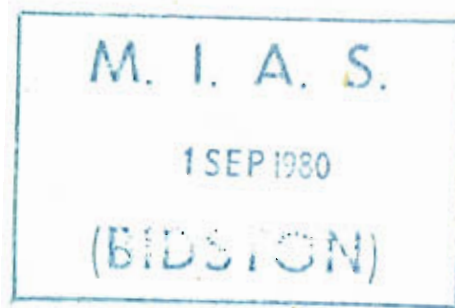


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BATHYMETRIC AND MAGNETIC TRAVERSES IN THE AREA OF
ROCKALL BANK AND KING'S TROUGH:
R. R. S. "DISCOVERY", CRUISE 33, APRIL - MAY 1970

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N.I.O. DATA REPORT, GEOPHYSICS 1
(August 1972)

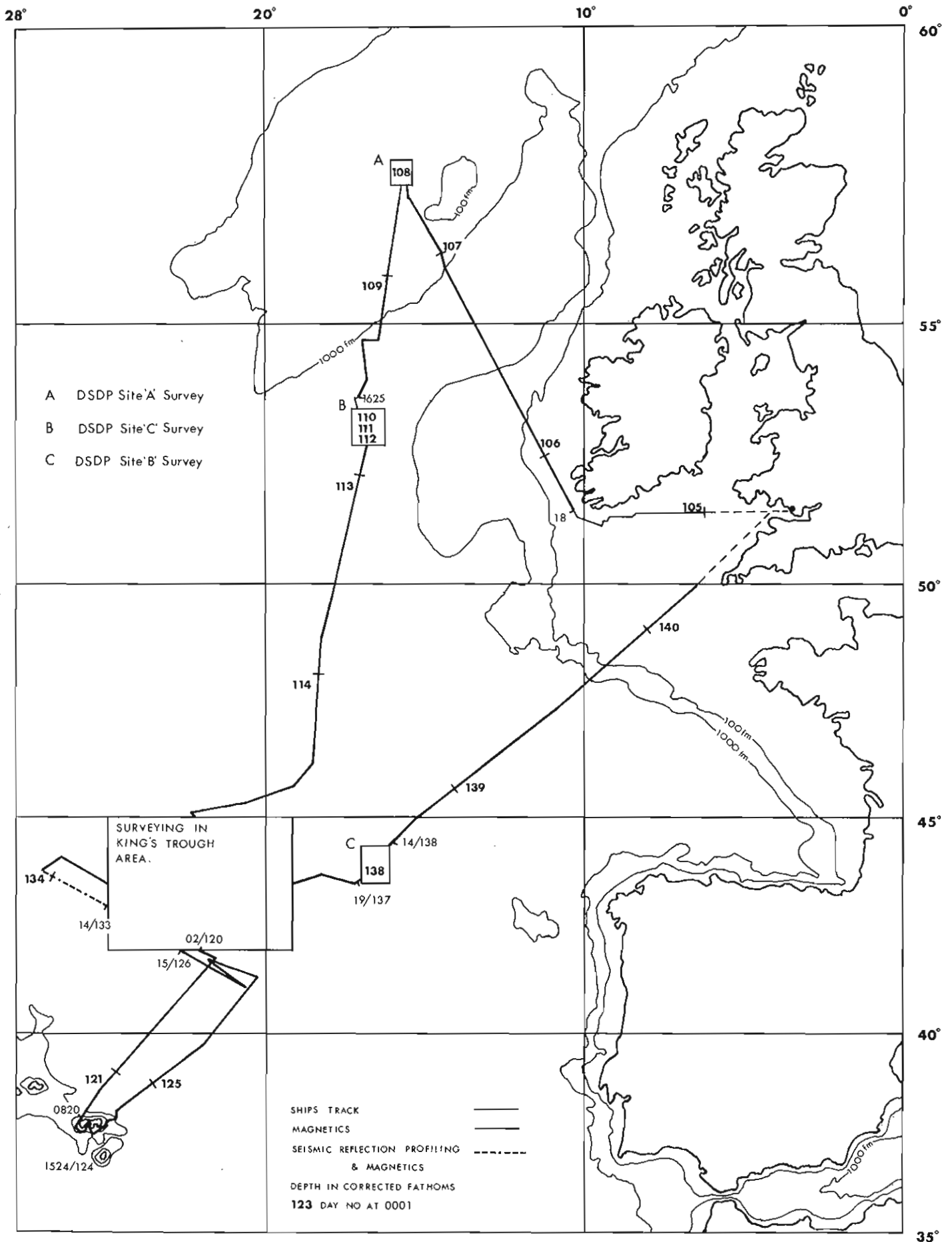
PREFACE

This document represents the first in a series of publications describing geophysical data collected by the Deep Sea Floor Group of the National Institute of Oceanography. The series is intended to provide an efficient means of documenting the data not only for internal use but also for distribution to the scientific community. On citing this report in a bibliography the reference should be followed by the words "UNPUBLISHED MANUSCRIPT" in accordance with accepted bibliographic custom.

The present report contains magnetic and bathymetric data collected during Cruise 33 of R. R. S. Discovery in April - May 1970. The profiles, tables and 1:1,000,000 track charts were all generated automatically from data files stored on disk by the IBM 1800 computer installed on board R. R. S. Discovery. A description is included of the methods used in the acquisition and preparation of the data.

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R.R.S. DISCOVERY CRUISE 33 1970

CRUISE OBJECTIVES

The two major objectives of Cruise 33 were (a) to examine the geology and geophysics around King's Trough and (b) to conduct detailed seismic reflection surveys of three selected sites for use in the subsequent drilling programme of Leg 12 of the U. S. Deep Sea Drilling Project (D. S. D. P.)

The southeast end of King's Trough (Peake and Freen Deeps) was studied in detail in Cruise 4 and 11 of R. R. S. Discovery in 1965 and 1966. The results of this work (Matthews *et al.*, 1969) were not conclusive about the origin of King's Trough. The major part of Cruise 33 was concerned, therefore, with obtaining more geological and geophysical data about King's Trough and its relationship to sea floor spreading occurring to the west on the mid-Atlantic Ridge.

Four main approaches were made to this problem:-

(a) Magnetic survey lines were run parallel to the Trough both north and south of it, and linked with other magnetic data available to provide continuous anomaly profiles from the mid-Atlantic Ridge median valley eastwards. Sufficient lines were made to establish lineation or otherwise of the magnetic anomaly pattern north and south of the Trough, and to determine whether King's Trough originated as a transform fault during a limited period of sea floor spreading.

(b) Two long seismic reflection profiles were made either side of the Trough to determine any contrasts in sedimentary history.

(c) A geophysical traverse across King's Trough towards its NW end was planned to determine tectonic movements and crustal structure. Seismic refraction profiles across this traverse were made using bottom seismic recording equipment. Seismic reflection profiles were also made along the traverse. Unfortunately a gravimeter was not available for this cruise, although a gravity traverse was obtained later in 1970 by a ship of the Hydrographic Department.

(d) Dredging and photography of the cliffs of the Trough and its associated ridges were planned to date the oldest sediments available and to obtain samples of the basement rocks.

During June to August 1970 the D. V. Glomar Challenger (D. S. D. P. Leg 12)

drilled several holes into the deep sea sediments of the NE Atlantic at sites suggested by U. S. , U. K. and French scientists. Preliminary sites were chosen on the basis of data collected over several years in the areas of Rockall, the Bay of Biscay and King's Trough. More detailed seismic reflection surveys were made at three of these sites on Cruise 33 in order to guide the choice of the exact hole position and to provide supplementary information. The following three sites were surveyed:-

Site A in the Hatton-Rockall Basin

Site B in Rockall Trough

Site C on the Azores-Biscay Rise

Only Site A was subsequently drilled.

A report on the cruise appears in N. I. O. Cruise Report No. 33 issued March, 1971.

INSTRUMENTATION

Magnetics: A Varian proton magnetometer, towed 500 feet astern of the ship was operated continuously on passages and during seismic reflection profile runs, as well as during the special magnetic surveys around King's Trough. The data was recorded in analogue form on a chart recorder and was also logged and stored in a digital form by the onboard computer as two minute values averaged over a period of 30 seconds (i. e. 5 six second readings). Some 497 hours of magnetic recording was obtained during the cruise covering a total distance of 5160 nautical miles. A comparison of the magnetic data stored on disk with the magnetometer's chart record showed about 2% of the stored values to be in error. These errors were probably caused by a loose earth connection on the computer interface and were reduced to negligible proportions once this fault had been rectified. The erroneous data was subsequently corrected during the editing of the data files. No corrections were made for either daily variation or the effect of the ship's heading.

Bathymetry: An N. I. O. Mark II Precision Echo Sounder operating with a towed transducer at 10 kHz was used to record bathymetry on a Mufax display at an assumed sound velocity of 800 fms/sec. It was operated continuously during the cruise and, except when the ship was on station or the sea bottom was flat, the records were manually digitized at five minute intervals as well as at significant peaks and troughs. This data was manually entered into the computer system for reduction and storage.

NAVIGATION

The following navigational aids were used:-

- (a) Satellite Navigation System using a Magnavox C/A 702 receiver working in conjunction with the shipboard IBM 1800 computer.
- (b) Loran 'C' using a Decca Loran ADL21 receiver in the Rockall area up to 19th April (109) when the receiver power supply failed and was not repairable on board.
- (c) Decca SW British Chain when in range.
- (d) Anchored danbuoys with radar transponders (Decca-Alpine).

The shipboard computer was used throughout to control the navigation and regular checks were made on its performance using manually prepared bridge plots. Throughout the cruise satellite navigation was used as the prime navaid. Manually entered hyperbolic radio fixes were used as secondary control but these were not taken directly into account in computing the ship's position. The satellite receiver behaved reasonably well at the start of the cruise giving about 17 acceptable fixes per day. However, the number steadily fell during the first leg to about 10 a day, and at the beginning of the second leg to 1 or 2 a day. This deterioration was due in part to faulty subassemblies and in part to high noise level between the receiver and the computer, resulting in spurious interrupts. A rearrangement of the wiring cured this problem and in the last ten days an average of 16 acceptable fixes were obtained daily.

Ship's position was determined from satellite fixes used in conjunction with a dead reckoning derived from the N. I. O. two component electromagnetic log and the ship's gyrocompass. At regular intervals, usually of the order of four hours, the dead reckoning track was automatically adjusted by the computer to agree with the satellite fixes. The difference between the dead reckoning positions and the satellite positions was attributed to a 'current' which was used to compute adjusted values of ship's position at two minute intervals. These values were stored in the reduced data file (GEOF). As the computed 'current' can be considered as the sum of actual ocean current, satellite fix error and e. m. log calibration error, all satellite fixes giving rise to a 'current' of greater than 2 knots were rejected as erroneous. After a track update, the dead reckoning is started from the last accepted satellite fix.

SHIPBOARD ACQUISITION, REDUCTION AND STORAGE OF DATA

A full description of the IBM 1800 Computing System operating on board R. R. S. Discovery can be found by reference to Fasham (1970) but a brief summary of this description is given here. The basic configuration used during Cruise 33 is summarised in Fig. (1). The Sequential Sampling Program controls the sampling of the digital clock, gyrocompass, magnetometer, 2 component e. m. log and the meteorological instruments, and buffers the data to a raw data disk buffer. There are two of these buffers and every two minutes the sampling program switches buffer and initiates the Raw Data Manipulation Program to filter the sampled data, to yield two minute values of the sampled variables which together with the day number and time are written to the raw data disk file DATF (see Table 1). At this stage the program also updates the dead reckoning position of the ship and stores it in the processed data file GEOF.

When the satellite receiver locks on to a satellite, an interrupt is given to the computer which then reads the satellite data and stores it on disk. These interrupts occur every two minutes while the satellite passes over and after the completion of a pass a series of programs are executed to decode the information and to calculate the geographical position. A summary of this data is then stored on the satellite fix disk file SATF (see Table 2).

At intervals of the order of four hours the Track Adjustment Program is executed to update and adjust the dead reckoning to agree with the satellite fixes. Satellite fixes giving 'currents' of greater than 2 knots are ignored and adjusted values of position, course and speed made good and distance covered are written to the processed data file GEOF (see Table 3). At this stage the Data Reduction Program is also executed to reduce total magnetic field values to anomaly values by removal of the International Geomagnetic Reference Field (Mead 1970) and to correct the measured wind's velocity for the effect of the ship's velocity. These reduced values are also written to GEOF.

Depths are entered manually into the system through the P. D. R. Console as day number, time and depth in uncorrected fathoms. This data is written by the PDR Console Program to the depth data disk file DEPF (see Table 4) and at regular intervals (usually at the time of running of the Track Adjustment Program) the Matthews Correction Program is executed to convert the depths to corrected metres. Computer approximated curves are used in the application

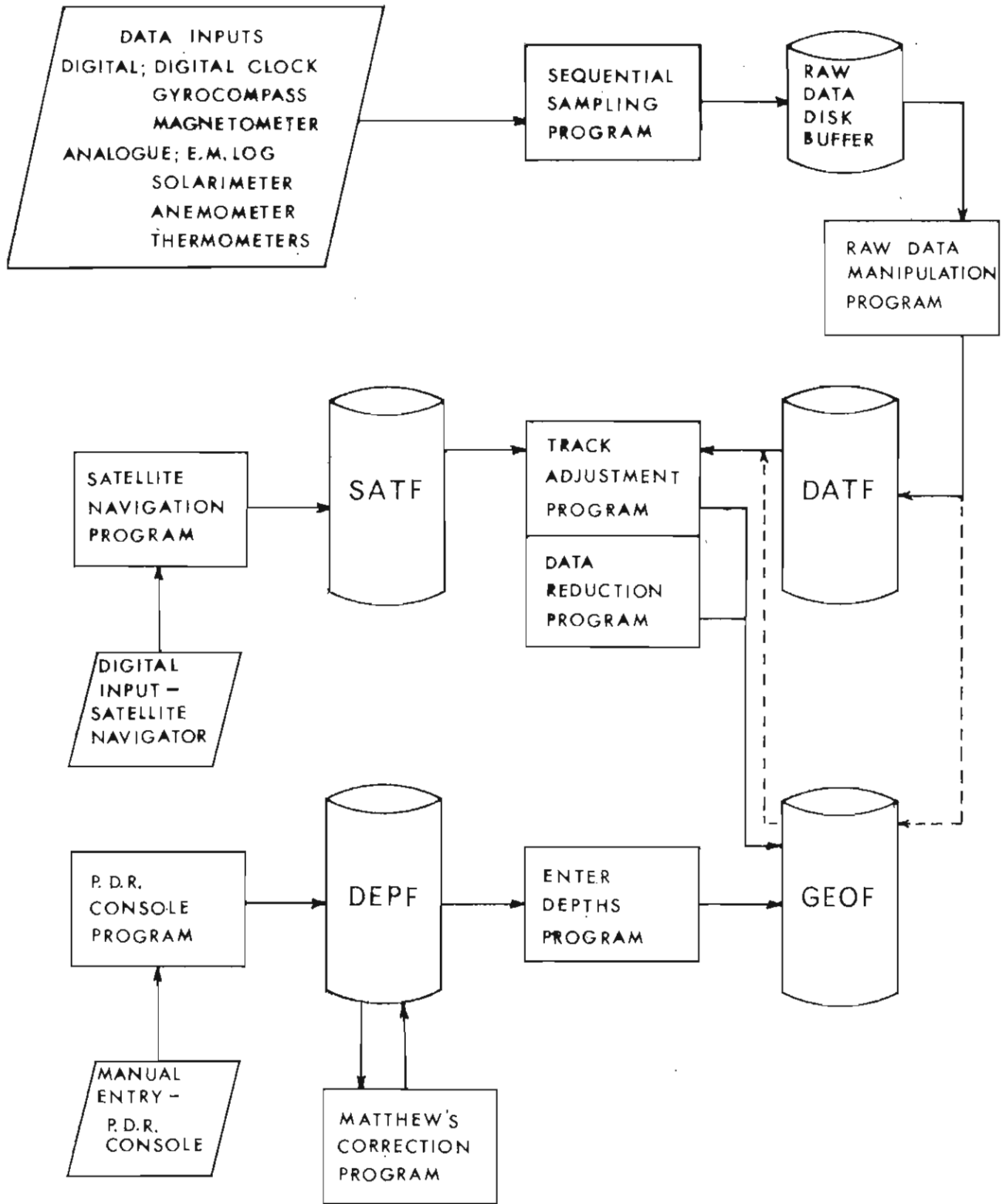


FIG (1) SHIPBOARD AQUISITION, REDUCTION & STORAGE OF DATA

of the correction (Howarth (1970)) and information about the time of changing from one Matthews Area to another is usually inputted through the computer console. The corrected depth values are also stored in the GEOF file. However, as the data interval is usually 5 minutes on the DEPF file compared with two minutes on the GEOF file the depth data is slotted into the GEOF file at the nearest available record and consequently time may be up to one minute in error. Plots of tracks and profiles are not significantly affected by this at a scale of 1:1,000,000.

General purpose plotting programs are available to display data stored on the disk files. It is possible to plot profiles of the observed variables against either time or distance, and also to plot Mercator track charts with, if required, plotted numerical values of an observed variable. During Cruise 33, a complete series of 1:1,000,000 track charts and profiles of geophysical and meteorological variables were produced. These were used both for on-the-spot interpretations and for identifying errors in the stored data.

CONTENTS OF SHIPBOARD DATA FILES

TABLE (1) - DATF - Raw Data File

15 words/record; nominal data frequency = 2 mins.


Word	Field	Unit
1	Day No. (G. M. T.)	-
2	Time (G. M. T.)	0. 1 mins.
3	Ship's speed (North) through the water	0. 01 knots
4	Ship's speed (East) through the water	0. 01 knots
5	Relative wind speed (North)	0. 01 knots
6	Relative wind speed (East)	0. 01 knots
7	Solarimeter reading	
8	Starboard dry temperature	
9	Starboard dry-wet temperature	
10	Port dry temperature	
11	Port dry-wet temperature	gammas
12	32766 - Total magnetic field in gammas	gammas
13	Relative humidity	0. 01%
14	Ship's heading	0. 1 degrees
15	Blank	-

TABLE (2) - SATF - Satellite Fix File

10 words/record; nominal data frequency = 2 hours (approx.)

Word	Field	Unit
1	Day No. (G. M. T.)	-
2	Lock on time (G. M. T.)	0. 1 mins.
3	Latitude - degrees	degrees
4	Latitude - minutes	0. 01 mins.
5	Longitude - degrees	degrees
6	Longitude - minutes	0. 01 mins.
7	Ship's velocity North	0. 01 knots
8	Ship's velocity East	0. 01 knots
9	Antenna Height (metres) *100 + elevation (degrees)	
10	No. of messages received and frequencies used	

TABLE (3) - GEOF - Processed Data File

16 words/record; nominal data frequency = 2 mins.

Word	Field	Unit
1	Day No. (G. M. T.)	-
2	Time (G. M. T.)	0. 1 mins.
3	Latitude - degrees	degrees
4	Latitude - minutes	0. 01 mins.
5	Longitude - degrees	degrees
6	Longitude - minutes	0. 01 mins.
7	Course made good overground	0. 1 degrees
8	Speed made good overground	0. 01 knots
9	Distance run from start of leg (0. 01 n. mile/ 0-9999)	0. 01 n. miles
10	Distance run from start of leg (100's of n. miles)	100 n. miles
11	Corrected depth	metres
12	Corrected wind speed	0. 01 knots
13	Corrected wind direction	0. 1 degrees
14	Blank	-
15	Magnetic anomaly	gammas
16	Flag to indicate that Track Adjustment Program has been executed	

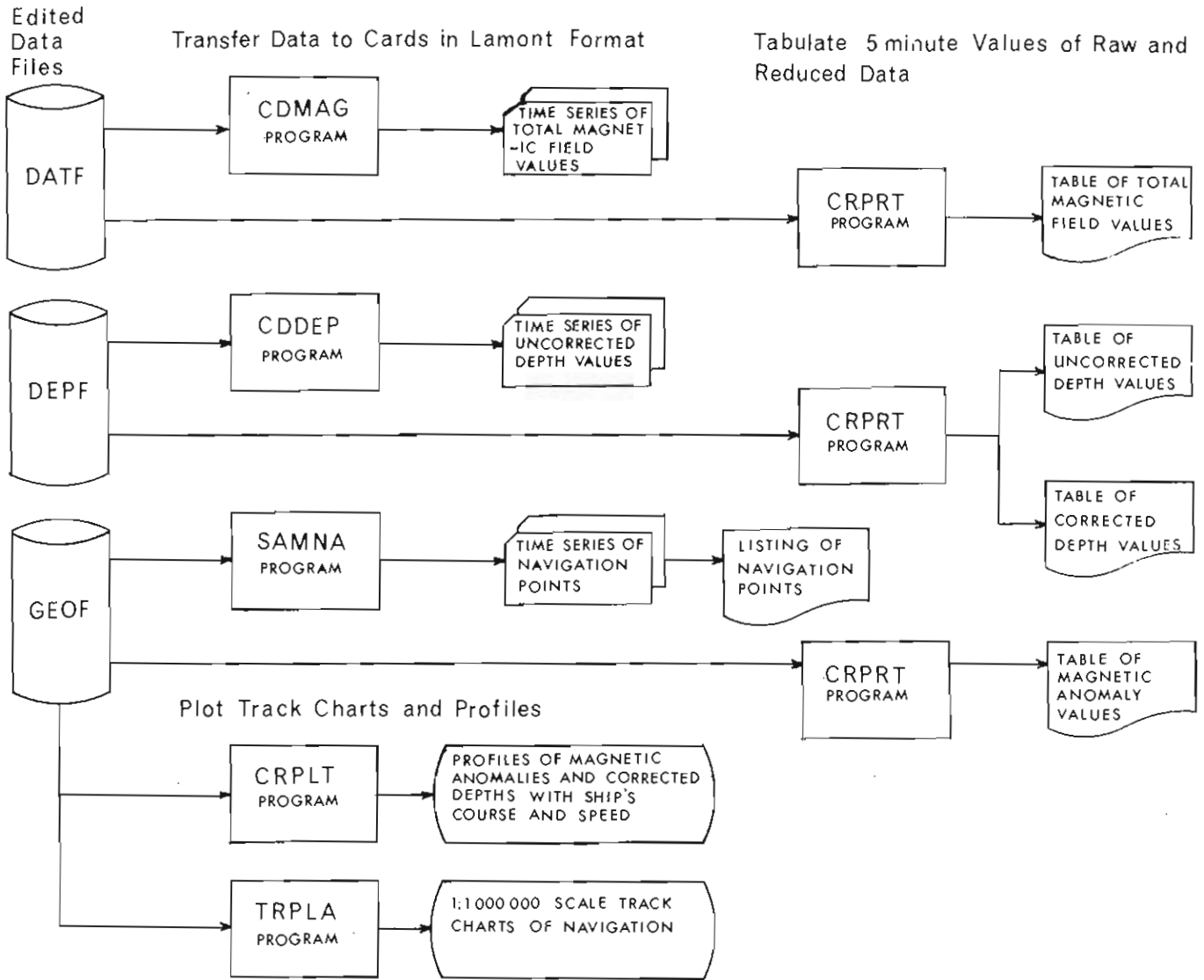
TABLE (4) - DEPF - Depth Data File

4 words/record; nominal data frequency = 5 mins. (approx.)

Word	Field	Unit
1	Day No. (. G. M. T.)	-
2	Time (G. M. T.)	0. 1 mins.
3	Uncorrected depth	fms.
4	Corrected depth	metres

EDITING OF DATA FILES

The Cruise 33 data stored on the disk files was edited retrospectively in the laboratory but it is hoped that on future cruises this process will be done at sea. Most of the erroneous data were identified on the track charts and profiles plotted out on board. Corrected raw data values of depth and magnetic field were obtained from the original analogue records and inserted into the data files. Where necessary laboratory versions of the shipboard programs were used to process the corrected data. The navigation was checked against the bridge plots and where necessary the bathymetric cross over points were examined. Except for four short periods, no corrections were made to the navigation data on disk. The four periods were:- 2200 hours/day 120 to 0610/121 and 1530/124 to 0745/125 when good land radar fixes were available with no reliable satellite fixes; 1850/125 to 0330/126 when the e. m. log gave spurious data during a sharp turn and 1715/128 to 1630/129 when, without a good satellite fix and with many course alterations during rough weather, erroneous dead reckoning data was obtained. The navigation for these periods was evaluated manually and navigation points were determined at each alteration in ship's course or speed. Positions and the values of course and speed made good were linearly interpolated between these points and entered onto the GEOF file.



FIG(2) LABORATORY STORAGE AND DOCUMENTATION OF DATA

DATA TRANSFER TO LAMONT FORMAT CARDS

Once edited the magnetic, bathymetric and navigational data stored on disk are sampled and output onto card in the standard Lamont format (Talwani, 1969). As much of the data handled at N. I. O. is in Lamont format, the laboratory series of programs for reducing and compiling magnetic data in particular is based around this standard card input. The format has a certain degree of national and international acceptance and as such is useful for data exchange purposes. The data is stored on cards as a time series of raw data points which are allowed to be at unequal time intervals and separate decks are prepared for bathymetry, magnetics and navigation data. Each deck consists basically of a series of day cards each followed by a series of data cards.

(a) Magnetics

Magnetic data is read off the DATF files as total magnetic field using the CDMAG program which outputs a Lamont card deck of the form:-

Day Card: IDAY, IMON, IYR, TZ, LB, LC, JCT in the format (I2, I3, I5, F5.0, I3, I2, I5)

where IDAY, IMON, IYR = Date as day, month, year

TZ = Time Zone in hours (set as 0.0)

LB = No. of magnetic data cards following this day card

LC = No. of readings on last magnetic data card following this day card

JCT = First two digits of the total field reading in gammas

Followed by a series of Magnetic Data Cards each in the form

(JHR(I), JMIN(I), JG(I), I = 1, 9) in the format 9(I2, I2, I3, IX)

where JHR, JMIN = Time in hours and minutes

JG = Last three digits of total field reading in gammas

New Day Cards are punched when either the date changes or the first two digits of total field change. CDMAG outputs one data point for each 2 minute total magnetic field reading present on the DATF files and ignores blank fields.

(b) Bathymetry

Bathymetry data is read off the DEPF files as uncorrected depth in fathoms (at 800 fms/sec.) using the CDDEP program which outputs a Lamont card deck of the form:-

Day Card: IDAY, IMON, IYR, TZ, LB, LC, NMZ in the format (I2, I3, I5, F6. 1, 2X, I3, I2, I5)

where IDAY, IMON, IYR = Date as day, month, year

TZ = Time Zone in hours (set as 0. 0)

LB = No. of bathymetric data cards following this day card

LC = No. of readings on last bathymetric data card following this day card

NMZ = Matthews Area Number relevant to this day card

Followed by a series of Bathymetric Data Cards each in the form:-

(JHR(I), JMIN(I), JG(I), I = 1, 8) in the format 8(I2, I2, I5, 1X)

where JHR, JMIN = Time in hours and minutes

JG = Depth in uncorrected fathoms

New Day Cards are punched when either the date or Matthews Area changes. CDDEP outputs one data point for each depth value stored on the DEPF files. Information about changes in Matthews Area is input to CDDEP from a manually prepared card deck.

(c) Navigation

Navigation data is sampled off the GEOF files using the SAMNA program which outputs a Lamont card deck of the form:-

Day Card: IDAY, IMON, IYR, TZ, LB in the format (I2, I3, I5, F5. 0, 1X, I4)

where IDAY, IMON, IYR = Date as day, month, year

TZ = Time Zone in hours (set as 0. 0)

LB = No. of navigation data cards following this day card

Followed by a series of Navigation Data Cards each in the form:-

JHR, JMIN, LAT, AT, LONG, ONG in the format (I2, I2, I4, F5. 2, I5, F5. 2)

where JHR, JMIN = Time in hours and minutes

LAT, AT = Latitude in degrees and minutes (to 0. 01 min.)

LONG, ONG = Longitude in degrees and minutes (to 0. 01 min.)

New Day Cards are punched when the date changes. Navigation points are not punched for each 2 minute geographic position in the GEOF file. Instead SAMNA samples the file and only selects a sufficient number of these 2 minute values so as to define the track covered to within 0. 5 n. miles assuming a linear interpolation

between each selected point. The basic operation of the program is as follows:- the first 2 minute geographic position in the GEOF file is taken as the first navigation point and the file is read until a 2 minute value is encountered eight or more minutes later. This is then taken as the first temporary navigation point and the file is read until a 2 minute geographic position is obtained that either (a) departs by more than 0.5 n. miles from the position estimated by extrapolation from the preceding navigation point and the temporary navigation point or (b) is more than 30 n. miles from the preceding navigation point. The 2 minute position immediately preceding this is selected as a new navigation point. A new temporary navigation point is then chosen eight or more minutes later and a similar procedure is adopted for selecting the next navigation point. The whole GEOF file is sampled in this manner and the data for each navigation point is punched out on card.

DATA PRESENTATION

This report is intended to meet as effectively as possible the varying requirements of the personnel most likely to make use of the collected bathymetric^{and magnetic} data of Cruise 33. Because of the large volume of data involved it is not considered practical to include listings of the original disk data files. The data is presented instead at three levels of processing - summarised listings of raw data, summarised listings of reduced data, and profiles of the reduced data. The computing aspects of the data presentation are summarised in Fig. (2). It is hoped that when used with either the 1:1,000,000 track charts or the listing of the navigation points produced by the SAMNA program, the data listings should satisfy the needs of those wishing either to incorporate the data into compilation charts or to perform further computer orientated calculations on the data. The 1:2,000,000 profiles are intended for those wishing to make a more direct scientific interpretation of the data and to this end the profiles are supplemented with a track chart at the same scale and overlain on a bathymetric chart. Reduced copies of the original P. D. R. records are also included in the report for those wishing to study the bathymetry in more detail than is given by either the profiles or the listings.

Profile Location Sheets: These are inserted in the folder at the end of the report and are divided into two sheets; the first containing Cruise 33 tracks north of 48°N on a standard Mercator Projection at a scale of 1:2,000,000 at 57°N while the second contains the tracks south of 48°N at a scale of 1:2,000,000 at 46°N. The sheets were manually prepared and include bathymetry from the June 1971 version of the N. I. O. bathymetric chart series. Except for the 100 fathom contour, the contour interval was chosen as 500 fathoms so as to illustrate the prominent features of the sea floor relief and to provide a context in which to study the profiles presented in Section A. The profiles have been plotted at the same distance scales as the profile location sheets and each is identified on the track by a circled figure representing the start of the profile. Changes in day number are also shown on the tracks by a mark at 0001 hrs. on the new day which is annotated with the new day number. The tracks covered during the detailed surveys on Sheet 1 are shown as insets at an enlarged scale - inset 1.1 showing the Site A survey in the Hatton-Rockall Basin and inset 1.2

the Site B survey in the Rockall Trough. For clarity the tracks in the region of King's Trough on Sheet 2 are shown in inset 2.1 at a scale of 1:1,000,000 at 46°N.

Section A contains profiles together with reduced copies of the original P. D. R. records. Magnetic anomaly, corrected depth and course and speed made good were plotted from the edited GEOF file using the CRPLT program. The parameters are each plotted against distance run along track in nautical miles from the start of a leg - the distance being scaled to a Mercator Chart projection at 1:2,000,000 at 57°N for tracks north of 48°N and at 46°N for tracks south of 48°N so that the profiles can be directly overlain on the profile location sheets. The distance run axis is marked every 100 n. miles and annotated every 500 n. miles. A time axis in G. M. T. is also included so that the profiles can be correlated with the P. D. R. records, and with the tabular listings of data in Sections C and D. Magnetic anomaly is plotted at a scale of 400 γ /inch with a nominal range of from -600 γ to 600 γ . However, this range is automatically adjusted by CRPLT for each profile so as to cope with the range of data values in the GEOF file. Each 2 minute magnetic anomaly value is plotted but the pen is lifted each time there is a data gap in excess of 4 minutes. Corrected depth is plotted at a scale of 2000 fms/inch with a nominal range of 0-4000 fms which is automatically reduced if more space is required for the magnetic profile. The vertical exaggeration of the bathymetric profile is 13.9:1 at 57°N or 46°N. As depth is not continuously recorded at 2 minute intervals each depth reading is marked on the profile by a small tick and successive readings are joined by a straight line. Thus gaps in data appear as straight lines without tick marks.

Each profile is accompanied on its facing page by a reduced copy of the relevant section of the P. D. R. record. As the P. D. R. records against time and not distance, it is not practical to provide a one to one correspondence in horizontal axis scale between the profiles and the P. D. R. records. Correlations between the two have to be made by time and to this end the P. D. R. records are annotated with hour marks. The basic five minute interval marks produced by the P. D. R. can be discerned as vertical lines on the original record. The records have also been annotated with the recording depth phase of the P. D. R. and the 100 fathom lines within this phase are discernable on the original record

as horizontal lines.

Section B contains a listing of the navigation points and computer generated navigation track charts. The navigation points were selected from the GEOF file using the SAMNA program and provide a linearly interpolatable track to within 0.5 n. miles of that contained in the GEOF file. The track charts were plotted from the two minute positions in the GEOF file using the TRPLA program and are scaled at 1:1,000,000 at 57°N for tracks north of 48°N and at 46°N for tracks south of 48°N. Each hour is marked on the track and annotated with time (in hours and minutes G. M. T.) and day no. The first position plotted on each chart is similarly annotated. So as to provide some indication of positional control, the positions of the accepted satellite fixes were manually plotted on the track charts as small circles and each is annotated by time in hours and minutes.

Section C contains tabulated 5 minute value listings of the raw magnetic and bathymetric data. All data presented in Sections C and D has been produced using the program CRPRT on the appropriate data file. The program samples the file and tabulates values of the selected parameter itself, or a simple function of it, at 5 minute intervals. Where no parameter value is present on the five minute mark the file is searched for values either side of the mark up to but not including the two neighbouring five minute marks. An interpolated value is then produced for that five minute mark but if values are not available either side of that time the field is left blank. Once the five minute values have been selected the file is then searched for maximum and minimum values. If a maximum or minimum value is found that is 3 or more parameter units outside the range of two successive five minute values, it is overwritten onto the field of the nearest five minute mark and is followed by an asterisk and the time of the occurrence of the maximum or minimum (recorded only as minutes past the hour). Section C thus contains the total magnetic field values accessed from the DATF file and the uncorrected depth in fathoms as accessed from the DEPF file.

Section D contains tabulated 5 minute value listings of the reduced magnetic and bathymetric data. Magnetic anomaly (total magnetic field minus the International Geomagnetic Reference Field) is tabulated from the GEOF file and the corrected depths in fathoms and metres from the DEPF file.

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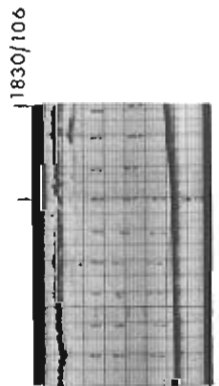
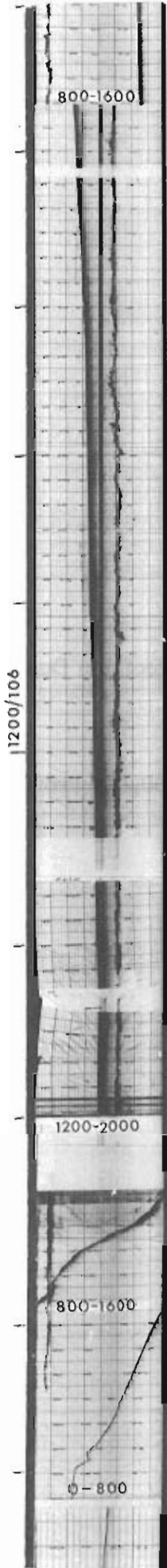
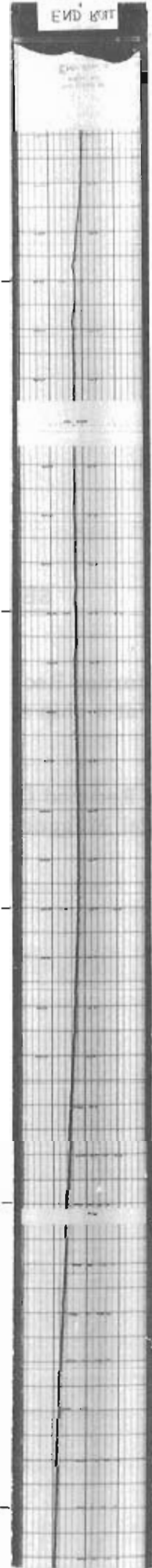
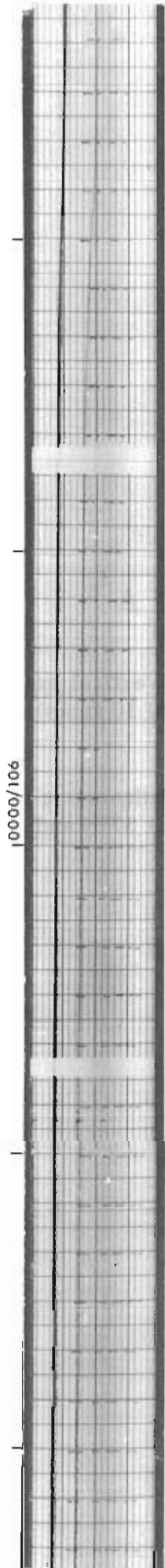
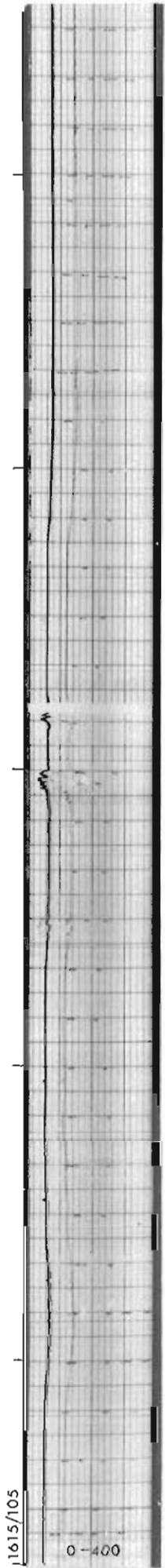
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SECTION A

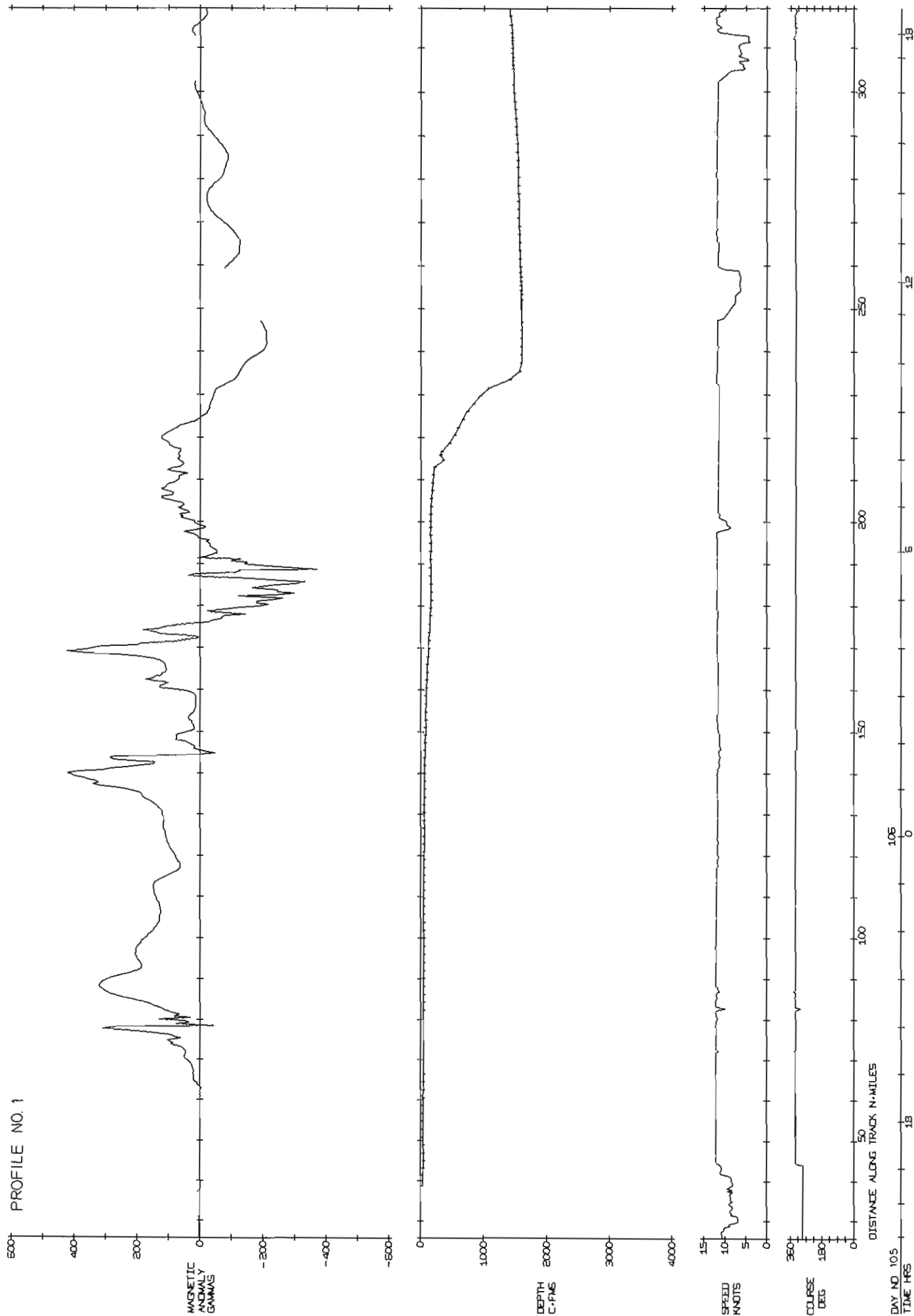
Precision Depth Recorder Records (Vertical exaggeration 5.18 : 1
at a ship speed of 10 knots)

1:2,000,000 Profiles of Reduced Data (Bathymetric profiles at 13.9 : 1
vertical exaggeration at 57°N and 46°N)

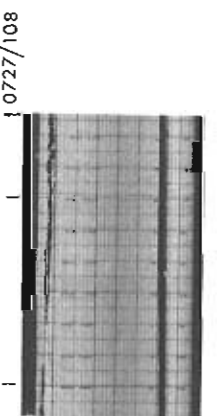
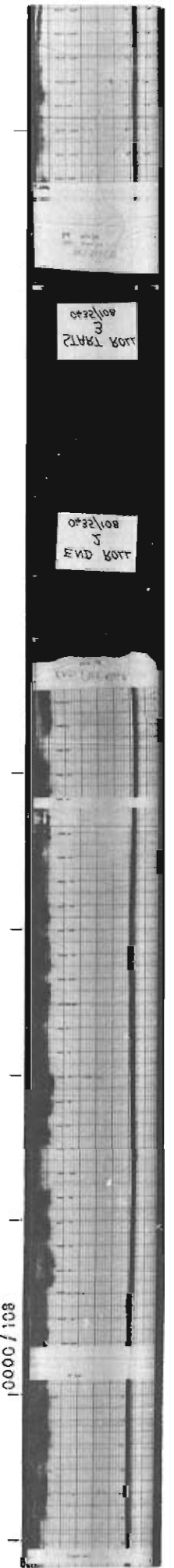
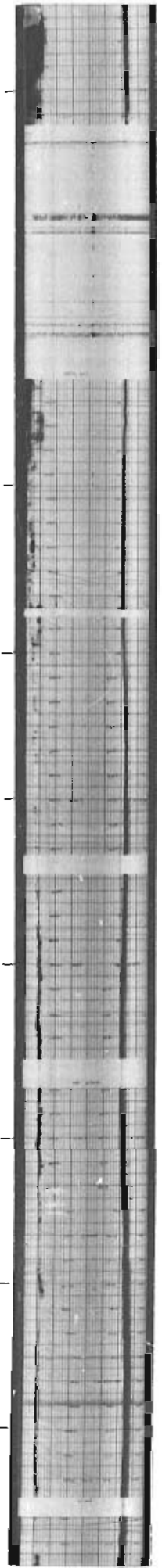
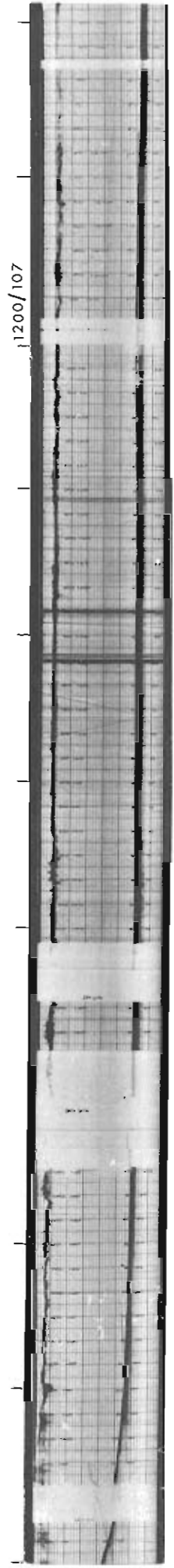
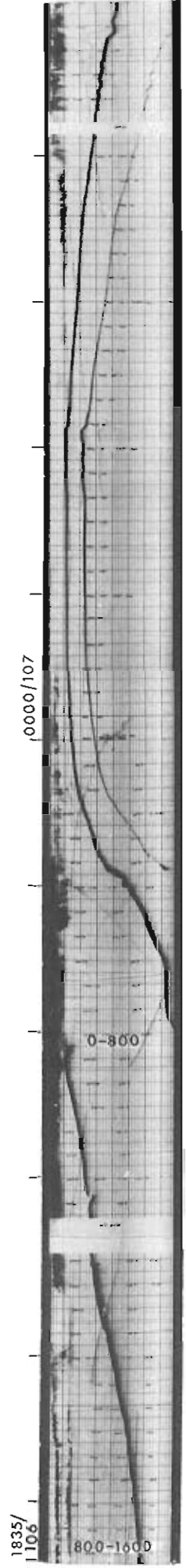
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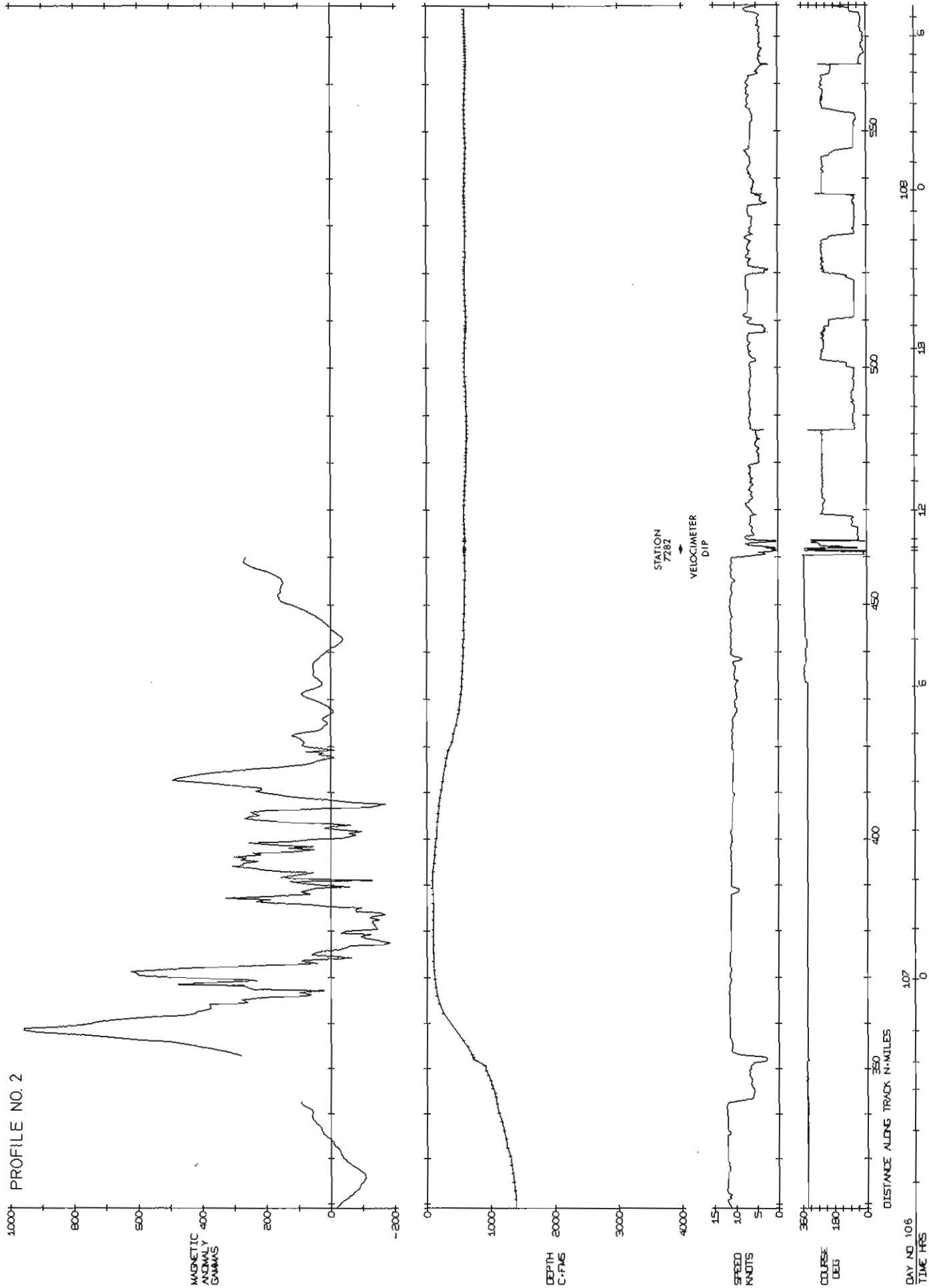
PROFILE NO. 1



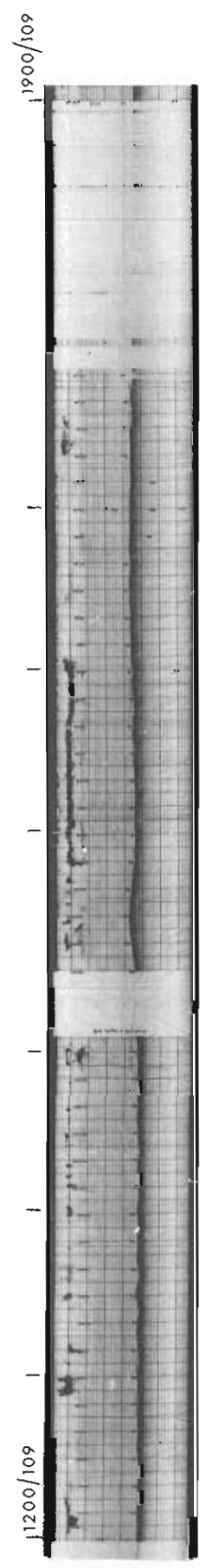
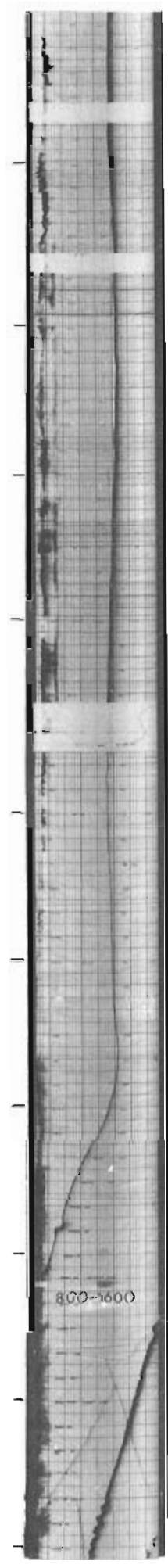
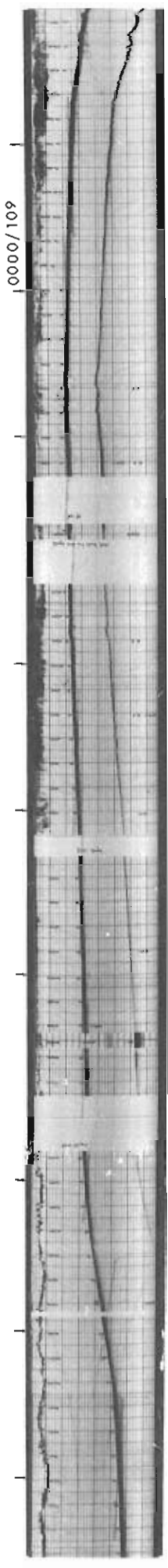
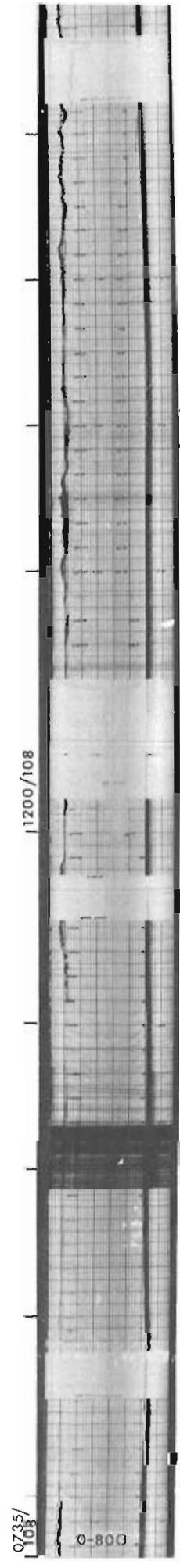
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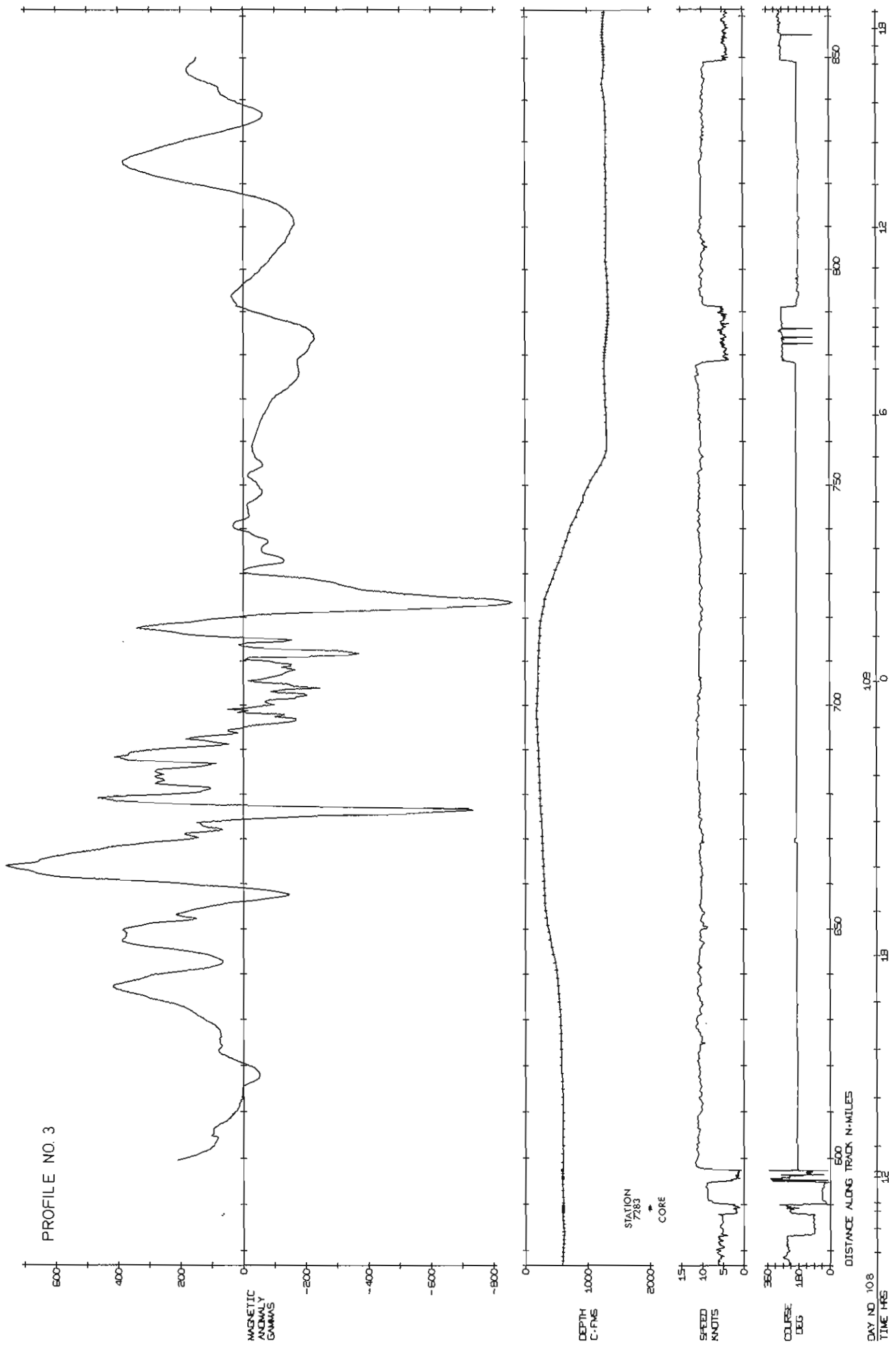
PROFILE NO. 2



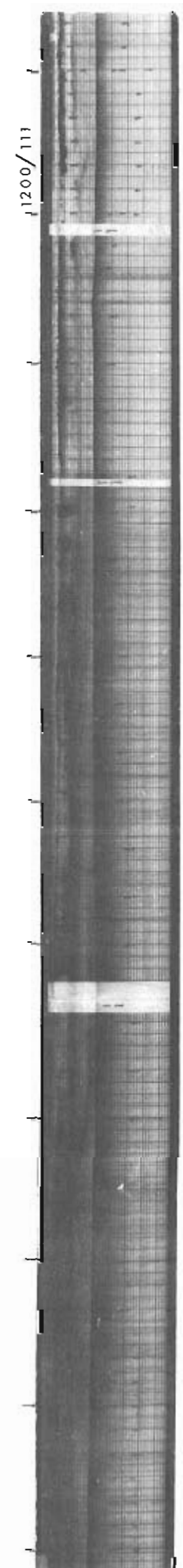
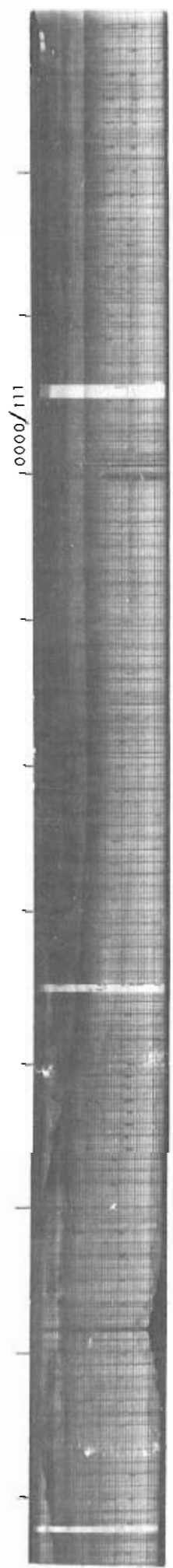
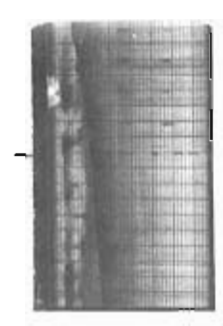
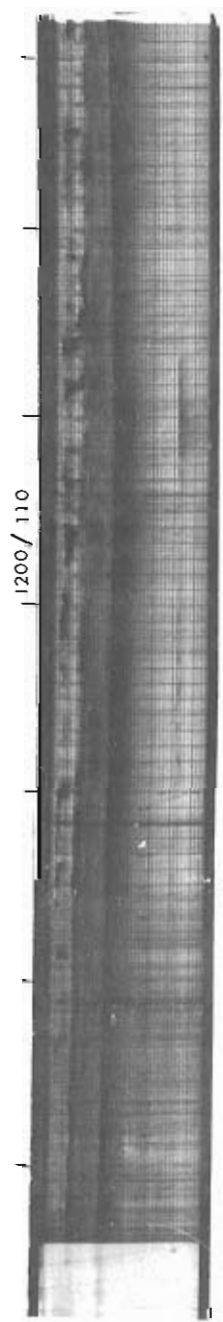
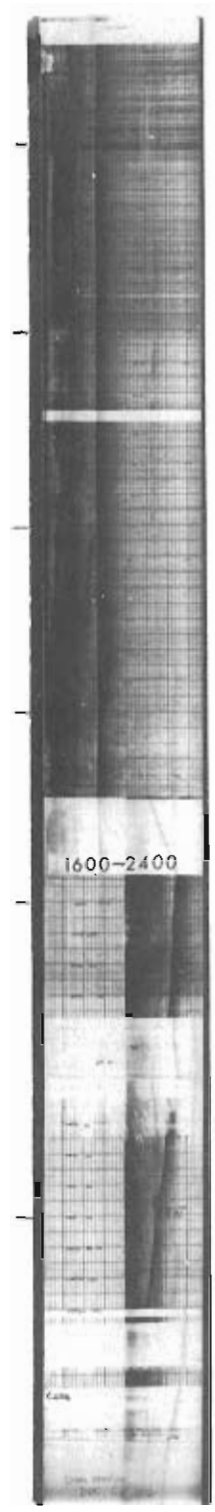
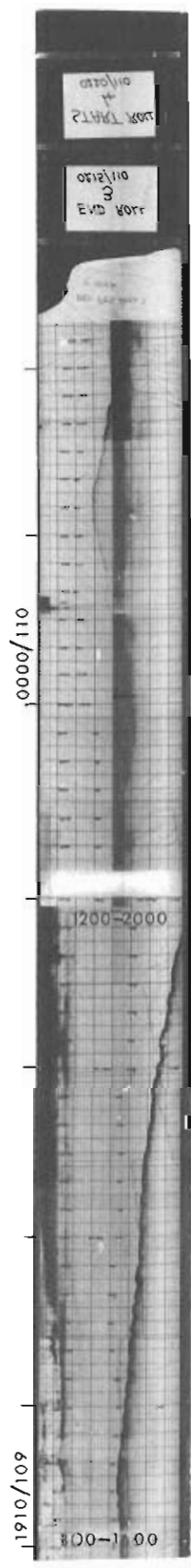
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PROFILE NO. 3

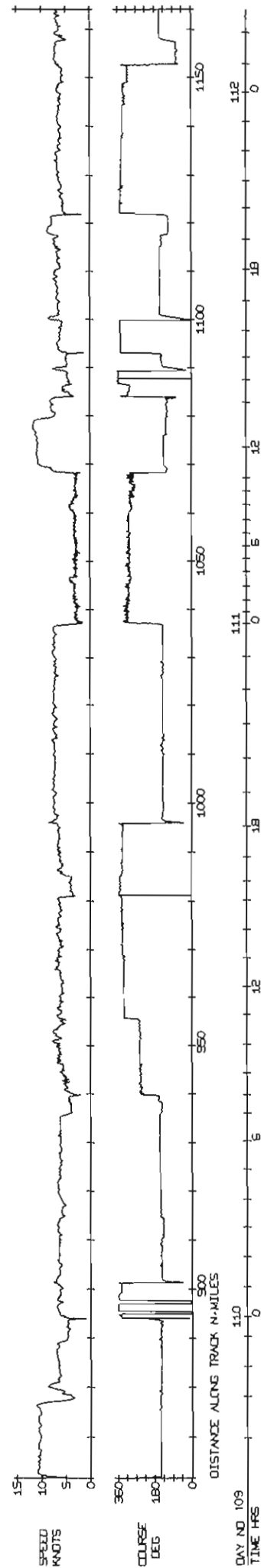
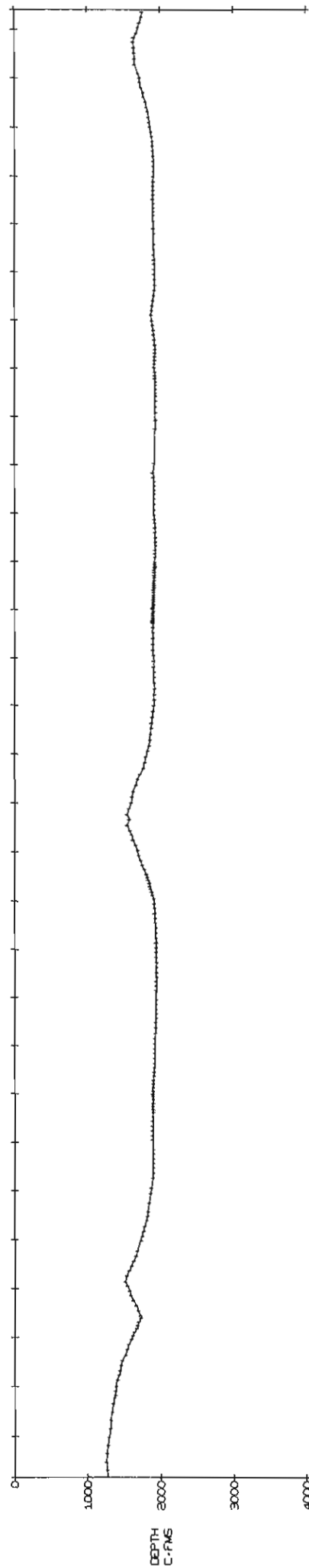
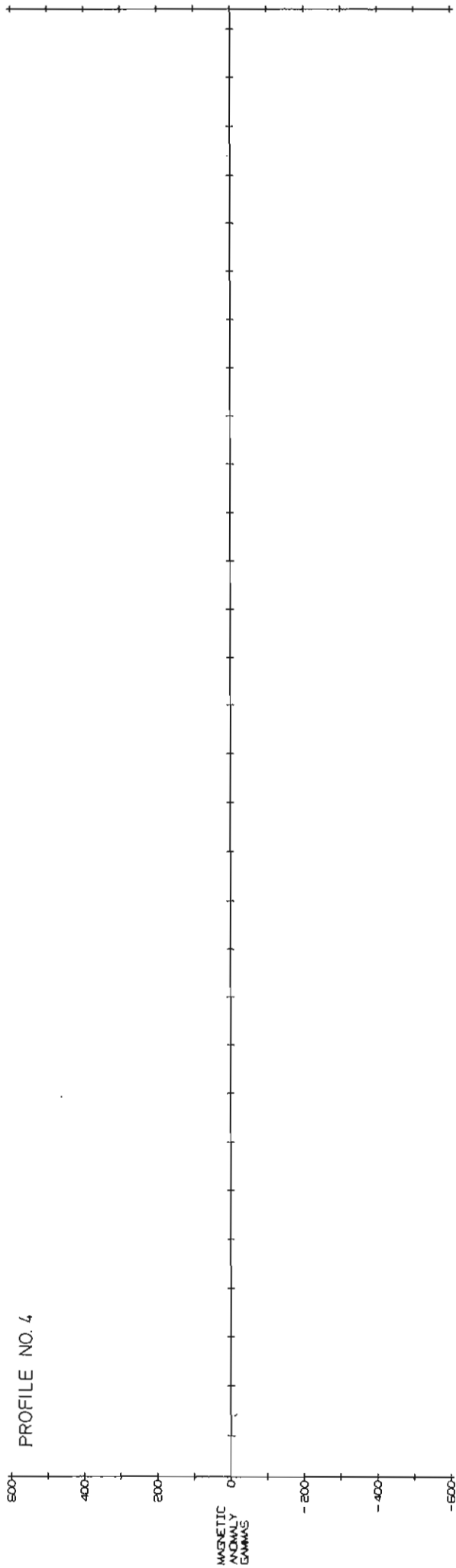


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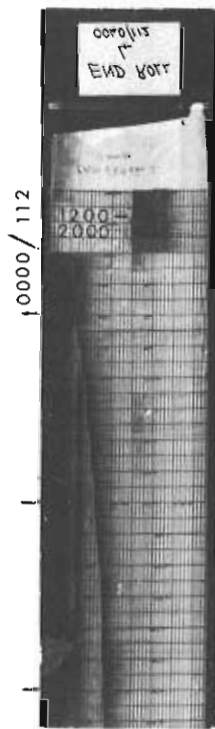
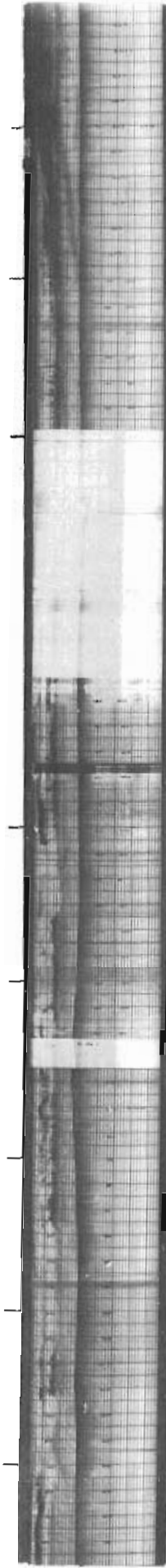


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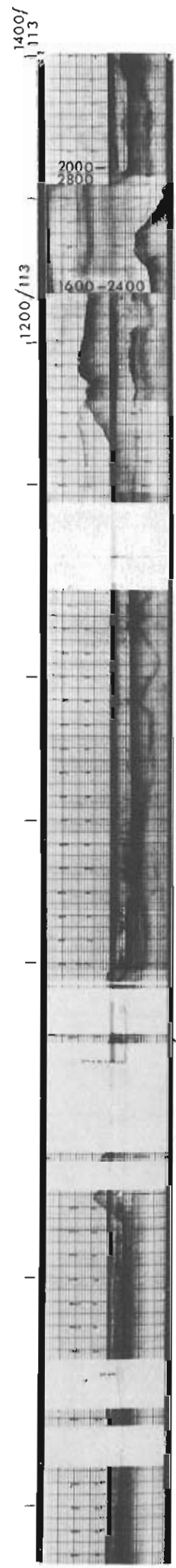
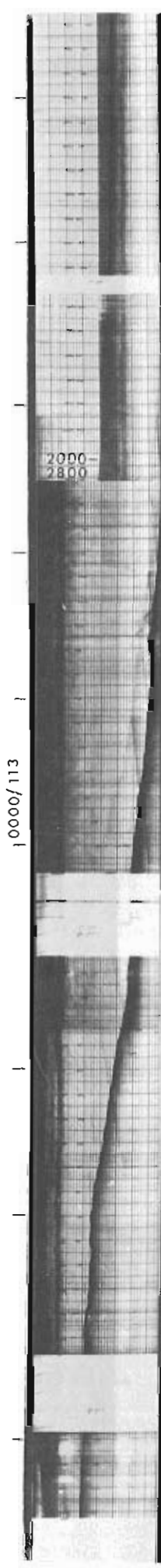
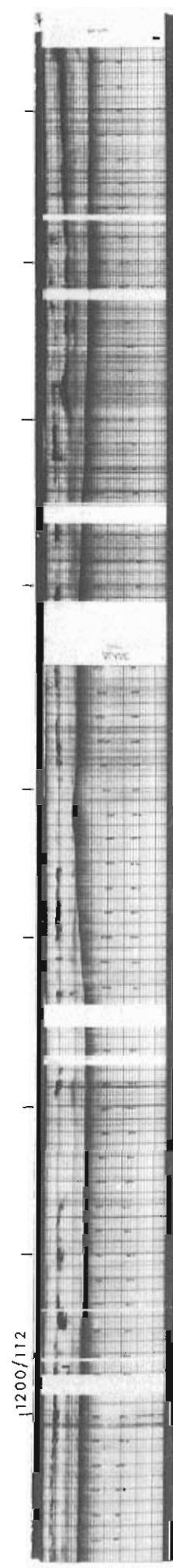
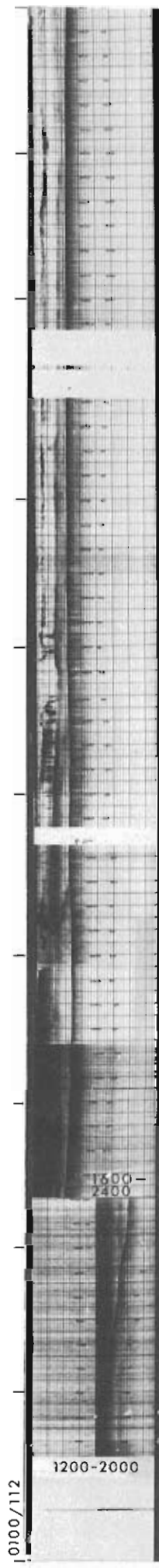
PROFILE NO. 4



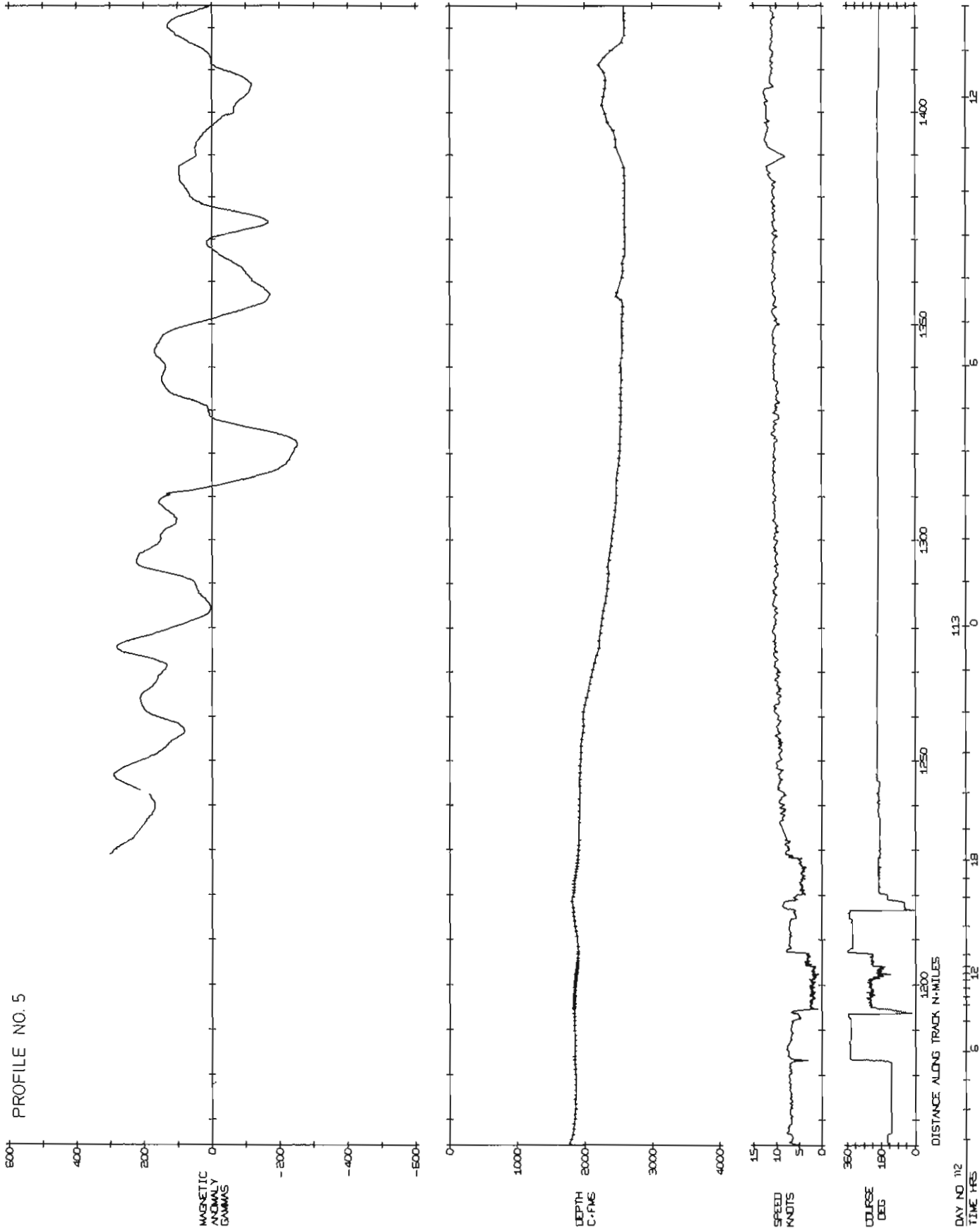
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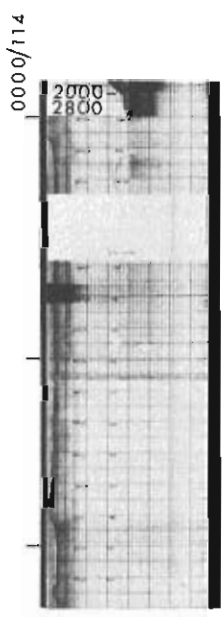
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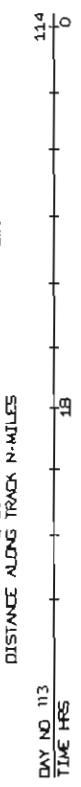
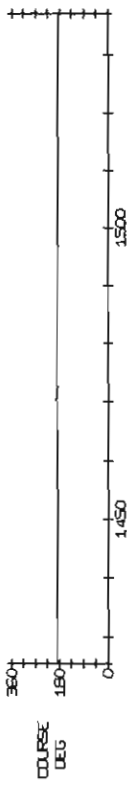
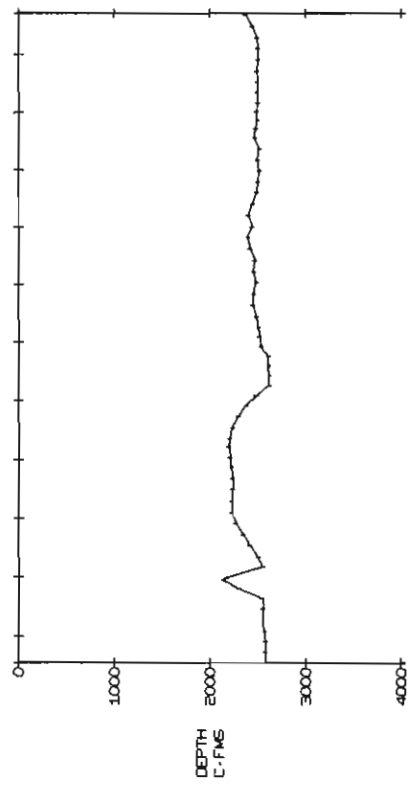
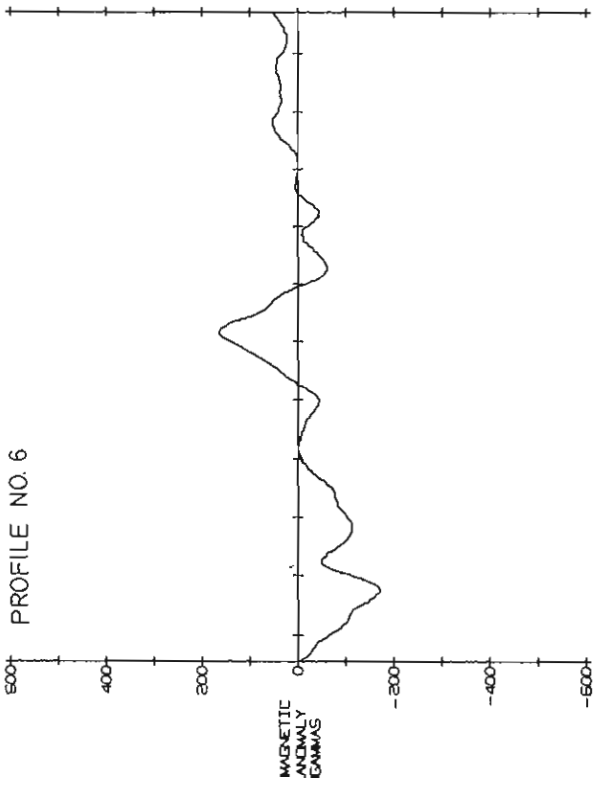
PROFILE NO. 5



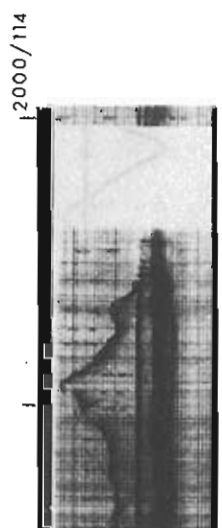
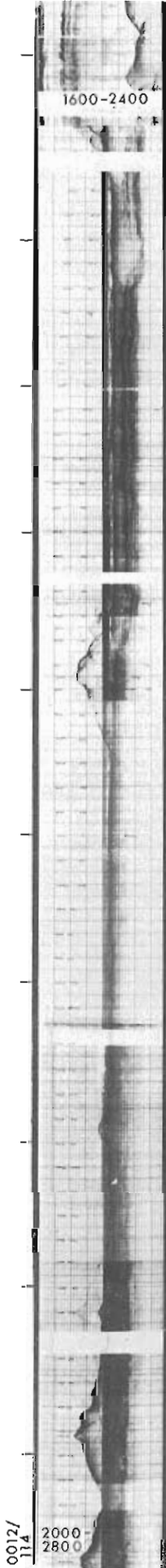
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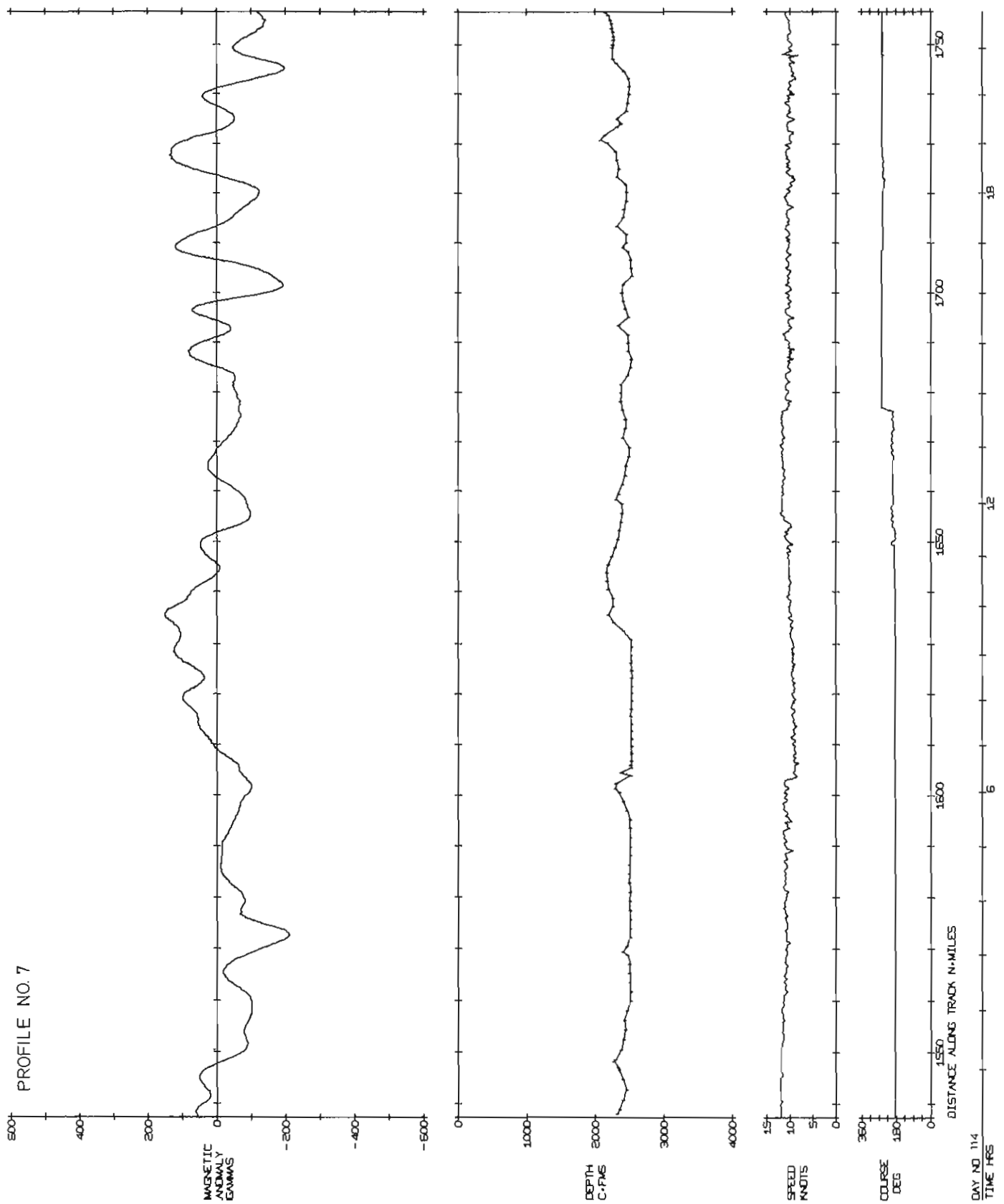
PROFILE NO. 6



7

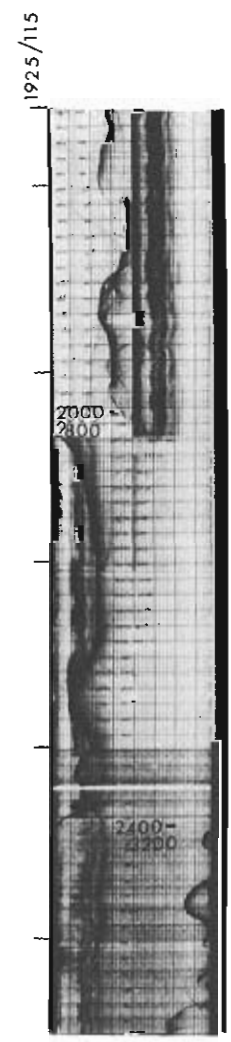
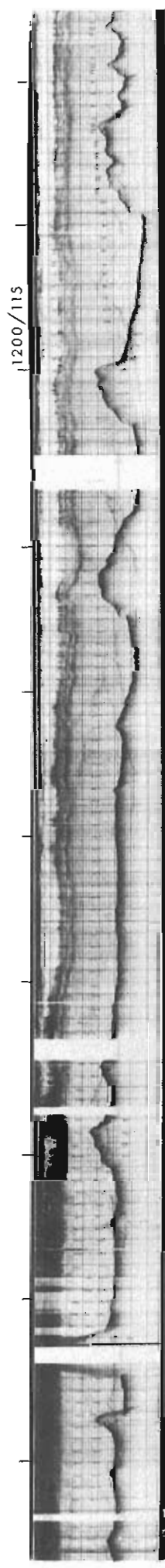
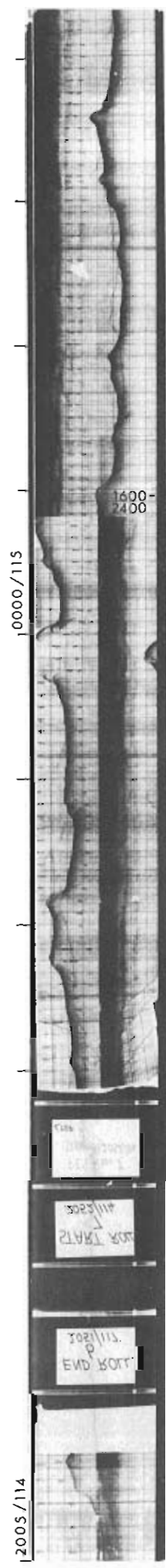


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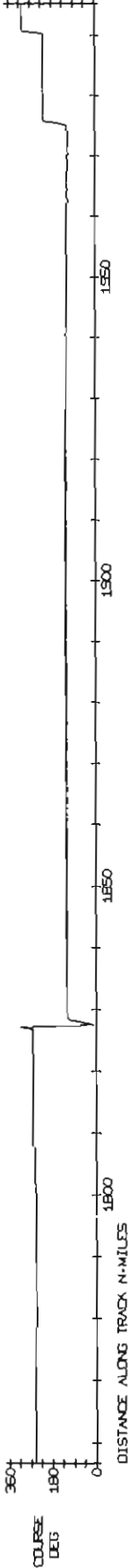
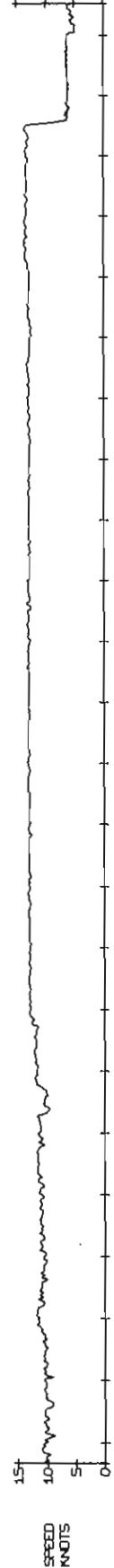
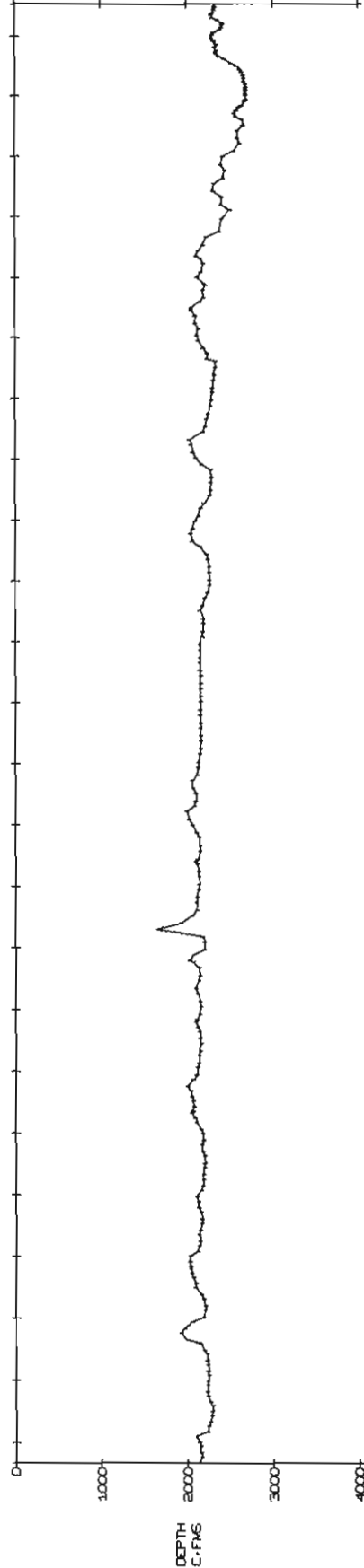
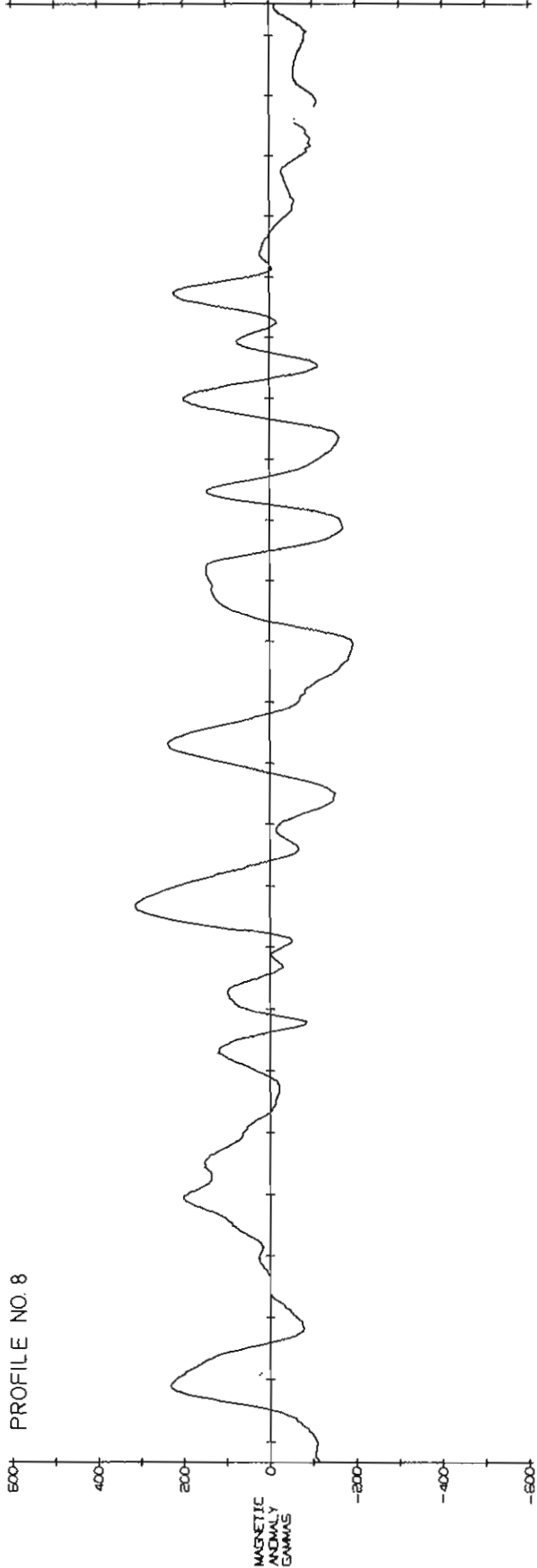


7 CONT.

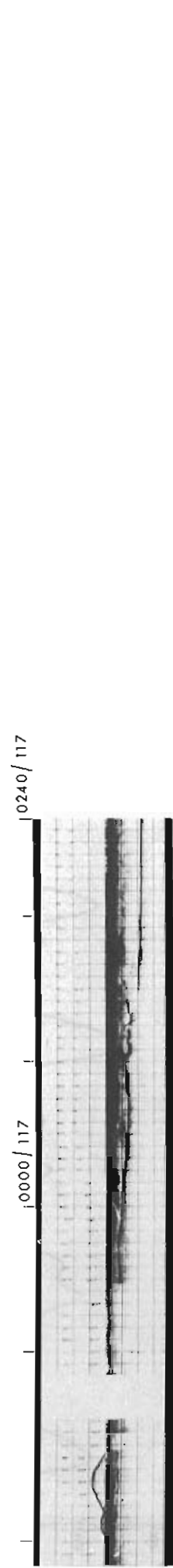
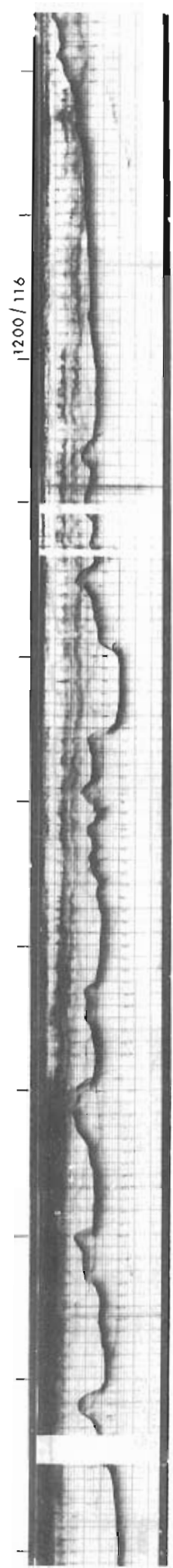
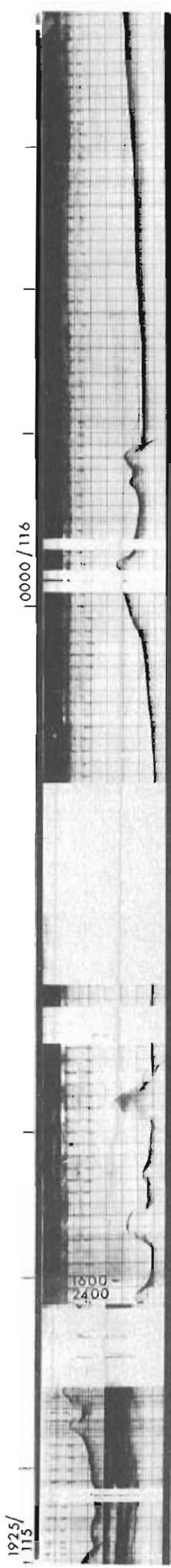
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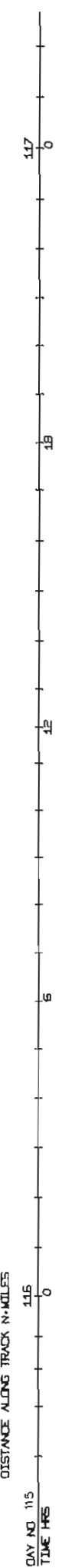
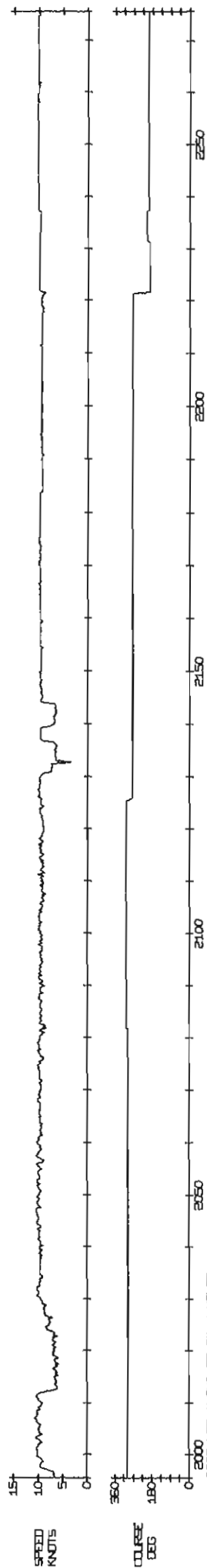
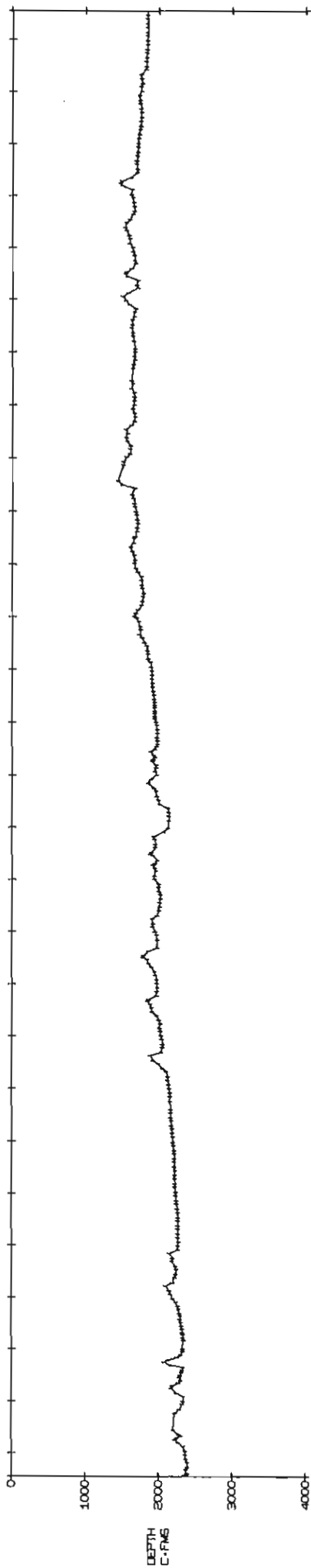
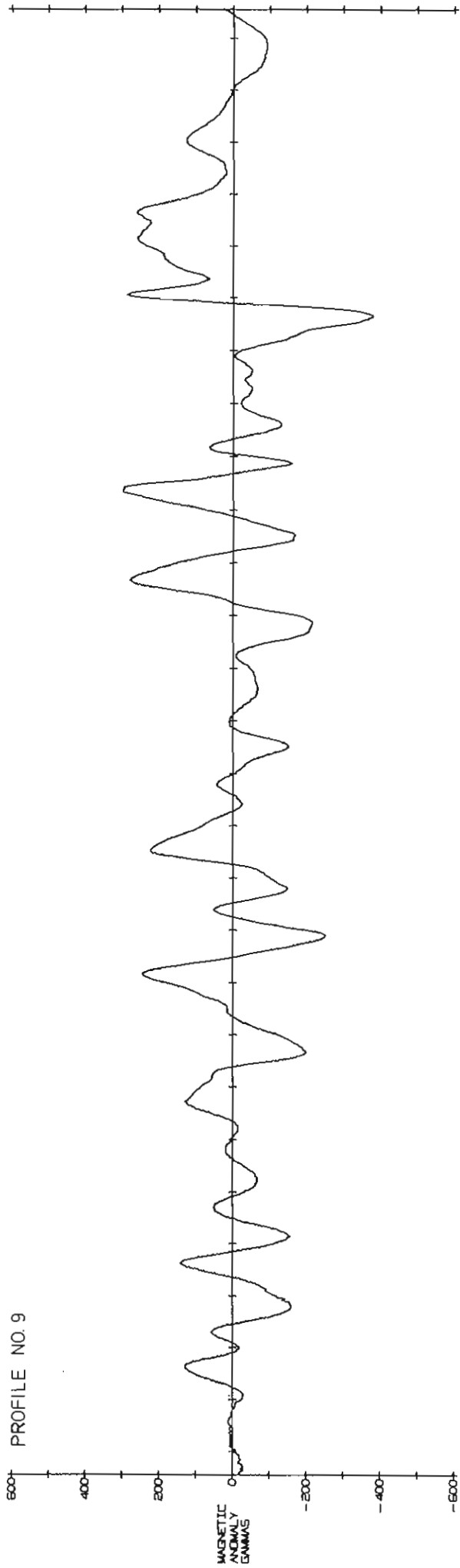
PROFILE NO. 8



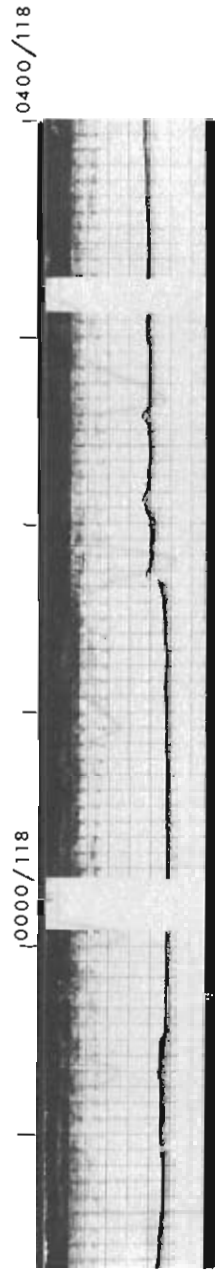
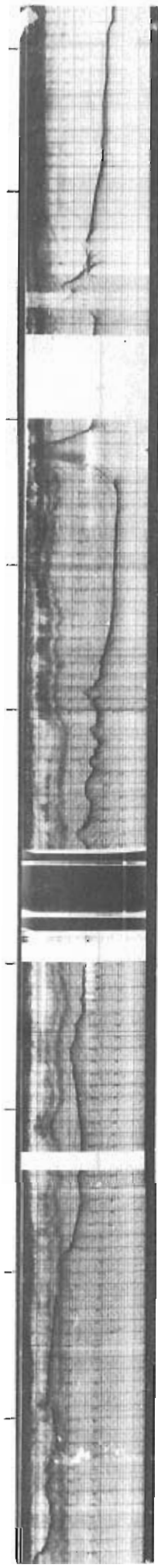
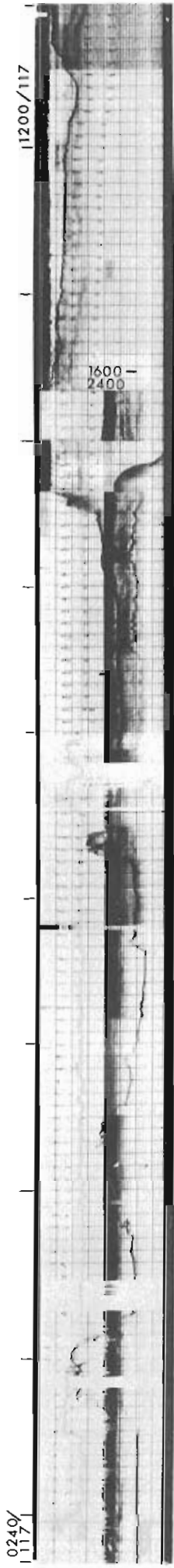
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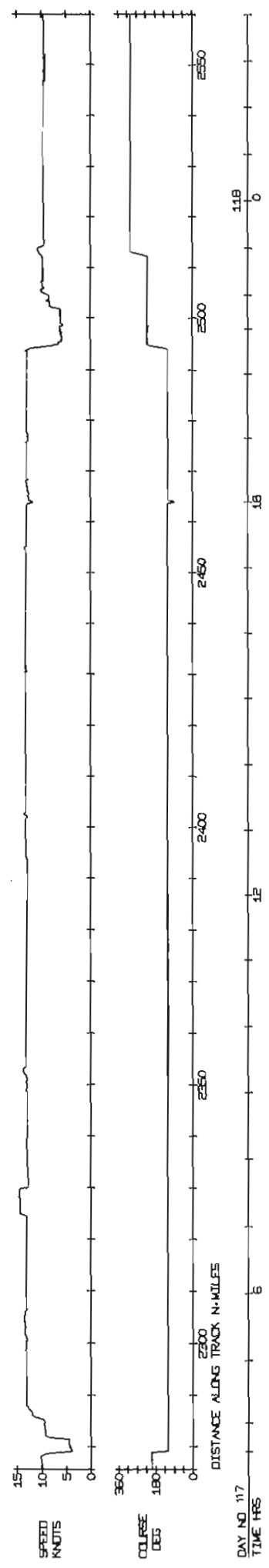
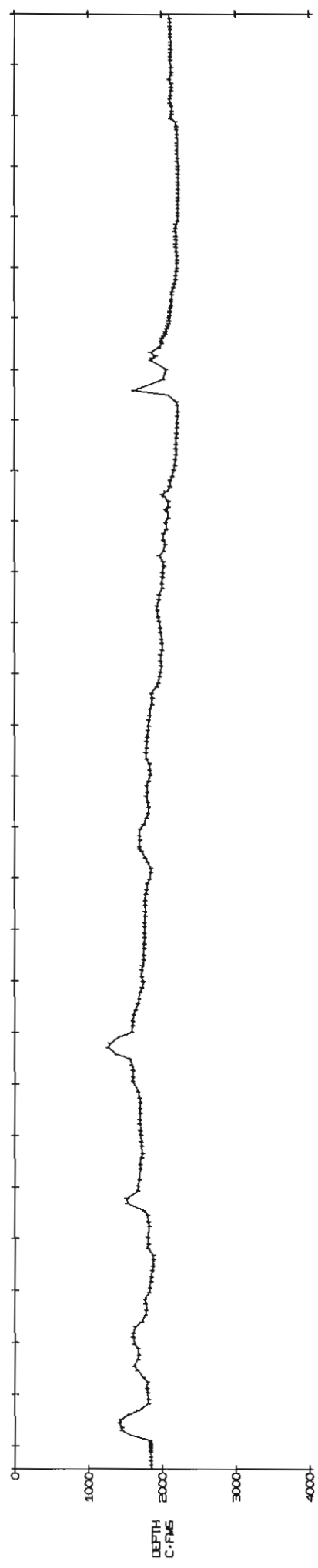
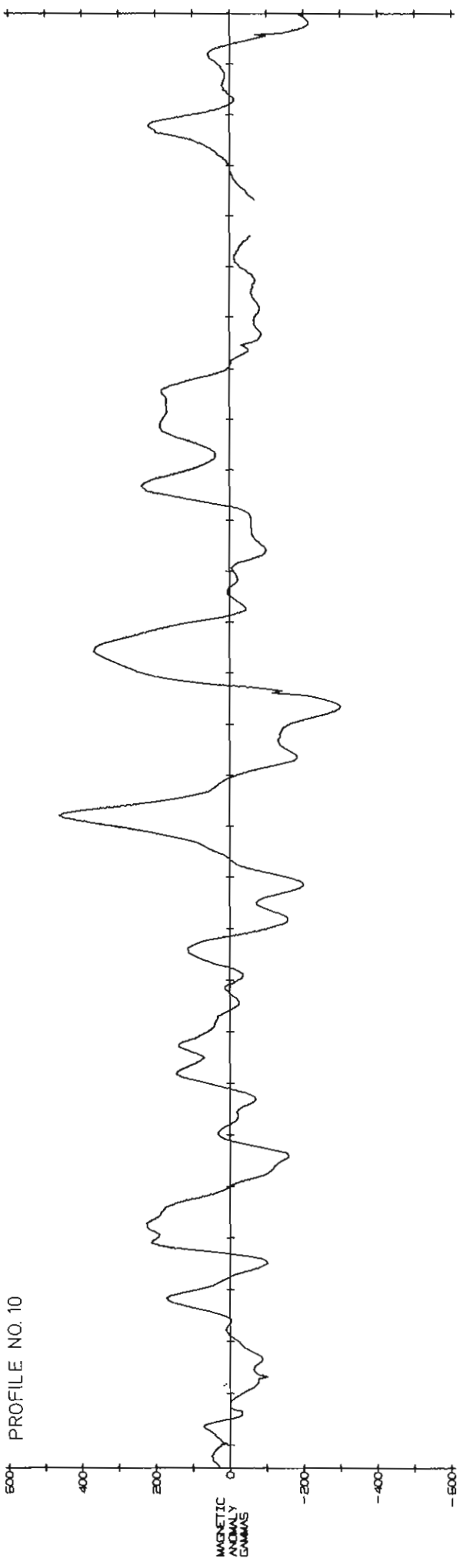
PROFILE NO. 9



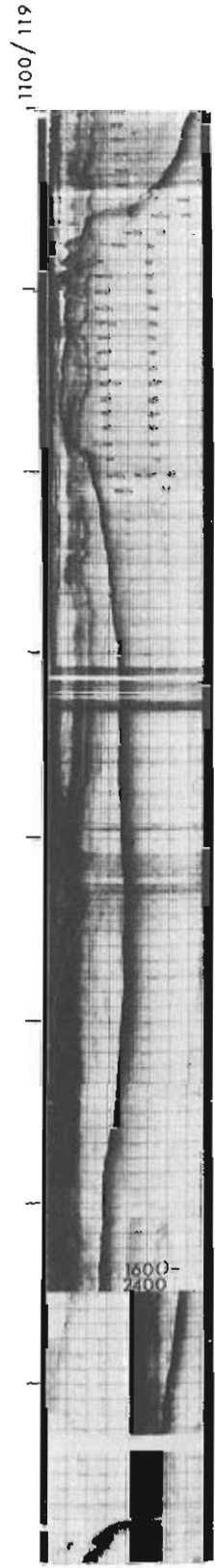
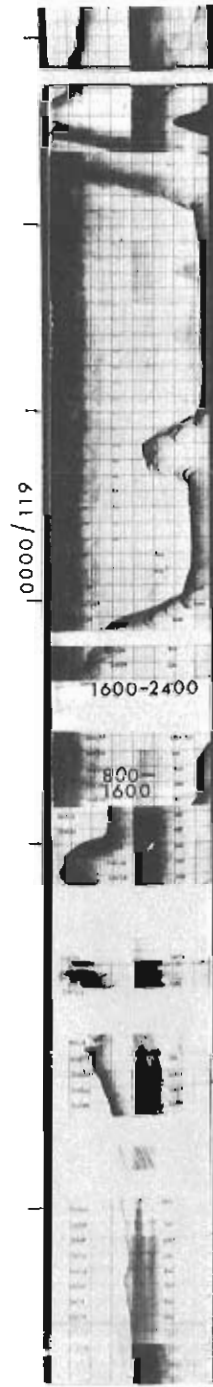
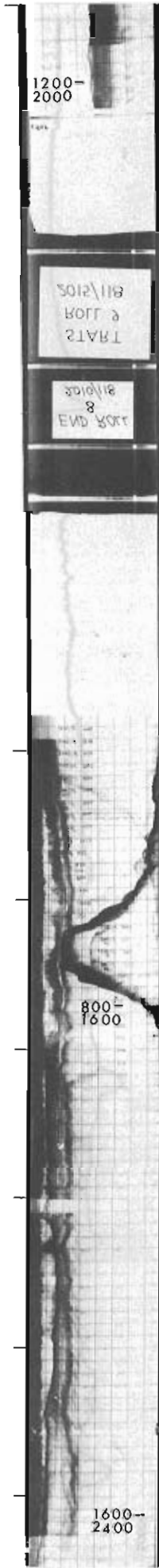
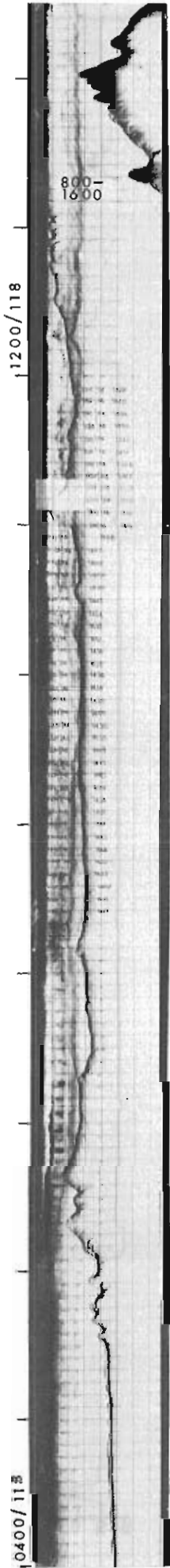
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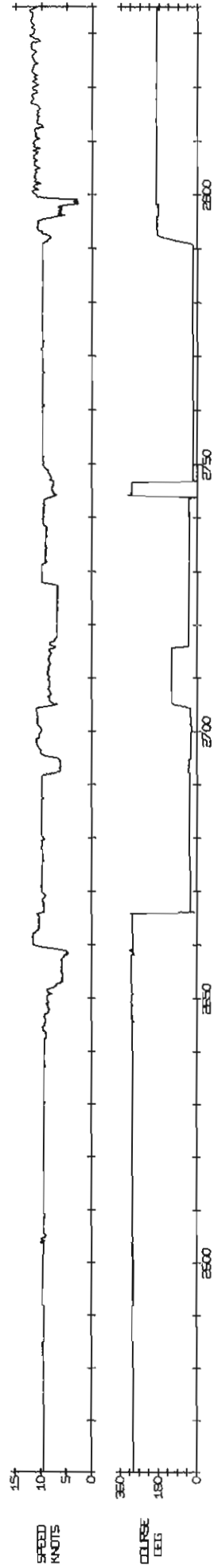
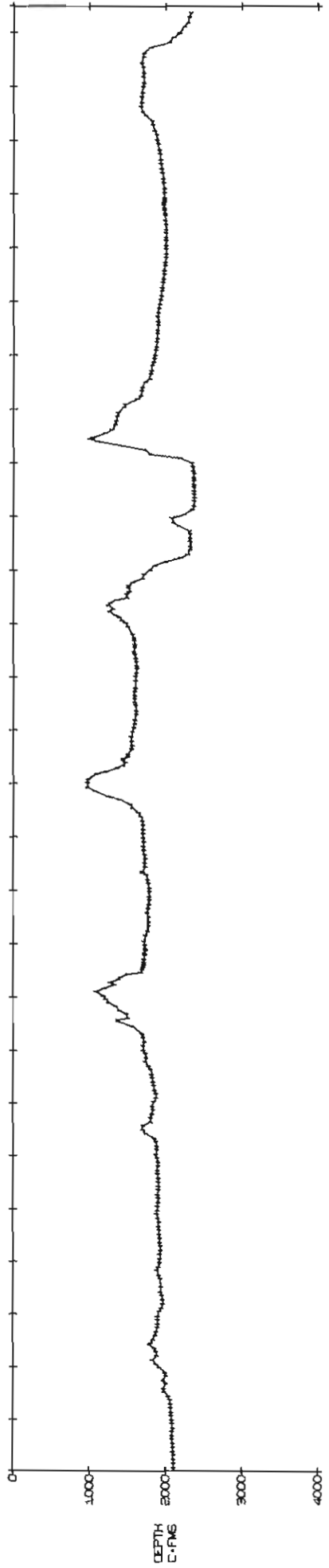
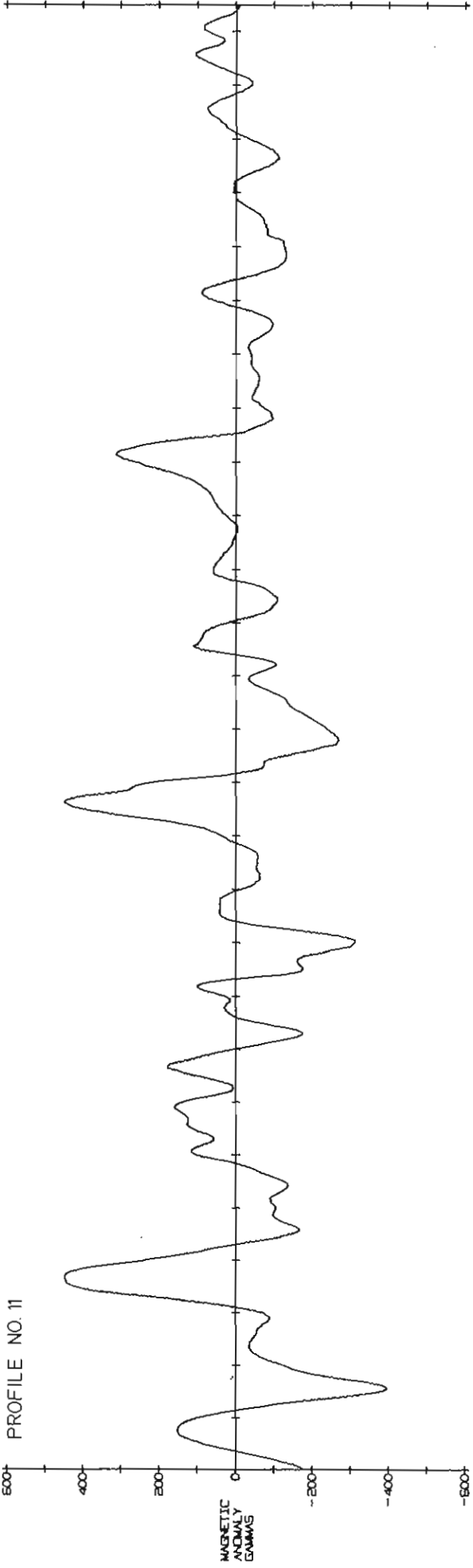
PROFILE NO. 10

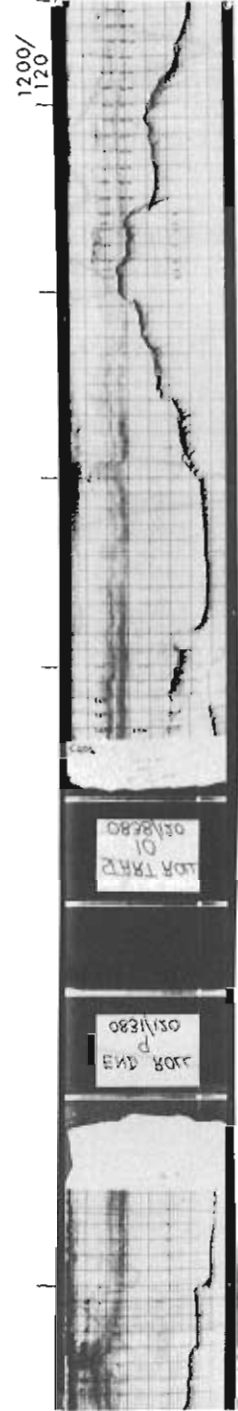
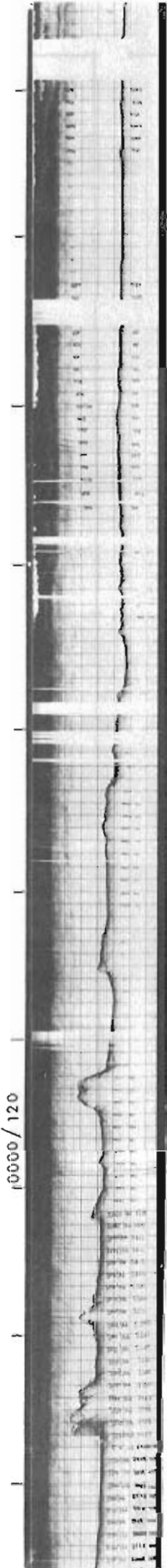
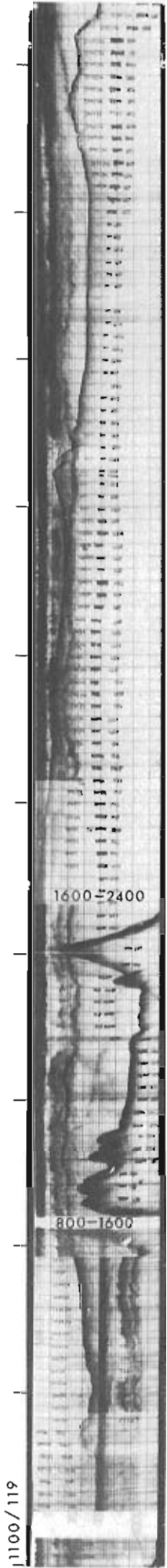


11

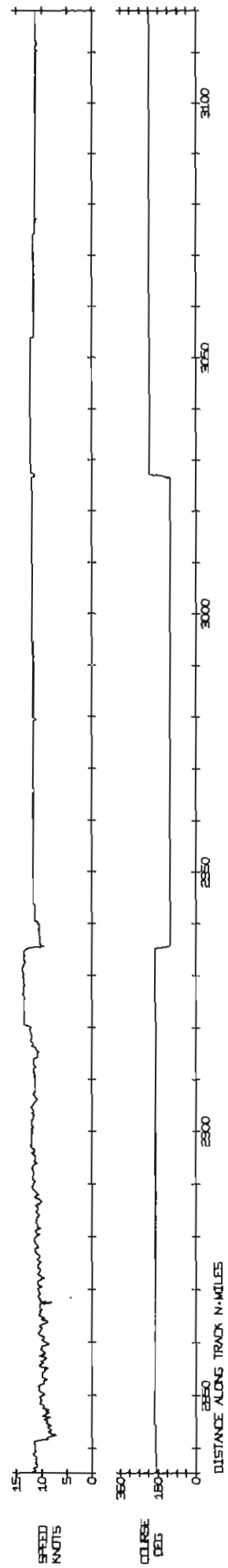
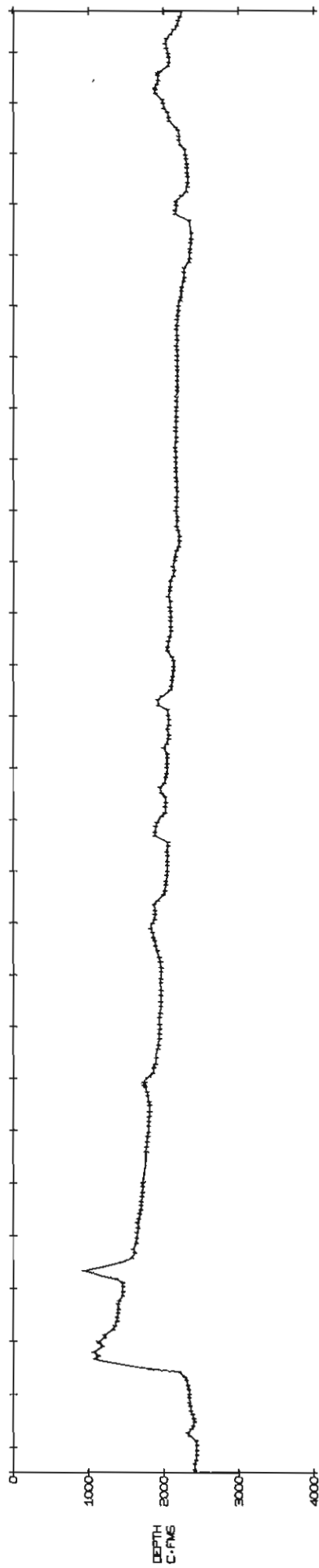
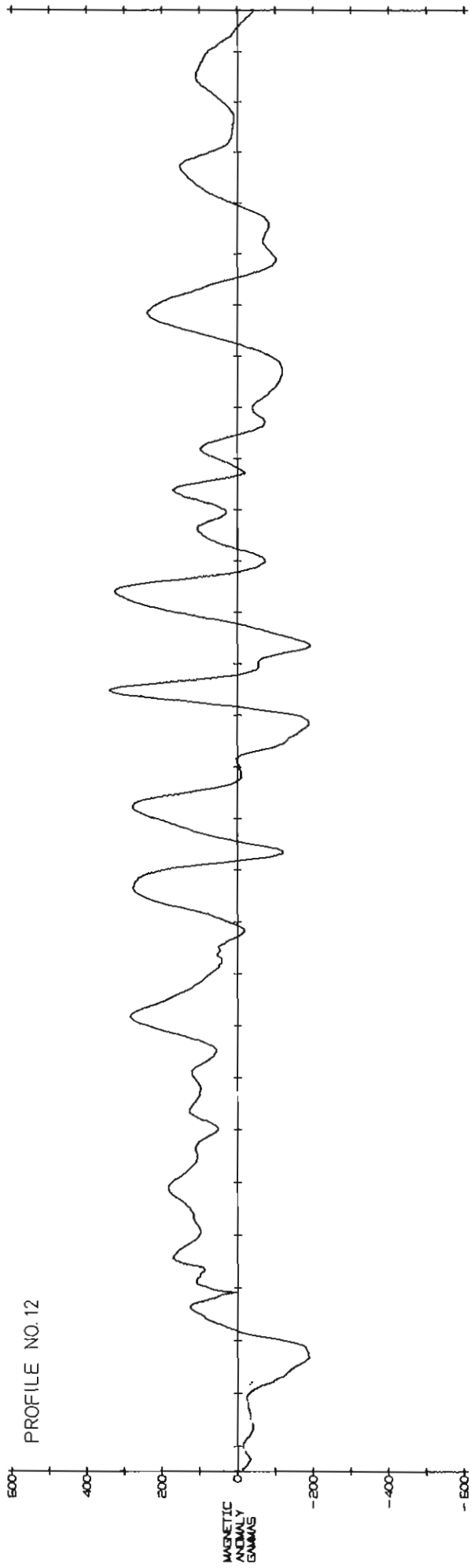


PROFILE NO. 11





PROFILE NO. 12



DAY NO. 119
TIME HRS

12

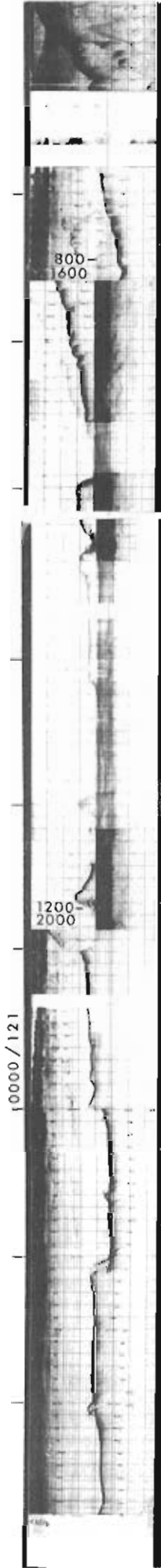
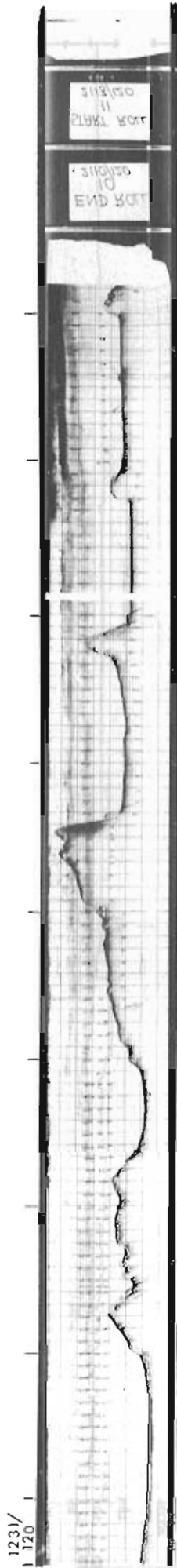
1B

0

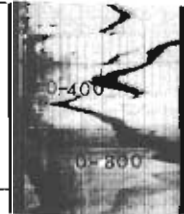
5

12

13

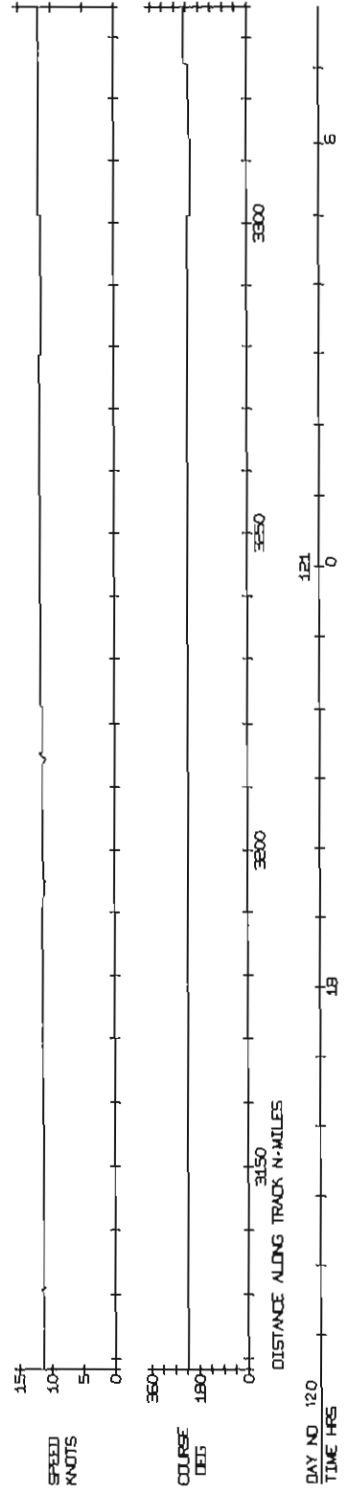
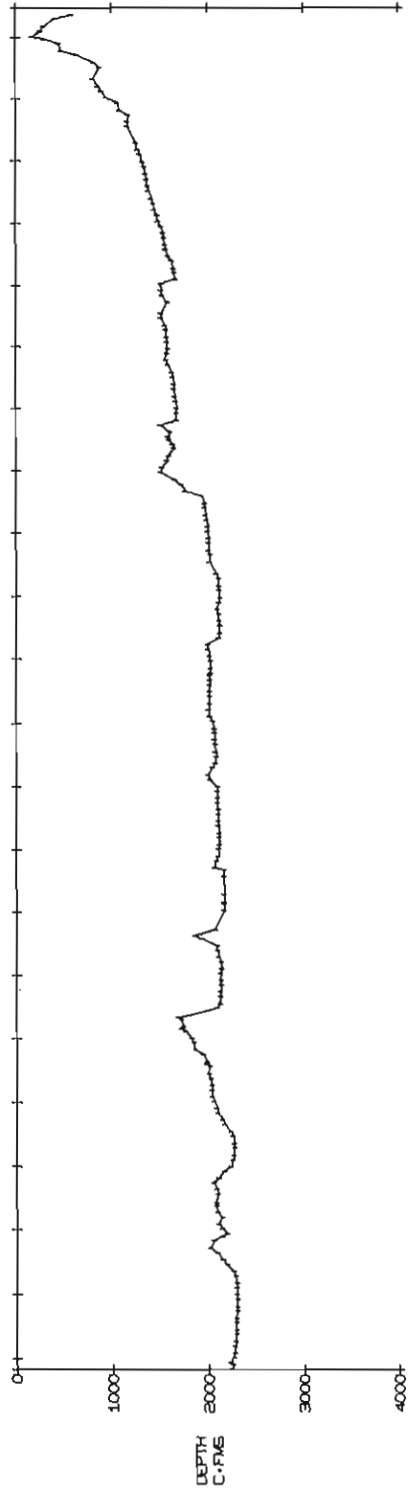
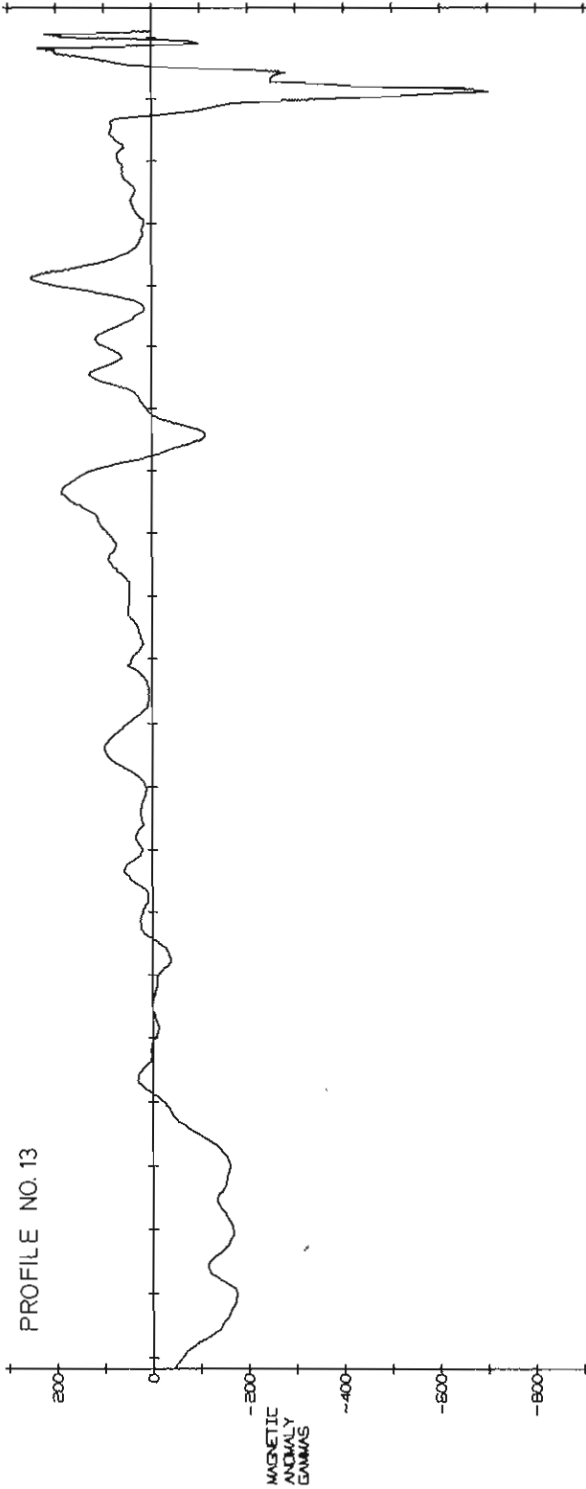


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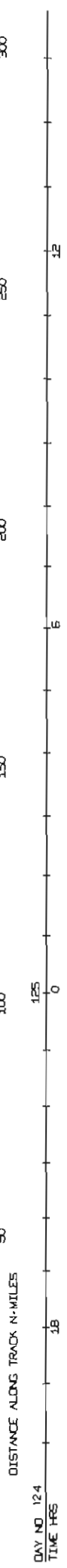
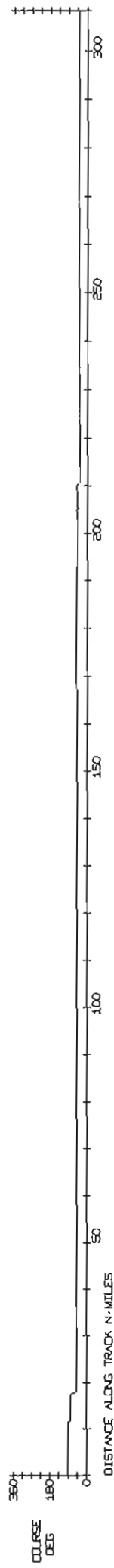
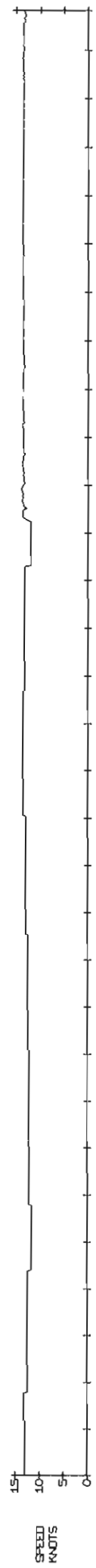
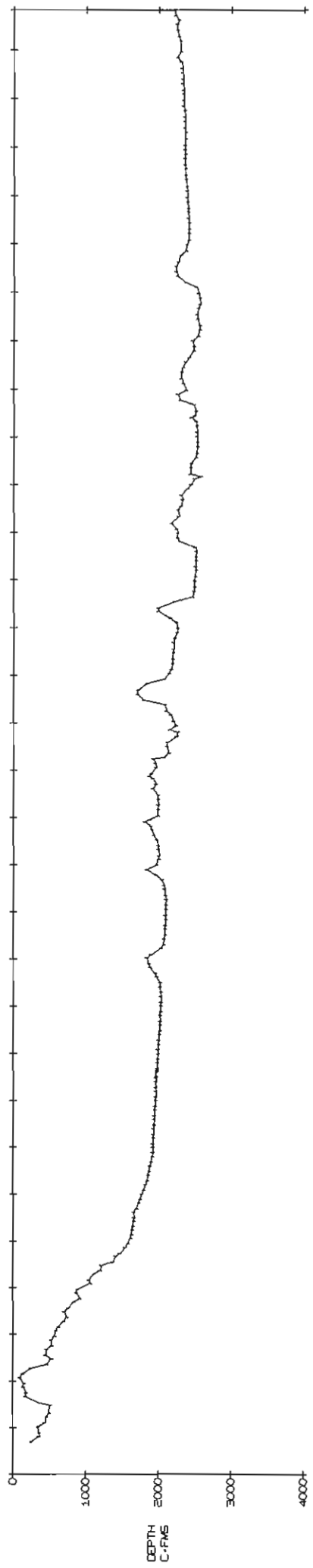
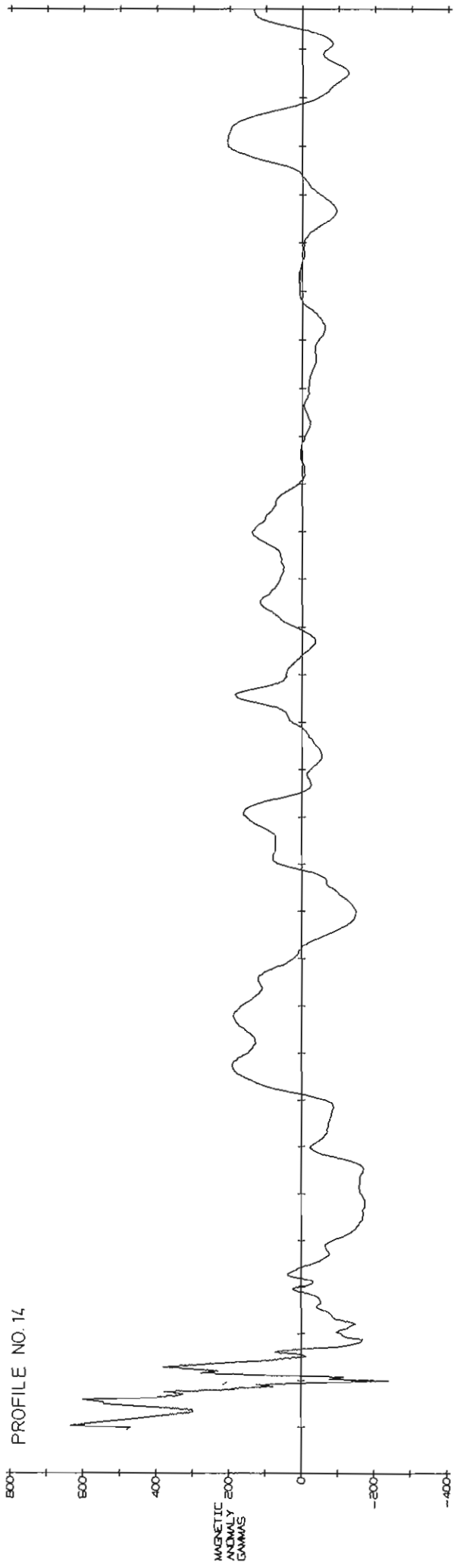


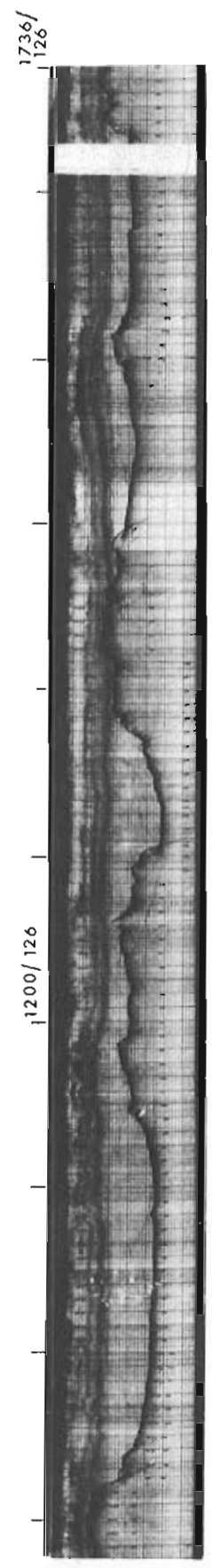
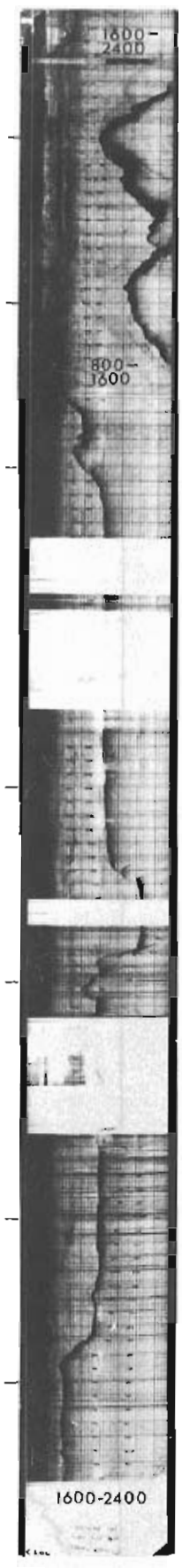
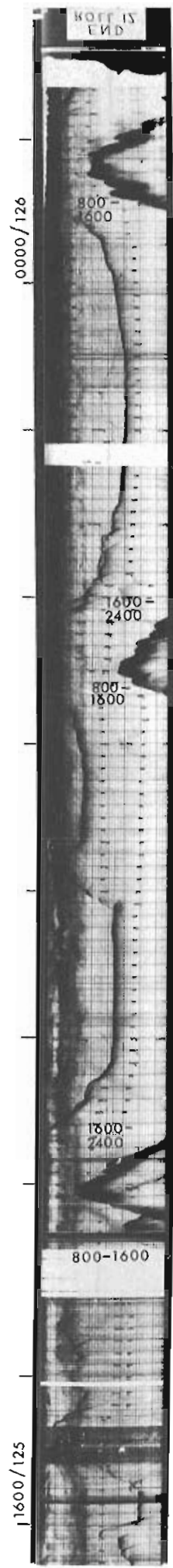
END
OF
LEG 1

PROFILE NO. 13

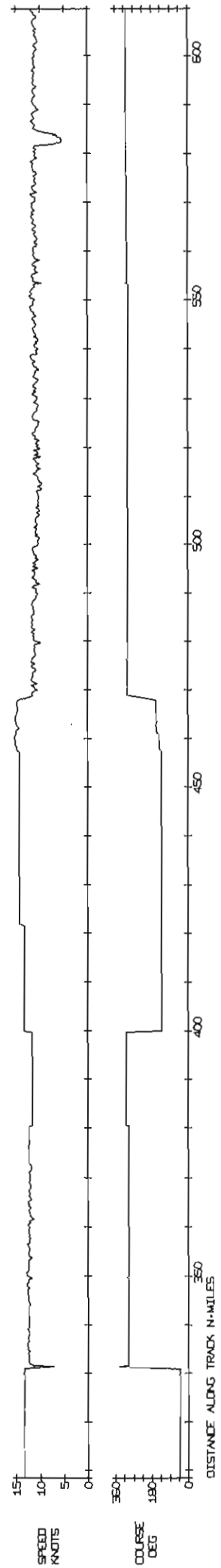
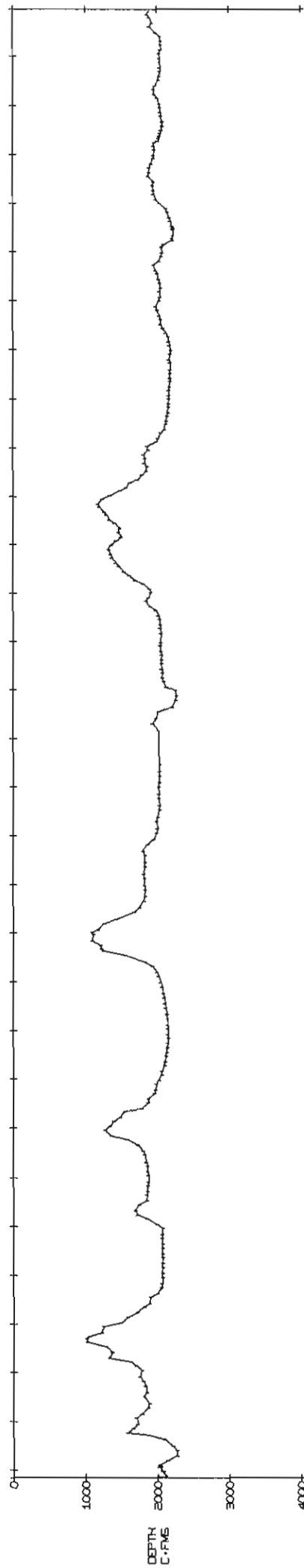
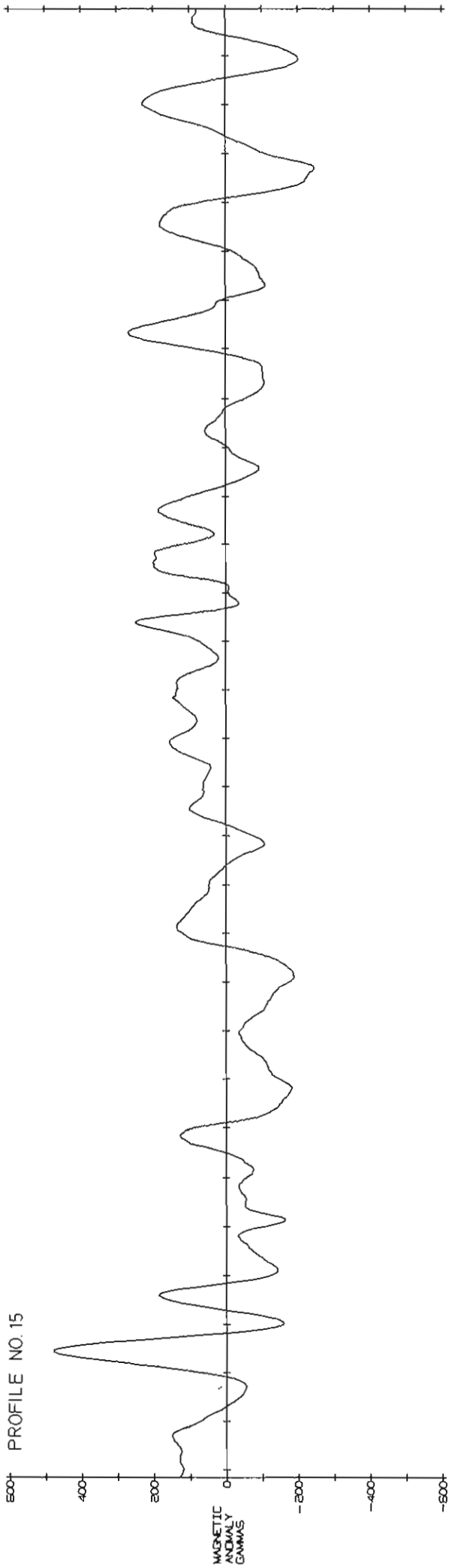


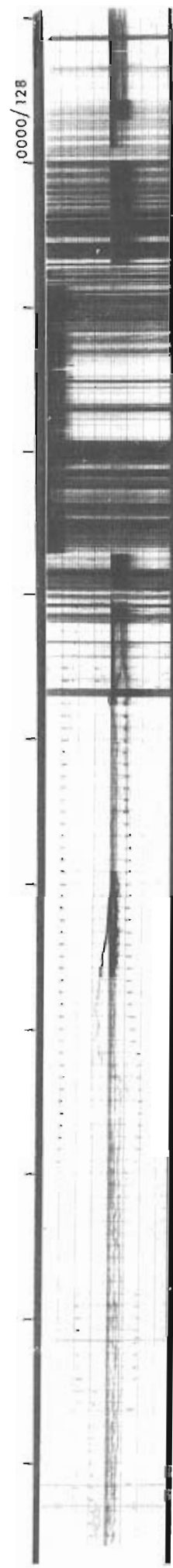
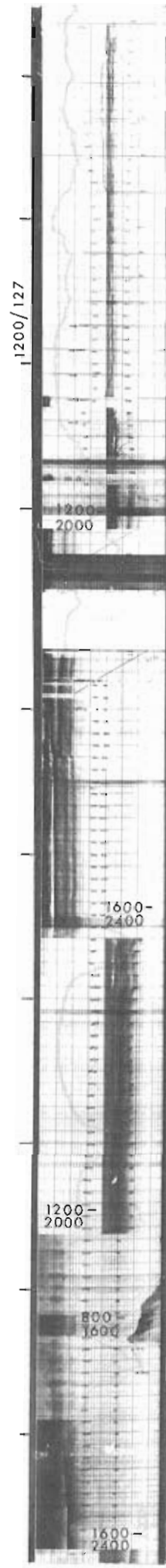
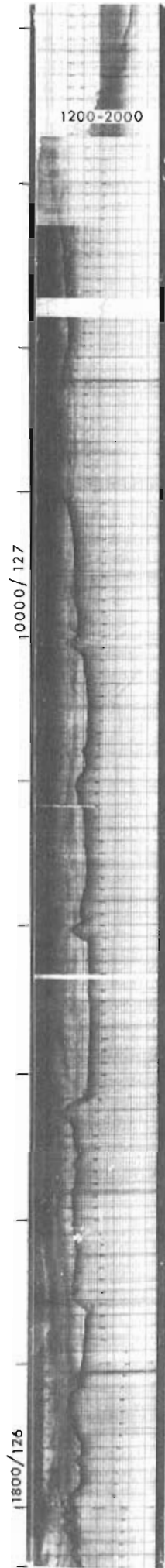
PROFILE NO. 14





PROFILE NO. 15

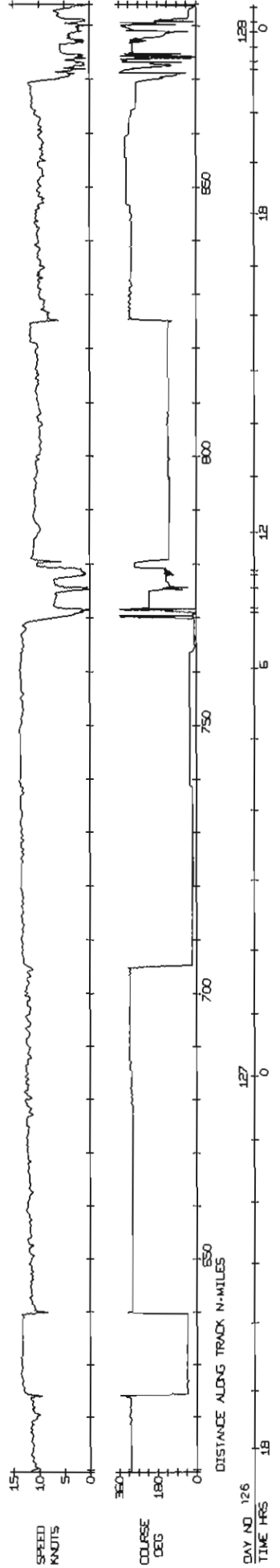
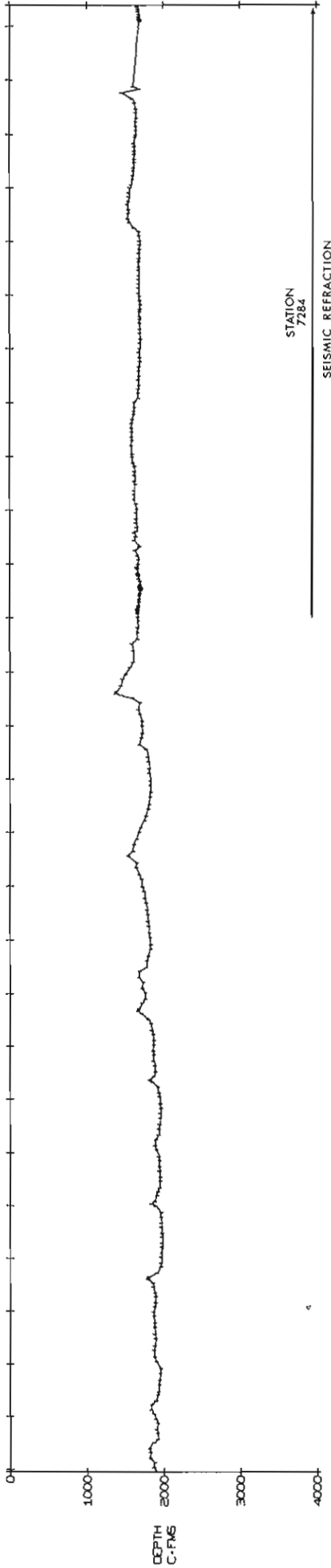
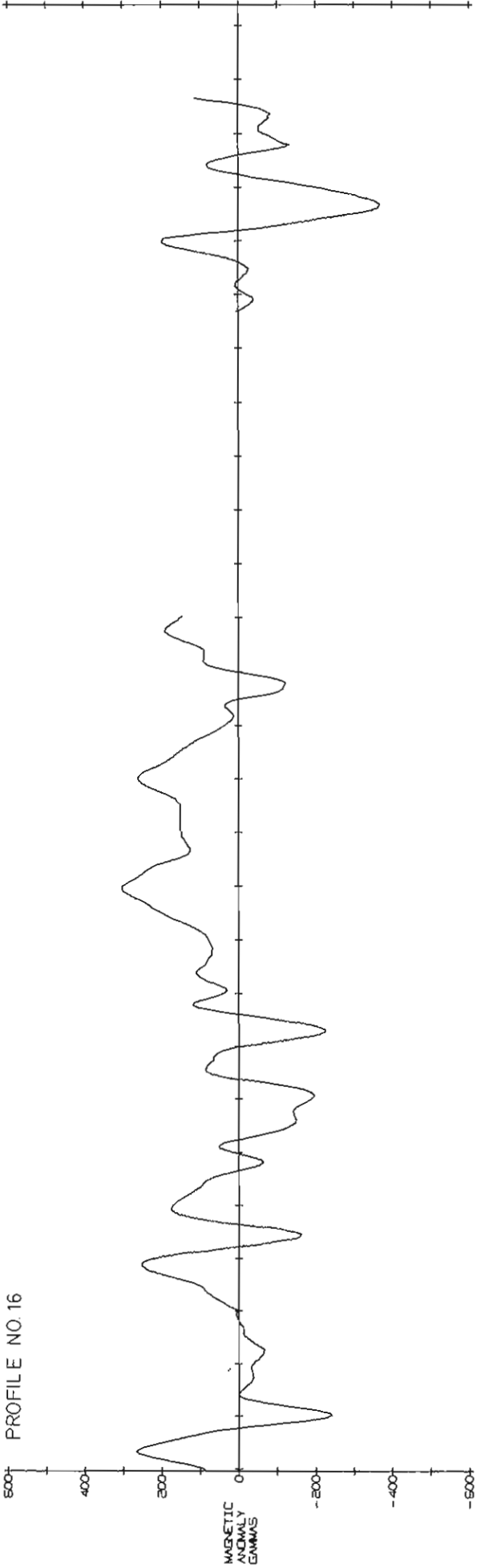


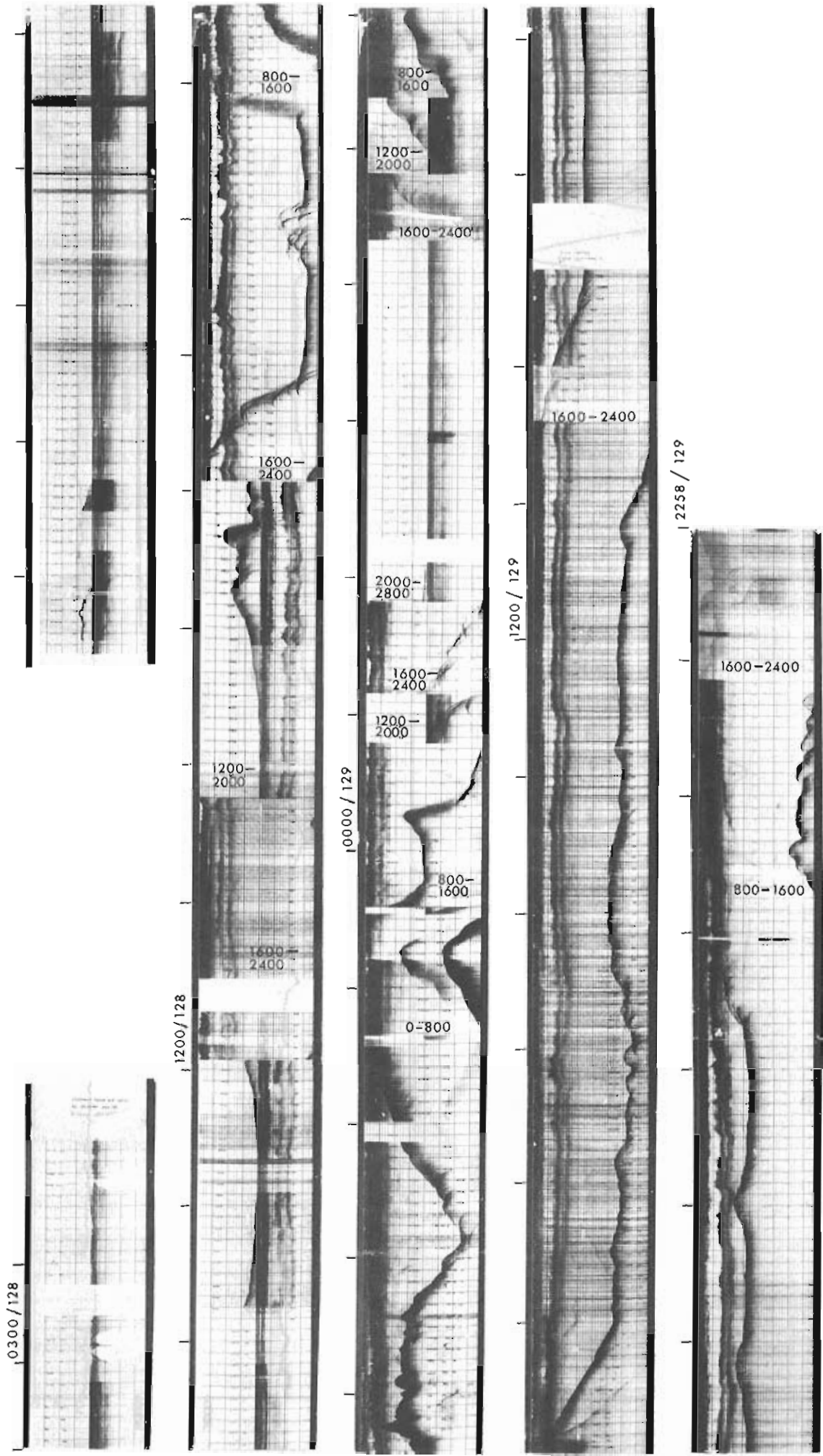


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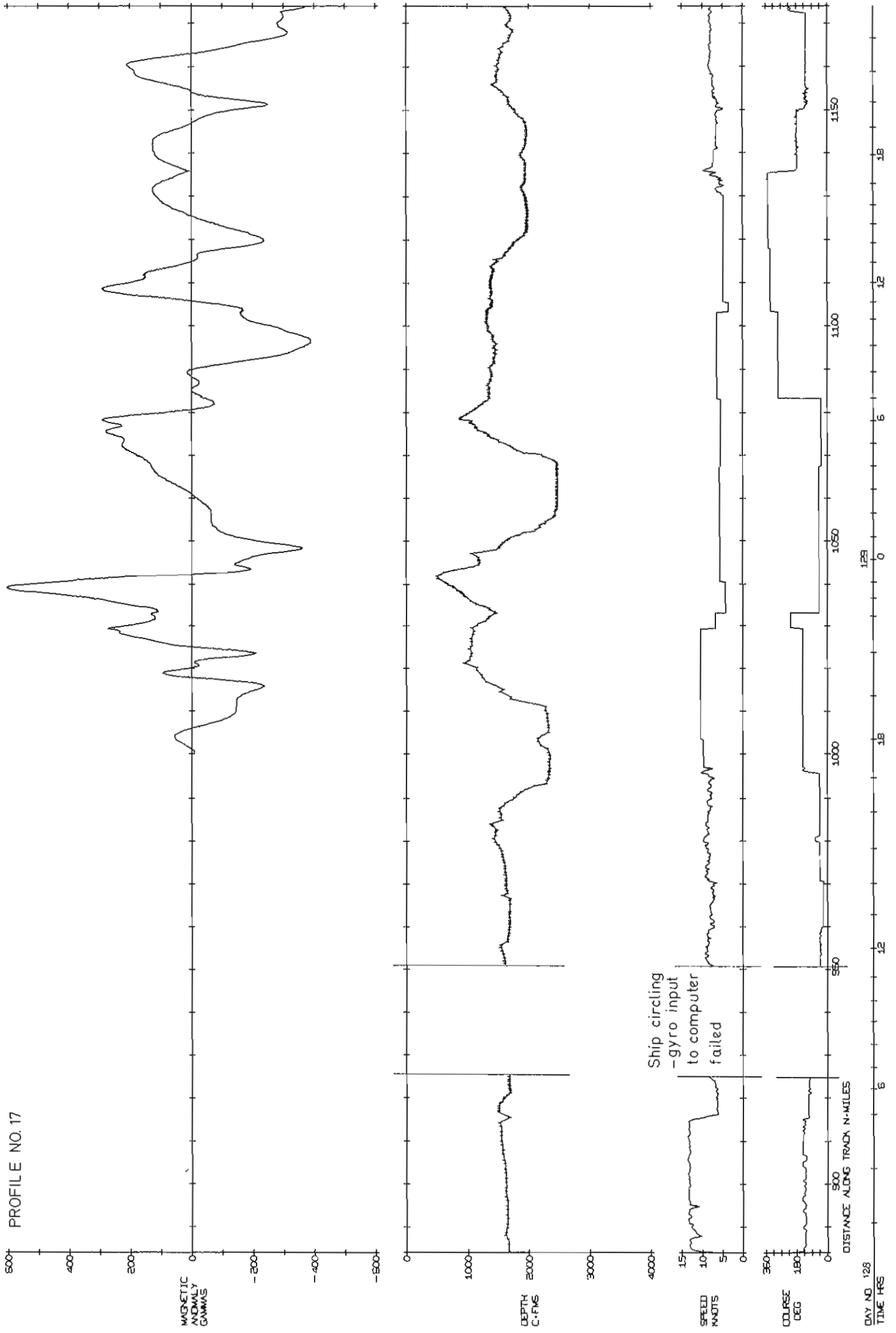


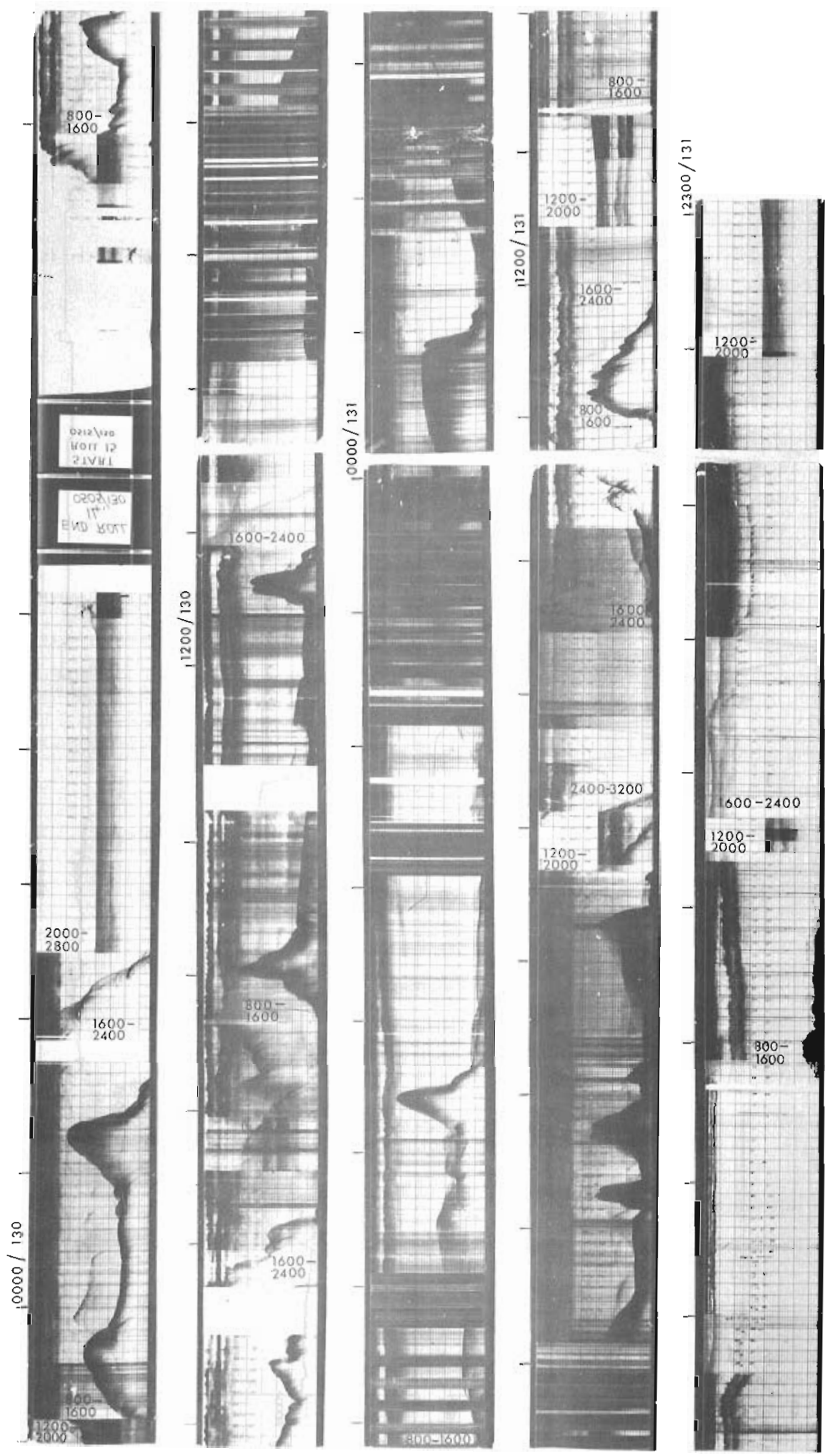
PROFILE NO. 16





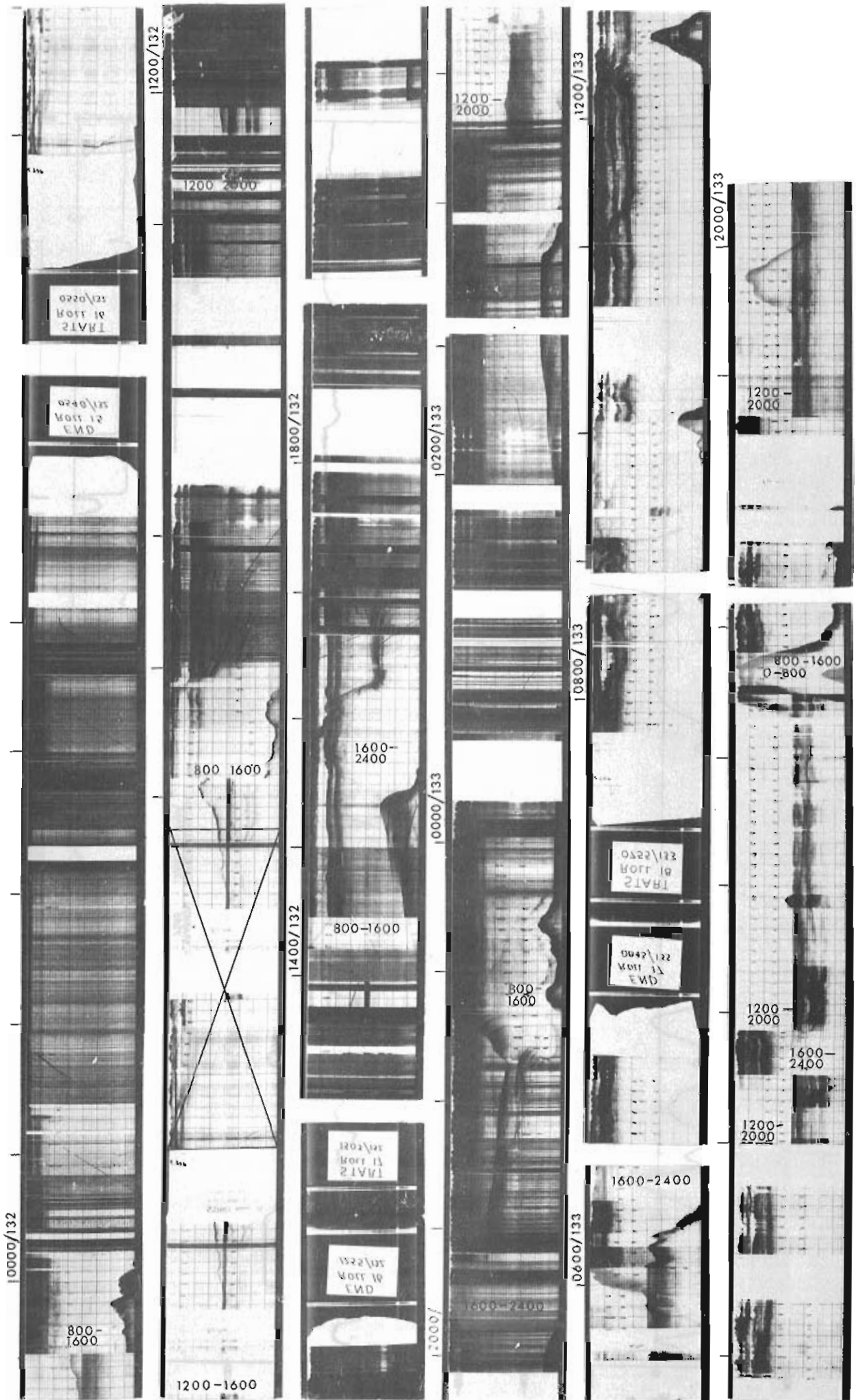
PROFILE NO. 17



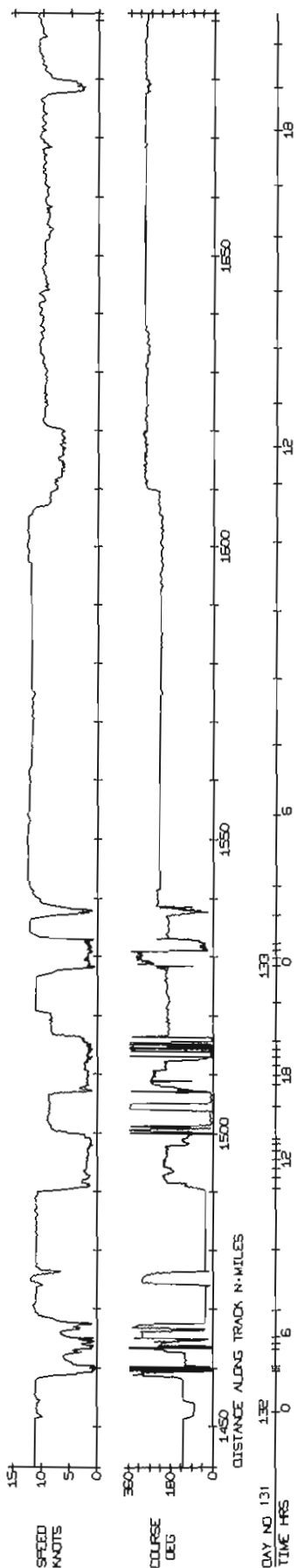
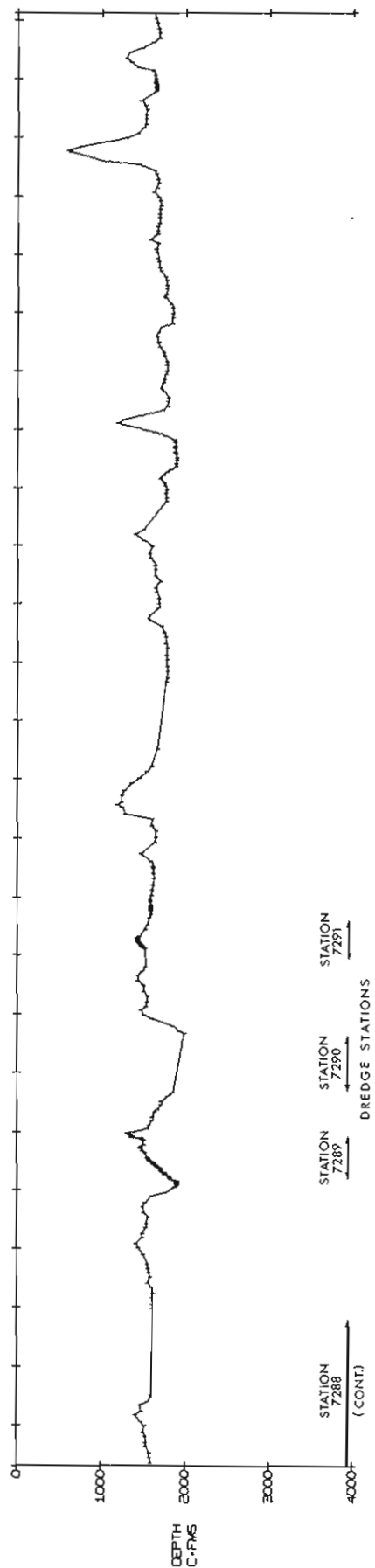
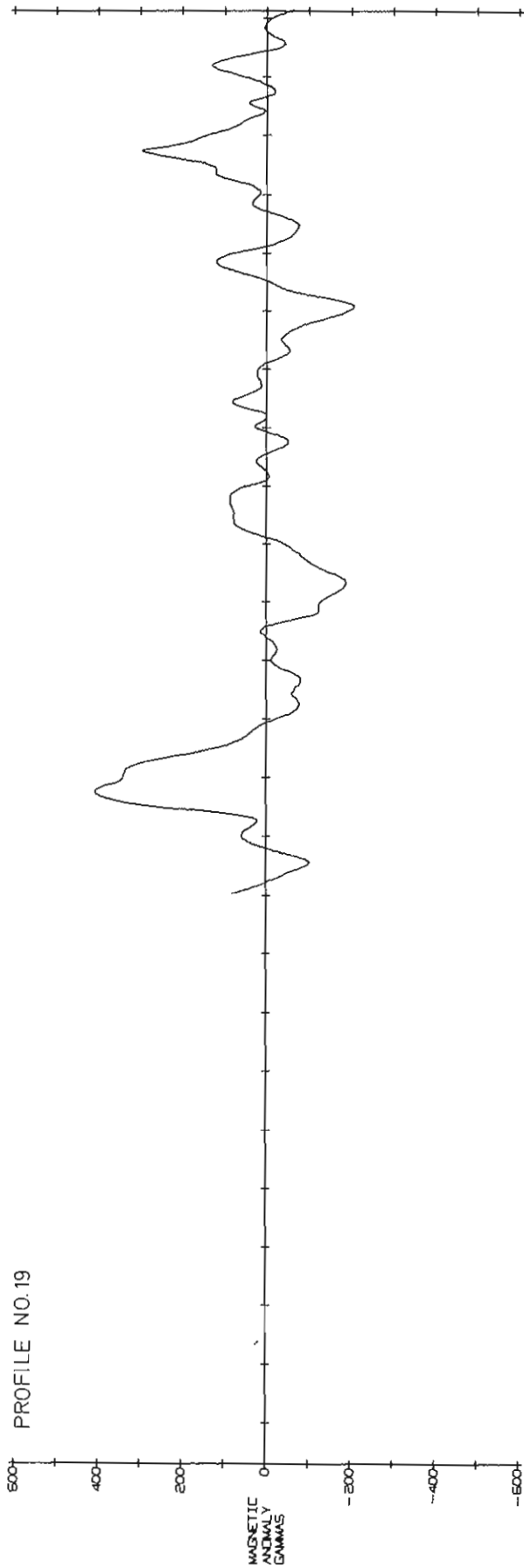


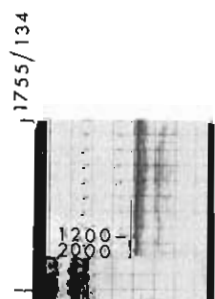
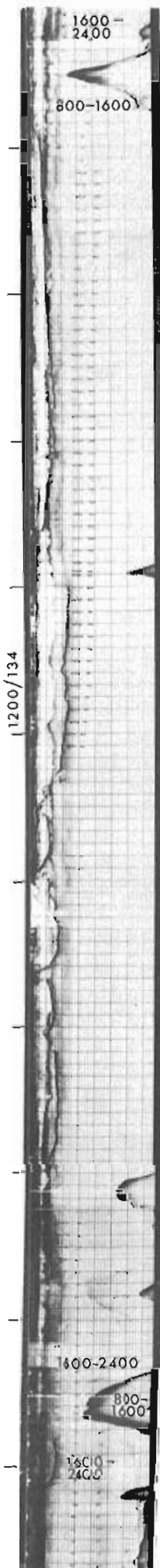
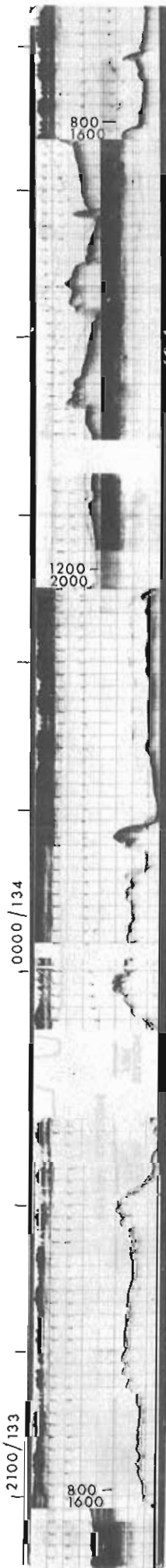
PROFILE NO. 18

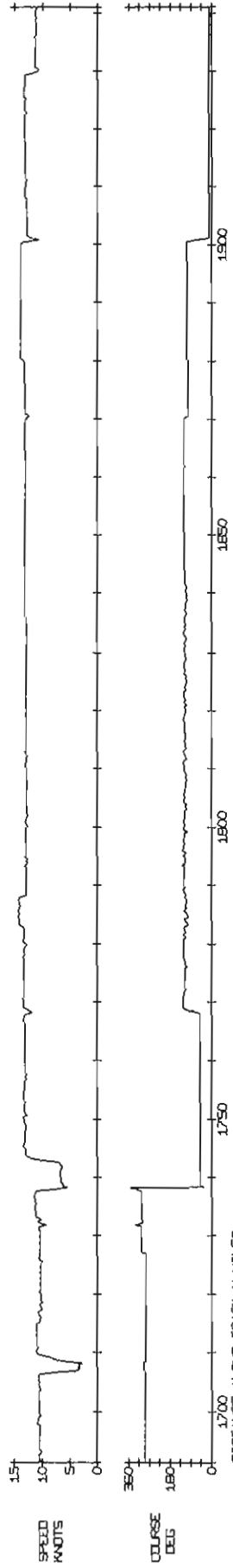
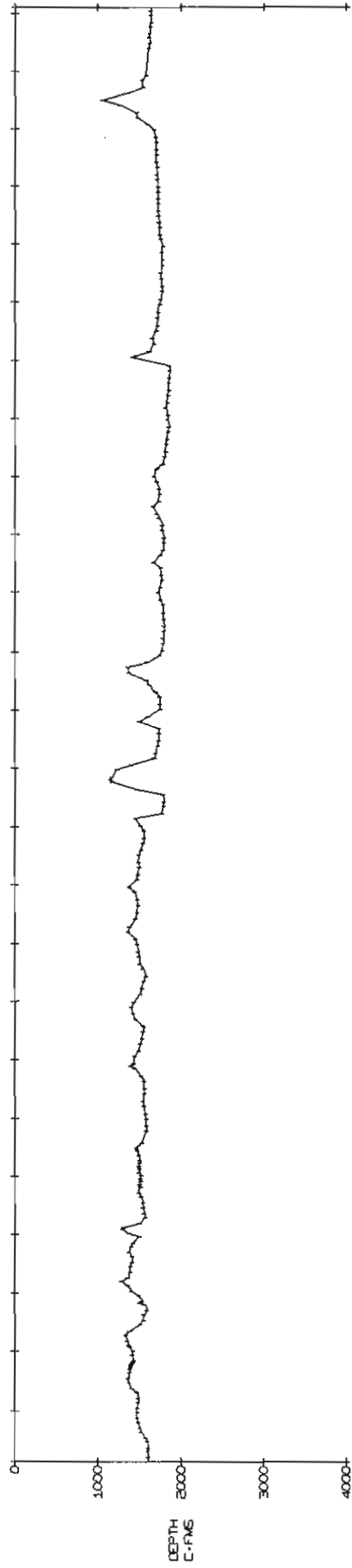
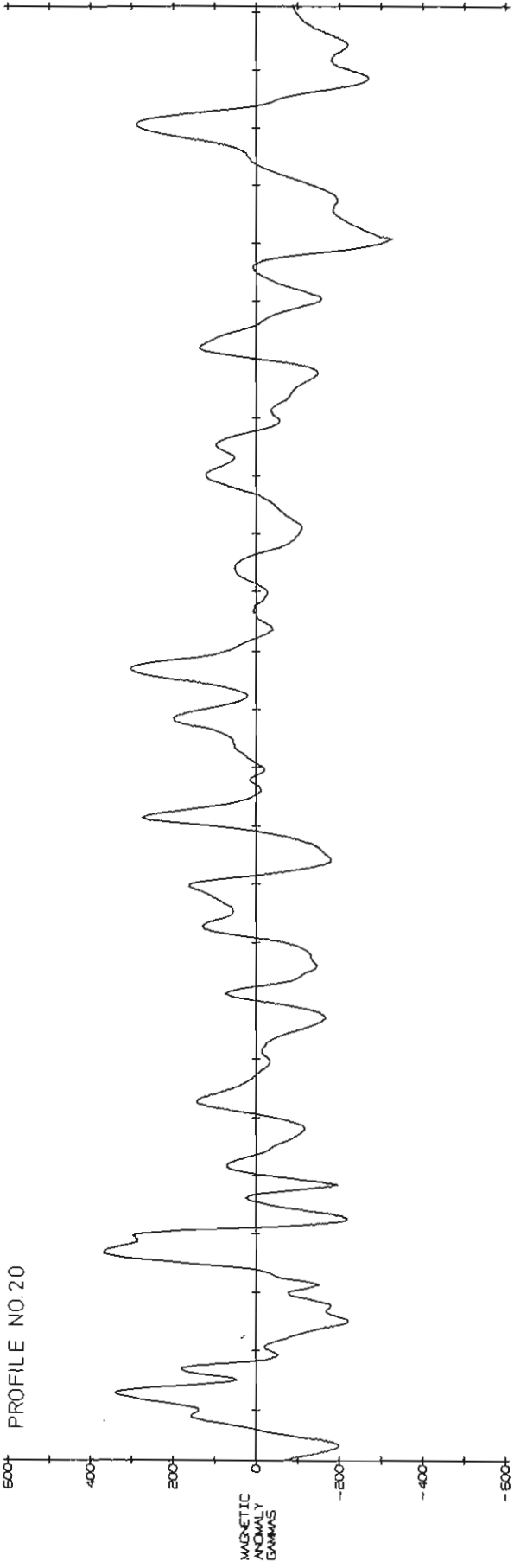


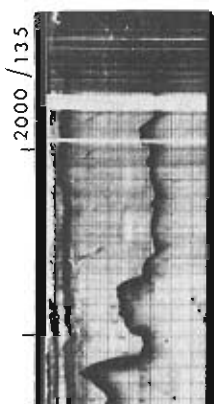
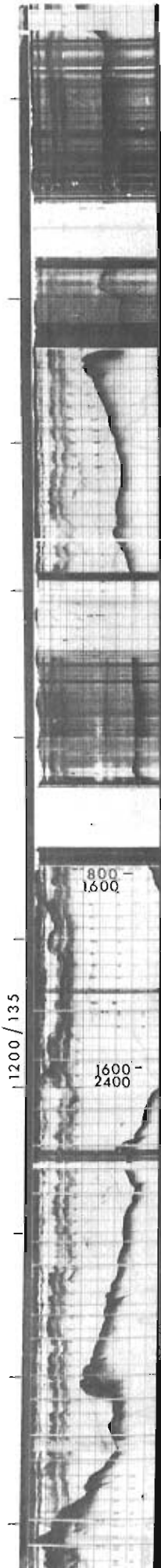
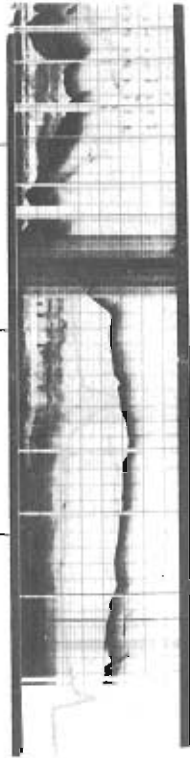
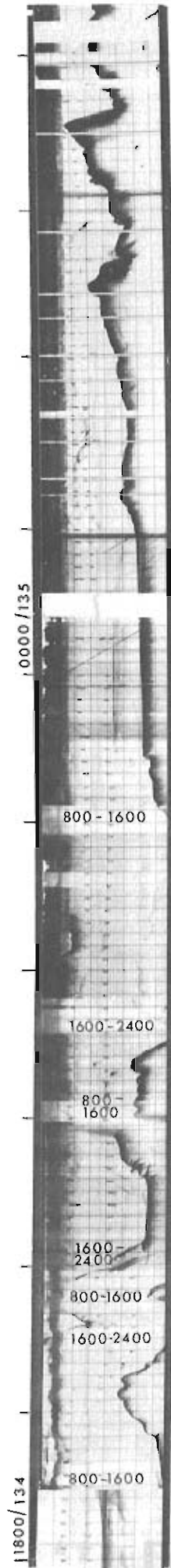


PROFILE NO. 19

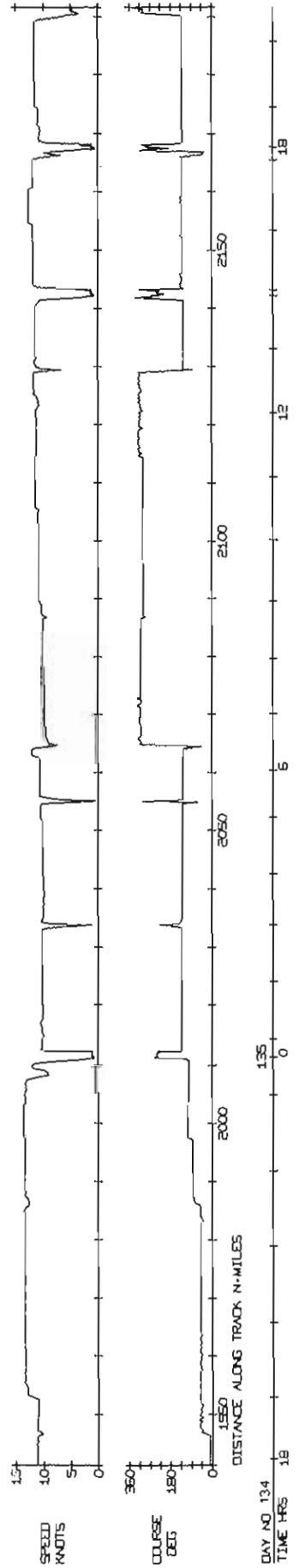
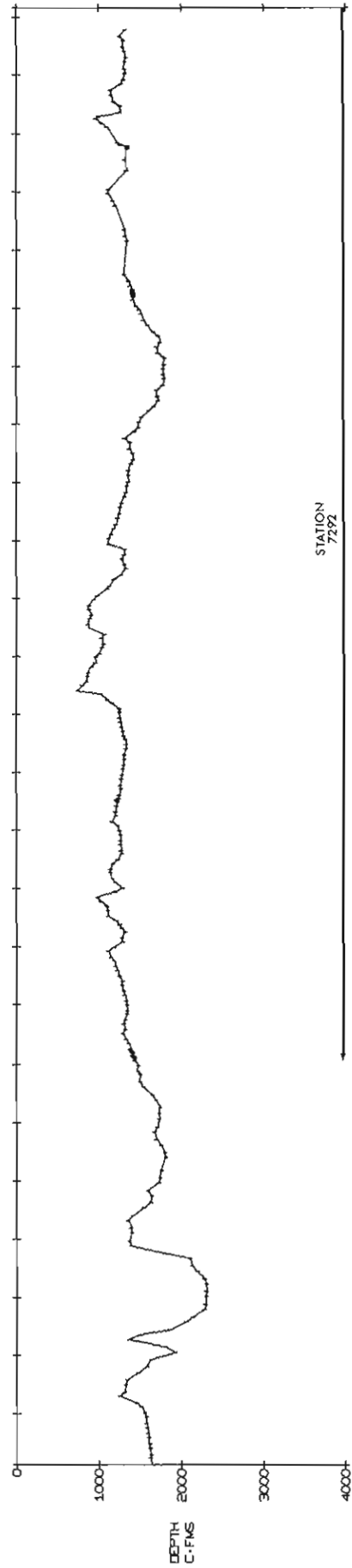
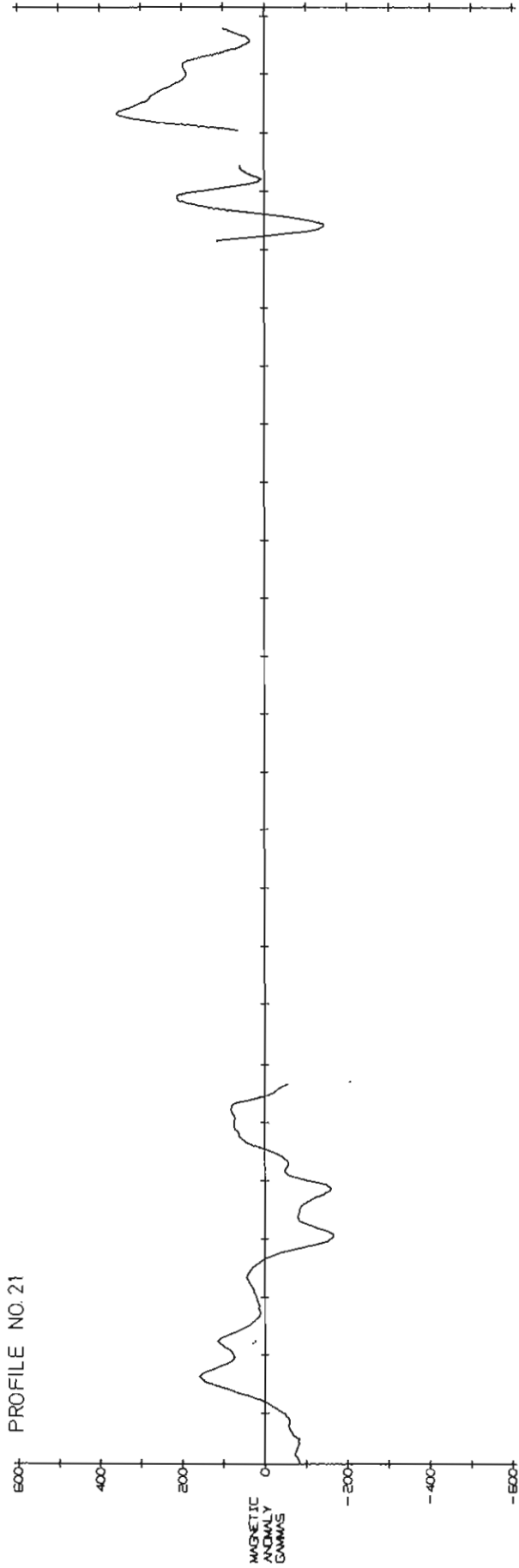


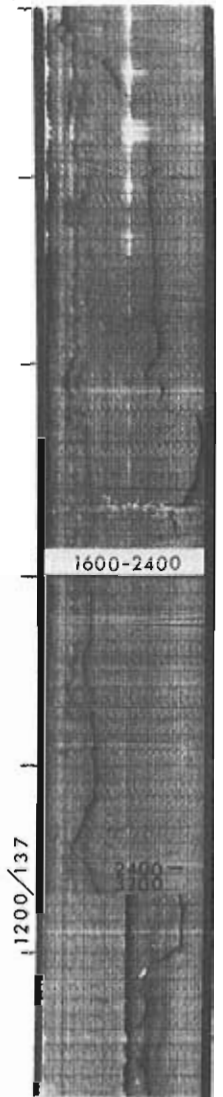
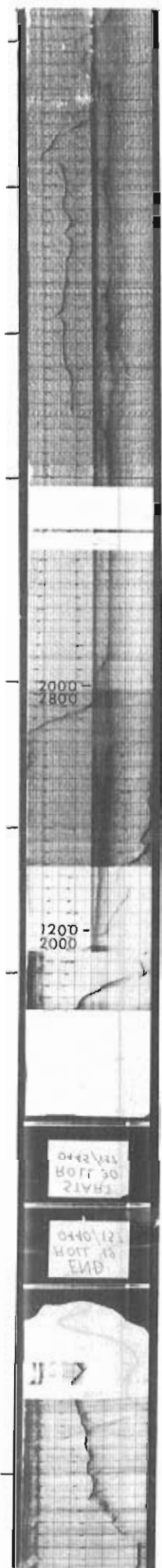
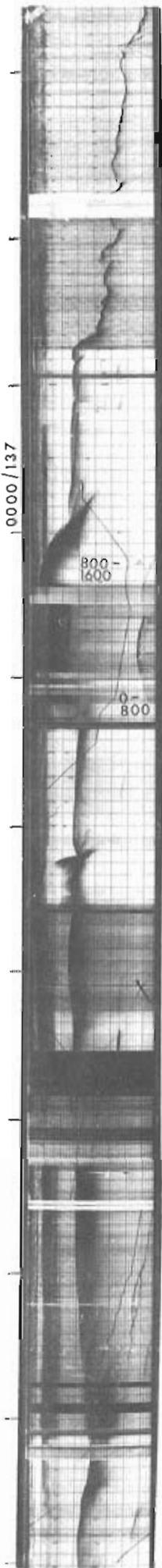
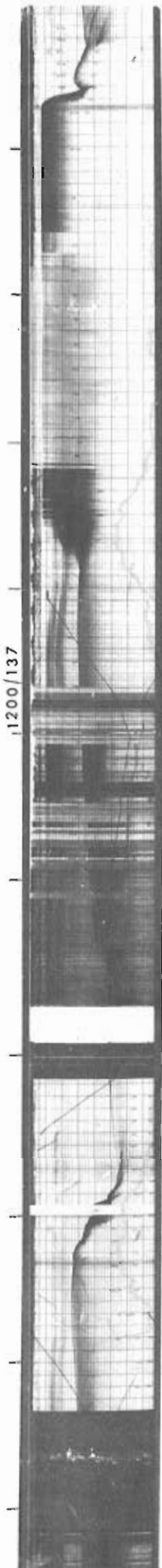
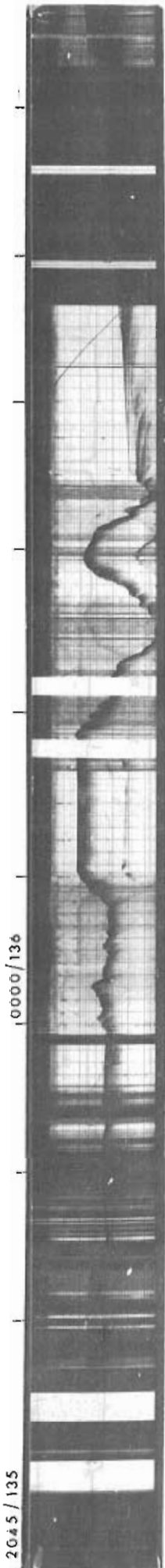


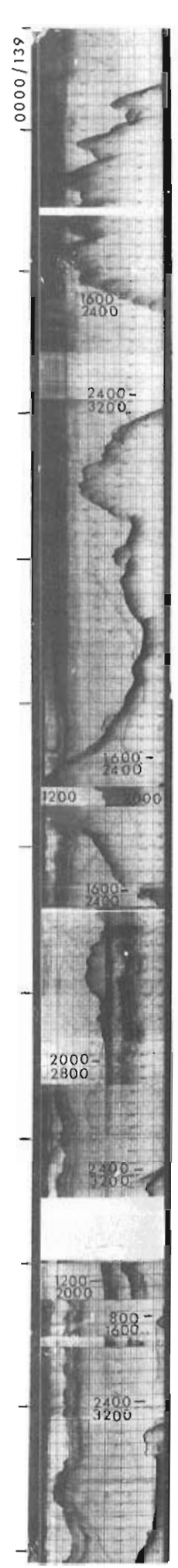
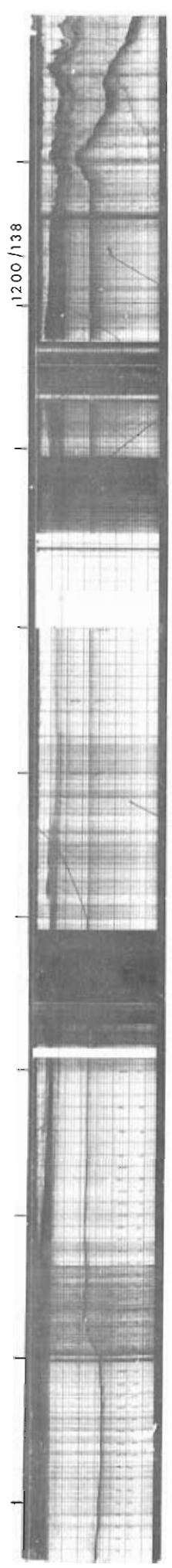
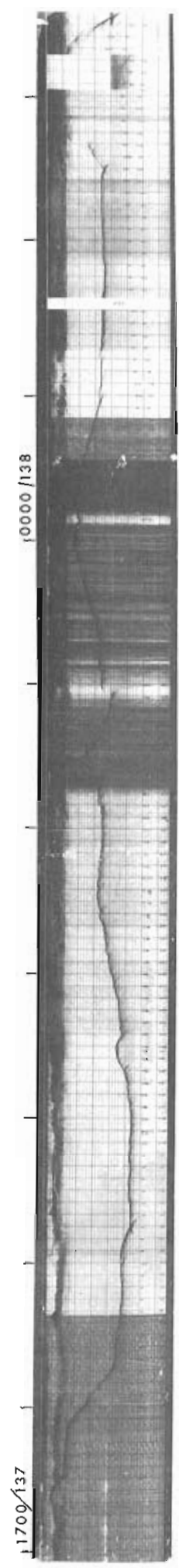




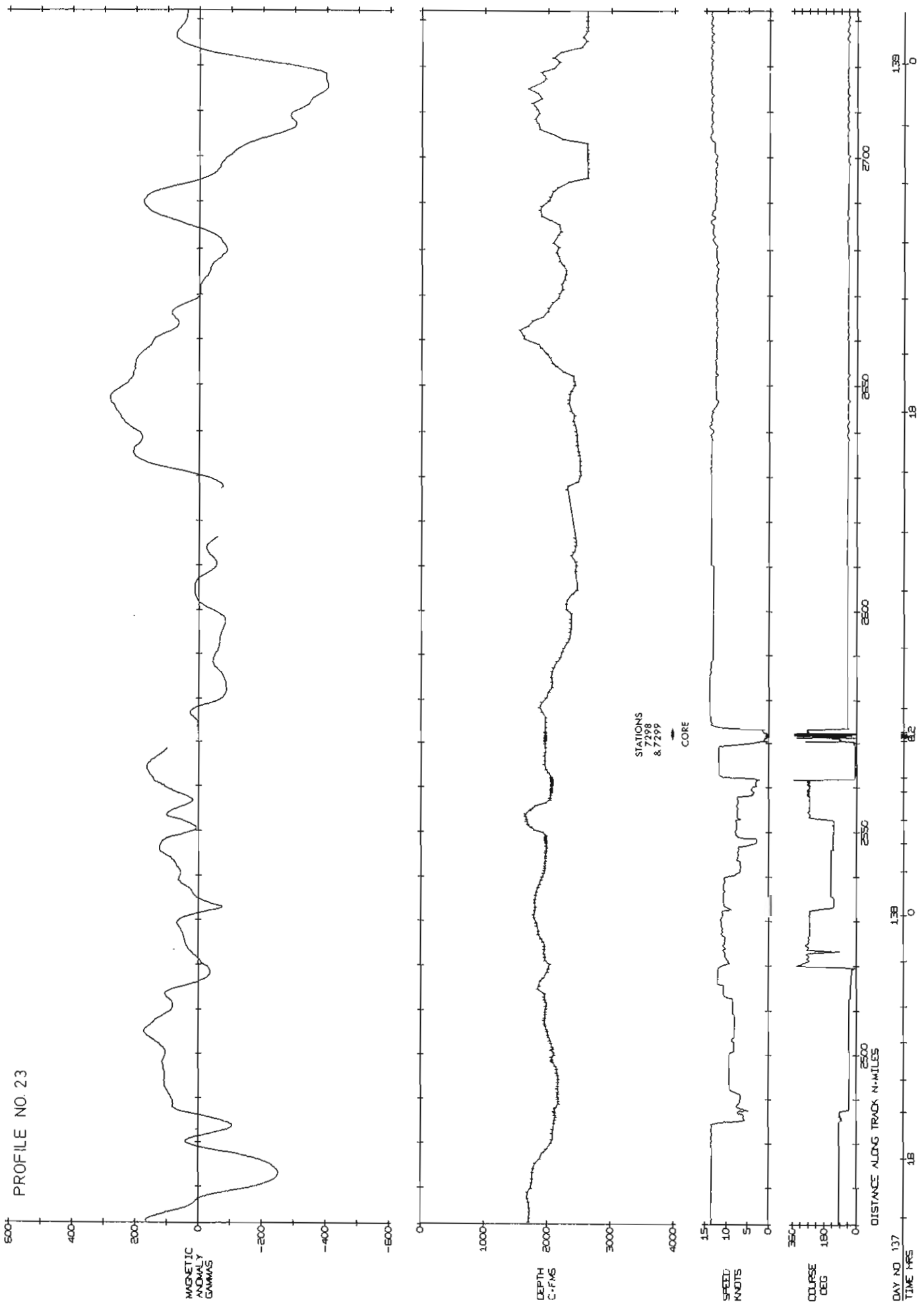
PROFILE NO 21

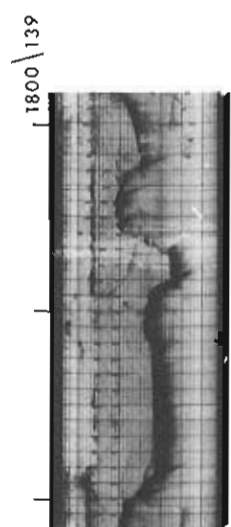
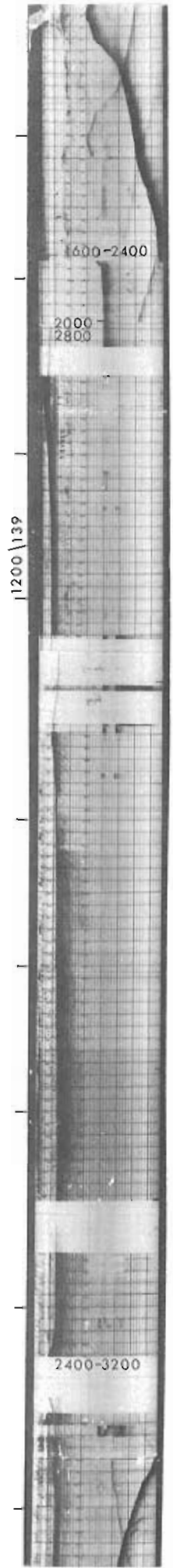




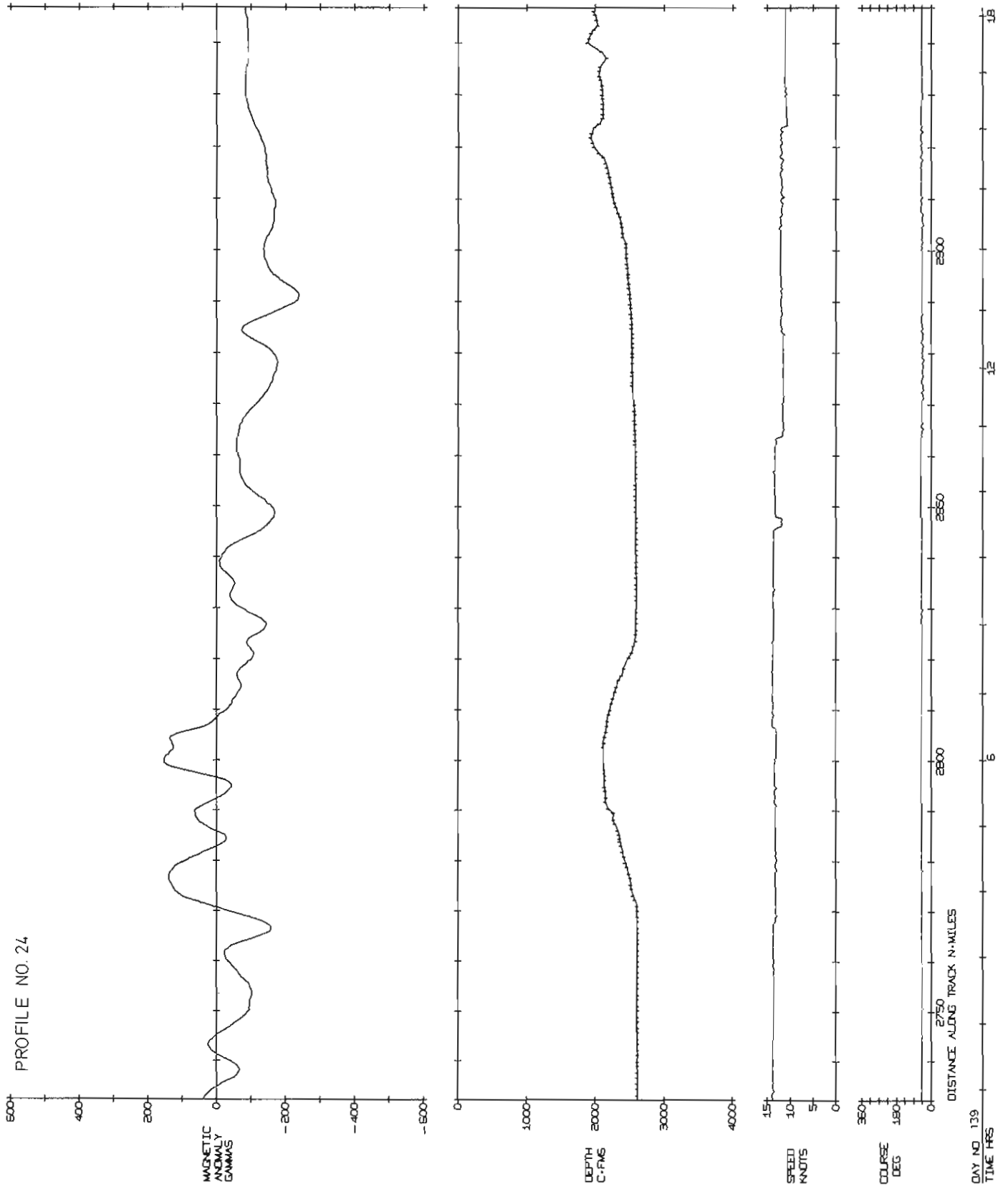


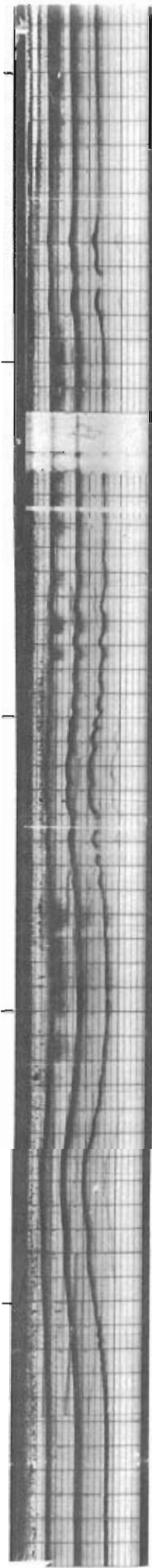
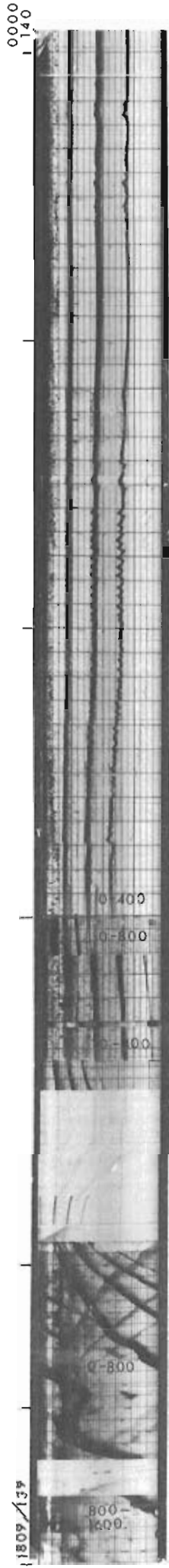
PROFILE NO. 23





PROFILE NO. 24



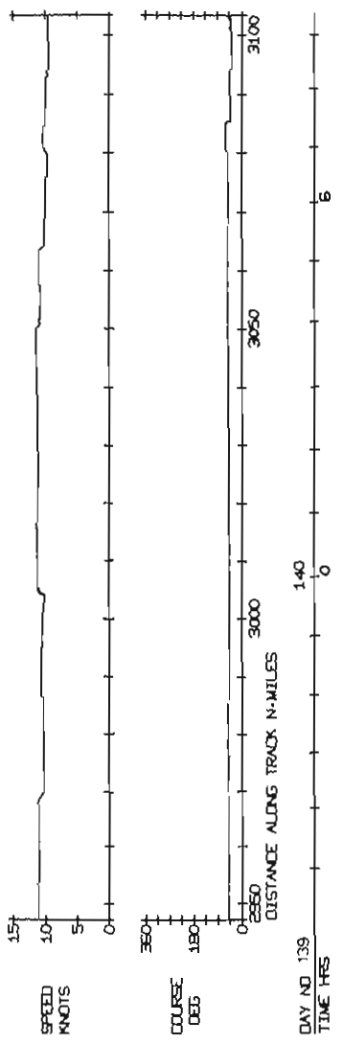
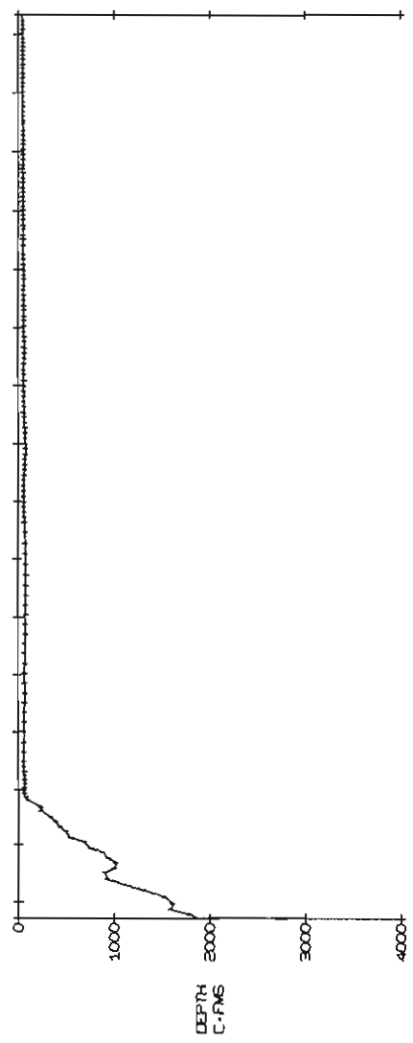
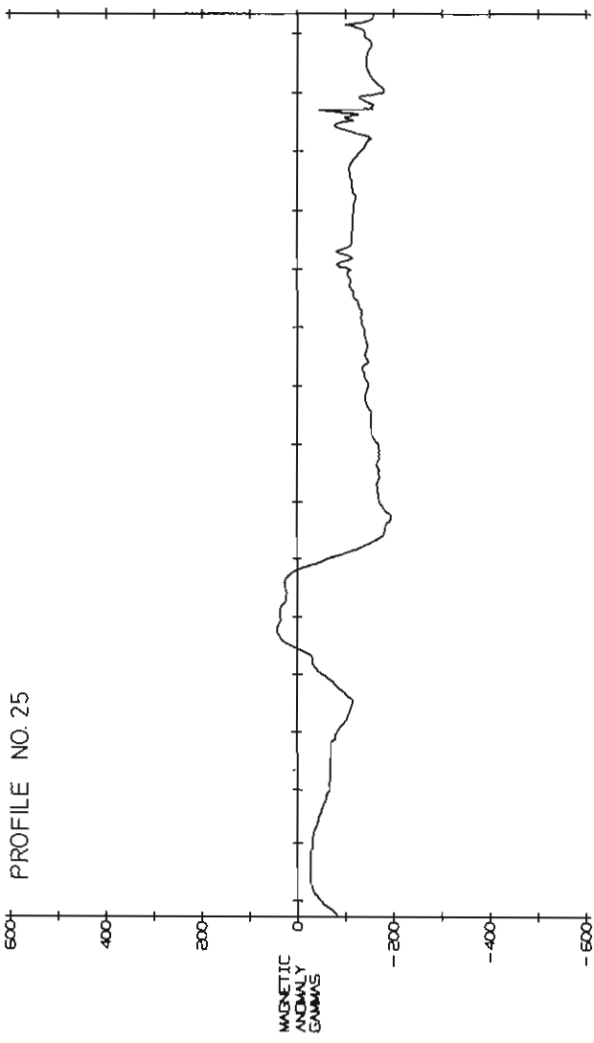


1135/140

END OF LEG 2

04/12/11 15 LOR END	REC 5 END	CRANE 22 END	
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PROFILE NO. 25



SECTION B

Listing of Navigation Points.

1:1,000,000 Track Charts.

NAVIGATION POINTS FOR DISCOVERY CRUISE 33 LEG 1

DAY	TIME H M	LATITUDE		LONGITUDE	
		DEG	MIN	DEG	MIN
105	12 8	51	14.2	-9	22.7
105	1236	51	12.5	-9	25.3
105	1328	51	15.1	-9	34.7
105	14 6	51	17.1	-9	42.3
105	1442	51	19.3	-9	51.1
105	1524	51	22.0	-10	0.9
105	1554	51	23.3	-10	6.5
105	17 8	51	26.9	-10	22.9
105	1939	51	53.1	-10	45.2
105	2125	52	10.8	-11	2.3
105	2219	52	20.1	-11	10.3
106	049	52	45.6	-11	32.7
106	212	52	58.8	-11	45.5
106	242	53	3.7	-11	50.3
106	518	53	29.8	-12	14.0
106	642	53	43.4	-12	26.6
106	736	53	52.1	-12	34.7
106	10 6	54	16.8	-12	57.9
106	1054	54	24.7	-13	5.8
106	1131	54	29.5	-13	10.8
106	1241	54	36.6	-13	18.1
106	15 9	55	2.2	-13	40.7
106	1629	55	15.5	-13	52.4
106	1724	55	20.1	-13	56.4
106	1748	55	21.9	-13	57.7
106	18 3	55	23.2	-13	58.7
106	1942	55	40.0	-14	14.5
106	2041	55	49.6	-14	23.5
106	2219	55	57.6	-14	30.1
106	2233	55	58.5	-14	30.9
106	2338	56	9.3	-14	40.6
107	1 9	56	23.9	-14	54.7
107	358	56	50.3	-15	20.5
107	536	57	5.0	-15	35.5
107	616	57	10.8	-15	40.7
107	650	57	16.2	-15	43.7
107	714	57	20.2	-15	46.5
107	824	57	32.5	-15	51.1
107	842	57	35.3	-15	51.8
107	9 4	57	35.9	-15	51.8
107	1014	57	35.8	-15	52.6
107	1028	57	35.8	-15	53.8
107	11 2	57	36.2	-15	53.1
107	1130	57	37.9	-15	49.1
107	1150	57	38.1	-15	45.7
107	1224	57	36.3	-15	51.4
107	1418	57	32.4	-16	9.0
107	1516	57	31.2	-16	15.5
107	1616	57	33.4	-16	4.8
107	1658	57	34.7	-15	57.0
107	1726	57	35.5	-15	52.1
107	1736	57	35.0	-15	51.4
107	18 7	57	33.7	-15	56.7
107	1843	57	32.1	-16	1.8
107	1911	57	30.8	-16	3.6
107	1921	57	30.1	-16	3.6
107	2033	57	33.8	-15	49.7
107	2045	57	33.2	-15	48.9
107	2117	57	32.3	-15	51.9
107	2211	57	29.6	-16	1.2
107	2247	57	30.9	-15	55.1
107	2339	57	32.7	-15	48.1
107	2355	57	33.0	-15	47.3
108	115	57	29.6	-16	0.5
108	127	57	28.3	-16	0.6
108	241	57	31.5	-15	48.1
108	251	57	30.9	-15	47.3
108	4 3	57	27.4	-15	59.8
108	427	57	26.0	-16	0.8
108	5 7	57	28.2	-15	58.5
108	623	57	32.8	-15	55.5
108	717	57	35.9	-15	51.5
108	729	57	35.4	-15	50.1
108	755	57	34.4	-15	54.1
108	841	57	32.6	-16	1.1

NAVIGATION POINTS FOR DISCOVERY CRUISE 33 LEG 1

DAY	TIME		LATITUDE		LONGITUDE	
	H	M	DEG	MIN	DEG	MIN
108	9	9	57	32.4	-15	57.0
108	9	41	57	32.2	-15	52.9
108	10	55	57	31.1	-15	55.6
108	11	9	57	32.3	-15	54.4
108	11	35	57	35.1	-15	50.3
108	11	53	57	35.6	-15	50.8
108	12	32	57	35.2	-15	51.3
108	13	34	57	34.4	-15	50.2
108	14	44	57	21.9	-15	52.9
108	16	6	57	7.9	-15	54.5
108	16	54	56	59.7	-15	57.0
108	17	47	56	50.8	-15	59.3
108	18	45	56	41.2	-16	2.0
108	21	45	56	11.6	-16	9.6
109	0	35	55	42.1	-16	18.5
109	2	13	55	25.7	-16	22.7
109	4	1	55	7.2	-16	28.1
109	5	15	54	54.9	-16	32.2
109	6	36	54	41.5	-16	36.8
109	7	0	54	37.1	-16	38.3
109	7	12	54	35.3	-16	39.3
109	8	14	54	35.2	-16	46.6
109	9	41	54	35.4	-16	57.7
109	10	7	54	35.1	-17	0.9
109	10	39	54	30.0	-17	0.7
109	12	1	54	16.8	-16	59.9
109	13	53	53	58.3	-16	58.4
109	14	55	53	48.6	-17	0.3
109	16	8	53	37.6	-17	2.8
109	19	10	53	39.9	-17	22.8
109	19	24	53	38.4	-17	21.9
109	20	50	53	26.0	-17	10.7
109	21	18	53	24.1	-17	9.2
109	21	44	53	21.6	-17	6.7
109	23	18	53	13.9	-16	58.7
109	23	56	53	12.0	-16	56.8
110	0	20	53	14.2	-16	57.1
110	1	4	53	18.5	-16	58.1
110	1	14	53	19.2	-16	57.7
110	2	46	53	11.4	-16	48.9
110	3	30	53	8.0	-16	44.2
110	5	4	52	59.8	-16	37.0
110	7	10	52	49.1	-16	28.7
110	7	58	52	46.3	-16	26.6
110	8	24	52	45.6	-16	29.1
110	9	30	52	43.4	-16	37.9
110	10	52	52	41.1	-16	51.1
110	11	56	52	46.5	-16	56.2
110	13	12	52	53.2	-17	2.0
110	15	11	53	4.1	-17	8.8
110	16	23	53	8.4	-17	10.2
110	18	7	53	18.0	-17	17.0
110	18	23	53	17.0	-17	15.1
110	22	39	52	54.5	-16	42.4
111	0	3	52	47.5	-16	32.4
111	1	25	52	49.8	-16	36.3
111	2	35	52	51.7	-16	40.4
111	4	39	52	54.9	-16	48.7
111	5	59	52	56.7	-16	53.5
111	8	7	52	59.9	-17	1.7
111	8	57	53	1.2	-17	5.4
111	9	49	53	2.2	-17	9.4
111	11	29	53	3.3	-17	15.4
111	11	45	53	2.0	-17	12.3
111	12	29	52	57.0	-17	2.4
111	12	51	52	55.5	-16	58.1
111	13	11	52	54.7	-16	54.8
111	13	39	52	55.9	-16	57.6
111	13	59	52	57.0	-16	58.3
111	14	31	52	59.4	-16	57.8
111	15	1	52	57.6	-16	55.4
111	15	15	52	57.1	-16	54.9
111	16	29	53	4.1	-16	57.0
111	17	13	53	0.2	-16	53.1
111	19	11	52	49.2	-16	43.1

NAVIGATION POINTS FOR DISCOVERY CRUISE 33 LEG 1

DAY	TIME	LATITUDE		LONGITUDE	
		DEG	MIN	DEG	MIN
111	1942	52	47.6	-16	37.0
111	20 4	52	49.2	-16	37.8
111	2118	52	55.9	-16	41.0
111	2326	53	8.0	-16	49.3
112	020	53	12.7	-16	53.8
112	1 2	53	15.3	-16	57.9
112	146	53	16.6	-16	50.1
112	222	53	13.3	-16	47.6
112	324	53	7.8	-16	41.6
112	432	53	3.5	-16	31.4
112	544	52	59.0	-16	21.4
112	728	53	9.3	-16	25.5
112	748	53	8.8	-16	25.2
112	850	53	7.6	-16	28.1
112	10 0	53	6.3	-16	30.8
112	1134	53	4.6	-16	34.2
112	1324	53	1.9	-16	35.6
112	1410	53	0.5	-16	38.3
112	1430	53	2.7	-16	39.6
112	1524	53	8.0	-16	43.8
112	1542	53	9.6	-16	43.5
112	1556	53	10.2	-16	41.0
112	1616	53	8.8	-16	40.1
112	1812	53	0.9	-16	43.0
112	1930	52	51.1	-16	45.3
112	2028	52	43.0	-16	48.5
112	2144	52	32.0	-16	54.6
112	2310	52	19.2	-17	1.4
113	038	52	5.1	-17	8.5
113	336	51	36.3	-17	20.3
113	438	51	26.2	-17	24.9
113	736	50	57.4	-17	36.5
113	1020	50	30.0	-17	47.7
113	1044	50	25.5	-17	49.8
113	11 8	50	22.1	-17	51.6
113	1230	50	6.5	-17	58.0
113	1515	49	37.1	-18	5.1
113	1759	49	7.8	-18	12.2
113	20 2	48	46.3	-18	18.8
113	2218	48	20.4	-18	23.9
113	2316	48	10.8	-18	25.8
114	150	47	41.2	-18	30.7
114	318	47	25.5	-18	33.5
114	6 8	46	55.8	-18	39.0
114	628	46	52.6	-18	39.6
114	842	46	32.9	-18	43.3
114	946	46	22.8	-18	45.1
114	1044	46	13.4	-18	46.7
114	1148	46	2.9	-18	50.1
114	1241	45	53.7	-18	55.0
114	1345	45	42.7	-19	1.3
114	1643	45	35.4	-19	42.7
114	1719	45	33.4	-19	50.8
114	1821	45	29.5	-20	4.4
114	1921	45	26.4	-20	17.9
114	2019	45	24.0	-20	31.0
114	2113	45	21.4	-20	42.5
115	0 3	45	12.6	-21	20.9
115	049	45	9.5	-21	31.7
115	2 3	45	5.0	-21	49.0
115	241	45	3.3	-21	58.8
115	419	45	1.2	-22	24.0
115	429	45	1.8	-22	25.9
115	445	45	0.6	-22	21.8
115	635	44	48.5	-21	53.8
115	855	44	32.7	-21	18.3
115	1115	44	16.6	-20	43.2
115	1253	44	6.0	-20	18.4
115	1511	43	52.4	-19	41.7
115	16 3	43	47.8	-19	27.7
115	1836	43	35.8	-19	39.7
115	1928	43	38.3	-19	44.9
115	1954	43	39.9	-19	48.9
115	2114	43	45.7	-20	4.8
115	2134	43	46.6	-20	7.7

NAVIGATION POINTS FOR DISCOVERY CRUISE 33 LEG 1

DAY	TIME		LATITUDE		LONGITUDE	
	H	M	DEG	MIN	DEG	MIN
115	23	14	43	51.0	-20	21.0
116	0	6	43	54.1	-20	30.0
116	23	4	44	4.7	-20	59.1
116	5	46	44	18.5	-21	36.3
116	8	0	44	30.9	-21	59.6
116	10	19	44	42.7	-22	23.7
116	10	57	44	43.2	-22	31.5
116	11	45	44	43.6	-22	38.5
116	12	13	44	44.1	-22	43.8
116	12	57	44	44.7	-22	51.2
116	15	41	44	47.9	-23	27.0
116	17	48	44	50.2	-23	54.7
116	21	4	44	54.1	-24	36.5
116	21	22	44	51.7	-24	37.8
116	22	20	44	42.8	-24	41.4
116	23	8	44	35.8	-24	45.5
117	1	4	44	17.7	-24	54.0
117	3	4	43	59.6	-25	2.9
117	3	46	43	57.9	-24	59.2
117	4	18	43	55.3	-24	52.8
117	6	36	43	40.1	-24	17.6
117	8	53	43	24.5	-23	42.8
117	10	31	43	14.0	-23	18.1
117	12	15	43	2.8	-22	52.1
117	13	35	42	54.4	-22	31.8
117	15	52	42	40.0	-21	56.5
117	18	12	42	25.6	-21	20.9
117	20	20	42	12.8	-20	48.6
117	20	30	42	11.8	-20	47.5
117	21	58	42	4.5	-20	54.5
117	22	52	41	57.9	-21	1.4
117	23	18	41	59.6	-21	6.3
118	2	20	42	13.5	-21	39.3
118	5	38	42	28.0	-22	14.9
118	7	12	42	35.5	-22	31.6
118	8	14	42	40.4	-22	42.8
118	9	46	42	47.8	-22	59.2
118	13	2	43	3.7	-23	33.6
118	14	18	43	9.6	-23	45.5
118	15	34	43	13.9	-23	53.5
118	16	6	43	16.8	-24	0.1
118	16	50	43	22.8	-23	55.9
118	17	32	43	28.3	-23	51.1
118	19	4	43	39.7	-23	40.2
118	19	31	43	42.4	-23	37.8
118	20	22	43	49.7	-23	32.1
118	21	15	43	46.6	-23	23.3
118	21	45	43	45.2	-23	18.5
118	22	27	43	49.1	-23	14.8
118	23	43	43	56.5	-23	8.1
119	0	37	44	3.3	-23	2.2
119	1	21	44	8.7	-22	57.5
119	1	45	44	10.6	-23	0.2
119	2	15	44	14.8	-22	58.4
119	5	26	44	43.0	-22	45.0
119	6	32	44	52.3	-22	39.8
119	6	46	44	50.5	-22	39.5
119	7	4	44	47.8	-22	39.9
119	7	30	44	45.6	-22	40.1
119	7	48	44	44.3	-22	40.5
119	9	6	44	30.5	-22	43.8
119	10	2	44	20.5	-22	45.6
119	11	2	44	9.3	-22	48.3
119	11	42	44	2.3	-22	50.1
119	12	20	43	57.2	-22	52.0
119	13	12	43	49.2	-22	54.9
119	14	43	43	34.7	-22	58.6
119	16	40	43	14.7	-23	4.6
119	17	52	43	1.2	-23	8.2
119	19	16	42	45.9	-23	11.5
119	19	57	42	37.0	-23	14.2
119	20	27	42	30.9	-23	15.8
119	21	23	42	26.0	-23	4.1
120	0	0	42	11.0	-22	29.3
120	2	37	41	56.0	-21	54.5

NAVIGATION POINTS FOR DISCOVERY CRUISE 33 LEG 1

DAY	TIME	LATITUDE		LONGITUDE	
		DEG	MIN	DEG	MIN
120	429	41	45.2	-21	29.4
120	633	41	26.4	-21	50.7
120	729	41	18.3	-22	0.2
120	10 9	40	56.5	-22	27.2
120	1251	40	34.7	-22	53.9
120	1535	40	13.2	-23	20.9
120	1817	39	51.5	-23	47.3
120	21 0	39	29.3	-24	13.1
120	2246	39	14.1	-24	29.7
121	1 0	38	55.5	-24	51.5
121	3 0	38	38.0	-25	10.5
121	5 0	38	20.5	-25	28.0
121	645	38	2.9	-25	41.1
121	715	37	58.7	-25	46.1
121	757	37	53.8	-25	54.1
121	821	37	49.5	-25	52.5

NAVIGATION POINTS FOR DISCOVERY CRUISE 33 LEG 2

DAY	TIME		LATITUDE		LONGITUDE	
	H	M	DEG	MIN	DEG	MIN
124	15	24	37	41.0	-25	33.0
124	16	22	37	41.0	-25	17.5
124	16	50	37	42.0	-25	10.0
124	19	0	37	59.0	-24	44.5
124	20	15	38	9.0	-24	31.8
124	23	0	38	29.5	-23	59.0
125	1	0	38	44.5	-23	34.5
125	3	0	39	0.5	-23	9.3
125	5	0	39	17.0	-22	42.5
125	7	0	39	32.5	-22	15.5
125	8	25	39	43.5	-21	59.5
125	9	40	39	56.7	-21	44.3
125	11	8	40	11.3	-21	27.3
125	12	52	40	28.4	-21	7.1
125	15	5	40	50.3	-20	40.7
125	17	22	41	12.5	-20	14.5
125	17	32	41	14.1	-20	13.1
125	19	11	41	22.8	-20	37.1
125	21	35	41	35.6	-21	11.6
125	23	17	41	46.5	-21	33.0
126	1	0	41	32.5	-21	10.0
126	3	43	41	7.5	-20	31.8
126	4	5	41	2.7	-20	28.6
126	4	19	40	59.7	-20	27.5
126	7	3	41	13.8	-21	2.5
126	7	59	41	18.4	-21	13.9
126	10	11	41	29.0	-21	40.6
126	11	33	41	35.6	-21	58.5
126	12	37	41	41.0	-22	12.5
126	14	6	41	49.5	-22	30.8
126	14	56	41	54.5	-22	40.5
126	15	22	41	56.1	-22	43.7
126	18	6	42	13.3	-23	16.4
126	18	58	42	19.0	-23	26.3
126	20	12	42	30.8	-23	12.6
126	21	14	42	35.7	-23	26.8
126	23	2	42	44.9	-23	52.7
127	0	6	42	51.0	-24	8.0
127	1	36	43	2.1	-24	27.0
127	1	48	43	3.7	-24	28.8
127	3	29	43	24.5	-24	20.4
127	4	31	43	37.4	-24	14.5
127	6	19	43	57.9	-23	58.0
127	6	47	44	3.4	-23	57.0
127	7	7	44	4.2	-23	56.7
127	7	49	44	4.0	-23	56.4
127	8	5	44	3.6	-23	57.0
127	8	35	44	1.3	-23	59.4
127	9	39	44	0.7	-23	58.0
127	9	57	43	59.7	-23	56.6
127	11	21	43	58.7	-23	55.5
127	11	31	43	58.8	-23	57.3
127	12	49	43	51.2	-23	41.7
127	13	35	43	46.8	-23	33.1
127	15	2	43	37.6	-23	18.1
127	15	56	43	31.9	-23	8.5
127	16	39	43	35.7	-23	15.5
127	17	36	43	40.5	-23	26.1
127	18	18	43	44.6	-23	33.8
127	19	24	43	53.2	-23	41.8
127	19	44	43	55.5	-23	44.4
127	20	8	43	57.5	-23	49.1
127	20	34	43	57.9	-23	55.7
127	20	48	43	57.6	-23	54.7
127	21	5	43	58.2	-23	55.2
127	21	29	43	57.7	-23	55.0
127	22	3	43	57.8	-23	55.4
127	22	25	43	58.3	-23	55.7
127	22	53	43	58.6	-23	56.7
127	23	15	43	59.2	-23	58.6
127	23	45	43	58.9	-23	59.5
128	0	3	43	58.5	-23	58.7
128	0	57	43	59.3	-24	0.0
128	1	47	43	59.9	-23	58.9
128	2	5	44	1.2	-23	58.1

NAVIGATION POINTS FOR DISCOVERY CRUISE 33 LEG 2

DAY	TIME	LATITUDE		LONGITUDE	
		DEG	MIN	DEG	MIN
128	223	44	1.3	-23	58.6
128	235	43	60.0	-23	57.3
128	327	43	53.1	-23	46.0
128	353	43	49.4	-23	40.2
128	421	43	45.4	-23	34.2
128	455	43	39.9	-23	27.7
128	517	43	39.0	-23	24.5
128	625	43	36.8	-23	15.2
128	637	43	36.5	-23	15.0
128		SHIP CIRCLING - GYRO			
128		INPUT TO COMPUTER			
128		FAILED.			
128	1058	43	23.5	-23	34.0
128	1230	43	34.0	-23	23.0
128	1400	43	45.0	-23	28.5
128	1420	43	44.6	-23	27.9
128	1516	43	49.9	-23	20.0
128	1544	43	52.6	-23	15.9
128	1716	44	0.0	-23	3.5
128	18 0	43	54.5	-22	58.0
128	2034	43	34.0	-22	36.0
128	21 8	43	31.0	-22	39.0
128	23 0	43	36.0	-22	31.5
129	1 0	43	42.5	-22	27.0
129	4 0	43	53.5	-22	3.0
129	7 0	44	6.4	-21	50.5
129	1017	44	12.5	-22	17.0
129	11 0	44	14.5	-22	18.5
129	1340	44	25.5	-22	26.0
129	1626	44	37.4	-22	30.4
129	1722	44	42.3	-22	31.8
129	1732	44	42.4	-22	32.2
129	1814	44	37.5	-22	31.7
129	1954	44	27.9	-22	29.9
129	2030	44	25.8	-22	25.2
129	2148	44	20.1	-22	14.0
129	2248	44	15.7	-22	5.4
129	2322	44	12.7	-22	8.6
130	1 6	44	7.5	-22	13.7
130	132	44	6.0	-22	15.1
130	218	44	2.1	-22	18.5
130	326	43	55.7	-22	23.9
130	346	43	54.7	-22	22.1
130	418	43	52.8	-22	19.5
130	432	43	53.8	-22	18.3
130	522	43	59.7	-22	13.2
130	6 0	44	5.3	-22	10.4
130	624	44	8.6	-22	7.0
130	646	44	6.4	-22	2.6
130	722	44	1.8	-22	8.3
130	752	43	57.8	-22	12.8
130	818	43	53.9	-22	15.1
130	858	43	58.2	-22	15.1
130	924	44	1.4	-22	14.8
130	1018	44	8.2	-22	14.3
130	1042	44	8.6	-22	14.7
130	1132	44	8.3	-22	15.2
130	1210	44	8.7	-22	14.8
130	1228	44	8.4	-22	14.6
130	13 8	44	2.5	-22	15.8
130	1344	44	3.9	-22	15.6
130	1516	44	5.9	-22	15.8
130	1556	44	6.7	-22	17.0
130	1643	44	8.1	-22	17.8
130	1741	44	8.2	-22	15.4
130	1833	44	7.4	-22	14.3
130	1853	44	7.4	-22	13.3
130	1915	44	7.3	-22	13.4
130	1947	44	5.0	-22	15.4
130	2041	44	5.3	-22	16.7
130	21 5	44	5.6	-22	17.0
130	2135	44	4.6	-22	14.7
130	2159	44	4.7	-22	13.7
130	2315	44	6.7	-22	13.7
131	0 7	44	7.2	-22	14.0

NAVIGATION POINTS FOR DISCOVERY CRUISE 33 LEG 2

DAY	TIME	LATITUDE		LONGITUDE	
		DEG	MIN	DEG	MIN
131	055	44	6.7	-22	15.2
131	111	44	4.6	-22	15.2
131	247	44	6.3	-22	13.5
131	345	44	7.4	-22	13.2
131	439	44	8.5	-22	14.6
131	5 7	44	8.9	-22	14.7
131	527	44	5.6	-22	15.0
131	551	44	7.7	-22	14.9
131	6 5	44	8.6	-22	14.8
131	625	44	8.5	-22	15.1
131	653	44	8.0	-22	15.0
131	721	44	7.3	-22	15.3
131	8 9	44	4.6	-22	26.1
131	827	44	3.0	-22	30.0
131	849	44	1.5	-22	34.9
131	1035	43	55.1	-22	59.8
131	12 5	43	44.8	-23	18.7
131	1221	43	44.3	-23	19.7
131	1243	43	45.3	-23	18.9
131	1313	43	47.5	-23	18.1
131	14 9	43	46.9	-23	18.1
131	1431	43	42.9	-23	19.1
131	1455	43	38.4	-23	20.3
131	15 9	43	38.7	-23	21.2
131	1521	43	39.4	-23	22.7
131	1537	43	39.2	-23	22.1
131	1549	43	38.7	-23	21.3
131	1629	43	38.6	-23	21.7
131	1922	43	54.4	-23	54.5
131	2036	44	2.0	-24	9.7
131	2136	43	55.9	-23	58.0
131	2310	43	46.3	-23	39.4
131	24 0	43	41.5	-23	29.4
132	014	43	41.7	-23	26.1
132	038	43	39.0	-23	21.9
132	1 0	43	39.3	-23	22.3
132	218	43	39.7	-23	22.2
132	328	43	39.8	-23	21.9
132	4 0	43	38.5	-23	19.5
132	434	43	38.9	-23	19.7
132	5 4	43	38.6	-23	20.0
132	544	43	38.3	-23	19.8
132	6 2	43	38.6	-23	20.1
132	616	43	39.3	-23	21.0
132	636	43	40.0	-23	21.3
132	650	43	40.5	-23	20.7
132	716	43	44.3	-23	17.6
132	726	43	45.9	-23	16.5
132	736	43	46.6	-23	18.7
132	750	43	48.2	-23	17.6
132	9 2	43	58.6	-23	8.5
132	934	43	58.4	-23	7.5
132	1018	43	57.2	-23	8.2
132	11 0	43	56.1	-23	8.3
132	1152	43	54.8	-23	9.1
132	1344	43	52.3	-23	10.2
132	1528	43	52.1	-23	8.0
132	1554	43	55.6	-23	7.4
132	1620	43	58.9	-23	7.1
132	17 8	43	58.2	-23	7.2
132	1844	43	57.5	-23	10.3
132	1939	43	56.2	-23	10.6
132	2035	43	57.3	-23	10.3
132	2223	43	59.3	-23	10.6
132	23 1	43	53.9	-23	12.4
132	2327	43	49.5	-23	14.4
132	2339	43	48.5	-23	15.1
133	041	43	48.2	-23	16.0
133	157	43	49.5	-23	17.4
133	337	43	50.6	-23	15.8
133	4 5	43	46.5	-23	16.9
133	429	43	46.6	-23	16.4
133	441	43	46.2	-23	17.0
133	5 7	43	43.6	-23	22.4
133	659	43	29.5	-23	46.5

NAVIGATION POINTS FOR DISCOVERY CRUISE 33 LEG 2

DAY	TIME	LATITUDE		LONGITUDE	
		DEG	MIN	DEG	MIN
133	935	43	9.0	-24	16.6
133	1037	43	0.6	-24	28.2
133	1055	42	59.6	-24	31.0
133	1131	43	1.2	-24	35.9
133	1243	43	4.2	-24	45.7
133	14 1	43	8.1	-25	1.5
133	1433	43	9.8	-25	8.3
133	1537	43	14.4	-25	20.8
133	1719	43	21.0	-25	39.7
133	1831	43	26.0	-25	53.8
133	1845	43	26.7	-25	56.0
133	1923	43	27.3	-25	58.8
133	1957	43	29.6	-26	5.5
133	2023	43	31.1	-26	11.0
133	22 5	43	36.4	-26	33.5
133	2241	43	37.3	-26	36.7
134	035	43	42.9	-27	2.0
134	135	43	48.9	-27	12.7
134	221	43	52.3	-27	7.5
134	421	44	8.4	-26	40.3
134	453	44	5.1	-26	31.9
134	625	43	56.6	-26	7.0
134	719	43	51.5	-25	53.0
134	749	43	48.9	-25	45.2
134	949	43	38.1	-25	13.3
134	1019	43	35.6	-25	5.2
134	1141	43	27.0	-24	44.2
134	1223	43	22.8	-24	33.4
134	1315	43	20.4	-24	18.1
134	1437	43	15.0	-23	53.9
134	1617	43	35.8	-23	48.5
134	17 7	43	45.8	-23	45.8
134	1830	44	0.4	-23	41.7
134	1912	44	5.6	-23	33.6
134	2130	44	25.6	-23	2.4
134	2146	44	26.4	-22	58.1
134	2230	44	27.0	-22	44.7
134	2312	44	24.7	-22	32.5
134	2333	44	23.9	-22	27.7
134	2356	44	23.8	-22	27.6
135	0500	44	23.1	-22	27.6
135	259	44	8.7	-22	5.6
135	311	44	8.1	-22	5.2
135	4 3	44	2.8	-21	56.0
135	519	43	55.8	-21	42.6
135	533	43	55.4	-21	42.2
135	625	43	50.5	-21	31.9
135	7 5	43	54.6	-21	38.1
135	8 3	44	0.9	-21	47.6
135	9 7	44	6.9	-21	59.8
135	10 7	44	12.7	-22	12.2
135	1055	44	17.5	-22	22.3
135	1133	44	21.8	-22	30.0
135	1235	44	29.9	-22	41.2
135	1245	44	30.1	-22	40.8
135	1348	44	23.7	-22	27.6
135	1420	44	23.5	-22	28.2
135	1512	44	22.6	-22	28.4
135	1630	44	12.3	-22	12.3
135	17 4	44	7.9	-22	5.3
135	1716	44	8.7	-22	4.9
135	1819	44	8.6	-22	5.8
135	1831	44	7.8	-22	4.6
135	1929	44	0.8	-21	53.3
135	2027	43	53.9	-21	42.4
135	2049	43	54.6	-21	43.5
135	2113	43	56.5	-21	43.9
135	22 8	43	56.6	-21	43.4
135	2224	43	55.7	-21	42.5
135	2242	43	55.9	-21	43.7
135	2342	43	55.3	-21	42.7
135	2358	43	55.3	-21	42.9
136	1 0	44	2.8	-21	54.1
136	116	44	3.2	-21	54.1
136	148	44	2.9	-21	53.4

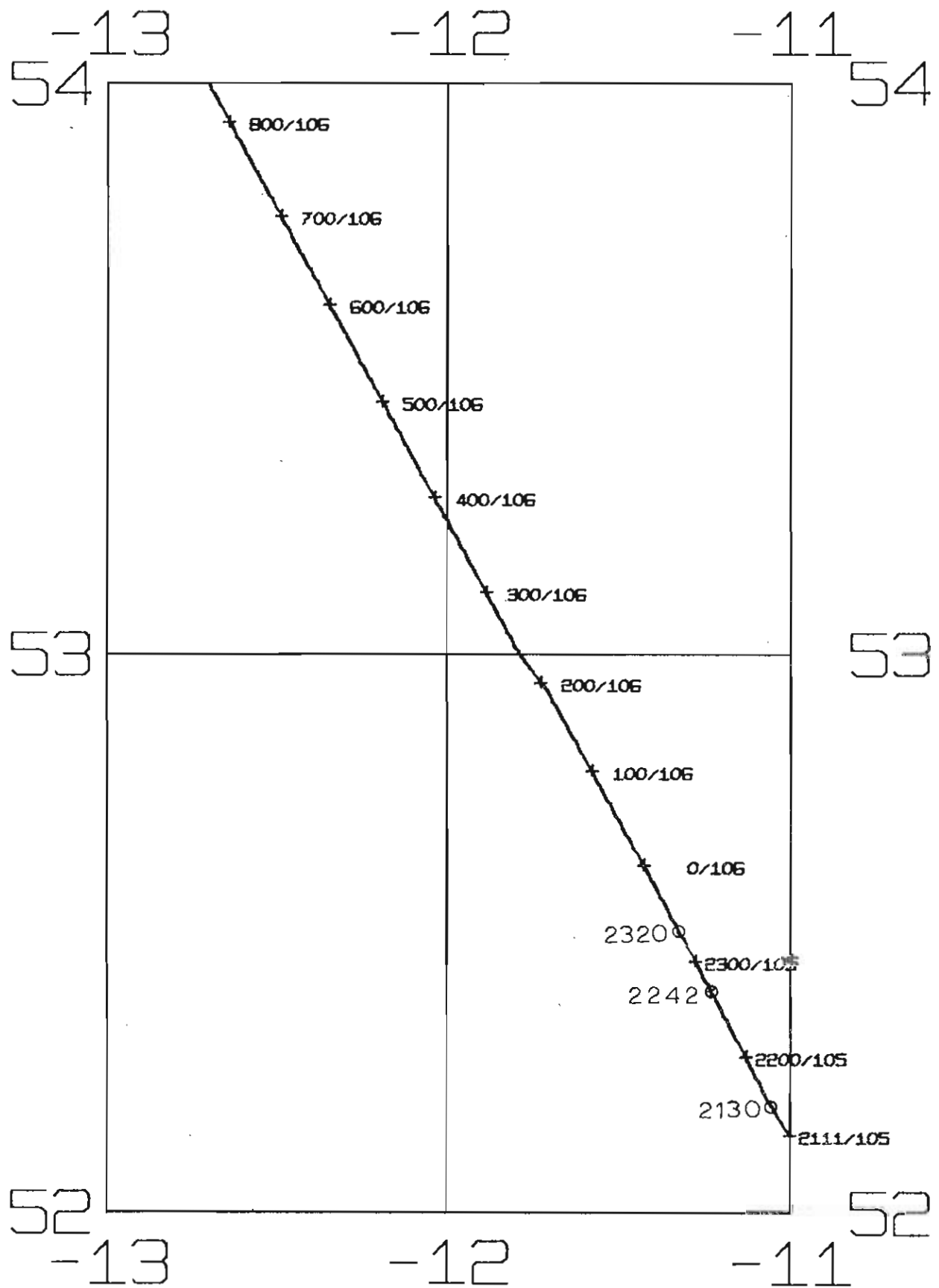
NAVIGATION POINTS FOR DISCOVERY CRUISE 33 LEG 2

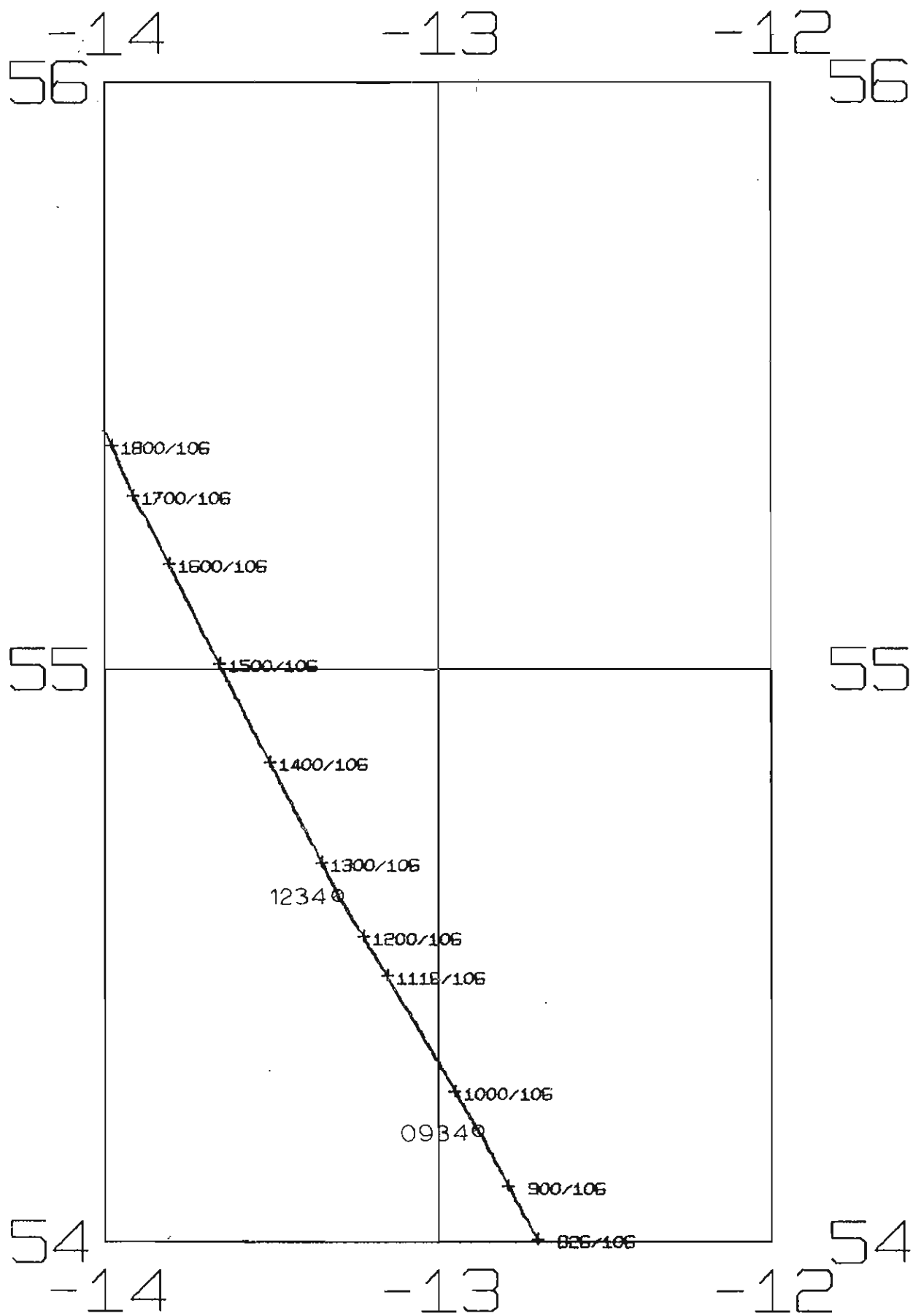
DAY	TIME		LATITUDE		LONGITUDE	
	H	M	DEG	MIN	DEG	MIN
136	1	58	44	2.0	-21	53.7
136	2	12	44	1.1	-21	56.9
136	2	24	43	59.5	-21	59.0
136	2	34	44	0.7	-22	0.3
136	2	56	44	3.3	-21	56.0
136	3	6	44	3.2	-21	57.8
136	3	23	44	0.7	-22	0.1
136	3	35	44	1.4	-21	58.6
136	7	29	44	3.1	-21	55.4
136	8	45	44	4.0	-21	56.2
136	9	13	44	1.2	-21	57.4
136	9	51	44	1.8	-21	56.8
136	11	23	44	2.9	-21	56.8
136	13	17	44	5.3	-21	55.7
136	13	45	44	5.5	-21	55.7
136	16	23	44	5.2	-21	55.9
136	16	45	44	3.3	-21	56.4
136	17	13	44	3.9	-21	56.1
136	17	39	44	3.0	-21	56.5
136	18	3	44	3.3	-21	56.7
136	19	53	44	3.6	-21	54.6
136	21	37	44	5.4	-21	55.6
136	21	49	44	5.7	-21	56.8
136	22	5	44	5.2	-21	56.9
136	23	11	44	5.4	-21	55.4
136	23	37	44	5.1	-21	55.1
137	0	31	44	3.6	-21	54.3
137	1	9	44	2.9	-21	53.8
137	1	33	43	59.5	-21	50.4
137	2	19	43	52.9	-21	42.8
137	3	45	43	42.8	-21	25.8
137	5	5	43	34.5	-21	9.0
137	6	45	43	22.0	-20	43.7
137	7	9	43	19.0	-20	37.1
137	8	31	43	20.1	-20	12.0
137	9	15	43	20.0	-19	59.0
137	9	43	43	21.8	-19	50.3
137	11	55	43	31.2	-19	11.5
137	13	5	43	35.9	-18	51.0
137	15	9	43	43.7	-18	14.4
137	15	21	43	44.1	-18	10.8
137	17	0	43	42.5	-17	40.5
137	19	0	43	40.0	-17	6.0
137	20	9	43	45.1	-17	0.5
137	21	7	43	51.6	-16	53.3
137	22	23	43	59.6	-16	44.2
137	22	49	44	3.8	-16	40.9
137	22	59	44	5.2	-16	41.6
137	23	45	44	5.2	-16	52.3
138	0	9	44	4.4	-16	58.0
138	0	37	44	1.1	-16	53.3
138	1	1	43	58.2	-16	50.2
138	2	3	43	53.3	-16	44.6
138	2	33	43	52.1	-16	42.7
138	3	1	43	50.0	-16	38.9
138	3	37	43	49.5	-16	44.7
138	3	55	43	49.4	-16	47.0
138	4	53	43	49.5	-16	50.9
138	5	5	43	50.8	-16	50.7
138	5	43	43	57.7	-16	49.3
138	6	4	43	58.1	-16	49.2
138	7	27	43	57.9	-16	48.3
138	11	1	43	58.2	-16	48.2
138	12	19	43	58.4	-16	49.2
138	12	39	43	58.5	-16	49.4
138	13	17	44	3.9	-16	40.4
138	14	23	44	13.3	-16	24.8
138	15	53	44	25.8	-16	3.7
138	18	1	44	43.8	-15	32.5
138	18	19	44	46.5	-15	28.2
138	20	45	45	5.8	-14	56.1
138	21	3	45	8.5	-14	51.6
138	22	11	45	17.5	-14	35.7
138	23	5	45	25.1	-14	23.1
139	1	7	45	42.7	-13	53.2

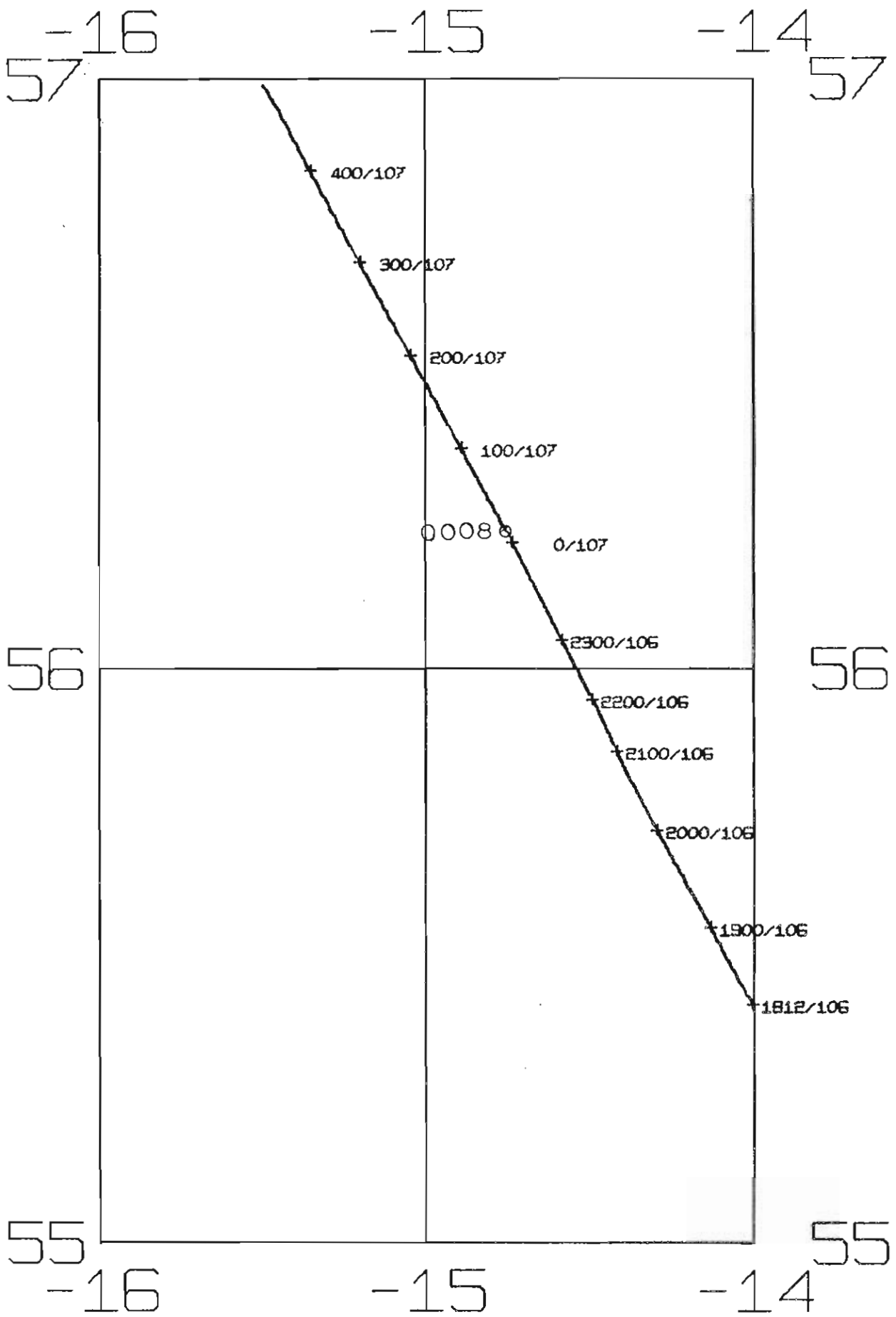
NAVIGATION POINTS FOR DISCOVERY CRUISE 33 LEG 2

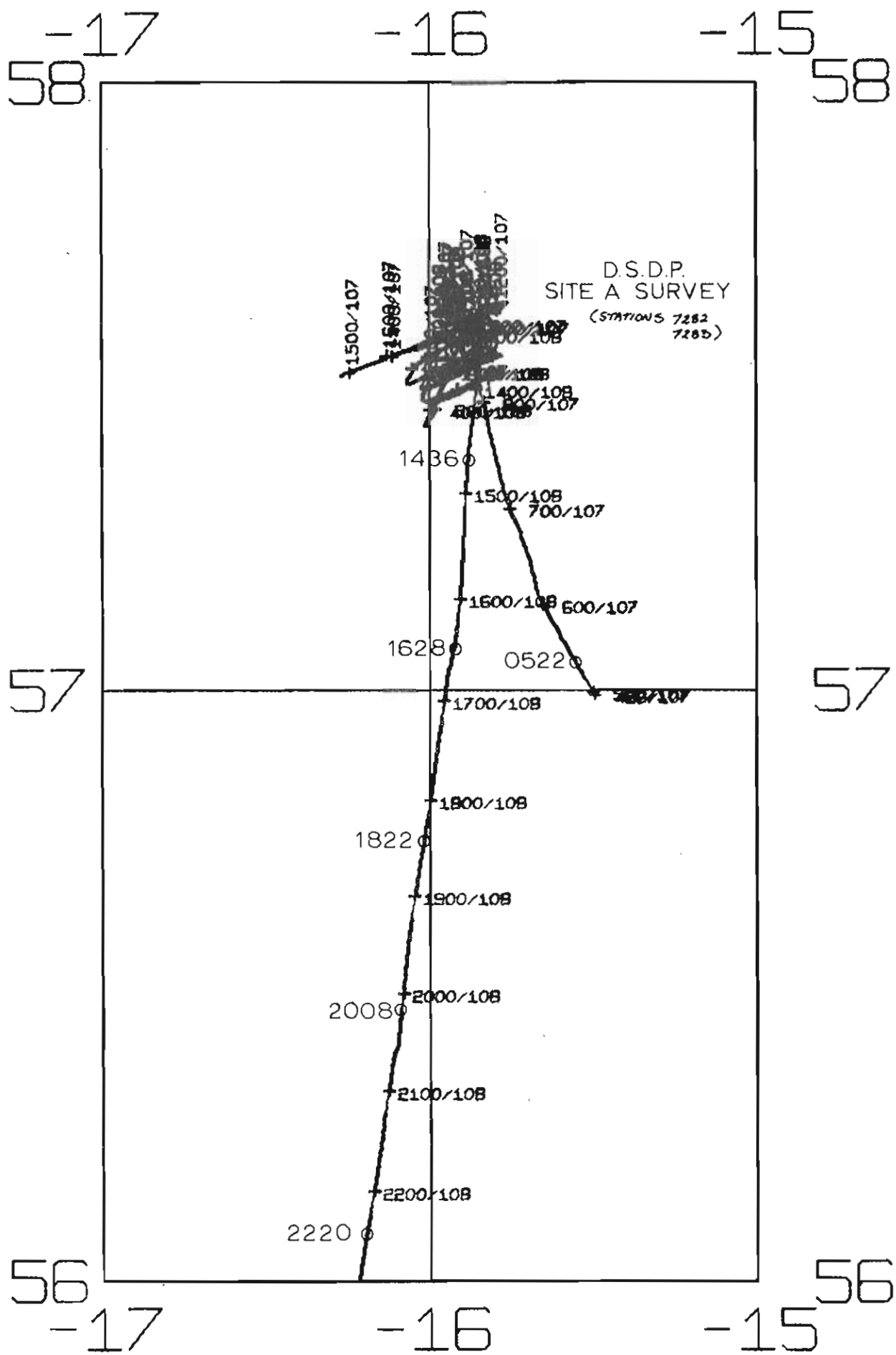
DAY	TIME	LATITUDE		LONGITUDE	
		DEG	MIN	DEG	MIN
	H M				
139	321	46	2.3	-13	20.8
139	421	46	10.7	-13	6.5
139	639	46	29.6	-12	33.1
139	851	46	49.1	-12	0.5
139	959	46	58.6	-11	44.2
139	11 3	47	6.7	-11	28.4
139	1323	47	25.1	-11	0.2
139	1429	47	33.9	-10	46.0
139	1459	47	37.7	-10	39.5
139	1647	47	50.6	-10	16.0
139	1933	48	9.4	-9	41.4
139	2013	48	13.9	-9	33.1
139	2122	48	21.2	-9	20.0
139	2322	48	35.1	-8	57.6
140	0 8	48	40.5	-8	48.7
140	251	49	0.1	-8	15.0
140	455	49	13.4	-7	47.6
140	547	49	18.4	-7	36.6
140	7 7	49	25.8	-7	20.6
140	735	49	28.4	-7	14.9
140	841	49	36.0	-7	4.1
140	1047	49	50.5	-6	44.8
140	1133	49	54.3	-6	36.1
140	1157	49	55.9	-6	35.5

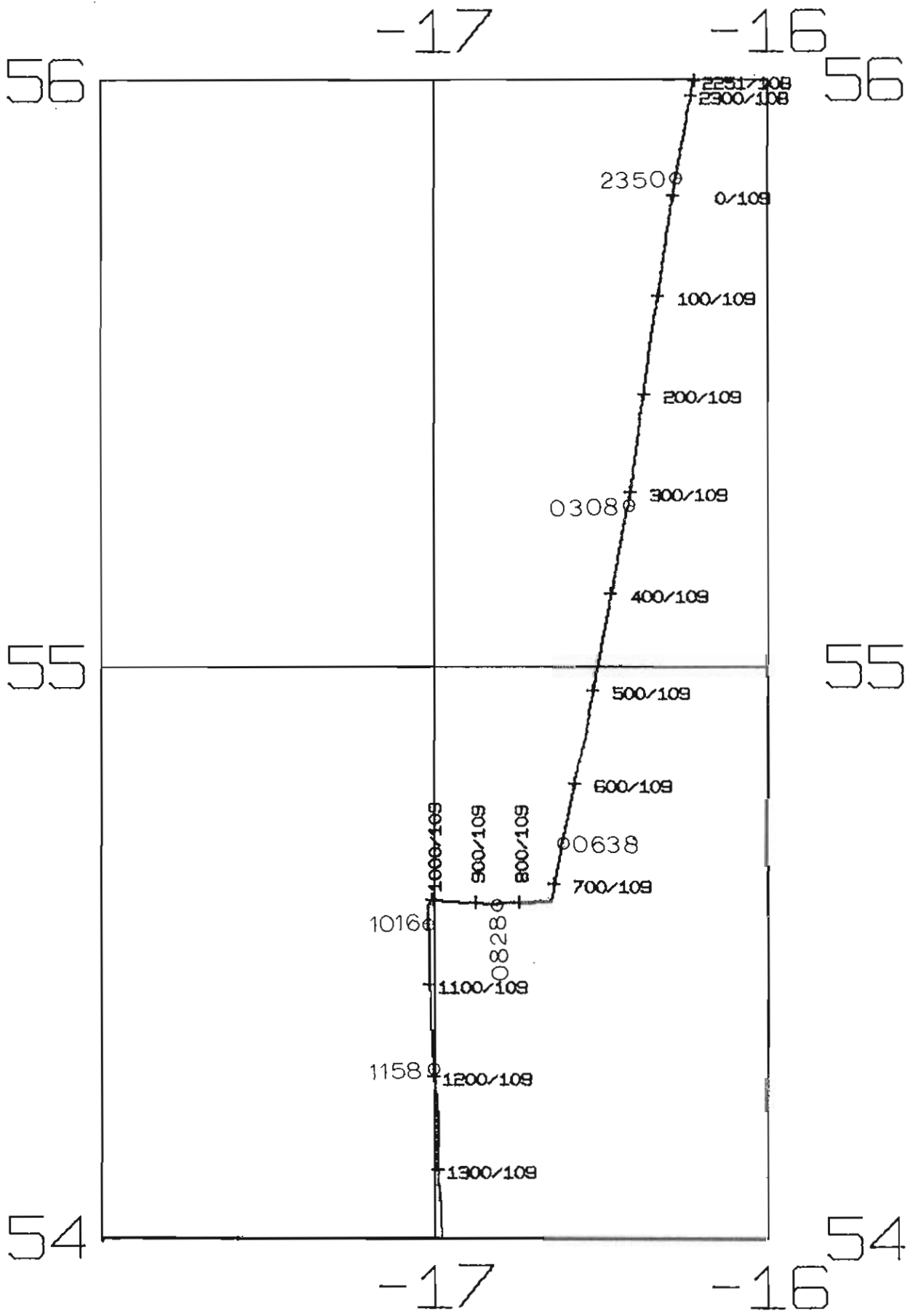


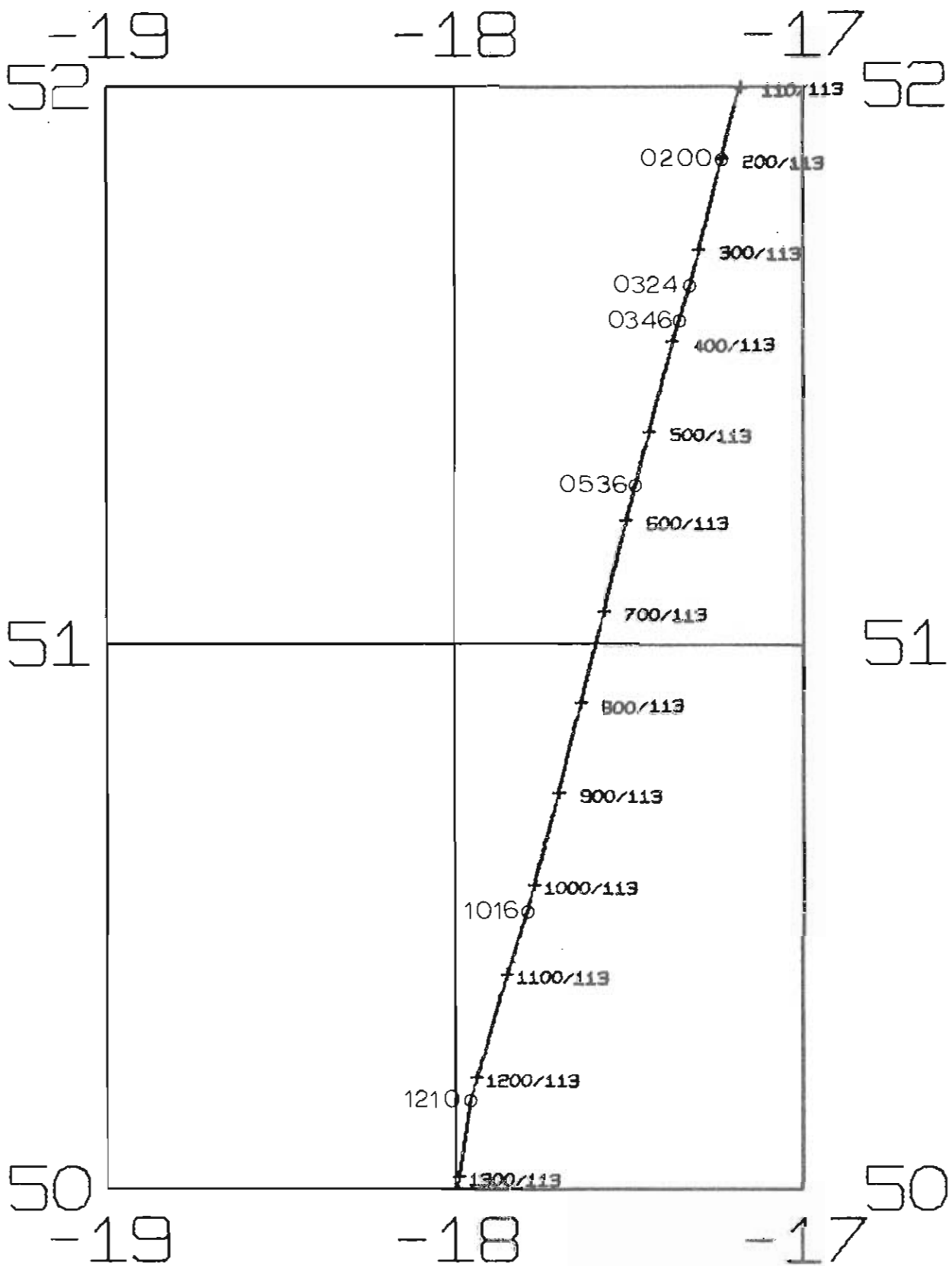


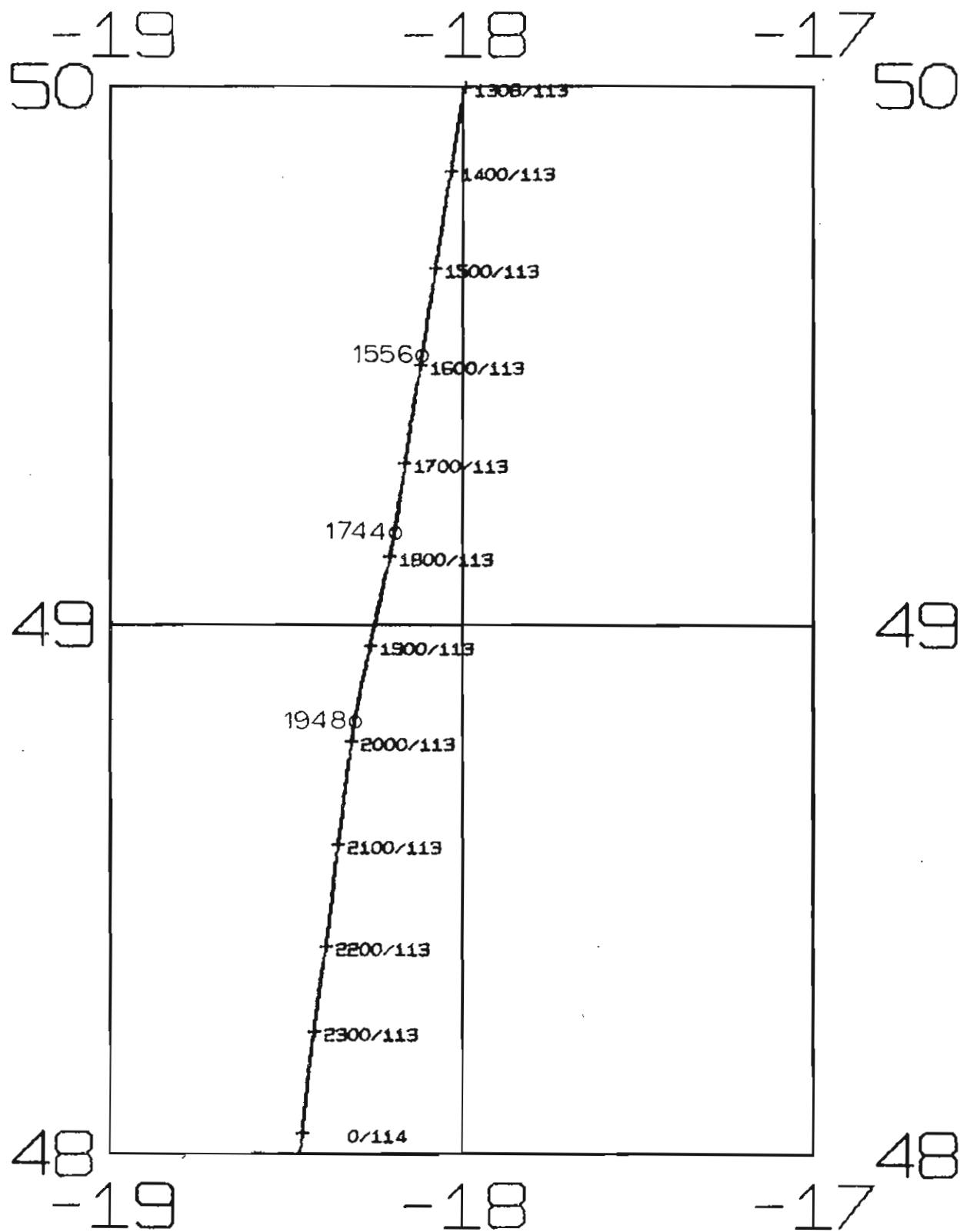


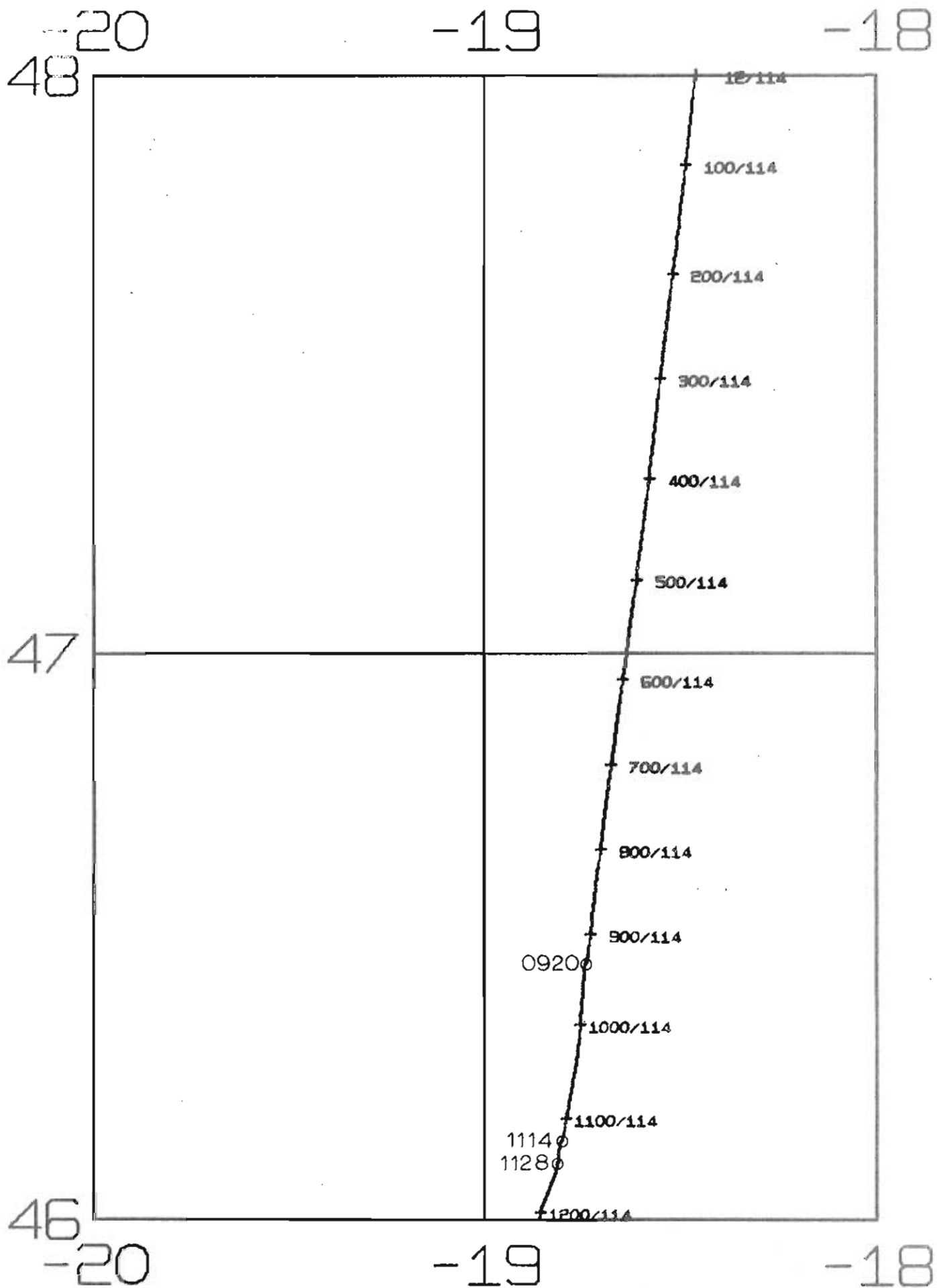


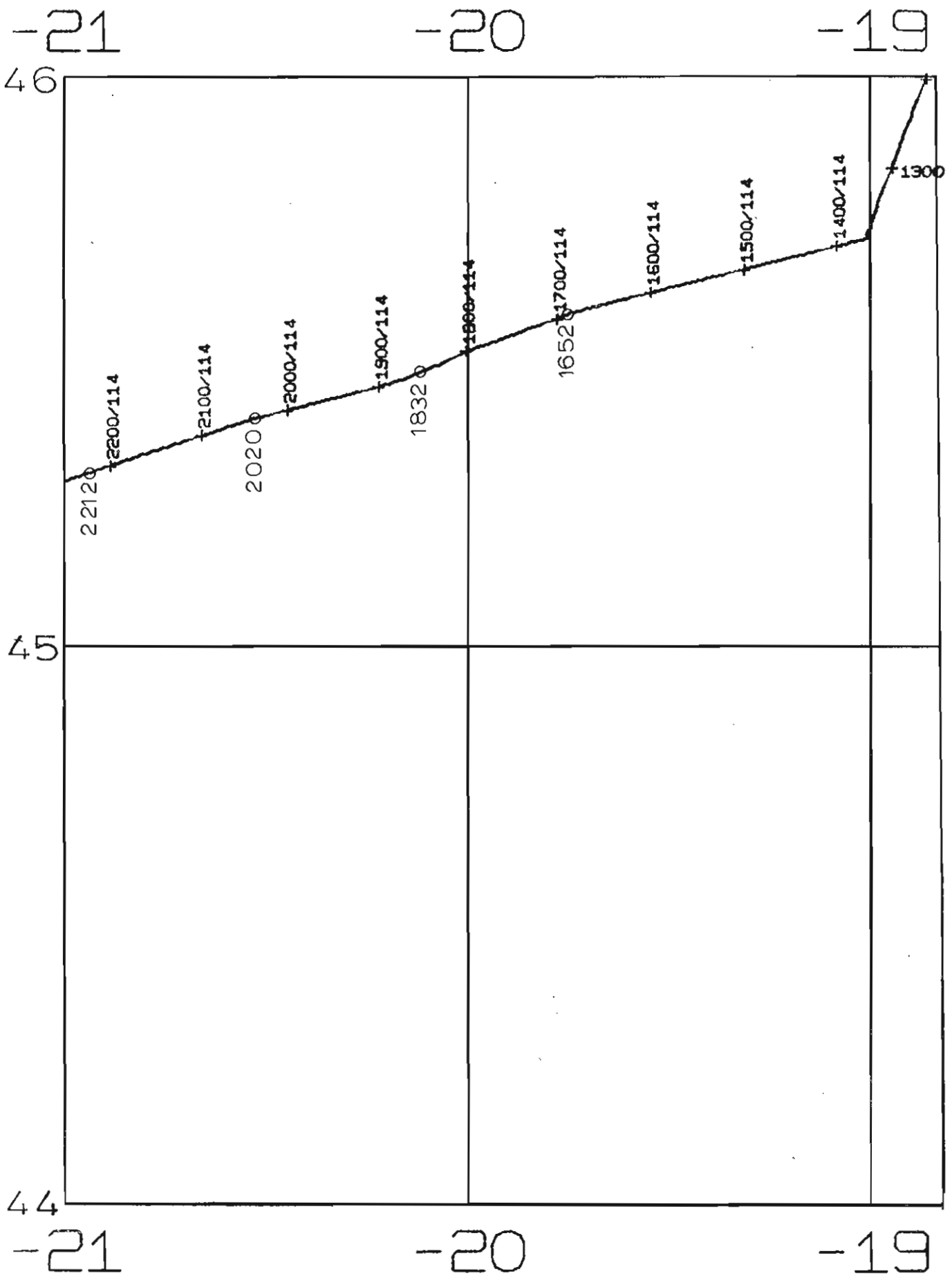


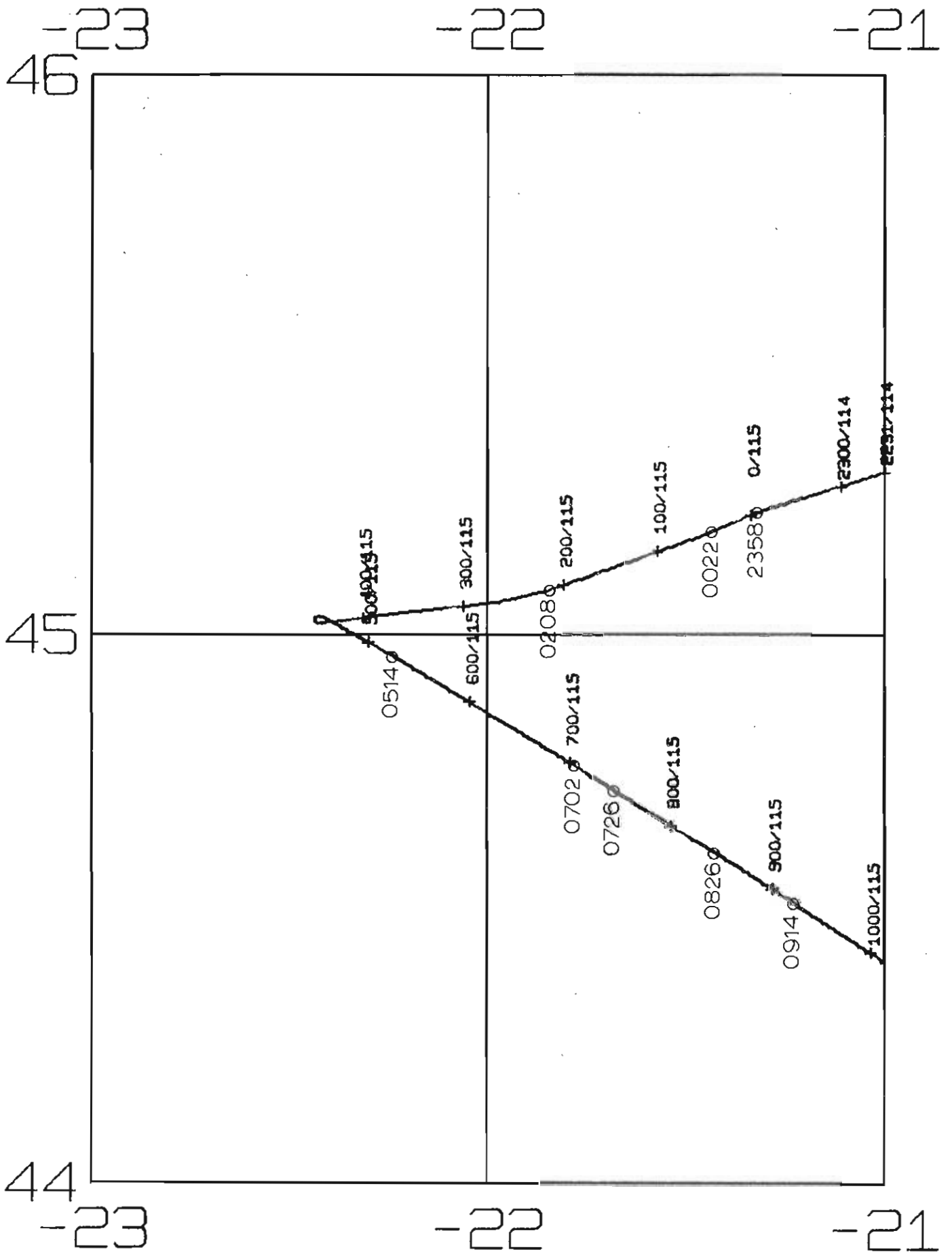


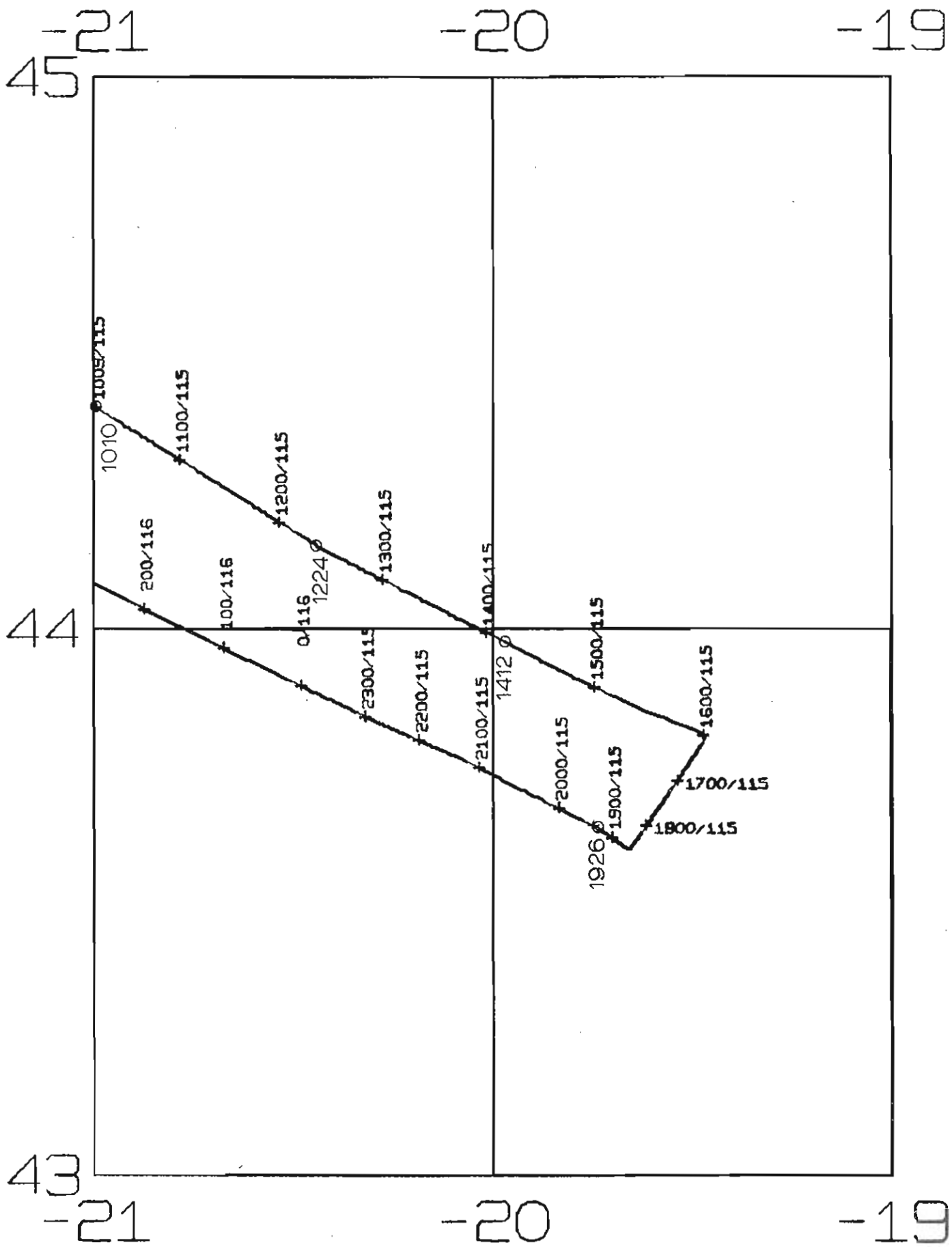












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-21

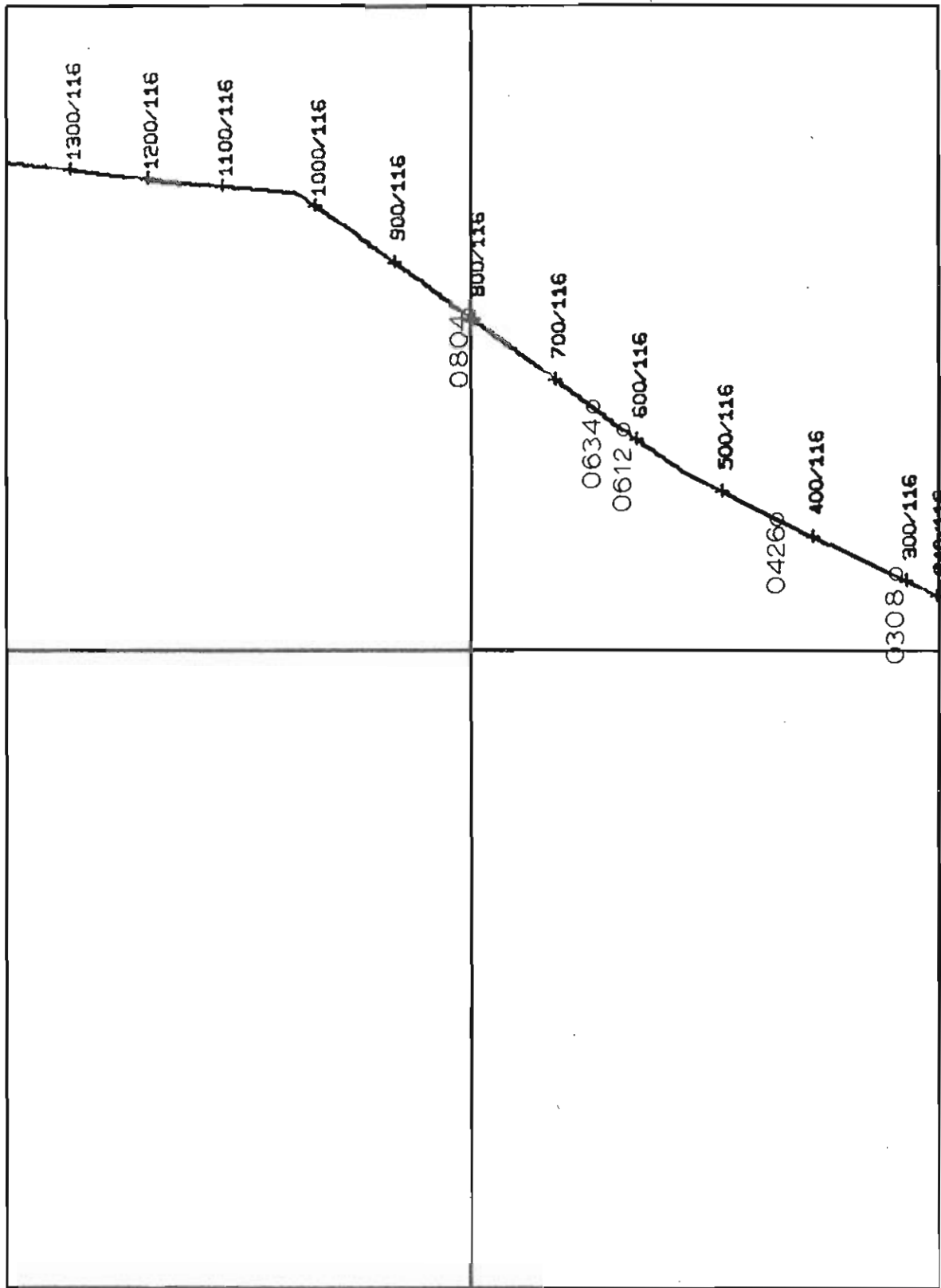
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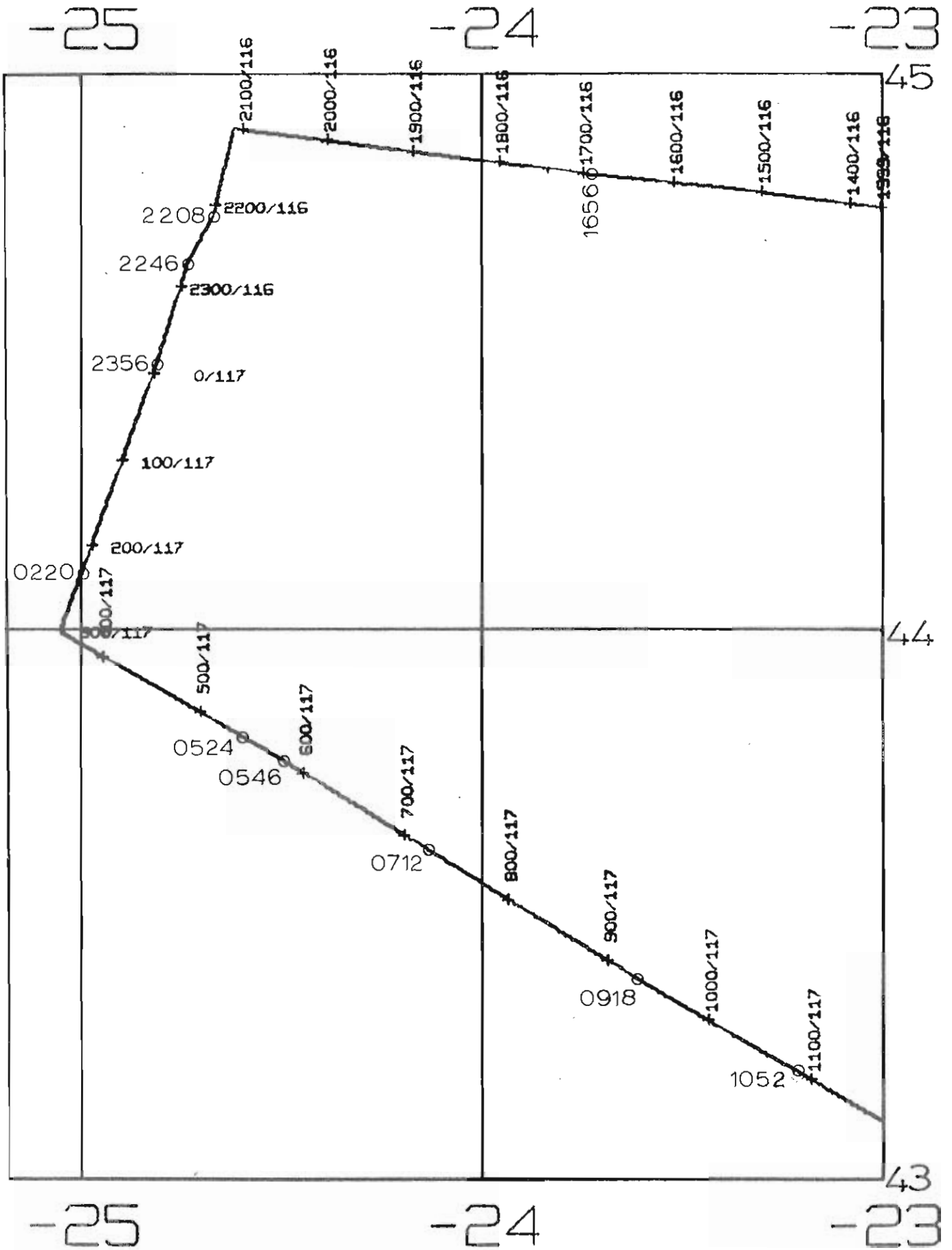
43

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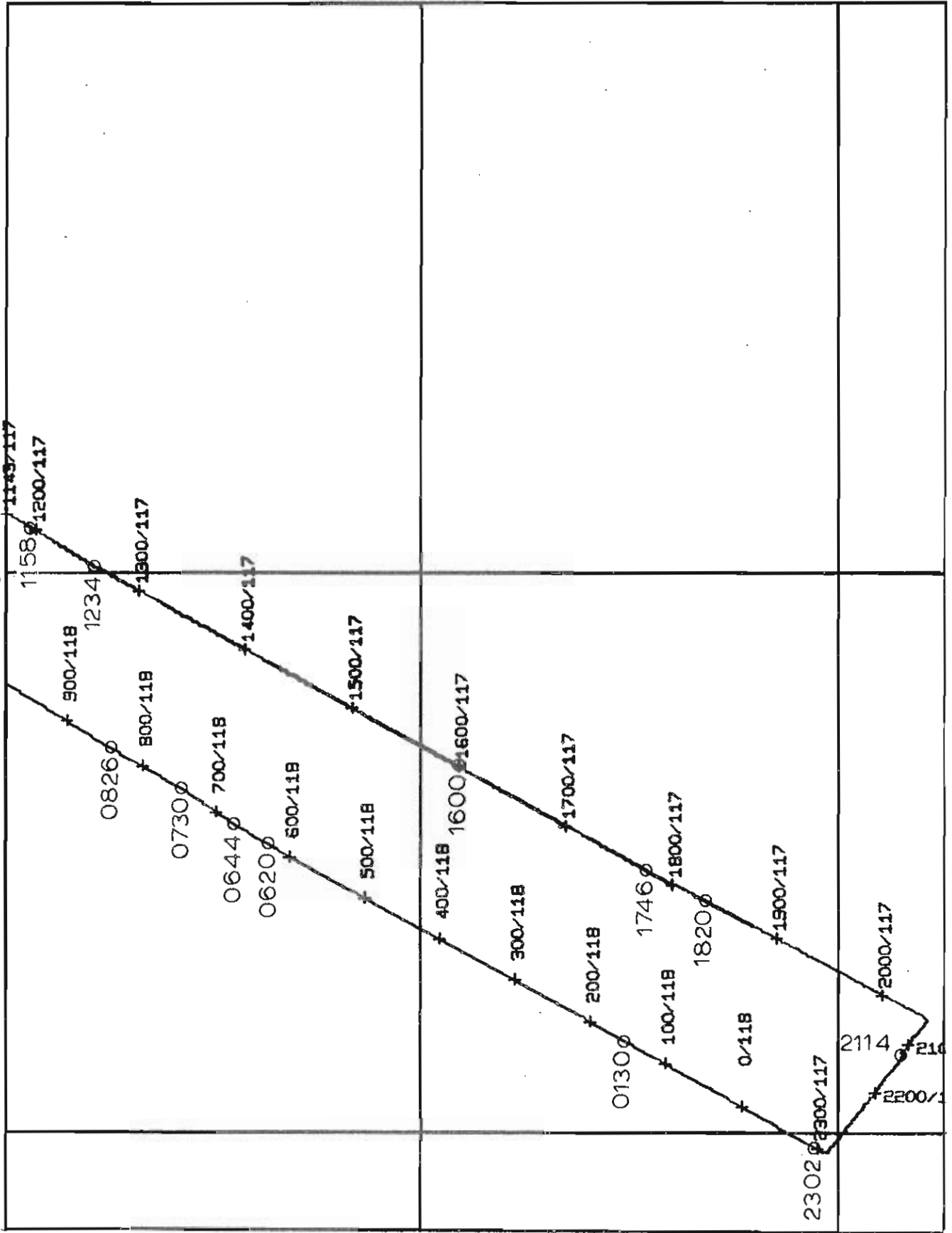
-22

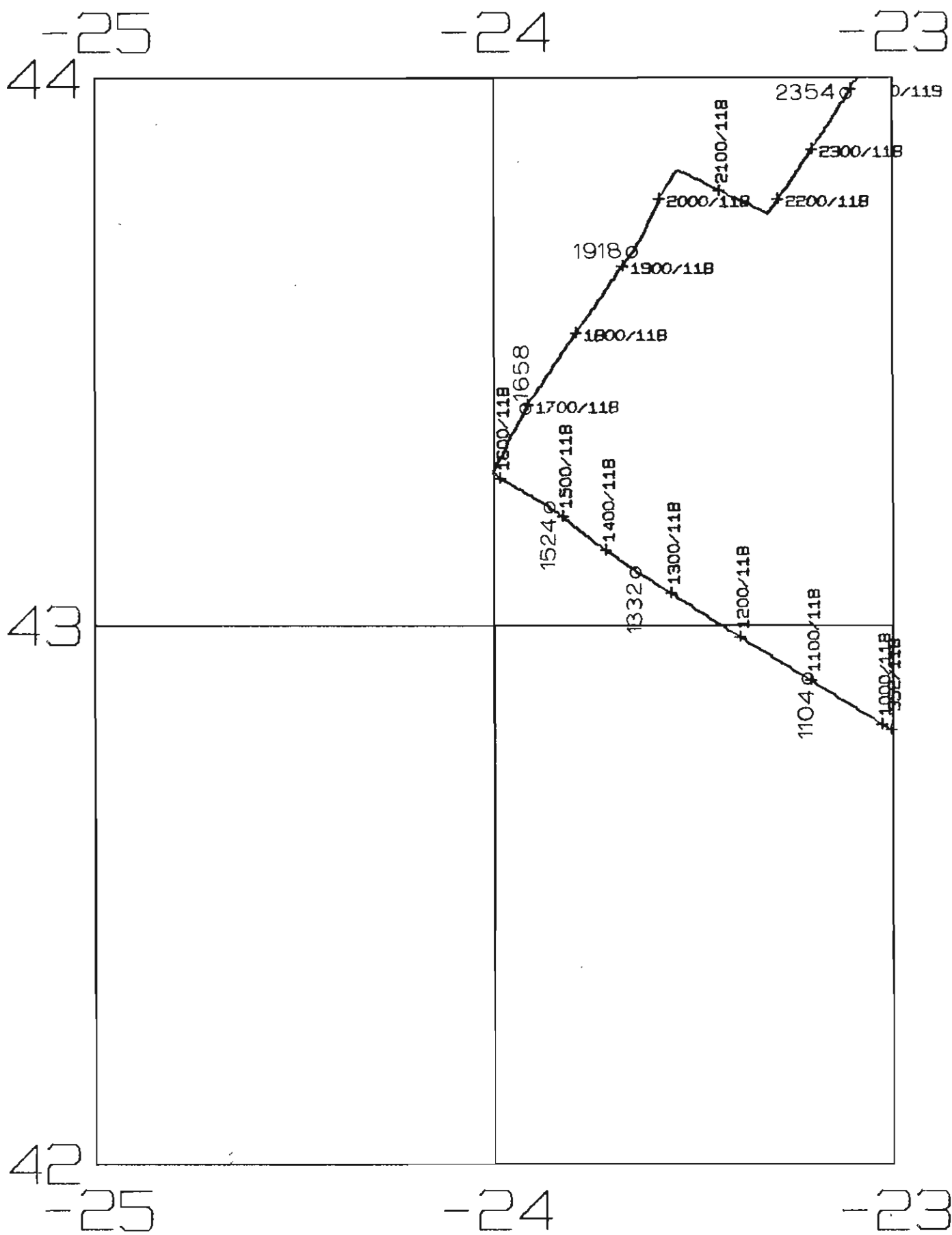
-21

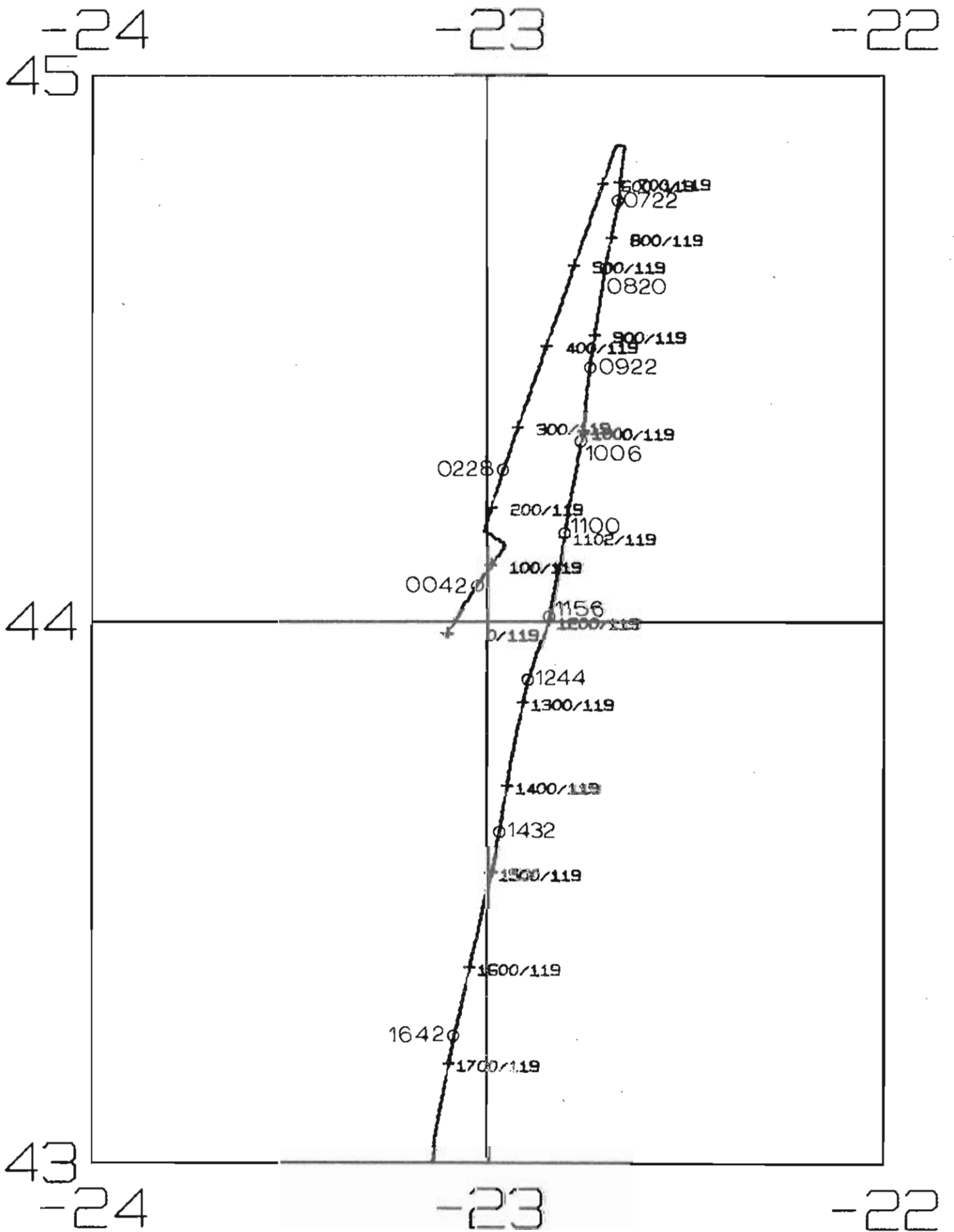
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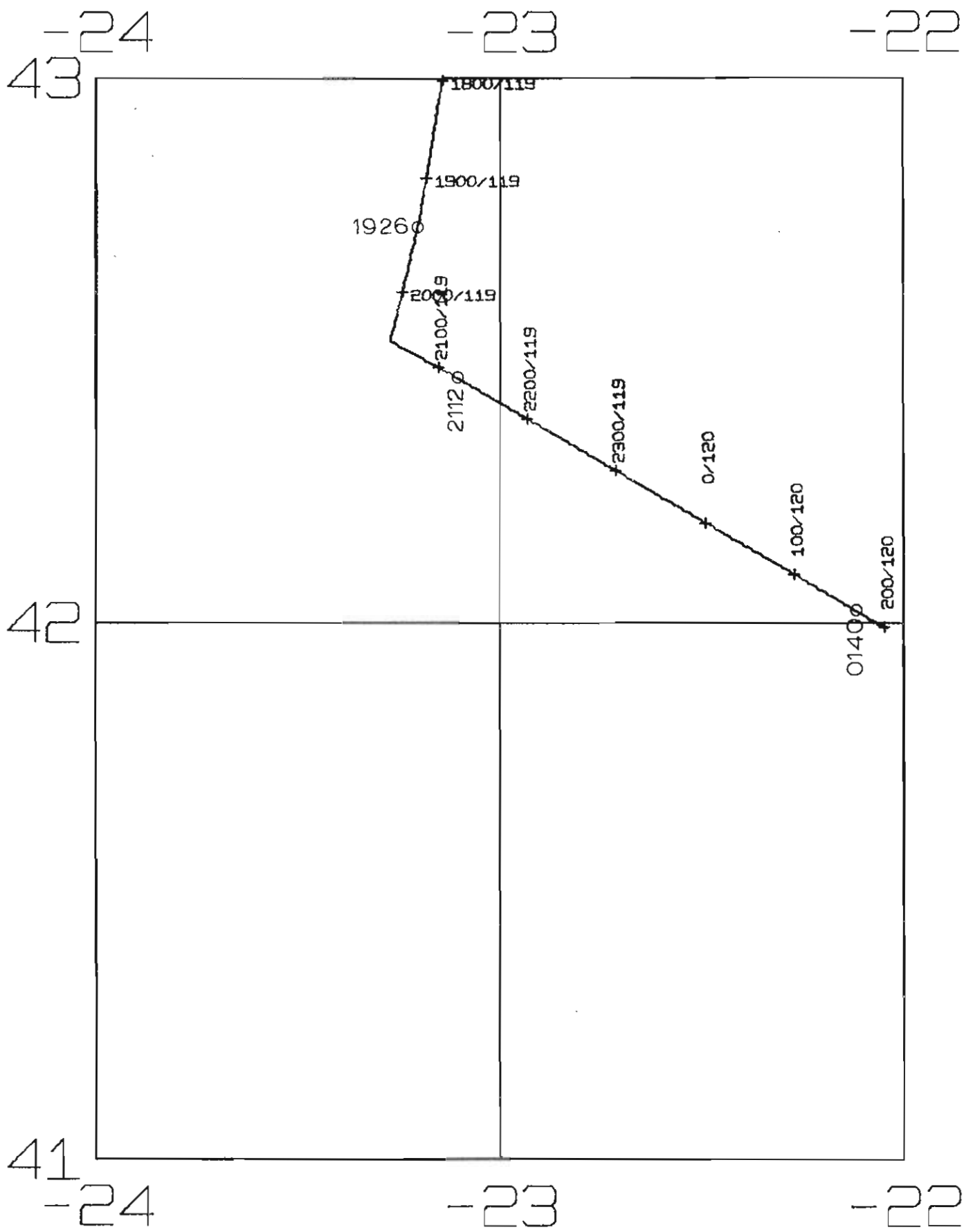
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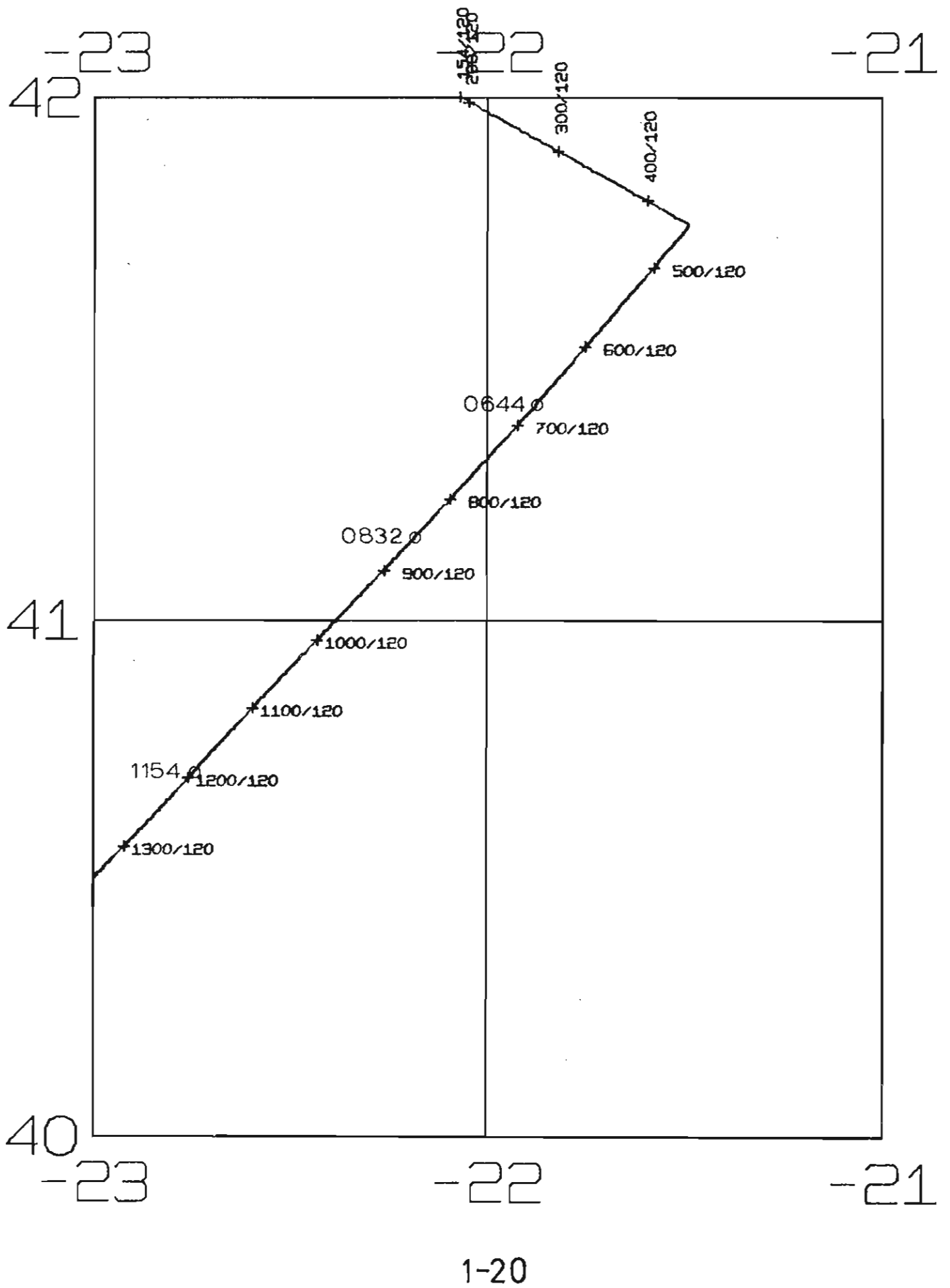
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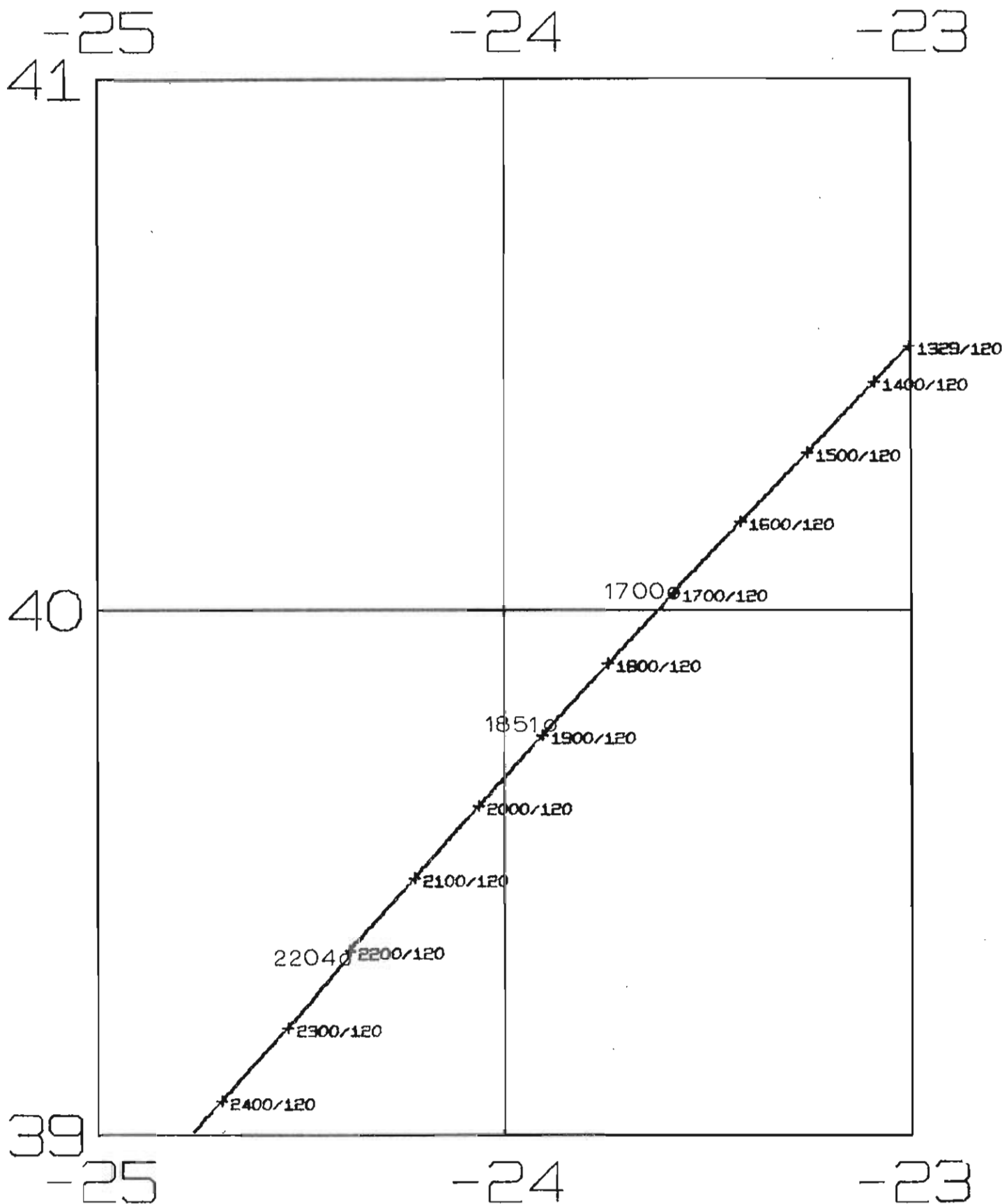


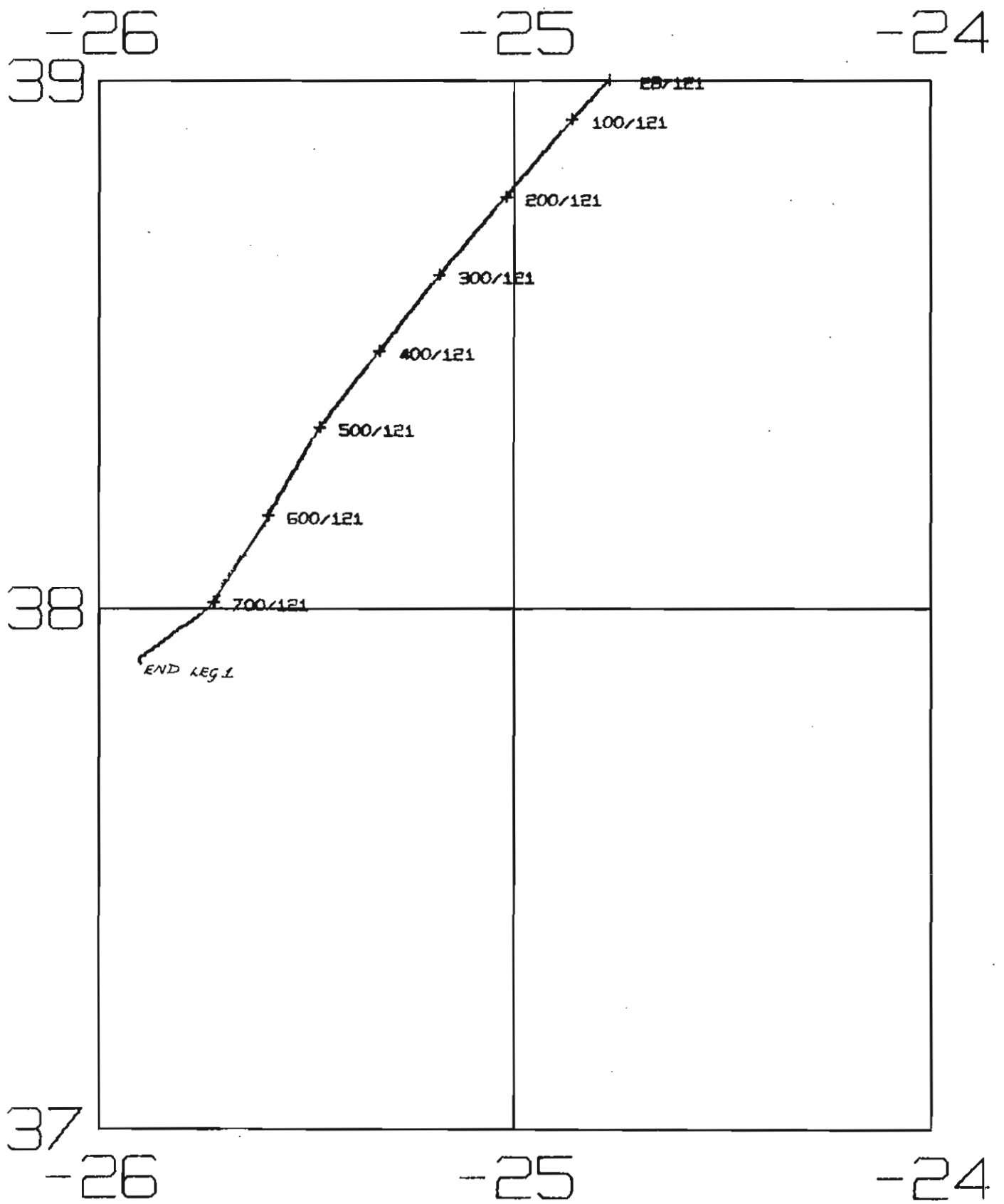


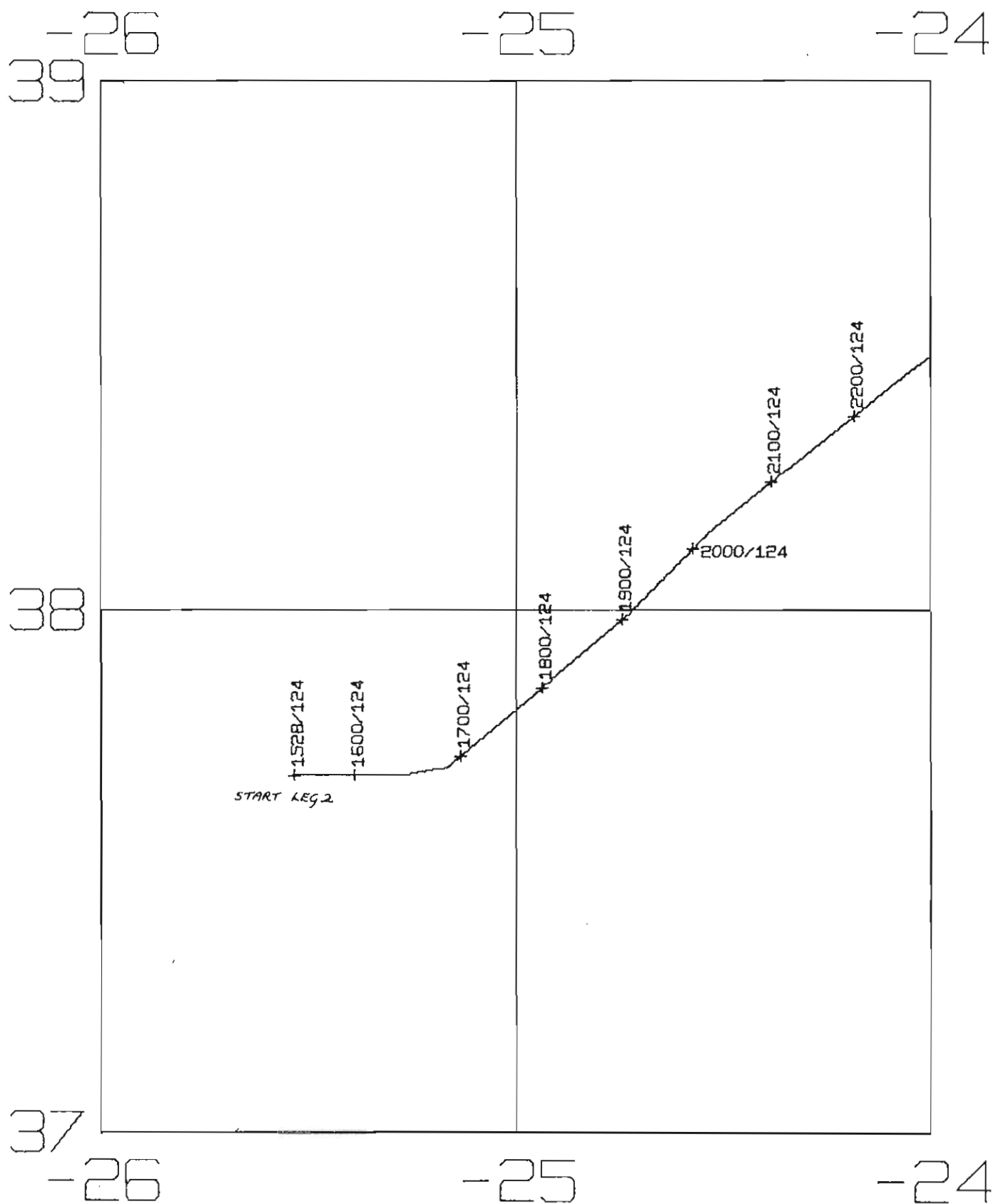


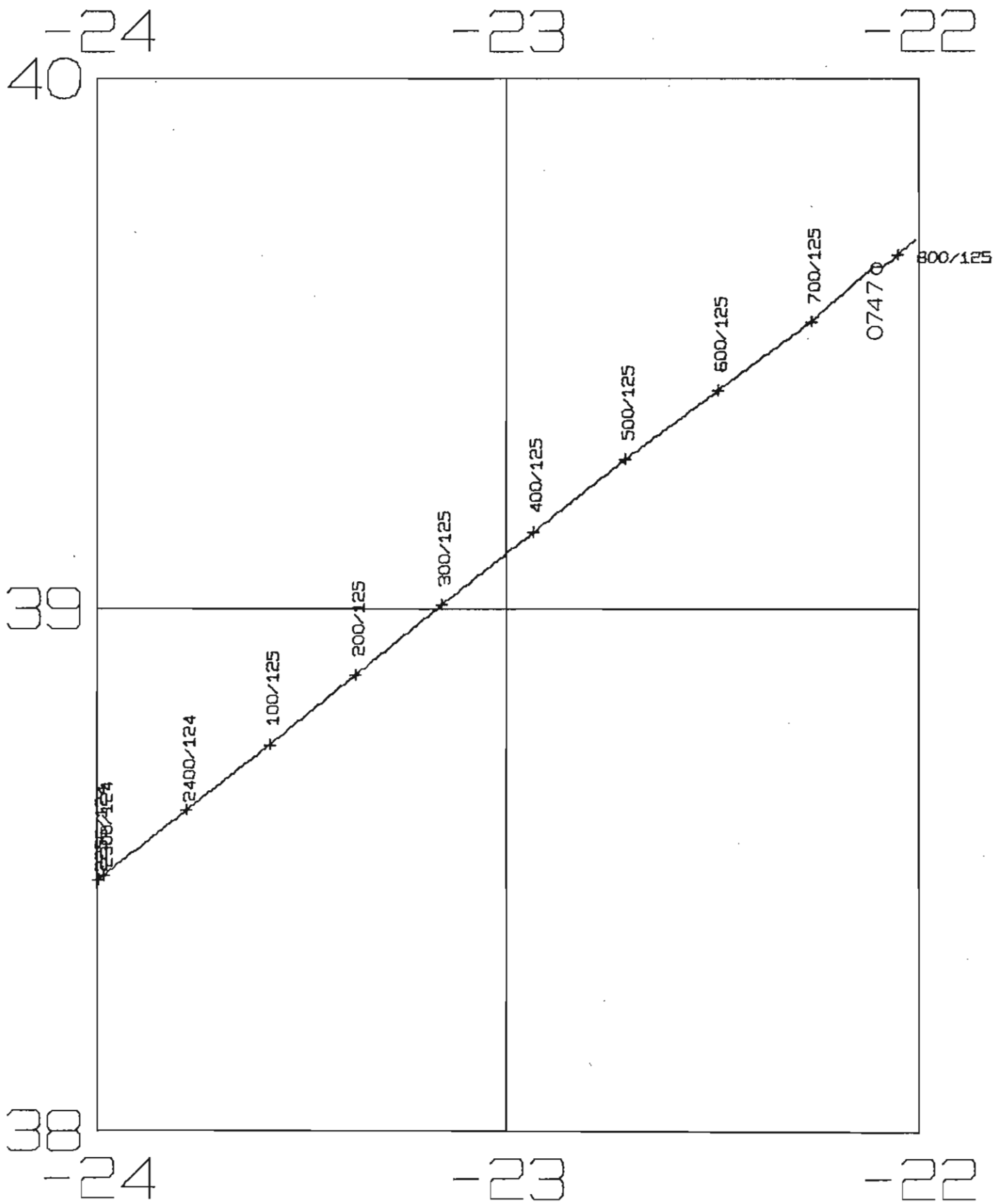


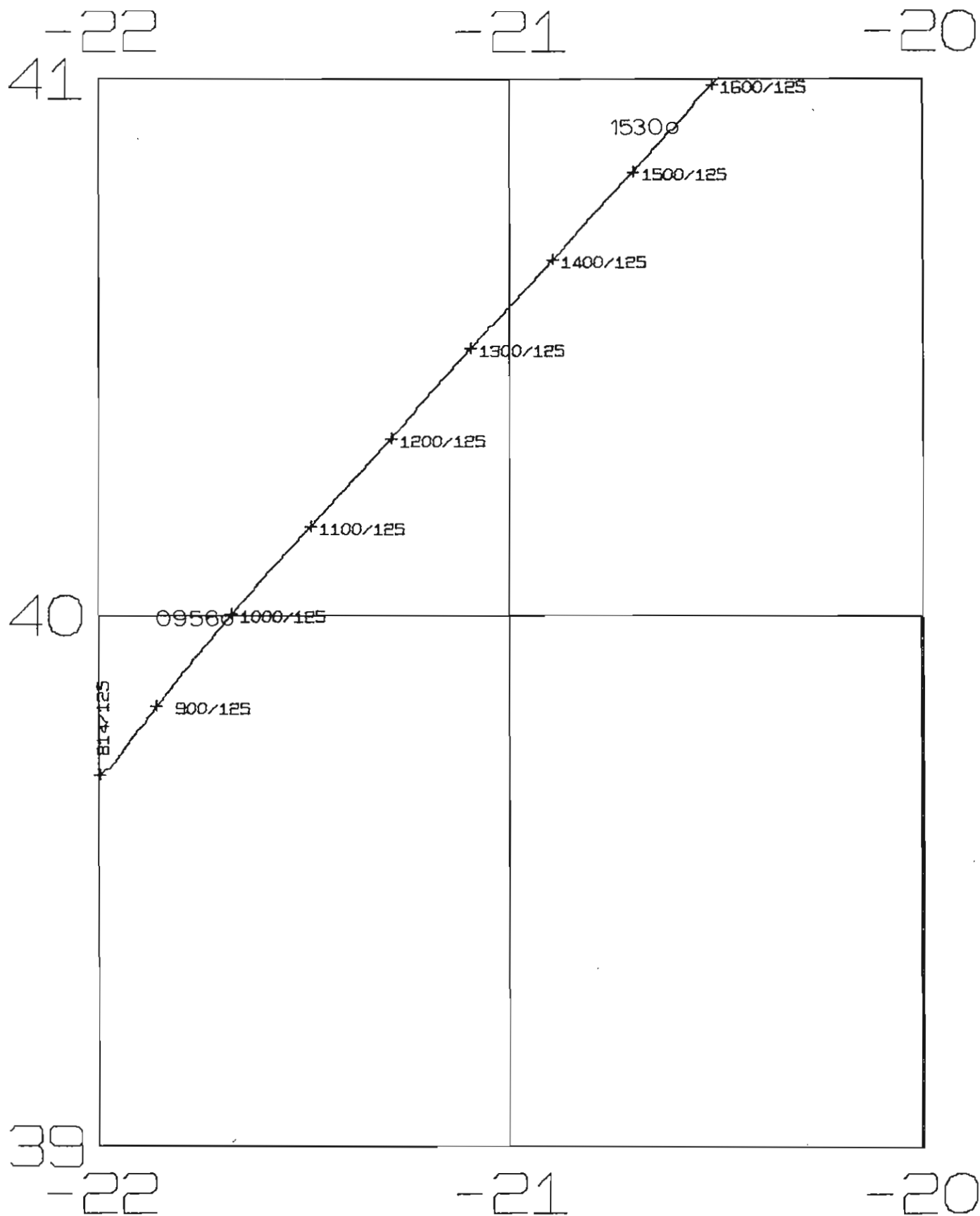


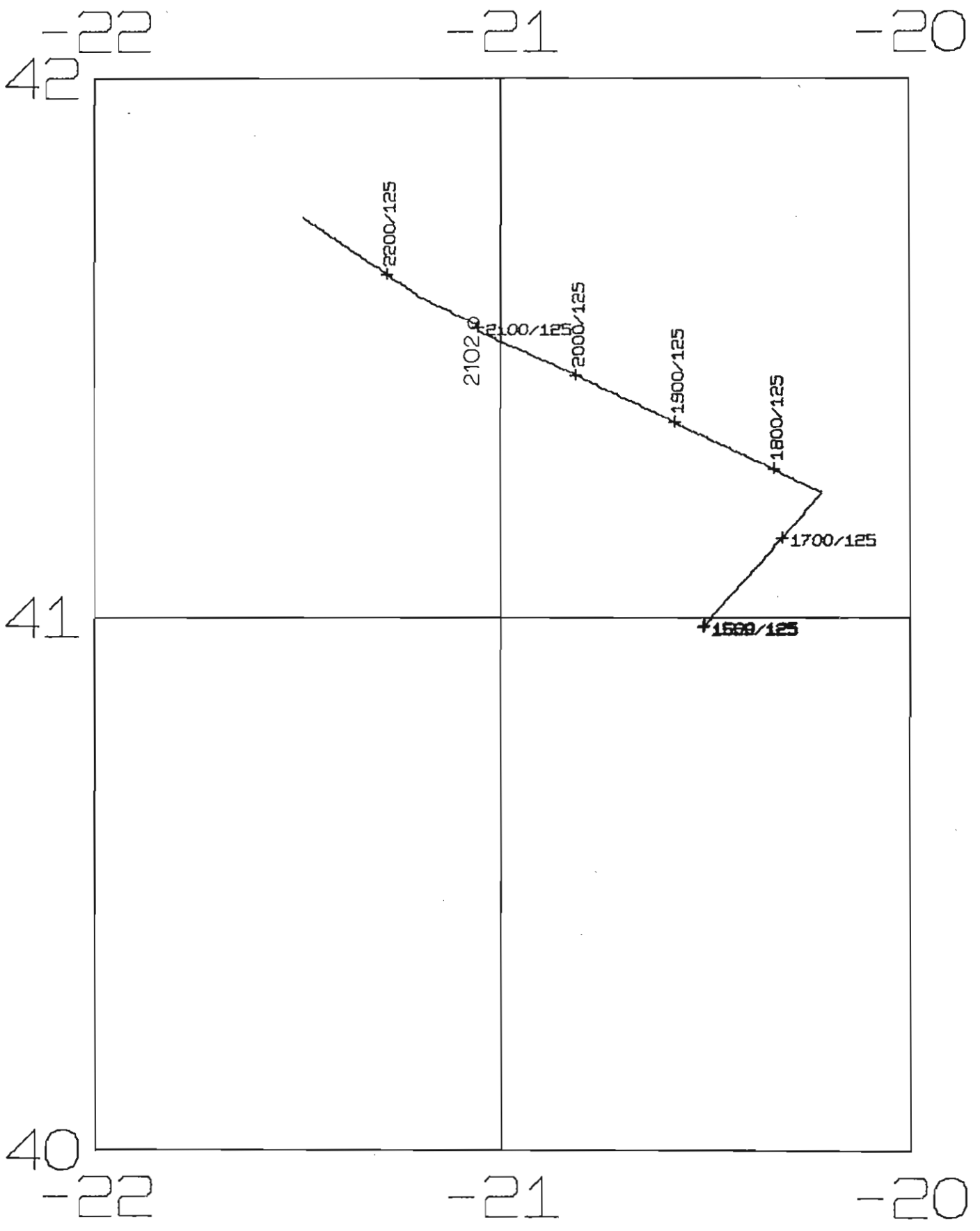


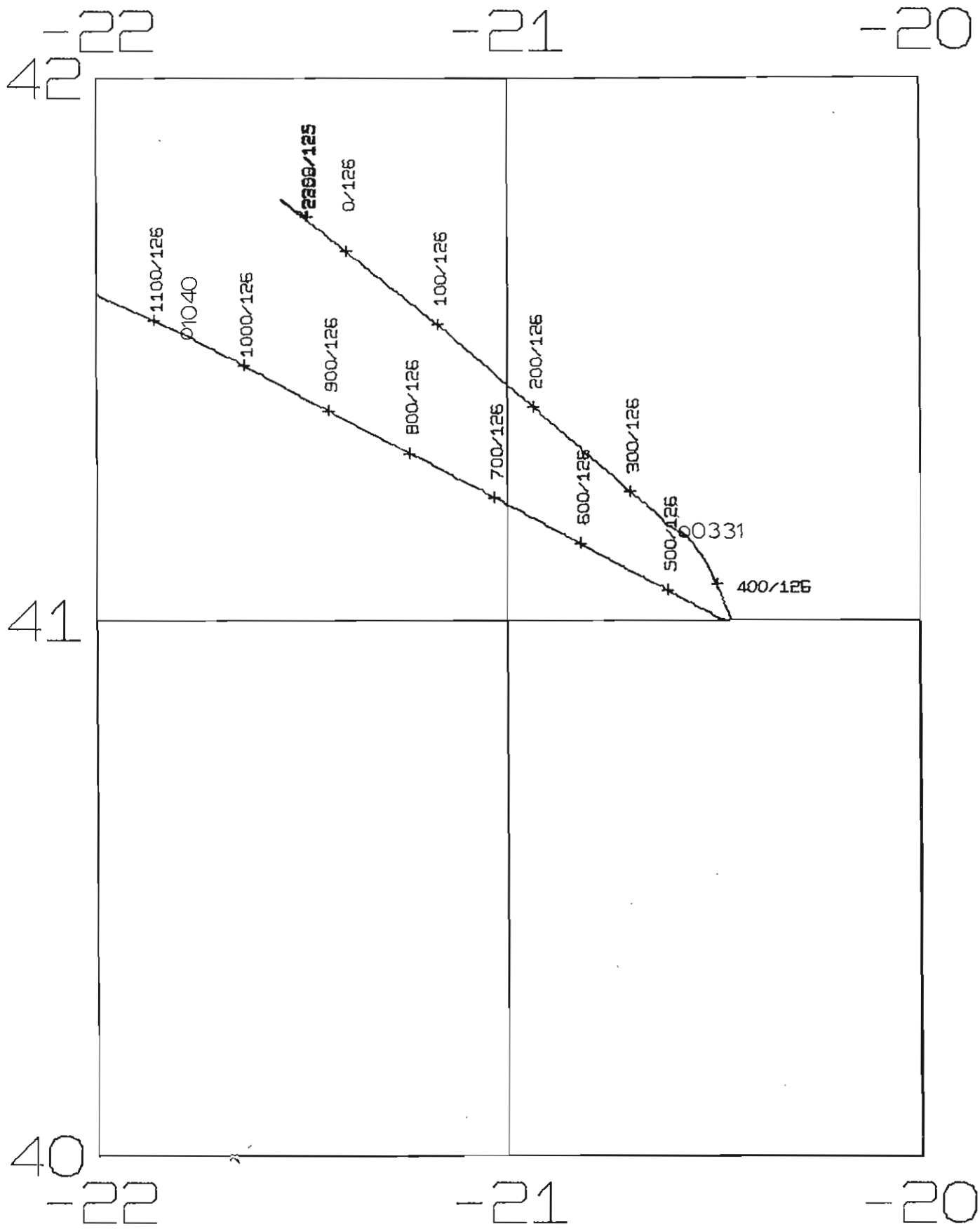












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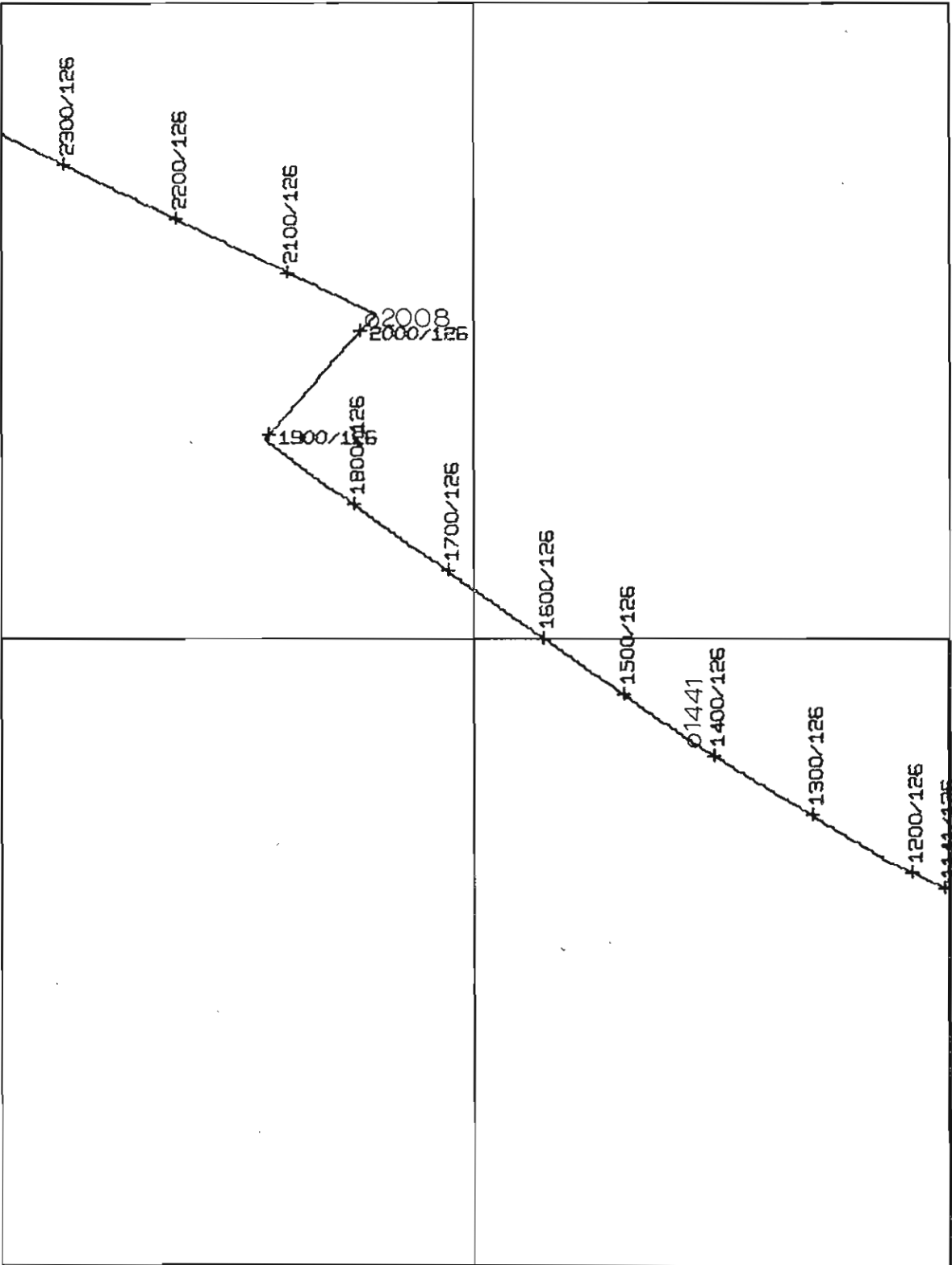
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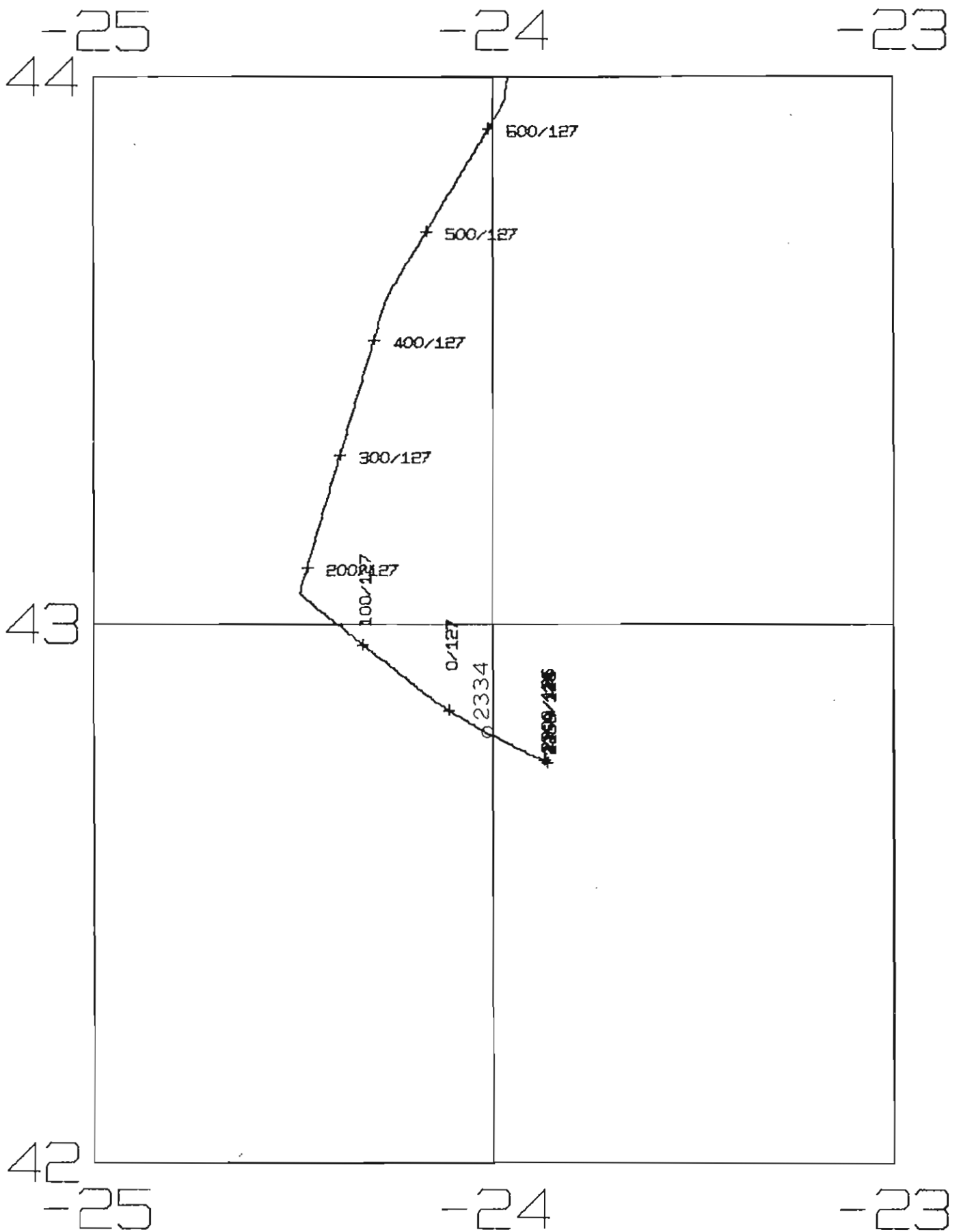
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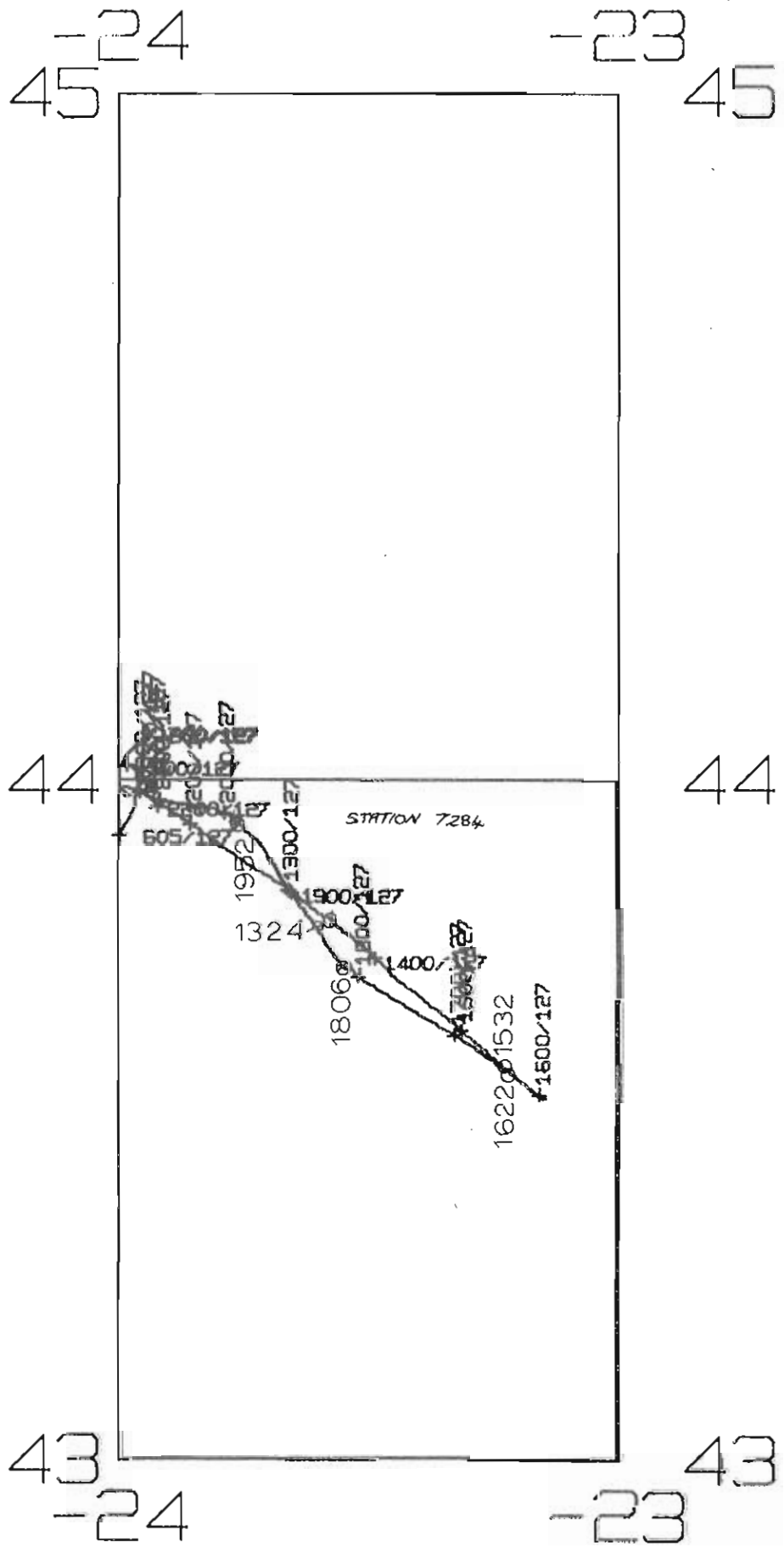
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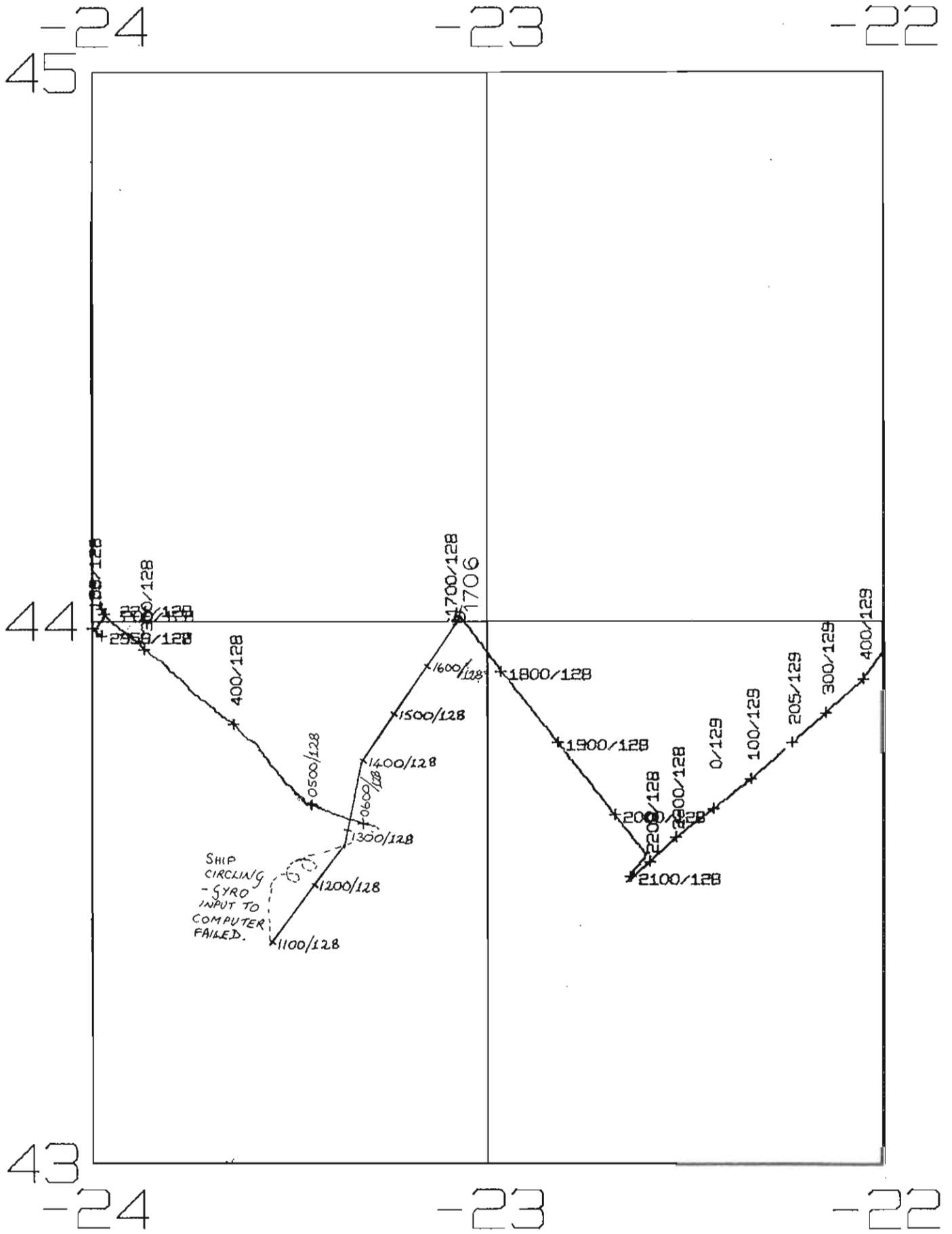
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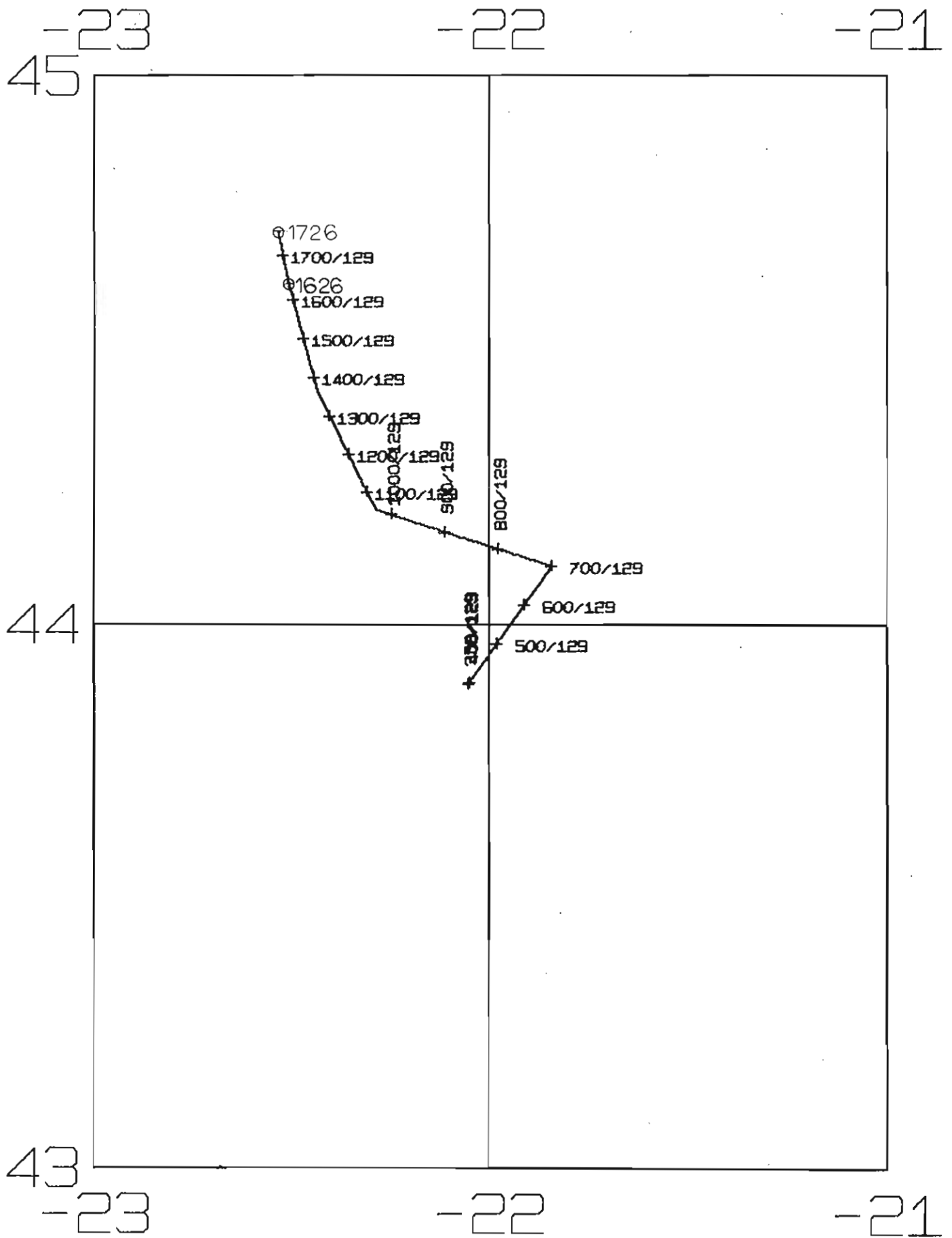
-22

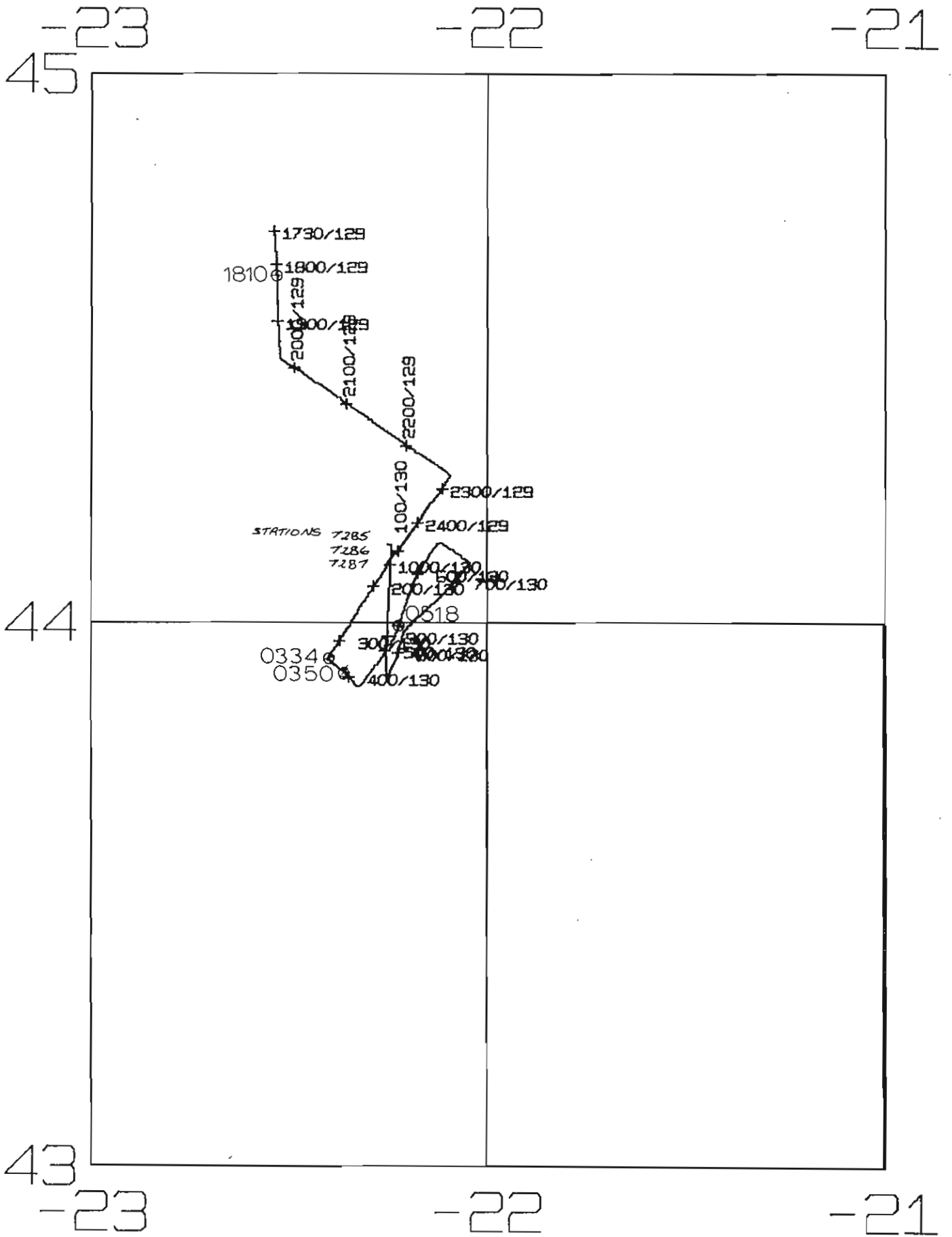










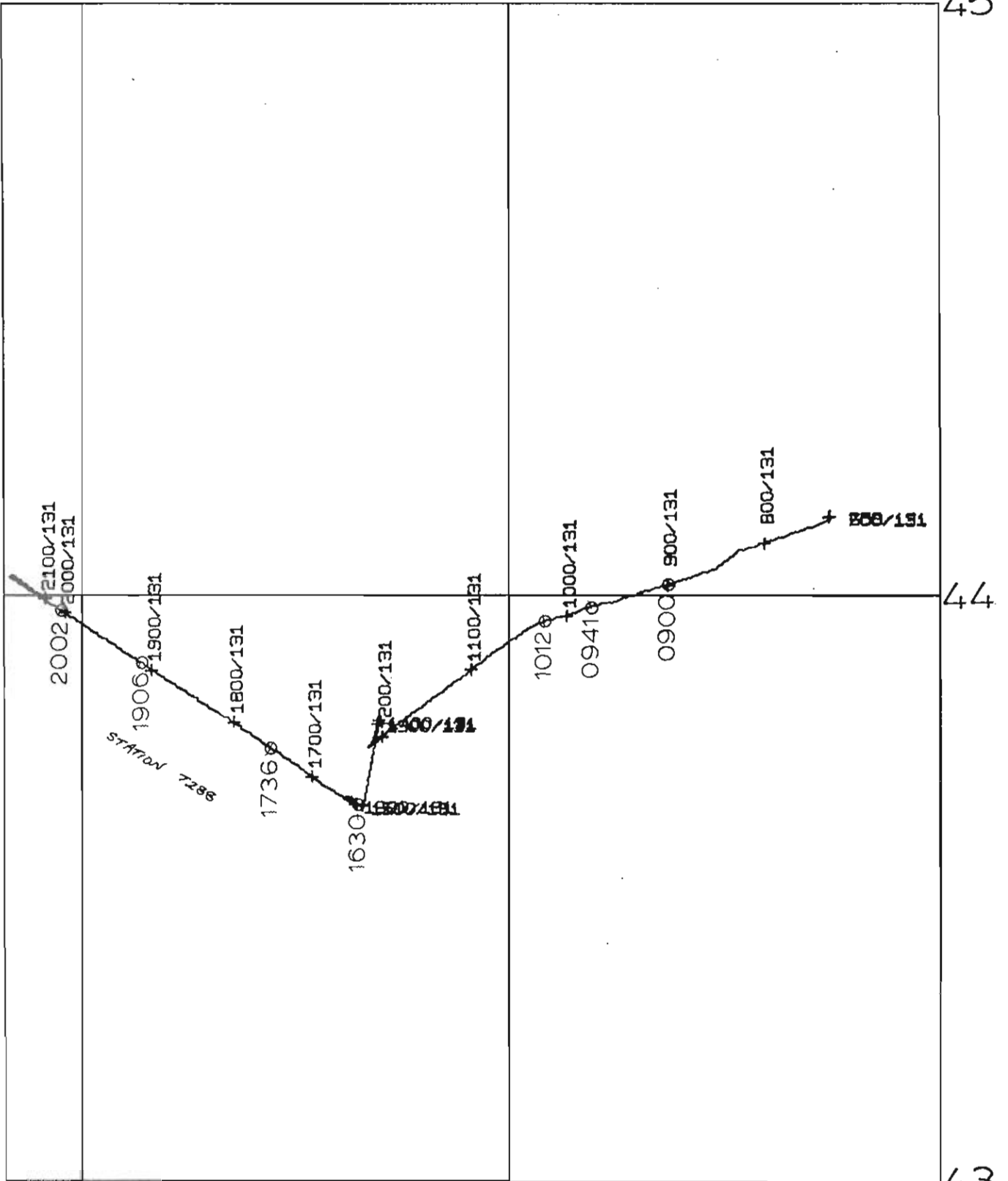


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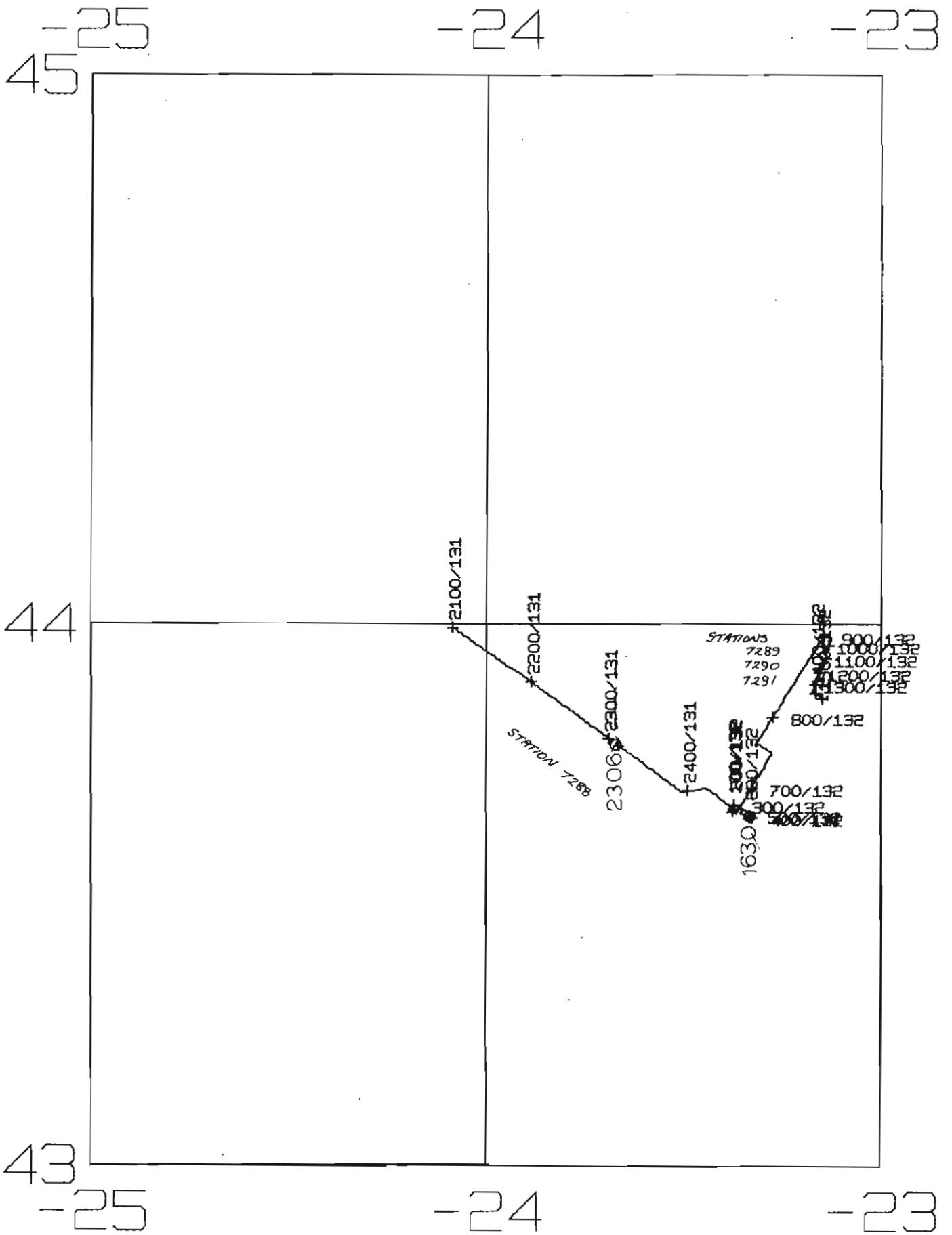


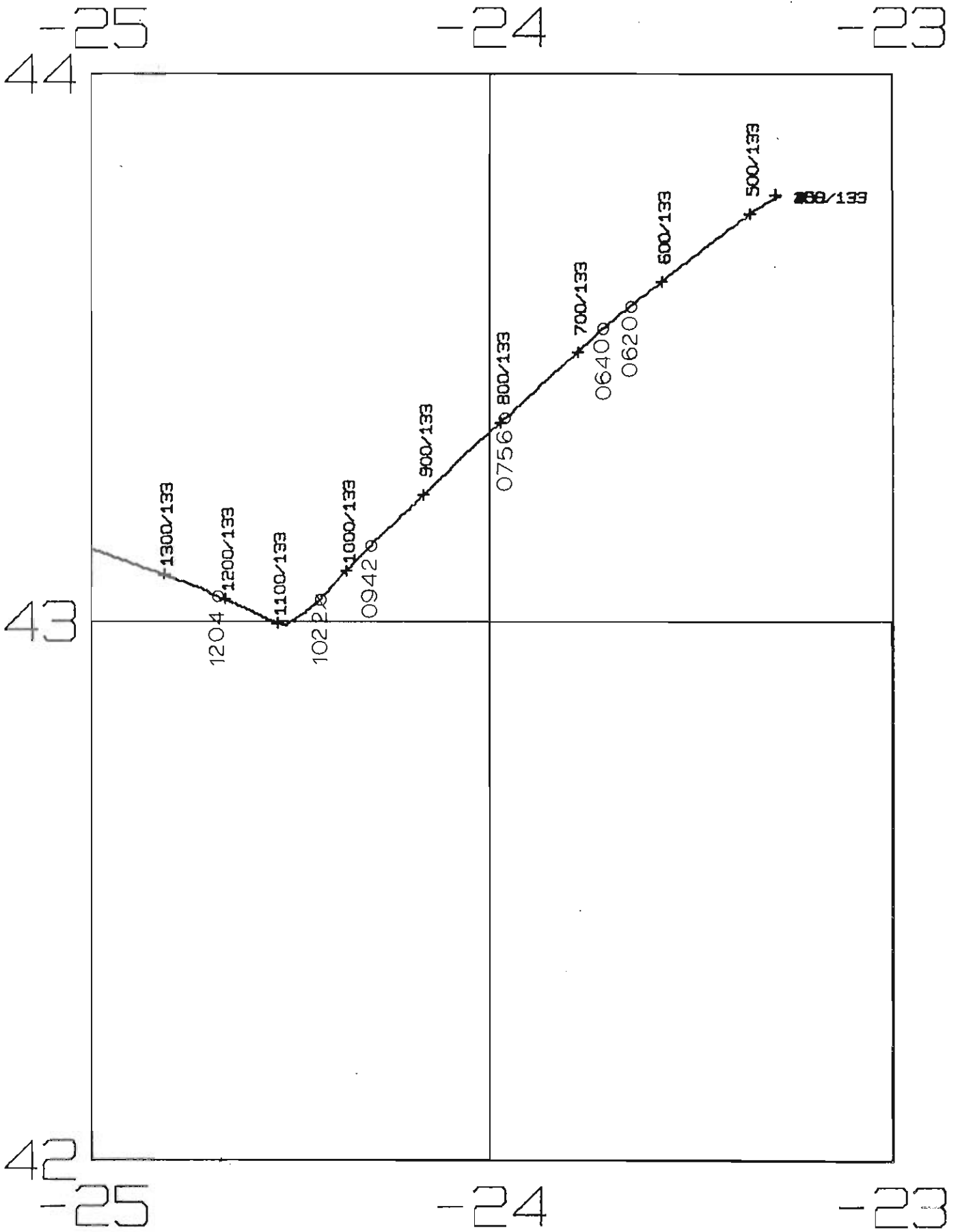
-24

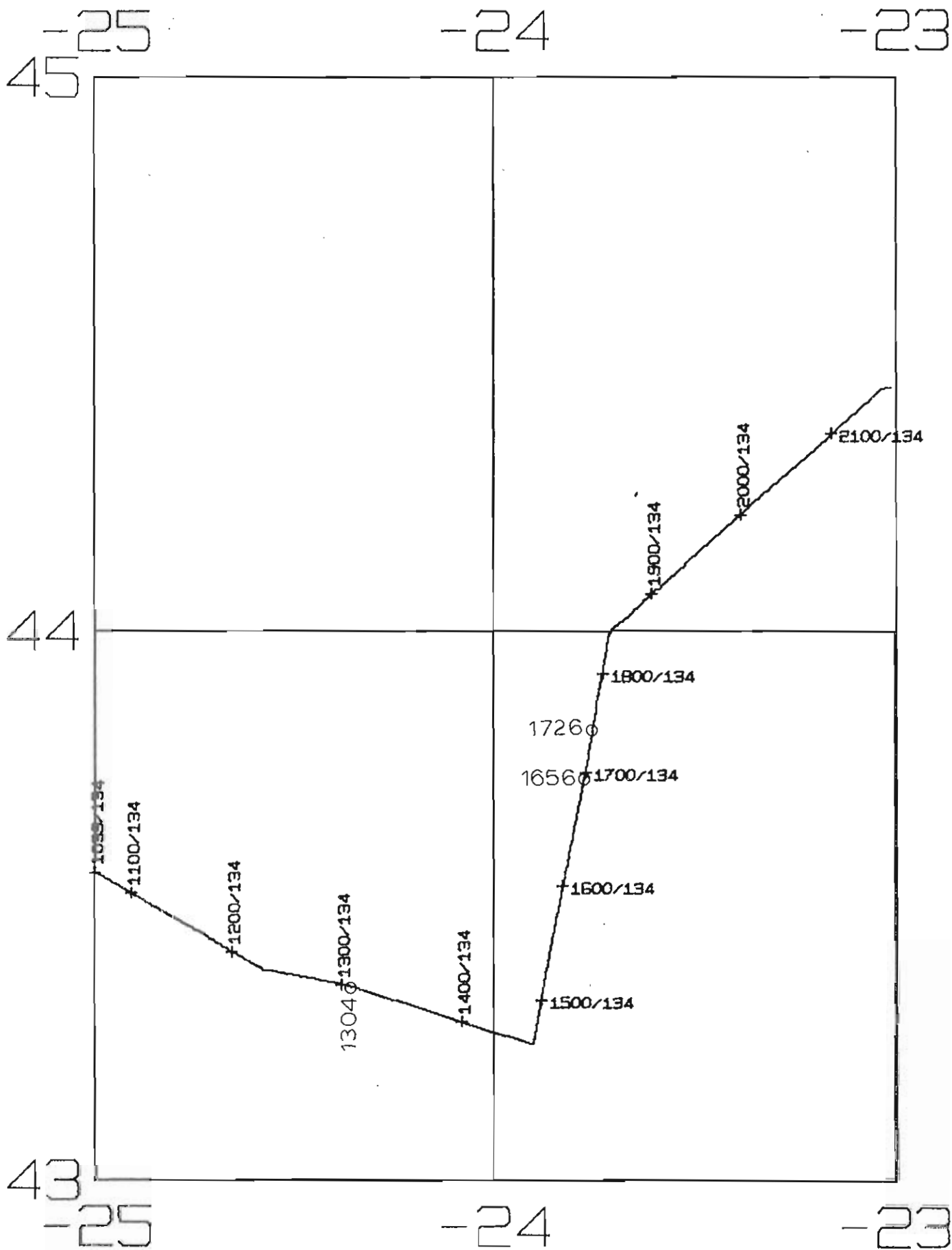
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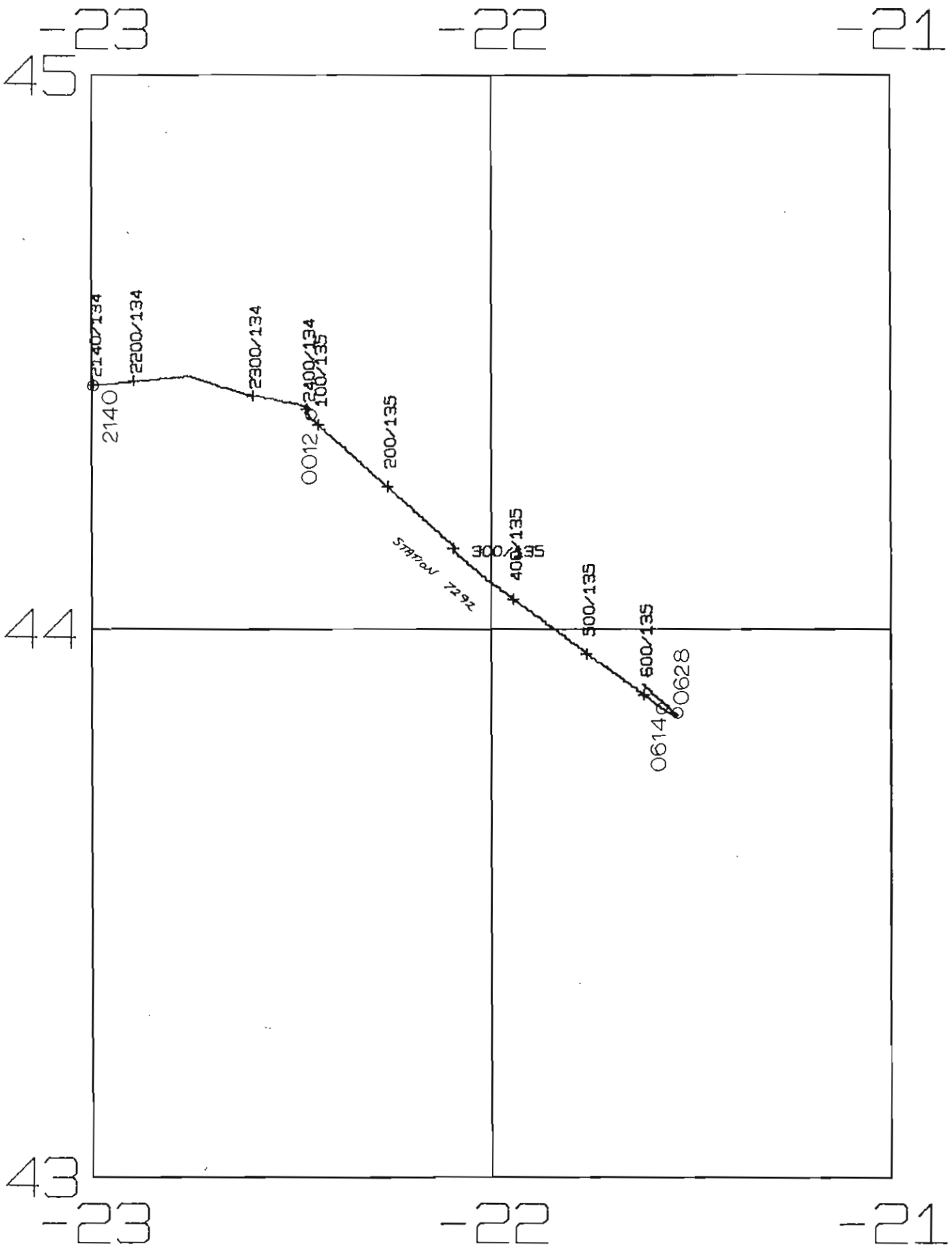
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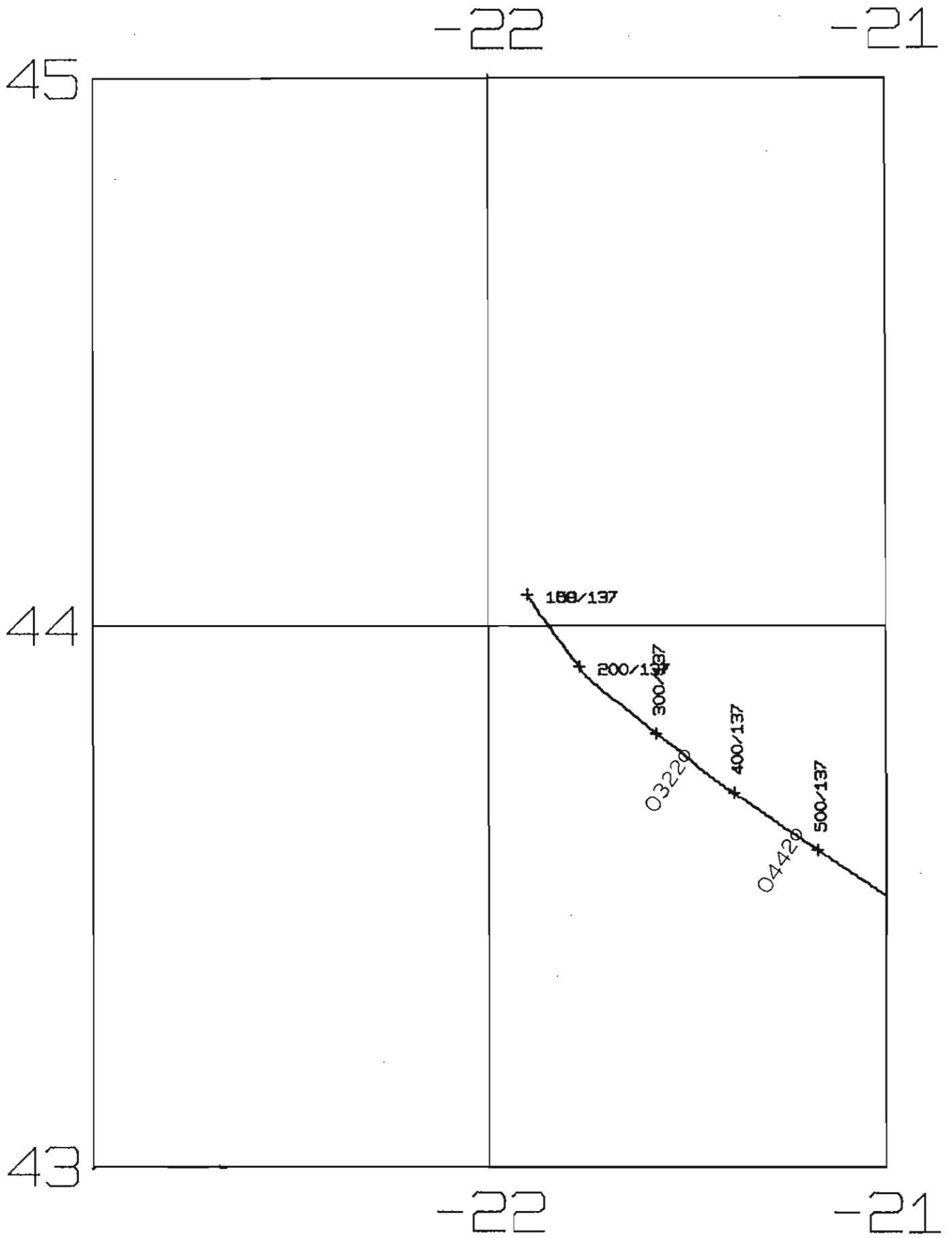
43

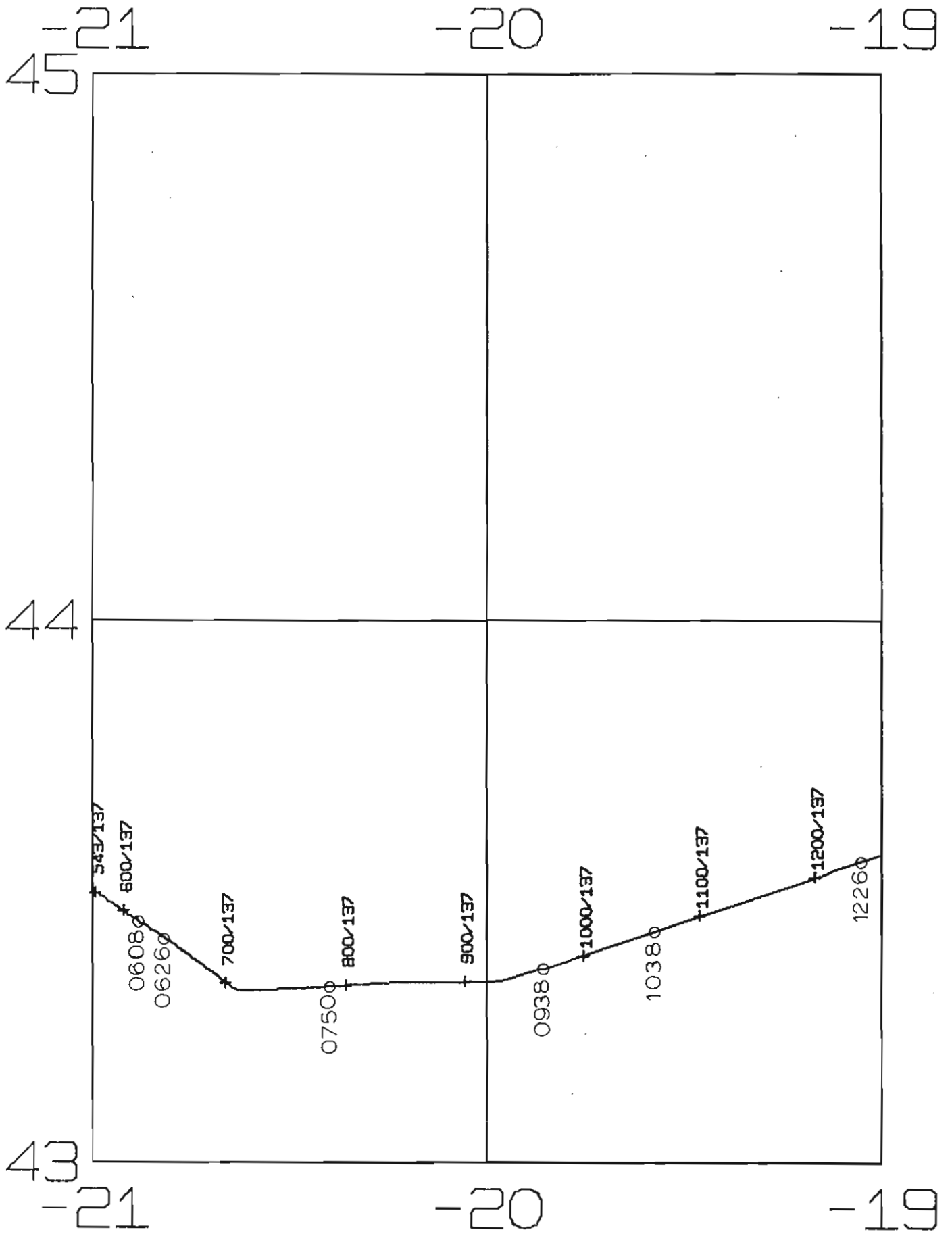


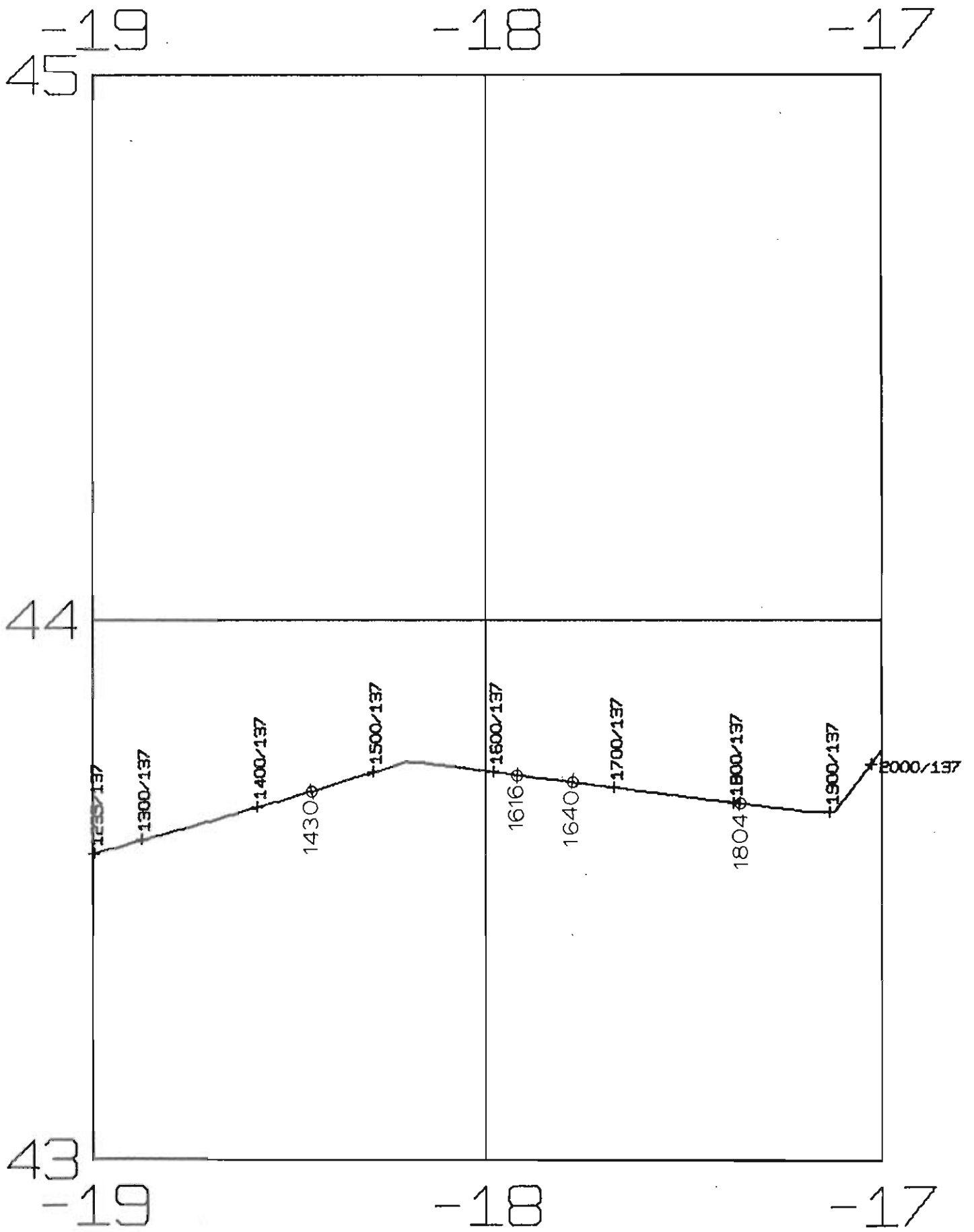


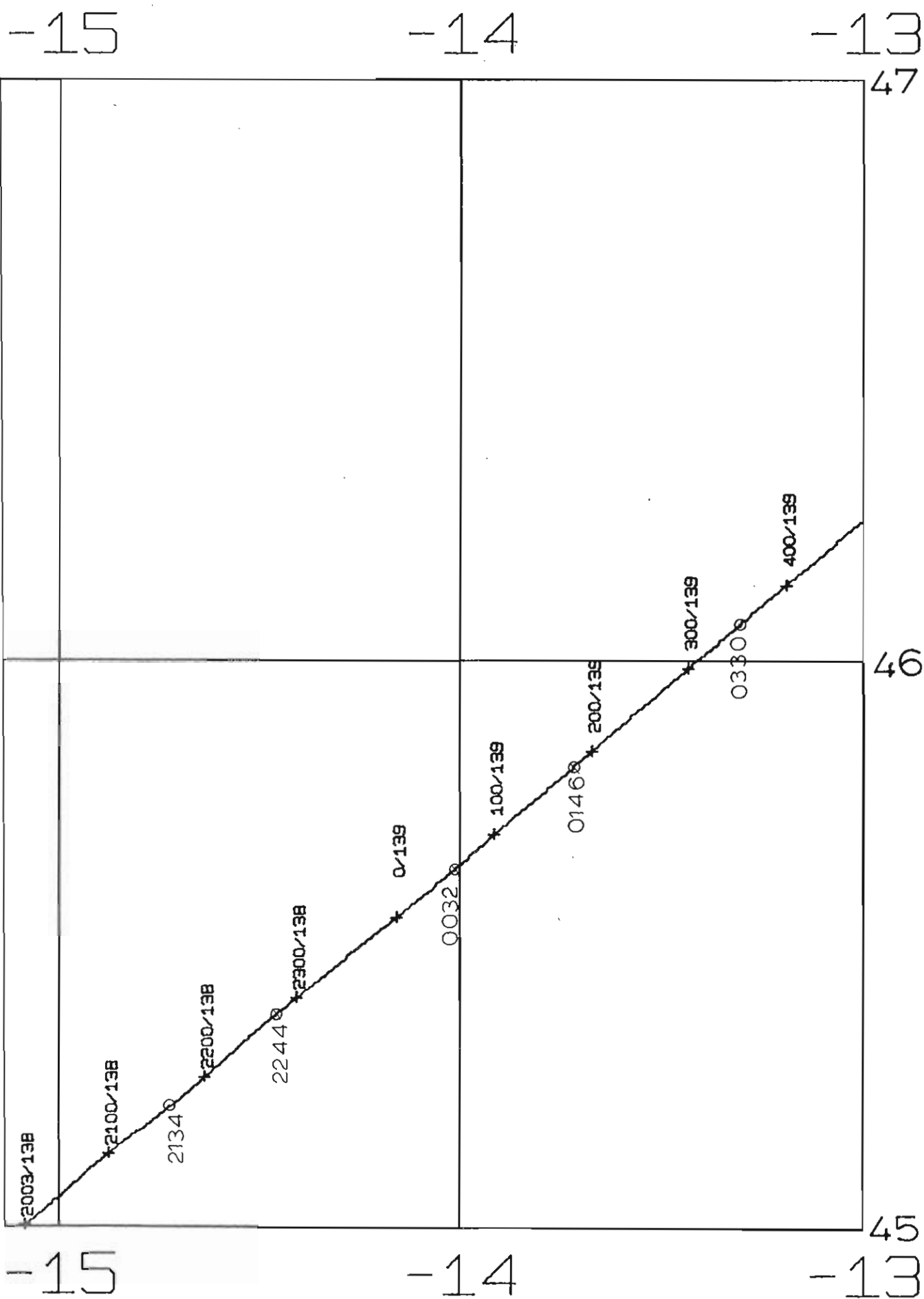


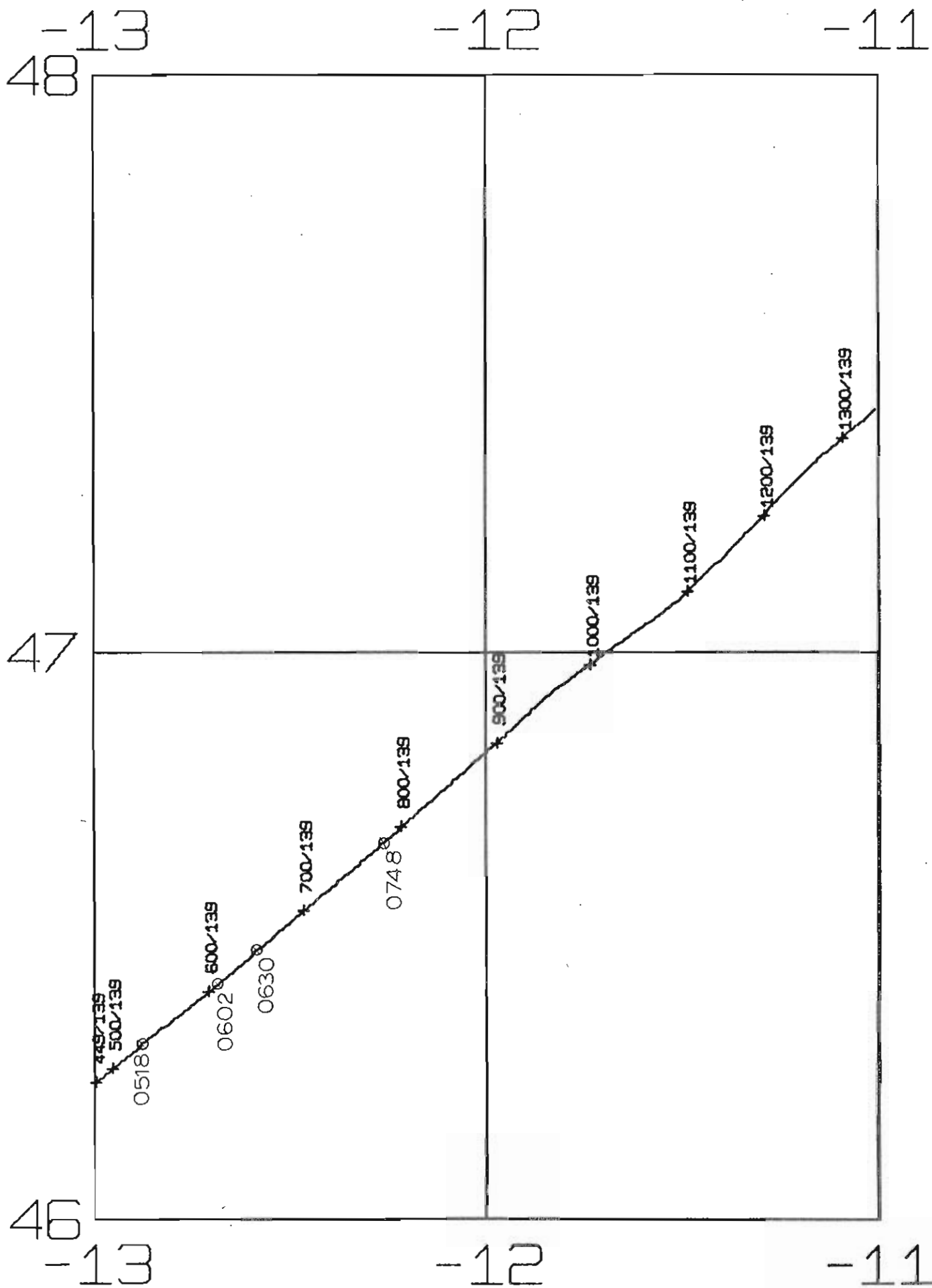


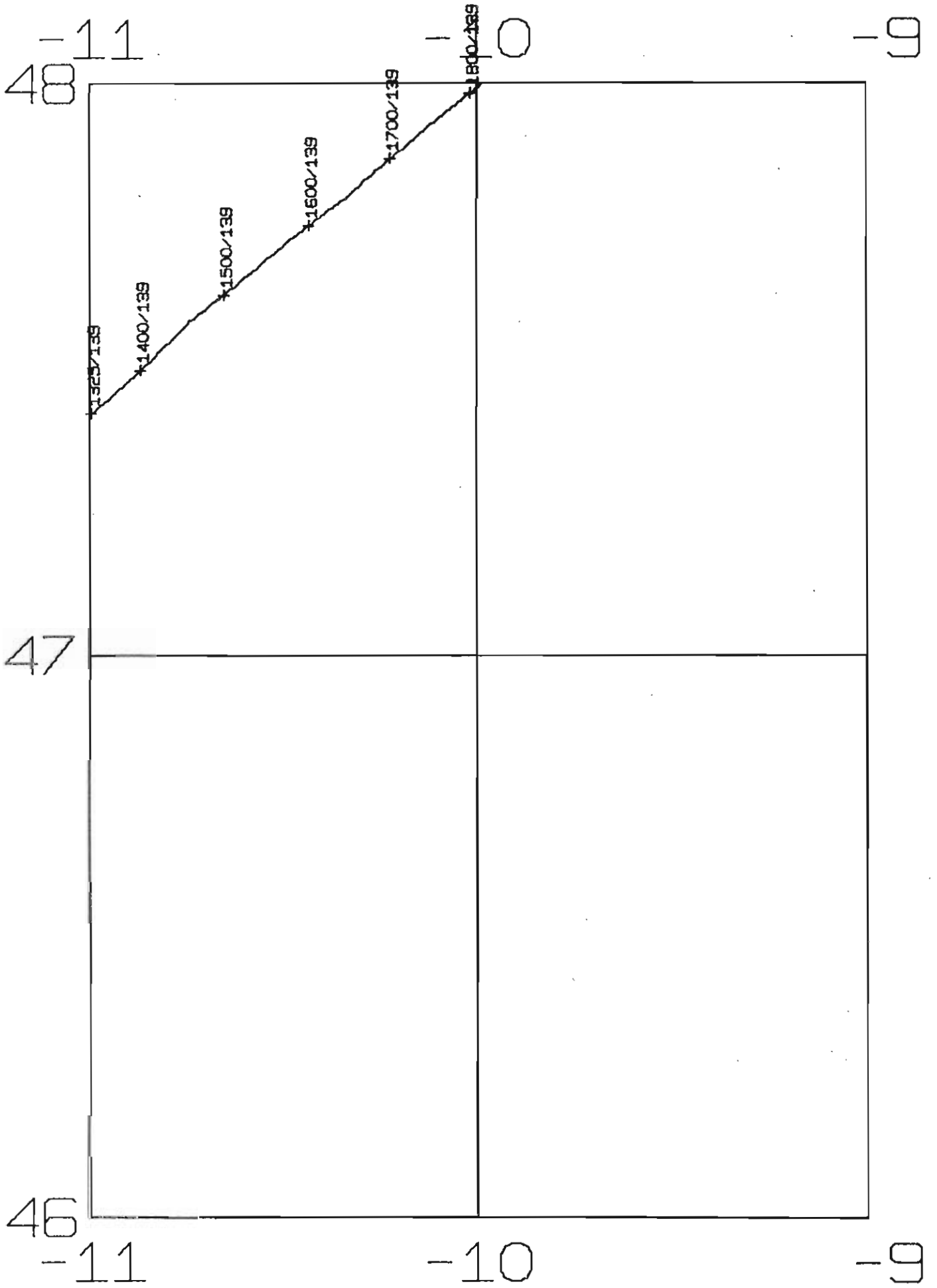


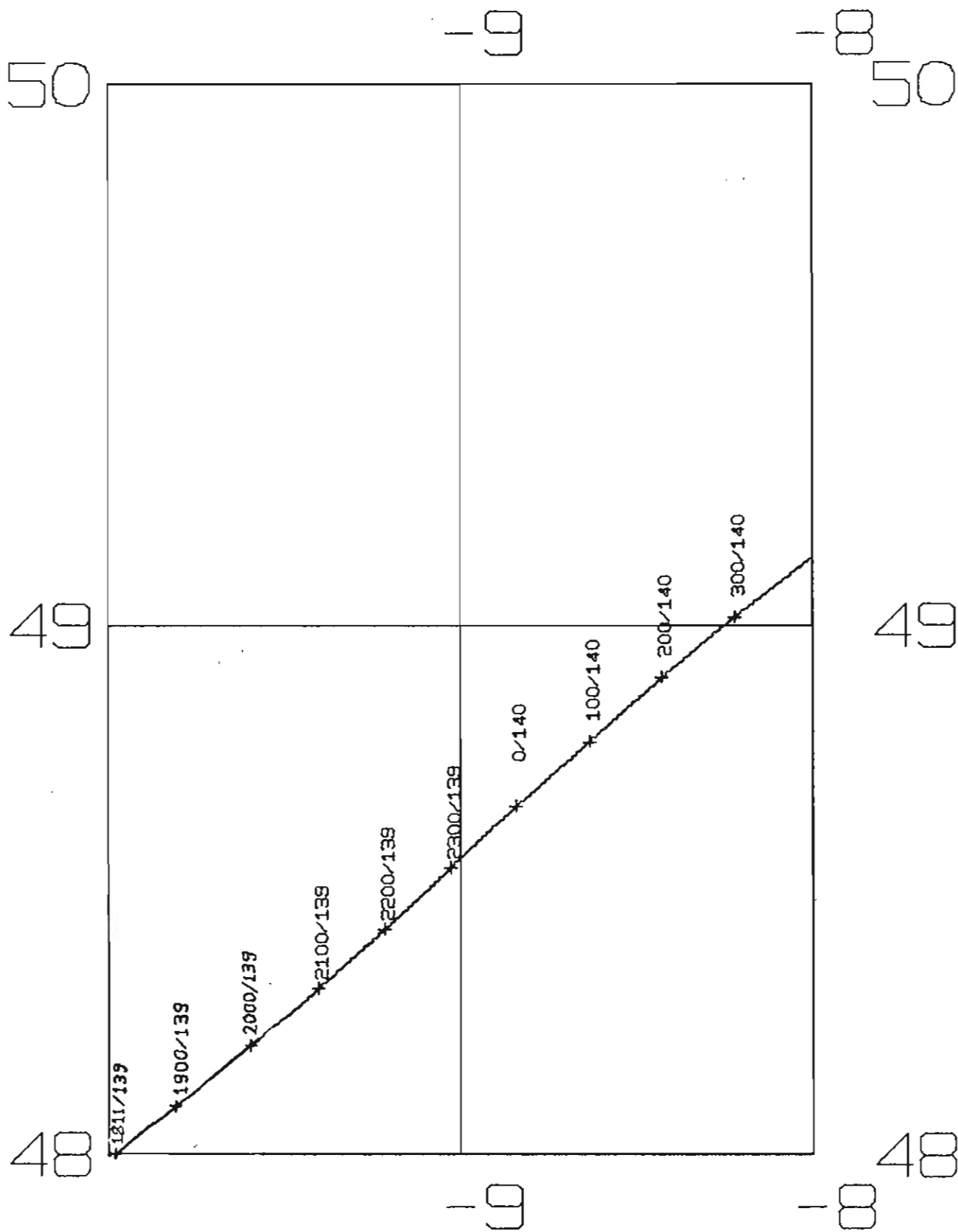


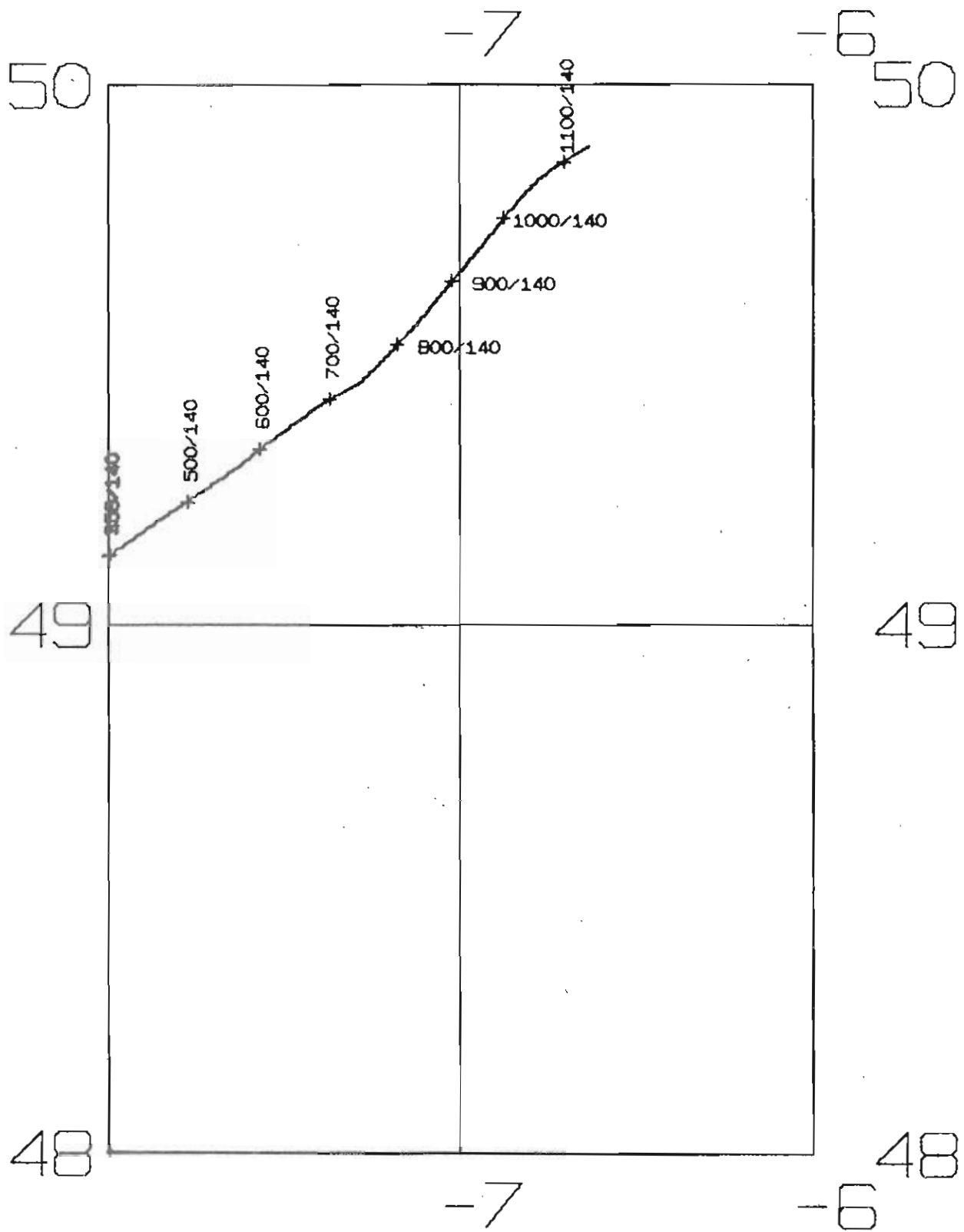












SECTION C

Tables of (a) Total Magnetic Field

(b) Uncorrected Depth in Fathoms (at 800 fms/sec)

RRS DISCOVERY CRUISE NO 33 LEG 1
 TOTAL MAGNETIC FIELD IN GAMMAS

HOURS	DATE 17- 4-1970 (DAY NO 107)											
	00	05	10	15	20	25	30	35	40	45	50	55
00	49676	50021	50045*09	49728	49523*21	49380	49417	49322	49261*43	49356	49329*53	
01	49315*59	49331	49320*11	49304*17	49372*22	49402	49820*37	49560*42	49580	49442*51	49636*57	
02	49449	49668*03	49569*08	49830*16	49752*22	49802	49590*36	49595*40	49745	49519	49473*54	
03	49579*02	49499*06	49714	49839*14	49825*22	49712	49536	49678	49778	49828*48	49893	
04	50100*02	50074	50010	49881	49742*22	49671	49667*34	49621*40	49729*46	49725	49747	
05	49771*58	49686	49669*12	49678	49667	49667	49688	49716	49751	49778	49761	
06	49729	49723	49739	49757	49759	49768	49759	49750	49739	49724	49703	
07	49696	49712	49736	49752	49772	49819	49848	49889	49926	49938	49933	
08	49935	49932	49939	49968*16	49997	50071	50072	50072				

RRS DISCOVERY CRUISE NO 33 LEG 1
 TOTAL MAGNETIC FIELD IN GAMMAS

HOURS	DATE 18- 4-1970 (DAY NO 108)											
	00	05	10	15	20	25	30	35	40	45	50	55
00	49888	49876	49864	49884*14	49873	49860	49834	49812	49792	49998	49948	49914
01	49756	49748	49745	49736	49706	49684	49681	49687	49708	49776	49769	49763
02	49796*58	49779	49783	49779	49773	49776	49785	49803	49826	49843	49767	49789
03	49928	49979	50014	50065	50083*18	50038	49980	49942	49838	49750	49859	49886
04	49750	49814	49916	49996	50015	50000	49999	50006*33	49944	49865	49713	49722
05	49779	49727	49655	49550	49462	49445*23	49569	49729	49894	49762*49	49762	49823
06	50332*01	50233	50200	50133	50053	49979	49877	49729	49691*39	50131	50232	50272
07	49686*59	49422	49071	48791*15	49332	49846	49981*31	49772	49640	49611	49611	49672
08	49752*01	49775	49653	49575*15	49868	49896*23	49801	49620	49520*39	49655*45	49788*49	49755*53
09	49455	49342	49284	49351*13	49467*19	49495*23	49341*29	49370*33	49230*41	49341*47	49181*51	49277

RRS DISCOVERY CRUISE NO 33 LEG 1
 TOTAL MAGNETIC FIELD IN GAMMAS

DATE 19- 4-1970 (DAY NO 109)

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	49405*01	49333	49286	49248	49289*19	49253*23	49339*29	49029*37	49086	49363	49405*49	49232*55
01	49489	49607	49718*11	49648	49520	49406	49282	48962	48665	48495*47	48541	48733
02	48883	48978	49025	49066	49147	49300	49334*29	48962	49205	49187*43	49217	49253
03	49251	49236	49224*09	49264	49282	49321	49322	49297	49266	49264	49179	49262
04	49245	49222	49206	49202	49209	49214	49226	49235	49218	49189	49149	49185
05	49196	49198	49199	49197	49209	49214	49226	49235	49218	49179	49149	49141
06	49132	49122	49112	49104	49094	49079	49057	49036	49016	49000	48988	48983
07	48981	48977	48977	48978	48975	48969	48965	48958	48953	48950	48948	48947
08	48946	48945	48943	48939	48935	48935	48937	48938	48940	48946	48952	48961
09	48969	48983	48998	49016	49037	49059	49077	49093	49110	49129	49148	49165
10	49182	49202	49200	49206	49208	49195	49179	49164	49148	49128	49112	49095
11	49084	49067	49053	49040	49030	49017	49004	48992	48979	48973	48962	48954
12	48943	48933	48933	48932	48936	48944	48958	48977	49007	49047	49090	49140
13	49198	49255	49301	49344	49376	49405	49420	49414	49386	49348	49310	49273
14	49232	49189	49142	49095	49049	49007	48971	48945	48928	48923	48938	48964
15	48990	49012	49028	49041	49045	49044	49062	49088	49109	49123	49126	49121
16	49109	49090	49089	49087	49045	49044	49062	49088	49109	49123	49126	49121
17												
18												
19												
20												
21												
22												
23												

RRS DISCOVERY CRUISE NO 33 LEG 1
 TOTAL MAGNETIC FIELD IN GAMMAS

DATE 22- 4-1970 (DAY NO 112)

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00												
01												
02												
03												
04												
05												
06												
07												
08												
09												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												

00	48891	48908	48928	49044	49034	49022	49008	48988	48974	48873	48877	48879
01	48814	48798	48788	48910	48901	48890	48880	48875	48873	48888	48858	48834
02	48818	48824	48826	48774	48756	48738	48723	48723	48730	48748	48773	48800
03	48729	48719	48729	48827	48825	48815	48799	48782	48769	48760	48754	48741
04				48762	48803	48840	48853	48840	48806	48764	48724	48686

RRS DISCOVERY CRUISE NO 33 LEG 1
TOTAL MAGNETIC FIELD IN GAMMAS

HOURS	DATE 23- 4-1970 (DAY NO 113)				
	00	05	10	15	20
00	48651	48617	48585	48560	48546
01	48571	48597	48636	48680	48711
02	48626*02	48622	48609	48591	48570
03	48150	48141	48444	48391	48338
04	48366	48141	48400	48431	48158
05	48456	48380	48400	48431	48456
06	48295	48456	48464	48476	48466
07	48115	48254	48214	48176	48136
08	48145	48120	48123	48132	48145
09	48213	48092	48040	48009	48004*18
10	48148	48217	48222	48223	48221
11	47950	48139	48126	48112	48097
12	48020	47934	47924	47917	47924
13	47946	48039	48057	48071	48089
14	47736	47921	47909	47897	47880
15	47734	47719	47724	47739	47764
16	47770	47726	47724	47729	47734
17	47699	47775	47776	47778	47768
18	47819	47693	47695	47707	47733
19	47613	47833	47846	47845	47800
20	47538	47569	47569	47566	47528
21	47539	47537	47547	47556	47563
22	47512	47545	47552	47555	47556
23		47505	47502	47502	47500

MINUTES

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RRS DISCOVERY CRUISE NO 33 LEG 1
TOTAL MAGNETIC FIELD IN GAMMAS

HOURS	DATE 24- 4-1970 (DAY NO 114)				
	00	05	10	15	20
00	47449	47452	47455	47461	47450
01	47391	47354	47313	47275	47250
02	47193	47187	47184	47185	47194
03	47193	47118	47080	47044	47014
04	47098	47102	47102	47113	47126
05	47112	47105	47091	47078	47067
06	46975	46963	46964	46969	46976
07	47030	47033	47035	47041	47047
08	47069	47066	47056	47036	47013
09	47042	47043	47034	47032	47016
10	46993	46963	46946	46934	46912
11	46842	46849	46853	46848	46840
12	46673*58	46676	46682	46694	46708
13	46672	46684	46687	46664	46634
14	46611	46619	46623*09	46623*13	46617
15	46545	46695	46659	46635	46639
16	46547	46500	46489	46501	46518
17	46797	46778	46753	46722	46687
18	46560	46565	46588	46622	46658
19	46795	46765	46731	46688	46658
20	46728	46712	46671	46631	46583
21	46644	46637	46624	46601	46579
22	46586	46588	46593	46605	46618
23	46929	46920	46901	46883	46863

MINUTES

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RRS DISCOVERY CRUISE NO 33 LEG 1
TOTAL MAGNETIC FIELD IN GAMMAS

HOURS	DATE 25- 4-1970 (DAY NO 115)											
	00	05	10	15	20	25	30	35	40	45	50	55
00	46629	46643	46657	46672	46690	46700	46701	46703	46703	46710	46719	46729
01	46728	46722	46722	46735	46756	46778	46794	46802	46802	46870	46897	46904
02	46881	46854	46842	46845	46857	46861	46851	46852	46852	46784	46777	46769
03	46757	46736	46717	46710	46709	46706	46704	46705	46705	46747	46777	46811
04	46843	46856	46841	46804	46745	46682	46663*29	46806	46806	46822	46828	46817
05	46773	46724	46676*11	46683	46693	46669	46631*31	46743	46743	46554	46925	46966
06	46960	46929	46885	46836	46774	46714	46653	46542	46542	46536	46557	46571
07	46563	46532	46485	46436	46411	46402	46421	46421	46421	46586	46648	46715
08	46749	46740	46699	46636	46565	46499	46441	46392	46392	46378	46349	46314
09	46287	46269	46251	46239	46232	46244	46302	46302	46302	46483	46505	46512
10	46513	46507	46511	46511	46502	46462	46374	46374	46374	46173	46154	46153
11	46175	46242	46350	46441*17	46428	46361	46277	46277	46277	46144	46118	46098
12	46087	46092	46148	46234	46319	46386	46416	46306	46306	46214	46129	46077
13	46095	46164	46227	46245	46211	46162	46137	46222	46222	46304	46350	46356*53
14	46268	46172	46112	46108	46123	46117	46107	46077	46077	46058	46036	46014
15	46006	46001*03	46006	46008	46009	46008	45988	45921	45921	45923*43	45921	45924
16	45938	45942	45914	45915	45914	45912	45883	45878	45878	45882	45888	45896
17	45904	45911	45872	45867	45865	45860	45920*32	45903	45903	45898	45893	45889
18	45884	45877	45872	45867	45865	45860	45853*32	45868	45868	45876	45886	45897
19	45911	45923	45935	45944	45949	45948	45948	45944	45944	45976	45959	45963
20	45974	45983	45999	46003	46004	46011	46011*32	46026	46026	46022	46024	46020
21	46020	46008	46008	46023	46009	46071	46098	46098	46098	46145	46180	46190
22	46193	46184	46161	46131	46099	46076	46065	46075	46075	46094	46115	46136
23	46150	46150	46138	46106	46064	46020	45988	45957	45957	45963	45984	46005

RRS DISCOVERY CRUISE NO 33 LEG 1
TOTAL MAGNETIC FIELD IN GAMMAS

HOURS	DATE 26- 4-1970 (DAY NO 116)											
	00	05	10	15	20	25	30	35	40	45	50	55
00	46030	46045	46071	46109	46158	46211	46265	46289	46289	46242	46176	46114
01	46069	46037	46027	46048	46087	46136	46186	46226	46226	46259	46254	46234
02	46203	46183	46167	46165	46168	46179	46198	46219	46219	46263	46276	46281
03	46281	46273	46270	46264	46267	46277	46298	46332	46332	46406	46434*52	46429
04	46421	46414	46407	46393	46383	46384	46377	46368	46368	46190	46154	46157
05	46174	46195	46223	46255	46292	46326	46353	46378	46378	46409	46414	46435
06	46470	46503	46531	46571	46614	46658	46676	46648	46648	46516	46456	46404
07	46352	46299	46234	46223	46231	46281	46361	46438	46438	46534	46559	46529
08	46485	46478	46389	46375	46388	46413	46433	46489	46489	46519	46599	46690
09	46766	46787	46780	46766	46744	46722	46693	46675	46675	46651	46631	46606
10	46593	46592	46605	46622	46649	46670	46673	46637	46637	46622	46612	46606
11	46577	46579	46566	46544	46520	46504	46503	46546	46546	46589	46632	46662
12	46677	46679	46676	46672	46668	46659	46651	46634	46634	46628	46620	46619
13	46630	46630	46630	46642	46647	46660	46681	46700	46700	46684	46656	46611
14	46558	46526	46518	46515	46518	46545	46600	46674	46674	46762	46805	46877
15	46960	47019	47037	47020	46988	46955	46919	46876	46876	46766	46699	46640
16	46620	46623	46661	46705	46747	46788	46837	46891	46891	47004	47057	47114*56
17	47109	47040	46860	46734	46729	46753	46792	46851	46851	46909	46909	46898
18	46860	46813	46813	46857	46847	46845	46792	46823	46823	46881	46849	46836
19	46833	46836	46747	46726	46672	46604	46564	46872	46872	46901	46889	46853
20	46811	46771	46747	46726	46672	46604	46564	46560	46560	46738	46951	47155
21	47236	47180	47104	47037	47008	47027	47061	47084	47084	47105	47105	47120
22	47142	47158	47114	47143	47128	47116	47111	47111	47111	47125	47102	47025
23	46976	46940	46910	46893	46880	46865	46857	46857	46857	46870	46893	46915

RRS DISCOVERY CRUISE NO 33 LEG 1
 TOTAL MAGNETIC FIELD IN GAMMAS

HOURS	DATE 27- 4-1970 (DAY NO 117)											
	00	05	10	15	20	25	30	35	40	45	50	55
00	46931	46934	46926	46909	46886	46845	46827	46813	46801	46790	46779	
01	46768	46759	46750	46731	46710	46688	46657	46642	46642	46634	46627	
02	46624	46623	46629	46641	46652*22	46682	46682	46708	46719	46724	46721	
03	46710	46708	46694	46687	46688*22	46682	46682	46708	46719	46724	46721	
04	46618	46620	46592*12	46615	46620*18	466563	46685	46688	46694	46705	46711	
05	46479	46490	46513	46524	46540	46538	46521	46543	46603	46659	46673*54	
06	46610	46543	46502	46466	46410	46369	46460	46599	46652*44	46621*52	46634	
07	46644	46623	46597	46578	46540	46401	46361	46316	46261	46226	46209	
08	46181*02	46193	46256	46323	46349	46309	46280	46275	46261	46226	46209	
09	46238	46287	46342	46396*17	46451	46308	46280	46275	46261	46226	46209	
10	46202	46230	46210	46174	46151	46168	46172	46135	46144	46124	46167	
11	46202	46229	46232	46199	46151	46168	46172	46135	46144	46124	46167	
12	46255	46343	46425	46487	46537	46601	46630	46658	46680	46716	46812	
13	46280	46332*07	46421	46484	46538	46607	46630	46658	46680	46716	46812	
14	46280	46332*07	46421	46484	46538	46607	46630	46658	46680	46716	46812	
15	46007	46055*06	46134	46203	46272	46341	46410	46479	46548	46617	46686	
16	46007	46055*06	46134	46203	46272	46341	46410	46479	46548	46617	46686	
17	46007	46055*06	46134	46203	46272	46341	46410	46479	46548	46617	46686	
18	46007	46055*06	46134	46203	46272	46341	46410	46479	46548	46617	46686	
19	46007	46055*06	46134	46203	46272	46341	46410	46479	46548	46617	46686	
20	46007	46055*06	46134	46203	46272	46341	46410	46479	46548	46617	46686	
21	46007	46055*06	46134	46203	46272	46341	46410	46479	46548	46617	46686	
22	46007	46055*06	46134	46203	46272	46341	46410	46479	46548	46617	46686	
23	46007	46055*06	46134	46203	46272	46341	46410	46479	46548	46617	46686	

RRS DISCOVERY CRUISE NO 33 LEG 1
 TOTAL MAGNETIC FIELD IN GAMMAS

HOURS	DATE 28- 4-1970 (DAY NO 118)											
	00	05	10	15	20	25	30	35	40	45	50	55
00	45561	45426	45441	45456	45472	45494	45503	45509	45518	45529	45544	
01	45581	45569	45572	45589	45608	45622	45617	45620	45629	45639	45652	
02	45670	45684	45685	45669	45638	45618*32	45617	45620	45629	45639	45652	
03	45485	45513	45553	45602	45655	45756	45803	45835	45847	45863	45861	
04	45848	45820	45780	45729	45665	45550	45418	45356*42	45365	45413	45486	
05	45553	45603	45642	45675	45708	45750	45758	45761	45758	45753	45754	
06	45749	45740	45734	45715	45702	45693	45688	45681	45674	45669	45661	
07	46317	46312	46277	46212	46135	46012	45961	45909	45851	45795	45758	
08	45749	45777	45809	45838	45873	45912	45951	45990	45851	45795	45758	
09	45844	45879	45912	45938	45973	46012	46051	46090	46033	45977	45940	
10	46108	46141	46158	46160	46167	46177	46189	46178	46131	46089	46076	
11	46092	46130	46177	46222	46270	46322	46375	46427	46481	46533	46587	
12	45953*02	45957	45987	46022	46066	46115	46169	46220	46274	46328	46382	
13	46258	46280	46266	46222	46165	46110	46055	46002	46041	46089	46137	
14	46046	46032	46009	45982	45956	45919	45875	45831	45788	45745	45702	
15	46297	46305	46306	46315	46323	46330	46338	46346	46353	46361	46369	
16	46245	46246	46248	46257	46266	46275	46284	46293	46302	46311	46320	
17	46245	46246	46248	46257	46266	46275	46284	46293	46302	46311	46320	
18	46620	46714	46768	46794	46828	46862	46896	46930	46964	47000	47036	
19	46298	46298	46298	46285	46278	46271	46264	46257	46250	46243	46236	
20	46192	46215	46248	46285	46322	46359	46396	46433	46470	46507	46544	
21	46356	46330	46299	46279	46258	46237	46216	46195	46174	46153	46132	
22	46457	46431	46402	46377	46352	46327	46302	46277	46252	46227	46202	
23	46288	46259	46230	46201	46172	46143	46114	46085	46056	46027	46000	

RRS DISCOVERY CRUISE NO 33 LEG 1
TOTAL MAGNETIC FIELD IN GAMMAS

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	46468	46463	46457	46450	46449	46446	46444	46444	46450	46461	46478	46494
01	46506	46517	46526	46534	46543	46554	46570	46570	46603	46630	46660	46692
02	46732	46773	46810	46827	46810	46769	46711	46711	46528	46496	46474	46450*57
03	46486	46466	46486	46501	46524	46526	46524	46524	46522	46525	46532	46546
04	46557	46565	46565	46572	46583	46583	46575	46575	46547	46540	46542	46554
05	46580	46617	46660	46702	46737	46755	46752	46729	46694	46654	46617	46590
06	46574	46568	46574	46576	46581	46590	46605	46629	46625	46625	46625	46625
07	46630	46638	46646	46655	46662	46670	46671	46679	46674	46670	46669	46665
08	46654	46628	46592	46554	46530	46517	46523	46538	46560	46585	46605	46621
09	46637	46649	46649	46654	46653	46660	46659	46653	46509	46508	46528	46508
10	46586	46608	46624	46604	46556	46534	46569	46572	46569	46536	46492	46466
11	46455	46440	46423	46416	46420	46421	46416	46403	46390	46381	46375	46373
12	46372	46371	46368	46366	46365	46363	46359	46344	46322	46289	46261	46349
13	46219	46202	46178	46156	46152	46151	46153	46178	46234	46290	46357	46345
14	46373	46387	46399	46413	46399	46361	46321	46319	46351	46368	46357	46345
15	46332	46368	46401	46397	46382	46360	46334	46313	46302	46301	46304	46305
16	46302	46305	46310	46320	46334	46341	46335	46317	46293	46270	46252	46235
17	46228	46226	46219	46203	46175	46148	46145	46168	46193	46219	46185	46170
18	46156	46144	46144	46144	46149	46148	46133	46105	46100	46060	46027	46001
19	46103	46144	46186	46222*13	46244	46230	46186	46138	45845	45849	45876	45900
20	45977	45953	45938	45934*13	45932	45919	45894	45864	45845	45988	45891	45774
21	45932	45979	46029	46066	46086	46095	46088	46073	46045	45908	45891	45987
22	45680	45658*03	45711	45780	45836	45875	45911	45944	45981	45905	46009	45987
23	45922	45834	45755	45707	45691	45685	45685	45685	45679	45643	45578	45578

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RRS DISCOVERY CRUISE NO 33 LEG 1
TOTAL MAGNETIC FIELD IN GAMMAS

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	45471	45493	45471	45457	45462	45497	45491	45702	45819	45924	45951*48	45846
01	45538	45590	45538	45527	45517	45475	45403	45370	45390	45435	45479	45527
02	45450	45452	45450	45465	45480	45425	45322*29	45290	45568	45558	45467	45421
03	45572	45553	45572	45554	45524	45540	45549	45543	45507	45468	45456	45472
04	45321	45374	45321	45388	45424	45400	45361*29	45343	45408	45439	45462	45458
05	45188	45193	45188	45288	45194	45212	45244	45277	45275	45250	45234	45215
06	45188	45188	45188	45178	45194	45144	45169	45142	45221	45269	45416	45456
07	45135	45126	45135	45143	45149	45144	45137	45125	45285	45235	45188	45149
08	45192	45220	45135	45167	45128	45129	45130	45116	45120	45110	45138	45164
09	45181	45194	45167	45211	45156	45144	45144	45142	45120	45117	45122	45149
10	45102	45085	45071	45059	45043	45027	45195	45187	45177	45165	45146	45126
11	44882	44893	44882	44870	44861	44851	44845	45001	44988	44975	44959	44936
12	44854	44874	44854	44838	44826	44816	44814	44818	44821	44821	44827	44884
13	44803	44812	44803	44796	44792	44785	44786	44789	44818	44821	44826	44831
14	44878	44882	44878	44866	44866	44858	44858	44858	44821	44808	44826	44843
15	44858	44877	44858	44871	44889	44900	44916	44928	44933	44926	44913	44897
16	44890	44887	44881	44871	44863	44858	44859	44860	44861	44857	44851	44836
17	44836	44833	44826	44813	44797	44794	44795	44801	44815	44833	44838	44836
18	44814	44823	44814	44807	44802	44808	44822	44832	44837	44839	44830	44794
19	44794	44793	44794	44784	44772	44772	44771	44765	44758	44745	44745	44744
20	44779	44779	44779	44766	44762	44808	44801	44787	44777	44751	44736	44717
21	44682	44681	44682	44678	44675	44680	44688	44710*36	44697	44685	44670	44662
22	44666	44664	44666	44671	44675	44672	44667	44663	44659	44657	44660	44670

RRS DISCOVERY CRUISE NO 33 LEG 1
TOTAL MAGNETIC FIELD IN GAMMAS

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	44680	44686	44679	44666	44661	44666	44674	44682	44683	44689	44709	44727
01	44738	44740	44723	44701	44675	44630	44574	44523	44479	44437	44407	44412
02	44450	44488	44508	44514	44520	44523	44538	44576	44610*42	44603	44567	44537
03	44533	44555	44573	44571	44544	44513	44482	44464	44451	44462	44503	44564
04	44630	44668	44638	44568	44506	44465	44438	44422	44412	44404	44400	44393
05	44400	44405	44406	44401	44389	44388	44399	44401	44395	44398	44398	44383
06	44376*59	44392	44383	44379	44298	44185	44123	43855	43570*41	43851	44018	43980*57
07	44143	44338	44416	44485*17	44149*21	44329	44466*29	44123	43890*41	44004	44123	44959*57
08	44743*01	44461	45194									

RRS DISCOVERY CRUISE NO 33 LEG 2
TOTAL MAGNETIC FIELD IN GAMMAS

HOURS 00 05 10 15 20 25 30 35 40 45 50 55

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00												
01												
02												
03												
04												
05												
06												
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10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												

43810*02	43936*06	44287*12	44693*16	44580	44456	44351	44504	44649*42	44400	44425*50	44154
43938*02	43968	44008	44442*16	44295	44118	44143*32	44076	43933	43908	43968	43986*54
44134	44107	44059	44023	44056	44047	44058	44096	44136*40	44084	44113	44157
43991	43997	43994	44072	44062	44073	44067	44041	44019	44004	43998	43992
44064	44118	44163	43997	44003	44014	44020	44021	44023	44022	44020	44029
44141	44164	44163	44178	44161	44147	44141	44142	44143	44140	44139	44138
44396	44390	44215	44285	44340	44375	44405	44429	44440	44438	44426	44406
		44393	44408	44428	44448	44460	44465	44459	44447	44428	44415

RRS DISCOVERY CRUISE NO 33 LEG 2
TOTAL MAGNETIC FIELD IN GAMMAS

HOURS 00 05 10 15 20 25 30 35 40 45 50 55

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00												
01												
02												
03												
04												
05												
06												
07												
08												
09												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												

44405	44406	44417	44418	44403	44375	44348	44331	44323	44318	44301	44275
44247	44221	44201	44188	44186	44192	44205	44224	44245	44264	44284	44290
44318	44372	44428	44449	44450	44450	44450	44470*36	44463	44487	44516	44541
44556	44553	44523	44472	44418	44389	44386*28	44399	44403	44391	44377	44372
44379	44392	44407	44420	44435	44461	44484	44495	44514	44564	44632	44649*54
44598	44539	44519	44518	44513	44503	44490	44477	44464	44456	44464	44488
44522	44552	44572	44595	44619	44628	44615	44603	44591	44587	44583	44582
44587	44593	44600	44608	44628	44658	44680	44691	44686	44672	44656	44645
44639	44639	44627	44606	44587	44579	44581	44587	44598	44606	44611	44615
44613	44613	44611	44610	44616	44627	44639	44644	44642	44641	44646	44649
44652	44650	44648	44650	44653	44660	44663	44659	44651	44649	44656	44669
44687	44710	44730	44743	44749	44750	44760	44762	44764	44764	44762	44786
44770	44773	44773	44766	44750	44729	44714	44708	44719	44737	44761	44786
44806	44921	44837	44865	44912	44973	45022	45055	45065	45068	45065	45063
45042	45002	44946	44892	44853	44832	44823	44809	44793	44787	44807	44841
44872*01	44868	44854	44861	44891	44947	45017	45072	45097*42	45093	45090	45097
45107	45111	45113	45125	45140	45148	45127	45091	45071	45052	45026	45007
44939	44980	44979	44995	45050	45149	45265	45356	45471	45545	45511	45397
45232	45074	44961	44936	44971	45051	45151	45237	45294	45309*43	45237	45135
45051	45002*07	45006	45028	45055	45078	45099	45116	45137	45145	45117	45057
45032	45072	45135	45156	45159	45168	45184	45193	45187	45174	45167	45176
45202	45241	45290	45348	45388	45409	45399	45353	45274	45213	45184	45169
45164	45160	45152	45150	45163	45190	45219	45233	45244	45256	45273	45297
45320	45337	45349	45362	45353	45337	45315	45285	45262	45247	45232	45216

RRS DISCOVERY CRUISE NO 33 LEG 2
 TDTAL MAGNETIC FIELD IN GAMMAS

RRS DISCOVERY CRUISE NO 33 LEG 2
 TDTAL MAGNETIC FIELD IN GAMMAS

HOURS	DATE 6- 5-1970 (DAY NO 126)											
	00	05	10	15	20	25	30	35	40	45	50	55
00	45196	45163	45143	45140	45148	45165	45195	45242	45303	45370	45394	45407
01	45400	45378	45357	45338	45318	45289	45270	45264	45249	45226	45200	45174
02	45140	45095	45060	45065	45093	45122	45159	45201	45223	45214	45184	45166
03	45150	45152	45137	45121	45113	45119	45122	45197	45198	45167	45125	45100
04	45092	45099	45110	45125*17	45117	45119	45122	45127	45121	45099	45069	45043
05	45035	45043	45063	45084	45104	45134	45180	45241	45293	45301*43	45208	45104
06	45035*01	45047	45062	45076	45078	45091	45141	45226	45288	45308	45313	45312
07	45321	45307	45258	45211	45176*21	45181	45209	45258	45300	45333	45354	45353
08	45334	45303	45277	45245	45211	45181	45158	45137	45122	45122	45144	45176
09	45220	45220	45233	45258	45286	45307	45311	45305	45294	45287	45283	45277
10	45261	45237	45216	45202	45196	45198	45205	45211	45217	45231	45268	45329
11	45397	45476	45552	45604	45623	45605	45563	45515	45467	45428	45413	45407
12	45376	45326	45296	45295	45310	45323	45332	45346	45370	45390	45414	45451
13	45497	45547	45592	45629	45652	45657	45653	45647	45634	45592	45525	45443
14	45374	45325	45302	45300	45296	45291	45318	45377	45432	45470	45501	45524
15	45544	45562	45580	45595	45619	45657	45708	45760	45800	45828	45844	45840
16	45824	45797	45749	45686	45615	45548	45494	45470	45467	45487	45519	45561
17	45617	45631	45745	45786	45804	45808	45805	45811	45839	45899	45968	46015*56
18	46004	45962	45915	45864	45787	45679	45579	45552	45602	45688	45769	45812
19	45812	45799	45789	45794	45801	45794	45781	45777	45797	45824	45841	45845
20	45858	45870	45872	45894	45921	45948	45970	45987	46018	46073	46125	46160
21	46155	46127	46052	45952	45853	45787	45780*28	45881	45998	46087	46135	46143
22	46135	46119	46103	46090	46082	46058	46010	45961	45950*38	46003	46063	46080
23	46037	45975	45932	45906*16	45909	45921	45921	45901	45885	45900	45953	46049

C10

RRS DISCOVERY CRUISE NO 33 LEG 2
 TDTAL MAGNETIC FIELD IN GAMMAS

RRS DISCOVERY CRUISE NO 33 LEG 2
 TDTAL MAGNETIC FIELD IN GAMMAS

HOURS	DATE 7- 5-1970 (DAY NO 127)											
	00	05	10	15	20	25	30	35	40	45	50	55
00	46149	46195	46196	46188	46189	46170	46105	46010	45930*42	45936	45992	46082
01	46189	46279	46305	46271	46235*22	46248	46290	46323	46336	46325	46320	46315
02	46318	46330	46344	46365	46397	46437	46477	46510	46537	46574	46606	46615
03	46592	46576	46559	46528	46487	46475	46489	46505	46515	46523	46530	46536
04	46544	46551	46575	46615	46655	46679	46675	46649	46623	46606	46590	46572
05	46550	46524	46500	46484	46484	46503	46508	46457	46385	46372	46392	46477
06	46563	46671	46664	46610	46646	46693	46728	46730	46711			
07												
08												
09												
10												
11												
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16												
17												
18												
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21												
22												
23												

C10

RRS DISCOVERY CRUISE NO 33 LEG 2
 TOTAL MAGNETIC FIELD IN GAMMAS

DATE 8- 5-1970 (DAY NO 128)

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00												
01												
02												
03												
04												
05												
06												
07												
08												
09												
10												
11												
12												
13												
14												
15												
16												
17												
18	46440	46437	46412	46369	46317	46269	46234	46211	46399	46405	46416	46430
19	46161	46128	46088	46069*13	46142	46281	46381*31	46348	46198	46191	46185	46179
20	46045*59	46154	46286	46347	46394	46454	46458	46490*33	46251*41	46258	46229	46102
21	46328	46335	46324	46315	46321	46336	46364	46397	46425	46375	46344	46326
22	46529	46561	46602	46646	46700	46750	46791	46816	46821	46805	46770	46502
23	46653	46596	46503	46382	46211	46096	46047	46033*33	46060	46086	46082	46067

CI

RRS DISCOVERY CRUISE NO 33 LEG 2
 TOTAL MAGNETIC FIELD IN GAMMAS

DATE 9- 5-1970 (DAY NO 129)

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00												
01												
02												
03												
04												
05												
06												
07												
08												
09												
10												
11												
12												
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16												
17												
18												
19												
20												
21												
22												
23												

CI

RRS DISCOVERY CRUISE NO 33 LEG 2
TOTAL MAGNETIC FIELD IN GAMMAS

DATE 13- 5-1970 (DAY NO 133)

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00												
01	45357	46333	46298	46256*17	46270	46320	46361	46401	46410	46396	46447	46406
02	46485	46622	46708	46741	46729	46833	46670	46663	46628	46570	46368*51	46381
03	46390	46363	46346	46325	46289	46251	46230	46225	46231	46222	46222	46210
04	46217	46244	46269	46273*13	46259	46258	46264	46279	46286	46255	46193	46143
05	46137	46131	46109	46083	46066	46065	46087	46119	46140	46157	46170	46188
06	46219	46261	46293	46300	46300	46299	46303	46303	46300	46290	46272	46241
07	46215	46228	46220	46228	46240	46251	46258	46258	46250	46235	46220	46207
08	46199	46201	46213	46234	46261	46284	46293	46283	46271	46279	46321	46360
09	46365	46344	46320	46310	46317	46327	46333	46333	46322	46300	46277	46272
10	46285	46299	46295	46292	46262	46231	46197	46167	46156	46183	46243	46306
11	46347	46373	46400	46442	46485	46517	46527	46512	46473	46497	46397	46377
12	46368	46363	46365	46380	46412	46449	46482	46497	46495	46489	46491	46512
13	46550	46593	46610	46615	46644	46705	46773	46805*35	46733	46693	46691	46636
14	46607	46594	46576	46553	46568	46598	46578	46546	46549	46556	46563	46570
15	46577	46588	46592	46612	46633	46666	46701	46719	46595	46654	46599	46566
16	46575	46603	46622	46628	46625	46612	46579	46530	46595	46652	46479	46556
17	46636	46695	46773	46830	46821	46837	46921	46997	47033	46937	46783	46754*53
18	46870	46896	46882	46855	46816	46774	46735	46700	46676	46701	46713	46684
19	46649	46610	46552	46533*13	46581	46595	46589*29	46635	46593	46704*43	46664*51	46682

C 3

RRS DISCOVERY CRUISE NO 33 LEG 2
TOTAL MAGNETIC FIELD IN GAMMAS

DATE 14- 5-1970 (DAY NO 134)

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00												
01	46745	46779	46876	47021	47145	47180	47150	47111	47128*41	47071	46841	46653
02	46630*59	46693	46788	46866	46895	46828	46716	46691*33	46748	46807	46870	46924
03	46957	46965	46959	46941	46903	46866	46842	46810	46789	46798	46847	46934
04	47030	47052	47012	46968	46940	46920	46903	46890	46903	46914	46904	46883
05	46842	46800	46772	46786	46839	46924	46998*31	46942	46835	46795	46760	46749*53
06	46756	46762	46790	46862	46959	46986	46937	46901	46909	46933	46954	46984
07	46915	46774	46670	46616*17	46623	46634	46654	46696	46771	46898	47030*51	46964
08	46758	46802	46730	46716	46733	46718	46690	46701	46718	46740	46740	46740
09	46821	46802	46855	46863*13	46779	46703	46664	46680	46739	46824	46903	46919*53
10	46532	46560	46577	46573	46574	46545	46545	46563	46567	46551	46528	46518
11	46406	46416	46432	46573	46553	46512	46453	46413	46393	46375	46378	46393
12	46458	46393	46336	46460	46503	46542	46553	46522	46483	46469	46492	46500*53
13	46252	46375	46336	46323	46334	46326	46295	46276	46261	46231	46203	46196*53
14	46217	46247	46269	46444	46405	46349	46289	46269	46222	46156	46131	46170
15	46082	46079	46089	46263	46201	46078	45960	45913	45967	46008	46043	46070
16	46550	46621	46640	46116	46160	46209	46333	46303	46333	46349	46343	46457
17	46232	46237	46225	46587	46452	46352	46315	46249	46165	46128	46156	46202
18	46401	46410	46410	46413	46424	46456	46449	46451	46347	46376	46496	46388
19	46559	46603	46651	46683	46674	46635	46610	46617	46458	46474	46496	46521
20	46575	46564	46568	46652	46674	46635	46610	46609	46539	46654	46630	46597
21	46459	46452	46462	46475	46580	46589	46600	46609	46603	46587	46566	46529
22	46532	46523	46523	46561	46501	46506	46503	46485	46455	46429	46455	46516
23	46526	46497	46534	46561	46602	46630	46634	46639	46633	46634	46629	46585

RRS DISCOVERY CRUISE NO 33 LEG 1
 DEPTH IN UNCORRECTED FATHOMS AT AN ASSUMED SOUND VELOCITY OF 800 FMS/SEC

HOURS	DATE 15- 4-1970 (DAY NO 105)		
	00	05	10
00			
01			
02			
03			
04			
05			
06			
07			
08			
09			
10			
11			
12			
13			
14			
15			
16	66		70
17	56		55
18	72		
19			
20			
21	71		71
22	70		71
23	74		73

RRS DISCOVERY CRUISE NO 33 LEG 1
 DEPTH IN UNCORRECTED FATHOMS AT AN ASSUMED SOUND VELOCITY OF 800 FMS/SEC

HOURS	DATE 15- 4-1970 (DAY NO 105)			DATE 16- 4-1970 (DAY NO 106)		
	00	05	10	15	20	25
00						
01						
02						
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04						
05						
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23						

33S DISCOVERY CRUISE NO 33 LEG 1
 DEPTH IN UNCORRECTED FATHOMS AT AN ASSUMED SOUND VELOCITY OF 800 FMS/SEC

HOURS	DATE 17- 4-1970 (DAY NO 107)					
	00	05	10	15	20	25
00	142		130		124	
01	114		112		112	
02	106		108		130	
03	260		184		192	
04	429				305	
05	557		471			505
06	585		562		567	
07	600		604		591	
08	598		598		607	
09	600				602	
10	604		600		600	
11	610		596		598	
12	626		613		622	
13	641		630		630	
14	629		638		640	
15	608		624		626	
16	608		605		626	
17	624		611		603	
18	612		628		615	
19	604		607		628	
20	607		605		608	
21	607		620		619	
22			605		601	
23						

33S DISCOVERY CRUISE NO 33 LEG 1
 DEPTH IN UNCORRECTED FATHOMS AT AN ASSUMED SOUND VELOCITY OF 800 FMS/SEC

HOURS	DATE 18- 4-1970 (DAY NO 108)					
	00	05	10	15	20	25
00	600		604		608	
01	616		619		620	
02	610		610		607	
03	620		609		612	
04	623		622		620	
05	613		620		621	
06	605		611		611	
07	609		603		603	
08	620		612		617	
09	609		619		612	
10	613		609		609	
11	599		607		605	
12	610		601		601	
13	603		610		611	
14	581		599		595	
15	548		579		574	
16	459		433		408	
17	335		326		319	
18	270		296		290	
19	237		264		256	
20	204		231		224	
21			195		197	
22						
23						

RRS DISCOVERY CRUISE NO 33 LEG 1
 DEPTH IN UNCORRECTED FATHOMS AT AN ASSUMED SOUND VELOCITY OF 800 FMS/SEC

DATE 19- 4-1970 (DAY NO 109)

HOURS	MINUTES						30	35	40	45	50	55
	00	05	10	15	20	25						
00	214		218		224	226		232		236		
01	246		248		262	286		310		326		
02	367		410		452	497		546		585		
03	624		665		708	747		816		856		
04	916		940		1002	1056		1137		1204		
05	1264		1300		1317	1308		1296		1290		
06	1287		1260		1279	1276		1270		1275		
07	1259		1282		1264	1266		1269		1302		
08	1310		1316		1292	1294		1298		1321		
09	1321		1319		1317	1322		1330		1301		
10	1294		1285		1318	1286		1311		1287		
11	1291		1291		1288	1286		1287		1287		
12	1285		1289		1290	1291		1294		1295		
13	1282		1285		1287	1276		1289		1284		
14	1273		1258		1287	1285		1285		1273		
15	1262		1260		1238	1257		1240		1255		
16	1252		1244		1258	1236		1251		1236		
17	1238		1245		1240	1248		1238		1258		
18	1260		1245		1245	1242		1249		1264		
19	1279		1261		1252	1242		1249		1354		
20	1362		1368		1304	1324		1337		1426		
21	1440		1456		1372	1392		1414		1522		
22	1597		1618		1496	1522		1542		1582		
23					1646	1656		1676		1708		

RRS DISCOVERY CRUISE NO 33 LEG 1
 DEPTH IN UNCORRECTED FATHOMS AT AN ASSUMED SOUND VELOCITY OF 800 FMS/SEC

DATE 20- 4-1970 (DAY NO 110)

HOURS	MINUTES						30	35	40	45	50	55
	00	05	10	15	20	25						
00	1694		1665		1640	1600		1566		1550		
01	1640		1492		1514	1550		1575		1610		
02	1754		1658		1778	1700		1720		1738		
03	1823		1830		1794	1800		1860		1814		
04	1865		1864		1865	1867		1866		1863		
05	1861		1859		1865	1858		1861		1863		
06	1863		1864		1866	1866		1865		1863		
07	1862		1865		1867	1870		1872		1873		
08	1879		1883		1887	1888		1888		1888		
09	1890		1891		1898	1898		1898		1902		
10	1904		1904		1906	1905		1906		1908		
11	1908		1908		1918	1907		1911		1911		
12	1910		1908		1908	1890		1905		1903		
13	1902		1896		1892	1890		1884		1880		
14	1874		1857		1857	1830		1820		1815		
15	1802		1788		1777	1749		1719		1699		
16	1672		1664		1632	1602		1582		1556		
17	1520		1550		1520	1550		1530		1590		
18	1606		1642		1664	1695		1732		1760		
19	1773		1796		1818	1828		1837		1847		
20	1852		1862		1869	1878		1886		1886		
21	1888		1884		1884	1883		1880		1878		
22	1876		1872		1868	1868		1867		1868		

RRS DISCOVERY CRUISE NO 33 LEG 1
 DEPTH IN UNCORRECTED FATHOMS AT AN ASSUMED SOUND VELOCITY OF 800 FMS/SEC

DATE 23- 4-1970 (DAY NO 113)

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	2202		2218		2231		2259		2274		2285	
01	2296		2302		2289		2317		2325		2345	
02	2353		2362		2374		2388		2398		2406	
03	2409		2409		2420		2429		2450		2455	
04	2461		2464		2466		2468		2474		2473	
05	2472		2476		2474		2478		2484		2472	
06	2470		2484		2494		2494		2496		2496	
07	2496		2504		2504		2480		2423		2532	
08	2494		2504		2498		2530		2531		2528	
09	2532		2532		2531		2517		2529			
10	2528		2528		2524		2286		2258		2210	
11	2606		2400		2374		2241		2240		2240	
12	2346		2251		2264		2241		2160		2244	
13	2348		2488		2517		2505		2477		2367	
14	2346		2518	2160	2100*18		2494		2447		2198	
15	2492		2260		2185		2184		2196		2251	
16	2302		2224		2156		2167		2190		2254	
17	2183		2169		2154		2428		2552		2400	
18	2324		2434		2447		2369		2398		2384	
19	2477		2464		2447		2444		2344		2437	
20	2428		2400		2414		2444		2458		2444	
21	2349		2390		2436		2438		2436		2444	
22	2457		2412		2425		2444		2444		2444	
23	2445		2443		2432		2444		2444		2432	

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RRS DISCOVERY CRUISE NO 33 LEG 1
 DEPTH IN UNCORRECTED FATHOMS AT AN ASSUMED SOUND VELOCITY OF 800 FMS/SEC

DATE 24- 4-1970 (DAY NO 114)

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	3388		3220		3306		3359		3399		3346	
01	2296	2258	2456	2270*17	2328		2364		2386		2372	
02	2416		2406		2456		2446		2445		2444	
03	2414	2350	2406		2446		2443		2446		2450	
04	2447		2453		2440		2448		2444		2446	
05	2447		2448		2450		2459		2402		2352	
06	2292	2240	2251		2458	2314	2462		2467		2467	
07	2464		2468		2467		2466		2454		2462	
08	2456		2464		2467		2470		2468		2460	
09	2208		2208		2457		2350		2220		2146	
10	2195		2240		2145		2126		2122		2142	
11	2338		2286		2297		2382		2324		2339	
12	2438	2252	2348		2344		2384		2390		2434	
13	2438		2330		2384		2457		2343		2317	
14	2429		2418		2412		2426		2472		2422	
15	2422		2350		2286		2467		2386		2352	2352
16	2400		2400		2470		2467		2468		2420	
17	2400	2042	2392		2270	2326	2294		2268		2250	
18	2138		2092		2268		2368		2400		2420	
19	2406	2212	2440		2426		2268		2268		2250	
20	2112	2098	2224	2219	2210	2193	2188	2172	2145	2118	2126	2113
21	2112	2098	2057	2190	2203	2221	2235	2240	2246	2096	2188	2186
22	2118	2196	2057	2195	2196	2186	2180	2150	2110	1958	1888	1930

RRS DISCOVERY CRUISE NO 33 LEG 1
DEPTH IN UNCORRECTED FATHOMS AT AN ASSUMED SOUND VELOCITY OF 800 FMS/SEC

DATE 25- 4-1970 (DAY NO 115)

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	2018	2144	2166	2162	2142	2116	2052	2054	2025	2010	1996	1990
01	1994	2076	2097	2110	2088	2103	2126	2126	2115	2085	2086	2064
02	2114	2138	2140*08	2147	2152	2155	2150	2134	2129	2142	2135	2114
03	2064	2105	2112	2109	2101	2078	1954*28	1961	2032	2068	2081	2089
04	2095	2105	2093	1990*17	2046	2158	2155*32	2138	1630	1890	2032	2076
05	2072	1982	2094	2097	2058	2060	2027	2088	2110	2104	2100	2066
06	2021	2117	2113	2117	2113	2106	2107	2024	2076	2114	2090	2106
07	2106	2106	2110	2109	2092*19	2133	2138	2145	2145	2109	2139	2164
08	2192	2212	2212	2221	2226	2194	2239	2104	2022	2005	2028	2056
09	2094	2214	2214	2221	2226	2229	2239	2225	2250	2058	2032	2079
10	1994	2144	2171	2088	2202	2094	2056	2062	2012	2105	2268	2214
11	2184*02	2194	2177	2152	2064*22	2100	2140	2184	2328	2336	2152	2444
12	2175	2352	2266	2268	2366	2388	2370	2360	2328	2352	2353	2525
13	2343	2570	2504	2488	2510	2545	2542	2610	2480	2548	2614	2525
14	2620	2612	2602	2594	2592	2570	2552	2524	2618	2382	2324	2284
15	2292	2278	2290	2265	2234	2246	2265	2334	2460	2354	2359	2302
16	2247	2238	2250	2265	2276	2254*23	2308	2332	2321	2360	2342	2329
17	2314	2309	2284	2219	2183*18	2254*23	2156	2332	2321	2344	2178	2239
18	2287	2287	2287	2200	2130	2153	2232	2259	2240	2245	2270	2291
19	2288	2279	2040	2096	2256	2250	2248	2238	2230	2218	2294	2279
20	2285	2274	2274	2267	2256	2250	2248	2238	2230	2218	2189	2151

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RRS DISCOVERY CRUISE NO 33 LEG 1
DEPTH IN UNCORRECTED FATHOMS AT AN ASSUMED SOUND VELOCITY OF 800 FMS/SEC

DATE 26- 4-1970 (DAY NO 116)

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	2128	2105	2058	2158	2182	2192	2200	2187	2142	2156	2109	2216
01	2224	2227	2224	2224	2224	2223	2222	2222	2216	2211	2204	22198
02	2162	2188	2186	2184	2181	2180	2180	2177	2176	2173	2174	2114
03	2117	2155	2152	2148	2143	2138	2132	2126	2125	2126	1857	1997
04	2021	2020	2014	1996	2090	2083	2070	2020	1960	1895	1875	1852
05	1824*59	1941	1945	1949	1947	1943	1924	1976	1880	1834	1815	1763*53
06	1840	1950	1927	1952	1939	1927	1885	1894	1884	1834	1899*48	1977
07	1957*02	1987	1977	1975	1958	1972	1912	1894	1931	1953	1968	1948
08	1857	1877	1927	1928	1918	1902	2028	2084	2095	1911	2098	2100
09	2085	1877	1964	1942	1938	1908	1825	1863	1940	1932	1932	2100
10	1881	1894	1911	1900	1866	1910	1939	1950	1950	1946	1951	1952
11	1940	1930	1918	1910	1914	1914	1910	1910	1910	1905	1901	1890
12	1882	1884	1880	1878	1876	1864	1856	1824	1826	1905	1806	1882
13	1750	1712	1732	1720	1700	1647*27	1660	1694	1745	1754	1760	1765
14	1754	1744	1745	1737	1692	1662	1644	1650	1648	1619	1592	1630
15	1650	1655	1678	1687	1690	1662	1671	1665	1658	1648	1638	1634
16	1650	1489	1404*12	1418	1492	1500	1502	1500	1540	1586	1644	1600
17	1544	1534	1556	1532	1610	1642	1650	1640	1624	1643	1644	1648
18	1640	1610	1620	1610	1608	1618	1620	1640	1650	1653	1653	1653
19	1620	1637	1624	1620	1690	1520	1613	1644	1640	1648	1647	1628
20	1492	1570	1584	1577	1538	1550	1538	1606	1662	1648	1640	1628
21	1624	1602	1612	1488	1456*18	1594	1686	1680	1675	1675	1683	1688
22	1624	1602	1612	1488	1456*18	1594	1686	1680	1675	1675	1683	1688

RRS DISCOVERY CRUISE NO 33 LEG 1
DEPTH IN UNCORRECTED FATHOMS AT AN ASSUMED SOUND VELOCITY OF 800 FMS/SEC

DATE 27- 4-1970 (DAY NO 117)

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	1695	1696	1698	1710	1719	1727	1732	1736	1736	1735	1724	1717
01	1708	1737	1735	1750	1740	1730	1798	1800	1802	1807	1810	1810
02	1813	1816	1818	1819	1819	1820	1820	1820	1823	1822	1820	1822
03	1813	1813	1813	1813	1814	1814	1814	1806	1823	1822	1820	1822
04	1838	1813	1813	1813	1814	1814	1814	1767	1776	1766	1750	1737
05	1652	1660	1650	1600	1588	1587	1618	1704	1776	1764	1751	1737
06	1800	1806	1825	1826	1839	1840	1653	1654	1750	1787	1782	1680
07	1795	1708	1778	1735	1510	1500	1653	1654	1779	1782	1684	1672
08	1698	1708	1699	1694	1691	1684	1674	1676	1678	1682	1684	1672
09	1654	1601	1585	1590	1588	1567	1539	1676	1260	1289	1420	1576
10	1584	1590	1600	1620	1654	1671	1680	1712	1260	1289	1420	1576
11	1732	1728	1737	1739	1744	1743	1745	1752	1750	1752	1750	1714
12	1759	1773	1773	1812	1773	1826	1760	1780	1698	1676	1682	1676
13	1682	1734	1767	1787	1793	1785	1760	1780	1767	1794	1818	1810
14	1801	1764	1759	1767	1769	1776	1788	1792	1799	1806	1813	1840
15	1844	1830	1900	1921	1937	1952	1964	1935	1954	1972	1971	1964
16	1952	1946	1934	1920	1908	1904	1932	1935	1976	1966	1980	1980
17	1998	1986	1932	1998	2016	1991	1990	2030	2014	2053	2016*52	2055
18	2053	1972*07	2030	2075	2074	1991	1990	2030	2014	2053	2016*52	2055
19	2159	2163	1822*12	2166	2172	2176	2174	2138	2040	2152	2154	2154
20	2033	2030	2027	2070	1818	1930	2172	2160	2040	1600	1794	1985
21	2100	2049	2127	2135	2067	2078	2172	2156	1969	2004	2020	2097
22	2153	2153	2155	2153	2148	2154	2158	2166	2084	2168	2167	2157
23					2146	2151	2152	2176	2179	2168	2179	2179

RRS DISCOVERY CRUISE NO 33 LEG 1
DEPTH IN UNCORRECTED FATHOMS AT AN ASSUMED SOUND VELOCITY OF 800 FMS/SEC

DATE 28- 4-1970 (DAY NO 118)

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	2176	2181	2181	2180	2180	2180	2180	2180	2180	2180	2175	2176
01	2096	2076	2072	2087	2094	2095	2164	2160	2147	2083	2175	2099
02	2082	2080	2085	2065	2088	2087	2090	2063	2091	2094	2100	2074
03	2070	2045	2039	2034	2061	2058	2055	2051	2050	2045	2077	2051
04	2047	2045	2039	2034	2031	2031	2017	1995	2050	1939	1973	1929
05	1972	1964	1886	1847	2031	2031	2017	1920	1950*38	1805	1834	1846
06	1865	1865	1864	1865	1800	1856	1848	1820	1760*38	1904	1908	1887
07	1900	1882	1856	1876	1891	1913	1897	1903	1899	1890	1888	1875
08	1884	1876	1878	1864	1890	1894	1897	1872	1876	1868	1875	1828
09	1876	1874	1868	1864	1874	1868	1864	1850	1860	1858	1865	1828
10	1719	1678	1678	1778	1782	1798	1852	1795	1820	1848	1850	1828
11	1680	1678	1678	1792	1780	1750	1812	1755	1820	1848	1685	1700
12	1080	1676	1678	1550	1360	1486	1474	1380	1335	1248	1210	1180
13	1080	1184	1323	1266	1368	1399	1494	1654	1672	1680	1688	1692
14	1694	1700	1700	1706	1708	1710	1702	1695	1672	1680	1677	1750
15	1747	1749	1709	1757	1759	1760	1758	1695	1746	1738	1724	1676
16	1710	1700	1709	1700	1692	1685	1690	1683	1682	1679	1678	1677
17	1655	1458	1458	1519	1394	1426	1539	1546	974	982	1090	1211
18	1350	1458	1458	1424	1485	1492	1538	1546	1536	1532	1550	1566
19	1374	1596	1596	1596	1584	1576	1580	1576	1572	1580	1588	1564
20	1587	1596	1602	1600	1593	1587	1574	1562	1577	1580	1568	1564
21	1547	1476	1472	1489	1460	1481	1386	1332	1252	1308	1239	1262
22	1342	1476	1472	1511	1499	1503	1546	1670	1696	1767	1823	1958

RRS DISCOVERY CRUISE NO 33 LEG 1 AN ASSUMED SOUND VELOCITY OF 800 FMS/SEC
 DEPTH IN UNCORRECTED FATHOMS AT AN ASSUMED SOUND VELOCITY OF 800 FMS/SEC

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	2166	2250	2376	2282	2380	2377	2374	2266	2137	2066	2050	2200
01	2308	2324	2329	2331	2327	2328	2326	2325	2323	2323	2322	2318
02	2357	2365	2152	1780	1700	1435	1100	1004	1210	1297	1330	2342
03	1798	1814	1828	1463	1615	1657	1664	1672	1707	1765	1778	1789
04	1867	1874	1882	1835	1844	1855	1859	1863	1864	1869	1874	1877
05	1950	1966	1972	1973	1972	1971	1922	1976	1934	1942	1950	1950
06	1958	1959	1956	1948	1948	1946	1948	1950	1976	1974	1969	1948
07	1942	1936	1926	1915	1908	1904	1896	1884	1872	1852	1852	1828
08	1808	1796	1712	1669	1654	1662	1664	1669	1682	1697	1685	1688
09	1680	1660	1690	1692	1778	2006	2064	2165	2198	2248	2264	2288
10	2328	2366	2362	2386	2390	2390	2389	2378	2300	2276	2263	2344
11	2360	2352	2332	2316	2306	2300	2296	2292	2288	2276	2261	2247
12	2160	1780	1377	1090	1130	1064	1190	1130	1204	1210	1324	1347
13	1372	1180	1180	1390	1385	1400	1441	1450	1447	1450	1360	1484
14	1444	1678	1683	1562	1610	1581	1622	1626	1627	1647	1639	1656
15	1667	1728	1737	1686	1695	1700	1706	1702	1707	1708	1770	1721
16	1724	1732	1718	1700	1756	1762	1767	1772	1776	1772	1770	1799
17	1752	1732	1718	1700	1746	1820	1816	1854	1861	1868	1880	1899
18	1906	1909	1909	1910	1909	1908	1912	1914	1914	1914	1919	1920
19	1922	1928	1916	1905	1890	1861	1854	1836	1820	1800	1824	1850
20	1854	1856	1840	1888	1972	1986	1996	1999	2008	2014	2014	2016
21	2019	2012	2022	2022	1854	1854	1864	1885	1940	1990	1991	2016
22	1859	1940	1922	1980	1998	2010	2011	2015	2016	2014	1974	2003

RRS DISCOVERY CRUISE NO 33 LEG 1 AN ASSUMED SOUND VELOCITY OF 800 FMS/SEC
 DEPTH IN UNCORRECTED FATHOMS AT AN ASSUMED SOUND VELOCITY OF 800 FMS/SEC

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	2032	2033	2016	2034	2034	2028	2014	1905	1890	1954	2058	2070
01	2076	2084	2095	2098	2096	2073	2013	2020	2028	2047	2061	2059
02	2109	2056	2129	2048	2052	2029	2042	2054	2052	2090	2106	2088
03	2134	2137	2140	2136	2134	2127	2124	2132	2142	2140	2126	2140
04	2128	2130	2123	2142	2132	2132	2139	2136	2136	2136	2118	2142
05	2142	2144	2142	2142	2142	2143	2139	2136	2144	2140	2144	2148
06	2142	2150	2156	2158	2176	2192	2198	2200	2144	2234	2244	2229
07	2193	2301	2301	2306	2272	2326	2320	2200	2226	2263	2244	2214
08	2237	2120	2264	2254	2252	2276	2276	2268	2267	2263	2256	2250
09	2262	2178	2185	2162	2152	2120	2241	2033	2019	1974	1960	1946
10	2242	2153	2245	2190	2154	2184	2020	2039	2037	2027	2033	1989
11	2249	2244	2245	2246	2252	2253	2252	2250	2250	2024	2233	2218
12	2149	2112	2054	2070	2020	2154	2100	2070	2103	2245	2044	2242
13	2160	2050	2015	2049	2022	2190	2200	2220	2224	2209	2210	2243
14	2055	2107	2060	2049	2020	2000	2010	1768	1984	1969	2086	1952
15	2124	2183	2086	2098	1738	1690	1664	2051	2060	2080	2036	2087
16	2092	2124	2124	2098	2090	2070	2051	2052	1900	1820	2056	2069
17	2069	2129	2079	2075	2068	2068	2066	2061	2058	2059	2056	2054
18	1972	1964	2010	2034	2048	2040	1984	2031	2030	2026	2012	1976
19	1980	1977	1976	1976	1979	1980	1984	1990	1988	1982	1960	1956
20	2077	2080	2082	2073	2071	2052	2075	2080	2076	2074	2072	2050

RRS DISCOVERY CRUISE NO 33 LEG 2
 DEPTH IN UNCORRECTED FATHOMS AT AN ASSUMED SOUND VELOCITY OF 800 FMS/SEC

HOURS	DATE 10- 5-1970 (DAY NO 130)					
	00	05	10	15	20	25
00	1354	1373	1379	1384	1389	1378
01	1253	1167	1071	1016	1022	1206
02	1716	1799	1923	1985	2112	2265
03	2410	2410	2410	2409	2412	2408
04	2412	2412	2410	2411	2412	2410
05	2288	2234	1336	1832	1886	1526
06	1294	1280	1320	1342	1332	1360
07	1354	1372	1364	2358	2392	2222
08	2056	2036	1838	1940	1956	1716
09	2052	2086	1216	1364	1400	1436
10	1030*02	1084	1508	1500	1512	1496
11	1494	1500	1477	1485	1492	1124*37
12	1476	1475	1477	1485	1492	1358
13	1728	1776	1814	1485	1492	1358
14					1840	
15						
16						
17						
18						
19	1314		1327	1074	1074	1140
20	1526		1524	1516	1516	1520
21						1500
22	1433	1412	1083	1340	1340	1178
23	1010					

RRS DISCOVERY CRUISE NO 33 LEG 2
 DEPTH IN UNCORRECTED FATHOMS AT AN ASSUMED SOUND VELOCITY OF 800 FMS/SEC

HOURS	DATE 11- 5-1970 (DAY NO 131)					
	00	05	10	15	20	25
00	1236					
01	1370					
02	989					
03						
04	1444	1444	1046	1336	1498	1493
05	1506	1484	1504	1280	1444	1464
06				1188	1444	1434
07				1518	1514	1562
08	1903	1928	2123	1550	2410	2410
09	2406	2406	2392	2323	2387	2331
10	2308	2308	2300	2392	2235	2005
11	1358	1236	1128	2276	2204	1391
12	1610	1610	1562	1590	1589	1591
13	1577	1571	1562	1560	1563	1568
14	1572	1573	1576	1589	1600	1615
15	1661	1661	1658	1660	1661	1660
16	1662	1662	1662	1662	1662	1663
17	1456	1506	1537	1517	1536	1529
18	1583	1590	1588	1591	1600	1531
19	1646	1640	1628	1618	1600	1605
20	1696	1688	1724	1740	1746	1680
21	1708	1688	1698	1794	1694	1742
22	1628	1640	1642	1640	1640	1682
23	1588	1582	1578	1566	1562	1608

RRS DISCOVERY CRUISE NO 33 LEG 2
 DATE 14- 5-1970 (DAY NO 134)

DEPTH IN UNCORRECTED FATHOMS AT AN ASSUMED SOUND VELOCITY OF 800 FMS/SEC

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	1357	1378	1380	1403	1397	1364	1389	1411	1485	1360	1282*48	1491
01	1552	1540	1530	1523	1510	1479	1496	1493	1495	1497	1504	1484
02	1486	1478	1494	1543	1476	1505*27	1517	1564	1568	1565	1564	1555
03	1535	1529	1546	1543	1538	1505	1383*32	1426	1529	1478	1501	1514
04	1532	1542	1440	1411	1393	1424	1496	1516	1436	1566	1532	1494
05	1481	1472	1460	1443	1350	1373	1444	1458	1465	1456	1434	1360
06	1456	1469	1482	1478	1482	1506	1229	1538	1540	1496	1436	1748
07	1768	1773	1762	1760	1144*22	1169	1226	1402	1665	1675	1700	1712
08	1713	1710	1483	1590	1730	1723	1722	1670	1593	1562	1360	1353
09	1580	1720	1750	1764	1761	1770	1774	1768	1760	1756	1360	1705
10	1727	1746	1736	1727	1648	1728	1760	1767	1772	1750	1751	1712
11	1685	1643	1708	1719	1680	1680	1656	1678	1755	1780	1786	1794
12	1808	1816	1832	1812	1792	1792	1806	1816	1824	1824	1834	1839
13	1832	1400	1606	1652	1636	1682	1690	1696	1702	1718	1734	1752
14	1748	1736	1734	1750	1746	1740	1756	1726	1720	1718	1712	1706
15	1700	1702	1702	1698	1698	1694	1686	1688	1680	1682	1682	1680
16	1672	1651	1586	1456	1448	1260	1052	1360	1528	1516	1562	1620
17	1611	1611	1602	1592	1606	1600	1610	1614	1620	1616	1618	1620
18	1250	1306	1318	1336	1588	1585	1570	1552	1552	1534	1500	1436
19	2030	2106	2240	1936	1474	1565	1616	1890*36	1780	1350*47	1490	1840
20	1382	1367	1392	2250	2254	2259	2258	2240	2150	2088	2070	1767
21	1736	1782	1782	1778	1734	1674	1544	1696	1626	1576	1711	1670
22	1630	1525	1485	1490	1456	1465	1421	1419	1419	1417	1417	1413

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RRS DISCOVERY CRUISE NO 33 LEG 2
 DATE 15- 5-1970 (DAY NO 135)

DEPTH IN UNCORRECTED FATHOMS AT AN ASSUMED SOUND VELOCITY OF 800 FMS/SEC

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	1411	1406	1404	1398	1313	1334	1395	1390	1388	1386	1373	1355
01	1315	1289	1312	1299	1178	1140	1336	1332	1327	1307	1294	1273
02	1283	1242	1221	1201	1178	1140	1110	1176	1284	1279	1311	1274
03	1244	1243	1205	1149	1105	1103	1023	1978	1196	1281	1200	1155
04	1136	1141	1167	1229	1207	1268	1259	1247	1256	1244	1224	1161
05	1206	1199	1211	1203	1207	1213	1232	1247	1265	1256	1268	1278
06	1287	1246	1304	1303	1327	1328	1317	1293	1283	1266	1256	1246
07	962	1007	1155	1102	1032	746	806	853	868	874	909	965
08	942	986	1045	1056	1032	1068	902	867	890	914	883	880
09	1150	1148	1097	1132	1178	1261	1222	1303	1274	1308	1304	1188
10	1650	1357	1179	1208	1397	1244	1257	1308	1304	1466	1481	1356
11	1600	1650	1382	1412	1365	1365	1377	1308	1420	1466	1481	1509
12	1645	1724	1706	1689	1685	1764	1772	1760	1760	1769	1778	1696
13	1415	1414	1414	1640	1572	1532	1500	1484	1436	1406	1411	1416
14	1399	1414	1376	1412	1408	1402	1398	1400	1400	1400	1400	1400
15	1307	1276	1376	1356	1304	1304	1308	1306	1324	1334	1336	1318
16	1315	1176	1342	1259	1200	1170	1342	1124	1342	1032	1342	1256
17	1352	1244	1152	1137	1267	1224	1315	1304	1103	1320	964*48	1281
18	1252	1276	1315	1299	1267	1291	1315	1304	1312	1320	1300	1281
19	1298	1276	1315	1299	1267	1291	1315	1304	1312	1320	1300	1281
20	1298	1276	1315	1299	1267	1291	1315	1304	1312	1320	1300	1281
21	1298	1276	1315	1299	1267	1291	1315	1304	1312	1320	1300	1281
22	1298	1276	1315	1299	1267	1291	1315	1304	1312	1320	1300	1281
23	1298	1276	1315	1299	1267	1291	1315	1304	1312	1320	1300	1281

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RRS DISCOVERY CRUISE NO 33 LEG 2
DEPTH IN UNCORRECTED FATHOMS AT AN ASSUMED SOUND VELOCITY OF 800 FMS/SEC

HOURS	DATE 16- 5-1970 (DAY NO 136)					
	00	05	10	15	20	25
00	1235	1233	1221	1170	1240	1259
01	1098	1280	1316	1374	1511	1565
02	1177	1176	1276	1388	1479	1497
03	1138				1377	
04	1377					
05						
06						
07						
08	1079	1289	1338	1350	1060	1060
09	1159				1059	1063
10						
11						
12						
13						
14						
15						
16	1130	1124	1123	874	929	1099
17	1166		1156	1128	1136	1113
18	1098		1092		1161	
19					1092	
20	1044	1064	1042		1072	1054
21	1066		1077		1064	
22	858		878		1087	
23					905	

RRS DISCOVERY CRUISE NO 33 LEG 2
DEPTH IN UNCORRECTED FATHOMS AT AN ASSUMED SOUND VELOCITY OF 800 FMS/SEC

HOURS	DATE 17- 5-1970 (DAY NO 137)					
	00	05	10	15	20	25
00	972	1067	1040	1077	1054	1224
01	1065	1314	1065	1334	1187	1333
02	1373	1388	1366	1474	1314	1424
03	1206	1213	1201	1194	1503	1518
04	1500	1480	1566	1638	1169	1143
05	1951	1966	1951	1944	1696	1747
06	2402	2436	2486	2496	1964	1978
07	2507	2502	2500	2488	2501	2502
08	2224	2208	2211	2224	2442	2410
09	2242	2240	2090	2140	2252	2242
10	2322	2260	2506	2664	2329	2328
11	2622	2670	2668	2664	2570	2436
12	2640	2628	2636	2626	2542	2542
13	2104	2235	2146	2250	2589	2355
14	2104	2149	2104	2124	2124	2125
15	1695	1702	1697	1685	1670	1740
16	1850	1898	1962	2024	2050	1718
17	2138	2133	2116	2139	2138	2058
18	2009	1991	1976	1970	2104	2134
19	1950	1950	1930	1924	1956	2052
20	1937	1934	1918	1926	1932	1937
21					1870	1822
22					1870	1904
23					1870	1904

40 1051 1268 1367 1358 1126 1760 2040 2504 2234 2442 2578 2616 2345 2122 1740 2081 2068 1932 1914 1830
 45 1260 1375 1308 1098 1810 2250 2236 2270 2390 2599 2618 2100 2145 1667 2089 2030*44 1936 1808
 50 1063 1231 1396 1214 1153 1928 2358 2504 2228 2334 2480 2640 2619 2158 1753 2088 2130 2044 1940 1798
 55 1260 1395 1240 1279 1906 2425 2505 2220 2226 2300*57 2510 2644 2620 2104 1790 2082 2137 2024 1948 2004 1766

RRS DISCOVERY CRUISE NO 33 LEG 2												
DEPTH IN UNCORRECTED FATHOMS AT AN ASSUMED SOUND VELOCITY OF 800 FMS/SEC												
HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	91		90		90	64	90	71	88		50	55
01	76	72	70	68	66	64	66	70	76	79	84	80
02	86	85	86	84	82	79	76	80	72	80	83	85
03	74	77	77	76	80	79	80	80	80	86	86	89
04	78	78	78	78	73	70	68	72	74	74	73	73
05	72	72	71	71	71	70	70	68	70	67	70	69
06	68	68	69	68	68	68	66	68	68	67	66	66
07	66	66	66	66	65	64	62	64	63	63	63	64
08	64	64	64	64	63	63	63	63	63	62	62	62
09	62	62	61	60	60	55	51	57	63	57	55	51
10	51	51	53	52	52	52	49	49	57	50	55	50
11	50	50	50	50	49	48	49	49	50	50	50	50

SECTION D

Tables of (a) Magnetic Anomaly

(b) Corrected Depth in Fathoms

(c) Corrected Depth in Metres

RRS DISCOVERY CRUISE NO 33 LEG 1
MAGNETIC ANOMALY IN GAMMAS AFTER REMOVAL OF IGRF

DATE 15- 4-1970 (DAY NO 105)

HOURS 00 05 10 15 20 25 30 35 40 45 50 55

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	19	34	24*11	33	46	42	47	71	-5	3	14	17
01	-46*01	34	25*11	66	108	135	170	226	91	100*43	108	306*57
02	284	240	197	181	187	195	203	200	275	300	316	309
03	145	135	127	124	122	121	120	128	195	185	171	161
04	139	120	93	68	60	61	70	77	136	141	144	146
05									85	93	99	104

D1

RRS DISCOVERY CRUISE NO 33 LEG 1
MAGNETIC ANOMALY IN GAMMAS AFTER REMOVAL OF IGRF

DATE 16- 4-1970 (DAY NO 106)

HOURS 00 05 10 15 20 25 30 35 40 45 50 55

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	106	108	113	113	112	116	117	126	139	158	178	190
01	241	320*07	334	386	417*20	284	172	140*34	2815	-52*46	2	15
02	38	71	69	28	17	23	32	28	15	11	11	10
03	12	35	126	97*16	163	123	105	107	110	133	205	420*56
04	332	183	38	-1*14	178*22	114	17	-66	-149*42	-27*46	-148	-182*56
05	-266*02	-213	-302*08	-169*14	-335*22	-185	34*30	-128	-375*38	-144*44	3*52	46
06	-59*58	-37	-29	-7	14	48*24	-20	3	17*42	54	29	46
07	48*02	69	117	80	121*22	103	77	64	37	100*46	59	47*54
08	61*02	64	57	85	97	116	111	90	66	33	2	-16
09	-28	-33	-37	-42	-46	-51	-65	-92	-114	-125	-131	-139
10	-149	-167	-188	-205	-213	-214	-214	-212	-209	-203	-131	-139
11												
12	-129	-125	-116	-106	-93	-77	-84	-98	-112	-126	-128	-129
13	-28	-34	-46	-62	-73	-80	-61	-46	-36	-28	-25	-25
14	-63	-53	-41	-29	-20	-16	-83	-86	-92	-90	-84	-75
15	9	14	14	14	14	14	-16	-18	-12	-9	-3	2
16												
17	18	20	7	-9	-23	-25	-22	-33	-48	-66	-82	14
18	-103	-112	-110	-92	-71	-54	-41	-34	-25	-12	-1	14
19	24	32	45	54	52	61	86					
20												
21												
22	955	801	711	567	417	369*26	284	329	399	467	630	808
23							374	274*36	58*42	17*46	253	472*54

RRS DISCOVERY CRUISE NO 33 LEG 1		MAGNETIC ANOMALY IN GAMMAS AFTER REMOVAL OF IGRF		DATE 17- 4-1970 (DAY NO 107)								
HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	257	597	619*09	297	87*21	-58	56*29	-29	-129	-191*43	-102	-131*53
01	-148	-134*07	-155*11	-175*17	-110	-85	125*32	324*37	60*42	178	-64*51	124*57
02	-64	152*03	49*08	303*16	221*22	269	240*32	47*36	49*40	195	-34	-83*54
03	16*02	-67*06	144	266*14	246*22	131	-177*32	-52	85	181	229*48	289
04	490*02	462	394	262	119	144	-15	33*34	-17*40	86*46	79	97
05	118*58	28	6*12	12	21*18	-13*26	8	8	33	64	88	67
06	32	22	35	49	48	51	50	38	25	11	7	32
07	-43	-30	-11	1	17	35	57	82	119	152	160	-67
08	150	143	147	172*16	198	239	265	262				152

D2

RRS DISCOVERY CRUISE NO 33 LEG 1		MAGNETIC ANOMALY IN GAMMAS AFTER REMOVAL OF IGRF		DATE 18- 4-1970 (DAY NO 108)								
HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	89	84	100*12	91	93	75	48	0*36	25	175	135	107
01	1	-2	-2	-9	-35	-54	-54	-44	-20	113	44	5
02	78*58	65	72	71	68	73	86	107	132	152	172	69
03	246	298	338	392	411	371	317	282	181	196	163	201
04	106	172	278	360	383	370	372	381*33	322	247	146*49	274
05	159	120	51	-50	-135	-151*23	-223	139	303	548	652	210
06	758*01	662	631	568*15	490	420	321*31	203	339*39	185*43	278*49	695
07	146*59	-114	-461	-739*15	194	323	460*31	255	124	100*45	62*49	129
08	250*01	-275	156	-81*15	377	407*23	317	140	41*39	180*45	60	248*53
09	-10	-119	-173	-105*13	14*19	45	-105*29	-73*33	-208*41	-93*47	-251*51	-152

RRS DISCOVERY CRUISE NO 33 LEG 1		DATE 19- 4-1970 (DAY NO 109)											
MAGNETIC ANOMALY IN GAMMAS AFTER REMOVAL OF IGRF		MINUTES											
HOURS		00	05	10	15	20	25	30	35	40	45	50	55
00	-21*01	-90	-134	-168	-126*19	-159*23	-9*29	-374*37	-316	-35	-817	9*49	-159*55
01	99	221	335*11	268	143	32	-87	-405	-699	-865*47	-104		-620
02	-468	-370	-320	-276	-192	-36	0*29	-44	-122	-137*43	-21		-17
03	-63	-84*07	-79	-44	-18	23	26	-19	-23	-21	-60		-58
04	-30	-50	-63	-64	-55	-46	-31		-33				-65
05	-43	-38	-34	-32				-144	-159	-172			-182
06	-70	-77	-85	-89	-96	-108	-126	-201	-206	-210			-214
07	-181	-178	-179	-178	-182	-188	-193	-229	-228	-223			-218
08	-216	-218	-221	-225	-230	-231	-230	-85	-228	-223			-217
09	-203	-190	-175	-158	-138	-117	-100	0	-50	-50			-154
10	-1	18	19	28	33	24	12	-130	-12	-12			-174
11	-62	-75	-86	-95	-102	-112	-121	-103	-139	-142			249
12	-162	-168	-165	-161	-154	-142	-124	-376	-69	-69			174
13	-135	-196	-246	-291	-328	-360	-378	-51	352	318			249
14	211	172	129	85	42	2	-29	129	-65	-67			-19
15	166	150	149	146	76	79	100		154	171			174

23

RRS DISCOVERY CRUISE NO 33 LEG 1		DATE 22- 4-1970 (DAY NO 112)											
MAGNETIC ANOMALY IN GAMMAS AFTER REMOVAL OF IGRF		MINUTES											
HOURS		00	05	10	15	20	25	30	35	40	45	50	55
00	195	214	238	291	284	275	263	246	234	167	175	180	180
01	152	139	131	189	182	174	167	164	165	218	190	169	169
02	190	198	204	260	180	285	277	280	242	211	139	145	145
03	135	129	142	207	208	201	188	174	165	158	155	145	145
04				177	221	261	277	268	236	198	160	126	126

RRS DISCOVERY CRUISE NO 33 MAGNETIC ANOMALY IN GAMMAS	DATE 27- 4-1970 (DAY NO 117)					
	HOURS	00	05	10	15	MINUTES
00	113	120	115	103	84	37
01	-96	-93	-83	-67	-53	-8
02	36	32	36	19	3	26
03	37	15	46	30	-4	-70
04	-93	50	185	174	-63	6
05	112	205	80	6	141	-165
06	220	-1	78	17	120	-90
07	-168	17	109	81	30	7
08	36	30	204	-13	205	-163
09	87	100	439	-171	-104	52
10	-258	351	176	457	137	-323
11	-242	-187	-44	100	-201	-1
12	-216	-147	80	-3	149	-64
13	11	157	93	-104	-89	62
14	-79	162	220	179	205	166
15	138	172	184	231	169	183
16	288	74	73	29	155	-86
17	-65	-64	-68	-73	-72	-86
18	-33	-41	-54	-73	-72	-33
19						
20						
21						
22						
23						

RRS DISCOVERY CRUISE NO 33 MAGNETIC ANOMALY IN GAMMAS	DATE 28- 4-1970 (DAY NO 118)					
	HOURS	00	05	10	15	MINUTES
00	30	-60	-50	-39	-27	8
01	1	45	-63	-89	127	219
02	42	-14	-16	20	12	-151
03	-189	53	50	-83	-34	-332
04	-125	-1	49	-5	-78	187
05	-217	-170	-136	-107	-46	159
06	-71	84	95	-83	-45	-109
07	44	430	396	326	245	109
08	-170	-150	-122	-105	-105	150
09	-130	-99	-71	-49	-123	79
10	12	46	90	136	173	23
11	177	-178	-158	31	-269	176
12	-170	-186	-21	-24	-269	-309
13	36	381	63	38	34	31
14	298	369	420	443	424	262
15	277	79	81	96	-124	-110
16	-224	-207	-94	-110	-97	171
17	78	72	59	43	17	65
18	-114	-109	-99	-88	-74	-25

RRS DISCOVERY CRUISE NO 33 MAGNETIC ANOMALY IN GAMMAS		LEG 1 AFTER REMOVAL OF IGRF		DATE 29- 4-1970 (DAY NO 119)	
HOURS	00	05	10	15	MINUTES
00	33	26	15	7	2
01	37	45	52	58	635
02	223	260	294	306	285
03	-46	-94	-78	-67	-47
04	-12	-37	-46	-39	-38
05	-17	-134	-136	-135	-69
06	-64	-57	-42	-31	-133
07	29	43	61	68	-120
08	51	79	99	85	-159
09	-15	-33	-35	-37	42
10	-40	-38	-38	-36	-28
11	-144	-158	-176	-192	-30
12	65	83	100	119	-193
13	83	121	131	146	110
14	101	104	103	122	152
15	96	93	93	166	164
16	111	158	206	193	170
17	81	44	36	101	172
18	-107	-127	-67	48	242
19	196	112	39	237	427
20				15	69
21				-3	-15
22					
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RRS DISCOVERY CRUISE NO 33 MAGNETIC ANOMALY IN GAMMAS		LEG 1 AFTER REMOVAL OF IGRF		DATE 30- 4-1970 (DAY NO 120)	
HOURS	00	05	10	15	MINUTES
00	97	-166	-184	-194	-185
01	43	114	-155	-161	281
02	-93	-62	183	234	625
03	59	139	-20	150	85
04	-118	-123	166	-172	-78
05	-21	-230	-128	-122	-118
06	-105	-106	-94	-82	-173
07	47	263	54	-70	97
08	63	277	13	10	9
09	23	45	9	103	104
10	23	-128	-153	-162	-27
11	141	-154	-148	-157	-165
12	17	-154	-46	-138	-163
13	125	-15	-4	-18	-14
14	18	15	-19	-2	15
15	19	16	30	6	14
16	19	3	5	7	18
17	10	3	5	7	4
18	19	3	2	3	6
19	19	3	2	3	6
20	19	3	2	3	6
21	19	3	2	3	6
22	19	3	2	3	6
23	19	3	2	3	6
24	19	3	2	3	6
25	19	3	2	3	6
26	19	3	2	3	6
27	19	3	2	3	6
28	19	3	2	3	6
29	19	3	2	3	6
30	19	3	2	3	6
31	19	3	2	3	6
32	19	3	2	3	6
33	19	3	2	3	6
34	19	3	2	3	6
35	19	3	2	3	6
36	19	3	2	3	6
37	19	3	2	3	6
38	19	3	2	3	6
39	19	3	2	3	6
40	19	3	2	3	6
41	19	3	2	3	6
42	19	3	2	3	6
43	19	3	2	3	6
44	19	3	2	3	6
45	19	3	2	3	6
46	19	3	2	3	6
47	19	3	2	3	6
48	19	3	2	3	6
49	19	3	2	3	6
50	19	3	2	3	6
51	19	3	2	3	6
52	19	3	2	3	6
53	19	3	2	3	6
54	19	3	2	3	6
55	19	3	2	3	6

RRS DISCOVERY CRUISE NO 33 LEG 1		MAGNETIC ANOMALY IN GAMMAS AFTER REMOVAL OF IGRF		MINUTES		DATE		1- 5-1970 (DAY NO 121)				
HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	77	86	83	73	71	80	91	103	107	117	140	162
01	177	183	170	151	129	88	35	-11	-51	-89	-115	-107
02	-65	-24	0	10	19	26	44	-86	126*42	120	70	135
03	62	88	109	114*13	88	61	35	20	11	26	14	135
04	205	247	222	155	97	60	36	24	11	14	14	11
05	22	31	37	38	30	34	50	57	56	63	68	54*57
06	60	83	78	80	3	-106	-163	-428	-708*41	-423	-252	-285*57
07	-120	79	159	231*17	-102*21	78						

RRS DISCOVERY CRUISE NO 33 LEG 2 AFTER REMOVAL OF IGRF MINUTES DATE 20- 5-1970 (DAY NO 140)

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	11	-171	-173	-171	-103	-136	-158	-173	-186	-185	-194	-197
01	-175	-169	-161	-157	-170	-158	-156	-155	-172	-170	-175	-175
02	-153	-147	-133	-139	-152	-147	-147	-150	-149	-144	-147	-149
03	-138	-139	-134	-131	-127	-121	-117	-116	-147	-144	-144	-136*53
04	-117	-82*07	-108	-117	-117	-118	-119	-120	-112	-109	-113	-123
05	-125	-126	-119	-119	-118	-115	-113	-125	-118	-120	-132	-143
06	-148	-158	-145	-198	-80*19	-103*27	-131*31	-110	-162	-128*47	-153	-183
07	-182	-169	-159	-154	-148	-149	-150	-82	-156	-159	-157	-144
08	-145	-130	-102*09	-172	-163	-161	-162	-164	-167	-165	-170	-160*53
09	-175	-175	-172	-172	-170	-169	-168	-169	-167	-167	-169	-169
10	-164	-165	-163	-165	-159	-169	-168	-169	-167	-167	-169	-169

RRS DISCOVERY CRUISE NO 33 LEG 1
 DATE 15- 4--1970 (DAY NO 105)

DEPTH IN CORRECTED FATHOMS

HOURS 00 05 10 15 20 25 30 35 40 45 50 55

MINUTES

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D17

RRS DISCOVERY CRUISE NO 33 LEG 1
 DATE 16- 4--1970 (DAY NO 106)

DEPTH IN CORRECTED FATHOMS

HOURS 00 05 10 15 20 25 30 35 40 45 50 55

MINUTES

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110
144
182
178
181
245
755
1620
1613
1605
1580
1565
1495
1471
1459
1377
1220
1207
805

77
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97
114
151
183
177
352
850
1611
1602
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1564
1534
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1435
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1143
1101
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719
277

78
81
100
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159
184
175
203
474
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1600
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1562
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1480
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1337
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1101
979
719
277

79
83
102
124
166
180
208
550
107
1610
1593
1586
1568
1556
1510
1474
1464
1409
1271
1091
943
651
178

79
89
107
137
178
174
176
231
683
1582
1614
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1471
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155

RRS DISCOVERY CRUISE NO 33 LEG 1 DATE 23- 4-1970 (DAY NO 113)

DEPTH IN CORRECTED FATHOMS

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	264		281		294		304		339		351	
01	2363		2369		2355		2385		2393		2414	
02	2422		2432		2444		2459		2470		2478	
03	2481		2481		2493		2502		2525		2549	
04	2536		2539		2542		2544		2550		2578	
05	2548		2552		2550		2554		2560		2573	
06	2573		2560		2571		2556		2496		2611	
07	2573		2560		2577		2556		2610		2607	
08	2611		2611		2610		2609		2608		273	
09	2607		2607		2602		2595		2320		2304	
10	2478		2475		2444		2352		2220		2602	
11	2495		2495		2320		2305		2604		2576	
12	2415		2414		2602		2603		2604		2437	
13	2506		2596		2595		2583		2521		2260	
14	2506		2524		2595		2571		2528		2315	
15	2569		2324	2220	257*18		2247		2632		2470	
16	2369		2229		2216		2227		2470		2451	
17	2344		2392		2634		2501		2470		2451	
18	2353		2508		2521		2501		2470		2451	
19	2501		2472		2486		2439		2533		2511	
20	2485		2461		2510		2518		2510		2518	
21	2532		2485		2498		2512		2518		2505	
22	2519		2517		2505		2518		2518		2505	

D21

RRS DISCOVERY CRUISE NO 33 LEG 1 DATE 24- 4-1970 (DAY NO 114)

DEPTH IN CORRECTED FATHOMS

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	2459		2388		273		2429		2470		2415	
01	2363	2322	2388*08	2335*17	2396		2434		2457		2443	
02	2488	2419	2318		2330		2528		2519		2518	
03	2486		2477		2531		2520		2520		2525	
04	2520		2522		2514		2517		2518		2520	
05	2360	2305	2317		2524	2383	2534	2539	2544		2544	
06	2354		2545		2544		2536		2544		2537	
07	2541		2545		2545		2547		2530		2537	
08	2527		2541		2543		2547		2545		2207	
09	2228		2272		2533		2421		2182		2203	
10	2258		2305		2545		2365		2333		2409	
11	2240	2318	2419		2457		2457		2463		2509	
12	2240		2400		2486		2533		2414		2386	
13	2240		2492		2486		2501		2459		2497	
14	2240		2474		2551		2504		2457		2423	
15	2240		2474		2537		2474		2423		2423	2423
16	2240		2474		2537		2474		2423		2423	
17	2240		2474		2537		2474		2423		2423	
18	2240		2474		2537		2474		2423		2423	
19	2240	2099	2151		2335	2396	2362		2374		2495	
20	2270	2276	2289		2501		2440		2322		2186	2172
21	2270	2157	2114	2283	2266	2256	2250	2234	2206	282	2151	2249
22	2270	2157	2114	2253	2266	2286	2230	2305	2312	285	1938	1982
23	2270	2259	2262	2258	2269	2249	2242	2211	2169	2011	2186	1938

RRS DISCOVERY CRUISE NO 33 LEG 1
DEPTH IN CORRECTED FATHOMS

DATE 25- 4-1970 (DAY NO 115)

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	2073		2228	2224	2203	176	2109	2116	2081	2065	2050	2044
01	2048		2156	2169	2146	2217	2186	2184	2175	2143	2145	2124
02	2074		2201	2205	2213	2206	2211	2194	2189	2205	2195	2174
03	2153		2061	2093	2083	2067	2050	2019	2088	2164	2138	2134
04	2154		2152	2169	2160	2153	2117	2146	2170	2194	2059	2134
05	2137		2152	2156	2152	2153	2122	2149	2169	2163	2148	2161
06	2107		2072	2177	2172	2165	2166	2174	2174	2174	2204	2171
07	2130		2172	2177	2151	2193	2199	2206	2207	2169	2204	2226
08	2174		2229	2249	2291	2257	2303	2263	2277	2060	2088	2213
09	2155		2274	2286	2291	2297	2304	2291	2185	2115	2088	2206
10	2253		2216	2249	2265	2294	2304	2319	2367	2329	2333	2346
11	2048		2208	2146	2132	2159	2119	2147	2098	2164	2246	2204
12	2247	*02	2186	2237	2220	2159	2201	2247	2398	2632	2602	2268
13	2238		2326	2337	2442	2629	2656	2697	2561	2707	2702	2608
14	2416		2586	2681	2679	2656	2637	2607	2539	2457	2396	2357
15	2680		2690	2688	2592	2656	2656	2607	2428	2434	2433	2373
16	2709		2361	2334	2301	2314	2374	2406	2399	2417	2413	2397
17	2362		2318	2334	2301	2311	2379	2412	2428	2313	2339	2330
18	2361		2354	2286	2248	2233	2220	2328	2393	2313	2339	2334
19	2380		2357	2286	2248	2233	2220	2328	2393	2313	2339	2330
20	2380		2357	2286	2248	2233	2220	2328	2393	2313	2339	2330
21	2356		2096	2155	2175	2217	2299	2355	2308	2313	2339	2359
22	2353		2341	2334	2322	2316	2312	2303	2295	2282	2252	2212

D22

RRS DISCOVERY CRUISE NO 33 LEG 1
DEPTH IN CORRECTED FATHOMS

DATE 26- 4-1970 (DAY NO 116)

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	2188		2115	2219	2249	2289	2287	2280	2203	217	2169	2280
01	2257		2249	2247	2244	2242	2242	2239	2280	2275	2268	2232
02	2224		2213	2209	2204	2199	2193	2185	2185	2235	2236	2174
03	2177		2164	2158	2148	2145	2128	2076	2013	1946	1906	2052
04	2177		2097	2001	1999	1991	1976	1964	1992	1982	1924	1901
05	2872	*59	1997	2001	2049	1978	1935	1944	1934	2006	2021	1808
06	1888		2045	2002	2041	1978	1964	1964	1934	1962	1949	2031
07	1906	*02	1978	1979	1966	1953	1964	1964	1954	1960	1957	2000
08	1943		2017	1995	1982	1959	1972	1919	1992	1962	1984	1982
09	1931		1962	1962	1965	1965	1965	1961	1902	1966	2003	2005
10	1992		1969	1967	1965	1965	1965	1961	1967	1999	1833	1948
11	1995		1776	1927	1923	1917	1905	1877	1973	1867	1835	1828
12	1799		1790	1781	1734	1704	1702	1737	1790	1799	1801	1810
13	1799		1720	1730	1734	1726	1705	1691	1790	1689	1679	1654
14	1691		1438	1452	1538	1537	1518	1577	1699	1689	1625	1639
15	1682		1594	1569	1528	1533	1591	1581	1654	1625	1625	1685
16	1681		1660	1660	1650	1683	1660	1675	1691	1689	1695	1695
17	1681		1664	1660	1648	1688	1663	1681	1681	1705	1610	1669
18	1662		1631	1711	1733	1588	1635	1646	1681	1689	1680	1675
19	1664		1623	1611	1575	1588	1575	1622	1710	1689	1610	1675
20	1662		1652	1524	1491	1633	1578	1622	1662	1717	1681	1731

RRS DISCOVERY CRUISE NO 33
DEPTH IN CORRECTED FATHOMS

LEG 1

RRS DISCOVERY CRUISE NO 33
DEPTH IN CORRECTED FATHOMS

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	1738	1739	1779	1753	1764	1774	1776	1780	1780	1779	1768	1761
01	1751	1781	1779	1766	1784	1777	1844	1847	1849	1854	1857	1857
02	1860	1863	1865	1866	1866	1867	1868	1867	1871	1870	1867	1870
03	1433	1459	1575	1699	1830	1832	1858	1853	1871	1604	1469	1470
04	1647	1702	1691	1633	1627	1626	1658	1742	1821	1809	1796	1781
05	1842	1853	1822	1779	1546	1896	1901	1905	1795	1833	1826	1822
06	1841	1831	1824	1737	1737	1537	1616	1718	1714	1722	1726	1722
07	1695	1640	1624	1629	1637	1636	1716	1713	1720	1745	1726	1714
08	1623	1629	1639	1660	1695	1655	1722	1705	1768	1747	1754	1715
09	1776	1772	1781	1789	1784	1787	1828	1797	1795	1791	1795	1795
10	1804	1778	1815	1839	1842	1834	1828	1828	1812	1843	1863	1860
11	1720	1778	1812	1850	1847	1834	1807	1824	1818	1855	1863	1891
12	1850	1880	1807	1815	1891	1824	1803	1824	1848	1855	1863	1891
13	1895	1880	1953	1850	1891	1824	1807	1824	1848	1855	1863	1891
14	2005	2001	1988	1975	1961	1957	1919	1909	2009	2022	2036	2036
15	2057	2042	1988	1975	1961	1957	1919	1909	2009	2022	2036	2036
16	2005	2001	1988	1975	1961	1957	1919	1909	2009	2022	2036	2036
17	2112	2027	2088	2055	2073	2048	2017	2088	2072	2216	2073	2036
18	2112	2027	2088	2055	2073	2048	2017	2088	2072	2216	2073	2036
19	2112	2027	2088	2055	2073	2048	2017	2088	2072	2216	2073	2036
20	2112	2027	2088	2055	2073	2048	2017	2088	2072	2216	2073	2036
21	2092	2108	2127	2130	1867	1989	2039	2015	2025	1643	2157	2158
22	2162	2164	2189	2198	2127	2139	2139	2130	2145	2155	2157	2158
23	2217	2219	2219	2217	2210	2215	2226	2241	2234	2244	2244	2244

LEG 1

RRS DISCOVERY CRUISE NO 33
DEPTH IN CORRECTED FATHOMS

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	2240	2246	2236	2245	2245	2245	2245	2245	2245	2245	2240	2241
01	2157	2136	2132	2148	2159	2156	2154	2123	2152	2145	2164	2160
02	2142	2141	2146	2148	2149	2148	2145	2143	2142	2139	2137	2134
03	2130	2104	2098	2093	2089	2089	2089	2077	2109	2104	2102	2100
04	2106	2104	2098	2093	2089	2089	2089	2077	2109	2104	2102	2100
05	2028	2019	2038	2033	2029	2029	2029	2017	2008	1954	1884	1897
06	2017	2017	2038	2033	2029	2029	2029	2017	2008	1954	1884	1897
07	1953	1915	1907	1918	1944	1967	1899	1885	1974	1854	1961	1939
08	1936	1924	1930	1928	1943	1943	1950	1924	1952	1943	1928	1928
09	1924	1924	1930	1928	1943	1943	1950	1924	1952	1943	1928	1928
10	1762	1720	1720	1838	1828	1874	1855	1829	1909	1907	1898	1876
11	1622	1858	1844	1838	1828	1874	1855	1829	1909	1907	1898	1876
12	1705	1712	1844	1838	1828	1874	1855	1829	1909	1907	1898	1876
13	1705	1712	1844	1838	1828	1874	1855	1829	1909	1907	1898	1876
14	1732	1712	1844	1838	1828	1874	1855	1829	1909	1907	1898	1876
15	1792	1778	1794	1749	1754	1750	1753	1738	1791	1782	1768	1739
16	1753	1743	1752	1743	1754	1750	1753	1738	1791	1782	1768	1739
17	1696	1660	1582	1568	1527	1507	1503	1482	1664	1604	1588	1569
18	1635	1619	1493	1458	1421	1352	1339	1315	1573	1569	1588	1603
19	1625	1635	1641	1635	1635	1626	1619	1615	1610	1621	1606	1602
20	1625	1635	1641	1635	1635	1626	1619	1615	1610	1621	1606	1602
21	1537	1511	1508	1527	1533	1533	1515	1497	1681	1639	1668	1692
22	1537	1511	1508	1527	1533	1533	1515	1497	1681	1639	1668	1692
23	1537	1511	1508	1527	1533	1533	1515	1497	1681	1639	1668	1692

DATE 27- 4-1970 (DAY NO 117)

DATE 28- 4-1970 (DAY NO 118)

LEG 1

RRS DISCOVERY CRUISE NO 33
DEPTH IN CORRECTED FATHOMS

LEG 1

RRS DISCOVERY CRUISE NO 33
DEPTH IN CORRECTED FATHOMS

RRS DISCOVERY CRUISE NO 33 LEG 1
DEPTH IN CORRECTED FATHOMS

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	2228	2316	2343	2350	2347	2344	341	333	2198	2123	2107	2164
01	2376	2393	2399	2401	2397	2399	396	397	2338	2338	2339	2387
02	1390	1364	1474	1498	1655	1698	1705	1714	1750	1328	2362	2387
03	1844	1397	1876	1883	1892	1903	1908	1912	1913	1910	1924	1835
04	1914	1924	1932	1943	1960	1967	1973	1979	1986	1994	2002	2002
05	2013	2019	2025	2026	2025	2024	2000	2030	2030	2009	2005	2017
06	2013	2012	2009	2006	1999	1955	1946	2004	2001	2005	2005	2000
07	1855	1842	1977	1966	1959	1955	1946	1971	1921	1909	1901	1876
08	1855	1842	1755	1711	1695	1704	1705	1711	1724	1740	1730	1731
09	2398	2402	2433	2459	2463	2463	222	2050	2268	2314	2350	2356
10	2433	2438	2402	2385	2375	2368	2364	2360	2356	2343	2325	2340
11	2402	2423	2402	2385	2375	2368	2364	2360	2356	2343	2325	2340
12	2402	2423	2402	2385	2375	2368	2364	2360	2356	2343	2325	2340
13	2402	2423	2402	2385	2375	2368	2364	2360	2356	2343	2325	2340
14	2402	2423	2402	2385	2375	2368	2364	2360	2356	2343	2325	2340
15	2402	2423	2402	2385	2375	2368	2364	2360	2356	2343	2325	2340
16	2402	2423	2402	2385	2375	2368	2364	2360	2356	2343	2325	2340
17	2402	2423	2402	2385	2375	2368	2364	2360	2356	2343	2325	2340
18	2402	2423	2402	2385	2375	2368	2364	2360	2356	2343	2325	2340
19	2402	2423	2402	2385	2375	2368	2364	2360	2356	2343	2325	2340
20	2402	2423	2402	2385	2375	2368	2364	2360	2356	2343	2325	2340
21	2402	2423	2402	2385	2375	2368	2364	2360	2356	2343	2325	2340
22	2402	2423	2402	2385	2375	2368	2364	2360	2356	2343	2325	2340
23	2402	2423	2402	2385	2375	2368	2364	2360	2356	2343	2325	2340

RRS DISCOVERY CRUISE NO 33 LEG 1
DEPTH IN CORRECTED FATHOMS

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	2090	2092	2073	2093	093	086	072	158	1943	2009	180	2130
01	2136	2145	2114	2107	113	137	2071	2078	2086	2106	180	2130
02	2171	2116	2192	2128	115	087	2071	2113	2111	2151	2168	2149
03	2197	2200	2203	2199	195	189	2187	2195	2105	2203	2188	2203
04	2190	2193	2186	2189	195	189	2195	2199	2187	2203	2180	2204
05	2205	2203	2205	2205	2205	2205	2204	2207	2207	2201	2207	2201
06	2205	2203	2205	2205	2205	2205	2204	2207	2207	2201	2207	2201
07	2205	2203	2205	2205	2205	2205	2204	2207	2207	2201	2207	2201
08	2205	2203	2205	2205	2205	2205	2204	2207	2207	2201	2207	2201
09	2205	2203	2205	2205	2205	2205	2204	2207	2207	2201	2207	2201
10	2205	2203	2205	2205	2205	2205	2204	2207	2207	2201	2207	2201
11	2205	2203	2205	2205	2205	2205	2204	2207	2207	2201	2207	2201
12	2205	2203	2205	2205	2205	2205	2204	2207	2207	2201	2207	2201
13	2205	2203	2205	2205	2205	2205	2204	2207	2207	2201	2207	2201
14	2205	2203	2205	2205	2205	2205	2204	2207	2207	2201	2207	2201
15	2205	2203	2205	2205	2205	2205	2204	2207	2207	2201	2207	2201
16	2205	2203	2205	2205	2205	2205	2204	2207	2207	2201	2207	2201
17	2205	2203	2205	2205	2205	2205	2204	2207	2207	2201	2207	2201
18	2205	2203	2205	2205	2205	2205	2204	2207	2207	2201	2207	2201
19	2205	2203	2205	2205	2205	2205	2204	2207	2207	2201	2207	2201
20	2205	2203	2205	2205	2205	2205	2204	2207	2207	2201	2207	2201
21	2205	2203	2205	2205	2205	2205	2204	2207	2207	2201	2207	2201
22	2205	2203	2205	2205	2205	2205	2204	2207	2207	2201	2207	2201
23	2205	2203	2205	2205	2205	2205	2204	2207	2207	2201	2207	2201

RRS DISCOVERY CRUISE NO 33 LEG 2
 DEPTH IN CORRECTED FATHOMS

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00												
01	254	387	382	361	470	484	525	530	136	177	140	178
02	172	110	151	279	484	551	465	489	392	192	208	161
03	644	720	765	725	785	852	946	893	551	548	593	612
04	1226	1237	1399	1436	1500	1566	1604	1643	913	1081	1067	1135
05	1686	1681	1721	1754	1775	1797	1824	1847	1653	1663	1673	1681
06	1922	1943	1947	1949	1949	1951	1955	1959	1870	1883	1894	1909
07	1978	1984	1987	1987	1987	1987	1987	1990	2005	2007	2011	1974
08	2019	2025	2030	2033	2041	2043	2048	2042	2052	2053	2057	2016
09												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												

RRS DISCOVERY CRUISE NO 33 LEG 2
 DEPTH IN CORRECTED FATHOMS

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00												
01	2053	2044	2043	1993	1974	1901	1883	1855	1926	2051	2095	2099
02	2112	2114	2118	2123	2118	2122	2122	2130	2111	2109	2099	2061
03	1985	1851	1993	2022	2030	2019	2016	1995	1957	1924	2099	1828*53
04	2013	2134	2016	2010	2013	1936	1987	1889*37	1914	1988	1980	1945*53
05	1731	1862	2149	2276	2196	2213	2215	2222	2126	2101	1816	1729
06	2285	2262	2174	2162	2018	2245	2487	2508	2228	2514	2243	2276
07	2529	2531	2535	2516	2529	2313	2272	2275	2266	2193	2295	2281
08	2329	2346	2329	2413	2466	2608*27	2459	2460	2460	2530	2545	2552
09	2551	2546	2542	2542	2537	2466*23	2530	2502	2318	2280	2396	2354
10	2327	2333	2353	2386	2503	2503	2501	2486	2563	2581	2581	2553
11	2546	2566	2586	2584	2569	2539	2392	2276	2258	2259	2287	2322
12	2392	2409	2430	2432	2432	2432	2428	2425	2421	2413	2409	2405
13	2400	2391	2384	2382	2377	2379	2381	2379	2378	2382	2381	2377
14	2379	2379	2371	2358	2293	2256	2355	2347	2246	2350	2337	2329
15	2274	2322	2371	2333	2293	2271	2268	2299	2248	2235	2283	2041*57
16	2170	1874	2291	2233	2119	1609*27	1684	1746	1727	1802	1891	1914
17	1833	1874	1860	1824	1777	1802	1725	1643	1354	1395	1302	1047
18	1030*58	1241	1275	1518	1620	1733	1831	1914	1928	2024	2077	2086
19	2093	2093	2093	2093	2095	2095	2090	2093	2088	2086	2090	2011
20	1876	1746	1710	1760	1870	1879	1883	1885	1896	1898	1884	1885
21	1851	1846	1824	1899	1601	1381	1294	1362	1416	1502	1564	1808
22	1897	1893	1988	1999	2007	2044	2081	2086	2126	2132	2141	2153
23	2153	2165	2172	2168	2170	2165	2160	2151	2136	2126	2116	2103

RRS DISCOVERY CRUISE NO 33 LEG 2
 DEPTH IN CORRECTED FATHOMS

HOURS	DATE 8-5-1970 (DAY NO 128)											
	00	05	10	15	20	25	30	35	40	45	50	55
00	1713	1714	1714	1712	1711	1711	1712	1709	1705	1705	1699	1697
01	1689	1689	1689	1689	1689	1690	1689	1689	1675	1675	1645	1691
02	1666	1675	1667	1669	1666	1666	1646	1641	1648	1644	1643	1662
03	1631	1626	1610	1594	1580	1580	1569	1568	1569	1555	1537	1635
04	1704	1521	1526	1526	1529	1529	1578	1603	1629	1679	1716	1710
05	1704	1702	1703	1699	1699	1699	1703	1703	1703	1704	1704	1704
06	1704	1697	1699	1699	1697	1699	1704	1702	1707	1704	1701	1701
07	1704	1707	1708	1708	1710	1705	1704	1699	1697	1699	1691	1705
08	1685	1685	1683	1559	1580	1710	1710	1708	1704	1702	1691	1689
09	1631	1639	1639	1639	1638	1594	1602	1613	1618	1625	1627	1627
10	1557	1563	1660	1675	1638	1637	1693	1629	1617	1615	1708	1580
11	1704	1708	1710	1712	1685	1693	1716	1588	1705	1704	1646	1646
12	1646	1641	1646	1639	1631	1629	1625	1610	1668	1661	1582	1572
13	1546	1514	1479	1446	1473	1475	1497	1438	1392	1584	1557	1568
14	1539	1540	1590	1650	1734	1799	1830	1907	1973	2138	2309	2327
15	2343	2355	2359	2361	2356	2357	2367	2368	2345	2322	2228	2175
16	2174	2257	2342	2347	2342	2330	2322	2321	2294	2296	1050	1726
17	1722	1549	1601	1453	1327	1261	1242	1173	1161	962	1295	1074
18	1088	1049	1090	1085	1076	1115	1120	1088	1115	1202	1076	1356
19	1371	1462	1483	1441	1366	1366	1318	1246	1177	1131	712	674
20	966	996	966	941	921	901	860	951	798	762	1218	1205
21	643	572	539	527	572	658	771		1102	1197		

RRS DISCOVERY CRUISE NO 33 LEG 2
 DEPTH IN CORRECTED FATHOMS

HOURS	DATE 9-5-1970 (DAY NO 129)											
	00	05	10	15	20	25	30	35	40	45	50	55
00	1204	1191	1139	1074	1242	1480	1532	1549	1579	1609	1652	1691
01	1752	1855	1944	2108	2146	2203	2205	2279	2305	2368	2440	2449
02	2457	2450	2476	2484	2484	2485	2486	2486	2486	2488	2488	2487
03	2486	2436	2486	2487	2485	2485	2485	2484	2486	2484	2484	2484
04	2484	2483	2479	2432	2365	2274	2211	1946	1838	1792	1745	1704
05	1621	1543	1511	1412	1360	1353	1309	1195	1158	1152	1128	1065*57
06	1086	892*07	921	982	1029	1071	1121	1166	1217	1254	1294	1337
07	1375	1362	1376	1366	1368	1379	1444	1365	1391	1398	1413	1417
08	1403	1392	1376	1405	1453	1458	1444	1460	1481	1452	1495	1444
09	1468	1493	1444	1425	1438	1431	1388	1355	1358	1359	1325	1325
10	1334	1336	1333	1340	1347	1347	1362	1382	1411	1415	1403	1415
11	1422	1423	1380	1390	1405	1411	1407	1412	1403	1398	1391	1397
12	1398	1398	1410	1416	1417	1424	1436	1445	1446	1413	1410	1444
13	1487	1516	1456	1574	1417	1623	1645	1670	1710	1715	1753	1768
14	1770	1799	1847	1870	1907	1944	1955	1984	1990	1995	1997	1994
15	1992	1990	1991	1994	1996	2000	2002	2002	2002	2002	1999	1993
16	1988	1984	1981	1979	1966	1970	1956	1954	1931	1911	1901	1913
17	1949	1956	1961	1964	1964	1968	1974	1968	1968	1962	1948	1909
18	1885	1905	1936	1948	1965	1972	1974	1977	1990	1990	1988	1990
19	1931	1971	1961	1955	1924	1864	1834	1799	1796	1765	1725	1699
20	1691	1681	1681	1623	1588	1555	1487	1435	1491	1501	1483	1495
21	1510	1530	1487	1526	1528	1540	1559	1586	1538	1594	1623	1691
22	1705	1718	1763	1751	1670	1654	1712	1726	1726	1708	1675	1639
23	1572	1559	1458	1362	1310	1254	1232	1172	1160	1193	1275	1359

RRS DISCOVERY CRUISE NO 33 LEG 2
 DATE 10- 5-1970 (DAY NO 130)

HOURS	MINUTES					35	40	45	50	55
	00	05	10	15	20					
00	1386	1405	1412	1417	1422	1391	1394	1382	1366	1350
01	1232	1194	1096	1039	1033*18	1518	1556	1681	1795	1724
02	1760	1845	1974	2039	2171	2476	2480	2481	2480	2482
03	2484	2484	2484	2483	2482	2484	2484	2486	2486	2486
04	2486	2486	2484	2485	2486	2482	2482	2480	2472	2443
05	2356	2299		1880	1936	1563	1347	1302	1199	1359
06	1324	1310	1368	1374	1382	1158	1150	1111	1324	1359
07	1386	1405	1454	1459	1382	1392	1413	1784	1847	2096
08	2113	2092	2435	2429	2465	2287	2318	1784	1847	2330
09	2109	2145	1886	1992	2009	1760	1658	1588	1479	1384
10	1054*02	1109	1245	1397	1433	1473	1464	1488	1516	1519
11	1530	1537	1545	1537	1549	1532	1524	1520	1531	1524
12	1511	1510	1512	1521	1528	1150*37	1218	1489	1512	1644
13	1772	1821	1861	1521	1888	1390	1390	1489	1512	1644
14										
15										
16										
17										
18										
19	1345		1358	1358	1099	1166	1522	1545	1545	1573
20	1563		1561	1561	1553	1557	1558	1573	1573	1573
21						1537	1534	1567	1567	1524
22	1467	1446	1108		1371	1205		1546	972	
23	1033									

RRS DISCOVERY CRUISE NO 33 LEG 2
 DATE 11- 5-1970 (DAY NO 131)

HOURS	MINUTES					35	40	45	50	55
	00	05	10	15	20					
00	1255				1534	1529	1510	1485	1448	1483
01	1403					1499	1491	1489	1491	1483
02	1012		1070	1368	1349	1468	1275	1197	1246	
03	1543			1113	1479	1551	1588	1578	1836	1919
04	1479	1479	1540	1216	1586	1600	1588	1737	2484	2482
05	1520	1520	1441	1555	1546	2484	1543	2429	2427	2410
06				1588	1586	2460	1586	1763	1707	1603
07	1954	1979	2183	2393	2484	2451	2479	1763	1609	1623
08	2480	2480	2465	2465	2460	2099	2128	1576	1629	1623
09	2387	2377	2368	2343	2300	2099	2128	1608	1608	1609
10	1390	1265	1154	1232	1306	1424	1374	1629	1608	1609
11	1650	1650	1631	1232	1628	1630	1631	1629	1608	1609
12	1616	1610	1600	1598	1601	1606	1606	1608	1608	1609
13	1610	1610	1600	1628	1601	1606	1606	1608	1608	1609
14	1610	1611	1699	1628	1639	1639	1639	1693	1698	1702
15	1703	1703	1699	1702	1704	1639	1639	1578	1704	1704
16	1704	1704	1704	1704	1704	1704	1704	1578	1704	1704
17	1491	1543	1574	1554	1573	1709	1711	1578	1549	1493
18	1622	1629	1627	1630	1639	1568	1566	1575	1590	1615
19	1687	1681	1668	1658	1625	1645	1663	1675	1679	1685
20	1739	1728	1768	1784	1797	1722	1693	1741	1737	1782
21	1751	1731	1741	1737	1737	1786	1792	1791	1791	1782
22	1658	1681	1683	1681	1681	1724	1734	1675	1617	1631
23	1627	1621	1617	1604	1600	1648	1646	1641	1635	1431

RBS DISCOVERY CRUISE NO 33 LEG 2 DATE 12- 5-1970 (DAY NO 132)
 DEPTH IN CORRECTED FATHOMS

HOURS	MINUTES											
	00	05	10	15	20	25	30	35	40	45	50	55
00	1502	1494	1586	1629								
01												
02												
03												
04												
05												
06												
07	1639	1635	1639	1645	1629	1578	1610	1590	1584	1575		1523
08	1461	1440	1511	1514	1558	1565	1581	1528	1519	1547		1787
09	1907	1924	1921	1919	1921	1924	1926	1930	1883	1857		1832
10	1830		1782	1778	1782	1789	1786	1745	1737	1734		1704
11	1681	1681	1673	1644	1654	1648	1629	1609	1598	1592		
12	1570						1540			1516		
13	1493		1485	1494	1530	1534	1511	1505	1501	1499		1400
14	1389	1384	1366	1339	1330	1324	1318	1593	1639	1639		1695
15	1738	1746	1815	1878								
16												
17												
18												
19												
20												
21												
22	1568	1573	1528	1530	2015	1944	1878	1549	1623	1533	1496	1554
23					1458	1458	1520					

RBS DISCOVERY CRUISE NO 33 LEG 2 DATE 13- 5-1970 (DAY NO 133)
 DEPTH IN CORRECTED FATHOMS

HOURS	MINUTES											
	00	05	10	15	20	25	30	35	40	45	50	55
00												
01												
02	1544	1534	1523	1511	1508	1505	1503	1503	1492	1481	1471	1464
03	1461	1460	1457	1453	1453	1455	1456	1458	1476	1544	1570	1596
04	1613	1619	1618	1613	1613	1613	1615	1619	1619	1602	1622	1628
05	1638	1650	1643	1638	1617	1487	1615	1662	1675	1675	1621	1626
06	1309	1267	1210*08	1263	1300	1387	1480	1567	1623	1675		1695
07												1791
08	1800	1806	1802	1802	1799	1801	1790	1780	1768	1733	1572*52	1606
09	1710	1709	1707	1676	1662	1722	1664	1660	1668	1602	1591	1628
10	1537	1425	1521					1795	1792	1782	1797	1773
11	1757	1712	1754	1795	1847	1909	1905	1911	1911	1907	1898	1898
12	1900	1896	1882	1790	1719	1546	1413	1220*37	1286	1489	1748	1803
13	1805	1820	1759	1720	1759	1763	1780	1797	1799	1791	1763	1755
14	1704	1693	1672	1693	1734	1862	1863	1865	1867	1847	1766*52	1786
15	1797	1791	1794	1774	1722	1703	1697	1688	1680	1666	1697	1594
16	1681	1689	1689	1705	1705	1708	1712	1720	1712	1697	1638	1670
17	1693	1689	1662	1644	1464	1062	1487	621*36	790	988	1308	1441
18	1514	1540	1540	1544	1552	1532	1629	1444	1660	1664	1664	1666
19	1654	1664	1656	1654	1651	1650	1626	1626	1364	1308	1351	1495
20	1639	1704	1702	1691	1675	1658	1505	1510	1623	1626	1617	1598
21	1537	1530	1500	1495	1492	1495	1492	1520	1497	1421	1393	1390
22	1407	1400	1411	1413	1422	1431	1450	1453	1439	1441	1392	1377
23	1352	1407	1534	1572	1575	1616	1588	1514*33	1514	1427	1384	1306

RRS DISCOVERY CRUISE NO 33 LEG 2 DATE 14- 5-1970 (DAY NO 134)
 DEPTH IN CORRECTED FATHOMS

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	1389	1411	1413	1436	1430	1397	1422	1445	1521	1392	1312*48	1527
01	1590	1578	1567	1560	1546	1515	1532	1529	1531	1533	1540	1520
02	1522	1514	1525	1525	1511	1485*27	1554	1529	1606	1603	1602	1593
03	1573	1566	1584	1581	1575	1541	1416*32	1460	1463	1514	1537	1551
04	1569	1580	1475	1445	1426	1458	1532	1553	1573	1604	1569	1530
05	1517	1508	1495	1477	1382	1405	1491	1493	1500	1491	1468	1392
06	1491	1504	1516	1514	1518	1543	1566	1575	1578	1532	1470	1752
07	1819	1819	1807	1495	1771*22	1196	1254	1435	1707	1717	1743	1755
08	1756	1753	1519	1629	1774	1774	1766	1712	1632	1600	1392	1385
09	1619	1763	1795	1809	1806	1815	1820	1813	1805	1801	1775	1755
10	1771	1791	1780	1771	1689	1772	1805	1812	1818	1795	1798	1755
11	1727	1684	1751	1762	1755	1722	1697	1720	1800	1826	1732	1841
12	1855	1863	1880	1859	1861	1838	1853	1863	1872	1872	1878	1887
13	1830	1780	1646	1693	1676	1724	1733	1739	1872	1762	1778	1797
14	1792	1433	1778	1795	1791	1784	1801	1770	1745	1762	1755	1749
15	1743	1745	1745	1741	1741	1737	1728*29	1731	1722	1724	1600	1722
16	1714	1692	1625	1491	1493	1289	1068*29	1392	1565	1553	1600	1660
17	1650	1651	1641	1631	1646	1639	1650	1654	1660	1656	1658	1470
18	1279	1366	1349	1634	1627	1619	1609	1598	1590	1572	1537	1888
19	2086	2165	2305	2316	2320	1603	2324	2305	1826	1382*47	2128	1812
20	1415	1399	1425	1417	1380	1438	1578	1652	2211	1615	1754	1762
21	1780	1562	1832	1824	1778	1716	1695	1739	1757	1752	1767	1712
22	1670		1521	1526	1491	1500	1455	1453	1453	1451	1451	1447

RRS DISCOVERY CRUISE NO 33 LEG 2 DATE 15- 5-1970 (DAY NO 135)
 DEPTH IN CORRECTED FATHOMS

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	1445	1440	1438	1431	1344	1365	1428	1423	1421	1419	1405	1387
01	1346	1319	1343	1329	1205	1166	1368	1363	1358	1337	1324	1303
02	1313	1271	1249	1229	1131	1129	1136	1204	1314	1309	1342	1304
03	1273	1272	1233	1140	1305	1298	1047	1001	1224	1311	1228	1182
04	1150	1167	1194	1258	1235	1241	1288	1287	1286	1273	1253	1188
05	1234	1227	1239	1258	1235	1241	1261	1276	1295	1286	1298	1308
06	1317	1328	1335	1334	1358	1359	1348	1323	1313	1295	1286	1275
07	1274	1275	1182	1128	1048	763	825	873	888	895	930	988
08	984	1030	1069	1080	1056	1093	923	887	910	935	903	901
09	964	1009	1123	1158	1205	1290	1353	1334	1304	1339	1335	1144
10	1150	1175	1206	1236	1259	1273	1286	1304	1335	1357	1362	1388
11	1382	1389	1415	1446	1430	1397	1410	1339	1454	1501	1517	1546
12	1639	1691	1749	1732	1727	1809	1818	1805	1805	1812	1824	1739
13	1727	1768	1747	1681	1610	1569	1537	1520	1470	1440	1445	1450
14	1448	1448	1448	1446	1441	1435	1431	1433	1433	1433	1433	1433
15	1432	1432	1409	1388	1335	1335	1339	1336	1355	1365	1368	1349
16	1337	1306	1228	1265	1228	1197	1136	1150	1374	1374	1374	1286
17	1346			1288	1282	1253	1346	1335	1374	1056	986*48	1311
18	1374	1204	1179	1163	1296	1321			1343	1351	1330	
19	1281											
20	1328	1273	1346									
21												
22												
23												

RRS DISCOVERY CRUISE NO 33 LEG 2
 DATE 16- 5-1970 (DAY NO 136)

HOURS	DEPTH IN CORRECTED FATHOMS					MINUTES						
	00	05	10	15	20	25	30	35	40	45	50	55
00	1254	1261	1249	1197	1269	1288	1288	1302	1303	1298	1263	1179
01	1123			1107		1288	1107	1302	1303	1108	1098	1138
02	1204	1310	1347	1406	1547	1603	1621	1537	1458	1363	1206	1144
03	1164	1204	1306	1421	1515	1533	1454			1424		
04	1410				1410							
05												
06												
07												
08	1174	1319	1370	1382	1084	1084	1083	1088	1095	1094	1136	1164
09	1186											
10												
11												
12												
13												
14												
15												
16												
17	1156	1150	1149	895	950	1124	1109	1139	1171	1172	1169	1162
18	1193		1183	1154	1162		1189		1226		1218	
19	1123		1117		1188		1155		1147		1136	
20		1089			1117		1115		1114			
21	1068		1066		1080		1089	1078	1097	1136	1080	1091
22	1091		1102		1103		1089		1095		1103	
23	878		898		921		926		878		915	

RRS DISCOVERY CRUISE NO 33 LEG 2
 DATE 17- 5-1970 (DAY NO 137)

HOURS	DEPTH IN CORRECTED FATHOMS					MINUTES						
	00	05	10	15	20	25	30	35	40	45	50	55
00	995	1091	1064	1102	1078	1253	1075	1295	1075	1289	1088	1289
01	1368	1345	1356	1365	1214	1364	1273	1384	1293	1407	1260	1428
02	1405	1421	1398	1510	1345	1555	1368	1458	1399	1339	1429	1269
03	1234	1241	1229	1222	1539	1555	1557	1458	1390	1242	1242	1309
04	1537	1516	1604	1679	1196	1170	1136	1144	1152	1123	1179	1959
05	2006	2022	2006	1999	1739	1792	1849	1870	1808	1860	1982	2499
06	2478	2514	2567	2578	2019	2034	2041	2047	2099	2281	2432	1959
07	2589	2584	2581	2569	2583	2584	2586	2585	2586	2586	2587	2587
08	2291	2274	2271	2291	2520	2487	2338	2335	2336	2304	2291	2287
09	2310	2293	2151	2203	2308	2310	2310	2346	2301	2339	2295	2293
10	2396	2518	2588	2603	2249	2400	2392	2514	2520	2466	2406	2371*57
11	2711	2762	2760	2755	2584	2535	2475	2518	2579	2573	2561	2592
12	2730	2717	2725	2715	2747	2715	2656	2626	2664	2707	2730	2734
13		2303	2285	2318	2378	2696	2676	2672	2704	2707	2708	2709
14		2165	2210	2187	2179	2405	2420	2429	2418	2266	2222	2151
15		1743	1743	1730	1715	2057	1995	1948	1833	1709	1730	1739
16		1951	1743	2082	1715	1716	1765	1787	1801	1795	1801	1839
17		2143	2018	2202	2109	2109	2118	1787	1787	1795	1801	1839
18		2143	2169	2202	2197	2197	2190	2134	2141	2150	2149	2142
19		2048	2178	2175	2151	2111	2190	2190	2196	2188	2193	2200
20		2005	2032	2026	1991	1991	1981	2134	2128	2088*44	2103	2082
21		1988	1984	1978	1984	1872	1991	1980	1990	1995	1995	2002
22		1991	1972	1980	1976	1957	1891	1912	1967	2024	2044	2061
23							1922	1884	1830	1857	2047	1914

RRS DISCOVERY CRUISE NO 33 LEG 2
DEPTH IN CORRECTED FATHOMS

HOURS	00	05	10	15	MINUTES		30	35	40	45	50	55
00	1806	1826	1833	1824	1826	1837	1851	1875	1901	1925	1949	1968
01	1976	1984	1989	1984	1990	1994	1994	1997	2009	2011	2009	2003
02	2003	2001	1993	1995	1995	1991	2005	1943	1821	1762	1711	1698
03	1695	1672	1679	1744	1778	1842	1982	2063	2067	2072	2082	2082
04	2083	2087	2095	2096	2096	2095	2095	2094	2095	2096	2092	2086
05	2082	2042	2001	1980	1984	1978	1987	1990	1985	1982	1981	1982
06	1992	1984	1987	1990								
07	1991											
08	1994											1994
09												
10							1991					
11												
12												
13	1899	1936	2009	2041	2093	2099	2082	2096	1993	1995	1987	1938
14	2279	2337	2368	2377	2386	2387	2390	2394	2119	2176	1990	2252
15	2487				2463	2472	2463	2392	2324	2316	2332	2413
16	2446							2344	2439	2468	2467	2457
17	2535	2531	2531	2518	2502	2488	2485	2476	2468	2446	2421	2539
18	2387	2348	2358	2367	2394	2446	2434	2415	2271	2155	2095	2054
19	2073	1920	1868	1643	1631	1570	1700	1781	1930	2024	2036	2109
20	2180	2210	2250	2233	2284	2300	2307	2262	2207	2180	2153	2190
21	2104	2184	2222	2187	2051	1924	1886	1918	2036	2058	2109	2187
22	2369	2641	2641	2641	2641	2641	1849	2641	2639	2256	2078	1893
23	1860	1814	1880	1849	1766	1919	1849	1704	1935	1988	1907	2107

RRS DISCOVERY CRUISE NO 33 LEG 2
DEPTH IN CORRECTED FATHOMS

HOURS	00	05	10	15	MINUTES		30	35	40	45	50	55
00	2225	2109	2233	2545	2633	2573	2636	2636	2637	2637	2638	2638
01	2638	2638	2638	2638	2634	2634	2636	2634	2634	2634	2634	2634
02	2632	2633	2632	2632	2633	2633	2633	2633	2633	2633	2633	2633
03	2543	2631	2632	2632	2632	2632	2632	2631	2630	2628	2596	2565
04	2310	2536	2521	2501	2475	2458	2433	2419	2400	2380	2365	2345
05		2281	2289	2209	2166	2174	2165	2153	2155	2155	2253	2278
06			2134	2143	2151	2174	2186	2194	2213	2231	2253	2278
07	2300	2328	2354	2408	2431	2408	2505	2547	2577	2600	2609	2614
08	2614	2614	2614	2613	2613	2612	2615	2615	2615	2615	2615	2615
09	2606	2606	2605	2604	2603	2603	2610	2610	2609	2608	2607	2607
10	2591	2589	2590	2586	2583	2682	2602	2600	2598	2598	2597	2592
11	2534	2555	2555	2554	2552	2552	2552	2550	2556	2557	2556	2555
12	2467	2528	2521	2515	2509	2502	2552	2490	2547	2546	2542	2539
13	2252	2463	2412	2412	2404	2391	2373	2343	2318	2278	2274	2264
14	2005	2277	2225	2208	2189	2169	2138	2065	1997	1977	1946	1966
15	2077	2077	2129	2129	2129	2129	2122	2119	2115	2111	2096	2071
16	2016	2090	2129	2129	2107	2107	1909	1925	1956	1992	2053	2036
17	1027	1092	1901	1805	1609	1639	1546	1435	1455	1402	943	926
18	257	1035	975	898	772	700	564	510	455		353	257
19	257	124	975	93	89	89	77	85	83		83	
20	85		75				85		85		90	
21	85		75				85		85		90	
22			75				85		85		90	
23			93				93		92		92	

RRS DISCOVERY CRUISE NO 33 LEG 2
 DATE 20- 5-1970 (DAY NO 140)

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	94		93	70	93	66	93	73	91		86	83
01	78	74	72	86	68	83	78	72	74	81	85	87
02	89	87	89	78	85	81	83	83	74	68	68	71
03	77	79	79	80	83	81	83	83	83	83	83	80
04	80	80	80	73	75	72	70	74	77	77	75	75
05	74	74	80	70	73	72	72	70	72	72	72	71
06	70	70	71	70	70	70	68	70	70	69	68	68
07	68	68	68	68	67	66	64	66	65	65	65	66
08	66	66	66	66	65	65	65	65	65	64	64	64
09	64	64	63	62	62	57	52	59	59	59	57	52
10	52	52	55	54	54	54	52	50	51	51	51	51
11	51	51	51	51	50	50	50	50	51	51	51	51

RRS DISCOVERY CRUISE NO 33 LEG 1
DEPTH IN CORRECTED METRES

HOURS	DATE 17- 4-1970 (DAY NO 107)											
	00	05	10	15	MINUTES	25	30	35	40	45	50	55
00	00											
01	265		243		231		225		220		216	
02	216		212		212		212		212		201	
03	3201		205		246		380		408		305	
04	488		347		362		600		652		760	
05	803				572		961		991		1015	
06	1041		881		1060	944	1067		1076		1080	
07	1093		1097		1104		1112		1117		1121	
08	1121		1129		1125		1129		1129		1129	
09	1117		1117		1125		1127		1127		1129	
10	1121				1121		1127		1129		1134	
11	1129				1127		1127		1129		1134	
12	1140		1121		1117		1166		1169		1166	
13	1140		1145		1167		1181		1188		1192	
14	1169		1177		1195		1188		1188			
15	1197		1192		1169		1162		1149		1142	
16	1175		1166		1127		1129		1125		1129	
17	1136		1130		1149		1158		1164		1164	
18	1136		1142		1173		1169		1155		1149	
19	1166		1173		1130		1125		1125		1129	
20	1143		1134		1136		1145		1151		1149	
21	1129		1130		1156		1145		1145		1140	
22	1129		1158		1127		1149		1145		1140	
23	1134		1130		1127		1123		1123		1117	

RRS DISCOVERY CRUISE NO 33 LEG 1
DEPTH IN CORRECTED METRES

HOURS	DATE 18- 4-1970 (DAY NO 108)											
	00	05	10	15	MINUTES	25	30	35	40	45	50	55
00	00											
01	1121		1129		1136		1140		1143		1147	
02	1151		1156		1158		1162		1158		1149	
03	1140		1140		1134		1132		1129		1121	
04	1158		1162		1143		1151		1151		1158	
05	1164		1158		1158		1162		1162		1162	
06	1145		1142		1160		1155		1151		1147	
07	1130		1127		1147		1136		1132		1130	
08	1138		1143		1153		1160		1132		1130	
09	1138		1156		1143		1140		1166		1166	
10	1138		1138		1138		1142		1143		1138	
11	1145		1134		1130		1142		1142		1142	
12	1119		1134		1130		1127		1123		1119	
13	1121		1123		1123		1127		1130		1130	
14	1140		1140		1142		1125		1136		1130	
15	1127		1119		1112		1106		1097		1130	
16	1086		1082		1073		1067		1058		1093	
17	1024		1008		993		974		948		1045	
18	859		810		764		725		684		907	
19	628		555		598		587		580		652	
20	507		507		544		537		529		572	
21	507		481		481		470		459		451	
22	446		434		421		414		403		395	
23	384		367		371		382		391		397	

RRS DISCOVERY CRUISE NO 33 LEG 1
 DEPTH IN CORRECTED METRES

HOURS	DATE 19- 4-1970 (DAY NO 109)				
	00	05	10	15	MINUTES
00	403		410		421
01	460		464		490
02	687		767		846
03	1171		1243		1324
04	1171		1233		1273
05	2363		2431		2391
06	2354		2356		2363
07	2390		2397		2416
08	2450		2461		2463
09	2470		2467		2465
10	2414		2403		2408
11	2403		2410		2412
12	2380		2403		2406
13	2360		2352		2355
14	2315		2356		2352
15	2315		2326		2318
16	2358		2358		2328
17	2427		2427		2341
18	2547		2559		2438
19	2694		2724		2566
20	2990		3030		2799
21					3082
22					423
23					535
					930
					1974
					2446
					2367
					2420
					2472
					2459
					2405
					2414
					2420
					2406
					2422
					2401
					2380
					2341
					2311
					2335
					2352
					2500
					2645
					2886
					3139
					434
					580
					610
					1094
					1600
					2251
					2412
					2360
					2384
					2435
					2470
					2433
					2406
					2422
					2401
					2380
					2341
					2311
					2335
					2352
					2500
					2645
					2886
					3139

RRS DISCOVERY CRUISE NO 33 LEG 1
 DEPTH IN CORRECTED METRES

HOURS	DATE 20- 4-1970 (DAY NO 110)				
	00	05	10	15	MINUTES
00	173		118		3071
01	2845		2792		2833
02	3071		3105		3360
03	3287		3332		3497
04	3418		3431		3484
05	3497		3486		3499
06	3494		3496		3501
07	3492		3497		3539
08	3522		3532		3560
09	3545		3547		3575
10	3572		3579		3587
11	3579		3579		3577
12	3583		3583		3545
13	3568		3566		3431
14	3515		3516		3330
15	3378		3351		3277
16	3325		3317		2999
17	3384		3301		2901
18	3307		3201		3175
19	3323		3366		3405
20	3347		3422		3505
21	3351		3514		3534
22			3511		3503
23					2996
					2901
					3185
					3374
					3501
					3484
					3499
					3490
					3497
					3541
					3560
					3575
					3585
					3573
					3570
					3526
					3403
					3183
					2977
					2958
					3257
					3444
					3537
					3526
					3501

RRS DISCOVERY CRUISE NO 33 LEG 1 DATE 21- 4-1970 (DAY NO 111)
 DEPTH IN CORRECTED METRES

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	3503		3507		3507		3507		3511		3507	
01	3515		3511		3511		3515		3526		3518	
02	3522		3522		3526		3526		3541		3530	
03	3534		3537		3541		3541		3556		3545	
04	3547		3549		3549		3554		3566			
05	3560				3562				3570			
06	3570				3570				3551			
07	3564				3560				3535			
08	3545				3535				3532			
09	3535				3530				3530			
10	3532				3509				3543			
11	3553				3560				3572		3549	
12	3553		3551		3572		3570		3572		3572	
13	3564		3562		3551		3572		3543		3549	
14	3556		3562		3556		3554		3539		3545	
15	3553		3499		3480		3465		3477		3487	
16	3513		3530		3545		3549		3549		3535	
17	3545		3545		3522		3541		3513		3515	
18	3545		3530		3522		3516		3516		3520	
19	3513		3526		3511		3526		3524		3516	
20	3520		3499		3522		3526		3463		3431	
21	3505		3499		3494		3480		3323		3272	
22	3414		3393		3376		3340					

RRS DISCOVERY CRUISE NO 33 LEG 1 DATE 22- 4-1970 (DAY NO 112)
 DEPTH IN CORRECTED METRES

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	3264		3207		3179		3179		3132		3033	
01	3047		3045		3041		3030		3011		3274	
02	3107		3128		3177		3226		3253		3427	
03	3329		3368		3385		3401		3420		3450	
04	3439		3442		3435		3425		3418		3408	
05	3450		3446		3437		3425		3410		3404	
06	3427		3427		3427		3420		3401		3406	
07	3403		3408		3401		3397		3408		3412	
08	3406		3406		3408		3408		3410		3415	
09	3406		3408		3408		3423		3427		3454	
10	3418		3421		3421		3450		3450		3480	
11	3440		3444		3446		3473		3477			
12	3461		3467		3469		3496		3499		3442	
13	3488		3488		3490		3496		3469		3336	
14	3503		3507		3499		3376		3366		3401	
15	3427		3408		3385		3395		3397		3484	
16	3365		3389		3393		3461		3480		3534	
17	3420		3435		3446		3526		3543		3547	
18	3496		3503		3518		3558		3543		3577	
19	3539		3537		3541		3554		3562		3646	
20	3591		3549		3554		3648		3650		3827	
21	3591		3587		3606		3745		3827		3865	
22	3653		3691		3745		4071		4075		4115	
23	3911		3953		4014							

RRS DISCOVERY CRUISE NO 33 LEG 1
 DEPTH IN CORRECTED METRES

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	3792	4032	4075	4067	4029	3979	3857	3860	3805	3777	3750	3738
01	3746	3902	3943	3967	3925	3954	3998	3998	3977	3920	3922	3880
02	3975	4021	4032	4032	4048	4054	4044	4013	4004	4029	4015	3975
03	3876	3853	3769*08	3828	3809	3780	3750	3652	3818	3887	3912	3927
04	3937	3958	3971	3966	3950	3906	3860*28	3952	3969	3958	3910	3866
05	3939	3959	3935	3966	3945	3909	4054	4021	3955	3956	3818	3902
06	3995	3981	3935	3943	3937	3937	3862*32	3925	3967	3929	3948	3886
07	3975	3723	3670	3841	3868	3872	3809	3870	3902	3977	3929	3960
08	3975	3960	3967	3966	3933*19	3960	3962	3934	3973	4023	3977	3971
09	3960	3960	3967	3966	4011	4018	4021	3956	4034	3811	3811	3864
10	4124	4163	4163	4159	4155	4128	4098	4056	3799	3767	3818	3777
11	3937	3975	4052	4180	4143	4195	4214	4189	3996	3868	4270	4291
12	3746	4032	4084	4113	4143	4195	4214	4226	3773*41	4235	4048	4031
13	4109*02	4128	4038	3925	3899	3937	3864	3876	3773	3958	4048	4613
14	4092	4436	3998	4048	3880*22	3948	4025	4409	4383	4814	4766	4770
15	4418	4436	4248	4274	4463	4505	4417	4451	4683	4950	4942	4942
16	4901	4857	4729	4698	4741	4808	4857	4934	4950	4950	4942	4305
17	4954	4938	4919	4903	4900	4857	4822	4768	4644	4494	4382	4340
18	4320	4294	4317	4267	4209	4232	4269	4401	4440	4451	4449	4378
19	4234	4277	4240	4269	4290	4233	4351	4411*33	4376	4420	4417	4219
20	4353	4317	4305	4180	4111*18	4248*23	4205	4257	4221	4230	4102	4295
21	4367	4311	4305	4144	4010	4054	4060	4306	4197	4174	4320	4314
22	4308	3987	3834	3941	4161	4260	4308	4212	4197	4174	4119	4046
23	4303	4291	4281	4268	4247	4235	4228	4212	4197	4174	4119	4046

D40

RRS DISCOVERY CRUISE NO 33 LEG 1
 DEPTH IN CORRECTED METRES

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	4002	3958	3868	4059	4105	4124	4140	4115	4029	4055	3966	4170
01	4186	4191	4186	4186	4186	4184	4182	4182	4170	4161	4090	4136
02	4128	4117	4113	4109	4103	4101	4101	4098	4094	4088	4090	4082
03	4067	4054	4048	4040	4031	4021	4010	4098	3996	3998	3966	3975
04	3981	3971	3958	3946	3929	3916	3891	3712	3681	3558	3485	3472
05	3798	3796	3784	3750	3740	3717	3735	3592	3529	3442	3406	3376*53
06	3798*59	3645	3653	3660	3656	3649	3639	3556	3529	3442	3406	3376*53
07	3453	3662	3740	3666	3677	3618	3590	3556	3526	3668	3596*48	3714
08	3725*02	3523	3618	3620	3601	3571	3814	3918	3939	3950	3945	3948
09	3920	3714	3689	3647	3624	3582	3641	3666	3643	3595	3628	3626
10	3531	3556	3588	3567	3502	3586	3590	3655	3662	3656	3669	3666
11	3643	3627	3601	3586	3594	3594	3590	3686	3586	3577	3569	3654
12	3533	3537	3529	3525	3521	3507*27	3412	3426	3423	3490	3388	3354
13	3282	3270	3248	3258	3187	3087*27	3112	3176	3276	3290	3301	3315
14	3290	3271	3273	3258	3172	3116	3081	3093	3081	3034	2983	3055
15	3083	3102	3146*12	3157	3169	3157	3083	3120	3185	3092	3070	3098
16	2789	2789	2629*12	2655	2794	2810	2813	2810	2808	2972	2970	3029
17	3036	3017	2915	2870	3013	3078	3093	3074	3044	3080	3081	3089
18	2915	3017	2915	2870	3013	3078	3093	3074	3044	3080	3081	3089
19	3074	3017	2915	2870	3013	3078	3093	3074	3044	3080	3081	3089
20	2794	3044	3044	3036	3013	3032	3023*28	3081	3073	3119	3099	3099
21	3040	2942	3165	3144	3169	2904	2881	3010	3074	3089	3087	3051
22	3044	2961	2968	2947	2881	2887	2881	2972	3127	3089	3087	3065
23	3002	3002	3021	2787	2727*18	2987	3161	3150	3040	3040	3014	3065

RRS DISCOVERY CRUISE NO 33 LEG 1
 DEPTH IN CORRECTED METRES

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	3178	3180	3184	3206	3223	3239	3248	3256	3256	3254	3233	3220
01	3203	3258	3254	3282	3263	3244	3373	3377	3381	3390	3396	3396
02	3402	3407	3402	3413	3413	3415	3415	3415	3421	3419	3415	3419
03	2609	2668	2881	3402	3404	3404	3335	3388	3325	2934	2687	2689
04	3097	3112	3093	3198	3376	3350	3302	3319	3312	3309	3285	2993
05	3377	3388	3424	3426	3451	3468	3478	3478	3337	3352	3343	3258
06	3368	3349	3335	3454	3451	3468	3478	3478	3337	3352	3343	3258
07	3384	3320	3318	3275	3282	2817	3093	3146	3134	3157	3157	3150
08	3100	3000	2970	2979	2976	2936	2883	2565	2358	2413	2659	2953
09	2968	3240	2998	3036	3100	3139	3150	3220	3282	3184	3195	3214
10	3248	3266	3258	3261	3271	3269	3273	3278	3282	3286	3282	3282
11	3299	3226	3331	3400	3428	3426	3343	3286	3131	3142	3153	3142
12	3153	3252	3319	3357	3369	3354	3306	3347	3319	3371	3416	3401
13	3384	3314	3304	3319	3323	3336	3359	3367	3380	3393	3407	3458
14	3465	3439	3572	3612	3642	3671	3693	3719	3674	3709	3724	3693
15	3671	3659	3572	3612	3642	3671	3693	3719	3674	3709	3724	3693
16	3758	3733	3633	3758	3792	3745	3743	3819	3789	3693	3724	3867
17	3863	3709	3819	3905	3903	3962	3994	4025	4039	4052	4056	4056
18	4066	4073	4079	4079	4090	4098	4094	4067	3838	3762	3800	3733
19			3424	3553	3903	3622	3709	4025	4039	4052	4056	4056
20			3424	3553	3903	3622	3709	4025	4039	4052	4056	4056
21	3825	3819	3890	3895	3890	3911	3911	3905	3922	3941	3945	3947
22	3953	3958	4004	4020	3890	3911	3911	3905	3922	4083	4081	4062
23	4054	4058	4058	4054	4044	4050	4052	4098	4104	4104	4104	4104

RRS DISCOVERY CRUISE NO 33 LEG 1
 DEPTH IN CORRECTED METRES

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	4098	4108	4108	4106	4106	4106	4106	4106	4106	4106	4096	4098
01	4096	4087	4090	4096	4094	4081	4075	4067	4043	4106	4096	4098
02	3945	3907	3899	3928	3941	3943	3934	3882	3936	3941	3939	3951
03	3815	3895	3892	3886	3878	3873	3862	3859	3818	3848	3852	3903
04	3895	3895	3892	3886	3878	3873	3862	3859	3818	3848	3852	3903
05	3852	3848	3836	3827	3821	3821	3794	3752	3667	3646	3711	3627
06	3709	3693	3545	3471	3422	3488	3473	3420	3306	3391	3446	3469
07	3503	3503	3503	3503	3503	3503	3503	3503	3503	3503	3503	3547
08	3572	3538	3488	3503	3503	3503	3503	3503	3503	3503	3503	3547
09	3526	3526	3506	3503	3503	3503	3503	3503	3503	3503	3503	3547
10	3223	3518	3506	3503	3503	3503	3503	3503	3503	3503	3503	3547
11	3223	3166	3166	3352	3339	3525	3400	3368	3491	3468	3472	3430
12	3150	3198	3373	3362	3346	3278	3276	3258	3209	3336	3415	3430
13	2021	2216	3373	3362	3346	3278	3276	3258	3209	3336	3415	3430
14	2021	2216	3373	3362	3346	3278	3276	3258	3209	3336	3415	3430
15	3277	3176	3187	3199	3209	2609	2798	3100	3134	3150	3165	3172
16	3206	3252	3280	3299	3299	3301	3291	3278	3275	3269	3273	3282
17	3206	3187	3205	3187	3172	3301	3168	3178	3153	3148	3146	3142
18	3127	3067	2900	2845	2781	3159	2808	1896	1822	1837	2039	2093
19	2949	2678	2730	2666	2618	2794	2294	1896	1822	1837	2039	2093
20	2949	2961	2991	2991	2968	2953	2964	2953	2945	2876	2976	2972
21	2898	2991	3002	2998	2968	2953	2964	2953	2945	2876	2976	2972
22	2898	2764	2757	2789	2734	2681	2595	2493	2355	2361	2338	2367
23	2512	2764	2757	2789	2734	2681	2595	2493	2355	2361	2338	2367

*53

*42

*52

*38

*14

*12

*17

RRS DISCOVERY CRUISE NO 33 LEG 1
DEPTH IN CORRECTED METRES

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	4075	4235	4285	4297	4293	4287	4281	4266	4019	3883	3853	4140
01	4347	4377	4387	4391	4383	4385	4378	4379	4376	4376	4374	4366
02	4345	4325	4048	3339	3187	2687	2058	1879	2264	4228	4490	2512
03	3373	3404	3695	2740	3027	3186	3119	3134	3201	3311	3358	3353
04	3373	3404	3430	3443	3461	3481	3489	3497	3499	3508	3518	3523
05	3373	3518	3533	3554	3584	3597	3608	3620	3632	3647	3662	3662
06	3681	3670	3704	3706	3704	3702	3708	3712	3712	3708	3698	3688
07	3677	3636	3674	3658	3555	3555	3559	3667	3514	3476	3476	3430
08	3392	3369	3616	3596	3582	3575	3559	3637	3650	3491	3476	3430
09	3150	3129	3210	3129	3100	3116	3119	3129	3153	3182	3159	3168
10	3152	3112	3169	3177	3304	3764	3880	4041	4133	4232	4262	4308
11	4447	4458	4450	4497	4504	4504	4524	4481	4338	4285	4257	4408
12	4063	4431	4393	4362	4343	4311	4327	4316	4308	4285	4257	4224
13	2569	3339	587	2039	2114	1980	2698	2114	2253	2264	2478	2522
14	1770	2208	2704	2602	2593	2621	2698	2717	2710	2715	2546	2216
15	3125	3146	3155	2927	3017	2962	3049	3047	3049	3087	3072	3104
16	3233	3240	3258	3161	3178	3187	3199	3191	3201	3204	3220	3227
17	3286	3248	3222	3278	3275	3305	3314	3324	3331	3324	3320	3305
18	3578	3584	3584	3591	3589	3587	3595	3580	3493	3506	3529	3565
19	3614	3625	3602	3581	3553	3498	3484	3450	3598	3382	3427	3610
20	3798	3488	3458	3549	3709	3735	3784	3760	3777	3789	3789	3792
21	3745	3785	3804	3804	3484	3484	3503	3543	3648	3743	3745	3754
22	3745	3648	3614	3724	3758	3781	3783	3791	3792	3789	3712	3768

RRS DISCOVERY CRUISE NO 33 LEG 1
DEPTH IN CORRECTED METRES

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	3823	3825	3792	3827	3827	3815	3789	3581	3553	3674	3873	3895
01	3907	3922	3943	3949	3945	3901	3787	3810	3815	3852	3878	3874
02	3876	3869	3867	3853	3861	3817	3842	3865	3861	3934	3964	3930
03	4018	3987	4008	4075	4087	4081	4056	4014	4033	4004	4002	4029
04	4006	4023	4029	4022	4018	4004	3999	4022	3999	4022	3987	3976
05	4033	4010	3997	4004	4014	4035	4027	4022	4022	4022	4027	4033
06	4033	4037	4033	4033	4033	4035	4027	4022	4037	4029	4022	4025
07	4033	4048	4060	4064	4098	4129	4140	4144	4194	4209	4205	4200
08	4320	4336	4338	4347	4370	4374	4374	4274	4272	4244	4205	3979
09	4018	3991	4146	4248	4282	4290	4290	4245	4272	4265	4251	4240
10	4215	4102	4075	4071	4052	3991	3840	3825	3798	3712	3680	3659
11	3500	4377	3543	4033	3552	3612	3810	3836	3833	3819	3785	3749
12	3781	3863	3960	4033	4056	4113	4146	4240	4171	4190	4205	4219
13	4225	4228	4230	4232	4244	4246	4254	4240	4240	4228	4207	4178
14	4046	3976	3865	3724	3800	4056	4244	3895	3958	3863	3846	3842
15	3876	3857	3791	3895	3995	4125	4167	4182	4192	4182	4163	4131
16	4001	3446	3876	3855	3265	3172	3162	3321	3732	3703	3726	3921
17	3937	3934	3926	3949	3934	3895	3859	3859	3572	3420	3831	3966
18	3999	3999	3999	3999	3999	3997	3997	3995	3991	3913	3831	3864
19	3894	3913	3913	3905	3892	3892	3898	3878	3871	3874	3869	3865
20	3724	3693	3781	3827	3853	3838	3825	3821	3819	3812	3785	3716
21	3709	3718	3716	3716	3722	3724	3716	3716	3739	3728	3689	3678
22	3909	3915	3918	3901	3897	3861	3905	3915	3907	3903	3889	3857

RRS DISCOVERY CRUISE NO 33 LEG 1
DEPTH IN CORRECTED METRES

HOURS	00	05	10	15	MINUTES					DATE	1-5-1970	(DAY NO 121)
					20	25	30	35	40	45	50	55
00	3718	3726	3735	3711	3709	3709	3686	3686	3671	3652	3638	3634
01	3579	3268	3189	3060	2792	2834	2921	2949	3049	3030	2936	2979
02	2794	3098	3098	3102	3083	3068	3053	3053	3030	3017	2939	2898
03	2915	2928	2921	2913	2902	2885	2815	2811	2811	2832	2824	2813
04	2804	3075	3062	3043	3017	2928	2902	2875	2857	2845	2804	2751
05	2725	2687	2655	2631	2578	2544	2535	2510	2488	2454	2409	2364
06	2326	2176	2176	2176	2191	2013	1989	1764	1678	1605	1511	
07	1640	1534	1199	907	866	348*27	530	567	791	1113	776	
08												
09												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												

RRS DISCOVERY CRUISE NO 33 LEG 2 DATE 4- 5-1970 (DAY NO 124)
 DEPTH IN CORRECTED MFTRES

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	483	707	698	661	859	885	960	969	249	324	256	326
01	314	202	277	511	885	1008	851	894	975*38	352	380	294
02	1177	1317	1399	1326	1436	1558	1730	1633	1008	1003	1085	1119
03	2242	2267	2559	2627	2743	2867	2934	3004	1670	1977	1951	2075
04	3083	3075	3147	3208	3246	3287	3335	3378	3023	3443	3060	3492
05	3515	3533	3564	3564	3564	3568	3576	3583	3420	3595	3464	3610
06	3617	3629	3633	3633	3644	3638	3648*32	3640	3587	3671	3602	3686
07	3693	3703	3712	3718	3732	3737	3745	3735	3752	3754	3762	3762

044

RRS DISCOVERY CRUISE NO 33 LEG 2 DATE 5- 5-1970 (DAY NO 125)
 DEPTH IN CORRECTED METRES

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	3754	3739	3737	3644	3610	3477	3440	3395	3522	3751	3831	3838
01	3863	3867	3873	3882	3874	3880	3880	3895	3861	3857	3838	3770
02	3682	3686	3644	3697	3712	3693	3686	3648	3579	3519	3500	3344
03	3953	3903	3930	3676	3682*22	3541	3633	3648*37	3500	3636	3621	3557
04	3166	3405	3838	4163	3972*22	4144	4067	4004	3882	3842	4102	3162
05	4178	4136	3976	3686	4016	4106	4050	4064	4075	4075	4102	4163
06	4625	4629	4636	4640	4625	4230	4548	4586	4594	4598	4198	4634
07	4259	4259	4259	4643	4620	4106	4155	4161	4144	4010	4184	4171
08	4665	4656	4661	4648	4640	4770*27	4627	4575	4240	4169	4305	4669
09	4255	4267	4303	4363	4461	4578	4573	4546	4687	4721	4721	4669
10	4356	4692	4729	4725	4698	4647	4374	4163	4128	4131	4182	4246
11	4374	4402	4444	4447	4447	4447	4440	4351	4329	4313	4405	4399
12	4390	4372	4359	4359	4347	4351	4355	4351	4347	4357	4355	4347
13	4159	4246	4336	4313	4194	4154	4308	4292	4290	4297	4274	4259
14	3968	4190	4190	4226	3876	4154*27	3079	4205	4111	4083	4175	3732*57
15	3352	3420	3401	3336	3249	3295	3155	3193	3157	3252	3458	3500
16	1884*58	2270	2332	2777	2862	3170	3348	3500	3526	3701	3798	1915
17	3827	3827	3877	3829	3831	3831	3823	3827	3817	3815	3823	3678
18	3403	3376	3336	3215	3228	3437	3443	3491	3469	3471	3445	3448
19	3469	3462	3636	3655	3671	3525	3676	3491	2584	2747	2860	3306
20	3955	3960	3972	3964	3968	3960	3951	3815	3884	3899	3915	3937

RRS DISCOVERY CRUISE NO 33 LEG 2
DEPTH IN CORRECTED METRES

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	3821	3777	3724	3693	3572	3369	2881	2335	2255	2020*44	2033*52	2185
01	2349	2653	3126	3242	3348	3390	3393	3371	3369	3357	3386	3388
02	3739	3336	3443	3615	3692	3700	3684	3720	3752	3760	3737	3741
03	3774	3758	3752	3777	3756	4155	3915	3863	3831	3834	3821	3812
04	3804	3739	4081	4177	4188	3779	3800	3779	3775	3762	3730	3667
05	3522	3407	3486	3547	3501	3742	3128	2981	2841	2743	2647	2557
06	2512	2520	2527	2664	2919	3004	3193	2627	2480	2407	2358	2228
07	2193	2290	2501	2751	2766	3800	3880	3321	3420	3439	3376	3388
08	3357	3464	3454	3686	3726	4035	4031	4027	3935	3958	3974	3989
09	3991	4001	4004	4001	4012	3842	4031	4027	4035	4037	4001	4041
10	3785	3762	3789	3772	3739	3707	3674	3791	3762	3701	3673	3758
11	3890	4092	4106	4106	4083	4037	4006	3953	3915	3804	3667	3614
12	3606	3593	3762	3781	3500	3503	3831	3606	3615	3638	3614	3625
13	3728	3747	3762	3732	3796	3831	3777	3873	3762	3758	3751	3712
14	3787	3606	3653	3511	3568	3511	3446	3526	3462	3481	3371	3382
15	3352	3443	3663	3557	3526	3566	3511	3458	3395	3507	3526	3579
16	3577	3593	3598	3615	3627	3510	3477	3469	3492	3511*43	3541	3479
17	3477	3465	3448	3492	3501	3507	3475	3450	3420	3314*43	3541	3629
18	3634	3633	3640	3652	3657	3652	3640	3633	3636	3529	3529	3629
19	3478	3531	3548	3597	3603	3609	3596	3588	3588	3580	3514	3491
20	3499	3580	3580	3597	3613	3618	3622	3609	3596	3575	3516	3434

D45

RRS DISCOVERY CRUISE NO 33 LEG 2
DEPTH IN CORRECTED METRES

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	3474	3495	3487	3453	3461	3447	3457	3457	3442	3419	3390	339
01	3169	3087*03	3199	3259	3263	3184	3205	3108	3112	3286	3301	3333
02	3388	3385	3371	3347	3347	3328	3316	3305	3282	3252	3229	3333
03	3165	3112	3036	3059	2842	2968	2989	3063	3110	3148	3244	3277
04	3330	3354	3366	3385	3375	3379	3364	3358	3341	3324	3284	3127
05	3170	3197	3191	3187	3131	3108	3131	2945	3546*38	2685	2723	2787
06	2906	2979	3089	2979	2938	3108	3070	3089	3093	3087	3089	3089
07	3087	3089	3089	3087	3087	3089	3087	3089	3087	3089	3089	3089
08	3095	3102	3117	3123	3087	3089	3155	3155	3153	3151	3150	3089
09	3148	3142	3142	3142	3116	3134	3138	3138	3131	3100	3100	3093
10	3093	3089	3089	3055	3070	3097	3106	3087	3017	3142	2998	3047
11	2998*58	3068	3074	3051	3049	3097	3040	3007	3017	3013	2998	3010
12	3010	3010	3051	2966	2953	3059	3040	2934	3047	2938	2936	2932
13	2940	2962	2989	2996	3004	3008	3091	3099	3106	3112	3108	3142
14	3114	3125	3140	3134	3123	3142	3140	3146	3142	3138	3125	3123
15	3131	3131	3142	3146	3134	3138	3123	3112	3125	3125	3125	3123
16	3112	3116	3123	3127	3131	3138	3138	3112	3119	3198	2881	2836
17	2866	2853	2849	2866	2885	2891	2900	2942	2966	2976	2881	2991
18	3013	3006	3013	3013	3010	2899	3029	3047	3046	3042	3040	3061
19	3047	3040	3010	2962	2704	3119	3029	3047	3046	3042	3040	3061
20	3047	3040	3010	2962	2704	3119	3029	3047	3046	3042	3040	3061
21	3047	3040	3010	2962	2704	3119	3029	3047	3046	3042	3040	3061
22	3047	3040	3010	2962	2704	3119	3029	3047	3046	3042	3040	3061
23	3047	3040	3010	2962	2704	3119	3029	3047	3046	3042	3040	3061

RRS DISCOVERY CRUISE NO 33 LEG 2
 DEPTH IN CORRECTED METRES

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00												
01	3133	3134	3134	3131	3129	3129	3131	3125	3119	3119	3108	3104
02	3089	3089	3089	3089	3089	3089	3010	3089	3063	2996	3008	3040
03	3047	3063	2944	3053	3047	2889	2885	2868	2870	2844	2810	3091
04	2983	2974	2791	2915	2796	2825	2885	2932	2979	3070	3138	3131
05	3116	3112	3108	3106	3108	3108	3117	3112	3114	3116	3116	3110
06	3116	3104	3108	3108	3104	3108	3117	3112	3121	3117	3110	3119
07		3124	3108	3123	3127	3119	3116	3108	3104	3104	3093	3089
08	3121	3121	3123	3123	3123	2915	2930	2949	3116	3112	2976	2889
09	3081	3081	3078	2998	2885	2997	2983	2979	2957	2953	2934	2889
10	2983	2998	3028	3063	3081	3097	3097	3116	3119	3119	3123	3116
11	2847	2859	3036	3063	3081	3097	3097	3116	3119	3119	3123	3116
12	3116	3123	3026	3063	3081	3097	3097	3116	3119	3119	3123	3116
13	3081	3081	3078	2998	2885	2997	2983	2979	2957	2953	2934	2889
14	2847	2859	3036	3063	3081	3097	3097	3116	3119	3119	3123	3116
15	3116	3123	3026	3063	3081	3097	3097	3116	3119	3119	3123	3116
16	2828	2768	2704	2644	2693	2697	2738	2949	2946	2906	2893	2868
17	2815	2817	2908	3017	3108	3290	3348	3487	4289	4247	4075	3977
18	4285	4306	4283	4293	4308	4310	4327	4331	4195	4199	1920	1965
19	3975	4128	4283	4257	4282	4262	4272	4245	2124	1759	1368	1965
20	3150	2832	2928	2657	4226	2039	2049	1989	2124	2199	1968	2480
21	1989	1918	1993	1985	1968	2499	2411	2279	2152	2068	1368	1965
22	12508	1674	1712	1721	1684	1644	1572	1740	1415	1389	1327	1232
23	1176	1046	1986	1963	1046	1204	1410	1740	1615	1189	1227	1204

RRS DISCOVERY CRUISE NO 33 LEG 2
 DEPTH IN CORRECTED METRES

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00												
01	2205	2178	2083	1965	2272	2706	2802	2832	2887	2942	3021	3093
02	3205	3392	3556	3855	3545	4029	4032	4168	4216	4331	4462	4479
03	4493	4481	4529	4543	4545	4545	4545	4547	4547	4550	4550	4549
04	4547	4547	4533	4447	4545	4545	4044	3558	3362	3278	3191	4543
05	4543	4541	4533	4447	4326	4475	2394	2186	2118	2107	2062	3116
06	2964	2821	2764	2582	2488	2475	2051	2133	2225	2207	2266	1948*57
07	1987	1632	1684	1796	1882	1959	2051	2149	2225	2294	2366	2446
08	1514	2546	2512	2499	2501	2522	2465	2497	2544	2555	2591	2591
09	2565	2730	2640	2569	2659	2667	2640	2670	2708	2739	2739	2640
10	2685	2730	2640	2606	2629	2617	2538	2527	2580	2587	2544	2587
11	2439	2432	2523	2465	2441	2463	2491	2528	2565	2557	2574	2554
12	2651	2657	2578	2589	2591	2580	2608	2645	2644	2557	2544	2640
13	2719	2772	2663	2879	2976	2968	3008	3055	3127	3136	3206	3247
14	3377	3290	3377	3419	3487	3568	3607	3645	3659	3649	3653	3645
15	3643	3639	3641	3647	3641	3558	3572	3628	3662	3665	3653	3645
16	3636	3628	3622	3592	3620	3603	3590	3599	3599	3588	3576	3599
17	3565	3578	3586	3563	3594	3599	3549	3599	3599	3588	3563	3599
18	3447	3483	3586	3575	3518	3607	3611	3615	3638	3639	3636	3639
19	3622	3605	3586	3568	3518	3409	3354	3390	3372	3377	3365	3369
20	3093	3074	3074	2968	2904	2847	2719	2620	2815	2745	2712	2943
21	2761	2798	2719	2791	2794	2817	2851	2900	2813	2915	2968	3098
22	1174	2142	2226	2203	2055	2025	2131	2157	2122	2157	2033	2486
23	2174	2151	2166	2491	2396	2024	2133	2144	2122	2182	2033	2486

RRS DISCOVERY CRUISE NO 33 LEG 2
 DEPTH IN CORRECTED METRES

HOURS	DATE 10- 5-1970 (DAY NO 130)												
	00	05	10	15	MINUTES	20	25	30	35	40	45	50	55
00	2535	2570	2582	1901	2601	2580	2557	2544	2550	2527	2527	2499	2469
01	2345	2184	2004	1901	1890*18	2257	2687	2776	2845	3074	3074	3282	3153
02	3218	3375	3611	3729	3971	4264	4508	4529	4535	4537	4537	4535	4539
03	4547	4543	4543	4541	4539	4539	4543	4543	4533	4547	4543	4520	4547
04	4547	4547	4543	4545	4547	4543	4539	4539	4539	4539	4535	4520	4468
05	4308	4205	3438	3438	3540	3540	3539	2859	2463	2381	2381	2193	2317
06	2522	2396	2512	2512	2527	2520	2264	2118	2103	2032	2032	2486	2486
07	2535	2569	2659	4443	2493	2366	2471	2546	2584	3263	3263	3377	3834
08	3864	3826	4454	4443	4508	4493	4497	4182	4239	4258	4258	4289	4262
09	3857*02	3922	3449	3643	3674	3655	3502	3218	3051	2904	2904	2772	2731
10	1928	2028	2276	2554	2621	2685	2685	2802	2710	2721	2721	2800	2787
11	2764	2810	2825	2810	2832	2819	2819	2802	2787	2779	2779	2800	2787
12	2764	2762	2766	2781	2794	2778	2542	2103*37	2227	2723	2723	2766	3006
13	2240	3331	3404	2781	3453	2778	2542						
14													
15													
16													
17													
18													
19	2460		2484		2009		2133		2783			2825	2876
20	2859		2855		2840		2847		2849			2876	2876
21	2683	2644			2508	2508	2810	2152	2806	2828		1778	
22	1890		2076				2204						

HOURS	DATE 11- 5-1970 (DAY NO 131)												
	00	05	10	15	MINUTES	20	25	30	35	40	45	50	55
00	2313				2806		2817		2796	2762	2715	2648	
01	2565				2467	2584	2264		2745	2727	2723	1804	
02	1850		1957		2704	2828	2167		2683	2332	2189	2279	2712
03	2704	2779	2636		2836	2817	2779		2745	2904	3176	3358	3510
04	2704	2779	2636		2836	2817	2779		2683	4543	4443	4439	4408
05	2704	2779	2636		2836	2817	2779		2683	2900	3223	3121	2932
06	2821				4499	4483	4533		4391	3368	3255	2942	2970
07	3573	3620	3992		4207	3891	2983		3767	2983	2979	2940	2942
08	4335	4347	4308		2978	2938	2938		2938	2940	2940	2940	2940
09	4366	4347	4308		2978	2938	2938		2938	3074	3097	3106	3116
10	2542	3017	2983		2978	2938	2938		2938	3129	3116	2832	2730
11	3015	2944	2927		2978	2938	2938		2938	2881	2881	2908	3081
12	2945	2944	2927		2978	2938	2938		2938	3040	3063	3070	3086
13	2945	2944	2927		2978	2938	2938		2938	3040	3063	3070	3086
14	2945	2944	2927		2978	2938	2938		2938	3040	3063	3070	3086
15	3114	3116	3108		3116	3116	3116		3116	3040	3063	3070	3086
16	3172	3116	3108		3116	3116	3116		3116	3040	3063	3070	3086
17	2965	2879	2876		2877	2898	2864		2868	2881	2881	2908	3081
18	3085	2974	3051		2998	2998	2998		3005	3040	3063	3070	3086
19	3180	3161	3233		2972	3017	3097		3150	3176	3176	3176	3259
20	3203	3165	3284		3175	3184	3178		3215	3278	3275	3257	3259
21	3203	3165	3284		3175	3184	3178		3215	3278	3275	3257	3259
22	3203	3165	3284		3175	3184	3178		3215	3278	3275	3257	3259
23	3203	3165	3284		3175	3184	3178		3215	3278	3275	3257	3259
24	3203	3165	3284		3175	3184	3178		3215	3278	3275	3257	3259

RRS DISCOVERY CRUISE NO 33 LEG 2 DATE 14- 5-1970 (DAY NO 134)
 DEPTH IN CORRECTED METRES

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	2540	2580	2584	2627	2616	2554	2601	2642	2781	2546	2399*48	2793
01	2908	2768	2866	2853	2828	2770	2802	2796	2800	2804	2817	2779
02	2783	2768	2798	2891	2764	2715*27	2842	2930	2938	2932	2930	2913
03	2876	2864	2896	2891	2881	2819	2589*32	2670	2676	2768	2811	2836
04	2770	2889	2697	2642	2608	2666	2802	2730	2744	2734	2870	2798
05	2774	2757	2734	2768	2527	2570	2704	2885	2744	2802	2689	2546
06	2727	2751	2772	2768	2776	2821	2864	2885	2885	2802	2689	3278
07	3316	3326	3305	2939	2141*22	2187	2294	2613	3121	3140	3187	3210
08	2961	3206	3278	3309	3333	3320	3328	3131	3285	3294	3246	3253
09	3159	3225	3282	3309	3303	3320	3301	3316	3301	3288	3246	3197
10	3338	3256	3253	3233	3308	3310	3304	3314	3324	3339	3250	3210
11	3438	3407	3438	3400	3410	3350	3388	3407	3423	3423	3434	3451
12	3010	3252	3010	3097	3406	3362	3388	3180	3423	3423	3434	3286
13	3278	3252	3252	3282	3327	3315	3294	3187	3191	3222	3252	3451
14	3187	3191	3191	3184	3318	3353	3169	3165	3150	3153	3153	3199
15	3134	3095	2972	2727	3161*29	3177	3161	3165	3150	3153	3153	3150
16				2983	1953	2358	3017	2546	2862	2840	2927	3036
17				2989	3010	2998	3017	3025	3036	3029	3032	3036
18	3017	3019	3002	2989	2976	2961	2942	2923	3008	2874*47	3020	2689
19	3819	3960	4216	2501	2761	2932	3029	3548*36	3339	3925	3810	3453
20	2587	2559	2606	4215	4253	4253	4251	4216	4044	3925	3891	3314
21	2556			2591	2628	2628	2885	3021	3047	2953	3208	3222
22	3055	2857	2781	3335	2722	2744	3100	3180	3214	2653	3231	3131
23				2791	2722	2744	2661	2657	2657	2653	2653	2646

RRS DISCOVERY CRUISE NO 33 LEG 2 DATE 15- 5-1970 (DAY NO 135)
 DEPTH IN CORRECTED METRES

HOURS	00	05	10	15	20	25	30	35	40	45	50	55
00	2642	2633	2629	2617	2458	2497	2612	2603	2599	2595	2570	2537
01	2461	2413	2456	2431	2204	2133	2501	2493	2484	2446	2422	2384
02	2328	2324	2285	2247	2068	2064	2077	2201	2403	2394	2454	2162
03	2157	2135	2184	2084	2386	2064	1914	1834	2351	2328	2291	2172
04	2277	2244	2266	2300	2259	2270	2306	2334	2368	2351	2373	2332
05	2409	2428	2441	2439	2484	2486	2465	2429	2401	2369	2351	2332
06	2330	2332	2161	2062	1916	1998	1509	1596	1624	1636	1652	1806
07	1800	1844	1955	1976	1931	1998	1688	1622	1665	1710	1652	1647
08	1763	1845	2053	2118	2302	2360	2475	2439	2384	2448	2440	2092
09	2103	2148	2206	2261	2302	2328	2352	2344	2441	2482	2490	2538
10	2527	2540	2587	2647	2616	2555	2378	2348	2659	2745	2775	2827
11	2998	3093	3199	3167	3159	3307	3320	3379	3301	3313	3332	3180
12	3159	3233	3195	3074	3194	3370	3811	3709	3689	3644	3642	2651
13	2649	2648	2648	2644	2636	2625	2617	2621	2621	2621	2621	2627
14	2619	2619	2576	2538	2441	2449	2478	2444	2478	2497	2501	2467
15	2446	2388		2313	2246	2189	2072	2103	2478	2497	2501	2467
16	2461			2356	2345	2189	2051	2103	2512	2497	2512	2351
17	2461			2127	2371	2291	2461	2441	2064	1931	2512	2398
18	2343	2201	2461	2356	2371	2291	2461	2441	2064	1931	2512	2398
19	2343	2201	2461	2356	2371	2291	2461	2441	2064	1931	2512	2398
20	2343	2201	2461	2356	2371	2291	2461	2441	2064	1931	2512	2398
21	2343	2201	2461	2356	2371	2291	2461	2441	2064	1931	2512	2398
22	2343	2201	2461	2356	2371	2291	2461	2441	2064	1931	2512	2398
23	2343	2201	2461	2356	2371	2291	2461	2441	2064	1931	2512	2398

RRS DISCOVERY CRUISE NO 33 LEG 2
 DEPTH IN CORRECTED METRES

HOURS	DATE 16- 5-1970 (DAY NO 136)				
	00	05	10	15	MINUTES
00	2311	2307	2285	2189	2321
01	2054			2024	2356
02	2202	2396	2463	2572	2830
03	2129	2201	2388	2599	2770
04	2578				2578
05					
06					
07					
08	2019	2413	2505	2527	1983
09	2169				1983
10					
11					
12					
13					
14					
15					
16	2114	2103	2101	1636	1738
17	2182		2163	2111	2126
18	2054		2043		2174
19					2097
20	1953	1991	1950		2038
21	1995		2015		2002
22	1606		1643		2069
23					1606

D50

RRS DISCOVERY CRUISE NO 33 LEG 2
 DEPTH IN CORRECTED METRES

HOURS	DATE 17- 5-1970 (DAY NO 137)				
	00	05	10	15	MINUTES
00	1819	1996	1946	2015	1972
01	1993	2460	1993	2497	2221
02	2501	2599	2480	2761	2260
03	2257	2270	2547	2234	2815
04	2810	2772	2934	3070	2187
05	3669	3697	3669	3655	3180
06	4533	4598	4694	4714	3193
07	4735	4725	4721	4698	4609
08	4125	4159	4165	4190	4221
09	4325	4194	4145	4029	4113
10	4958	4605	4733	4760	5025
11	4993	5051	5047	5039	4724
12		4969	4985	4966	4966
13		4211	4178	4240	4349
14	3960	4046	4041	3999	3985
15	3903	3960	3964	3164	3137
16	3183	3196	3187	3808	3857
17	3977	3568	3690	4027	4024
18	3913	3920	3966	3978	3934
19	4025	4010	3983	3705	3678
20	3667	3667	3629	3617	3629
21	3642	3664	3606	3621	3614
22					
23					

DATE 16- 5-1970 (DAY NO 136) DATE 17- 5-1970 (DAY NO 137)

