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Institute of
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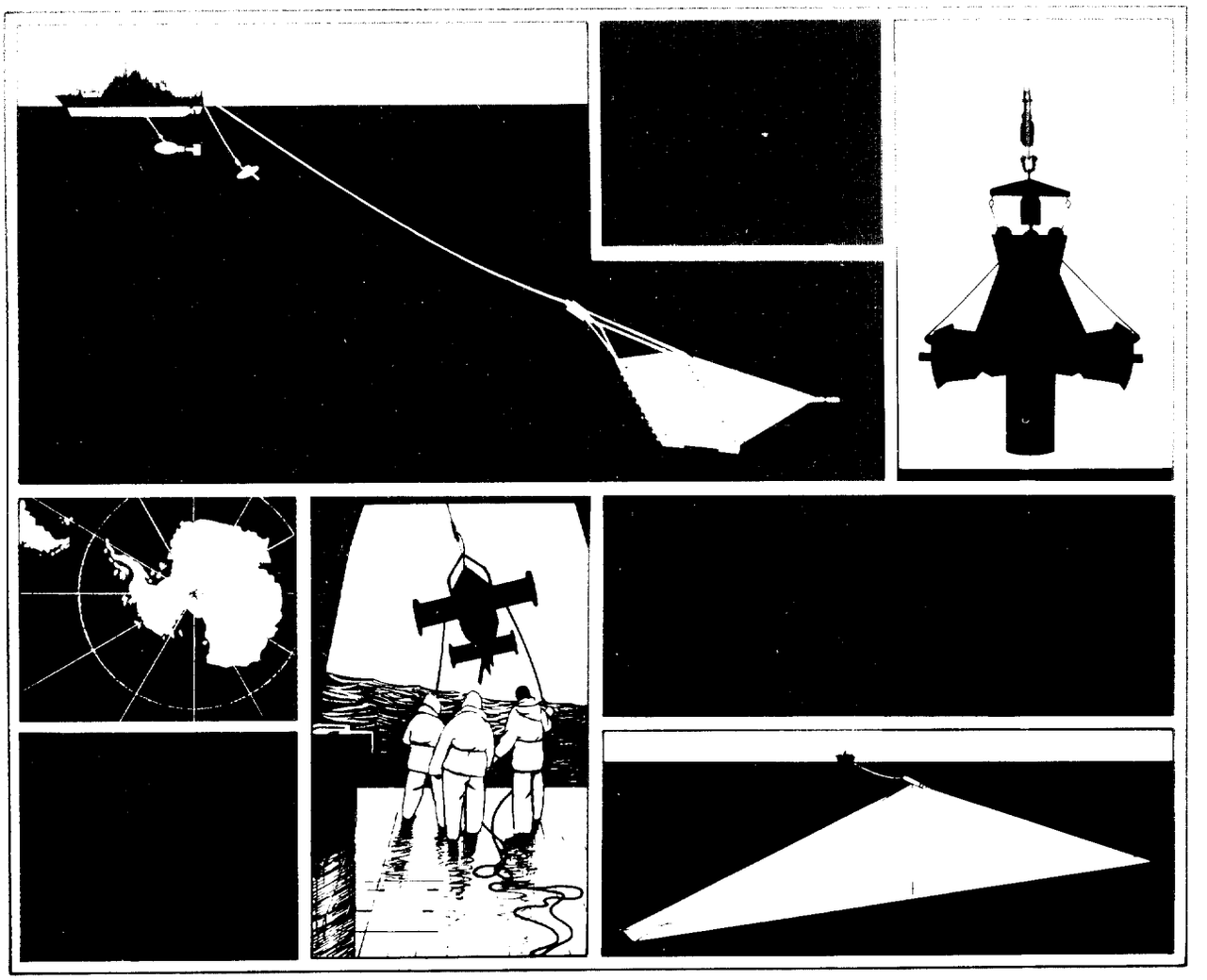
Marine geophysical data acquired 1987-1991: database summary

J M Evans

Report No 292 1991



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DOCUMENT DATA SHEET

AUTHOR
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PUBLICATION DATE 1991

TITLE

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REFERENCE

Institute of Oceanographic Sciences Deacon Laboratory, Report, No. 292, 101pp.

ABSTRACT

This report summarises underway bathymetric, magnetic and gravity data collected during geology and geophysics cruises between 1987 and 1991 by the Institute of Oceanographic Sciences Deacon Laboratory (IOSDL), United Kingdom. It supplements IOS Report Nos. 194 (DRAKE & MILES,1985) and 254 (LEBAS & EVANS, 1988) which catalogue cruises between 1973 and 1987.

Full details of the availability of cruise data, together with a list of the complementary cruise reports, are included as appendices.

KEYWORDS

BATHYMETRIC DATA
"CHARLES DARWIN"/RRS - cruises(1987-1991)
DATA COLLECTION
"DISCOVERY"/RRS - cruises(1987-1991)
"FARNELLA"/MV - cruises(1987-1991)
GEOPHYSICAL DATA
GLORIA
GRAVITY DATA
INSTITUTE OF OCEANOGRAPHIC SCIENCES - cruises
MAGNETIC DATA
TOBI
TRACK CHARTS

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CONTENTS

INTRODUCTION

Geophysical data collected during Institute of Oceanographic Sciences cruises are held on hard disk storage (with a magnetic tape back-up) in the ORACLE relational database system. Access is through the Natural Environment Research Council IBM 4381 computer at Wormley, Surrey, and via the Joint Academic Network (JANET).

Due to the large size of the database OCDUL (the ORACLE Cruise Data Users' Library) a concise summary document is necessary as a bookshelf reference of available information. The data referenced in this report are restricted to that gathered on geological and geophysical cruises of IOSDL, or cruises in which IOSDL staff played a major role between 1987 and 1991. This follows IOSDL Reports Nos. 194 and 254 which cover data acquired between 1973 - 1984, and 1984 - 1987 respectively. This earlier data is also held in the database.

INFORMATION DESCRIPTION

Cruise details are described in chronological order for each research vessel giving:-

(a) A title sheet showing cruise details.

(b) A track chart showing the area covered by the cruise.

The title sheet lists general cruise information. The cruise title is given together with an eight character mnemonic which uniquely identifies the cruise within the computer database. It also describes the scientific aims and objectives of the cruise, (taken from the cruise report). Also listed are the total number of data records taken per cruise (generally at two minute intervals) and the number of records with bathymetry, magnetics and gravity. In addition, cruise start and end ports, principal (chief) scientist, cruise data start and end times and the latitude/ longitude limits for the cruise are given. Facing each title sheet is the corresponding track chart, plotted using the ellipsoidal Mercator projection.

Appendices A and B contain full references to the published cruise reports for each cruise entry. IOSDL geophysical data is distributed to the international scientific community through the World Data Centre, via the UK National Oceanographic Data Bank, Marine Information and Advisory Service (MIAS) of IOSDL. A conversion table of Julian Day numbers to the usual calendar day is included as Appendix C.

DATA ACQUISITION

The OCDUL database holds a number of data fields. These can be divided into: Navigation and Time, Bathymetry, Magnetics and Gravity. Logging is done automatically on the shipboard computer system which has its own calculation and verification programs. However, not all of these fields may be present, due to either the absence of equipment, to its malfunction or possibly due to difficulty in deployment.

Navigation and time are the prime parameters for each data record as errors here will make any other data unusable. Time is recorded by an internal clock onboard ship which has an accuracy of ±2 msecs. Its power pack is separate from the shipboard power supply, and so is unaffected by power failures or fluctuations. The time zone used is always GMT.

There are several methods for determining position but generally transit satellite navigation was used as the prime navigational aid. GPS was also used when available. Consequently a combination of relative and absolute positioning was used most often. The onboard computer system linearly interpolated between absolute points (fixes) using the ships log and gyro to produce the final positions. As more satellites were launched in the period 1987 - 1991 GPS gave more and more coverage per day.

Depths are recorded using a Precision Echo-Sounder (PES), which measures the time for a sound pulse to travel through the water column to the sea-bed, and to return. This initially gives a value for the depth, which is uncorrected for variations in sound velocity within the water column. These initial values are corrected using the Carter tables (Carter, 1980).

Magnetic data is acquired using a proton precession magnetometer with the sensor towed about 300m behind the ship. The total magnetic field is measured and recorded. Using positional data and the International Geomagnetic Reference Field (IGRF), a residual magnetic field is calculated. The coefficients used in this calculation are those of IGRF 1985 (IAGA, 1986). Every 5 years the IGRF is updated and corrected making a Definitive Geomagnetic Reference Field (DGRF) of the former IGRF. This unavoidably affects the values of the residual field calculations. Consequently, when using magnetic data the various IGRF's and DGRF's must be taken into account. At the time of writing the 1985 DGRF has not been released and so the data cannot be corrected until a later date. The data stored are the total magnetic field, from which a definitive residual field can be calculated when the DGRF is available, and the residual field calculated when the data was originally collected.

Gravity data are tied to the IGSN71 at both the start and end port gravity stations and are reduced using the 1967 geodetic reference system (UGGI, 1971). Instrumental

drift can therefore be calculated for the onboard gravimeter and if significant, it has been taken into account.

DATA STORAGE

A tape in DXFMT (merge-merge) format is produced from each cruise. At IOSDL, this is placed on interactive magnetic disk in the OCDUL database.

The ORACLE data base contains five separate tables, each of which contains data, or information about the data within it. These tables are called: MANOCDUL, MANCRUISE, MANGRID, PSOLIST and PORTLIST, and two or more of them are accessed depending on the data requested.

MANOCDUL contains all of the cruise data from every IOSDL Geology and Geophysics Group cruise, and is by far the largest of the tables (containing over 1,500,000 data points at the time of writing). Each row contains the relevant data for each data point taken during the cruise, which have been usually taken at two minute intervals. The column headings are listed in Table 1 below with a brief description of what they signify, together with the data type (the brackets show the number of digits and decimals allowed for each column).

TABLE 1 Table showing the contents of the MANOCDUL table.

COLUMN HEADING	DESCRIPTION	TYPE
CRUISEID	Code No. for particular cruise	Number (3)
DATETIME	Date and time of data point	Date
LATITUDE	Latitude of data point (+ve North, -ve South)	Number (9.4)
LONGITUDE	Longitude of data point (+ve East, -ve West)	Number (10.4)
NAVPOINT	Code No. for navigation point type	Number (1)
NAVFIX	Code No. for source of navigation point	Number (1)
CURAZI	Current azimuth value	Number (3)
CURVEL	Current velocity value (metres per second)	Number (4.1)
UNCORR	Uncorrected depth value (metres)	Number (5)
CORR	Corrected depth value (metres)	Number (5)
TOTALMAG	Total magnetic value (nanotesla)	Number (5)
RESIDMAG	Residual magnetic value (nanotesla)	Number (5)
FAA	Free air anomaly value (milligals)	Number (5)

The MANCRUISE table lists information about the cruises. Each row contains information about one cruise, under the column headings listed in Table 2 below.

TABLE 2 Table showing the contents of the MANCRUISE table.

COLUMN HEADING	DESCRIPTION	TYPE
CRUISE	Unique eight character mnemonic of cruise title	Char (8)
MAGTAPE	Tape library No. for cruise tape	Char (8)
FILENO	File No. of cruise on tape	Number
MINLAT	Most southerly point cruise reached	Number
MAXLAT	Most northerly point cruise reached	Number
MINLON	Most westerly point cruise reached	Number
MAXLON	Most easterly point cruise reached	Number
STARTPORT	Code No. of start port	Number
ENDPORT	Code No. of end port	Number
PSO	Code No. of Chief scientist on cruise	Number
RECORDS	Number of navigation records collected	Number
BATHYM	Number of bathymetry records collected	Number
MAGN	Number of magnetics records collected	Number
GRAV	Number of gravity records collected	Number
SDATE	Date the cruise data started	Date
EDATE	Date the cruise data ended	Date
CRUISEID	Code No. for particular cruise	Number
IOS	Flag to indicate if cruise was IOSDL run (Yes or No)	Char (1)

MANGRID is the table that is accessed during an area search. Table 3 shows the column headings. The table divides the world into a series of one degree squares, (about 100km by 100km) and indicates which cruises passed through them, also giving the date and time that the track enters and leaves that square. Thus, any one cruise will probably have several records entering and leaving different squares.

TABLE 3 Table showing the contents of the MANGRID table.

COLUMN HEADING	DESCRIPTION	TYPE
LONCELL	Longitude of one degree square (left limit)	Number (3) not null
LATCELL	Latitude of one degree square (lower limit)	Number (2) not null
CRUISEID	Code No. for particular cruise	Number (4) not null
DATETIME1	Date and time track enters the area	Date
DATETIME2	Date and time track leaves the area	Date

PORTLIST and PSOLIST are both small tables. They hold listings of the ports used and of the Principal Scientist for each of the cruises.

TABLE 4 Table showing the contents of the PORTLIST table.

COLUMN HEADING	DESCRIPTION	TYPE
CODE	Code number of port name	Char (6)
PORT	Name of port	Char (25)

TABLE 5 Table showing the contents of the PSOLIST table.

COLUMN HEADING	DESCRIPTION	TYPE
CODE	Code number of PSO's name	Char (6)
PSO	Principal (Chief) Scientist's name	Char (25)

DATA RETRIEVAL

The database may be accessed through the JANET (Joint Academic NETwork) network using the ORACLE search program called ORACLES. This program enables you to search for either a certain cruise or a specific geographical area. Enquiries can also be made for information about the cruise or area, or for the actual data itself. The output file produced is in an ORACLE format, which is described later in this report. When a cruise is requested, two of the tables are accessed, depending on the type of data required. For instance, if the actual data for a certain cruise was required, first of all the MANCRUISE table would be accessed. The program looks for the CRUISEID number corresponding to the CRUISENAME, and then to see if the IOS flag is answered with a Y. Then the MANOCDUL table is accessed, and every record with the correct CRUISEID number is written to the output file.

If all of the data for a certain geographical area is requested, the MANGRID table is accessed to find the CRUISEID's of all cruises whose tracks cross the area specified, and also the dates and times of the points where the track enters and leaves the area. When this information is known, the MANCRUISE table is accessed to convert the CRUISEID numbers to the CRUISENAME. Finally, the MANOCDUL table is opened and the data is retrieved for the cruises between the dates and times specified, and then written to the output file.

When only information about a cruise is needed, and not the data points from that cruise, a cruise information search is used. The MANCRUISE table is opened, and the code numbers for the PSO and the port calls are found. Then the PSOLIST and PORTLIST tables are read to find the names corresponding to those code numbers. Finally, the information held in MANCRUISE is written to an output file, along with the start and end port names, and the Principal Scientists name.

If information about cruises in a certain geographic area is required, an area information search can be done. Initially MANGRID is accessed, and makes a list of the cruises which pass through the area specified. Secondly, MANCRUISE is opened, and the CRUISENAMES found from the ID's retrieved from MANGRID. Then PSOLIST and PORTLIST are opened to find the start and end ports and the Principal Scientists for the cruises in question. Ultimately the information is written to the output file.

PLOTTING THE DATA

Charts and profiles can be produced from the ORACLE output files using the GEOPLOT program. GEOPLOT can plot ships tracks and the associated data in several ways:

(i) Bathymetric, magnetic or gravimetric data can be plotted as a series of numerical annotations along the ships track.

(ii) Bathymetric, magnetic or gravimetric profiles can be drawn along the ships track.

(iii) Ships tracks can be annotated with dates and times.

(iv) Cruise name can be plotted along the track (especially useful when the data has been obtained from a geographic search, and several cruise tracks cross each other).

The form of the chart can be controlled by specifying different map projections, different scales, by altering the grid style and by changing the colours used within the plot. The image may be displayed on a graphics terminal or sent to various pen plotters.

DATA FORMATS

GEOPLOT will accept data in ORACLE, DXFMT or MGD77 [USDC, 1981] formats. These pre-programmed formats are listed below.

(i) ORACLES (ORACLE relational database format)

Fixed length lines, 80 characters per line, two line header

VARIABLE / PARAMETER	**FORMAT**
CRUISENAME	A8
DAY	1X, I2
MONTH	1X, I2
YEAR	1X, I2
HOUR	1X, I2
MINUTE	I2
LATITUDE	2X, F9.4
LONGITUDE	2X, F9.4
UNCORRECTED DEPTH	2X, F5.0
CORRECTED DEPTH	2X, F5.0
TOTAL MAGNETIC FIELD	2X, F5.0
RESIDUAL MAGNETIC FIELD	2X, F5.0
FREE AIR ANOMALY	2X, F5.0

(ii) DXFMT (merge-merge format)

Fixed length lines, 80 characters per line, no header

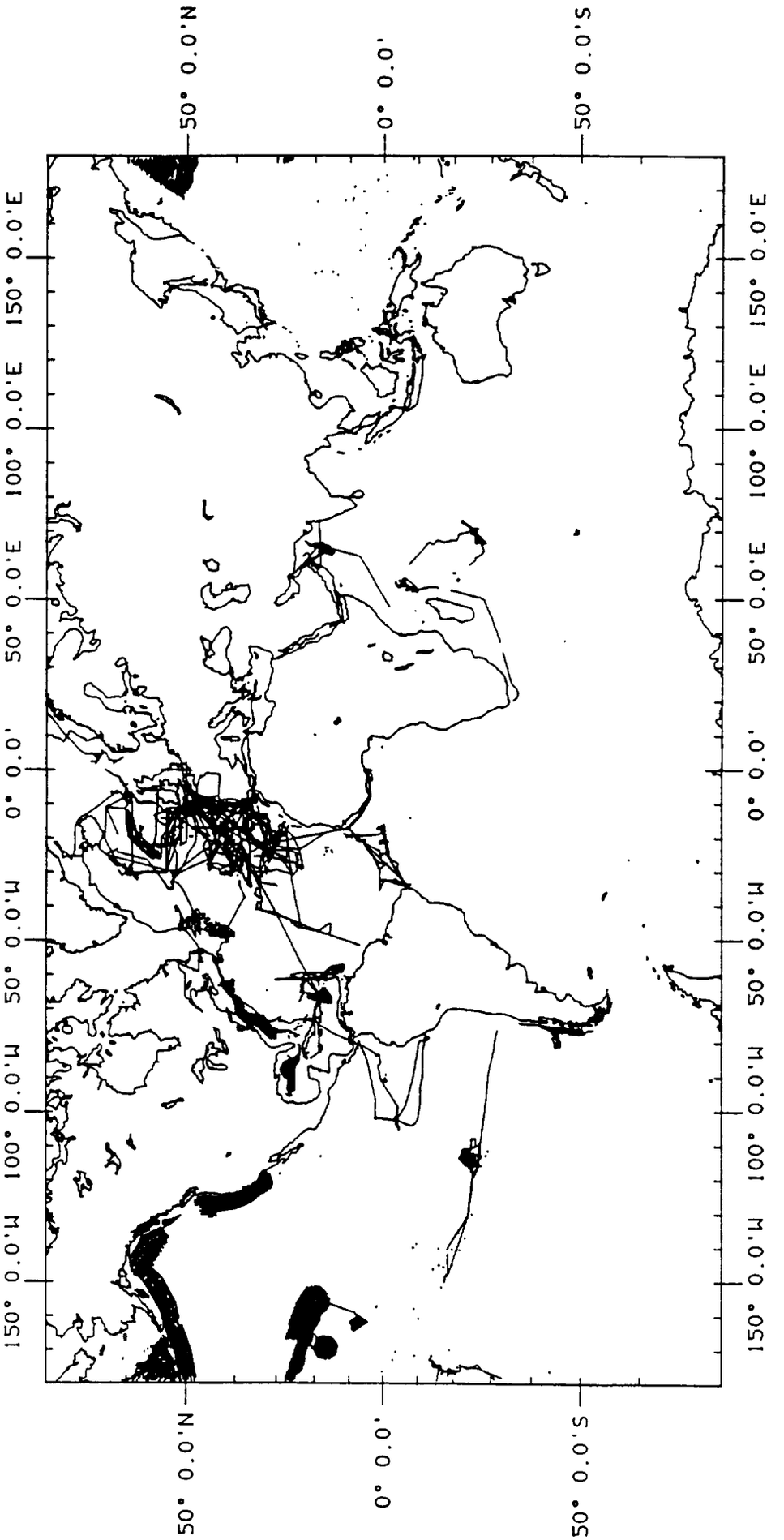
VARIABLE / PARAMETER	**FORMAT**
CRUISENAME	A8
YEAR	5X, I2
MONTH	I2
DAY	I2
HOUR	1X, I2
MINUTE	I2
LATITUDE	1X, F8.4
LONGITUDE	F9.4
UNCORRECTED DEPTH	10X, F5.0
CORRECTED DEPTH	F5.0
TOTAL MAGNETIC FIELD	3X, F5.0
RESIDUAL MAGNETIC FIELD	F5.0
FREE AIR ANOMALY	F5.0

(iii) MGD77 (Marine Geophysical Data Exchange Format)

Fixed length lines, 120 characters per line, 24 line header

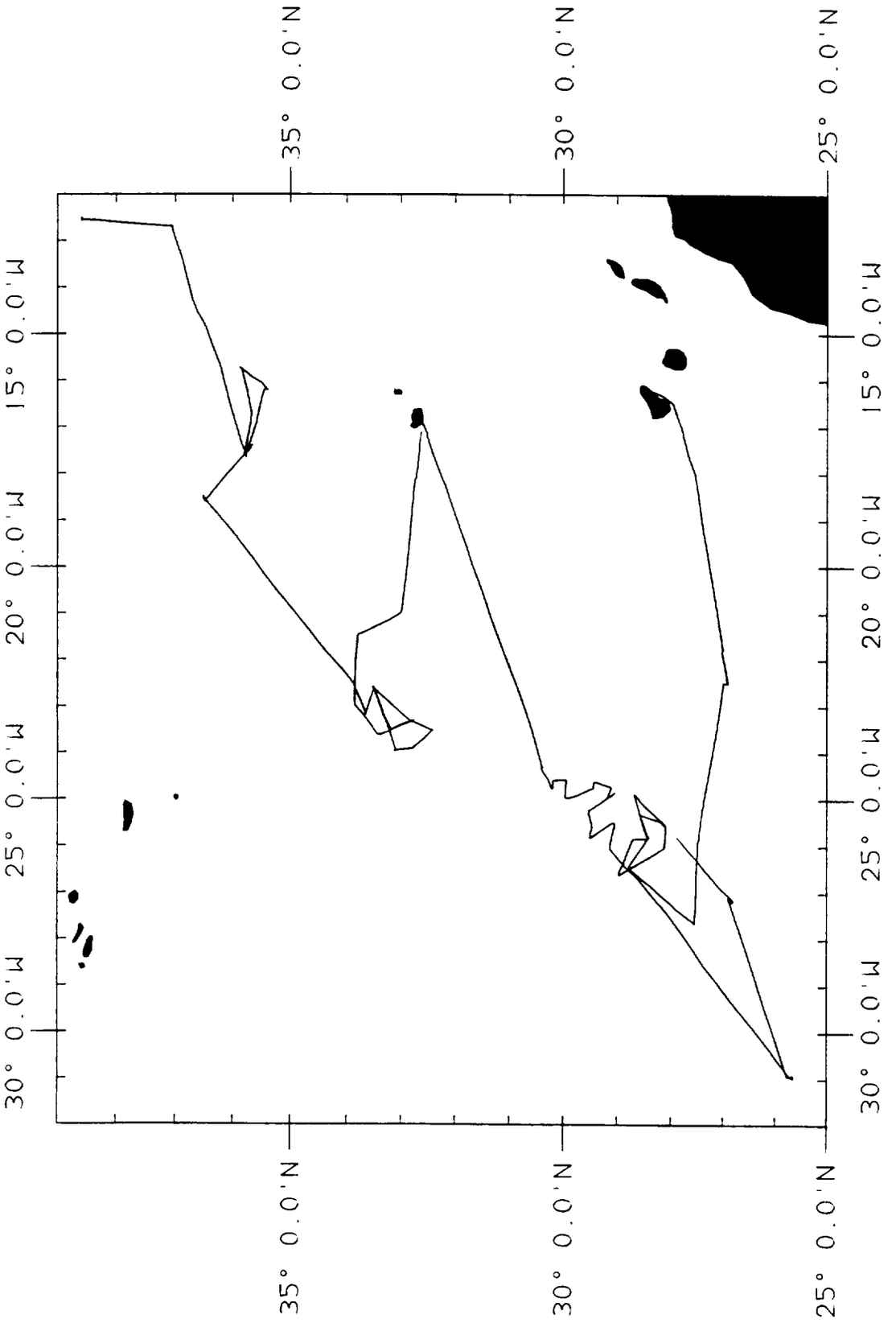
VARIABLE / PARAMETER	**FORMAT**
CRUISENAME	1X, A8
YEAR	5X, I2
MONTH	I2
DAY	I2
HOUR	I2
MINUTE	I2
LATITUDE	3X, F8.0
LONGITUDE	F9.0
UNCORRECTED DEPTH	1X, F6.0
CORRECTED DEPTH	F6.0
TOTAL MAGNETIC FIELD	3X, F6.0
RESIDUAL MAGNETIC FIELD	6X, F6.0
FREE AIR ANOMALY	25X, F5.0

Alternatively, a user defined format can be used with GEOPLOT. The program will ask for the format, and it will assume that it has the same fields as the ORACLE format and that they are in the same order. It should be entered using the same syntax as a FORTRAN statement, including the brackets, e.g. (A8, 1X, 3I2, 1X, 2I2, 2X, F8.4, 1X, 2I2, 2X, F8.4, 1X, F9.4, 2X, 5(F5.0,1X)). Note that the CRUISENAME is a character variable, the day, month, year, hour and minute are integers, and the other variables are real. The program will also ask for the number of lines in the header.

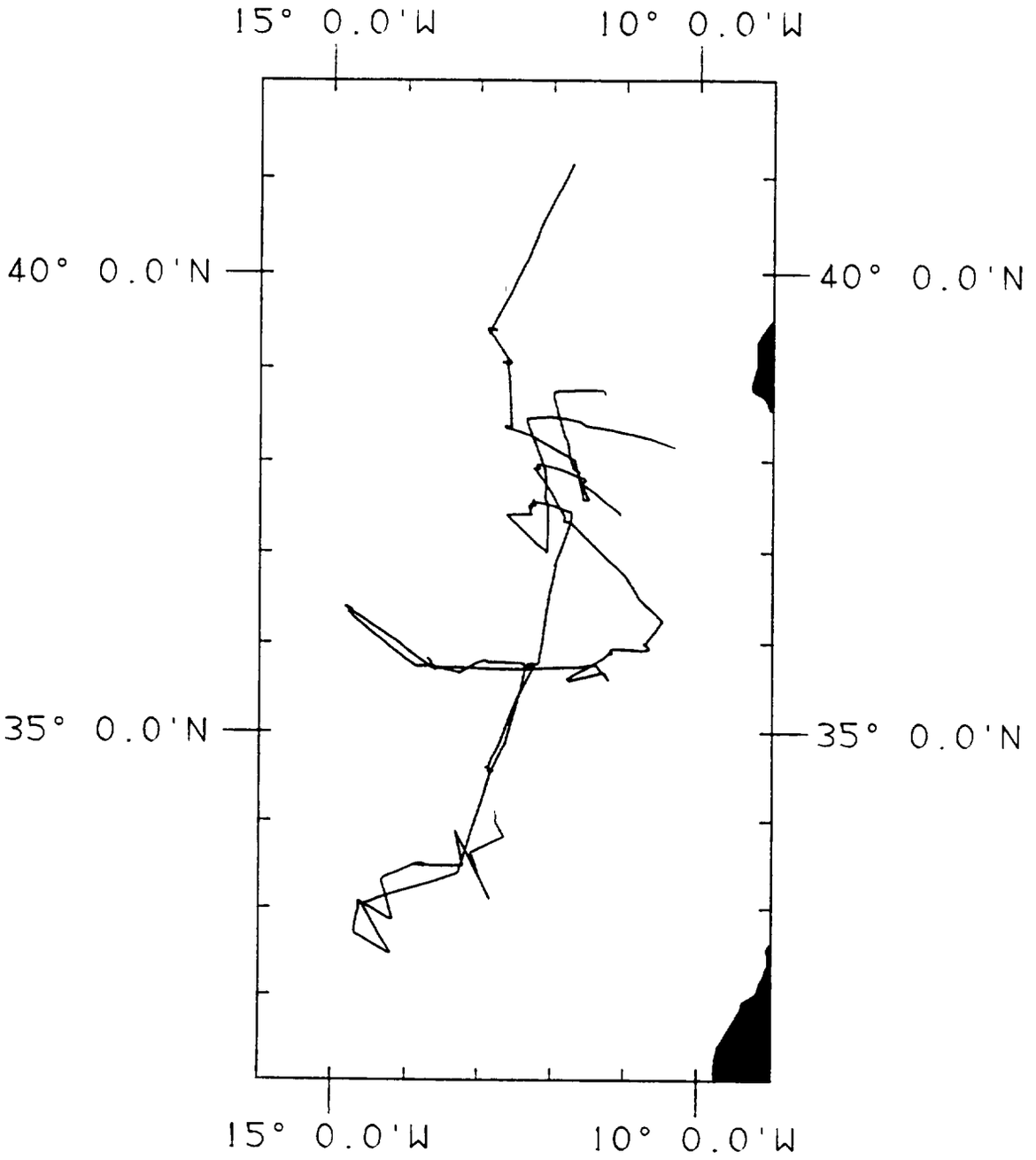


TOTAL I.O.S.D.L. CRUISE DATA COVERAGE, SHOWING SHIPS TRACKS OF IOSDL GEOLOGY AND GEOPHYSICS GROUP CRUISES RUN BETWEEN 1973 AND 1991.

Cruise Name	:	Discovery Cruise 177 (DIS177)	
Cruise Report Number	:	205	
Cruise Description	:	Geochemical and geological observations over the Maderia and Tagus abyssal plains.	
Total Records	:	25803	
Bathymetry	:	3577	
Magnetics	:	0	
Gravity	:	0	
PSO	:	J. Thompson	
Start Port	:	Santa Cruz, Tenerife	
End Port	:	Lisbon, Portugal	
Data Starts	:	1106z 26-Aug-88	JDay : 239
Data Ends	:	2200z 03-Oct-88	JDay : 277
Maximum Latitude	:	38.6045°N	
Minimum Latitude	:	25.6388°N	
Maximum Longitude	:	12.4982°W	
Minimum Longitude	:	30.9929°W	


35° 0.0'N
30° 0.0'N
25° 0.0'N
30° 0.0'W
25° 0.0'W
20° 0.0'W
15° 0.0'W

Cruise Name	: Discovery Cruise 187 (DIS187)	
Cruise Report Number	: 223	
Cruise Description	: Geological and geochemical investigations in the Tagus, Horseshoe and Seine abyssal plains.	
Total Records	: 18586	
Bathymetry	: 2067	
Magnetics	: 0	
Gravity	: 0	
PSO	: P.P.E. Weaver	
Start Port	: Lisbon, Portugal	
End Port	: Barry, U.K.	
Data Starts	: 2144z 20-Oct-89	JDay : 293
Data Ends	: 1358z 17-Nov-89	JDay : 321
Maximum Latitude	: 41.1428°N	
Minimum Latitude	: 32.4745°N	
Maximum Longitude	: 10.3274°W	
Minimum Longitude	: 14.8429°W	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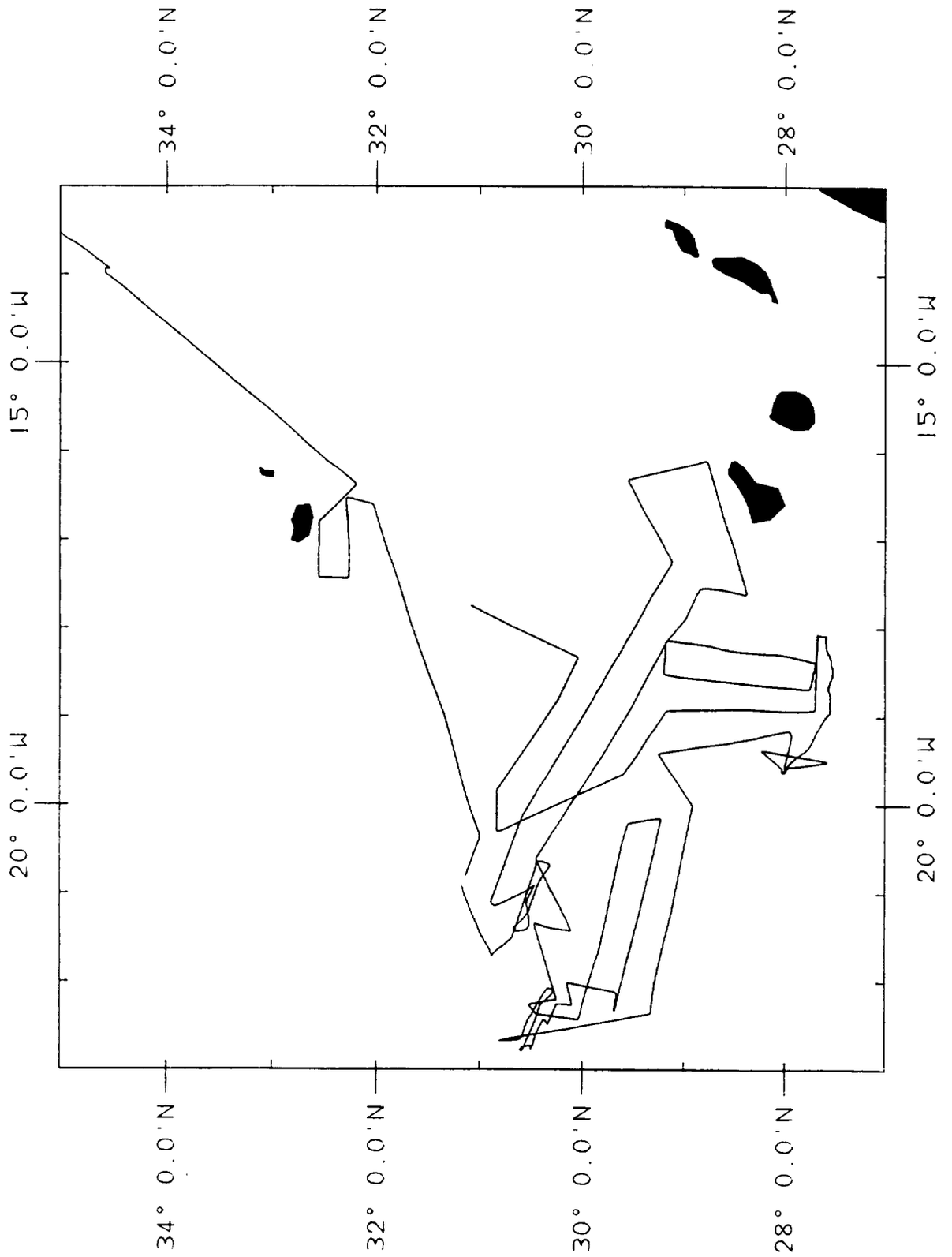
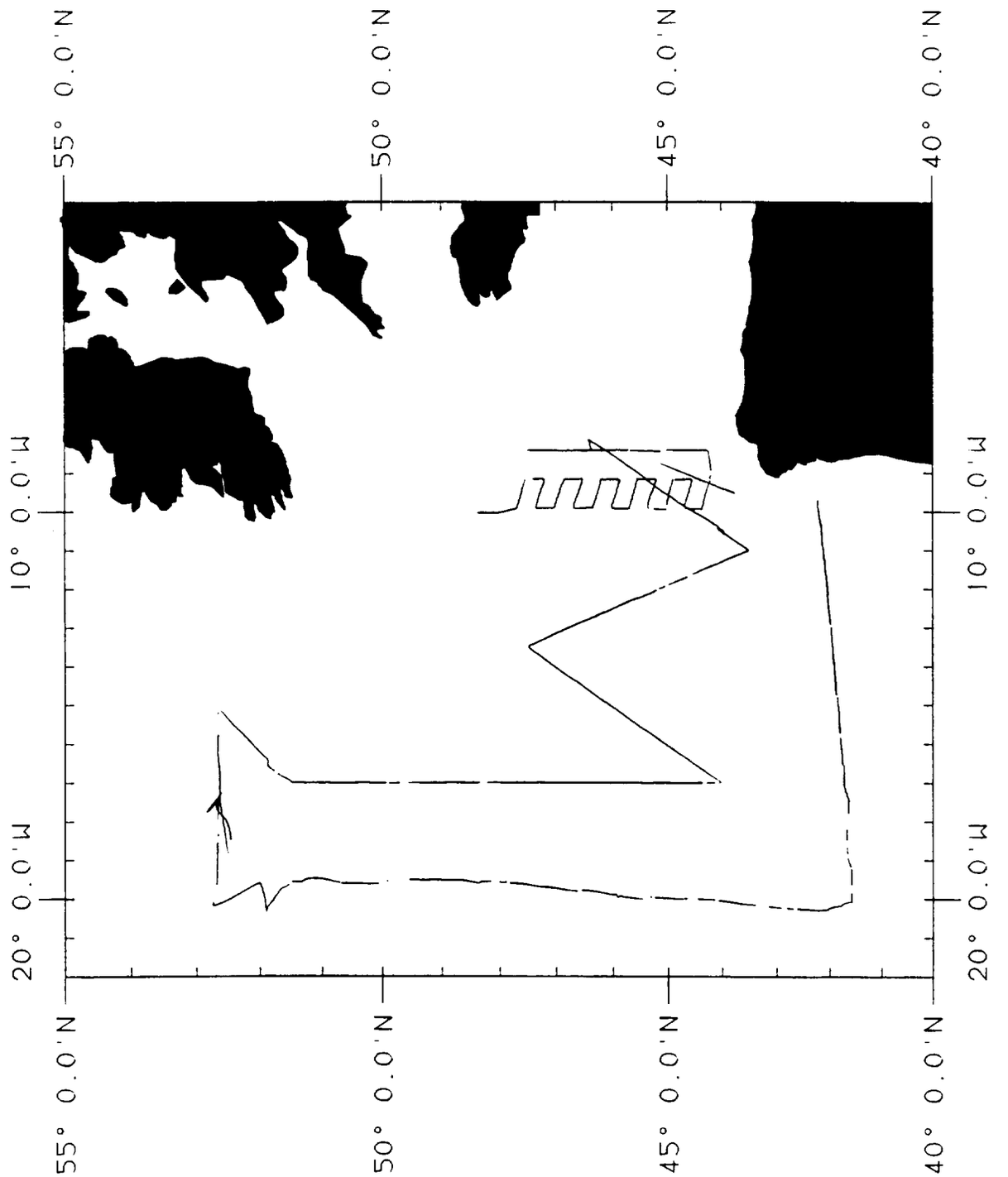
10° 0.0'W
40° 0.0'N
40° 0.0'N
35° 0.0'N
35° 0.0'N
15° 0.0'W
10° 0.0'W

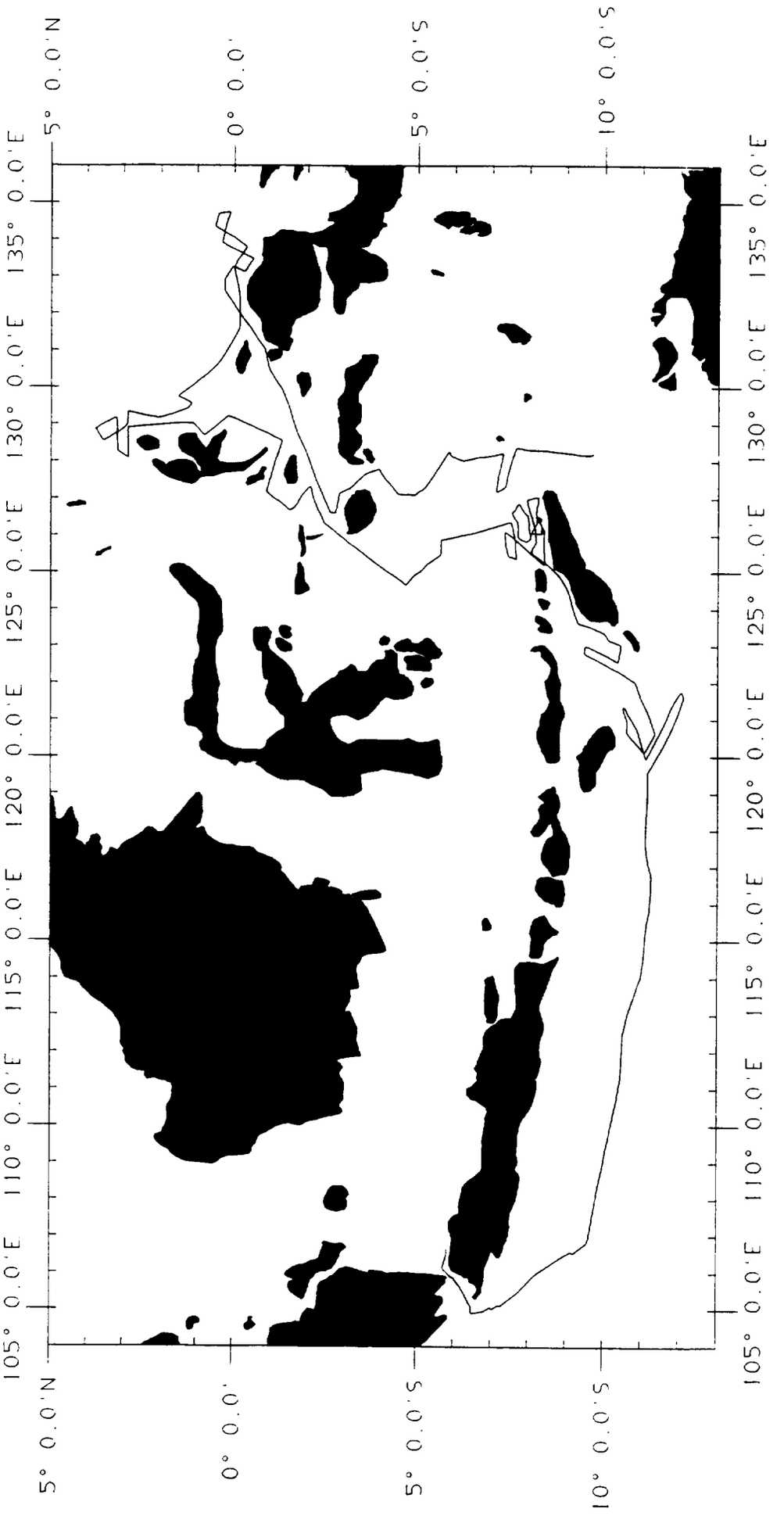
Cruise Name	:	Discovery Cruise 188 (DIS188)	
Cruise Report Number	:	212	
Cruise Description	:	GLORIA and TOBI surveys of the continental slope and rise around the Canary Islands.	
Total Records	:	26755	
Bathymetry	:	4243	
Magnetics	:	0	
Gravity	:	17196	
PSO	:	D.G. Masson	
Start Port	:	Barry, U.K.	
End Port	:	Funchal, Maderia	
Data Starts	:	1254z 27-Jan-90	JDay : 027
Data Ends	:	1900z 23-Feb-90	JDay : 054
Maximum Latitude	:	47.9995°N	
Minimum Latitude	:	27.5227°N	
Maximum Longitude	:	09.9730°W	
Minimum Longitude	:	22.7915°W	


34° 0.0'N
32° 0.0'N
30° 0.0'N
28° 0.0'N
15° 0.0'W
20° 0.0'W

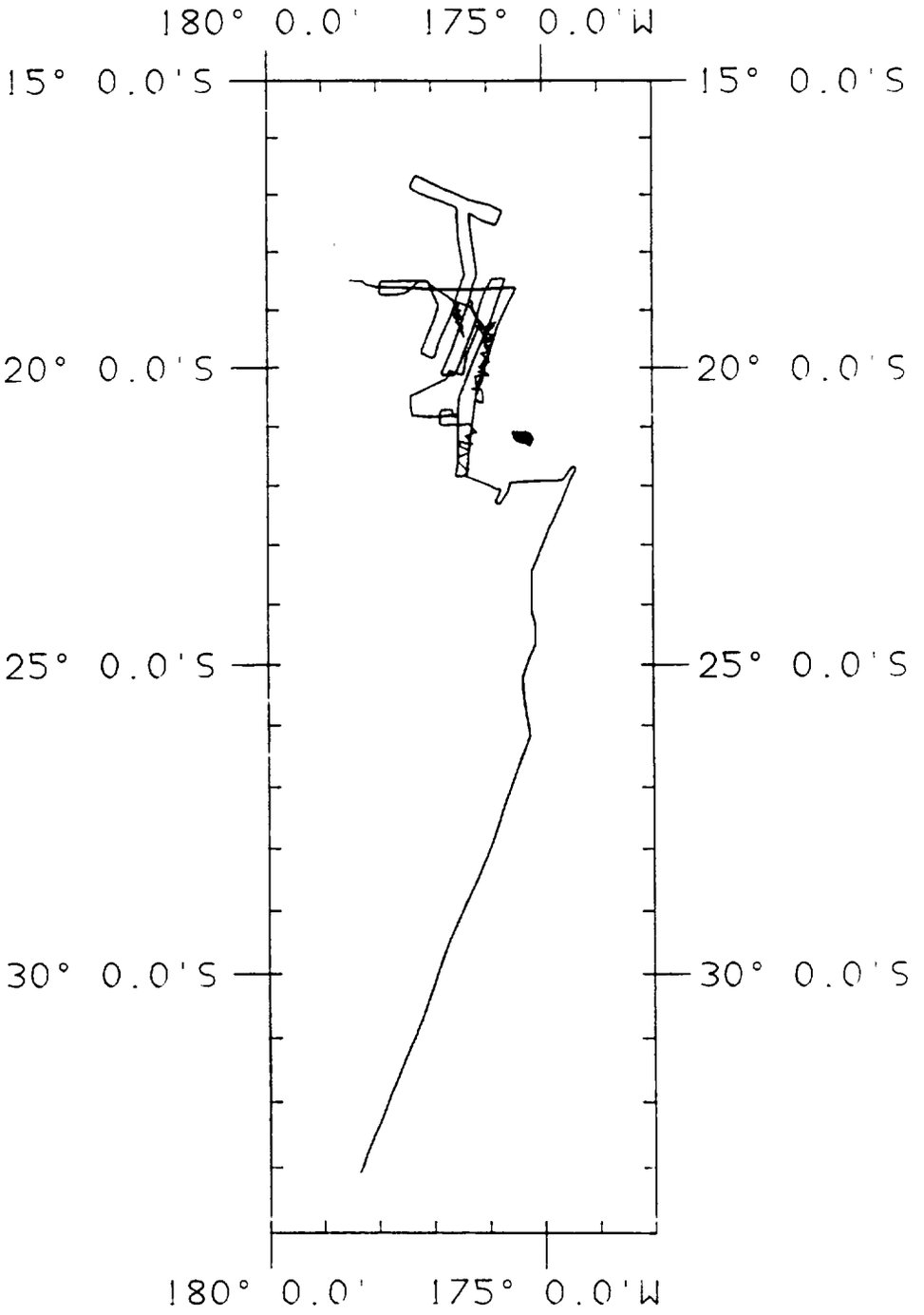
Cruise Name	:	Discovery Cruise 189 (DIS189)	
Cruise Report Number	:	225	
Cruise Description	:	Circulation and structure of the Bay of Biscay and north east Atlantic out to 20°W and 41°N.	
Total Records	:	4534	
Bathymetry	:	4534	
Magnetics	:	0	
Gravity	:	0	
PSO	:	B.A. King	
Start Port	:	Barry, U.K.	
End Port	:	Barry, U.K.	
Data Starts	:	1648z 11-Mar-90	JDay : 070
Data Ends	:	0706z 07-Apr-90	JDay : 097
Maximum Latitude	:	52.8601°N	
Minimum Latitude	:	41.5722°N	
Maximum Longitude	:	08.1011°W	
Minimum Longitude	:	20.3584°W	


55° 0.0'N
50° 0.0'N
45° 0.0'N
40° 0.0'N
10° 0.0'W
20° 0.0'W

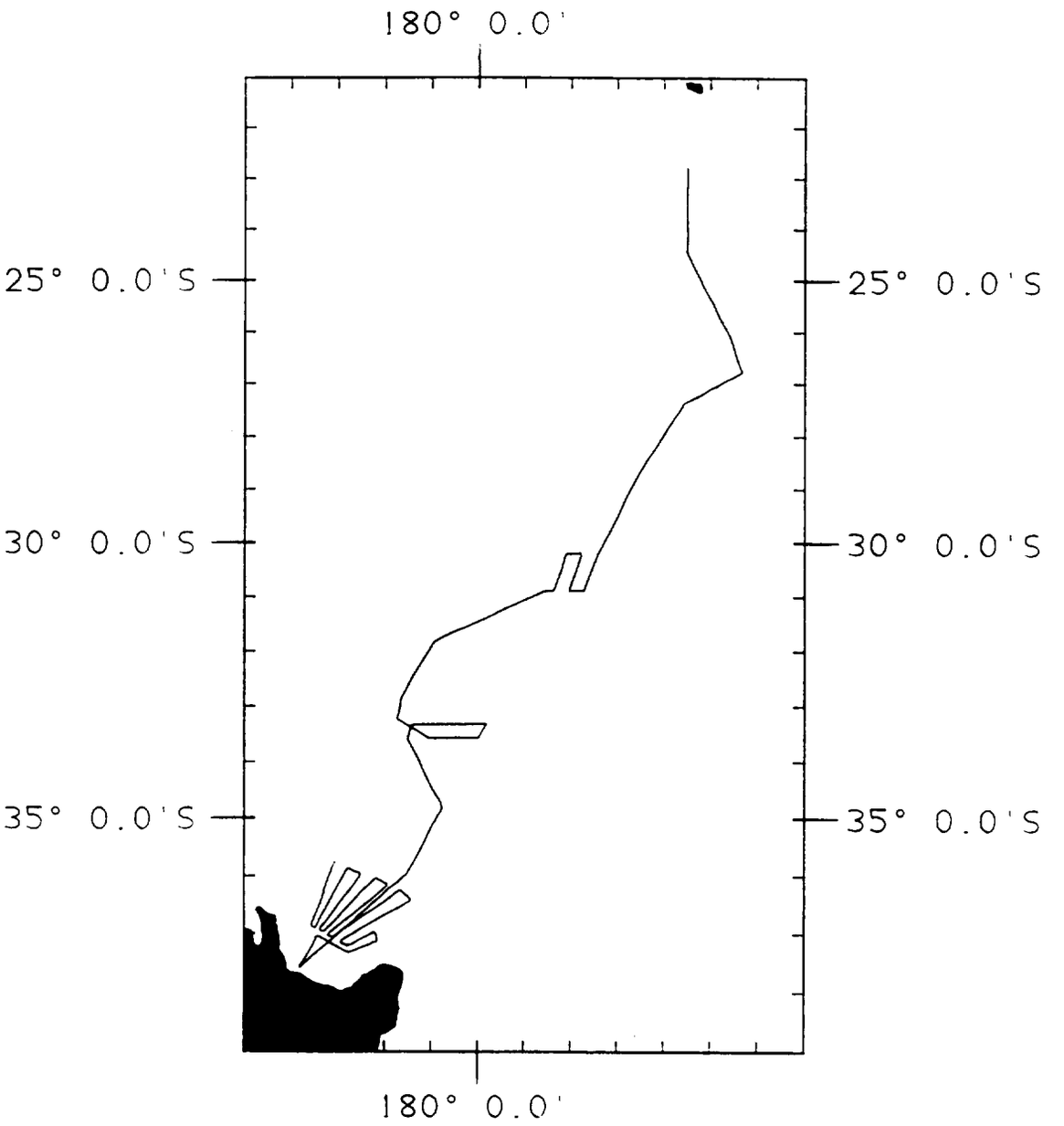
Cruise Name	:	Charles Darwin Cruise 3088 (CD3088)	
Cruise Report Number	:	202	
Cruise Description	:	Active margin tectonics in eastern Indonesia: A study with GLORIA and underway geophysics.	
Total Records	:	19811	
Bathymetry	:	19788	
Magnetics	:	14553	
Gravity	:	19771	
PSO	:	D.G. Masson	
Start Port	:	Djakarta, Indonesia	
End Port	:	Darwin, Australia	
Data Starts	:	1040z 06-Feb-88	JDay : 037
Data Ends	:	2302z 04-Mar-88	JDay : 064
Maximum Latitude	:	03.7898°N	
Minimum Latitude	:	12.1093°S	
Maximum Longitude	:	134.7554°E	
Minimum Longitude	:	104.8858°E	


5° 0.0'N
0° 0.0'
5° 0.0'S
10° 0.0'S
105° 0.0'E
110° 0.0'E
115° 0.0'E
120° 0.0'E
125° 0.0'E
130° 0.0'E
135° 0.0'E

Cruise Name	:	Charles Darwin Cruise 3388 (CD3388)	
Cruise Report Number	:	206	
Cruise Description	:	Geological and geophysical investigations of the Lau Back-arc Basin, SW Pacific.	
Total Records	:	17470	
Bathymetry	:	17467	
Magnetics	:	9471	
Gravity	:	8038	
PSO	:	L.M. Parson	
Start Port	:	Suva, Fiji	
End Port	:	Wellington, N.Z.	
Data Starts	:	1600z 05-May-88	JDay : 126
Data Ends	:	0100z 30-May-88	JDay : 151
Maximum Latitude	:	16.6672°S	
Minimum Latitude	:	33.0877°S	
Maximum Longitude	:	174.3922°W	
Minimum Longitude	:	178.4858°W	


180° 0.0'
175° 0.0'W
15° 0.0'S
20° 0.0'S
25° 0.0'S
30° 0.0'S

Cruise Name	:	Charles Darwin Cr. 33A88 (CD33A88)	
Cruise Report Number	:	Confidential Report (Int. Doc. 284)	
Cruise Description	:	GLORIA surveys in the Bay of Plenty and the Havre Trough.	
Total Records	:	8120	
Bathymetry	:	2630	
Magnetics	:	7605	
Gravity	:	7117	
PSO	:	C.L. Jacobs	
Start Port	:	Wellington, N.Z.	
End Port	:	Suva, Fiji	
Data Starts	:	2120z 19-Jun-88	JDay : 171
Data Ends	:	0400z 01-Jul-88	JDay : 183
Maximum Latitude	:	22.7894°S	
Minimum Latitude	:	37.5866°S	
Maximum Longitude	:	174.3300°W	
Minimum Longitude	:	176.1960°E	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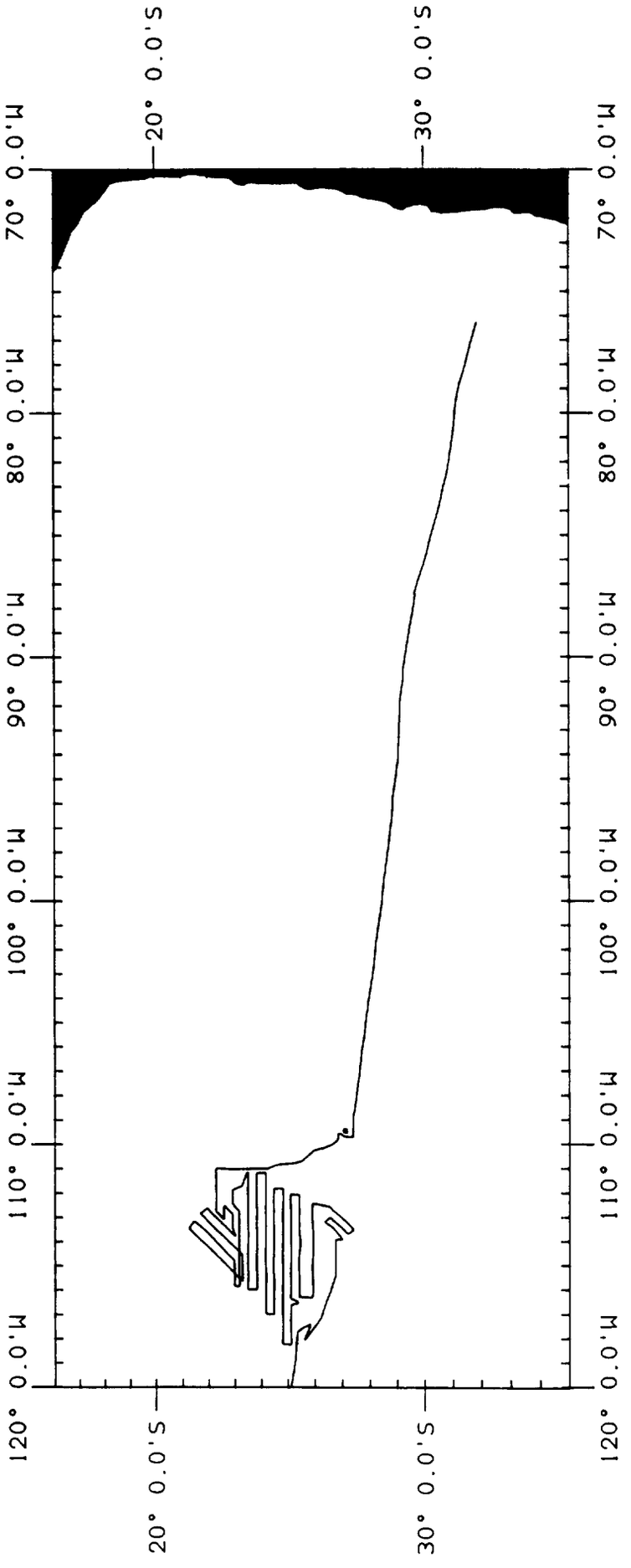
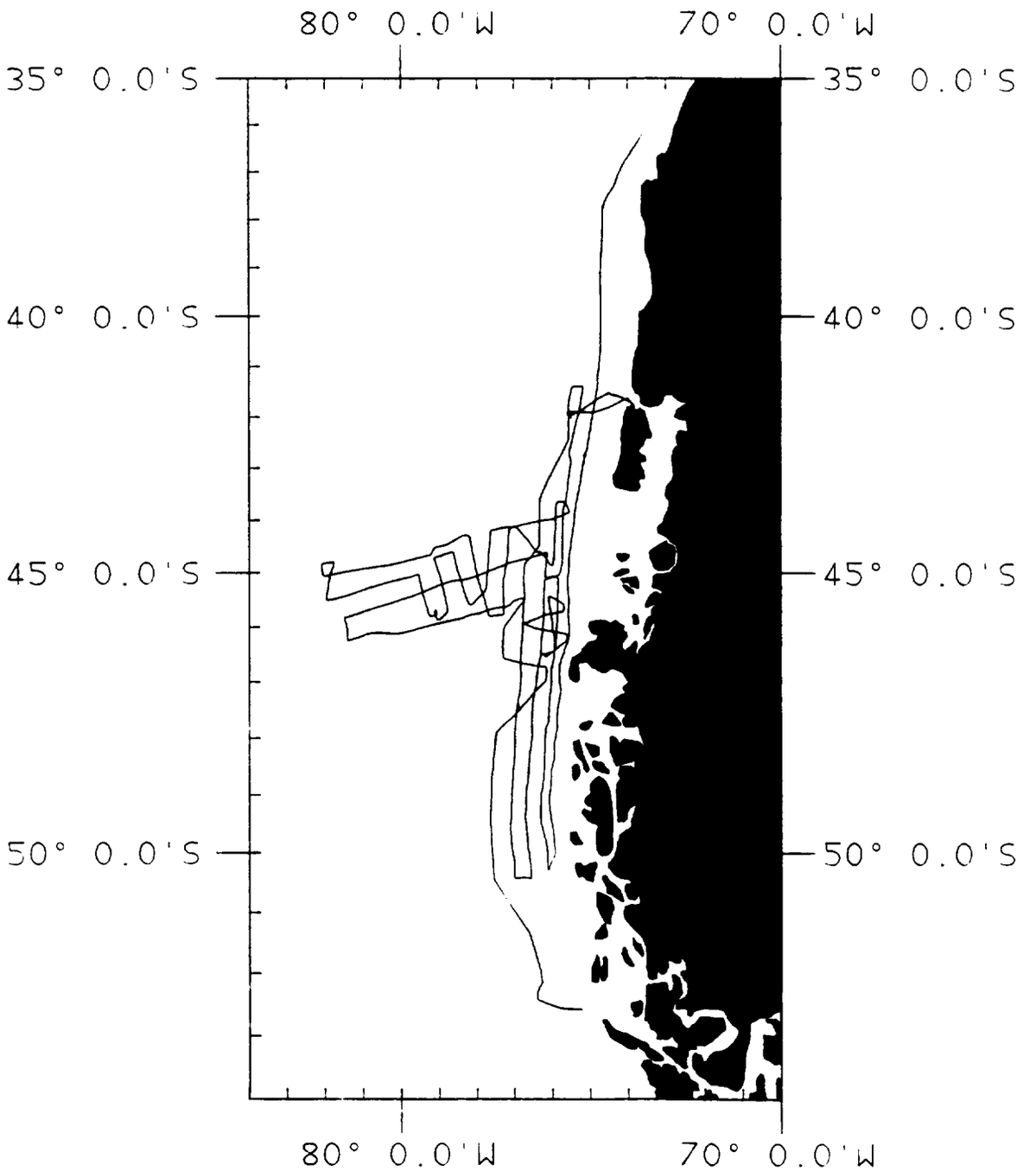
25° 0.0'S
30° 0.0'S
35° 0.0'S
25° 0.0'S
30° 0.0'S
35° 0.0'S
180° 0.0'

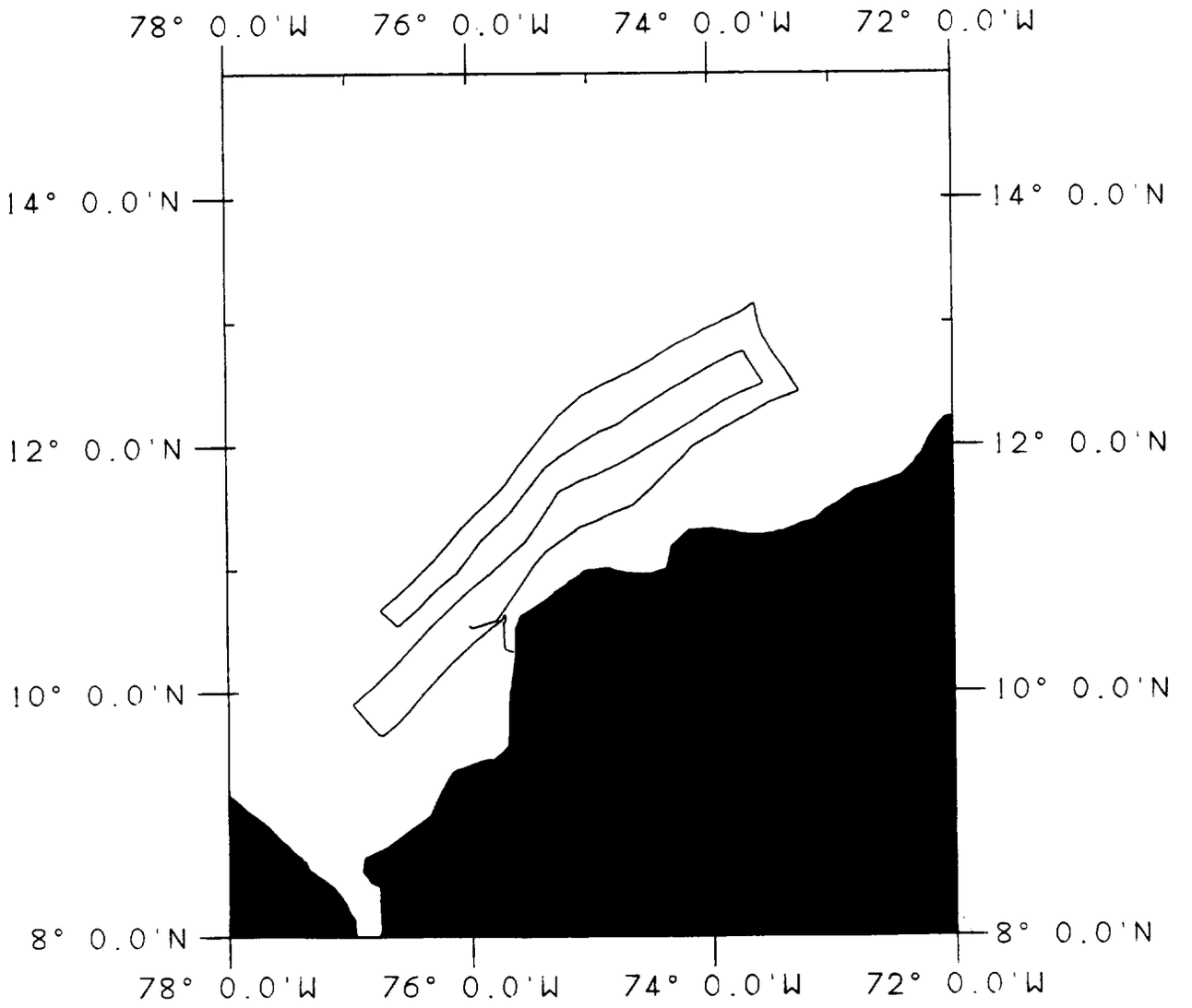
Cruise Name	: Charles Darwin Cruise 3588 (CD3588)	
Cruise Report Number	: 211	
Cruise Description	: GLORIA study of the Easter Microplate - East Pacific rise.	
Total Records	: 24255	
Bathymetry	: 16707	
Magnetics	: 23983	
Gravity	: 22969	
PSO	: R.C. Searle	
Start Port	: Papeete, Tahiti	
End Port	: Valparaiso, Chile	
Data Starts	: 2110z 13-Oct-88	JDay : 287
Data Ends	: 1338z 16-Nov-88	JDay : 321
Maximum Latitude	: 17.2729°S	
Minimum Latitude	: 31.8610°S	
Maximum Longitude	: 076.2596°W	
Minimum Longitude	: 149.4003°W	


20° 0.0'S
30° 0.0'S
70° 0.0'W
80° 0.0'W
90° 0.0'W
100° 0.0'W
110° 0.0'W
120° 0.0'W
20° 0.0'S
30° 0.0'S

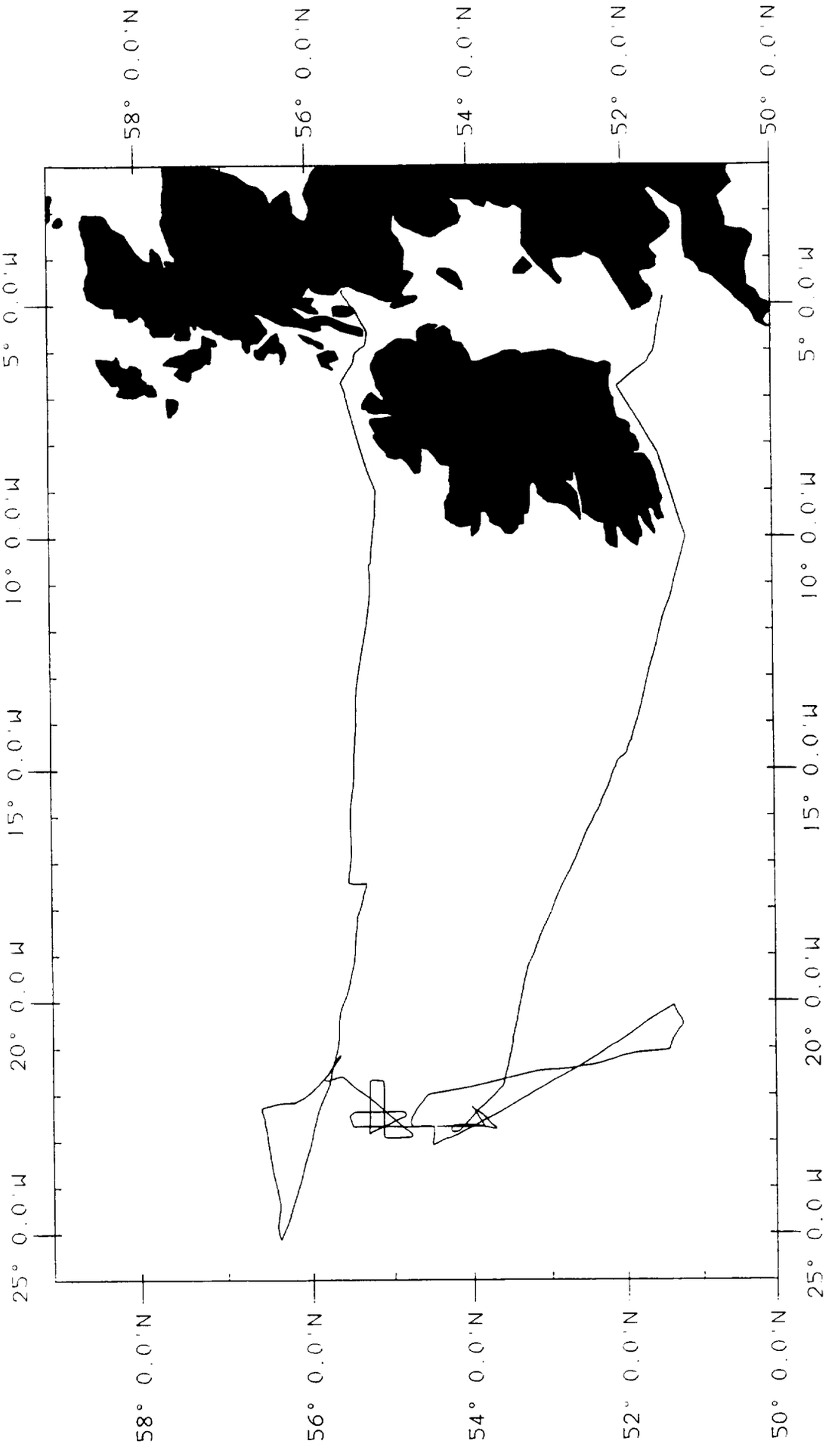
Cruise Name	:	Charles Darwin Cruise 3688 (CD3688)	
Cruise Report Number	:		
Cruise Description	:	GLORIA survey of the Chile Trench.	
Total Records	:	17671	
Bathymetry	:	5906	
Magnetics	:	15704	
Gravity	:	14083	
PSO	:	G. Westbrook (Birmingham University)	
Start Port	:	Valparaiso, Chile	
End Port	:	Puenta Arenas, Chile	
Data Starts	:	2200z 02-Dec-88	JDay : 337
Data Ends	:	1100z 27-Dec-88	JDay : 362
Maximum Latitude	:	36.2072°S	
Minimum Latitude	:	52.5903°S	
Maximum Longitude	:	73.6427°W	
Minimum Longitude	:	82.0992°W	


80° 0.0'W
70° 0.0'W
35° 0.0'S
40° 0.0'S
45° 0.0'S
50° 0.0'S

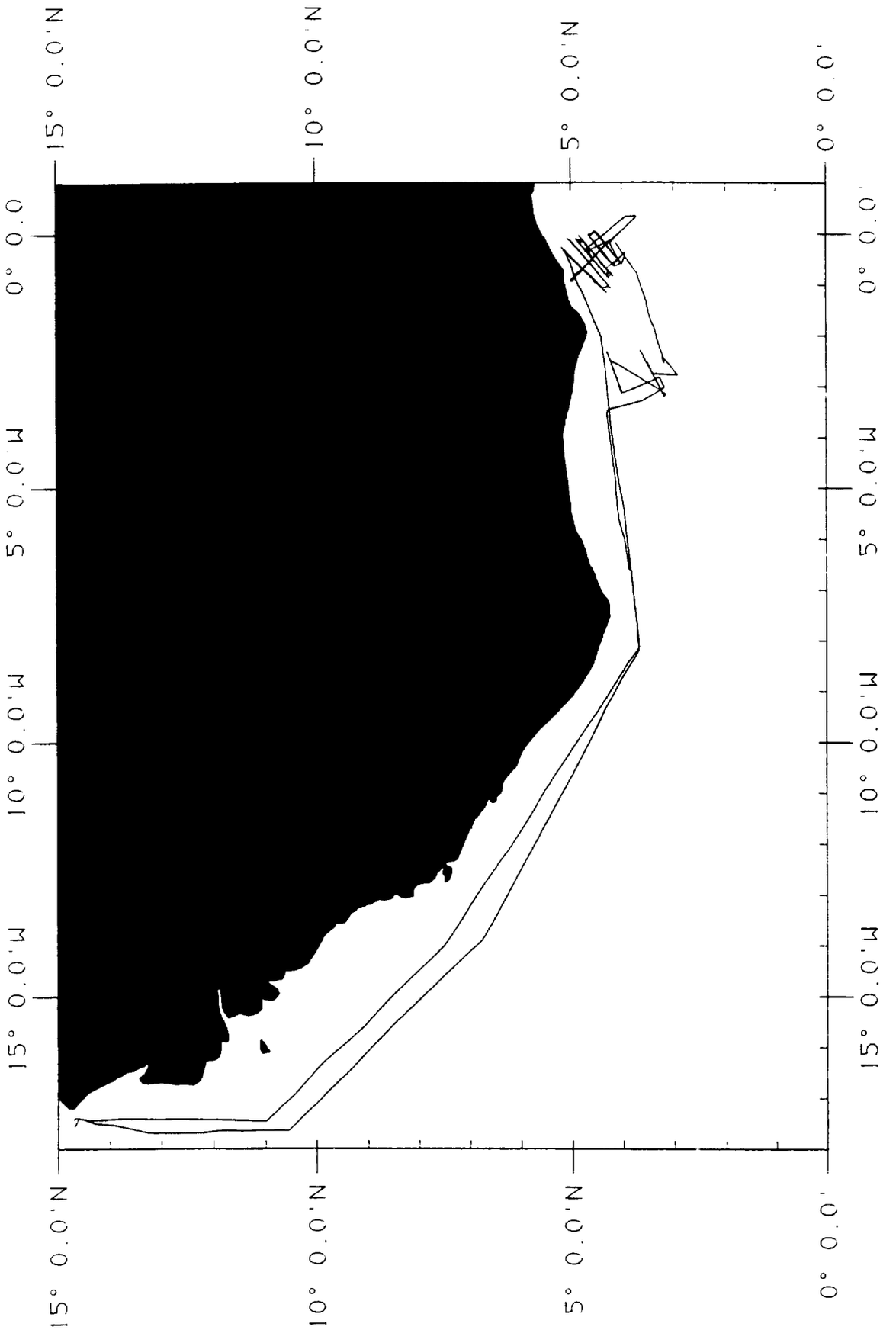
Cruise Name	:	Charles Darwin Cr. 40A89 (CD40A89)	
Cruise Report Number	:		
Cruise Description	:	GLORIA and Multi-channel survey west of Colombia.	
Total Records	:	8693	
Bathymetry	:	1537	
Magnetics	:	8327	
Gravity	:	8599	
PSO	:	N.H. Kenyon	
Start Port	:	San Diego, U.S.A.	
End Port	:	Cartagena, Colombia	
Data Starts	:	1540z 24-Jul-89	JDay : 205
Data Ends	:	1634z 30-Jul-89	JDay : 211
Maximum Latitude	:	13.1461°N	
Minimum Latitude	:	09.6457°N	
Maximum Longitude	:	73.2642°W	
Minimum Longitude	:	76.9753°W	


78° 0.0'W
76° 0.0'W
74° 0.0'W
72° 0.0'W
14° 0.0'N
12° 0.0'N
10° 0.0'N
8° 0.0'N

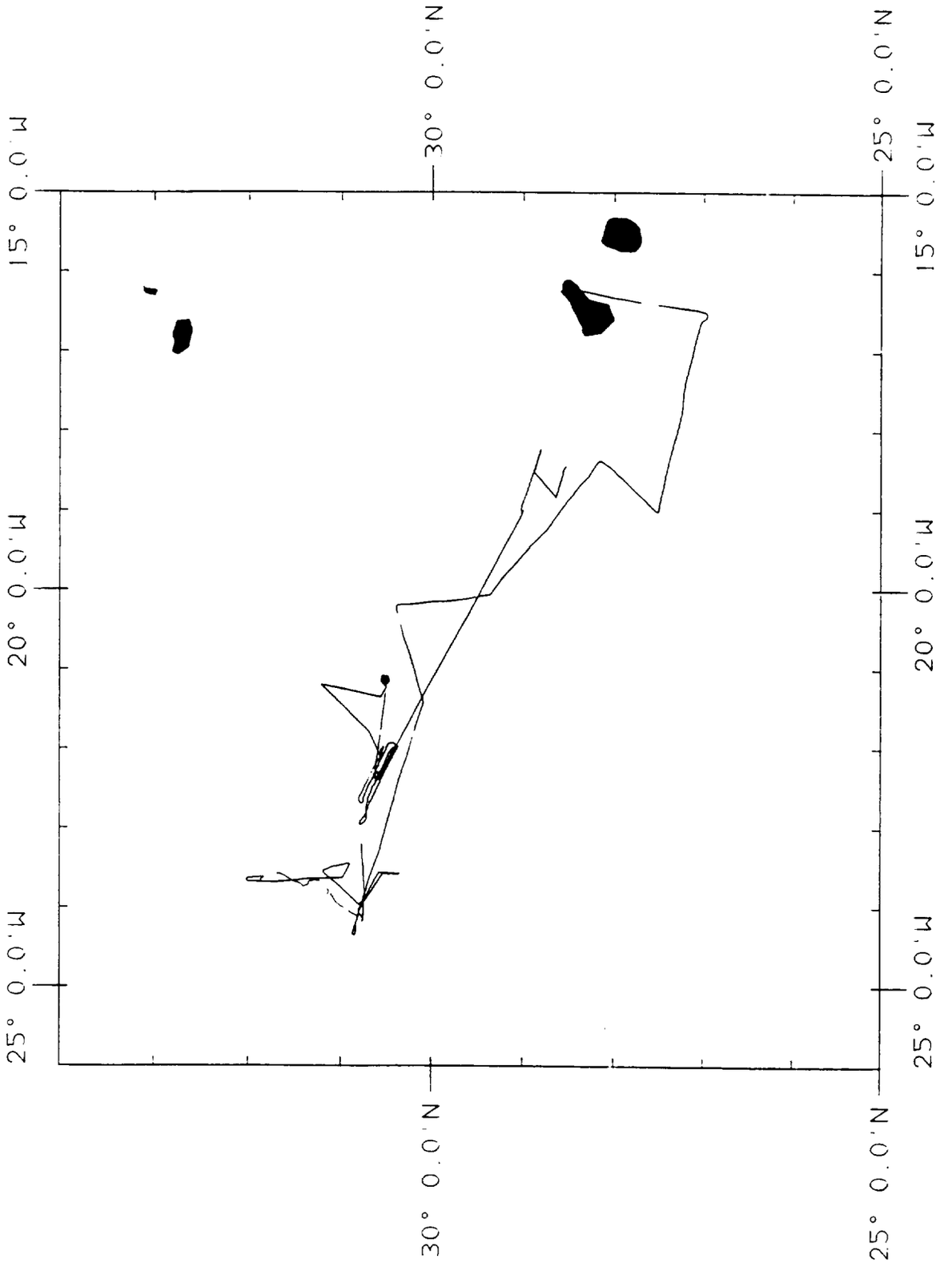
Cruise Name	: Charles Darwin Cruise 5290 (CD5290)	
Cruise Report Number	: 218	
Cruise Description	: Multi-channel seismic reflection survey of the southern margin of the Rockall Plateau.	
Total Records	: 12751	
Bathymetry	: 11318	
Magnetics	: 10134	
Gravity	: 11998	
PSO	: D.G. Masson	
Start Port	: Troon, U.K.	
End Port	: Barry, U.K.	
Data Starts	: 1410z 25-Aug-90	JDay : 237
Data Ends	: 0728z 12-Sep-90	JDay : 255
Maximum Latitude	: 56.5961°N	
Minimum Latitude	: 51.1843°N	
Maximum Longitude	: 04.6836°W	
Minimum Longitude	: 25.1476°W	


58° 0.0'N
56° 0.0'N
54° 0.0'N
52° 0.0'N
50° 0.0'N
5° 0.0'W
10° 0.0'W
15° 0.0'W
20° 0.0'W
25° 0.0'W

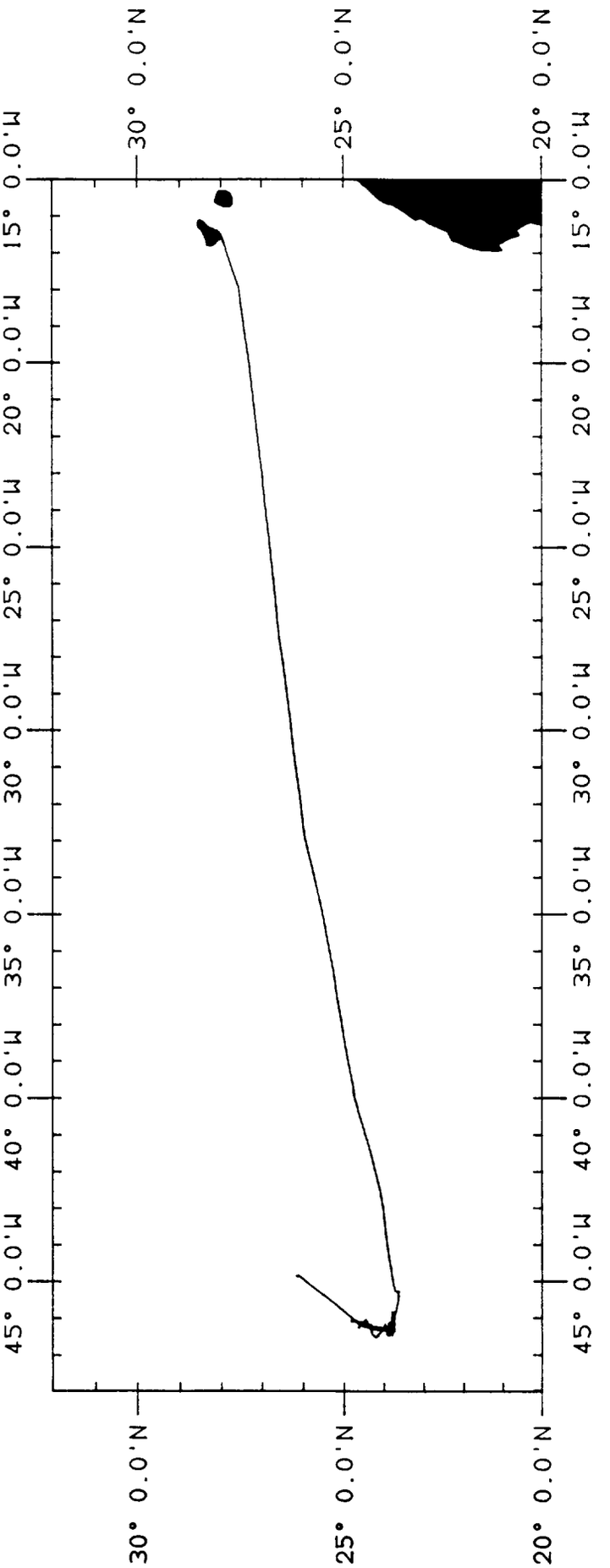
Cruise Name	:	Charles Darwin Cruise 5591 (CD5591)	
Cruise Report Number	:	224	
Cruise Description	:	Geophysical investigations of the Ghana transform continental margin; Gulf of Guinea.	
Total Records	:	21378	
Bathymetry	:	18722	
Magnetics	:	6017	
Gravity	:	19683	
PSO	:	R.B. Whitmarsh	
Start Port	:	Dakar, Senegal	
End Port	:	Dakar, Senegal	
Data Starts	:	1306z 06-Jan-91	JDay : 006
Data Ends	:	1000z 05-Feb-91	JDay : 036
Maximum Latitude	:	14.6836°N	
Minimum Latitude	:	02.9114°N	
Maximum Longitude	:	00.3463°E	
Minimum Longitude	:	17.6910°W	


15° 0.0'N
10° 0.0'N
5° 0.0'N
0° 0.0'
0° 0.0
5° 0.0'W
10° 0.0'W
15° 0.0'W

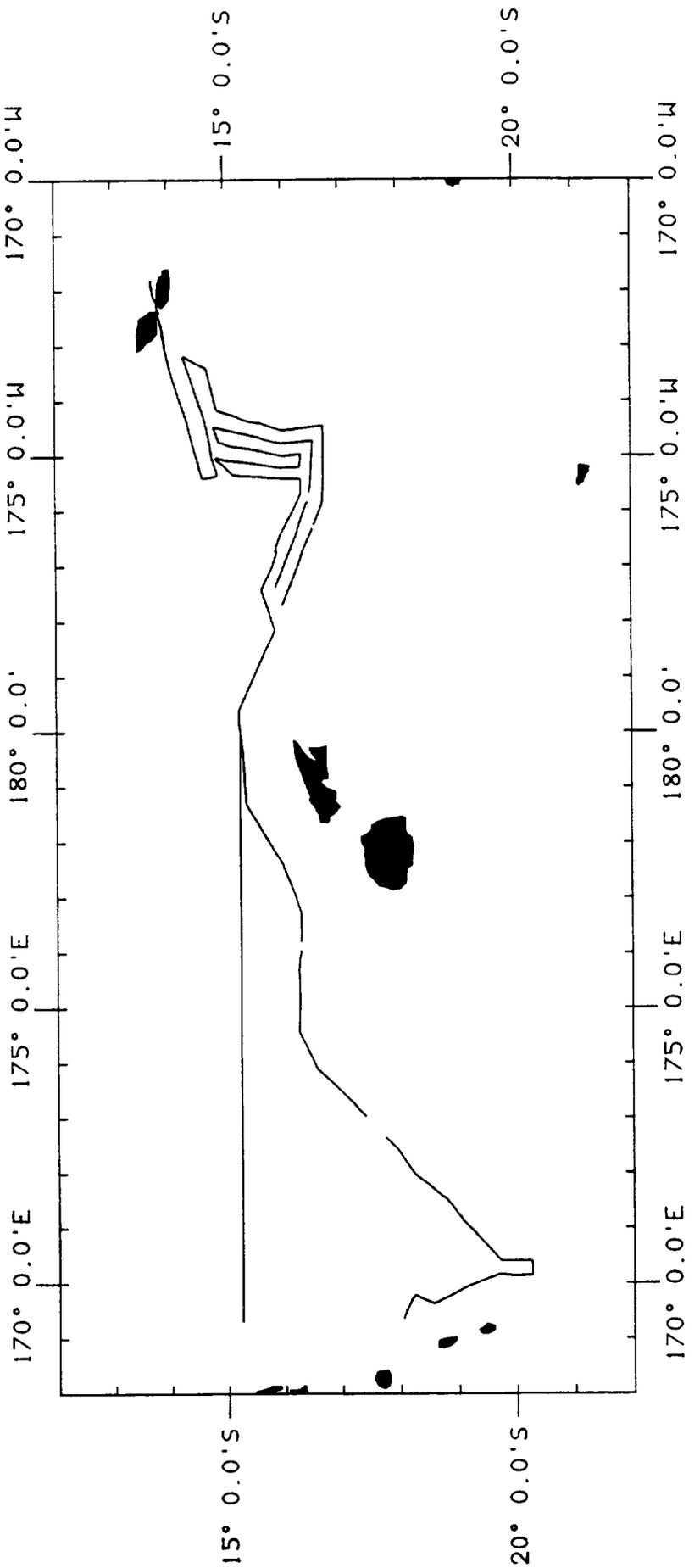
Cruise Name	: Charles Darwin Cruise 5691 (CD5691)	
Cruise Report Number	:	
Cruise Description	: TOBI and geological investigations on the Saharan rise.	
Total Records	: 19131	
Bathymetry	: 12600	
Magnetics	: 0	
Gravity	: 0	
PSO	: R.B. Kidd (University College of Cardiff)	
Start Port	: Santa Cruz, Tenerife	
End Port	: Santa Cruz, Tenerife	
Data Starts	: 0824z 11-Feb-91	JDay : 042
Data Ends	: 1604z 12-Mar-91	JDay : 071
Maximum Latitude	: 32.0202°N	
Minimum Latitude	: 26.9588°N	
Maximum Longitude	: 16.1110°W	
Minimum Longitude	: 24.3579°W	


30° 0.0'N
25° 0.0'N
15° 0.0'W
20° 0.0'W
25° 0.0'W
30° 0.0'N
25° 0.0'N
15° 0.0'W
20° 0.0'W
25° 0.0'W

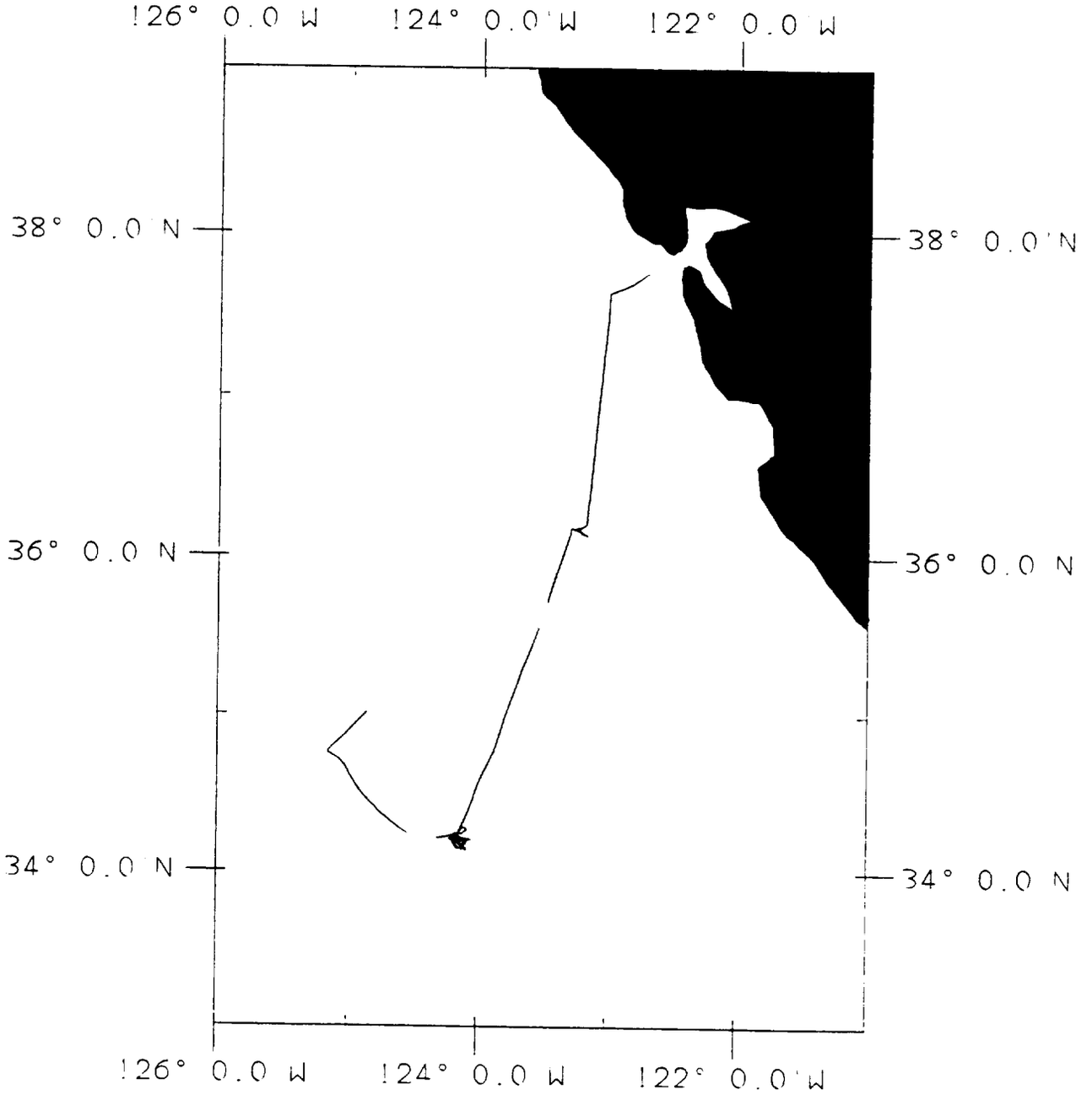
Cruise Name	:	Charles Darwin Cruise 5791 (CD5791)
Cruise Report Number	:	Durham University Report
Cruise Description	:	TOBI survey and geological sampling of the Kane transform fault and adjacent Mid-Atlantic ridge.
Total Records	:	17428
Bathymetry	:	12255
Magnetics	:	3436
Gravity	:	16542
PSO	:	R.C. Searle (University of Durham)
Start Port	:	Santa Cruz, Tenerife
End Port	:	Barry, U.K.
Data Starts	:	0920z 15-Mar-91 JDay : 074
Data Ends	:	1430z 08-Apr-91 JDay : 098
Maximum Latitude	:	28.4901°N
Minimum Latitude	:	23.6173°N
Maximum Longitude	:	16.2197°W
Minimum Longitude	:	46.5116°W


30° 0.0'N
25° 0.0'N
20° 0.0'N
15° 0.0'W
20° 0.0'W
25° 0.0'W
30° 0.0'W
35° 0.0'W
40° 0.0'W
45° 0.0'W

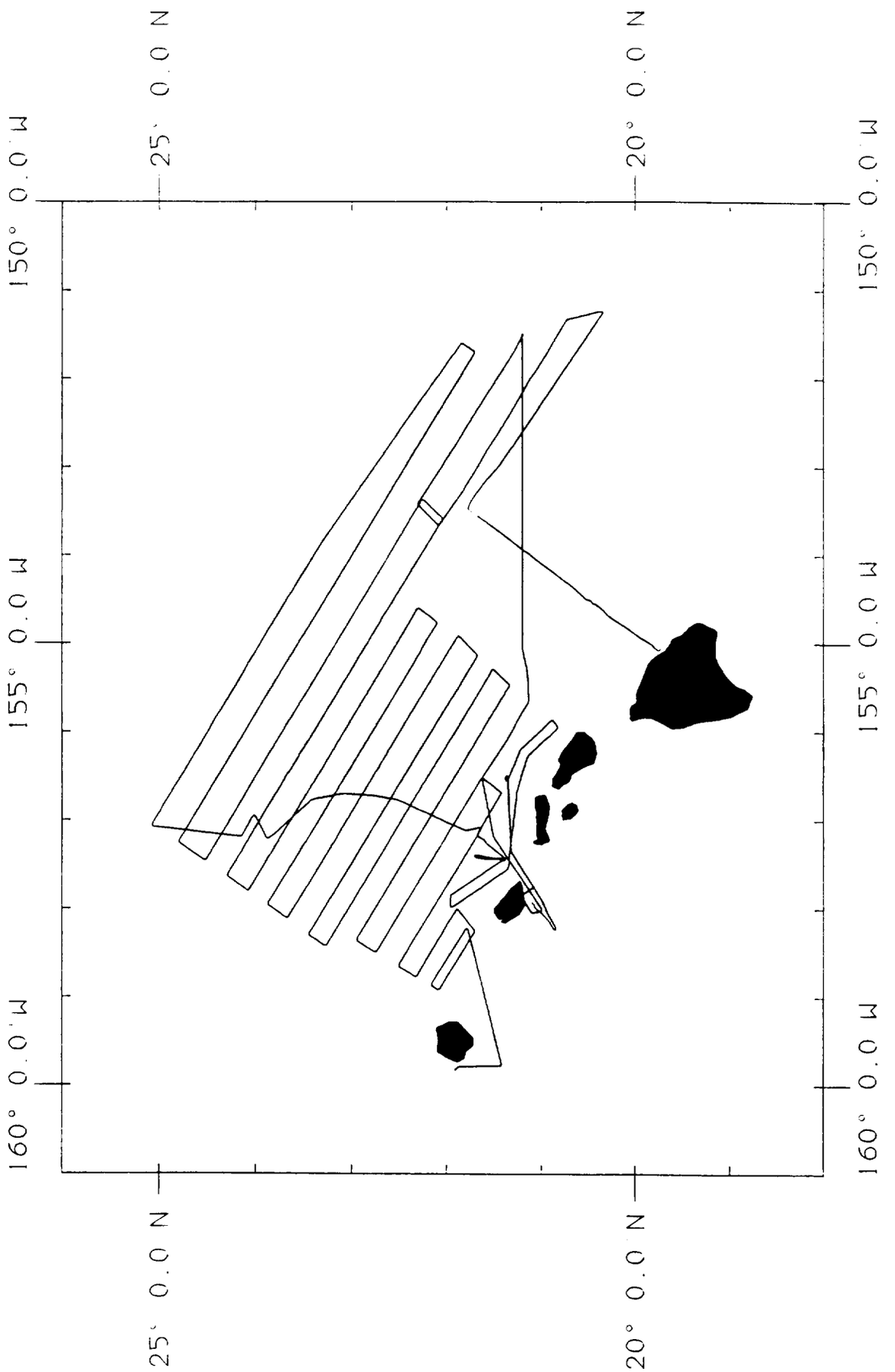
Cruise Name	:	HMAS Cook Cruise 8917 (COOK8917)
Cruise Report Number	:	
Cruise Description	:	GLORIA and Seabeam survey of the SOPAC coastal states exclusive economic zones.
Total Records	:	16059
Bathymetry	:	16059
Magnetics	:	16059
Gravity	:	16059
PSO	:	L.M. Parson
Start Port	:	Port Vila, Vanuatu
End Port	:	Port Vila, Vanuatu
Data Starts	:	2139z 19-Aug-89 JDay : 231
Data Ends	:	1637z 31-Aug-89 JDay : 243
Maximum Latitude	:	13.7132°S
Minimum Latitude	:	20.2617°S
Maximum Longitude	:	171.8100°W
Minimum Longitude	:	169.2960°W


170° 0.0'E
175° 0.0'E
180° 0.0'
175° 0.0'W
170° 0.0'W
15° 0.0'S
20° 0.0'S

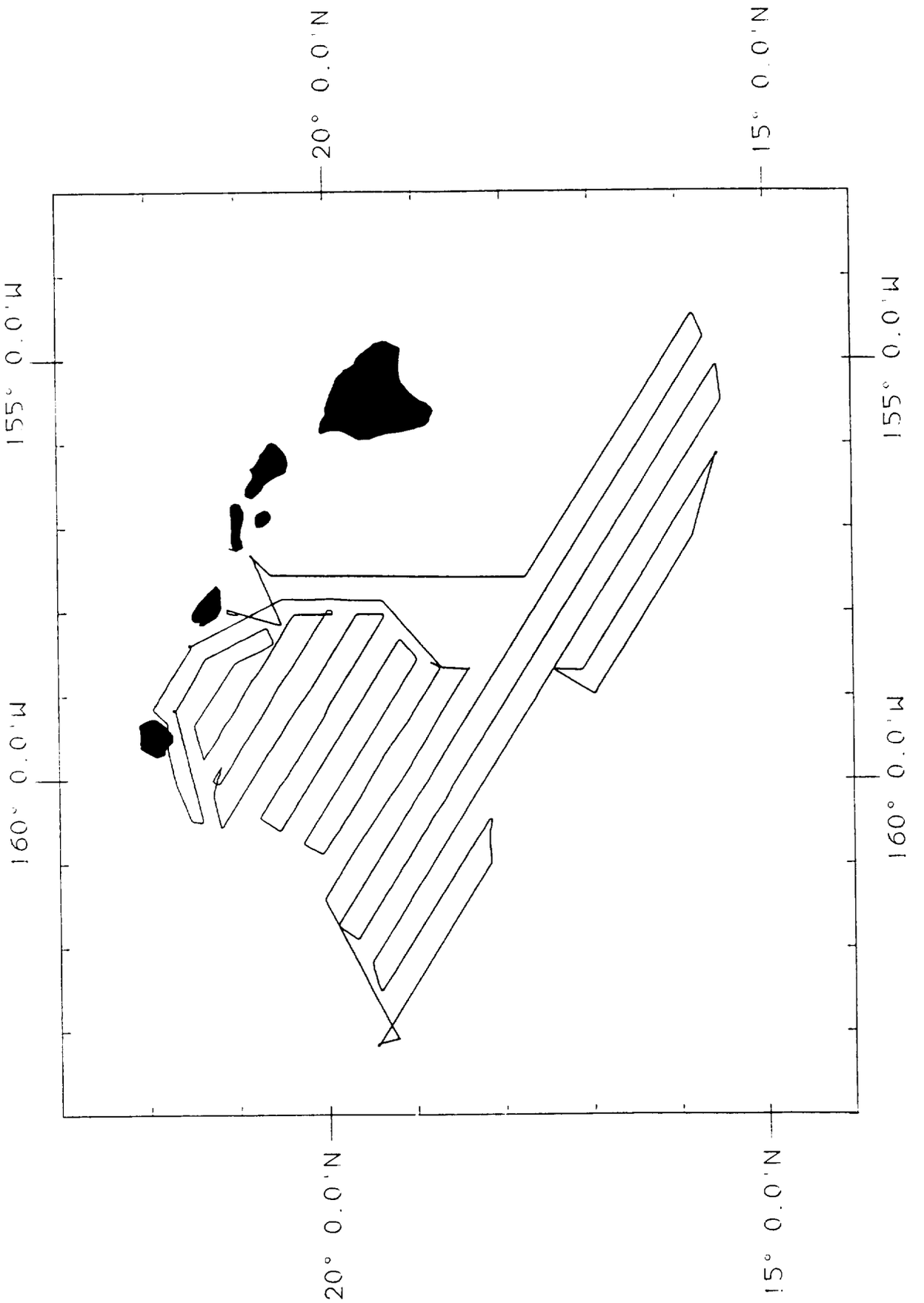
Cruise Name	: Farnella Cruise 0188 (FARN0188)	
Cruise Report Number	:	
Cruise Description	: Geological sampling of the Monterey Fan.	
Total Records	: 4832	
Bathymetry	: 0	
Magnetics	: 0	
Gravity	: 0	
PSO	: USGS (M. Field, J. Gardner)	
Start Port	: Redwood City, U.S.A.	
End Port	: Redwood City, U.S.A.	
Data Starts	: 2112z 12-Jan-88	JDay : 012
Data Ends	: 1900z 18-Jan-88	JDay : 018
Maximum Latitude	: 37.7584°N	
Minimum Latitude	: 34.1385°N	
Maximum Longitude	: 122.6884°W	
Minimum Longitude	: 125.1615°W	


126° 0.0 W
124° 0.0 W
122° 0.0 W
38° 0.0 N
36° 0.0 N
34° 0.0 N
38° 0.0 N
36° 0.0 N
34° 0.0 N
126° 0.0 W
124° 0.0 W
122° 0.0 W

Cruise Name	: Farnella Cruise 3488 (FARN3488)	
Cruise Report Number	:	
Cruise Description	: USGS GLORIA studies of the exclusive economic zone of the USA: North of Hawaii.	
Total Records	: 16470	
Bathymetry	: 5555	
Magnetics	: 15707	
Gravity	: 16159	
PSO	: R.C. Searle	
Start Port	: Honolulu, U.S.A.	
End Port	: Honolulu. U.S.A.	
Data Starts	: 1838z 11-Mar-88	JDay : 071
Data Ends	: 2300z 04-Apr-88	JDay : 095
Maximum Latitude	: 25.0736°N	
Minimum Latitude	: 19.7313°N	
Maximum Longitude	: 151.2319°W	
Minimum Longitude	: 159.8259°W	


25° 0.0 N
20° 0.0 N
150° 0.0 W
155° 0.0 W
160° 0.0 W

Cruise Name	: Farnella Cruise 0588 (FARN0588)	
Cruise Report Number	:	
Cruise Description	: USGS GLORIA studies of the exclusive economic zone of the USA: South of Hawaii.	
Total Records	: 17405	
Bathymetry	: 5790	
Magnetics	: 17303	
Gravity	: 17209	
PSO	: J.B. Wilson	
Start Port	: Honolulu, U.S.A.	
End Port	: Honolulu, U.S.A.	
Data Starts	: 2330z 07-Apr-88	JDay : 098
Data Ends	: 0340z 02-May-88	JDay : 123
Maximum Latitude	: 21.9404°N	
Minimum Latitude	: 15.5009°N	
Maximum Longitude	: 154.4708°W	
Minimum Longitude	: 163.1863°W	


20° 0.0'N
15° 0.0'N
155° 0.0'W
160° 0.0'W

Cruise Name : Farnella Cruise 0688 (FARN0688)

Cruise Report Number :

Cruise Description : USGS GLORIA studies of the exclusive economic zone of the USA: North of Hawaii.

Total Records : 14353

Bathymetry : 4824

Magnetics : 13206

Gravity : 14344

PSO : R.G. Rothwell

Start Port : Honolulu, U.S.A.

End Port : Honolulu, U.S.A.

Data Starts : 0600z 05-May-88 JDay : 126

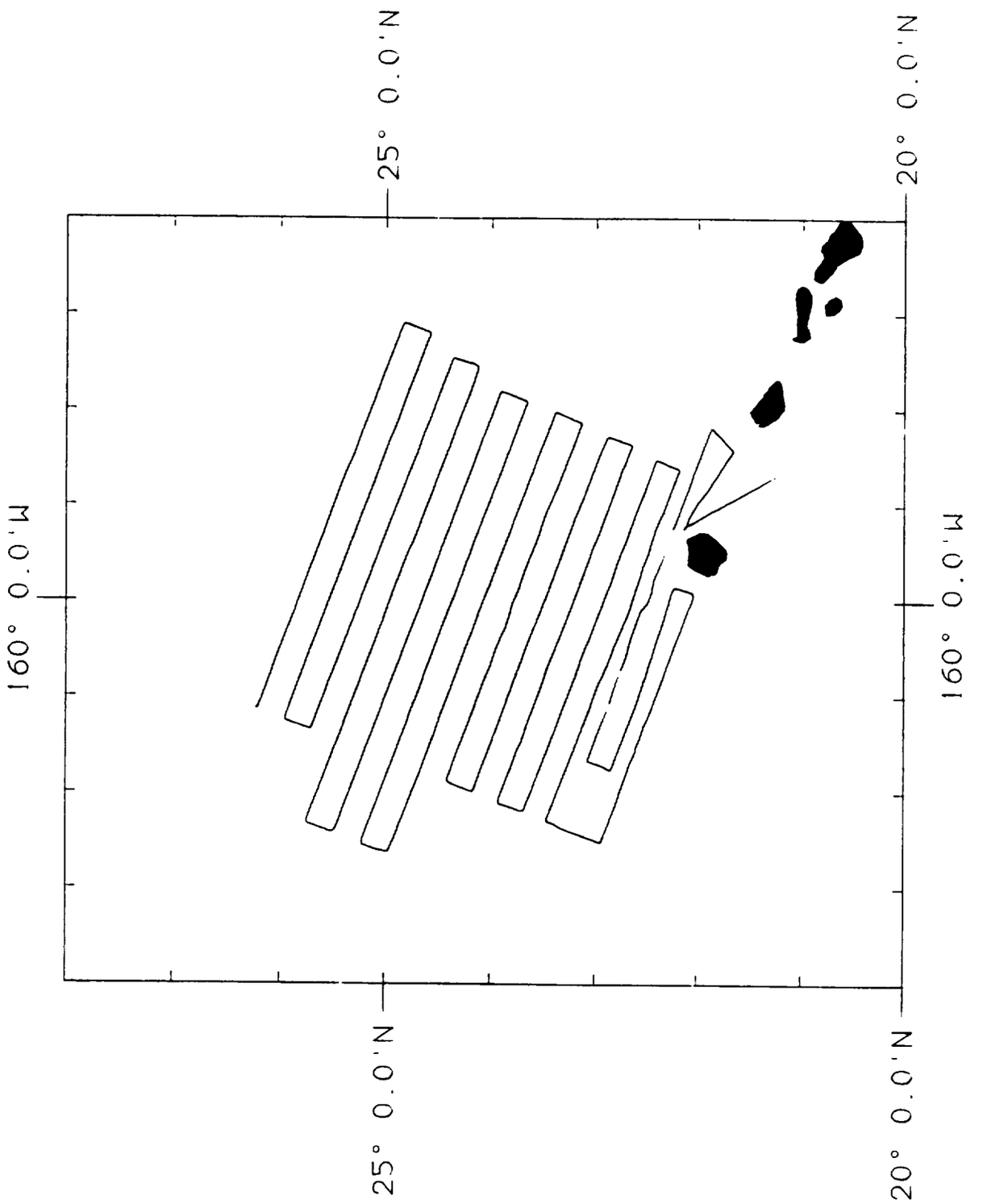
Data Ends : 1200z 25-May-88 JDay : 146

Maximum Latitude : 26.2283°N

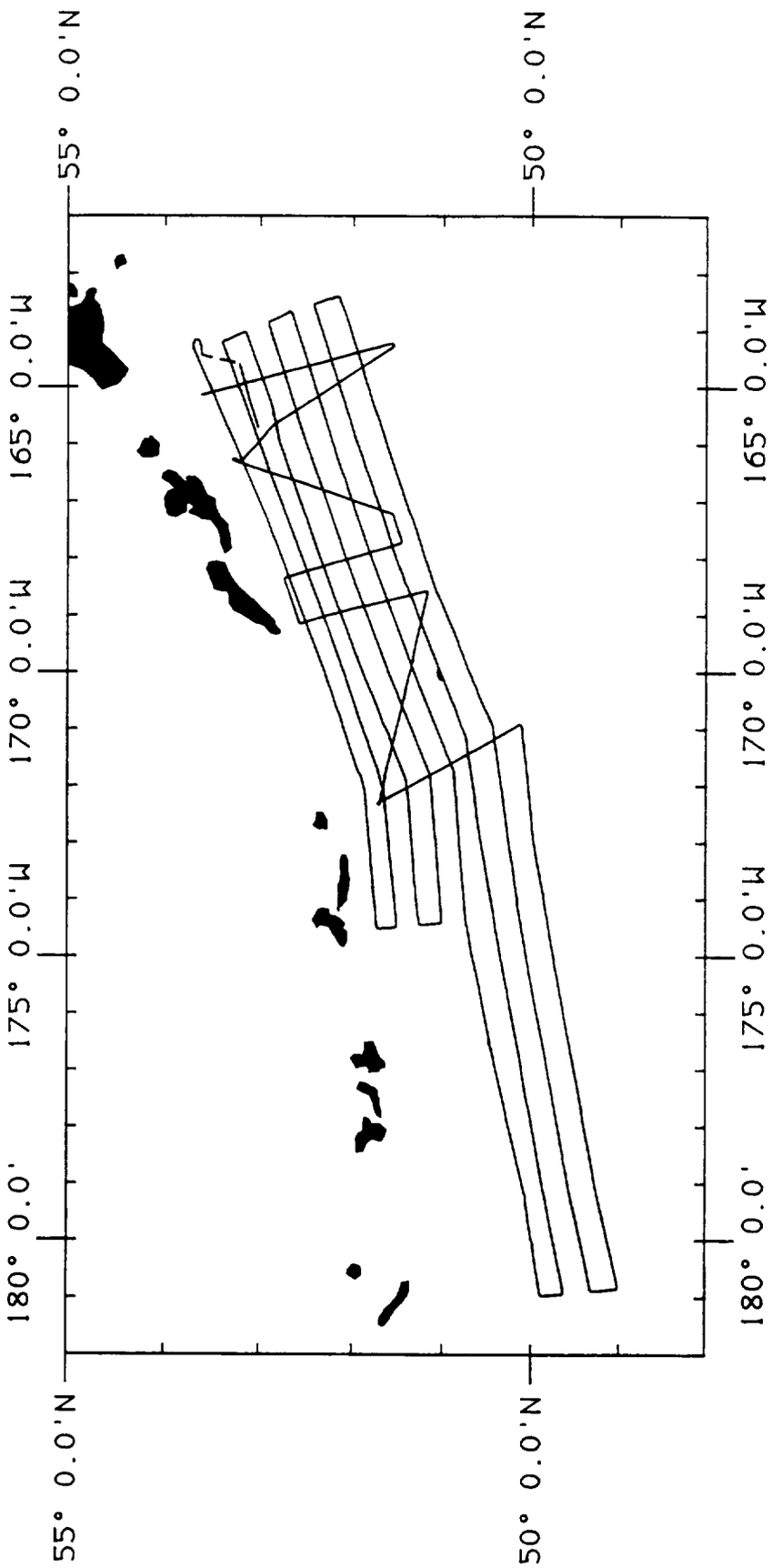
Minimum Latitude : 21.2188°N

Maximum Longitude : 157.0990°W

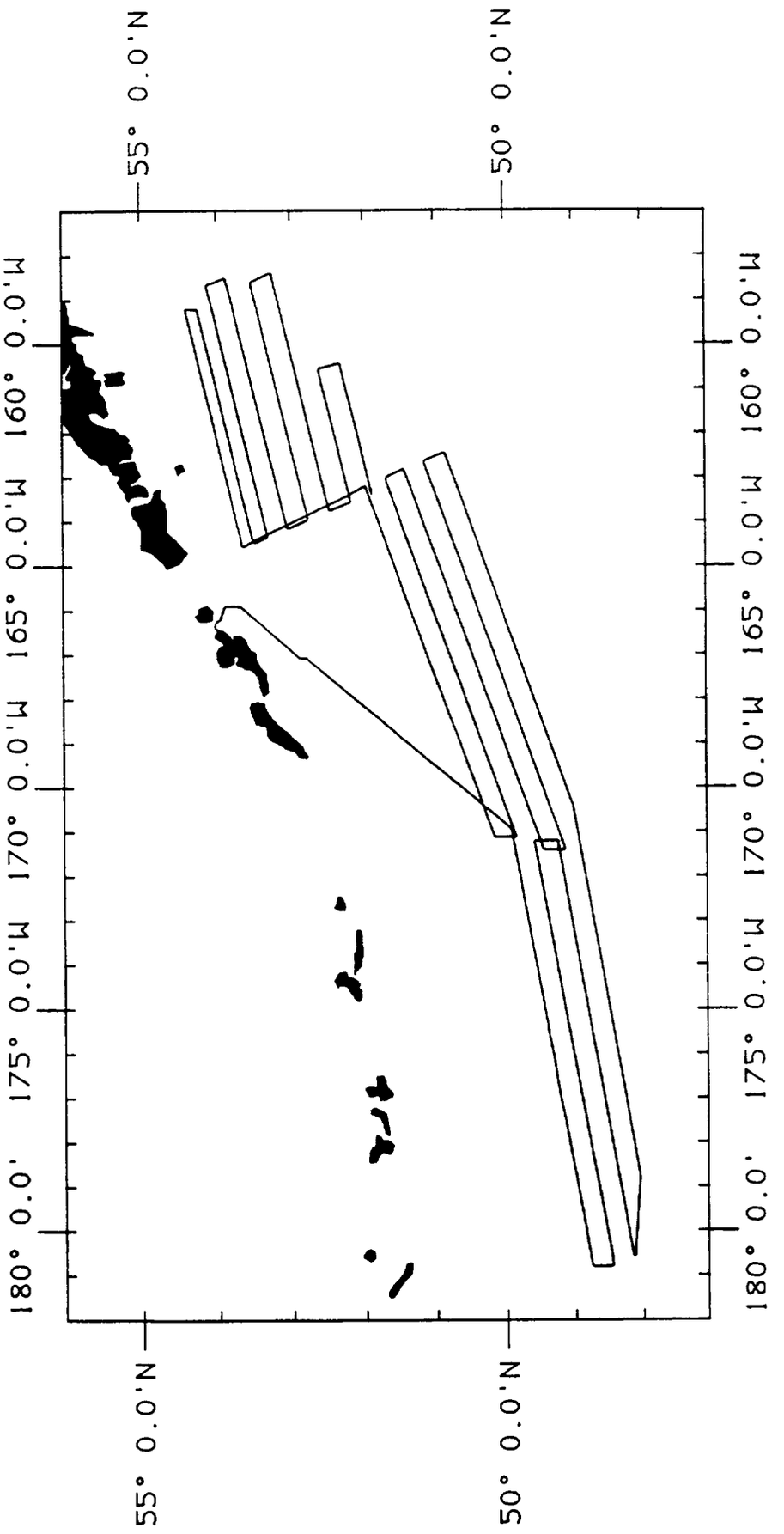
Minimum Longitude : 162.6245°W


25° 0.0'N
20° 0.0'N
160° 0.0'W
160° 0.0'W
25° 0.0'N
20° 0.0'N

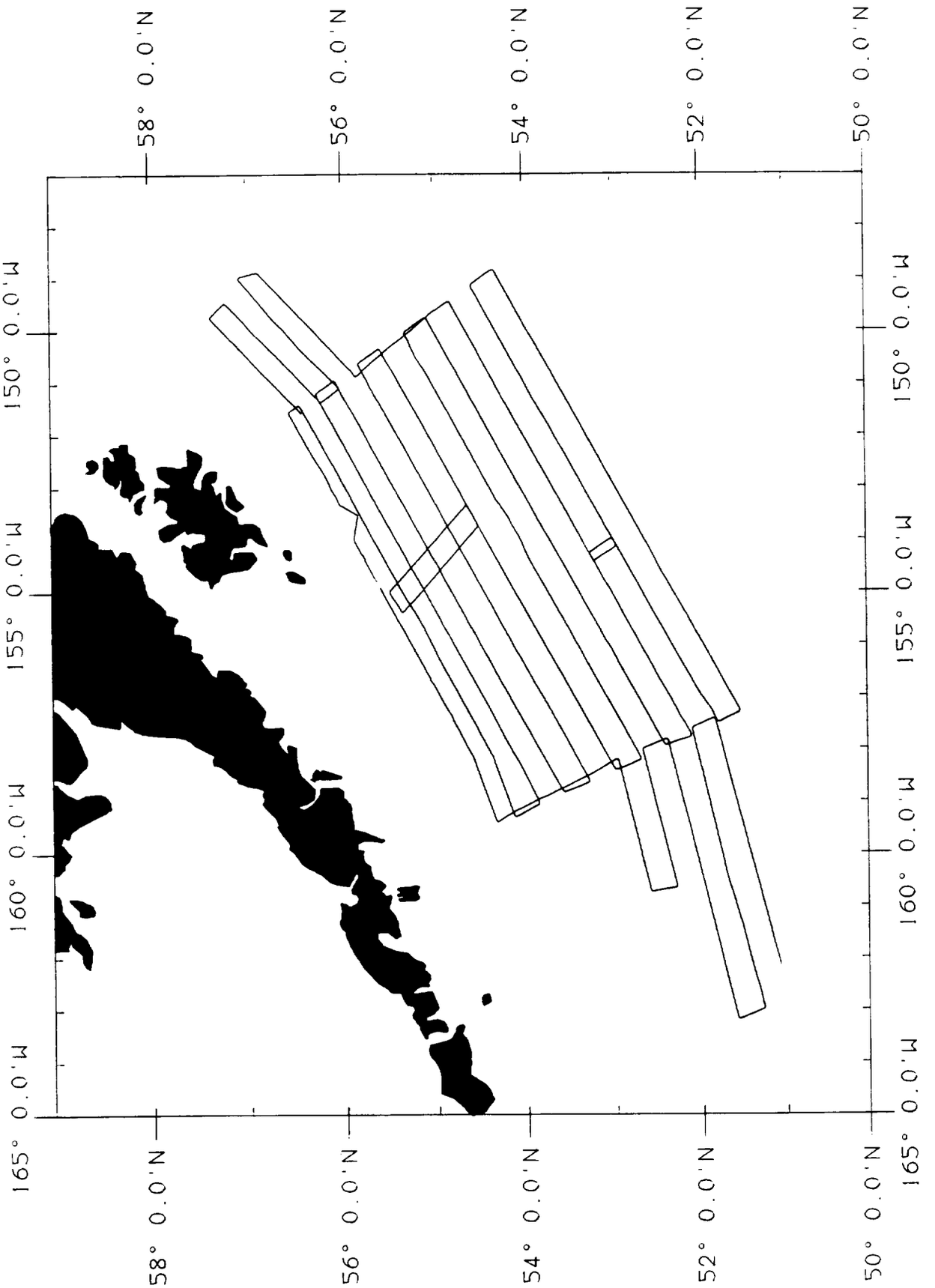
Cruise Name	:	Farnella Cruise 0788 (FARN0788)
Cruise Report Number	:	
Cruise Description	:	USGS GLORIA studies of the exclusive economic zone of the USA: South of the Aleutian Islands.
Total Records	:	18607
Bathymetry	:	6195
Magnetics	:	18176
Gravity	:	18559
PSO	:	M. Dobson (University College of Wales, Aberystwyth)
Start Port	:	Adak, U.S.A.
End Port	:	Dutch Harbor, U.S.A.
Data Starts	:	0530z 08-Jun-88 JDay : 160
Data Ends	:	0250z 04-Jul-88 JDay : 186
Maximum Latitude	:	53.7115°N
Minimum Latitude	:	49.0146°N
Maximum Longitude	:	163.4000°W
Minimum Longitude	:	179.0230°E


55° 0.0'N
50° 0.0'N
165° 0.0'W
170° 0.0'W
175° 0.0'W
180° 0.0'

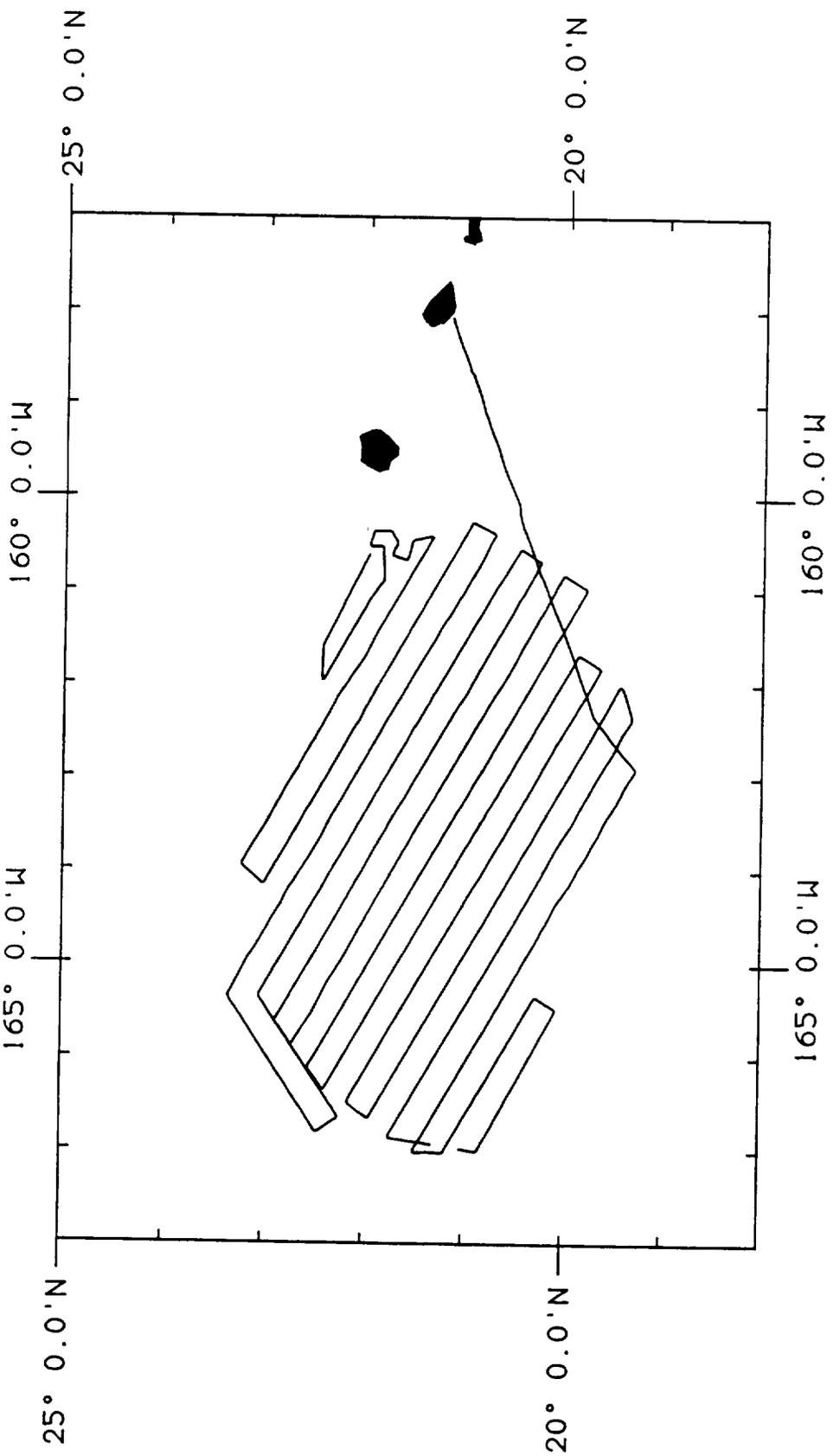
Cruise Name	: Farnella Cruise 0888 (FARN0888)	
Cruise Report Number	:	
Cruise Description	: USGS GLORIA studies of the exclusive economic zone of the USA: South of the Aleutian Islands.	
Total Records	: 18726	
Bathymetry	: 18400	
Magnetics	: 18325	
Gravity	: 18666	
PSO	: D.G. Masson	
Start Port	: Dutch Harbor, U.S.A.	
End Port	: Dutch Harbor, U.S.A.	
Data Starts	: 1712z 06-Jul-88	JDay : 188
Data Ends	: 1722z 01-Aug-88	JDay : 214
Maximum Latitude	: 54.4008°N	
Minimum Latitude	: 48.0511°N	
Maximum Longitude	: 158.4000°W	
Minimum Longitude	: 179.1780°E	


55° 0.0'N
50° 0.0'N
180° 0.0'
175° 0.0'W
170° 0.0'W
165° 0.0'W
160° 0.0'W

Cruise Name	:	Farnella Cruise 0988 (FARN0988)	
Cruise Report Number	:		
Cruise Description	:	USGS GLORIA studies of the exclusive economic zone of the USA: Gulf of Alaska.	
Total Records	:	18705	
Bathymetry	:	18705	
Magnetics	:	18666	
Gravity	:	18671	
PSO	:	N. Fannin (BGS, Edinburgh)	
Start Port	:	Dutch Harbor, U.S.A.	
End Port	:	Kodiak, U.S.A.	
Data Starts	:	1654z 05-Aug-88	JDay : 218
Data Ends	:	1836z 31-Aug-88	JDay : 244
Maximum Latitude	:	57.3738°N	
Minimum Latitude	:	51.0688°N	
Maximum Longitude	:	148.8271°W	
Minimum Longitude	:	163.1841°W	


58° 0.0'N
56° 0.0'N
54° 0.0'N
52° 0.0'N
50° 0.0'N
165° 0.0'W
160° 0.0'W
155° 0.0'W
150° 0.0'W

Cruise Name	: Farnella Cruise 1088 (FARN1088)	
Cruise Report Number	:	
Cruise Description	: USGS GLORIA studies of the exclusive economic zone of the USA: South of Hawaii.	
Total Records	: 16585	
Bathymetry	: 16583	
Magnetics	: 15563	
Gravity	: 15850	
PSO	: Q.J. Huggett	
Start Port	: Honolulu, U.S.A.	
End Port	: Honolulu, U.S.A.	
Data Starts	: 2032z 28-Sep-88	JDay : 272
Data Ends	: 0020z 22-Oct-88	JDay : 296
Maximum Latitude	: 23.3508°N	
Minimum Latitude	: 19.2823°N	
Maximum Longitude	: 158.0700°W	
Minimum Longitude	: 167.0321°W	


25° 0.0'N
20° 0.0'N
160° 0.0'W
165° 0.0'W

Cruise Name : Farnella Cruise 0389 (FARN0389)

Cruise Report Number :

Cruise Description : Geological sampling of the Monterey Fan.

Total Records : 18356

Bathymetry : 0

Magnetics : 0

Gravity : 0

PSO : USGS (M. Field, J. Gardner)

Start Port : Redwood City, U.S.A.

End Port : Redwood City, U.S.A.

Data Starts : 1303z 02-Feb-89 JDay : 033

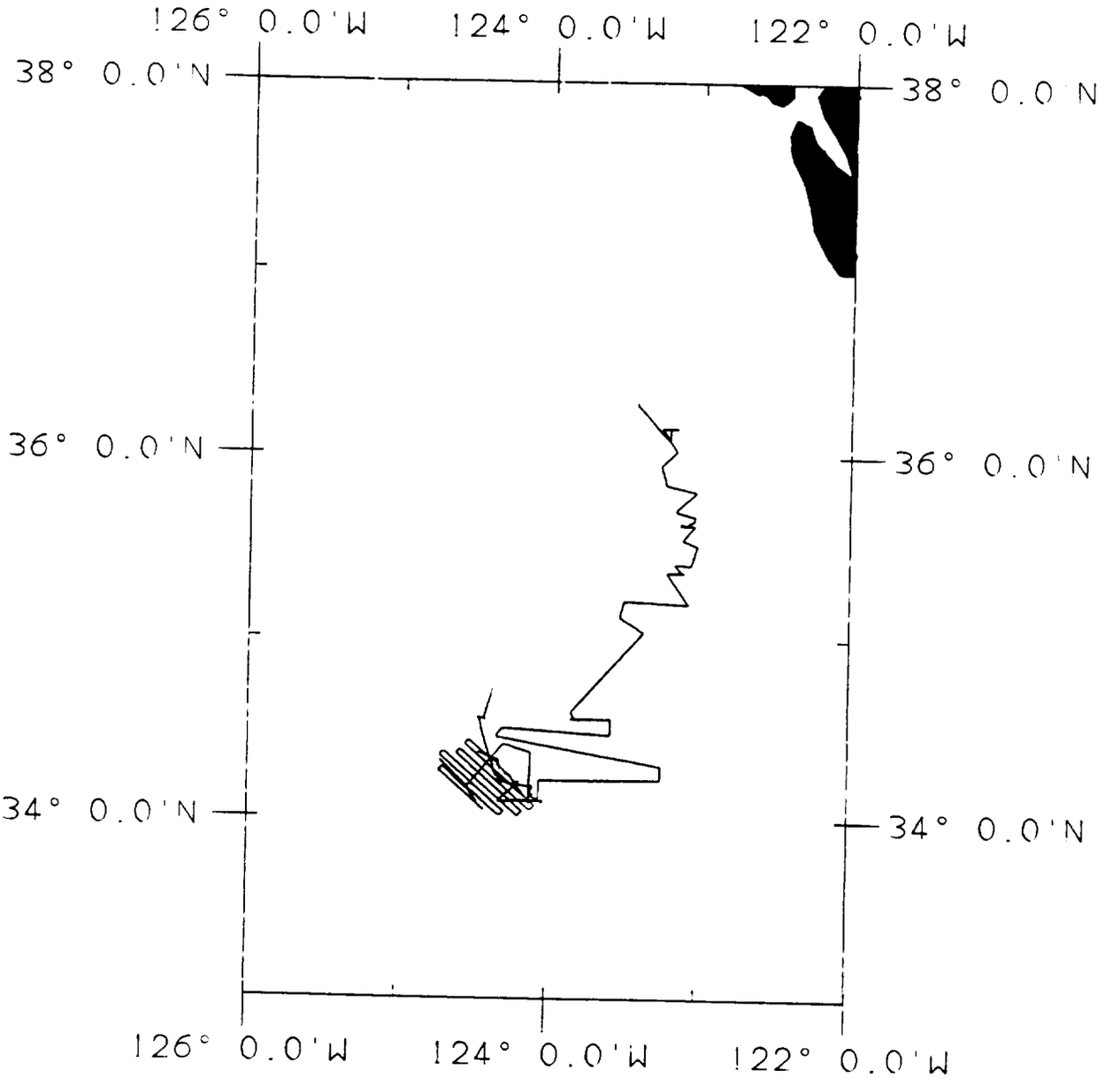
Data Ends : 2123z 15-Feb-89 JDay : 046

Maximum Latitude : 36.2841°N

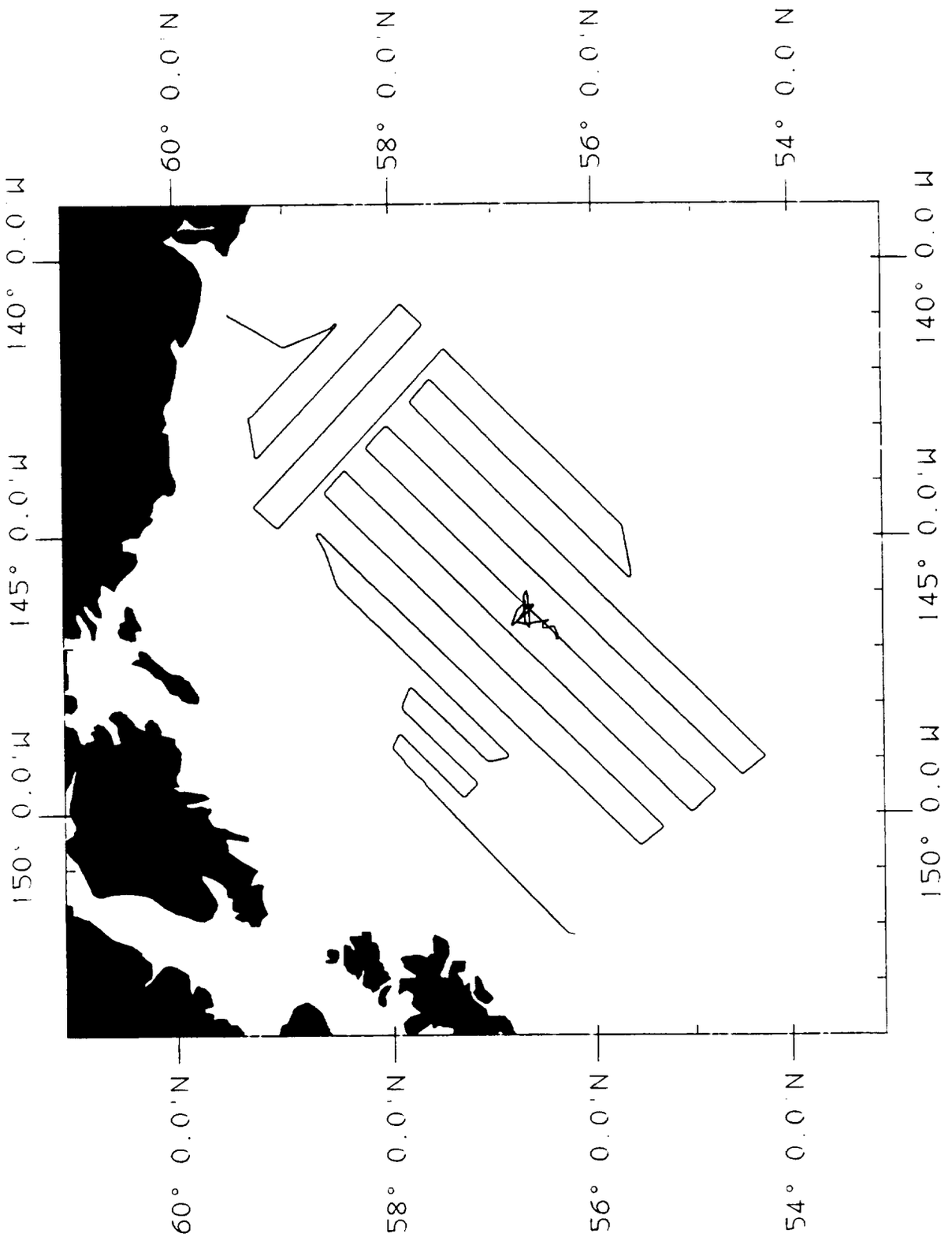
Minimum Latitude : 34.0178°N

Maximum Longitude : 123.0124°W

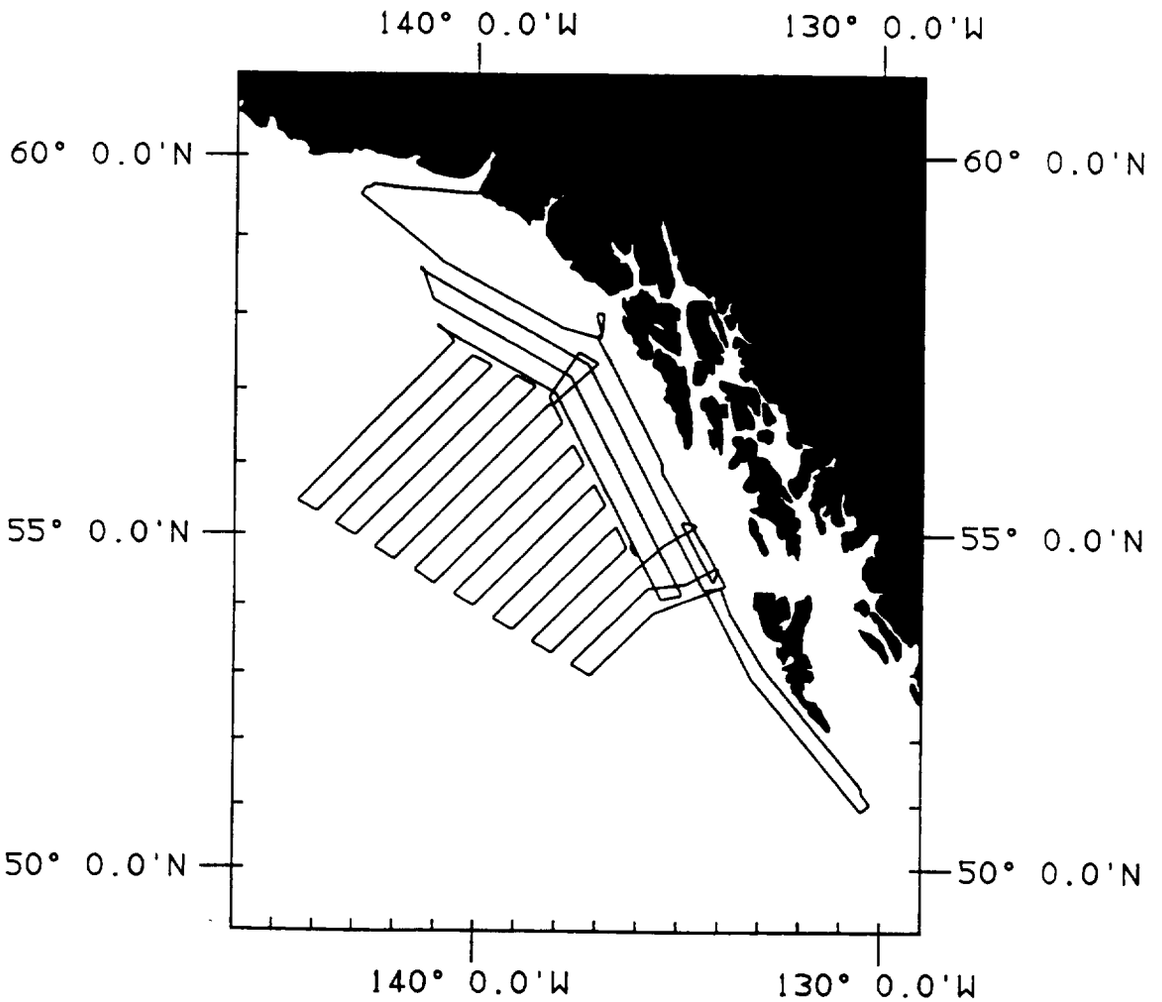
Minimum Longitude : 124.7272°W


126° 0.0'W
124° 0.0'W
122° 0.0'W
38° 0.0'N
38° 0.0'N
36° 0.0'N
36° 0.0'N
34° 0.0'N
34° 0.0'N
126° 0.0'W
124° 0.0'W
122° 0.0'W

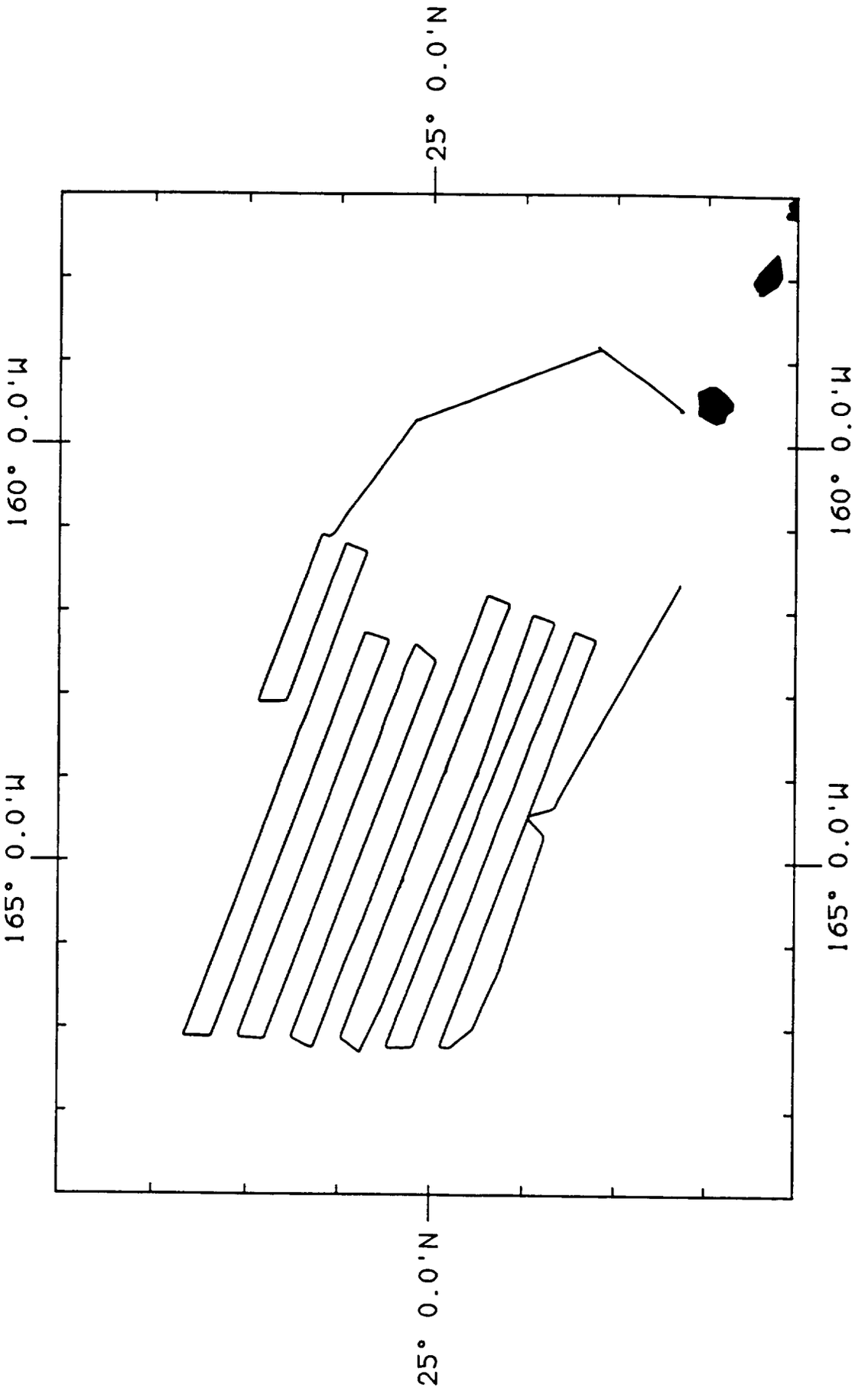
Cruise Name	: Farnella Cruise 0689 (FARN0689)	
Cruise Report Number	:	
Cruise Description	: USGS GLORIA studies of the exclusive economic zone of the USA: Gulf of Alaska.	
Total Records	: 12705	
Bathymetry	: 12699	
Magnetics	: 11121	
Gravity	: 12702	
PSO	: Q.J. Huggett	
Start Port	: Kodiak, U.S.A.	
End Port	: Yakutat, U.S.A.	
Data Starts	: 1342z 25-May-89	JDay : 145
Data Ends	: 0510z 12-Jun-89	JDay : 163
Maximum Latitude	: 59.5047°N	
Minimum Latitude	: 54.2734°N	
Maximum Longitude	: 140.8118°W	
Minimum Longitude	: 152.2214°W	


60° 0.0'N
58° 0.0'N
56° 0.0'N
54° 0.0 N
140° 0.0'W
145° 0.0'W
150° 0.0'W

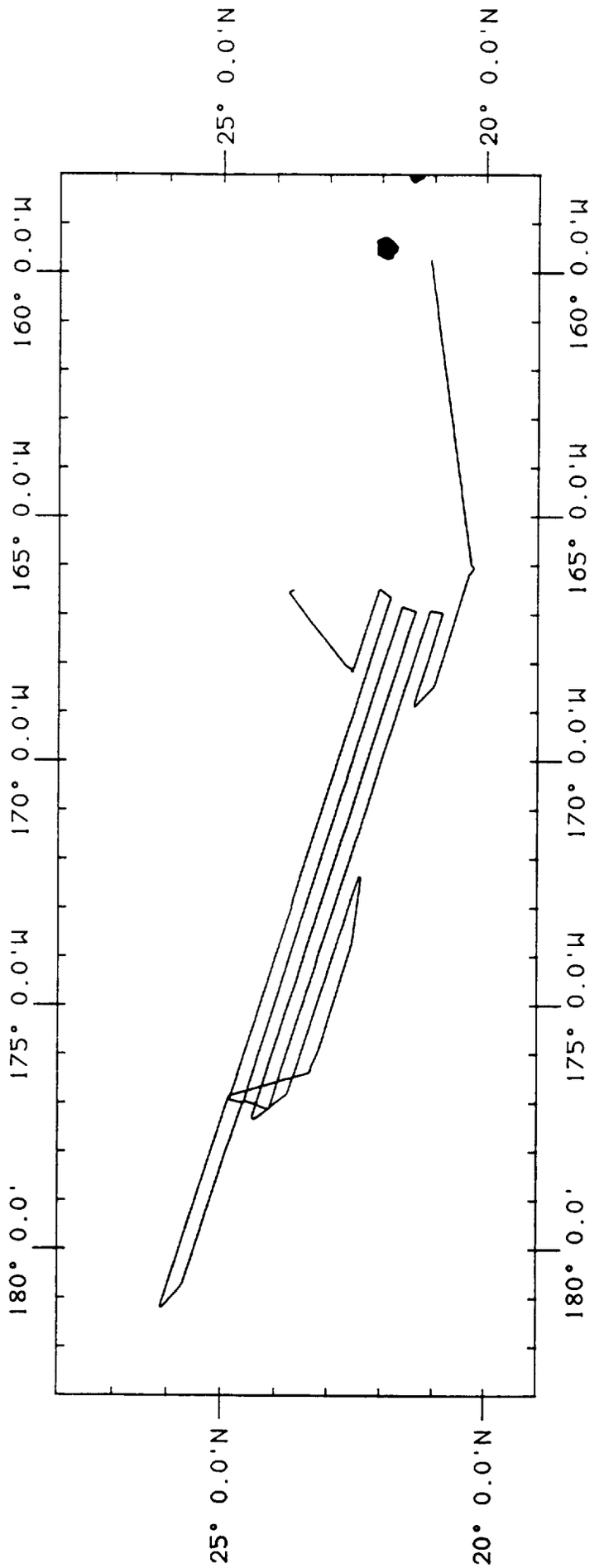
Cruise Name	:	Farnella Cruise 0789 (FARN0789)
Cruise Report Number	:	
Cruise Description	:	USGS Gloria studies of the exclusive economic zone of the USA: Gulf of Alaska.
Total Records	:	18467
Bathymetry	:	18448
Magnetics	:	17597
Gravity	:	17834
PSO	:	M. Dobson (University College of Wales, Aberystwyth)
Start Port	:	Yakutat, U.S.A.
End Port	:	Redwood City, U.S.A.
Data Starts	:	1648z 14-Jun-89 JDay : 165
Data Ends	:	0948z 10-Jul-89 JDay : 191
Maximum Latitude	:	59.9201°N
Minimum Latitude	:	50.9119°N
Maximum Longitude	:	130.2732°W
Minimum Longitude	:	144.4223°W


140° 0.0'W
130° 0.0'W
60° 0.0'N
55° 0.0'N
50° 0.0'N

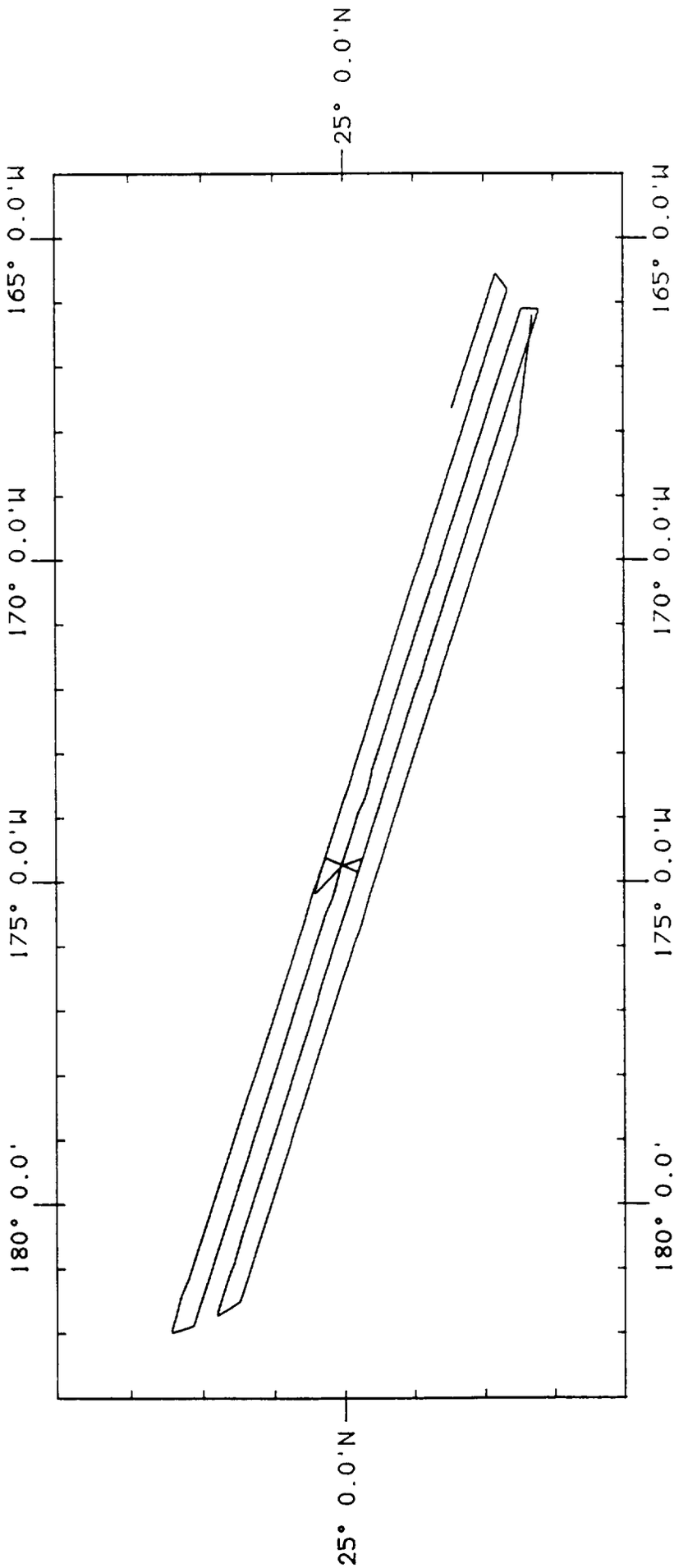
Cruise Name	: Farnella Cruise 1289 (FARN1289)	
Cruise Report Number	:	
Cruise Description	: USGS GLORIA studies of the exclusive economic zone of the USA: North of Hawaii.	
Total Records	: 15160	
Bathymetry	: 15144	
Magnetics	: 15037	
Gravity	: 15078	
PSO	: C.L. Jacobs	
Start Port	: Honolulu, U.S.A.	
End Port	: Honolulu, U.S.A.	
Data Starts	: 0000z 05-Nov-89	JDay : 309
Data Ends	: 0400z 26-Nov-89	JDay : 330
Maximum Latitude	: 27.6665°N	
Minimum Latitude	: 22.2664°N	
Maximum Longitude	: 158.8219°W	
Minimum Longitude	: 167.2929°W	


25° 0.0'N
160° 0.0'W
165° 0.0'W
25° 0.0'N
160° 0.0'W
165° 0.0'W

Cruise Name	: Farnella Cruise 1389 (FARN1389)	
Cruise Report Number	:	
Cruise Description	: USGS GLORIA studies of the exclusive economic zone of the USA: South West of Hawaii.	
Total Records	: 14948	
Bathymetry	: 14941	
Magnetics	: 14015	
Gravity	: 14946	
PSO	: C.L. Jacobs	
Start Port	: Honolulu, U.S.A.	
End Port	: Honolulu, U.S.A.	
Data Starts	: 0330z 29-Nov-89	JDay : 333
Data Ends	: 2200z 19-Dec-89	JDay : 353
Maximum Latitude	: 26.1160°N	
Minimum Latitude	: 20.2269°N	
Maximum Longitude	: 159.7500°W	
Minimum Longitude	: 178.7990°E	


25° 0.0'N
20° 0.0'N
160° 0.0'W
165° 0.0'W
170° 0.0'W
175° 0.0'W
180° 0.0'

Cruise Name	:	Farnella Cruise 0190 (FARN0190)	
Cruise Report Number	:		
Cruise Description	:	USGS GLORIA studies of the exclusive economic zone of the USA: South West of Hawaii.	
Total Records	:	13924	
Bathymetry	:	13924	
Magnetics	:	13921	
Gravity	:	13620	
PSO	:	J.B. Wilson	
Start Port	:	Honolulu, U.S.A.	
End Port	:	Honolulu, U.S.A.	
Data Starts	:	1000z 05-Jan-90	JDay : 005
Data Ends	:	1806z 24-Jan-90	JDay : 024
Maximum Latitude	:	27.4353°N	
Minimum Latitude	:	22.2056°N	
Maximum Longitude	:	165.5600°W	
Minimum Longitude	:	178.0020°E	


25° 0.0'N
165° 0.0'W
170° 0.0'W
175° 0.0'W
180° 0.0'
180° 0.0'
175° 0.0'W
170° 0.0'W
165° 0.0'W
25° 0.0'N

Cruise Name : Farnella Cruise 0290 (FARN0290)

Cruise Report Number :

Cruise Description : USGS GLORIA studies of the exclusive economic zone of the USA: South West of Hawaii.

Total Records : 15646

Bathymetry : 5047

Magnetics : 14989

Gravity : 15645

PSO : R.G. Rothwell

Start Port : Honolulu, U.S.A.

End Port : Honolulu, U.S.A.

Data Starts : 0000z 30-Jan-90 JDay : 030

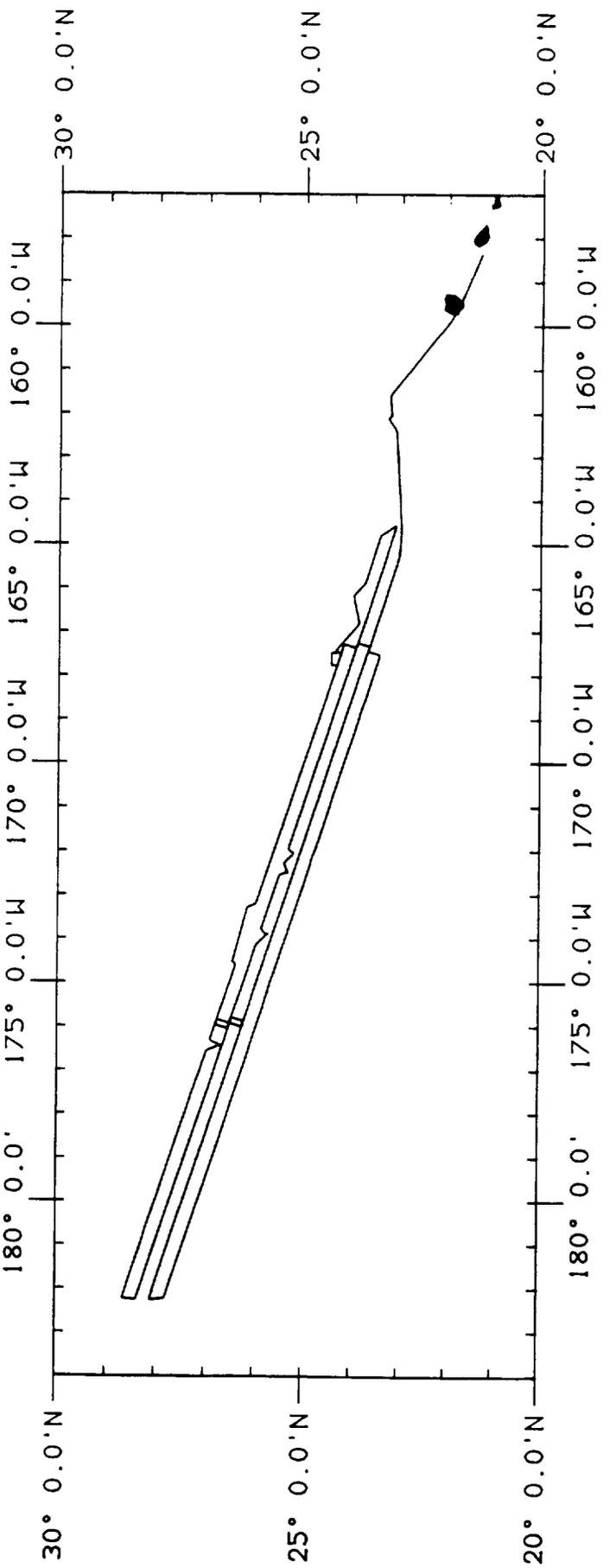
Data Ends : 1730z 20-Feb-90 JDay : 051

Maximum Latitude : 28.6425°N

Minimum Latitude : 21.3138°N

Maximum Longitude : 158.3700°W

Minimum Longitude : 177.7200°E


30° 0.0'N
25° 0.0'N
20° 0.0'N
180° 0.0'
175° 0.0'W
170° 0.0'W
165° 0.0'W
160° 0.0'W

Cruise Name : Farnella Cruise 0690 (FARN0690)

Cruise Report Number :

Cruise Description : TOBI survey of the Monterey Fan.

Total Records : 33103

Bathymetry : 0

Magnetics : 0

Gravity : 0

PSO : D.G. Masson

Start Port : Redwood City, U.S.A.

End Port : Redwood City, U.S.A.

Data Starts : 1644z 19-Jun-90 JDay : 170

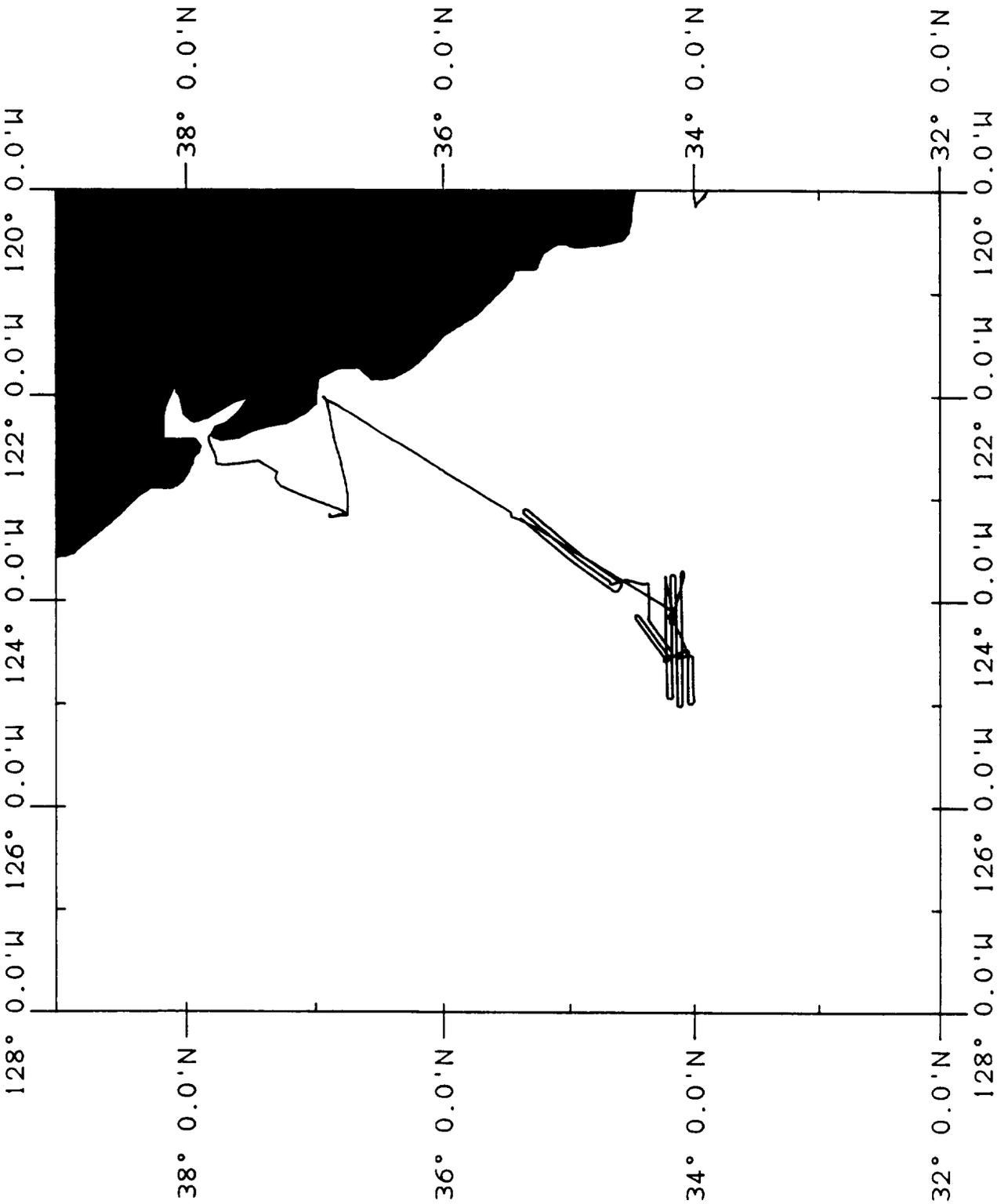
Data Ends : 2032z 12-Jul-90 JDay : 193

Maximum Latitude : 37.8320°N

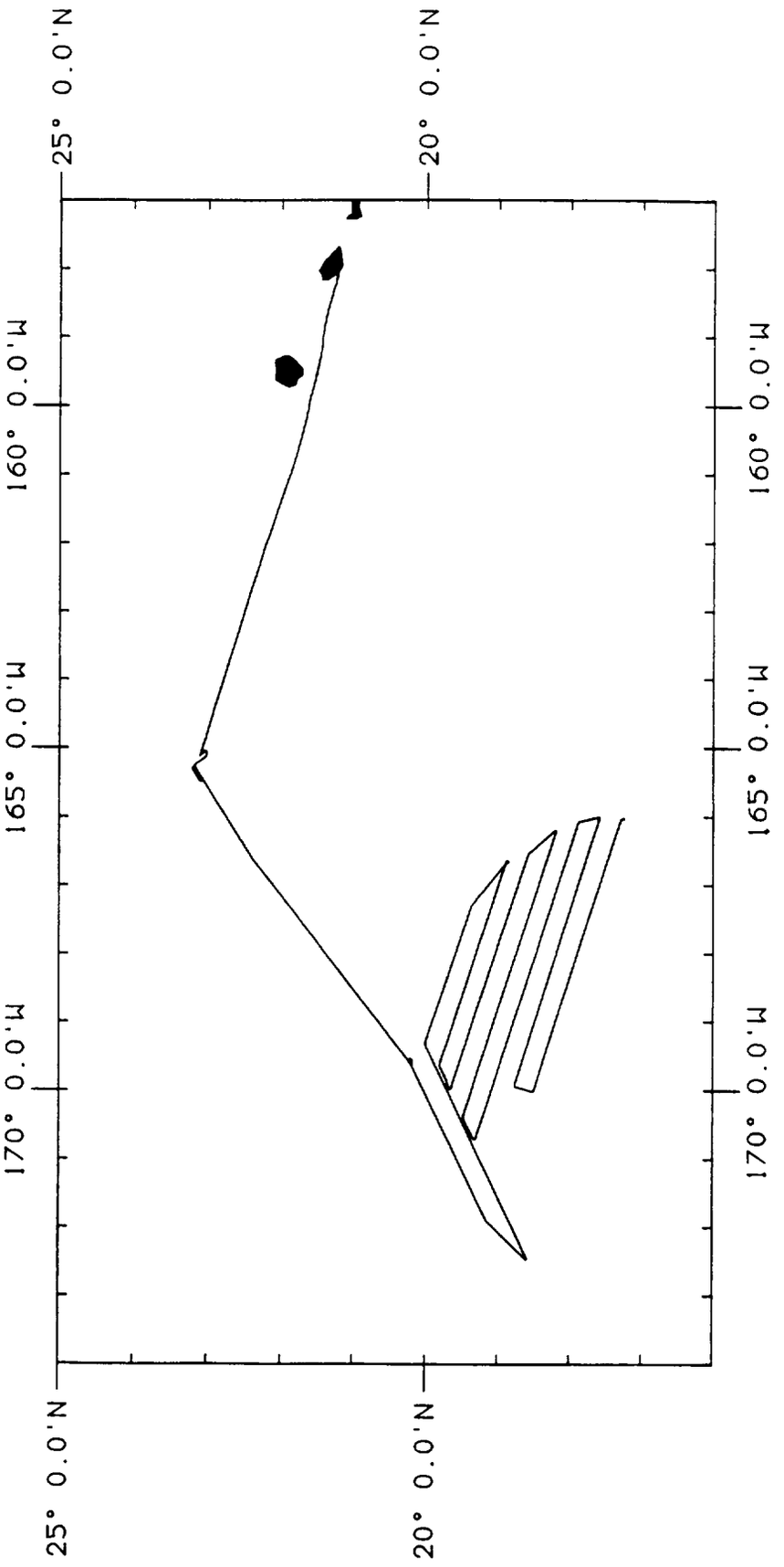
Minimum Latitude : 34.0021°N

Maximum Longitude : 122.0106°W

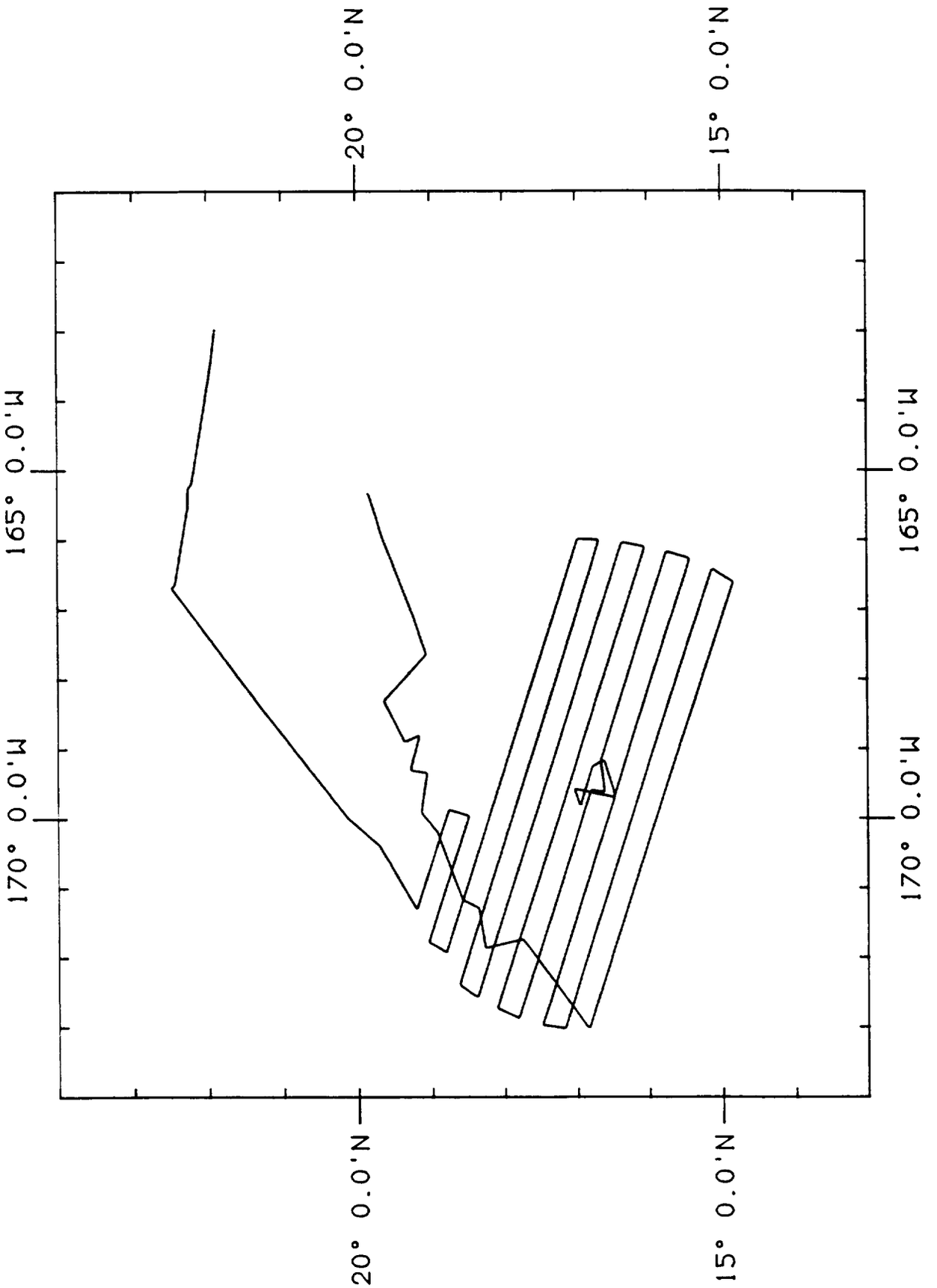
Minimum Longitude : 125.0181°W


38° 0.0'N
36° 0.0'N
34° 0.0'N
32° 0.0'N
128° 0.0'W
126° 0.0'W
124° 0.0'W
122° 0.0'W
120° 0.0'W

Cruise Name	: Farnella Cruise 1390 (FARN1390)	
Cruise Report Number	:	
Cruise Description	: USGS GLORIA studies of the exclusive economic zone of the USA: Johnston Atoll.	
Total Records	: 9379	
Bathymetry	: 9360	
Magnetics	: 8361	
Gravity	: 9097	
PSO	: Q.J. Huggett	
Start Port	: Honolulu, U.S.A.	
End Port	: Honolulu, U.S.A.	
Data Starts	: 2100z 06-Dec-90	JDay : 340
Data Ends	: 2300z 19-Dec-90	JDay : 353
Maximum Latitude	: 23.2101°N	
Minimum Latitude	: 17.2474°N	
Maximum Longitude	: 158.0802°W	
Minimum Longitude	: 172.4702°W	


25° 0.0'N
20° 0.0'N
160° 0.0'W
165° 0.0'W
170° 0.0'W
171° 0.0'W

Cruise Name	: Farnella Cruise 0191 (FARN0191)	
Cruise Report Number	:	
Cruise Description	: USGS GLORIA studies of the exclusive economic zone of the USA: Johnston Atoll.	
Total Records	: 16034	
Bathymetry	: 16024	
Magnetics	: 14727	
Gravity	: 15506	
PSO	: C.L. Jacobs	
Start Port	: Honolulu, U.S.A.	
End Port	: Honolulu, U.S.A.	
Data Starts	: 1930z 05-Jan-91	JDay : 005
Data Ends	: 0200z 28-Jan-91	JDay : 028
Maximum Latitude	: 22.4713°N	
Minimum Latitude	: 14.8422°N	
Maximum Longitude	: 162.9856°W	
Minimum Longitude	: 173.0219°W	


20° 0.0'N
15° 0.0'N
165° 0.0'W
170° 0.0'W

Cruise Name : Farnella Cruise 0291 (FARN0291)

Cruise Report Number :

Cruise Description : USGS GLORIA studies of the exclusive economic zone of the USA: Johnston Atoll.

Total Records : 10981

Bathymetry : 10972

Magnetics : 10961

Gravity : 10961

PSO : C.L. Jacobs

Start Port : Honolulu, U.S.A.

End Port : Hilo, U.S.A.

Data Starts : 0412z 03-Feb-91 JDay : 034

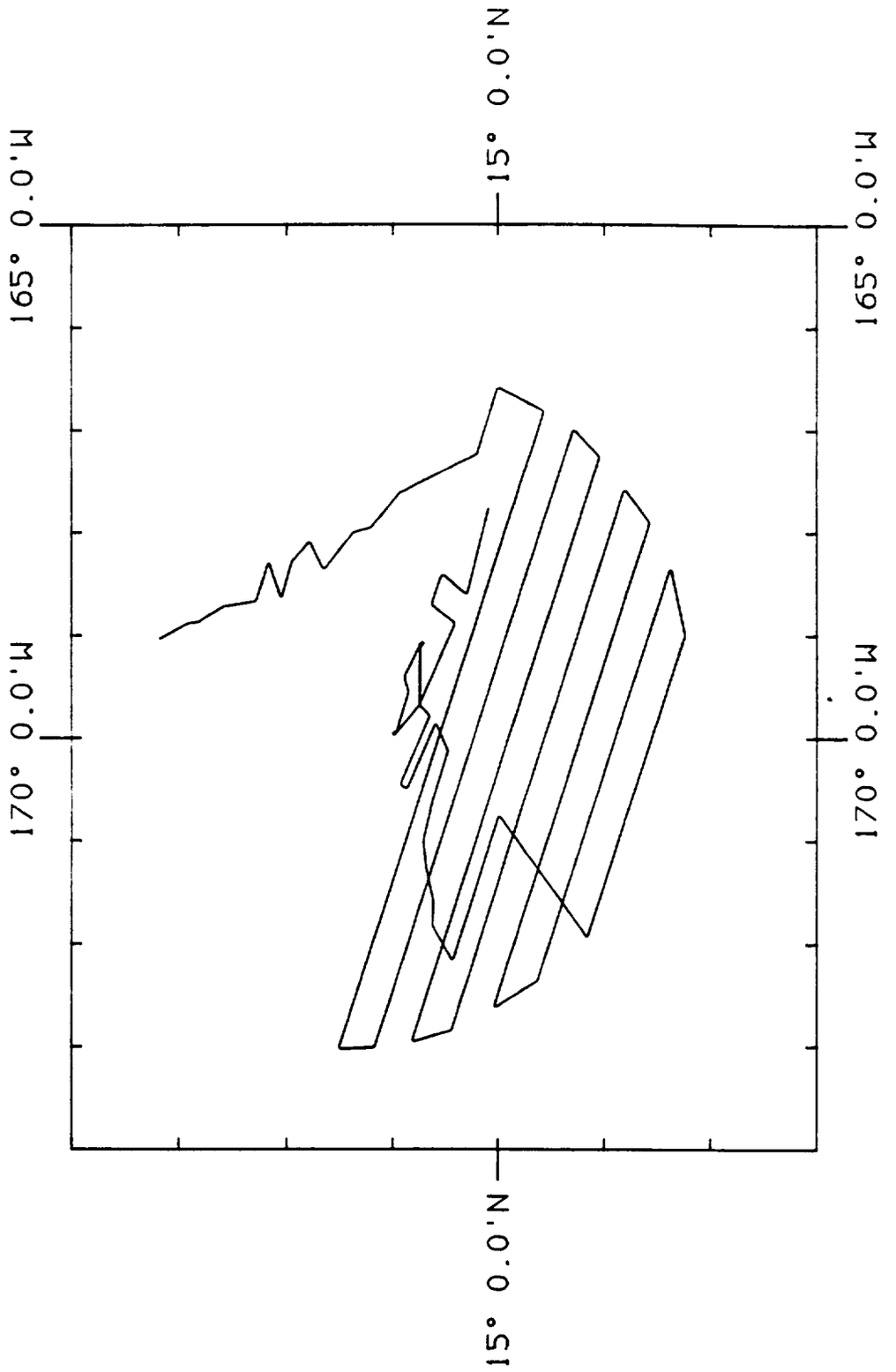
Data Ends : 1012z 18-Feb-91 JDay : 049

Maximum Latitude : 18.1745°N

Minimum Latitude : 13.2397°N

Maximum Longitude : 166.5931°W

Minimum Longitude : 173.0250°W


165° 0.0'W
15° 0.0'N
165° 0.0'W
170° 0.0'W
170° 0.0'W
15° 0.0'N

Cruise Name : Farnella Cruise 0391 (FARN0391)

Cruise Report Number :

Cruise Description : USGS GLORIA studies of the exclusive economic zone of the USA: Kingman Reef and Palmyra Atoll.

Total Records : 17231

Bathymetry : 5189

Magnetics : 15442

Gravity : 0

PSO : J.B. Wilson

Start Port : Hilo, U.S.A.

End Port : Honolulu, U.S.A.

Data Starts : 2036z 25-Feb-91 JDay : 056

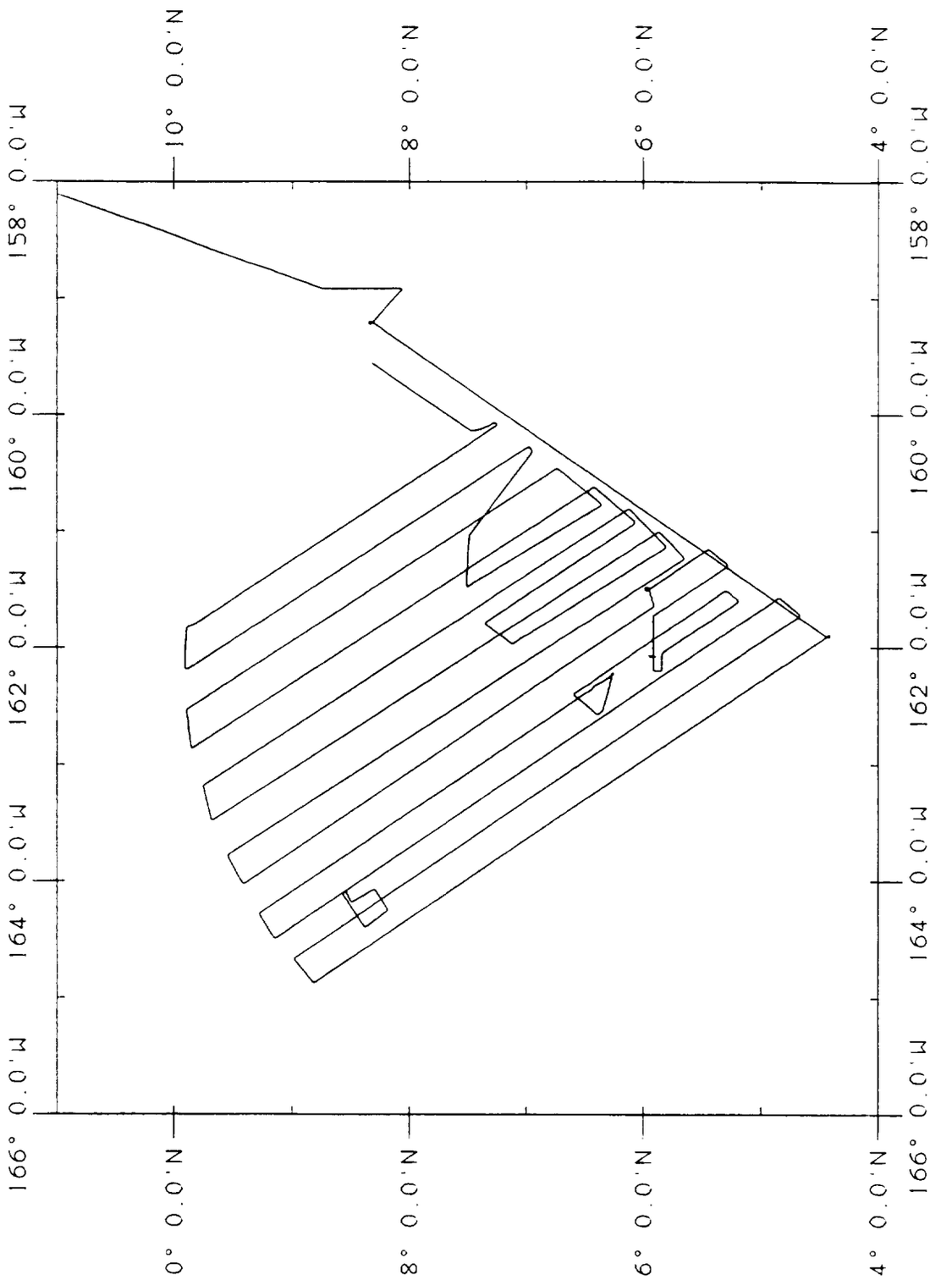
Data Ends : 1948z 21-Mar-91 JDay : 080

Maximum Latitude : 19.7703°N

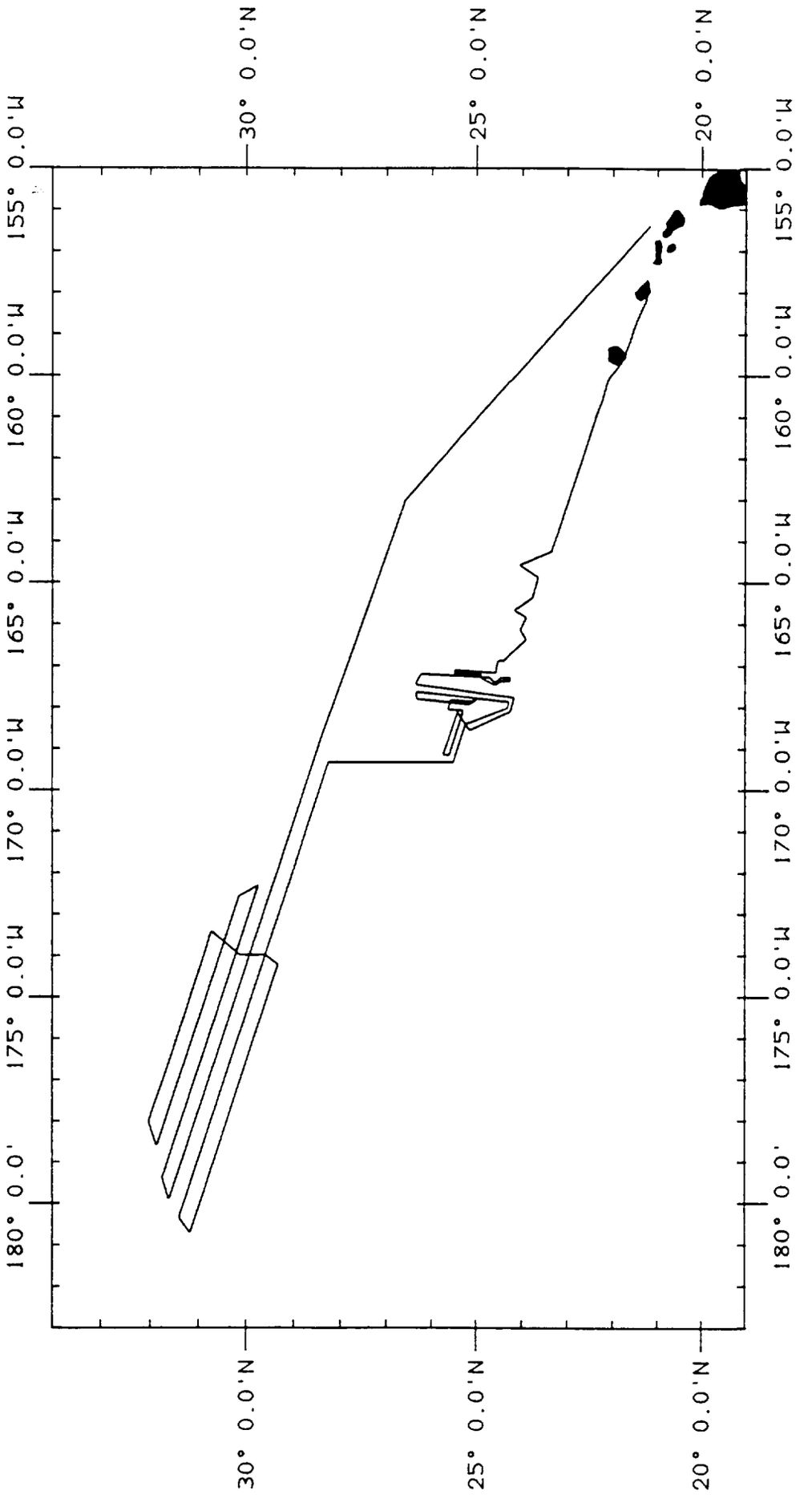
Minimum Latitude : 04.4122°N

Maximum Longitude : 154.7631°W

Minimum Longitude : 164.8723°W


10° 0.0' N
8° 0.0' N
6° 0.0' N
4° 0.0' N
158° 0.0' W
160° 0.0' W
162° 0.0' W
164° 0.0' W
166° 0.0' W

Cruise Name	: Farnella Cruise 0591 (FARN0591)	
Cruise Report Number	:	
Cruise Description	: USGS GLORIA studies of the exclusive economic zone of the USA: North of Hawaii	
Total Records	: 17706	
Bathymetry	: 5748	
Magnetics	: 16043	
Gravity	: 16348	
PSO	: USGS (R. Holcomb)	
Start Port	: Hilo, U.S.A.	
End Port	: Honolulu, U.S.A.	
Data Starts	: 0430z 25-APR-91	JDay : 115
Data Ends	: 1840z 19-MAY-91	JDay : 139
Maximum Latitude	: 32.0306°N	
Minimum Latitude	: 21.1756°N	
Maximum Longitude	: 156.3812°W	
Minimum Longitude	: 179.3012°E	


30° 0.0'N
25° 0.0'N
20° 0.0'N
155° 0.0'W
160° 0.0'W
165° 0.0'W
170° 0.0'W
175° 0.0'W
180° 0.0'

Cruise Name : Farnella Cruise 0691 (FARN0691)

Cruise Report Number :

Cruise Description : USGS GLORIA studies of the exclusive economic zone of the USA: North West of Hawaii.

Total Records : 13629

Bathymetry : 4541

Magnetics : 13545

Gravity : 13503

PSO : USGS (R. Denlinger)

Start Port : Honolulu, U.S.A.

End Port : Honolulu, U.S.A.

Data Starts : 2020z 23-MAY-91 JDay : 143

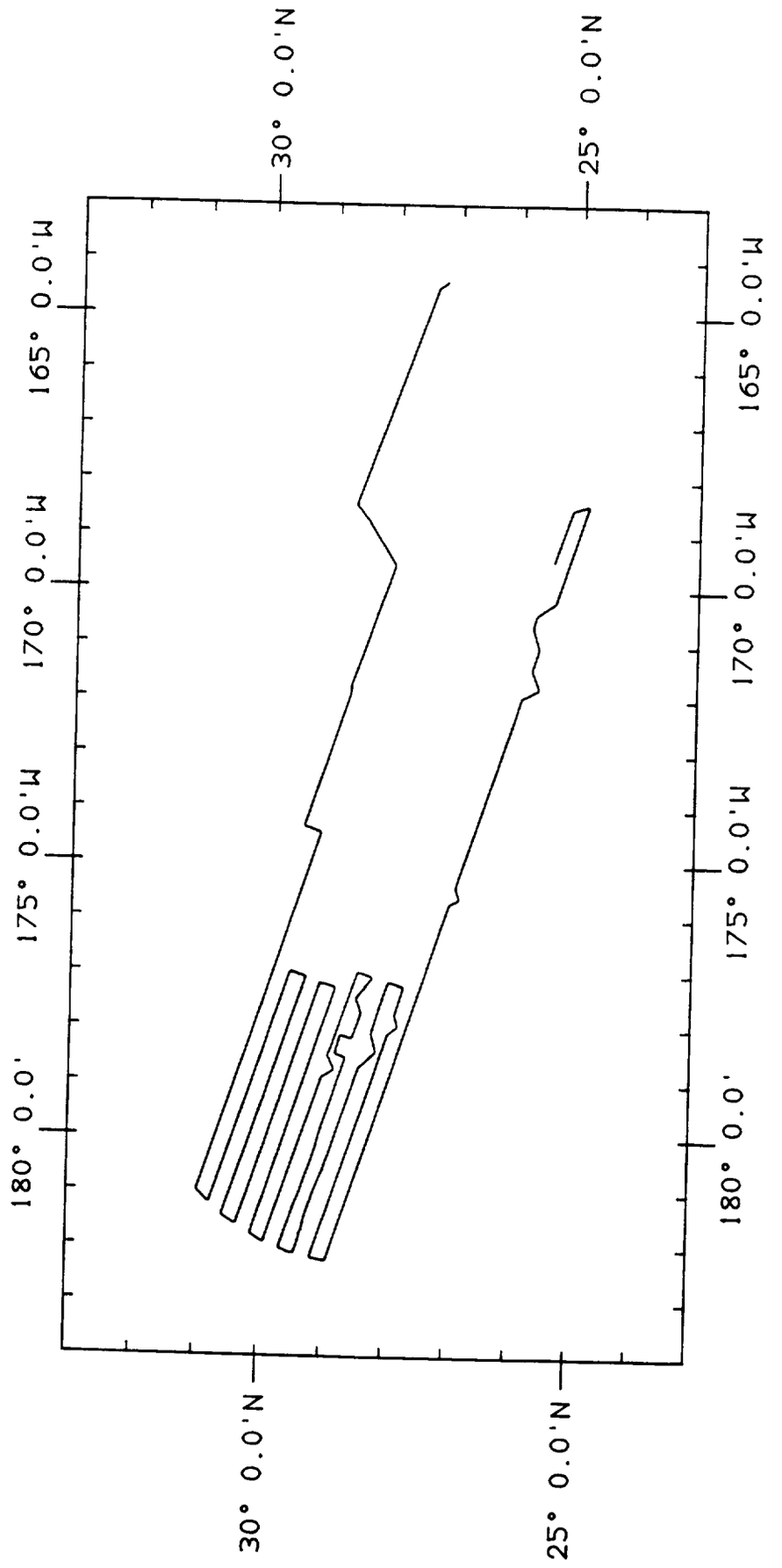
Data Ends : 1836z 11-JUN-91 JDay : 162

Maximum Latitude : 30.9667°N

Minimum Latitude : 24.8331°N

Maximum Longitude : 164.4010°W

Minimum Longitude : 177.8767°E


30° 0.0'N
25° 0.0'N
165° 0.0'W
170° 0.0'W
175° 0.0'W
180° 0.0'

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Keys to Geophysical Records Documentation No. 10 (Revised).

APPENDIX A

PUBLISHED CRUISE REPORTS

205 THOMPSON, J. et. al., 1989. *RRS DISCOVERY* CRUISE 177, 26 August- 05 October 1988. Geochemical and geological observations over the Maderia and Tagus Abyssal Plains 34pp.

223 WEAVER, P.P.E. et. al., 1991. *RRS DISCOVERY* CRUISE 187, 20 Oct- 20 Nov 1989. Geological and geochemical investigations in the Tagus, Horseshoe and Seine Abyssal Plains. 34pp.

212 MASSON, D.G. et. al., 1990. *RRS DISCOVERY* CRUISE 188, 24 Jan- 24 Feb 1990. GLORIA and TOBI surveys of the continental slope and rise around the Canary Islands. 28pp.

225 KING, B.A. et. al., 1991. *RRS DISCOVERY* CRUISE 189, 09 Mar- 08 Apr 1990. Circulation and structure of the Bay of Biscay and north east Atlantic out to 20°W and 41°N. 45pp.

202 MASSON, D.G. et. al., 1988. *RRS CHARLES DARWIN* CRUISE 30/88, 2 February- 6 March 1988. Active margin tectonics in eastern Indonesia: a study with GLORIA and underway geophysics. 20pp.

206 PARSON, L.M. et. al., 1989. *RRS CHARLES DARWIN* CRUISE 33/88, 5 May- 1 Jun, 1988. Geophysical and geological investigations of the Lau back-arc Basin, SW Pacific. 28pp.

Int. Docu. 284 JACOBS, C.L. and DARLINGTON, E., 1988. Confidential report to the New Zealand Oceanographic Institute and the Ministry of Defence, New Zealand. GLORIA surveys in the Bay of Plenty and the Havre Trough.

211 SEARLE, R.C. et. al., 1989. *RRS CHARLES DARWIN* CRUISE 35/88, 13 Oct- 17 Nov 1988. GLORIA study of the Easter microplate, East Pacific Rise. 32pp.

218 MASSON, D.G. et. al., 1990. *RRS CHARLES DARWIN* CRUISE 52, 25 Aug- 13 Sep 1990. Multi-channel seismic reflection survey of the southern margin of the Rockall Plateau. 16pp.

224 WHITMARSH, R.B. and SCRUTTON, R.A. et. al., 1991. *RRS CHARLES DARWIN* CRUISE 55, 06 Jan- 05 Feb 1991. Geophysical investigations of the Ghana transform continental margin, Gulf of Guinea. 43pp.

SEARLE, R.C. et. al., 1991. University of Durham, Department of Geological Science, Cruise Report. *RRS CHARLES DARWIN* CRUISE 57, 15 Mar- 12 Apr 1991. Deep towed geophysical surveys and sampling of Kane Transform fault and the adjacent Mid-Atlantic Ridge.

226 MASSON, D.G. and GARDNER, J.V. et. al., 1991. *MV FARNELLA* CRUISE 6/90, 19 Jun- 13 Jul 1990. TOBI surveys of the Monterey Fan. 13pp.

APPENDIX B

ADDRESSES FOR DATA SOURCES

Acquisition of data or further information on the data summarised in this report can be obtained from the following:

(1) For data already lodged with the World Data Centre:

World Data Centre A,
Marine Geology and Geophysics,
NOAA/EDIS (D-64),
325, Broadway,
Boulder,
Colorado 80303,
U.S.A.

Tel: (303) 4976119
Fax: (303) 4976513
Telex: (23) 7401070 WDCA

(2) For released data or specific enquiries:

Head of Geology and Geophysics Group,
IOSDL,
Brook Road,
Wormley,
Godalming,
Surrey,
GU8 5UB,
U.K.

Tel: (0428) 684141
Fax: (0428) 683066
Telex: 858833 OCEANSG

(3) For all other enquiries:

Marine Information and Advisory Service,
IOSDL,
Brook Road,
Wormley,
Godalming,
Surrey,
GU8 5UB,
U.K.

Tel: (0428) 684141
Fax: (0428) 683066
Telex: 858833 OCEANSG

APPENDIX C

Julian Day number/Date conversion tables

NON-LEAP YEAR

JAN		FEB		MAR		APR		MAY		JUN	
1	1	1	32	1	60	1	91	1	121	1	152
2	2	2	33	2	61	2	92	2	122	2	153
3	3	3	34	3	62	3	93	3	123	3	154
4	4	4	35	4	63	4	94	4	124	4	155
5	5	5	36	5	64	5	95	5	125	5	156
6	6	6	37	6	65	6	96	6	126	6	157
7	7	7	38	7	66	7	97	7	127	7	158
8	8	8	39	8	67	8	98	8	128	8	159
9	9	9	40	9	68	9	99	9	129	9	160
10	10	10	41	10	69	10	100	10	130	10	161
11	11	11	42	11	70	11	101	11	131	11	162
12	12	12	43	12	71	12	102	12	132	12	163
13	13	13	44	13	72	13	103	13	133	13	164
14	14	14	45	14	73	14	104	14	134	14	165
15	15	15	46	15	74	15	105	15	135	15	166
16	16	16	47	16	75	16	106	16	136	16	167
17	17	17	48	17	76	17	107	17	137	17	168
18	18	18	49	18	77	18	108	18	138	18	169
19	19	19	50	19	78	19	109	19	139	19	170
20	20	20	51	20	79	20	110	20	140	20	171
21	21	21	52	21	80	21	111	21	141	21	172
22	22	22	53	22	81	22	112	22	142	22	173
23	23	23	54	23	82	23	113	23	143	23	174
24	24	24	55	24	83	24	114	24	144	24	175
25	25	25	56	25	84	25	115	25	145	25	176
26	26	26	57	26	85	26	116	26	146	26	177
27	27	27	58	27	86	27	117	27	147	27	178
28	28	28	59	28	87	28	118	28	148	28	179
29	29			29	88	29	119	29	149	29	180
30	30			30	89	30	120	30	150	30	181
31	31			31	90			31	151		

NON-LEAP YEAR

JUL		AUG		SEP		OCT		NOV		DEC	
1	182	1	213	1	244	1	274	1	305	1	335
2	183	2	214	2	245	2	275	2	306	2	336
3	184	3	215	3	246	3	276	3	307	3	337
4	185	4	216	4	247	4	277	4	308	4	338
5	186	5	217	5	248	5	278	5	309	5	339
6	187	6	218	6	249	6	279	6	310	6	340
7	188	7	219	7	250	7	280	7	311	7	341
8	189	8	220	8	251	8	281	8	312	8	342
9	190	9	221	9	252	9	282	9	313	9	343
10	191	10	222	10	253	10	283	10	314	10	344
11	192	11	223	11	254	11	284	11	315	11	345
12	193	12	224	12	255	12	285	12	316	12	346
13	194	13	225	13	256	13	286	13	317	13	347
14	195	14	226	14	257	14	287	14	318	14	348
15	196	15	227	15	258	15	288	15	319	15	349
16	197	16	228	16	259	16	289	16	320	16	350
17	198	17	229	17	260	17	290	17	321	17	351
18	199	18	230	18	261	18	291	18	322	18	352
19	200	19	231	19	262	19	292	19	323	19	353
20	201	20	232	20	263	20	293	20	324	20	354
21	202	21	233	21	264	21	294	21	325	21	355
22	203	22	234	22	265	22	295	22	326	22	356
23	204	23	235	23	266	23	296	23	327	23	357
24	205	24	236	24	267	24	297	24	328	24	358
25	206	25	237	25	268	25	298	25	329	25	359
26	207	26	238	26	269	26	299	26	330	26	360
27	208	27	239	27	270	27	300	27	331	27	361
28	209	28	240	28	271	28	301	28	332	28	362
29	210	29	241	29	272	29	302	29	333	29	363
30	211	30	242	30	273	30	303	30	334	30	364
31	212	31	243			31	304			31	365

LEAP YEAR (1964, 1968, 1972, 1976, 1980, 1984, 1988)

JAN		FEB		MAR		APR		MAY		JUN	
1	1	1	32	1	61	1	92	1	122	1	153
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4	4	4	35	4	64	4	95	4	125	4	156
5	5	5	36	5	65	5	96	5	126	5	157
6	6	6	37	6	66	6	97	6	127	6	158
7	7	7	38	7	67	7	98	7	128	7	159
8	8	8	39	8	68	8	99	8	129	8	160
9	9	9	40	9	69	9	100	9	130	9	161
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14	14	14	45	14	74	14	105	14	135	14	166
15	15	15	46	15	75	15	106	15	136	15	167
16	16	16	47	16	76	16	107	16	137	16	168
17	17	17	48	17	77	17	108	17	138	17	169
18	18	18	49	18	78	18	109	18	139	18	170
19	19	19	50	19	79	19	110	19	140	19	171
20	20	20	51	20	80	20	111	20	141	20	172
21	21	21	52	21	81	21	112	21	142	21	173
22	22	22	53	22	82	22	113	22	143	22	174
23	23	23	54	23	83	23	114	23	144	23	175
24	24	24	55	24	84	24	115	24	145	24	176
25	25	25	56	25	85	25	116	25	146	25	177
26	26	26	57	26	86	26	117	26	147	26	178
27	27	27	58	27	87	27	118	27	148	27	179
28	28	28	59	28	88	28	119	28	149	28	180
29	29	29	60	29	89	29	120	29	150	29	181
30	30			30	90	30	121	30	151	30	182
31	31			31	91			31	152		

LEAP YEAR (1964, 1968, 1972, 1976, 1980, 1984, 1988)

JUL		AUG		SEP		OCT		NOV		DEC	
1	183	1	214	1	245	1	275	1	306	1	336
2	184	2	215	2	246	2	276	2	307	2	337
3	185	3	216	3	247	3	277	3	308	3	338
4	186	4	217	4	248	4	278	4	309	4	339
5	187	5	218	5	249	5	279	5	310	5	340
6	188	6	219	6	250	6	280	6	311	6	341
7	189	7	220	7	251	7	281	7	312	7	342
8	190	8	221	8	252	8	282	8	313	8	343
9	191	9	222	9	253	9	283	9	314	9	344
10	192	10	223	10	254	10	284	10	315	10	345
11	193	11	224	11	255	11	285	11	316	11	346
12	194	12	225	12	256	12	286	12	317	12	347
13	195	13	226	13	257	13	287	13	318	13	348
14	196	14	227	14	258	14	288	14	319	14	349
15	197	15	228	15	259	15	289	15	320	15	350
16	198	16	229	16	260	16	290	16	321	16	351
17	199	17	230	17	261	17	291	17	322	17	352
18	200	18	231	18	262	18	292	18	323	18	353
19	201	19	232	19	263	19	293	19	324	19	354
20	202	20	233	20	264	20	294	20	325	20	355
21	203	21	234	21	265	21	295	21	326	21	356
22	204	22	235	22	266	22	296	22	327	22	357
23	205	23	236	23	267	23	297	23	328	23	358
24	206	24	237	24	268	24	298	24	329	24	359
25	207	25	238	25	269	25	299	25	330	25	360
26	208	26	239	26	270	26	300	26	331	26	361
27	209	27	240	27	271	27	301	27	332	27	362
28	210	28	241	28	272	28	302	28	333	28	363
29	211	29	242	29	273	29	303	29	334	29	364
30	212	30	243	30	274	30	304	30	335	30	365
31	213	31	244			31	305			31	366

APPENDIX D

DATA AVAILABLE THROUGH WORLD DATA CENTRE

Data from the following cruises are currently available through World Data Centre. This list also covers cruises detailed in IOS Report Nos. 194 (1985) and 254 (1988).

DISCOVERY	54 LEGS 1&2
	60
	68 LEG 2
	73 LEGS 1&2
	74 LEG 2
	84 LEGS 1&2
	90 LEGS 1&2
	91
	93 LEGS 1&2
	96
	101
	103
	104
	106 LEG 2
	107 LEGS 1,2&3
	109 LEGS 1&2
	110 LEGS 1&2
	111 LEGS 1&2
	118 LEGS 1&2
	123 LEGS 1&2
	131 LEGS 1,2&3
	134
	142
	144
	153
	163
SHACKLETON	3/75
	4/75
	3/76 LEG 2
	6/76
	8/77
	6/79 LEGS 1&2
STARELLA	1/79
FARNELLA	2/81 LEGS 1&2
	3/81
	4/81
CHARLES DARWIN	9B/85

DATA DUE TO BE RELEASED TO THE WORLD DATA CENTRE

FARNELLA	1 TO 4 /84
	1 TO 4 /85
	1 TO 6 /86
	1 TO 8 /87
	1 /88
	3 TO 10 /88
	3 /89
	6 TO 7 /89
	12 TO 13 /89
	1 TO 2 /90
	6 /90
	13 /90
	1 TO 3 /91
	5 TO 6 /91
HMAS COOK	8917
DISCOVERY	161
	177
	187
	188
	189
CHARLES DARWIN	11 /86
	20 /87
	23 /87
	27 /87
	30 /88
	33 /88
	35 /88
	36 /88
	40A /88
	52 /90
	55 /91
	56 /91
	57 /91