

AD-A009 796

A PROGRAM FOR COPYING A GEODATA DATA TAPE

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Naval Research Laboratory

Prepared for:

Advanced Research Projects Agency

31 March 1975

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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER NRL Report 7862	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER AD/A 00 9796
4. TITLE (and Subtitle) A PROGRAM FOR COPYING A GEODATA DATA TAPE		5. TYPE OF REPORT & PERIOD COVERED Final report on one phase of a continuing NRL Problem
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Marilyn L. Blodgett and James V. Massingill		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS Naval Research Laboratory Washington, D.C. 20375		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS NRL Problem S01-47 ZF 52-552-01, Element 62755N, Arctic Submarine Lab. Proj. 4-0002 ARPA Order 1787
11. CONTROLLING OFFICE NAME AND ADDRESS Naval Electronic Systems Command Washington, D.C. 20360		12. REPORT DATE March 31, 1975
		13. NUMBER OF PAGES 27
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Oceanography Data tapes Geophysics Navigation Bathymetry Magnetism		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) A program has been written for reading a GEODATA tape and copying all or portions of the navigational, bathymetric, and magnetism data by listing, by punching cards, and/or by writing a new tape. The program can eliminate data not taken on certain dates or data which do not fall in a certain area of latitude and longitude. The program thus enables the scientist to exchange data in any convenient form while eliminating any classified information. The program was written in Fortran IV for use on the CDC 3800; however the program can be converted to run on other systems with little difficulty.		

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S/N 0102-014-6601

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SECURITY CLASSIFICATION OF THIS PAGE (When Date Entered)

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A PROGRAM FOR COPYING A GEODATA DATA TAPE

1.0 INTRODUCTION

1.1 Title

Program for copying a GEODATA data tape.

1.2 Identification Name

GEOREAD.

1.3 Classification Code

None.

1.4 NRL Research Computation Center Identification Number

None.

1.5 Entry Points

GEOREAD.

1.6 Programming Language

Language: 3600/3800 Fortran.

Routine Type: Program.

Operating System: Drum Scope 2.1.

1.7

1.7 Computer and Configuration

CDC 3800.

1.8 Contribution or Programmer

Marilyn L. Blodgett, Code 4223MB Research Computation Center, Office of Director of Research, written for Environmental Sciences Section, Acoustics Division.

1.9 Contributing Organization

NRL — Naval Research Laboratory, Washington, D.C. 20375.

NOTE: Manuscript submitted January 9, 1975.

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1.10 Program Availability

If supplied with a magnetic tape, a copy of this program will be made available by the Environmental Sciences Section, Acoustics Division.

1.11 Verification

This program has been used and tested by the Environmental Sciences Section, Acoustics Division.

1.12 Date

September 1974.

2.0 PURPOSE

2.1 Description of the Routine

The program reads a data tape written by program GEODATA and copies all or portions of the data by listing, by punching cards and/or by writing a new tape. The input data tape, as well as the new tape, is written in the format recommended by the National Research Council of the National Academy of Sciences with one slight modification for the navigational data. There is one logical record (of 80 characters) for each data point. The different types of data (navigation, bathymetry, and magnetics) are separated by an end-of-file mark with a double end-of-file mark at the end of all the data. The cards will be punched in the same format as the tape.

The program has one input card which specifies which types of data should be copied and how they should be copied. If only certain portions of the data are to be copied, the card specifies the dates and times or the latitude and longitude values defining the desired area.

2.2 Problem Background

A program was needed to copy GEODATA tapes in order to exchange the data collected by oceanographic and geophysical cruises with other facilities. The use of the format recommended by the National Research Council of the National Academy of Sciences simplifies the reporting of such data.

3.0 USAGE

3.1 Calling Sequence or Operational Procedure

Not applicable.

3.2 Arguments, Parameters, and/or Initial Conditions

Not Applicable.

3.3 Space Required (Decimal and Octal)

3.3.1 Unique Storage

2113 octal (587 decimal) locations exclusive of system library functions.

3.3.2 Common Blocks

None.

3.3.3 Temporary Storage.

None.

3.4 Messages and Instructions to the Operation

None.

3.5 Error Returns, Messages, and Codes

None.

3.6 Informative Messages to the User

None.

3.7 Input

The program has one input card which specifies which types of data (navigation, bathymetry, magnetics) are to be copied, how they are to be copied (list, punch, or write new tape), and the specific portions of data to be copied. Appendix B is a complete description of the input setup and shows samples of the format for the three types of data on the GEODATA data tape.

3.8 Output

The program will write a new tape on logical unit 12 in the same format as the GEODATA input tape (see Appendix A). It will also punch cards in the same format — one card for each logical record. There is also an option for listing all the required records on the standard printer (logical unit 61). Appendix C is a sample output listing.

3.9 Formats

Appendix B, which shows the program deck structure, describes the formats.

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3.10 External Routines and Symbols

SKIPFILE,
XMODF.

3.11 Timing

The time required depends on the number of records to be read and copied.

3.12 Accuracy

Not applicable.

3.13 Caution to User

None.

3.14 Program Deck Structure

See Appendix B.

3.15 References — Literature

"Formats for Marine Geophysical Data Exchange," National Academy of Sciences, June 1972.

M.L. Blodgett and J.V. Massingill, "A Program for Storing Oceanographic Data on Magnetic Tape," NRL Report 7861, March 1975.

4.0 METHOD OR ALGORITHM

Not applicable.

5.0 FLOW CHART AND/OR SOURCE LANGUAGE LISTING

Flow chart and listing are given in Appendix D.

6.0 COMPARISON

There are no other known programs available for comparison.

7.0 TEST METHOD AND RESULTS

A sample of the listing for all three types of data are given in Appendix C. Samples

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of the data records written on the new tape of punched on cards are seen in Appendix A.

8.0 REMARKS

None.

Appendix A SAMPLE DATA RECORDS

NAVIGATION

Cruise Number	Time Zone	Year	Month	Day	Hour	Minute	Latitude	Longitude	Fix Description	Fix Number
731602	073	82	10	30	72.8333	10.2255				204
000000	000000	00	00	00	00	00	00000000	00000000	00000000	00000000
111111	111111	11	11	11	11	11	11111111	11111111	11111111	11111111
222222	222222	22	22	22	22	22	22222222	22222222	22222222	22222222
333333	333333	33	33	33	33	33	33333333	33333333	33333333	33333333
444444	444444	44	44	44	44	44	44444444	44444444	44444444	44444444
555555	555555	55	55	55	55	55	55555555	55555555	55555555	55555555
666666	666666	66	66	66	66	66	66666666	66666666	66666666	66666666
777777	777777	77	77	77	77	77	77777777	77777777	77777777	77777777
888888	888888	88	88	88	88	88	88888888	88888888	88888888	88888888
999999	999999	99	99	99	99	99	99999999	99999999	99999999	99999999

^aImplies a decimal point.

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BATHYMETRY

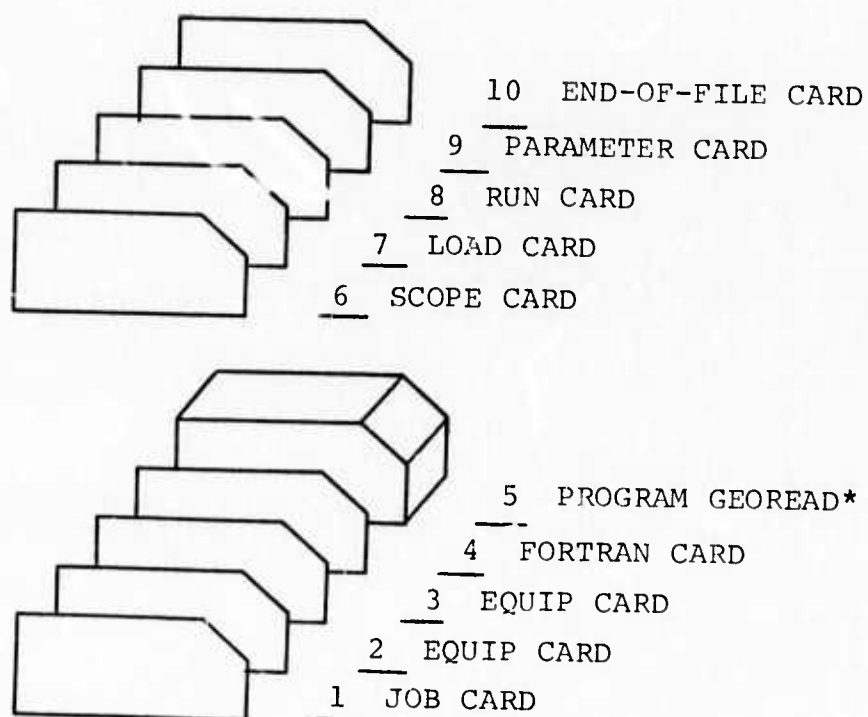
Cruise Number	Time Zone	Year	Month	Day	Hour	Minute	Latitude	Longitude	Uncorrected Fathoms	Corrected Meters	Matthews Zone
731602		073	823		11500		75.4981	3.7553	20067	3704	3
000000	00000	00000	00000	00000	00000	000000000	000000000	000000000	000000000	000000000	000000000
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60
222222	22222	22222	22222	22222	22222	222222222	222222222	222222222	222222222	222222222	222222222
333333	33333	33333	33333	33333	33333	333333333	333333333	333333333	333333333	333333333	333333333
444444	44444	44444	44444	44444	44444	444444444	444444444	444444444	444444444	444444444	444444444
555555	55555	55555	55555	55555	55555	555555555	555555555	555555555	555555555	555555555	555555555
666666	66666	66666	66666	66666	66666	666666666	666666666	666666666	666666666	666666666	666666666
777777	77777	77777	77777	77777	77777	777777777	777777777	777777777	777777777	777777777	777777777
888888	88888	88888	88888	88888	88888	888888888	888888888	888888888	888888888	888888888	888888888
999999	99999	99999	99999	99999	99999	999999999	999999999	999999999	999999999	999999999	999999999

^aImplies a decimal point.

MAGNETICS

^ΔImplies a decimal point.

Appendix B
DECK ASSEMBLY FOR PROGRAM GEOREAD



* If a binary deck is used in place of the Fortran source deck, then cards 4, 6, and 7 can be eliminated.

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Card Number	Card Title	Column Number	Description
1	Job	1-21	7/9 JOB, charge No., ID No., time. See page 2-2 of the 3600/3800 Computer System Drum Scope Manual.
2	Equip	1-18	7/9 EQUIP, 10=**, RO, HI
3	Equip	1-18	7/9 EQUIP, 12=**, WO, HI 10, 12 = logical unit number. RO = read only. WO = write only. HI = high density. See Page 2-3 of the 3600/3800 Computer System Drum Scope Manual.
4	Fortran	1-6	7/9 FTN, X If a listing of the program is required, add an L after the X (7/9 FIN, X, L). See page 2-20 of the 3600/3800 Computer System Drum Scope Manual.
5	Program GEOREAD	Deck of Cards	Fortran program deck.
6	Scope	10-14	SCOPE
7	Load	1-5	7/9 LOAD
8	Run	1-13	7/9 RUN, T, P, R, M, D T = time limit in minutes P = maximum number of print or write operations. R, M, D may be left blank. See page 2-15 of the 3600/3800 Computer System Drum Scope Manual.
9	Parameter	1	0 or 1 0 = skip first file. 1 = copy first file.
		2	1, 2, or 3 The first file is: 1 = navigation, 2 = bathymetry, 3 = magnetics.

(Continued)

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Card Number	Card Title	Column Number	Description
		3	0, 1, or 2 0 = skip second file. 1 = copy second file 2 = end of files to be copied.
		4	1, 2, or 3 The second file is: 1 = navigation, 2 = bathymetry, 3 = magnetics.
		5	0, 1, or 2 0 = skip third file. 1 = copy third file. 2 = End of files to be copied.
		6	1, 2, or 3 The third file is: 1 = navigation, 2 = bathymetry, 3 = magnetics.
		8	0 or 1 0 = do not copy the specified files on mag- netic tape 1 = copy the specified files on magnetic tape.
		10	0 or 1 0 = do not print a listing of the specified files. 1 = print a listing of the specified files.
		12	0 or 1 0 = do not punch cards of the specified files. 1 = do punch cards of the specified files (one card for each logical record).
		14	0, 1, or 2 0 = only the data within a certain area is to be copied. The latitude and longitude defining the area are in Columns 31-70. 1 = only the data taken during a certain time interval is to be copied. The beginning (Continued)

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Card Number	Card Title	Column Number	Description
			and ending time are defined in Columns 15-30. 2 = all the data are to be copied.
		If Column 14 = 1:	
		15-22	07172130 This is the time the program starts copying data. Columns 15-16 = month, Columns 17-18 = day, Columns 19-20 = hour, Columns 21-22 = minute.
		23-30	08152215 This is the time the program stops copying the data. 23-24 = month, 25-26 = day, 27-28 = hour, 29-30 = minute.
		In the above example (Columns 15-30) the data between July 17 at 21 hours and 30 minutes and August 15 at 22 hours and 15 minutes will be copied.	
		If Column 14 = 0:	
		31-40	40.50 This is the southernmost latitude of the area to be copied.
		41-50	50.00 The northernmost latitude.
		51-60	-28.00 The westernmost longitude.
		61-70	-14.00 The easternmost longitude. Columns 31-70, the positions are in degrees and hundredths of a degree (not degrees and minutes). Southern latitudes and western longitudes are preceded by a minus sign.
10	End-of-File		One EOF card is needed to terminate the run.

APPENDIX C
SAMPLE OUTPUT LISTING

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NAVIGATION

SHIP AND CRUISE IDENTIFICATION	TIME ZONE	YEAR	MONTH	DAY	HOUR	MINUTE	LATITUDE	LONGITUDE	FIX DESCRIPTION	FIX NUMBER
73-16-02	0	73	6	22	10	6.0	72.7297	-10.3975	50	200
73-16-02	0	73	6	22	10	40.0	72.7710	-10.3330	50	201
73-16-02	0	73	6	22	10	50.0	72.7850	-10.3167	49	202
73-16-02	0	73	6	22	11	0.0	72.7953	-10.2895	50	203
73-16-02	0	73	6	22	11	30.0	72.8333	-10.2253	50	204
73-16-02	0	73	6	22	11	54.0	72.8647	-10.1642	50	205
73-16-02	0	73	6	22	12	28.0	72.9088	-10.0868	50	206
73-16-02	0	73	6	22	12	48.0	72.9333	-10.0395	50	207
73-16-02	0	73	6	22	13	14.0	72.9885	-9.9792	50	208
73-16-02	0	73	6	22	13	37.0	72.9983	-9.9100	49	209
73-16-02	0	73	6	22	14	14.0	73.0460	-9.8135	50	210
73-16-02	0	73	6	22	14	34.0	73.0708	-9.7570	50	211
73-16-02	0	73	6	22	15	0.0	73.1072	-9.6877	50	212
73-16-02	0	73	6	22	15	28.0	73.1255	-9.6198	49	213
73-16-02	0	73	6	22	15	47.0	73.1375	-9.5617	50	214
73-16-02	0	73	6	22	16	2.0	73.1718	-9.5027	50	215
73-16-02	0	73	6	22	16	46.0	73.2778	-9.2473	50	216
73-16-02	0	73	6	22	17	14.0	73.3527	-9.0855	50	217
73-16-02	0	73	6	22	17	48.0	73.4387	-8.9817	50	218
73-16-02	0	73	6	22	18	5.0	73.4817	-8.7667	50	219
73-16-02	0	73	6	22	18	8.0	73.4865	-8.7435	49	220
73-16-02	0	73	6	22	18	28.0	73.5247	-8.6728	50	221
73-16-02	0	73	6	22	19	8.0	73.5942	-8.4753	50	222
73-16-02	0	73	6	22	19	32.0	73.6428	-8.3643	50	223
73-16-02	0	73	6	22	19	52.0	73.6785	-8.2742	50	224
73-16-02	0	73	6	22	20	14.0	73.7192	-8.1853	50	225
73-16-02	0	73	6	22	20	34.0	73.7575	-8.0848	50	226
73-16-02	0	73	6	22	21	18.0	73.8378	-7.9065	50	227
73-16-02	0	73	6	22	21	38.0	73.8803	-7.8202	50	228
73-16-02	0	73	6	22	22	4.0	73.9320	-7.7025	50	229
73-16-02	0	73	6	22	22	28.0	73.9790	-7.6172	50	230
73-16-02	0	73	6	22	23	0.0	74.0432	-7.4810	50	231
73-16-02	0	73	6	22	23	22.0	74.0893	-7.3807	50	232
73-16-02	0	73	6	22	23	50.0	74.1465	-7.2443	50	233
73-16-02	0	73	6	22	0	10.0	74.1880	-7.1523	50	234
73-16-02	0	73	6	23	0	44.0	74.2560	-6.9860	50	235
73-16-02	0	73	6	23	1	4.0	74.3000	-6.8735	50	236
73-16-02	0	73	6	23	2	6.0	74.4165	-6.5770	50	237
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	238
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	239
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	240
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	241
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	242
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	243
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	244
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	245
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	246
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	247
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	248
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	249
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	250
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	251
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	252
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	253
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	254
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	255
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	256
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	257
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	258
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	259
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	260
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	261
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	262
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	263
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	264
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	265
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	266
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	267
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	268
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	269
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	270
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	271
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	272
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	273
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	274
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	275
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	276
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	277
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	278
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	279
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	280
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	281
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	282
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	283
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	284
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	285
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	286
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	287
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	288
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	289
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	290
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	291
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	292
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	293
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	294
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	295
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	296
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	297
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	298
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	299
73-16-02	0	0	0	0	0	0.0	0.0000	0.0000	0	300

BATHYMETRY

SHIP AND CRUISE IDENTIFICATION	TIME ZONE	YEAR	MONTH	DAY	HR	MINUTE	LATITUDE	LONGITUDE	UNCORRECTED FATHOMS	UNCORRECTED METERS	CORRECTED METERS	WATTI 79M
73-16-02	0	73	8	22	10	30.0	72.7568	-10.3520	1440.4	2638.4	2638.4	1
73-16-02	0	73	8	22	10	35.0	72.7649	-10.3425	1448.4	2640.4	2640.4	1
73-16-02	0	73	8	22	10	40.0	72.7710	-10.3330	1453.4	2645.4	2645.4	1
73-16-02	0	73	8	22	10	45.0	72.7780	-10.3248	1459.0	2650.0	2650.0	1
73-16-02	0	73	8	22	10	50.0	72.7850	-10.3167	1467.4	2658.4	2658.4	1
73-16-02	0	73	8	22	10	55.0	72.7902	-10.3031	1473.0	2664.0	2664.0	1
73-16-02	0	73	8	22	11	0.0	72.7953	-10.2895	1479.1	2670.1	2670.1	1
73-16-02	0	73	8	22	11	5.0	72.8017	-10.2788	1482.9	2675.9	2675.9	1
73-16-02	0	73	8	22	11	10.0	72.8080	-10.2681	1487.3	2680.3	2680.3	1
73-16-02	0	73	8	22	11	15.0	72.8143	-10.2574	1492.7	2685.7	2685.7	1
73-16-02	0	73	8	22	11	20.0	72.8207	-10.2467	1497.7	2690.7	2690.7	1
73-16-02	0	73	8	22	11	25.0	72.8270	-10.2360	1501.5	2694.5	2694.5	1
73-16-02	0	73	8	22	11	30.0	72.8308	-10.2296	1503.7	2696.7	2696.7	1
73-16-02	0	73	8	22	11	35.0	72.8399	-10.2126	1509.1	2701.1	2701.1	1
73-16-02	0	73	8	22	11	40.0	72.8464	-10.1998	1513.5	2705.5	2705.5	1
73-16-02	0	73	8	22	11	45.0	72.8529	-10.1871	1516.2	2708.2	2708.2	1
73-16-02	0	73	8	22	11	50.0	72.8594	-10.1744	1520.1	2712.1	2712.1	1
73-16-02	0	73	8	22	11	55.0	72.8660	-10.1619	1523.5	2715.5	2715.5	1
73-16-02	0	73	8	22	12	0.0	72.8725	-10.1505	1528.9	2720.9	2720.9	1
73-16-02	0	73	8	22	12	5.0	72.8790	-10.1391	1529.9	2721.9	2721.9	1
73-16-02	0	73	8	22	12	10.0	72.8829	-10.1323	1531.0	2723.0	2723.0	1
73-16-02	0	73	8	22	12	15.0	72.8855	-10.1278	1532.1	2724.1	2724.1	1
73-16-02	0	73	8	22	12	20.0	72.8919	-10.1164	1538.5	2730.5	2730.5	1
73-16-02	0	73	8	22	12	25.0	72.8984	-10.1050	1539.8	2731.8	2731.8	1
73-16-02	0	73	8	22	12	30.0	72.9049	-10.0937	1544.1	2736.1	2736.1	1
73-16-02	0	73	8	22	12	35.0	72.9113	-10.0821	1549.1	2741.1	2741.1	1
73-16-02	0	73	8	22	12	40.0	72.9174	-10.0703	1552.9	2744.9	2744.9	1
73-16-02	0	73	8	22	12	45.0	72.9235	-10.0584	1558.3	2750.3	2750.3	1
73-16-02	0	73	8	22	12	50.0	72.9297	-10.0466	1563.8	2755.8	2755.8	1
73-16-02	0	73	8	22	12	55.0	72.9360	-10.0349	1569.1	2761.1	2761.1	1
73-16-02	0	73	8	22	13	0.0	72.9482	-10.0233	1579.7	2771.7	2771.7	1
73-16-02	0	73	8	22	13	5.0	72.9563	-10.0114	1584.4	2776.4	2776.4	1
73-16-02	0	73	8	22	13	10.0	72.9631	-10.0001	1591.7	2783.7	2783.7	1
73-16-02	0	73	8	22	13	15.0	72.9698	-9.9884	1597.2	2789.2	2789.2	1
73-16-02	0	73	8	22	13	20.0	72.9763	-9.9762	1603.7	2795.7	2795.7	1
73-16-02	0	73	8	22	13	25.0	72.9828	-9.9641	1605.4	2797.4	2797.4	1
73-16-02	0	73	8	22	13	30.0	72.9893	-9.9511	1605.4	2797.4	2797.4	1
73-16-02	0	73	8	22	13	35.0	72.9957	-9.9311	1605.4	2797.4	2797.4	1
73-16-02	0	73	8	22	13	40.0	73.0022	-9.9022	1604.8	2796.8	2796.8	1
73-16-02	0	73	8	22	13	45.0	73.0086	-9.8891	1603.7	2795.7	2795.7	1
73-16-02	0	73	8	22	13	50.0	73.0151	-9.8761	1603.2	2795.2	2795.2	1
73-16-02	0	73	8	22	14	5.0	73.0215	-9.8631	1602.4	2794.4	2794.4	1
73-16-02	0	73	8	22	14	10.0	73.0280	-9.8500	1604.8	2796.8	2796.8	1
73-16-02	0	73	8	22	14	15.0	73.0344	-9.8370	1605.4	2797.4	2797.4	1
73-16-02	0	73	8	22	14	20.0	73.0408	-9.8239	1610.8	2802.8	2802.8	1
73-16-02	0	73	8	22	14	25.0	73.0441	-9.8174	1613.0	2805.0	2805.0	1
73-16-02	0	73	8	22	14	30.0	73.0534	-9.7965	1626.7	2818.7	2818.7	1
73-16-02	0	73	8	22	14	35.0	73.0597	-9.7824	1630.3	2822.3	2822.3	1
73-16-02	0	73	8	22	14	40.0	73.0659	-9.7683	1634.4	2826.4	2826.4	1
73-16-02	0	73	8	22	14	45.0	73.0722	-9.7543	1632.2	2824.2	2824.2	1
73-16-02	0	73	8	22	14	50.0	73.0792	-9.7410	1632.2	2824.2	2824.2	1
73-16-02	0	73	8	22	14	55.0	73.0862	-9.7277	1632.2	2824.2	2824.2	1
73-16-02	0	73	8	22	15	0.0	73.0932	-9.7143	1630.0	2821.0	2821.0	1
73-16-02	0	73	8	22	15	5.0	73.1002	-9.7010	1629.4	2820.4	2820.4	1
73-16-02	0	73	8	22	15	10.0	73.1072	-9.6877	1628.4	2819.4	2819.4	1
73-16-02	0	73	8	22	15	15.0	73.1104	-9.6756	1628.4	2819.4	2819.4	1
73-16-02	0	73	8	22	15	20.0	73.1137	-9.6634	1627.2	2818.2	2818.2	1
73-16-02	0	73	8	22	15	25.0	73.1170	-9.6513	1627.2	2818.2	2818.2	1

BLODGETT AND MASSINGILL

MAGNETICS

SHIP AND CRUISE IDENTIFICATION	TIME ZONE	YEAR	MONTH	DAY	HAIR	MINUTE	LATITUDE	LONGITUDE	TOTAL MAGNETIC INTENSITY	RESIDUAL MAGNETIC INTENSITY
73-16-02	0	73	8	22	11	10.0	72.8080	-10.2881	52969	155
73-16-02	0	73	8	22	11	15.0	72.8143	-10.2874	52964	149
73-16-02	0	73	8	22	11	20.0	72.8207	-10.2867	52962	146
73-16-02	0	73	8	22	11	25.0	72.8270	-10.2860	52962	145
73-16-02	0	73	8	22	11	30.0	72.8333	-10.2853	52965	147
73-16-02	0	73	8	22	11	35.0	72.8399	-10.2846	52964	144
73-16-02	0	73	8	22	11	40.0	72.8464	-10.2839	52957	136
73-16-02	0	73	8	22	11	45.0	72.8529	-10.2832	52955	143
73-16-02	0	73	8	22	11	50.0	72.8594	-10.2825	52955	132
73-16-02	0	73	8	22	11	55.0	72.8660	-10.2818	52955	124
73-16-02	0	73	8	22	12	0.0	72.8725	-10.2811	52955	110
73-16-02	0	73	8	22	12	5.0	72.8790	-10.2804	52955	108
73-16-02	0	73	8	22	12	10.0	72.8855	-10.2797	52955	110
73-16-02	0	73	8	22	12	15.0	72.8919	-10.2790	52955	118
73-16-02	0	73	8	22	12	20.0	72.8984	-10.2783	52955	152
73-16-02	0	73	8	22	12	25.0	72.9049	-10.2776	52955	164
73-16-02	0	73	8	22	12	30.0	72.9113	-10.2769	52955	203
73-16-02	0	73	8	22	12	35.0	72.9178	-10.2762	52955	242
73-16-02	0	73	8	22	12	40.0	72.9243	-10.2755	52955	260
73-16-02	0	73	8	22	12	45.0	72.9307	-10.2748	52955	327
73-16-02	0	73	8	22	12	50.0	72.9372	-10.2741	52955	361
73-16-02	0	73	8	22	12	55.0	72.9437	-10.2734	52955	386
73-16-02	0	73	8	22	13	0.0	72.9501	-10.2727	52955	396
73-16-02	0	73	8	22	13	5.0	72.9566	-10.2720	52955	390
73-16-02	0	73	8	22	13	10.0	72.9631	-10.2713	52955	365
73-16-02	0	73	8	22	13	15.0	72.9696	-10.2706	52955	323
73-16-02	0	73	8	22	13	20.0	72.9761	-10.2699	52955	247
73-16-02	0	73	8	22	13	25.0	72.9826	-10.2692	52955	198
73-16-02	0	73	8	22	13	30.0	72.9891	-10.2685	52955	150
73-16-02	0	73	8	22	13	35.0	72.9956	-10.2678	52955	84
73-16-02	0	73	8	22	13	40.0	73.0021	-10.2671	52955	17
73-16-02	0	73	8	22	13	45.0	73.0086	-10.2664	52955	-29
73-16-02	0	73	8	22	13	50.0	73.0151	-10.2657	52955	-50
73-16-02	0	73	8	22	14	5.0	73.0216	-10.2650	52955	-82
73-16-02	0	73	8	22	14	10.0	73.0281	-10.2643	52955	-96
73-16-02	0	73	8	22	14	15.0	73.0346	-10.2636	52955	-71
73-16-02	0	73	8	22	14	20.0	73.0411	-10.2629	52955	-47
73-16-02	0	73	8	22	14	25.0	73.0476	-10.2622	52955	-31
73-16-02	0	73	8	22	14	30.0	73.0541	-10.2615	52955	-26
73-16-02	0	73	8	22	14	35.0	73.0606	-10.2608	52955	-25
73-16-02	0	73	8	22	14	40.0	73.0671	-10.2601	52955	-12
73-16-02	0	73	8	22	14	45.0	73.0736	-10.2594	52955	0
73-16-02	0	73	8	22	14	50.0	73.0801	-10.2587	52955	10
73-16-02	0	73	8	22	15	5.0	73.0866	-10.2580	52955	28
73-16-02	0	73	8	22	15	10.0	73.0931	-10.2573	52955	51
73-16-02	0	73	8	22	15	15.0	73.0996	-10.2566	52955	69
73-16-02	0	73	8	22	15	20.0	73.1061	-10.2559	52955	79
73-16-02	0	73	8	22	15	25.0	73.1126	-10.2552	52955	84
73-16-02	0	73	8	22	15	30.0	73.1191	-10.2545	52955	89
73-16-02	0	73	8	22	15	35.0	73.1256	-10.2538	52955	90
73-16-02	0	73	8	22	15	40.0	73.1321	-10.2531	52955	92
73-16-02	0	73	8	22	15	45.0	73.1386	-10.2524	52955	91
73-16-02	0	73	8	22	15	50.0	73.1451	-10.2517	52955	115
73-16-02	0	73	8	22	15	55.0	73.1516	-10.2510	52955	115
73-16-02	0	73	8	22	16	0.0	73.1581	-10.2503	52955	131
73-16-02	0	73	8	22	16	0.0	73.1646	-10.2496	52955	134

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SHIP AND CRUISE IDENTIFICATION 751602

NAVIGATION DATA

NUMBER OF NAVIGATION CARDS READ ■ 60

NUMBER OF LOGICAL RECORDS WRITTEN ON TAPE = 60

BATHYMETRY DATA

DEPTH DATA GIVEN IN UNCORRECTED METERS

MATTHEWS ZONES PASSED THROUGH WERE 1 2 3

NUMBER OF BATHYMETRY CARDS READ ■ 72

NUMBER OF LOGICAL RECORDS WRITTEN ■ 357

MAGNETICS DATA

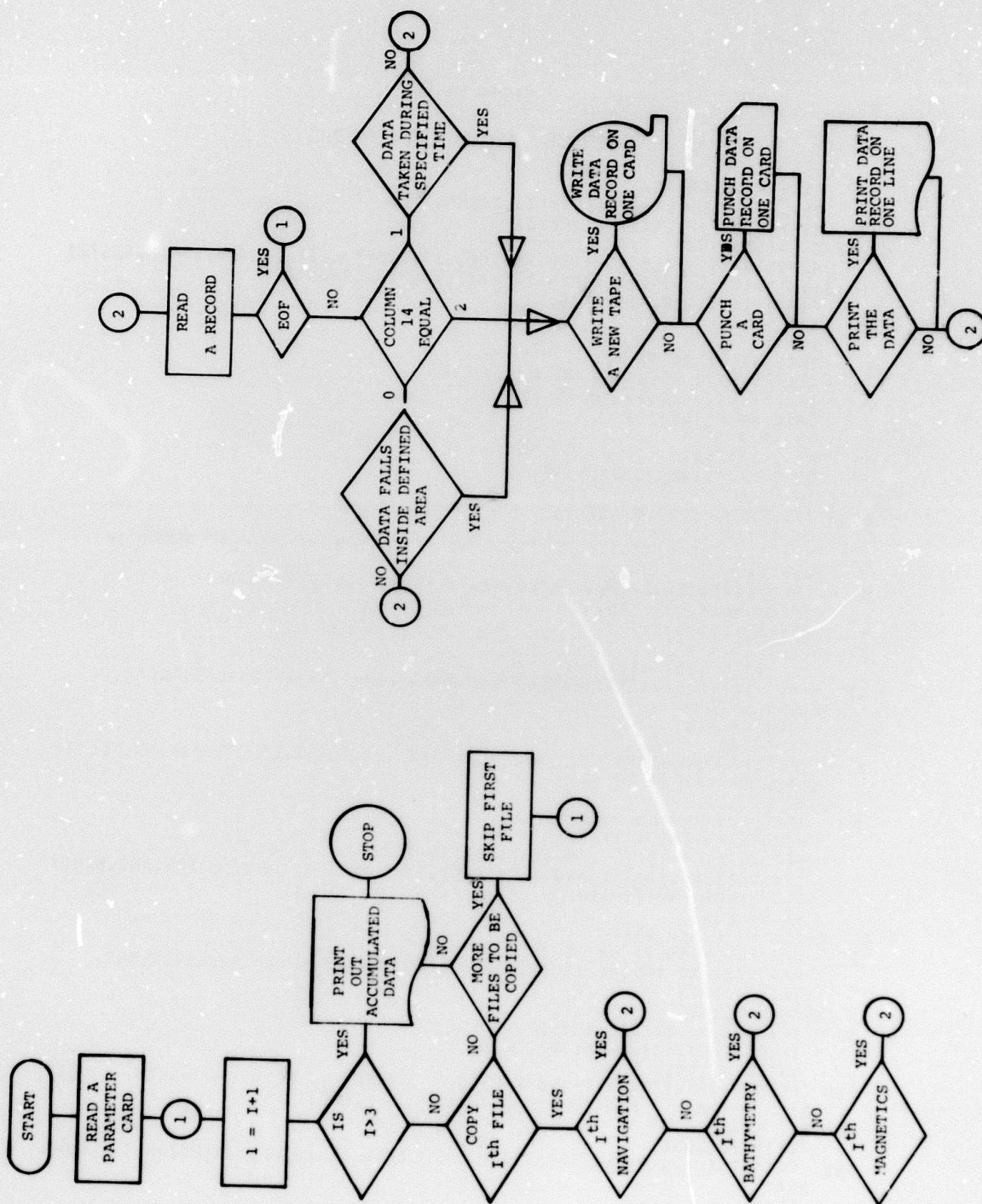
HEIGHT IN FEET ABOVE OR BELOW SEA LEVEL IS -20

NUMBER OF MAGNETICS CARDS READ ■ 23

NUMBER OF LOGICAL RECORDS WRITTEN ■ 258

APPENDIX D1

FLOW CHART



Appendix D2

SOURCE LANGUAGE LISTING

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PROGRAM GEOREAD
  REAL LAMIN,LATMAX,LENGMAX,LENGMIN
  DIMENSION IFILE(3),ITYPE(3)
C  READ INPUT CARDS
  READ(60,1)((IFILE(M),ITYPE(M),M=1,3),ICOPY,LIST,IPUNCH,ISKIP,IDATE1,
1,1HR1,IDATE2,1HR2,LATMIN,LATMAX,LENGMIN,LENGMAX
  1  FORMAT(6I1,4I2,4I4,4F10,5)
  3  I=1 *-1
  NLM=1
  IF(I.GT.3) GO TO 600
  IF(IFILE(1).EQ.1) GO TO 4
  IF(IFILE(1).EQ.2) GO TO 600
  CALL SKIPFILE(10)
  GO TO 3
  4  KIND=ITYPE(1)
  GO TO (101,201,301),KIND
C  NAVIG FILE
  100 IF(ICOPY.NE.1) GO TO 20
  GO TO 10
  101 READ(10,5)CRUISE,ITMZNE,IYEAR,MONTH,IDAY,HR,XMIN,XLAT,XLONG,IFIX,
1NAVFIX
  5  FORMAT(A8,I5,I2,I2,I2,1XF2,F3,F8,4,I9,4,1X11,7X15,24X)
  IF(ICHECK,10) 101,6
  6  IF(EOF,10) 500,7
  7  IRDN=IRDN + 1
  IF(ISKIP-1)8,9,100
  10  WRITE(12,5)CRUISE,ITMZNE,IYEAR,MONTH,IDAY,HR,XMIN,XLAT,XLONG,
1IFIX,NAVFIX
  ICN=ICN + 1
  GO TO 20
  8  IF(XLAT.LT.LATMIN.OR,XLAT.GT.LATMAX .OR,XLONG.LT.LENGMIN.OR,XLONG.
1GT,LENGMAX) GO TO 101
  GO TO 100
  9  IDAY1=MONTH*100 + IDAY
  MINUTE=HR*100 + XMIN/10
  IF(IDAY1.LT.IDATE1.OR,IDAY1.GT.IDATE2) GO TO 101
  IF(IDAY1.EQ.IDATE1.AND,MINUTE.LE,1HR1.OR,IDAY1.EQ.IDATE2.AND,MINUT
1E,GE,1HR2) GO TO 101
  GO TO 100
C  CHECK IF PUNCH CARD
  20 IF(IPUNCH.NE.1) GO TO 30
  WRITE(62,5) CRUISE,ITMZNE,IYEAR,MONTH,IDAY,HR,XMIN,XLAT,XLONG,
1IFIX,NAVFIX
C  CHECK IF LIST
  30 IF(LIST.NE.1) GO TO 101
  IF(MOD(NUM,60).NE.1) GO TO 32
  WRITE(61,501)
  501 FORMAT(1H1,12HSHIP AND CRUISE      TIME      YEAR      MONTH      DAY
1      HOUR      MINUTE      LATITUDE      LONGITUDE      FIX
2      FIX)
  WRITE(61,502)
  502 FORMAT(1H ,24HIDENTIFICATION      ZONE,79X,22HDESCRIPTION      NUMB
1ER)
  NLM=1
  32  ZMIN=XMIN/10
  WRITE(61,31)CRUISE,ITMZNE,IYEAR,MONTH,IDAY,HR,ZMIN,XLAT,XLONG,

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11FIX,NAVFIX
31  FORMAT(1H ,2XA8,7X15,7X12,7X12,7X12,7XF2,7XF4,1,6XF8,4,5XF9,4,
      19X12,10X15)
      NLM=NUM + 1
      GO TO 101
500 IF(ICOPY,NE.1) GO TO 3
      ENDFILE 12
      GO TO 3
C BATHYMETRY FILE
200 IF(ICOPY,NE.1) GO TO 60
      GO TO 50
201 READ(10,40)CRUISE,ITMZNE,IYEAR,MONTH,1DAY,HR,XMIN,XLAT,XLONG,
      1LAVFIX,1CRMET,1FIX
40  FORMAT(A8,15,312,1XF2,F3,F8,4,F9,4,10XF5,15,12,16X)
      IF(10CHECK,10) 201,46
46  IF(EOF,10) 500,47
47  IRDB=IRDB + 1
      IF(1SKIP=1) 48,49,200
50  WRITE(12,40)CRUISE,ITMZNE,IYEAR,MONTH,1DAY,HR,XMIN,XLAT,XLONG,
      1LAVFIX,1CRMET,1FIX
      ICB=ICB + 1
      GO TO 60
48  IF(XLAT,LT,LATMIN,OR,XLAT,GT,LATMAX ,OR,XLONG,LT,LONGMIN,OR,XLONG,
      1GT,LONGMAX) GO TO 201
      GO TO 200
49  1DAY1=MONTH*100 + 1DAY
      MINUTE=HR*100 + XMIN/10
      IF(1DAY1,LT,1DATE1,OR,1DAY1,GT,1DATE2) GO TO 201
      IF(1DAY1,EQ,1DATE1,AND,MINUTE,LE,1HR1,OR,1DAY1,EQ,1DATE2,AND,MINUTE,GE,1HR
      2E,GE,1HR2) GO TO 201
      GO TO 200
C CHECK IF PUNCH BATHYMETRY
60  IF(1PUNCH,NE.1) GO TO 51
      WRITE(12,40) CRUISE,ITMZNE,IYEAR,MONTH,1DAY,HR,XMIN,XLAT,XLONG,
      1LAVFIX,1CRMET,1FIX
C CHECK IF LIST BATHYMETRY
91  IF(1LIST,NE.1) GO TO 201
      IF(MOD(NUM,60),NE.1) GO TO 92
      WRITE(61,204)
504 FORMAT(1H1,133SHIP AND CRUISE      TIME      YEAR      MONTH      DAY      HOUR
      1 MINUTE      LATITUDE      LONGITUDE      UNCORRECTED      UNCORRECTED      CORR
      2ECTED      MATTHEWS)
      WRITE(61,205)
505 FORMAT(1H ,22IDENTIFICATION      ZONE,65X,44HFATHOMS      METERS
      1 MEIENS      ZONE)
      NUM=1
52  ZMIN=XMIN/10
      ZAVFIX=UAVFIX/10
      SIDP=ZAVFIX*1,8288
      WRITE(61,41)CRUISE,ITMZNE,IYEAR,MONTH,1DAY,HR,ZMIN,XLAT,XLONG,
      1ZAVFIX,SIDP,1CRMET,1FIX
41  FORMAT(1H ,2XA8,5X15,3(5X12),5XF2,5XF4,1,4XF8,4,3XF9,4,5XF6,1,8XF6,1,
      1,1,7X15,9X12)
      NLM=NUM + 1
      GO TO 201
C MAGNETICS FILE

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BLODGETT AND MASSINGILL

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300 IF(ICOPY,NE.1) GO TO 70
    GO TO 310
301 READ(10,60)CRUISE,ITMZNE,IYEAR,MONTH,IDAY,HR,XMIN,XLAT,XLONG,
1NAVFIX,ICMNET
60  FORMAT(A8,I5,3I2,1XF2,F3,F8,4,F9,4,2X2I5,5X)
    IF(ICHECK,10) 301,306
306 IF(EOF,10) 600,307
307 IRDM=IRDM+1
    IF(ISKIP=1) 308,309,300
310 WRITE(12,60)CRUISE,ITMZNE,IYEAR,MONTH,IDAY,HR,XMIN,XLAT,XLONG,
1NAVFIX,ICMNET
    ICMNET=1
    GO TO 70
308 IF(XLAT,LT,LATMIN,OR,XLAT,GT,LATMAX,OR,XLONG,LT,LONGMIN,OR,XLONG,
1GT,LONGMAX) GO TO 301
    GO TO 300
309 IDATE1=MONTH*100+IDAY
    MINUTE=HR*100+XMIN/10
    IF(IDAY1,LT,DATE1,OR,IDAY1,GT,DATE2) GO TO 301
    IF(IDAY1,EQ,DATE1,AND,MINUTE,LE,IMH1,OR,IDAY1,EQ,DATE2,AND,
1MINUTE,GE,IMH2) GO TO 301
    GO TO 300
C CHECK IF PUNCH MAGNETICS RECORDS
70 IF(IPUNCH,NE.1) GO TO 60
    WRITE(62,60)CRUISE,ITMZNE,IYEAR,MONTH,IDAY,HR,XMIN,XLAT,XLONG,
1NAVFIX,ICMNET
C CHECK IF LIST
80 IF(LIST,NE.1) GO TO 301
    IF(MOD(NUM,60),NE.1) GO TO 72
    WRITE(61,607)
    07  FORMAT(1H1,129HSHIP AND CRUISE      TIME      YEAR      MONTH      DAY
1HSHH      MINUTE      LATITUDE      LONGITUDE      TOTAL MAGNETIC      RESID
2UAL MAGNETIC)
    WRITE(61,608)
    08  FORMAT(1H1,23HIDENTIFICATION      ZONE,73X,29HINTENSITY
1NTENSITY)
    NUM=1
    2  ZMIN=XMIN/10
    WRITE(61,73)CRUISE,ITMZNE,IYEAR,MONTH,IDAY,HR,ZMIN,XLAT,XLONG,
1NAVFIX,ICMNET
73  FORMAT(1H1,2XA8,5X15,3(6X12),6XF2,6XF4,1,5XF8,4,4XF9,4,8X15,15X15)
    NUM=NUM+1
    GO TO 301
600 IF(ICOPY,NE.1) GO TO 700
    ENDFILE 12
    ENDFILE 12
    REWIND 12
C WRITE OUT FINAL DATA
700 IF(ISKIP=1) 400,401,402
402 WRITE(61,403)
403 FORMAT(1H1,46HTHE PROGRAM SHOULD HAVE COPIED THE ENTIRE TAPE)
    GO TO 410
400 WRITE(61,404)
404 FORMAT(1H1,70HTHE PROGRAM SHOULD HAVE COPIED ALL THE DATE POINTS
1WHICH FALL BETWEEN)
    WRITE(61,405) LATMIN,LATMAX

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405  FORMAT(1H0,7X,16HSEUTH LATITUDE ,F10,5,5X16HNORTH LATITUDE ,F10,
15)
      WRITE(61,406) LENGMIN, LENGMAX
406  FORMAT(1H0,7X16HWEEST LONGITUDE ,F10,5,5X16HEAST LONGITUDE ,F10,5
1)
      GO TO 410
401  WRITE(61,407)
407  FORMAT(1H1,75HTHE PROGRAM SHOULD HAVE COPIED ALL THE DATA POINTS W
WHICH WERE TAKEN BETWEEN)
      MG1=IDATE1/100
      DAY1=IDATE1-MG1*100
      ITM1=IMR1/100
      IMIN1=IMR1-ITM1*100
      MG2=IDATE2/100
      DAY2=IDATE2-MG2*100
      ITM2=IMR2/100
      IMIN2=IMR2-ITM2*100
      WRITE(61,408)MG1,DAY1,ITM1,IMIN1
408  FORMAT(1H0,7HMONTH ,I2,3X5HDAY ,F4,3X4HHR ,I2,3X5HMIN ,I2)
      WRITE(61,409)MG2,DAY2,ITM2,IMIN2
409  FORMAT(1H0,7HMONTH ,I2,3X5HDAY ,F4,3X4HHR ,I2,3X5HMIN ,I2)
410  WRITE(61,411)IRDN,ICN
411  FORMAT(1H0,19HTHE PROGRAM READ ,I2,5X32HNAVIGATION RECORDS AND C
10PIED ,I2,5X7HRECORDS)
      WRITE(61,412)IRDS,ICE
412  FORMAT(1H0,19HTHE PROGRAM READ ,I2,5X32HBATHYMETRY RECORDS AND C
10PIED ,I2,5X7HRECORDS)
      WRITE(61,413)IRDM,ICM
13  FORMAT(1H0,19HTHE PROGRAM READ ,I2,5X32HMAGNETICS RECORDS AND C0
1PIED ,I2,5X7HRECORDS)
      STOP
      END

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5,4DS GEGREAD

PROGRAM LENGTH	ICENT	GEGREAD
ENTRY POINTS	02113	
EXTERNAL SYMBOLS	00631	
08CENTRY THEND, 01010100 08CST6PS 08C1CT, SKIFFILE XM0CF 08C1FE0F 08C1F10C EFT, REW, TSH, STW, QNS1GL,		

00356 SYMBOLS

LOAD
RUN,60,9500

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