#645

GG-29B

GG-32J

GI-56C

GROUND BASE DATA SETS FOR CDAW 8

GG-82B

GG-2BA

NO NEW I.D. #'s

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1. INTRODUCTION:

The documentation for this data set was originally on paper, kept in NSSDC's Data Set Catalogs (DSCs). The paper documentation in the Data Set Catalogs have been made into digital images, and then collected into a single PDF file for each Data Set Catalog. The inventory information in these DSCs is current as of July 1, 2004. This inventory information is now no longer maintained in the DSCs, but is now managed in the inventory part of the NSSDC information system. The information existing in the DSCs is now not needed for locating the data files, but we did not remove that inventory information.

The offline tape datasets have now been migrated from the original magnetic tape to Archival Information Packages (AIP's).

A prior restoration may have been done on data sets, if a requestor of this data set has questions; they should send an inquiry to the request office to see if additional information exists.

2. ERRATA/CHANGE LOG:

NOTE: Changes are made in a text box, and will show up that way when displayed on screen with a PDF reader.

When printing, special settings may be required to make the text box appear on the printed output.

Version	Date	Person	Page	Description of Change
01				
02				

3 LINKS TO RELEVANT INFORMATION IN THE ONLINE NSSDC INFORMATION SYSTEM:

http://nssdc.gsfc.nasa.gov/nmc/

[NOTE: This link will take you to the main page of the NSSDC Master Catalog. There you will be able to perform searches to find additional information]

4. CATALOG MATERIALS:

a. Associated Documents To find associated documents you will need to know the document ID number and then click here.
http://nssdcftp.gsfc.nasa.gov/miscellaneous/documents/

b. Core Catalog Materials

REQ. AGENT	RAND NO.	ACQ. AGENT
GLS	V0324	HKH

No New I.D. Numbers in this Data Set Catalog

GG-29B

7 STATIONS, 5-SECOND RESOLUTION

THIS DATA SET CONSISTS OF TWO MAGNETIC TAPES. THE TAPES ARE 9 TRACK, 1600 BPI, WRITTEN IN ASCII AND CONTAIN 6 FILES OF DATA, EXCEPT FILES 4 AND 5 OF TAPE D-74440, WHICH CONTAIN 0 RECORDS. THE TAPES WERE CREATED ON A CYBER 860 COMPUTER. THE D AND C NUMBERS AND THE TIME INTERVALS ARE AS FOLLOWS:

D#	C#	TIME INTERVALS
D-72904	C-25630	01/28 - 06/28/83
D-74440	C-26666	03/22/83 & 04/13/83

DATE: April 3, 1986

NSSDC ID: 66-29B

P.I.: D J KNECHT / H. J. SINGER

CDAW DATA SET ENTRY

DATE RECEIVED: April 1, 1986

DATA SENT BY: Dr. Howard J. Singer

PARTICIPANT:

MATERIAL RECEIVED: Questionnaire, letter of intro, CDB Tape Doc. form, Network discrip, file format (2) Sample 1/2 hr. plots (18), 1 - 9 trk, 1600 BPI ASCII tape

SATELLITE/NSDF NAME: 66-29 AFGL Magnetometer Data

CDAW DATA SET MNEMONIC: ZAF

CDAW DATA SET NAME: AFGL Magnetometer Stations

AIM FILE DATA SET NAME:

new NSDF data set. (probably 66-29B): NAME = 7 stations, 5 second resolution

CDAW NEW DATA SET ADDITIONS REPLACEMENTS

AIM FILE NEW DATA SET ADDITIONS REPLACEMENTS

COMMENTS: CDAW-6 Participant/P.I. = P. FOUGERE (1-Sec data) this is 5 SEC data. (Format may be same, so program might be same.) HKH 4/13/86 If different format, we will have to discuss with Singer the proper treatment of baseline data, and/or quiet data.

TIME COVERAGE: See CDB Tape Doc. form

TAPES TO BE RETURNED TO:

RECEIVED BY: Leah Stallwood

National Aeronautics and Space Administration

CDB TAPE DOCUMENTATION FORM

SECTION I. DATA SET DESCRIPTION (Please print.)

1. Spacecraft/Ground Station(s) NEW, RPC, LDS, MCL, SUB, TPA, LOC	2. Experiment Name AFGL Magnetometer Network	3. Data Set Name CDAWDT
4. Scientific Contact Dr. Howard J. Singer	5. Telephone/Telex No. 617-861-2431	6. SPAN/TELENET Address AFGL:: SINGER
7. Address AFGL/PHG		
8. City HANSCOM AFB	9. State MA	10. Zip Code or Country 01731
11. Programmer Contact DAVID KOONCE	12. Telephone/Telex No. 617-861-3102	13. SPAN/TELENET Address AFGL:: KOONCE

SECTION II. TAPE DESCRIPTION

1. External Physical Label
CDAWDT

2. No. of Tapes Submitted
1

3. Tape Density [ ] 800 bpi [X] 1600 bpi [ ] 6250 bpi

4. No. of Files (per tape)
6

5. No. of File Marks Between Files
1

6. After Last File?
2

7. No. of Tracks [ ] 7 [X] 9

8. Recording Parity
EVEN

9. Make and Model of Computer Used to Generate Tape
CYBER 860

10. Tapes are written in:
[ ] binary [X] ASCII [ ] EBCDIC
[ ] Combination as shown [ ] Other; Specify _____

11. If binary, what floating point representation is used?
(e.g., CDC 64 bit, or IBM 3081 32 bit)

12. If binary, what integer representation is used? (e.g., 32 bit, 2's complement)

13. No. of Physical Records (per file)
FILE 1 - 1764 FILE 3 - 2268 FILE 5 - 1260
FILE 2 - 2016 FILE 4 - 1612 FILE 6 - 3024

14. Are original tapes to be returned?
[ ] Yes [X] No

15. Start and Stop Time of Each File (If more space is needed, please attach.)
FILE 1 - 28 JAN 83 0400-1100 FILE 4 - 26 MAR 83 0000-0600
FILE 2 - 29 JAN 83 0500-1300 FILE 5 - 04 JUN 83 0500-1000
FILE 3 - 25 MAR 83 0500-1400 FILE 6 - 27-28 JUN 83 1500-0300

SECTION III. LOGICAL AND PHYSICAL RECORD FORMAT (Please attach.)

SECTION IV. TO BE FILLED IN BY NSSDC ONLY

	CDB No.
Date Received	Tape No.
Programmer ID	CON Name
Data Base	Date Loaded

COORDINATED DATA BASE 8 (CDB-8) QUESTIONNAIRE

(PLEASE RETURN BY MARCH 10, 1986)

NAME: Dr. Howard J. Singer TELEPHONE: 617-861-2431

ADDRESS: AFGL/PHG
Hanscom AFB, Ma. 01731

TELEX (Carrier, Number, Answer Back): 928 123/AFGL HANSCOM

TELENET ADDRESS: _____

SPAN ADDRESS (Node Name::Account Name): AFGL::SINGER

TELEMAIL: _____

1. I wish to participate: Yes X No ____

2. If no, do you wish to remain on the distribution list? Yes ____ No ____

3. The area of interest with which I would logically affiliate is (denote first and second choices):

___ 1. Solar Wind	___ 4. Plasma	___ 7. Model/Theory
2 2. Magnetic Field	1 5. Waves	___ 8. Other _____
___ 3. Electric Field	___ 6. Particles	

4. It is highly desirable for NSSDC to receive data by March 24. Please note that NSSDC will assist in averaging, coordinate transformations, etc; the important step is to send the data with documentation now. I can send my data to NSSDC by 24 March (date). The data will be submitted on tape X, or electronically using the _____ network.

5. The CDAW 8 Planning Committee has selected the following intervals for study. Please indicate, next to each time interval, the time periods for which you will supply data.

Event	Time Interval	I will supply data for the time interval:
A	28 Jan. 1983 0400-1100 UT	04-11
B	25 Mar. 1983 0500-1400 UT	05- 14
C	26 Mar. 1983 0000-0600 UT	00-06
D	29 Jan. 1983 0500-1400 UT	05-13
E	4 June 1983 0500-1000 UT	05-10
F	27-28 June 1983 1500-0300 UT	15-03

6. I will follow the attached CDB Guidelines in submitting the following data sets:

IDENTIFICATION Spacecraft/ Ground Station	EXPERIMENT IDENTIFICATION	PRINCIPAL INVESTIGATOR	NO. OF PARAMEMETERS FOR CDB	TOTAL DATA POINTS FOR CDB	Used Previously in CDAW No. 6 (is format identical?)
7 Ground Stations	AFGL Magnetometer Network	D. J. Knecht	21 =	~710,640	I may have submitted 1 sec data instead of 5 sec data in CDAW 6.
Stations are: NEW, RPC, CDS		+H. J. Singer	(H, D, Z at each of 7 stations)		
MCL, SUB, LOC, TPA					

See attached data tape format description.

7. Data Averaging: In consideration of the size of the resulting database and to ensure that all data can be loaded, it is suggested that the maximum (highest) time resolution be 1-minute data, and higher resolution data be loaded where appropriate. NSSDC would prefer to receive your data with the time resolution that you normally have or use and will perform averages to your specifications. (See enclosed Guidelines page 1, with particular references to items 3, 4, and 6.)

_____ I will want NSSDC to perform time averaging and will enclose my specifications with the data.

X I want my data set(s) to be loaded without any averaging; if so, my basic time resolution is 5 sec.

5 sec data will be necessary for wave activity, however many people may only be interested in 1 min averages.

DEPARTMENT OF THE AIR FORCE
AIR FORCE GEOPHYSICS LABORATORY (AFSC)
HANSCOM AIR FORCE BASE, MASSACHUSETTS 01731-5000

REPLY TO ATTN OF: Dr. Howard Singer (AFGL/PHG) 617-861-2431 24 March 1986

SUBJECT: CDAW-8

TO: Ms. Leah Gatewood
CDAW-8
Code 633
NASA Goddard Space Flight Center
Greenbelt, Maryland 20771

Dear Ms. Gatewood,

I have enclosed the following items with regard to the AFGL Magnetometer Network input for CDAW-8:

1. Coordinated Data Base 8 Questionnaire
2. CDB Tape Documentation Form
3. AFGL Magnetometer Network 5-s ASCII DATA TAPES (description)
4. Sample plots for the first 1/2 hour of each of the data intervals for each component (X,Y,Z) for each AFGL station (Note the variable baseline and units/div)
5. A sample program to read the data tape and sample printout of data

The data tape CDAWDT will follow in a separate package. Please call or send a message via SPAN if there are any questions.

Sincerely yours,

Howard Singer

Howard J. Singer
Space Physics Division
Space Plasmas and Fields Branch

AFGL MAGNETOMETER NETWORK
5-S ASCII DATA TAPES

David Koonce and Howard Singer

1. Three-component fluxgate magnetometer data from each of the seven AFGL Magnetometer Network stations are contained on this tape. The components are X: magnetic north, Y: perpendicular to X and positive magnetic east, and Z: perpendicular to X and Y and positive vertically down. The data are 5 second averages of the original 1 second sampled data. Therefore, there are a total of 21 components (X, Y and Z for each of 7 stations) sampled at 5 second intervals. Tapes are 9-track, 1600 bpi, phase encoded, ASCII code.

2. Each logical (=physical) record contains data for one component at one station over a 5 minute interval. A record contains 640 characters. All the data for one 5 minute interval are contained in 21 records.

3. Files are used to distinguish events. Each event is contained in one file. Data within each file are continuous in time, except in the case where no station collected data for an entire 5 minute interval. Then all 21 records are omitted; otherwise, all 21 records are included with missing data filled with the flag 99999. Data may start at the beginning of any minute and end after an integral number of 5 minute records, disregarding end-of-day, end-of-year, and end-of-tape boundaries.

4. Logical (=physical) record format in FORTRAN notation.

```
   JT, SEC, STA, COMP, DATA, [BLANK FILL]
FORMAT(5I2, F3.0, A3, A1, 60F10.2, 23X)
```

JT is a 5 word integer array specifying the start time of the 5 min record:

```
JT(1) = year            ( 83, 84, etc.)
JT(2) = month of year   (1 - 12)
JT(3) = day of month    (1 - 31)
JT(4) = hour of day     (0 - 23)
JT(5) = minute of hour  (0 - 59)
```

SEC = 0 for this data tape format.

STA is the station identifier. It consists of a string of three characters from the following list:

```
"NEW" (NEWPORT, WA)
"RPC" (RAPID CITY, SD)
"CDS" (CAMP DOUGLAS, WI)
"MCL" (MOUNT CLEMENS, MI)
"SUB" (SUDBURY, MA)
```

"TPA" (TAMPA, FL)
"LOC" (LOMPOC, CA)

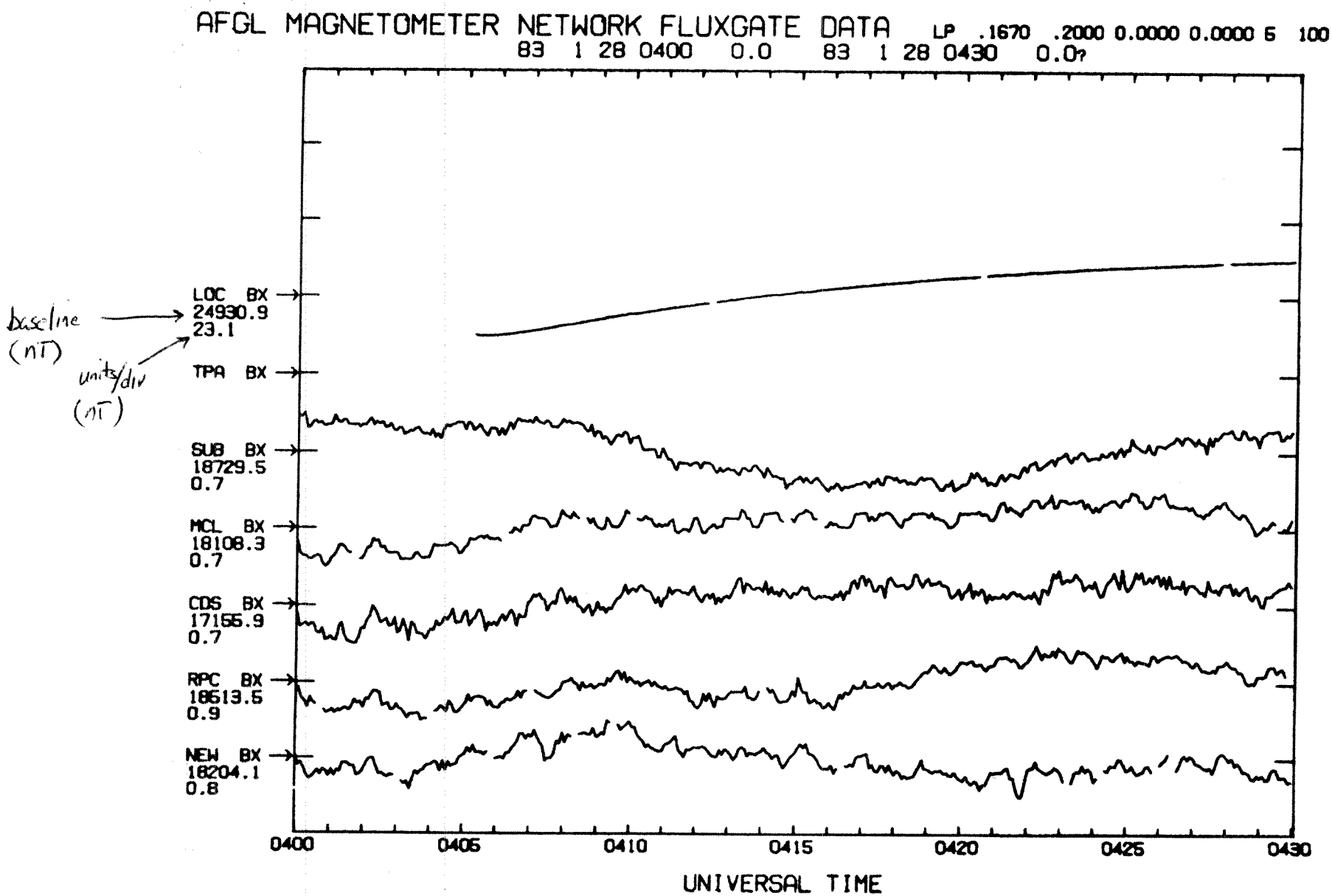
COMP is a one character identifier specifying the X, Y or Z component of the magnetic field

DATA are the 60, 10-character fluxgate 5 second data values in units of nT to two decimal places. The instrument sensitivity is about 1/16 nT.

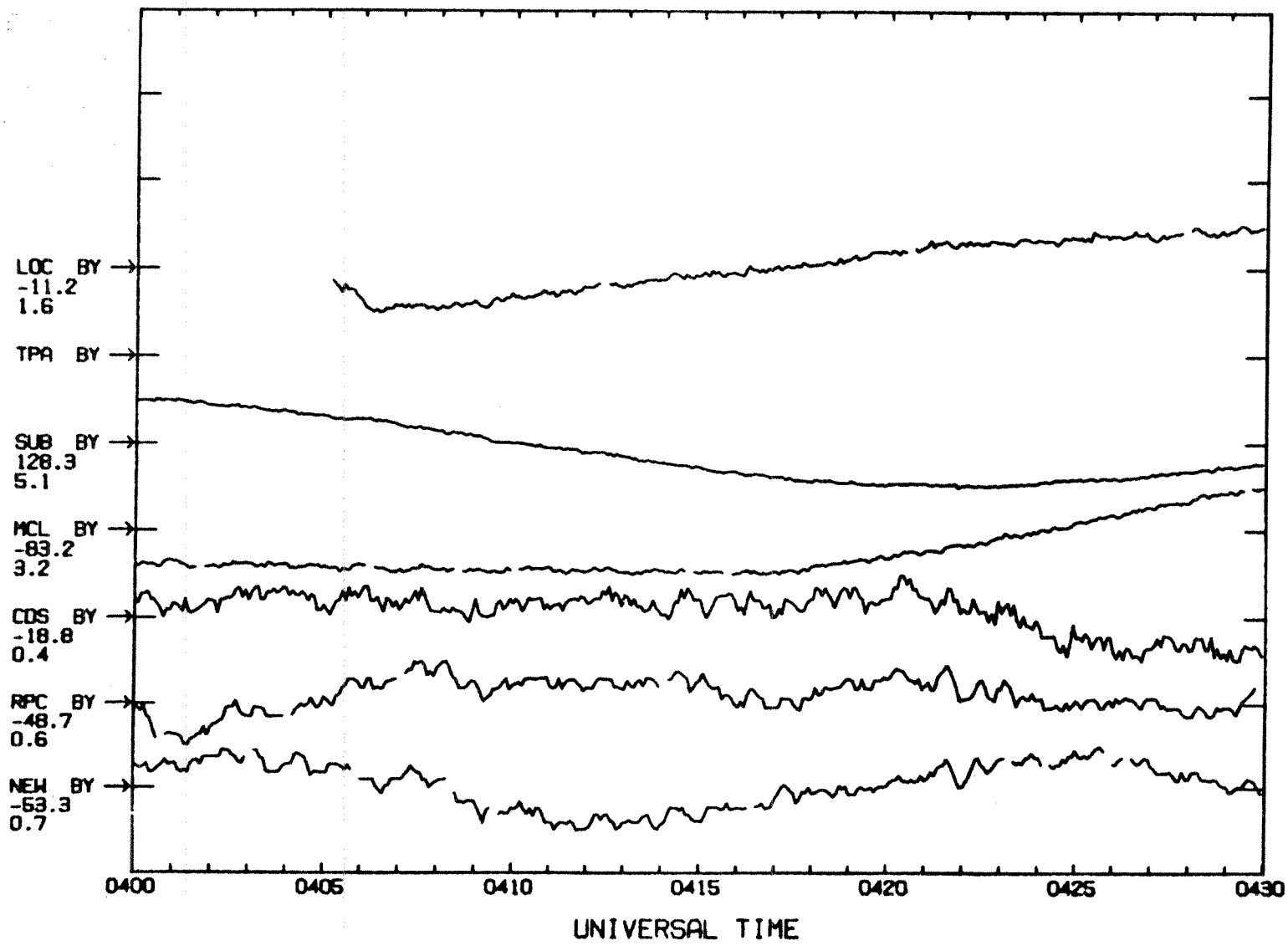
5. Each 5 minute record is arranged in the following order:

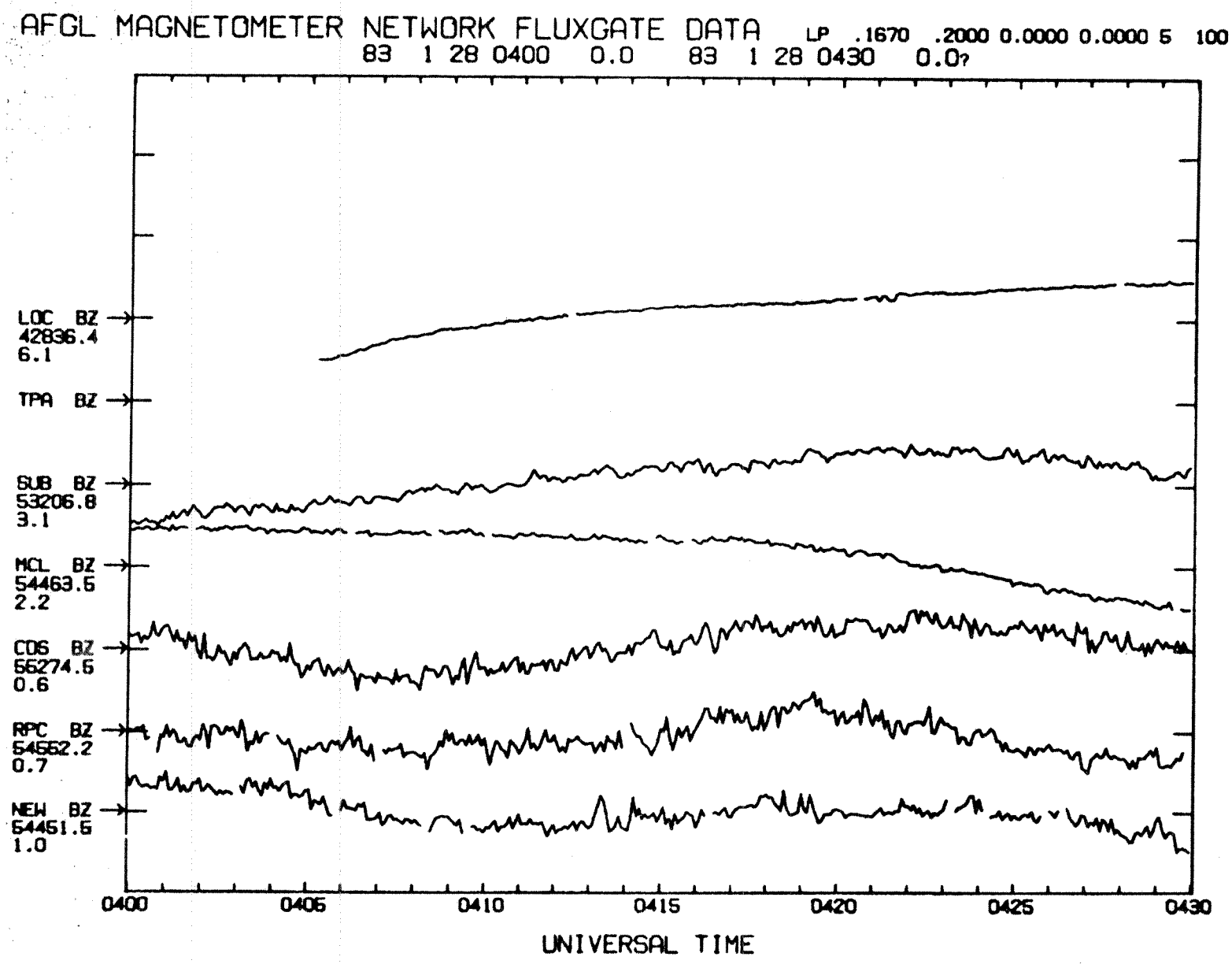
```
RECORD  1 = NEW X
RECORD  2 = NEW Y
RECORD  3 = NEW Z
RECORD  4 = RPC X
RECORD  5 = RPC Y
         .
         .
         .
RECORD 21 = LOC Z
```

The complete station order is given in the STA list above.


AFGL MAGNETOMETER NETWORK FLUXGATE DATA LP .1670 .2000 0.0000 0.0000 6 100
83 1 28 0400 0.0 83 1 28 0430 0.0?
baseline (nT)
units/div (nT)
LOC BX
24930.9
23.1
TPA BX
SUB BX
18729.5
0.7
MCL BX
18108.3
0.7
CDS BX
17155.9
0.7
RPC BX
18513.5
0.9
NEW BX
18204.1
0.8
0400
0405
0410
0415
0420
0425
0430
UNIVERSAL TIME

AFGL MAGNETOMETER NETWORK FLUXGATE DATA LP .1670 .2000 0.0000 0.0000 5 100
83 1 28 0400 0.0 83 1 28 0430 0.0?




AFGL MAGNETOMETER NETWORK FLUXGATE DATA LP .1670 .2000 0.0000 0.0000 5 100
83 1 28 0400 0.0 83 1 28 0430 0.0?
LOC BZ
42836.4
6.1
TPA BZ
SUB BZ
53206.8
3.1
MCL BZ
54463.5
2.2
CDG BZ
56274.5
0.6
RPC BZ
54562.2
0.7
NEW BZ
54451.5
1.0
0400
0405
0410
0415
0420
0425
0430
UNIVERSAL TIME

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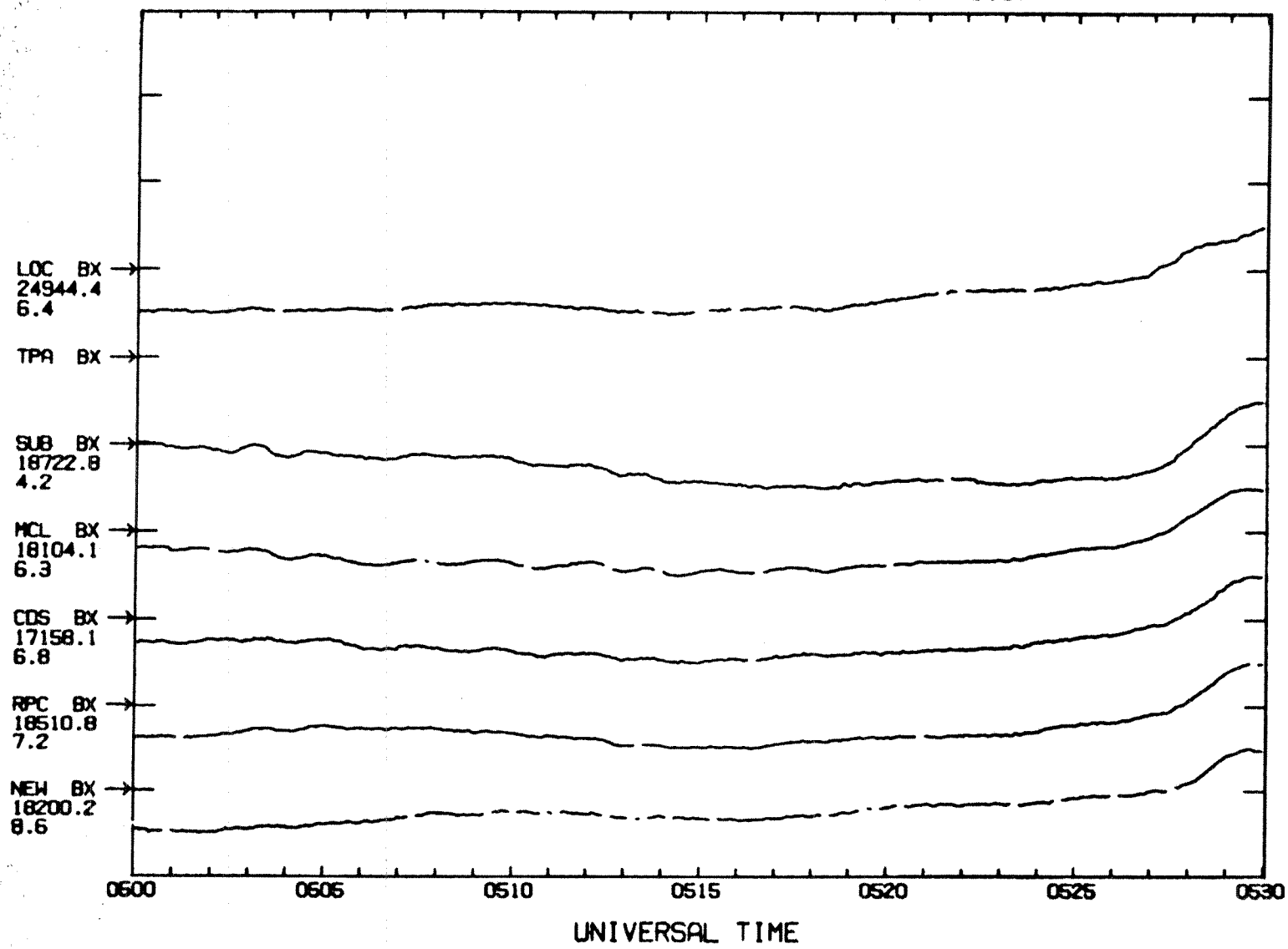
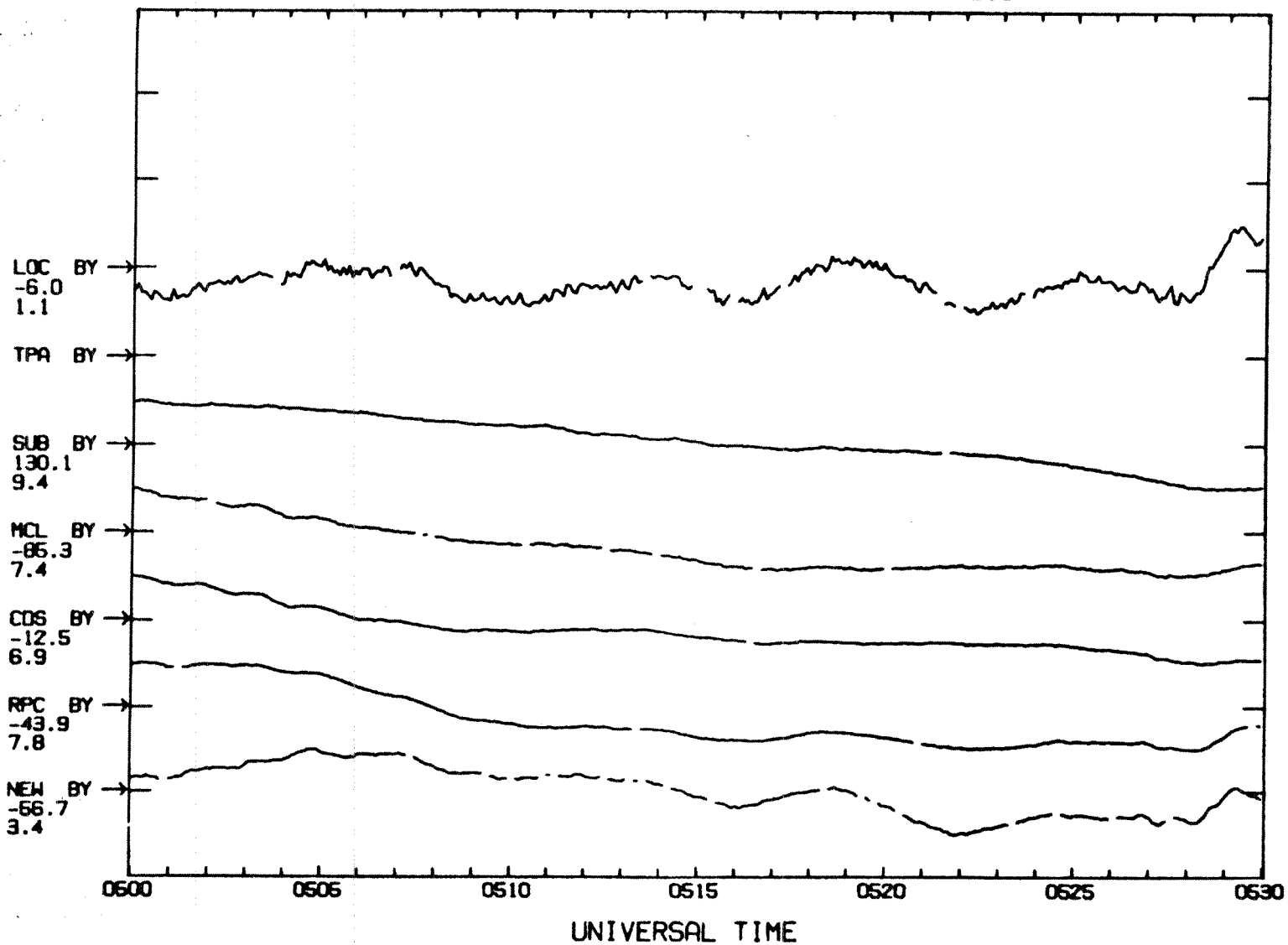
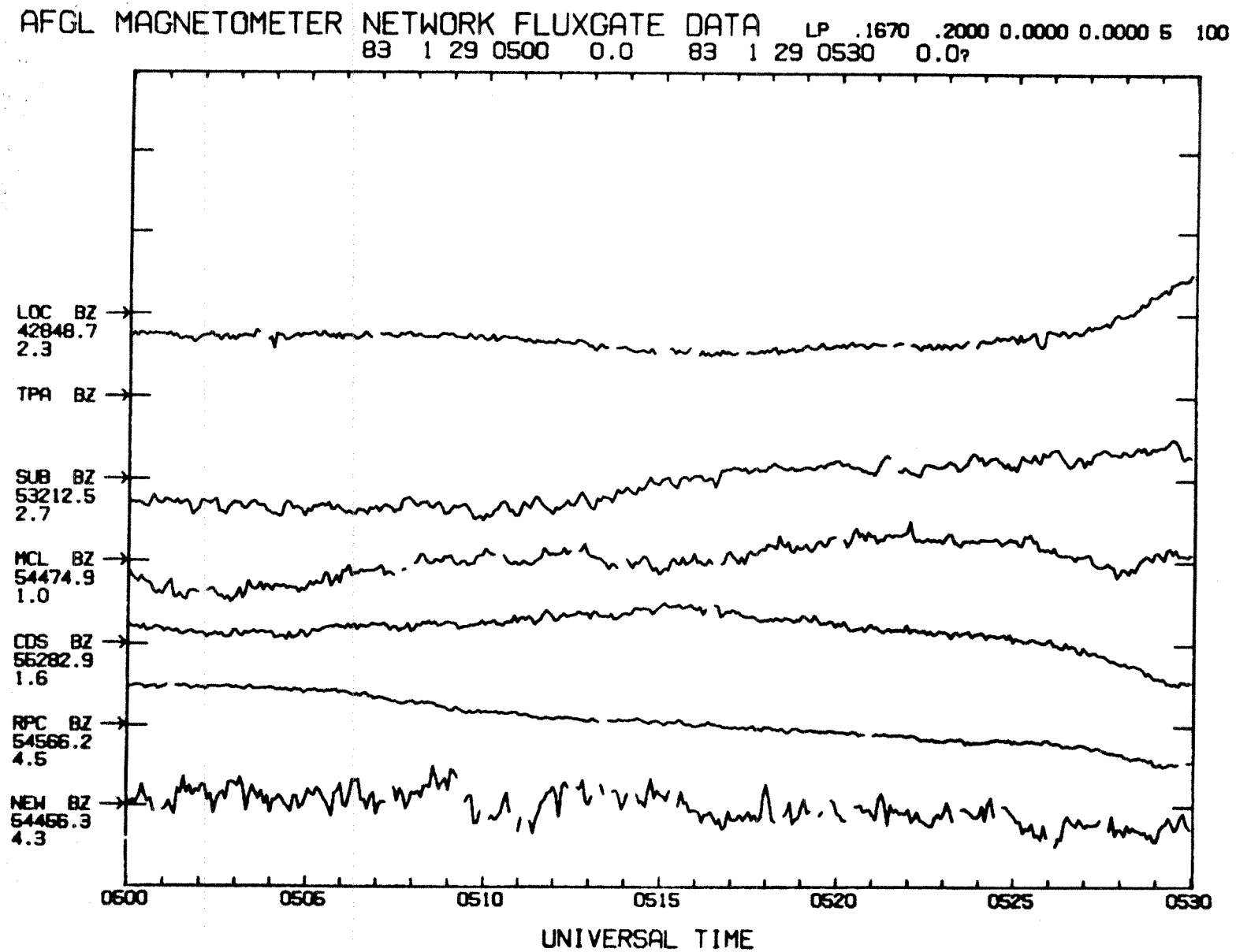
83 1 29 0500 0.0 83 1 29 0530 0.0?



AFGL MAGNETOMETER NETWORK FLUXGATE DATA LP .1670 .2000 0.0000 0.0000 5 100
83 1 29 0500 0.0 83 1 29 0530 0.0?

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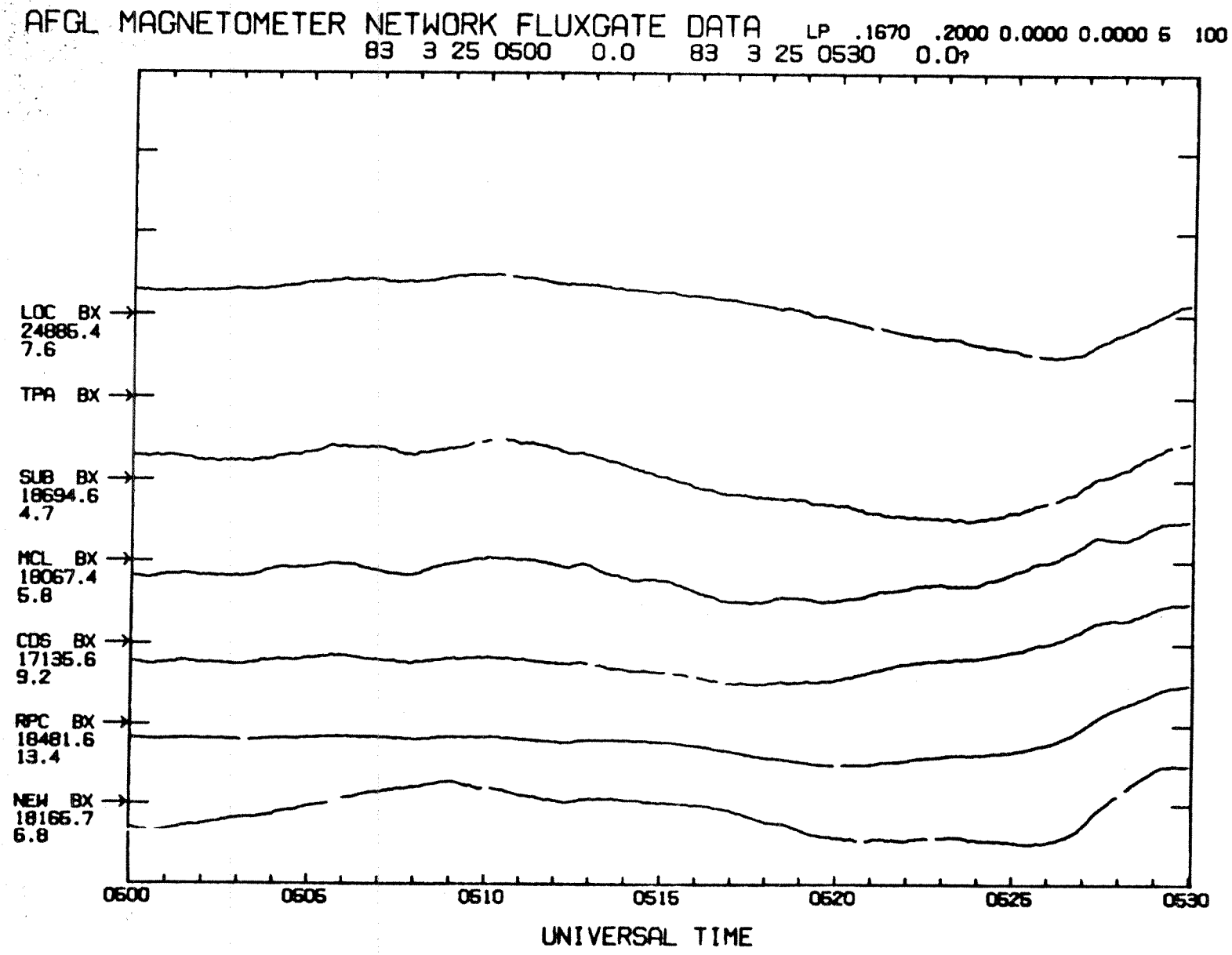
83 1 29 0500 0.0 83 1 29 0530 0.0
LOC BZ
42848.7
2.3
TPA BZ
SUB BZ
53212.5
2.7
MCL BZ
54474.9
1.0
CDS BZ
55282.9
1.6
RPC BZ
54566.2
4.5
NEW BZ
54456.3
4.3
0500
0505
0510
0515
0520
0525
0530
UNIVERSAL TIME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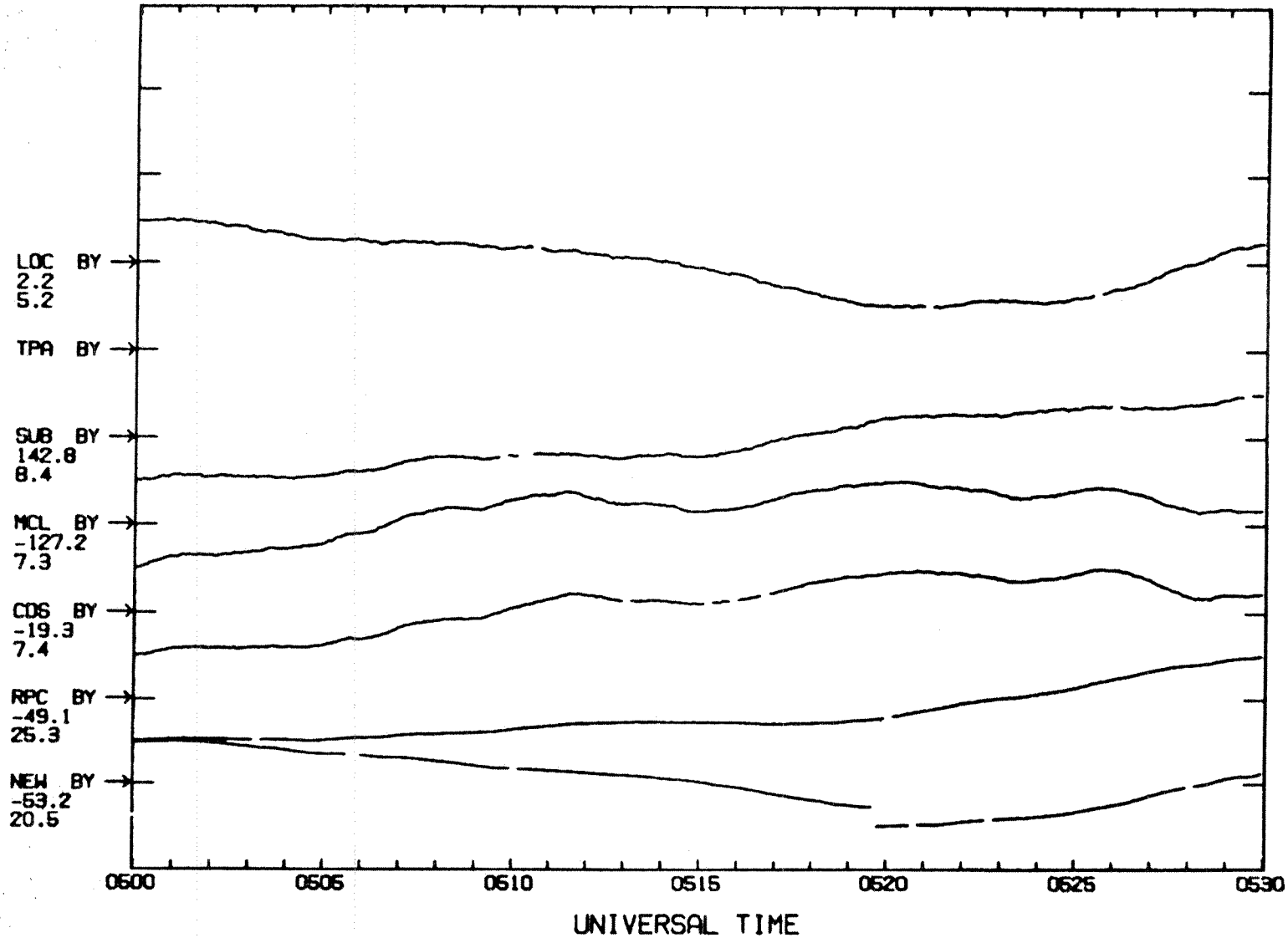
83 3 25 0500 0.0 83 3 25 0530 0.0
LOC BX
24885.4
7.6
TPA BX
SUB BX
18694.6
4.7
MCL BX
18067.4
5.8
CDS BX
17135.6
9.2
RPC BX
18481.6
13.4
NEW BX
18165.7
6.8
0500
0505
0510
0515
0520
0525
0530
UNIVERSAL TIME

AFGL MAGNETOMETER NETWORK FLUXGATE DATA LP .1670 .2000 0.0000 0.0000 5 100
83 3 25 0500 0.0 83 3 25 0530 0.0?



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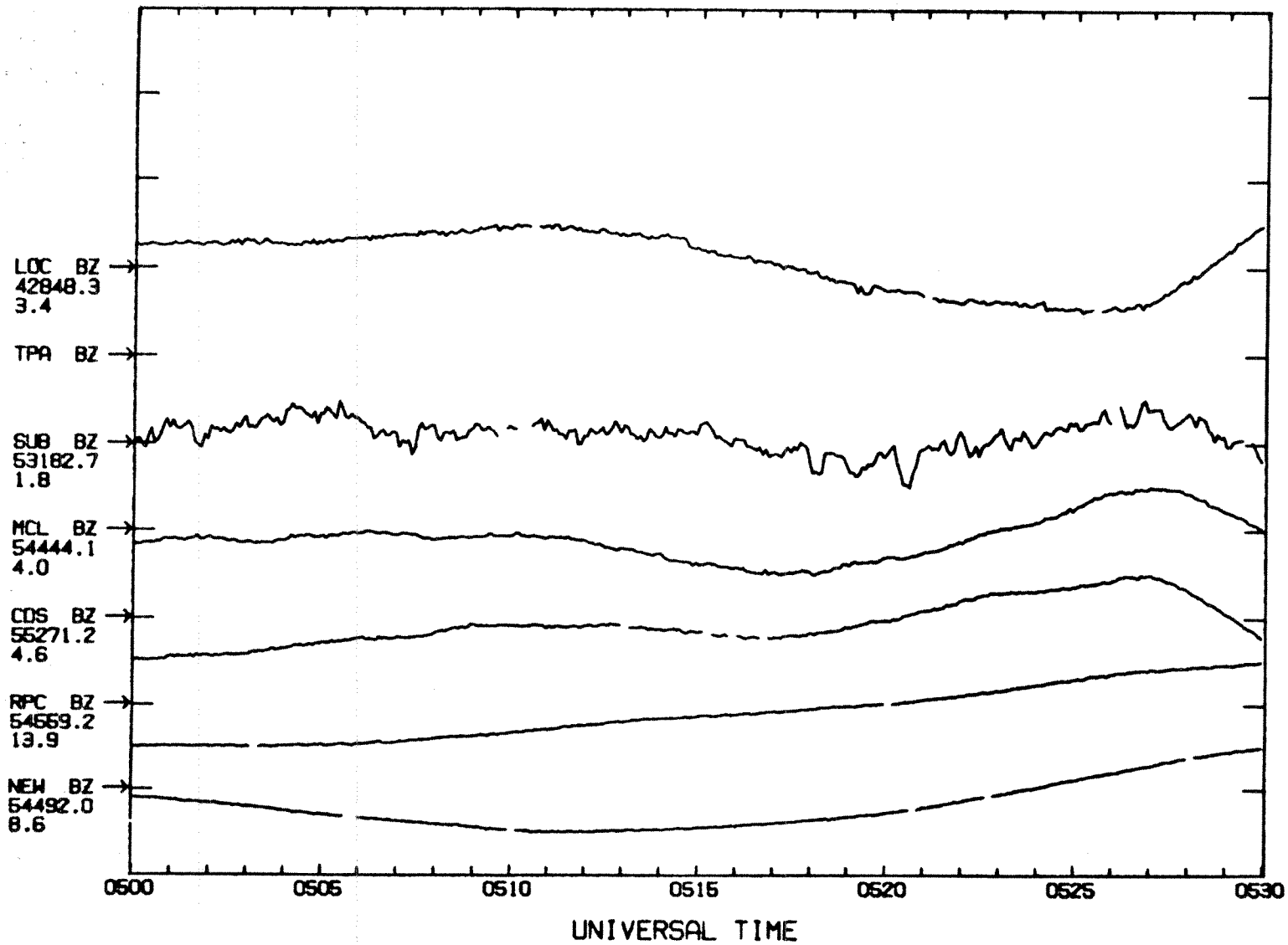
83 3 25 0500 0.0 83 3 25 0530 0.0



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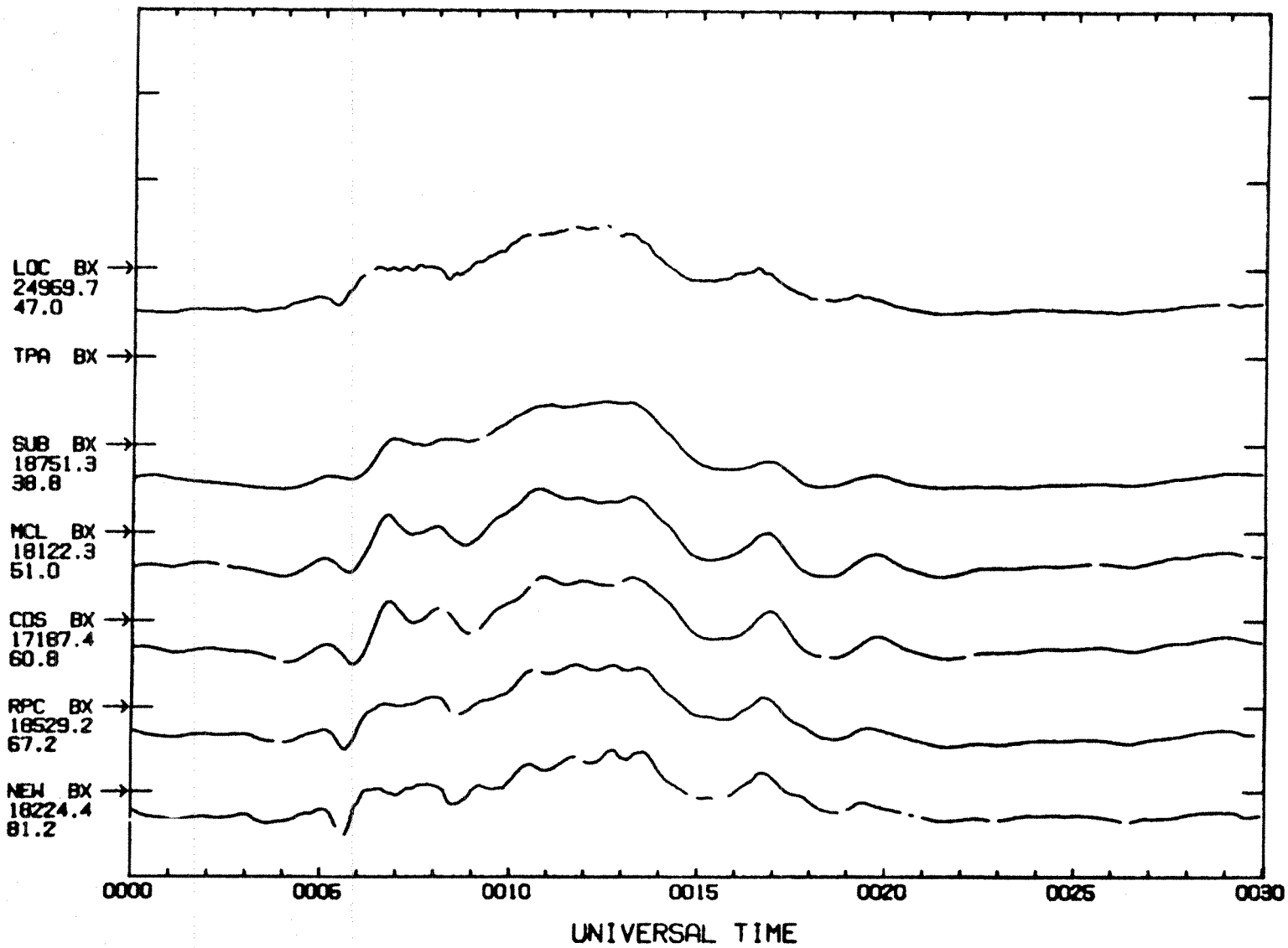
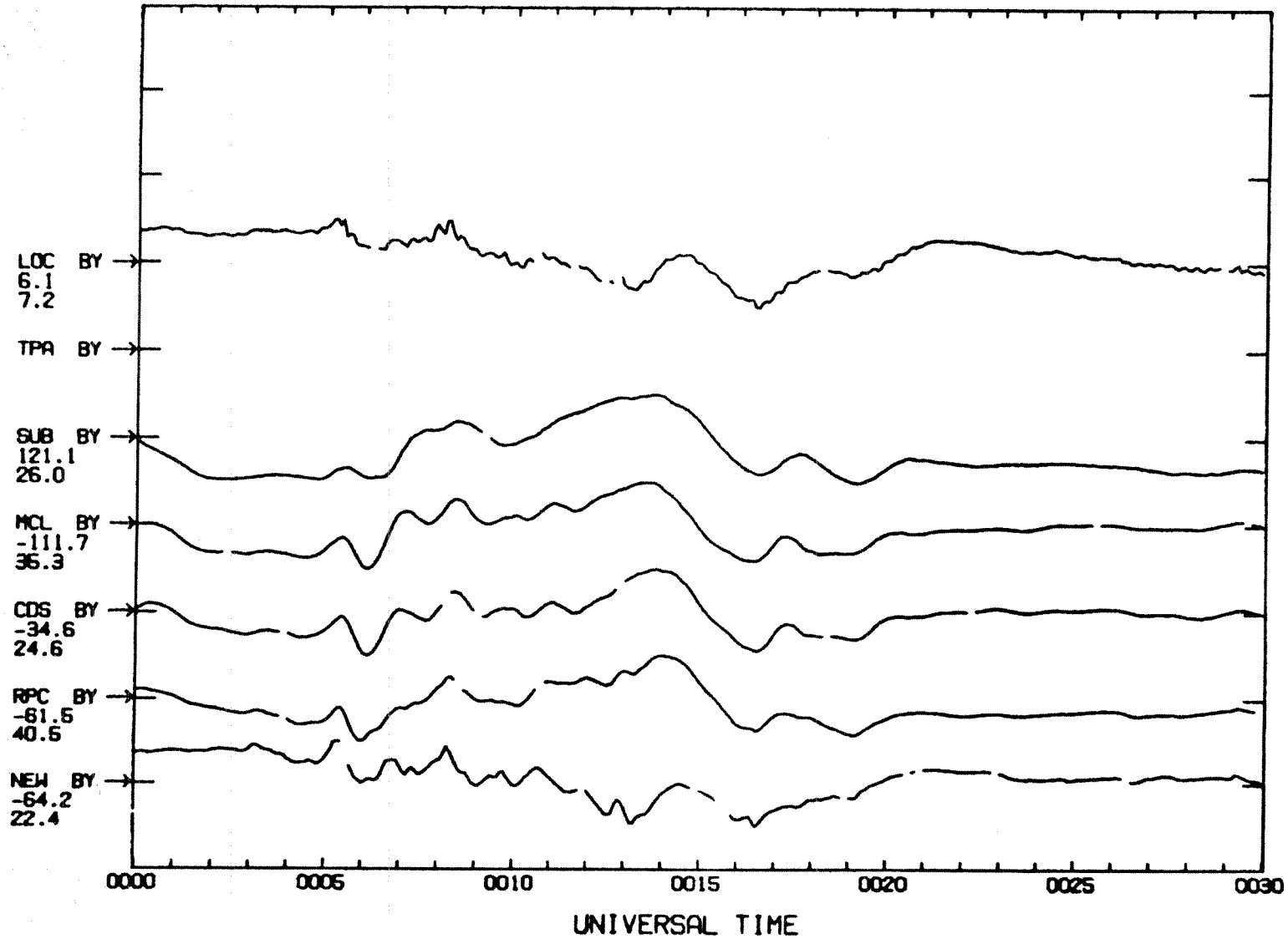
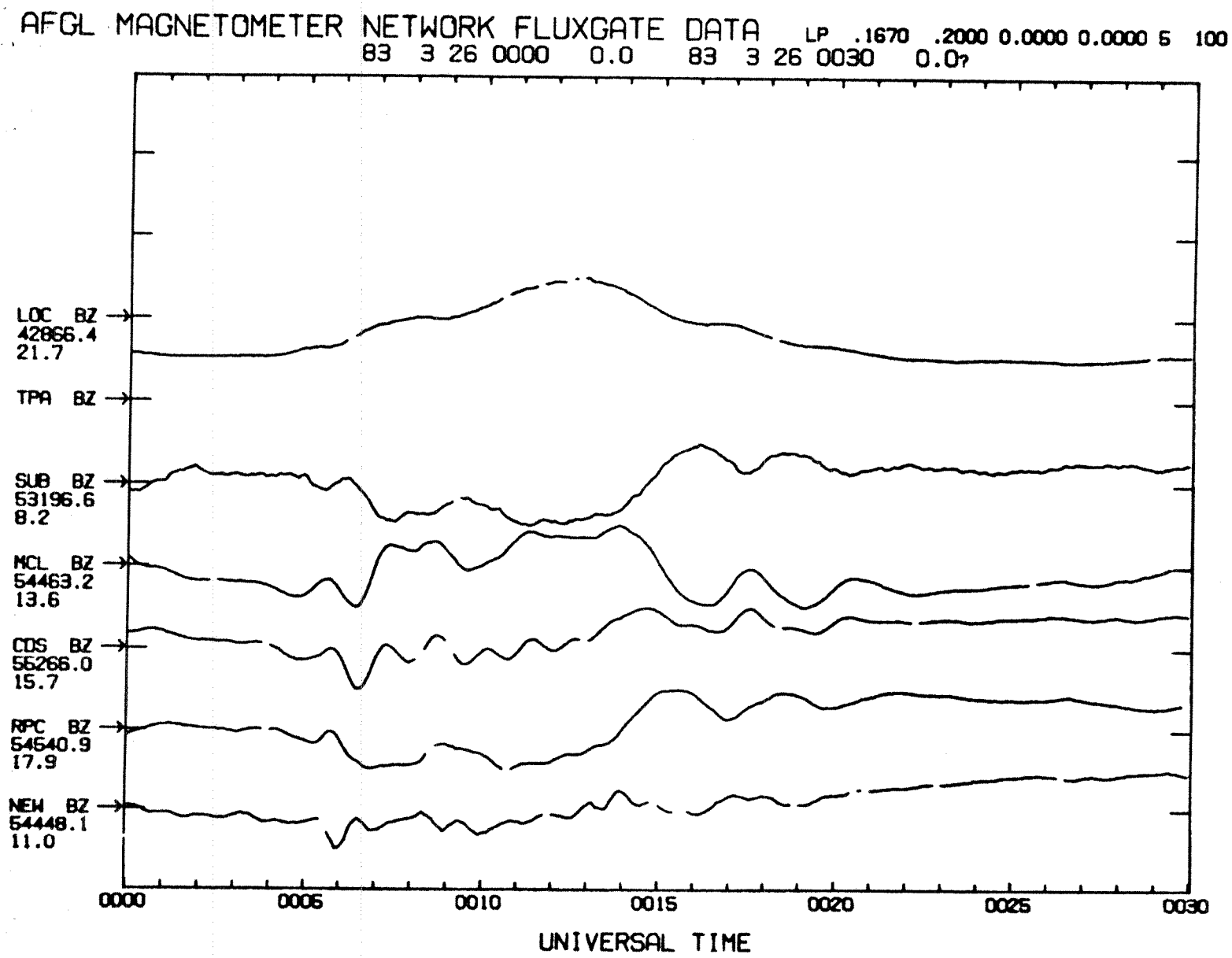
83 3 26 0000 0.0 83 3 26 0030 0.0?

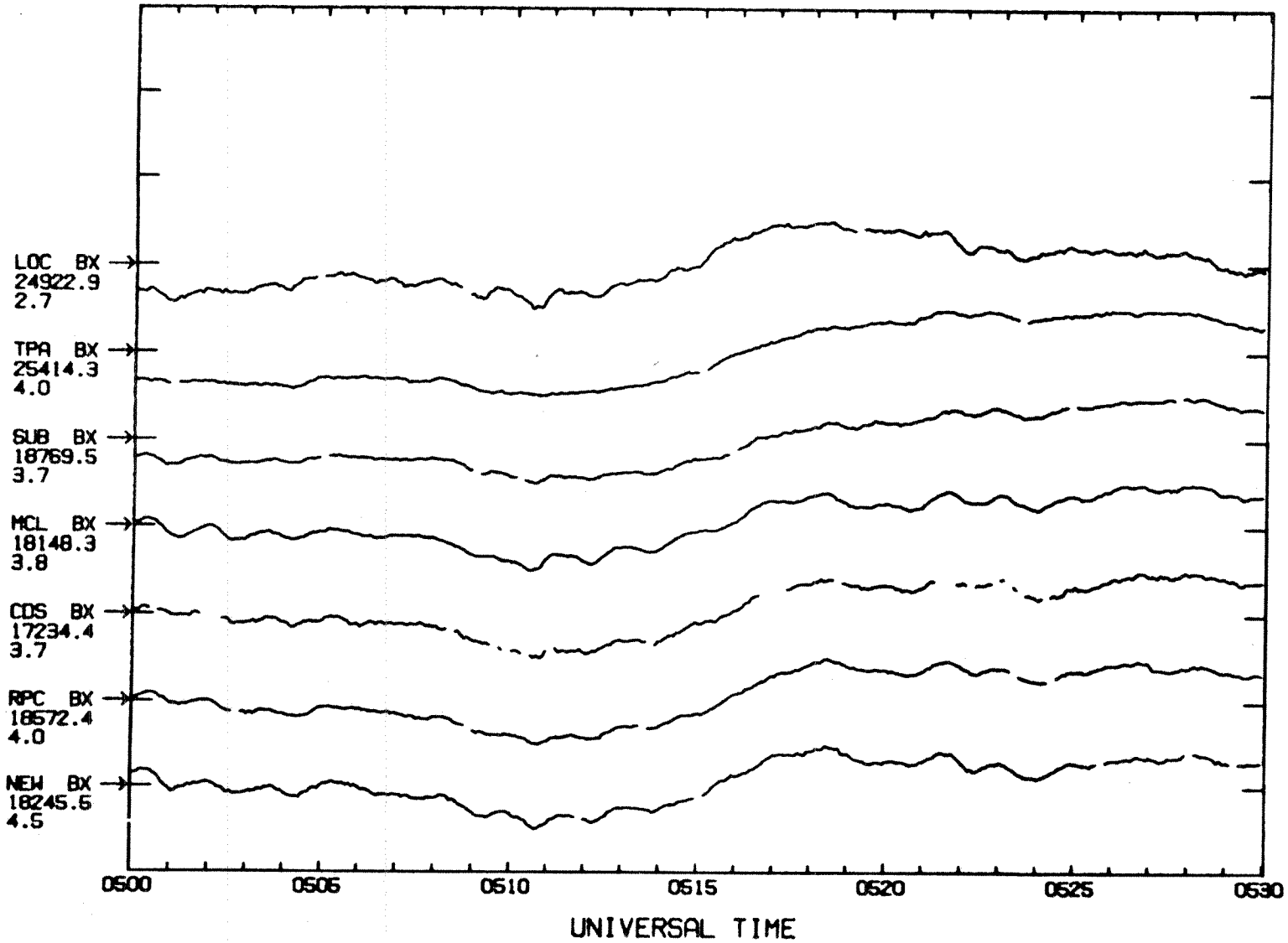


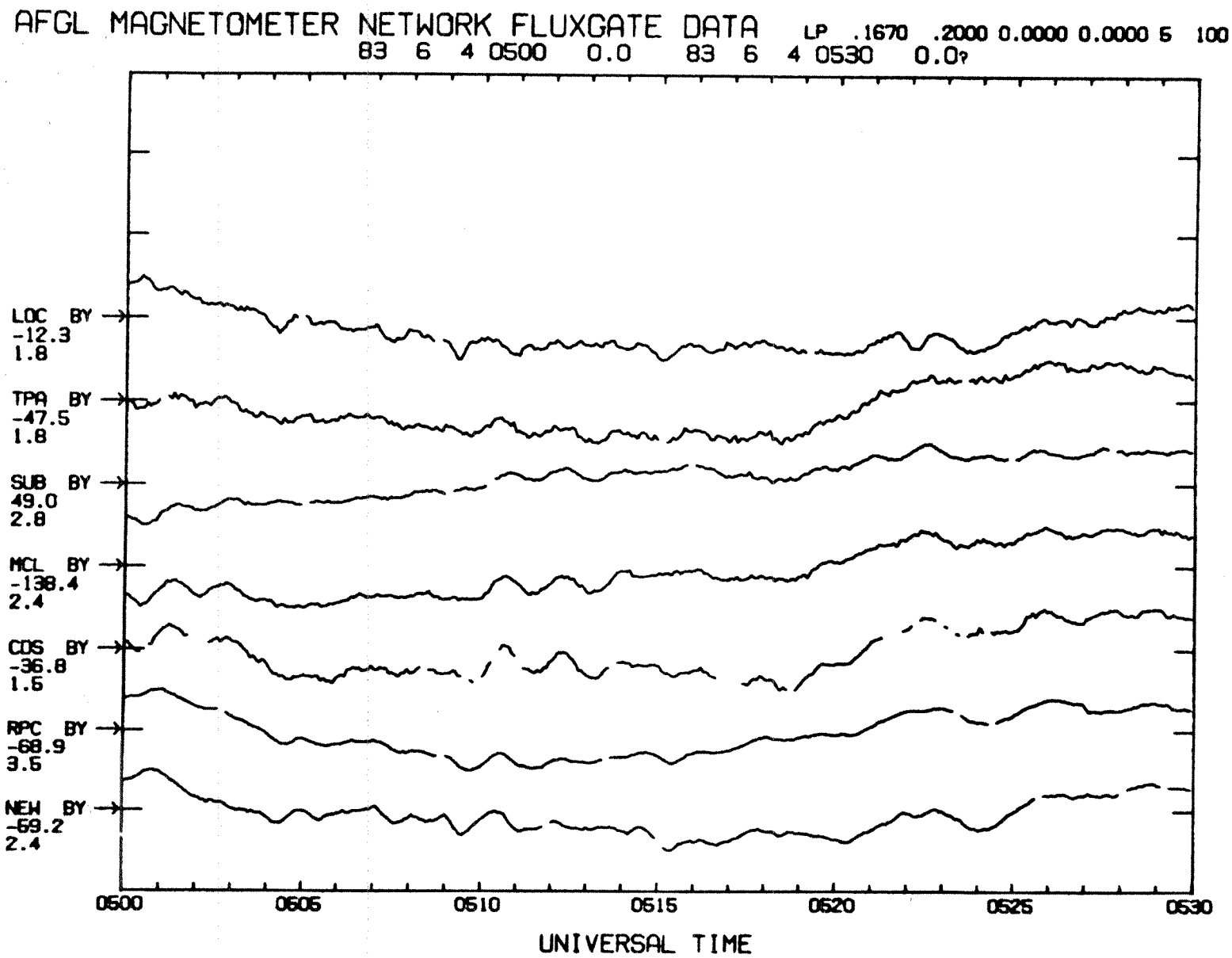
AFGL MAGNETOMETER NETWORK FLUXGATE DATA LP .1670 .2000 0.0000 0.0000 5 100
83 3 26 0000 0.0 83 3 26 0030 0.0?




AFGL MAGNETOMETER NETWORK FLUXGATE DATA LP .1670 .2000 0.0000 0.0000 5 100
83 3 26 0000 0.0 83 3 26 0030 0.0
LOC BZ
42866.4
21.7
TPA BZ
SUB BZ
53196.6
8.2
MCL BZ
54463.2
13.6
CDS BZ
55266.0
15.7
RPC BZ
54540.9
17.9
NEW BZ
54448.1
11.0
0000
0005
0010
0015
0020
0025
0030
UNIVERSAL TIME

AFGL MAGNETOMETER NETWORK FLUXGATE DATA LP .1670 .2000 0.0000 0.0000 5 100
83 6 4 0500 0.0 83 6 4 0530 0.0?

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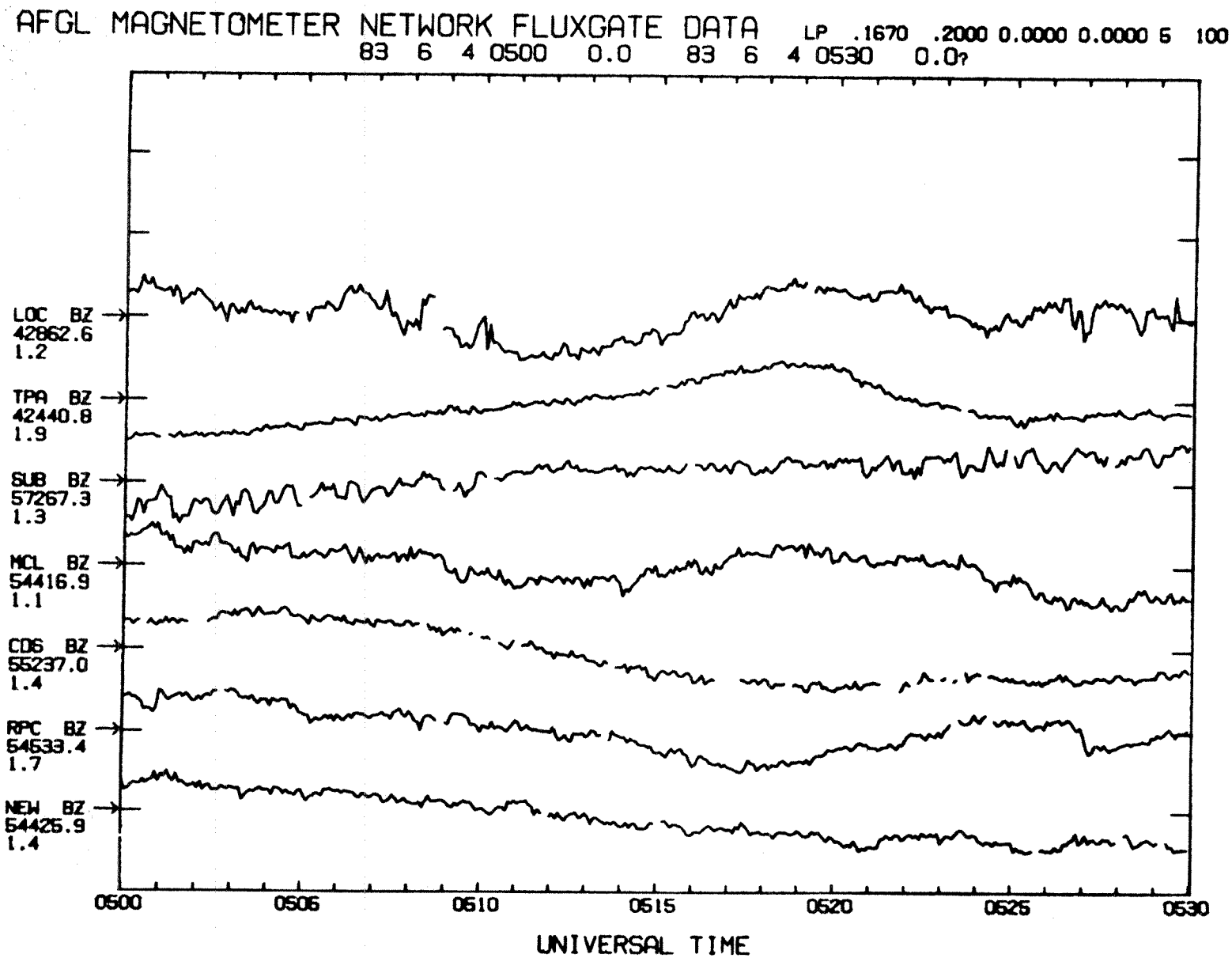
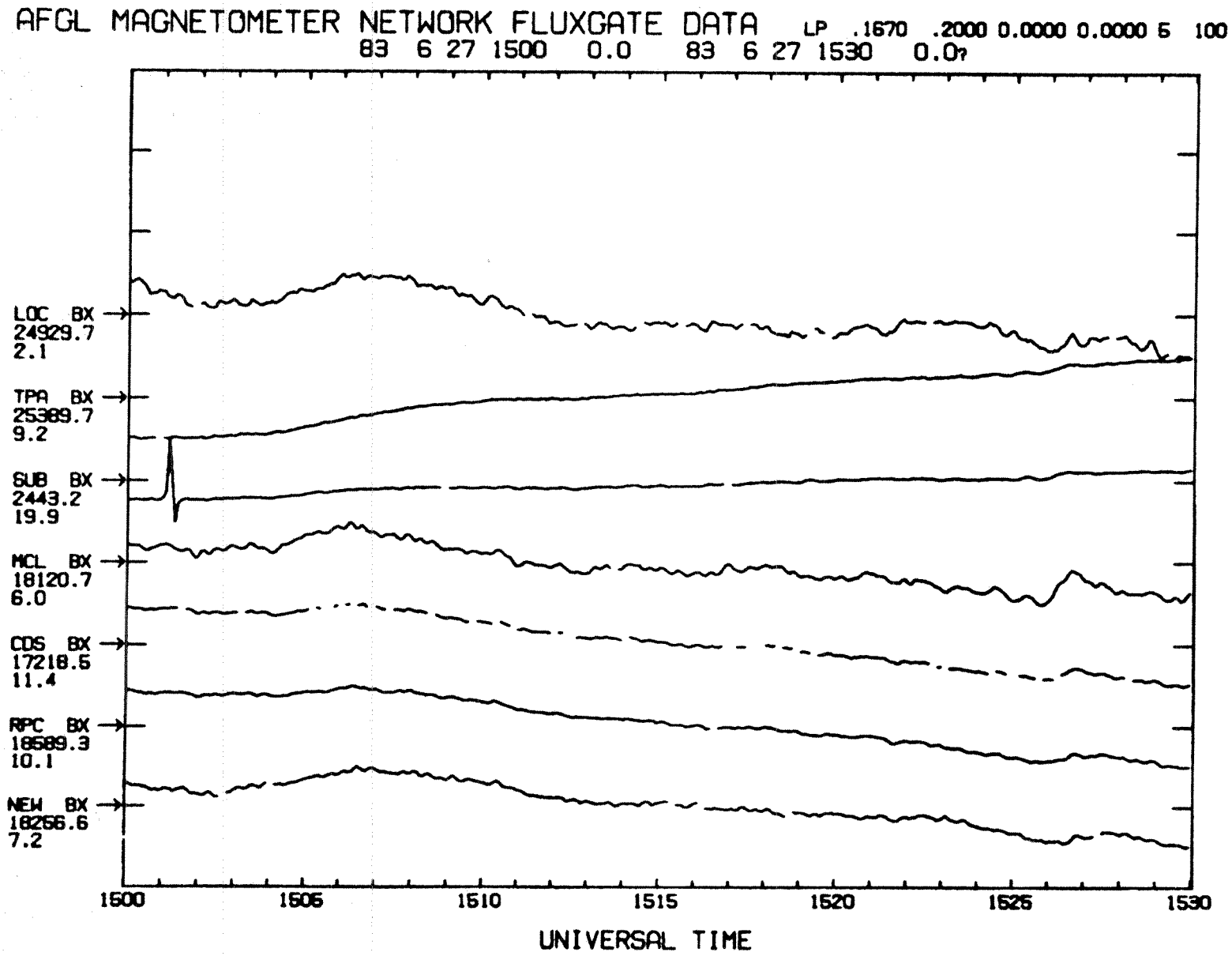
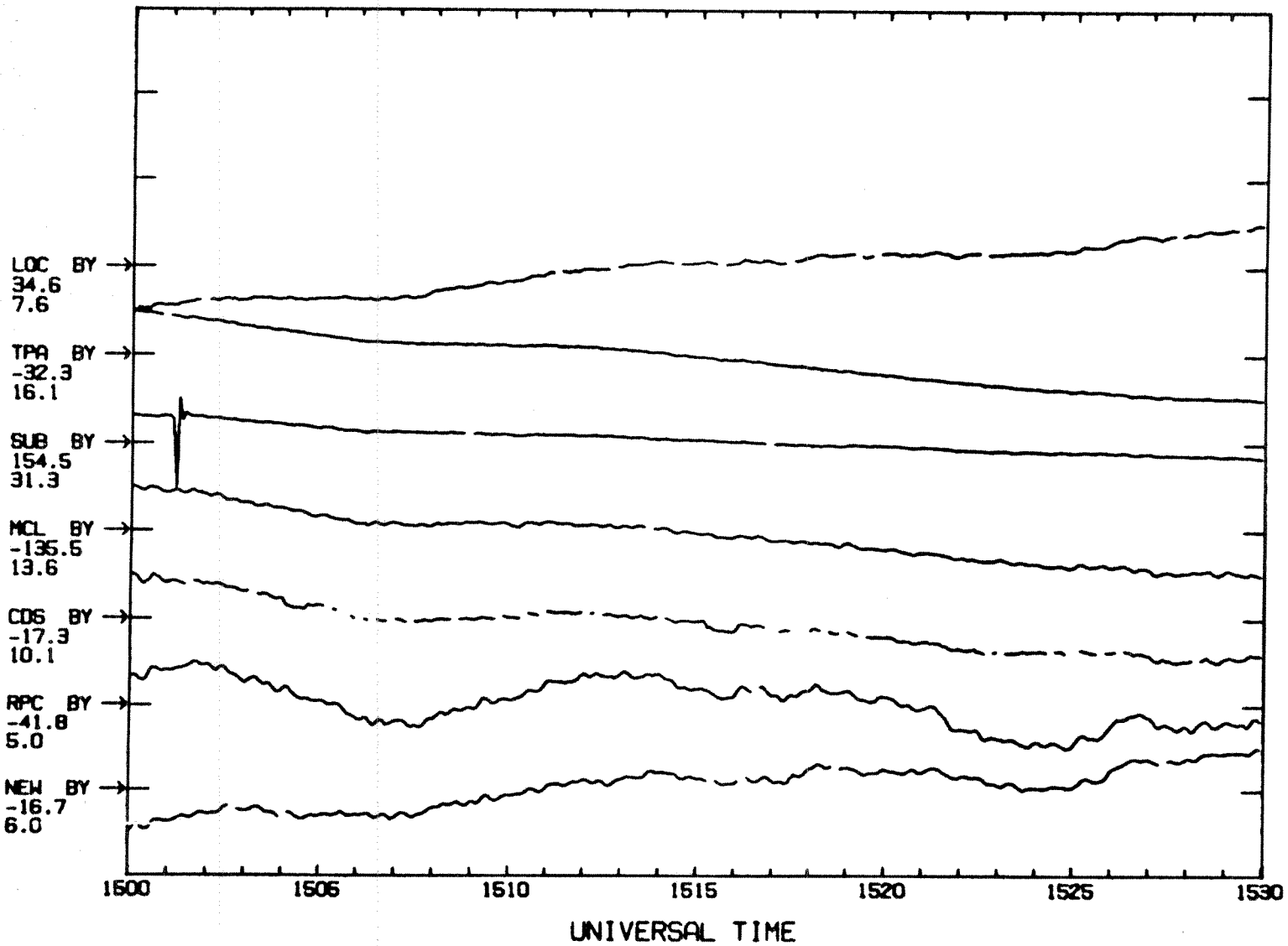
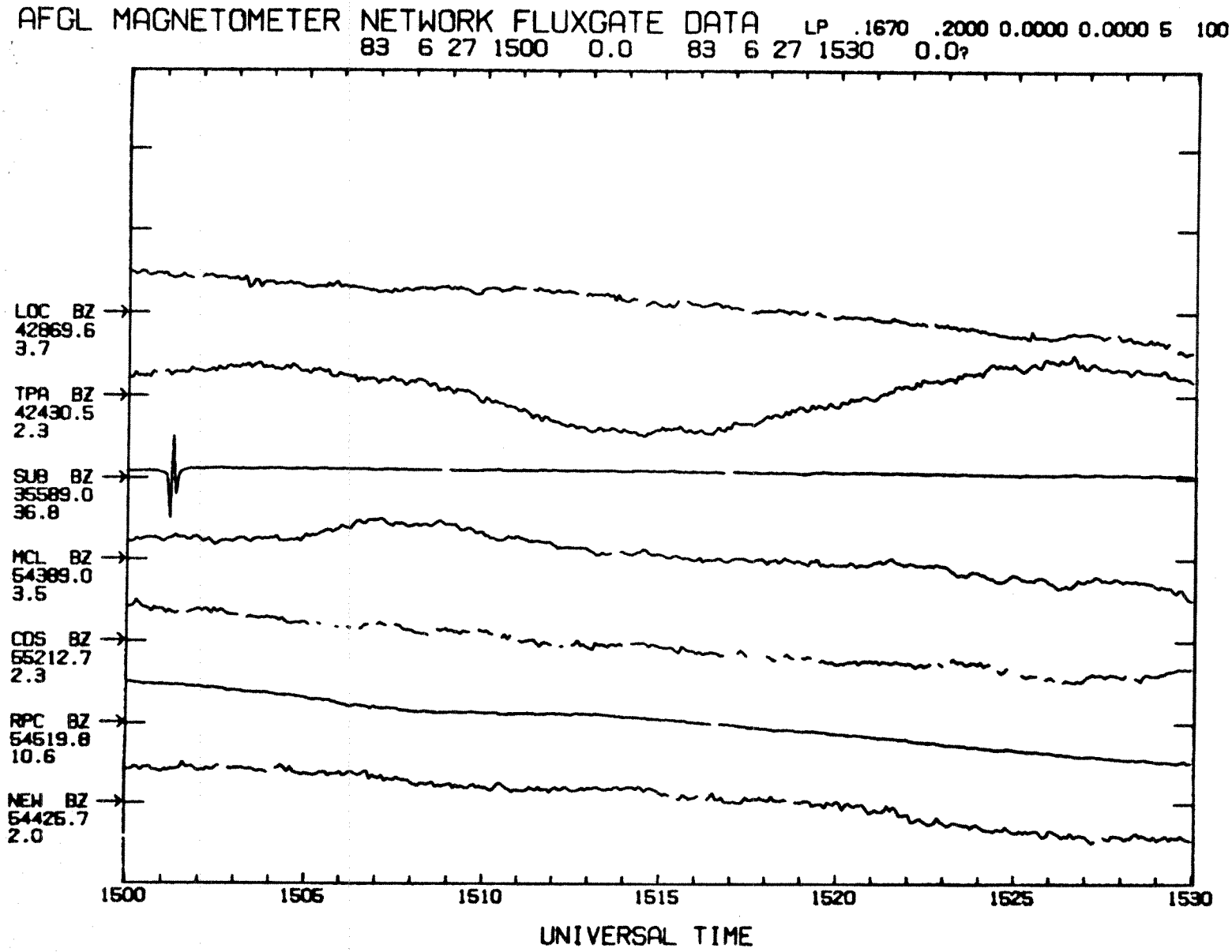
LP .1670 .2000 0.0000 0.0000 5 100
83 6 4 0500 0.0 83 6 4 0530 0.0?
LOC BY
-12.3
1.8
TPA BY
-47.5
1.8
SUB BY
49.0
2.8
MCL BY
-138.4
2.4
COS BY
-36.8
1.5
RPC BY
-68.9
3.5
NEW BY
-69.2
2.4
0500
0505
0510
0515
0520
0525
0530
UNIVERSAL TIME


AFGL MAGNETOMETER NETWORK FLUXGATE DATA
LP .1670 .2000 0.0000 0.0000 5 100
83 6 4 0500 0.0 83 6 4 0530 0.0
LOC BZ
42862.6
1.2
TPA BZ
42440.8
1.9
SUB BZ
57267.3
1.3
MCL BZ
54416.9
1.1
CDG BZ
55237.0
1.4
RPC BZ
54533.4
1.7
NEW BZ
54425.9
1.4
0500
0506
0510
0515
0520
0525
0530
UNIVERSAL TIME


AFGL MAGNETOMETER NETWORK FLUXGATE DATA LP .1670 .2000 0.0000 0.0000 5 100
83 6 27 1500 0.0 83 6 27 1530 0.0
LOC BX
24929.7
2.1
TPA BX
25389.7
9.2
SUB BX
2443.2
19.9
MCL BX
18120.7
6.0
CDS BX
17218.5
11.4
RPC BX
18589.3
10.1
NEW BX
18266.6
7.2
1500
1505
1510
1515
1520
1525
1530
UNIVERSAL TIME

AFGL MAGNETOMETER NETWORK FLUXGATE DATA LP .1670 .2000 0.0000 0.0000 5 100
83 6 27 1500 0.0 83 6 27 1530 0.0?




AFGL MAGNETOMETER NETWORK FLUXGATE DATA LP .1670 .2000 0.0000 0.0000 5 100
83 6 27 1500 0.0 83 6 27 1530 0.0?
LOC BZ
42869.6
3.7
TPA BZ
42430.5
2.3
SUB BZ
35589.0
36.8
MCL BZ
54389.0
3.5
CDS BZ
55212.7
2.3
RPC BZ
54519.8
10.6
NEW BZ
54426.7
2.0
1500
1505
1510
1515
1520
1525
1530
UNIVERSAL TIME

```
      PROGRAM TAPREAD(OUTPUT,TAPE1=/640)
      DIMENSION JT(5),DATA(60),EVTIT(4)
      IEF=0
    4 READ(1,200) JT,SEC,STA,COMP,DATA
      IF(EOF(1)) 1,2
    1 STOP
      GO TO 4
    2 IEF=0
      PRINT 250,JT,SEC,STA,COMP,DATA
      GO TO 4
  100 FORMAT(4A10,600X)
  150 FORMAT(1X,4A10)
  200 FORMAT(5I2,F3.0,A3,A1,60F10.2,23X)
  250 FORMAT(5(1X,I2),1X,F3.0,1X,A3,1X,A1,5(/1X,12F10.2))
      END
```

Dear Ms Gatewood,
A separate letter was sent with the documentation.
Howard Singer

```
CARD NR. SEVERITY  DETAILS    DIAGNOSIS OF PROBLEM

      7     I                THERE IS NO PATH TO THIS STATEMENT.
     11     I      22 CD 11  FIELD WIDTH IS GREATER THAN 137 CHARACTERS.  IT MAY EXCEED THE I/O DEVICE CAPACITY.
     11     I      23 CD 11  TOTAL RECORD LENGTH IS GREATER THAN 137 CHARACTERS.  IT MAY EXCEED THE I/O DEVICE CAPACITY.
     13     I      33 CD 13  FIELD WIDTH IS GREATER THAN 137 CHARACTERS.  IT MAY EXCEED THE I/O DEVICE CAPACITY.
     13     I      40 CD 13  TOTAL RECORD LENGTH IS GREATER THAN 137 CHARACTERS.  IT MAY EXCEED THE I/O DEVICE CAPACITY.


        SYMBOLIC REFERENCE MAP (R=3)

 ENTRY POINTS      DEF LINE     REFERENCES
  4 40  TAPREAD         1

 VARIABLES      SN  TYPE            RELOCATION
  4 23  COMP        REAL                          REFS        9   DEFINED       4
  4 31  DATA        REAL        ARRAY             REFS        2         9   DEFINED       4
  4 25  EVTIT       REAL       *UNDEF             REFS        2
  4 20  IEF         INTEGER                     DEFINED       3         8
  4 24  JT          INTEGER     ARRAY             REFS        2         9   DEFINED       4
  4 21  SEC         REAL                          REFS        9   DEFINED       4
  4 22  STA         REAL                          REFS        9   DEFINED       4

 FILE NAMES         MODE
     0  OUTPUT      FMT                  WRITES        9
  2 54  TAPE1       FMT                   READS        4

 EXTERNALS          TYPE   ARGS       REFERENCES
        EOF         REAL      1             5

 STATEMENT LABELS                DEF LINE   REFERENCES
     0  1            INACTIVE       6         5
  4251  2                           8         5
  4242  4                           4         7        10
  4300  100      FMT  NO REFS      11
```

```
STATEMENT LABELS                    DEF LINE    REFERENCES
  4303  150      FMT   NO REFS        12
  4305  200      FMT                  13           4
  4311  250      FMT                  14           9

STATISTICS
  PROGRAM LENGTH                      322B       210
  BUFFER LENGTH                      41078      2119
            520003 CM USED
83  1  28  4  0  0. NEW X
  18204.18  18204.05  18204.08  18204.02  18203.94  18203.90  18203.92  18203.95  18204.00  18203.95  18204.00  18203.98
  18203.93  18204.00  18203.94  18204.00  18203.98  18204.07  18204.07  18204.06  18204.03  18204.04  18203.94  18203.94
  18203.99  18204.04  18204.11  18204.12  18204.12  18204.03  18203.96  18203.96  18203.94  18203.92  18203.95  18203.94
  99999.00  99999.00  18203.88  18203.85  18203.87  18203.79  18203.90  18203.99  18203.95  18203.99  18204.00  18204.05
  18204.05  18204.06  18204.09  18204.08  18203.99  18204.09  18204.00  18204.09  18204.04  18204.06  18204.06  18204.14
83  1  28  4  0  0. NEW Y
    -53.06    -53.08    -53.09    -53.08    -53.05    -53.13    -53.13    -53.11    -53.08    -53.06    -53.02    -53.07
    -53.05    -53.05    -53.11    -53.13    -53.11    -53.13    -53.05    -53.03    -53.02    -53.07    -53.00    -53.00
    -53.00    -53.00    -53.00    -53.00    -52.93    -52.94    -52.94    -52.99    -53.00    -53.04    -53.05    -53.00
  99999.00  99999.00    -52.94    -52.94    -53.00    -53.02    -53.13    -53.13    -53.13    -53.13    -53.13    -53.08
    -53.06    -53.06    -53.06    -52.98    -52.96    -52.99    -53.00    -53.06    -53.16    -53.13    -53.13    -53.13
83  1  28  4  0  0. NEW Z
  54451.95  54451.82  54451.93  54451.93  54451.83  54451.79  54451.81  54451.81  54451.78  54451.79  54451.77  54451.93
  54451.87  54452.00  54451.76  54451.76  54451.81  54451.91  54451.73  54451.81  54451.72  54451.75  54451.85  54451.83
  54451.91  54451.73  54451.77  54451.83  54451.78  54451.75  54451.69  54451.75  54451.70  54451.74  54451.73  54451.70
  99999.00  99999.00  54451.80  54451.72  54451.89  54451.91  54451.79  54451.87  54451.75  54451.69  54451.85  54451.77
  54451.91  54451.79  54451.80  54451.74  54451.82  54451.85  54451.87  54451.66  54451.71  54451.70  54451.67  54451.70
83  1  28  4  0  0. RPC X
  18513.43  18513.42  18513.30  18513.26  18513.18  18513.30  18513.25  18513.22  99999.00  99999.00  18513.16  18513.11
  18513.13  18513.16  18513.11  18513.15  18513.13  18513.17  18513.17  18513.14  18513.19  18513.27  18513.23  18513.25
  18513.18  18513.29  18513.28  18513.34  18513.38  18513.37  18513.36  18513.20  18513.22  18513.23  18513.15  18513.16
  18513.22  18513.17  18513.16  18513.11  18513.05  18513.11  18513.10  18513.11  18513.11  18513.03  18513.05  18513.05
  99999.00  99999.00  18513.13  18513.15  18513.20  18513.18  18513.13  18513.26  18513.22  18513.13  18513.12  18513.15
83  1  28  4  0  0. RPC Y
    -48.69    -48.69    -48.71    -48.68    -48.75    -48.77    -48.84    -48.90  99999.00  99999.00    -48.88    -48.87
    -48.88    -48.88    -48.88    -48.90    -48.94    -48.95    -48.91    -48.91    -48.88    -48.88    -48.83    -48.88
    -48.83    -48.81    -48.81    -48.79    -48.77    -48.69    -48.69    -48.69    -48.65    -48.70    -48.74    -48.75
    -48.75    -48.76    -48.69    -48.69    -48.70    -48.71    -48.76    -48.75    -48.76    -48.75    -48.75    -48.75
  99999.00  99999.00    -48.75    -48.71    -48.69    -48.67    -48.69    -48.67    -48.63    -48.67    -48.70    -48.68
83  1  28  4  0  0. RPC Z
  54552.18  54552.18  54552.16  54552.19  54552.18  54552.21  54552.09  54552.10  99999.00  99999.00  54551.96  54552.13
  54552.11  54552.21  54552.11  54552.17  54552.15  54552.06  54552.06  54552.10  54552.03  54552.01  54552.10  54552.12
  54552.08  54552.22  54552.16  54552.00  54552.21  54552.21  54552.19  54552.13  54552.14  54552.20  54552.16  54552.20
  54552.14  54552.11  54552.26  54552.17  54551.98  54552.07  54552.05  54552.16  54552.05  54552.12  54552.15  54552.14
  99999.00  99999.00  54552.13  54552.09  54552.05  54552.05  54552.09  54552.01  54551.95  54551.80  54552.00  54551.98
83  1  28  4  0  0. CDS X
  17155.79  17155.65  17155.66  17155.68  17155.65  17155.68  17155.67  17155.59  17155.57  17155.63  17155.52  17155.53
  17155.55  17155.52  17155.52  17155.65  17155.68  17155.57  17155.51  17155.49  17155.49  17155.48  17155.54  17155.63
  17155.62  17155.71  17155.74  17155.85  17155.82  17155.75  17155.68  17155.71  17155.72  17155.65  17155.66  17155.74
  17155.58  17155.61  17155.72  17155.64  17155.51  17155.69  17155.67  17155.58  17155.58  17155.57  17155.53  17155.59
  17155.62  17155.61  17155.70  17155.65  17155.68  17155.74  17155.71  17155.76  17155.82  17155.68  17155.69  17155.69
83  1  28  4  0  0. CDS Y
    -18.75    -18.77    -18.72    -18.72    -18.71    -18.75    -18.75    -18.78    -18.80    -18.84    -18.80    -18.81
    -18.77    -18.77    -18.79    -18.82    -18.75    -18.82    -18.82    -18.81    -18.80    -18.79    -18.78    -18.75
    -18.76    -18.76    -18.82    -18.75    -18.75    -18.74    -18.75    -18.73    -18.70    -18.69    -18.74    -18.70
    -18.75    -18.72    -18.69    -18.69    -18.75    -18.75    -18.71    -18.72    -18.70    -18.72    -18.71    -18.69
    -18.70    -18.73    -18.71    -18.73    -18.73    -18.71    -18.73    -18.76    -18.72    -18.74    -18.81    -18.81
83  1  28  4  0  0. CDS Z
  55274.60  55274.58  55274.59  55274.60  55274.53  55274.58  55274.56  55274.58  55274.68  55274.59  55274.58  55274.63
  55274.65  55274.66  55274.59  55274.54  55274.62  55274.55  55274.56  55274.49  55274.61  55274.54  55274.58  55274.47
  55274.43  55274.60  55274.43  55274.44  55274.42  55274.46  55274.52  55274.43  55274.40  55274.43  55274.30  55274.43
```

55274.49	55274.47	55274.47	55274.41	55274.45	55274.41	55274.54	55274.43	55274.39	55274.39	55274.30	55274.33

83 1 28 4 0 0. MCL X

18108.17	18108.05	18108.02	18108.03	18108.00	18108.00	18108.02	18108.03	18108.02	18107.96	18107.93	18107.95
18108.01	18108.02	18108.07	18108.13	18108.13	18108.11	18108.06	18108.06	99999.00	99999.00	18108.00	18108.00
18108.04	18108.11	18108.10	18108.19	18108.16	18108.17	18108.10	18108.12	18108.06	18108.06	18108.06	18108.06
18108.06	18108.00	18108.00	18108.00	18108.00	18108.00	18108.05	18108.06	18108.02	18108.01	18108.02	18108.01
18108.07	18108.13	18108.12	18108.12	18108.13	18108.13	18108.13	18108.15	18108.13	18108.11	18108.05	18108.06

83 1 28 4 0 0. MCL Y

-84.39	-84.46	-84.34	-84.35	-84.41	-84.38	-84.41	-84.50	-84.47	-84.31	-84.24	-84.23
-84.28	-84.27	-84.34	-84.40	-84.44	-84.53	-84.52	-84.50	99999.00	99999.00	-84.50	-84.47
-84.45	-84.44	-84.51	-84.50	-84.38	-84.45	-84.42	-84.31	-84.37	-84.37	-84.38	-84.33
-84.39	-84.36	-84.49	-84.46	-84.40	-84.49	-84.33	-84.36	-84.44	-84.39	-84.38	-84.39
-84.38	-84.52	-84.51	-84.54	-84.47	-84.49	-84.46	-84.41	-84.41	-84.45	-84.41	-84.51

83 1 28 4 0 0. MCL Z

54464.50	54464.52	54464.56	54464.56	54464.54	54464.60	54464.59	54464.52	54464.54	54464.57	54464.60	54464.56
54464.56	54464.50	54464.64	54464.52	54464.58	54464.61	54464.59	54464.58	99999.00	99999.00	54464.56	54464.57
54464.61	54464.55	54464.56	54464.50	54464.56	54464.52	54464.58	54464.57	54464.64	54464.59	54464.54	54464.62
54464.59	54464.61	54464.62	54464.64	54464.58	54464.52	54464.53	54464.59	54464.56	54464.55	54464.44	54464.52
54464.54	54464.49	54464.48	54464.52	54464.49	54464.53	54464.51	54464.47	54464.48	54464.51	54464.60	54464.56

83 1 28 4 0 0. SUB X

18729.81	18729.80	18729.84	18729.69	18729.70	18729.75	18729.76	18729.74	18729.75	18729.71	18729.72	18729.72
18729.73	18729.82	18729.76	18729.74	18729.77	18729.77	18729.72	18729.72	18729.72	18729.73	18729.71	18729.73
18729.72	18729.76	18729.79	18729.72	18729.75	18729.73	18729.75	18729.70	18729.70	18729.74	18729.68	18729.67
18729.70	18729.70	18729.63	18729.65	18729.67	18729.67	18729.69	18729.70	18729.65	18729.64	18729.64	18729.63
18729.69	18729.61	18729.64	18729.60	18729.68	18729.73	18729.71	18729.73	18729.73	18729.75	18729.75	18729.75

83 1 28 4 0 0. SUB Y

130.75	130.79	130.81	130.78	130.81	130.71	130.84	130.84	130.74	130.80	130.80	130.77
130.74	130.82	130.79	130.74	130.68	130.69	130.61	130.68	130.72	130.66	130.58	130.50
130.50	130.48	130.49	130.46	130.45	130.43	130.51	130.46	130.52	130.39	130.45	130.37
130.35	130.44	130.38	130.28	130.24	130.23	130.24	130.18	130.21	130.12	130.21	130.25
130.14	130.14	130.13	130.00	130.04	129.99	129.99	129.99	129.96	129.94	129.95	129.97

83 1 28 4 0 0. SUB Z

53205.31	53205.40	53205.29	53205.32	53205.40	53205.47	53205.35	53205.38	53205.36	53205.24	53205.41	53205.39
53205.59	53205.46	53205.73	53205.48	53205.56	53205.71	53205.82	53205.58	53205.80	53205.99	53205.82	53205.75
53205.54	53205.51	53205.63	53205.74	53205.89	53205.91	53205.93	53205.89	53206.06	53205.95	53205.90	53205.74
53205.92	53205.95	53205.94	53205.78	53205.61	53205.91	53206.01	53205.90	53206.04	53205.97	53205.89	53205.76
53205.74	53206.07	53205.79	53205.85	53205.76	53205.74	53206.04	53205.81	53205.89	53205.83	53205.74	53205.86

83 1 28 4 0 0. TPA X

99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00
99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00
99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00
99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00
99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00

83 1 28 4 0 0. TPA Y

99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00
99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00
99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00
99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00
99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00

83 1 28 4 0 0. TPA Z

99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00
99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00
99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00
99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00
99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00

83 1 28 4 0 0. LOC X

99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00
99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00
99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00
99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00
99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00

99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00
99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00
99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00

83 1 28 4 0 0. LOC Z

99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00
99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00
99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00
99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00
99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00	99999.00

83 1 28 4 5 0. NEW X

18204.15	18204.17	18204.23	18204.19	18204.27	18204.19	18204.19	18204.19	18204.17	18204.19	99999.00	99999.00
18204.12	18204.13	18204.14	18204.12	18204.19	18204.18	18204.24	18204.26	18204.31	18204.39	18204.39	18204.33
18204.38	18204.35	18204.42	18204.35	18204.29	18204.26	18204.10	18204.13	18204.13	18204.18	18204.31	18204.29
18204.40	18204.30	18204.38	18204.36	99999.00	99999.00	18204.38	18204.39	18204.41	18204.38	18204.38	18204.45
18204.36	18204.37	18204.41	18204.38	18204.53	18204.52	99999.00	99999.00	18204.49	18204.43	18204.46	18204.49

83 1 28 4 5 0. NEW Y

-53.13	-53.13	-53.06	-53.06	-53.06	-53.06	-53.08	-53.11	-53.07	-53.11	99999.00	99999.00
-53.19	-53.19	-53.19	-53.19	-53.19	-53.25	-53.29	-53.31	-53.25	-53.25	-53.19	-53.19
-53.19	-53.19	-53.15	-53.13	-53.07	-53.11	-53.13	-53.13	-53.20	-53.20	-53.26	-53.23
-53.21	-53.19	-53.19	-53.19	99999.00	99999.00	-53.30	-53.39	-53.38	-53.40	-53.37	-53.38
-53.38	-53.44	-53.50	-53.57	-53.46	-53.44	99999.00	99999.00	-53.50	-53.47	-53.49	-53.48

83 1 28 4 5 0. NEW Z

54451.76	54451.76	54451.51	54451.63	54451.60	54451.58	54451.67	54451.55	54451.44	54451.43	99999.00	99999.00
54451.49	54451.64	54451.53	54451.53	54451.52	54451.50	54451.58	54451.55	54451.60	54451.38	54451.38	54451.38
54451.40	54451.47	54451.30	54451.34	54451.43	54451.43	54451.37	54451.39	54451.35	54451.32	54451.39	54451.38
54451.33	54451.38	54451.32	54451.29	99999.00	99999.00	54451.21	54451.32	54451.40	54451.40	54451.43	54451.41
54451.42	54451.37	54451.33	54451.30	54451.38	54451.20	99999.00	99999.00	54451.28	54451.30	54451.24	54451.25

83 1 28 4 5 0. RPC X

18513.20	18513.24	18513.34	18513.26	18513.31	18513.31	18513.32	18513.31	18513.29	18513.21	18513.27	18513.19
18513.19	18513.18	18513.24	18513.25	18513.29	18513.27	18513.29	18513.31	18513.39	18513.30	18513.38	18513.39
99999.00	99999.00	18513.40	18513.36	18513.34	18513.33	18513.31	18513.30	18513.32	18513.35	18513.40	18513.40
18513.49	18513.50	18513.51	18513.54	18513.48	18513.47	18513.39	18513.49	18513.43	18513.44	18513.47	18513.42
18513.44	18513.47	18513.47	18513.45	18513.54	18513.50	18513.56	18513.61	18513.63	18513.52	18513.61	18513.49

83 1 28 4 5 0. RPC Y

-48.62	-48.64	-48.66	-48.68	-48.61	-48.61	-48.56	-48.54	-48.50	-48.50	-48.50	-48.52
-48.56	-48.56	-48.49	-48.49	-48.57	-48.55	-48.56	-48.56	-48.51	-48.51	-48.50	-48.50
99999.00	99999.00	-48.46	-48.43	-48.44	-48.38	-48.40	-48.38	-48.39	-48.47	-48.45	-48.48
-48.42	-48.40	-48.38	-48.38	-48.42	-48.48	-48.50	-48.56	-48.56	-48.56	-48.53	-48.51
-48.52	-48.55	-48.61	-48.65	-48.62	-48.61	-48.56	-48.56	-48.55	-48.52	-48.49	-48.57

83 1 28 4 5 0. RPC Z

54551.96	54552.02	54552.00	54552.01	54552.05	54552.06	54551.99	54551.97	54552.05	54552.08	54552.04	54552.08
54551.99	54552.06	54552.09	54552.20	54552.01	54552.09	54552.12	54551.99	54551.98	54551.94	54552.04	54551.90
99999.00	99999.00	54552.00	54551.96	54552.01	54551.99	54552.01	54552.01	54552.05	54551.93	54551.96	54551.97
54551.97	54551.97	54551.94	54551.92	54551.97	54551.82	54551.93	54551.95	54552.00	54552.08	54552.02	54552.18
54552.08	54552.15	54552.05	54552.04	54552.09	54552.09	54552.04	54552.14	54552.05	54552.07	54552.14	54552.04

83 1 28 4 5 0. CDS X

17155.78	17155.80	17155.66	17155.72	17155.73	17155.80	17155.81	17155.73	17155.61	17155.70	17155.66	17155.69
17155.66	17155.72	17155.77	17155.70	17155.76	17155.82	17155.77	17155.66	17155.77	17155.74	17155.74	17155.89
17155.90	17155.96	17155.94	17155.98	17155.92	17155.91	17155.81	17155.87	17155.90	17155.87	17155.99	17156.03
17155.96	17155.88	17155.95	17155.89	17155.94	17155.85	17155.84	17155.79	17155.84	17155.87	17155.76	17155.81
17155.90	17155.82	17155.85	17155.79	17155.84	17155.82	17155.88	17155.93	17155.93	17155.98	17156.06	17155.97

83 1 28 4 5 0. CDS Y

-18.78	-18.81	-18.83	-18.79	-18.76	-18.76	-18.70	-18.76	-18.69	-18.73	-18.71	-18.74
-18.71	-18.68	-18.68	-18.76	-18.76	-18.74	-18.78	-18.81	-18.74	-18.75	-18.79	-18.76
-18.80	-18.78	-18.75	-18.77	-18.74	-18.71	-18.75	-18.69	-18.73	-18.77	-18.81	-18.81
-18.81	-18.82	-18.79	-18.81	-18.82	-18.79	-18.81	-18.81	-18.82	-18.85	-18.87	-18.81
-18.75	-18.82	-18.83	-18.84	-18.84	-18.83	-18.83	-18.77	-18.76	-18.80	-18.78	-18.75

83 1 28 4 5 0. CDS Z

55274.39	55274.36	55274.41	55274.42	55274.44	55274.36	55274.31	55274.39	55274.36	55274.32	55274.36	55274.37
55274.33	55274.35	55274.43	55274.36	55274.34	55274.21	55274.33	55274.32	55274.30	55274.31	55274.31	55274.27
55274.34	55274.30	55274.30	55274.30	55274.29	55274.26	55274.36	55274.28	55274.31	55274.32	55274.33	55274.27

GAILOUT 1

D-72904
C-25630

```
$JOB     8:52:59
$ASS IN TB2
$EXE TPLIST BS

INPUT PARAMETERS ARE:  AS SR=1=1 6 1 1

 TAPE NO.   1              FILE NO.   1
 RECORD   1                LENGTH   640
83 128 4 0 0.NEWX  18204.18  18204.05  18204.08  18204.02  18203.94  18203.90  18203.92  18203.95
18204.00  18203.95  18204.00  18203.98  18203.93  18204.00  18203.94  18204.00  18203.98  18204.07
 18204.07  18204.06  18204.03  18204.04  18203.94  18203.94  18203.99  18204.04  18204.11  18204.12
  18204.12  18204.03  18203.96  18203.96  18203.94  18203.92  18203.95  18203.94  99999.00  99999.0
0  18203.88  18203.85  18203.87  18203.79  18203.90  18203.99  18203.95  18203.99  18204.00  18204.
05  18204.05  18204.06  18204.09  18204.08  18203.99  18204.09  18204.00  18204.09  18204.04  18204
.06  18204.06  18204.14

 TAPE NO.   1              FILE NO.   2
 RECORD   1                LENGTH   640
83 129 5 0 0.NEWX  18196.28  18196.28  18196.18  18196.22  18196.18  18195.95  18196.06  18196.06
18196.03  18196.07  99999.00  99999.00  18196.12  18196.00  18195.96  18196.03  18196.03  18195.96
 18195.98  18195.93  18195.98  18195.86  18195.95  18195.90  18195.94  18195.95  18195.93  18196.07
  18196.10  18196.28  18196.22  18196.23  18196.31  18196.37  18196.29  18196.26  18196.25  18196.3
1  18196.30  18196.44  18196.54  18196.51  18196.54  18196.53  18196.51  18196.51  18196.55  18196.
47  18196.51  18196.37  18196.39  18196.34  18196.37  18196.45  18196.54  18196.63  18196.54  18196
.59  18196.75  18196.82

 TAPE NO.   1              FILE NO.   3
 RECORD   1                LENGTH   640
83 325 5 0 0.NEWX  18163.54  18163.54  18163.48  18163.41  18163.33  18163.37  18163.25  18163.25
18163.24  18163.29  18163.32  18163.33  18163.38  18163.44  18163.48  18163.54  18163.56  18163.68
 18163.75  18163.71  18163.82  18163.81  18163.79  18163.80  18163.90  18163.94  18164.01  18164.00
  18164.09  18164.09  18164.11  18164.26  18164.23  18164.30  18164.40  18164.38  18164.42  18164.4
6  18164.46  18164.48  18164.50  18164.50  18164.50  18164.55  18164.57  18164.66  18164.65  18164.
74  18164.70  18164.94  18164.94  18165.02  18165.07  18165.10  18165.15  18165.13  18165.19  18165
.30  18165.38  18165.44

 TAPE NO.   1              FILE NO.   4
 RECORD   1                LENGTH   640
83 326 0 0 0.NEWX  18207.52  18206.27  18204.45  18202.96  18201.82  18201.02  18200.58  18200.19
18199.83  18199.68  18199.19  18198.65  18198.12  18197.81  18197.57  18197.86  18198.20  18198.67
 18199.36  18199.79  18200.07  18200.33  18200.56  18200.56  18200.44  18200.11  18199.49  18199.42
  18199.49  18199.53  18199.88  18200.42  18200.68  18201.41  18202.11  18202.78  18202.82  18202.3
7  18200.54  18197.87  18196.80  18195.75  18195.02  18194.69  18195.26  18195.58  18196.22  18196.
40  18196.42  18197.04  18197.87  18198.70  18200.06  18201.64  18202.79  18203.73  18203.91  18203
.90  18205.24  18206.98

 TAPE NO.   1              FILE NO.   5
 RECORD   1                LENGTH   640
83 6 4 5 0 0.NEWX  18246.06  18246.14  18246.19  18246.30  18246.29  18246.28  18246.25  18246.13
18246.03  18245.81  18245.59  18245.42  18245.29  18245.16  18245.26  18245.36  18245.36  18245.38
 18245.55  18245.49  18245.61  18245.55  18245.62  18245.68  18245.67  18245.61  18245.55  18245.42
  18245.38  18245.26  18245.11  18245.18  18245.07  18245.07  18245.08  18245.09  18245.13  18245.2
0  18245.17  18245.20  18245.32  18245.27  18245.37  18245.40  18245.45  18245.39  18245.24  18245.
21  18245.13  18245.01  18244.94  18244.90  18244.92  18244.86  18245.06  18245.14  18245.16  18245
.36  18245.37  18245.34

 TAPE NO.   1              FILE NO.   6
 RECORD   1                LENGTH   640
83 62715 0 0.NEWX  18258.85  18258.68  18258.51  18258.45  18258.48  18258.45  18258.34  18258.34
18258.19  18258.13  18258.15  18258.03  18258.06  18258.19  18258.18  18258.15  18257.93  18258.09
 18258.16  18258.25  18258.24  18258.01  18257.76  18257.75  18257.74  18257.64  18257.58  18257.75
  18257.89  18257.71  18257.43  18257.51  99999.00  99999.00  18257.80  18257.83  18258.04  18258.2
1  18258.30  18258.24  18258.19  18258.29  18258.47  18258.49  18258.38  18258.27  18258.45  18258.
```

```
***** JOB DONE.
DATA IGNORED
$WEO LPS
```

$$

GG-29B D-74440

C-26666

```
$NOP
$NOP
$NOP
$NOP              LIST OF DMAOUT7
$EXE TPLIST BS

INPUT PARAMETERS ARE:  AS SR=1=1 6 1 1

 TAPE NO.   1              FILE NO.   1
 RECORD   1                LENGTH   80
VOL1M4336                              AFGL   HUGHES                                  1

 TAPE NO.   1              FILE NO.   2
 RECORD   1                LENGTH   640
83 322 0 0 0.NEWX  18196.15  18196.25  18196.38  18196.52  18196.67  18196.87  18197.08  18197.37
18197.49  18197.69  18197.82  18197.81  18197.81  18197.76  18197.77  18197.77  18197.75  18197.65
 18197.61  18197.51  18197.50  18197.42  18197.33  18197.30  99999.00  99999.00  18197.46  18197.61
  18197.71  18197.74  18197.81  18197.91  99999.00  99999.00  18198.01  18198.05  18198.19  18198.1
9  18198.18  18198.27  18198.32  18198.37  18198.33  18198.42  18198.57  18198.71  18198.77  18198.
81  18198.90  18199.02  18199.10  18199.15  18199.20  18199.20  18199.19  18199.10  18199.05  18198
.97  18198.84  18198.77

 TAPE NO.   1              FILE NO.   3
 RECORD   1                LENGTH   640
83 413 6 0 0.NEWX  18203.37  18203.48  99999.00  99999.00  18203.69  18203.67  18203.73  18203.78
18203.85  18203.85  18203.83  18203.84  18203.81  18203.81  18203.81  18203.73  18203.76  18203.75
 18203.58  18203.50  18203.46  18203.40  18203.40  18203.46  18203.39  18203.28  18203.19  18203.10
  18203.18  18203.08  18203.02  18203.00  99999.00  99999.00  18202.75  18202.71  18202.62  18202.4
8  18202.36  18202.34  99999.00  99999.00  18202.20  18202.19  18202.21  18202.17  18202.14  18202.
05  18202.01  18202.00  18202.00  18202.00  18201.96  18201.98  18201.93  18201.88  18201.87  18201
.78  18201.81  18201.80

 TAPE NO.   1              FILE NO.   6
 RECORD   1                LENGTH   80
EOF1                         00010001000100 86363 86363 003531NOS   2.4-057

***** JOB DONE.
$WEO LPS

$$
```

PRINTED IN U.S.A.

REQ. AGENT	RAND NO.	ACQ. AGENT
GLS	V0324	HKH

GG-32J

1 MINUTE & HOURLY AVERAGED AE & OTHER INDEXS

THIS DATA SET CONSISTS OF ONE MAGNETIC TAPE. THE TAPE IS 9 TRACK, 1600 BPI, WRITTEN IN ASCII AND CONTAINS 3 FILES OF DATA. THE TAPE WAS CREATED ON AN IBM 360 COMPUTER. THE D AND C NUMBER AND THE TIME INTERVALS ARE AS FOLLOWS:

D#	C#	TIME INTERVALS
D-73474	C-25917	01/28/83 - 06/28/83

8.0

DATE: 7/10/86

NSSDC ID: GG-32J

P.I.: —

CDAW DATA SET ENTRY

ZAE

DATE RECEIVED: 7/10/86

DATA SENT BY: Herbert Kroehl (NOAA)

PARTICIPANT: "

MATERIAL RECEIVED: Questionnaire, Intro letter, data set disc & format sheet, print out - 1-9trk, 1600 bpi ASCII tape

SATELLITE/NSDF NAME: ~~GG-32~~ Auroral Electrojet Activity Indices

CDAW DATA SET MNEMONIC: ~~GG-32~~ ZAE

CDAW DATA SET NAME: 1-min AE and other Indices ZAE

AIM FILE DATA SET NAME: ~~1-MIN AE, AO, AU, AL, INDICES (CDAW 8)~~
1-MIN + HR, AV, RE + OTHER, INDEXS, CDAW 8

CDAW NEW DATA SET ADDITIONS — REPLACEMENTS

AIM FILE NEW DATA SET ADDITIONS REPLACEMENTS

COMMENTS:

TIME COVERAGE: See attached

TAPES TO BE RETURNED TO:

RECEIVED BY: Leah Salmon

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE

NATIONAL GEOPHYSICAL DATA CENTER
325 Broadway
Boulder, Colorado 80303

July 9, 1986 E/GC2:HWK

Ms. Leah Gatewood
NASA/GSFC Code 633
Bldg. 26, Room 128
Greenbelt, MD 20771

Dear Leah,

Enclosed are the AE, AL, AO & AU indices for the CDAW-8 intervals, i.e., 04-11 UT on Jan 28, 83; 05-10 UT on Jan 29, 83; 05-14 UT on Mar 25, 83; 00-06 UT on Mar 26, 83; 05-10 UT on Jun 4, 83 and 15 UT on Jun 27 - 03 UT on Jun 28, 83.

The Canadian and U.S. magnetic observatory data for the CDAW-8 intervals will follow.

Sincerely,

Herbert W. Kroehl

Enclosures

TELEPHONE (303) 497-6215; FTS 320-6215 TELEX 592811 NOAA MASC BDR

COORDINATED DATA BASE 8 (CDB-8) QUESTIONNAIRE

(PLEASE RETURN BY MARCH 10, 1986)

NAME: Herbert W. Kroehl TELEPHONE: 303-497-6121

ADDRESS: NOAA/NGDC E/GC2
325 Broadway
Boulder, CO 80303

TELEX (Carrier, Number, Answer Back): ?, 592811, NOAA MASC BDR

TELENET ADDRESS: TELEMAIL: JHALLEN/NGDC/NESDIS

SPAN ADDRESS (Node Name::Account Name): ____

TELEMAIL: JHALLEN

1. I wish to participate: Yes ✓ No ____

2. If no, do you wish to remain on the distribution list? Yes ____ No ____

3. The area of interest with which I would logically affiliate is (denote first and second choices):

___ 1. Solar Wind	___ 4. Plasma	___ 7. Model/Theory
✓ 2. Magnetic Field	___ 5. Waves	___ 8. Other ____
___ 3. Electric Field	___ 6. Particles	

4. It is highly desirable for NSSDC to receive data by March 24. Please note that NSSDC will assist in averaging, coordinate transformations, etc; the important step is to send the data with documentation now. I can send my data to NSSDC by Summer (date). The data will be submitted on tape yes, or electronically using the no network.

5. The CDAW 8 Planning Committee has selected the following intervals for study. Please indicate, next to each time interval, the time periods for which you will supply data.

Event	Time Interval	I will supply data for the time interval:
A	28 Jan. 1983 0400-1100 UT	NOAA/TIROS Particle data. Magnetic field data from GOES + ground
B	25 Mar. 1983 0500-1400 UT	"
C	26 Mar. 1983 0000-0600 UT	"
D	29 Jan. 1983 0500-1400 UT	"
E	4 June 1983 0500-1000 UT	"
F	27-28 June 1983 1500-0300 UT	"

6. I will follow the attached CDB Guidelines in submitting the following data sets:

IDENTIFICATION Spacecraft/ Ground Station	EXPERIMENT IDENTIFICATION	PRINCIPAL INVESTIGATOR	NO. OF PARAM-EMETERS FOR CDB	TOTAL DATA POINTS FOR CDB	Used Previously in CDAW No.____ (is format identical?)

7. Data Averaging: In consideration of the size of the resulting database and to ensure that all data can be loaded, it is suggested that the maximum (highest) time resolution be 1-minute data, and higher resolution data be loaded where appropriate. NSSDC would prefer to receive your data with the time resolution that you normally have or use and will perform averages to your specifications. (See enclosed Guidelines page 1, with particular references to items 3, 4, and 6.)

_____ I will want NSSDC to perform time averaging and will enclose my specifications with the data.

✓ I want my data set(s) to be loaded without any averaging; if so, my basic time resolution is variable.

8. Data Manipulation: If you wish to have special data manipulation functions or subroutines added to the system that are extensive and may be impractical to construct in real time, these should be received as soon as possible (preferably in FORTRAN).

I ~~will~~ _____ will not ✓ be submitting data manipulation code for incorporation into the system. These will be sent by _____ (date).

9. I suggest that a special effort be made to obtain the following data sets:

_____

_____

10. To assist NSSDC in planning support and future development for CDAW-8 please complete this survey:

Remote access via: SPAN ____ TELENET ✓ Modem ____ Other _____

Type(s) of terminal available: (e.g., TEKTRONIX 4014, VT100 with graphics board, VT240)

Tektronix 4014

Type of PC/Software Communications Package you might use for access to CDAW system: (e.g., MacIntosh/TEKALIKE,...)

IBM PC AT/

Graphics software available at local node: (e.g., TEMPLATE, NCAR,...)

_____

Other commercial software packages you might use with CDAW data at your local node: (e.g., IDL,...)

_____

11. Please forward copies of the Workshop Announcement to any individual who you feel may be interested and ask them to submit this Questionnaire to NSSDC by March 10, 1986.

PLEASE RETURN THIS QUESTIONNAIRE TO:

Ms. Leah Gatewood
CDAW 8
Code 633
NASA Goddard Space Flight Center
Greenbelt, Maryland 20771
U.S.A.

Telephone: (301) 344-6818 FTS: 344-6818
SPAN Address: NSSDC::GATEWOOD TELEX: 89675 NSCOM GBLT

```
18 00011 00015 00022 00027 00027 00027 00024 00022 00023 00023 00024 00025 00028


 END PROCESSING FILE #      1


  400 BYTES FOLLOWING FROM BLOCK #     0  OF FILE      2
0         1         2         3         4         5         6         7         8         9        10        11        12        13
12345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
-----------------------------------------------------------------------------------------------------------------------------------------
AEALAOAU    830604F05AE KYOTO/E02  00070 00062 00058 00058 00061 00059 00067 000
64 00058 00058 00058 00051 00056 00060 00061 00063 00071 00073 00069 00067 00069
 00072 00077 00075 00085 00086 00092 00097 00096 00095 00100 00099 00099 00094 0
0090 00089 00089 00087 00086 00087 00079 00077 00080 00083 00085 00084 00082 000
82 00078 00077 00083 00083 00083 00085 00080 00085 00083 00083 00078 00077 00077


*****************************************************************************************************************************
*********      76 BLOCKS READ IN FILE      2
*****************************************************************************************************************************


  400 BYTES FOLLOWING FROM BLOCK #    75  OF FILE      2
0         1         2         3         4         5         6         7         8         9        10        11        12        13
12345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
-----------------------------------------------------------------------------------------------------------------------------------------
 ALAOAU    830628U03AU KYOTO/E02  00027 00028 00028 00028 00028 00028 00027 000
6 00026 00026 00026 00026 00025 00024 00022 00021 00022 00021 00021 00021 00021
 00021 00021 00022 00021 00023 00023 00024 00024 00024 00023 00024 00025 00024 0
0024 00025 00025 00026 00025 00024 00022 00022 00021 00021 00021 00020 00020 000
24 00038 00028 00019 00022 00022 00021 00021 00022 00021 00019 00018 00018 00023


 END PROCESSING FILE #      2
```

19 hrs. = 5 hrs 6/4 + 12 hrs. 6/27-28

+ 2?

```
TAPESCAN COMPLETED AT 15:43     8/ 7/86

RUNTIME STATISTICS FOR THIS PROCESS :
                CLOCKTIME =       .15D 01 MINUTES
                CPUTIME   =       .10D 01 SECONDS
                I/O       =       .25D 03 BLOCKS
        MEMORY     =       .27D 05 PAGEMSEC
```

```
N      N    GGGG    DDDD       CCC
NN     N   G    G   D   D     C   C
N N    N   G        D    D   C
N  N   N   G        D    D   C
N   N  N   G   GG   D    D   C
N    NN    G    G   D   D     C   C
N      N    GGGG    DDDD       CCC
```

```
/////////////////////////
/ NOAA / NESDIS / NGDC /
/                      /
/ NATIONAL GEOPHYSICAL /
/     DATA CENTER      /
/  BOULDER , COLORADO  /
/////////////////////////
```

TAPESCAN OF TAPE NUMBER INPUT
DENSITY 1600 BPI
9 TRACK
CODE ASCII
AE FOR CDAW-8

```
  400 BYTES FOLLOWING FROM BLOCK #     0  OF FILE      0
0         1         2         3         4         5         6         7         8         9         10        11        12        13
1234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
--------------------------------------------------------------------------------------------------------------------------------------------
AEALAUAU    830128F04AF KYOTO/E02  00041 00041 00042 00041 00042 00041 00041 000
42 00041 00041 00042 00041 00041 00042 00041 00041 00041 00041 00041 00041 00041
 00042 00041 00042 00041 00041 00041 00041 00042 00041 00041 00041 00041 00042 0
0042 00042 00041 00041 00041 00041 00041 00041 00041 00041 00041 00041 00041 000
40 00040 00041 00041 00042 00042 00041 00041 00042 00043 00040 00040 00040 00041

*****************************************************************************************************************************************
*********      56 BLOCKS READ IN FILE      0
*****************************************************************************************************************************************


  400 BYTES FOLLOWING FROM BLOCK #    55  OF FILE      0
0         1         2         3         4         5         6         7         8         9         10        11        12        13
1234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
--------------------------------------------------------------------------------------------------------------------------------------------
AEALAUAU    830129010AU KYOTO/E02  00065 00067 00064 00064 00065 00065 00074 000
79 00080 00077 00079 00077 00076 00074 00071 00068 00066 00067 00058 00058 00068
 00074 00071 00081 00140 00159 00130 00096 00078 00069 00075 00083 00081 00075 0
0070 00072 00074 00069 00069 00070 00069 00066 00063 00065 00069 00071 00072 000
0 00069 00068 00068 00069 00069 00068 00064 00058 00055 00053 00052 00051 00073

END PROCESSING FILE #      0

  400 BYTES FOLLOWING FROM BLOCK #     0  OF FILE      1
0         1         2         3         4         5         6         7         8         9         10        11        12        13
1234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
--------------------------------------------------------------------------------------------------------------------------------------------
AEALAUAU    830325F05AF KYOTO/E02  00681 00666 00663 00665 00646 00631 00628 006
36 00643 00654 00650 00642 00652 00655 00667 00665 00659 00643 00625 00597 00584
 00582 00625 00632 00647 00675 00695 00698 00705 00688 00650 00628 00622 00635 0
0652 00722 00759 00750 00727 00721 00730 00716 00689 00679 00672 00643 00635 007
02 00693 00703 00745 00793 00811 00817 00816 00817 00823 00835 00830 00836 00689

*****************************************************************************************************************************************
*********      68 BLOCKS READ IN FILE      1
*****************************************************************************************************************************************


  400 BYTES FOLLOWING FROM BLOCK #    67  OF FILE      1
0         1         2         3         4         5         6         7         8         9         10        11        12        13
1234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
--------------------------------------------------------------------------------------------------------------------------------------------
AEALAUAU    830326H06AU KYOTO/E02  00031 00029 00025 00024 00026 00029 00031 000
37 00041 00040 00036 00037 00035 00031 00029 00035 00048 00047 00052 00051 00046
 00042 00040 00039 00041 00042 00040 00035 00029 00025 00021 00028 00039 00017 0
0014 00018 00022 00020 00017 00020 00014 00018 00021 00023 00021 00014 00014 000
```

564 = 14 lines of data
= 9 lines V26
+ 5 lines V29
+ 2?

0820 = 17
= 9 lines 325 + 1
+ 6 lines 326 + 1
+ 2?

```
$NOP        LIST OF GLSOUT1
$EXE TPLIST BS

INPUT PARAMETERS ARE:  AS FL=1=1 3 1 1

 TAPE NO.   1              FILE NO.   1
 RECORD   1                LENGTH   400
AEALAOAU     83012BE04AE KYOTO/E02  00041 00041 00042 00041 00042 00041 00041 00042 00041 00041 0004
2 00041 00041 00042 00041 00041 00041 00041 00041 00041 00041 00042 00041 00042 00041 00041 00041 0
0041 00042 00041 00041 00042 00042 00042 00042 00042 00041 00041 00041 00041 00041 00041 00041 0004
1 00041 00041 00041 00040 00040 00041 00041 00042 00042 00041 00041 00042 00043 00040 00040 00040 0
0041

 TAPE NO.   1              FILE NO.   1
 RECORD  56                LENGTH   400
AEALAOAU     83012BU10AU KYOTO/E02  00065 00067 00064 00064 00065 00065 00074 00079 00080 00077 0007
9 00077 00076 00074 00071 00068 00066 00067 00058 00058 00068 00074 00071 00081 00140 00159 00130 0
0096 00078 00069 00075 00083 00081 00075 00070 00072 00074 00069 00069 00070 00069 00066 00063 0006
5 00069 00071 00072 00070 00069 00068 00068 00065 00069 00068 00064 00058 00055 00053 00052 00051 0
0073

 TAPE NO.   1              FILE NO.   2
 RECORD   1                LENGTH   400
AEALAOAU     83032BE05AE KYOTO/E02  00681 00666 00663 00665 00646 00631 00628 00636 00643 00654 0065
0 00642 00652 00655 00667 00665 00659 00643 00625 00597 00584 00582 00625 00632 00647 00675 00695 0
0698 00705 00688 00650 00628 00622 00635 00652 00722 00759 00750 00727 00721 00730 00716 00689 0067
9 00672 00643 00635 00702 00693 00703 00745 00793 00811 00817 00816 00817 00823 00835 00830 00836 0
0689

 TAPE NO.   1              FILE NO.   2
 RECORD  68                LENGTH   400
AEALAOAU     83032BU06AU KYOTO/E02  00031 00029 00025 00024 00026 00029 00031 00037 00041 00040 0003
6 00037 00035 00031 00029 00035 00048 00047 00052 00051 00046 00042 00040 00039 00041 00042 00040 0
0035 00029 00025 00021 00028 00039 00017 00014 00018 00022 00020 00017 00020 00014 00018 00021 0002
3 00021 00014 00014 00018 00011 00015 00022 00027 00027 00027 00024 00022 00023 00023 00024 00025 0
0028

 TAPE NO.   1              FILE NO.   3
 RECORD   1                LENGTH   400
AEALAOAU     83060BE05AE KYOTO/E02  00070 00062 00058 00058 00061 00059 00067 00064 00058 00058 0005
8 00051 00056 00060 00061 00063 00071 00073 00069 00067 00069 00072 00077 00075 00085 00086 00092 0
0097 00096 00095 00100 00099 00099 00094 00090 00089 00089 00087 00086 00087 00079 00077 00080 0008
3 00085 00084 00082 00082 00078 00077 00083 00083 00083 00085 00080 00085 00083 00083 00078 00077 0
0077

 TAPE NO.   1              FILE NO.   3
 RECORD  76                LENGTH   400
AEALAOAU     83060BU03AU KYOTO/E02  00027 00028 00028 00028 00028 00028 00027 00026 00026 00026 0002
6 00026 00025 00024 00022 00021 00022 00021 00021 00021 00021 00021 00022 00021 00023 00023 0
0024 00024 00024 00023 00024 00025 00024 00024 00025 00025 00025 00025 00024 00022 00022 00021 0002
1 00021 00020 00020 00024 00038 00028 00019 00022 00022 00021 00021 00022 00021 00019 00018 00018 0
0023

***** JOB DONE.
$WEO LPS


$$
$ASS IN TBC OUT TA1
```

D73474

REQ. AGENT	RAND NO.	ACQ. AGENT
GLS	V0324	HKH

No New I.D. Numbers in this Data Set Catalog

GI-56C

STARE RADAR

THIS DATA SET CONSISTS OF ONE MAGNETIC TAPE. THE TAPE IS 9 TRACK, 1600 BPI, WRITTEN IN ASCII AND CONTAINS 3 FILES OF DATA. THE TAPE WAS CREATED ON A INTERDATA COMPUTER. THE D AND C NUMBER AND THE TIME INTERVALS ARE AS FOLLOWS:

D#	C#	TIME INTERVALS
D-72905	C-25631	03/25/83-06/28/83

DATE: 4/17/86

NSSDC ID:

P.I.: NIELSEN

CDAW DATA SET ENTRY

DATE RECEIVED: 4/17/86

DATA SENT BY: E. NIELSEN

PARTICIPANT:

MATERIAL RECEIVED: Questionnaire, CDB Form, STARE Velocity Data Sheet, Record format, 1-9trk, 16BPI tape

SATELLITE/NSDF NAME:

CDAW DATA SET MNEMONIC:

CDAW DATA SET NAME: STARE - Auroral Radar

AIM FILE DATA SET NAME:

CDAW NEW DATA SET	ADDITIONS	REPLACEMENTS
AIM FILE NEW DATA SET	ADDITIONS	REPLACEMENTS

COMMENTS: Could not find in AIM File
This belongs in NSDF, ID= GI-56(C?)
name = STARE RADAR (CDAW 8)
This may be the same format as Greenwald's CDAW 1.0 or 6.1 datasets.

Note for Proposals + for Ralph

But, it will have its own ID because it comes from a different institution.

TIME COVERAGE:	25 MAR 83	26 Mar 83	27-28 June 83
	0500 - 1400	0200 - 0400	2100 - 0100

TAPES TO BE RETURNED TO: NKH 4/18/86

RECEIVED BY: [signature]

(Greenwald CDAW-6)

COORDINATED DATA BASE 8 (CDB-8) QUESTIONNAIRE

(PLEASE RETURN BY MARCH 10, 1986)

NAME: E. Nielsen TELEPHONE: 05556-41450

ADDRESS: Max-Planck-Institut für Aeronomie
Postfach 20
D-3411 Katlenburg-Lindau
FRG

TELEX (Carrier, Number, Answer Back): _____

TELENET ADDRESS: -

SPAN ADDRESS (Node Name::Account Name): -

TELEMAIL: -

1. I wish to participate: Yes X No ____

2. If no, do you wish to remain on the distribution list? Yes ____ No ____

3. The area of interest with which I would logically affiliate is (denote first and second choices):

___ 1. Solar Wind	___ 4. Plasma	___ 7. Model/Theory
___ 2. Magnetic Field	___ 5. Waves	___ 8. Other _____
X 3. Electric Field	___ 6. Particles	

4. It is highly desirable for NSSDC to receive data by March 24. Please note that NSSDC will assist in averaging, coordinate transformations, etc; the important step is to send the data with documentation now. I can send my data to NSSDC by 24/3 (date). The data will be submitted on tape X, or electronically using the _____ network.

5. The CDAW 8 Planning Committee has selected the following intervals for study. Please indicate, next to each time interval, the time periods for which you will supply data.

Event	Time Interval	I will supply data for the time interval:
A	28 Jan. 1983 0400-1100 UT	NO DATA
B	25 Mar. 1983 0500-1400 UT	0500 - 1400 UT
C	26 Mar. 1983 0000-0600 UT	0200 - 0400 UT
D	29 Jan. 1983 0500-1400 UT	NO DATA
E	4 June 1983 0500-1000 UT	NO DATA
F	27-28 June 1983 1500-0300 UT	2100 - 0100 UT

6. I will follow the attached CDB Guidelines in submitting the following data sets:

IDENTIFICATION Spacecraft/ Ground Station	EXPERIMENT IDENTIFICATION	PRINCIPAL INVESTIGATOR	NO. OF PARAM-EMETERS FOR CDB	TOTAL DATA POINTS FOR CDB	Used Previously in CDAW No.___ (is format identical?)
STARE	Auroral Radar	Nielsen	1	23400	-

7. Data Averaging: In consideration of the size of the resulting database and to ensure that all data can be loaded, it is suggested that the maximum (highest) time resolution be 1-minute data, and higher resolution data be loaded where appropriate. NSSDC would prefer to receive your data with the time resolution that you normally have or use and will perform averages to your specifications. (See enclosed Guidelines page 1, with particular references to items 3, 4, and 6.)

_____ I will want NSSDC to perform time averaging and will enclose my specifications with the data.

__X__ I want my data set(s) to be loaded without any averaging; if so, my basic time resolution is 60 s .

8. Data Manipulation: If you wish to have special data manipulation functions or subroutines added to the system that are extensive and may be impractical to construct in real time, these should be received as soon as possible (preferably in FORTRAN).

I will_____ will not X be submitting data manipulation code for incorporation into the system. These will be sent by_____(date).

9. I suggest that a special effort be made to obtain the following data sets:

_____

_____

10. To assist NSSDC in planning support and future development for CDAW-8 please complete this survey:

Remote access via: SPAN ____ TELENET ____ Modem ____ Other_____

Type(s) of terminal available: (e.g., TEKTRONIX 4014, VT100 with graphics board, VT240)

_____

Type of PC/Software Communications Package you might use for access to CDAW system: (e.g., MacIntosh/TEKALIKE,...)

_____

Graphics software available at local node: (e.g., TEMPLATE, NCAR,...)

_____

Other commercial software packages you might use with CDAW data at your local node: (e.g., IDL,...)

_____

11. Please forward copies of the Workshop Announcement to any individual who you feel may be interested and ask them to submit this Questionnaire to NSSDC by March 10, 1986.

PLEASE RETURN THIS QUESTIONNAIRE TO:

Ms. Leah Gatewood
CDAW 8
Code 633
NASA Goddard Space Flight Center
Greenbelt, Maryland 20771
U.S.A.

Telephone: (301) 344-6818 FTS: 344-6818
SPAN Address: NSSDC::GATEWOOD TELEX: 89675 NSCOM GBLT

STARE VELOCITY DATA

Stare velocity data have been averaged over longitude and are presented as a latitudinal profile of east-west and north-south velocity components as a function of time.

Stare velocity measurements are available in each point of a grid extending 26 points in longitude as well as in latitude.The separation between grid points is 0.5 degree in longitude and .2 degree in latitude.

A file consist of one record identifying the geografic area where the data were measured ,plus a number of data-records. All records have the same length of 60 words.

1. RECORD :

Contains seven (7) integer numbers :ILAT,ILONG,NLAT,NLON,NREC, IVI,ISYS

ILAT,ILONG : the geografic coordinates (*10) ,latitude and longitude, of the lower left hand corner of the geografic area (the part of the Stare field of view)from which data are taken.

NLAT,NLON : the number of grid points in latitude (NLAT) and longitude (NLON) of the geografic area from which data are taken. NLON is negative indicating the data are averaged in longitude over NLON-grid-points

NREC : the number of data-records in the file.

IVI = 1 for intensity data
= 3 for velocity data

ISYS = 1 for Stare data
= 2 for Sabre data

The remaining 53 words in this record are dummy-words.

A DATA-RECORD :

The first eight (8) integer numbers state the time at which the data where obtained and the integration-time.The time indicate the end of the integration-time :

YEAR,DAY OF YEAR,HOUR,MINUTE,SECOND,INTEGRATION-TIME(in sec),and the next 2 words are dummy-words.

The next NLAT*2 (typically 26*2=52) integer numbers give the drift velocity components measured in meters/sec. The first NLAT values are east-west velocity components,which are ordered in latitude such that the first number is the velocity component measured in the lowest latitude (typically 67.6 degree north),the second value is measured in the "lowest latitude +0.2 degree" etc. The following NLAT values are north-south velocity components ordered as the east-west components.The velocity components are positive when pointing northward or eastward.If no velocity observations were made at a particular latitude both velocity components are set equal to -1.

National Aeronautics and Space Administration

CDB TAPE DOCUMENTATION FORM

SECTION I. DATA SET DESCRIPTION (Please print.)

1. Spacecraft/Ground Station(s) Auroral Radar	2. Experiment Name STARE	3. Data Set Name
4. Scientific Contact E.Nielsen	5. Telephone/Telex No. 05556/41450	6. SPAN/TELENET Address -
7. Address Max-Planck-Institut für Aeronomie,		
8. City 3411 Katlenburg-Lindau	9. State 3 F.R.G.	10. Zip Code or Country
11. Programmer Contact Dr. Herbst	12. Telephone/Telex No. 05556/41304	13. SPAN/TELENET Address -

SECTION II. TAPE DESCRIPTION

1. External Physical Label
E.NIELSEN, MPAE, D-3411 KATLENBURG-LINDAU

2. No. of Tapes Submitted: 1

3. Tape Density: [ ] 800 bpi [X] 1600 bpi [ ] 6250 bpi

4. No. of Files (per tape): 3

5. No. of File Marks Between Files: 1

6. After Last File? 2

7. No. of Tracks: [ ] 7 [X] 9

8. Recording Parity:

9. Make and Model of Computer Used to Generate Tape: INTERDATA

10. Tapes are written in: [ ] binary [X] ASCII [ ] EBCDIC [ ] Combination as shown [ ] Other; Specify _____

11. If binary, what floating point representation is used? (e.g., CDC 64 bit, or IBM 3081 32 bit)

12. If binary, what integer representation is used? (e.g., 32 bit, 2's complement)

13. No. of Physical Records (per file)
1.File, 539 Rec.; 2.File, 121 Rec.;3.File, 241 Rec.(360 Bytes/Rec.)

14. Are original tapes to be returned? [X] Yes [ ] No

15. Start and Stop Time of Each File (If more space is needed, please attach.)
1)1983,Mar.25, 0500 - 1400 UT
2)1983,Mar.26, 0200 - 0400 UT
3)1983,Jun.27-28, 2100 - 0100 UT

SECTION III. LOGICAL AND PHYSICAL RECORD FORMAT (Please attach.)

SECTION IV. TO BE FILLED IN BY NSSDC ONLY

	CDB No.
Date Received	Tape No.
Programmer ID	CON Name
Data Base	Date Loaded

```
*******    18/03/86  09:12:17  ACCOUNT=050                RDMB    .
*******    18/03/86  09:12:17  ACCOUNT=050                RDMB    .
*******    18/03/86  09:12:17  ACCOUNT=050                RDMB    .

                                                  FILE    1

                  RECORD       1 BIS   539        360  BYTES/RECORD
   FILE   1  ENTHAELT     539  RECORDS

                                                  FILE    2

                  RECORD       1 BIS   121        360  BYTES/RECORD
   FILE   2  ENTHAELT     121  RECORDS

                                                  FILE    3

                  RECORD       1 BIS   241        360  BYTES/RECORD
   FILE   3  ENTHAELT     241  RECORDS

                                                  FILE    4

                                                  FILE    5
```

```
*******    18/03/86  10:39:58  ACCOUNT=003          HPH     .                    ACCOUNT=003 1
*******    18/03/86  10:39:58  ACCOUNT=003          HPH     .                    ACCOUNT=003 1
*******    18/03/86  10:39:58  ACCOUNT=003          HPH     .                    ACCOUNT=003 1
*******    18/03/86  10:39:58  ACCOUNT=003          HPH     .                    ACCOUNT=003 1
*******    18/03/86  10:39:58  ACCOUNT=003          HPH     .                    ACCOUNT=003 1
```

1. File [illegible] Tape :

```
*** MAG1:./                    1. FILE      1. RECORD :  360 BYTES,      1 .WORT BIS     60 .WORT ***
.... ..|.. ....|.... ..|.. ....|.... ..|.. ....|.... ..|.. ....|.... ..|.. ....|.... ..|.. ....|.... ..|..
   6 76|    180|      26|     -5|    5 38|      3|      1|      0|      0|      0|      0|      0|      0|
   0|      0|      0      0      0      0      0      0      0      0      0      0      0      0
 0      0      0      0      0      0      0      0      0      0      0      0      0      0
      0      0      0      0      0      0      0      0      0      0      0      0      0
   0      0      0      0      0      0      0

*** MAG1:./                    1. FILE      2. RECORD :  360 BYTES,      1 .WORT BIS     60 .WORT ***
.... ..|.. ....|.... ..|.. ....|.... ..|.. ....|.... ..|.. ....|.... ..|.. ....|.... ..|.. ....|.... ..|..
  19 83|     84|       5|      1|       0|     60|     -1|     -1|     -1|     -1|     -1|     -1|     -1|
  -1|     -1|     -1|     -1     -1     -1     -1     -1    651    6 02    604    5 99    701    7
20    619    7 22    838    9 18    596    5 13    299     -1     -1     -1     -1     -1     -1
     -1     -1     -1     -1     -1     -1     -1     -2     24     51     32     -4    - 28
 100    1 60    128    1 00    218    3 40    428

*** MAG1:./                    1. FILE      3. RECORD :  360 BYTES,      1 .WORT BIS     60 .WORT ***
.... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... .... ....
  19 83     84       5      2       0     60     -1     -1     -1     -1     -1     -1     -1
  -1    2 95     -1    - 96     -1    6 46     -1     -1    579    6 26    701    6 59    764    8
06    726    8 26    878    8 17    653    5 74    459     -1     -1     -1     -1     -1     -1
   1 81     -1    6 08     -1     69     -1     -1    -20    - 44    -76    -1 16   -103    - 30
   2      22      4      68    130    2 95    369
```

Each Record contain 60 [illegible] characters of I6 - Form

D 72905

```
$JOB     8:03:27
$ASS IN TB2
$EXE TPLIST BS

INPUT PARAMETERS ARE:  AS SR=1=1 3 1 1

 TAPE NO.   1              FILE NO.   1
 RECORD   1                LENGTH   360
   676   180    26    -5   538    3    1    0    0    0    0    0    0    0    0    0
  0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0
     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0
  0    0    0    0    0    0    0    0    0    0    0

 TAPE NO.   1              FILE NO.   2
 RECORD   1                LENGTH   360
   676   180    26    -5   118    3    1    0    0    0    0    0    0    0    0    0
  0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0
     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0
  0    0    0    0    0    0    0    0    0    0    0

 TAPE NO.   1              FILE NO.   3
 RECORD   1                LENGTH   360
   676   180    26    -5   238    3    1    0    0    0    0    0    0    0    0    0
  0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0
     0    0    0    0    0    0    0    0    0    0    0    0    0    0    0    0
  0    0    0    0    0    0    0    0    0    0    0

***** JOB DONE.
$WEO LPS
```

$$

REQ.AGENT	RAND NO.	ACQ.AGENT
GLS	V0324	HKH

GG-82B

GROUND BASED SOUTH POLE DATA

THIS DATA SET CONSISTS OF ONE MAGNETIC TAPE. THE TAPE IS 9 TRACK, 6250 BPI, BINARY AND CONTAINS SIX FILES OF DATA. THE TAPE WAS CREATED ON AN IBM 360 COMPUTER. THE D AND C NUMBER AND THE TIME INTERVALS ARE AS FOLLOWS:

D#	C#	TIME INTERVAL
D-74122	C-26129	01/28/83 - 06/28/83

DATE: [illegible]

? NSSDC ID: GG 82B

P.I.: ROSENBERG LANZEROTTI ARNOLDY GATHER [illegible]

CDAW DATA SET ENTRY

DATE RECEIVED: 9 11 86

DATE SENT BY: Dr. Theodore Rosenberg (U of Md.)

PARTICIPANT:

MATERIAL RECEIVED: Questionnaire, Cover letter, tape format sheet, tape documentation Booklet, Sample Slots, Scintout Sheets, 1-tape

? SATELLITE/NSDF NAME:

CDAW DATA SET MNEMONIC: ZSP

CDAW DATA SET NAME: South Pole - CDAW 8

AIM FILE DATA SET NAME: Ground Based South Pole Data

CDAW NEW DATA SET ADDITIONS REPLACEMENTS

AIM FILE NEW DATA SET ADDITIONS REPLACEMENTS

COMMENTS: South Pole data not in non-Satellite book.

* Original slots & scintouts are in [illegible]

TIME COVERAGE: [illegible]

TAPES TO BE RETURNED TO:

RECEIVED BY: [illegible]

COORDINATED DATA BASE 8 (CDB-8) QUESTIONNAIRE

(PLEASE RETURN BY MARCH 10, 1986)

NAME: DR. T. J. ROSENBERG TELEPHONE: (301) 454-4590

ADDRESS: I. P. S. T.
UNIVERSITY OF MARYLAND
COLLEGE PARK, MD 20742

TELEX (Carrier, Number, Answer Back): EASYLINK 350827 IPST UOFMD UD

TELENET ADDRESS: _____

SPAN ADDRESS (Node Name::Account Name): _____

TELEMAIL: _____

1. I wish to participate: Yes ✓ No ____

2. If no, do you wish to remain on the distribution list? Yes ____ No ____

3. The area of interest with which I would logically affiliate is (denote first and second choices):

✓ 1. Solar Wind	___ 4. Plasma	___ 7. Model/Theory
✓ 2. Magnetic Field	✓ 5. Waves	___ 8. Other _____
___ 3. Electric Field	✓ 6. Particles	

4. It is highly desirable for NSSDC to receive data by March 24. Please note that NSSDC will assist in averaging, coordinate transformations, etc; the important step is to send the data with documentation now. I can send my data to NSSDC by _____ (date). The data will be submitted on tape ✓, or electronically using the _____ network.

5. The CDAW 8 Planning Committee has selected the following intervals for study. Please indicate, next to each time interval, the time periods for which you will supply data.

Event	Time Interval	I will supply data for the time interval:
A	28 Jan. 1983 0400-1100 UT	ENTIRE
B	25 Mar. 1983 0500-1400 UT	"
C	26 Mar. 1983 0000-0600 UT	"
D	29 Jan. 1983 0500-1400 UT	"
E	4 June 1983 0500-1000 UT	"
F	27-28 June 1983 1500-0300 UT	"

6. I will follow the attached CDB Guidelines in submitting the following data sets:

IDENTIFICATION Spacecraft/ Ground Station	EXPERIMENT IDENTIFICATION	PRINCIPAL INVESTIGATOR	NO. OF PARAMEMETERS FOR CDB	TOTAL DATA POINTS FOR CDB	Used Previously in CDAW No.___ (is format identical?)
SOUTH POLE	RIOMETER	T.J. ROSENBERG	3 CHANNELS	10-5 DATA PTS	NO
"	FLUXGATE MAG.	L.J. LANZEROTTI	3 CHANNELS	"	"
"	MICROPULSE MAG	R.L. ARNOLDY	2 CHANNELS	"	"
"	PHOTOMETER	R.H. EATHER	2 CHANNELS	"	"
"	VLF	R.A. HELLIWELL	4 CHANNELS	"	"

7. Data Averaging: In consideration of the size of the resulting database and to ensure that all data can be loaded, it is suggested that the maximum (highest) time resolution be 1-minute data, and higher resolution data be loaded where appropriate. NSSDC would prefer to receive your data with the time resolution that you normally have or use and will perform averages to your specifications. (See enclosed Guidelines page 1, with particular references to items 3, 4, and 6.)

_____ I will want NSSDC to perform time averaging and will enclose my specifications with the data.

_____ I want my data set(s) to be loaded without any averaging; if so, my basic time resolution is 10 SEC.

8. Data Manipulation: If you wish to have special data manipulation functions or subroutines added to the system that are extensive and may be impractical to construct in real time, these should be received as soon as possible (preferably in FORTRAN).

I will _____ will not ✓ be submitting data manipulation code for incorporation into the system. These will be sent by _____ (date).

9. I suggest that a special effort be made to obtain the following data sets:

_____

_____

10. To assist NSSDC in planning support and future development for CDAW-8 please complete this survey:

Remote access via: SPAN ✓ (soon) TELENET ____ Modem ____ Other _____

Type(s) of terminal available: (e.g., TEKTRONIX 4014, VT100 with graphics board, VT240)

_____

Type of PC/Software Communications Package you might use for access to CDAW system: (e.g., MacIntosh/TEKALIKE,...)

_____

Graphics software available at local node: (e.g., TEMPLATE, NCAR,...)

_____

Other commercial software packages you might use with CDAW data at your local node: (e.g., IDL,...)

_____

11. Please forward copies of the Workshop Announcement to any individual who you feel may be interested and ask them to submit this Questionnaire to NSSDC by March 10, 1986.

PLEASE RETURN THIS QUESTIONNAIRE TO:

Ms. Leah Gatewood
CDAW 8
Code 633
NASA Goddard Space Flight Center
Greenbelt, Maryland 20771
U.S.A.

Telephone: (301) 344-6818 FTS: 344-6818
SPAN Address: NSSDC::GATEWOOD TELEX: 89675 NSCOM GBLT

THE UNIVERSITY OF MARYLAND

COLLEGE PARK CAMPUS
Institute for Physical Science and Technology

September 9, 1986

Ms. Leah Gatewood
CDAW-8, Code 633
NASA Goddard Space Flight Center
Greenbelt, Maryland 20771

Dear Ms. Gatewood:

Enclosed, somewhat belatedly, are groundbased data from South Pole station for inclusion in the CDAW-8 data base. Please contact me if you have questions or any difficulty with the tape.

I would appreciate receiving recent information pertaining to the Workshop planned for later this month.

Sincerely,

Ted Rosenberg

Theodore J. Rosenberg
Research Professor

TJR/ptp

Enclosure

College Park, Maryland 20742 (301) 454-2636

Magnetic Tape Formats
for the
University of Maryland
Digital Data Acquisition Systems
at
South Pole and McMurdo Stations, Antarctica

D.L. Detrick and L.F. Lutz

March, 1982

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POLRI (Produces 1-minute riometer voltage values from reduced data tape.)

RIQD2 (Generates scatter plot of riometer voltage values, and calculates quiet day curve; uses 1-minute values.)

I. Digital Data Acquisition System

This report is intended as an aid in the use of digital magnetic data tapes produced by the University of Maryland's Digital Data Acquisition Systems at South Pole and McMurdo Stations, Antarctica.

The system installed in the upper atmosphere physics facility at South Pole Station monitors signals from the University of Maryland's riometers (20.5 MHz, 30 MHz, and 51.4 MHz), Bell Laboratories' 3-axis magnetometer, Stanford University's VLF receiver and electric field mill, and the micropulsation detectors operated by the University of New Hampshire and University of Minnesota. A list of the signals recorded, in the order in which they appear in the tape records, is given in Table 1. At McMurdo Station, the only signals recorded are from the University of Maryland's riometers (30 MHz and 51.4 MHz).

At South Pole Station, approximately seventy raw data tapes will be produced in one year. In order to distribute data among the participating projects, reduced data tapes will be produced, containing ten-second samples of the data on the original tapes. One set of these reduced data tapes, numbering about seven (2400', 9-track, 1600 BPI), will be made during the year at South Pole. Listings of the computer programs left at the station for this purpose are given in the Appendix (DIREC, REDUC). Copies of these reduced data tapes will be supplied to each project at the end of the winter season.

Sections of the original raw data tapes covering periods that require the full recorded time resolution will be supplied upon request.

The data acquisition system maintains time to 10 msec precision. Input signals are sampled at one of three rates: (1) ten per second (10 Hz), (2) once per second (1 Hz), and (3) once every ten seconds (0.1 Hz).

TABLE 1

Signals Recorded at South Pole Station

NO.	SIGNAL	SAMPLING RATE
1	Micropulse X	10 Hz. #1
2	Micropulse Y	10 Hz. #2
3	30 MHz. Riometer	1 Hz. #1
4	20.5 MHz. Riometer	1 Hz. #2
5	51.4 MHz. Riometer	1 Hz. #3
6	Magnetometer X	1 Hz. #4
7	Magnetometer Y	1 Hz. #5
8	Magnetometer Z	1 Hz. #6
9	0.5-1 KHz VLF	1 Hz. #7
10	1-2 KHz VLF	1 Hz. #8
11	2-4 KHz VLF	1 Hz. #9
12	11-13 KHz VLF	1 Hz. #10
13	31-38 KHz VLF	1 Hz. #11
14	Undefined VLF	1 Hz. #12
15	Analog ground	0.1 Hz. #1
16	+15v supply (scaled 7.5v)	0.1 Hz. #2
17	-15v supply (scaled -7.5v)	0.1 Hz. #3
18	+5v supply	0.1 Hz. #4
19	+12 supply (scaled 6v)	0.1 Hz. #5
20	+12v battery (scaled 6v)	0.1 Hz. #6
21	Magnetometer PS null	0.1 Hz. #7
22	Magnetometer excitation	0.1 Hz. #8
23	Magnetometer baseline	0.1 Hz. #9
24	Riometer heater current	0.1 Hz. #10

II. Tape record formats

In the following discussions, "physical record" refers to the complete magnetic tape record, and "logical record" is used to indicate that portion of the tape record containing all the data corresponding to one sampling of the input signals.

A. Raw data tape

The data acquisition system writes variable length physical records, depending on the beginning time of the record, and the number of inputs sampled. Each physical record contains as many complete logical records as will fit into the system's memory buffer (4096 bytes at South Pole, 1024 bytes at McMurdo). One logical record is produced every second, and contains only the digitized data; there is no explicit time information in the logical record.

The first 16 bytes of the physical record contain the date and time (U.T.), the station number, and the number of 10 Hz and 1 Hz signals recorded; the number of signals processed is the same throughout the physical record, but may change between physical records. The format of the header is:

Byte	Contents
1	tens digit of year
2	units digit of year
3	zero (not currently used)
4	hundreds digit of day of year (January 1 is day 1)
5	tens digit of day
6	units digit of day
7	tens digit of hour (U.T.)
8	units digit of hour

[10 Hz samples at 0 msec] [1 Hz samples] [0.1 Hz samples] [10 Hz samples at 100 msec] . . . [10 Hz samples at 900 msec]

Each tape physical record contains a number of complete logical records, prefixed by the 16-byte header. The time corresponding to each logical record can be found from the position of the logical record in the physical record: the time of the first logical record is the time encoded in the header; the time of the second logical record is one second later, etc. The size of the logical record depends on its time, and the number of channels sampled at that time (N10, N1 and N01). If the second is not a multiple of ten seconds (and non-zero), the logical record length is

$$L(\text{bytes}) = 20*N10 + 2*N1$$

If the second is zero, or a multiple of ten seconds, the length is

$$L(\text{bytes}) = 20*N10 + 2*N1 + 2*N01$$

time is the exact time of the first physical record on the raw data tape from which the entry was made; the time of the first logical record in the reduced tape file will be the first tens-second interval from this time (if the second is zero, or a multiple of ten seconds, the times will be the same).

2. Data file

Each data file represents one raw-data tape, containing only the 10-second data samples from the raw-tape. The number of physical records in the file is given in word 4 of the directory identifier for the file. The physical record length may be variable, up to 4096 bytes, and contains a variable length logical record for each 10-second data set.

The logical record is prefixed with a 4-word header identifying the date and time of the set, and its length:

Word	Bits	Contents
1	0-7	station code (8=South Pole, 7=McMurdo)
	8-15	year (eg. 81)
2	0-9	day of year (January 1 is day 1)
	10-15	hour (U.T.)
3	0-7	minute
	8-15	second
4	0-7	number of 10 Hz samples (N10)
	8-15	number of 1 Hz samples (N1)

The number of 10 Hz and 1 Hz samples may change, but the number of 0.1 Hz samples (N01) is fixed (18 for South Pole, 10 for McMurdo). The order of the information in each logical record is:

III. Tape Dumps

A. Raw data tape

A partial dump of one record from a raw data tape is shown in Figure 1. From the previous discussion of the tape record format, the beginning time of the record is day 4, 1982, 0349:50 UT. The station is South Pole (byte 14=8); there are two 10-Hz channels and twelve 1-Hz channels recorded.

The data follows the 16-byte header field, beginning with the 10-Hz channels. Since the tape record always begins on an even second mark (hundred msec. counter=0), the first logical record contains the 1-Hz channels, following the first sampling of the 10-Hz channels. Since the time (in this example) is also on a 10-second point, (on the dumped record, 50 sec.) the eighteen 0.1Hz channels follow the 1-Hz channels. After these, there are nine sets of 10-Hz outputs, 100 msec. apart in time, to complete the data corresponding to second 50.

The next nine logical records, corresponding to seconds 51 to 59, do not contain the 0.1Hz data channels, but otherwise follow the same format: (1) first 100 msec sampling of the 10-Hz channels(at 0 msec.); (2) sampling of the 1-Hz channels; and (3) sampling of the 10-Hz channels, corresponding to millisecond counts 100 to 900, in increments of 100 msec.

B. Reduced data tape

A partial dump of one record from a reduced data tape is shown in figure 2. Using the given format, the station is South Pole(8), and the time of the first logical record is day 361,1981, 0008:30 UT; there are 2 10-Hz inputs (N10) and 12 1-Hz inputs (N1).

The data in each logical record follows the 4-word (8-byte) header: (1)

FIGURE 1

PARTIAL DUMP OF ONE RECORD FROM RAW DATA TAPE

● Beginning of 1-second long logical record

I Beginning of 1-Hz data

II Beginning of 0.1-Hz data

✚ Beginning of logical record containing 0.01-Hz data

.3 Beginning of 10-Hz data, corresponding to 300 msec. sampling

YEAR DAY HOUR MINUTE SECOND STATION N10 N1 (12)

```
08 02 00 00 00 04 00 03 04 09 05 00 00 08 02 0C 80 3F 85 4F 4B F7 30 BB 6E D7 36 FF 68 1B 7E 8B 88 E6 8C 7B 89 C9 8A 77
8A AF A0 11 80 07 20 D2 DF EB 42 1B 30 EF 32 32 80 72 77 87 18 00 25 6B 30 8B 38 53 41 97 46 97 47 EA 48 12 4E 87 4F D3
80 52 85 3F 80 5F 85 13 80 1B 84 87 80 2F 84 8B 7F F7 84 87 80 1B 84 77 80 07 84 03 7F E2 83 FB 80 5B 84 82 80 37 84 B3
4B E3 30 47 6E AF 36 F7 68 17 7E 8A 88 DB 8C 7B 89 CB 8A 5F 8A AB A0 0F 80 5F 84 A7 80 93 84 AB 80 A3 84 EA 80 5F 84 D2
80 B3 84 DB 80 83 84 A7 80 72 84 93 80 5F 84 43 80 87 84 72 80 3B 84 43 4B D7 2F C7 6E C3 36 F3 68 13 7E 87 88 E1 8C 8B
89 D3 8A 83 8A B1 A0 0D 80 5B 84 13 80 4B 83 EA 80 82 84 13 80 8B 84 53 80 B7 84 8B 80 9B 84 8B 80 8F 84 73 80 BB 84 6B
80 83 84 23 80 27 83 FF 4B E3 31 23 6E 9B 36 EF 68 17 7E 8B 88 E1 8C 83 89 D1 8A 8B 8A B7 A0 0B 80 53 84 1A 80 83 84 6F
80 FB 84 D3 80 E3 85 1B 80 E2 85 03 80 E7 84 C0 80 BF 84 67 80 D3 84 87 80 C3 84 C3 80 87 84 0B 4B 77 30 92 6E BB 36 EB
68 17 7E 8B 88 DB 8C 7F 89 CB 8A 73 8A B3 A0 0B 80 67 83 7A 80 7B 84 13 80 A3 84 82 80 6F 84 57 80 77 84 4B 80 63 84 53
80 77 84 77 80 83 84 6B 80 7F 84 53 80 1F 84 07 4B B3 30 63 6E A7 36 DF 68 13 7E 87 88 CF 8C 7B 89 C7 8A 6B 8A B3 A0 0B
80 70 83 D3 80 53 83 FB 80 4F 83 FB 80 3F 83 A3 80 41 83 DF 80 1B 83 F3 80 63 84 13 80 43 84 3F 80 6B 84 2F 80 06 83 83
4C 43 31 83 6E DF 36 DB 68 10 7E 87 88 D3 8C 7B 89 CB 8A 77 8A B3 A0 0B 80 3B 83 C7 80 5B 84 4F 80 7B 84 83 80 5B 84 77
80 3F 84 73 80 3B 84 33 80 2B 84 33 7F F2 84 27 80 47 84 43 7F F2 84 1B 4B C7 30 FF 6E DB 36 DB 68 12 7E 8B 88 DB 8C 82
89 D3 8A 72 8A B7 A0 0B 80 30 84 42 80 07 84 5B 80 23 84 4B 7F EB 84 0B 80 03 84 17 80 07 84 57 80 17 84 90 80 0B 84 9F
80 23 84 5F 7F 8E 83 E3 4C 27 30 E7 6E CF 36 D3 68 0F 7E 8B 88 DB 8C 82 89 E3 8A 5B 8A B3 A0 0B 7F CB 84 43 80 0B 84 CB
80 31 85 0B 80 1B 84 F2 80 0F 84 A7 7F BB 84 47 7F A3 83 FF 7F 77 84 03 7F C6 84 5F 7F AB 84 4F 4C 03 30 F3 6E DB 36 D0
68 0B 7E 83 88 DB 8C 83 89 EA 8A 5B 8A B3 A0 0E 7F 9B 84 1F 7F 93 84 23 7F D3 84 53 7F A3 84 9F 7F F3 84 B3 7F 97 84 6B
7F A3 84 27 7F 5B 83 E3 7F CB 84 57 7F 83 84 82 4B AB 30 83 6E F2 36 CB 68 0A 7E 83 88 E3 8C 82 89 E7 8A 7B 8A B3 A0 0F
80 03 20 D7 DF F2 42 17 30 9B 32 36 80 67 77 7B 18 02 21 C3 2C 6A 34 8F 3D B3 43 7B 46 83 47 E7 4E 17 4F BA 7F C3 84 87
7F 3B 83 BB 7F 3B 83 97 7F 2B 83 C7 7F 8F 84 03 7F 6F 84 03 7F BB 84 4B 7F BB 84 7F 7F F7 84 B1 7F B6 84 63 4C 00 31 0F
6E 9E 36 C7 68 0A 7E 87 88 EA 8C 82 89 EA 8A 83 8A B3 A0 0B 7F C3 84 4B 7F AB 84 2B 7F A7 83 E7 7F 93 83 B1 7F 7F 83 8B
7F 8B 83 A3 7F 9F 83 67 7F 77 83 13 7F C7 83 11 7F B3 83 CA 4B BF 31 8B 6E B3 36 CB 68 0B 7E 8B 89 13 8D 33 91 EB 8A 87
8A B3 A0 0A 80 22 84 33 7F C3 83 BB 7F AB 83 67 7F B0 83 93 7F C7 83 CB 80 03 84 02 80 0B 83 BF 7F D7 83 7B 7F F1 83 5B
7F 9B 83 4F 4C 1B 32 03 6E CB 36 C7 68 0B 7E 87 89 12 8D 13 8C 52 8A 73 8A B3 A0 07 7F FF 83 7B 7F DF 83 72 80 37 83 BB
80 0F 83 AB 80 0F 83 92 80 47 83 82 80 42 83 93 80 23 83 D7 80 81 83 AB 7F B2 82 92 4B A3 30 DF 6E DF 36 C3 68 07 7E 8B
88 FF 8C C3 8A 9B 8A 73 8A B3 A0 0A 7F C3 82 7F 7F FB 82 F1 80 33 83 4B 80 1B 83 43 80 33 83 40 80 3F 83 43 80 47 83 73
80 2B 83 52 80 23 83 22 7F FA 83 03 4B D3 31 73 6E D2 36 BB 68 03 7E 87 88 F3 8C 9E 8A 22 8A 73 8A B3 A0 0A 80 1F 83 22
80 37 83 52 80 07 83 53 80 1E 83 43 80 27 83 5B 80 4B 83 AB 80 3B 83 97 80 03 83 63 80 2F 83 47 7F 8B 82 DF 4B 8B 31 5B
6E D7 36 B3 68 03 7E 83 88 F7 8C 8F 8A 00 8A 7A 8A B3 A0 0B 80 17 83 22 7F E2 83 13 7F BF 83 16 7F F0 83 23 7F D3 82 F3
7F CB 82 FB 7F B3 82 CF 7F E7 83 1B 7F EB 83 22 7F A3 83 0B 4C 77 31 C3 6E E2 36 B2 68 03 7E 8A 88 F3 8C 8B 89 F3 8A 73
8A B6 A0 0B 7F EB 83 10 7F C3 82 FB 7F C0 83 33 7F E3 83 82 7F CF 83 5F 7F A2 82 EB 7F 77 82 93 7F 70 82 9F 7F C7 82 FB
7F 80 82 EF 4B C7 31 57 6E A3 36 B7 68 03 7E 8B 88 DF 8C 8B 89 F7 8A 62 8A B3 A0 0B 7F C9 83 43 7F E3 83 4F 7F AB 83 67
7F EB 84 03 80 47 84 53 7F EB 83 FB 7F D1 83 8F 7F 57 83 5B 7F 93 83 52 7F 23 83 0B 4C 7B 31 02 6E A3 36 B3 68 03 7E 8B
88 EB 8C 8B 8A 02 8A 73 8A B7 A0 0B 7F 43 83 1B 7F 13 83 01 7F 71 83 5B 7F 7F 83 93 7F BF 84 33 7F A2 84 62 7F C9 84 42
7F 8B 83 F3 7F 7B 84 13 7F 73 83 EB 4B E6 31 72 6E AB 36 AF 68 02 7E 83 88 F7 8C 8B 8A 13 8A 8F 8A B3 A0 0B 80 06 20 DB
DF F3 42 17 30 43 32 23 80 17 77 8F 18 00 20 BF 2B 13 33 0E 3B EB 41 D7 45 63 47 33 4D 3A 4E F7 7F 63 83 D3 7F 6B 83 F3
7F 92 84 3B 7F 77 84 43 7F 33 83 B7 7F 00 83 77 7F 37 83 A3 7F 03 83 9B 7F 5F 83 DF 7F 5F 84 40 4B B3 32 53 6E EF 36 AA
67 FB 7E 87 88 F7 8C 8B 8A 1F 8A 7B 8A B3 A0 0B 7F C1 84 B3 7F CB 84 BF 7F BB 84 AB 7F B7 84 7B 7F 87 83 FB 7F 3B 83 CB
7F 8F 84 23 7F 83 84 2B 7F AB 84 13 7F 23 83 E3 4C 2B 31 4B 6E D3 36 AB 68 02 7E 8B 88 EB 8C 93 8A 32 8A 7B 8A B3 A0 0F
7F 97 84 43 7F B1 84 93 7F 9F 84 93 7F 9F 84 4B 7F 82 83 FB 7F 7F 84 1F 7F BB 84 77 7F 9B 84 77 7F CF 84 37 7F 42 83 AA
4B DF 32 0A 6E D2 36 AB 68 03 7E 8F 88 EB 8C 93 8A 33 8A 73 8A B3 A0 0F 7F AF 83 F7 7F 8F 84 47 7F D3 84 5B 7F 6B 84 2B
```

```
FTN4
      PROGRAM DATAQ
C
C     THIS PROGRAM DEMONSTRATES THE USE OF SEVERAL SUBROUTINES
C     DESIGNED TO DECODE MAGNETIC TAPES PRODUCED BY THE UNIVERSITY
C     OF MARYLAND'S DATA ACQUISITION SYSTEM INSTALLED AT SOUTH POLE
C     AND MCMURDO STATIONS, ANTARCTICA.
C
C     THE FIRST EIGHT WORDS OF EACH TAPE RECORD CONTAIN THE DATE AND
C     TIME, THE STATION NUMBER, AND THE NUMBER OF 1-HZ AND 10-HZ
C     INPUTS CONNECTED TO THE SYSTEM AT THE TIME THE TAPE RECORD WAS
C     PRODUCED.  THE SUBROUTINE 'GETIN' EXTRACTS THE DATE, TIME, STATION
C     NUMBER AND INPUT SWITCH SETTINGS FROM THE TAPE RECORD.  THE
C     INFORMATION IS STORED IN THE RECORD AS FOLLOWS:
C
C          WORD 1, BITS  0-7:  TENS DIGIT OF YEAR (LAST TWO DIGITS)
C                        8-15:  UNITS DIGIT OF YEAR
C
C          WORD 2, BITS  0-7:  ZERO BYTE (NOT CURRENTLY USED)
C                        8-15:  HUNDREDS DIGIT OF DAY OF YEAR
C
C          WORD 3, BITS  0-7:  TENS DIGIT OF DAY OF YEAR
C                        8-15:  UNITS DIGIT OF DAY OF YEAR
C
C          WORD 4, BITS  0-7:  TENS DIGIT OF HOUR (U.T.)
C                        8-15:  UNITS DIGIT OF HOUR
C
C          WORD 5, BITS  0-7:  TENS DIGIT OF MINUTE
C                        8-15:  UNITS DIGIT OF MINUTE
C
C          WORD 6, BITS  0-7:  TENS DIGIT OF SECOND
C                        8-15:  UNITS DIGIT OF SECOND
C
C          WORD 7, BITS  0-7:  ZERO BYTE (NOT CURRENTLY USED)
C                        8-15:  STATION NUMBER (7=MCMURDO, 8=SOUTH POLE)
C
C          WORD 8, BITS  0-7:  NUMBER OF 10-HZ INPUTS
C                        8-15:  NUMBER OF 1-HZ INPUTS
C
C     BEGINNING WITH WORD 9, AND CONTINUING TO THE END OF THE TAPE
C     RECORD, ARE THE MULTIPLEXED VALUES OF THE SAMPLED INPUTS, RECORDED
C     IN COMPLEMENTARY-OFFSET-BINARY.  THE SUBROUTINES 'GET01', 'GET1',
C     AND 'GET10' DE-MULTIPLEX THE RECORD AND STORE THE VOLTAGE VALUES
C     IN THE OUTPUT ARRAY; THE NUMBER OF VALUES IS ALSO RETURNED.  THE
C     SUBROUTINE 'CMPOB' CONVERTS THE COMPLEMENTARY-OFFSET-BINARY
C     NUMBERS TO CORRESPONDING INPUT VOLTAGES.
C
      INTEGER OUTLU
      DIMENSION IN(2048),OUT(1720)
      DATA OUT/1720*0./
C
      WRITE(1,1)
      READ(1,*) LU
    1 FORMAT(' ENTER TAPE LU: _')
C
    4 CALL EXEC(1,LU,IN,2048)
      CALL ABREG(IA,IB)
      I = IAND(IA,240B)
```

```
C     TWO), PUTTING ZERO IN THE MSB.  THESE TWO POSITIVE INTEGER
C     VALUES ARE THEN CONVERTED TO A VOLTAGE, AND ADJUSTED BY
C     305.2 MICROVOLTS TO GET THE PROPER SIGNAL LEVEL.  THE
C     PRECISION OF THE VOLTAGE VALUE, CORRESPONDING TO THE 16-BIT
C     COMPLEMENTARY OFFSET BINARY NUMBER WITH A 20 VOLT RANGE,
C     IS 305.2 MICROVOLTS.
C
      L = IAND(K,1)
      M = ISHFT(K,-1)
      X = 10.*(1.-FLOAT(M)/16384.-FLOAT(L)/32768.)-3.052E-4
      RETURN
      END
C****
      SUBROUTINE GETIM(IN,ISTN,IYR,IDAY,IHR,IMN,ISC,N10,N1)
C****
      DIMENSION IN(1)
C
      I = IAND(IN(1),177400B)
      I = ISHFT(I,-8)
      IYR = 10*I
      I = IAND(IN(1),377B)
      IYR = IYR+I
      I = IAND(IN(2),377B)
      IDAY = 100*I
      I = IAND(IN(3),177400B)
      I = ISHFT(I,-8)
      IDAY = IDAY+10*I
      I = IAND(IN(3),377B)
      IDAY = IDAY+I
      I = IAND(IN(4),177400B)
      IHR = I+30000B
      I = IAND(IN(4),377B)
      I = I+60B
      IHR = IOR(IHR,I)
      I = IAND(IN(5),177400B)
      IMN = I+30000B
      I = IAND(IN(5),377B)
      I = I+60B
      IMN = IOR(IMN,I)
      I = IAND(IN(6),177400B)
      I = ISHFT(I,-8)
      ISC = 10*I
      I = IAND(IN(6),377B)
      ISC = ISC+I
      ISTN = IAND(IN(7),377B)
      I = IAND(IN(8),177400B)
      N10 = ISHFT(I,-8)
      N1 = IAND(IN(8),377B)
      RETURN
      END
      END$
```

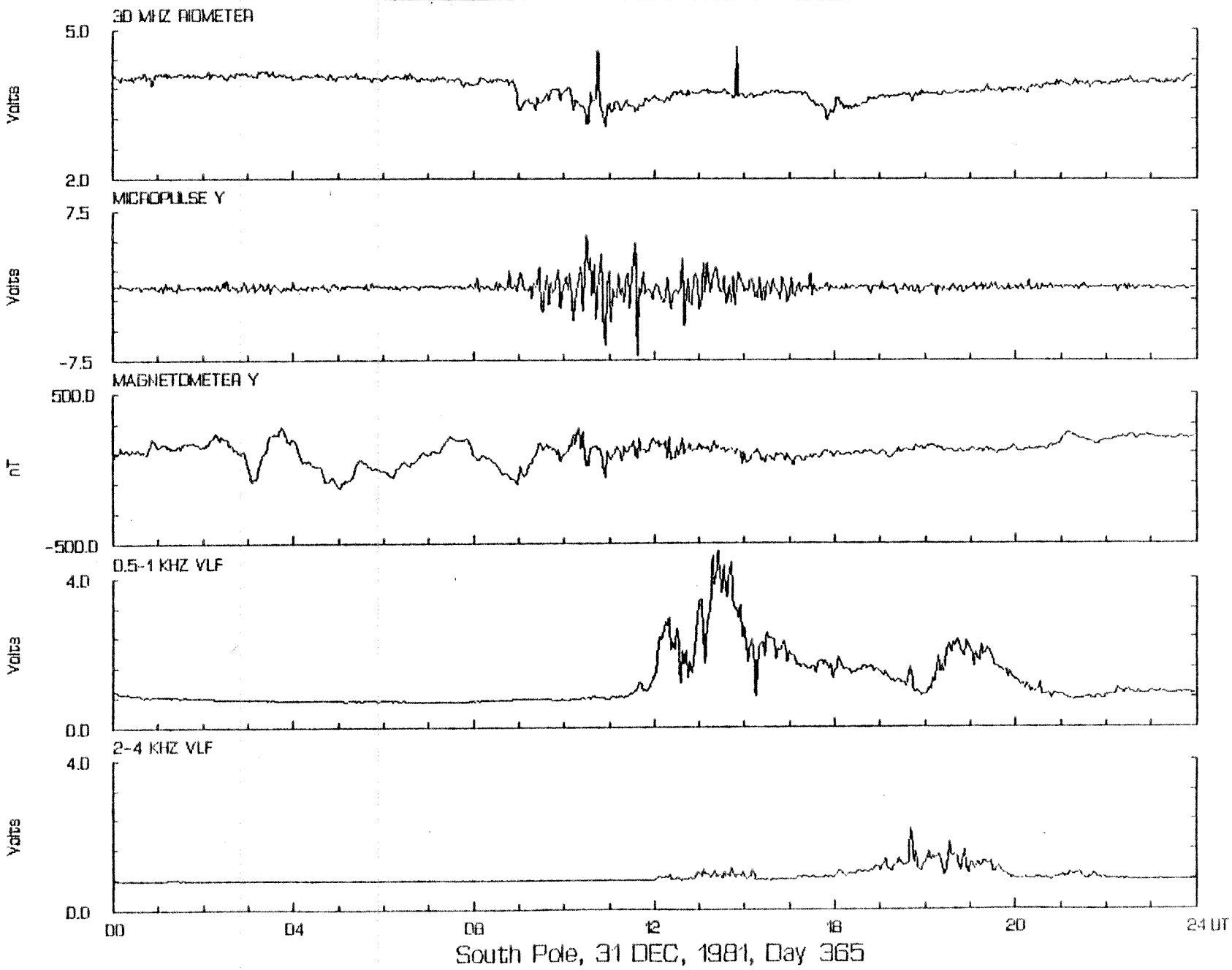
```
      IHR = IAND(IN(J),77B)
      J = J+1
      IMN = IAND(IN(J),177400B)
      ISH = -8
      IMN = ISHFT(IMN,ISH)
      ISC = IAND(IN(J),377B)
      K = ISC/10
      L = ISC-10*K
      IF((ISC.GT.0).AND.(L.NE.0)) K=K+1
      ISC = 10*K
      J = J+1
      IREC = IN(J)
C
      JSTN = 5*(ISTN-7)+1
      ITIM = 100*IHR+IMN
      ASSIGN 1 TO IFORM
      IF(ITIM.GE.10) ASSIGN 2 TO IFORM
      IF(ITIM.GE.100) ASSIGN 3 TO IFORM
      IF(ITIM.GE.1000) ASSIGN 4 TO IFORM
      WRITE(IPLU,IFORM) I,(ISTAT(J),J=JSTN,JSTN+4),ITIM,ISC,
     2 IDAY,IYR,IREC
    1 FORMAT(1X,I12,2X,5A2,2X,'000',I1,':',I2,I5,I6,I8)
    2 FORMAT(1X,I12,2X,5A2,2X,'00',I2,':',I2,I5,I6,I8)
    3 FORMAT(1X,I12,2X,5A2,2X,'0',I3,':',I2,I5,I6,I8)
    4 FORMAT(1X,I12,2X,5A2,2X,I4,':',I2,I5,I6,I8)
      RETURN
      END
      END$
```

```
0119          IYR = IYR+1
0120   C
0121   C**** Store time in output buffer
0122   C
0123      14 I = ISHFT(ISTN,8)
0124         OUT(JPTR) = IOR(I,IYR)
0125         JPTR = JPTR+1
0126         I = ISHFT(IDAY,6)
0127         OUT(JPTR) = IOR(I,IHR)
0128         JPTR = JPTR+1
0129         I = ISHFT(IMN,8)
0130         OUT(JPTR) = IOR(I,ISC)
0131         JPTR = JPTR+1
0132         I = ISHFT(N10,8)
0133         OUT(JPTR) = IOR(I,N1)
0134   C
0135   C**** Store data in output buffer
0136   C
0137         JPTR = JPTR+1
0138      15 DO 16 I=1,ILENG
0139         OUT(JPTR) = IN(IPTR+I)
0140      16 JPTR = JPTR+1
0141   C
0142   C**** If input buffer finished, get another tape record
0143   C
0144         IPTR = IPTR+N01+10*(10*N10+N1)
0145         I = IPTR+N01+N1+10*N10
0146         IF(I.GT.IBYTE) GO TO 6
0147   C
0148   C**** Increment second counter
0149   C
0150         ISC = ISC+10
0151         GO TO 7
0152   C
0153   C**** Input tape finished
0154   C
0155     100 IF(JPTR.EQ.1) GO TO 110
0156         J = JPTR-1
0157         CALL EXEC(2,OUTLU,OUT,J)
0158         JREC = JREC+1
0159         JPTR = 1
0160   C
0161   C**** Rewind input tape
0162   C
0163     110 JCMD = 400B+INLU
0164         CALL EXEC(3,JCMD)
0165   C
0166   C**** Write end-of-file mark to output tape
0167   C
0168         JCMD = 100B+OUTLU
0169         CALL EXEC(3,JCMD)
0170         CALL EXEC(3,JCMD)
0171         JCMD = 1400B+OUTLU
0172         CALL EXEC(3,JCMD)
0173   C
0174   C**** Get next input tape
0175   C
0176         ITAPE = ITAPE+1
0177         I = ITAPE*4
0178         IDIR(I) = JREC
```

```
C
      CALL EXEC(1,LU,IDIR,400)
      CALL ABREG(IA,IB)
      I = IAND(IA,240B)
      IF(I.NE.0) GO TO 500
      IF(IB.NE.400) GO TO 600
      FIRST = .FALSE.
      NUMD = 0
      IPLOT = 0
      JFILE = 0
C
C**** Find file containing start of day
C
    8 IFILE = 0
      NFILE = 0
      DO 10 I=1,400,4
      IF(IDIR(I).EQ.0) GO TO 11
      JYR = 1900+IAND(IDIR(I),377B)
      JDAY = IAND(IDIR(I+1),177700B)
      JDAY = ISHFT(JDAY,-6)
      IF(IYR.EQ.0) IYR=JYR
      IF(IDAY.EQ.0) IDAY=JDAY
      IF(JYR.LT.IYR) IFILE=IFILE+1
      IF((JYR.EQ.IYR).AND.(JDAY.LT.IDAY)) IFILE=IFILE+1
   10 NFILE = NFILE+1
      GO TO 700
   11 IF(IFILE.LT.1) IFILE=1
      I = IFILE-JFILE
      NFILE = NFILE-IFILE+1
      IF(I.LT.1) GO TO 20
      ICMD = 1300B+LU
      DO 12 J=1,I
   12 CALL EXEC(3,ICMD)
C
C**** Get data for all signals to be plotted
C
   20 CALL GEDAT(LU,NFILE,IYR,IDAY,ISTN)
C
C**** Plot signals, one at a time
C
      DO 30 I=1,15
      IF(NUMBR(I).EQ.0) GO TO 40
      IPLOT = IPLOT+1
      JCH = NUMBR(I)
      CALL HEDIT(I,JCH,IYR,IDAY,ISTN)
   30 CALL PLTIT(I,IPLOT,IYR,IDAY,ISTN)
C
C**** Increment day, continue if not done
C
   40 NUMD = NUMD+1
      IF(NUMD.GE.NDAYS) GO TO 50
      IF(NFILE.GE.2) GO TO 50
      JFILE = IFILE
      IDAY = IDAY+1
      FIRST = .FALSE.
      J = IYR/4
      J = IYR-4*J
      IF((J.EQ.0).AND.(IDAY.GE.367)) IYR=IYR+1
      IF((J.EQ.0).AND.(IDAY.GE.367)) IDAY=1
      IF((J.NE.0).AND.(IDAY.GE.366)) IYR=IYR+1
```

```
      ID = ID-IDOY(I)+1
      IF(LEAP.AND.(IDAY.EQ.60)) ID=29
      IF(ISTN.EQ.7) GO TO 47
      CALL CODE(33)
      WRITE(ILABL,4) ID,(MONTH(K),K=J,J+1),IYR,IDAY
      GO TO 10
   47 CALL CODE(33)
      WRITE(ILABL,3) ID,(MONTH(K),K=J,J+1),IYR,IDAY
    3 FORMAT(' McMurdo,',I3,1X,2A2,I5,', Day',I4,2X)
    4 FORMAT('South Pole,',I3,1X,2A2,I5,', Day',I4)
C
   10 XINC = HORIZ/FLOAT(IPTS)
      X = X0
      Y = Y0
      CALL UPSET(0.,14.,0.,11.)
C Form a grid for the plot.
      Z = VERT/5.
      X = X0
      Y = Y0
      CALL MOVEA(X,Y)
      DO 11 I=1,5
      Y = Y+Z
      CALL DRAWA(X,Y)
      CALL DRAWA(X+0.05,Y)
   11 CALL MOVEA(X,Y)
      X = X0+HORIZ
      Y = Y0
      CALL MOVEA(X,Y)
      DO 12 I=1,5
      Y = Y+Z
      CALL DRAWA(X,Y)
      CALL DRAWA(X-0.05,Y)
   12 CALL MOVEA(X,Y)
      Z = HORIZ/24.
      X = X0
      Y = Y0
      CALL MOVEA(X,Y)
      DO 14 I=1,6
      DO 13 J=1,3
      X = X+Z
      CALL DRAWA(X,Y)
      CALL DRAWA(X,Y+0.05)
   13 CALL MOVEA(X,Y)
      X = X+Z
      CALL DRAWA(X,Y)
      CALL DRAWA(X,Y+0.075)
   14 CALL MOVEA(X,Y)
C Plot the data.
      X = X0
      YMIN = AMINV(ICH)
      SCALE = VERT/(AMAXV(ICH)-YMIN)
      Z = AINV(ICH)
      J = IOUT(JCH,1)
      Y = Y0+SCALE*(Z*CMPOB(J)-YMIN)
      IF(Y.LT.Y0) Y=Y0
      CALL MOVEA(X,Y)
      DO 20 I=2,IPTS
      X = X+XINC
      J = IOUT(JCH,I)
      Y = Y0+SCALE*(Z*CMPOB(J)-YMIN)
```

SAMPLE PLOT PRODUCED BY PROGRAM 'PLTDQ'



```
&POLRI T=00004 IS ON CR00028 USING 00035 BLKS R=0000

0001   FTN4
0002          PROGRAM POLRI
0003   C .....Program to read South Pole compressed data tape
0004   C .....and create riometer data tape with 1-minute values
0005   C .....(1 record per day, 1444 words per record) to be used
0006   C .....by program RIQD2.
0007   C
0008          DIMENSION IOUT(1444)
0009          DIMENSION IN(2048),NAME(338)
0010          DIMENSION IDIR(400)
0011   C
0012          DATA NAME/1,2HMI,2HCR,2HOP,2HUL,2HSE,2H X,6*2H  ,
0013         2 1,2HMI,2HCR,2HOP,2HUL,2HSE,2H Y,6*2H  ,
0014         3 1,2H30,2H M,2HHZ,2H R,2HIO,2HME,2HTE,2HR ,4*2H  ,
0015         4 1,2H20,2H.5,2H M,2HHZ,2H R,2HIO,2HME,2HTE,2HR ,3*2H  ,
0016         4 1,2H51,2H.4,2H M,2HHZ,2H R,2HIO,2HME,2HTE,2HR ,3*2H  ,
0017         5 2,2HMA,2HGN,2HET,2HOM,2HET,2HER,2H X,5*2H  ,
0018         6 2,2HMA,2HGN,2HET,2HOM,2HET,2HER,2H Y,5*2H  ,
0019         7 2,2HMA,2HGN,2HET,2HOM,2HET,2HER,2H Z,5*2H  ,
0020         8 1,2H0.,2H5-,2H1 ,2HKH,2HZ ,2HVL,2HF ,5*2H  ,
0021         9 1,2H1-,2H2 ,2HKH,2HZ ,2HVL,2HF ,6*2H  ,
0022         2 1,2H2-,2H4 ,2HKH,2HZ ,2HVL,2HF ,6*2H  ,
0023         3 1,2H11,2H-1,2H3 ,2HKH,2HZ ,2HVL,2HF ,5*2H  ,
0024         4 1,2H31,2H-1,2H8 ,2HKH,2HZ ,2HVL,2HF ,5*2H  ,
0025         5 1,2HUN,2HDE,2HFI,2HNE,2HD ,2HVL,2HF ,5*2H  ,
0026         6 1,2HAN,2HAL,2HOG,2H G,2HRO,2HUN,2HD ,5*2H  ,
0027         7 1,2H+1,2H5v,2H S,2HUP,2HPL,2HY ,6*2H  ,
0028         8 1,2H-1,2H5v,2H S,2HUP,2HPL,2HY ,6*2H  ,
0029         9 1,2H+5,2Hv ,2HSU,2HPP,2HLY,7*2H  ,
0030         2 1,2H+1,2H2v,2H S,2HUP,2HPL,2HY ,6*2H  ,
0031         3 1,2H+1,2H2v,2H B,2HAT,2HTE,2HRY,6*2H  ,
0032         4 1,2HMA,2HGN,2HET,2HOM,2HET,2HER,2H P,2HS ,2HNU,2HLL,2*2H  ,
0033         5 1,2HMA,2HGN,2HET,2HOM,2HET,2HER,2H E,2HXC,2HIT,2HAT,2HIO,2HN ,
0034         6 1,2HMA,2HGN,2HET,2HOM,2HET,2HER,2H B,2HAS,2HEL,2HIN,2HE ,2H  ,
0035         7 4,2HRI,2HOM,2HET,2HER,2H H,2HEA,2HTE,2HR ,2HCU,2HRR,2HEN,2HT ,
0036         8 5,2HEL,2HEC,2HTR,2HIC,2H F,2HIE,2HLD,5*2H  ,
0037         9 6,2HWI,2HND,2H S,2HPE,2HED,7*2H  /
0038   C
0039          WRITE(1,1)
0040          READ(1,*) LU1,LU2
0041   C**** LU1 is input tape (compressed data tape), LU2 is output tape.
0042        1 FORMAT(' ENTER TAPE LUS: _')
0043   C
0044          WRITE(1,101)
0045          READ(1,*) I
0046          IF(I.NE.0) GO TO 102
0047      101 FORMAT(' ENTER 0 TO PRINT THE LIST OF SIGNALS: _')
0048          WRITE(1,2)
0049        2 FORMAT(//' NO.  SIGNAL'/)
0050          DO 3 I=1,26
0051          J = 13*(I-1)+2
0052        3 WRITE(1,4) I,(NAME(K),K=J,J+11)
0053        4 FORMAT(I3,2X,12A2)
0054      102 CONTINUE
0055   C
0056          WRITE(1,5)
0057          READ(1,*) ISIG
0058          IF(ISIG.EQ.0) STOP 1
0059        5 FORMAT(/' ENTER SIGNAL TO BE COPIED: _')
0060   C
0061          WRITE(1,6)
0062      6   FORMAT(/' ENTER YEAR (EG.,1980), AND DAY OF YEAR (JAN 1=DAY 1)',
0063         1/' OF FIRST DAY TO BE COPIED')
0064          READ(1,*) ISTYR,ISTDY
0065   C
0066          WRITE(1,7)
0067      7   FORMAT(/' ENTER NUMBER OF DAYS TO BE COPIED')
0068          READ(1,*) NDAYS
0069   C
0070   C
0071   C**** Read input tape directory to find # of files
0072   C
0073          CALL EXEC(1,LU1,IDIR,400)
0074          CALL ABREG(IA,IB)
0075          I=IAND(IA,240B)
0076          IF(I.NE.0) GO TO 500
0077          IF(IB.NE.400) GO TO 600
0078          NFILS=0
```

```
   20 IOFF = IOFF+N01+N1+N10
      IF(IOFF.GE.IB) GO TO 10
   30 CONTINUE
      STOP 30
C
C**** Write output record and backspace two records on input tape
C
  400 CALL EXEC(2,LU2,IOUT,1444)
      ICMD=200B+LU1
      CALL EXEC(3,ICMD)
      CALL EXEC(3,ICMD)
      LDAY=LDAY+1
      IF((LDAY-ISTDY+1).LE.NDAYS) GO TO 320
      GO TO 450
C
  200 J = 13*(ICH-1)+2
      WRITE(1,201) ICH,JYR,JDAY,(NAME(K),K=J,J+11)
  201 FORMAT(' NO DATA FOR CHANNEL',I3,I6,',  DAY',I4,3X,12A2,
     2 /' GET A DIRECTORY LISTING OF THE TAPE.')
C
C**** Write two EOF'S
C
  450 ICNWD=LU2+100B
      CALL EXEC(3,ICNWD)
      CALL EXEC(3,ICNWD)
      STOP
      END
C****
      SUBROUTINE DECOD(IN,IOFF,ISTN,JYR,JDAY,IHR,IMN,ISC,N10,N1)
      DIMENSION IN(1)
      J = IOFF+1
      ISTN = IAND(IN(J),177400B)
      ISTN = ISHFT(ISTN,-8)
      JYR = 1900+IAND(IN(J),377B)
      J = J+1
      JDAY = IAND(IN(J),177700B)
      JDAY = ISHFT(JDAY,-6)
      IHR = IAND(IN(J),77B)
      J = J+1
      IMN = IAND(IN(J),177400B)
      IMN = ISHFT(IMN,-8)
      ISC = IAND(IN(J),377B)
      J = J+1
      N10 = IAND(IN(J),177400B)
      N10 = ISHFT(N10,-8)
      N1 = IAND(IN(J),377B)
      RETURN
      END
C
      REAL FUNCTION CMPOB(I)
      J = IAND(I,1)
      K = ISHFT(I,-1)
      CMPOB = 10.*(1.-FLOAT(K)/16384.-FLOAT(J)/32768.)-3.052E-4
      RETURN
      END
C
      END$
```

```
%RIQD2 T=00004 IS ON CR00028 USING 00080 BLKS R=0000
FTN4
      PROGRAM RIQD2
C
C       PROGRAM TO GENERATE SCATTERPLOT AND COMPUTE QUIET DAY CURVE
C       FROM RIOMETER DATA USING THE INFLECTION POINT METHOD.
C       DATA IS READ FROM MAGNETIC TAPE ASSUMING EACH RECORD
C       CONTAINS ONE DAY'S WORTH OF DATA IN THE FOLLOWING FORMAT:
C
C             WORD              CONTENTS
C
C               1............SIGNAL (CHANNEL) NUMBER.
C               2............YEAR (EG., 1980).
C               3............DAY OF YEAR (JAN 1= DAY 1).
C               4............STATION CODE; (8=SOUTH POLE).
C             5-1444.......RIOMETER DATA POINTS IN MILLIVOLTS
C                            AT EVERY MINUTE (UT) OF THE DAY,
C                            STARTING AT 0 UT.
C
      COMMON A(48,70)
      INTEGER QDAY,QDDB
      INTEGER BINSZ
      LOGICAL DAY1
      DIMENSION IN(1444)
      DIMENSION LINEX(78),LINE(65),IVAL(36),NUMBR(8)
      DIMENSION NDAY(400),SNAME(3)
      DIMENSION QDAY(48),QDDB(48),Q(49)
C
C  .....NST IS NUMBER OF BINS IN SIDEREAL TIME,
C  .....NV IS NUMBER OF BINS IN VOLTAGE,
C  .....ASSUMES NUMBER OF DAYS TO BE READ IN DOES NOT EXCEED 400.
      DATA NST/48/,NV/70/
      DATA NDAY/400*0/
      DATA LINE/65*1H /,LINEX/78*1HX/
      DATA IBL/1H /,ISTAR/1H*/
      DATA IVAL/1H ,1H1,1H2,1H3,1H4,1H5,1H6,1H7,1H8,1H9,
     11HA,1HB,1HC,1HD,1HE,1HF,
     21HG,1HH,1HI,1HJ,1HK,1HL,1HM,1HN,1HO,1HP,1HQ,1HR,1HS,
     31HT,1HU,1HV,1HW,1HX,1HY,1HZ/
C
C
    1 WRITE(1,2)
    2 FORMAT(' ENTER TAPE LU (8,9 OR 10), OR 0 TO STOP:_')
      READ(1,*) LUTAP
      IF(LUTAP.EQ.0) STOP 1
      IF((LUTAP.LT.8).OR.(LUTAP.GT.10)) GO TO 1
C
C ..... READ FIRST RECORD AND PRINT RELEVANT INFORMATION
      CALL EXEC(1,LUTAP,IN,1444)
      CALL ABREG(IA,IB)
      IT=IAND(IA,240B)
      IF(IT.NE.0) GO TO 7777
      GO TO 500
C
 7777 WRITE(1,7000)
 7000 FORMAT(' ** END OF FILE **')
      STOP 7777
C
  500 IYR=IN(2)
      JD=IN(3)
      IDSTN=IN(4)
      IFREQ=30
      IF((IDSTN.EQ.8).AND.(IN(1).EQ.4)) IFREQ=20
      IF((IDSTN.EQ.8).AND.(IN(1).EQ.5)) IFREQ=51
      CALL SLONG(IDSTN,ELONG)
      CALL NAME(IDSTN,SNAME)
      WRITE(1,506) (SNAME(I),I=1,3),IYR,ELONG,JD
  506 FORMAT(1H ,3A4,3X,I4,5X,'LONGITUDE = ',F10.2,5X,'JD = ',I3)
      WRITE(1,507)
  507 FORMAT(' ENTER 1 TO CONTINUE (IF YEAR AND STN OK), 0 TO STOP')
      READ(1,*) ICONT
      IF(ICONT.NE.1) GO TO 1
C
C  .....DEFINE VOLTAGE RANGE, TIME CONSTANTS AND
C  .....INFLECTION POINT CRITERIA.
  316 WRITE(1,317)
  317 FORMAT(' ENTER VOLTAGE OFFSET AND CUTOFF VALUES ',
     1' IN MILLIVOLTS')
      READ(1,*) MVOFF,MVCLP
```

```
0159   591  CALL EXEC(1,LUTAP,IN,1444)
0160  C     .....IF EOF OR EOT ENCOUNTERED, GO TO 1111
0161        CALL ABREG(IA,IB)
0162        IT=IAND(IA,240B)
0163        IF(IT.NE.0) GO TO 1111
0164  C     .....FIND RECORD CORRESPONDING TO FIRST DAY...
0165        IF((IN(2).EQ.KYR).AND.(IN(3).EQ.IBEGI)) GO TO 7
0166        GO TO 591
0167  C
0168     6  IF((IN(2).EQ.KYR).AND.(IN(3).EQ.IBEGI)) GO TO 7
0169  C
0170  C     .....IF TIME PERIOD IS REGULAR MONTH, BACKSPACE REQUIRED NUMBER
0171  C     .....OF RECORDS TO REACH RECORD CORRESPONDING TO FIRST DAY OF MONTH.
0172        NBSR=IN(3)-IBEGI+1
0173        ICNWD=LUTAP+200B
0174        NBREC=0
0175   595  CALL EXEC(3,ICNWD)
0176        CALL EXEC(3,LUTAP+600B)
0177        CALL ABREG(IA,IB)
0178        IT=IAND(IA,100B)
0179        IF(IT.NE.0) GO TO 601
0180        IT=IAND(IA,200B)
0181        IF(IT.NE.0) CALL EXEC(3,LUTAP+1300B)
0182        IF(IT.NE.0) GO TO 601
0183        NBREC=NBREC+1
0184        IF(NBREC.LT.NBSR) GO TO 595
0185  C
0186   601  CALL EXEC(1,LUTAP,IN,1444)
0187        CALL ABREG(IA,IB)
0188        IT=IAND(IA,240B)
0189        IF(IT.NE.0) GO TO 1111
0190        IF((IN(2).EQ.KYR).AND.(IN(3).EQ.IBEGI)) GO TO 7
0191        IF((IN(2).EQ.KYR).AND.(IN(3).GT.IBEGI)) GO TO 1115
0192        GO TO 601
0193  C
0194  1111  WRITE(1,1112) IBEGI,KYR
0195  1112  FORMAT(' START DAY ',I4,'/',I4,' NOT FOUND ON FILE;',
0196       1/' EOF OR EOT REACHED')
0197        GO TO 1004
0198  C
0199  1115  WRITE(1,1116) IBEGI,KYR
0200  1116  FORMAT(' START DAY ',I4,'/',I4,' MISSING ')
0201        GO TO 7
0202  C
0203  C
0204  C     .....INITIALIZE ARRAY...
0205     7  DO 100 I=1,NST
0206        DO 100 J=1,NV
0207   100  A(I,J)=0.
0208  C
0209        DO 8 N=1,400
0210     8  NDAY(N)=-1
0211  C
0212  C
0213  C     .....BIN DATA IN VOLTAGE AND SIDEREAL TIME...
0214        DAY1=.TRUE.
0215        ND=0
0216    11  CONTINUE
0217        IF(DAY1) GO TO 12
0218        CALL EXEC(1,LUTAP,IN,1444)
0219        CALL ABREG(IA,IB)
0220        IT=IAND(IA,240B)
0221        IF(IT.NE.0) GO TO 2222
0222    12  JD=IN(3)
0223        IYR=IN(2)
0224        IF((IYR.GE.LYR).AND.(JD.GT.IHALT)) GO TO 2225
0225        ND=ND+1
0226        NDAY(ND)=JD
0227        IDAY=JD
0228        DO 60 J=5,1444
0229        IF(IN(J).LE.0) GO TO 60
0230        IF(IN(J).LT.MVOFF) GO TO 60
0231        IF(IN(J).GT.MVCLP) GO TO 60
0232        MINIT=J-5
0233        UT=FLOAT(MINIT)/60.
0234        CALL SIDTM(ELONG,IYR,IDAY,UT,HLST)
0235  C     .....COMPUTE SIDEREAL TIME BIN NUMBER...
0236        IST=HLST*FLOAT((NST+1)/24)+1.5
0237        IF(IST.GT.NST) IST=IST-NST
0238  C     .....COMPUTE VOLTAGE BIN NUMBER...
```

```
      IHR=FLOAT(I-1)/FLOAT(MHR)+0.1
   89 DO 90 J=1,NV
      K=A(I,J)+1.
      IF(K.LT.1) K=1
      IF(K.GT.36) K=36
   90 LINE(J)=IVAL(K)
      JQ=Q(I)+0.5
      IF(JQ.GT.NV) JQ=NV
      LINE(JQ)=ISTAR
      IF(MOD(I,MHR).EQ.1) WRITE(6,91) IHR,(LINE(J),J=1,NV),IHR
      IF(MOD(I,MHR).NE.1) WRITE(6,191) (LINE(J),J=1,NV)
   91 FORMAT(1H ,I2,' * ',70A1,'  * ',I2)
  191 FORMAT(1H ,2X,' X ',70A1,'  X')
      DO 94 K=1,NV
   94 LINE(K)=IBL
  103 CONTINUE
      WRITE(6,1002) (LINEX(I),I=1,78)
      WRITE(6,1001) (NUMBR(I),I=1,8)
C
C
      WRITE(6,2002)
 2002 FORMAT(1H0,' QUIET DAY VALUES (MILLIVOLTS): ')
 3002 FORMAT(1H0,' QUIET DAY VALUES (100*DB): ')
      WRITE(6,1003) (QDAY(I),I=1,NST)
 1003 FORMAT(1H ,12I5)
      WRITE(6,3002)
      WRITE(6,1003) (QDDB(I),I=1,NST)
C
C
 4000 IF(ITYPE.EQ.1) WRITE(1,1200) MN
      IF(ITYPE.EQ.2) GO TO 1004
 1200 FORMAT(' MONTH ',I3,' DONE,'/' ENTER 1 TO CONTINUE',
     1' WITH NEXT MONTH, OR 0 TO START AGAIN OR STOP')
      READ(1,*) JCONT
      IF(JCONT.NE.1) GO TO 312
      MN=MN+1
      IF(MN.GT.12) GO TO 1004
      CALL RDNLC(IYR,MN,1,JDOY,IBEGI,IHALT)
      GO TO 6
C
 1004 STOP
C
      END
C****
      SUBROUTINE GETQD(NV,NST,TD,WINDO,CRIT,TQ,Q)
      COMMON A(48,70)
C  .....DIMENSION OF HOLD IS (NST*10+BUFFER*2),
C  .....DIMENSION OF TEMP IS ((NV-1)*10+1)
      DIMENSION Q(1),HOLD(640),TEMP(691)
      NTEMP=(NV-1)*10+1
C  .....EXPAND VOLTAGE DISTRIBUTION BY 10 USING LINEAR INTERPOLATION,
      DO 100 I=1,NST
      DO 80 J=1,NV-1
      DELY=(A(I,J+1)-A(I,J))/10.
      DO 80 M=1,10
      K=10*(J-1)+M
   80 TEMP(K)=A(I,J)+FLOAT(M-1)*DELY
      TEMP(NTEMP)=A(I,NV)
C  .....SMOOTH EXPANDED DISTRIBUTION
      IF(TD.NE.0.) CALL SMUTH(TEMP,NTEMP,TD)
C  .....FIND INFLECTION POINT
      CALL INFPT(TEMP,NTEMP,WINDO,CRIT,INF)
      Q(I)=FLOAT(INF-1)/10.+1.
  100 CONTINUE
      Q(NST+1)=Q(1)
      DO 800 J=1,NST
C  .....EXPAND RAW QUIET DAY CURVE BY 10 USING LINEAR INTERPOLATION,
      DELY=(Q(J+1)-Q(J))/10.
      DO 800 M=1,10
      K=10*(J-1)+M
  800 HOLD(K+80)=Q(J)+FLOAT(M-1)*DELY
      HOLD((NST*10+1)+80)=Q(NST+1)
  900 CONTINUE
C  .....ADD BUFFERS ON BOTH ENDS TO ENSURE PROPER CONTINUITY...
C  .....(BUFFER SIZE USED IS 80 POINTS)...
      DO 101 I=1,80
      HOLD(I)=HOLD(I+(NST*10))
  101 HOLD(I+(NST*10)+80)=HOLD(I+80)
C  .....SMOOTH EXPANDED QUIET DAY CURVE...
      IF(TQ.NE.0.) CALL SMUTH(HOLD,NST*10+2*80,TQ)
```

```
C     .....DIMENSION OF HOLD MUST BE EQUAL TO THE LARGER OF
C     .....THE DIMENSIONS OF HOLD AND TEMP IN SUBROUTINE GETQD.
C
      SUBROUTINE SMUTH(ARRAY,IPTS,FOLD)
      DIMENSION HOLD(691),ARRAY(1)
      DO 1 I=1,IPTS
      HOLD(I) = ARRAY(I)
    1 ARRAY(I) = 0.
      BEGI = 0.
      FINI = 0.
      FOLD = ABS(FOLD)
      IF(FOLD.EQ.0.) WEIGHT=0.
      IF(FOLD.NE.0.) WEIGHT=EXP(-1./FOLD)
      ANORM = 1.-WEIGHT
      I = IPTS/10
      J = INT(3.*FOLD)
      J = MIN0(I,J)
      DO 100 I=1,J
      I1 = IPTS+1-I
      BEGI = BEGI+HOLD(I)
  100 FINI = FINI+HOLD(I1)
      BEGI = BEGI/(FLOAT(J)*ANORM)
      FINI = FINI/(FLOAT(J)*ANORM)
      DO 200 I=1,IPTS
      I1 = IPTS+1-I
      BEGI = BEGI*WEIGHT+HOLD(I)
      FINI = FINI*WEIGHT+HOLD(I1)
      ARRAY(I) = ARRAY(I)+BEGI*ANORM/2.
  200 ARRAY(I1) = ARRAY(I1)+FINI*ANORM/2.
      RETURN
      END
C
C     .....SUBROUTINE FOR COMPUTING SIDEREAL TIME IHOURS,
C     .....GIVEN YEAR, DAY OF YEAR (JAN 1 = DAY 1), UT, LONGITUDE
C     .....IN DECIMAL DEGREES (+ FOR EAST, - FOR WEST).
C     .....ACCURATE TO APPROX. 1 SEC. FOR YEARS 1975-1983.
C
      SUBROUTINE SIDTM(ELONG,IYR,IDAY,UT,HLST)
      IF(IYR.LE.1975) GMST0=6.+36./60.+8.601/3600.
      IF(IYR.EQ.1976) GMST0=6.+35./60.+11.309/3600.
      IF(IYR.EQ.1977) GMST0=6.+38./60.+10.572/3600.
      IF(IYR.EQ.1978) GMST0=6.+37./60.+13.280/3600.
      IF(IYR.EQ.1979) GMST0=6.+36./60.+15.988/3600.
      IF(IYR.EQ.1980) GMST0=6.+35./60.+18.696/3600.
      IF(IYR.EQ.1981) GMST0=6.+38./60.+17.959/3600.
      IF(IYR.EQ.1982) GMST0=6.+37./60.+20.668/3600.
      IF(IYR.GE.1983) GMST0=6.+36./60.+23.376/3600.
      GMSTH=GMST0+(24./365.25)*FLOAT(IDAY)+(366.25/365.25)*UT
      GMSTH=AMOD(GMSTH,24.)
      STST=GMSTH/24.+ELONG/360.
      IF(STST.LT.0.) STST=STST-AINT(STST)
      IF(STST.LT.0.) STST=STST+1.
      IF(STST.GT.1.) STST=STST-1.
      HLST=STST*24.
      RETURN
      END
C
      SUBROUTINE SLONG(IDSTN,ELONG)
      ELONG=0.
      IF(IDSTN.EQ.1) ELONG=-84.00
      IF(IDSTN.EQ.2) ELONG=-72.58
      IF(IDSTN.EQ.4) ELONG=-72.53
      IF(IDSTN.EQ.5) ELONG=-70.90
      IF(IDSTN.EQ.6) ELONG=-71.44
      RETURN
      END
C
      SUBROUTINE NAME(IDSTN,SNAME)
      DIMENSION STN(24),SNAME(3)
      DATA STN/4H    ,4HSIPL,4HE    ,4H  LA,4H TUQ,4HUE  ,
     14H  RO,4HBERV,4HAL   ,4H GIR,4HARDV,4HILLE,
     24H   D,4HURHA,4HM    ,4HPITT,4HSBUR,4HG,NH,
     34H   M,4HcMUR,4HDO   ,4H SOU,4HTH P,4HOLE /
      DO 10 I=1,3
   10 SNAME(I)=STN((IDSTN-1)*3+I)
      RETURN
      END
C
C     .....CALENDAR FOR COMPUTING DAY OF YEAR, BEGINNING AND END OF MONTH.
C
```

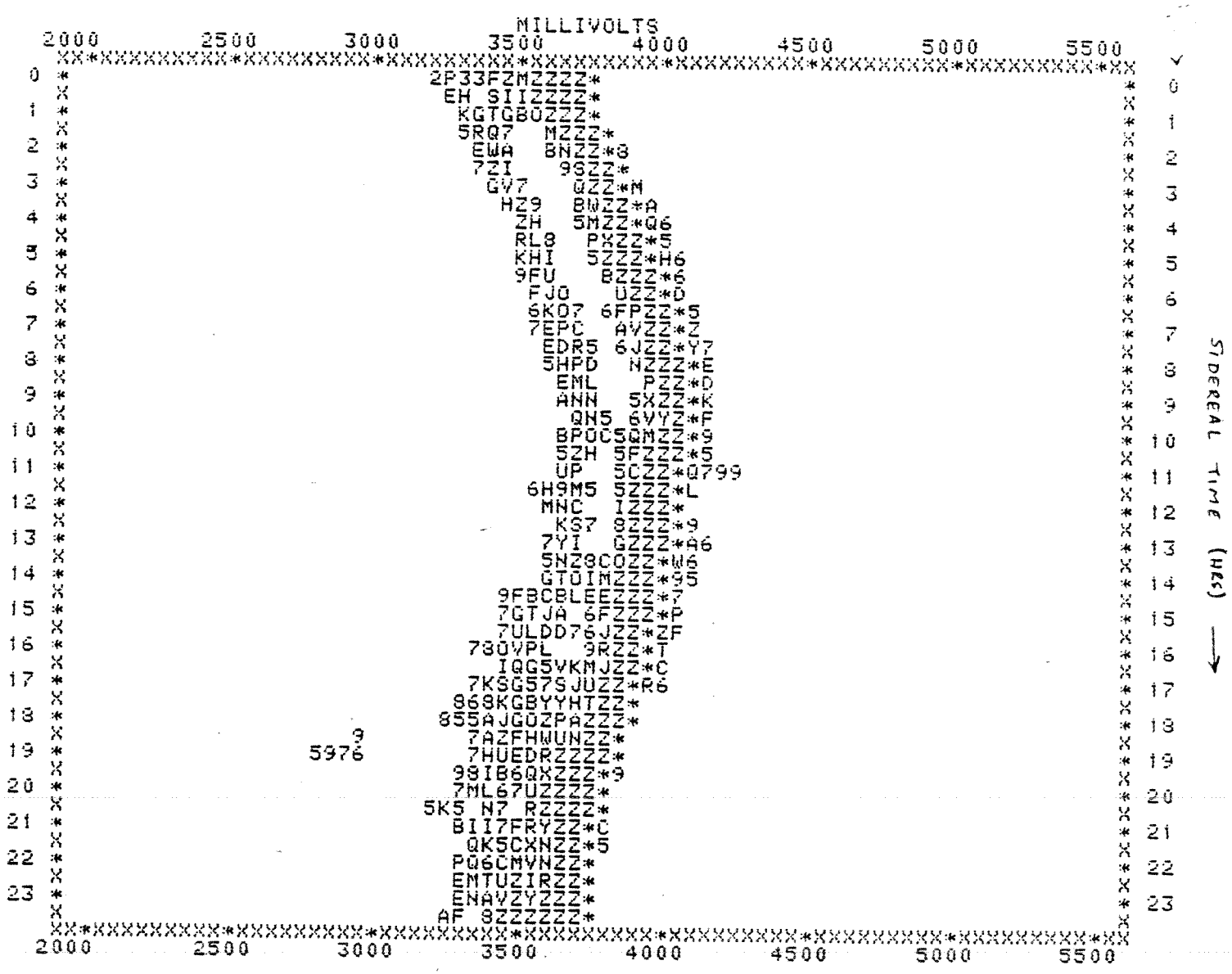
STN 8 SOUTH POLE 1981 FREQ = 30 MHZ LONGITUDE = 0.00

TIME CONSTANTS = 3.0 POINTS(DISTRIBUTION) 30.0 MINUTES(QDC)
WINDO= .4 CRIT= .9 V SCALE

MONTH = 13, JD = 361 TO 8
DAYS INCLUDED IN PLOT (JAN 1 = DAY 1, MISSING DAYS = -1):
361 362 363 364 365 1 2 3 4 5 6 7 8

(BIN SIZE in mV)

OFFSET = 2000 MILLIVOLTS CUT OFF = 5500 MILLIVOLTS MVBIN = 50



QUIET DAY VALUES (MILLIVOLTS):

3718	3731	3748	3769	3792	3818	3845	3871	3896	3920	3945	3968
3989	4009	4027	4042	4056	4064	4068	4068	4065	4058	4049	4040
4029	4017	4006	3994	3982	3969	3954	3943	3930	3914	3894	3873
3850	3827	3808	3788	3768	3757	3747	3736	3728	3722	3718	3716

QUIET DAY VALUES (100*DB):

570	572	574	576	579	582	585	588	591	593	596	599
601	603	605	607	608	609	609	609	609	608	607	606
605	604	603	601	600	599	597	596	594	593	590	588
585	583	581	578	576	575	574	572	571	571	570	570

1. THE TAPE HAS 6 FILES IN THE ORDER OF THE SIX CDAW INTERVALS. THE SIXTH FILE ENDED WITH DOUBLE END OF FILE MARKS.

2. THE TAPE IS IN UNIV. OF MARYLAND REDUCED DATA TAPE FORMAT (10-SEC SAMPLES),NO DIRECTORY AT THE BEGINNING. (A FORMAT DESCRIPTION BOOK IS ENCLOSED.)

3. TWO OF THE TIME INTERVALS HAVE BEEN PLOTTED IN THE ORDER IN WHICH THE SIGNALS WERE RECORDED (DO NOT USE THE LIST IN THE FORMAT BOOK PAGE 3!!).

4. THE TWO PHOTOMETERS ARE 1 Hz SIGNALS. IN CONVERTING THE TWO SIGNALS TO LOG(KR) FROM VOLTAGE SCALE, FOLLOWING FORMULAS ARE USED.

$$X = .5*V + 1.09 \quad \text{FOR 630.0nm PHOTOMETER}$$
$$X = .413*V + .988 \quad \text{FOR 427.8nm PHOTOMETER}$$

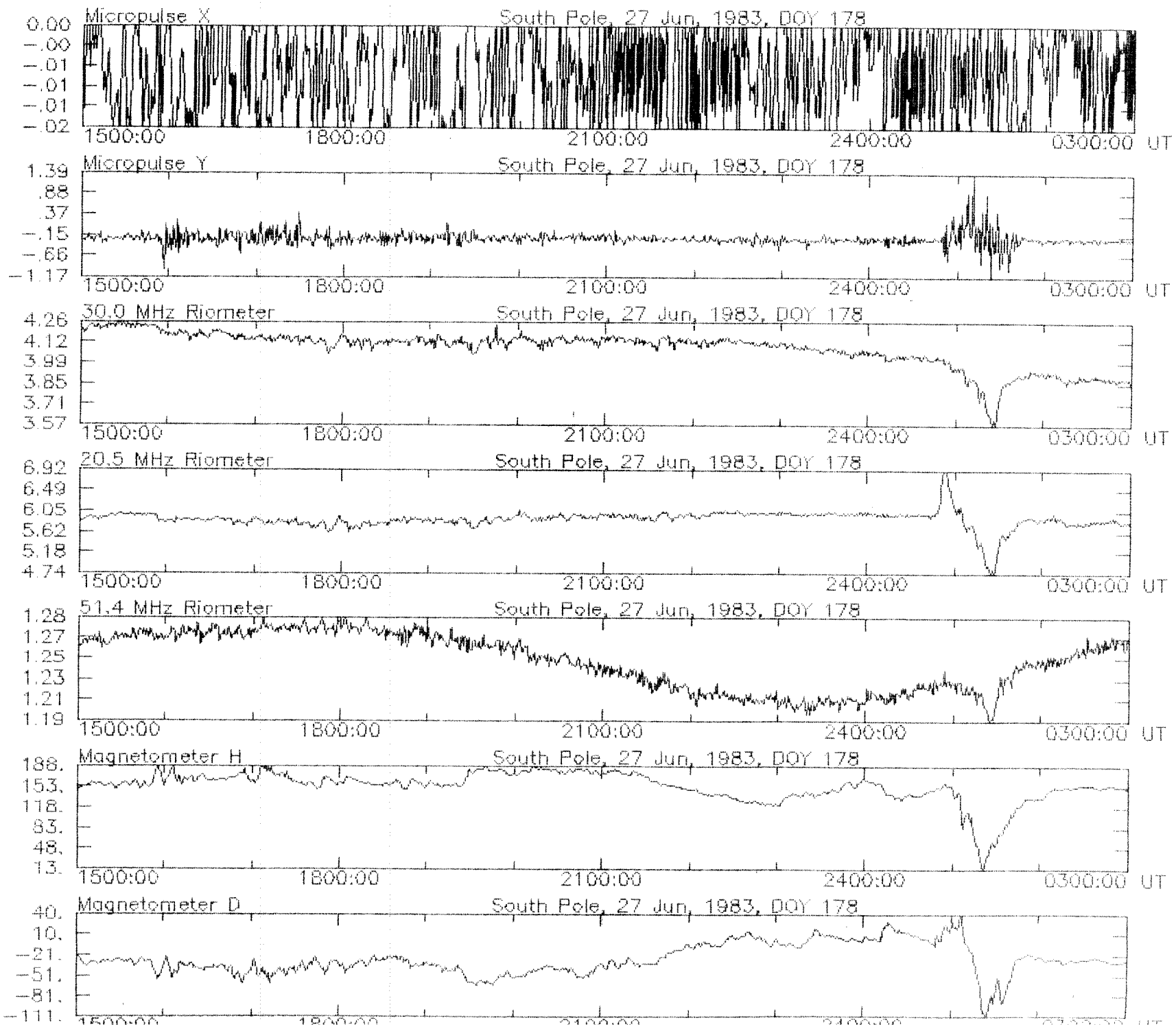
(FROM R. FATHER, BOSTON COLLEGE)

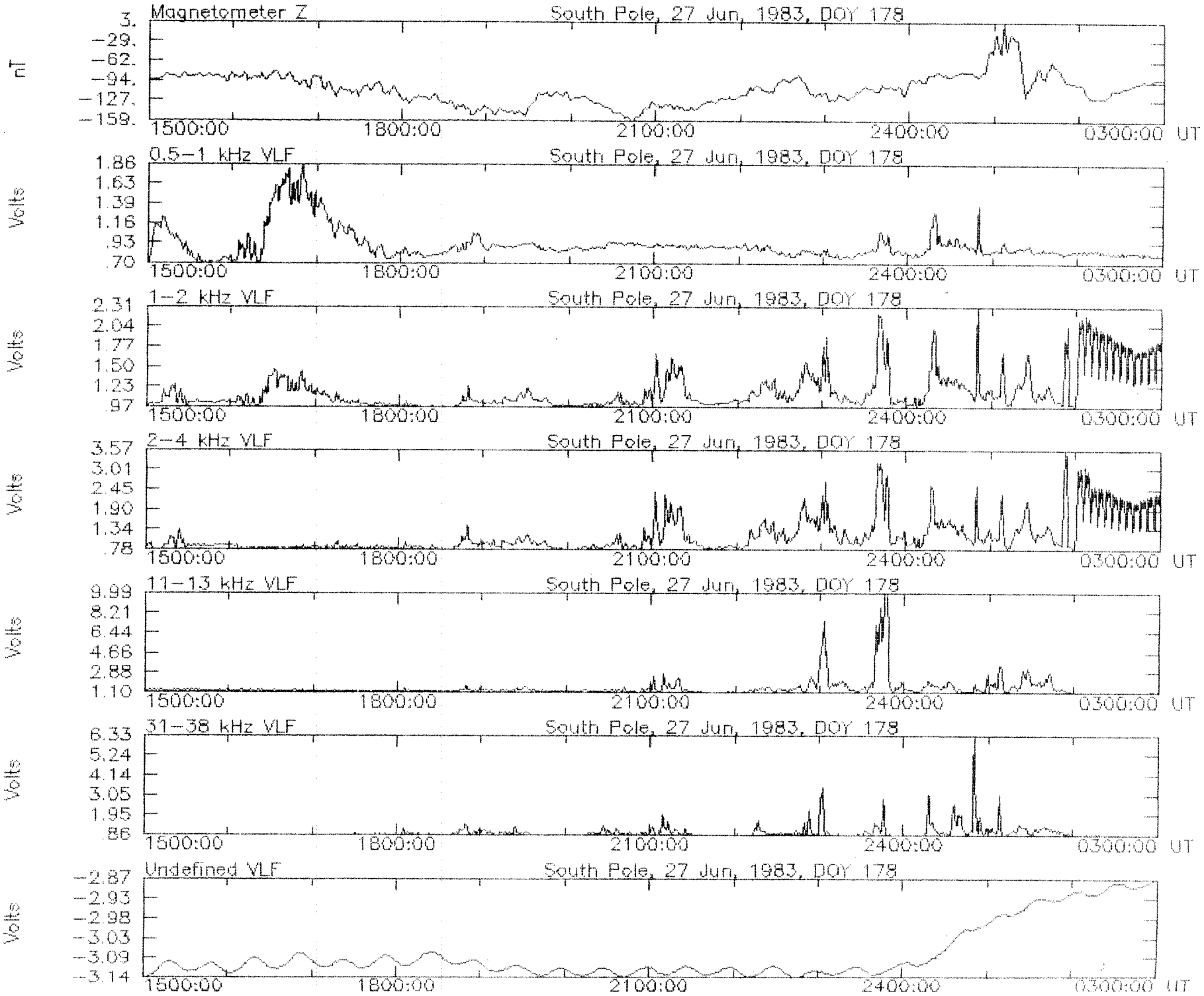
5. THE SIGNALS AFTER THE 427.8NM PHOTOMETER ARE FOR HOUSEKEEPING PURPOSE AND CAN BE IGNORED.

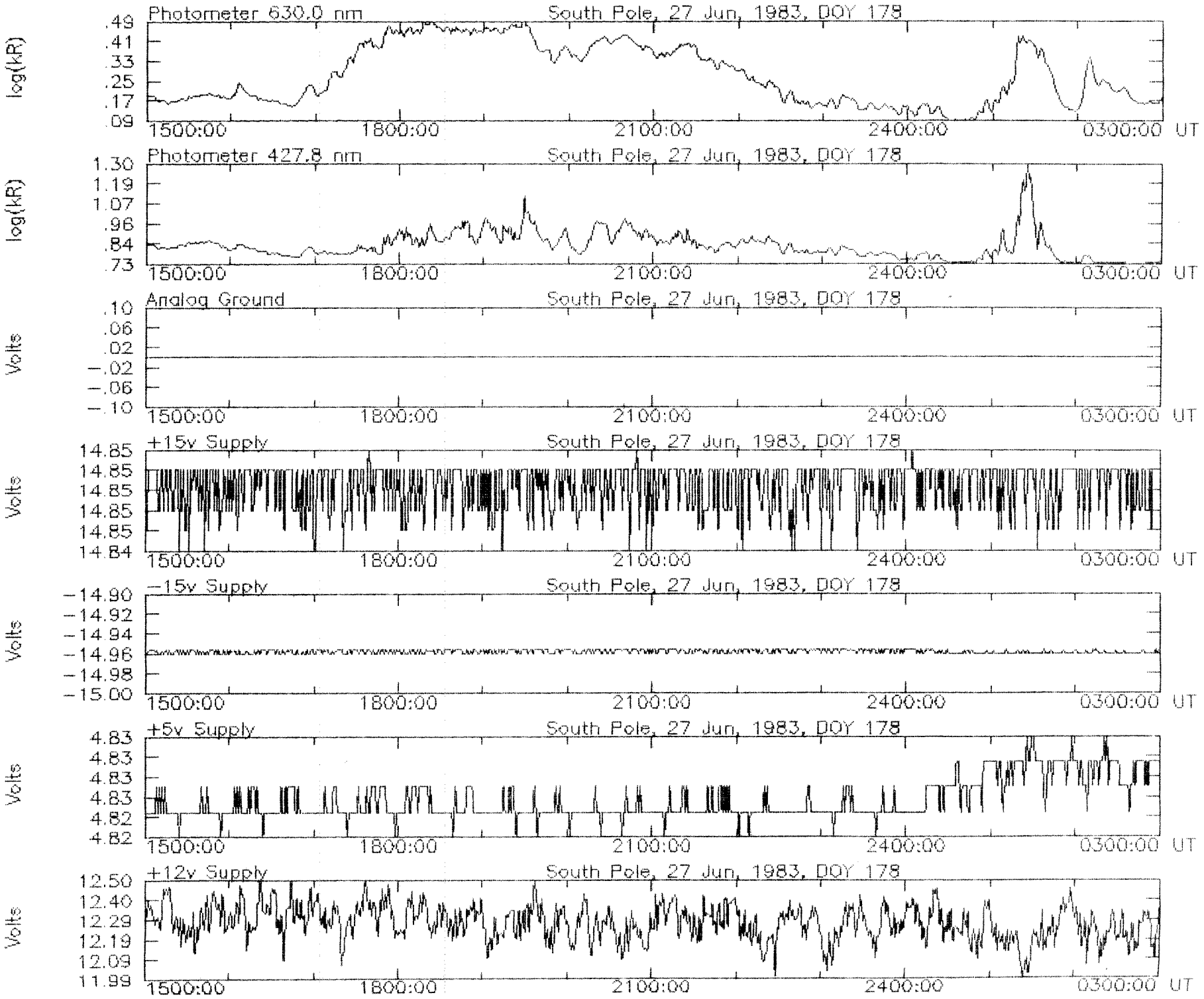
6. THE SECOND RECORD IN THE THIRD FILE IS A SHORT ONE, WHICH ONLY HAS 608 WORDS AND IS FOLLOWED BY A DATA GAP.

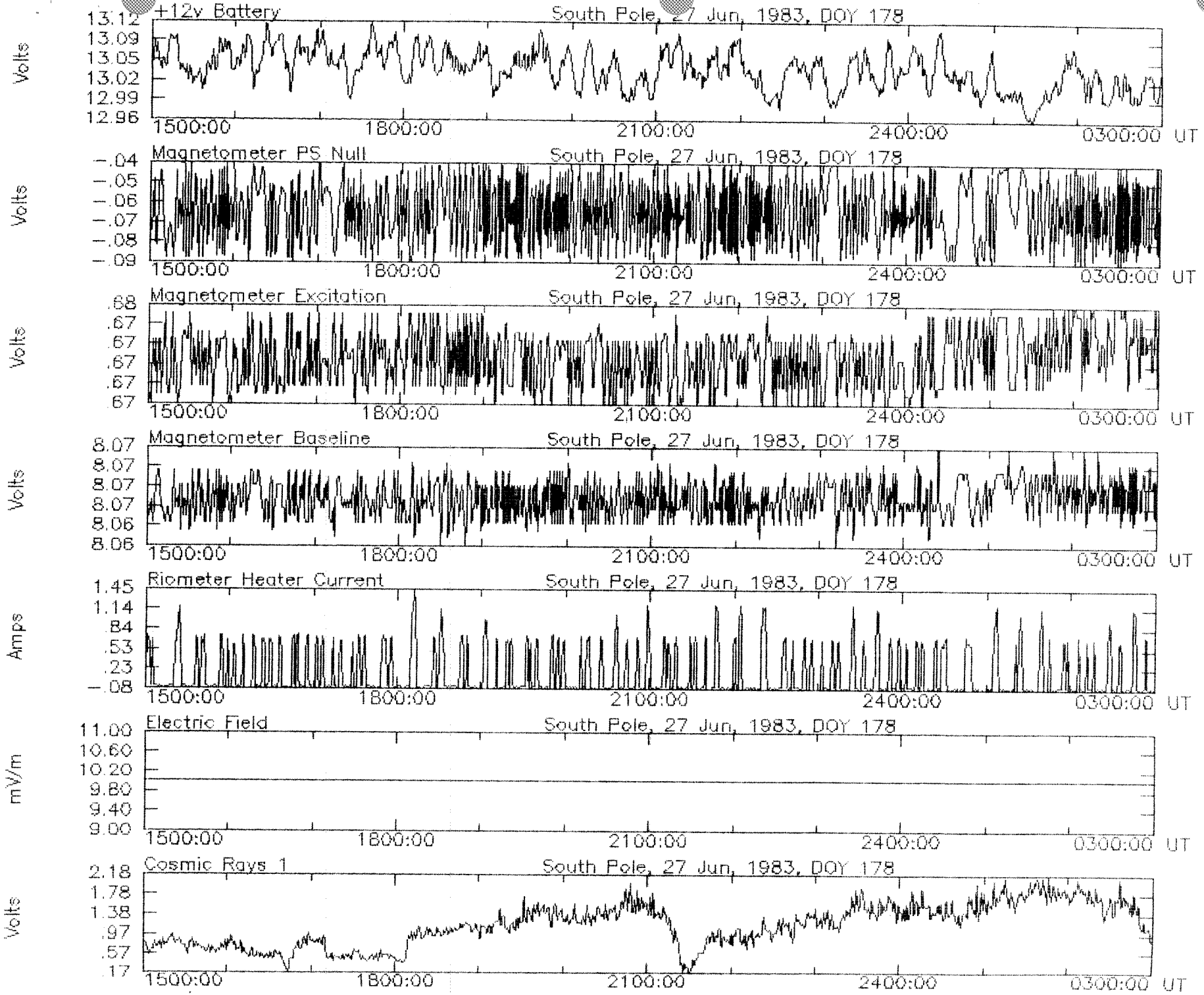
7. A LIST OF THE STARTING TIMES OF ALL THE RECORDS IS ENCLOSED. EVERY RECORD COVERS 8 MINUTES AND 50 SECONDS, EXCEPT THE SHORT ONE.

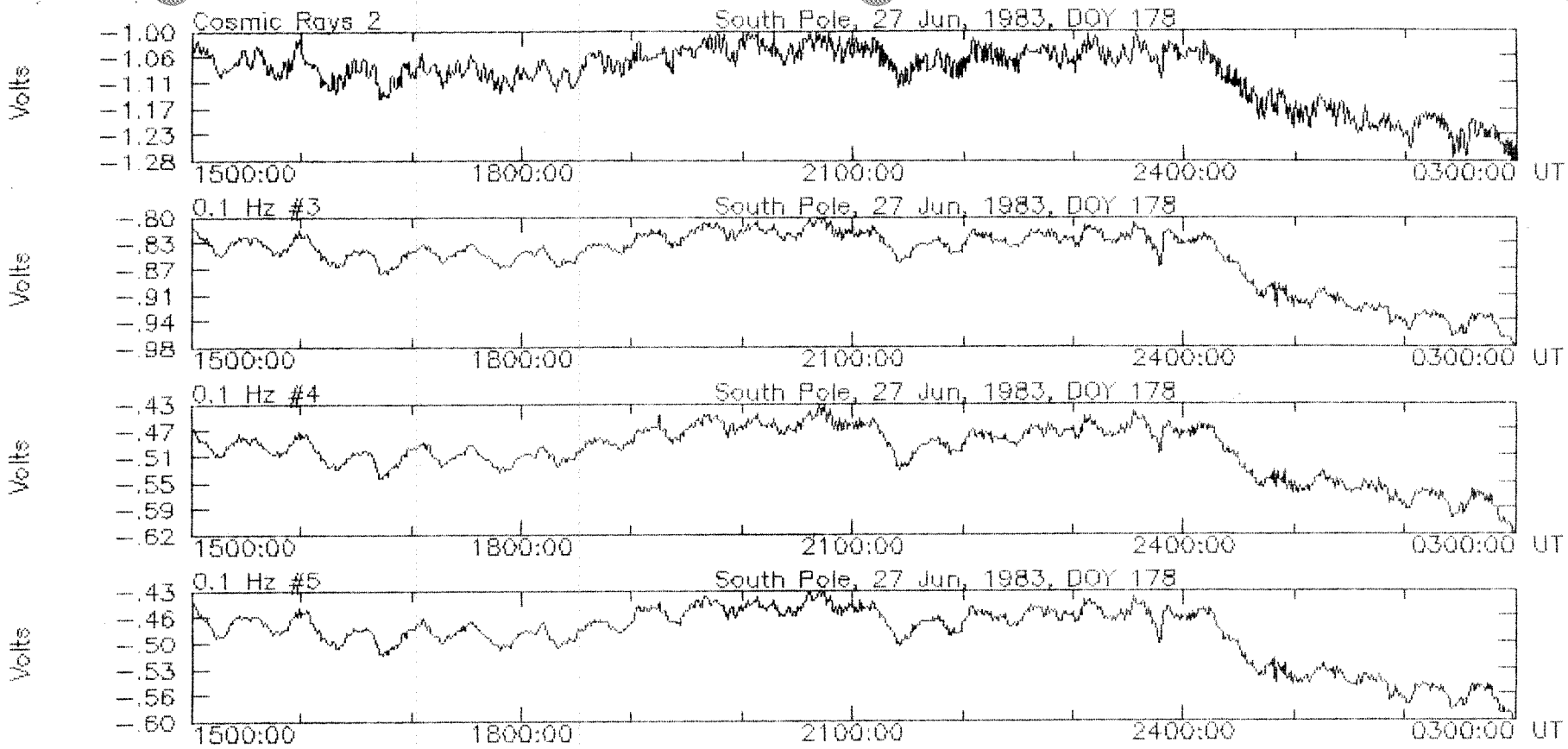
8. HIGH RESOLUTION DATA(1-SEC OR .1-SEC SAMPLES) FOR THE SAME SIGNALS ARE AVAILABLE FROM THE RAW DATA TAPES, FOR FURTHER INFORMATION CONTACT DR. T. ROSENBERG, IPST, UNIV. OF MARYLAND, COLLEGE PARK, MD 20742. (TELEPHONE 301-454-4590)

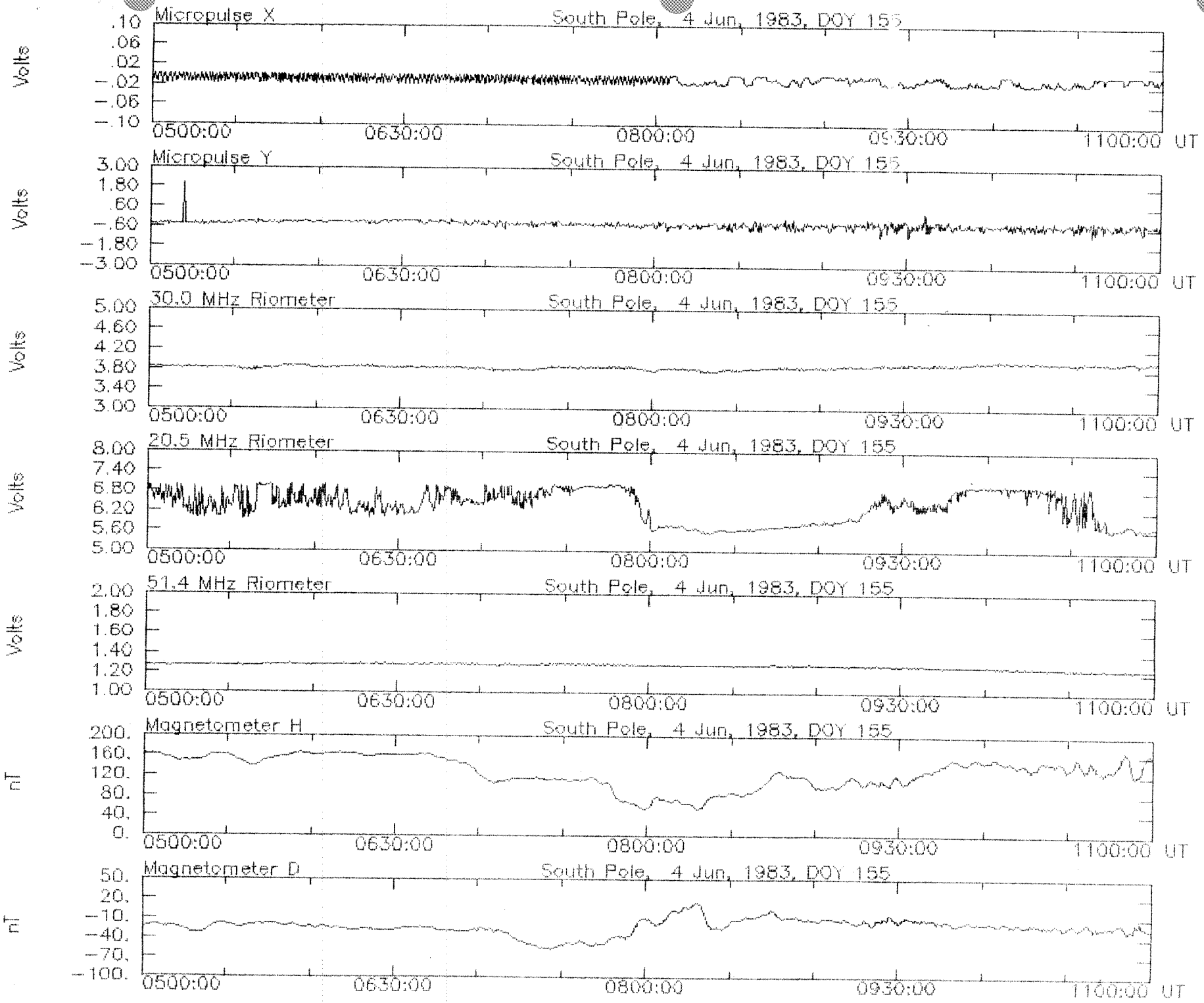

Micropulse X
South Pole, 27 Jun, 1983, DOY 178
Volts
0.00
-.00
-.01
-.01
-.01
-.02
1500:00
1800:00
2100:00
2400:00
0300:00
UT
Micropulse Y
South Pole, 27 Jun, 1983, DOY 178
Volts
1.39
.88
.37
-.15
-.66
-1.17
1500:00
1800:00
2100:00
2400:00
0300:00
UT
30.0 MHz Riometer
South Pole, 27 Jun, 1983, DOY 178
Volts
4.26
4.12
3.99
3.85
3.71
3.57
1500:00
1800:00
2100:00
2400:00
0300:00
UT
20.5 MHz Riometer
South Pole, 27 Jun, 1983, DOY 178
Volts
6.92
6.49
6.05
5.62
5.18
4.74
1500:00
1800:00
2100:00
2400:00
0300:00
UT
51.4 MHz Riometer
South Pole, 27 Jun, 1983, DOY 178
Volts
1.28
1.27
1.25
1.23
1.21
1.19
1500:00
1800:00
2100:00
2400:00
0300:00
UT
Magnetometer H
South Pole, 27 Jun, 1983, DOY 178
nT
188.
153.
118.
83.
48.
13.
1500:00
1800:00
2100:00
2400:00
0300:00
UT
Magnetometer D
South Pole, 27 Jun, 1983, DOY 178
nT
40.
10.
-21.
-51.
-81.
-111.

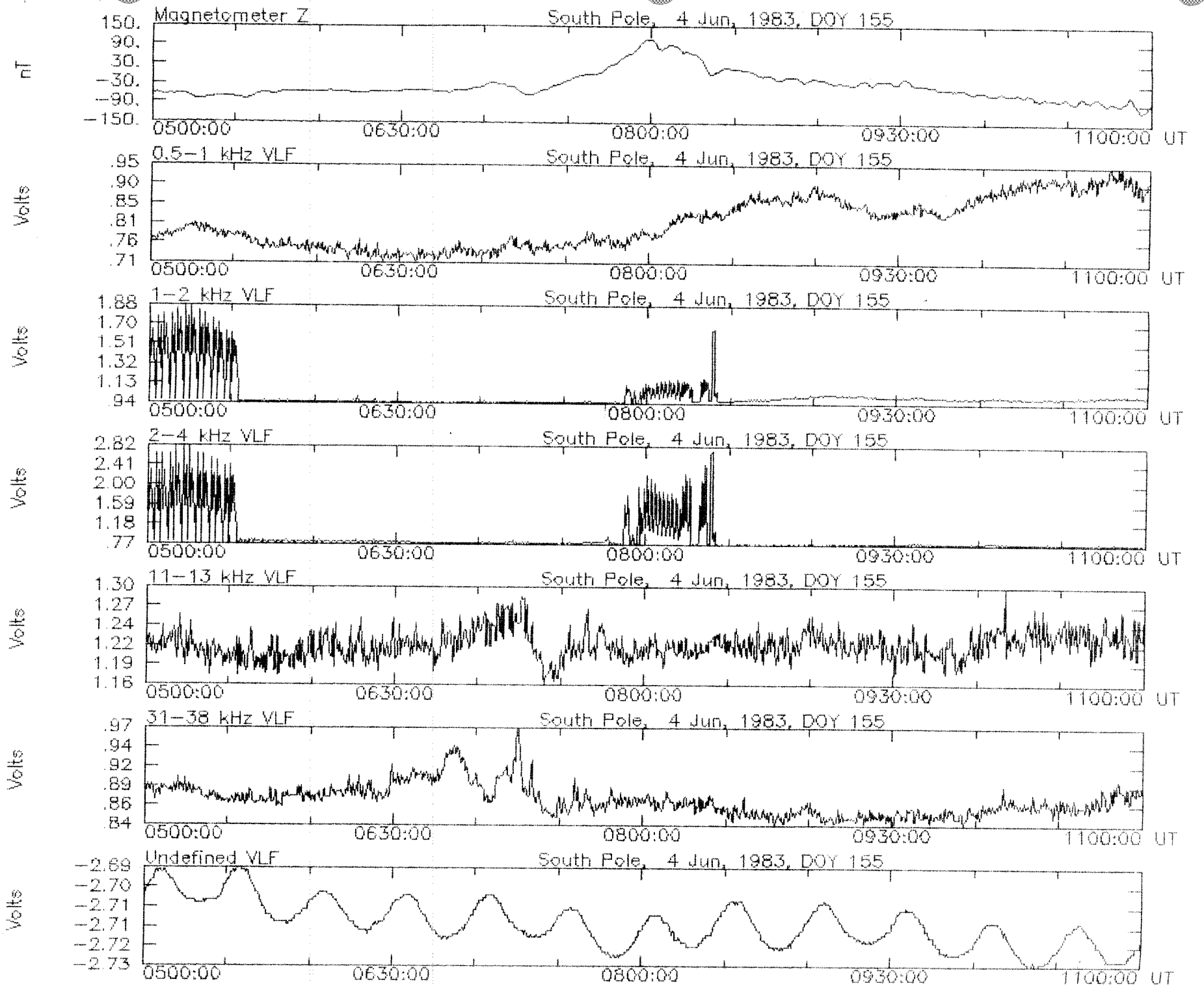

Magnetometer Z
South Pole, 27 Jun, 1983, DOY 178
nT
3.
-29.
-62.
-94.
-127.
-159.
1500:00
1800:00
2100:00
2400:00
0300:00
UT
0.5-1 kHz VLF
Volts
1.86
1.63
1.39
1.16
.93
.70
1-2 kHz VLF
2.31
2.04
1.77
1.50
1.23
.97
2-4 kHz VLF
3.57
3.01
2.45
1.90
1.34
.78
11-13 kHz VLF
9.99
8.21
6.44
4.66
2.88
1.10
31-38 kHz VLF
6.33
5.24
4.14
3.05
1.95
.86
Undefined VLF
-2.87
-2.93
-2.98
-3.03
-3.09
-3.14

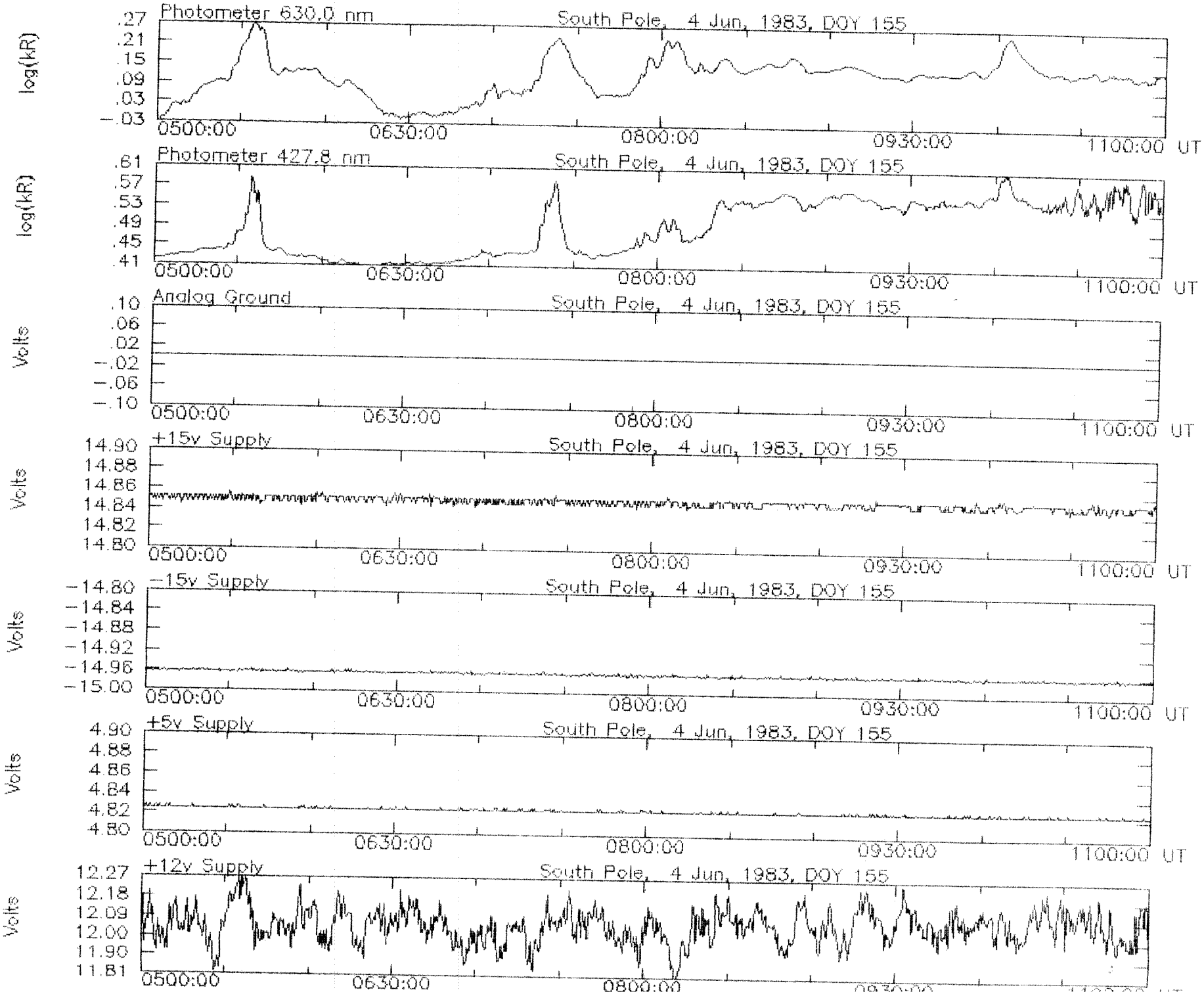

Photometer 630.0 nm
South Pole, 27 Jun, 1983, DOY 178
log(kR)
.49
.41
.33
.25
.17
.09
1500:00
1800:00
2100:00
2400:00
0300:00
UT
Photometer 427.8 nm
South Pole, 27 Jun, 1983, DOY 178
log(kR)
1.30
1.19
1.07
.96
.84
.73
1500:00
1800:00
2100:00
2400:00
0300:00
UT
Analog Ground
South Pole, 27 Jun, 1983, DOY 178
Volts
.10
.06
.02
-.02
-.06
-.10
1500:00
1800:00
2100:00
2400:00
0300:00
UT
+15v Supply
South Pole, 27 Jun, 1983, DOY 178
Volts
14.85
14.85
14.85
14.85
14.85
14.84
1500:00
1800:00
2100:00
2400:00
0300:00
UT
-15v Supply
South Pole, 27 Jun, 1983, DOY 178
Volts
-14.90
-14.92
-14.94
-14.96
-14.98
-15.00
1500:00
1800:00
2100:00
2400:00
0300:00
UT
+5v Supply
South Pole, 27 Jun, 1983, DOY 178
Volts
4.83
4.83
4.83
4.83
4.82
4.82
1500:00
1800:00
2100:00
2400:00
0300:00
UT
+12v Supply
South Pole, 27 Jun, 1983, DOY 178
Volts
12.50
12.40
12.29
12.19
12.09
11.99
1500:00
1800:00
2100:00
2400:00
0300:00
UT

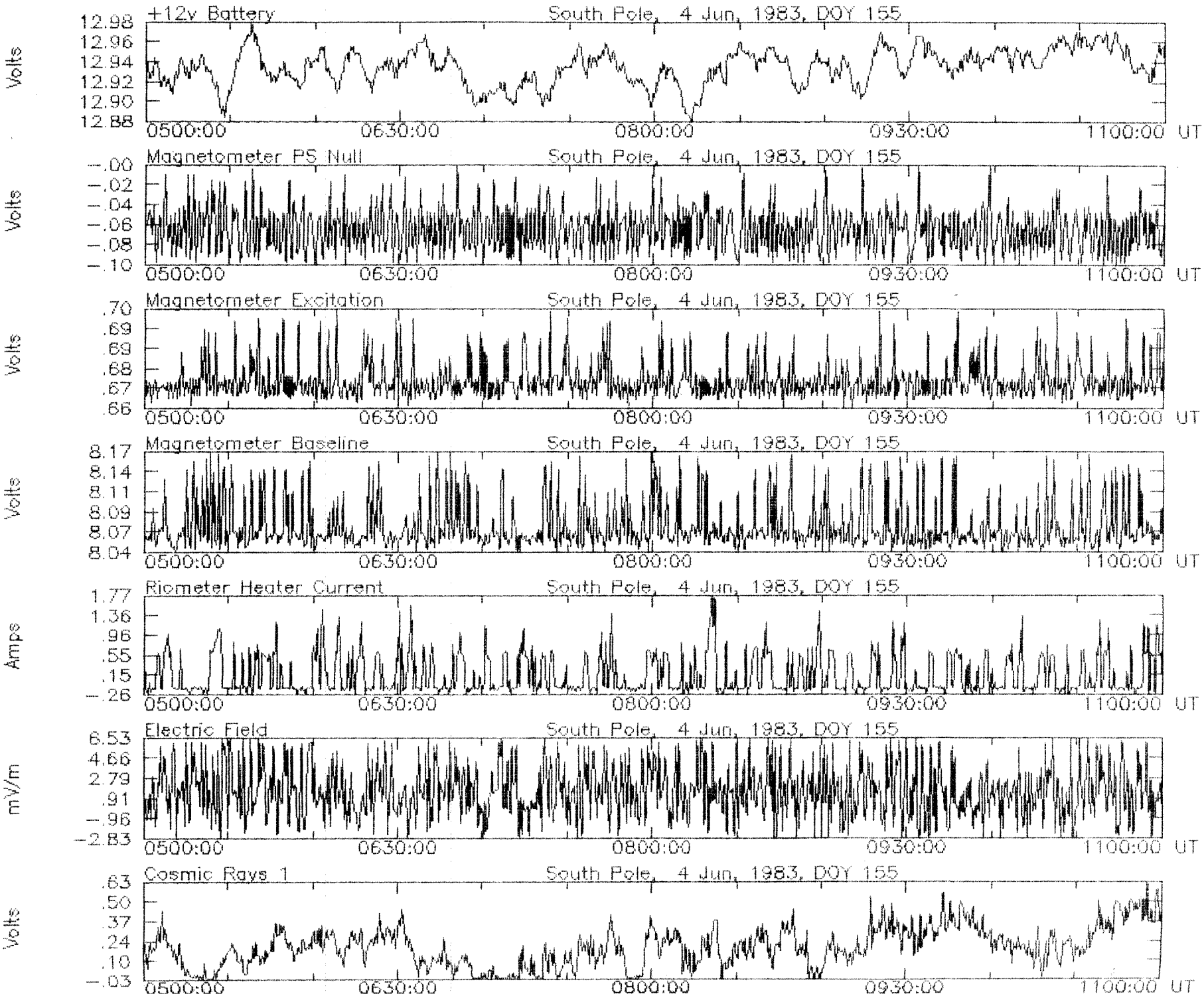

+12v Battery
South Pole, 27 Jun, 1983, DOY 178
Volts
13.12
13.09
13.05
13.02
12.99
12.96
1500:00
1800:00
2100:00
2400:00
0300:00
UT
Magnetometer PS Null
South Pole, 27 Jun, 1983, DOY 178
Volts
-.04
-.05
-.06
-.07
-.08
-.09
1500:00
1800:00
2100:00
2400:00
0300:00
UT
Magnetometer Excitation
South Pole, 27 Jun, 1983, DOY 178
Volts
.68
.67
.67
.67
.67
.67
1500:00
1800:00
2100:00
2400:00
0300:00
UT
Magnetometer Baseline
South Pole, 27 Jun, 1983, DOY 178
Volts
8.07
8.07
8.07
8.07
8.06
8.06
1500:00
1800:00
2100:00
2400:00
0300:00
UT
Riometer Heater Current
South Pole, 27 Jun, 1983, DOY 178
Amps
1.45
1.14
.84
.53
.23
-.08
1500:00
1800:00
2100:00
2400:00
0300:00
UT
Electric Field
South Pole, 27 Jun, 1983, DOY 178
mV/m
11.00
10.60
10.20
9.80
9.40
9.00
1500:00
1800:00
2100:00
2400:00
0300:00
UT
Cosmic Rays 1
South Pole, 27 Jun, 1983, DOY 178
Volts
2.18
1.78
1.38
.97
.57
.17
1500:00
1800:00
2100:00
2400:00
0300:00
UT

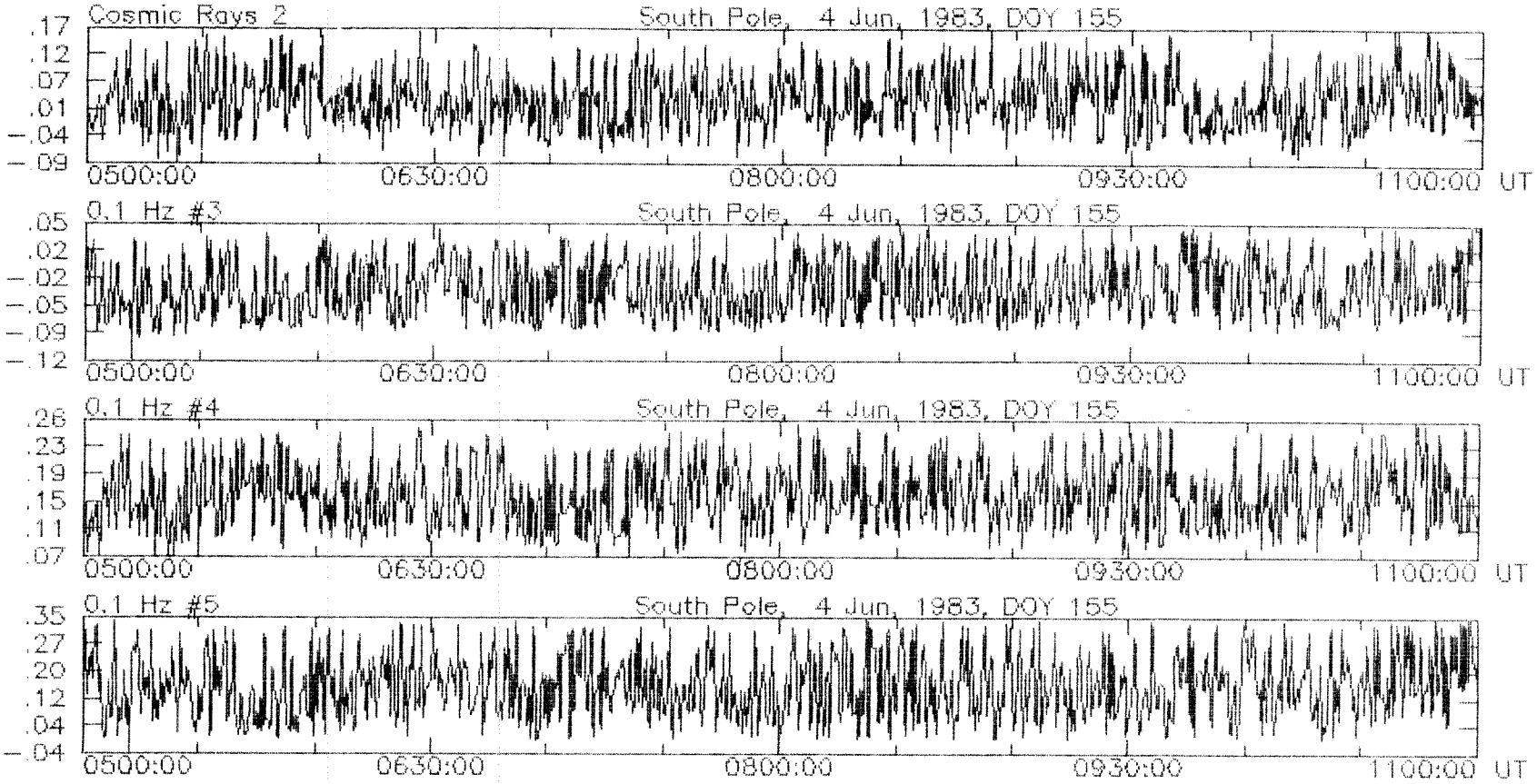

Cosmic Rays 2
South Pole, 27 Jun, 1983, DOY 178
Volts
-1.00
-1.06
-1.11
-1.17
-1.23
-1.28
1500:00
1800:00
2100:00
2400:00
0300:00
UT
0.1 Hz #3
South Pole, 27 Jun, 1983, DOY 178
Volts
-.80
-.83
-.87
-.91
-.94
-.98
1500:00
1800:00
2100:00
2400:00
0300:00
UT
0.1 Hz #4
South Pole, 27 Jun, 1983, DOY 178
Volts
-.43
-.47
-.51
-.55
-.59
-.62
1500:00
1800:00
2100:00
2400:00
0300:00
UT
0.1 Hz #5
South Pole, 27 Jun, 1983, DOY 178
Volts
-.43
-.46
-.50
-.53
-.56
-.60
1500:00
1800:00
2100:00
2400:00
0300:00
UT


Micropulse X
South Pole, 4 Jun, 1983, DOY 155
Volts
.10
.06
.02
-.02
-.06
-.10
0500:00
0630:00
0800:00
0930:00
1100:00
UT
Micropulse Y
South Pole, 4 Jun, 1983, DOY 155
Volts
3.00
1.80
.60
-.60
-1.80
-3.00
30.0 MHz Riometer
South Pole, 4 Jun, 1983, DOY 155
Volts
5.00
4.60
4.20
3.80
3.40
3.00
20.5 MHz Riometer
South Pole, 4 Jun, 1983, DOY 155
Volts
8.00
7.40
6.80
6.20
5.60
5.00
51.4 MHz Riometer
South Pole, 4 Jun, 1983, DOY 155
Volts
2.00
1.80
1.60
1.40
1.20
1.00
Magnetometer H
South Pole, 4 Jun, 1983, DOY 155
nT
200.
160.
120.
80.
40.
0.
Magnetometer D
South Pole, 4 Jun, 1983, DOY 155
nT
50.
20.
-10.
-40.
-70.
-100.


Magnetometer Z
South Pole, 4 Jun, 1983, DOY 155
nT
150.
90.
30.
-30.
-90.
-150.
0500:00
0630:00
0800:00
0930:00
1100:00
UT
0.5-1 kHz VLF
Volts
.95
.90
.85
.81
.76
.71
1-2 kHz VLF
1.88
1.70
1.51
1.32
1.13
.94
2-4 kHz VLF
2.82
2.41
2.00
1.59
1.18
.77
11-13 kHz VLF
1.30
1.27
1.24
1.22
1.19
1.16
31-38 kHz VLF
.97
.94
.92
.89
.86
.84
Undefined VLF
-2.69
-2.70
-2.71
-2.71
-2.72
-2.73


Photometer 630.0 nm
South Pole, 4 Jun, 1983, DOY 155
log(kR)
.27
.21
.15
.09
.03
-.03
0500:00
0630:00
0800:00
0930:00
1100:00
UT
Photometer 427.8 nm
South Pole, 4 Jun, 1983, DOY 155
log(kR)
.61
.57
.53
.49
.45
.41
0500:00
0630:00
0800:00
0930:00
1100:00
UT
Analog Ground
South Pole, 4 Jun, 1983, DOY 155
Volts
.10
.06
.02
-.02
-.06
-.10
0500:00
0630:00
0800:00
0930:00
1100:00
UT
+15v Supply
South Pole, 4 Jun, 1983, DOY 155
Volts
14.90
14.88
14.86
14.84
14.82
14.80
0500:00
0630:00
0800:00
0930:00
1100:00
UT
-15v Supply
South Pole, 4 Jun, 1983, DOY 155
Volts
-14.80
-14.84
-14.88
-14.92
-14.96
-15.00
0500:00
0630:00
0800:00
0930:00
1100:00
UT
+5v Supply
South Pole, 4 Jun, 1983, DOY 155
Volts
4.90
4.88
4.86
4.84
4.82
4.80
0500:00
0630:00
0800:00
0930:00
1100:00
UT
+12v Supply
South Pole, 4 Jun, 1983, DOY 155
Volts
12.27
12.18
12.09
12.00
11.90
11.81
0500:00
0630:00
0800:00


+12v Battery
South Pole, 4 Jun, 1983, DOY 155
Volts
12.98
12.96
12.94
12.92
12.90
12.88
0500:00
0630:00
0800:00
0930:00
1100:00
UT
Magnetometer PS Null
South Pole, 4 Jun, 1983, DOY 155
Volts
-.00
-.02
-.04
-.06
-.08
-.10
Magnetometer Excitation
South Pole, 4 Jun, 1983, DOY 155
Volts
.70
.69
.69
.68
.67
.66
Magnetometer Baseline
South Pole, 4 Jun, 1983, DOY 155
Volts
8.17
8.14
8.11
8.09
8.07
8.04
Riometer Heater Current
South Pole, 4 Jun, 1983, DOY 155
Amps
1.77
1.36
.96
.55
.15
-.26
Electric Field
South Pole, 4 Jun, 1983, DOY 155
mV/m
6.53
4.66
2.79
.91
-.96
-2.83
Cosmic Rays 1
South Pole, 4 Jun, 1983, DOY 155
Volts
.63
.50
.37
.24
.10
-.03


Cosmic Rays 2
South Pole, 4 Jun, 1983, DOY 155
Volts
.17
.12
.07
.01
-.04
-.09
0500:00
0630:00
0800:00
0930:00
1100:00
UT
0.1 Hz #3
South Pole, 4 Jun, 1983, DOY 155
Volts
.05
.02
-.02
-.05
-.09
-.12
0500:00
0630:00
0800:00
0930:00
1100:00
UT
0.1 Hz #4
South Pole, 4 Jun, 1983, DOY 155
Volts
.26
.23
.19
.15
.11
.07
0500:00
0630:00
0800:00
0930:00
1100:00
UT
0.1 Hz #5
South Pole, 4 Jun, 1983, DOY 155
Volts
.35
.27
.20
.12
.04
-.04
0500:00
0630:00
0800:00
0930:00
1100:00
UT

```
DOY=  28  Time= 3:57:50  Year=1983   STATION= 8    2 10-Hz & 14 1-Hz signals
                4:  6:40
                4:15:30
                4:24:20
                4:33:10
                4:42:  0
                4:50:50
                4:59:40
                5:  8:30
                5:17:20
                5:26:10
                5:35:  0
                5:43:50
                5:52:40
                6:  1:30
                6:10:20
                6:19:10
                6:28:  0

DOY=  28  Time= 6:36:50  Year=1983   STATION= 8    2 10-Hz & 14 1-Hz signals
                6:45:40
                6:54:30
                7:  3:20
                7:12:10
                7:21:  0
                7:29:50
                7:38:40
                7:47:30
                7:56:20
                8:  5:10
                8:14:  0
                8:22:50
                8:31:40
                8:40:30
                8:49:20
                8:58:10
                9:  7:  0

DOY=  28  Time= 9:15:50  Year=1983   STATION= 8    2 10-Hz & 14 1-Hz signals
                9:24:40
                9:33:30
                9:42:20
                9:51:10
               10:  0:  0
               10:  8:50
               10:17:40
               10:26:30
               10:35:20
               10:44:10
               10:53:  0

BIT 7 ON.  EOF

DOY=  84  Time= 4:33:30  Year=1983   STATION= 8    2 10-Hz & 14 1-Hz signals
                4:33:30
                4:51:10
                5:  0:  0
                5:  8:50
                5:17:40
                5:26:30
                5:35:20
                5:44:10
                5:53:  0
                6:  1:50
                6:10:40
                6:19:30
                6:28:20
                6:37:10
                6:46:  0
                6:54:50
                7:  3:40

DOY=  84  Time= 7:12:30  Year=1983   STATION= 8    2 10-Hz & 14 1-Hz signals
                7:21:20
                7:30:10
                7:39:  0
                7:47:50
                7:56:40
                8:  5:30
```

```
                8:14:20
                8:23:10
                8:32:  0
                8:40:50
                8:49:40
                8:58:30
                9:  7:20
                9:16:10
                9:25:  0
                9:33:50
                9:42:40

DOY=  84  Time= 9:51:30  Year=1983   STATION= 8    2 10-Hz & 14 1-Hz signals
               10:  0:20
               10:  9:10
               10:18:  0
               10:26:50
               10:35:40
               10:44:30
               10:53:20
               11:  2:10
               11:11:  0
               11:19:50
               11:28:40
               11:37:30
               11:46:20
               11:55:10
               12:  4:  0
               12:12:50
               12:21:40

DOY=  84  Time=12:30:30  Year=1983   STATION= 8    2 10-Hz & 14 1-Hz signals
               12:39:20
               12:48:10
               12:57:  0
               13:  5:50
               13:14:40
               13:23:30
               13:32:20
               13:41:10
               13:50:  0
               13:58:50

BIT 7 ON.  EOF

DOY=  84  Time=23:59:30  Year=1983   STATION= 8    2 10-Hz & 14 1-Hz signals
DOY=  85          0:  8:20  <- Short Record
                  0:15:50
                  0:24:40
                  0:33:30
                  0:42:20
                  0:51:10
                  1:  0:  0
                  1:  8:50
                  1:17:40
                  1:26:30
                  1:35:20
                  1:44:10
                  1:53:  0
                  2:  1:50
                  2:10:40
                  2:19:30
                  2:28:20

DOY=  85  Time= 2:37:10  Year=1983   STATION= 8    2 10-Hz & 14 1-Hz signals
                  2:46:  0
                  2:54:50
                  3:  3:40
                  3:12:30
                  3:21:20
                  3:30:10
                  3:39:  0
                  3:47:50
                  3:56:40
                  4:  5:30
                  4:14:20
                  4:23:10
                  4:32:  0
                  4:40:50
                  4:49:40
```

```
                4:58:30
                5: 7:20

DOY=  85  Time= 5:16:10  Year=1983   STATION= 8    2 10-Hz & 14 1-Hz signals
                5:25: 0
                5:33:50
                5:42:40
                5:51:30
                6: 0:20
                6: 9:10

BIT 7 ON.  EOF

DOY=  29  Time= 4:59:30  Year=1983   STATION= 8    2 10-Hz & 14 1-Hz signals
                5: 8:20
                5:17:10
                5:26: 0
                5:34:50
                5:43:40
                5:52:30
                6: 1:20
                6:10:10
                6:19: 0
                6:27:50
                6:36:40
                6:45:30
                6:54:20
                7: 3:10
                7:12: 0
                7:20:50
                7:29:40

DOY=  29  Time= 7:38:30  Year=1983   STATION= 8    2 10-Hz & 14 1-Hz signals
                7:47:20
                7:56:10
                8: 5: 0
                8:13:50
                8:22:40
                8:31:30
                8:40:20
                8:49:10
                8:58: 0
                9: 6:50
                9:15:40
                9:24:30
                9:33:20
                9:42:10
                9:51: 0
                9:59:50
               10: 8:40

DOY=  29  Time=10:17:30  Year=1983   STATION= 8    2 10-Hz & 14 1-Hz signals
               10:26:20
               10:35:10
               10:44: 0
               10:52:50
               11: 1:40
               11:10:30
               11:19:20
               11:28:10
               11:37: 0
               11:45:50
               11:54:40
               12: 3:30
               12:12:20
               12:21:10
               12:30: 0
               12:38:50
               12:47:40

DOY=  29  Time=12:56:30  Year=1983   STATION= 8    2 10-Hz & 14 1-Hz signals
               13: 5:20
               13:14:10
               13:23: 0
               13:31:50
               13:40:40
               13:49:30
               13:58:20
               14: 7:10
```

BIT 7 ON. EOF

DOY= 155 Time= 4:54: 0 Year=1983 STATION= 8 2 10-Hz & 14 1-Hz signals
5: 2:50
5:11:40
5:20:30
5:29:20
5:38:10
5:47: 0
5:55:50
6: 4:40
6:13:30
6:22:20
6:31:10
6:40: 0
6:48:50
6:57:40
7: 6:30
7:15:20
7:24:10

DOY= 155 Time= 7:33: 0 Year=1983 STATION= 8 2 10-Hz & 14 1-Hz signals
7:41:50
7:50:40
7:59:30
8: 8:20
8:17:10
8:26: 0
8:34:50
8:43:40
8:52:30
9: 1:20
9:10:10
9:19: 0
9:27:50
9:36:40
9:45:30
9:54:20
10: 3:10

BIT 7 ON. EOF

DOY= 178 Time=14:59:30 Year=1983 STATION= 8 2 10-Hz & 14 1-Hz signals
15: 8:20
15:17:10
15:26: 0
15:34:50
15:43:40
15:52:30
16: 1:20
16:10:10
16:19: 0
16:27:50
16:36:40
16:45:30
16:54:20
17: 3:10
17:12: 0
17:20:50
17:29:40

DOY= 178 Time=17:38:30 Year=1983 STATION= 8 2 10-Hz & 14 1-Hz signals
17:47:20
17:56:10
18: 5: 0
18:13:50
18:22:40
18:31:30
18:40:20
18:49:10
18:58: 0
19: 6:50
19:15:40
19:24:30
19:33:20
19:42:10
19:51: 0
19:59:50
20: 8:40

```
DOY= 178  Time=20:17:30  Year=1983   STATION= 8    2 10-Hz & 14 1-Hz signals
              20:26:20
              20:35:10
              20:44:  0
              20:52:50
              21:  1:40
              21:10:30
              21:19:20
              21:28:10
              21:37:  0
              21:45:50
              21:54:40
              22:  3:30
              22:12:20
              22:21:10
              22:30:  0
              22:38:50
              22:47:40

DOY= 178  Time=22:56:30  Year=1983   STATION= 8    2 10-Hz & 14 1-Hz signals
              23:  5:20
              23:14:10
              23:23:  0
              23:31:50
              23:40:40
              23:49:30
              23:58:20
DOY= 179       0:  7:10
               0:16:  0
               0:24:50
               0:33:40
               0:42:30
               0:51:20
               1:  0:10
               1:  9:  0
               1:17:50
               1:26:40

DOY= 179  Time= 1:35:30  Year=1983   STATION= 8    2 10-Hz & 14 1-Hz signals
               1:44:20
               1:53:10
               2:  2:  0
               2:10:50
               2:19:40
               2:28:30
               2:37:20
               2:46:10
               2:55:  0
               3:  3:50
               3:12:40
               3:21:30
               3:30:20

BIT 7 ON.  EOF

BIT 7 ON.  EOF
```

```
8A 11 8A 8A C5 72 52 80 18 80 17 80 03 20 F0 DF C3 42 0F 31 5E 2D 07 81 33 77 59 18 5A 80 12 63 32 7A 73 80 07 80 B9
7E 2F 7E 2D 80 F3 80 B6 08 53 07 04 04 0A 02 0E 7C 70 82 DE 4C CE 2D 3D 70 15 56 9B 7C 81 85 9A 88 CC 8C 87 8A 14 8A B5
8A C9 72 52 80 0A 80 83 80 02 20 EF DF C3 42 0E 31 22 2D 03 80 D3 77 73 18 4F 80 11 61 D2 78 E8 80 27 80 C0 7E 2A 7E 07
80 F3 80 B9 08 53 07 04 04 14 02 0E 7C 7B 83 02 4C BE 2C ED 70 1A 56 A1 7C 82 85 A0 88 C0 8C 84 8A 0E 8A B0 8A C3 72 52
80 17 80 16 80 02 20 F7 DF C6 42 0F 31 1E 2C FB 80 87 77 57 18 47 80 0B 66 D3 7A 10 80 C0 80 D6 7E 3B 7E 2B 80 F3 80 B7
08 53 07 04 04 1E 02 0E 7C EB 83 2A 4C F7 2B AF 70 20 56 A6 7C 87 85 A2 88 C3 8C 87 8A 12 8A B2 8A C5 72 51 80 17 80 17
80 02 20 FB DF C5 42 0F 31 9B 2D 05 80 EA 77 73 18 52 80 11 60 E3 7A 2F 80 97 80 DB 7E 5A 7E 57 80 F6 80 BB 08 53 07 04
04 28 02 0E 7C 5E 83 2B 4C EF 2B 78 70 04 56 AA 7C 89 85 A7 88 C2 8C 88 8A 29 8A B8 8A C5 72 51 80 17 80 17 80 02 20 F0
DF C3 42 0E 30 D7 2C E7 81 31 77 58 18 57 80 0F 61 F0 79 DA 80 A3 80 D1 7E 3B 7E 30 80 F7 80 BB 08 53 07 04 04 32 02 0E
7C 93 82 3E 4C D6 2C 14 6F FA 56 AC 7C 87 85 A9 88 CD 8C 91 8A 49 8A B8 8A C8 72 51 80 17 80 17 80 02 20 F9 DF C7 42 0E
31 1A 2C FB 80 D2 77 71 18 50 80 0F 69 42 79 F5 80 29 80 C5 7E 33 7E 23 80 F6 80 BB 08 53 07 04 05 00 02 0E 7C AB 83 42
4C C1 2C 12 70 0B 56 AE 7C 87 85 AC 88 C0 8C 84 8A 24 8A B8 8A C5 72 52 80 17 80 17 80 02 20 F0 DF C3 42 0E 30 FA 2C F0
80 87 77 59 18 47 80 0F 5A 03 7A 8F 80 73 80 D9 7E 4E 7E 56 80 F7 80 BB 08 53 07 04 05 0A 02 0E 7C 0B 80 1A 4C E8 2B 35
70 15 56 AE 7C 86 85 B0 88 D3 8C 97 8A 92 8A BA 8A C7 72 52 80 11 80 11 80 03 20 EF DF C3 42 0F 31 D3 2C FD 80 EA 77 72
18 4F 80 10 62 29 79 65 80 17 80 CF 7E 47 7E 45 80 F8 80 BB 08 53 07 04 05 14 02 0E 7C D6 82 37 4C EE 2B 69 6F F4 56 B1
7C 83 85 B4 88 C7 8C 88 8A 2E 8A C6 8A C7 72 52 80 17 80 17 80 02 20 EF DF C3 42 0F 31 96 2C FF 81 33 77 59 18 57 80 0F
60 3B 7A 0E 7F F6 80 BB 7E 43 7E 43 80 FA 80 C0 08 53 07 04 05 1E 02 0E 7D 7A 84 57 4C CD 2C A7 70 0A 56 B2 7C 86 85 B8
88 C2 8C 8A 8A 1D 8A BD 8A C6 72 51 80 18 80 18 80 02 20 F9 DF C5 42 10 33 1E 2D 25 80 D3 77 73 18 4F 80 10 65 46 79 8F
80 B1 80 D3 7E 51 7E 61 80 F7 80 BB 08 53 07 04 05 28 02 0E 7C 5A 81 E7 4D 1A 2C CB 70 10 56 B3 7C 87 85 BD 88 C2 8C 8A
8A 20 8A B2 8A C5 72 51 80 18 80 18 80 02 20 F1 DF C3 42 0F 32 22 2D 1B 80 87 77 57 18 43 80 10 5F 6B 79 7B 80 A3 80 D1
7E 3B 7E 25 80 F6 80 BF 08 53 07 04 05 32 02 0E 7C C3 80 6A 4D 16 2D 67 70 03 56 B4 7C 86 85 C2 88 BF 8C 8A 8A 1A 8A BB
8A C6 72 51 80 17 80 17 80 02 20 F3 DF C5 42 0F 32 3B 2D 1F 80 E2 77 71 18 4F 80 10 73 BB 79 1D 80 9E 80 B7 7D F3 7D AA
80 F3 80 BB 08 53 07 04 06 00 02 0E 7D 1A 82 A1 4C F8 2E 0B 6F FE 56 B6 7C 8E 85 C4 88 C1 8C 96 8A 29 8A BA 8A C4 72 50
80 18 80 17 80 03 20 F0 DF C3 42 0E 31 E3 2D 1B 81 2F 77 59 18 5B 80 0F 67 FB 7A 10 80 83 80 D3 7E 52 7E 47 80 F3 80 B9
08 53 07 04 06 0A 02 0E 7C 53 82 32 4D 13 2D 4C 70 00 56 B7 7C 92 85 C6 88 C2 8C 97 8A 32 8A B7 8A C6 72 50 80 14 80 14
80 03 20 FA DF C6 42 0F 31 92 2D 11 80 E2 77 73 18 53 80 0F 5D 01 79 F9 80 20 80 D3 7E 4E 7E 33 80 F7 80 BB 08 53 07 04
06 14 02 0E 7C FA 83 9A 4C FB 2B 58 6F F6 56 B6 7C 91 85 CB 88 C6 8C 95 8A 25 8A B6 8A C7 72 51 80 17 80 16 80 03 20 F0
DF C3 42 0F 32 2A 2D 11 80 8B 77 5B 18 43 7F 2D 5E EF 7A 3C 7F FB 80 C1 7E 52 7E 63 80 F9 80 BD 08 53 07 04 06 1E 02 0E
7C 8E 80 5B 4D 32 2B 1C 70 04 56 B7 7C 90 85 D1 88 C7 8C 8F 8A 22 8A B7 8A C9 72 51 80 18 80 18 80 03 20 F0 DF C3 42 0F
31 47 2D 01 80 D3 77 70 18 3B 7F 30 5A 81 7A 42 80 7E 80 EB 7E 63 7D C7 80 F7 80 C0
<*>

*** SKIPF 1        ***

*** END OF FILE MARK ***
<*>

*** DUMPH 1        ***
```

THE FIRST RECORD OF THE SECOND FILE

```
FILE  2      RECORD     1        2014 WORDS TRANSFERRED

08 53 15 04 21 1E 02 0E 7A EF 73 6E 4B 5B 2E B6 70 C0 59 87 78 7F 71 BF 88 D0 8C 25 89 B2 8C 01 8A 98 73 09 80 8D 80 08
80 02 20 FF DF C2 42 1E 31 03 2C F6 80 F2 77 67 18 97 80 10 80 8A 7F 57 80 FF 80 C0 7F 07 7E F0 80 A7 80 DE 08 53 15 04
21 28 02 0E 7B 6B 86 0B 4B 19 2E 95 70 BC 59 4B 78 88 72 03 88 C2 8C 25 89 B7 8C 30 8A A2 73 09 80 16 80 19 80 02 20 F7
DF C2 42 1A 31 27 2C F3 80 D3 77 6B 18 86 80 12 80 02 7E 9B 80 62 80 B3 7F 02 7E E8 80 AB 80 DE 08 53 15 04 21 32 02 0E
7B 40 80 00 4B 3B 2E 27 70 C5 59 13 78 8A 72 35 80 CE 8C 29 89 BC 8C 43 8A A0 73 08 80 19 80 1B 80 02 20 FE DF C2 42 1B
31 A2 2C FF 80 C0 77 67 18 82 80 12 7F 9A 7E 06 81 02 80 BA 7F 02 7E E3 80 AB 80 DB 08 53 15 04 22 00 02 0E 7A CA 7F B6
4B 65 2E 46 70 A2 58 E3 78 A3 72 68 88 F4 8C 38 89 C2 8C 3D 8A 9E 73 07 80 19 80 1B 80 02 20 FF DF C2 42 1B 31 06 2C F7
80 A3 77 5B 18 7B 80 0F 80 9E 7D D3 80 72 80 AF 7E FB 8E E6 80 AE 80 DB 08 53 15 04 22 0A 02 0E 7A DF 82 12 4B 7A 2C CC
70 D5 58 C5 78 D1 72 8F 88 C6 8C 27 89 B6 8C 1F 8A 94 73 06 80 19 80 1B 80 02 20 FF DF C2 42 1B 30 D6 2C EE 80 92 77 52
18 7E 80 0B 7E 6A 7D 8B 80 CA 80 B2 7F 00 7E E3 80 B2 80 DE 08 53 15 04 22 14 02 0E 78 70 83 46 4B 42 2C 5A 70 B5 58 B7
79 0F 72 B0 88 D3 8C 35 89 B8 8C 0A 8A 94 73 06 80 19 80 1C 80 02 20 F3 DF C2 42 1A 39 83 2C E3 80 8A 77 50 18 83 80 12
7F 8A 7F 00 80 CE 80 C0 7F 0B 7E EB 80 B6 80 DF 08 53 15 04 22 1E 02 0E 77 73 82 FE 4B 79 2B 76 70 CC 58 BB 79 41 72 C9
88 D9 8C 34 89 BC 8C 2D 8A 9A 73 06 80 11 80 13 80 02 20 F3 DF C2 42 1A 30 D7 2C E6 80 A3 77 57 18 87 80 0F 81 42 7D 4F
80 5A 80 A7 7E FA 7E E6 80 B6 80 E2 08 53 15 04 22 28 02 0E 77 6A 81 AA 4B A6 2A 4D 70 B2 58 C9 79 68 72 DB 88 D0 8C 27
89 B8 8C 42 8A 9D 73 06 80 17 80 1A 80 02 20 F7 DF C2 42 1B 31 6F 2C F2 80 B7 77 61 18 87 80 0F 80 40 7E 2E 81 0B 80 BA
7F 06 7E EA 80 BB 80 E3 08 53 15 04 22 32 02 0E 75 DE 84 80 4B 3A 29 66 70 C4 58 DF 79 88 72 E1 88 E3 8C 31 89 B4 8C 1F
8A 9B 73 05 80 19 80 1B 80 02 20 F3 DF C2 42 1A 30 FB 2C E7 80 DB 77 67 18 82 80 12 80 D7 7D 0A 80 4A 80 A2 7E F6 7E E2
80 C0 80 E7 08 53 15 04 23 00 02 0E 74 6B 76 D6 4B 97 27 87 70 BB 59 05 79 8C 72 D7 88 CF 8C 27 89 BD 8C 58 8A A2 73 04
80 18 80 1B 80 02 20 FF DF C3 42 1A 30 F0 2C F2 80 F6 77 6A 18 8B 80 0B 80 2A 7D 13 80 E3 80 AE 7E F7 7E DA 80 BB 80 E7
08 53 15 04 23 0A 02 0E 76 67 88 B3 4B 2B 28 C5 70 C8 59 28 79 6A 72 C2 88 F8 8C 4E 8A 36 8C 41 8A 9C 73 05 80 19 80 1C
80 02 20 FF DF C3 42 1B 30 EE 2C EF 81 0A 77 62 18 92 80 0F 7F 13 7D 2E 80 7A 80 A7 7E FA 7E D7 80 C2 80 EE 08 53 15 04
23 14 02 0E 76 F2 87 56 4B 5B 27 5E 70 B9 59 49 79 2C 72 A2 88 DA 8C 2C 89 C6 8C 31 8A 9D 73 03 80 19 80 1C 80 02 20 FF
DF C3 42 1B 31 72 2C F6 81 22 77 57 18 96 80 10 7E FA 7C A2 80 E7 80 AB 7E FF 7E DF 80 C0 80 EE 08 53 15 04 23 1E 02 0E
79 40 87 12 4B 6F 26 F7 70 B1 59 60 78 F5 72 89 88 D5 8C 28 89 BF 8C 43 8A A4 73 03 80 16 80 17 80 02 20 FF DF C3 42 1B
31 17 2C F7 81 32 77 51 18 93 80 0F 80 33 7D A3 80 76 80 A7 7F 02 7E DE 80 C0 80 F2 08 53 15 04 23 28 02 0E 7A 5E 7F 22
4B 82 27 64 70 BB 59 63 78 C5 72 78 88 D4 8C 2A 89 BB 8C 2F 8A A8 73 02 80 18 80 1B 80 02 20 F6 DF C2 42 1A 31 22 2C F7
81 33 77 52 18 8E 80 0E 80 22 7B CE 80 93 80 A2 7E F7 7E DA 80 C0 80 F2 08 53 15 04 23 32 02 0E 7D 36 82 D6 4B 91 27 22
70 D1 59 55 78 AF 72 6B 88 C2 8C 27 89 BB 8C 37 8A 97 73 02 80 18 80 1B 80 02 20 F3 DF C2 42 1A 31 D2 2C FE 81 0F 77 5A
18 8B 80 0F 80 0B 7D 5E 80 F7 80 B2 7F 02 7E E6 80 C0 80 F3 08 53 15 04 24 00 02 0E 7C A6 81 37 4B 90 27 88 70 C0 59 3E
78 C3 72 5D 88 BE 8C 23 89 B5 8C 29 8A 9C 73 02 80 19 80 1C 80 02 20 F3 DF C2 42 1A 31 9E 2C FB 80 FB 77 63 18 8B 80 0F
80 BB 7D 0F 80 43 80 9F 7E FB 7E E2 80 C0 80 F2 08 53 15 04 24 0A 02 0E 7C B6 82 7A 4B 34 26 C6 70 C3 59 34 78 F1 72 5D
88 DD 8C 27 89 B6 8C 2E 8A A1 73 02 80 19 80 1B 80 02 20 FA DF C2 42 17 31 0B 2C EF 80 E2 77 6A 18 8A 80 12 7F D7 7C 13
80 FE 80 A7 7E F3 7E D0 80 C2 80 F2 08 53 15 04 24 14 02 0E 7C 46 80 8E 4B 36 26 9F 70 C5 59 31 79 27 72 6E 88 CB 8C 27
89 BD 8C 36 8A A3 73 02 80 0B 80 93 80 02 20 FF DF C3 42 1A 30 D2 2C EB 80 CA 77 6A 18 86 80 12 80 9A 7D 77 80 5F 80 A3
7E FB 7E DF 80 C3 80 F3 08 53 15 04 24 1E 02 0E 79 66 06 5B 4B 3F 27 55 70 B0 59 36 79 53 72 7F 88 E9 8C 35 89 BB 8C 2C
8A A5 73 02 80 17 80 1A 80 02 20 FF DF C3 42 17 30 53 2C DE 80 BA 77 63 18 82 80 0E 7F EE 7B 93 80 C0 80 9B 7E EB 7E D0
80 C3 80 F3 08 53 15 04 24 28 02 0E 77 06 71 E2 4B 57 27 EC 70 C3 59 44 79 4C 72 95 88 CD 8C 2F 89 B2 8C 07 8A 9D 73 02
80 17 80 1B 80 02 20 F3 DF C2 42 17 30 57 2C D7 80 A7 77 5E 18 7B 80 0F 7F DF 7C 56 80 B2 80 9B 7E F2 7E D2 80 C2 80 F3
```

38 word Log Rec

TDUMP VERSION 3, 01/21/82 11:44 PM FRI., 5 SEPT, 1986

*** DUMPH 1 ***

THE DUMP OF THE FIRST RECORD OF THE FIRST FILE

FILE 1 RECORD 1 2014 WORDS TRANSFERRED

```
08 53 07 03 39 32 02 0E 7C 9A 82 67 4C 5E 29 70 6F FE 56 26 7B CE 85 75 88 D3 8C 76 89 F5 8A AB 8A C7 72 53 80 17 80 17
80 02 20 EF DF C3 42 0F 31 0A 2C F7 80 95 77 5D 18 4E 80 10 66 A3 79 AF 80 3B 80 CF 7E 4E 7E 5B 80 F3 80 B9 08 53 07 03
3A 00 02 0E 7C 82 82 E2 4C 8E 2A 83 70 00 56 26 7B D4 85 76 88 C3 8C 74 89 F5 8A A5 8A C3 72 53 80 18 80 18 80 02 20 F7
DF C5 42 10 31 6B 2C FF 81 02 77 6D 18 5A 80 10 5B F3 7A 89 80 51 80 E7 7E 6E 7E 5F 80 F2 80 B7 08 53 07 03 3A 0A 02 0E
7C DF 82 AB 4C 92 2A C0 70 19 56 2A 7B DB 85 76 88 C0 8C 75 89 F4 8A 9F 8A C3 72 53 80 17 80 17 80 02 20 F9 DF C5 42 0F
31 D2 2D 0B 81 10 77 61 18 53 80 10 5D 43 79 DB 80 13 80 CF 7E 43 7E 4B 80 F1 80 B7 08 53 07 03 3A 14 02 0E 7D 72 83 30
4C B5 2A 3E 70 05 56 2A 7B E8 85 74 88 C4 8C 78 89 F5 8A B3 8A C1 72 53 80 18 80 17 80 02 20 EF DF C3 42 0F 31 63 2C FB
80 AE 77 6A 18 43 80 10 5F 0B 7A 76 80 78 80 DE 7E 47 7E 23 80 F2 80 B9 08 53 07 03 3A 1E 02 0E 7C 5B 83 3B 4C 85 2A 5F
6F F6 56 2D 7B F3 85 74 88 CC 8C 7C 89 F7 8A A8 8A C3 72 53 80 17 80 18 80 02 20 F9 DF C7 42 0E 31 57 2D 03 80 AA 77 63
18 4B 80 0B 52 8F 79 90 80 67 80 D5 7E 67 7E A1 80 F2 80 B5 08 53 07 03 3A 28 02 0E 7C 56 83 52 4C 49 2B 34 6F FB 56 34
7B F7 85 78 88 C7 8C 7A 89 F8 8A 9E 8A C1 72 53 80 15 80 14 80 02 20 F9 DF C5 42 0F 31 E1 2D 09 81 13 77 65 18 5B 80 10
5B C6 79 29 80 7A 80 CB 7E 3B 7E 29 80 F1 80 B7 08 53 07 03 3A 32 02 0E 7C 9A 82 4A 4C 91 2A A8 70 12 56 3A 7B F7 85 79
88 C1 8C 7D 89 FD 8A A0 8A C1 72 53 80 18 80 18 80 02 20 F7 DF C3 42 0F 31 F3 2D 0F 81 02 77 69 18 51 80 11 63 51 79 CB
80 99 80 D1 7E 43 7E 47 80 F3 80 BB 08 53 07 03 3B 00 02 0E 7C C1 82 92 4C 93 2B 7B 70 1B 56 3D 7B FD 85 79 88 C5 8C 81
8A 02 8A A5 8A C2 72 52 80 18 80 18 80 02 20 F3 DF C3 42 0F 30 CA 2C F1 80 9F 77 61 18 42 80 11 65 21 7A C9 80 63 80 D1
7E 3E 7E 2B 80 F2 80 B9 08 53 07 03 3B 0A 02 0E 7C D0 82 F3 4C 8F 2C 9C 70 08 56 41 7C 01 85 78 88 C6 8C 88 8A 09 8A A9
8A C4 72 52 80 17 80 17 80 02 20 EF DF C3 42 0F 31 16 2C EB 80 BA 77 6B 18 4F 80 10 5E 2E 7A 6F 80 63 80 DB 7E 4A 7E 25
80 F2 80 B7 08 53 07 03 3B 14 02 0E 7C 2F 83 20 4C 9B 2B E0 70 1C 56 44 7C 03 85 78 88 C1 8C 87 8A 08 8A A1 8A C2 72 52
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38 word Log Rec

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38 Word Logical R…

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TDUMP VERSION 3, 01/21/82      11:46 PM  FRI.,  5  SEPT, 1986

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THE FIRST RECORD OF THE FOURTH FILE

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38 word logical Rec

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THE FIRST RECORD OF THE FIFTH FILE

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THE FIRST RECORD OF THE SIXTH FILE

38 word logical Rec

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80 C7 77 79 18 C0 80 11 00 00 75 41 8D 01 8A 65 85 F7 85 B1 89 E9 8C 19 08 53 2C 8F 00 0A 02 0E 80 3B 83 71 4A A3 35 58
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18 CB 80 19 00 00 74 08 8D 63 8A 55 85 E9 85 A9 89 E1 8C 19 08 53 2C 8F 00 14 02 0E 80 3B 83 00 4A 7F 35 6A 6F E8 6C F8
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TDUMP VERSION 3, 01/21/82 11:50 PM FRI., 5 SEPT, 1986

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TDUMP VERSION 3. 01/21/82 11:53 PM FRI., 5 SEPT, 1986

THE LAST RECORDS OF THE SIX FILES

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*** DUMPH 1 ***

FILE 1 RECORD 48 2014 WORDS TRANSFERRED

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97 F3 87 FF 80 01 20 FB DF C1 42 3B 31 56 2C 89 80 D3 77 71 18 BB 7F 11 00 00 74 91 8F D1 8C 19 87 9B 87 43 8A C9 8C F0
08 53 2C C3 25 00 02 0E 80 00 82 B7 4E 72 34 59 6F 93 6C D0 84 0D 89 F2 8A 2D 8C 4E 8A D5 8F CA 8B 76 5B 03 97 F2 88 01
80 01 20 FB DF C1 42 39 31 CB 2C 93 81 33 77 58 18 C3 80 13 00 00 75 45 8F 89 8C 21 87 A3 87 53 8A C9 8C ED 08 53 2C C3
25 0A 02 0E 80 33 82 CF 4E 95 34 67 6F AC 6C C8 84 18 89 F6 8A 2F 8C 55 8A D0 8F C6 8B 88 5B 00 97 EF 88 00 80 01 20 F3
DF BD 42 39 31 37 2C 89 80 FB 77 70 18 C2 80 17 00 00 76 49 90 11 8C 31 87 AB 87 5B 8A CF 8C ED 08 53 2C C3 25 14 02 0E
80 02 83 3B 4E 7F 34 89 6F A7 6C C0 84 21 8A 03 8A 2D 8C 4A 8A D3 8F D1 8B 93 5A FC 97 F6 88 05 80 01 20 F1 DF BD 42 39
31 73 2C 85 80 95 77 59 18 BA 80 11 00 00 77 2B 8F 98 8C 29 87 B3 87 59 8A D1 8C EB 08 53 2C C3 25 1E 02 0E 80 33 83 B7
4E C2 34 41 6F AD 6C B7 84 26 8A 09 8A 27 8C 4E 8A B7 8F C7 8B 9B 5A FC 97 F0 88 04 80 03 20 F1 DF BD 42 39 31 31 2C 85
80 B5 77 69 18 B3 80 17 00 00 77 6B 90 15 8C 35 87 BA 87 63 8A CF 8C ED 08 53 2C C3 25 28 02 0E 80 23 83 5B 4E 90 34 68
6F B2 6C B2 84 22 8A 12 8A 46 8C 56 8A C3 8F CF 8B A2 5A FB 97 EF 88 02 80 03 20 F9 DF C0 42 39 30 FB 2C 81 81 11 77 61
18 BE 80 11 00 00 74 BB 8F BB 8C 1D 87 99 87 4F 8A CF 8C EB 08 53 2C C3 25 32 02 0E 80 03 82 F7 4E 7E 33 EF 6F A0 6C AC
84 21 8A 20 8A 25 8C 48 8A AA 8F D6 8B A1 5A FA 97 E5 88 01 80 03 20 F9 DF C1 42 39 31 37 2C 87 81 17 77 61 18 C7 80 11
00 00 77 E7 8F B0 8C 31 87 BB 87 69 8A CF 8C ED 08 53 2C C3 26 00 02 0E 80 39 83 41 4E 6C 34 56 6F 9A 6C A9 84 23 8A 2D
8A 17 8C 42 8A C9 8F D2 8B 8D 5A FA 97 DA 87 FE 80 03 20 F3 DF BD 42 39 31 CA 2C 91 80 B1 77 63 18 BB 80 19 00 00 77 91
90 21 8C 39 87 B7 87 61 8A CB 8C EB 08 53 2C C3 26 0A 02 0E 80 0B 83 4A 4E 9F 34 23 6F B4 6C AA 84 28 8A 33 89 EA 8C 3C
8A B2 8F 6E 8B 71 5A FA 97 D2 88 01 80 03 20 F1 DF BD 42 39 31 61 2C 8B 80 9B 77 5D 18 B2 80 0B 00 00 72 E1 8F 79 8C 0D
87 89 87 41 8A CB 8C EB 08 53 2C C3 26 14 02 0E 80 2B 82 D3 4E 99 34 02 6F B0 6C A0 84 32 8A 3B 89 FB 8C 43 8A D0 8F BE
8B 6B 5A FA 97 C4 87 FD 80 03 20 F1 DF BD 42 39 31 73 2C 93 80 F3 77 69 18 C7 80 19 00 00 76 91 8F F8 8C 29 87 AF 87 59
8A D1 8C E9 08 53 2C C3 26 1E 02 0E 80 0F 83 43 4E B3 34 44 6F 9B 6C 96 84 3D 8A 4A 8A 16 8C 48 8A B9 8F B5 8B 77 5A FA
97 C0 88 04 80 03 20 F1 DF BB 42 37 32 67 2C A3 81 31 77 55 18 C7 80 11 00 00 76 91 8F A9 8C 21 87 A9 87 57 8A CB 8C E9
08 53 2C C3 26 28 02 0E 80 00 82 B3 4E 8A 34 2E 6F 97 6C 8B 84 47 8A 5E 8A 2C 8C 55 8A E7 90 0F 8B 80 5A FA 97 BC 88 07
80 01 20 FB DF C0 42 39 32 1B 2C B1 80 EB 77 71 18 BB 80 13 00 00 78 2F 8F 9D 8C 29 87 B9 87 61 8A C3 8C E9 08 53 2C C3
26 32 02 0E 80 33 82 F3 4E 72 34 37 6F 99 6C 7A 84 50 8A 70 8A 3A 8C 4E 8A 84 8F F0 8B 7E 5A FA 97 B9 88 08 80 03 20 FD
DF C1 42 39 31 F6 2C B5 80 85 77 59 18 B7 80 19 00 00 73 E1 8F DB 8C 11 87 91 87 43 8A C3 8C E5 08 53 2C C3 27 00 02 0E
80 00 83 67 4E A1 34 41 6F 8E 6C 6E 84 58 8A 87 8A 01 8C 4C 8A 74 8F D1 8B 69 5A FA 97 BA 88 0C 80 03 20 F1 DF BD 42 3B
31 C7 2C AD 80 C1 77 6D 18 B7 80 11 00 00 76 B3 8F 83 8C 21 87 A9 87 55 8A C7 8C E5
<*>
```

				Units
2nd halfword	YEAR	YEAR	Year	
3rd "	DAY	DAY NUMBER	DAY NUMBER	
4th "	Hour	HOUR, UT	HOUR, UT	
5th "	Min	Minute	Minute	
6th "	Sec	Second	Second	
5th word	MICX	MICROPULSATIONX	Micropulsation, X-Component	volts
6th "	MICY	MICROPULSATIONY	" , Y "	"
7	RI30	30 MHz RIOMETER	RIOMETER, 30 MHz "	"
8	RI 20	20 MHz RIOMETER	RIOMETER, 20.5 MHz	"
9	RI 51	51 MHz RIOMETER	RIOMETER, 51.4 MHz	"
10	MAG H	B-FIELD, HCOMP	H COMPONENT OF MAGNETIC FIELD	nT
11	MAG D	B-FIELD, DCOMP	D " "	nT
12	MAG Z	B-FIELD, Z COMP	Z " "	nT
13	VL·5	VLF, 0.5-1 kHz	VLF WAVES, 0.5-1.0 kHz	volts
14	VL1	VLF, 1-2 kHz	" 1-2 "	"
15	VL2	VLF, 2-4 kHz	2-4 "	"
16	VL11	VLF, 11-13 kHz	11-13 "	"
17	VL31	VLF, 31-38 kHz	31-38 "	"
18	VUND	VLF, UNDEFINED	VLF WAVES, VARIABLE BAND	"
19	PH63	PHOTONS, 630 nm	PHOTOMETER, 630 nanometer	LOG(kR)
~~Ignore all other word,~~				
20	PH43	PHOTONS, 427.8 nm	" 427.8 "	LOG(kR)

Ignore ~~word~~ first half word
and fourth word
and words 21-38

DUMP OF TAPE GLSOUT

INPUT TAPE GLSOUT ON HTO
DATA INPUT H9 NF 6 SR 1 1 1 SR 6 1 1

FILE 1 RECORD 1 LENGTH 4028BYTES

(0)	08530703	3932020E	7C9A8267	4C5E2970	6FFE5626	7BCE8575	88D38C76	89F58AA3	8AC77253	80178017
(40)	800220EF	DFC3420F	310A2CF7	8095775D	184E8010	66A379AF	803B80CF	7E4E7E5B	80F380B9	08530703
(80)	3A00020E	7C8282E2	4C8E2A83	70005626	7BD48576	88C38C74	89F58AA5	8AC37253	80188018	800220F7
(120)	DFC54210	316B2CFF	81027760	185A8010	5BF37A89	805180E7	7E6E7E5F	80F280B7	08530703	3A0A020E
(160)	7CDF82AB	4C922AC0	7019562A	7BDB8576	88C08C75	89F48A9F	8AC37253	80178017	800220F9	DFC5420F
(200)	31D22D0B	81107761	18538010	5D43790B	801380CF	7E437E4B	80F180B7	08530703	3A14020E	7D728330
(240)	4CB82A3E	7005562A	7BE88574	88C48C78	89F58AB3	8AC17253	80188017	800220EF	DFC3420F	31632CFB
(280)	80AE776A	18438010	5F0B7A76	807880DE	7E477E23	80F280B9	08530703	3A1E020E	7C5B833B	4C852A5F
(320)	6FF6562D	7BF38574	88CC8C7C	89F78AA8	8AC37253	80178018	800220F9	DFC7420E	31572D03	80AA7763
(360)	184B800B	528F7990	806780D5	7E677EA1	80F280B5	08530703	3A28020E	7C568352	4C492B34	6FFB5634
(400)	7BF78578	88C78C7A	89F88A9E	8AC17253	80158014	800220F9	DFC5420F	31E12D09	81137765	185B8010
(440)	5BC67929	807A80CB	7E3B7E29	80F180B7	08530703	3A32020E	7C9A824A	4C912AA8	7012563A	7BF78579
(480)	88C18C7D	89FD8AA0	8AC17253	80188018	800220F7	DFC3420F	31F32D0F	81027769	18518011	635179CB
(520)	809980D1	7E437E47	80F380BB	08530703	3B00020E	7CC18292	4C932B7B	701B563D	7BFD8579	88C58C81
(560)	8A028AA5	8AC27252	80188018	800220F3	DFC3420F	30CA2CF1	809F7761	18428011	65217AC5	806380D1
(600)	7E3E7E2B	80F280B9	08530703	3B0A020E	7CD082F3	4C8F2C9C	70085641	7C018578	88C68C88	8A098AA9
(640)	8AC47252	80178017	800220EF	DFC3420F	31162CEB	80BA776B	184F8010	5E2E7A6F	806380DB	7E4A7E25
(680)	80F280B7	08530703	3B1402[illegible]E	7C2F8320	4C9B2BE9	7C1C5644	7C038578	88C18C87	8A088AA1	8AC27252
(720)	80178017	800220F7	DFC542[illegible]E	30E22CDB	81217761	185F7F19	5F4979F9	803380C9	7E3B7E27	80F280B4
(760)	08530703	3B1E020E	7C9B8327	4D072CDE	70115640	7C04857E	88C18C86	8A068AA6	8AC17252	800C800C
(800)	800320FB	DFC6420F	31372CE5	80FA776B	18537F0E	5DF77A50	803680D3	7E537E4F	80F080B5	08530703
(840)	3B28020E	7C5E81D2	4CCA2E32	70205652	7C07857F	88C48C7C	89FB8AA5	8AC27252	80168016	800220F3
(880)	DFC3420F	31CB2CF7	80937750	18427F16	5BD37B0B	802380CF	7E3B7E03	80EF80B2	08530703	3B32020E
(920)	7CCB81C7	4CC52D71	7000565A	7C0E857F	88C48C7B	89F88AA9	8AC17253	80178017	800220EF	DFC3420F
(960)	31B02CF1	80C3776D	18427F30	5A7A799F	800780D7	7E627E63	80EE80B1	08530704	0000020E	7CE5825F
(1000)	4C782E0A	70105660	7C16857F	88C18C7A	89F88AAC	8AC27253	80188017	800220F9	DFC5420F	31632CFF
(1040)	8127775B	185B7F13	5DF77A4B	808B80DB	7E537E3D	80EF80B2	08530704	000A020E	7CA6829B	4CAE2DF6
(1080)	70185661	7C22857F	88D28C8C	8A6D8AA9	8AC17252	80178017	800220F1	DFC3420F	31432CFF	80EB7770
(1120)	18627F1E	658F7A30	804280C3	7E407E3D	80EF80B3	08530704	0014020E	7C7B82F6	4C902EA3	700E5669
(1160)	7C2B8584	88D08C83	8A0A8AAC	8AC57253	80178017	800220F7	DFC5420F	319B2D02	808E7759	18427F17
(1200)	5A5F79FB	809F80DD	7E387DE9	80EB80B0	08530704	001E020E	7CC88047	4CA52F2B	700A5671	7C338583
(1240)	88C68C7A	89FF8AAE	8AC17253	80148014	800320F0	DFC3420E	31D32D0B	80D37770	18437F23	62207999
(1280)	808A80CA	7E3B7E3B	80EB80B1	08530704	0028020E	7CEB81D1	4CCC2F6C	70115676	7C3C8584	88CC8C7C
(1320)	8A088AB0	8AC47252	80178017	800220F0	DFC3420E	31A22D01	812E7759	185B7F32	5E1E7A0B	807B80C5
(1360)	7E3E7E50	80EB80B0	08530704	0032020E	7D13831F	4CCE2ED6	70105679	7C458581	88C28C84	8A1F8AA8
(1400)	8AC17252	80178017	800220F0	DFC3420F	318B2D10	80DF7773	18527F22	607379A3	803B80C0	7E307DFB
(1440)	80EE80B1	08530704	0100020E	7CB382C0	4CD32D58	700D5680	7C4D8583	88CD8C8E	8A2C8AA7	8AC57252
(1480)	80168017	800220FA	DFC5420F	31F12D1F	80877757	18467E79	61437A2F	802E80CB	7E327E09	80EF80B3
(1520)	08530704	010A020E	7C5B8357	4CC02E80	70115681	7C4F857F	88C78C88	8A1D8AAC	8AC27253	80178018
(1560)	800220EF	DFC3420E	31AA2D[illegible]7	80E77772	18527F31	66657A81	803780D1	7E427E2B	80EF80B3	08530704
(1600)	0114020E	7CD38307	4CE42DC4	70115684	7C4F857C	88C78C89	8A148AA9	8AC37253	80818007	800320EF
(1640)	DFC34211	31AB2D03	81337759	185B7F2F	660379CF	800380C0	7E437E7B	80EF80B3	08530704	011E020E
(1680)	7CCE82B2	4CC12DE1	70045685	7C4E857D	88C58C83	8A0B8AB2	8AC37253	8015B015	800220F7	DFC5420F
(1720)	317A2D07	80D37773	184F7F15	630B79E5	80D380D9	7E277DD3	80EF80B3	08530704	0128020E	7CFB8302
(1760)	4CB92DD4	700E568A	7C50857C	88C68C7F	8A078AB0	8AC37253	80188017	800320FB	DFC5420F	31832D11
(1800)	80867759	18467F0F	5FD0786B	807080C7	7E3B7E3A	80EB80B3	08530704	0132020E	7D27837B	4CDB2E71
(1840)	701A568B	7C53857E	88C68C79	89FF8AAC	8AC37253	80188018	800220FA	DFC6420F	32112D17	80EB7773
(1880)	18527F0D	61687953	808380CF	7E437E2D	80EE80B3	08530704	0200020E	7CB08007	4CBE2DBF	701A5687
(1920)	7C528581	88C08C79	89FD8AAE	8AC27253	80178017	800220EF	DFC3420F	31BE2D17	81317758	18577F27
(1960)	62C379A3	807B80C7	7E3B7E3B	80EF80B3	08530704	020A020E	7D0E81C7	4CF22D71	701F5685	7C568585
(2000)	88C48C7C	89FA8AB2	8AC27253	80178017	800220F0	DFC3420F	31932D23	80CF7773	184E7F23	6FB37971
(2040)	80AB80BD	7DF87D86	80F08085	08530704	0214020E	7C6A8347	4CCE2D6B	70035686	7C5D8587	88CC8C7C
(2080)	89FE8AB4	8AC77253	80118011	800220F1	DFC3420F	31622D13	80877759	18477F1F	65DE7909	803080CB
(2120)	7E527E73	80F380B7	085307[illegible]4	021E020E	7C8B8113	4CA32D0F	70015689	7C5C858D	88C58C7E	89FF8AB1
(2160)	8AC37253	80168016	800220F9	DFC6420F	31DB2D23	80EB7771	18527F10	62EB7992	802680C5	7E367E09
(2200)	80F280B7	08530704	0228020E	7C628200	4CCC2D06	7028568F	7C638591	88C98C7F	8A058AB1	8AC47253
(2240)	80178018	800220F1	DFC342[illegible]F	31F72D17	81307759	18577F1F	62D779F3	801380CB	7E597E6B	80F280B7

(2360)	0300020E	7C738333	4CDD2D4E	7021568B	7C6B8591	88C08C7E	8A088AB5	8AC37252	80188017	800220F9
(2400)	DFC6420F	31762D21	80867758	1846800B	59977999	809E80E7	7E5A7E39	80F380B7	08530704	030A020E
(2440)	7CFE8233	4CFB2D5E	701C5691	7C6E8591	88C28C7E	8A0E8AB3	8AC27252	80198019	800320F0	DFC3420F
(2480)	31E22D20	80EB7771	1852800B	62A379FB	809A80CF	7E3E7E23	80F280B5	08530704	0314020E	7CB781A2
(2520)	4CD22C87	70125690	7C738591	88CB8C7F	8A118AB2	8AC77252	80138013	800220F0	DFC3420F	31C72D17
(2560)	81317759	185A800F	718B7A61	80A380CB	7E2E7E29	80F280B5	08530704	031E020E	7CAB815B	4CEE2CBB
(2600)	70045692	7C798591	88C98C84	8A0E8AAC	8AC27252	80178016	800220F0	DFC3420F	314B2D15	80D27773
(2640)	184F800B	635E79B2	80478007	7E477E60	80F380B7	08530704	0328020E	7C7A830B	4CE42D27	6FFF5694
(2680)	7C7E8594	88C68C7E	8A0A8AB4	8AC57252	80188018	800320F0	DFC2420F	316E2D0D	80877759	18468010
(2720)	62437981	806380D1	7E477E40	80F380B6	08530704	0332020E	7CDA81D2	4CF72D37	70105697	7C7F8598
(2760)	88C98C81	8A108AAF	8AC47252	80188017	800220FF	DFC34210	31C72D12	80EB7771	1852800F	59F27A53
(2800)	801380D7	7E567E5D	80F380B7	08530704	0400020E	7CB18260	4CBA2CEA	70105699	7C818599	88C48C7E
(2840)	8A118AAC	8AC57252	80188017	800320F0	DFC3420F	315B2D07	81337759	185A8012	63327A73	800780B9
(2880)	7E2F7E2D	80F380B6	08530704	040A020E	7C7082DE	4CCE2D3D	7015569B	7C81859A	88CC8C87	8A148AB5
(2920)	8AC97252	800A8083	800220FF	DFC3420E	31222D03	80D37773	184F8011	61D278E8	802780C0	7E2A7E07
(2960)	80F380B9	08530704	041402[illegible]E	7C7B8302	4CBE2CED	701A56A1	7C8285A0	88C08C84	8A0E8AB0	8AC37252
(3000)	80178016	800220F7	DFC6420F	311E2CF3	80877757	1847800B	66D37A10	80C080D6	7E3B7E2B	80F380B7
(3040)	08530704	041E020E	7CEB832A	4CF72BAF	702056A6	7C8785A2	88C38C87	8A128AB2	8AC57251	80178017
(3080)	800220FB	DFC5420F	319B2D[illegible]5	80EA7773	18528011	60E37A2F	809780DB	7E5A7E57	80F680BB	08530704
(3120)	0428020E	7C5E832B	4CEF2B78	700456AA	7C8985A7	88C28C88	8A298AB8	8AC57251	80178017	800220F0
(3160)	DFC3420E	30D72CE7	81317758	1857800F	61F079DA	80A380D1	7E3B7E30	80F780BB	08530704	0432020E
(3200)	7C93823E	4CD62C14	6FFA56AC	7C8785A9	88CD8C91	8A498AB8	8AC87251	80178017	800220F9	DFC7420E
(3240)	311A2CFB	80D27771	185380[illegible]F	6942[illegible]9F5	802980C5	7E337E23	80F680BB	08530704	0500020E	7CAB8342
(3280)	4CC12C12	700B56AE	7C8785AC	88C08C84	8A248AB8	8AC57252	80178017	800220F0	DFC3420E	30FA2CF0
(3320)	80877759	1847800F	5A037A8F	80738009	7E4E7E56	80F780BB	08530704	050A020E	7C0B801A	4CE82B35
(3360)	701556AE	7C8685B0	88D38C97	8A928ABA	8AC77252	80118011	800320EF	DFC3420F	31D32CFD	80EA7772
(3400)	184F8010	62297965	801780CF	7E477E45	80F880BB	08530704	0514020E	7CD68237	4CEE2B69	6FF456B1
(3440)	7C8385B4	88C78C88	8A2E8AC6	8AC77252	80178017	800220EF	DFC3420F	31962CFF	81337759	1857800F
(3480)	603B7A0E	7FF680BB	7E437E43	80FA80C0	08530704	051E020E	7D7A8457	4CCD2CA7	700A56B2	7C8685B8
(3520)	88C28C8A	8A1D8ABD	8AC67251	80188018	800220F9	DFC54210	331E2D25	80D37773	184F8010	6546798F
(3560)	80B180D3	7E517E61	80F780BB	08530704	0528020E	7C5A81E7	4D1A2CCB	70105683	7C8785BD	88C28C8A
(3600)	8A208AB2	8AC57251	80188018	800220F1	DFC3420F	32222D1B	80877757	18438010	5F6B797B	80A380D1
(3640)	7E3B7E25	80F680BF	08530704	0532020E	7CC3806A	4D162D67	700356B4	7C8685C2	88BF8C8A	8A1A8ABB
(3680)	8AC67251	80178017	800220F3	DFC5420F	323B2D1F	80E27771	184F8010	73BB791D	809E80B7	7DF37DAA
(3720)	80F380BB	08530704	0600020E	7D1A82A1	4CF82E0B	6FFE56B6	7C8E85C4	88C18C96	8A298ABA	8AC47250
(3760)	80188017	800320F0	DFC3420E	31E32D1B	812F7759	185B800F	67FB7A10	80838003	7E527E47	80F380B9
(3800)	08530704	060A020E	7C538232	4D132D4C	700056B7	7C9285C6	88C28C97	8A328AB7	8AC67250	80148014
(3840)	800320FA	DFC6420F	31922D11	80E27773	1853800F	5D0179F9	802080D3	7E4E7E33	80F780BB	08530704
(3880)	0614020E	7CFA839A	4CFB2B58	6FF656B6	7C9185CB	88C68C95	8A258AB6	8AC77251	80178016	800320F0
(3920)	DFC3420F	322A2D11	808B775B	18437F2D	5EEF7A3C	7FFB80C1	7E527E63	80F980BD	08530704	061E020E
(3960)	7C8E805B	4D322B1C	70045687	7C9085D1	88C78C8F	8A228AB7	8AC97251	80188018	800320F0	DFC3420F
(4000)	31472D01	80D37770	183B7F30	5A817A42	807E80EB	7E637DC7	80F780C0			

FILE	INPUT RECS.	DATA RECORDS INPUT	MAX. SIZE	READ ERROR SUMMARY PERM	ZERO B	SHORT	UNDEF.	INPUT RETRIES #RECS.	TOTAL#
1	48	48	4028	0	0	0	0	0	0

FILE 6 RECORD 1 LENGTH 4028BYTES

(0)	08532C8E	3B1E020E	801B8383	4AA7358F	6FDC6D1D	82E18B5F	896C8C76	8A0B904F	8B1B57D7	967A83DA
(40)	800120F1	DFB9423B	30602C39	80817760	18BB8013	000076D1	8D508A79	861185C5	89E38C19	08532C8E
(80)	3B28020E	800081AB	4A6235C6	6FC76D27	82DF8B6A	896B8C79	8A14909B	8B2B57D9	968D83FD	800320F9
(120)	DFC0423B	314F2C55	80917761	18B38015	0000757B	8CF98A69	860185B9	89E38C19	08532C8E	3B32020E
(160)	8000837A	4AA935A8	6FE46D1E	82F88879	89608C82	8A2390B7	8B3557D8	96958401	800120F0	DFB9423B
(200)	313B2C51	80A97771	18BB8013	00007469	8CE98A61	85F385B1	89E58C19	08532C8F	0000020E	80038461
(240)	4A8A35D0	6FF36D1A	82F58B89	89608C8D	8A249090	8B2E57D7	969E840A	800120F1	DFB9423B	30DB2C59
(280)	80C77779	18C08011	00007541	8D018A65	85F785B1	89E98C19	08532C8F	000A020E	803B8371	4AA33558
(320)	6FF16D11	82ED8B9E	89738CB7	8C6A909A	8B3457D8	96A9843B	800320F9	DFC0423B	31572C71	80E17779
(360)	18CB8019	00007408	8D638A55	85E985A9	89E18C19	08532C8F	0014020E	803B8300	4A7F356A	6FE86CF8
(400)	82F68BB0	895D8C9A	8BE79091	8B4257D9	96B68456	800120F1	DFBB423B	31232C5B	81037769	18C08019
(440)	0000756B	8D818A71	86018589	89E98C21	08532C8F	001E020E	801683EA	4AB9352E	70046CED	82F78BBE
(480)	89368C98	8B869043	8B2057D8	96C18457	800120F1	DFB9423B	30FF2C5D	81257761	18C77F20	00007421
(520)	8D1B8A59	85EB85A1	89E38C19	08532C8F	0028020E	8000837B	4A733572	6FFE6CEF	82EC8BCC	89448C98
(560)	8C469099	8B3057D8	96D0846D	800120F3	DFB9423B	31472C61	8131775D	18CB7F15	00007559	8CF18A61
(600)	85FB85A9	89E98C21	08532C8F	0032020E	80038272	4A483558	6FEA6CEE	82E48BD4	89518CAE	8C9890D0

(720)	96F849D	800120FB	DFC0423B	31312C75	80FD7775	18C77F11	00007FC5	8D618A69	860C85AB	89E38C19	
(760)	08532C8F	010A020E	803B82C3	4A7D34F8	6FEF6C8D	82EE8BF6	89458C9C	8B2F90AF	8B3E57D8	96F584A6	
(800)	800120F1	DFBB423B	312B2C63	80DD7779	18C07F29	00007489	8D698A59	85E385A3	89E98C20	08532C8F	
(840)	0114020E	8023803B	4A8B3552	6FF96CAD	82F98BFB	89408CB3	8BF790B0	8B3057DA	96F284AE	800120F1	
(880)	DFB9423B	30692C45	80BC776D	18C27F29	00007523	8D558A6D	860085B1	89F18C21	08532C8F	011E020E	
(920)	80238303	4A45356E	6FED6CA3	831B8BFF	894A8CA6	8B269086	8B2F57DA	96F284A9	800320F1	DFB9423D	
(960)	30C02C49	80837761	18BB7F21	000074F9	8D498A71	860085B1	89EB8C21	08532C8F	0128020E	80038313	
(1000)	4A1A3562	6FDA6C9A	83218C00	89518CAC	8B1B9096	8B2E57DA	96EB84A2	800120F9	DFC1423B	30B92C49	
(1040)	80907761	18B37F0B	000075BD	8D198A6D	85F385B1	89F18C25	08532C8F	0132020E	800082A3	4A5D3559	
(1080)	6FF86C95	83288BFF	89708C95	8BB49048	8B2957DA	96EF84A3	800120F1	DFB9423B	31372C4B	80B17771	
(1120)	18BB7F25	00007541	8CFD8A6D	860385B3	89EB8C2D	08532C8F	0200020E	80038393	4A7A351D	6FE46C8D	
(1160)	83298BF9	8A1C8CE5	8C0A904F	8B2157D9	96F384A2	800120F1	DFBD423B	30AB2C41	80D97779	18C37F25	
(1200)	000075F9	8D198A71	860A85B8	89F18C29	08532C8F	020A020E	802781A3	4A03355F	6FE36C89	83318BFE	
(1240)	8A2E8CAC	8B40909A	8B2957D9	96E984A0	800120F9	DFC0423B	30CB2C55	8101776D	18C07F15	000075A9	
(1280)	8D558A71	860785B3	89F38C29	08532C8F	0214020E	803A8400	4A73355D	70036C77	83438BFC	8B258CEE	
(1320)	8C49123	8B4B57D7	96E584A1	800120F9	DFC0423B	313B2C61	81317760	18C37F11	00007591	8D7B8A71	
(1360)	860985B3	89F98C29	08532C8F	021E020E	802281CB	4A4734C3	6FC76C7E	83408BF8	8B9B8CC0	8B1B90C8	
(1400)	8B2E57D8	96E884A2	800320F1	DFB9423B	30D32C61	81237761	18D07F21	00007713	8D658A79	861385C1	
(1440)	89F38C25	08532C8F	0228020E	801B811B	4A4934F3	6FCF6C84	83578BF9	8B508CBC	8AC4908A	8B2457DA	
(1480)	96E984A0	800120F1	DFB9423B	30C72C61	81007771	18C77F21	000076F5	8D5B8A79	861785C1	89FB8C21	
(1520)	08532C8F	0232020E	800A8341	4A39352B	6FED6C7B	83788BF4	8B4F8CB8	8AD09098	8B3457DB	96E78498	
(1560)	800120F9	DFC0423B	31372C69	80D17775	18AF7F11	00007745	8D318A7D	861B85C1	8A008C23	08532C8F	
(1600)	0300020E	800082D3	4A2134F0	6FDD6C72	83808BFA	8BD78CC2	8B619095	8B2B57DF	96E78496	800120F1	
(1640)	DFB9423B	30F92C60	80A17761	18C07F31	00007740	8D138A7D	862185C5	8A098C25	08532C8F	030A020E	
(1680)	800082C3	49C534D0	6FE66C70	83898BFE	8BDB8CB3	8AFF90AB	8B2F57E1	96E9849B	800320F1	DFB9423B	
(1720)	31292C59	80897760	18BA7F31	00007751	8D208A81	862385C9	8A098C21	08532C8F	0314020E	801B8273	
(1760)	4A073461	6FE76C55	83A58BFF	8CBE8CAA	8A8F90AA	8B3157E0	96EE84A2	800120F1	DFB9423B	30A12C51	
(1800)	80AB776D	18B77F19	00007790	8D658A85	862985CD	8A118C29	08532C8F	031E020E	803B81FB	4A12349A	
(1840)	6FDF6C42	83C38C00	8CEE8D0A	8D4E90AB	8B3857DC	96F184A9	800120F3	DFB9423B	30F02C51	80D97779	
(1880)	18C17F21	00007829	8DB98A91	863085D3	8A198C31	08532C8F	0328020E	80278262	49F834CA	6FDD6C41	
(1920)	83E18BFC	8D478D47	8E8A90B7	8B3A57DB	96F084A3	800120F1	DFB9423B	30512C41	81107769	18C37F29	
(1960)	0000780D	8D998A91	863385D5	8A208C31	08532C8F	0332020E	800A8420	4A30349C	6FDC6C3A	83F88BF5	
(2000)	8D728CD7	8ED390CD	8B3057DB	96EC849A	800120F9	DFC0423B	30D12C51	81317760	18CB8018	000077B0	
(2040)	8D558A91	863185E1	8A208C35	08532C8F	0400020E	80018309	4A2134C8	6FD66C3D	83FB8BF2	8D888D1F	
(2080)	8C6D90A1	8B3B57DC	96F18498	800120F0	DFB9423B	30D32C49	81117760	18CB800B	000078CB	8D508A93	
(2120)	863B85E5	8A118C29	08532C8F	040A020E	801382FA	49F334AF	6FE56C46	83FE8BF2	8E528CCA	8A6090AF	
(2160)	8B3257DE	96F5849B	800120F1	DFB9423B	30BB2C51	80E37775	18C27F20	00007759	8D5B8A89	862985D5	
(2200)	8A1B8C29	08532C8F	0414020E	802B82C3	49F834B5	6F556C43	840B8BF9	8E048CA8	8A1C909A	8B2557DE	
(2240)	96FB84A3	800320FB	DFC0423B	30C32C51	80A37765	18C07F11	000076FD	8D8B8A89	862985D1	8A1F8C2D	
(2280)	08532C8F	041E020E	803B8357	4A05346D	6FDC6C41	84188BF1	8E9B8CB4	8A09905E	8B2357E0	96FC84B0	
(2320)	800120F1	DFB9423B	30F92C51	80897759	18B97F31	000077A3	8DB98A91	863185D9	8A1F8C2D	08532C8F	
(2360)	0428020E	802B824B	49D33489	6FD26C46	84278BEC	8E3F8CB2	8A179088	8B2B57E5	96FD84B1	800120F1	
(2400)	DFBD423B	30D92C51	80B17771	18BA7F30	00007839	8DA98A99	863985E1	8A1B8C2D	08532C8F	0432020E	
(2440)	800082E2	49DA3470	6FD16C48	843E8BED	8DDF8CAA	8A1D909A	8B3D57E8	970284B7	800120F1	DFBB423B	
(2480)	31932C69	80E57771	18D07F1D	00007781	8D298A89	863185D8	8A1B8C2D	08532C8F	0500020E	80198197	
(2520)	49F63468	6FD46C3E	845A8BEA	8EAD8CB9	8A00905B	8B2557E5	970B84C5	800120F1	DFBB423B	30FB2C71	
(2560)	81197761	18C37F21	00007849	8D6B8A91	86338509	8A238C29	08532C8F	050A020E	803B8343	49CB3465	
(2600)	6FD66C3A	84728BE9	8E238CC0	8A7C9092	8B2557E5	971284C8	800120F9	DFC0423B	31EB2C91	812B775D	
(2640)	18CB7F15	00007859	8DB18A91	863785D5	8A1F8C29	08532C8F	0514020E	803B837B	49EA3400	6FC26C2F	
(2680)	847A8BE1	8E5E8CB2	8A1F90F0	8B3057E6	971184C9	800120F1	DFC04239	31812C89	81017771	18C77F39	
(2720)	000078A0	8DB98A95	863B85D9	8A238C29	08532C8F	051E020E	801B8293	49C63471	6FD36C2D	84828BDF	
(2760)	8EDE8CC5	8A1290E5	8B4657E7	971384D1	800320F1	DFB9423B	31A32C91	80D17771	18B17F25	00007859	
(2800)	8D808A91	863985DD	8A238C29	08532C8F	0528020E	800A83B3	49F533E1	6FCF6C22	84918BDC	8E488CB5	
(2840)	8A0B90CE	8B2F57E9	971684D8	800120F9	DFC1423B	31CB2C99	80957761	18BF7F15	000077E9	8D508A91	
(2880)	863385D9	8A218C29	08532C8F	0532020E	800083E3	49B733F5	6FDC6C1F	848A8BD9	8E638CC7	8A289111	
(2920)	8B4E57EA	972384F0	800120F1	DFBB423B	31C32C93	808D7761	18B38011	0000787B	8D398A99	863B85E9	
(2960)	8A238C29	08532C8F	0600020E	80008341	49C83437	6FDE6C1E	848F8BD5	8EDF8CD4	8A1B90A3	8B4957EA	
(3000)	97328506	800120F0	DFB9423B	313B2C81	80C17775	18BB800F	0000776B	8D398A91	863385E5	8A278C29	
(3040)	08532C8F	060A020E	801B8323	49D43455	6FDB6C13	849D8BD8	8E1F8CB9	8A1A9086	8B2657EA	97498514	
(3080)	800320F1	DFBB423B	30D92C79	80FB7771	18C38010	0000758D	8D688A89	863385D9	8A238C31	08532C8F	
(3120)	0614020E	803B8357	49B63429	6FE26C0C	84A18BD4	8F138CCF	8A42910B	8B5157EB	97548520	800320F9	
(3160)	DFC0423B	31832C81	81317759	18C78019	00007621	8DB38A95	862F85E1	8A218C35	08532C8F	061E020E	
(3200)	80338313	49AC3451	6FE96C07	84A48BCC	8EB58CCB	8A1B906A	8B3057EE	9758852B	800320F1	DFBB423B	
(3240)	31332C81	81137769	18CB8015	000076D5	8DB18A99	863985EB	8A238C35	08532C8F	0628020E	8012835B	

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( 3360)  6FC96C09  84A28BC0  8ECB8CB9  8A0090F9  8B1F57F0  975E852E  800320F0  DFBD423B  31D32C89  80997761
( 3400)  18BB8013  00007780  8D418A99  864185F3  8A1B8C39  08532C8F  0700020E  8011830D  49BF3429  6FCE6C05
( 3440)  849F8BC1  8E768CC9  8A1991 D  6B3357F0  97648530  800120F1  DFBD423B  316A2C89  80937761  18B38010
( 3480)  000077A3  8D718AA1  864185F3  8A188C39  08532C8F  070A020E  803A837A  49D833E0  6FDC6C00  84A08BC1
( 3520)  8E258D37  8AC490B6  8B2157F1  9763852D  800320FB  DFC0423B  31892C91  80C97775  18BF8019  00007738
( 3560)  8DC18AA1  864085F1  8A198C39  08532C8F  0714020E  80378343  49BF3456  6FDB6BF4  849F8BC2  8E8A8CC9
( 3600)  8A4F90E6  8B3657F2  97638531  800120F1  DFBB4239  310F2C79  81097769  18C18019  000075C1  8DB38A99
( 3640)  863385EB  8A208C41  08532C8F  071E020E  801783C1  49D3343F  6FD76BE4  84A18BC4  8DEF8CB5  8A2D907E
( 3680)  8B1957F4  9760852E  800120F1  DFB94239  309B2C69  8130775D  18CB8015  00007545  8D718A91  863185EB
( 3720)  8A238C41  08532C8F  0728020E  80218337  49BE3424  6FDA6BD1  84A08BC4  8E318D49  8ADA90C6  8B2857F9
( 3760)  97648537  800120F1  DFB9423B  30DF2C69  80F97775  18C38013  000075BB  8D958AA1  863985F3  8A218C45
( 3800)  08532C8F  0732020E  80038382  49BD340E  6FE06BD0  84938BBB  8E828CEF  8A539065  8B3D57FA  976D854C
( 3840)  800120F9  DFC0423B  31412C79  80A57765  18C08011  00007581  8D518A99  863785F1  8A238C45  08532C8F
( 3880)  0800020E  8000842B  49C4342B  6FD86BCE  84818BB6  8E468CD2  8A3D9040  8B3957FE  977E855D  800120F1
( 3920)  DFB94239  31412C71  80937761  18B38011  00007539  8D418A99  863785F1  8A218C49  08532C8F  080A020E
( 3960)  802382C2  49CF342F  6FD76BC9  84638BB8  8DD58D55  8AF590EF  8B4D57FF  978E8567  800120F9  DFC04239
( 4000)  30BB2C71  80D57778  18C08011  00007715  8DA98AA9  86498600  8A178C4D
```

FILE	INPUT RECS.	DATA RECORDS INPUT	MAX. SIZE	READ ERROR SUMMARY PERM	ZERO B	SHORT	UNDEF.	INPUT RETRIES #RECS.	TOTAL#
6	86	86	4028	0	0	0	0	0	0

EOJ DUMP STOPPED AFTER FILE 6 # OF PERMANENT READ ERRORS 0

START TIME 10/10/86 15:21:05 STOP TIME 10/10/86 15:22:30

$$

REQ.AGENT	RAND NO.	ACQ.AGENT
GLS	V0324	HKH

GG-2BA

I MINUTE MAGNETOMETER DATA

THIS DATA SET CONSISTS OF ONE MAGNETIC TAPE. THE TAPE IS 9 TRACK, 800 BPI, BINARY AND CONTAINS 69 FILES OF DATA. THE TAPE WAS CREATED ON A M4030 DOS ASVT COMPUTER. THE C TAPE IS 1600 BPI. THE D AND C NUMBER AND THE TIME INTERVAL ARE AS FOLLOWS:

D#	C#	TIME INTERVAL
D-74057	C-26128	01/28/83 - 03/26/86

DATE: 9/3/86

NSSDC ID: GG-2BA

P.I.: Mishin

CDAW DATA SET ENTRY

DATE RECEIVED: 8/25/86

DATE SENT BY: A.V.M. Mishin SIBIZMIR U.S.S.R

PARTICIPANT:

MATERIAL RECEIVED: Questionaire, intro letter, Desc. tape format, print out. (3) 1 - 9trk, 800 Bpi, Binary tape

SATELLITE/NSDF NAME: GG-2BA

CDAW DATA SET MNEMONIC: Z--

CDAW DATA SET NAME: 1 min Magnetic field variations (NORILSK Chain observations)

AIM FILE DATA SET NAME:

CDAW NEW DATA SET ADDITIONS REPLACEMENTS

AIM FILE NEW DATA SET ADDITIONS REPLACEMENTS

COMMENTS: Ground Base data. Could not find in NON-Satellite Data file. Original printout will be in folder.

TIME COVERAGE: Jan 28 0400-1100 / Jan 28 0500-1400 / Mar 25 0500-1400 / Mar 26 0000-0600

TAPES TO BE RETURNED TO:

RECEIVED BY: Leah Salmon

МЕЖДУВЕДОМСТВЕННЫЙ ГЕОФИЗИЧЕСКИЙ КОМИТЕТ АН СССР
SOVIET GEOPHYSICAL COMMITTEE ACADEMY OF SCIENCES OF THE USSR

МИРОВОЙ ЦЕНТР ДАННЫХ Б2

117296, Москва, ГСП-1,
Молодежная ул., 3; тел. 130-05-46

WORLD DATA CENTER B2

Molodezhnaya, 3, Moscow, 117296, USSR
Tel. 130-05-46

Ref. No. 85

«18» August 1986 г.

Mrs. Leah Gatewood

CDAW-8, Code 633
NASA Goddard Space Flight Center
Greenbelt, MD 20771
U.S.A.

Dear Mrs. Gatewood:

In compliance with a request of Dr. V.D. Kokourov, Acting Director of SIBIZMIR (Irkutsk) we are sending you, by air mail, a reel of magnetic tape containing geomagnetic data from the Norilsk chain observatories for the following intervals:

January 28, 1983	0400 - 1100	UT
January 29, 1983	0500 - 1400	UT
March 25, 1983	0500 - 1400	UT
March 26, 1983	0000 - 0600	UT.

Time resolution is one minute. Description of the format is enclosed. The data are prepared in accordance with the SIBIZMIR participation in the CDAW-8 international project.

Please confirm the safe receipt of this shipment.

Sincerely yours,

E.P.Kharin
Director of WDC B2

Enclosure: A reel of magnetic tape
Listings
Description of the format

1. DESCRIPTION OF THE MAGNETIC TAPE FORMAT

The data are contained on 9 track, 800 BPI tape, with numbers represented in the intra-machine code. The tape consists of 68 files, the file layout being thus:

VOL 1	HDR 1	tm	FILE 1	tm	FILE 2	...	FILE 68	tm	tm

where VOL 1, HDR 1 are the standard header labels of 80 bytes each.

The file is separated from the other by a type-marker (tm), while the last file ends with two type-markers (tm, tm). Each file is composed of an identification block (12 bytes) and data block (1024 bytes each)

Identification block	block 1	block 2	.....	block 12

The identification block has the form:

bytes	kind of material
0-3	identifier (number) of file: 1,2,3,...
4-11	number of bytes in a file

APPENDIX 1 provides a copy of physical record on the magnetic tape for the first file

2. FILE LAYOUT

Each file has a standard integer array X (or n_H), Y (or n_D), Z (or n_Z) 3041 numbers long, each number occupying 4 bytes. Layout in the array X (or n_H),Y (or n_D), Z (or n_Z) is the following:

Array element number	Kind of material
1.	Length of information
2.	Number of station
3.	Time resolution of data in minutes, enlarged 100 times
4.	Date (28.01.83 means 28 January 1983
5.	Angle Ψ x 1000. If 99999, then instead of X,Y,Z the array n_H,n_D, n_Z is written down
6.	Start digitization time (hour)
7.	Final - " - minus 1 hour
8.	Number of hours (T_{fin}- T_{start}+1)
9.	Start of component X (or n_H)
10.	- " - Y (or n_D)

(continued)

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11. Start of component Z (or n_Z)

12. ⋮ 34. Number of hour (T_{start}, ..., T_{fin})
Hours not entering the digitization interval have number 9999

35. Number of points in one hour

36. Total number of points (N) in one component of the geomagnetic field

37. ⋮ 39. Empty

40 ÷(39+N) - X (or n_H) geomagnetic field component.
Data absence sign (8888)

(40 +N) ÷ (39 + 2N) - Y (or n_D) geomagnetic field component.
Data absence sign (8888)

(40+2N) ÷ (39 + 3N) - Z (or n_Z) geomagnetic field component.
Data absence sign (8888)

Then 9999,.....,9999,..... to the end of the array

APPENDIX 2: A sequential list of arrays X,Y,Z and n_H, n_D, n_Z for one station (digits with numbers 1-3041).

APPENDIX 3: A list of these arrays with editing.

3. SEQUENCE OF OBTAINING GEOMAGNETIC DATA

For each station the computation has been performed of values n_H, n_D, n_Z - ordinates H,D,Z in nT and values X,Y,Z - absolute values of geomagnetic field components in the geomagnetic dipole coordinate system. X,Y,Z were computed by formulae

$$X = H \cos (D-\Psi) = (H_o + n_H) \cos [(D_o + n_D) - \Psi]$$

$$Y = H \sin (D-\Psi) = (H_o + n_H) \sin [(D_o + n_D) - \Psi]$$

$$Z = n_Z + Z_o \quad , \qquad \text{where}$$

n_H, n_D, n_Z are the ordinates of geomagnetic field components H, D, Z. H_o, D_o, Z_o - the level of geomagnetic field components for the epoch of 1975 year. Time resolution - 1 min.

Data on the magnetic tape are arranged as follows:

Name of station and its number	Geomagnetic coordinates (in degrees)		Dates							
			28.01.83 (4-11)UT		29.01.83(5-14)UT		25.03.83(5-14)UT		26.03.83(0-6)UT	
	Φ	Λ_E	File number							
			n_H, n_D, n_Z,	XYZ	n_H, n_D, n_Z,	XYZ	n_H, n_D, n_Z,	XYZ	n_H, n_D, n_Z,	XYZ
1. Golomyanny	68.9	171.3	1	35	9	43	17	51	26	60
2. Isachenko	66.3	169.2	2	36	10	44	18	52	27	61
3. Sterlegovo	64.5	168.2	3	37	11	45	19	53	28	62
4. Ust-Tareya	62.4	168.4	4	38	12	46	20	54	29	63
5. Kresty	60.0	167.4	5	39	13	47	21	55	30	64
6. Norilsk	58.2	165.6	6	40	14	48	22	56	31	65
7. Igarka	56.9	164.0	7	41	15	49	23	57	32	66
8. Turukhansk	55.0	165.2	-	missing	data	-	24	58	33	67
9. Irkutsk	41.1.	175.9	8	42	16	50	25	59	34	68

Data set Mnemonic: 1. Golomyanny - ZARGO, 2. Isachenko - ZARIS, 3. Sterlegovo - ZARST, 4. Ust-Tareya - ZARUT, 5. Kresty - ZARKR, 6. Norilsk- ZARNOR, 7. Igarka - ZARIG, 8. Turukhansk -ZARTUR, 9. Irkutsk- ZARIRK (ZMLIRK)

USSR, 664033 Irkutsk
P.O.Box 4, SibIZMIR

Ms Leah Gatewood

CDAW-8
Code 633
NASA, Goddard Space Flight Center
Greenbelt, MD 20771
USA

14 July,1986

Dear Ms Gatewood,

Enclosed in the filled-in Questionnaire in accordance with the First Announcement and Invitation to participate in CDAW-8.

The Magnetic Tape Data with the supplemeted information is sent to Your address through WDC-B2 in the nearest future.

Sincerely yours,

V.Mishin

COORDINATED DATA BASE 8 (CDB-8) QUESTIONNAIRE

(PLEASE RETURN BY MARCH 10, 1986)

NAME: Dr. V. M. Mishin TELEPHONE: _____

ADDRESS: USSR, 664033 Irkutsk, P.O.Box 4
SibIZMIR

TELEX (Carrier, Number, Answer Back): _____

TELENET ADDRESS: _____

SPAN ADDRESS (Node Name::Account Name): _____

TELEMAIL: _____

1. I wish to participate: Yes x No ____

2. If no, do you wish to remain on the distribution list? Yes ____ No ____

3. The area of interest with which I would logically affiliate is (denote first and second choices):

1 x 1. Solar Wind	1 x 4. Plasma	1 x 7. Model/Theory
1 x 2. Magnetic Field	- 5. Waves	___ 8. Other no
1 x 3. Electric Field	1 x 6. Particles	

4. It is highly desirable for NSSDC to receive data by March 24. Please note that NSSDC will assist in averaging, coordinate transformations, etc; the important step is to send the data with documentation now. I can send my data to NSSDC by July 1986 (date). The data will be submitted on tape yes, or electronically using the _____ network.

5. The CDAW 8 Planning Committee has selected the following intervals for study. Please indicate, next to each time interval, the time periods for which you will supply data.

Event	Time Interval	I will supply data for the time interval:
A	28 Jan. 1983 0400-1100 UT	x
B	25 Mar. 1983 0500-1400 UT	x
C	26 Mar. 1983 0000-0600 UT	x
D	29 Jan. 1983 0500-1400 UT	x
E	4 June 1983 0500-1000 UT	
F	27-28 June 1983 1500-0300 UT	

6. I will follow the attached CDB Guidelines in submitting the following data sets:

IDENTIFICATION Spacecraft/ Ground Station	EXPERIMENT IDENTIFICATION	PRINCIPAL INVESTIGATOR	NO. OF PARAM-EMETERS FOR CDB	TOTAL DATA POINTS FOR CDB	Used Previously in CDAW No. 6 (is format identical?)
ZARGO, ZARIS,		Mishin	3		yes
ZARST, ZARUT,					
ZARKR, ZARNOR, ZARIG, ZARTUR, ZARIRK					

7. Data Averaging: In consideration of the size of the resulting database and to ensure that all data can be loaded, it is suggested that the maximum (highest) time resolution be 1-minute data, and higher resolution data be loaded where appropriate. NSSDC would prefer to receive your data with the time resolution that you normally have or use and will perform averages to your specifications. (See enclosed Guidelines page 1, with particular references to items 3, 4, and 6.)

____ I will want NSSDC to perform time averaging and will enclose my specifications with the data.

x I want my data set(s) to be loaded without any averaging; if so, my basic time resolution is 1 min .

8. Data Manipulation: If you wish to have special data manipulation functions or subroutines added to the system that are extensive and may be impractical to construct in real time, these should be received as soon as possible (preferably in FORTRAN).

I will_____ will not X be submitting data manipulation code for incorporation into the system. These will be sent by_____(date).

9. I suggest that a special effort be made to obtain the following data sets:
Distribution of electric currents in the magnetosphere and ionosphere, distribution of electric potential, ionospheric Joule heating

10. To assist NSSDC in planning support and future development for CDAW-8 please complete this survey:

Remote access via: SPAN ____ TELENET ____ Modem ____ Other_____

Type(s) of terminal available: (e.g., TEKTRONIX 4014, VT100 with graphics board, VT240)

Type of PC/Software Communications Package you might use for access to CDAW system: (e.g., MacIntosh/TEKALIKE,...)

Graphics software available at local node: (e.g., TEMPLATE, NCAR,...)

Other commercial software packages you might use with CDAW data at your local node: (e.g., IDL,...)

11. Please forward copies of the Workshop Announcement to any individual who you feel may be interested and ask them to submit this Questionnaire to NSSDC by March 10, 1986.

PLEASE RETURN THIS QUESTIONNAIRE TO:

Ms. Leah Gatewood
CDAW 8
Code 633
NASA Goddard Space Flight Center
Greenbelt, Maryland 20771
U.S.A.

Telephone: (301) 344-6818 FTS: 344-6818
SPAN Address: NSSDC::GATEWOOD TELEX: 89675 NSCOM GBLT

National Aeronautics and Space Administration

CDB TAPE DOCUMENTATION FORM

SECTION I. DATA SET DESCRIPTION (Please print.)

1. Spacecraft/Ground Station(s)	2. Experiment Name	3. Data Set Name Magn. Field Variations
4. Scientific Contact	5. Telephone/Telex No.	6. SPAN/TELENET Address
7. Address USSR, Irkutsk-33 ,P.Box 4		
8. City Irkutsk	9. State	10. Zip Code or Country USSR
11. Programmer Contact	12. Telephone/Telex No.	13. SPAN/TELENET Address

SECTION II. TAPE DESCRIPTION

1. External Physical Label
1 min magnetometer Data -CDAW-8

2. No. of Tapes Submitted: 1

3. Tape Density: [X] 800 bpi [ ] 1600 bpi [ ] 6250 bpi

4. No. of Files (per tape): 68

5. No. of File Marks Between Files: TM

6. After Last File? TM TM

7. No. of Tracks: [ ] 7 [X] 9

8. Recording Parity:

9. Make and Model of Computer Used to Generate Tape: M 4030 DOS ASVT

10. Tapes are written in: [X] binary [ ] ASCII [ ] EBCDIC [ ] Combination as shown [ ] Other; Specify _____

11. If binary, what floating point representation is used? (e.g., CDC 64 bit, or IBM 3081 32 bit)

12. If binary, what integer representation is used? (e.g., 32 bit, 2's complement)
32 bits

13. No. of Physical Records (per file)
1024 bytes

14. Are original tapes to be returned? [ ] Yes [X] No

15. Start and Stop Time of Each File (If more space is needed, please attach.)
Identification block (12 bytes) TM

SECTION III. LOGICAL AND PHYSICAL RECORD FORMAT (Please attach.)

SECTION IV. TO BE FILLED IN BY NSSDC ONLY

	CDB No.
Date Received	Tape No.
Programmer ID	CON Name
Data Base	Date Loaded

National Aeronautics and Space Administration

CDB DOCUMENTATION FORM for ELECTRONIC SUBMISSION

SECTION I. DAT SET and CONTACT INFORMATION

1. Spacecraft/Ground Stations	2. Experiment Name	3. Data Set Name
4. Scientific Contact	5. Telephone/Telex No.	6. SPAN/TELENET Address
7. Address USSR, Irkutsk-33, P. Box 4		
8. City Irkutsk	9. State	10. Zip Code or Country USSR
11. Programmer Contact	12. Telephone/Telex No.	13. SPAN/TELENET Address

SECTION II. DATA FILE(s) DESCRIPTION

1. No. of Data Files

2. Full Data File Name(node::device:[directory]file_name.type:version)	3. Size(no. of 512 blocks)
A. File NN 1-8, 35-42	A.
B. NN 17-25, 51-59	B.
C. nn 9-16, 43-50	C.
D.	D.
E.	E.
F.	F.

4. Start and Stop Time of Each Data File
   - A. Identification block TM
   - B. – " –
   - C.
   - D. – " –
   - E.
   - F.

5. Make and Model of Computer Used to Generate Data File(s)
   M 4030 DOS ASVT

6. Data are:
   - [X] binary
   - [ ] ASCII
   - [ ] EBSDIC
   - [ ] combination as shown
   - [ ] other; specify _____

7. If binary, what floating point representation is used?
   (e.g., CDC 64 bit, or IBM 3081 32 bit standard VAX, ...) 32 bits

8. If binary, what integer representation is use?
   (e.g., 32 bit, 2's complement standard VAX, ...)

SECTION III. DOCUMENTATION FILE DESCRIPTION

1. Full File Name(node::device:[directory]file_name.type:version)	2. Size(no. of 512 blocks)

3. Representation:
   - [ ] ASCII
   - [ ] EBCDIC
   - [ ] Other, specify _____

SECTION IV. TO BE FILLED IN BY NSSDC ONLY

	CDB No.
Date Received	Tape No.
Programmer ID	CN Name
Data Base	Date Loaded

```
BLOCK  CHAR.
00001  00001  E5D6D3F1F0F0F0F0F0F0  F0404040404040404040  4040404040404040404040  4040404040404040404040  40F0F0F0F0F0F0F0F0F0
       00051  F0404040404040404040  4040404040404040404040  4040404040404040404040
00002  00001  C8C4D9F14040404040  4040404040404040404040  40F0F0F0F0F0F0F0F0F0  F1F0F0F0F1F0F0F0F1F0  F140F8F6F1F7F740F0F0
       00051  F0F0F0F0404040404040  4040404040404040404040  4040404040404040404040
TAPE MARK
00004  00001  0000000100002F844040  4040
00005  00001  0000051300000010000  0064000446770001869F  0000000400000000A0000  0007000000280000001CC  0000037000000000040000
       00051  0005000000060000000 7  0000000800000009 0000  000A0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F
       00101  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000003C000001A40000
       00151  270F0000270F0000270F  0000010B0000010B0000  010B0000010B0000010B  0000010A0000010B0000  010B0000010B0000010B
       00201  0000010900000109 0000  010A0000010A0000010A  0000010A0000010700000  0105000001030000010 3  0000010200000102 0000
       00251  0103000001030000104  0000010400000105 0000  0104000001040000104  0000010400000103 0000  0103000001030000104
       00301  0000010500000104 0000  0103000001010000100  0000010100000101 0000  0102000001020000101  0000010000000100 0000
       00351  0100000001000000 0FE  000000FC000000FC0000  00FC000000FD000000FD  000000FE000001000000  00FF000000FE000000FD
       00401  000000FD000000FD0000  00FD000000FD000000FF  0000010100000100 0000  0100000001000000100  000000FF000000FF0000
       00451  00FF000000FF000000FF  000000FF000000FF0000  00FF000000FF000000FF  000000FF000000FF0000  0100000001000000100
       00501  0000010000000100 0000  0100000000FF000000FE  000000FE000000FE0000  00FD000000FD000000FD  000000FE000000FE0000
       00551  00FF000001000000100  0000010000000103 0000  0104000001030000103  0000010400000105 0000  0106000001070000107
       00601  0000010600000104 0000  0101000001010000101  0000010100000101 0000  0100000001000000 0FE  0000 FD000000FE0000
       00651  00FE000000FE000000FE  000000FE000000FE0000  00FE000000FF000000FF  000000FE000000FF0000  00FF000000FF000000FE
       00701  000000FE000000FE0000  00FD000000FD000000FD  000000FC000000FC0000  00FB000000F9000000F9  000000FA000000FA0000
       00751  00FB000000FD000000FF  000000FD000000FC0000  00FC000000FF00000101  0000010000000000FF0000  00FF000000FE000000FE
       00801  000000FD000000FA0000  00F4000000F0000000F1  000000F5000000F90000  00FB000000F8000000EF  000000E7000000E80000
       00851  00E9000000E7000000E8  000000E7000000E60000  00E9000000ED000000F0  000000EC000000E40000  00E1000000E6000000EC
       00901  000000EC000000E70000  00E4000000E6000000EB  000000ED000000EA0000  00E5000000E2000000E4  000000EC000000F30000
       00951  00F4000000EC000000E7  000000E3000000E00000  00E4000000E7000000E8  000000EC000000EF0000  00ED000000ED000000EE
       01001  000000EB000000E90000  00EC000000ED000000EF  000000EF
PAGE: 00002                OPTION: 0   INPUT TAPE: SYMBOLIC-SYS001,MNEMONIC-03   FORMAT: HEXADECIMAL          09:16:12    07/03/86

BLOCK  CHAR.
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       00051  00FA000000FB000000FB  000000F8000000F60000  00F5000000F7000000F8  000000FA000000FA0000  00F9000000FA000000FC
       00101  000000FD000000FC0000  00FB000000FB000000FB  000000FE000001010000  00FE000000F8000000F1  000000EE000000F10000
       00151  00F6000000F8000000F5  000000F2000000F00000  00F1000000F7000000F9  000000FA000000F80000  00F5000000F0000000EE
       00201  000000F0000000F20000  00F4000000F6000000F4  000000F3000000F30000  00F3000000F3000000F4  000000F6000000F80000
       00251  00F9000000F6000000F4  000000F4000000F40000  00F4000000F6000000F8  000000F9000000F90000  00F7000000F6000000F7
       00301  000000F7000000F50000  00F4000000F4000000F2  000000F2000000F10000  00EC000000E9000000EB  000000EF000000F20000
       00351  00F5000000F7000000F7  000000F4000000F20000  00F2000000F2000000F2  000000F2000000F20000  00F4000000F6000000F5
       00401  000000F4000000F30000  00F3000000F4000000F5  000000F7000000F60000  00F5000000F6000000F7  000000F8000000F80000
       00451  00F8000000F8000000F8  000000F8000000F90000  00FA000000FA000000FA  000000FA000000FB0000  00FB000000FA000000F9
       00501  000000F9000000FB0000  00FC000000FC000000FB  000000FA000000F80000  00F9000000FA000000FA  000000F9000000F90000
       00551  00F9000000FA000000FA  000000FA000000F90000  00FA000000FA000000F9  000000FA000000FA0000  00FB000000FA000000F8
       00601  000000F7000000F90000  00FA000000FA000000F9  000000F8000000F80000  00F9000000F9000000F9  000000F9000000F90000
       00651  00F9000000F9000000F9  000000FA000000FB0000  00FC000000FD000000FC  000000FB000000F90000  00F9000000FA000000FA
              [illegible]  00F9000000F9000000FB  000000FC000000FC0000  00FB000000FB000000FB  000000FB000000FB0000
```

```
        00901  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270  270F0000270F0000270F  000027 F0000270F0000
        00951  0F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
        01001  0000270F0000270F0000  270F0000270F0000270F  0000270F
00013   00001  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
        00051  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
        00101  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
        00151  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
        00201  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
        00251  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
        00301  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
        00351  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
        00401  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
        00451  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
        00501  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
        00551  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
        00601  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
        00651  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
        00701  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
PAGE: 00008                OPTION: 0   INPUT TAPE: SYMBOLIC-SYS001,MNEMONIC-03   FORMAT: HEXADECIMAL                 09:16:12    07/03/86

BLOCK   CHAR.
        00751  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
        00801  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
        00851  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
        00901  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
        00951  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
        01001  0000270F0000270F0000  270F0000270F0000270F  0000270F
00014   00001  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
        00051  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
        00101  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
        00151  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
        00201  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
        00251  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
        00301  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
        00351  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
        00401  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
        00451  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
        00501  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
        00551  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
        00601  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
        00651  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
        00701  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
        00751  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
        00801  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
        00851  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
        00901  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
```

```
00751  00FA000000F9000000F8  000000F8000000F80000  00F8000000F8000000F9  000000FA000000FB0000  00FC000000FC000000FC
00801  000000FC000000FC0000  00FC000000FC000000CE  000000CF000000CF0000  00CF000000CE000000CC  000000CA000000C90000
00851  00CA000000CB000000CE  000000CD000000CE0000  00CE000000CE000000CE  000000C8000000C60000  00C5000000C4000000C5
00901  000000C5000000C50000  00C6000000C6000000C5  000000C6000000C60000  00C6000000C6000000C7  000000C7000000C70000
00951  00C7000000C8000000C7  000000C6000000C60000  00C5000000C5000000C6  000000C7000000C70000  00C8000000C7000000C6
01001  000000C6000000C70000  00C7000000C6000000C5  000000C5
00007  00001  000000C5000000C40000  00C4000000C5000000C6  000000C6000000C60000  00C6000000C5000000C5  000000C6000000C70000
00051  00C6000000C7000000C8  000000C7000000C70000  00C7000000C8000000C7  000000C7000000C70000  00C6000000C7000000C6
00101  000000C6000000C60000  00C6000000C7000000C9  000000CA000000C90000  00C9000000C9000000C8  000000C7000000C80000
00151  00CA000000C9000000C8  000000C8000000C60000  00C6000000C6000000C5  000000C6000000C50000  00C5000000C5000000C5
00201  000000C5000000C50000  00C4000000C3000000C3  000000C4000000C50000  00C6000000C6000000C7  000000C7000000C60000
00251  00C6000000C6000000C7  000000C8000000C90000  00CA000000C8000000C6  000000C6000000C50000  00C5000000C5000000C7
PAGE: 00003          OPTION: 0   INPUT TAPE: SYMBOLIC-SYS001,MNEMONIC-03   FORMAT: HEXADECIMAL   09:16:12   07/03/86

BLOCK  CHAR.
00301  000000C9000000C90000  00C7000000C7000000C6  000000C6000000C60000  00C5000000C5000000C6  000000C6000000C40000
00351  00C4000000C4000000C4  000000C4000000C40000  00C4000000C5000000C8  000000CA000000C80000  00C7000000C5000000C3
00401  000000C1000000C20000  00C4000000C4000000C3  000000C1000000C00000  00BF000000C0000000C1  000000C0000000BE0000
00451  00BC000000BC000000BE  000000C1000000BD0000  00B1000000A5000000A7  000000AF000000AD0000  00A000000990000009A
00501  000000A2000000A20000  009A000000 9A000000A0  000000A2000000990000  009100000097000000A1  000000A9000000AE0000
00551  00AB000000A100000097  000000980000 00A30000  00AA000000A3000000 9C  000000A1000000A80000  00A900000AB000000A7
00601  0000009C000000970000  009900000A2000000A6  000000A6000000A90000  00AD000000AB000000A9  000000AA000000AC0000
00651  00AE000000AD000000AD  000000B1000000B80000  00BE000000C0000000B9  000000B2000000B80000  00C200000C7000000C1
00701  000000B9000000B80000  00B7000000B0000000B0  000000B6000000B90000  00B9000000B8000000B5  000000B8000000B80000
00751  00B1000000AD000000AB  000000AC000000AF0000  00B2000000B6000000B5  000000B2000000AF0000  00AD000000AB000000AA
00801  000000A8000000A90000  00A8000000A5000000A1  0000009F000000A00000  00A2000000A2000000A1  0000009D0000009D0000
00851  009E000000A0000000A1  0000009E000000980000  009500000095000000 93  000000960000009B0000  009F000000 9F0000009F
00901  0000009F000000 9F0000  009E000000 9F000000A2  000000A4000000A60000  00A6000000A6000000A7  000000A8000000A70000
00951  00A9000000AB000000AA  000000A8000000A70000  00A8000000AA000000AA  000000AA000000AA0000  00A700000A6000000A8
01001  000000A8000000A70000  00A8000000AA000000AC  000000AD
00008  00001  000000AE000000AF0000  00B1000000B2000000B1  000000AE000000AB0000  00A8000000AA000000AE  000000B1000000B30000
00051  00B4000000B4000000B2  000000B2000000B20000  00B2000000B3000000B3  000000B5000000B60000  00B700000B9000000B9
00101  000000B9000000BA0000  00BC000000BC000000BB  000000B9000000B70000  00B6000000B7000000B8  000000B9000000BA0000
00151  00BA000000B9000000B7  000000B7000000B80000  00BA000000BA000000BC  000000BD000000BD0000  00BC000000BC000000BC
00201  000000BC000000BD0000  00BD000000BD000000BC  000000BB000000BA0000  00BA000000BB000000BC  000000BC000000BC0000
00251  00BC000000BC000000BD  000000BE000000BF0000  00BF000000BF000000C0  000000C1000000C10000  00C100000C1000000C0
00301  000000BF000000BF0000  00C0000000C0000000BF  000000BF000000BE0000  00BE000000BE000000BF  000000BF000000C00000
00351  00C0000000C1000000C3  000000C4000000C30000  00C1000000C0000000BF  000000BE000000BD0000  00BC000000BB000000BB
00401  000000BD000000BE0000  00C0000000C2000000C4  000000C4000000C30000  00C3000000C2000000C0  000000BF000000BE0000
00451  00B0000000B0000000B0  000000B0000000B00000  00B0000000B0000000B1  000000B1000000B10000  00B100000B1000000B0
00501  000000AF000000AD0000  00AC000000AC000000AC  000000AC000000AC0000  00AC000000AC000000AC  000000AC000000AC0000
00551  00AC000000AC000000AC  000000AC000000AC0000  00AC000000AC000000AC  000000AC000000AC0000  00AC000000AB000000AA
PAGE: 00004          OPTION: 0   INPUT TAPE: SYMBOLIC-SYS001,MNEMONIC-03   FORMAT: HEXADECIMAL   09:16:12   07/03/86

BLOCK  CHAR.
00601  000000A9000000AB0000  00AC000000AC000000AC  000000AC000000AB0000  00AB000000AB000000AB  000000AB000000AB0000
00651  00AB000000AB000000AB  000000AD000000AD0000  00AD000000AC000000AC  000000AB000000AB0000  00AB000000AC000000AC
```

```
        00751   00AA000000AA000000AB  000000AB000000AB0000  00AB000000AA000000A4  000000AA000000AA0000  00AA00 000AA000000A9
        00801   000000A8000000A80000  00A8000000A8000000A8  000000A8000000A0000   00A9000000A9000000AA  000000 A000000AA0000
        00851   00AA000000AA000000AA  000000AA000000A90000  00A9000000AA000000AA  000000AA000000A90000  00A700 000A5000000A4
        00901   000000A4000000A50000  00A5000000A6000000A7  000000A7000000A60000  00A4000000A5000000A6  000000A7000000A80000
        00951   00A8000000A7000000A7  000000A7000000A70000  00A6000000A6000000A6  000000A6000000A60000  00A600 000A7000000A8
        01001   000000A9000000A90000  00A7000000A6000000A6  000000A5
00009   00001   000000A6000000AA0000  00AC000000AC000000AB  000000A8000000A60000  00A7000000A8000000A9  000000 8000000A60000
        00051   00A5000000A5000000A5  000000A5000000A50000  00A5000000A3000000A3  000000A6000000A80000  00AE00 000AC000000A8
        00101   000000A5000000A50000  00A6000000A7000000A7  000000AA000000AD0000  00AE000000AA000000A8  000000 7000000A40000
        00151   00A3000000A2000000A3  000000A6000000A80000  00A7000000A3000000A1  000000A4000000A70000  00A800 000A9000000A7
        00201   000000A2000000A40000  00A8000000A8000000A5  000000A4000000A40000  00A6000000A8000000A8  000000 6000000A40000
        00251   00A3000000A3000000A3  000000A00000009E0000  009D0000009E0000009F  0000009F000000A00000  00A100 0009F0000009C
        00301   0000009800000095000 0  00980000009D0000009D  0000009C0000009B0000  009B0000009A00000096  000000970000009C0000
        00351   009E0000009D0000009F  000000A0000000A00000  00A1000000A000000009E  0000009F000000A00000  00A200 000A4000000A5
        00401   000000A5000000A30000  00A2000000A3000000A2  000000A00000009F0000  00A100000A6000000AA  000000 C000000AC0000
        00451   00AB000000AA000000AB  000000AB000000AB0000  00AC000000AB000000A9  000000A5000000A40000  00A400 000A5000000A6
        00501   000000A4000000A30000  00A3000000A1000000A1  000000A00000009F0000  009F0000009F0000009E  0000009C0000009C0000
        00551   009C0000009D0000009D  0000009F0000009F0000  009F0000009D0000009D  0000009D0000009E0000  009F00 0009F0000009F
        00601   0000009F0000009F0000  009E0000009D0000009C  0000009D000000A10000  00A500000A7000000A8  000000 8000000A80000
        00651   00A6000000A5000000A5  000000A4000000A40000  00A5000000A6000000A8  000000A9000000AB0000  00AC00 000AC000000AC
        00701   000000AC000000AC0000  00AC000000AC000000AC  000000AD000000AE0000  00AE000000AE000000AE  000000 E000000AE0000
        00751   00AE000000AF000000AF  000000B0000000B00000  00B0000000B0000000B0  000000B0000000B10000  00B300 000B4000000B4
        00801   000000B4000000B20000  00B1000000B1000000B3  000000B3000000B30000  00B3000000B2000000B2  000000B3000000B30000
        00851   00B3000000B4000000B4  000000B4000000B40000  00B4000000B4000000B4  000000B2000000B10000  00B200 000B3000000B3
PAGE: 00005                 OPTION: 0   INPUT TAPE: SYMBOLIC-SYS001,MNEMONIC-03  FORMAT: HEXADECIMAL                09:16:12    07/03/86

BLOCK   CHAR.
        00901   000000B2000000B20000  00B2000000B2000000B2  000000B1000000B10000  00B1000000B2000000B2  000000 2000000B30000
        00951   00B3000000B4000000B4  000000B4000000B40000  00B3000000B3000000B4  000000B5000000B50000  00B500 000B500000B5
        01001   000000B5000000B60000  00B6000000B6000000B5  000000B5
00010   00001   000000B5000000B50000  00B5000000B4000000B2  000000B1000000B10000  00B1000000B1000000B1  000000 2000000B20000
        00051   00B3000000B3000000B4  000000B4000000B50000  00B6000000B7000000B8  0000270F0000270F0000  270F00 0270F0000270F
        00101   0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
        00151   270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
        00201   0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
        00251   270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
        00301   0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
        00351   270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
        00401   0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
        00451   270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
        00501   0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
        00551   270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
        00601   0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
        00651   270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
        00701   0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
        00751   270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
        00801   [illegible]  270F[illegible]  [illegible]  270F[illegible]  [illegible]
```

```
        00901  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F
        00951  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000
        01001  0000270F0000270F0000  270F0000270F0000270F  0000270F
00011   00001  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000
        00051  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F
        00101  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000
PAGE: 00006                  OPTION: 0   INPUT TAPE: SYMBOLIC-SYS001,MNEMONIC-03   FORMAT: HEXADECIMAL                09:16:12    07/03/86

BLOCK   CHAR.
        00151  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F
        00201  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000
        00251  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F
        00301  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000
        00351  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F
        00401  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000
        00451  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F
        00501  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000
        00551  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F
        00601  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000
        00651  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F
        00701  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000
        00751  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F
        00801  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000
        00851  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F
        00901  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000
        00951  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F
        01001  0000270F0000270F0000  270F0000270F0000270F  0000270F
00012   00001  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000
        00051  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F
        00101  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000
        00151  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F
        00201  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000
        00251  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F
        00301  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000
        00351  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F
        00401  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000
PAGE: 00007                  OPTION: 0   INPUT TAPE: SYMBOLIC-SYS001,MNEMONIC-03   FORMAT: HEXADECIMAL                09:16:12    07/03/86

BLOCK   CHAR.
        00451  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F
        00501  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000
        00551  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F
        00601  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000
        00651  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F
        00701  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000
        00751  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F
        00801  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000
```

```
00015  00001  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
       00051  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
       00101  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
       00151  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
       00201  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
       00251  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
       00301  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
       00351  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
       00401  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
       00451  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
       00501  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
       00551  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
       00601  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
       00651  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
       00701  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
       00751  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
       00801  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
       00851  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
       00901  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
       00951  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
       01001  0000270F0000270F0000  270F0000270F0000270F  0000270F
00016  00001  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
       00051  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
       00101  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
       00151  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
       00201  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
       00251  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
PAGE: 00010                 OPTION: 0   INPUT TAPE: SYMBOLIC-SYS001,MNEMONIC-03   FORMAT: HEXADECIMAL                 09:16:12    07/03/86

BLOCK  CHAR.
       00301  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
       00351  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
       00401  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
       00451  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
       00501  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
       00551  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
       00601  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
       00651  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
       00701  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
       00751  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
       00801  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  000027 F0000270F0000
       00851  270F0000270F0000270F  0000270F0000270F0000  270F0000270F0000270F  0000270F0000270F0000  270F00 0270F0000270F
TAPE MARK
```

APPENDIX 2

X, Y, Z (nT)

420	9999	9999	9999	9999	9999	9999	9999	9999	9999	9999
2640	2639	2638	2638	2639	2638	26	2638	2639	2639	60
2640	2640	2640	2640	2638	2638	2638	2638	2639	2640	2641
2639	2639	2639	2640	2640	2641	2641	2640	2640	2641	2641
2637	2638	2638	2637	2641	2640	2639	2639	2640	2640	2639
2637	2637	2636	2636	2637	2637	2635	2635	2638	2638	2638
2637	2637	2636	2636	2636	2636	2635	2636	2636	2637	2637
2636	2635	2635	2635	2636	2636	2637	2635	2637	2637	2637
2634	2635	2635	2636	2636	2636	2636	2637	2636	2637	2637
2641	2643	2643	2643	2637	2637	2636	2639	2633	2634	2634
2638	2637	2635	2634	2636	2638	2638	2639	2639	2641	2641
2635	2636	2636	2636	2643	2642	2641	2639	2638	2642	2638
2637	2636	2636	2636	2634	2636	2636	2637	2637	2638	2638
2639	2640	2640	2635	2637	2637	2637	2637	2636	2636	2636
2635	2638	2639	2639	2634	2635	2632	2636	2636	2637	2634
2654	2650	2652	2638	2639	2640	2641	2634	2636	2636	2637
2639	2644	2654	2660	2639	2643	2646	2641	2638	2634	2637
2639	2640	2651	2659	2658	2649	2644	2640	2640	2651	2633
2646	2645	2645	2657	2655	2645	2640	2645	2665	2660	2655
2632	2627	2632	2645	2656	2652	2651	2651	2661	2649	2641
2646	2645	2644	2642	2646	2644	2650	2648	2658	2647	2643
2654	2652	2648	2649	2644	2646	2638	2645	2645	2644	2645
2661	2662	2664	2648	2654	2657	2651	2633	2642	2648	2642
2666	2662	2659	2662	2650	2653	2655	2650	2643	2642	2643
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9999

X, Y, Z (nT

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2927	2930	2923	2932	2926	2923	2922	2917	2912	2910	2913	2922	2926	2926	2927	2931	2927	2925
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		2943	2944	2946	2946	2946	2948	2947	2943								
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UT= 10	MEAN=		Y==>														
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58272	58272	58272	58272	58272	58272	58272	58272	58272	58272	58272	58272	58272	58272	58272	58272	58272	58272
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				58273	58273	58272	58272	58271	58271								
UT= 5	MEAN=		Z==>														
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58267	58265	58269	58269	58269	58270	58270	58270	58270	58270	58270	58270	58269	58269	58270	58270	58270	58269
		58264	58264	58265	58265	58266	58267	58267	58266								
UT= 6	MEAN=		Z==>														
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		58267	58267	58270	58273	58274	58270	58268	58267								
UT= 7	MEAN=		Z==>														
58262	58264	58261	58268	58264	58263	58262	58263	58266	58268	58267	58263	58261	58264	58267	58268	58269	58267
[illegible]	[illegible]	58268	58268	58265	58264	58264	58266	58268	58268	58266	58264	58263	58263	58263	58260	58258	58257

58261	58261	58260	58259	58259	58259	58258	58256	58256	58256	58265	58264	58264	58265	58266	58264	58263	58263
58258	58259	58259	58259	58259	58259	58258	58257	58256	58257	58257	58257	58259	58259	58259	58257	58257	58257
UT= 9	MEA[illegible]	58274	Z==>	58261	58265	58267	58268	58268	58268	[illegible]	58265	58265	58264	58264	58265	58266	58268
58269	5827[illegible]	58272	58272	58272	58272	58272	58272	58272	58272	58273	58274	58274	58274	58274	58274	58274	58274
58275	58275	58276	58276	58276	58276	58276	58276	58277	58279	58280	58280	58280	58278	58277	58277	58279	58279
58279	58279	58278	58278	58279	58279	58279	58280	58280	58280								
UT= 10	MEAN=	58279	Z==>	58280	58280	58280	58280	58278	58277	58278	58279	58279	58278	58278	58278	58278	58278
58277	58277	58277	58278	58278	58278	58279	58279	58280	58280	58280	58280	58279	58279	58280	58281	58281	58281
58281	58281	58281	58282	58282	58282	58281	58281	58281	58281	58281	58280	58278	58277	58277	58277	58277	58277
58278	58278	58279	58279	58280	58280	58281	58282	58283	58284								

APPENDIX 3

n_H, n_D, n_Z (n

STATION=1 0185TH=4 TK=10 OUTPUT STEP= 1.00

UT= 4	MEAN=	260	NH==>	267	267	267	267	267	266	26	264	264	264	265	265	266	266
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259	259	260	261	260	259	257	256	257	257	258	258	257	256	256	256	256	254
252	252	252	253	253	254	256	255	254	253								
UT= 5	MEAN=	256	NH==>	253	253	253	253	255	257	256	256	256	256	255	255	255	255
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253	253	253	254	254	255	256	256	256	259	260	259	259	260	261	262	263	263
262	260	257	257	257	257	257	256	256	254								
UT= 6	MEAN=	249	NH==>	253	254	254	254	254	254	254	254	255	255	254	255	255	255
254	254	254	253	253	253	252	252	251	249	249	250	250	251	253	255	253	252
252	255	257	256	255	255	254	254	253	250	244	240	241	245	249	251	248	239
231	232	233	231	232	231	230	233	237	240								
UT= 7	MEAN=	239	NH==>	236	228	225	230	236	236	231	228	230	235	237	234	229	226
228	236	243	244	236	231	227	224	228	231	232	236	239	237	237	238	235	233
236	237	239	239	240	240	240	241	243	248	249	247	243	241	242	247	250	251
251	248	246	245	247	248	250	250	249	250								
UT= 8	MEAN=	245	NH==>	252	253	252	251	251	251	254	257	254	248	241	238	241	246
248	245	242	240	241	247	249	250	248	245	240	238	240	242	244	246	244	243
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247	247	245	244	244	242	242	241	236	233								
UT= 9	MEAN=	247	NH==>	235	239	242	245	247	247	244	242	242	242	242	242	242	244
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UT= 4	MEAN=	200	ND==>	206	207	207	207	206	204	202	201	202	203	204	205	206	206
206	206	203	198	197	196	197	197	197	198	198	197	198	198	198	198	199	199
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197	197	197	196	196	197	198	198	198	198								
UT= 5	MEAN=	199	ND==>	197	197	198	199	198	199	200	199	199	199	200	199	199	199
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UT= 6	MEAN=	190	ND==>	200	198	198	197	197	197	199	201	201	199	199	198	198	198
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193	194	196	196	195	193	192	191	192	193	192	190	188	188	190	193	189	177
165	167	175	173	160	153	154	162	162	154								
UT= 7	MEAN=	172	ND==>	154	160	162	153	145	151	161	169	174	171	161	151	152	163
170	163	156	161	168	169	171	167	156	151	153	162	166	166	169	173	171	169
170	172	174	173	173	177	184	190	192	185	178	184	194	199	193	185	184	183
176	176	182	185	185	184	181	184	184	177								
UT= 8	MEAN=	165	ND==>	173	171	172	175	178	182	181	178	175	173	171	170	168	169
168	165	161	159	160	162	162	161	157	157	158	160	161	158	152	149	149	147
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171	170	168	167	168	170	170	170	170	167								
UT= 9	MEAN=	180	ND==>	166	168	168	167	168	170	172	173	174	175	177	178	177	174
171	168	170	174	177	179	180	180	178	178	178	178	179	179	181	182	183	185
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186	186	188	189	189	188	188	188	188	189								
UT= 10	MEAN=	191	ND==>	189	189	188	187	186	186	187	188	188	188	188	188	189	190
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192	194	196	196	195	195	194	192	191	190								
UT= 4	MEAN=	173	NZ==>	176	176	176	176	176	176	176	177	177	177	177	177	176	175
173	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
172	172	172	172	171	170	169	171	172	172	172	172	171	171	171	171	171	171
171	171	171	173	173	173	172	172	171	171								
UT= 5	MEAN=	169	NZ==>	171	172	172	172	172	172	172	172	172	172	172	172	171	171
171	170	170	171	171	171	171	170	170	170	170	170	170	169	168	168	168	168
168	168	169	169	169	170	170	170	170	170	170	170	169	169	170	170	170	169
167	165	164	164	165	165	166	167	167	166								
UT= 6	MEAN=	167	NZ==>	164	165	166	167	168	168	167	167	167	167	166	166	166	166
166	166	167	168	169	169	167	166	166	165	166	170	172	172	171	168	166	167
168	169	168	166	165	165	165	165	165	165	163	163	166	171	174	172	168	165
165	166	167	167	170	173	174	170	168	167								
UT= 7	MEAN=	161	NZ==>	164	163	162	163	166	168	167	163	161	164	167	168	169	167

156	158	157	159	160	160	161	160	158	159	[illegible]	[illegible]	[illegible]	[illegible]	153	154	150	151
UI= 8	MEAN=	162	NZ==>	160	162	164	165	165	163	[illegible]	163	162	160	159	161	166	170
172	172	171	170	171	171	171	172	171	169	[illegible]	164	164	165	166	164	163	163
161	161	160	159	159	159	158	156	156	156	157	157	159	159	159	157	157	157
158	159	159	159	159	159	158	157	156	157								
UI= 9	MEAN=	174	NZ==>	161	165	167	168	168	168	166	165	165	164	164	165	166	168
169	171	172	172	172	172	172	172	172	172	173	174	174	174	174	174	174	174
175	175	176	176	176	176	176	176	177	179	180	180	180	178	177	177	179	179
179	179	178	178	179	179	179	180	180	180								
UI= 10	MEAN=	179	NZ==>	180	180	180	180	178	177	178	179	179	178	178	178	178	178
177	177	177	178	178	178	179	179	180	180	180	180	179	179	180	181	181	181
181	181	181	182	182	182	181	181	181	181	181	180	178	177	177	177	177	177
178	178	179	179	180	180	181	182	183	184								

DUMP OF TAPE GAIL

D74057

```
INPUT TAPE  GAIL    ON  TA1
DATA INPUT    H9 NF 60 SR 1 1 1 SR 10 1 1 SR 30 1 1 SR 60 1 1

 FILE      1  RECORD       1  LENGTH       80BYTES
 (      0)   E5D6D3F1  F0F0F0F0  F0F0F040  40404040  40404040  40404040  40404040  40404040  40404040  40404040
 (     40)   40F0F0F0  F0F0F0F0  F0F0F040  40404040  40404040  40404040  40404040  40404040  40404040  40404040

        FILE   INPUT    DATA RECORDS    MAX.          READ ERROR SUMMARY          INPUT RETRIES
               RECS.       INPUT        SIZE       PERM  ZERO B   SHORT  UNDEF.  #RECS.  TOTAL#
           1       2        2             80         0       0       0       0       0       0

 FILE     10  RECORD       1  LENGTH       18BYTES
 (      0)   00000009  00002F84  40404040  00000000  0000

        FILE   INPUT    DATA RECORDS    MAX.          READ ERROR SUMMARY          INPUT RETRIES
               RECS.       INPUT        SIZE       PERM  ZERO B   SHORT  UNDEF.  #RECS.  TOTAL#
          10      13       13           1024         0       0       0       0       0       0

 FILE     30  RECORD       1  LENGTH       18BYTES
 (      0)   0000001D  00002F84  40404040  00000000  0000

        FILE   INPUT    DATA RECORDS    MAX.          READ ERROR SUMMARY          INPUT RETRIES
               RECS.       INPUT        SIZE       PERM  ZERO B   SHORT  UNDEF.  #RECS.  TOTAL#
          30      13       13           1024         0       0       0       0       0       0

 FILE     60  RECORD       1  LENGTH       18BYTES
 (      0)   0000003B  00002F84  40404040  00000000  0000

        FILE   INPUT    DATA RECORDS    MAX.          READ ERROR SUMMARY          INPUT RETRIES
               RECS.       INPUT        SIZE       PERM  ZERO B   SHORT  UNDEF.  #RECS.  TOTAL#
          60      13       13           1024         0       0       0       0       0       0

 EOJ        DUMP STOPPED AFTER FILE   60        # OF PERMANENT READ ERRORS  0

START TIME 10/15/86  10:21:24        STOP TIME 10/15/86  10:22:01

$$
$ IN HT1 OUT HT0
```