	*****	*****	*****	*****	*****	-42.3	***	*****	*****	*****	*****	*****	*****	*****	-44.1
3043	44	75432254	15/80	21	-9.7	-68.6	34.7	11.3	0.33	-42.3	***	*****	*****	*****	14.5	0.5	0.03	0.03	-44.1
3044	44	81923589	15/80	22	-20.0	-91.3	39.5	10.8	0.27	-50.0	***	*****	*****	*****	*****	*****	*****	*****	-29.9
3045	44	84429487	16/80	6	-31.4	-114.0	43.9	7.5	0.17	-46.2	***	*****	*****	*****	*****	*****	*****	*****	-29.9
3046	44	1015374	16/80	10	-33.4	-130.8	36.2	7.9	0.22	-49.6	***	*****	*****	*****	*****	*****	*****	*****	-39.5
3047	44	14388037	16/80	13	-22.5	-159.5	32.0	5.6	0.18	-42.1	***	*****	*****	*****	*****	*****	*****	*****	-23.2
3048	44	17342209	16/80	5	-10.7	177.8	37.2	3.4	0.09	-47.0	***	*****	*****	*****	*****	*****	*****	*****	-23.2
3049	44	19846198	16/80	7	*****	*****	*****	*****	*****	-47.6	***	*****	*****	*****	*****	*****	*****	*****	-46.5
3050	44	22816059	16/80	7	*****	*****	*****	*****	*****	-47.0	***	*****	*****	*****	*****	*****	*****	*****	-46.5
3051	44	25241391	16/80	9	-16.6	105.6	19.1	3.8	0.20	-27.3	***	*****	*****	*****	*****	*****	*****	*****	-46.5
3052	44	28258463	16/80	10	-22.0	80.9	*****	*****	*****	-27.3	***	*****	*****	*****	*****	*****	*****	*****	-28.1
3053	44	30695502	16/80	11	*****	*****	*****	*****	*****	-27.3	***	*****	*****	*****	*****	*****	*****	*****	-28.1
3054	44	33734288	16/80	13	-13.7	41.5	15.5	13.2	0.85	-27.3	***	*****	*****	*****	*****	*****	*****	*****	-28.1

ORIGINAL PAGE IS OF POOR QUALITY



PASS	HJD	MSBC	DATE	HR:MM:SC	ASCENDING					DESCENDING									
					KE	D	EQL	E	I	I/2	DELTA B	KE	D	EQL	E	I	I/E	DELTA B	
3097	44378	3031476	5/19/80	8:25:11	***	*****	*****	*****	*****	*****	*****	*****	17	30.4	-46.0	*****	*****	*****	-5.9
	44378	30952445	5/19/80	8:35:52															
3098	44378	35816775	5/19/80	9:56:56	***	*****	*****	*****	*****	*****	*****	*****	***	*****	*****	*****	*****	*****	-5.9
	44378	35939650	5/19/80	9:58:59															
3099	44378	40881651	5/19/80	11:21:21	***	*****	*****	*****	*****	*****	*****	*****	***	*****	*****	*****	*****	*****	-5.9
	44378	41479609	5/19/80	11:31:19															
3100	44378	46512785	5/19/80	12:55:12	***	*****	*****	*****	*****	*****	*****	*****	30	-7.1	-114.0	*****	*****	*****	-5.9
	44378	47295319	5/19/80	13:8:15															
3101	44378	52269755	5/19/80	14:31:9	***	*****	*****	*****	*****	*****	*****	*****	30	-6.0	-136.7	*****	*****	*****	-5.9
	44378	52801595	5/19/80	14:40:1															
3102	44378	57460855	5/19/80	15:57:40	***	*****	*****	*****	*****	*****	*****	*****	27	-5.7	-159.4	*****	*****	*****	-5.9
	44378	58243976	5/19/80	16:10:43															
3103	44378	62556799	5/19/80	17:22:36	***	*****	*****	*****	*****	*****	*****	*****	27	-1.9	177.9	*****	*****	*****	-5.9
	44378	63702089	5/19/80	17:41:42															

\*\*\*\*\*ENDOFJOB\*\*\*\*\*

ORIGINAL PAGE IS  
OF POOR QUALITY

**APPENDIX 2**  
**MAGNETIC ACTIVITY INDICES K<sub>p</sub> AND Dst**  
**DURING THE MAGSAT OPERATION**

**Masahisa Sugiura**

**Laboratory for Extraterrestrial Physics**  
**Goddard Space Flight Center**

**OCTOBER 1981**

## 1. Kp Index

The following tables give three-hourly Kp, daily Ap and Cp indices for the months October 1979 through June 1980 (pages 2-3 through 2-7). A Kp graph is also provided (page 2-8). These tables and the graph are reproductions of those supplied by the Geophysikalisches Institut, Gottingen.

International quiet and disturbed days:

Quietest Days 1- 5: 18 17 19 30 27  
Quietest Days 6-10: 31 5 14 23 20  
Most Disturbed Days 1-5: 8 6 7 9 10\*

International quiet and disturbed days:

Quietest Days 1- 5: 28 5 22 6 15  
Quietest Days 6-10: 23 26 29 18 27  
Most Disturbed Days 1-5: 13 24 9\* 8\* 7\*

GEOMAGNETIC PLANETARY INDICES

Three-hourly: Kp; Daily: Ap and Cp

October 1979

	1	2	3	4	5	6	7	8	Sum	Ap	Cp
1	4-3-1+2+	3o3-1-1o	17+	10	0.6						
2	0+0+0+2-	2o2+3-3o	13-	7	0.3						
3	4o4-2+1o	2o3+3-1+	20+	13	0.7						
4	3o2-3+4o	0+1-0+0o	13+	9	0.5						
5	0o0+1-1-	2+2o3-2+	11o	6	0.3						
6	3+4-4-5o	6-6o3o3-	33o	36	1.4						
7	4-4+4o3+	5o4+5-5-	34o	32	1.3						
8	6-4+4+5-	4o5-4-5-	36o	37	1.4						
9	4+4-4+5-	3o3o3+3-	29o	23	1.1						
10	4o4o3o3o	3+2o4-2o	25o	17	0.9						
11	1-1o3-3-	3+3o2o2-	17o	10	0.5						
12	1-1+1o2o	2o2o3-4-	15+	8	0.5						
13	3o3-3o3-	2-2+3o3o	21+	12	0.7						
14	2+1-3-2o	1o2o1o1-	12+	6	0.3						
15	0+0+1o2o	3o3o2+2o	14o	8	0.4						
16	3o3-2-2o	2+1o1+1o	15o	8	0.4						
17	1o2-1o1o	1+1-1-2-	9o	4	0.2						
18	1o1o1o0o	0+0o1-1+	5+	3	0.0						
19	1o0+1-1+	2+2-1o2-	10o	5	0.2						
20	3-0+2o2o	1o2+1+2-	13+	6	0.3						
21	2-3-1+2+	2o3-2+4-	19-	10	0.6						
22	3+3+4-3-	2o3+2o2-	22o	14	0.8						
23	1+2o1+2o	2-2-2o2o	14o	6	0.3						
24	2o3o3o3+	3o3o2o1o	20+	12	0.7						
25	2o3o4+2+	3-2+3o3-	22+	14	0.8						
26	2-3+1+2-	2o2-2-2+	16-	8	0.4						
27	0+2-2+2-	1-2-2o2-	12o	6	0.3						
28	2-3-2-3-	3-1+1o3+	17o	9	0.5						
29	4-3+1+2-	1+2+3-2+	19-	11	0.6						
30	3-2o1+1+	1o0+0+0+	9+	5	0.2						
31	1-0o1-2o	1+2+2o2+	11+	5	0.2						
			<u>Mean</u>	<u>12</u>	<u>0.56</u>						

Preliminary ssc: 06 d 11 h 20 m

GEOMAGNETIC PLANETARY INDICES

Three-hourly: Kp; Daily: Ap and Cp

November 1979

	1	2	3	4	5	6	7	8	Sum	Ap	Cp
1	3o3o2+3o	3o3+4-3o	24+	16	0.9						
2	3+4-3-3-	3o2+2-1o	20+	12	0.7						
3	1-0+1o3-	2+3+3+3+	17o	10	0.6						
4	3+3o2+3-	2o2-2o1o	18o	10	0.5						
5	0+0o0+1-	1o1-1o0+	4+	2	0.0						
6	1-1o1-1+	1o0+0+0+	6-	3	0.1						
7	1o2o2-2+	2+4-4o2+	19+	12	0.7						
8	3-2o5-4-	3o2+2-2-	22-	14	0.8						
9	2+2+3-1+	4o5-4+3+	25o	19	1.0						
10	1+2o2-1+	1+1+2-3-	13+	6	0.3						
11	3o3+2-2o	2o3o2o2-	19-	10	0.6						
12	1c1+2+2+	2-2+2o2-	15+	7	0.4						
13	4o5-4-4+	4o5o5+4+	35+	35	1.4						
14	5o4+3-1o	1-1o0+0o	15o	13	0.8						
15	0o1o1-1+	1+1-0+1o	6+	3	0.1						
16	2+3+4-2o	2o3-3-2o	21-	12	0.7						
17	3+2+3-2o	1o1-2o1o	15o	8	0.4						
18	3-1-1o1+	1o1o0+0+	8+	4	0.2						
19	0+1-1+2o	2o2o2o3o	13+	7	0.3						
20	2o1+2+3-	3o3+2-1+	18-	10	0.5						
21	3-2o2o1o	1o1+2-0+	12o	6	0.3						
22	0o0o1+1+	1-1-0+0o	4+	2	0.0						
23	0+0o0+2-	1o1o2-2o	8o	4	0.1						
24	3o4-4o4o	4-4-4o4o	30o	24	1.1						
25	4+5o2+2o	2-1o1+2-	19+	15	0.8						
26	1c0o0o0+	1+1+2+2-	8o	4	0.1						
27	2c1o2+1-	1o1-1-0+	9-	4	0.2						
28	0+0o1o0o	0+0+1-0+	3o	2	0.0						
29	0+0o1-1-	1-2+2+1o	8o	4	0.1						
30	1o2-5o3+	3+3-2o2o	21o	15	0.8						
			<u>Mean</u>	<u>10</u>	<u>0.48</u>						

Preliminary ssc: 07 d 13 h 47 m  
09 d 12 h 02 m 30 d 07 h 39 m

International quiet and disturbed days:

Quietest Days 1- 5: 25 13 23 7 12  
 Quietest Days 6-10: 14 21 20 11 10  
 Most Disturbed Days 1-5: 29 30 4\* 28\* 22\*

International quiet and disturbed days:

Quietest Days 1- 5: 9 10 18 19 12  
 Quietest Days 6-10: 23 7 31 24 21  
 Most Disturbed Days 1-5: 28 29 27 1 13

GEOMAGNETIC PLANETARY INDICES

Three-hourly: Kp; Daily: Ap and Cp

D e c e m b e r 1979

	1	2	3	4	5	6	7	8	Sum	Ap	Cp
1	2-1o3-3-				2+3-2+2o				17+	9	0.5
2	3+3o3-3o				2+2-2-1+				19o	11	0.6
3	2+3+3+2+				2-1o1o0+				15+	9	0.5
4	2o3+4o3o				3+4o3-2o				24+	16	0.9
5	2o1+2+2o				2+2+1o2-				15o	7	0.4
6	2+2o2+2-				1-0+1o1o				11+	6	0.2
7	1+1o1-1o				1-1-2-1+				8+	4	0.1
8	1+3-2o2o				3o2+3-2+				18+	10	0.5
9	2o2o2o2+				2o1+2-2-				15o	7	0.3
10	1o1+1o1o				1-3-2-1-				11-	5	0.2
11	2+1+1-1-				1-1-2+1+				10o	5	0.2
12	1-1-0+1o				1o1+2-2-				8+	4	0.1
13	0+1-1+1-				1+1-1o1o				7o	4	0.1
14	0+2-1o1o				1o1+2-1+				9+	4	0.2
15	1o3o2-3-				2o2+3-2-				17o	9	0.5
16	3-3o2+2-				2o2o2o3+				19o	10	0.6
17	4-2+3o2o				3-3o2+3-				22-	13	0.7
18	3-1o1+2+				2o2-2-2-				14+	7	0.3
19	2-2o2-1+				1o1+2-2+				13o	6	0.3
20	0o1+1-1o				2o2-1+1o				9o	4	0.1
21	0+0o0+1-				1-1+2+2o				8-	4	0.1
22	2+3o2+4o				3o3+4-1+				23o	15	0.8
23	1-0+1-1-				0o1o1o2o				6+	3	0.1
24	2+2-1+2+				1o3-1o1+				14-	7	0.3
25	0o0o0o0o				1+0+1o1+				4o	2	0.0
26	2o1+1o2-				2o3+4-3-				18-	10	0.6
27	1+3o3o3o				3o3+2-1o				19+	12	0.7
28	1o3-2-4+				4o3+2-4o				23-	16	0.9
29	4o5o4o4-				4o4-5o4+				34-	32	1.3
30	5-4+3+3+				3-3o3+3-				27+	20	1.0
31	2+2+1+1o				1+2-2+4-				16o	9	0.5
									Mean	9	0.44

Preliminary ssc: none

GEOMAGNETIC PLANETARY INDICES

Three-hourly: Kp; Daily: Ap and Cp

J a n u a r y 1980

	1	2	3	4	5	6	7	8	Sum	Ap	Cp
1	2+2+2+3+				3+4+5o5o				23o	24	1.2
2	4+3o2o2+				3+2o1o2o				20o	12	0.7
3	3-4+2-3+				4-3-3+4-				25+	18	1.0
4	3o3+3o3o				2+4o3+3o				25o	16	0.9
5	3-2o2o3-				3o3-3o3o				21o	12	0.7
6	3-3+2o1+				2o2o1+1+				16o	8	0.4
7	0+0o1-1o				1o1+2+3-				9+	5	0.2
8	3-2+2o2+				1-0+1o1-				12o	6	0.3
9	1+1-1-1-				1-1-0+0+				5+	3	0.1
10	0+0+0o1-				1+1o1-1+				6-	3	0.1
11	1-2-3o3-				3-3-3o3-				19o	11	0.6
12	1-1o1+2-				1+1o1o1o				9o	4	0.2
13	0o3-3+4+				4+4o5-4-				27o	23	1.1
14	4-3o2o2o				2-2o1+2-				17+	9	0.5
15	1-0+1o2-				2o2+2+1+				12-	6	0.3
16	4+3o2+1o				1+0+0+C+				13o	9	0.5
17	1o2o4+3o				3+3o2o1+				20o	13	0.7
18	1+1-1o1-				1+0+1+2-				8+	4	0.1
19	2-0o0+1o				1-2-2-1o				8o	4	0.1
20	3-2+1-1-				1o1-2o2+				12+	6	0.3
21	3-1o1o1o				2o1o1-2-				11o	6	0.2
22	0+0o1o1+				1o2-3o2-				10o	5	0.2
23	2-1o2o2-				1+1-1oC+				10-	5	0.2
24	0+0o1-2-				2-2+2+1o				10o	5	0.2
25	0+0o1-2+				2+2o3-3-				13o	7	0.3
26	1+2+1o1o				2-1-2o2+				12+	6	0.3
27	2+3o3-2+				4+4+5-5o				29-	24	1.2
28	3o4-2+2+				4-5o5+4+				30-	27	1.2
29	5+4+2-3-				4-4+4-4-				29+	26	1.2
30	3+2+2o3+				2o2o1+2-				18o	10	0.5
31	2-0+1-2-				1+1o2-2+				11-	5	0.2
									Mean	10	0.51

Preliminary ssc: 13 d 05 h 10 m  
 17 d 05 h 12 m, 25 d 11 h 09 m  
 28 d 15 h 43 m



International quiet and disturbed days:

Quietest Days 1- 5: 13 3 12 5 10  
 Quietest Days 6-10: 22 21 11 4 17  
 Most Disturbed Days 1-5: 16 15 6 14\* 8\*

GEOMAGNETIC PLANETARY INDICES

Three-hourly: Kp; Daily: Ap and Cp

F e b r u a r y 1980

	1	2	3	4	5	6	7	8	Sum	Ap	Cp
1	2o1+2-2+				2-2-4-3+				18-	10	0.6
2	2+3+3o2+				2+1+1-1-				16o	9	0.5
3	1-1o1o1-				0+1-0+1o				6-	3	0.1
4	1-1o2+2o				1-0+0+0+				8-	4	0.1
5	0o0o1-1+				1o1o1o1-				6-	3	0.1
6	0o4-4+5-				5o5+5+2+				31-	33	1.3
7	2o2o3+2-				3+2o3+3+				21o	12	0.7
8	3+4-3+3o				4-3+2-3o				25o	17	0.9
9	2-3o3o2+				3-3-3o2o				20+	11	0.7
10	1o2-1+1-				0+i-1-1-				7o	4	0.1
11	0+2+1+1o				1o1o1o0+				8+	4	0.1
12	1-0o0+1o				1+0+0+1o				5o	3	0.0
13	0+0o0o1-				1-1-1o1o				4+	2	0.0
14	1+3+3o5-				3+4o3-2-				24o	18	1.0
15	2+3-2o2o				3-3o6-7o				27+	33	1.3
16	6o6-6-4+				4+3o3o2+				34+	40	1.4
17	2o2-2-1-				2o1+1+1+				12o	6	0.2
18	3o2-3-2o				2o2o3-3o				19o	10	0.6
19	3+4+3-1-				1o0+0+1o				14-	10	0.5
20	2o1o2-2o				1+2o1o1+				12+	6	0.3
21	2-1-1o1o				1o1o1o2-				9o	4	0.2
22	1o1o0+1+				1-2-1-2-				8+	4	0.1
23	1o0+1+2o				3-3+3+2+				16+	9	0.5
24	2+2+1+2o				2+2+0+0+				13+	6	0.3
25	1o0+1+2+				3-3o4o4+				19o	13	0.8
26	4-3o1+3o				3+3o3-2o				22o	14	0.8
27	1+3o3+3+				3+3-3o3o				23o	14	0.8
28	3-3-3-3-				2-1o2-3o				18o	10	0.6
29	2+2o1o2o				2+2o1-1+				14+	7	0.3
									Mean	11	0.51

Preliminary ssc: 06 d 03 h 20 m  
 14 d 03 h 09 m 15 d 12 h 34 m  
 25 d 14 h 29 m

International quiet and disturbed days:

Quietest Days 1- 5: 15 12 2 1 18  
 Quietest Days 6-10: 20 24 16 10 3  
 Most Disturbed Days 1-5: 26 31 21\* 22\* 30\*

GEOMAGNETIC PLANETARY INDICES

Three-hourly: Kp; Daily: Ap and Cp

M a r c h 1980

	1	2	3	4	5	6	7	8	Sum	Ap	Cp
1	1+1+1-0+				1o1o0+0+				6+	3	0.1
2	0+1-0+0+				1-1-1o0+				4+	3	0.0
3	1-0+0+1-				1o3-2-1+				9-	5	0.2
4	1-0+1+2+				1+1o1o2o				10o	5	0.2
5	2+3-2o3-				1o1-1-1-				13-	7	0.3
6	2o2o2+3o				2+2+2o2-				18-	9	0.5
7	2+2+1o2-				1+2-2o2o				14+	7	0.3
8	1+2+2+2o				1+2-1+1+				14-	6	0.3
9	2o2-3o1+				2o2+1o1+				15-	7	0.4
10	0+1+1-2o				2o1o1-1-				9-	4	0.1
11	2o0o0+3-				2-1o0+1-				9-	4	0.2
12	0o0o0o0o				0o1-1+0+				2+	1	0.0
13	1o1+3o1o				2-1-2o2+				13o	7	0.3
14	2o2+1o1-				1+2-1-0+				10o	5	0.2
15	0o0o0+0+				0+0+0o1+				3-	2	0.0
16	2-1o1-2-				1o1o1-2-				9+	4	0.2
17	1+1+1+2+				2-1o1o1-				11-	5	0.2
18	1+1o1-1-				1o1o1-1-				7o	4	0.1
19	0+1-3+3o				3o3o2-1o				16o	10	0.5
20	1o1o1o1+				1-1+2-1+				9+	4	0.2
21	2+3+4-3-				3o3-4+4-				26-	18	1.0
22	3-3+4-3+				4+3o2-2+				24+	16	0.9
23	2+3o1o1+				1-1o1o0o				10+	6	0.2
24	0+1-2-2-				1+2-0+1o				9-	4	0.1
25	1-0o0+1o				1+2-2o4-				11-	6	0.3
26	5-6-4o4o				4+2+3o4-				32-	30	1.3
27	3o1+2-2-				2o1+1o2-				14-	7	0.3
28	2-3-2+1+				2-1o1o2+				14o	7	0.3
29	2+2+3-1o				1o2o2o2+				16-	8	0.4
30	3o4-3+2-				2o1o1-3o				18+	11	0.6
31	4-4o4o4o				4-3o2o3+				28-	21	1.1
									Mean	8	0.35

Preliminary ssc: 19 d 06 h 17 m  
 30 d 23 h 54 m 31 d 17 h 50 m

ORIGINAL PAGE IS  
 OF POOR QUALITY

International quiet and disturbed days:

Quietest Days 1- 5: 2 1 18 21 19  
 Quietest Days 6-10: 28 26 27 29 20  
 Most Disturbed Days 1-5: 11 12 6 10 15

GEOMAGNETIC PLANETARY INDICES

Three-hourly: Kp; Daily: Ap and Cp

A p r i l 1980

	1	2	3	4	5	6	7	8	Sum	Ap	Cp
1	2o1-1-0+	1+1+1o0o	7+	4	0.1						
2	1-1-0+1-	1-1-0+2-	6-	3	0.1						
3	1+3-2-2+	2-2+2o1-	15-	7	0.4						
4	0+1+3o3o	3-3+3o1o	18-	11	0.6						
5	1o2-1o1o	2+3+2o1-	13o	7	0.3						
6	0+2+1+5-	5o5o5+3+	27+	28	1.2						
7	3+3-3+2-	3-3-5-4o	25o	18	1.0						
8	3+4-3-4o	4o3-2-3-	25-	17	0.9						
9	3o4+4-5-	4o3+2-1+	26o	20	1.0						
10	4o5o1-5-	3-2+2o2+	27o	22	1.1						
11	3o3-4+3o	3o4+6-5o	31o	20	1.3						
12	5o4-3o3+	3+4+3+5+	31+	28	1.2						
13	5-3+4-3o	3-3+3-2-	25o	18	1.0						
14	1o2o2-0+	1+3-3o4o	16o	10	0.5						
15	5-4o3+2+	2+3+4-4o	28-	21	1.1						
16	3o3o3-1+	2+3o2o3o	20+	12	0.7						
17	4-4o2o1-	2o2+2+2o	19o	11	0.7						
18	1o2o1-1o	1o1-1-2-	9-	4	0.1						
19	1o0+1o1o	1+2-2-2-	10-	5	0.2						
20	2+2o1-1o	1+1o2o2-	12o	6	0.3						
21	2-2-1o1o	1-1o1+1+	10-	5	0.2						
22	3-3-1o1+	3-2o2-2-	16+	9	0.5						
23	3-2+1-1o	2-2-1-2o	13-	6	0.3						
24	3-3-1o1o	1o2o1o2o	13+	7	0.3						
25	3-2+2o3-	3-2-1-1o	16+	9	0.5						
26	1-2o1+0+	2o1+1o1+	10o	5	0.2						
27	0+1+0+1o	2-1+1-3-	9+	5	0.2						
28	2-1o0+1+	2-2o1-1-	9+	4	0.2						
29	1+2-2-1+	2o2-1o1+	12o	6	0.2						
30	2-2+1o3-	3o2+2-2-	16+	8	0.5						
			Mean	11	0.5o						

Preliminary ssc: 05 d 13 h 33 m  
 06 d 10 h 59 m 06 d 23 h 36 m  
 09 d 05 h 07 m 22 d 00 h 38 m

International quiet and disturbed days:

Quietest Days 1- 5: 3 17 27 16 2  
 Quietest Days 6-10: 21 18 28 4 20  
 Most Disturbed Days 1-5: 11 25 12 9\* 14\*

GEOMAGNETIC PLANETARY INDICES

Three-hourly: Kp; Daily: Ap and Cp

M a y 1980

	1	2	3	4	5	6	7	8	Sum	Ap	Cp
1	.3o2o1-1+	3-3-2+1o	16-	8	0.5						
2	1+1o1+1o	1o1+1o1-	9-	4	0.1						
3	0+1-1o1o	1-1-0+1o	6-	3	0.1						
4	0+2-1-1+	2o2-1-0+	9-	4	0.1						
5	0+1-2-2-	2+2+2o3-	14-	7	0.3						
6	3-3-3-3-	3o2+3-3-	21+	12	0.7						
7	0+1-2o2-	2-3-4o2o	15o	9	0.5						
8	3o3o2-1-	1+1-1o2-	13o	7	0.4						
9	3o3o2+3+	3o2+5-4o	26-	18	1.0						
10	3+1+1+2-	1+1+2+2+	15o	8	0.4						
11	4-2o4-4o	4+4+6o6o	34o	38	1.4						
12	5-5o4-3+	3-3-3o3o	28o	23	1.1						
13	2+3-3-2-	1-2o3o5o	20o	14	0.8						
14	4+4-2+2o	2+3o4+2+	24+	17	0.9						
15	1+2o3-1o	1+1-1-2-	11+	6	0.3						
16	1o1+1+1o	0+0+0+0o	6-	3	0.1						
17	0o0+0+1-	1-1-1o2-	5+	3	0.1						
18	0o0+1-2-	1o2o1+1-	8-	4	0.1						
19	0+1-2-2o	3o3-2+2-	14+	8	0.4						
20	2o1+2-1o	1+1o1o0+	10-	5	0.2						
21	0+0o1o1o	1o1o1+2o	8-	4	0.1						
22	1o2-2o2-	2+2+1+1o	13+	6	0.3						
23	2+2o1o2-	4+3o2o2-	18o	11	0.6						
24	2o1o1o2+	3-3o4o4-	20-	12	0.7						
25	3o3o5o6+	6-4-1+2+	30+	24	1.4						
26	3-1o2-3-	1o1-1+3-	14-	7	0.4						
27	1o1+1-1-	1-1o1-0o	6o	3	0.1						
28	1+1+1-2-	1+1+1-0+	9-	4	0.1						
29	0+1-1o1-	1o1+3+2-	10o	6	0.3						
30	3-2o3o2o	2+3-3-2-	19o	10	0.6						
31	3-3-2+2+	3-4-2+5-	23+	16	0.9						
			Mean	10	0.48						

Preliminary ssc: 29 d 18 h 33 m  
 31 d 21 h 38 m

International quiet and disturbed days:

Quietest Days 1- 5: 27 17 28 18 5

Quietest Days 6-10: 15 29 4 20 23

Most Disturbed Days 1-5: 11 10 12 7 13

GEOMAGNETIC PLANETARY INDICES

Three-hourly: Kp; Daily: Ap and Cp

J u n e 1980

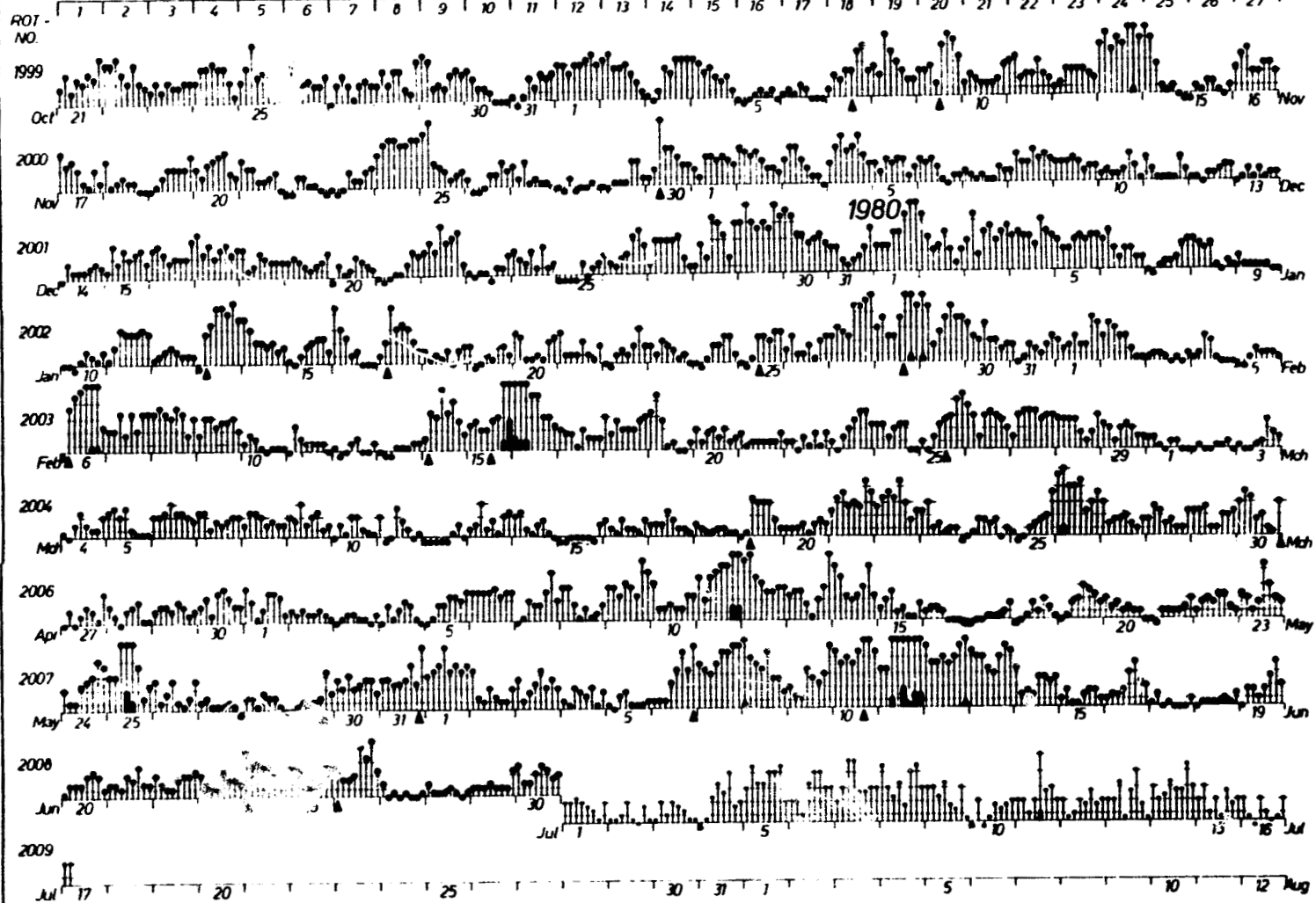
	1	2	3	4	5	6	7	8	Sum	Ap	Cp
1	3o3+4-5-				3+4-3+4-				29-	22	1.1
2	3+1+1o2o				1+1o1o2o				13o	7	0.3
3	3-1o2-2+				3+2o3-2o				18-	9	0.5
4	1o1-2o2-				1+2o1-2-				11o	5	0.2
5	1-0+1+2-				1-1-1-1o				7o	4	0.1
6	1o1o1o2+				3+4+3+5-				21o	16	0.9
7	4-3+3o4-				4+4+5-5-				32-	27	1.2
8	5+4o4-3+				4+3-3-2-				28-	23	1.1
9	2o1+1+3+				3-2+3o5-				21-	14	0.8
10	4+4-4o4-				4+5o5o4+				34+	33	1.3
11	3+3+6-5o				6+6-6o6o				41+	59	1.7
12	5-4-4-4o				4-4o5-5+				34-	32	1.3
13	4+4o4o3+				3o4o5-4+				32-	27	1.2
14	3+1+2-1+				3-3-2+3-				18o	10	0.6
15	1o2-1-1-				1+2-2-1o				10-	5	0.2
16	1o1+1+2-				3o4-2+2o				16+	9	0.5
17	1-1+0+1-				0+0+0+1o				5o	3	0.1
18	0+1-1-1-				1-1o1-1+				6o	3	0.1
19	0+2-2-1o				2-3-4-2o				15-	8	0.4
20	1-1+1+1+				2o2+2o1o				12o	6	0.3
21	1+1+1o2o				2-3-1+1+				13-	6	0.3
22	2o1+1o1o				2-2o2o2+				13+	6	0.3
23	2o1+1o1o				2+2-2-1+				12+	6	0.3
24	4-3-3o3-				3-2o2+3o				22o	13	0.7
25	3-2+2o1o				2-1+3-3-				16+	8	0.5
26	3+2-2-2o				4o3+4+2+				23-	15	0.9
27	1+0+1-0+				1-0+0+1-				5-	3	0.0
28	1+1-1-1-				1o1-0+1-				6o	3	0.1
29	1o1o1o1+				1o1o1o2+				10-	5	0.2
30	3-1+1+2o				3-2+2-2o				16o	8	0.4
									<u>Mean</u>	13	0.59

Preliminary ssc: 06 d 22 h 37 m  
 10 d 16 h 27 m 24 d 02 h 47 m  
 26 d 01 h 29 m

2-7

ORIGINAL PAGE IS  
 OF POOR QUALITY

DAYS IN SOLAR ROTATION INTERVAL



KEY



▲ = sudden commencement

PLANETARY MAGNETIC  
THREE-HOUR-RANGE INDICES  
Kp (after Bartels)  
Kp till 1980 June 30  
Ks (from Wingst and Göttingen) till July 17

ORIGINAL PAGE IS  
OF POOR QUALITY

## **2. Dst Index**

The following tables are provided:

- a. Monthly tabulations of hourly Dst index for October 1979 through June 1980 (pages 2-10 through 2-18)**
- b. Daily mean Dst for the years 1979 and 1980 (pages 2-19 and 2-20)**
- c. Graphs of the hourly Dst index covering the period from October 1979 through September 1980 (pages 2-21 and 2-22)**

### Hourly Equatorial DsT Values

OCTOBER 1979

		UNIT=GAUSS																								G. T. T.	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
CAY	1	-20	-24	-24	-24	-21	-17	-14	-15	-16	-14	-16	-17	-14	-15	-17	-22	-22	-20	-19	-20	-19	-14	-10	-10		
	2	-9	-6	-3	-4	-6	-10	-9	-6	-4	-4	-10	-11	-14	-14	-10	-12	-15	-20	-25	-23	-18	-13	-15	-18		
	3	-17	-20	-17	-21	-29	-32	-30	-21	-16	-14	-13	-11	-5	0	6	2	-6	-19	-19	-11	-7	-7	-6	-9		
	4	-4	-6	0	0	-3	0	1	-5	-8	-5	-8	-9	-6	-8	-9	-9	-8	-7	-6	-7	-8	-8	-6	-5		
	5	-1	1	3	4	3	3	4	3	3	3	1	1	6	7	2	-6	-11	-14	-13	-13	-15	-17	-16	-12		
	6	-11	-12	-12	-18	-26	-33	-30	-17	-12	-12	-14	-8	-28	-44	-37	-43	-35	-35	-32	-31	-43	-47	-42	-40		
	7	-39	-39	-42	-46	-45	-47	-53	-43	-33	-33	-34	-25	-22	-27	-29	-45	-41	-34	-35	-26	-41	-52	-58	-60		
	8	-71	-72	-67	-63	-69	-64	-61	-60	-66	-72	-79	-70	-59	-58	-57	-56	-54	-53	-46	-46	-46	-57	-73	-68		
	9	-61	-70	-72	-70	-74	-76	-66	-60	-58	-58	-55	-57	-53	-46	-43	-44	-48	-48	-43	-43	-42	-48	-49	-43		
	10	-37	-38	-44	-45	-46	-43	-47	-45	-33	-31	-31	-34	-34	-29	-27	-26	-23	-24	-23	-25	-24	-21	-23	-24		
	11	-23	-21	-19	-17	-15	-12	-12	-11	-15	-19	-22	-21	-31	-26	-25	-26	-36	-37	-34	-29	-32	-31	-29	-27		
	12	-27	-25	-25	-21	-19	-13	-10	-6	-3	-1	-1	-10	-13	-16	-15	-18	-26	-27	-29	-22	-19	-13	-16	-25		
	13	-24	-24	-24	-25	-25	-19	-11	-7	-6	1	1	-6	-14	-15	-18	-18	-19	-9	-7	-11	-22	-19	-17	-19		
	14	-13	-14	-17	-19	-18	-16	-13	-4	-1	5	2	0	-2	-6	-5	-3	-2	0	-1	-3	-4	-4	-4	-5		
	15	-5	-5	-8	-10	-11	-7	-2	2	-1	-3	-4	-1	-9	-14	-22	-23	-28	-29	-26	-26	-31	-32	-25	-19		
	16	-19	-20	-21	-19	-24	-26	-19	-12	-10	-11	-11	-10	-13	-14	-13	-10	-10	-12	-13	-18	-22	-19	-18	-15		
	17	-15	-10	-8	-9	-10	-9	-8	-6	-5	-3	-2	1	-2	-2	-3	-7	-7	-8	-9	-7	-6	-8	-9	-5		
	18	-2	0	-4	-5	-6	-7	-4	-4	-4	-4	-3	-3	-6	-7	-7	-6	-6	-7	-7	-6	-5	-7	-8	-8		
	19	-5	-2	-1	-2	-2	3	2	5	6	9	7	3	1	0	5	7	3	7	4	6	10	11	9	1		
	20	-3	-4	2	3	4	6	9	7	3	0	-5	-2	-4	-1	-1	-1	1	4	3	0	2	-6	-10	-7		
	21	0	0	-3	-5	-10	-11	-15	-15	-12	-9	-8	-8	-5	-8	-7	-5	-9	-11	-10	-12	-18	-28	-40	-43		
	22	-44	-35	-34	-40	-39	-38	-47	-46	-38	-34	-26	-25	-25	-27	-26	-22	-17	-18	-17	-18	-27	-30	-25	-30		
	23	-26	-23	-25	-24	-23	-21	-22	-22	-22	-23	-23	-18	-20	-27	-27	-23	-20	-15	-7	-4	-10	-17	-23	-27		
	24	-28	-31	-28	-25	-28	-31	-26	-21	-18	-14	-17	-23	-19	-15	-26	-27	-25	-26	-22	-20	-19	-19	-20	-21		
	25	-21	-20	-23	-29	-36	-42	-40	-37	-38	-32	-23	-22	-29	-36	-37	-34	-34	-30	-25	-32	-40	-45	-43	-39		
	26	-37	-32	-26	-24	-23	-19	-16	-14	-14	-13	-11	-10	-20	-24	-21	-17	-16	-18	-16	-17	-19	-19	-18	-16		
	27	-14	-14	-16	-15	-15	-13	-13	-13	-10	-13	-16	-16	-15	-10	-7	-5	-4	-5	-3	-4	-8	-8	-6	-6		
	28	-8	-10	-11	-6	0	2	0	-10	-15	-23	-29	-36	-41	-41	-36	-29	-29	-29	-24	-23	-26	-30	-37	-43		
	29	-46	-42	-44	-45	-40	-34	-32	-27	-24	-22	-19	-14	-15	-15	-12	-12	-9	-15	-23	-25	-25	-27	-24	-25		
	30	-26	-29	-36	-32	-27	-27	-27	-25	-21	-17	-14	-10	-10	-11	-13	-12	-8	-6	-4	-3	-1	-1	-1	-5		
		-10	-12	-13	-10	-9	-5	-2	0	0	3	1	-1	-1	-2	-2	-7	-12	-15	-17	-14	-10	-11	-14	-17		

2-10

ORIGINAL PAGE IS  
OF POOR QUALITY

# Hourly Equatorial DsT Values

NOVEMBER 1979

DAY	UNIT-GAMMAS																								S.M.T.	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1	-22	-24	-25	-29	-31	-28	-23	-17	-7	-1	1	-2	-1	3	1	0	-10	-15	-24	-19	-13	-14	-20	-27		
2	-26	-32	-33	-30	-30	-27	-29	-28	-26	-30	-24	-17	-14	-16	-22	-24	-26	-25	-28	-27	-23	-23	-19	-15		
3	-11	-9	-11	-11	-14	-14	-14	-11	-10	-8	-7	-11	-15	-12	-6	-4	-13	-21	-23	-21	-22	-25	-22	-23		
4	-20	-23	-23	-22	-15	-14	-21	-22	-16	-11	-15	-20	-17	-14	-10	-8	-9	-10	-9	-6	-4	-4	-4	-6		
5	-6	-5	-4	-4	-2	-1	-1	-1	3	5	2	1	0	3	6	9	4	6	6	4	4	2	0	-2		
6	-3	-3	-2	0	5	10	6	7	7	4	4	5	7	9	10	10	10	10	9	8	6	6	6	3		
7	0	1	4	4	1	4	6	8	-1	-6	-13	-11	-4	-3	5	3	-4	-22	-31	-30	-29	-30	-26	-26		
8	-26	-26	-26	-26	-26	-22	-24	-28	-39	-45	-47	-34	-44	-42	-37	-31	-25	-19	-13	-9	-8	-11	-11	-4		
9	-8	-16	-14	-14	-16	-19	-21	-21	-15	-12	-9	-7	-2	-18	-22	-30	-33	-38	-27	-19	-41	-35	-30	-29		
10	-31	-33	-31	-24	-21	-19	-23	-26	-21	-21	-22	-24	-25	-25	-24	-21	-23	-22	-29	-23	-21	-26	-30	-30		
11	-31	-35	-24	-14	-12	-7	-6	-7	-8	-5	-4	0	0	6	12	15	19	24	25	19	13	13	10	7		
12	7	2	2	0	3	8	9	0	0	-1	-1	4	5	4	0	-2	-4	-4	0	3	3	0	-9	-9		
13	-6	-17	-29	-46	-51	-60	-61	-59	-61	-62	-63	-67	-70	-70	-78	-84	-92	-89	-92	-81	-74	-71	-73	-73		
14	-81	-90	-83	-81	-78	-75	-66	-65	-61	-60	-57	-55	-56	-57	-59	-56	-54	-52	-50	-45	-41	-37	-34	-32		
15	-33	-34	-33	-29	-25	-23	-21	-22	-21	-23	-25	-25	-23	-24	-26	-24	-23	-22	-19	-15	-14	-5	-2	0		
16	3	4	20	6	-8	-18	-25	-33	-31	-23	-16	-18	-19	-22	-24	-26	-26	-26	-25	-24	-21	-14	-9	-12		
17	-15	-10	-9	-9	-12	-15	-16	-9	-8	-15	-13	-12	-13	-12	-11	-10	-8	-9	-8	-7	-5	-2	0	2		
18	2	1	10	9	8	9	8	5	5	2	-2	-2	-1	1	2	1	-3	-3	-2	0	4	2	3	5		
19	3	1	2	4	9	7	1	-5	-9	-9	-7	-6	-3	0	3	7	5	6	4	0	2	1	3	0		
20	1	-3	-3	0	4	4	1	0	-6	-7	-1	-4	0	-2	1	0	-2	-1	0	2	3	4	6	6		
21	6	3	0	-3	-2	-3	-6	-7	-11	-13	-12	-9	-10	-8	-5	-6	-9	-9	-11	-10	-9	-8	-5	-1		
22	1	1	1	1	0	-1	1	1	-1	-1	2	4	5	1	-1	-1	-1	-1	-1	-2	-4	-4	-5	-5		
23	-5	-3	1	1	0	0	0	-2	-3	-2	0	6	10	10	8	7	2	0	0	2	-1	-2	-3	-7		
24	-10	-9	-13	-19	-26	-33	-39	-46	-45	-45	-32	-30	-49	-47	-31	-30	-28	-29	-38	-33	-30	-38	-41	-37		
25	-44	-52	-58	-61	-55	-47	-47	-42	-41	-36	-34	-32	-32	-30	-29	-27	-27	-25	-22	-18	-14	-15	-15	-11		
26	-10	-9	-10	-10	-7	-6	-6	-3	1	3	4	3	4	3	4	-2	-8	-7	-5	-10	-9	-10	-9	-9		
27	-10	-10	-4	-2	-3	-8	-13	-9	-6	-4	-5	-3	-2	-1	-3	-4	-6	-5	-4	-4	-4	-4	-4	-3		
28	-1	0	0	-2	-5	-5	-2	1	4	7	7	9	10	9	7	5	4	7	9	10	10	6	4	11		
29	13	15	15	11	14	17	17	15	13	13	14	16	20	18	13	11	14	25	28	21	21	24	18	20		
30	22	19	17	15	16	18	17	31	31	7	7	17	27	19	26	27	15	14	14	15	12	10	9	8		

2-11

ORIGINAL PAGE IS  
OF POOR QUALITY

# Hourly Equatorial DsT Values

DECEMBER 1979

DAY	UNIT=GAMMAS																						G.-T.	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	6	8	7	5	3	1	-5	-6	-4	-3	-2	-1	-4	-9	-11	-12	-13	-12	-12	-9	-3	-3	2	5
2	6	4	-1	-4	-7	-11	-13	-13	-11	-4	-3	-4	-2	-5	-3	-3	-1	-4	-7	2	4	7	7	9
3	7	0	-7	-16	-23	-29	-30	-31	-27	-25	-20	-14	-11	-13	-11	-8	-3	-3	-5	0	3	5	7	9
4	11	7	0	-11	-21	-28	-28	-31	-36	-29	-28	-28	-32	-38	-42	-44	-45	-39	-35	-34	-37	-35	-33	-27
5	-24	-22	-21	-21	-21	-21	-25	-32	-35	-36	-34	-29	-23	-21	-17	-16	-18	-15	-13	-12	-14	-13	-9	-9
6	-12	-17	-13	-8	-8	-7	-6	-6	-2	-4	-3	-3	-1	-2	-3	-4	-4	-5	-5	-5	-5	-8	-8	-7
7	-5	-4	-6	-7	-3	4	5	7	8	8	6	5	7	7	9	12	14	15	16	16	16	16	18	19
8	21	21	19	17	20	29	26	24	26	20	19	18	13	6	2	-3	1	4	4	6	-5	-6	-5	-7
9	-7	-7	-6	-6	-3	1	2	0	1	-1	1	2	-1	0	1	3	3	4	3	2	2	3	2	-4
10	-1	2	2	0	1	5	8	8	11	10	12	14	13	10	4	1	-3	1	3	3	5	8	1	1
11	3	4	6	5	1	2	4	11	15	15	13	14	13	14	13	10	6	1	-2	2	2	7	7	5
12	6	8	4	2	2	5	5	4	2	3	5	5	4	4	3	1	1	3	6	6	5	8	9	7
13	8	10	13	12	9	9	9	14	15	12	9	7	7	5	5	7	7	11	15	12	9	8	10	19
14	3	0	2	4	7	12	12	12	11	14	18	18	19	18	19	18	20	16	11	19	7	8	6	6
15	6	7	4	1	-2	0	3	-1	-5	-5	-6	-1	1	2	2	2	3	1	-3	-8	-11	-10	-9	-9
16	-15	-14	-11	-9	-14	-16	-17	-10	-7	-5	-3	1	9	10	5	1	3	7	5	5	4	4	1	-6
17	-9	-11	-12	-14	-12	-9	-3	-5	-3	-1	1	4	3	-2	-3	-3	-1	-7	-12	-10	-7	-9	-12	-11
18	-7	-4	-7	-9	-10	-10	-9	-13	-10	-8	-6	2	2	-1	-6	-5	-3	-2	1	4	4	-1	-3	-3
19	-3	-1	-4	-8	-9	-8	-6	-8	-12	-11	-8	-2	1	1	2	0	-1	-2	-1	1	0	-2	-4	-2
20	0	2	-1	-4	-5	-3	0	-2	-3	-2	0	2	1	-1	2	1	0	-1	-2	-8	-12	-11	-12	-9
21	-7	-5	-7	-8	-6	-4	-4	-4	-3	-3	-2	1	0	-2	-3	-2	-5	-10	-11	-11	-8	-8	-10	-8
22	-5	-1	-2	-3	6	10	10	11	12	11	8	4	14	8	3	4	4	-6	-13	-6	-1	2	4	5
23	4	6	7	6	5	3	-1	-2	-1	1	3	6	4	0	0	3	5	5	9	11	14	12	12	10
24	5	-3	3	2	3	5	10	13	16	16	15	13	14	10	7	4	4	2	7	9	9	8	6	5
25	5	11	8	7	9	11	15	19	19	19	20	19	23	27	29	32	31	26	19	16	19	19	15	12
26	15	15	11	15	20	20	23	24	23	23	23	18	16	18	20	22	17	8	2	-6	-12	-12	-10	-6
27	-1	2	1	2	9	-1	-1	1	-1	2	2	3	0	-2	-7	-13	-12	-8	-6	-9	-10	-8	-10	-12
28	-9	-4	-6	-12	-18	-19	-16	-11	-6	-6	-6	-6	-8	-8	-1	-3	-9	-10	-8	-11	-11	-15	-19	-25
29	-32	-30	-32	-36	-34	-34	-39	-41	-32	-32	-29	-23	-16	-24	-32	-37	-37	-40	-41	-36	-28	-27	-31	-32
30	-33	-32	-30	-33	-36	-36	-35	-37	-33	-32	-32	-24	-15	-19	-22	-16	-15	-18	-17	-12	-13	-10	-10	-7
31	-4	-4	-6	-7	-2	-5	-13	-14	-17	-19	-16	-10	-9	-12	-8	-4	-3	-5	-8	-18	-27	-35	-44	-34

2-12

OF POOR QUALITY



HOURLY EQUATORIAL DST VALUES

JANUARY 1960

DAY	UNIT=CAMMAS																G.M.T.							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-27	-20	-23	-28	-32	-32	-32	-31	-33	-37	-42	-39	-40	-44	-46	-47	-48	-58	-60	-62	-71	-52	-100	-87
2	-75	-64	-58	-54	-51	-51	-54	-60	-61	-61	-58	-53	-53	-52	-44	-39	-37	-35	-33	-33	-30	-28	-23	-24
3	-12	-5	-10	-27	-24	-18	-15	-15	-22	-23	-26	-23	-23	-21	-15	-12	-8	-9	-14	-16	-15	-23	-20	-12
4	-5	-5	-5	-8	-11	-14	-16	-13	-16	-13	-20	-15	-12	-11	-10	-11	-2	-8	-11	-15	-16	-16	-13	-12
5	-9	-6	-7	-7	-7	-10	-11	-11	-13	-17	-21	-22	-22	-27	-18	-16	-12	-10	-10	-5	-5	-6	-6	-5
6	-5	-6	-8	-15	-14	-6	-5	-12	-12	-11	-14	-18	-17	-16	-12	-9	-8	-8	-9	-5	-6	-6	-6	-7
7	-7	-4	-4	-7	-8	-6	-7	-1	2	-2	-5	-9	-16	-17	-12	-9	-3	-3	-1	-1	1	2	3	8
8	-8	-5	-10	-9	-9	-12	-11	-14	-12	-11	-11	-12	-5	-10	-8	-6	-5	-2	-1	0	-4	-4	-3	-1
9	3	5	4	1	0	-4	-7	-6	-3	1	0	-4	-5	-6	-5	-5	-6	-7	-8	-5	-16	-5	-11	-12
10	-10	-10	-8	-7	-5	-1	1	1	-1	-2	-4	-7	-8	-7	-6	-2	0	3	6	6	3	-1	-6	-10
11	-9	-8	-7	-6	-5	-2	-1	1	5	-1	-7	-3	-5	-5	-8	-10	-13	-13	-15	-16	-16	-20	-20	-16
12	-14	-18	-16	-11	-13	-14	-14	-11	-7	-5	-5	-2	-4	-8	-11	-11	-8	-5	-1	2	1	1	-1	-4
13	-5	-5	-1	1	0	9	14	8	-4	0	-3	-11	-26	-38	-38	-40	-42	-51	-57	-58	-53	-41	-32	-21
14	-54	-47	-43	-43	-45	-46	-47	-47	-42	-33	-28	-26	-24	-27	-27	-30	-28	-26	-24	-21	-16	-15	-17	-17
15	-14	-15	-16	-18	-19	-18	-17	-16	-18	-16	-13	-10	-12	-18	-20	-16	-14	-14	-15	-15	-13	-16	-8	-5
16	-8	-19	-20	-19	-25	-20	-35	-41	-31	-27	-26	-24	-24	-25	-21	-16	-19	-20	-15	-16	-12	-11	-4	8
17	-3	-3	-3	-7	-11	-8	-9	-16	-12	-8	-7	-1	0	1	-6	-4	-4	-11	-10	-5	-12	-14	-13	-6
18	-1	-1	-1	-2	-10	-10	-10	-13	-13	-11	-11	-9	-7	-5	-4	-4	-7	-10	-8	-6	-4	3	1	8
19	0	-1	-2	-3	-1	0	2	2	3	4	-1	5	6	6	7	5	2	2	-1	-4	-4	-1	3	8
20	8	5	4	4	4	2	1	2	4	7	4	4	1	3	3	4	2	1	-2	-1	-2	3	4	3
21	2	2	0	-1	1	0	1	1	5	6	6	6	7	3	2	-1	-6	-5	-3	0	4	5	10	18
22	19	19	16	13	12	13	14	12	11	10	10	10	5	10	5	9	8	8	7	4	4	3	1	5
23	3	4	3	2	1	-4	-7	-4	-3	-3	-6	-2	3	6	4	9	12	13	5	6	3	1	2	2
24	3	4	5	7	8	5	5	5	9	7	2	6	7	8	4	-2	-2	-5	-7	-16	-7	-2	-2	-3
25	-5	-1	1	1	1	3	6	5	11	13	14	25	25	21	15	13	12	6	0	-3	0	3	3	3
26	2	6	6	5	2	7	6	7	9	12	11	11	11	8	6	8	9	8	10	11	12	11	6	2
27	2	2	-4	-15	-17	-14	-11	-11	-11	-11	-15	-7	4	6	-2	-15	-21	-34	-47	-53	-56	-53	-47	-48
28	-44	-46	-50	-55	-54	-51	-47	-42	-37	-33	-31	-28	-27	-30	-27	-28	-27	-39	-36	-42	-28	-22	-18	-21
29	-55	-67	-68	-59	-63	-69	-66	-61	-56	-49	-46	-39	-34	-32	-41	-40	-40	-39	-36	-47	-56	-55	-43	-41
30	-38	-32	-26	-30	-29	-31	-34	-34	-34	-33	-40	-32	-24	-24	-27	-32	-33	-29	-28	-25	-36	-27	-25	-26
31	-27	-25	-26	-26	-27	-28	-30	-28	-24	-23	-18	-12	-7	-8	-9	-11	-13	-14	-15	-16	-16	-20	-20	-17

2-13

ORIGINAL PAGE IS  
OF POOR QUALITY

MCURLY EQUATORIAL DST VALUES

FEBRUARY 1960

DAY	UNIT=GAMMAS																						G.M.T.	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-21	-24	-24	-23	-21	-20	-22	-22	-15	-10	-7	-9	-5	-4	-2	1	-1	-3	-1	-12	-14	-13	-9	-4
2	-11	-7	-5	-7	-14	-15	-18	-19	-18	-14	-13	-8	-2	-5	-7	-8	-8	-10	-14	-12	-11	-5	-8	-10
3	-14	-15	-14	-6	-3	-1	-3	-5	-6	-7	-9	-8	-6	-4	-1	0	-1	0	-2	-2	-3	-4	-8	-10
4	-10	-8	-5	-2	-1	0	2	-5	-7	-5	-7	-6	-2	-1	2	5	2	-3	-6	-6	-6	-6	-5	-7
5	-5	-3	-2	1	-1	1	1	2	2	4	1	0	-1	-2	-5	3	-8	-7	-8	-7	-6	-10	-10	-10
6	-4	-9	-8	9	18	18	17	1	-25	-37	-28	-21	-21	-30	-34	-56	-64	-67	-64	-62	-77	-65	-63	-64
7	-61	-56	-58	-56	-59	-60	-63	-63	-70	-63	-62	-57	-44	-41	-36	-33	-38	-40	-39	-42	-42	-36	-32	-31
8	-32	-32	-43	-37	-39	-35	-41	-45	-45	-47	-49	-44	-35	-41	-42	-41	-36	-35	-34	-35	-35	-34	-35	-36
9	-31	-28	-27	-28	-22	-21	-27	-27	-24	-22	-22	-19	-17	-17	-20	-26	-27	-29	-34	-22	-26	-26	-25	-23
10	-20	-19	-22	-24	-24	-24	-18	-15	-13	-7	-6	-7	-6	-10	-14	-14	-10	-5	-6	-11	-10	-10	-9	-7
11	-3	-4	-6	-9	-11	-10	-16	-8	-3	-1	1	2	0	-2	-3	-3	-4	-5	-6	-5	-5	-2	-1	-2
12	-2	-1	-2	-7	-12	-13	-10	-10	-6	-7	-5	-3	-1	-3	-1	-3	0	0	0	0	1	2	-1	-2
13	0	3	1	-3	-6	-6	-5	-3	2	6	5	5	6	5	9	11	10	11	12	11	12	16	15	12
14	8	8	3	11	6	-1	-3	-1	4	-1	-22	-37	-25	-27	-25	-33	-38	-43	-37	-26	-26	-31	-27	-25
15	-19	-18	-23	-25	-31	-24	-37	-40	-38	-32	-24	-17	-6	4	9	0	-9	-4	-5	-2	-33	-51	-68	-69
16	-58	-65	-77	-98	-115	-122	-125	-132	-132	-120	-105	-53	-52	-63	-68	-78	-78	-74	-74	-67	-65	-64	-59	-59
17	-59	-56	-57	-51	-52	-53	-52	-52	-45	-45	-40	-22	-25	-31	-34	-34	-32	-33	-35	-36	-27	-24	-32	-33
18	-39	-42	-41	-41	-43	-44	-46	-45	-52	-54	-52	-45	-36	-34	-36	-34	-38	-24	-40	-46	-45	-46	-48	-48
19	-37	-36	-35	-38	-44	-44	-44	-46	-45	-38	-32	-28	-22	-18	-15	-21	-19	-19	-20	-22	-24	-21	-14	-14
20	-17	-18	-19	-20	-20	-15	-21	-23	-17	-13	-15	-14	-5	-4	0	-3	-11	-9	-7	-16	-12	-12	-10	-10
21	-9	-13	-12	-13	-11	-10	-12	-12	-12	-10	-7	-5	-1	6	8	6	6	5	8	8	8	6	5	7
22	11	14	16	11	6	6	4	1	4	5	5	5	4	8	10	7	5	2	2	4	4	6	13	20
23	26	24	14	13	8	4	3	7	8	8	-2	-5	2	-1	-1	-1	-10	-10	-22	-20	-21	-22	-20	-21
24	-18	-18	-19	-23	-28	-30	-27	-23	-18	-15	-11	-4	1	1	-4	-4	-5	-5	-6	-7	-6	-6	-2	2
25	3	4	2	0	0	0	-3	-7	-2	-3	0	5	6	7	14	12	6	5	-4	-12	-26	-37	-33	-31
26	-31	-31	-26	-28	-25	-23	-27	-25	-23	-17	-13	-10	-12	-22	-17	-20	-22	-23	-20	-27	-26	-23	-11	-8
27	-4	0	0	-3	-14	-27	-22	-22	-26	-22	-18	-18	-15	-24	-23	-19	-17	-20	-23	-26	-25	-22	-19	-18
28	-18	-19	-17	-14	-16	-16	-15	-15	-23	-25	-25	-18	-16	-13	-12	-15	-14	-15	-16	-17	-17	-16	-10	-7
29	-7	-11	-11	-13	-15	-16	-18	-17	-16	-18	-19	-16	-12	-11	-8	-7	-9	-14	-14	-14	-16	-14	-9	-6

2-14

ORIGINAL PAGE IS  
OF POOR QUALITY

MONTHLY EQUATORIAL DST VALUES

MARCH 1960

DAY	UNIT=CMMAS																								G.M.T.	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1	0	2	3	0	-4	-2	-3	-3	-2	1	-1	-2	-3	-4	-5	-8	-10	-10	-9	-6	-4	1	3	4		
2	5	5	6	5	2	-1	-5	-6	-3	0	4	7	11	10	9	7	2	-1	0	2	2	5	7	4		
3	5	9	11	10	5	4	3	4	5	5	3	4	6	10	12	11	2	-5	1	2	4	2	2	4		
4	8	11	13	12	11	2	5	1	-3	-5	-6	-4	-4	1	6	6	5	5	7	6	5	6	6	10		
5	10	15	4	1	-6	-7	-6	-6	-11	-16	-20	-21	-14	-9	-3	-3	-1	-12	-2	0	-2	6	6	3		
6	4	9	11	14	10	2	2	2	3	4	-4	-12	-3	2	2	0	1	-1	4	2	4	0	-5	-5		
7	-9	-7	-6	-5	-1	3	2	0	2	2	-2	-4	-2	3	7	6	6	4	2	4	0	-2	-4	-7		
8	-5	-5	-4	-6	-6	-2	-4	-3	-4	-3	-1	-5	-2	0	2	3	3	1	1	2	2	3	3	7		
9	-5	-5	-4	-2	2	3	0	-3	-4	0	-1	-1	-2	-5	-6	-2	-2	-1	1	2	3	7	3	7		
10	3	1	6	-1	4	5	3	6	6	7	1	1	1	-2	0	2	2	0	-1	1	4	7	0	11		
11	10	6	5	5	6	6	7	6	12	13	5	2	2	9	7	7	5	5	4	1	1	1	-1	-1		
12	1	2	2	2	0	0	2	3	5	6	6	10	6	6	7	9	10	13	15	12	12	12	12	16		
13	17	19	18	18	17	17	17	15	11	10	9	6	5	7	6	9	10	8	9	5	3	5	5	11		
14	-5	-2	0	1	0	1	4	6	9	5	0	-4	-4	-3	-3	0	2	3	0	0	0	1	2	3		
15	4	4	5	6	7	7	6	7	5	8	4	0	-1	1	5	7	8	7	7	6	4	5	7	11		
16	15	17	17	20	23	24	25	25	22	18	10	4	6	11	12	12	13	13	16	20	23	17	12	13		
17	18	22	20	19	18	15	12	13	14	13	9	9	13	15	13	10	10	11	5	6	3	0	2	4		
18	6	3	6	8	8	8	11	13	11	9	11	14	15	16	17	17	16	16	16	15	15	14	12	14		
19	14	13	12	15	17	18	29	32	22	26	24	11	6	16	22	26	20	18	15	12	14	13	15	14		
20	10	6	7	9	11	11	12	13	12	9	6	5	6	11	15	18	19	19	21	22	21	17	8	6		
21	5	1	-7	-6	-12	-21	-25	-29	-38	-44	-49	-52	-44	-37	-32	-34	-34	-37	-40	-46	-45	-35	-32	-37		
22	-36	-36	-38	-39	-38	-41	-42	-32	-21	-10	-10	-20	-21	-37	-31	-26	-24	-26	-21	-23	-21	-23	-22	-22		
23	-24	-26	-28	-27	-21	-17	-13	-11	-12	-12	-14	-14	-14	-12	-6	-7	-8	-6	-4	-3	-3	-5	-8	-9		
24	-10	-9	-9	-8	-3	-3	-6	-7	-4	-2	-6	-9	-2	-1	-2	-2	0	3	4	5	6	5	3	7		
25	6	7	5	6	8	9	10	11	10	9	4	3	4	16	16	22	22	22	25	25	22	16	-5	-10		
26	-19	-23	-30	-52	-61	-50	-50	-57	-66	-70	-73	-67	-62	-63	-56	-49	-48	-46	-45	-45	-44	-36	-40	-34		
27	-31	-36	-38	-39	-38	-37	-34	-25	-24	-24	-28	-32	-32	-31	-26	-24	-19	-16	-16	-18	-20	-22	-24	-27		
28	-28	-24	-22	-22	-16	-11	-13	-7	-2	-4	-9	-12	-13	-6	1	5	3	2	4	4	7	5	2	-2		
29	-3	-4	-6	-5	-5	-12	-17	-11	-5	-6	-10	-13	-14	-11	-8	-5	-2	0	-3	-4	-5	-10	-13	-15		
30	-13	-18	-20	-26	-35	-41	-46	-47	-41	-38	-38	-38	-37	-32	-27	-24	-22	-20	-19	-18	-16	-14	-13	-10		
31	7	8	1	-20	-17	-23	-23	-32	-38	-35	-26	-29	-35	-30	-27	-24	-21	-21	-18	-20	-21	-20	-20	-21		

2-15

OF POOR QUALITY

HOURLY EQUATORIAL DST VALUES

APRIL 1980

DAY	UNIT=CAMMAS																								G.M.T.	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1	-34	-31	-29	-26	-23	-22	-22	-20	-15	-15	-19	-22	-22	-23	-22	-23	-24	-25	-24	-24	-23	-22	-25	-25		
2	-26	-30	-32	-31	-29	-25	-21	-18	-14	-13	-14	-15	-15	-13	-11	-8	-7	-5	-1	1	0	3	3	1		
3	-2	-3	-1	2	0	-1	4	6	3	1	0	2	2	2	7	11	10	8	0	2	4	3	0	-3		
4	-5	-2	-1	2	7	6	6	5	-7	-8	-3	-7	-3	1	5	8	9	5	5	0	-4	-7	-8	-11		
5	-13	-12	-12	-11	-10	-7	-6	-6	-2	-1	-2	1	3	7	9	11	4	1	7	7	6	3	2	1		
6	0	-2	-3	-2	0	3	5	4	4	5	7	30	25	23	23	9	-8	-27	-20	-15	-14	-21	-26	-22		
7	-28	-32	-26	-23	-24	-22	-15	-17	-22	-15	-14	-14	-7	-5	-5	-4	-2	1	0	-14	-11	-11	-11	-15		
8	-16	-15	-11	-19	-14	-9	-1	-5	2	3	3	-5	-6	-5	-4	-6	-4	-8	-8	-6	-10	-11	-10	-6		
9	-12	-17	-14	-12	-15	3	-7	-1	7	-9	-25	-56	-46	-33	-30	-30	-31	-31	-30	-36	-35	-37	-34	-28		
10	-31	-29	-40	-43	-47	-40	-41	-47	-50	-5	-42	-45	-37	-30	-27	-27	-29	-26	-18	-26	-27	-26	-27	-25		
11	-28	-31	-28	-26	-27	-25	-23	-29	-22	-	-21	-25	-25	-33	-22	-19	-19	-35	-49	-64	-77	-27	-72	-67		
12	-66	-68	-68	-57	-60	-61	-53	-55	-45	-45	-45	-42	-46	-40	-37	-36	-33	-31	-32	-32	-27	-25	-23	-29		
13	-59	-63	-62	-57	-57	-55	-61	-52	-48	-48	-50	-47	-44	-42	-41	-37	-40	-38	-41	-41	-36	-31	-30	-32		
14	-31	-34	-33	-29	-27	-28	-28	-25	-23	-22	-22	-24	-23	-21	-20	-16	-13	-5	-10	-19	-13	-16	-21	-28		
15	-35	-32	-42	-43	-45	-42	-42	-41	-30	-25	-23	-21	-20	-15	-18	-18	-24	-31	-35	-24	-33	-36	-41	-35		
16	-31	-27	-25	-26	-32	-32	-30	-33	-28	-24	-25	-25	-22	-20	-22	-23	-23	-21	-22	-23	-22	-18	-19	-21		
17	-18	-19	-21	-28	-33	-28	-23	-22	-21	-18	-15	-14	-14	-13	-11	-10	-10	8	-8	-5	-11	-14	-14	-17		
18	-16	-11	-9	-9	-5	-4	-6	-7	-5	-11	-10	-10	-5	-9	-8	-7	-6	-3	-3	-7	-7	-5	-4	-2		
19	-4	-3	2	8	10	7	6	5	4	4	4	4	6	7	8	6	5	3	3	3	2	5	11	8		
20	8	6	3	-3	-4	-3	-6	-6	-5	-3	-5	-6	-6	-4	-3	0	3	6	2	-2	-5	-6	-6	0		
21	-2	-3	0	-3	-2	-2	0	0	-1	2	6	6	6	6	9	7	8	8	7	7	10	11	11	16		
22	31	42	41	40	27	20	12	13	11	13	11	14	12	10	7	8	7	4	3	5	1	-3	-4	0		
23	8	16	18	20	18	18	19	15	9	7	9	10	11	11	11	10	7	1	3	6	7	4	0	-1		
24	1		4	3	-8	-2	-1	-2	-3	-1	-2	-3	-6	-9	-10	-10	-8	-6	-5	-3	-1	-1	-2	-2		
25	-2		2	1	1	-6	-1	2	6	7	1	-3	0	1	7	4	2	-2	-2	-1	-1	-1	-2	-1		
26	2	4	5	3	-2	-6	-11	-6	-5	-5	-3	-4	1	3	1	0	1	2	0	2	3	3	-1	2		
27	4	7	10	10	9	12	10	11	11	11	8	10	10	11	12	11	12	14	11	12	12	5	0	1		
28	2	7	8	7	4	5	7	7	5	9	10	9	11	12	14	14	11	9	7	7	6	3	3	4		
29	5	7	9	9	10	12	10	10	13	14	15	13	13	14	17	26	24	21	19	11	8	5	6	6		
30	7	10	13	8	4	6	6	8	7	10	11	15	16	6	3	7	9	9	5	3	2	1	-1	-3		

2-16

ORIGINAL PAGE IS  
OF POOR QUALITY

HOURLY EQUATORIAL DST VALUES

MAY 1960

DAY	UNIT=GAMMAS																				G.M.T.			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	2	2	2	6	8	3	3	6	6	5	6	6	11	12	10	9	12	11	9	16	16	14	9	9
2	9	9	9	10	8	6	6	4	6	7	8	11	13	13	11	11	12	14	13	5	5	11	11	10
3	10	11	13	12	11	5	10	12	10	7	8	5	10	11	10	12	11	13	12	12	12	10	8	9
4	12	13	14	14	13	11	11	10	8	9	7	6	7	7	4	7	10	11	5	7	7	6	6	9
5	13	16	16	16	19	24	26	27	25	26	24	24	22	22	19	17	21	24	23	19	15	22	11	2
6	-4	-3	0	-4	-2	-1	-1	-11	-13	-11	-9	-12	-15	-15	-15	-16	-17	-18	-19	-20	-15	-7	-2	1
7	3	5	4	3	6	-3	-2	-1	14	14	13	13	25	24	22	20	15	9	1	-7	-5	-2	-8	0
8	-3	-12	-19	-22	-21	-25	-23	-17	-14	-9	-5	-4	-4	-6	-2	-4	-6	-6	-2	-2	-3	-1	3	5
9	10	7	8	3	-10	-17	-21	-19	-15	-8	-9	-11	-15	-17	-20	-24	-27	-31	-21	-15	-17	-25	-16	-12
10	-5	-1	5	6	5	2	1	5	14	19	18	16	12	11	8	3	-1	-3	6	12	17	23	21	23
11	31	34	27	18	19	18	13	3	-6	-29	-35	-32	-34	-39	-41	-35	-30	-37	-49	-44	-36	-41	-53	-50
12	-48	-45	-50	-53	-62	-62	-54	-45	-47	-42	-42	-43	-43	-42	-44	-43	-45	-47	-47	-42	-37	-36	-36	-32
13	-25	-23	-23	-24	-19	-21	-18	-16	-20	-18	-14	-15	-13	-12	-12	-13	-14	-15	-15	-15	-22	-26	-41	-46
14	-39	-36	-37	-46	-48	-42	-40	-38	-34	-30	-27	-28	-32	-34	-32	-31	-30	-32	-29	-28	-28	-30	-30	-27
15	-26	-25	-26	-26	-26	-23	-25	-20	-18	-18	-17	-15	-15	-17	-16	-17	-19	-20	-18	-15	-13	-14	-17	-21
16	-22	-22	-19	-18	-16	-13	-10	-11	-9	-8	-9	-6	-5	-7	-8	-9	-10	-10	-11	-10	6	-10	-9	-8
17	-4	-5	-5	-5	-4	-4	-4	-4	-2	-2	-2	-2	-5	-6	-4	-5	-7	-7	-7	-1	0	0	0	1
18	7	6	7	6	5	5	5	5	4	2	1	0	3	4	3	3	2	-3	0	4	7	5	4	7
19	8	7	10	14	16	17	18	15	8	3	2	4	6	7	10	3	1	-8	-16	-15	-5	-5	-8	-6
20	-8	-13	-11	-9	-5	1	3	-1	-1	-1	2	4	4	3	2	-1	-3	-1	1	2	7	6	7	10
21	14	17	15	14	15	14	10	5	11	12	15	14	15	18	21	22	22	24	24	23	24	24	21	23
22	21	22	21	22	24	30	27	26	28	31	27	24	21	18	18	21	18	17	16	15	20	26	20	23
23	24	19	13	12	13	13	14	12	11	11	11	5	13	7	6	2	-6	-10	-12	-10	-7	-5	-10	-8
24	1	0	-3	-5	-4	-4	-2	2	3	1	-4	-5	0	1	-1	-3	-10	-10	-29	-22	-22	-22	-33	-34
25	-25	-11	-9	-4	-16	-31	-40	-38	-52	-68	-86	-64	-101	-126	-108	-99	-98	-94	-93	-58	-56	-63	-78	-71
26	-69	-72	-66	-65	-64	-61	-60	-53	-45	-49	-47	-45	-42	-35	-36	-34	-33	-22	-25	-26	-25	-31	-29	-23
27	-23	-25	-27	-31	-29	-27	-27	-26	-24	-22	-20	-22	-22	-21	-20	-17	-15	-13	-12	-12	-12	-14	-13	-8
28	-8	-7	-5	-2	-1	0	1	1	1	0	0	1	-2	-3	0	0	-2	-3	-2	1	2	2	5	7
29	7	8	6	5	5	3	0	-1	1	0	1	0	-2	-2	-1	0	-1	-2	0	6	12	14	16	18
30	17	13	0	-2	-1	2	3	3	3	3	7	4	5	6	4	5	5	6	3	3	6	5	9	1
31	8	5	-5	-9	-14	-12	-14	-11	-7	-6	-6	-9	-14	-18	-22	-18	-25	-24	-20	-18	-16	-10	-20	-23

2-17

ORIGINAL PAGE IS  
OF POOR QUALITY

HOURLY EQUATORIAL DST VALUES

JUNE 1960

DAY	UNIT = GAMMAS																						G.M.T.	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-20	-17	-17	-21	-23	-22	-25	-29	-37	-47	-57	-54	-51	-56	-57	-58	-56	-55	-53	-53	-54	-51	-49	-47
2	-38	-37	-41	-40	-38	-33	-26	-25	-21	-15	-10	-8	-8	-7	-7	-7	-6	-8	-9	-8	-8	-7	-9	
3	-10	-9	-11	-14	-13	-17	-18	-19	-18	-14	-17	-19	-17	-8	-6	-3	4	0	8	7	3	1	-2	-3
4	-3	1	-1	2	4	6	11	15	17	17	13	7	5	12	14	14	15	16	16	18	17	12	6	3
5	4	3	-1	-4	-4	-4	-3	-2	-2	-6	-7	-7	-7	-5	-4	-4	-2	-1	-2	-2	-2	-3	-3	-6
6	-3	-5	-6	-4	-3	0	2	1	3	2	-2	-3	1	9	17	23	14	18	10	12	21	21	29	39
7	19	18	24	11	-9	-10	-4	-5	-2	6	7	-2	0	4	-1	1	9	7	0	-12	-12	-17	-22	-33
8	-39	-39	-48	-46	-37	-30	-29	-31	-28	-24	-20	-25	-25	-27	-22	-21	-23	-23	-19	-20	-17	-22	-18	-19
9	-15	-17	-20	-22	-14	-9	-5	-2	1	-5	-12	-15	-13	-13	-12	-12	-9	-9	-10	-5	-14	-20	-28	-33
10	-33	-36	-29	-27	-26	-28	-29	-28	-25	-26	-22	-25	-21	-31	-27	-30	-30	-19	-29	-24	-22	-30	-34	-38
11	-31	-25	-22	-26	-25	-27	-25	-24	-28	-31	-41	-40	-55	-58	-68	-75	-75	-71	-72	-71	-65	-65	-69	-63
12	-67	-60	-63	-65	-60	-55	-46	-46	-41	-45	-50	-56	-57	-60	-56	-59	-60	-50	-47	-52	-51	-54	-58	-56
13	-64	-61	-58	-56	-57	-57	-51	-54	-45	-48	-59	-65	-60	-54	-55	-53	-48	-45	-48	-45	-47	-45	-55	-47
14	-42	-42	-43	-41	-38	-35	-28	-18	-15	-19	-19	-21	-21	-21	-20	-17	-15	-15	-16	-15	-15	-21	-18	-16
15	-18	-23	-23	-25	-24	-21	-21	-15	-10	-8	-7	-6	-5	-1	1	1	4	3	2	2	-1	-4	-5	-11
16	-12	-11	-9	-10	-11	-13	-12	-13	-12	-12	-11	-10	-12	-11	-13	-14	-13	-12	-15	-20	-21	-21	-21	-19
17	-19	-22	-21	-17	-15	-12	-12	-13	-13	-11	-8	-7	-7	-5	-6	-6	-4	-4	-6	-6	-4	-4	-2	-1
18	-1	-3	-5	-7	-6	-4	0	2	3	5	4	5	5	0	2	3	6	11	11	12	12	11	11	14
19	14	10	9	11	9	7	4	1	-1	2	3	6	6	7	10	11	9	3	1	-1	2	6	9	9
20	1	-1	-1	3	5	5	5	4	5	7	9	9	7	9	9	7	8	8	11	12	15	15	19	16
21	13	12	9	7	7	6	4	2	2	2	4	-1	-2	0	5	6	2	3	8	12	14	15	14	14
22	7	-1	-4	-5	-5	-4	-1	3	4	5	6	5	4	6	5	12	17	20	17	14	7	5	3	-2
23	-10	-15	-11	-6	-3	0	-2	-4	-3	-2	-1	-2	-4	-6	-7	-3	1	3	1	1	3	3	2	1
24	0	-2	6	29	29	29	30	35	25	18	12	11	7	5	5	4	2	-	0	-1	2	-5	-9	-13
25	-18	-16	-11	-5	-10	-11	-13	-6	-4	-2	1	2	-1	-1	1	-1	-1	2	7	15	14	15	14	6
26	4	8	3	-4	-2	-2	-1	-3	-1	1	-3	-5	-4	-10	-10	-14	-19	-28	-37	-47	-52	-47	-38	-32
27	-31	-24	-21	-20	-20	-20	-19	-21	-20	-20	-20	-19	-15	-20	-18	-16	-12	-10	-8	-7	-7	-6	-9	-13
28	-13	-10	-7	-4	-5	-6	-10	-10	-10	-9	-8	-7	-8	-6	-7	-10	-11	-12	-12	-12	-5	-6	-5	-4
29	-4	-3	2	2	4	4	3	-1	-3	-2	-2	-3	-2	0	-1	-3	-5	-2	-1	6	1	4	1	-5
30	-15	-23	-17	-9	-6	-6	-1	1	2	4	4	0	-6	-5	-11	-16	-11	-14	-11	-8	-8	-8	-10	-15

2-18

OF POOR QUALITY

DAILY MEANS CP EQUATORIAL DST WCR 1979

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
DAY												
1	-22	-23	-37	-49	-29	-2	7	4	-19	-18	-15	-3
2	-23	-29	-37	-63	-39	1	17	5	-15	-12	-25	-2
3	-35	-17	-30	-53	-20	10	23	-7	-15	-13	-14	-10
4	-69	-24	-45	-128	-19	4	-8	-13	-8	-6	-14	-26
5	-58	-37	-36	-29	-9	20	4	-2	-17	-3	1	-21
6	-31	-31	-53	-36	-1	23	5	-5	-20	-28	6	-6
7	-37	-14	-41	-20	-6	-19	-2	-11	-10	-40	-8	8
8	-54	-20	-29	-11	3	-12	-5	-5	-9	-62	-26	11
9	-22	-20	-21	-14	2	-9	-2	2	-10	-55	-21	0
10	-17	-17	-38	-12	4	-11	5	8	-14	-32	-25	5
11	-10	-14	-76	-1	-8	-8	10	12	-27	-24	0	7
12	-6	-38	-31	-4	-2	-4	17	9	-1	-17	1	5
13	-9	-13	-19	-8	7	0	-5	-20	2	-15	-63	10
14	-14	-5	-5	-2	2	3	2	-38	7	-6	-59	11
15	-20	-16	10	-16	-1	2	-10	-16	-1	-14	-21	-2
16	-23	-15	-3	-24	1	-15	-3	-7	3	-16	-16	-3
17	-13	0	-12	-13	2	-12	5	4	12	-7	-9	-6
18	-16	5	-10	-4	11	-2	-8	10	-93	-5	3	-4
19	-30	-13	-10	-2	-29	-8	4	-32	-52	4	1	-4
20	-24	-10	-2	4	-26	1	-2	-6	-37	0	0	-3
21	-15	-52	7	-6	-19	-11	-5	-30	-38	-12	-6	-5
22	-15	-60	-17	-64	-48	-21	3	-8	-15	-30	0	3
23	-46	-36	-29	-48	-31	-24	6	0	-17	-21	1	5
24	-50	-43	-28	-32	-35	-16	5	7	-19	-23	-32	8
25	-46	-35	-29	-101	-35	-5	12	0	-38	-33	-34	18
26	-45	-49	-44	-59	-29	-6	6	-15	-27	-19	-4	12
27	-46	-55	-43	-47	-27	-19	-29	-11	-27	-10	-5	-3
28	-30	-44	-43	-62	-13	-3	-5	-3	-26	-22	5	-10
29	-23		-43	-55	-2	8	20	-77	-26	-26	17	-32
30	-22		-68	-85	1	4	-5	-62	-23	-15	17	-24
31	-21		-40		2		-7	-25		-8		-14
MEAN	-29	-26	-30	-33	-13	-4	2	-11	-19	-19	-12	-2

ANNUAL MEAN -16

DAILY MEANS OF EQUATORIAL DST FOR 1960

DAY	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
1	-47	-12	-3	-23	6	-42	-1	-6	12	10	-42	-28
2	-47	-11	4	-13	10	-18	11	-1	8	17	-27	-10
3	-17	-6	5	2	11	-8	3	-25	0	11	-23	-26
4	-11	-4	5	0	5	10	12	-15	-24	-40	-23	-24
5	-12	-3	-4	-1	20	-3	-1	-4	-26	-51	-11	-17
6	-10	-32	2	-1	-10	8	4	5	-7	-29	0	-1
7	-5	-49	0	-14	6	-1	0	-14	-13	-12	-2	-1
8	-7	-39	-2	-7	-8	-27	-9	-3	-9	-7	-3	-4
9	-4	-25	-1	-24	-14	-13	-3	14	-3	-9	-1	-7
10	-3	-13	3	-35	10	-30	6	-3	-5	-11	-14	-13
11	-8	-4	6	-27	-18	-49	8	3	-2	-71	-18	-2
12	-8	-4	7	-45	-45	-55	10	4	-32	-41	-24	-15
13	-24	6	10	-46	-20	-54	-1	8	-46	-20	-11	-12
14	-32	-18	1	-22	-34	-24	1	8	-18	-4	-10	-9
15	-15	-24	6	-32	-15	-5	8	8	-18	-24	-36	-16
16	-21	-88	16	-25	-11	-14	13	-9	-4	-13	-39	-21
17	-7	-42	12	-17	-3	-9	8	-22	-12	-10	-22	-22
18	-6	-43	12	-8	4	4	-8	-19	-5	-21	-22	-26
19	2	-29	18	5	3	6	-56	-5	-3	-33	-26	-89
20	3	-13	12	-2	0	8	-28	-2	0	-27	-17	-103
21	3	-3	-31	5	18	2	-29	-18	7	-14	-12	-48
22	10	8	-28	14	22	5	-25	-3	5	-20	-10	-31
23	2	-4	-13	10	5	-3	-7	-2	1	-66	-9	-12
24	2	-11	-2	-3	-10	9	-3	3	4	-46	-17	-3
25	8	-4	10	0	-66	-1	-4	14	-1	-34	6	10
26	8	-21	-50	-1	-45	-14	-46	-6	2	-34	-12	-6
27	-20	-18	-28	10	-20	-17	-21	-28	16	-23	-29	-13
28	-35	-16	-7	8	-1	-8	-18	-13	17	-11	-36	-9
29	-50	-13	-8	12	4	-1	-9	-2	9	-6	-27	-7
30	-30		-27	7	5	-8	-7	-3	2	-15	-25	-25
31	-19		-22		-13		-11	-1		-32		-29
MEAN	-13	-18	-3	-9	-7	-12	-7	-4	-5	-22	-18	-20
FSUM =	-100924.000		YEARLY AVE. =	-11						ANNUAL MEAN	-12	

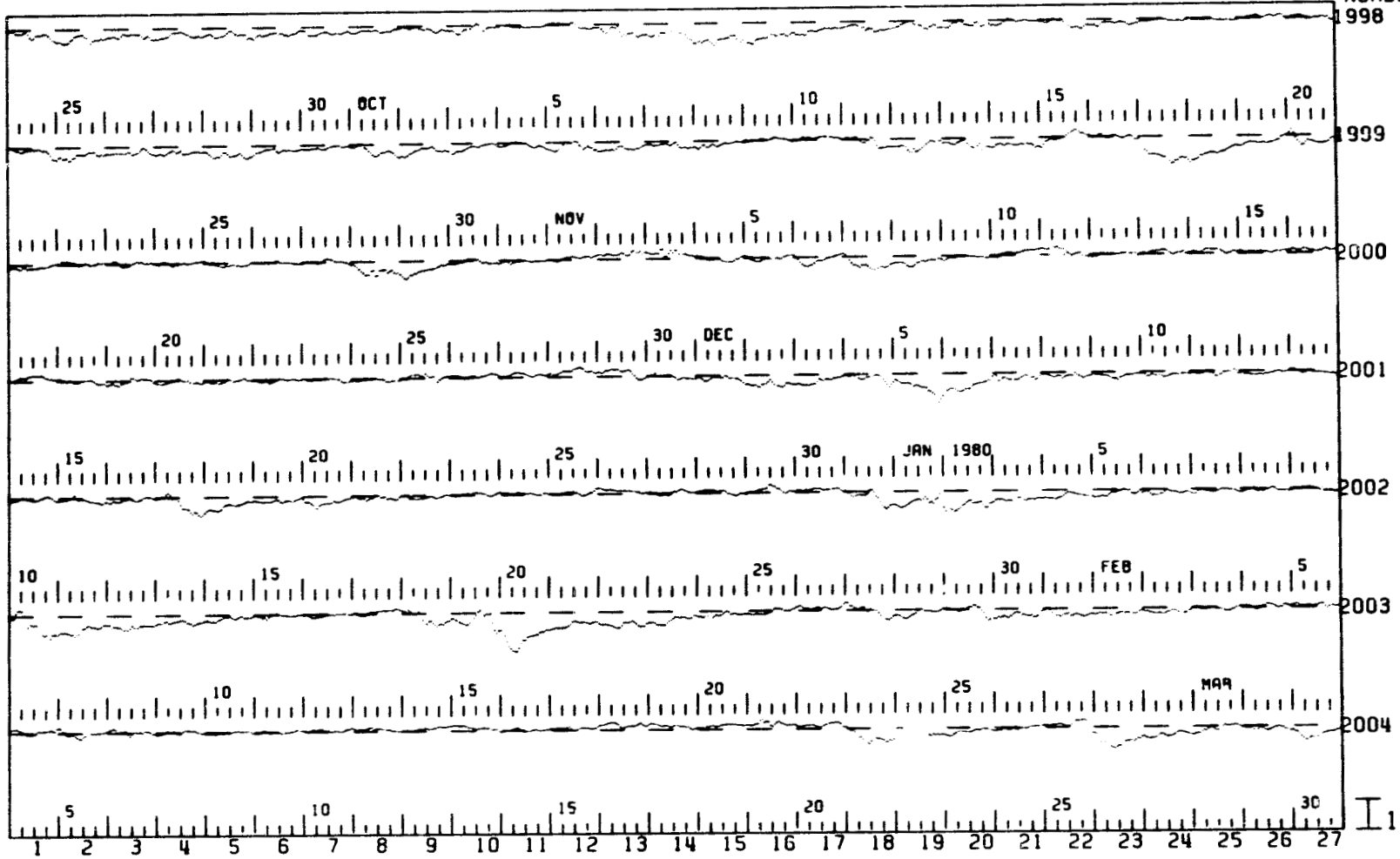
2-20

ORIGINAL PAGE IS  
OF POOR QUALITY



# Hourly DsT Index for October 1979 - March 1980

SOL. ROT.  
NUMBER  
1998

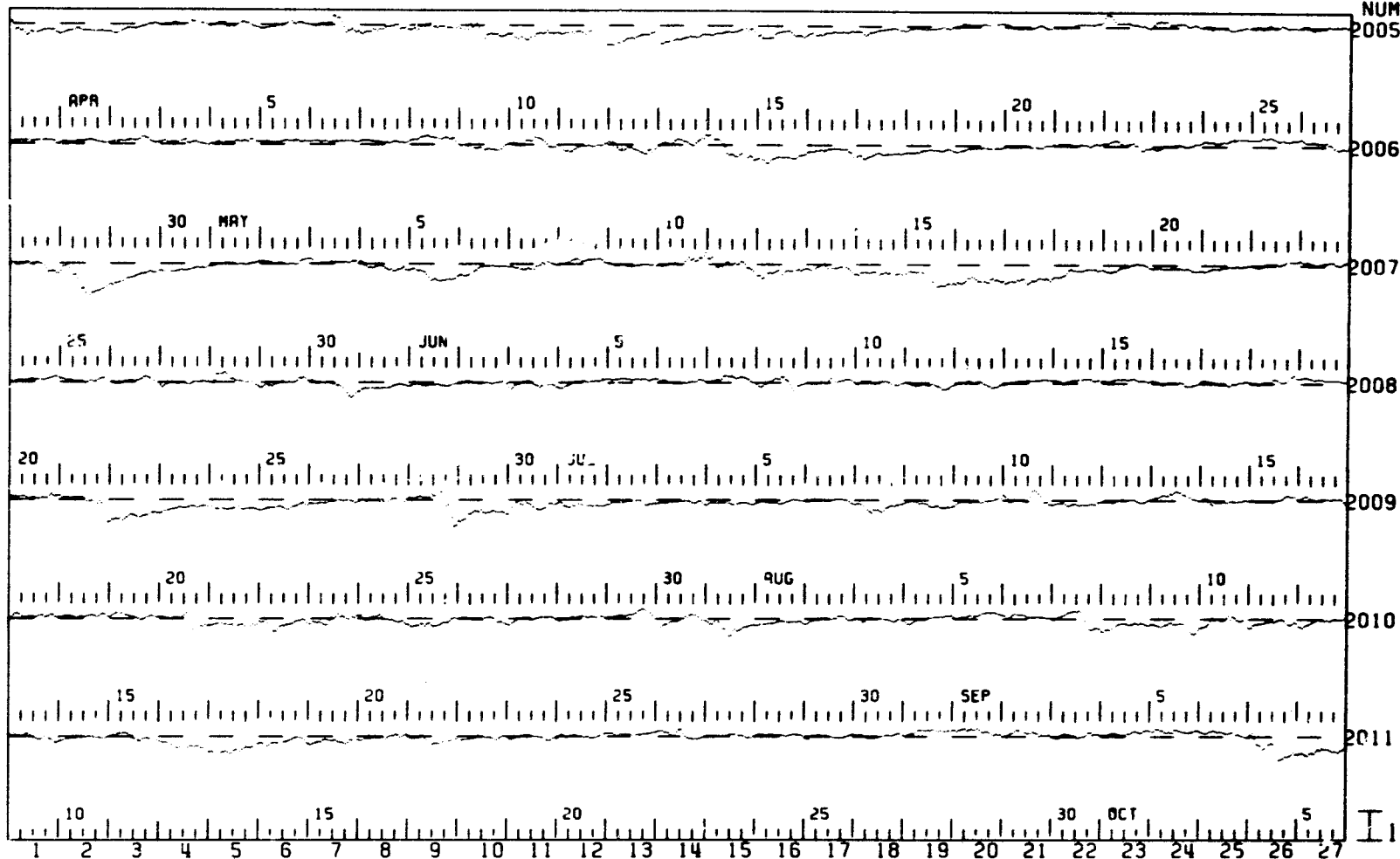


2-21

ORIGINAL PAGE IS  
OF POOR QUALITY

# Hourly DsT Index for April 1980 - September 1980

SOL. ROT.  
NUMBER



ORIGINAL PAGE IS  
OF POOR QUALITY

2-22

### Appendix 3

#### A SPECIAL Dst INDEX

Dr. M. Sugiura of GSFC has kindly supplied the MAGSAT project office with an extended Dst calibration.

The following function was computed:

$$D(T) = A_0(T) + \sum_{n=1}^2 A_n(T) \sin \{nt + \alpha_n(T)\}$$

where  $T$  is universal time and  $t$  is local time.  $A_0$  and  $A_n$  are in nanotesla (nT) and  $\alpha_n$  in degrees.  $A_0(T)$  is equivalent to the traditional Dst while  $\sum_{n=1}^2 A_n(T) \sin \{nT + \alpha_n(T)\}$  should be an approximation to the traditional DS. For these calculations data from the five observatories Honolulu, San Juan, Hermanus, Alibay and Kakioka were utilized. As of this writing the secular variation has not yet been accounted for, which can result in a baseline shift of a few nT. Table A3 gives the values of  $A_0(T)$  (= Dst),  $A_1(t)$  (= DS1),  $A_2(t)$  (= DS2),  $\alpha_1(t)$  and  $\alpha_2(t)$  over the interval October 1, 1979 through June 30, 1980.

Table A-3. Equatorial Disturbance (DsT, DS) from Five Observations (pages 3-2 through 3-28)

EST	DS1	DS2	ALPHA1	ALPHA2
-25	17	12	64.7	104.5
-26	30	18	56.0	58.3
-29	24	14	37.9	68.3
-30	14	24	30.1	-7.3
-31	14	24	16.4	-2.7
-34	10	26	-33.6	-20.3
-36	6	28	-39.0	-46.1
-37	6	26	-70.1	-74.5
-38	6	18	-85.5	-116.7
-39	11	15	-77.7	-165.7
-40	19	16	-46.6	-94.9
-41	19	17	-60.0	-135.3
-42	10	17	-71.3	-165.3
-43	10	17	-75.5	-162.2
-44	14	14	-36.0	-64.2
-45	14	14	-34.7	-19.9
-46	14	14	-38.5	-43.5
-47	14	14	-179.5	-43.5
-48	13	16	-115.0	-72.7
-49	13	16	112.0	-52.1
-50	17	17	37.2	-112.2
-51	17	20	81.6	-137.0
-52	17	14	74.6	-174.3
-53	17	14	64.6	-145.3

AVERAGE DST VALUE : -22.0

EST	DS1	DS2	ALPHA1	ALPHA2
-15	11	11	79.7	106.3
-16	11	10	62.3	69.7
-17	14	16	37.3	50.0
-18	11	20	44.3	26.3
-19	14	24	15.4	6.7
-20	17	23	-13.3	-17.6
-21	14	22	-33.3	-47.5
-22	14	24	-56.2	-83.7
-23	14	24	-64.0	-134.1
-24	16	24	-70.7	-167.0
-25	17	17	-115.7	-163.3
-26	11	16	-104.8	-55.6
-27	10	16	-90.5	73.1
-28	11	17	-112.3	49.3
-29	17	16	-106.6	21.8
-30	13	16	-80.0	3.2
-31	13	14	-103.0	-21.6
-32	10	16	-76.6	-43.3
-33	14	15	-107.7	-87.3
-34	12	15	-130.9	-94.5
-35	14	15	-111.3	-144.8
-36	13	15	29.9	162.1
-37	23	12	75.9	103.7

AVERAGE DST VALUE : -16.6

EST	DS1	DS2	ALPHA1	ALPHA2
-15	24	10	68.3	75.1
-16	24	10	47.0	52.5
-17	30	19	52.1	52.5
-18	31	20	24.2	19.2
-19	26	34	2.7	-5.5
-20	27	31	-12.1	-26.2
-21	17	27	-32.4	-83.2
-22	18	25	-56.8	-130.2
-23	18	18	-77.0	-164.2
-24	9	16	-96.4	-163.0
-25	9	15	-133.7	-137.4

-7	5	16	-51.0	107.0
-8	12	15	-120.3	34.0
-9	13	15	-113.4	59.0
-10	13	16	-140.4	24.0
-11	17	16	144.0	12.1
-12	17	16	129.5	-21.1
-13	21	17	132.0	-61.3
-14	22	24	120.2	-95.7
-15	21	21	103.3	-121.6
-16	21	21	71.8	-167.3
-17	16	18	61.9	-151.9

AVERAGE DST VALUE : -16.7

EST	DS1	DS2	ALPHA1	ALPHA2
-10	21	16	54.2	111.0
-12	19	17	62.9	83.9
-13	20	20	51.6	124.3
-14	17	20	42.7	26.3
-15	12	22	-21.9	1.0
-16	11	17	-27.7	-14.4
-17	15	16	-43.5	-31.5
-18	17	20	-44.2	-136.1
-19	18	23	-52.0	-170.9
-20	12	16	-59.6	-154.2
-21	15	21	-101.0	131.3
-22	17	23	-129.4	109.5
-23	13	17	-142.3	73.7
-24	10	14	-147.3	54.2
-25	10	10	-162.0	26.3
-26	12	12	-162.0	3.3
-27	12	12	-175.5	-24.0
-28	14	15	-159.0	-46.0
-29	16	15	-138.3	-71.2
-30	18	20	-116.5	-104.7
-31	15	17	-111.6	-145.9
-32	15	16	-163.9	169.6
-33	12	6	103.9	114.4

AVERAGE DST VALUE : -9.3

EST	DS1	DS2	ALPHA1	ALPHA2
-11	11	10	104.7	74.1
-12	14	16	77.0	52.3
-13	14	16	61.0	51.7
-14	14	22	37.1	27.7
-15	14	22	-14.2	-17.7
-16	16	20	-57.1	-44.3
-17	17	20	-76.3	-73.9
-18	17	17	-67.6	-123.4
-19	15	15	-105.2	-156.9
-20	15	15	-121.0	-155.5
-21	10	16	-159.9	134.0
-22	12	16	-153.3	102.3
-23	13	15	-150.3	70.7
-24	11	20	-166.6	47.7
-25	13	16	-171.1	17.0
-26	13	16	-124.2	-6.3
-27	13	13	-111.5	-29.5
-28	7	11	-141.7	-33.6
-29	10	13	-129.7	-33.2
-30	10	14	127.4	-118.3
-31	15	18	66.8	-147.8
-32	14	16	62.4	-177.3
-33	20	19	45.6	134.3

AVERAGE DST VALUE : -7.0

EST	DS1	DS2	ALPHA1	ALPHA2
-11	17	15	19.1	110.7
-12	11	16	31.6	79.3
-13	11	27	33.5	51.7
-14	21	30	0.1	23.0
-15	24	31	-7.5	-31.0
-16	26	31	-31.7	-31.0
-17	21	27	-32.0	-64.3
-18	15	27	-31.5	-102.2
-19	23	27	-31.5	-102.2
-20	23	24	-75.9	-170.9
-21	21	23	-59.2	-159.2
-22	25	24	-139.7	124.7
-23	21	25	-38.0	43.3
-24	35	25	-79.5	42.3
-25	40	27	-61.0	23.2
-26	31	15	-33.4	-50.5
-27	28	15	-33.5	1.2
-28	15	11	-30.3	-40.3
-29	7	11	-10.0	-40.0
-30	15	21	-12.0	-113.2
-31	20	21	10.6	-157.1
-32	25	24	39.7	173.3
-33	23	24	47.9	135.6

AVERAGE DST VALUE : -43.1

EST	DS1	DS2	ALPHA1	ALPHA2
-40	42	21	-6.9	113.3
-41	42	23	-21.6	71.6
-42	54	33	26.2	46.4
-43	49	30	20.5	26.6
-44	31	26	-15.6	-1.1
-45	13	26	-24.1	-21.1
-46	15	13	-56.1	-30.3
-47	13	10	-49.9	-42.7
-48	25	15	-15.1	-75.6
-49	32	21	-43.4	-131.4
-50	41	24	-25.7	-174.2
-51	16	25	-32.3	-148.4
-52	11	17	-31.3	107.4
-53	13	16	-92.2	75.4
-54	7	13	-116.0	68.4
-55	7	14	-130.4	40.3
-56	6	13	-149.0	14.7
-57	19	11	78.1	7.6

EST	DS1	DS2	ALPHA1	ALPHA2
-47	13	13	32.5	-60.0
-48	6	14	47.4	-77.3
-49	11	14	79.2	-133.4
-50	24	21	45.3	-135.7
-51	46	24	37.6	-175.7
-52	36	25	27.3	-151.3

AVERAGE DST VALUE : -64.0

EST	DS1	DS2	ALPHA1	ALPHA2
-47	39	20	36.0	112.0
-48	35	11	-40.7	50.4
-49	32	15	19.2	31.2
-50	29	11	11.5	11.3
-51	29	13	0.4	-21.0
-52	30	10	-19.2	-21.5
-53	23	17	-6.5	-42.6
-54	23	17	-0.4	-70.3
-55	24	17	-2.2	-55.4
-56	22	14	-14.1	-158.9
-57	12	11	31.2	147.4
-58	6	11	-109.9	102.0
-59	6	15	-156.0	83.2
-60	5	17	-125.4	67.2
-61	3	16	-29.6	40.7
-62	7	10	-50.3	5.6
-63	4	11	-76.0	-21.5
-64	4	11	11.1	-63.3
-65	10	11	64.3	-79.6
-66	12	17	69.7	-160.2
-67	15	17	38.6	-143.5
-68	14	17	28.0	-167.4
-69	14	17	58.9	162.4

AVERAGE DST VALUE : -55.5

EST	DS1	DS2	ALPHA1	ALPHA2
-43	24	24	54.5	106.3
-44	21	25	42.1	74.3
-45	20	27	46.7	51.7
-46	26	25	36.0	21.0
-47	21	24	1.0	1.5
-48	24	24	-36.0	-14.2
-49	24	22	-22.0	-32.0
-50	17	16	-25.7	-73.7
-51	24	15	-38.1	-128.7
-52	24	17	-60.4	-166.5
-53	21	17	-66.2	161.1
-54	15	21	-42.5	127.9
-55	15	16	-93.0	104.4
-56	20	25	-34.0	71.2
-57	26	27	-2.0	36.3
-58	47	12	-33.9	4.5
-59	10	10	-93.4	-6.2
-60	9	14	-131.0	-27.4
-61	12	15	169.2	-45.3
-62	16	21	37.1	-95.4
-63	37	21	59.1	-124.0
-64	35	28	57.1	-162.9
-65	40	27	43.2	154.0

AVERAGE DST VALUE : -43.1

EST	DS1	DS2	ALPHA1	ALPHA2
-40	42	21	-6.9	113.3
-41	42	23	-21.6	71.6
-42	54	33	26.2	46.4
-43	49	30	20.5	26.6
-44	31	26	-15.6	-1.1
-45	13	26	-24.1	-21.1
-46	15	13	-56.1	-30.3
-47	13	10	-49.9	-42.7
-48	25	15	-15.1	-75.6
-49	32	21	-43.4	-131.4
-50	41	24	-25.7	-174.2
-51	16	25	-32.3	-148.4
-52	11	17	-31.3	107.4
-53	13	16	-92.2	75.4
-54	7	13	-116.0	68.4
-55	7	14	-130.4	40.3
-56	6	13	-149.0	14.7
-57	19	11	78.1	7.6

EST	DS1	DS2	ALPHA1	ALPHA2
-47	39	20	36.0	112.0
-48	35	11	-40.7	50.4
-49	32	15	19.2	31.2
-50	29	11	11.5	11.3
-51	29	13	0.4	-21.0
-52	30	10	-19.2	-21.5
-53	23	17	-6.5	-42.6
-54	23	17	-0.4	-70.3
-55	24	17	-2.2	-55.4
-56	22	14	-14.1	-158.9
-57	12	11	31.2	147.4
-58	6	11	-109.9	102.0
-59	6	15	-156.0	83.2
-60	5	17	-125.4	67.2
-61	3	16	-29.6	40.7
-62	7	10	-50.3	5.6
-63	4	11	-76.0	-21.5
-64	4	11	11.1	-63.3
-65	10	11	64.3	-79.6
-66	12	17	69.7	-160.2

-19	12	7.9	-31.5
-18	15	-17.8	-61.5
-17	20	-30.6	-95.0
-16	26	-47.7	-131.3
-15	35	-71.1	-168.5
-14	46	-100.7	-216.6
-13	17	-146.7	-275.5
-12	22	-207.7	-345.2
-11	19	-284.3	-425.7
-10	14	-377.3	-517.0
-9	17	-486.5	-619.1
-8	10	-601.0	-732.0
-7	8	-721.0	-855.7
-6	10	-846.0	-990.0
-5	5	-976.0	-1135.0
-4	13	-1111.0	-1290.0
-3	14	-1251.0	-1455.0
-2	14	-1396.0	-1630.0
-1	14	-1546.0	-1815.0
0	14	-1701.0	-2010.0
1	14	-1861.0	-2215.0
2	14	-2026.0	-2430.0

AVERAGE DST VALUE : -27.0

ISI 79 10 12

ISI	DS1	DS2	ALPHA1	ALPHA2
-26	12	7	60.1	91.2
-25	11	5	60.1	44.2
-24	14	1	51.2	43.7
-23	13	1	36.0	1.4
-22	10	16	20.0	3.4
-21	12	1	-16.1	-2.5
-20	15	23	-34.1	-63.0
-19	16	37	-40.4	-97.7
-18	21	57	-55.5	-136.5
-17	25	82	-68.0	-171.9
-16	27	111	-73.3	-213.0
-15	25	141	-63.9	-259.9
-14	26	171	-63.0	-318.3
-13	20	211	-50.0	-388.3
-12	19	251	-103.0	-470.0
-11	12	301	-101.7	-563.3
-10	9	351	-71.4	-668.3
-9	1	401	-25.5	-785.0
-8	4	451	11.3	-913.3
-7	6	501	44.5	-1053.0
-6	7	551	11.3	-1203.0
-5	23	601	11.9	-1363.0

AVERAGE DST VALUE : -19.3

ISI 79 10 13

ISI	DS1	DS2	ALPHA1	ALPHA2
-22	17	11	45.0	65.3
-23	16	1	41.3	83.7
-24	20	14	27.9	62.1
-25	20	14	5.4	3.7
-26	17	14	-8.0	4.3
-27	17	15	-4.9	-21.0
-28	13	23	-38.5	-61.1
-29	24	39	-64.4	-107.9
-30	25	55	-88.5	-157.2
-31	26	81	-109.9	-208.7
-32	27	107	-119.2	-261.3
-33	24	133	-113.7	-315.0
-34	21	159	-103.1	-370.0
-35	19	185	-92.7	-426.3
-36	18	211	-86.7	-483.0
-37	11	237	-78.3	-540.0
-38	11	263	-68.3	-597.0
-39	10	289	-57.7	-654.0
-40	10	315	-46.7	-711.0
-41	7	341	-36.7	-768.0
-42	5	367	-27.7	-825.0
-43	12	393	-19.3	-882.0
-44	14	419	-11.3	-939.0
-45	14	445	-3.3	-996.0

AVERAGE DST VALUE : -16.0

ISI 79 10 14

ISI	DS1	DS2	ALPHA1	ALPHA2
-13	12	14	51.3	116.4
-14	12	12	42.0	83.3
-15	16	15	36.3	60.6
-16	16	14	24.2	27.1
-17	14	11	-1.1	8.0
-18	14	7	-34.5	-12.4
-19	14	7	-57.0	-33.0
-20	16	0	-78.4	-71.9
-21	16	11	-68.4	-133.4
-22	12	12	-99.3	-173.7
-23	17	14	-116.2	-222.4
-24	20	19	-136.8	-273.3
-25	19	19	-152.3	-327.7
-26	11	16	-167.5	-385.0
-27	13	13	-173.3	-445.7
-28	6	12	-136.0	-48.1
-29	6	10	-156.7	-92.1
-30	7	12	166.0	-70.0
-31	4	14	130.3	-94.0
-32	12	16	112.3	-121.9
-33	13	17	97.5	-153.0
-34	14	18	80.4	-177.7
-35	14	16	71.3	-145.1

AVERAGE DST VALUE : -6.5

ISI 79 10 15

ISI	DS1	DS2	ALPHA1	ALPHA2
-13	11	11	80.2	94.9
-14	11	6	64.6	62.5
-15	12	38.7	62.4	1.4
-16	15	15	20.6	31.4
-17	13	15	-6.1	13.3
-18	11	16	-34.0	-18.5
-19	15	15	-49.3	-51.7
-20	14	14	-57.4	-93.1
-21	17	17	-56.5	-134.3
-22	21	19	-67.4	-183.5
-23	15	22	-74.4	-240.7
-24	31	31	-167.3	-306.9
-25	6	21	-96.5	-64.2
-26	11	15	-58.4	36.0
-27	6	16	-57.7	10.0
-28	6	11	-34.7	-15.1
-29	4	10	-171.3	-47.3
-30	4	10	121.3	-63.3
-31	6	10	61.4	-123.3
-32	17	13	52.4	-183.3
-33	16	17	36.3	-243.3
-34	16	24	31.2	-303.3
-35	15	27	45.0	-362.1

AVERAGE DST VALUE : -15.0

ISI 79 10 16

ISI	DS1	DS2	ALPHA1	ALPHA2
-20	10	20	46.0	111.1
-21	13	21	31.9	76.4
-22	17	23	22.3	53.9
-23	20	31	39.3	30.9
-24	23	37	-17.5	-3.1
-25	21	31	-23.0	-63.8
-26	21	37	-23.0	-98.5
-27	15	21	-68.3	-154.9
-28	15	17	-68.3	-192.9
-29	6	15	-99.5	-253.9

AVERAGE DST VALUE : -17.7

ISI 79 10 17

ISI	DS1	DS2	ALPHA1	ALPHA2
-15	12	17	62.5	121.3
-16	11	17	42.1	87.6
-17	15	21	42.1	64.3
-18	15	25	12.5	29.3
-19	14	28	4.0	-1.2
-20	14	26	-3.6	-35.1
-21	17	28	-12.6	-66.7
-22	19	27	-35.6	-100.9
-23	14	25	-54.6	-132.6
-24	12	25	-76.3	-164.1
-25	13	20	-55.6	-163.4
-26	13	18	-112.2	-141.7
-27	17	23	-136.6	-72.2
-28	16	19	-139.9	46.3
-29	17	17	-175.4	10.1
-30	16	16	166.7	-17.2
-31	15	14	148.6	-45.7
-32	14	14	130.1	-71.3
-33	13	15	111.7	-101.7
-34	13	16	106.1	-129.3
-35	15	18	90.0	-150.7
-36	16	23	65.9	-172.9
-37	15	25	46.4	-159.0

AVERAGE DST VALUE : -4.3

ISI 79 10 18

ISI	DS1	DS2	ALPHA1	ALPHA2
-3	13	26	36.2	127.1
-4	8	26	26.0	94.4
-5	15	27	12.0	67.4
-6	15	27	-0.0	33.4
-7	13	24	-24.7	12.1
-8	15	21	-42.3	-17.9
-9	16	20	-53.9	-52.4
-10	14	19	-54.4	-93.2
-11	17	17	-62.8	-127.2
-12	7	14	-49.9	-161.1
-13	7	14	-111.0	-165.7
-14	10	14	-139.9	-144.3
-15	10	15	-145.5	-117.3
-16	10	15	-153.8	71.1
-17	14	15	-175.9	40.3
-18	16	16	174.5	72.1
-19	14	13	156.3	-41.2
-20	13	13	145.5	-64.1
-21	14	14	130.0	-87.3
-22	16	16	114.4	-110.1
-23	16	17	102.2	-131.9
-24	15	15	96.2	-174.0
-25	15	15	89.6	-152.2

AVERAGE DST VALUE : -0.1

ISI 79 10 19

ISI	DS1	DS2	ALPHA1	ALPHA2
-5	11	18	54.0	125.6
-6	11	20	32.1	95.2
-7	12	21	20.3	65.3
-8	11	20	6.3	33.1
-9	16	21	-15.9	5.7
-10	17	23	-40.4	-22.1
-11	23	23	-49.6	-53.7
-12	18	18	-59.3	-92.4
-13	16	16	-75.0	-135.2
-14	16	21	-107.3	-189.6
-15	16	22	-127.3	-246.5
-16	16	21	-142.2	-305.1
-17	14	17	-155.5	-364.6
-18	14	16	-162.6	-424.3
-19	14	14	-162.3	-483.3
-20	13	12	-170.2	-541.9
-21	14	12	-177.6	-600.0
-22	14	14	149.5	-658.6
-23	15	14	131.0	-717.0
-24	12	18	114.9	-775.1
-25	12	16	101.5	-833.0
-26	10	15	39.4	-890.3
-27	10	15	77.7	-947.7

AVERAGE DST VALUE : 3.0

ISI 79 10 20

ISI	DS1	DS2	ALPHA1	ALPHA2
-1	11	13	50.9	93.3
-2	13	14	30.6	62.2
-3	4	1	6.5	4.4
-4	1	1	6.1	26.4
-5	16	21	-16.3	-23.6
-6	15	22	-35.0	-61.3
-7	22	25	-46.0	-91.6
-8	31	28	-36.2	-130.0
-9	40	32	-43.5	-172.0
-10	39	34	-60.6	-213.1
-11	27	31	-70.3	-257.7
-12	33	32	-134.8	-303.3
-13	27	27	-119.5	-349.2
-14	21	21	-133.4	-394.7
-15	12	16	-134.7	-439.2
-16	10	13	-158.2	-483.7
-17	11	13	-174.6	-528.3
-18	9	15	-153.9	-573.0
-19	10	15	148.7	-617.5
-20	16	20	30.1	-662.0
-21	22	24	76.6	-706.7
-22	16	21	65.5	-751.3

AVERAGE DST VALUE : -2.0

ISI 79 10 21

ISI	DS1	DS2	ALPHA1	ALPHA2
0	14	17	54.7	119.9
-1	12	16	39.2	84.0
-2	16	25	11.0	62.2
-3	24	16	15.1	23.1
-4	16	36	8.0	3.4
-5	14	31	-2.9	-23.6
-6	14	27	-16.9	-52.5
-7	10	26	-29.1	-82.3
-8	13	21	-44.3	-112.6
-9	14	15	-51.4	-150.9
-10	14	23	-66.0	-189.9
-11	17	21	-76.6	-230.7
-12	17	23	-118.5	-269.2
-13	15	15	-119.3	-307.1
-14	14	16	-139.5	-345.1
-15	11	15	-93.7	-383.1

-16	10	11	-112.7	-27.3
-17	7	16	-124.3	-71.1
-18	1	16	-121.3	-102.9
-19	1	16	-121.3	-137.7
-20	13	23	63.4	-175.9
-21	22	1	7.5	161.1
-22	20	22	19.5	131.7

AVERAGE DST VALUE : -15.2

IST 79 10 22

EST	DS1	DS2	ALPHA1	ALPHA2
-42	26	26	11.7	112.1
-43	30	26	18.1	96.1
-44	33	23	-9.4	-7.9
-45	29	17	-7.6	13.7
-46	17	13	-9.7	0.7
-47	17	13	-16.6	-3.3
-48	15	15	-27.2	-16.3
-49	10	10	-9.0	-51.3
-50	10	14	11.5	-65.3
-51	3	12	1.3	-112.0
-52	13	13	-7.5	16.5
-53	13	10	-112.0	132.7
-54	12	10	-133.7	136.3
-55	7	13	-144.5	77.7
-56	3	15	-179.0	53.4
-57	4	14	-152.5	26.3
-58	3	15	-156.3	-3.3
-59	4	14	-121.9	-27.7
-60	4	10	-123.1	-67.7
-61	2	13	99.9	-114.3
-62	9	14	46.9	-145.1
-63	9	14	47.5	-172.3
-64	9	16	69.6	132.5
-65	19	13	75.7	117.4

AVERAGE DST VALUE : -31.2

IST 79 10 23

EST	DS1	DS2	ALPHA1	ALPHA2
-25	11	12	75.7	87.3
-26	13	12	43.4	72.3
-27	20	12	33.0	55.9
-28	19	11	14.4	23.4
-29	19	0	-4.1	25.5
-30	15	0	-28.4	8.3
-31	17	7	-33.5	-27.4
-32	18	14	-40.6	-75.6
-33	17	17	-47.2	-122.3
-34	17	17	-55.3	-159.0
-35	15	15	-75.2	167.5
-36	18	18	-77.8	134.5
-37	13	17	-102.0	104.4
-38	0	16	-139.0	74.7
-39	7	16	-124.2	42.7
-40	6	16	-143.4	-18.1
-41	0	13	-164.0	-49.2
-42	5	12	-165.5	-91.4
-43	7	13	-57.6	-151.1
-44	5	16	-40.2	-170.7
-45	12	15	-20.6	171.7
-46	15	20	10.5	154.5
-47	16	19	15.7	152.7

AVERAGE DST VALUE : -21.7

IST 79 10 24

EST	DS1	DS2	ALPHA1	ALPHA2
-26	16	17	27.5	102.3
-27	17	15	34.1	73.4
-28	21	16	31.1	54.7
-29	19	13	16.4	14.5

-24	15	1	-7.5	-3.4
-25	16	11	-10.2	-22.9
-26	16	11	-20.5	-24.2
-27	16	11	-26.7	-24.2
-28	17	7	-33.7	-93.4
-29	17	10	-51.8	-151.7
-30	17	14	-55.0	172.7
-31	23	14	-51.9	165.7
-32	21	17	-62.5	143.5
-33	12	11	-41.2	31.0
-34	16	16	-54.5	43.7
-35	11	21	-34.4	12.7
-36	17	17	-16.6	-13.5
-37	7	7	-24.9	-63.5
-38	2	2	-50.2	-67.3
-39	0	12	-35.3	-197.3
-40	1	12	10.1	-137.7
-41	10	15	19.1	-125.0
-42	9	15	5.6	160.6
-43	11	13	76.7	122.0

AVERAGE DST VALUE : -25.0

IST 79 10 25

EST	DS1	DS2	ALPHA1	ALPHA2
-20	15	12	73.2	97.1
-21	17	13	50.9	64.1
-22	23	17	23.2	45.1
-23	24	24	17.5	31.6
-24	27	11	-24.3	-15.1
-25	24	10	-24.3	-44.1
-26	33	19	-39.9	-66.6
-27	20	16	-42.4	-105.0
-28	25	16	-45.2	-121.5
-29	21	10	-77.0	-160.9
-30	25	22	-86.4	161.4
-31	21	23	-104.6	126.0
-32	18	22	-106.7	57.6
-33	12	22	-33.4	64.7
-34	19	21	-106.5	31.7
-35	9	26	-160.3	2.3
-36	9	21	-126.1	-52.0
-37	10	15	36.0	-51.4
-38	4	15	34.0	-51.4
-39	8	17	50.6	-107.8
-40	17	20	43.2	-110.1
-41	22	24	44.4	-146.4
-42	25	20	43.9	-172.7
-43	27	27	40.6	155.7

AVERAGE DST VALUE : -34.2

IST 79 10 26

EST	DS1	DS2	ALPHA1	ALPHA2
-36	27	24	35.9	124.8
-37	22	21	25.0	93.3
-38	23	26	9.5	65.0
-39	21	27	5.0	24.8
-40	23	26	1.2	-7.0
-41	23	27	-12.9	-33.9
-42	19	24	-24.0	-65.3
-43	17	23	-50.1	-87.3
-44	13	18	-78.3	-117.7
-45	11	16	-87.4	-135.0
-46	10	13	-94.4	170.0
-47	14	18	-93.7	132.7
-48	10	16	-94.8	102.6
-49	18	17	-75.3	72.3
-50	17	17	-101.6	46.5
-51	15	17	-142.2	15.1
-52	11	17	-108.5	-15.1
-53	8	14	14.6	-42.3
-54	6	13	126.7	-75.3
-55	10	15	125.1	-103.3
-56	15	17	104.1	-119.2
-57	17	21	94.2	-152.4
-58	22	18	77.6	162.4

-14	17	15	70.1	136.3
-----	----	----	------	-------

AVERAGE DST VALUE : -21.2

IST 79 10 27

EST	DS1	DS2	ALPHA1	ALPHA2
-13	14	11	69.0	106.5
-14	15	8	60.0	63.5
-15	17	10	43.1	51.5
-16	15	8	25.3	3.4
-17	18	5	6.3	-26.5
-18	21	12	-3.9	-49.5
-19	12	15	-27.8	-65.1
-20	14	13	-39.2	-128.2
-21	14	12	-59.5	-159.5
-22	12	13	-43.0	178.3
-23	0	0	-55.1	147.4
-24	6	8	-2.1	127.4
-25	11	13	-125.4	196.8
-26	10	12	-116.0	73.0
-27	10	14	-132.4	33.0
-28	0	15	-157.5	-3.3
-29	12	16	174.3	-44.3
-30	15	16	159.0	-71.5
-31	15	20	141.4	-55.3
-32	16	20	36.0	-111.9
-33	21	22	34.5	-144.1
-34	20	20	32.5	-144.0
-35	20	15	32.5	156.8

AVERAGE DST VALUE : -11.6

IST 79 10 28

EST	DS1	DS2	ALPHA1	ALPHA2
-7	20	11	75.8	114.9
-8	19	19	47.5	62.2
-9	22	11	45.3	37.9
-10	22	2	22.2	11.3
-11	19	22	17.0	-12.1
-12	19	22	-4.3	-51.7
-13	17	17	-32.6	-61.2
-14	13	19	-60.4	-81.9
-15	17	13	-31.3	-145.2
-16	14	15	-17.9	-133.4
-17	34	14	-23.9	-169.3
-18	39	12	-32.7	172.7
-19	36	12	-36.5	137.1
-20	33	12	-51.2	104.7
-21	20	12	-81.3	63.7
-22	17	12	-106.2	40.8
-23	12	13	-136.0	1.1
-24	8	13	173.0	-92.0
-25	7	8	171.2	-73.9
-26	8	15	139.5	-165.5
-27	11	20	77.7	-151.4
-28	22	20	68.1	-165.7
-29	15	15	45.2	141.8
-30	16	11	46.0	100.7

AVERAGE DST VALUE : -25.4

IST 79 10 29

EST	DS1	DS2	ALPHA1	ALPHA2
-34	16	3	98.2	80.7
-35	16	3	52.5	61.3
-36	26	11	37.2	35.2
-37	25	17	31.9	-2.5
-38	19	22	28.0	-32.5
-39	15	21	8.5	-50.6
-40	14	23	-5.0	-67.4
-41	12	25	-34.3	-91.6
-42	11	23	-52.5	-125.9
-43	7	18	-47.7	-157.6

-12	9	15	-71.5	179.3
-13	12	15	-57.0	142.7
-14	15	15	-131.1	123.7
-15	0	15	-101.6	193.4
-16	0	12	-38.0	73.1
-17	3	13	-35.0	41.1
-18	3	15	-41.0	-11.0
-19	3	15	-117.0	103.5
-20	5	15	-44.7	-11.0
-21	6	16	0.0	-62.0
-22	7	15	25.1	-104.1
-23	10	16	49.4	-140.1
-24	16	16	44.1	-170.3
-25	5	15	47.4	157.5
-26	13	15	67.2	126.0

AVERAGE DST VALUE : -20.7

IST 79 10 30

EST	DS1	DS2	ALPHA1	ALPHA2
-25	17	12	59.1	104.3
-26	16	11	47.0	63.7
-27	21	9	16.9	35.4
-28	15	0	0.4	-9.3
-29	16	0	-0.7	-28.6
-30	14	3	-18.4	-11.9
-31	12	3	-43.1	-11.1
-32	5	6	-68.3	-24.1
-33	5	6	-66.3	-32.2
-34	7	9	-76.3	-131.6
-35	12	11	-67.3	-178.8
-36	11	13	-69.8	117.9
-37	9	12	-91.4	54.5
-38	6	11	-167.0	61.4
-39	6	10	-137.5	32.8
-40	3	12	-172.3	32.6
-41	3	13	-179.4	-32.9
-42	5	13	163.2	-70.0
-43	15	15	141.5	-163.3
-44	16	15	114.0	-139.1
-45	16	15	84.9	-172.7
-46	12	15	71.7	156.7
-47	12	15	93.0	122.3

AVERAGE DST VALUE : -16.2

IST 79 10 31

EST	DS1	DS2	ALPHA1	ALPHA2
-10	15	7	49.6	87.4
-11	16	3	76.0	-0.7
-12	19	3	57.5	-32.1
-13	16	4	46.0	-56.5
-14	13	4	24.9	-34.1
-15	16	4	-17.0	-17.0
-16	11	4	-63.7	-72.0
-17	11	11	-68.7	-103.0
-18	0	8	-97.2	-103.0
-19	8	11	-69.8	-160.5
-20	8	8	-73.9	-163.6
-21	14	14	-69.3	150.6
-22	15	15	-77.4	117.7
-23	16	16	-51.9	85.7
-24	11			

IST 79 11 1				
ESI	DS1	DS2	ALPHA1	ALPHA2
-22	16	14	61.5	37.9
-21	15	17	37.8	92.3
-20	24	21	18.4	82.1
-19	27	16	2.2	13.4
-18	21	11	-18.3	-15.6
-17	16	7	-37.9	-31.3
-16	14	4	-49.0	-11.2
-15	11	2	-56.6	-50.7
-14	10	1	-57.0	-86.7
-13	11	6	-79.3	-145.7
-12	9	6	-67.6	-148.4
-11	12	9	-43.2	-152.4
-10	17	15	-33.6	-150.3
-9	17	16	-56.7	103.5
-8	13	16	-103.3	32.0
-7	6	20	-72.1	-7.0
-6	19	7	4.4	-30.6
-5	7	23	41.5	-74.1
-4	6	16	100.0	-110.0
-3	7	28	109.1	-145.4
-2	12	16	39.7	176.3
-1	20	13	79.3	150.4
0	17	17	70.0	137.5

AVERAGE DST VALUE : -15.3

IST 79 11 2				
ESI	DS1	DS2	ALPHA1	ALPHA2
-27	21	20	61.3	113.3
-26	23	21	43.3	77.5
-25	25	24	19.7	55.1
-24	25	22	2.7	28.5
-23	19	21	6.3	4.1
-22	16	23	-3.6	-31.7
-21	10	15	-21.9	-95.0
-20	10	13	-42.0	-122.9
-19	11	10	-17.9	-143.0
-18	9	12	-15.2	176.2
-17	15	12	-18.5	141.1
-16	22	17	-57.7	114.0
-15	16	21	-33.2	83.3
-14	20	15	-49.2	57.3
-13	15	14	-64.9	29.3
-12	13	13	-71.6	-7.5
-11	3	14	-16.7	-22.9
-10	3	14	-16.7	-53.9
-9	4	13	-13.0	-100.7
-8	15	15	148.3	-130.3
-7	12	16	124.0	-163.3
-6	12	16	108.0	-179.3
-5	11	15	90.2	145.0

AVERAGE DST VALUE : -27.7

IST 79 11 3				
ESI	DS1	DS2	ALPHA1	ALPHA2
-15	9	20	31.2	115.4
-14	16	17	48.9	81.3
-13	11	16	16.2	61.9
-12	5	12	-6.4	39.1
-11	9	10	-14.0	2.4
-10	10	11	-10.0	-31.3
-9	10	11	-11.8	-66.2
-8	6	12	-28.2	-93.4
-7	6	15	-32.4	-126.6
-6	6	15	-34.3	-152.6
-5	4	15	-22.1	-175.7
-4	1	1	-143.1	135.3

-19	2	13	8.2	94.7
-15	6	15	-98.5	68.0
-14	9	17	-138.1	45.1
-13	15	14	-131.1	21.8
-12	15	22	-143.4	-1.3
-11	4	19	-2.6	-28.8
-10	4	16	153.3	-54.1
-9	10	21	116.9	-51.7
-8	12	24	95.0	-124.7
-7	22	25	62.3	-145.1
-6	16	20	73.2	177.7
-5	15	16	83.2	146.6

AVERAGE DST VALUE : -16.4

IST 79 11 4				
ESI	DS1	DS2	ALPHA1	ALPHA2
-23	15	19	87.0	111.3
-25	20	20	47.8	75.7
-29	20	22	19.0	42.3
-24	21	24	7.7	20.1
-18	16	24	4.1	-16.0
-16	16	19	-22.7	-45.1
-19	12	7	-47.1	-68.1
-18	19	1	-54.1	-83.2
-17	10	1	-50.5	-128.6
-15	6	13	-47.1	-151.1
-19	10	14	-30.7	-178.3
-25	10	11	-10.3	152.2
-22	10	11	-35.7	115.5
-18	11	14	-58.8	75.3
-14	12	15	-84.0	54.0
-12	12	16	-119.0	24.0
-11	11	17	-115.0	-1.3
-10	10	15	-107.1	-22.3
-12	10	14	-119.5	-48.8
-8	8	12	178.6	63.4
-7	16	16	128.9	-177.0
-6	10	20	109.1	-177.6
-8	15	20	176.3	176.3
-8	15	19	69.6	144.2

AVERAGE DST VALUE : -16.3

IST 79 11 5				
ESI	DS1	DS2	ALPHA1	ALPHA2
-9	18	17	62.3	118.1
-6	14	17	73.7	86.2
-9	14	19	59.2	57.2
-8	12	17	47.5	27.9
-7	7	17	27.4	-0.4
-2	5	11	-21.7	-29.3
-1	7	7	-56.8	-50.1
-2	4	7	-60.0	-82.6
0	10	4	-45.4	-123.4
-1	7	11	-59.2	-154.5
-2	6	11	-56.8	-178.0
-2	12	12	-58.2	155.3
-3	9	10	-30.6	137.5
-4	12	12	-71.0	103.1
-5	15	14	-89.0	71.3
-6	14	15	-106.9	41.5
-7	14	14	-118.0	9.9
-8	11	9	-158.6	-66.4
-9	9	16	-173.1	-99.4
-1	8	16	153.2	-134.1
-1	15	15	152.3	-164.7
-2	15	12	142.7	154.2
-4	10	9	130.5	106.1

AVERAGE DST VALUE : -1.6

IST 79 11 6				
ESI	DS1	DS2	ALPHA1	ALPHA2
-5	17	9	114.3	63.8
-5	17	6	91.6	43.9
-4	14	6	61.4	26.9
0	10	5	34.2	-10.6
7	2	2	-0.4	-29.7
11	10	1	-30.4	-43.4
6	5	1	-49.8	-65.0
7	3	3	-67.5	-100.9
6	4	4	-100.9	-100.9
4	5	5	-33.4	-129.6
5	6	6	-88.4	-162.9
7	7	7	-30.4	171.1
13	13	13	-82.0	136.2
14	14	14	-113.9	23.3
14	14	15	-131.5	27.3
11	15	15	-154.2	-6.8
16	16	16	-175.4	-36.4
12	17	17	166.3	-67.0
12	19	19	150.0	-96.9
12	19	13	130.7	-126.5
12	16	16	126.7	-159.3
11	11	11	129.6	161.7
18	7	7	123.1	94.8

AVERAGE DST VALUE : 4.4

IST 79 11 7				
ESI	DS1	DS2	ALPHA1	ALPHA2
-1	14	6	108.1	51.2
-1	16	7	89.7	35.5
-4	15	2	41.7	-29.3
-5	11	3	26.1	-6.6
-13	13	3	26.1	-26.2
-18	18	2	-12.7	-77.9
-12	12	2	-43.9	-119.6
-10	15	8	-63.2	-170.9
-6	11	9	-70.9	-115.7
-10	11	11	-77.2	-140.7
-14	10	9	-50.1	-157.3
-13	16	1	-33.6	-134.3
-8	14	12	-51.3	164.6
-7	16	13	-55.7	125.4
0	24	13	-72.5	78.1
-3	25	14	-84.4	57.0
-13	26	20	-39.0	3.3
-24	28	24	-89.0	-35.0
-41	14	22	-73.6	-67.3
-36	14	13	-79.9	-106.0
-34	6	21	-179.3	-134.7
-25	8	19	194.9	163.1
-25	14	15	192.3	164.5
-30	14	22	76.8	133.4

AVERAGE DST VALUE : -11.2

IST 79 11 8				
ESI	DS1	DS2	ALPHA1	ALPHA2
-28	15	18	52.6	111.2
-26	16	14	35.9	84.5
-27	14	14	20.8	51.3
-28	21	15	16.6	18.3
-26	21	15	16.6	24.8
-23	21	15	-20.7	-52.9
-23	22	12	-30.7	-64.2
-24	27	11	-46.8	-112.3
-40	24	5	-28.1	-141.9
-30	37	21	-38.5	-150.1
-27	20	21	-47.4	167.5
-27	25	27	-30.3	123.4
-40	24	14	-46.3	151.0
-45	17	12	-72.4	93.5
-40	11	12	-47.4	75.6
-26	11	17	-109.7	26.5
-29	7	17	-131.4	-16.9
-22	7	16	-166.0	-59.4

-17	7	13	-153.6	-83.4
-14	14	14	-132.8	-121.9
-13	15	15	-142.5	-101.9
-15	7	16	-157.2	166.3
-15	6	15	-167.2	180.0
-13	4	17	145.1	116.2

AVERAGE DST VALUE : -29.2

IST 79 11 9				
ESI	DS1	DS2	ALPHA1	ALPHA2
-13	3	22	34.3	97.5
-12	12	25	7.3	76.3
-17	17	25	-6.6	56.9
-18	16	21	-14.4	27.3
-20	16	23	-15.1	-10.9
-22	17	21	-21.9	-86.4
-23	17	16	-27.7	-76.7
-22	16	12	-27.9	-104.4
-18	17	13	-43.4	-133.8
-15	17	15	-69.5	-163.2
-10	16	29	-84.5	168.3
-10	16	17	-88.3	152.2
-7	19	16	-94.5	120.3
-4	26	17	-65.7	92.2
-3	22	23	-46.1	69.3
-43	37	19	-51.3	16.4
-46	33	23	-63.2	1.9
-47	26	17	-57.2	-1.3
-44	16	14	-110.8	-87.7
-29	21	15	-130.0	-102.5
-46	23	15	-174.6	-137.8
-37	19	21	111.1	-173.9
-32	15	19	92.3	172.4
-33	17	23	86.0	146.0

AVERAGE DST VALUE : -25.7

IST 79 11 10				
ESI	DS1	DS2	ALPHA1	ALPHA2
-26	17	23	77.9	111.0
-24	16	21	64.0	75.2
-37	19	25	46.5	46.1
-32	16	29	32.6	16.6
-29	16	36	11.5	-12.9
-26	16	35	-3.9	-48.6
-26	15	24	-24.8	-72.2
-26	15	24	-37.7	-109.3
-25	15	21	-54.8	-139.9
-25	19	23	-67.3	-167.7
-25	16	26	-85.1	163.5
-25	10	11	-116.7	139.4
-27	5	5	-133.3	129.7
-27	7	7	-129.6	110.6
-26	7	7	-86.4	50.0
-24	9	10	-112.0	50.0
-24	13	12	-141.9	5.6
-24	13	17	-175.4	-20.2
-24	16	17	177.3	-50.4
-25	11	17	160.3	-123.8
-25	10	21	129.3	-167.5
-23	12	16	97.4	166.8
-23	12	17	103.1	140.0

AVERAGE DST VALUE : -26.7

IST 79 11 11				
ESI	DS1	DS2	ALPHA1	ALPHA2
-25	17	17	83.8	107.5
-21	29	22	72.5	68.7
-27	25	17	35.5	

33	33	33	33	33
31	31	31	31	31
26	26	26	26	26
23	23	23	23	23
21	21	21	21	21
15	15	15	15	15
11	11	11	11	11
10	10	10	10	10
10	10	10	10	10
15	15	15	15	15
16	16	16	16	16
20	20	20	20	20
21	21	21	21	21
21	21	21	21	21
14	14	14	14	14
14	14	14	14	14
12	12	12	12	12
11	11	11	11	11
13	13	13	13	13
15	15	15	15	15

AVERAGE DST VALUE : -3.0

ISI 79 11 12

EST	DS1	DS2	ALPHA1	ALPHA2
2	15	17	33.0	101.0
15	16	16	70.1	70.1
17	16	15	51.5	38.5
18	22	22	56.0	3.4
18	27	27	41.4	-22.0
19	31	31	15.3	-52.3
20	24	24	-7.3	-81.3
21	24	24	-15.3	-108.1
21	23	23	-17.0	-117.1
22	23	23	-36.0	-169.9
22	21	21	-55.0	-195.3
22	21	21	-69.4	-233.9
20	20	20	-72.3	-106.0
19	19	19	-83.5	-73.5
16	16	16	-83.3	-55.7
16	16	16	-89.7	-28.4
16	16	16	-105.0	-3.5
16	20	20	-157.0	-45.9
16	20	20	-148.4	-83.0
16	22	22	-117.4	-142.3
12	22	22	-110.8	-130.9
12	20	20	-100.3	-156.3
11	24	24	-36.4	-164.0
11	24	24	-75.0	-166.9

AVERAGE DST VALUE : -4.5

ISI 79 11 14

EST	DS1	DS2	ALPHA1	ALPHA2
11	12	12	63.5	114.4
11	19	19	21.4	82.2
11	31	31	10.4	60.1
11	35	35	7.9	15.9
11	35	35	9.6	-4.2
11	31	31	-11.0	-29.2
11	24	24	-11.4	-67.4
11	26	26	-11.6	-60.0
11	30	30	-24.5	-127.4
11	30	30	-11.1	-171.4
11	14	14	-11.2	170.0
11	12	12	-16.4	150.0
11	15	15	-24.5	124.2
11	30	30	-28.5	73.0
11	19	19	-19.8	13.4
11	17	17	-15.6	-2.7
11	16	16	-8.9	-62.5
11	27	27	-9.2	-48.9
11	16	16	2.5	-110.6
11	22	22	4.2	-149.3
11	26	26	34.3	-162.6
11	26	26	45.5	-178.9
11	27	27	54.3	-153.5

AVERAGE DST VALUE : -63.0

ISI 79 11 16

EST	DS1	DS2	ALPHA1	ALPHA2
41	41	41	20.5	124.5
44	41	41	7.0	35.2
40	34	34	17.4	71.7
33	33	33	0.7	34.8
29	29	29	-16.4	-11.6
29	29	29	-15.3	-49.9
29	24	24	-12.2	-71.6
29	24	24	-10.1	-101.2
29	20	20	-9.2	-133.9
29	20	20	-71.5	-159.0
29	17	17	-83.9	-170.5
29	15	15	-114.1	-142.3
29	13	13	-108.3	-111.5
29	13	13	-106.3	-75.3
29	13	13	-140.3	-41.6
29	13	13	-128.1	-2.8
29	15	15	-118.0	-12.0
29	17	17	-118.3	-7.3
29	17	17	-109.3	-41.5
29	19	19	-119.2	-12.0
29	10	10	-140.9	-172.5
29	8	8	-123.5	-169.2
29	6	6	-111.2	-181.6

AVERAGE DST VALUE : -61.6

ISI 79 11 15

EST	DS1	DS2	ALPHA1	ALPHA2
10	16	16	95.8	113.5
15	16	16	66.0	85.7
15	17	17	45.9	56.2
15	17	17	33.3	31.2
11	17	17	26.7	-3.7
11	16	16	12.4	-38.1
11	13	13	1.5	-71.0
11	11	11	-7.1	-102.3
11	12	12	-31.3	-128.0
11	14	14	-49.6	-150.3
11	14	14	-83.9	-171.0
11	14	14	-128.5	-128.9
11	17	17	-151.8	-96.1
11	18	18	-166.7	-68.7
11	16	16	-177.1	-37.7
11	13	13	-172.0	13.3
11	12	12	-167.4	-18.1
11	10	10	-158.1	-38.1
11	11	11	-150.4	-67.0
11	11	11	-155.7	-98.4
11	9	9	-154.6	-133.8
11	7	7	-151.5	-166.6
11	5	5	-155.5	-183.1
11	4	4	-159.9	-199.2

AVERAGE DST VALUE : -25.0

ISI 79 11 10

EST	DS1	DS2	ALPHA1	ALPHA2
7	22	22	61.9	113.7
14	23	23	21.9	89.3
17	25	25	-6.4	62.9
21	26	26	-23.4	32.2
14	9	9	-43.9	35.3
15	9	9	-46.3	9.0
15	20	20	-26.5	-51.1
15	25	25	-31.5	-92.6
15	25	25	-40.5	-133.6
15	17	17	-54.7	-168.0
19	14	14	-70.0	-142.0

15	11	-63.0	151.4
15	11	-48.1	121.6
15	11	-42.0	101.1
15	12	-56.4	131.7
15	12	-65.2	111.3
15	12	-70.0	6.2
15	14	-33.2	-10.0
15	17	27.0	-74.9
15	16	-146.4	-101.9
15	18	-170.1	-134.1
15	24	127.0	-164.1
15	25	94.9	-144.9
15	26	48.0	15.4

AVERAGE DST VALUE : -20.0

ISI 79 11 17

EST	DS1	DS2	ALPHA1	ALPHA2
22	9	22	9.2	105.2
17	22	22	18.4	45.3
17	23	23	-5.6	83.2
17	23	23	-16.7	31.9
17	26	26	-26.2	-4.9
17	14	14	-28.5	-29.9
17	24	24	-29.5	-49.2
17	26	26	-41.0	-117.1
17	26	26	-48.1	-150.2
17	16	16	-35.0	-170.9
17	16	16	-68.9	-161.0
17	12	12	-92.5	-130.5
17	17	17	-130.7	-105.5
17	16	16	-150.0	-73.9
17	15	15	-166.7	-43.2
17	16	16	-174.3	-4.2
17	17	17	-176.9	-26.6
17	15	15	-182.5	-63.0
17	26	26	-173.8	-145.1
17	23	23	-116.8	-173.0
17	24	24	-88.3	-171.0
17	24	24	-77.9	-161.6

AVERAGE DST VALUE : -13.2

ISI 79 11 18

EST	DS1	DS2	ALPHA1	ALPHA2
4	9	25	75.5	116.0
10	15	17	50.1	86.3
15	17	17	20.1	41.9
18	17	17	6.8	33.1
18	14	14	1.8	-5.3
18	13	13	-10.0	-49.1
18	13	13	-21.0	-80.9
18	19	19	-29.7	-114.5
18	24	24	-40.4	-145.8
18	21	21	-51.7	-170.3
18	18	18	-59.0	-184.6
18	18	18	-49.0	-193.3
18	14	14	-82.2	-116.3
18	15	15	-103.6	-82.3
18	15	15	-111.4	-55.3
18	13	13	-113.0	-37.3
18	12	12	-139.5	1.6
18	15	15	-177.5	-31.2
18	8	8	-159.6	-70.4
18	17	17	-155.7	-103.3
18	9	9	-174.9	-145.3
18	16	16	-170.9	-177.3
18	16	16	-128.7	-162.7
18	16	16	-104.7	-141.5

AVERAGE DST VALUE : -1.1

ISI 79 11 19

EST	DS1	DS2	ALPHA1	ALPHA2
3	15	15	73.5	116.8
11	15	15	47.7	71.8
15	21	21	18.1	65.9
16	21	21	4.7	41.2
16	18	18	3.6	0.6
16	17	17	0.9	-36.6
16	15	15	-3.9	-71.4
16	11	11	-9.8	-98.1
16	4	4	-20.1	-112.5
16	3	3	-30.1	-134.1
16	3	3	-42.2	-154.9
16	6	6	-56.7	-181.3
16	11	11	-72.3	-154.3
16	13	13	-86.7	-124.2
16	13	13	-128.1	-81.4
16	16	16	-117.9	-20.5
16	13	13	-118.6	0.0
16	13	13	-140.5	-25.9
16	14	14	-162.2	-55.4
16	16	16	-167.7	-91.6
16	15	15	-172.3	-132.6
16	23	23	-99.3	-162.3
16	24	24	-36.1	-182.0

AVERAGE DST VALUE : -3.1

ISI 79 11 20

EST	DS1	DS2	ALPHA1	ALPHA2
4	5	24	47.6	110.3
10	25	25	21.8	84.6
15	25	25	11.3	64.6
15	25	25	-11.3	32.3
15	25	25	-35.4	-2.3
15	15	15	-16.3	-52.4
15	15	15	-34.9	-77.2
15	11	11	-35.0	-127.4
15	11	11	-35.2	-150.2
15	14	14	-47.1	-162.7
15	16	16	-30.6	-151.3
15	21	21	-55.7	-110.1
15	21	21	-80.6	-70.0
15	16	16	-82.2	-41.3
15	20	20	-88.0	-14.6
15	15	15	-92.6	-3.6
15	11	11	-137.4	-28.6
15	12	12	-168.4	-101.2
15	17	17	-178.2	-136.2
15	9	9	-149.3	-153.5
15	8	8	-108.5	-156.4
15	23	23	-65.9	-131.4

AVERAGE DST VALUE : -5.1

ISI 79 11 21

EST	DS1	DS2	ALPHA1	ALPHA2
0	9	26	7.3	105.5
13	23	23	-1.3	111.5
22	36	36	5.1	82.5
24	29	29	-1.1	20.2
26	33	33	-4.4	-18.0
30	37	37	-16.4	-51.7
30	34	34	-29.4	-83.7
22	25	25	-33.0	-116.3
17	16	16	-35.3	-141.5
17	16	16	-51.0	-169.3
16	15	15	-57.2	-187.8
16	15	15		



-12	9	15	-160.0	-36.6	69.9
-14	11	14	170.4	-13.3	149.6
-13	10	14	191.1	-13.3	149.6
-12	11	16	127.8	-10.1	175.5
-10	11	19	97.7	-17.5	149.6
-7	11	23	69.9	-14.9	149.6

AVERAGE DST VALUE : -10.6

EST 79 11 22

EST	DS1	DS2	ALPHA1	ALPHA2
-4	5	25	41.0	120.3
-5	11	26	178.9	93.0
-6	14	24	21.7	66.3
-6	15	26	18.7	-3.7
-6	15	26	17.0	-3.7
-7	17	27	19.7	-33.7
-7	19	29	5.6	-73.7
-8	19	27	-11.9	-107.4
-8	19	27	-22.1	-137.3
-9	19	27	-40.0	-165.1
-9	12	15	-56.4	162.0
-9	13	15	-75.4	132.4
-9	14	23	-101.9	103.4
-9	17	17	-120.3	76.3
-9	18	16	-163.1	40.6
-9	18	18	-165.7	14.1
-9	18	18	-178.4	-27.3
-9	11	15	-155.5	-34.0
-9	13	15	164.7	-47.1
-9	15	17	155.5	-47.1
-9	15	17	180.8	-117.1
-9	16	16	118.7	-147.2
-9	16	17	102.5	-174.3
-9	15	16	52.7	154.6

AVERAGE DST VALUE : 70.0

EST 79 11 23

EST	DS1	DS2	ALPHA1	ALPHA2
-9	15	15	66.4	128.5
-9	15	21	51.3	78.1
-9	15	21	42.1	63.3
-9	16	21	44.7	32.5
-9	16	20	39.6	-4.4
-9	16	20	25.5	-32.2
-9	16	21	8.8	-66.0
-9	15	21	4.7	-66.4
-9	15	17	2.2	-123.4
-9	15	17	-31.5	-167.7
-9	20	20	-74.3	131.3
-9	21	24	-112.3	96.7
-9	16	24	-132.0	36.2
-9	16	23	-130.2	36.1
-9	11	20	-170.0	-6.3
-9	16	18	148.2	-54.3
-9	11	16	127.8	-144.0
-9	11	20	122.4	-110.3
-9	12	21	112.3	-134.5
-9	17	20	151.3	-154.2
-9	17	20	71.5	-178.3
-9	20	20	44.0	150.3

AVERAGE DST VALUE : -3.7

EST 79 11 24

EST	DS1	DS2	ALPHA1	ALPHA2
-12	20	32	22.9	128.7
-12	20	30	12.5	230.2
-17	20	31	5.3	63.4
-17	20	31	-4.4	21.4

30	37	-9.6	-12.6
34	36	-23.5	-44.0
35	36	-31.7	-74.0
40	36	-31.7	-106.0
41	36	-32.7	-140.8
42	36	-32.7	-169.4
43	36	-30.4	-187.9
44	36	-30.4	-187.9
45	36	-23.3	124.5
46	36	-23.3	63.2
47	36	-33.0	63.2
48	36	-54.3	63.2
49	36	-103.0	20.5
50	36	-135.5	-16.5
51	36	39.6	-43.9
52	36	3.9	-60.6
53	36	78.7	-113.6
54	36	182.0	-157.2
55	36	68.5	-178.7
56	36	32.8	150.2

AVERAGE DST VALUE : -37.9

EST 79 11 25

EST	DS1	DS2	ALPHA1	ALPHA2
-4	32	32	17.0	115.0
-4	34	34	16.3	76.2
-4	41	41	9.2	24.7
-4	43	43	3.0	17.6
-4	45	45	-1.2	-21.0
-4	45	45	-16.7	-47.6
-4	45	45	-25.6	-60.1
-4	30	31	-41.7	-111.3
-4	30	31	-46.1	-144.7
-4	16	31	-62.0	-173.9
-4	14	27	-76.2	162.3
-4	14	27	-94.5	131.2
-4	15	24	-113.5	106.9
-4	14	25	-118.0	73.5
-4	13	17	-129.0	41.7
-4	13	17	-152.9	11.7
-4	11	15	-152.2	-16.7
-4	11	15	-166.0	-43.6
-4	12	15	-170.0	-70.1
-4	12	15	-153.5	-113.1
-4	12	15	-157.7	-147.1
-4	12	15	-157.7	-175.9
-4	10	31	62.8	157.1

AVERAGE DST VALUE : -36.3

EST 79 11 26

EST	DS1	DS2	ALPHA1	ALPHA2
-14	18	31	30.2	125.0
-14	19	31	24.1	73.5
-14	19	33	12.9	6.4
-14	19	33	18.0	-28.3
-14	19	32	18.0	-28.3
-14	19	32	11.7	-48.7
-14	19	30	1.7	-75.7
-14	20	30	-11.4	-103.1
-14	20	30	-23.5	-141.3
-14	10	32	-42.5	-170.7
-14	10	31	-65.7	-195.1
-14	14	22	-113.0	107.5
-14	14	22	-134.5	68.1
-14	14	17	-152.7	33.3
-14	14	17	147.3	-26.5
-14	14	17	187.2	-51.1
-14	15	21	157.2	-74.2
-14	15	21	107.4	-107.9
-14	16	20	105.4	-147.7
-14	20	20	34.7	172.0

EST 20 27 60.1 154.4  
AVERAGE DST VALUE : -9.6

EST 79 11 27

EST	DS1	DS2	ALPHA1	ALPHA2
-13	22	24	48.1	127.2
-13	22	24	36.1	87.1
-13	24	24	24.8	28.4
-13	15	22	34.8	-10.2
-13	14	22	31.0	-10.2
-13	11	15	28.0	-26.2
-13	10	15	36.5	-53.9
-13	12	16	22.2	-47.6
-13	13	23	6.0	-132.1
-12	13	23	-19.6	-161.5
-12	15	19	-42.5	102.1
-12	15	20	-66.0	133.1
-12	15	20	-95.9	102.1
-12	11	23	-101.7	65.0
-12	10	15	-117.6	35.8
-12	10	15	-166.0	-1.8
-12	10	15	-166.0	-31.0
-12	11	15	136.6	-73.5
-12	13	21	147.5	-95.3
-12	15	19	139.5	-154.1
-12	16	18	99.4	178.8
-12	16	21	78.3	151.7

AVERAGE DST VALUE : -9.7

EST 79 11 28

EST	DS1	DS2	ALPHA1	ALPHA2
-4	13	24	52.1	125.6
-4	13	24	36.9	44.3
-4	14	24	27.8	57.0
-4	14	24	33.7	23.4
-4	16	24	33.0	-6.8
-4	16	24	40.1	-32.2
-4	15	27	31.3	-70.3
-4	15	27	23.1	-104.9
-4	15	25	-6.1	-133.0
-4	25	25	-31.9	-171.1
-4	15	27	-46.7	151.8
-4	15	27	-63.2	135.9
-4	15	16	-90.2	155.9
-4	15	16	-98.8	48.8
-4	13	16	-125.7	30.8
-4	12	17	-143.3	10.3
-4	12	15	-179.4	-17.5
-4	10	16	173.7	-43.3
-4	10	15	109.5	-71.1
-4	12	17	99.6	-76.7
-4	10	17	146.8	-117.3
-4	19	20	115.0	-133.3
-4	19	25	57.2	-153.5
-4	10	25	63.2	160.2

AVERAGE DST VALUE : -0.5

EST 79 11 29

EST	DS1	DS2	ALPHA1	ALPHA2
-9	15	30	37.3	100.9
-9	15	33	19.1	130.1
-9	17	27	10.6	71.6
-9	17	27	18.9	36.2
-9	14	30	10.2	-1.0
-9	15	30	1.0	-31.3
-9	15	30	3.5	-61.3
-9	11	27	3.9	-103.0
-9	17	27	-1.0	-137.3
-9	20	20	-22.3	-165.5

9	11	13	60.1	154.4
10	12	14	170.4	149.6
10	12	14	191.1	149.6
10	12	16	127.8	175.5
10	12	19	97.7	149.6
10	12	23	69.9	149.6

AVERAGE DST VALUE : 11.7

EST 79 11 30

EST	DS1	DS2	ALPHA1	ALPHA2
18	16	32	22.0	115.6
18	16	32	4.8	54.2
18	21	31	-3.9	42.0
18	21	31	-4.0	26.2
18	21	31	-12.6	-51.6
18	21	31	-26.4	-123.2
18	21	31	-32.7	-143.3
18	41	17	-37.6	-160.0
18	16	16	-60.5	165.0
18	16	20	-60.6	123.5
18	24	24	-90.8	161.1
18	16	16	-97.7	75.3
18	17	17	-117.3	48.0
18	17	17	-118.7	19.3
18	13	13	-100.8	-8.5
18	12	12	-118.7	-40.7
18	12	12	-135.6	-75.2
18	12	12	-151.1	-109.5
18	17	17	-176.1	-144.2
18	20	20	-126.4	-167.3
18	17	15	71.2	173.1
18	15	31	31.1	152.5

AVERAGE DST VALUE : 13.2

END OF THIS FILE

EST	DS1	DS2	ALPHA1	ALPHA2
10	24	43.9	105.6	
11	25	36.1	92.0	
11	24	27.3	60.6	
11	24	16.3	35.2	
11	24	1.7	11.3	
12	25	7.5	25.7	
12	25	7.3	19.8	
12	25	1.3	1.3	
12	25	-13.7	-17.2	
12	25	-44.3	-154.7	
12	25	-64.3	-124.3	
12	25	-66.7	-88.7	
12	25	-63.2	57.2	
12	25	-57.5	31.3	
12	25	-78.2	3.4	
12	25	121.7	-28.3	
12	25	73.5	-52.6	
12	25	97.4	-17.0	
12	25	60.6	145.3	
12	25	42.2	120.9	
12	25	42.2	120.9	

AVERAGE DST VALUE : -3.5

EST	DS1	DS2	ALPHA1	ALPHA2
1	21	-2.3	31.9	
1	21	43.7	57.2	
1	21	30.3	39.7	
1	21	16.5	27.4	
1	21	13.0	66.1	
1	21	-17.1	-100.0	
1	21	-20.6	-135.2	
1	21	-42.2	-169.3	
1	21	-37.3	-162.6	
1	21	-55.0	-129.7	
1	21	-39.3	97.0	
1	21	-77.2	63.3	
1	21	-118.8	34.1	
1	21	-152.4	7.1	
1	21	-172.2	-47.9	
1	21	-160.7	-64.3	
1	21	-155.3	-103.5	
1	21	-119.5	-140.9	
1	21	-105.4	-178.3	
1	21	-25.4	-150.7	
1	21	-0.1	123.0	

AVERAGE DST VALUE : -6.6

EST	DS1	DS2	ALPHA1	ALPHA2
2	28	-13.0	57.0	
2	28	-2.8	78.7	
2	28	-8.9	57.2	
2	28	-13.2	30.2	
2	28	-19.0	2.8	
2	28	-23.5	-30.8	
2	28	-23.0	-68.5	
2	28	-21.2	-97.2	
2	28	-10.5	-125.0	
2	28	16.3	-143.3	
2	28	11.0	-175.2	
2	28	7	140.1	

AVERAGE DST VALUE : -1.2

EST	DS1	DS2	ALPHA1	ALPHA2
11	21	-109.5	97.3	
11	21	-101.2	73.2	
11	21	-107.0	23.6	
11	21	-166.6	-3.3	
11	21	-165.0	-17.5	
11	21	-174.7	-47.0	
11	21	-133.3	-73.3	
11	21	-105.5	-105.5	
11	21	-123.2	-140.3	
11	21	-111.1	-174.3	
11	21	-115.8	-154.7	
11	21	16.0	123.7	

AVERAGE DST VALUE : -13.1

EST	DS1	DS2	ALPHA1	ALPHA2
5	26	2.4	103.5	
5	26	2.3	44.4	
5	26	0.3	63.2	
5	26	-7.2	34.3	
5	26	-8.3	7.3	
5	26	-8.0	-37.1	
5	26	-5.3	-77.5	
5	26	0.2	-104.2	
5	26	-6.7	-123.4	
5	26	-13.7	-156.7	
5	26	-10.5	-175.7	
5	26	-33.2	-133.3	
5	26	-37.4	-101.4	
5	26	-38.4	-69.3	
5	26	-44.2	-30.9	
5	26	-51.8	-12.5	
5	26	-55.8	-11.9	
5	26	-34.0	-71.2	
5	26	-103.0	-116.3	
5	26	-11.7	-153.3	
5	26	-33.3	-168.5	
5	26	-26.2	-141.3	
5	26	-44.0	-116.7	

AVERAGE DST VALUE : -34.0

EST	DS1	DS2	ALPHA1	ALPHA2
3	26	-40.3	96.0	
3	26	11.7	75.1	
3	26	-7.8	52.9	
3	26	-11.4	24.5	
3	26	-11.7	-1.0	
3	26	-24.2	-30.3	
3	26	-26.7	-70.0	
3	26	-10.8	-90.3	
3	26	-18.0	-113.1	
3	26	-14.8	-151.1	
3	26	-24.3	-169.3	
3	26	-22.6	-128.1	
3	26	-55.8	82.9	
3	26	-49.5	51.3	
3	26	-76.8	30.4	
3	26	-97.6	0.0	
3	26	-108.0	-21.3	
3	26	-157.3	-61.0	
3	26	-176.5	-105.0	
3	26	146.0	-148.3	
3	26	135.2	-172.2	
3	26	116.1	-133.5	
3	26	121.3	101.1	

AVERAGE DST VALUE : -25.7

EST	DS1	DS2	ALPHA1	ALPHA2
11	21	-109.5	97.3	
11	21	-101.2	73.2	
11	21	-107.0	23.6	
11	21	-166.6	-3.3	
11	21	-165.0	-17.5	
11	21	-174.7	-47.0	
11	21	-133.3	-73.3	
11	21	-105.5	-105.5	
11	21	-123.2	-140.3	
11	21	-111.1	-174.3	
11	21	-115.8	-154.7	
11	21	16.0	123.7	

AVERAGE DST VALUE : -13.1

EST	DS1	DS2	ALPHA1	ALPHA2
10	21	114.5	86.7	
10	21	72.4	30.6	
10	21	34.0	31.1	
10	21	15.6	2.9	
10	21	2.7	-15.0	
10	21	-6.0	-47.2	
10	21	-14.6	-82.7	
10	21	-12.6	-112.9	
10	21	-47.3	-137.7	
10	21	-65.2	-160.4	
10	21	-54.1	-146.2	
10	21	-71.7	-125.4	
10	21	-53.6	57.4	
10	21	-133.4	31.4	
10	21	-145.6	-1.2	
10	21	-163.9	-26.8	
10	21	163.0	-65.4	
10	21	159.8	-154.1	
10	21	110.6	-164.1	
10	21	107.2	-153.3	
10	21	111.0	116.0	

AVERAGE DST VALUE : -9.3

EST	DS1	DS2	ALPHA1	ALPHA2
12	16	96.7	87.9	
12	16	75.1	68.0	
12	16	63.1	42.5	
12	16	45.1	11.2	
12	16	26.1	-13.3	
12	16	13.4	-43.3	
12	16	11.5	-78.4	
12	16	-32.4	-113.1	
12	16	-45.0	-143.3	
12	16	-69.8	-177.5	
12	16	-96.6	-168.0	
12	16	-96.6	143.5	
12	16	-96.7	125.1	
12	16	-122.4	90.4	
12	16	-132.0	50.4	
12	16	-143.7	22.4	
12	16	-148.7	-8.2	
12	16	-160.5	-41.4	
12	16	-163.3	-80.1	
12	16	-146.6	-115.3	
12	16	-135.2	-154.2	
12	16	-162.1	-177.9	
12	16	113.6	114.7	

AVERAGE DST VALUE : 4.0

EST	DS1	DS2	ALPHA1	ALPHA2
16	22	64.0	87.2	
16	22	65.4	55.1	
16	22	55.1	33.5	
16	22	22.0	10.4	
16	22	-8.4	-13.0	
16	22	-20.7	-48.0	
16	22	-26.5	-85.9	
16	22	-24.6	-114.0	
16	22	-60.5	-141.2	
16	22	-66.0	-161.3	
16	22	-80.1	-167.2	
16	22	-31.3	143.7	
16	22	-58.0	103.0	
16	22	-39.0	72.7	
16	22	-37.5	53.9	
16	22	-64.0	27.0	
16	22	-33.0	4.7	
16	22	-110.0	-22.9	

AVERAGE DST VALUE : 1.2

EST	DS1	DS2	ALPHA1	ALPHA2
10	21	-109.5	97.3	
10	21	-101.2	73.2	
10	21	-107.0	23.6	
10	21	-166.6	-3.3	
10	21	-165.0	-17.5	
10	21	-174.7	-47.0	
10	21	-133.3	-73.3	
10	21	-105.5	-105.5	
10	21	-123.2	-140.3	
10	21	-111.1	-174.3	
10	21	-115.8	-154.7	
10	21	16.0	123.7	

AVERAGE DST VALUE : 0.6

EST	DS1	DS2	ALPHA1	ALPHA2
10	25	73.7	102.3	
10	25	66.4	78.0	
10	25	50.5	50.3	
10	25	46.1	14.7	
10	25	32.0	-21.9	
10	25	16.4	-53.1	
10	25	9.4	-93.6	
10	25	-36.3	-120.1	
10	25	-53.3	-173.1	
10	25	-61.3	-183.1	
10	25	-94.0	-162.2	
10	25	-104.4	-131.1	
10	25	-119.1	-100.2	
10	25	-133.2	-73.2	
10	25	-146.5	-46.4	
10	25	-145.5	-20.0	
10	25	-164.0	-13.3	
10	25	-174.3	-35.6	
10	25	-136.2	-75.4	
10	25	-126.4	-111.1	
10	25	-112.0	-145.9	
10	25	-101.3	-185.3	
10	25	76.5	-143.0	
10	25	96.0	143.0	

AVERAGE DST VALUE : -3.5

EST	DS1	DS2	ALPHA1	ALPHA2
17	21	66.2	110.6	
17	21	62.1	82.7	
17	21	54.8	51.7	
17	21	41.4	22.0	
17	21	34.2	-7.0	
17	21	14.9	-47.0	
17	21	0.2	-60.8	
17	21	-10.3	-113.4	
17	21	-52.8	-141.6	
17	21	-69.8	-163.3	
17	21	-89.7	-153.9	
17	21	-102.7	-130.9	
17	21	-114.8	-102.4	
17	21	-124.2	-64.7	
17	21	-124.1	36.0	
17	21	-131.6	11.2	
17	21	-142.0	-15.7	
17	21	-153.0	-47.4	
17	21	-173.6	-103.7	
17	21	-130.5	-137.3	
17	21	-148.0	-179.7	
17	21	35.7	147.2	
17	21	35.1	124.4	

AVERAGE DST VALUE : 1.2

EST	DS1	DS2	ALPHA1	ALPHA2
9	22	60.9	106.3	
9	22	33.3	34.9	
9	22	6.5	11.4	
9	22	-3.6	0.6	

AVERAGE DST VALUE : 1.2



-17 1 20 -117.5 -43.3  
 -16 1 21 -142.0 -120.3  
 -15 1 22 -147.6 -116.2  
 -14 1 23 -70.7 -116.3  
 -13 1 24 -137.5 -111.1  
 1 25 -11.5 -120.8  
 2 26 -3.3

AVERAGE DST VALUE : -11.1

LSI 79 12 24

EST	DS1	DS2	ALPHA1	ALPHA2
-10	6	29	85.3	85.3
-7	6	29	50.1	50.1
-5	15	16	11.1	11.1
-4	4	4	12.9	12.9
1	20	20	-4.9	-4.9
2	15	15	-4.9	-4.9
3	29	29	-11.5	-11.5
4	29	29	-23.6	-23.6
5	29	29	-37.0	-37.0
6	29	29	-39.5	-39.5
7	29	29	-42.7	-42.7
8	29	29	-46.0	-46.0
9	29	29	-49.3	-49.3
10	29	29	-52.6	-52.6
11	29	29	-55.9	-55.9
12	29	29	-59.2	-59.2
13	29	29	-62.5	-62.5
14	29	29	-65.8	-65.8
15	29	29	-69.1	-69.1
16	29	29	-72.4	-72.4
17	29	29	-75.7	-75.7
18	29	29	-79.0	-79.0
19	29	29	-82.3	-82.3
20	29	29	-85.6	-85.6
21	29	29	-88.9	-88.9
22	29	29	-92.2	-92.2
23	29	29	-95.5	-95.5
24	29	29	-98.8	-98.8
25	29	29	-102.1	-102.1
26	29	29	-105.4	-105.4
27	29	29	-108.7	-108.7
28	29	29	-112.0	-112.0
29	29	29	-115.3	-115.3
30	29	29	-118.6	-118.6
31	29	29	-121.9	-121.9
32	29	29	-125.2	-125.2
33	29	29	-128.5	-128.5
34	29	29	-131.8	-131.8
35	29	29	-135.1	-135.1
36	29	29	-138.4	-138.4
37	29	29	-141.7	-141.7
38	29	29	-145.0	-145.0
39	29	29	-148.3	-148.3
40	29	29	-151.6	-151.6
41	29	29	-154.9	-154.9
42	29	29	-158.2	-158.2
43	29	29	-161.5	-161.5
44	29	29	-164.8	-164.8
45	29	29	-168.1	-168.1
46	29	29	-171.4	-171.4
47	29	29	-174.7	-174.7
48	29	29	-178.0	-178.0
49	29	29	-181.3	-181.3
50	29	29	-184.6	-184.6

AVERAGE DST VALUE : -2.6

LSI 79 12 23

EST	DS1	DS2	ALPHA1	ALPHA2
-2	6	27	19.5	19.5
1	27	27	21.3	21.3
2	27	27	22.2	22.2
3	27	27	23.1	23.1
4	27	27	24.0	24.0
5	27	27	24.9	24.9
6	27	27	25.8	25.8
7	27	27	26.7	26.7
8	27	27	27.6	27.6
9	27	27	28.5	28.5
10	27	27	29.4	29.4
11	27	27	30.3	30.3
12	27	27	31.2	31.2
13	27	27	32.1	32.1
14	27	27	33.0	33.0
15	27	27	33.9	33.9
16	27	27	34.8	34.8
17	27	27	35.7	35.7
18	27	27	36.6	36.6
19	27	27	37.5	37.5
20	27	27	38.4	38.4
21	27	27	39.3	39.3
22	27	27	40.2	40.2
23	27	27	41.1	41.1
24	27	27	42.0	42.0
25	27	27	42.9	42.9
26	27	27	43.8	43.8
27	27	27	44.7	44.7
28	27	27	45.6	45.6
29	27	27	46.5	46.5
30	27	27	47.4	47.4
31	27	27	48.3	48.3
32	27	27	49.2	49.2
33	27	27	50.1	50.1
34	27	27	51.0	51.0
35	27	27	51.9	51.9
36	27	27	52.8	52.8
37	27	27	53.7	53.7
38	27	27	54.6	54.6
39	27	27	55.5	55.5
40	27	27	56.4	56.4
41	27	27	57.3	57.3
42	27	27	58.2	58.2
43	27	27	59.1	59.1
44	27	27	60.0	60.0
45	27	27	60.9	60.9
46	27	27	61.8	61.8
47	27	27	62.7	62.7
48	27	27	63.6	63.6
49	27	27	64.5	64.5
50	27	27	65.4	65.4

AVERAGE DST VALUE : 0.9

LSI 79 12 24

EST	DS1	DS2	ALPHA1	ALPHA2
1	0	22	49.5	94.2
-4	6	22	39.3	57.4
-2	6	22	31.7	33.3
-3	8	19	51.7	7.2

-2 1 18 32.0 -15.1  
 1 19 33.3 -21.4  
 1 20 34.5 -27.7  
 1 21 35.7 -34.0  
 1 22 36.9 -40.3  
 1 23 38.1 -46.6  
 1 24 39.3 -52.9  
 1 25 40.5 -59.2  
 1 26 41.7 -65.5  
 1 27 42.9 -71.8  
 1 28 44.1 -78.1  
 1 29 45.3 -84.4  
 1 30 46.5 -90.7  
 1 31 47.7 -97.0  
 1 32 48.9 -103.3  
 1 33 50.1 -109.6  
 1 34 51.3 -115.9  
 1 35 52.5 -122.2  
 1 36 53.7 -128.5  
 1 37 54.9 -134.8  
 1 38 56.1 -141.1  
 1 39 57.3 -147.4  
 1 40 58.5 -153.7  
 1 41 59.7 -160.0  
 1 42 60.9 -166.3  
 1 43 62.1 -172.6  
 1 44 63.3 -178.9  
 1 45 64.5 -185.2  
 1 46 65.7 -191.5  
 1 47 66.9 -197.8  
 1 48 68.1 -204.1  
 1 49 69.3 -210.4  
 1 50 70.5 -216.7  
 1 51 71.7 -223.0  
 1 52 72.9 -229.3  
 1 53 74.1 -235.6  
 1 54 75.3 -241.9  
 1 55 76.5 -248.2  
 1 56 77.7 -254.5  
 1 57 78.9 -260.8  
 1 58 80.1 -267.1  
 1 59 81.3 -273.4  
 1 60 82.5 -279.7  
 1 61 83.7 -286.0  
 1 62 84.9 -292.3  
 1 63 86.1 -298.6  
 1 64 87.3 -304.9  
 1 65 88.5 -311.2  
 1 66 89.7 -317.5  
 1 67 90.9 -323.8  
 1 68 92.1 -330.1  
 1 69 93.3 -336.4  
 1 70 94.5 -342.7  
 1 71 95.7 -349.0  
 1 72 96.9 -355.3  
 1 73 98.1 -361.6  
 1 74 99.3 -367.9  
 1 75 100.5 -374.2  
 1 76 101.7 -380.5  
 1 77 102.9 -386.8  
 1 78 104.1 -393.1  
 1 79 105.3 -399.4  
 1 80 106.5 -405.7  
 1 81 107.7 -412.0  
 1 82 108.9 -418.3  
 1 83 110.1 -424.6  
 1 84 111.3 -430.9  
 1 85 112.5 -437.2  
 1 86 113.7 -443.5  
 1 87 114.9 -449.8  
 1 88 116.1 -456.1  
 1 89 117.3 -462.4  
 1 90 118.5 -468.7  
 1 91 119.7 -475.0  
 1 92 120.9 -481.3  
 1 93 122.1 -487.6  
 1 94 123.3 -493.9  
 1 95 124.5 -500.2  
 1 96 125.7 -506.5  
 1 97 126.9 -512.8  
 1 98 128.1 -519.1  
 1 99 129.3 -525.4  
 1 100 130.5 -531.7  
 1 101 131.7 -538.0  
 1 102 132.9 -544.3  
 1 103 134.1 -550.6  
 1 104 135.3 -556.9  
 1 105 136.5 -563.2  
 1 106 137.7 -569.5  
 1 107 138.9 -575.8  
 1 108 140.1 -582.1  
 1 109 141.3 -588.4  
 1 110 142.5 -594.7  
 1 111 143.7 -601.0  
 1 112 144.9 -607.3  
 1 113 146.1 -613.6  
 1 114 147.3 -619.9  
 1 115 148.5 -626.2  
 1 116 149.7 -632.5  
 1 117 150.9 -638.8  
 1 118 152.1 -645.1  
 1 119 153.3 -651.4  
 1 120 154.5 -657.7  
 1 121 155.7 -664.0  
 1 122 156.9 -670.3  
 1 123 158.1 -676.6  
 1 124 159.3 -682.9  
 1 125 160.5 -689.2  
 1 126 161.7 -695.5  
 1 127 162.9 -701.8  
 1 128 164.1 -708.1  
 1 129 165.3 -714.4  
 1 130 166.5 -720.7  
 1 131 167.7 -727.0  
 1 132 168.9 -733.3  
 1 133 170.1 -739.6  
 1 134 171.3 -745.9  
 1 135 172.5 -752.2  
 1 136 173.7 -758.5  
 1 137 174.9 -764.8  
 1 138 176.1 -771.1  
 1 139 177.3 -777.4  
 1 140 178.5 -783.7  
 1 141 179.7 -790.0  
 1 142 180.9 -796.3  
 1 143 182.1 -802.6  
 1 144 183.3 -808.9  
 1 145 184.5 -815.2  
 1 146 185.7 -821.5  
 1 147 186.9 -827.8  
 1 148 188.1 -834.1  
 1 149 189.3 -840.4  
 1 150 190.5 -846.7  
 1 151 191.7 -853.0  
 1 152 192.9 -859.3  
 1 153 194.1 -865.6  
 1 154 195.3 -871.9  
 1 155 196.5 -878.2  
 1 156 197.7 -884.5  
 1 157 198.9 -890.8  
 1 158 200.1 -897.1  
 1 159 201.3 -903.4  
 1 160 202.5 -909.7  
 1 161 203.7 -916.0  
 1 162 204.9 -922.3  
 1 163 206.1 -928.6  
 1 164 207.3 -934.9  
 1 165 208.5 -941.2  
 1 166 209.7 -947.5  
 1 167 210.9 -953.8  
 1 168 212.1 -960.1  
 1 169 213.3 -966.4  
 1 170 214.5 -972.7  
 1 171 215.7 -979.0  
 1 172 216.9 -985.3  
 1 173 218.1 -991.6  
 1 174 219.3 -997.9  
 1 175 220.5 -1004.2  
 1 176 221.7 -1010.5  
 1 177 222.9 -1016.8  
 1 178 224.1 -1023.1  
 1 179 225.3 -1029.4  
 1 180 226.5 -1035.7  
 1 181 227.7 -1042.0  
 1 182 228.9 -1048.3  
 1 183 230.1 -1054.6  
 1 184 231.3 -1060.9  
 1 185 232.5 -1067.2  
 1 186 233.7 -1073.5  
 1 187 234.9 -1079.8  
 1 188 236.1 -1086.1  
 1 189 237.3 -1092.4  
 1 190 238.5 -1098.7  
 1 191 239.7 -1105.0  
 1 192 240.9 -1111.3  
 1 193 242.1 -1117.6  
 1 194 243.3 -1123.9  
 1 195 244.5 -1130.2  
 1 196 245.7 -1136.5  
 1 197 246.9 -1142.8  
 1 198 248.1 -1149.1  
 1 199 249.3 -1155.4  
 1 200 250.5 -1161.7  
 1 201 251.7 -1168.0  
 1 202 252.9 -1174.3  
 1 203 254.1 -1180.6  
 1 204 255.3 -1186.9  
 1 205 256.5 -1193.2  
 1 206 257.7 -1199.5  
 1 207 258.9 -1205.8  
 1 208 260.1 -1212.1  
 1 209 261.3 -1218.4  
 1 210 262.5 -1224.7  
 1 211 263.7 -1231.0  
 1 212 264.9 -1237.3  
 1 213 266.1 -1243.6  
 1 214 267.3 -1249.9  
 1 215 268.5 -1256.2  
 1 216 269.7 -1262.5  
 1 217 270.9 -1268.8  
 1 218 272.1 -1275.1  
 1 219 273.3 -1281.4  
 1 220 274.5 -1287.7  
 1 221 275.7 -1294.0  
 1 222 276.9 -1300.3  
 1 223 278.1 -1306.6  
 1 224 279.3 -1312.9  
 1 225 280.5 -1319.2  
 1 226 281.7 -1325.5  
 1 227 282.9 -1331.8  
 1 228 284.1 -1338.1  
 1 229 285.3 -1344.4  
 1 230 286.5 -1350.7  
 1 231 287.7 -1357.0  
 1 232 288.9 -1363.3  
 1 233 290.1 -1369.6  
 1 234 291.3 -1375.9  
 1 235 292.5 -1382.2  
 1 236 293.7 -1388.5  
 1 237 294.9 -1394.8  
 1 238 296.1 -1401.1  
 1 239 297.3 -1407.4  
 1 240 298.5 -1413.7  
 1 241 299.7 -1420.0  
 1 242 300.9 -1426.3  
 1 243 302.1 -1432.6  
 1 244 303.3 -1438.9  
 1 245 304.5 -1445.2  
 1 246 305.7 -1451.5  
 1 247 306.9 -1457.8  
 1 248 308.1 -1464.1  
 1 249 309.3 -1470.4  
 1 250 310.5 -1476.7  
 1 251 311.7 -1483.0  
 1 252 312.9 -1489.3  
 1 253 314.1 -1495.6  
 1 254 315.3 -1501.9  
 1 255 316.5 -1508.2  
 1 256 317.7 -1514.5  
 1 257 318.9 -1520.8  
 1 258 320.1 -1527.1  
 1 259 321.3 -1533.4  
 1 260 322.5 -1539.7  
 1 261 323.7 -1546.0  
 1 262 324.9 -1552.3  
 1 263 326.1 -1558.6  
 1 264 327.3 -1564.9  
 1 265 328.5 -1571.2  
 1 266 329.7 -1577.5  
 1 267 330.9 -1583.8  
 1 268 332.1 -1590.1  
 1 269 333.3 -1596.4  
 1 270 334.5 -1602.7  
 1 271 335.7 -1609.0  
 1 272 336.9 -1615.3  
 1 273 338.1 -1621.6  
 1 274 339.3 -1627.9  
 1 275 340.5 -1634.2  
 1 276 341.7 -1640.5  
 1 277 342.9 -1646.8  
 1 278 344.1 -1653.1  
 1 279 345.3 -1659.4  
 1 280 346.5 -1665.7  
 1 281 347.7 -1672.0  
 1 282 348.9 -1678.3  
 1 283 350.1 -1684.6  
 1 284 351.3 -1690.9  
 1 285 352.5 -1697.2  
 1 286 353.7 -1703.5  
 1 287 354.9 -1709.8  
 1 288 356.1 -1716.1  
 1 289 357.3 -1722.4  
 1 290 358.5 -1728.7  
 1 291 359.7 -1735.0  
 1 292 360.9 -1741.3  
 1 293 362.1 -1747.6  
 1 294 363.3 -1753.9  
 1 295 364.5 -1760.2  
 1 296 365.7 -1766.5  
 1 297 366.9 -1772.8  
 1 298 368.1 -1779.1  
 1 299 369.3 -1785.4  
 1 300 370.5 -1791.7  
 1 301 371.7 -1798.0  
 1 302 372.9 -1804.3  
 1 303 374.1 -1810.6  
 1 304 375.3 -1816.9  
 1 305 376.5 -1823.2  
 1 306 377.7 -1829.5  
 1 307 378.9 -1835.8  
 1 308 380.1 -1842.1  
 1 309 381.3 -1848.4  
 1 310 382.5 -1854.7  
 1 311 383.7 -1861.0  
 1 312 384.9 -1867.3  
 1 313 386.1 -1873.6  
 1 314 387.3 -1879.9  
 1 315 388.5 -1886.2  
 1 316 389.7 -1892.5  
 1 317 390.9 -1898.8  
 1 318 392.1 -1905.1  
 1 319 393.3 -1911.4  
 1 320 394.5 -1917.7  
 1 321 395.7 -1924.0  
 1 322 396.9 -1930.3  
 1 323 398.1 -1936.6  
 1 324 399.3 -1942.9  
 1 325 400.5 -1949.2





1	6	20	178.9	-39.0
2	7	20	178.9	-62.4
3	8	19	174.7	-29.0
4	9	20	175.5	-10.8
5	10	20	175.5	-10.8
6	11	21	161.4	-171.4
7	12	22	165.4	-143.7

AVERAGE DST VALUE : 5.8

IST 50 I 22

EST	DS1	DS2	ALPHA1	ALPHA2
21	15	23	152.2	121.7
21	16	20	151.6	99.9
18	14	20	125.1	24.4
18	14	20	102.3	2.1
14	11	26	75.4	2.5
15	11	32	34.4	-23.3
15	11	30	24.2	-11.5
13	13	25	13.6	-35.2
13	13	25	12.1	-115.3
10	17	25	2.4	-142.3
10	17	21	-23.3	-175.7
10	16	22	-29.2	-160.9
10	14	22	-34.2	-124.9
13	17	21	-46.3	-83.2
12	17	18	-103.5	26.0
12	16	15	-129.2	-4.7
12	16	10	-134.4	-34.2
11	18	18	-130.5	-51.6
10	17	17	-147.1	-63.0
10	15	15	-162.3	-100.9
13	15	15	-172.6	-134.3
11	19	19	-175.3	-177.3
12	16	16	-176.0	-145.5

AVERAGE DST VALUE : 11.4

EST 50 I 23

EST	DS1	DS2	ALPHA1	ALPHA2
6	9	21	143.4	120.0
7	8	23	119.6	51.7
6	8	21	111.0	22.0
6	8	17	101.5	14.9
6	8	17	70.1	13.6
6	8	16	17.6	-3.5
-1	11	17	2.4	-22.1
-1	11	16	-10.6	-103.4
-4	12	17	-19.4	-155.1
-4	10	16	-17.4	-154.5
13	13	13	-30.7	-175.0
12	14	14	-37.0	-143.3
12	14	17	-62.0	-103.5
12	14	17	-62.0	-103.5
10	16	16	-90.8	-44.3
20	20	15	-124.2	-16.7
20	20	15	-152.7	-47.4
20	20	15	-157.3	-73.4
22	22	25	-163.3	-94.3
21	20	26	-142.7	-124.3
16	20	25	-146.3	-102.7
16	23	23	-113.7	-162.9

AVERAGE DST VALUE : 5.8

EST 50 I 24

EST	DS1	DS2	ALPHA1	ALPHA2
6	15	23	103.2	125.3
13	22	27.5	75.0	75.0
9	14	25	73.2	62.5
10	14	23	72.6	45.3

10	10	27	65.4	-6.3
10	10	23	45.0	-22.7
11	13	34	22.0	-55.0
11	13	33	16.0	-70.0
11	11	25	12.0	-129.4
11	11	25	12.0	-143.0
12	12	20	-10.0	-170.0
12	11	16	-40.2	-123.8
10	10	21	-46.3	-83.0
10	10	19	-34.1	-57.3
10	10	17	-35.6	-26.3
10	10	21	-139.4	-31.7
10	10	22	-108.9	-17.0
10	10	20	-150.3	-72.6
12	12	15	-159.6	-113.3
17	17	15	-159.7	-17.6
16	16	15	-146.2	-142.3

AVERAGE DST VALUE : 4.5

EST 50 I 25

EST	DS1	DS2	ALPHA1	ALPHA2
19	12	12	120.1	122.0
16	12	12	117.5	22.4
16	12	9	92.9	2.3
18	18	9	75.4	-6.2
17	14	53	-27.1	-27.1
15	13	30.4	-55.3	-55.3
11	11	26	23.0	-73.0
9	9	18	34.0	-101.1
15	15	15	25.6	-121.3
16	16	16	-4.5	-151.4
16	20	20	-52.3	-156.1
16	20	20	-59.1	-122.7
18	18	16	-66.2	-66.1
17	17	16	-73.6	-36.3
14	14	17	-138.0	6.0
14	14	16	-126.7	-19.0
8	8	23	-133.2	-55.2
26	26	26	-133.2	-35.3
18	18	19	-175.4	-104.6
17	17	24	-155.2	-115.3
16	16	25	-136.4	-176.7
19	19	22	-111.5	-150.1

AVERAGE DST VALUE : 11.1

EST 50 I 26

EST	DS1	DS2	ALPHA1	ALPHA2
10	15	13	134.0	123.2
15	15	13	106.1	32.5
16	22	21.5	57.0	32.5
15	17	27	77.1	27.3
15	17	27	63.3	2.5
15	15	34	35.7	-32.4
15	15	33	24.6	-39.3
15	15	33	20.9	-32.5
15	15	33	12.4	-123.0
13	13	29	-5.9	-146.3
14	14	24	-20.3	-173.2
14	14	24	-30.0	-153.4
14	14	25	-57.6	-129.2
14	14	17	-62.1	-64.0
11	14	26	-115.7	-51.3
13	13	17	-114.9	-26.2
12	12	17	-119.7	-5.5
12	12	21	-140.1	-31.2
15	15	20	-146.9	-30.7
13	13	16	-153.4	-114.1
11	11	27	-177.2	-155.1
9	9	21	-157.5	-160.3

AVERAGE DST VALUE : 5.8

EST 50 I 27

EST	DS1	DS2	ALPHA1	ALPHA2
10	15	23	103.2	125.3
13	22	27.5	75.0	75.0
9	14	25	73.2	62.5
10	14	23	72.6	45.3

8	9	17	117.7	136.8
---	---	----	-------	-------

AVERAGE DST VALUE : 10.0

EST 50 I 27

EST	DS1	DS2	ALPHA1	ALPHA2
7	9	15	104.1	118.3
9	9	23	55.0	13.5
2	14	21	49.0	22.3
-4	17	16	36.0	13.6
-10	18	13	50.9	-11.7
-10	18	20	58.1	-30.8
-9	16	25	41.3	-57.4
-8	16	22	23.3	-65.5
-11	16	20	14.2	-112.1
-11	17	13	4.1	-131.8
-12	32	23	-22.4	-171.3
-11	42	22	-35.5	-154.2
-11	30	14	-50.9	-142.3
-2	32	24	-67.0	-103.1
-8	43	13	-48.3	-32.6
-22	34	20	-34.5	15.9
-24	32	23	-68.1	-41.8
-24	32	23	-79.2	-63.6
-24	32	23	-112.9	-51.4
-24	12	30	-16.6	-124.0
-24	7	36	-21.2	-157.3
-24	22	29	45.8	161.3
-40	9	29	31.3	135.9

AVERAGE DST VALUE : -13.3

EST 50 I 28

EST	DS1	DS2	ALPHA1	ALPHA2
-39	7	27	26.3	106.9
-40	7	27	5.3	24.8
-43	16	24	-1.9	53.4
-44	20	24	-7.6	13.9
-44	27	23	-20.5	-38.3
-45	25	41	-24.8	-34.5
-46	26	43	-10.3	-63.3
-41	15	37	-3.8	-33.3
-35	15	32	-23.7	-125.3
-31	14	22	-36.3	-147.5
-29	14	21	-42.1	-175.2
-26	15	24	-40.0	-156.1
-26	20	22	-27.3	-127.0
-26	36	16	-29.3	-104.2
-26	36	16	-60.1	-73.7
-26	39	22	-76.6	-26.2
-43	46	22	-74.7	-1.7
-43	35	16	-31.3	-24.4
-41	37	16	-46.3	-56.3
-25	24	17	-136.7	-130.5
-22	20	21	-145.1	-175.5
-19	16	26	-168.5	-132.1
-20	10	25	-171.8	-112.6

AVERAGE DST VALUE : -34.4

EST 50 I 29

EST	DS1	DS2	ALPHA1	ALPHA2
-49	9	30	1.0	56.7
-67	34	35	-14.2	63.3
-61	33	44	-19.2	47.9
-65	22	40	-16.2	71.3
-60	16	40	3.0	-6.3
-66	15	40	1.4	-37.3
-63	16	31	-6.2	-67.3
-61	16	20	-1.0	-32.3
-61	16	20	1.1	-117.3
-48	10	25	-13.3	-145.3

-46	12	27	-25.5	173.8
-41	18	24	-27.8	152.9
-36	17	22	-50.9	131.9
-33	18	20	-65.1	103.3
-46	27	19	-32.1	72.6
-41	34	15	-55.7	63.7
-41	27	20	-54.1	33.2
-36	27	15	-68.5	10.9
-42	20	20	-129.5	-33.4
-46	11	23	-146.2	-74.2
-46	11	23	-124.6	-104.3
-37	13	22	-142.5	-143.3
-37	10	22	-103.6	16.3
-36	0	23	-28.6	136.4

AVERAGE DST VALUE : -47.2

EST 50 I 30

EST	DS1	DS2	ALPHA1	ALPHA2
-35	0	27	-148.1	135.6
-39	32	33	-23.3	86.0
-25	31	31	-2.6	82.2
-25	6	27	5.1	17.2
-24	12	25	46.8	1.5
-25	11	25	-29.7	-24.3
-20	10	15	25.1	-57.4
-20	8	17	15.0	-75.4
-28	8	15	-4.6	-100.8
-25	15	17	-16.2	-130.3
-20	19	24	-16.7	-149.4
-20	36	17	3.2	-157.1
-25	18	21	-65.3	-117.6
-25	16	21	-65.8	-69.6
-25	12	21	-65.8	-69.6
-30	19	19	-71.4	-47.9
-24	10	16	-90.0	17.3
-24	15	18	-117.3	-6.4
-24	17	19	-137.0	-40.2
-23	15	20	-153.9	-77.5
-24	14	21	-176.3	-130.0
-24	11	18	-177.0	-150.2
-24	13	17	-172.0	-150.2
-22	16	15	-176.2	-125.1

AVERAGE DST VALUE : -26.6

EST 50 I 31

EST	DS1	DS2	ALPHA1	ALPHA2
-22	14	16	145.2	110.4
-20	13	13	129.7	44.6
-19	12	23	74.2	74.6
-18	7	20	56.4	52.3
-18	7	16	56.4	31.6
-18	7	14	49.4	3.3
-11	7	12	49.4	-4.4
-20	9	12	58.4	-57.0
-18	8	13	56.5	-31.0
-19	10	13	64.9	-103.5
-17	9	17	24.2	-153.8
-14	14	24	-25.0	-155.7
-10	13	23	-55.4	-123.3
-9	19	22		

EST	DS1	DS2	ALPHA1	ALPHA2
-15	16	21	109.7	123.3
-14	20	18	93.6	104.0
-13	21	20	72.2	72.3
-12	22	22	41.5	-4.3
-11	22	21	30.2	-14.7
-10	17	16	24.7	-3.5
-9	17	11	11.0	-19.3
-8	17	11	48.1	-23.3
-7	5	11	48.1	-21.7
-6	6	11	-3.5	-151.2
-5	9	13	-7.7	162.9
-4	9	14	-19.3	132.3
-3	9	15	-83.4	21.1
-2	16	17	-90.2	64.5
-1	17	22	-120.6	31.9
0	18	20	-123.7	-18.7
1	19	17	-129.1	-11.1
2	19	20	-125.9	-75.3
3	19	21	-145.9	-105.5
4	21	21	109.5	-119.4
5	21	21	164.4	119.3
6	22	22	113.5	141.5

AVERAGE DST VALUE : -8.7

EST	DS1	DS2	ALPHA1	ALPHA2
-5	15	30	70.1	122.3
-4	12	19	78.5	92.3
-3	10	20	70.3	75.9
-2	13	25	15.3	51.4
-1	19	25	4.4	22.3
0	22	21	-4.6	-5.3
1	16	16	-38.0	-11.0
2	14	10	-31.0	-12.5
3	11	7	-4.3	-65.8
4	13	10	-17.3	-153.9
5	15	15	-34.6	169.3
6	17	19	-53.9	129.3
7	18	20	-68.5	93.4
8	16	15	-76.9	78.4
9	11	21	-111.3	34.2
10	12	21	-139.0	3.2
11	5	15	-178.0	-23.9
12	14	21	130.5	-54.3
13	16	24	142.1	-77.3
14	16	25	142.4	-102.0
15	16	24	167.6	-144.3
16	16	24	137.6	-168.3
17	16	24	113.0	162.2

AVERAGE DST VALUE : -8.4

EST	DS1	DS2	ALPHA1	ALPHA2
-11	20	21	97.5	134.0
-10	24	17	78.0	103.3
-9	16	26	48.4	53.2
-8	14	37	13.0	17.2
-7	14	36	3.5	-14.4
-6	14	35	3.7	-47.3
-5	15	31	17.2	-78.1
-4	13	23	25.0	-112.4
-3	11	17	18.2	-134.0
-2	11	15	16.0	-156.5
-1	10	16	-13.8	167.4

EST	DS1	DS2	ALPHA1	ALPHA2
10	13	19	-54.0	124.5
11	14	21	-74.2	94.1
12	14	21	-94.0	63.9
13	12	22	-124.0	33.7
14	10	18	-150.1	3.9
15	10	18	-151.3	-25.3
16	10	18	-150.4	-57.3
17	11	17	-100.9	-83.4
18	11	19	-105.5	-111.7
19	17	20	143.0	-133.9
20	18	19	131.5	-165.2
21	14	14	125.3	153.7

AVERAGE DST VALUE : -3.1

EST	DS1	DS2	ALPHA1	ALPHA2
15	13	13	116.3	126.4
16	21	13	111.1	101.3
17	20	16	97.7	78.1
18	18	21	59.5	43.3
19	16	22	29.2	13.4
20	16	20	29.5	-15.3
21	15	20	1.5	-34.3
22	15	17	3.2	-62.4
23	15	13	23.5	-86.2
24	11	13	23.9	-94.6
25	11	12	11.0	-131.4
26	14	15	-10.1	-171.3
27	17	15	-21.6	167.0
28	20	17	-35.1	162.4
29	20	16	-34.3	117.7
30	16	19	-17.6	27.7
31	11	20	-16.7	24.5
32	13	21	-19.4	-59.3
33	15	22	131.1	-82.5
34	16	24	138.5	-104.0
35	20	24	129.5	-123.0
36	20	24	125.8	-153.5
37	20	16	124.4	168.4

AVERAGE DST VALUE : 0.2

EST	DS1	DS2	ALPHA1	ALPHA2
22	11	11	118.2	130.3
23	20	0	111.7	96.7
24	25	15	31.2	65.1
25	22	15	64.6	43.1
26	21	21	51.7	13.0
27	19	21	32.0	-13.4
28	11	16	-16.1	-45.3
29	5	11	13.6	-70.2
30	9	10	0.4	-112.1
31	14	12	-8.0	-157.4
32	14	13	-32.0	153.0
33	12	17	-34.7	126.3
34	12	19	-54.1	67.6
35	13	19	-51.1	33.4
36	13	19	-33.2	87.5
37	21	21	-138.2	-12.3
38	24	21	-176.1	-32.0
39	17	21	109.4	-55.9
40	12	20	109.1	-83.0
41	15	22	143.3	-110.4
42	20	22	131.1	-131.0
43	22	18	120.1	-157.2
44	22	16	117.2	173.1

AVERAGE DST VALUE : 0.9

EST	DS1	DS2	ALPHA1	ALPHA2
22	11	11	118.2	130.3
23	20	0	111.7	96.7
24	25	15	31.2	65.1
25	22	15	64.6	43.1
26	21	21	51.7	13.0
27	19	21	32.0	-13.4
28	11	16	-16.1	-45.3
29	5	11	13.6	-70.2
30	9	10	0.4	-112.1
31	14	12	-8.0	-157.4
32	14	13	-32.0	153.0
33	12	17	-34.7	126.3
34	12	19	-54.1	67.6
35	13	19	-51.1	33.4
36	13	19	-33.2	87.5
37	21	21	-138.2	-12.3
38	24	21	-176.1	-32.0
39	17	21	109.4	-55.9
40	12	20	109.1	-83.0
41	15	22	143.3	-110.4
42	20	22	131.1	-131.0
43	22	18	120.1	-157.2
44	22	16	117.2	173.1

AVERAGE DST VALUE : 0.9

EST	DS1	DS2	ALPHA1	ALPHA2
20	17	17	195.4	141.5
21	14	14	86.7	86.2
22	14	14	84.6	27.8
23	21	21	65.6	53.7
24	25	27	13.6	-25.3
25	24	30	-7.1	-155.9
26	20	20	-19.6	-69.1
27	20	20	-12.1	-110.3
28	36	23	-20.5	-145.3
29	35	24	-46.5	173.8
30	34	28	-57.1	135.5
31	30	21	-47.4	138.7
32	30	31	-62.5	84.3
33	24	24	-16.4	32.7
34	25	25	3.6	-21.4
35	26	21	-32.3	-63.3
36	17	21	-55.1	-77.6
37	26	16	-0.6	-71.5
38	6	16	-134.7	-116.2
39	11	22	169.5	-139.2
40	14	26	153.8	-171.3
41	14	16	122.9	153.3

AVERAGE DST VALUE : -3.1

EST	DS1	DS2	ALPHA1	ALPHA2
20	17	17	195.4	141.5
21	14	14	86.7	86.2
22	14	14	84.6	27.8
23	21	21	65.6	53.7
24	25	27	13.6	-25.3
25	24	30	-7.1	-155.9
26	20	20	-19.6	-69.1
27	20	20	-12.1	-110.3
28	36	23	-20.5	-145.3
29	35	24	-46.5	173.8
30	34	28	-57.1	135.5
31	30	21	-47.4	138.7
32	30	31	-62.5	84.3
33	24	24	-16.4	32.7
34	25	25	3.6	-21.4
35	26	21	-32.3	-63.3
36	17	21	-55.1	-77.6
37	26	16	-0.6	-71.5
38	6	16	-134.7	-116.2
39	11	22	169.5	-139.2
40	14	26	153.8	-171.3
41	14	16	122.9	153.3

AVERAGE DST VALUE : -3.1

EST	DS1	DS2	ALPHA1	ALPHA2
-1	20	17	195.4	141.5
-2	14	14	86.7	86.2
-3	14	14	84.6	27.8
-4	21	21	65.6	53.7
-5	25	27	13.6	-25.3
-6	24	30	-7.1	-155.9
-7	20	20	-19.6	-69.1
-8	20	20	-12.1	-110.3
-9	36	23	-20.5	-145.3
-10	35	24	-46.5	173.8
-11	34	28	-57.1	135.5
-12	30	21	-47.4	138.7
-13	30	31	-62.5	84.3
-14	24	24	-16.4	32.7
-15	25	25	3.6	-21.4
-16	26	21	-32.3	-63.3
-17	17	21	-55.1	-77.6
-18	26	16	-0.6	-71.5
-19	6	16	-134.7	-116.2
-20	11	22	169.5	-139.2
-21	14	26	153.8	-171.3
-22	14	16	122.9	153.3

AVERAGE DST VALUE : -30.3

EST	DS1	DS2	ALPHA1	ALPHA2
15	23	23	66.7	122.7
16	19	22	76.3	104.3
17	20	26	57.4	75.3
18	22	30	25.0	44.6
19	22	30	10.3	-11.3
20	16	26	44.6	-34.3
21	22	30	-11.3	-43.0
22	17	25	-21.0	-62.5
23	6	20	-5.2	-76.6
24	0	17	9.2	-107.5
25	4	14	-47.7	-134.3
26	6	13	-66.7	-163.1
27	11	17	-77.5	145.5
28	15	17	-91.9	117.0
29	18	21	-102.7	85.8
30	18	21	-118.7	31.3
31	12	24	-133.4	-11.3
32	4	15	-157.1	-31.3
33	7	22	37.7	-50.3
34	6	22	47.0	-83.3
35	0	18	148.3	-113.3
36	0	18	38.9	-135.5
37	0	21	133.3	-176.3
38	6	23	72.5	145.5

AVERAGE DST VALUE : -45.1

EST	DS1	DS2	ALPHA1	ALPHA2
-28	14	25	64.3	114.1
-27	17	25	50.8	95.0
-26	25	33	33.6	65.1
-25	28	25	41.7	36.7
-24	39	27	23.7	3.7
-23	46	32	10.2	-2.6
-22	38	32	-2.2	-57.7
-21	34	25	-10.3	-85.4
-20	26	19	-17.3	-134.5
-19	20	11	-24.7	-192.6
-18	26	11	-24.7	-120.7
-17	26	11	-42.5	-167.1
-16	19	15	-38.4	137.1
-15	26	16		





11	14	17	-145.4	-2.2
7	17	-174.9	-26.2	
7	16	179.7	-60.6	
7	16	170.0	-52.7	
6	15	155.7	-15.4	
13	24	123.4	-155.4	
13	25	92.0	172.4	

AVERAGE DST VALUE : 3.9

ISI NO 2 22

EST	DS1	DS2	ALPHA1	ALPHA2
15	5	27	44.4	141.2
40	30	43.5	114.3	
13	27	35.4	65.5	
17	13	25	17.0	57.2
12	21	26.4	22.4	
15	14	14	2.0	-15.2
10	6	10	2.4	-24.7
10	4	4	60.7	-31.0
14	11	11	61.1	-61.5
14	5	5	-43.3	-134.0
17	12	13	-49.5	171.4
13	14	14	-39.1	161.7
15	15	12	-65.1	124.5
16	16	17	-80.7	50.7
11	17	16	-92.2	53.3
16	17	17	-113.6	20.3
11	17	17	-156.9	-17.7
8	13	17	173.0	-54.6
11	11	10	101.0	-23.3
11	10	10	133.6	-100.5
14	10	10	144.4	-131.3
15	9	13	120.0	-161.5
25	6	19	113.1	162.0

AVERAGE DST VALUE : 14.4

ISI NO 2 23

EST	DS1	DS2	ALPHA1	ALPHA2
11	5	19	103.1	127.3
11	20	39.4	105.2	
11	19	23	06.1	73.1
16	14	26	33.5	45.7
15	14	26	32.6	17.0
15	13	23	20.4	-11.5
14	12	22	5.6	-43.4
14	8	10	0.0	-75.7
15	10	10	-34.2	-106.4
15	10	10	-49.1	-170.5
20	25	1	-51.2	168.1
20	25	1	-55.7	133.4
20	25	2	-79.0	109.5
21	25	2	-79.6	93.2
21	25	2	-85.2	73.1
21	25	2	-83.9	48.5
16	27	18	-21.3	23.9
21	17	1	-109.5	-25.7
25	17	1	-106.6	-51.2
25	15	1	-124.0	-21.1
27	4	16	-149.2	-125.6
27	4	23	-117.2	-155.6
27	4	23	53.7	156.5

AVERAGE DST VALUE : 1.2

ISI NO 2 24

EST	DS1	DS2	ALPHA1	ALPHA2
-13	15	31	25.5	131.2
-11	12	32	5.4	167.3
-12	11	32	2.6	76.5
-16	10	31	4.0	47.2

-23	14	28	8.3	15.7
-23	24	16.0	-5.7	-15.7
-45	21	7.5	-31.4	-31.4
-45	17	-0.2	-38.3	-38.3
-10	11	4.3	-36.1	-36.1
-2	8	9	-133.4	-133.4
-2	8	9	-130.7	-130.7
-2	14	14	-124.1	-124.1
-2	24	24	-88.4	93.4
-2	24	24	-88.4	72.2
-2	17	17	-54.2	42.3
-2	15	15	-106.9	33.7
-2	17	17	-104.9	4.1
-2	15	15	-104.9	-22.1
-2	14	17	170.6	-61.5
-2	12	12	153.2	-91.9
-2	12	12	156.9	-126.4
-2	10	10	150.9	-153.1
-2	7	7	110.0	177.0

AVERAGE DST VALUE : 5.1

ISI NO 2 25

EST	DS1	DS2	ALPHA1	ALPHA2
8	7	22	79.1	135.6
10	10	27	60.5	117.0
11	11	27	40.6	61.0
13	13	30	10.3	47.0
10	10	25	12.0	15.0
8	8	8	-0.6	-2.4
8	6	6	-24.4	-23.7
12	12	24	-60.2	-40.2
4	4	13	53.1	-74.9
6	6	13	13.6	-114.7
11	11	15	-49.2	-105.3
13	13	19	-78.4	165.6
16	16	22	-94.7	113.6
15	15	22	-102.6	85.7
15	23	21	-110.0	63.7
15	23	21	-105.2	37.3
15	24	19	-105.0	34.1
15	24	19	-117.8	11.3
14	24	23	-103.4	-20.0
14	23	15	-101.0	-17.0
14	21	20	-112.0	-71.1
14	21	17	-128.4	-110.5
14	20	21	-12.3	-147.8
14	20	21	10.7	165.0

AVERAGE DST VALUE : 2.0

ISI NO 2 26

EST	DS1	DS2	ALPHA1	ALPHA2
-25	17	29	6.1	120.3
-18	9	30	25.0	103.3
-18	13	28	25.0	72.5
-22	14	25	15.5	47.3
-19	14	23	11.0	20.1
-17	13	21	-3.8	-7.3
-23	10	22	-10.5	-30.1
-23	3	3	28.1	6.3
-17	4	11	65.4	-115.9
-4	14	14	-43.2	-178.7
-4	24	26	-69.4	128.1
-6	25	29	-81.7	106.9
-12	19	24	-66.6	73.7
-12	14	23	-106.6	63.5
-15	14	17	-92.5	35.9
-15	14	15	-93.4	75.2
-16	11	13	-121.5	6.0
-13	8	14	-152.2	-21.5
-19	13	13	102.1	-47.1
-12	13	13	105.1	-113.1
-12	9	9	170.7	-104.1
-5	4	15	-133.2	171.1

AVERAGE DST VALUE : -15.3

ISI NO 2 27

EST	DS1	DS2	ALPHA1	ALPHA2
0	1	24	-57.1	125.9
5	32	-7.6	166.2	
6	32	-15.3	61.2	
4	25	-12.7	53.9	
15	11	24	-27.9	35.9
-20	20	-25.5	-10.3	
-16	15	15	-29.1	-25.0
-14	15	15	58.5	-32.3
-16	14	13	42.5	-52.7
-12	14	13	-22.5	-166.0
-13	24	20	-33.0	154.7
-13	24	22	-52.5	116.5
-22	28	21	-41.6	85.2
-20	28	18	-60.4	81.1
-14	21	18	-94.5	62.0
-16	17	17	-114.1	47.0
-15	15	15	-126.9	16.0
-15	11	11	-140.1	-23.0
-15	9	9	-168.3	-109.3
-13	3	3	142.7	-173.5
-13	3	3	116.5	150.0

AVERAGE DST VALUE : -11.7

ISI NO 2 28

EST	DS1	DS2	ALPHA1	ALPHA2
-13	8	24	30.4	120.8
-13	8	24	46.4	93.0
-10	9	23	30.1	75.5
-9	14	35	4.2	47.7
-12	16	36	-6.7	16.9
-14	17	37	-3.7	-14.9
-14	15	34	-12.3	-48.2
-16	10	25	-9.1	-74.2
-19	16	13	59.3	-71.2
-24	22	14	33.0	-103.9
-22	23	17	6.5	-157.9
-15	14	24	-5.3	160.0
-10	20	18	-81.3	128.2
-16	25	15	-99.1	104.3
-5	16	16	-105.1	61.8
-5	17	17	-114.3	42.3
-5	14	16	-133.1	14.1
-10	13	17	-157.3	-13.3
-10	15	13	-176.5	-55.3
-11	12	17	164.5	-94.2
-7	11	16	89.4	-132.8
-2	7	19	93.6	-163.1
-1	5	20	36.0	159.7

AVERAGE DST VALUE : -11.0

ISI NO 2 29

EST	DS1	DS2	ALPHA1	ALPHA2
-2	7	24	23.5	125.3
-3	11	25	22.1	103.1
-3	12	33	4.3	61.2
-6	14	33	1.2	30.6
-6	11	25	6.8	26.9
-19	10	26	4.4	-4.3
-15	8	24	6.5	-30.9
-14	6	15	39.7	-60.3
-12	16	13	75.0	-87.0
-15	13	13	60.1	-96.1

-13	14	63.4	-124.2
-13	14	63.4	-163.4
-13	15	-46.0	146.4
-13	16	-72.9	117.3
-13	17	-80.7	67.7
-13	16	-115.2	53.3
-13	15	-121.5	50.9
-13	15	-140.4	2.2
-13	15	-160.8	-22.7
-13	14	-160.7	-63.3
-13	13	-177.0	-40.0
-13	15	163.5	-130.0
-13	15	167.8	-145.0
-13	14	156.0	187.1

AVERAGE DST VALUE : -6.0

END OF YOUR FILE

IST	DS1	DS2	ALPHA1	ALPHA2
1	21	-86.7	128.3	
2	23	4.6	102.3	
3	18	95.9	71.7	
4	16	71.9	38.8	
5	12	42.5	3.0	
6	21	21.2	-31.7	
7	19	5.0	-63.0	
8	18	-94.1	-94.1	
9	16	-25.4	-124.9	
10	16	-45.2	-151.9	
11	15	-51.9	-174.9	
12	13	-44.0	163.7	
13	13	-37.9	141.5	
14	12	-29.3	111.1	
15	13	-102.5	66.1	
16	14	140.3	24.2	
17	13	120.2	-9.0	
18	13	157.1	-39.1	
19	17	-121.5	-69.5	
20	11	-93.3	-26.0	
21	11	-117.8	-17.3	
22	11	-121.7	-75.1	
23	12	-146.0	144.1	

AVERAGE DST VALUE :

4. C

IST	DS1	DS2	ALPHA1	ALPHA2
9	7	14	-171.4	121.0
10	2	20	148.6	100.3
11	27	20	-11.0	75.3
12	30	-11.0	-3.5	48.3
13	28	48	-18.5	17.4
14	9	9	18.5	-12.3
15	7	16	20.7	-42.4
16	7	13	12.9	-71.6
17	7	14	-0.6	-109.2
18	7	16	-38.6	-186.3
19	13	20	-53.9	174.5
20	24	-65.1	145.5	
21	17	22	-71.0	121.0
22	19	-83.0	94.2	
23	16	-95.5	30.9	
24	12	-97.4	43.4	
25	13	-97.2	19.5	
26	13	-115.0	-21.1	
27	14	-150.0	-46.0	
28	13	-151.1	-71.0	
29	13	-147.2	-112.3	
30	15	-170.7	-145.1	
31	20	144.7	-159.0	
32	10	26	33.7	174.0

AVERAGE DST VALUE :

10.0

IST	DS1	DS2	ALPHA1	ALPHA2
11	9	29	51.3	141.6
12	7	32	7.9	110.2
13	4	27	7.2	79.4
14	4	27	45.7	40.5
15	10	19	51.1	5.4
16	20	20	49.1	-35.0
17	16	23	20.6	-84.6
18	14	21	12.3	-30.2
19	17	17	0.2	-110.3
20	5	11	17.6	-117.3
21	10	10	56.3	-130.9
22	10	10	53.1	-152.4

13	5	10	13.0	160.5
16	12	-56.0	101.2	
17	15	-74.1	65.0	
18	15	-89.9	29.7	
19	17	127.4	-12.1	
20	16	-12.1	-47.0	
21	14	-23.2	-74.5	
22	13	-53.5	-99.0	
23	13	-98.8	-118.8	
24	26	145.5	-131.6	
25	19	112.1	-153.9	
26	19	112.1	172.7	

AVERAGE DST VALUE :

11.9

IST	DS1	DS2	ALPHA1	ALPHA2
13	4	21	92.1	140.3
14	4	25	51.8	107.5
15	4	26	61.8	49.9
16	6	27	65.6	49.0
17	6	27	43.1	15.7
18	9	12	46.3	-35.5
19	11	11	62.0	-44.4
20	11	12	65.1	-52.4
21	11	12	57.2	-70.0
22	15	17	0.1	-74.3
23	16	14	42.1	-110.7
24	13	12	12.0	-158.1
25	7	11	-40.3	109.0
26	11	13	-109.0	60.0
27	12	14	133.5	-17.0
28	14	11	141.6	-55.4
29	13	14	-19.4	-87.0
30	3	14	-57.0	-104.0
31	2	16	-118.4	-126.2
32	3	16	-71.8	-144.1
33	7	22	-10.7	-162.2
34	2	22	-74.3	-162.2

AVERAGE DST VALUE :

12.0

IST	DS1	DS2	ALPHA1	ALPHA2
20	11	34	-44.5	134.7
21	12	35	-54.6	101.6
22	10	39	-46.4	67.0
23	10	25	-43.9	40.2
24	8	25	-2.6	14.4
25	9	27	11.8	-17.9
26	6	23	9.0	-45.1
27	6	16	0.0	-63.6
28	7	12	22.2	-93.4
29	7	13	6.1	-36.4
30	11	12	57.1	-164.4
31	25	19	29.2	-102.4
32	29	19	24.3	-142.8
33	24	19	-56.6	170.5
34	19	14	-62.7	113.7
35	9	12	-95.3	58.3
36	4	13	-124.5	-25.9
37	13	-143.2	-59.1	
38	5	13	-148.2	-91.0
39	5	16	175.4	-112.1
40	7	21	130.3	-129.7
41	9	25	102.9	-156.4
42	5	26	78.1	165.5

AVERAGE DST VALUE :

2.8

IST	DS1	DS2	ALPHA1	ALPHA2
13	5	10	13.0	160.5
16	12	-56.0	101.2	
17	15	-74.1	65.0	
18	15	-89.9	29.7	
19	17	127.4	-12.1	
20	16	-12.1	-47.0	
21	14	-23.2	-74.5	
22	13	-53.5	-99.0	
23	13	-98.8	-118.8	
24	26	145.5	-131.6	
25	19	112.1	-153.9	
26	19	112.1	172.7	

8	6	24	56.1	136.1
13	7	22	30.0	108.0
15	23	19	39.3	75.2
19	20	17	-1.8	49.9
19	17	-42.2	23.0	
13	14	-36.4	-6.2	
13	13	-20.4	-35.7	
11	11	-15.1	-33.6	
12	10	-12.0	-105.1	
11	10	-38.1	-16.7	
10	10	43.6	-31.3	
9	20	42.8	-31.3	
15	14	27.5	-142.1	
13	12	-44.2	83.3	
11	14	-56.1	34.7	
5	16	-101.6	-6.0	
5	13	-66.9	-40.3	
7	13	-71.8	-77.2	
10	11	-103.8	-97.7	
11	11	-137.0	-115.5	
15	11	-175.6	-158.0	
15	6	141.9	170.2	

AVERAGE DST VALUE :

9.6

IST	DS1	DS2	ALPHA1	ALPHA2
15	3	126.9	160.3	
16	7	94.2	99.3	
20	16	72.5	64.3	
18	13	62.7	30.8	
12	16	54.1	-2.3	
6	24	11.5	-43.6	
6	19	45.1	-43.7	
6	13	73.1	-77.7	
8	12	53.0	-103.9	
11	12	30.4	-121.2	
14	13	48.6	-134.2	
14	13	20.5	-170.3	
11	12	-11.9	141.6	
12	14	-58.4	86.1	
16	16	-38.6	25.2	
17	17	-120.6	-2.4	
16	16	-121.7	-34.9	
16	16	-16.2	-34.9	
17	16	-10.5	-34.9	
11	5	16	-20.5	-34.9
5	7	16	-75.3	-34.9
5	14	16	-156.3	-34.9

AVERAGE DST VALUE :

6.5

IST	DS1	DS2	ALPHA1	ALPHA2
2	15	2	147.6	-22.7
0	21	2	137.5	-22.2
23	5	121.5	-21.5	
5	5	92.7	-11.5	
18	14	71.3	-17.1	
16	21	41.2	-31.7	
15	20	15.7	-34.1	
14	24	16.9	-76.5	
10	21	22.9	-95.0	
14	17	2.4	-124.1	
14	13	-1.4	-164.2	
10	13	-8.0	162.7	
15	15	-36.4	124.0	
6	14	-91.0	65.3	
4	17	-121.2	41.3	
8	17	-155.6	-43.3	

8	3	16	-37.2	-80.5
9	6	13	-71.2	-111.3
6	11	11	-120.8	-124.0
7	11	11	-174.7	-130.0
10	13	11	151.9	-157.2
14	11	11	127.7	173.2

AVERAGE DST VALUE :

4.1

IST	DS1	DS2	ALPHA1	ALPHA2
2	17	9	111.8	143.0
11	15	11	95.6	106.0
13	12	87.7	76.0	
11	13	74.9	50.7	
7	13	58.6	23.2	
12	14	30.6	-4.1	
16	16	-28.4	-31.6	
12	16	-5.6	-91.9	
6	15	9.3	-126.7	
6	15	7.9	-154.2	
6	13	11.7	-170.2	
6	12	11.5	177.1	
11	11	10.5	150.6	
11	10	-8.4	97.1	
18	16	-8.4	32.5	
18	18	-25.1	-4.3	
2	15	-95.9	-31.3	
6	14	-111.0	-56.9	
10	12	-111.0	-122.3	
12	16	-165.6	-14.1	
12	15	-143.2	-104.4	
11	14	132.8	167.7	

AVERAGE DST VALUE :

6.3

IST	DS1	DS2	ALPHA1	ALPHA2
8	9	10	142.9	127.4
11	6	6	133.4	100.6
13	3	11	33.0	73.0
12	10	10	66.2	42.7
11	10	11	25.3	19.8
11	16	16	3.5	-36.2
15	5	15	-30.0	-64.5
15	3	13	-15.6	-91.1
15	4	13	-7.5	-116.5
9	5	12	40.3	-133.3
7	14	12	32.6	-160.4
8	16	13	8.6	-168.9
19	14	-8.7	166.5	
17	14	-50.1	121.0	
15	14	-137.6	111.7	
15	15	-123.1	85.7	
15	15	-164.8	-5.6	
11	3	14	-154.1	-126.1
13	4	14	-162.3	-155.8
14	5	14	-159.9	133.1
16	6	15	-156.0	145.3

AVERAGE DST VALUE :

3.9

IST	DS1	DS2	ALPHA1	ALPHA2
14	4	16	151.9	113.3
11	4	20	54.1	92.3
6	8	20	92.1	71.3
11	22	34.3	35.8	
8	12	25	75.9	1.0

EST	DS1	DS2	ALPHA1	ALPHA2
10	10	10	59.1	-22.7
11	11	11	11.0	-51.1
12	12	12	11.0	-30.4
13	13	13	-9.6	-111.5
14	14	14	-30.4	-147.3
15	15	15	-11.2	-169.7
16	16	16	-37.0	-156.3
17	17	17	-40.3	-168.3
18	18	18	-45.2	-124.5
19	19	19	-60.4	-79.2
20	20	20	-76.2	-56.3
21	21	21	-82.1	-66.3
22	22	22	-127.3	-10.2
23	23	23	-153.3	-40.3
24	24	24	-175.1	-71.3
25	25	25	-142.2	-10.3
26	26	26	-134.6	-134.6
27	27	27	-164.3	-164.3
28	28	28	124.6	163.5
29	29	29	124.6	163.5
30	30	30	124.6	163.5
31	31	31	124.6	163.5
32	32	32	124.6	163.5
33	33	33	124.6	163.5
34	34	34	124.6	163.5
35	35	35	124.6	163.5
36	36	36	124.6	163.5
37	37	37	124.6	163.5
38	38	38	124.6	163.5
39	39	39	124.6	163.5
40	40	40	124.6	163.5
41	41	41	124.6	163.5
42	42	42	124.6	163.5
43	43	43	124.6	163.5
44	44	44	124.6	163.5
45	45	45	124.6	163.5
46	46	46	124.6	163.5
47	47	47	124.6	163.5
48	48	48	124.6	163.5
49	49	49	124.6	163.5
50	50	50	124.6	163.5
51	51	51	124.6	163.5
52	52	52	124.6	163.5
53	53	53	124.6	163.5
54	54	54	124.6	163.5
55	55	55	124.6	163.5
56	56	56	124.6	163.5
57	57	57	124.6	163.5
58	58	58	124.6	163.5
59	59	59	124.6	163.5
60	60	60	124.6	163.5
61	61	61	124.6	163.5
62	62	62	124.6	163.5
63	63	63	124.6	163.5
64	64	64	124.6	163.5
65	65	65	124.6	163.5
66	66	66	124.6	163.5
67	67	67	124.6	163.5
68	68	68	124.6	163.5
69	69	69	124.6	163.5
70	70	70	124.6	163.5
71	71	71	124.6	163.5
72	72	72	124.6	163.5
73	73	73	124.6	163.5
74	74	74	124.6	163.5
75	75	75	124.6	163.5
76	76	76	124.6	163.5
77	77	77	124.6	163.5
78	78	78	124.6	163.5
79	79	79	124.6	163.5
80	80	80	124.6	163.5
81	81	81	124.6	163.5
82	82	82	124.6	163.5
83	83	83	124.6	163.5
84	84	84	124.6	163.5
85	85	85	124.6	163.5
86	86	86	124.6	163.5
87	87	87	124.6	163.5
88	88	88	124.6	163.5
89	89	89	124.6	163.5
90	90	90	124.6	163.5
91	91	91	124.6	163.5
92	92	92	124.6	163.5
93	93	93	124.6	163.5
94	94	94	124.6	163.5
95	95	95	124.6	163.5
96	96	96	124.6	163.5
97	97	97	124.6	163.5
98	98	98	124.6	163.5
99	99	99	124.6	163.5
100	100	100	124.6	163.5

AVERAGE DST VALUE : 11.4

EST DS1 DS2 ALPHA1 ALPHA2

EST	DS1	DS2	ALPHA1	ALPHA2
7	6	17	101.3	142.6
8	6	19	75.1	112.7
9	6	18	78.1	81.4
10	6	20	73.8	44.5
11	6	21	71.2	5.4
12	6	22	60.6	-22.9
13	6	23	33.3	-61.5
14	6	24	35.3	-83.7
15	6	25	18.7	-115.4
16	6	26	-7.0	-143.6
17	6	27	-26.0	-167.8
18	6	28	-28.4	-176.7
19	6	29	-35.6	-144.4
20	6	30	-39.5	-117.6
21	6	31	-39.5	-43.3
22	6	32	-18.0	-22.5
23	6	33	-7.9	-9.0
24	6	34	-132.7	-7.4
25	6	35	-139.7	-51.3
26	6	36	-163.3	-97.4
27	6	37	-156.4	-130.8
28	6	38	-156.3	-163.3
29	6	39	-127.2	-155.0

AVERAGE DST VALUE : 13.0

EST DS1 DS2 ALPHA1 ALPHA2

EST	DS1	DS2	ALPHA1	ALPHA2
22	2	22	57.3	140.3
23	2	23	19.9	112.0
24	2	24	32.5	31.3
25	2	25	34.5	48.1
26	2	26	31.4	10.9
27	2	27	36.7	-22.9
28	2	28	19.4	-52.5
29	2	29	10.5	-87.5
30	2	30	-9.7	-124.4
31	2	31	-23.1	-147.4
32	2	32	-43.3	-157.3
33	2	33	-62.1	-137.4
34	2	34	-58.5	-112.6
35	2	35	-40.6	-86.0
36	2	36	-24.9	-57.3
37	2	37	-14.9	-26.2
38	2	38	-121.9	-8.4
39	2	39	-117.0	-50.6
40	2	40	-122.0	-80.1
41	2	41	-105.4	-103.9
42	2	42	-127.6	-135.5
43	2	43	-146.6	-163.2
44	2	44	85.4	155.7

AVERAGE DST VALUE : 10.0

EST DS1 DS2 ALPHA1 ALPHA2

EST	DS1	DS2	ALPHA1	ALPHA2
2	2	16	55.1	134.0
3	2	16	33.4	100.3
4	2	15	114.1	62.0
5	2	16	31.6	42.2
6	2	23	60.7	7.3
7	2	30	38.7	-24.0
8	2	30	25.8	-51.0
9	2	30	25.8	-51.0
10	2	30	-2.3	-133.2
11	2	30	-10.5	-153.5
12	2	29	-13.3	-175.1
13	2	8	0.3	166.7
14	2	11	9.6	162.5
15	2	12	-16.4	130.2
16	2	10	-36.1	100.8
17	2	10	-35.8	61.3
18	2	10	-79.7	30.5
19	2	14	-29.9	-1.0
20	2	13	-107.5	-27.9
21	2	14	-134.8	-100.9
22	2	7	185.1	-133.3
23	2	12	132.2	-161.4
24	2	15	146.0	-163.6

AVERAGE DST VALUE : 5.9

EST DS1 DS2 ALPHA1 ALPHA2

EST	DS1	DS2	ALPHA1	ALPHA2	
10	4	13	136.5	145.3	
11	4	13	132.7	98.3	
12	4	13	104.0	38.9	
13	4	6	77.5	16.0	
14	4	6	77.5	7.6	
15	4	7	31.1	2.1	
16	4	12	16.4	-33.2	
17	4	14	13.5	-71.0	
18	4	14	7.2	-168.3	
19	4	15	-4.0	-135.3	
20	4	15	10.0	-153.5	
21	4	10	57.1	171.9	
22	4	5	56.6	141.7	
23	4	5	5.2	115.5	
24	4	13	-36.8	91.3	
25	4	13	-78.1	61.6	
26	4	13	-92.6	34.7	
27	4	14	-110.8	3.3	
28	4	14	-142.5	-24.3	
29	4	14	-175.1	-53.3	
30	4	10	21	140.0	-71.1
31	4	22	122.0	-123.3	
32	4	21	118.3	-155.0	
33	4	21	100.6	-172.1	

AVERAGE DST VALUE : 12.7

EST DS1 DS2 ALPHA1 ALPHA2

EST	DS1	DS2	ALPHA1	ALPHA2
21	5	9	96.1	142.3
22	5	21	81.0	113.1
23	5	16	75.6	59.7
24	5	13	23.3	73.1
25	5	13	-63.2	54.5
26	5	14	-81.3	20.5
27	5	14	-71.4	-21.9
28	5	16	-53.7	-65.4
29	5	15	-36.1	-114.4
30	5	17	-39.9	-151.2
31	5	14	-6.0	-175.4

AVERAGE DST VALUE : 23.5

EST DS1 DS2 ALPHA1 ALPHA2

EST	DS1	DS2	ALPHA1	ALPHA2
9	9	34.0	-164.2	157.0
10	9	62.6	93.3	157.0
11	9	58.1	93.3	93.3
12	9	-108.1	61.4	61.4
13	9	-89.4	36.4	36.4
14	9	-87.1	19.5	19.5
15	9	-101.1	6.7	6.7
16	9	-120.6	-12.2	-12.2
17	9	-135.3	-45.3	-45.3
18	9	-151.5	-68.8	-68.8
19	9	-174.1	-174.1	-174.1
20	9	-177.7	-127.6	-127.6

AVERAGE DST VALUE : 23.5

EST DS1 DS2 ALPHA1 ALPHA2

EST	DS1	DS2	ALPHA1	ALPHA2	
23	15	7	-104.2	57.4	
24	15	11	-162.6	73.4	
25	15	15	-179.7	55.7	
26	15	18	-139.5	41.7	
27	15	20	-42.6	15.5	
28	15	21	16.0	-3.3	
29	15	18	37.2	-34.2	
30	15	15	36.5	-65.3	
31	15	8	49.0	-66.3	
32	15	14	27.1	-129.4	
33	15	14	10.3	-155.3	
34	15	11	11.6	-171.1	
35	15	9	14	-35.5	140.3
36	15	14	-36.7	103.2	
37	15	17	-58.2	66.3	
38	15	16	-80.2	34.7	
39	15	13	-75.3	12.6	
40	15	14	-103.5	-5.0	
41	15	16	-143.6	-35.0	
42	15	20	-137.0	-23.2	
43	15	23	116.0	-116.0	
44	15	24	103.6	-151.2	
45	15	13	102.5	-173.5	

AVERAGE DST VALUE : 17.7

EST DS1 DS2 ALPHA1 ALPHA2

EST	DS1	DS2	ALPHA1	ALPHA2
14	8	19	106.2	141.4
15	8	17	107.4	155.5
16	8	13	104.2	39.1
17	8	5	38.7	60.2
18	8	7	23.5	56.1
19	8	11	24.5	12.3
20	8	13	-2.5	-26.5
21	8	15	19.0	-54.3
22	8	14	04.3	-63.7
23	8	12	63.3	-49.7
24	8	12	49.7	-122.9



EST	DS1	DS2	ALPHA1	ALPHA2
22	25	43.7	142.0	
21	26	44.3	113.4	
19	26	44.3	81.6	
14	26	50.5	43.3	
12	16	57.8	3.9	
13	13	59.3	-31.7	
13	13	63.7	-52.2	
13	13	61.5	-70.0	
14	14	72.3	-39.7	
14	14	81.7	-121.5	
14	14	88.0	-154.5	
11	11	85.2	173.3	
11	11	101.7	95.6	
12	12	16.5	26.7	
15	15	-23.5	-3.4	
17	17	10.9	-36.2	
18	18	69.3	-33.3	
18	18	112.1	-78.2	
13	13	109.7	-163.3	
21	21	36.1	-129.9	
19	19	78.4	-173.5	

AVERAGE DST VALUE : -21.3

EST	DS1	DS2	ALPHA1	ALPHA2
16	19	71.3	136.7	
17	17	75.2	96.2	
17	17	63.3	51.9	
17	17	78.2	-15.0	
14	17	73.9	-41.3	
14	17	67.8	-41.3	
16	20	60.3	-41.3	
11	22	44.4	-20.1	
28	28	25.4	-121.1	
23	23	-4.5	-143.7	
20	20	-21.4	-177.2	
17	17	-36.7	-152.5	
17	17	-73.7	-121.4	
16	16	-111.6	30.5	
18	18	-136.4	36.1	
18	18	-152.9	51.6	
18	18	-158.0	-19.3	
11	11	189.0	-43.1	
13	13	159.5	-63.9	
13	13	138.3	-56.3	
13	13	120.4	-172.7	
23	23	52.6	-182.6	
18	18	78.3	-173.4	

AVERAGE DST VALUE : -12.6

EST	DS1	DS2	ALPHA1	ALPHA2
3	10	60.5	144.2	
10	23	46.7	108.7	
10	23	61.2	73.5	
6	24	56.9	39.4	
6	16	61.0	3.9	
3	20	55.5	-37.3	
3	13	47.3	-63.2	
2	12	50.3	-66.9	
2	27	23.0	-118.3	
6	18	-1.1	-143.1	
10	18	-22.5	-169.9	
4	17	-40.5	-133.9	

EST	DS1	DS2	ALPHA1	ALPHA2
16	17	-45.5	126.3	
17	17	-44.4	83.3	
16	16	-144.2	54.0	
17	17	-165.5	28.3	
11	21	-178.9	-20.3	
12	23	59.0	-81.9	
12	23	117.0	-70.3	
14	23	115.5	-101.1	
14	23	98.2	-126.6	
14	16	37.1	-156.3	
14	16	36.3	-174.3	

AVERAGE DST VALUE : 3.5

EST	DS1	DS2	ALPHA1	ALPHA2
14	17	67.6	142.9	
18	17	60.2	108.3	
18	17	76.1	72.3	
16	17	73.6	37.9	
15	15	72.0	3.9	
15	15	61.9	-45.9	
20	20	21.6	-75.1	
17	17	24.8	-112.5	
17	17	-11.9	-145.6	
15	15	-44.0	-175.1	
15	15	-16.7	-156.7	
17	17	-43.3	-141.0	
18	18	-63.6	93.0	
20	20	-63.3	77.3	
20	20	-47.4	36.2	
20	20	-105.6	1.1	
21	21	-133.2	-32.7	
22	22	-174.9	-62.3	
12	12	98.3	-126.7	
15	15	90.9	-153.4	
13	13	38.5	-164.9	

AVERAGE DST VALUE : 0.0

EST	DS1	DS2	ALPHA1	ALPHA2
12	12	95.6	126.4	
11	12	97.5	83.3	
13	14	76.0	63.3	
14	16	68.3	27.8	
13	17	71.0	-2.3	
15	20	63.5	-16.3	
14	24	67.3	-65.6	
14	27	57.9	-92.0	
11	29	36.4	-123.4	
20	20	4.1	-193.8	
17	17	-19.5	-172.9	
10	16	-44.0	-162.9	
11	16	-44.0	-146.1	
10	14	-52.2	-127.3	
10	15	-65.5	-98.4	
14	16	-78.0	34.9	
6	13	-71.7	21.7	
6	14	-47.1	-7.6	
6	14	-34.5	-45.3	
3	15	-142.3	-79.9	
5	16	-176.2	-136.2	
5	19	109.3	-128.9	
5	20	76.6	-157.9	
6	16	78.9	-172.7	

AVERAGE DST VALUE : -1.0

EST	DS1	DS2	ALPHA1	ALPHA2
17	17	21.9	134.0	
18	33	21.5	101.4	
15	33	39.2	71.2	
14	30	28.7	34.0	
8	25	44.7	3.0	
7	23	4.3	-29.3	
7	22	-18.0	-56.3	
5	26	-31.3	-83.1	
0	7	-51.9	-116.3	
16	24	-69.7	-143.3	
16	24	-53.7	-179.8	
11	25	-62.9	-153.8	
13	15	-46.0	-117.6	
16	16	-80.5	65.9	
15	15	-86.6	87.5	
16	16	-94.7	32.3	
9	15	-37.2	6.6	

EST	DS1	DS2	ALPHA1	ALPHA2
15	15	66.5	142.4	
15	15	66.7	107.5	
11	15	70.1	75.6	
11	23	64.1	43.1	
11	23	44.6	6.9	
27	27	46.7	-29.4	
27	27	43.7	-91.3	
27	27	2.1	-91.3	
27	27	-20.0	-124.3	
27	27	-38.2	-156.3	
24	24	-61.0	-177.3	
19	24	-39.0	-153.3	
25	25	-42.2	-124.1	
23	23	-50.5	-133.3	
14	14	-42.5	73.4	
19	19	-50.4	21.3	
14	16	-50.4	-20.0	
14	17	-34.1	-70.5	
19	19	-24.0	-112.6	
21	21	73.2	-133.6	
23	23	67.8	-155.1	

AVERAGE DST VALUE : -1.7

EST	DS1	DS2	ALPHA1	ALPHA2
13	23	49.7	120.2	
14	24	76.7	43.4	
14	26	101.2	36.1	
15	31	35.4	25.4	
14	25	79.1	-4.4	
23	23	88.6	-31.3	
25	25	85.0	-52.5	
13	25	41.0	-90.2	
27	27	17.1	-116.6	
16	27	-34.3	-152.3	
6	22	-36.0	-177.8	
15	15	-36.0	-165.3	
14	14	-62.3	-152.7	
17	17	-46.7	-135.6	
16	15	-39.6	-108.1	
13	15	-71.9	61.3	
11	17	-111.3	11.5	
16	16	-135.9	-25.8	
7	16	-130.9	-66.1	
11	7	76.2	-44.1	
4	11	75.1	-135.4	
17	17	62.2	-179.3	
17	21	48.9	-162.0	

AVERAGE DST VALUE : -13.7

EST	DS1	DS2	ALPHA1	ALPHA2
17	27	21.9	134.0	
18	33	21.5	101.4	
15	33	39.2	71.2	
14	30	28.7	34.0	
8	25	44.7	3.0	
7	23	4.3	-29.3	
7	22	-18.0	-56.3	
5	26	-31.3	-83.1	
0	7	-51.9	-116.3	
16	24	-69.7	-143.3	
16	24	-53.7	-179.8	
11	25	-62.9	-153.8	
13	15	-46.0	-117.6	
16	16	-80.5	65.9	
15	15	-86.6	87.5	
16	16	-94.7	32.3	
9	15	-37.2	6.6	

EST	DS1	DS2	ALPHA1	ALPHA2
15	15	102.4	-33.7	
17	17	152.4	-193.9	
12	12	116.6	-173.0	
13	22	109.5	-173.0	
11	23	63.7	-161.0	
6	13	82.5	-155.1	

AVERAGE DST VALUE : -6.3

EST	DS1	DS2	ALPHA1	ALPHA2
7	15	78.6	129.1	
12	12	77.2	96.1	
23	22	33.7	75.5	
27	24	69.6	61.2	
17	26	51.7	-2.5	
27	27	3.7	-36.7	
12	37	-9.2	-67.9	
30	30	-46.5	-38.1	
30	30	-48.6	-177.4	
30	30	-18.3	-167.8	
41	41	-23.3	169.3	
40	22	-34.5	116.3	
23	22	-53.5	63.3	
11	21	-62.1	70.5	
6	13	-65.4	83.3	
2	2	-62.6	7.4	
6	15	-150.2	-27.3	
23	23	140.3	-55.6	
15	25	110.1	-11.8	
27	27	94.0	109.0	
29	30	81.6	167.6	
15	30	65.8	174.1	
15	30	53.2	174.1	

AVERAGE DST VALUE : -24.0

EST	DS1	DS2	ALPHA1	ALPHA2
20	27	43.2	145.5	
15	26	32.3	119.9	
40	26	35.9	77.3	
38	34	64.2	36.9	
39	32	8.6	7.5	
41	32	2.6	-27.4	
40	41	19.2	-66.3	
35	42	1.9	-93.6	
40	42	-15.0	-122.5	
35	42	-34.2	-161.4	
32	31	-25.3	-161.2	
27	27	-50.1	-142.9	
13	20	-90.4	-114.9	
13	17	-98.1	-122.9	
15	15	-87.3	91.3	
15	15	-56.9	61.2	
6	15	-157.5	-11.6	
17	17	174.6	-33.2	
23	23	126.3	-77.1	
19	24	106.8	-102.0	
16	25	38.8	-124.3	
16	25	67.6	-144.5	
17	27	52.4	-179.3	

AVERAGE DST VALUE : -33.6

EST	DS1	DS2	ALPHA1	ALPHA2
23	21	27	39.1	143.6
24	19	25	16.4	113.3
23	19	17	14.4	39.9
22	5	17	14.2	51.7
23	2	14	34.0	26.1

ORIGINAL PAGE IS OF POOR QUALITY

1	39.1	-0.8
12	38.3	-2.3
15	18.9	-56.6
21	-42.3	-126.2
25	-53.5	-161.9
10	57.9	174.8
11	13.5	171.8
12	-16.9	152.2
13	50.1	111.3
14	-56.4	106.4
18	-56.0	36.4
21	-27.9	19.3
30	0.7	-35.4
18	41.8	-36.0
28	33.0	-119.0
14	60.2	166.1
6	68.5	146.4

AVERAGE DST VALUE : -33.7

IST 00 4 12

ES1	DS1	DS2	ALPHA1	ALPHA2
-60	19	15	61.2	124.1
-60	33	23	42.0	64.3
-60	33	34	-7.1	65.4
-60	40	35	5.8	15.2
-60	18	39	-10.9	-1.4
-60	18	41	-0.9	-30.6
-60	14	37	12.3	-10.5
-60	14	37	-5.2	-31.4
-47	3	35	-17.6	-127.4
-47	3	32	-29.5	-163.4
-47	3	26	-17.1	163.7
-47	3	26	-104.4	112.3
-47	3	16	31.7	33.3
-47	3	11	48.1	33.2
-47	3	11	-19.6	26.9
-47	3	17	-23.6	26.9
-47	3	17	48.3	29.5
-47	3	18	-94.8	-30.4
-47	3	18	-138.8	-78.7
-47	3	2	-135.3	-131.2
-47	3	13	-118.7	-157.0
-47	3	13	162.7	143.5
-47	3	7	67.7	111.6

AVERAGE DST VALUE : -43.2

IST 00 4 14

ES1	DS1	DS2	ALPHA1	ALPHA2
-67	40	15	15.4	63.2
-67	37	34	17.9	42.0
-67	27	34	25.3	56.3
-67	15	30	33.0	36.1
-67	12	21	12.1	10.1
-67	17	17	23.2	-14.7
-67	16	13	26.0	-30.3
-67	16	16	34.4	-65.5
-67	16	27	25.8	-121.4
-67	12	27	-22.8	-163.3
-67	13	15	-16.0	163.4
-67	8	14	-176.8	148.2
-67	12	12	139.7	117.6
-67	10	10	63.5	88.3
-67	13	10	104.7	80.3
-67	13	12	122.0	-3.1
-67	13	13	61.4	-22.9
-67	16	15	53.1	-47.5
-67	10	16	-41.7	-77.5
-67	7	16	66.4	-111.3
-67	10	16	43.3	-148.8
-67	10	15	33.4	-174.1
-67	6	14	165.6	-157.9

AVERAGE DST VALUE : -43.3

IST 00 4 14

ES1	DS1	DS2	ALPHA1	ALPHA2
-27	9	19	70.5	137.6
-27	17	21	42.4	114.9
-27	17	31	48.2	81.4
-27	15	31	61.8	46.6
-27	15	29	51.6	18.0
-27	11	24	24.0	-18.0
-27	12	24	15.1	-52.7
-27	12	26	5.2	-91.0
-27	9	26	-16.6	-124.8
-27	9	26	-43.8	-157.1
-27	19	19	-78.8	177.4
-27	16	16	-162.2	154.1
-27	14	14	42.2	133.2
-27	14	14	-20.9	124.3
-27	15	15	-43.2	101.1
-27	15	15	-5.9	70.6
-27	15	15	-24.7	26.2
-27	12	16	-95.1	13.3
-27	12	16	-66.9	-65.3
-27	21	21	-86.5	-85.3
-27	17	17	-86.1	-116.1
-27	12	17	43.3	-174.6
-27	15	16	59.6	132.4

AVERAGE DST VALUE : -20.4

IST 00 4 15

ES1	DS1	DS2	ALPHA1	ALPHA2
-45	13	13	36.5	127.6
-45	19	20	46.4	81.0
-45	29	22	26.2	53.6
-45	21	26	21.3	34.0
-45	16	30	10.0	7.3
-45	14	31	33.0	-21.7
-45	16	26	39.0	-44.9
-45	20	24	5.2	-62.9
-45	7	21	24.6	-103.9
-45	7	21	-55.6	-146.3
-45	18	17	-84.1	-176.3
-45	7	17	-39.6	153.3
-45	15	15	-68.3	140.7
-45	14	15	-45.6	110.5
-45	17	17	-79.2	81.2
-45	17	17	-4.8	47.2
-45	17	17	-17.1	15.7
-45	11	11	-21.5	17.4
-45	11	11	-0.3	-5.6
-45	12	16	50.7	-60.9
-45	11	20	52.0	-35.2
-45	8	19	33.6	-123.0
-45	20	16	35.6	-157.3
-45	8	20	50.1	170.5

AVERAGE DST VALUE : -29.5

IST 00 4 16

ES1	DS1	DS2	ALPHA1	ALPHA2
-27	13	21	63.0	144.4
-27	13	23	33.6	108.0
-27	2	22	26.1	30.5
-27	2	21	3.5	53.8
-27	7	20	21.4	23.3
-27	5	20	23.4	-3.2
-27	10	21	50.0	-31.1
-27	9	22	15.3	64.7
-27	4	19	-46.3	-115.2
-27	4	17	-11.4	-136.2
-27	2	14	-150.0	-166.1

5	14	106.7	152.1
14	14	143.1	117.2
16	16	-168.0	69.8
16	16	-60.1	63.8
16	16	-40.1	37.8
16	16	40.5	6.0
15	15	86.1	-16.1
15	15	105.6	-31.9
17	17	124.2	-13.6
14	14	151.5	-36.7
11	11	137.5	-127.1
10	10	118.4	-157.4
12	12	151.1	151.1

AVERAGE DST VALUE : -21.5

IST 00 4 17

ES1	DS1	DS2	ALPHA1	ALPHA2
-13	27	17	77.3	116.0
-13	16	16	51.3	39.1
-13	16	22	39.6	71.9
-13	17	26	35.2	41.5
-13	15	27	14.0	6.3
-13	9	25	30.2	-19.3
-13	8	24	43.7	-47.3
-13	5	22	68.3	-72.1
-13	18	18	37.8	-96.7
-13	15	15	31.1	-126.2
-13	14	14	-107.6	-157.8
-13	18	18	-63.8	166.5
-13	15	16	-38.0	100.2
-13	4	15	-131.0	31.5
-13	4	14	-70.8	57.6
-13	5	15	-37.4	31.3
-13	6	15	-39.5	11.4
-13	6	16	-132.1	-31.1
-13	6	15	-137.1	-64.5
-13	6	16	-163.5	-92.2
-13	6	15	142.2	-123.7
-13	6	16	112.0	-161.0
-13	6	16	70.5	163.5

AVERAGE DST VALUE : -14.2

IST 00 4 18

ES1	DS1	DS2	ALPHA1	ALPHA2
-13	6	19	31.4	140.1
-13	7	23	-0.9	110.3
-13	5	25	-11.2	63.6
-13	5	26	6.0	43.1
-13	5	22	-31.4	13.3
-13	1	1	-62.0	-5.9
-13	17	16	-54.3	-5.9
-13	16	16	-41.3	-61.3
-13	16	16	-103.9	-183.4
-13	16	16	56.8	-183.4
-13	16	16	41.7	-168.4
-13	16	16	52.3	155.5
-13	16	16	-52.3	122.6
-13	15	15	-76.7	98.7
-13	12	15	-53.5	78.9
-13	15	15	-39.7	52.5
-13	14	14	-91.8	26.5
-13	14	14	-12.1	26.5
-13	16	16	-165.0	-36.5
-13	15	15	-153.5	-67.8
-13	21	21	127.1	-104.8
-13	20	20	127.1	-135.8
-13	17	17	37.7	167.7

AVERAGE DST VALUE : -5.0

IST 00 4 19

ES1	DS1	DS2	ALPHA1	ALPHA2
-1	5	4	5	142.8
-1	4	4	6.6	117.3
-1	15	15	-53.0	95.1
-1	15	15	-82.2	71.5
-1	8	8	-97.8	39.5
-1	15	15	-26.0	-02.1
-1	7	7	-78.0	-38.1
-1	15	15	-47.7	-110.7
-1	14	14	-19.9	-35.4
-1	11	11	-53.0	-112.3
-1	11	11	-7.4	-164.8
-1	11	11	-32.9	152.5
-1	13	13	-63.3	84.3
-1	15	15	-73.3	56.3
-1	16	16	-97.0	20.3
-1	15	15	-132.4	-14.3
-1	14	14	-129.5	-43.6
-1	10	10	-80.6	-77.7
-1	16	16	-39.6	-126.7
-1	22	22	-102.5	179.9
-1	10	10	-109.1	149.9
-1	17	17	-113.9	110.9

AVERAGE DST VALUE : 8.0

IST 00 4 20

ES1	DS1	DS2	ALPHA1	ALPHA2
7	15	11	-131.1	31.2
3	13	13	-171.7	75.0
3	21	21	58.4	61.1
4	28	28	19.0	37.2
4	30	30	57.5	7.7
5	29	29	33.8	-23.2
5	26	26	97.1	-23.1
5	22	22	99.4	-117.8
5	22	22	62.3	-133.5
5	11	11	168.0	-167.7
5	13	13	114.4	174.4
5	12	12	35.5	183.5
5	14	14	40.5	116.0
5	11	11	125.8	80.2
5	11	11	38.9	42.8
5	12	12	-115.2	-11.8
5	12	12	-27.8	-84.8
5	15	15	-77.3	-82.0
5	15	15	16.3	-114.7
5	15	15	-46.1	-174.3
5	15	15	-80.0	-153.9

AVERAGE DST VALUE : -0.4

IST 00 4 21

ES1	DS1	DS2	ALPHA1	ALPHA2
-1	5	15	-55.0	127.8
-1	6	16	-41.0	103.5
-1	6	16	-43.6	51.3
-1	6	16	-44.7	59.7
-1	6	13	-29.4	22.7
-1	6	11	-20.6	-9.5
-1	6	11	-20.6	-30.3
-1	6	11	-151.1	-49.0
-1	6	6	-162.0	-59.1
-1	6	6	-127.3	-116.5
-1	6	6	-99.5	-157.7
-1	6	6	-23.7	158.4
-1	6	6	-53.8	135.4
-1	6	6	-31.6	117.1
-1	6	6	-55.7	81.7
-1	6	6	-93.1	43.4
-1	6	6	-35.5	12.4

ORIGINAL PAGE IS OF POOR QUALITY

10	10	11	-64.7	-23.7
11	11	12	-27.2	-11.8
12	12	13	-79.7	-13.4
13	13	14	-117.9	-13.1
14	14	15	-129.9	-13.0
15	15	16	-143.0	-154.5

AVERAGE DST VALUE : 7.9

EST 00 4 22

EST	DS1	DS2	ALPHA1	ALPHA2
1	4	22	-75.3	122.3
2	11	21	-47.9	105.5
3	14	21	-64.0	71.6
4	15	36	-71.9	41.7
5	19	31	-94.3	19.3
6	27	27	-115.0	-17.7
7	10	25	-112.3	-56.6
8	15	20	-111.3	-72.7
9	2	16	-84.6	-100.1
10	17	11	-76.5	-142.4
11	15	17	-91.9	-175.9
12	16	17	-112.0	142.0
13	17	17	-115.9	121.2
14	17	17	-95.3	33.4
15	14	14	-79.5	73.9
16	14	14	-39.5	41.5
17	14	14	-59.5	29.0
18	13	13	-80.4	-5.2
19	7	14	-36.9	-38.4
20	6	13	-104.8	-74.4
21	4	13	-123.0	-102.5
22	3	17	101.2	-127.1
23	5	17	60.0	-159.1
24	7	23	55.7	177.3

AVERAGE DST VALUE : 15.3

EST 00 4 23

EST	DS1	DS2	ALPHA1	ALPHA2
11	19	29	14.9	131.9
12	19	30	-1.9	109.1
13	19	26	-23.1	85.0
14	2	25	-53.7	55.0
15	5	26	-69.6	14.5
16	3	27	-55.6	-26.7
17	3	23	-22.7	-53.1
18	4	23	24.0	-84.5
19	5	24	26.1	-116.9
20	6	20	12.2	-141.9
21	6	16	13.2	-166.7
22	7	17	-0.5	170.7
23	13	15	-19.7	143.3
24	6	15	-52.2	115.7
25	6	16	-101.2	37.4
26	7	17	-112.7	12.5
27	12	17	-129.7	-3.5
28	10	17	-137.9	-38.6
29	7	15	-155.5	-75.6
30	7	16	-166.9	-103.7
31	7	16	173.0	-127.3
32	7	17	155.9	-158.9
33	6	20	82.9	165.5

AVERAGE DST VALUE : 11.5

EST 00 4 24

EST	DS1	DS2	ALPHA1	ALPHA2
2	12	26	22.7	135.9
3	13	34	-12.7	106.7
4	10	36	-1.5	77.0
5	14	35	-12.7	44.4

14	22	35.5	10.9
15	37	-21.2	-27.3
16	33	1.5	-15.7
17	33	-6.1	-15.3
18	20	-20.0	-12.0
19	20	-34.4	-12.1
20	15	-31.6	-17.3
21	15	-113.1	145.3
22	14	-148.2	119.0
23	14	103.7	51.4
24	13	62.6	73.3
25	12	0.1	43.7
26	12	39.4	24.7
27	12	-72.2	-11.7
28	12	-83.1	-37.0
29	13	-140.3	-84.3
30	12	34.3	-113.2
31	12	39.7	-137.6
32	13	116.4	-104.2
33	13	118.5	167.6

AVERAGE DST VALUE : -1.3

EST 00 4 25

EST	DS1	DS2	ALPHA1	ALPHA2
16	15	73.4	131.9	
17	10	47.5	107.0	
18	17	30.8	82.2	
19	12	12.7	47.4	
20	23	8.3	13.7	
21	23	19.3	-33.7	
22	23	17.2	-55.2	
23	23	14.6	-83.3	
24	31	0.9	-121.1	
25	27	-6.7	-149.7	
26	25	-24.5	-179.9	
27	19	-6.9	147.5	
28	14	-33.9	153.4	
29	16	-47.6	137.7	
30	16	-61.1	114.5	
31	16	-73.2	80.1	
32	14	-74.3	45.3	
33	14	-92.4	-5.5	
34	16	-171.8	-43.0	
35	7	17	-176.1	-74.9
36	7	20	-115.5	-137.7
37	7	17	94.4	-163.8
38	5	17	75.6	170.4

AVERAGE DST VALUE : 1.4

EST 00 4 26

EST	DS1	DS2	ALPHA1	ALPHA2
3	7	19	42.1	141.3
4	6	21	12.7	112.1
5	6	26	25.0	80.1
6	5	29	29.6	48.4
7	12	33	31.7	9.9
8	14	36	27.0	-25.5
9	12	34	29.3	-62.1
10	16	32	27.8	-51.0
11	9	32	8.2	-123.8
12	9	25	-10.6	-154.5
13	4	23	-21.8	178.0
14	16	28.1	158.2	143.7
15	14	17.4	127.4	103.9
16	14	-17.0	103.0	62.0
17	12	-16.4	103.0	62.0
18	13	-55.9	11.4	11.4
19	14	-95.8	-20.5	-20.5
20	16	-170.4	-43.3	-43.3
21	6	19	120.1	-60.9
22	6	21	116.1	-105.5
23	7	19	117.6	-133.5
24	6	17	100.5	-160.5

AVERAGE DST VALUE : 11.5

3	6	14	103.4	170.5
---	---	----	-------	-------

AVERAGE DST VALUE : 9.2

EST 00 4 27

EST	DS1	DS2	ALPHA1	ALPHA2
5	7	13	68.1	141.1
6	15	11.1	107.2	107.2
7	15	11.9	77.7	77.7
8	24	27	12.7	68.5
9	33	27	32.3	11.9
10	30	30	36.1	-24.0
11	30	30	35.7	-57.5
12	27	27	15.1	-83.2
13	27	27	-15.1	-113.7
14	20	20	-30.5	-153.3
15	14	14	-28.7	-178.9
16	9	14	-31.1	161.9
17	9	14	-17.0	149.8
18	12	14	-26.0	133.6
19	12	15	-43.2	111.2
20	10	16	-51.4	74.9
21	10	17	-67.6	31.3
22	11	18	-120.3	-31.1
23	9	17	-142.6	-38.9
24	15	15	-177.3	-79.7
25	7	15	148.1	-106.8
26	7	17	149.1	-136.8
27	16	16	114.0	-187.7
28	16	16	59.2	-159.9

AVERAGE DST VALUE : 10.6

EST 00 4 28

EST	DS1	DS2	ALPHA1	ALPHA2
3	13	24	16.3	133.3
4	10	25	-7.4	111.0
5	10	24	1.4	91.5
6	19	24	8.4	52.3
7	19	31.5	31.5	17.3
8	9	30.9	-17.5	-17.5
9	15	11.7	-53.9	-53.9
10	15	8.9	-8.9	-62.5
11	6	16	-42.1	-123.4
12	6	13	-76.7	-147.8
13	4	9	-96.2	-174.7
14	4	9	-48.6	174.2
15	17	14	-17.3	173.2
16	23	18	-30.5	153.5
17	23	15	-69.6	125.4
18	20	19	-68.7	84.9
19	17	20	-97.5	45.5
20	14	16	-139.4	11.2
21	10	20	-192.5	-23.1
22	12	21	-186.4	-97.7
23	12	21	134.7	-97.7
24	11	16	127.6	-123.5
25	10	10	132.6	-151.5
26	10	11	124.0	166.7

AVERAGE DST VALUE : 10.0

EST 00 4 29

EST	DS1	DS2	ALPHA1	ALPHA2
5	8	13	66.9	138.9
6	7	17	68.9	103.0
7	8	23	75.1	75.4
8	7	26	80.4	43.3
9	9	26	83.6	7.3
10	9	28	65.5	-26.0
11	13	27	42.0	-56.3
12	13	26	9.7	-83.2
13	14	29	-25.5	-127.2
14	13	27	-58.4	-159.2

16	10	22	-31.3	165.1
17	5	14	-65.6	134.1
18	14	14	-24.9	137.1
19	12	16	-45.4	112.4
20	30	24	-67.1	96.2
21	30	23	-37.9	55.1
22	21	23	-106.6	21.5
23	20	23	-134.3	-5.3
24	12	24	-152.6	-57.3
25	16	26	-115.3	-10.7
26	16	22	103.4	-113.3
27	12	16	35.2	-152.2
28	10	12	106.2	179.0

AVERAGE DST VALUE : 13.1

EST 00 4 30

EST	DS1	DS2	ALPHA1	ALPHA2
6	12	12	35.4	151.3
7	10	13	58.9	116.7
8	9	25	48.7	64.3
9	4	21	22.1	65.0
10	5	14	-6.7	30.1
11	4	13	-55.1	10.9
12	3	13	-70.4	-10.3
13	4	14	-86.0	-63.7
14	4	13	-66.9	-103.7
15	7	15	-40.9	-146.4
16	9	16	-48.4	177.9
17	13	16	-38.9	123.3
18	13	17	-28.9	126.3
19	16	15	-47.1	103.9
20	16	17	-66.0	64.7
21	19	19	-92.0	34.0
22	21	21	-118.4	4.4
23	13	21	-146.1	-19.8
24	12	25	-155.5	-89.1
25	19	26	101.3	-92.0
26	17	26	86.0	-123.9
27	14	26	91.9	-153.0
28	14	26	91.9	-174.9

AVERAGE DST VALUE : 9.3

END OF YOUR FILE



ISA 80 5 1				
EST	DS1	DS2	ALPHA1	ALPHA2
8	11	20	71.0	130.8
5	13	26	-2.5	111.7
7	15	24	5.9	81.5
12	13	22	-31.6	69.4
16	13	13	-57.2	41.4
10	7	15	-73.6	11.1
9	5	13	-115.3	-11.4
14	5	13	-149.3	-34.2
14	5	12	172.1	-40.3
14	4	11	156.3	-63.8
14	2	10	133.0	-37.2
11	7	10	33.0	-142.5
14	5	14	-36.6	157.7
14	17	14	-47.0	135.2
13	11	13	-72.0	23.4
11	11	13	-67.6	59.3
10	11	20	-118.5	25.9
10	6	17	-157.3	-7.4
11	11	17	-111.5	-34.3
19	14	14	-120.7	-113.1
20	14	14	-130.0	-143.4
18	11	11	-149.4	174.7
14	10	9	-174.5	127.0

AVERAGE DST VALUE : 12.0

EST 00 5 2				
EST	DS1	DS2	ALPHA1	ALPHA2
14	1	10	177.5	70.3
13	1	10	150.7	64.4
10	5	15	119.9	52.7
11	5	21	30.7	32.5
9	8	26	67.7	8.3
10	8	20	41.3	-17.0
10	5	17	2.0	-40.2
11	11	17	-13.1	-72.5
10	13	17	-32.6	-111.0
10	10	17	-46.3	-146.0
11	10	17	-50.4	-174.9
12	11	15	-65.3	152.2
15	15	21	-83.7	120.8
14	13	21	-65.0	95.5
13	13	11	-60.1	75.2
13	11	13	-71.4	56.4
14	13	13	-112.8	24.3
14	14	20	-128.7	-1.4
13	15	20	-143.7	-36.5
13	14	24	-175.1	-58.0
15	15	20	159.4	-134.5
16	5	21	100.6	-164.5
15	5	21	100.1	164.5

AVERAGE DST VALUE : 12.5

EST 00 5 3				
EST	DS1	DS2	ALPHA1	ALPHA2
14	5	33	70.3	132.5
15	5	24	59.3	92.0
13	13	27	70.7	65.1
13	13	23	73.2	34.1
13	13	23	43.3	4.7
12	12	20	3.2	-23.3
13	13	15	10.0	-51.1
15	15	17	-8.4	-77.9
14	14	16	-23.0	-104.0
11	15	16	-19.0	-134.1
11	6	16	-36.7	-174.0
10	6	16	-19.1	164.5

12	10	17	-4.1	134.6
13	11	16	-69.5	103.9
13	11	16	-77.7	82.2
14	11	16	-97.4	46.2
13	12	18	-114.7	15.9
14	14	15	-133.1	-34.8
14	14	15	-142.2	-34.5
15	12	20	-154.6	-69.2
15	9	19	-177.3	-104.3
15	8	16	156.5	-139.1
14	4	17	139.4	-170.9
14	5	22	91.1	101.4

AVERAGE DST VALUE : 13.3

EST 00 5 4				
EST	DS1	DS2	ALPHA1	ALPHA2
15	5	26	32.6	132.9
15	6	31	2.5	104.3
15	6	31	-24.2	73.0
15	4	23	-2.6	43.1
15	3	21	-13.2	15.1
15	3	21	-1.7	-35.4
12	1	15	-8.1	-64.7
12	1	16	-39.2	-37.3
13	4	15	-41.1	-131.1
11	3	14	-65.1	-155.4
10	3	14	-24.6	-172.3
10	9	17	-32.6	154.2
10	17	17	-51.7	113.1
10	17	17	-74.4	83.0
10	15	17	-108.4	59.3
12	12	17	-128.7	-73.0
11	11	11	-148.1	-35.6
11	11	21	-173.5	-64.5
11	11	24	145.2	-55.7
15	24	24	119.3	-124.0
13	8	23	108.7	-163.5
13	8	23	91.1	164.5

AVERAGE DST VALUE : 12.1

EST 00 5 5				
EST	DS1	DS2	ALPHA1	ALPHA2
17	5	25	44.3	137.1
18	5	26	10.3	106.5
19	6	25	-16.7	81.2
10	10	21	-41.4	61.1
11	11	17	-69.5	31.1
13	13	14	-94.5	23.2
13	14	12	-114.4	-18.2
13	11	12	-132.3	-47.3
13	6	12	-152.3	-54.0
13	4	11	-163.4	-130.9
13	1	12	-166.1	-168.7
0	0	12	113.1	132.7
1	1	14	-150.6	57.5
3	3	14	-131.7	67.1
4	4	17	-107.1	31.3
6	6	15	-85.5	16.7
7	7	16	-119.0	-23.3
11	11	16	-129.0	-47.2
11	11	18	-110.4	-73.3
13	13	12	-107.4	-94.4
12	14	11	-111.6	-113.0
14	14	14	-141.3	-113.0
3	3	14	-77.5	-163.4
3	3	16	-70.3	159.3

AVERAGE DST VALUE : 24.0

ISA 00 5 6				
EST	DS1	DS2	ALPHA1	ALPHA2
12	10	17	-4.1	134.6
13	11	16	-69.5	103.9
13	11	16	-77.7	82.2
14	11	16	-97.4	46.2
13	12	18	-114.7	15.9
14	14	15	-133.1	-34.8
14	14	15	-142.2	-34.5
15	12	20	-154.6	-69.2
15	9	19	-177.3	-104.3
15	8	16	156.5	-139.1
14	4	17	139.4	-170.9
14	5	22	91.1	101.4

0	11	19	-49.7	129.9
11	14	24	-56.5	104.4
11	14	24	-31.1	72.3
11	20	24	-31.1	35.5
19	19	19	-50.2	15.5
13	15	15	-72.5	-7.4
13	15	15	-78.4	-25.3
14	15	14	-49.1	-42.6
14	15	14	-77.0	-78.4
14	13	13	-46.2	-111.7
14	13	13	-13.9	-139.1
14	14	14	17.1	173.1
14	14	14	-7.9	164.5
14	17	17	-22.3	117.7
17	17	17	-44.2	70.8
16	16	16	-37.2	33.2
15	15	15	-126.1	-24.4
15	13	13	-65.6	-50.4
14	14	14	-67.9	-83.5
12	12	12	13.9	-107.1
14	14	14	47.7	-145.4
17	17	17	4.9	-178.2
2	2	17	-133.6	164.2

AVERAGE DST VALUE : -5.4

EST 00 5 7				
EST	DS1	DS2	ALPHA1	ALPHA2
5	5	16	-139.3	134.3
6	6	16	-0.4	109.2
6	6	16	-10.3	81.2
6	6	16	3.6	50.9
15	15	11	43.3	-13.3
15	15	11	53.3	-33.3
15	15	11	1.8	-53.1
15	15	11	-45.6	-72.9
15	15	11	-99.2	-72.9
15	15	13	-96.4	-114.1
15	15	13	161.1	-123.6
15	15	12	59.0	-146.4
15	15	16	-30.2	155.5
15	15	13	-77.3	117.1
15	15	15	-77.4	80.7
15	15	20	-111.5	41.9
15	15	18	-109.9	9.5
15	15	19	-138.9	-30.6
15	15	15	-12.1	-57.1
15	15	15	-49.6	-83.0
15	15	20	-50.7	-111.5
15	15	27	33.7	-131.3
15	15	32	35.1	-157.2
15	15	37	2.5	168.4

AVERAGE DST VALUE : 10.0

EST 00 5 8				
EST	DS1	DS2	ALPHA1	ALPHA2
12	4	30	-9.5	155.9
12	3	30	-21.3	109.7
13	3	33	-6.5	66.5
13	3	25	-0.6	36.7
13	13	27	14.1	6.1
14	14	25	9.8	-17.7
14	14	21	10.3	-35.5
14	14	15	-13.9	-70.3
14	14	15	-19.6	-93.3
14	14	17	47.7	-121.7
14	14	18	47.7	-143.4
14	14	13	32.5	-170.7
14	14	15	-51.4	147.9
14	14	17	-36.5	101.5
14	14	21	-122.5	64.1
14	14	21	-164.8	33.1
14	14	21	165.4	4.3
14	14	26	150.6	-25.1

18	18	15	-7	-55.3
18	18	15	-7	-83.3
18	18	15	-7	-109.3
18	18	15	-7	-132.3
18	18	15	-7	-150.3
18	18	15	-7	-166.1

AVERAGE EST VALUE : -5.6

EST 00 5 9				
EST	DS1	DS2	ALPHA1	ALPHA2
10	15	44	6.3	136.2
14	14	37	-25.5	106.6
15	15	34	8.2	45.7
15	15	34	-1.3	7.0
17	17	33	-0.6	-25.5
15	15	27	-22.6	-52.3
15	15	15	-46.7	-76.5
15	15	17	-58.6	-105.7
15	15	15	-70.4	-145.7
15	15	15	-56.4	-178.1
15	15	15	12.6	161.5
15	15	15	-24.7	126.6
15	15	15	-66.1	94.3
15	15	15	-41.5	31.1
15	15	12	-61.4	12.1
15	15	10	-61.7	-13.5
15	15	10	25.5	-58.2
15	15	11	36.7	-24.1
15	15	11	-50.5	-112.1
15	15	15	-150.5	-127.1
15	15	15	153.7	-164.1
15	15	21	73.1	165.7

AVERAGE DST VALUE : -11.4

EST 00 5 10				
EST	DS1	DS2	ALPHA1	ALPHA2
11	11	29	54.0	123.0
11	11	32	16.1	160.2
11	11	33	-8.4	74.6
11	11	33	-21.7	42.6
11	11	29	-13.6	6.4
11	11	27	15.7	-27.3
11	11	25	15.1	-60.7
11	11	27	-3.6	-51.4
11	11	29	-21.4	-124.1
11	11	30	-36.8	-155.4
11	11	28	-55.7	-175.2
11	11	22	-70.0	142.7
11	11	15	-87.1	120.9
11	11	16	-161.7	91.5
11	11	17	-108.2	62.0
11	11	17	-108.6	36.3
11	11	19	-132.0	11.2
11	11	15	174.9	-25.8
11	11			

EST	DS1	DS2	ALPHA1	ALPHA2
22	23	23	70.1	129.3
17	25	30	21.0	93.7
5	26	40	13.5	67.2
6	33	30	0.2	49.3
31	35	35	-2.9	18.5
18	27	27	-22.7	-20.7
11	24	24	-21.8	-53.6
47	21	18	14.7	195.6
46	7	7	-41.7	-151.7
41	22	21	-68.1	-177.0
41	3	3	-22.0	-163.1
41	16	16	8.5	148.5
39	15	15	-22.0	114.5
41	17	17	64.8	78.5
41	15	15	127.5	40.4
41	10	10	134.6	5.0
41	20	20	112.8	-24.8
41	17	17	89.8	-71.7
41	19	19	87.0	-101.9
41	18	18	104.4	-130.3
20	21	21	103.9	-165.0
20	14	14	98.3	171.2

AVERAGE DST VALUE : -42.0

EST	DS1	DS2	ALPHA1	ALPHA2
22	23	23	72.0	140.6
21	26	26	59.4	109.4
22	10	10	53.4	78.4
23	14	29	18.4	39.7
20	12	27	34.4	10.6
22	10	29	26.6	-24.9
20	11	29	32.2	-57.1
18	10	29	26.8	-83.5
21	7	24	36.4	-114.1
11	4	17	47.7	-132.1
10	3	13	105.4	-143.5
6	13	13	95.9	-137.0
6	13	13	54.8	177.2
8	17	17	-47.3	115.5
9	17	17	-112.6	62.3
10	18	18	-140.7	35.7
10	17	17	-169.0	4.2
11	8	21	156.5	-23.1
11	6	20	142.4	-51.1
18	5	19	153.3	-70.3
18	1	22	97.4	-91.3
18	16	21	65.2	-126.7
16	19	19	46.3	-153.4
35	16	13	27.4	-178.5

AVERAGE DST VALUE : -17.1

EST	DS1	DS2	ALPHA1	ALPHA2
14	24	24	12.5	135.0
17	22	22	15.4	95.1
16	22	22	33.3	73.5
35	22	22	22.7	31.7
41	24	24	3.0	-4.2
41	25	25	3.0	-23.2
7	7	7	5.6	-56.3
8	22	22	43.0	-73.4
9	22	22	50.8	-119.1
9	22	22	17.3	-186.7
6	7	7	-12.7	-177.5
6	24	24	-41.3	150.3
6	22	22	-75.3	115.7
6	21	21	15.7	87.7
6	21	21	15.8	30.3
6	8	8	151.0	3.0
7	19	19	136.2	-13.5
8	17	17	93.0	-44.7
4	16	16	2.3	-77.5
4	10	10	0.8	-104.1
5	20	20	48.4	-130.1
11	21	21	70.6	-160.5
11	10	10	109.0	185.5

AVERAGE DST VALUE : -31.5

EST	DS1	DS2	ALPHA1	ALPHA2
11	12	12	116.6	123.3
10	3	3	113.0	98.7
11	6	6	72.7	66.3
14	8	8	32.4	41.1
14	9	9	22.2	41.7
13	12	12	63.3	-15.3
13	17	17	51.3	-42.9
13	17	17	46.4	-82.9
17	21	21	31.6	-112.5
5	20	20	13.7	-137.2
6	19	19	-10.3	-165.2
8	18	18	-13.2	173.1
8	15	15	-35.4	137.2
6	19	19	-65.1	104.4
8	16	16	-32.2	73.0
6	17	17	-115.5	48.3
8	16	16	-142.4	16.7
10	19	19	-172.4	-12.8
10	16	16	-173.0	-41.4
11	9	10	-170.0	-79.3
12	10	10	169.5	-97.3
14	12	12	134.9	-130.2
14	21	21	110.3	-161.1
15	19	19	98.1	170.3

AVERAGE DST VALUE : -17.0

EST	DS1	DS2	ALPHA1	ALPHA2
14	14	14	98.9	140.1
15	12	12	77.5	104.2
15	13	13	67.1	89.9
14	11	11	53.6	50.0
12	11	11	32.6	18.0
10	8	14	18.1	-15.1
8	9	20	8.4	-51.3
10	10	24	-10.3	-86.0
10	10	25	-16.1	-121.2
8	10	25	-28.1	-150.4
8	8	21	-38.7	-171.5

AVERAGE DST VALUE : -3.6

EST	DS1	DS2	ALPHA1	ALPHA2
3	15	15	131.6	123.2
6	10	10	124.3	95.7
4	7	7	34.8	93.9
5	10	10	15.7	60.3
5	15	15	-4.6	26.1
5	10	10	-3.4	-19.0
3	21	21	2.1	-49.1
3	21	21	14.6	-77.5
5	19	19	15.5	-107.9
5	19	19	-10.0	-135.4
4	11	11	16.9	-166.7
4	14	14	10.4	138.0
4	6	6	159.5	33.9
4	18	18	-169.5	60.4
6	15	15	155.4	29.4
6	17	17	123.0	-9.2
3	17	17	105.5	-40.4
3	17	17	119.0	-71.4
6	17	17	171.1	-107.7
6	14	14	-159.9	-116.1
6	11	11	-179.2	-141.1
5	12	12	166.1	-172.3
5	15	15	130.6	160.5

AVERAGE DST VALUE : -3.5

EST	DS1	DS2	ALPHA1	ALPHA2
11	12	12	70.7	140.0
12	20	20	20.9	113.1
11	19	19	-2.9	86.0
5	16	16	-21.1	59.0
5	15	15	-36.3	25.5
5	4	4	-45.8	-7.0
5	2	2	-20.9	-36.2
5	15	15	24.2	-74.3
5	14	14	21.4	-56.1
5	17	17	21.3	-121.0
5	17	17	19.7	-143.7
5	10	10	-2.7	-156.7
5	17	17	-57.4	-112.5
5	15	15	-132.1	74.3
5	20	20	-172.1	32.3
5	9	9	154.6	-31.2
5	10	10	146.7	-71.3
5	13	13	147.0	-95.0
5	14	14	144.9	-117.6
5	14	24	139.8	-148.1
5	13	25	92.0	177.2

AVERAGE DST VALUE : 3.0

EST	DS1	DS2	ALPHA1	ALPHA2
16	6	27	36.4	144.1
20	5	25	-5.1	112.4
19	4	21	-28.4	84.1
18	4	20	-39.4	50.4
17	4	22	-69.0	16.0
17	3	22	-99.4	-16.1
14	3	22	-129.9	-45.3
13	4	16	-179.7	-85.3
14	5	14	129.6	-71.4
15	6	15	100.0	-96.9
20	10	14	68.7	-113.3
18	10	14	49.1	-137.3
19	13	14	28.5	-173.4
20	13	14	-15.4	-123.2
23	10	10	-38.5	96.1
23	13	10	-83.5	60.5
23	13	10	-134.5	22.5

AVERAGE DST VALUE : -5.6

EST	DS1	DS2	ALPHA1	ALPHA2
10	7	21	71.8	136.8
12	7	21	50.4	115.0
10	6	12	41.8	68.0
6	4	11	1.5	17.5
4	11	11	-38.8	-15.1
4	19	19	-56.6	-46.4
4	20	20	-79.1	-18.9
4	23	23	-60.2	-77.5
4	21	21	-28.8	-103.9
6	18	18	-31.1	-127.3
6	18	18	-24.5	-150.2
19	20	20	-12.0	-153.5
15	23	23	-56.5	121.3
15	23	23	-38.6	84.3
15	13	13	-116.5	49.1
16	20	20	-116.5	-16.3
16	23	23	-102.5	-46.3
16	20	20	-19.6	-74.3
12	25	25	104.9	-102.1
12	23	23	111.6	-128.5
19	19	19	112.4	-151.5
11	17	17	109.2	170.1

AVERAGE DST VALUE : 3.5

EST	DS1	DS2	ALPHA1	ALPHA2
11	12	12	70.7	140.0
12	20	20	20.9	113.1
11	19	19	-2.9	86.0
5	16	16	-21.1	59.0
5	15	15	-36.3	25.5
5	4	4	-45.8	-7.0
5	2	2	-20.9	-36.2
5	15	15	24.2	-74.3
5	14	14	21.4	-56.1
5	17	17	21.3	-121.0
5	17	17	19.7	-143.7
5	10	10	-2.7	-156.7
5	17	17	-57.4	-112.5
5	15	15	-132.1	74.3
5	20	20	-172.1	32.3
5	9	9	154.6	-31.2
5	10	10	146.7	-71.3
5	13	13	147.0	-95.0
5	14	14	144.9	-117.6
5	14	24	139.8	-148.1
5	13	25	92.0	177.2

AVERAGE DST VALUE : 3.0

EST	DS1	DS2	ALPHA1	ALPHA2
16	6	27	36.4	144.1
20	5	25	-5.1	112.4
19	4	21	-28.4	84.1
18	4	20	-39.4	50.4
17	4	22	-69.0	16.0
17	3	22	-99.4	-16.1
14	3	22	-129.9	-45.3
13	4	16	-179.7	-85.3
14	5	14	129.6	-71.4
15	6	15	100.0	-96.9
20	10	14	68.7	-113.3
18	10	14	49.1	-137.3
19	13	14	28.5	-173.4
20	13	14	-15.4	-123.2
23	10	10	-38.5	96.1
23	13	10	-83.5	60.5
23	13	10	-134.5	22.5

12	-116.5	-13.2
16	-126.9	-43.5
17	-141.1	-81.4
14	-147.3	-110.9
15	-147.9	-143.5
18	-179.4	-168.5
15	-159.7	-161.3

AVERAGE DST VALUE : 19.9

ISI 30 5 22

EST	DS1	DS2	ALPHA1	ALPHA2
23	5	17	137.7	132.8
19	5	10	109.1	105.9
18	18	97.1	76.9	76.9
14	18	68.7	52.4	52.4
13	18	69.0	29.4	29.4
15	18	67.5	-1.0	-1.0
15	18	-12.7	-34.4	-34.4
18	18	-26.9	-70.3	-70.3
18	18	-10.3	-104.0	-104.0
18	18	-22.4	-135.3	-135.3
16	18	-30.7	-159.5	-159.5
14	18	-10.2	-177.7	-177.7
18	18	5.1	-139.4	-139.4
18	18	18.6	-101.5	-101.5
22	18	2.4	66.3	66.3
22	18	102.0	33.9	33.9
22	18	102.0	-22.9	-22.9
18	18	124.8	-1.0	-1.0
18	18	-124.5	-51.7	-51.7
18	18	45.9	-122.4	-122.4
18	18	-159.7	-159.7	-159.7
17	18	139.7	-166.0	-166.0
6	18	107.7	-172.2	-172.2

AVERAGE DST VALUE : 24.5

ISI 30 5 23

EST	DS1	DS2	ALPHA1	ALPHA2
26	8	23	56.8	144.0
22	8	23	44.8	112.4
17	8	23	13.1	89.5
16	8	23	6.1	43.8
17	8	23	-18.1	12.4
16	8	23	-26.8	-23.5
16	8	23	-37.2	-52.5
14	8	23	-12.3	-77.1
13	8	23	114.8	-23.7
13	8	23	50.5	-126.2
13	8	23	74.7	-150.7
14	8	23	54.4	-163.7
14	8	23	-5.4	-183.1
12	8	23	-35.4	-211.2
22	8	23	-64.2	-235.1
20	8	23	-44.9	-254.1
18	8	23	-63.5	-270.3
18	8	23	-113.9	-291.6
17	8	23	-92.6	-309.7
17	8	23	59.3	-327.3
16	8	23	93.3	-343.4
16	8	23	117.0	-351.3
12	8	23	136.5	-377.2
12	8	23	139.7	-380.8

AVERAGE DST VALUE : 7.1

ISI 30 5 24

EST	DS1	DS2	ALPHA1	ALPHA2
5	5	21	53.3	125.0
4	5	20	24.5	97.4
4	5	12	20.7	79.7
3	5	10	22.4	62.4

7	8	-0.2	36.0
8	8	-14.7	-46.3
10	13	-28.9	-65.7
16	16	-44.3	-112.0
17	17	-41.5	-136.5
18	18	-31.8	-155.9
20	20	-10.3	-174.7
23	23	-18.3	-154.3
23	23	-41.5	-119.0
23	23	-59.1	-84.0
27	27	-90.3	-44.6
27	27	-99.7	-15.4
25	25	-88.5	-15.4
21	21	-52.3	-36.4
19	19	-59.7	-76.3
21	21	-43.6	-97.3
25	25	-21.0	-117.8
26	26	-21.0	-151.9
35	35	-9.6	-171.9

AVERAGE DST VALUE : -7.6

ISI 30 5 25

EST	DS1	DS2	ALPHA1	ALPHA2
21	41	3.9	143.0	143.0
24	41	-1.3	116.0	116.0
20	35	-19.4	98.3	98.3
27	36	-144.6	110.0	110.0
43	55	-179.6	94.7	94.7
46	52	153.4	65.3	65.3
40	47	137.5	29.9	29.9
41	52	92.7	-6.1	-6.1
34	46	57.7	-43.7	-43.7
32	23	-28.1	-106.4	-106.4
64	23	-27.8	-172.2	-172.2
61	29	-44.9	-136.9	-136.9
47	25	-49.1	-105.6	-105.6
24	26	-61.3	-85.9	-85.9
14	20	-50.3	-54.7	-54.7
9	16	-46.9	-36.3	-36.3
19	19	-116.6	-35.1	-35.1
11	21	104.0	-37.1	-37.1
10	20	108.7	-116.3	-116.3
11	21	110.5	-136.2	-136.2
12	23	93.6	-160.0	-160.0
14	24	67.2	-155.2	-155.2

AVERAGE DST VALUE : -63.4

ISI 30 5 26

EST	DS1	DS2	ALPHA1	ALPHA2
12	22	46.3	129.7	129.7
9	15	33.0	105.4	105.4
7	13	31.1	85.6	85.6
9	10	16.7	66.2	66.2
9	11	-2.3	25.4	25.4
9	15	-5.0	-24.6	-24.6
10	16	0.3	-58.0	-58.0
8	15	-6.8	-85.0	-85.0
8	13	-0.4	-105.2	-105.2
10	13	0.9	-129.4	-129.4
10	14	11.9	-142.3	-142.3
17	17	7.7	-161.3	-161.3
15	18	-11.5	-169.1	-169.1
13	15	-35.2	-139.7	-139.7
12	13	-63.6	-100.5	-100.5
12	20	-31.6	57.4	57.4
10	18	-114.6	19.9	19.9
13	20	-146.7	-21.3	-21.3
9	19	-136.7	-87.1	-87.1
9	16	-123.7	-102.4	-102.4
13	12	-135.0	-135.0	-135.0
13	11	-161.0	-162.1	-162.1
10	15	-172.1	-175.6	-175.6

-24	6	20	176.4	154.0
-----	---	----	-------	-------

AVERAGE DST VALUE : -42.6

ISI 30 5 27

EST	DS1	DS2	ALPHA1	ALPHA2
22	2	27	105.3	129.1
22	2	29	41.4	101.3
24	6	29	56.6	72.9
10	27	31.4	39.9	39.9
11	20	56.3	6.3	6.3
19	19	43.0	-26.1	-26.1
16	16	22.8	-50.2	-50.2
25	7	13	14.1	-13.9
19	5	11	13.2	-91.7
17	13	-18.7	-123.6	-123.6
17	17	-47.8	-172.3	-172.3
19	17	-45.8	-160.4	-160.4
19	4	19	-57.1	-128.4
19	4	20	-115.5	-91.3
19	4	21	-136.7	-60.1
16	5	19	-112.9	-32.4
14	20	-142.8	-28.3	-28.3
13	20	-168.1	-65.5	-65.5
13	20	153.4	-93.2	-93.2
13	4	14	13.0	-183.2
12	4	15	135.5	-175.7
8	22	106.3	161.0	161.0

AVERAGE DST VALUE : -18.5

ISI 30 5 28

EST	DS1	DS2	ALPHA1	ALPHA2
1	31	59.6	134.4	134.4
11	34	8.3	109.3	109.3
11	28	-8.1	84.5	84.5
13	22	-38.9	64.1	64.1
8	18	-53.6	31.4	31.4
9	19	-64.3	-2.7	-2.7
6	19	-75.3	-33.7	-33.7
6	16	-74.7	-66.7	-66.7
4	8	-54.8	-107.6	-107.6
4	9	-55.8	-146.2	-146.2
3	8	-61.4	-177.1	-177.1
2	7	-41.1	-158.3	-158.3
1	7	-28.6	-132.4	-132.4
6	14	-23.2	-106.5	-106.5
6	23	-39.1	63.0	63.0
4	21	-129.1	23.3	23.3
4	21	165.6	-6.2	-6.2
6	20	64.0	-44.3	-44.3
6	20	53.4	-102.3	-102.3
4	20	63.9	-127.9	-127.9
3	13	115.2	-154.3	-154.3
4	16	-168.1	174.1	174.1
7	16	-160.6	143.5	143.5

AVERAGE DST VALUE : 2.0

ISI 30 5 29

EST	DS1	DS2	ALPHA1	ALPHA2	
9	1	22	-134.6	131.4	
14	9	27	-24.2	112.3	
16	27	-39.5	95.3	95.3	
17	20	-53.3	41.2	41.2	
14	14	-69.7	71.6	71.6	
12	13	-88.5	61.3	61.3	
6	6	11	-90.9	43.9	
6	11	-124.1	18.3	18.3	
9	6	11	-134.4	-23.4	-23.4
2	11	-92.5	-96.4	-96.4	

5	8	14	-19.5	-150.1
6	6	18	-1.9	-178.5
6	6	19	-27.2	-136.7
0	23	23	-104.9	93.4
0	26	26	175.1	52.4
1	10	25	157.1	12.9
1	11	26	133.7	-13.2
1	12	25	110.9	-46.7
1	13	23	107.5	-64.6
0	12	23	100.0	-81.4
0	12	23	140.0	-98.0
1	15	23	131.0	-116.2
1	15	23	136.1	-146.9
8	25	25	61.8	177.7

AVERAGE DST VALUE : 8.3

ISI 30 5 30

EST	DS1	DS2	ALPHA1	ALPHA2
19	5	23	55.7	143.1
19	5	26	26.1	115.2
24	6	26	30.2	81.0
24	6	26	-0.2	45.2
25	5	26	-11.4	-13.8
26	5	26	-25.3	-47.5
24	6	24	66.5	-74.0
23	5	23	53.7	-101.8
16	19	30.6	-124.3	-124.3
19	19	30.8	-154.1	-154.1
20	20	20.2	-174.5	-174.5
23	23	-29.3	-132.3	-132.3
24	23	-99.3	-89.2	-89.2
23	23	-143.1	-52.9	-52.9
21	22	-194.2	29.0	29.0
22	22	-171.3	-3.1	-3.1
23	23	180.2	-6.7	-6.7
24	24	126.3	-86.6	-86.6
10	24	118.9	-108.8	-108.8
10	24	116.3	-130.6	-130.6
9	24	104.9	-157.9	-157.9
23	37	71.7	-174.7	-174.7

AVERAGE DST VALUE : 6.5

ISI 30 5 31

EST	DS1	DS2	ALPHA1	ALPHA2
11	13	35	33.7	142.1
11	11	40	33.7	123.5
3	16	34	-9.4	84.4
2	15	32	-12.2	53.0
-6	12	26	3.6	29.6
-8	19	23	26.6	-5.5
-12	16	22	7.4	-46.3
-10	16	21	4.4	-82.7
-7	14	20	-0.1	-114.1
-5	15	19	-10.5	-133.3
-1	14	21	-11.3	-164.3
-16	19	20	-22.3	-160.7
-22	18	31	-63.4	-82.0
-24	9	20	-92.0	57.2
-19	8	20	-127.8	25.5
-24	3	23	-164.4	-1.3
-20	2	22	-153.6	-32.0
-16	2	22	-142.2	-61.1
-17	7	20	-127.0	-111.2
-11	13	14	-171.4	



-46	19	23	20.2	-20.5
-44	22	32	-0.4	-62.3
-43	31	39	-11.0	-24.2
-40	34	44	5.8	-118.7
-40	34	44	6.2	-133.2
-40	34	44	-14.5	-176.7
-40	34	44	-33.2	-147.5
-40	34	44	-61.8	135.3
-40	34	44	-21.7	63.3
-40	34	44	25.0	35.1
-40	34	44	17.1	-10.4
-40	34	44	38.6	-24.3
-40	34	44	60.4	-34.2
-40	34	44	37.8	-45.5
-40	34	44	77.6	-83.3
-40	34	44	39.3	-119.7
-40	34	44	96.6	-160.9
-40	34	44	39.5	175.1

AVERAGE DST VALUE : -48.0

EST DS1 DS2 ALPHA1 ALPHA2				
-58	26	21	50.9	145.9
-58	29	24	72.5	111.3
-58	32	21	57.4	71.7
-58	25	17	50.4	43.0
-58	28	15	46.5	17.1
-58	17	25	24.4	-25.4
-58	18	33	-2.0	-63.9
-58	21	42	4.4	-71.3
-58	31	45	-12.9	-153.4
-58	33	45	-32.9	171.0
-58	41	43	-39.6	137.6
-58	17	31	-38.7	107.3
-58	4	21	-46.3	30.3
-58	1	12	-154.5	50.2
-58	3	17	46.5	22.7
-58	7	15	17.3	3.4
-58	11	16	-1.4	-11.6
-58	15	14	-34.1	-16.3
-58	16	18	-36.3	-35.6
-58	16	18	-26.3	-77.6
-58	16	22	-50.5	-119.4
-58	16	20	-74.2	-154.4

AVERAGE DST VALUE : -53.3

EST DS1 DS2 ALPHA1 ALPHA2				
-59	12	21	60.3	123.2
-59	9	20	34.7	101.3
-59	24	19	72.2	61.9
-59	23	21	46.3	14.3
-59	23	24	34.3	3.3
-59	24	31	28.1	-3.2
-59	21	34	10.3	-55.1
-59	26	42	3.0	-33.4
-59	32	40	13.3	-124.3
-59	34	50	-3.3	-159.3
-59	35	45	-15.4	175.3
-59	26	33	-42.3	131.5
-59	5	33	-58.7	107.5
-59	11	18	-34.2	109.1
-59	8	14	-14.0	74.3
-59	11	14	58.4	47.4
-59	11	14	13.0	20.5
-59	11	14	-6.0	-2.4
-59	20	11	-20.0	-13.3
-59	14	11	-49.5	-49.2
-59	7	17	-65.8	-33.3
-59	6	22	-12.7	-111.1
-59	9	21	10.3	-154.0
-59	5	21	41.3	154.7

AVERAGE DST VALUE : -53.2

EST DS1 DS2 ALPHA1 ALPHA2				
-38	6	26	37.5	143.3
-38	8	24	70.4	135.3
-38	10	19	72.6	75.5
-38	13	19	71.3	41.8
-38	15	19	70.8	19.6
-38	10	21	37.7	-22.1
-38	9	25	20.3	-59.5
-38	8	27	-4.5	-83.1
-38	8	26	-14.1	-113.3
-38	10	24	-7.3	-145.3
-38	9	22	-17.0	-178.3
-38	4	22	-37.4	147.8
-38	4	22	-114.5	109.2
-38	4	22	-136.4	76.3
-38	4	21	-132.0	35.7
-38	3	20	-85.5	16.1
-38	11	20	-65.1	-3.3
-38	12	19	-110.4	-26.5
-38	8	23	-147.6	-57.1
-38	6	24	164.8	-68.1
-38	10	31	70.6	-121.3
-38	10	34	68.6	-155.7
-38	8	35	70.8	172.3

AVERAGE DST VALUE : -10.6

EST DS1 DS2 ALPHA1 ALPHA2				
-15	8	21	89.8	136.1
-15	7	19	101.3	111.5
-15	7	19	67.5	82.5
-15	7	20	56.7	49.3
-15	9	20	49.7	15.3
-15	9	20	33.9	-14.3
-15	8	25	41.2	-46.3
-15	10	25	37.7	-73.0
-15	10	22	27.5	-106.7
-15	10	20	5.9	-137.1
-15	11	19	-17.0	-165.3
-15	11	20	-46.6	153.3
-15	11	22	-75.0	121.1
-15	8	26	-92.9	87.0
-15	8	26	-108.4	59.0
-15	8	26	-111.6	36.0
-15	8	26	-114.8	10.2
-15	8	26	-117.9	-17.3
-15	8	26	-120.9	-47.1
-15	8	26	-123.7	-74.1
-15	8	26	-126.0	-101.7
-15	8	26	-128.5	-132.5
-15	8	26	-131.0	-164.0
-15	8	26	-133.5	-195.5

AVERAGE DST VALUE : -21.3

EST DS1 DS2 ALPHA1 ALPHA2				
-44	6	20	120.5	137.3
-44	15	7	130.0	94.3
-44	15	9	112.0	61.4
-44	20	12	100.0	29.7
-44	17	18	78.0	3.4
-44	16	22	51.6	-24.5
-44	15	20	31.6	-51.4
-44	9	22	13.5	-73.2
-44	10	24	-17.6	-112.7
-44	12	26	-32.3	-147.3
-44	17	26	-37.5	-171.3
-44	17	26	-42.0	-148.3
-44	17	27	-50.3	122.9
-44	21	23	-62.3	102.2
-44	21	23	-70.1	69.2
-44	21	22	-82.7	61.0
-44	21	21	-95.9	32.3
-44	17	23	-109.8	4.5
-44	16	22	-123.2	-21.3
-44	16	23	-145.3	-52.2
-44	13	25	172.2	-85.3
-44	10	29	126.0	-124.2
-44	9	28	104.2	-151.5
-44	9	25	44.2	168.1

AVERAGE DST VALUE : -6.5

EST DS1 DS2 ALPHA1 ALPHA2				
-2	4	25	109.1	135.5
-2	5	25	108.3	105.1
-2	5	20	65.6	79.7
-2	3	14	39.7	45.1
-2	0	3	9.4	21.7
-2	0	3	51.7	-9.1
-2	10	3	32.7	-32.5
-2	10	3	28.1	-51.0
-2	11	2	20.1	-64.3
-2	12	2	-40.7	-104.6
-2	12	2	-15.5	-135.5
-2	14	14	-63.3	173.3
-2	14	16	-68.0	122.3
-2	14	16	-68.0	62.3
-2	14	16	-68.7	63.0
-2	9	16	-105.2	35.4
-2	10	21	-130.7	10.0
-2	13	23	-136.3	-10.3
-2	12	21	-143.2	-57.1
-2	10	19	-143.8	-67.7
-2	15	15	-133.6	-102.0
-2	13	17	-130.0	-176.4
-2	15	17	-132.8	-155.0
-2	15	17	-149.9	105.7

AVERAGE DST VALUE : -7.4

EST DS1 DS2 ALPHA1 ALPHA2				
-4	6	23	91.0	135.0
-4	8	25	104.6	131.5
-4	8	25	32.7	73.3
-4	9	25	34.0	39.0
-4	9	19	37.6	-20.0
-4	5	12	1.7	-36.4
-4	1	10	-6.7	-46.3
-4	1	10	115.4	-65.5
-4	4	13	60.2	-113.3
-4	7	15	51.0	-130.0

11	12	51.5	-153.9
10	12	47.9	147.8
7	15	29.4	95.3
10	16	-11.7	72.0
11	19	-82.6	46.6
11	20	-75.3	30.1
16	20	-91.5	-3.6
17	26	-119.2	-25.2
14	26	-155.8	-52.8
10	26	156.1	-31.3
10	26	116.0	-127.7
11	27	84.5	-162.5
11	26	84.5	166.4

AVERAGE DST VALUE : -10.6

EST DS1 DS2 ALPHA1 ALPHA2				
-15	8	21	89.8	136.1
-15	7	19	101.3	111.5
-15	7	19	67.5	82.5
-15	7	20	56.7	49.3
-15	9	20	49.7	15.3
-15	9	20	33.9	-14.3
-15	8	25	41.2	-46.3
-15	10	25	37.7	-73.0
-15	10	22	27.5	-106.7
-15	10	20	5.9	-137.1
-15	11	19	-17.0	-165.3
-15	11	20	-46.6	153.3
-15	11	22	-75.0	121.1
-15	8	26	-92.9	87.0
-15	8	26	-108.4	59.0
-15	8	26	-111.6	36.0
-15	8	26	-114.8	10.2
-15	8	26	-117.9	-17.3
-15	8	26	-120.9	-47.1
-15	8	26	-123.7	-74.1
-15	8	26	-126.0	-101.7
-15	8	26	-128.5	-132.5
-15	8	26	-131.0	-164.0
-15	8	26	-133.5	-195.5

AVERAGE DST VALUE : -6.5

EST DS1 DS2 ALPHA1 ALPHA2				
-2	4	25	109.1	135.5
-2	5	25	108.3	105.1
-2	5	20	65.6	79.7
-2	3	14	39.7	45.1
-2	0	3	9.4	21.7
-2	0	3	51.7	-9.1
-2	10	3	32.7	-32.5
-2	10	3	28.1	-51.0
-2	11	2	20.1	-64.3
-2	12	2	-40.7	-104.6
-2	12	2	-15.5	-135.5
-2	14	14	-63.3	173.3
-2	14	16	-68.0	122.3
-2	14	16	-68.0	62.3
-2	14	16	-68.7	63.0
-2	9	16	-105.2	35.4
-2	10	21	-130.7	10.0
-2	13	23	-136.3	-10.3
-2	12	21	-143.2	-57.1
-2	10	19	-143.8	-67.7
-2	15	15	-133.6	-102.0
-2	13	17	-130.0	-176.4
-2	15	17	-132.8	-155.0
-2	15	17	-149.9	105.7

AVERAGE DST VALUE : 3.1

EST DS1 DS2 ALPHA1 ALPHA2				
10	7	22	-112.5	47.3
4	8	22	-76.1	15.1

EST	DS1	DS2	ALPHA1	ALPHA2
15	8	19	-164.2	159.7
14	13	11	164.6	96.5
13	16	3	138.0	71.8
16	13	3	118.7	64.6
17	6	7	47.6	64.2
16	8	3	24.6	32.7
12	9	3	-31.4	-14.1
10	9	3	-54.1	-32.1
13	13	16	-6.6	-53.8
9	13	13	-32.3	-140.1
9	13	13	-5.8	-172.0
11	16	13	-21.2	152.4
13	15	15	-42.4	116.4
14	17	17	-60.9	81.3
14	17	17	-84.2	46.8
12	15	17	-101.2	17.0
12	5	21	-135.6	-7.0
12	4	26	-167.7	-20.6
12	4	26	-185.9	-53.5
12	4	29	152.6	-87.2
12	4	26	149.6	-129.3
12	4	27	153.9	-153.5
12	4	26	122.2	174.5

AVERAGE DST VALUE : 10.5</

5	8	22	-106.0	-3.3
14	13	13	-137.3	-40.7
16	16	17	-145.1	-91.3
16	15	15	-154.4	-136.2
16	13	13	-155.6	-172.6
15	9	20	-151.0	154.5

AVERAGE DST VALUE : 10.0

IST #0 6 24

EST	DS1	DS2	ALPHA1	ALPHA2
9	6	23	161.8	131.6
9	7	23	83.0	109.4
9	6	20	59.8	79.3
9	7	20	80.4	41.7
9	7	22	72.0	13.1
9	7	22	58.1	-11.3
9	7	12	47.5	-46.4
9	6	17	31.2	-77.4
9	7	16	25.2	-102.2
9	8	13	21.9	-134.0
9	7	19	9.3	-167.5
9	4	20	-12.4	-150.6
9	5	21	-93.9	-113.0
9	7	20	-78.5	91.2
9	11	16	-77.7	70.0
9	12	13	-56.4	37.7
9	16	21	-92.4	35.0
9	22	21	-101.4	-24.3
9	23	19	-111.6	-55.1
9	23	16	-126.0	-86.3
9	17	13	-141.3	-133.3
9	14	16	-155.0	-173.3
9	11	16	-171.9	-156.1

AVERAGE DST VALUE : 7.0

EST #0 6 23

EST	DS1	DS2	ALPHA1	ALPHA2
7	6	16	169.6	129.6
7	6	10	133.4	116.0
7	5	9	95.2	111.7
7	5	14	23.2	71.0
7	4	16	-50.3	42.2
7	4	15	-57.0	17.0
7	4	12	-49.9	-19.0
7	4	12	5.2	-57.4
7	4	11	30.1	-83.4
7	4	12	37.4	-117.1
7	6	13	5.0	-164.3
7	3	19	-23.5	-118.5
7	3	19	-29.6	85.3
7	3	15	-45.2	62.1
7	3	15	-60.4	35.0
7	3	16	-94.0	19.1
7	11	19	-99.9	-7.6
7	11	11	-113.2	-30.3
7	11	16	-126.0	-70.7
7	14	13	-135.5	-99.0
7	10	21	-163.7	-132.3
7	7	22	-175.2	-163.1
7	7	23	-143.8	-163.0

AVERAGE DST VALUE : 1.7

EST #0 6 24

EST	DS1	DS2	ALPHA1	ALPHA2
3	5	25	112.0	130.3
3	9	23	101.2	107.1
3	9	23	90.3	81.0
3	2	22	51.8	64.3

35	0	16	55.3	48.2
35	4	12	61.1	26.0
35	8	12	-9.7	-2.5
35	6	13	-54.8	-42.1
35	6	15	-90.6	-83.7
35	4	18	-69.2	-122.5
35	4	13	-14.7	-153.3
35	14	21	-14.9	162.5
35	11	23	-23.9	126.7
35	3	21	-37.0	93.9
35	3	23	-32.3	62.2
35	3	24	-31.0	52.2
35	3	21	-41.3	6.1
35	3	19	-49.8	-10.3
35	3	16	-50.4	-42.0
35	3	16	-148.3	-53.3
35	12	13	-178.1	-84.1
35	10	23	-180.3	-114.6
35	3	27	120.8	-145.1
35	2	20	3.3	171.3

AVERAGE DST VALUE : 13.4

EST #0 6 25

EST	DS1	DS2	ALPHA1	ALPHA2
14	8	31	4.7	140.3
14	11	8	7.2	108.2
14	8	23	-5.0	84.0
14	8	30	74.7	60.1
14	5	22	11.2	33.5
14	11	13	17.5	13.5
14	12	9	9.5	-23.6
14	1	13	-3.3	-77.1
14	7	16	11.7	-103.0
14	2	16	32.0	-127.1
14	2	13	22.6	-165.7
14	2	23	-16.8	-152.5
14	3	23	-46.6	-111.5
14	3	24	-117.5	-55.4
14	4	20	-124.5	33.6
14	4	19	-159.4	12.7
14	2	20	-125.7	-17.5
14	7	19	-115.0	-41.0
14	14	17	-133.5	-56.3
14	16	15	-155.0	-85.2
14	16	17	-186.4	-112.7
14	13	21	-177.9	-155.7
14	3	21	164.2	168.0

AVERAGE DST VALUE : 3.3

EST #0 6 20

EST	DS1	DS2	ALPHA1	ALPHA2
5	12	26	49.0	133.1
5	11	24	8.1	116.8
5	9	15	-7.0	91.0
5	3	9	54.4	64.9
5	3	5	46.5	57.3
5	3	6	20.1	17.0
5	3	4	-1.4	-0.9
5	3	4	11.3	-31.3
5	3	1	-16.1	-63.2
5	3	11	17.0	-121.9
5	3	13	39.0	-143.6
5	3	15	5.1	173.4
5	5	23	-37.0	129.7
5	11	18	-19.2	39.5
5	13	18	-14.2	66.6
5	14	15	-23.0	43.3
5	15	16	-37.2	16.0
5	17	13	-44.5	-6.0
5	13	22	-39.7	-20.1
5	21	21	-37.0	-55.3
5	10	21	-66.6	-95.7
5	7	22	-39.4	-131.7
5	4	25	-35.0	-161.3

AVERAGE DST VALUE : -9.8

EST #0 6 27

EST	DS1	DS2	ALPHA1	ALPHA2
25	4	35	40.7	149.6
25	4	31	76.8	107.7
25	6	34	56.8	75.9
25	6	22	55.4	47.2
25	4	25	65.6	30.9
25	8	26	69.3	-21.3
25	9	29	55.0	-51.2
25	7	24	47.2	-31.5
25	7	24	38.9	-113.7
25	6	23	22.0	-174.7
25	6	23	9.9	-175.3
25	6	11	-66.0	124.5
25	5	13	-78.0	92.1
25	10	16	-92.3	65.8
25	15	18	-95.7	40.4
25	17	17	-93.0	21.7
25	16	18	-95.2	-6.0
25	17	14	-105.2	-33.3
25	16	13	-114.8	-71.0
25	14	13	-134.5	-105.3
25	13	14	-148.5	-146.3
25	15	11	-166.7	-173.2
25	15	9	-187.9	-130.4

AVERAGE DST VALUE : -14.3

EST #0 6 20

EST	DS1	DS2	ALPHA1	ALPHA2
10	14	11	142.6	111.4
10	11	18	129.0	55.1
10	9	24	96.7	68.1
10	5	26	84.2	40.3
10	4	26	81.6	14.5
10	2	23	47.1	-10.2
10	2	23	27.3	-50.9
10	3	22	0.1	-84.4
10	3	22	-21.8	-115.9
10	6	21	-13.9	-177.1
10	9	15	-10.3	161.7
10	13	17	-21.3	144.4
10	15	16	-40.9	122.5
10	13	17	-37.7	85.1
10	4	15	-74.8	43.1
10	4	19	-126.0	2.5
10	4	22	-150.4	-27.0
10	4	20	113.1	-72.3
10	4	13	37.0	-93.5
10	1	16	146.6	-132.7
10	6	16	-177.0	-150.7
10	3	17	167.1	-176.3
10	2	20	137.3	162.4

AVERAGE DST VALUE : -5.1

EST #0 6 29

EST	DS1	DS2	ALPHA1	ALPHA2
1	3	26	95.4	156.1
1	6	29	67.0	103.4
1	3	26	47.5	77.4
1	6	35	19.9	46.0
1	3	4	36	24.0
1	4	31	52.7	-12.2
1	4	25	24.7	-62.2
1	6	22	19.5	-84.5
1	3	13	6.4	-111.2
1	6	16	-6.1	-130.5

4	13	11.5	-167.3	
4	17	19.7	-157.7	
4	16	-31.5	124.1	
4	16	-49.5	77.5	
4	17	-71.3	60.2	
4	20	-137.6	27.7	
4	23	-133.0	5.3	
4	15	-132.4	-20.3	
4	3	15	-137.9	-56.0
4	3	14	-116.3	-81.5
4	3	11	-138.0	-120.4
4	11	9	-157.2	-151.1
4	7	7	-171.7	-176.9
4	14	11	-159.1	-169.5

AVERAGE DST VALUE : 2.9

EST #0 6 30

EST	DS1	DS2	ALPHA1	ALPHA2
12	15	22.5	137.0	
12	11	17	67.7	107.0
12	14	47.0	65.3	
12	19	14.2	61.7	
12	15	-14.4	35.0	
12	8	-16.5	11.9	
12	8	-17.7	-47.7	
12	10	-16.5	-93.3	
12	14	-20.6	-125.7	
12	23	-30.2	-157.6	
12	23	-24.5	-171.5	
12	22	-26.5	134.2	
12	22	-10.5	102.9	
12	22	-1.4	72.3	
12	24	12.5	35.4	
12	22	125.6	7.6	
12	22	32.5	-34.0	
12	22	98.4	-51.0	
12	17	-97.9	-43.1	
12	11	-109.1	-73.3	
12	11	-126.3	-108.1	
12	11	-155.5	-131.0	
12	11	-176.0	-166.5	
12	11	146.0	161.5	

AVERAGE DST VALUE : -3.4

END CYCLE FILE