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TRACK CHARTS, BATHYMETRY, AND LOCATION OF OBSERVATIONS

CHAIN CRUISE NO. 43

North Atlantic Ocean - Mediterranean Sea

Red Sea - Indian Ocean

February 15, 1964 - August 21, 1964

compiled by

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J. B. Hersey, Chairman
Department of Geophysics

ABSTRACT

This report contains charts of Cruise 43 of the CHAIN in the North Atlantic Ocean - Mediterranean Sea - Red Sea and Indian Ocean. There are 150 charts plotted on a Mercator Projection (Scale 1° longitude equals 4 inches) showing the track of the entire cruise. All types of observations made during the cruise are noted by suitable symbols or legends and are shown on Index Charts I through XIII. There are 42 pages showing continuous daily observations, including types of information gathered at each of the 115 stations.

Soundings are read at equal time intervals, usually every five minutes, and at each break in slope. They are written along the ship's track as often as space permits.

KEY TO NAVIGATIONAL PLOTTING ABBREVIATIONS USED BY WOODS HOLE OCEANOGRAPHIC INSTITUTION

SOUNDINGS:

Echo soundings are taken continually throughout the entire cruise unless otherwise stated.

All soundings are based on a sound velocity of 800 fathoms/sec. and are corrected for depth-of-transducer. Soundings are read at equal time intervals, usually 5 or 10 minutes, and at each break in slope. They are written along the ship's track as often as space permits.

Soundings are read from a Precision Graphic Recorder having a mechanical error of less than one part in one hundred thousand.

NAVIGATIONAL PLOTTING:

All times and dates are written on one side of the ship's track; soundings in fathoms are entered on the other side. Ship's drift when lying to is indicated by a wavy line.

When No Sounding is noted along ship's track, one of four reasons applies:

1. Equipment failure.
2. Unable to distinguish bottom trace.
3. Poor navigation.
4. Equipment not needed in scientific investigation.

OTHER ABBREVIATIONS

A. D. M.	AUTOMATIC DEPTH MEASUREMENTS.
C. G. M.	CONTINUOUS GRAVITY MEASUREMENTS.
C. M. M.	CONTINUOUS MAGNETOMETER MEASUREMENTS.
C. S. P.	CONTINUOUS SEISMIC PROFILING.
C. S. T.	CONTINUOUS SURFACE TEMPERATURE MEASUREMENTS.
CORE (P) (G)	(PISTON) (GRAVITY)
D. D. M.	DEEP DIVING MAGNETOMETER.
DREDGE (MR) (P) (WM) (BS) (CL) (C)	(MODIFIED ROCK) (PIPE) (WITH MAGNET) (BAIL SAMPLER) (CANVAS LINER) (CAMERA)
E. C. L.	EDGERTON CAMERA LOWERING.
E. T.	EQUIPMENT TESTING (SEE NOTE ON STATION LIST)
L. S.	CONTINUOUS LASER SCATTEROMETER MEASUREMENTS.
H. F. CORE (P) (G)	HEAT FLOW MEASUREMENTS WITH CORE (PISTON) (GRAVITY)
S. L. O.	CONTINUOUS SCATTERING LAYER OBSERVATIONS AT 12 KC/PS
S. O.	SPECIAL OBSERVATIONS (SEE NOTE ON STATION LIST)
STA.	STATION - SHIP STOPPED OR STEAMING SLOWLY.
S. T. P.	SONIC TRIANGULATION FOR PINGER LOCATION USING BOOMS.
S. V. S.	SOUND VELOCITY STATION.
T. FISH	TOWED FISH WITH THERMISTOR DEPTH 30-75 FEET.

CHART II
CHAIN CRUISE NO. 43
FEB - AUG 1964
RED SEA
21 MARCH - 28 MARCH

x-x-x-x- CSM
 - - - - - CMM
 - - - - - C-S-P
 DREDGE (MR) (WM)
 H.F. CORE (GI)
 L.S.
 STA. STATION

PAGE 1

HOURS
A. D. M.
C. G. M.
C. M. M.
C. S. P.
C. S. T.
L. S. M.
S. L. O.
T. FISH
STA.

A. D. M.
C. G. M.
C. M. M.
C. S. P.
C. S. T.
L. S. M.
S. L. O.
T. FISH
STA.

A. D. M.
C. G. M.
C. M. M.
C. S. P.
C. S. T.
L. S. M.
S. L. O.
T. FISH
STA.

[illegible]

PAGE 2

[illegible][illegible]

PAGE 3

HOURS
A.D.M.
C.G.M.
C.M.M.
C.S.P.
C.S.T.
L.S.M.
S.L.O.
T.FISH
STA.

A.D.M.
C.G.M.
C.M.M.
C.S.P.
C.S.T.
L.S.M.
S.L.O.
T. FISH
STA.

HOURS
<u>A.D.M.</u>
<u>C.G.M.</u>
<u>C.M.M.</u>
<u>C.S.P.</u>
<u>C.S.T.</u>
<u>L.S.M.</u>
<u>S.L.O.</u>
<u>T. FISH</u>
<u>STA.</u>

[illegible]

Continuous Daily Observations

PAGE 4

[illegible]

HOURS	
<u>A. D. M.</u>	
<u>C. G. M.</u>	
<u>C. M. M.</u>	
<u>C. S. P.</u>	
<u>C. S. T.</u>	
<u>L. S. M.</u>	
<u>S. L. O.</u>	
<u>T. FISH</u>	
<u>STA.</u>	

[illegible][illegible]

<u>A.D.M.</u>
<u>C.G.M.</u>
<u>C.M.M.</u>
<u>C.S.P.</u>
<u>C.S.T.</u>
<u>L.S.M.</u>
<u>S.L.O.</u>
<u>T. FISH</u>
<u>STA.</u>

[illegible]

PAGE 5

[illegible][illegible]

PAGE 6

	DAY 7							MONTH MAR																
HOURS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A.D.M.																								
C.G.M.								LA SPEZIA, ITALY																
C.M.M.																								
C.S.P.																								
C.S.T.																								
L.S.M.																								
S.L.O.																								
T.FISH																								
STA.																								

[illegible]

PAGE 7

	DAY 17				MONTH MAR																				
HOURS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
A.D.M.	—————									—————	—————	—————										—————	—————		
C.G.M.	—————																								
C.M.M.	—————																								
C.S.P.	—————																								
C.S.T.	—————							—————	—————	—————	—————	—————	—————	—————	—————	—————	—————	—————	—————	—————	—————	—————	—————	—————	—————
L.S.M.	—————																								
S.L.O.					—————	—————									—————	—————	—————	—————	—————	—————	—————	—————	—————	—————	—————
T.FISH	—————																								
STA.	—————																								

[illegible]

Continuous Daily Observations

PAGE 8

[illegible]

HOURS
A. D. M.
C. G. M.
C. M. M.
C. S. P.
C. S. T.
L. S. M.
S. L. O.
T. FISH
STA.

[illegible][illegible]

HOURS	
A. D. M.	
C. G. M.	
C. M. M.	
C. S. P.	
C. S. T.	
L. S. M.	
S. L. O.	
T. FISH	
STA.	

[illegible]

PAGE 9

HOURS
A. D. M.
C. G. M.
C. M. M.
C. S. P.
C. S. T.
L. S. M.
S. L. O.
T. FISH
STA.

STA. 3
DREDGE (MR) #1

HOURS	
A. D. M.	
C. G. M.	
C. M. M.	
C. S. P.	
C. S. T.	
L. S. M.	
S. L. O.	
T. FISH	
STA.	

DAY		MONTH	
27	MAR		

PAGE 10

	DAY																MONTH							
HOURS	29																MAR							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A.D.M.																								
C.G.M.																								
C.M.M.																								
C.S.P.																								
C.S.T.																								
L.S.M.																								
S.L.O.																								
T.FISH																								
STA.																								
	COMPUTER RUN UNTIL 0100																							

	DAY 31									MONTH MAR																
HOURS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
A.D.M.																										
C.G.M.																										
C.M.M.																										
C.S.P.																										
C.S.T.																										
L.S.M.																										
S.L.O.																										
T.FISH																										
STA.																										

Continuous Daily Observations

PAGE 11

PAGE 12

[illegible][illegible]

Continuous Daily Observations

PAGE 13

PAGE 14

	DAY						MONTH																		
HOURS	15						April																		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
A.D.M.																									
C.G.M.	PORT VICTORIA																								
C.M.M.	SEYCHELLES																								
C.S.P.																									
C.S.T.																									
L.S.M.																									
S.L.O.																									
T.FISH																									
STA.																									

	DAY 17												MONTH April											
HOURS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A.D.M.																								
C.G.M.																								
C.M.M.																								
C.S.P.																								
C.S.T.																								
L.S.M.																								
S.L.O.																								
T. FISH																								
STA.																								

1304
STA. 70
1554

DREDGE (W) (W) # 8

Continuous Daily Observations

PAGE 15

DAY <u>18</u>		MONTH <u>April</u>																					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
																		A.D.M.					
																		C.G.M.					
																		C.M.M.					
																		C.S.P.					
																		C.S.T.					
																		L.S.M.					
																		S.L.O.					
																		T. FISH					
																		STA.					

0100 STA. 21
 0413
 0534 STA. 22
 0600
 ECL#3
 H.F. CORE (P) #10

DAY <u>19</u>		MONTH <u>April</u>																					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
																		A.D.M.					
																		C.G.M.					
																		C.M.M.					
																		C.S.P.					
																		C.S.T.					
																		L.S.M.					
																		S.L.O.					
																		T. FISH					
																		STA.					

DAY <u>20</u>		MONTH <u>April</u>																					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
																		A.D.M.					
																		C.G.M.					
																		C.M.M.					
																		C.S.P.					
																		C.S.T.					
																		L.S.M.					
																		S.L.O.					
																		T. FISH					
																		STA.					

DAY <u>21</u>		MONTH <u>April</u>																					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
																		A.D.M.					
																		C.G.M.					
																		C.M.M.					
																		C.S.P.					
																		C.S.T.					
																		L.S.M.					
																		S.L.O.					
																		T. FISH					
																		STA.					

PAGE 16

[illegible][illegible]

PAGE 17

	DAY 27					MONTH April																							
HOURS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24					
A.D.M.	-----					-----							-----																
C.G.M.						-----																							
C.M.M.	-----					-----																							
C.S.P.										-----			-----																
C.S.T.	-----																												
L.S.M.																													
S.L.O.																													
T.FISH	-----					-----																							
STA.						-----																							

STA 28
 0423
 0430
 HF Core (G) #13

[illegible]

PAGE 18

[illegible]

	DAY 3										MONTH May													
HOURS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A.D.M.																								
C.G.M.																								
C.M.M.	-----												PORT LOUIS, MAURITIUS											
C.S.P.																								
C.S.T.	-----																							
L.S.M.																								
S.L.O.																								
T. FISH	-----																							
STA.	-----																							
	STA. #33																							
	H.F. CORE (G)*16																							

PAGE 19

	DAY					MONTH																		
	9					MAY																		
HOURS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A.D.M.																								
C.G.M.																								
C.M.M.																								
C.S.P.																								
C.S.T.																								
L.S.M.																								
S.L.O.																								
T.FISH																								
STA.																								

STA.#34
 H.F. COAG
 (G)#17

[illegible]

PAGE 20

HOURS	
A. D. M.	
C. G. M.	
C. M. M.	
C. S. P.	
C. S. T.	
L. S. M.	
S. L. O.	
T. FISH	
STA.	

[illegible]

HOURS
A. D. M.
C. G. M.
C. M. M.
C. S. P.
C. S. T.
L. S. M.
S. L. O.
T. FISH
STA.

[illegible]

PAGE 21

HOURS	
A	D M
C	G M
C	M M
C	S P
C	S T
L	S M
S	L O
T	FISH
	STA.

T. FISH
STA.

HOURS
A. D. M.
C. G. M.
C. M. M.
C. S. P.
C. S. T.
L. S. M.
S. L. O.
T. FISH
STA.

T. FISH
STA.

Continuous Daily Observations

PAGE 23

DAY 27		MONTH MAY																					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A.D.M.																							
C.G.M.																							
C.M.M.																							
C.S.P.																							
C.S.T.																							
L.S.M.																							
S.L.O.																							
T. FISH																							
STA.																							

DAY 28		MONTH MAY																					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A.D.M.																							
C.G.M.																							
C.M.M.																							
C.S.P.																							
C.S.T.																							
L.S.M.																							
S.L.O.																							
T. FISH																							
STA.																							

1905
H.F. CORE
(P) # 22
STA # 68
2239

DAY 29		MONTH MAY																					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A.D.M.																							
C.G.M.																							
C.M.M.																							
C.S.P.																							
C.S.T.																							
L.S.M.																							
S.L.O.																							
T. FISH																							
STA.																							

DAY 30		MONTH MAY																					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A.D.M.																							
C.G.M.																							
C.M.M.																							
C.S.P.																							
C.S.T.																							
L.S.M.																							
S.L.O.																							
T. FISH																							
STA.																							

0915
H.F. CORE
(P) # 23
STA # 69
1215

Continuous Daily Observations

PAGE 24

[illegible]

	DAY /					MONTH <i>JUNE</i>																				
HOURS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
<u>A.D.M.</u>	-----							-----										-----								
<u>C.G.M.</u>																										
<u>C.M.M.</u>																										
<u>C.S.P.</u>	-----																									
<u>C.S.T.</u>																										
<u>L.S.M.</u>																										
<u>S.L.O.</u>					-----														-----							
<u>T.FISH</u>																										
<u>STA.</u>																										

DAY							MONTH																							
							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

	DAY			3			MONTH			JUNE																			
HOURS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24					
A.D.M.																													
C.G.M.																													
C.M.M.																													
C.S.P.																													
C.S.T.																													
L.S.M.																													
S.L.O.																													
T. FISH																													
STA.																													

Continuous Daily Observations

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DAY 4		MONTH JUNE																					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
<div style="position: absolute; bottom: 10px; right: 10px;"> STA. # 70 DREDGE (MR) (CL) # 25 </div>																							

DAY 5		MONTH JUNE																					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
<div style="position: absolute; bottom: 10px; right: 10px;"> STA. # 71 DREDGE (MR) (CL) # 26 </div>																							

DAY 6		MONTH JUNE																					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

DAY 7		MONTH JUNE																					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
<div style="position: absolute; bottom: 10px; right: 10px;"> STA. # 74 SVS # 3 LANDING PARTY ON ST. JOHN'S ISLAND </div>																							

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HOURS	DAY 9							MONTH JUNE																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
A D M																									
C G M	—————																								
C M M			—————																						
C S P																									
C S T	—————																								
L S M																									
S L O																									
T F I S H			—————																						
STA.	DREDGE (MR) (CL) # 29																								

[illegible]

PAGE 27

HOURS
A.D.M.
C.G.M.
C.M.M.
C.S.P.
C.S.T.
L.S.M.
S.L.O.
T. FISH
STA.

A. D. M.
C. G. M.
C. M. M.
C. S. P.
C. S. T.
L. S. M.
S. L. O.
T. FISH
STA.

T. FISH
STA.

[illegible]

Continuous Daily Observations

PAGE 28

DAY 18										MONTH JUNE													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
										A.D.M.													
										C.G.M.													
										C.M.M.													
										C.S.P.													
										C.S.T.													
										L.S.M.													
										S.L.O.													
										T. FISH													
										STA.													

DAY 19										MONTH JUNE													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
										A.D.M.													
										C.G.M.													
										C.M.M.													
										C.S.P.													
										C.S.T.													
										L.S.M.													
										S.L.O.													
										T. FISH													
										STA.													

DAY 20										MONTH JUNE													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
										A.D.M.													
										C.G.M.													
										C.M.M.													
										C.S.P.													
										C.S.T.													
										L.S.M.													
										S.L.O.													
										T. FISH													
										STA.													

DAY 21										MONTH JUNE													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
										A.D.M.													
										C.G.M.													
										C.M.M.													
										C.S.P.													
										C.S.T.													
										L.S.M.													
										S.L.O.													
										T. FISH													
										STA.													

Continuous Daily Observations

PAGE 29

DAY 22 MONTH JUNE																							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

HOURS
A.D.M.
C.G.M.
C.M.M.
C.S.P.
C.S.T.
L.S.M.
S.L.O.
T. FISH
STA.

DAY 23 MONTH JUNE																							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

DAY 24 MONTH JUNE																							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

HOURS
A.D.M.
C.G.M.
C.M.M.
C.S.P.
C.S.T.
L.S.M.
S.L.O.
T. FISH
STA.

DAY 25 MONTH JUNE																							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

CORE (P) #3

CORE (P) #4

PAGE 30

	DAY 27					MONTH JUNE																			
HOURS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
A.D.M.												H	—	—	—	—	—								
C.G.M.	—																								
C.M.M.				—	—	—	—	—	—	—	—	—	—			—	—	—			—	—			
C.S.P.																									
C.S.T.	—																								
L.S.M.																									
S.L.O.																									
T. FISH	0103	STA. 84	0400																						
STA.	<div style="display: flex; justify-content: space-between;"> <div> ——— ECL #14 </div> <div> 1911 STA. 85 2114 ——— H.F. CORE (6)*27 </div> </div>																								

	DAY 29									MONTH JUNE															
HOURS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
A.D.M.																									
C.G.M.										LA SPEZIA, ITALY															
C.M.M.																									
C.S.P.																									
C.S.T.																									
L.S.M.																									
S.L.O.																									
T.FISH																									
STA.																									

PAGE 31

HOURS	
A. D. M.	
C. G. M.	
C. M. M.	
C. S. P.	
C. S. T.	
L. S. M.	
S. L. O.	
T. FISH	
STA.	

HOURS
A.D.M.
C.G.M.
C.M.M.
C.S.P.
C.S.T.
L.S.M.
S.L.O.
T. FISH
STA.

HOURS
A.D.M.
C.G.M.
C.M.M.
C.S.P.
C.S.T.
L.S.M.
S.L.O.
T. FISH
STA.

[illegible]

Continuous Daily Observations

PAGE 32

DAY <u>6</u>		MONTH <u>July</u>																					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
HOURS																							
A.D.M.																							
C.G.M.																							
C.M.M.																							
C.S.P.																							
C.S.T.																							
L.S.M.																							
S.L.O.																							
T.FISH																							
STA.																							

DAY <u>7</u>		MONTH <u>July</u>																					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
HOURS																							
A.D.M.																							
C.G.M.																							
C.M.M.																							
C.S.P.																							
C.S.T.																							
L.S.M.																							
S.L.O.																							
T.FISH																							
STA.																							

DAY <u>8</u>		MONTH <u>July</u>																					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
HOURS																							
A.D.M.																							
C.G.M.																							
C.M.M.																							
C.S.P.																							
C.S.T.																							
L.S.M.																							
S.L.O.																							
T.FISH																							
STA.																							

0400
574 * 06
0535
DREDGE (MR) #32

DAY <u>9</u>		MONTH <u>July</u>																					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
HOURS																							
A.D.M.																							
C.G.M.																							
C.M.M.																							
C.S.P.																							
C.S.T.																							
L.S.M.																							
S.L.O.																							
T.FISH																							
STA.																							

0305
574 * 07
0450
DREDGE (MR) #15

PAGE 33

HOURS	
A. D. M.	
C. G. M.	
C. M. M.	
C. S. P.	
C. S. T.	
L. S. M.	
S. L. O.	
T. FISH	
STA.	

DREDGE
(MR) # 33

HOURS
A. D. M.
C. G. M.
C. M. M.
C. S. P.
C. S. T.
L. S. M.
S. L. O.
T. FISH
STA.

HORIZONTAL SCATTERING LAYER PINGER Test
--

PAGE 34

	DAY 17					MONTH July																				
HOURS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
A. D. M.					-----											-----										
C. G. M.	-----															-----										
C. M. M.	-----															-----										
C. S. P.	-----															-----										
C. S. T.	-----																									
L. S. M.																										
S. L. O.	-----											-----						-----								
T. FISH		-----														-----										
STA.																										

2255 #
 S.T.P.
 E.C.L. #16

DAY 19		MONTH July																						
HOURS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A.D.M.																								
C.G.M.																								
C.M.M.																								
C.S.P.																								
C.S.T.																								
L.S.M.																								
S.L.O.																								
T. FISH																								
STA.																								

Continuous Daily Observations

PAGE 35

DAY <u>20</u>		MONTH <u>July</u>																					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A.D.M.																							
C.G.M.																							
C.M.M.																							
C.S.P.																							
C.S.T.																							
L.S.M.																							
S.L.O.																							
T.FISH																							
STA.																							

DAY <u>21</u>		MONTH <u>July</u>																					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A.D.M.																							
C.G.M.																							
C.M.M.																							
C.S.P.																							
C.S.T.																							
L.S.M.																							
S.L.O.																							
T.FISH																							
STA.																							

DAY <u>22</u>		MONTH <u>July</u>																					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A.D.M.																							
C.G.M.																							
C.M.M.																							
C.S.P.																							
C.S.T.																							
L.S.M.																							
S.L.O.																							
T.FISH																							
STA.																							

DAY <u>23</u>		MONTH <u>July</u>																					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A.D.M.																							
C.G.M.																							
C.M.M.																							
C.S.P.																							
C.S.T.																							
L.S.M.																							
S.L.O.																							
T.FISH																							
STA.																							

PAGE 36

DAY 25		MONTH July																								
HOURS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
A. D. M.																										
C. G. M.																										
C. M. M.																										
C. S. P.																										
C. S. T.																										
L. S. M.																										
S. L. O.																										
T. FISH																										
STA.																										

	DAY 27								MONTH July															
HOURS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A.D.M.	—————→																							
C.G.M.																								
C.M.M.																								
C.S.P.																								
C.S.T.																			←—————					
L.S.M.																								
S.L.O.	—————																							
T. FISH	—————→																							
STA.																								

PAGE 37

[illegible]

	DAY 2					MONTH AUG																		
HOURS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A.D.M.																								
C.G.M.																								
C.M.M.																								
C.S.P.																								
C.S.T.																								
L.S.M.																								
S.L.O.																								
T. FISH																								
STA.																								

Continuous Daily Observations

PAGE 40

HOURS
A.D.M.
C.G.M.
C.M.M.
C.S.P.
C.S.T.
L.S.M.
S.L.O.
T. FISH
STA.

T. FISH
STA.

HOURS
<u>A.D.M.</u>
<u>C.G.M.</u>
<u>C.M.M.</u>
<u>C.S.P.</u>
<u>C.S.T.</u>
<u>L.S.M.</u>
<u>S.L.O.</u>
T. FISH
STA.

T. FISH
STA.

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[illegible][illegible]

PAGE 42

HOURS
<u>A. D. M.</u>
<u>C. G. M.</u>
<u>C. M. M.</u>
<u>C. S. P.</u>
<u>C. S. T.</u>
<u>L. S. M.</u>
<u>S. L. O.</u>
<u>T. FISH</u>
STA.

<u>A.D.M.</u>
<u>C.G.M.</u>
<u>C.M.M.</u>
<u>C.S.P.</u>
<u>C.S.T.</u>
<u>L.S.M.</u>
<u>S.L.O.</u>
T. FISH
STA.

[illegible]

17-FEB. (72)

#2. CHAIN 43

17 FEB., 1964
ATLANTIC OCEAN
LORAN FIXES

#5

18-19 FEB.

#5

CHAIN 43
18-19 FEB. 1964
ATLANTIC OCEAN

#6
 19 FEB.
 CHAIN 43
 19 FEB. 1964
 ATLANTIC OCEAN

(#12

23-24 FEB.

12

CHAIN 43

23-24 FEB. 1964

ATLANTIC OCEAN

23 Feb

24 Feb

24 Feb

#14

25 FEB.

#18

27-28 FEB.

#19

28-29 FEB.

#23

2-3 MAR

5-6 MAR. 1968
#27

Toulon

D.R. 1641-1845
STATION No. 2
1641 S.V.S. #2

27
CHAIN 43
5-6 MARCH 1964
MEDITERRANEAN SEA

(# 32) 21°

16-17 MAR.

#32 CHAIN 43
16-17 MARCH, 1964
MEDITERRANEAN SEA

#35

18 MAR.

28° E

29° E

30° E

34° N

34° N

35

CHAIN 43

18 MARCH, 1964

MEDITERRANEAN SEA

#36

18-19 MAR.

#36

CHAIN 43

18-19 MARCH -
MEDITERRANEAN SEA

PORT SAID, EGYPT

37°E

#39
CHAIN 43
23-25 MARCH, 1964
RED SEA

ARABIA

YANBU

24°N

MARCH 23, 1964

MARCH 24, 1964

24°N

23°N

23°N

MARCH 24, 1964

MARCH 25, 1964

2342 RADAR
2395 D.R.
0015 D.R.

22°N

22°N

23-25 MAR

0400 D.R.

37°E

36°E

38°E

#39

HALAIB

190N
40
25-26 MAR

#40
CHAIN 43
25-26 MARCH, 1964
RED SEA

CEL. MARCH 25, 1964

0440 D.R.

1000 D.R.

52525

1700 1. 12. 1900

STATION DREDGE NORTH
#1
NOV 3 - 0

21.2

21° N

ARABIA

© MAKKAH (MECCA)

20°N

20%

obr

No 61

38'E

37.2

40.

0020 DR MARCH 26, 1964

2345 DE 25,1964

02 + 2200 AR

397 7030 DR
392
412

304
209
300 DR

853 DR

11° N

11° N

10° N

10° N

9° N

9° N

8° N

8° N

53° E

54° E

#46 CHAIN 43
1-2 APRIL, 1964
INDIAN OCEAN

#46
1-2 APRIL

47a

3-4 APRIL

51°E

52°E

53°E

54°E

#49

5-8 APRIL

#49

CHAIN 43

5-8 APRIL, 1964

INDIAN OCEAN

STATION No. 9
1555-1816

H.F. Core(G) #4

REFRACTION
PROFILES #1, 2.

0706 DR

0800 DR

0920 DR

1000 DR

1100 DR

1200 DR APRIL 5, 1964

1254 LAN

1305 DR

1351 DR

1400 DR

1450 DR

1500 DR

1550 DR

1600 DR

1650 DR

1700 DR

1750 DR

1800 DR

1850 DR

1900 DR

1950 DR

2000 DR

2050 DR

2100 DR

2150 DR

2200 DR

2250 DR

2300 DR

2350 DR

2400 DR

2450 DR

2500 DR

2550 DR

2600 DR

2650 DR

2700 DR

2750 DR

2800 DR

2850 DR

2900 DR

2950 DR

3000 DR

3050 DR

3100 DR

3150 DR

3200 DR

3250 DR

3300 DR

3350 DR

3400 DR

3450 DR

3500 DR

3550 DR

3600 DR

3650 DR

3700 DR

3750 DR

3800 DR

3850 DR

3900 DR

3950 DR

4000 DR

4050 DR

4100 DR

4150 DR

4200 DR

4250 DR

4300 DR

4350 DR

4400 DR

4450 DR

4500 DR

4550 DR

4600 DR

4650 DR

4700 DR

4750 DR

4800 DR

4850 DR

4900 DR

4950 DR

5000 DR

5050 DR

5100 DR

5150 DR

5200 DR

5250 DR

5300 DR

5350 DR

5400 DR

5450 DR

5500 DR

5550 DR

5600 DR

5650 DR

5700 DR

5750 DR

5800 DR

5850 DR

5900 DR

5950 DR

6000 DR

6050 DR

6100 DR

6150 DR

6200 DR

6250 DR

6300 DR

6350 DR

6400 DR

6450 DR

6500 DR

6550 DR

6600 DR

6650 DR

6700 DR

6750 DR

6800 DR

6850 DR

6900 DR

6950 DR

7000 DR

7050 DR

7100 DR

7150 DR

7200 DR

7250 DR

7300 DR

7350 DR

7400 DR

7450 DR

7500 DR

7550 DR

7600 DR

7650 DR

7700 DR

7750 DR

7800 DR

7850 DR

7900 DR

7950 DR

8000 DR

8050 DR

8100 DR

8150 DR

8200 DR

8250 DR

8300 DR

8350 DR

8400 DR

8450 DR

8500 DR

8550 DR

8600 DR

8650 DR

8700 DR

8750 DR

8800 DR

8850 DR

8900 DR

8950 DR

9000 DR

9050 DR

9100 DR

9150 DR

9200 DR

9250 DR

9300 DR

9350 DR

9400 DR

9450 DR

9500 DR

9550 DR

9600 DR

9650 DR

9700 DR

9750 DR

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9850 DR

9900 DR

9950 DR

10000 DR

10050 DR

10100 DR

10150 DR

10200 DR

10250 DR

10300 DR

10350 DR

10400 DR

10450 DR

10500 DR

10550 DR

10600 DR

10650 DR

10700 DR

10750 DR

10800 DR

10850 DR

10900 DR

10950 DR

11000 DR

11050 DR

11100 DR

11150 DR

11200 DR

11250 DR

11300 DR

11350 DR

11400 DR

11450 DR

11500 DR

11550 DR

11600 DR

11650 DR

11700 DR

11750 DR

11800 DR

11850 DR

11900 DR

11950 DR

12000 DR

12050 DR

12100 DR

12150 DR

12200 DR

12250 DR

12300 DR

12350 DR

12400 DR

12450 DR

12500 DR

12550 DR

12600 DR

12650 DR

12700 DR

12750 DR

12800 DR

12850 DR

12900 DR

12950 DR

13000 DR

13050 DR

13100 DR

13150 DR

13200 DR

13250 DR

13300 DR

13350 DR

13400 DR

13450 DR

13500 DR

13550 DR

13600 DR

13650 DR

13700 DR

13750 DR

13800 DR

13850 DR

13900 DR

13950 DR

14000 DR

14050 DR

14100 DR

14150 DR

14200 DR

14250 DR

14300 DR

14350 DR

14400 DR

14450 DR

14500 DR

14550 DR

14600 DR

14650 DR

14700 DR

14750 DR

14800 DR

14850 DR

14900 DR

14950 DR

15000 DR

15050 DR

15100 DR

15150 DR

15200 DR

15250 DR

15300 DR

15350 DR

15400 DR

15450 DR

15500 DR

15550 DR

15600 DR

15650 DR

15700 DR

#49a.

6-7 APRIL

CHAIN 43
REFRACTION PROFILES #1, 2
6-7 APRIL, 1964
INDIAN OCEAN
CORRECTED FOR CURRENTS.

58° E (#51)
11-13 APRIL
15 APRIL

#51 CHAIN 43

11-13 APRIL, 1964 / PORT VICTORIA, SEYCHELLES / 15 APRIL, 1964
INDIAN OCEAN

#52

15-17 APRIL

52 CHAIN 43
15-17 APRIL, 1964
INDIAN OCEAN

STATION No. 19 $\frac{2155}{2315}$
H.F. Core (G)#9

STATION No. 18 - 1508-1650
DREDGE (MR)(WM)(BS)#7

Coetivy I.

17-19 APRIL

14°S

14°S

15°S

15°S

16°S

16°S

17°S

17°S

57°E

59°E

#56 CHAIN 43
20-21 APRIL, 1964
INDIAN OCEAN

CARGADOS
CARAYOS
SHOALS

60001

20-21 APRIL #56

#57

CHAIN 43
21-22 APRIL, 1964
INDIAN OCEAN

#60
CHAIN 43
26-28 APRIL, 1964
INDIAN OCEAN

STATION No. 29-0955-1120
DREDGE (P) # 2

H.F. CORE (G) # 13
STATION No. 28-0425-0630

#60
26-28 APRIL 1964
63°E

19#

51

2

11

STATION No. 30-0917-1135

SCH 1

61

28 APRIL
TO
1 MAY

28 APRIL
TO

1 MAY

STATION No. 31-1546-1747
H.F. Core (G) # 15

#62 CHAIN 43
1-2 MAY, 1964
INDIAN OCEAN

CARGADOS
CARGAJOS
SHIPALS

#62
1-2 MAY

DREDGE (MR)
STATION No. 51
1710 - 1831

STATIONS
No. 45-46-47-48-49

-E.C.L.#10
STATION No. 50
1343-

MAY 16

1304
606 SL
584
1072
1262
1237
1269
1216
1244
1239
1286
0637/14
DE
SPEC

08371147
Dr.
SPECIAL SURVEY III
DR.

Hand-drawn surveying diagram showing a traverse with points 51' to 56' and bearings. The diagram includes a dashed line labeled "0950 DR." and an "INSERT A." label.

Points and Bearings (from top to bottom):

- 51' (Bearing: 110.0 DR., 145.4)
- 52' (Bearing: 148.4, 149.0, 149.4, 149.7, 150.2, 150.6, 151.1, 151.4, 151.8, 152.0)
- 53' (Bearing: 153.1, 154.9)
- 54' (Bearing: 153.9, 154.6)
- 55' (Bearing: 154.8, 154.9, 155.0, 155.1, 155.2, 155.3, 155.4, 155.5, 155.6)
- 56' (Bearing: 155.7, 155.8, 155.9, 156.0, 156.1, 156.2, 156.3, 156.4, 156.5, 156.6)

Other labels: 0950 DR., INSERT A.

67 #

CHAIN 43
13-16 MAY, 1964
INDIAN OCEAN

STATION No. 42-43-44

164 DR
1600 DR
1527 SL & DR
1527 SL & DR

67
13-16 MAY

3065

#67a

13-14 MAY

60° 10' E

60° 15' E

CHAIN 43

SPECIAL SURVEY II
13-14 MAY, 1964
INDIAN OCEAN

POSITIONS ARE DEAD RECKONED
AND THEREFORE APPROXIMATE. A
FURTHER COMPLICATION, AN EST-
IMATED 1 KNOT CURRENT, MOVING
TOWARD 330° IS INVOLVED, BUT
CORRECTED FOR IN THE PLOT

#676.

15-16 MAY

SPECIAL SURVEY III

15-16 MAY, 1964

INDIAN OCEAN

.77 K CURRENT MOVING WESTERLY 276°
PLOT IS CORRECTED FOR CURRENT

#68
16-19 MAY

STATION No. 54 - 2329-0140
H.F. CORE (G) #19

STATION No. 53 - 1609-1820
H.F. CORE (G) #18

STATION No. 55 - 0923-1138 - H.F. Core (G) #20
STATION No. 56 - 1156-1237 - S.O.
STATION No. 57 - 1540-1802 - H.F. Core (P) #21

DREDGE (NR) (CL) #21
STATION No. 52
0753 - 1135

#68
CHAIN 43
16-19 MAY, 1964
INDIAN OCEAN

Note: S.O. INVERTED RINGER EXP.

#69a
20 MAY

SPECIAL SURVEY V

20 MAY, 1964

INDIAN OCEAN

.64 K CURRENT MOVING
TOWARD 295°; CORRECTIONS
MADE IN THIS PLOT

#70a
21 MAY

SPECIAL SURVEY VI

21 MAY, 1964

INDIAN OCEAN

1.7 K. CURRENT MOVING TOWARD
254° COMPENSATED FOR.

#71

CHAIN 43
26-27 MAY, 1964
INDIAN OCEAN

#71

26-27 MAY

72
CHAIN 43
27-28 MAY, 1964
INDIAN OCEAN

72
27-28 MAY

73

73

STA. No. 68
H.F. CORE (P)[#] 22
1905-2259

#74

30 MAY

60°E

59°E

STA. No. 69
H.F. CORE (P) # 23
0915-1215

#74 CHAIN 43
30 MAY, 1964
INDIAN OCEAN

(#75

31 MAY

57.6

3.95

5°N

No. 9

70 N

N. 5

G. N.

57

75
CHAIN 43
31 MAY, 1964
INDIAN OCEAN

1 JUNE

7.55

54.75

76 CHAIN 43
1 JUNE, 1964
INDIAN OCEAN

81
CHAIN 43
4-5 JUNE, 1964
RED SEA

STA. No. 71
DREDGE (MR) (CL) # 26
0202-0252

STA. No. 70
DREDGE (MR) (CL) #25

R.D. 100

R.D. 100

R.D. 100

R.D. 100

STA. No. 71
DREDGE (MR) (CL) #26

16.5' N

ERITREA

5-6 JUNE

CHAIN 43
5-6 JUNE, 1964
RED SEA

28 #

STA. No. 73
DREDGE (MR) #28
1850-2115

STA. No. 73
DREDGE (MR) #28
1850-2115

STA. No. 72
DREDGE (MR) #27
1350-1503

STA. No. 72
DREDGE (MR) #27
1350-1503

DEHLAK ARCHIPELAGO

40°E

FRITZ

86

8-9 JUNE

98#

CHAIN 43
8-9 JUNE, 1964
RED SEA.

EGYPT

STA. No. 76
DREDGE (MR)(CL) # 29
0102-0235

EGYPT

#88 a

12-17 JUNE

35°E

35° 10' E

35°20'E

35° 30' E

6

2020
JUNE 16, 1964

 $+^{\circ}N$

34°N

—34°55'N

$-34^{\circ} 45' N$

— $34^{\circ}40'$

35°E

2230 R40

2140 RAD. JUNE 12, 1968

JUNE 17, 1964

ARRIVE, JUNE 13, 1964
DEPART, JUNE 13, 1964

BEIRUT

STA. No. 77
E.C.L. # 13
0103 - 0300

LEBANON

SPECIAL SURVEY VII A
BEIRUT CANYON & COASTAL SURVEY
12-17 JUNE, 1964
MEDITERRANEAN SEA

#88b

12-17 JUNE

#89

18-19 JUNE

31°E

32°E

33°E

4°N

#89

CHAIN 43
18-19 JUNE, 1964
MEDITERRANEAN SEA

33°N

33°N

31°E

32°E

33°E

#93

23-24 JUNE

GÁVDHOS (CRETE)

(# 99)

CHAIN 43
JUNE 29 /

LA SPEZIA, ITALY / 2 - 10 JULY, 1964 /
LA SPEZIA, ITALY / 11 - 13 JULY, 1964 /
MONTE CARLO, MONACO / 16 - 18 JULY, 1964 /
MEDITERRANEAN SEA

STA. No. 90
E.T. - T.C.F. - 1707-2110

Sta. No. 91
E.T. - 2107-0015
H. S. P.

ARRIVE (1) LASPERIA, ITALY, JUNE 29, 1964
DEPART (1) JULY 2, 1964
ARRIVE (2) JULY 10, 1964
DEPART (2) JULY 11, 1964

2-10 JULY
11-13 ITALY

T. - Thermistor Chain Fish

CHAIN 43
SPECIAL SURVEY 8-C
JULY 7-8, 8, 1964
MEDITERRANEAN SEA

PLOTS A AND B, SUPERIMPOSED,
EQUAL THE ABOVE PLOT.
SCALE IS 3x THAT OF 8-B
OR 6x THAT OF SHEET #99

100

CHAIN 43
18-19 JULY, 1964
MEDITERRANEAN SEA

19-20 JULY

5°E

61°

40°N

~~MEJORCA IS~~

MANON

(# 101

CHAIN 43
19-20 JULY, 1964
MEDITERRANEAN SEA

LORCA

MANACOR

39'N

4°E

5°E

6°E

CABO DE LA NAO

(# 102)

CHAIN 43
20 JULY, 1964
MEDITERRANEAN SEA

 1°E

BALEARES ISLANDS

FORMENTERA IS.

12°E

 $3^{\circ}E$

(# 102)

20-JULY

8°N

38°N

20

1° E

 $2^\circ E$

ALGERIA

3'E ALGEIRS

20-21 JULY

CHAIN 43
20-21 JULY, 1964
MEDITERRANEAN SEA

SPAIN

CARTEGENA

ALGERIA

ORAN

- MOSTAGANEM

21-22 JULY

104

CHAIN 43
21-22 JULY, 1964
MEDITERRANEAN SEA / STRAITS OF GIBRALTER

9°W | PORTUGAL

 $8^{\circ}W$

7°W

60

#105

22 JULY

CAP ST. VINCENT

FAR

105

CHAIN 43

22 - JULY, 1964
ATLANTIC OCEAN

37° N

SPAIN

CADIZ

36°N

TANGER

MOROCCO

6°W

#106

23-24 JULY

#108
25-26 JULY

#109

CHAIN 43
26-27 JULY, 1964
ATLANTIC OCEAN

45°N

45°N

44°N

44°N

10°W

9°W

#109

26-27 JULY

SPAIN

2-3 AUG.

No. 05

3-4 AUG.

4-5 AUG.

CHAIN 43
4-5 AUG., 1964
ATLANTIC OCEAN

STA. No. 97
S.V.S. # 6-2330-0335

STA. No. 98
S.V.S. # 7 - 0644-0915

STA. No. 100
S.V.S. # 9-1730-2022

STA. No. 99
S.V.S. #B - 1140-1316

#119
6 AUG.

#120
6 AUG.

#120

CHAIN 43
6 AUG, 1964
ATLANTIC OCEAN

#121
6-7 AUG

#121
CHAIN 43
6-7 AUG, 1964
ATLANTIC OCEAN

#122

7-10 AUG.

27°W

28°W

29°W

STA. No. 101
D.D.M. #1 - 1403-1546

STA. No. 102
H.F. Core (P) #2B
2228-0042

STA. No. 107
DREDGE (MR) #38
1347-1535

STA. No. 103
H.F. Core (P) #29
0743-1002

STA. No. 104
DREDGE (MR) #37 - 1301-1442
STA. No. 105
E.C.L. #17 - 1630-1910

STA. No. 106
H.F. Core (P) #30
0955-1205

STA. No. 108
H.F. Core (P) #31
0436-0445

#122

CHAIN 43
7-10 AUG, 1964
ATLANTIC OCEAN

#123

CHAIN 43
10-13 AUG, 1964
ATLANTIC OCEAN

#123

10-13 AUG.

10 AUG

11-12 AUG

13 AUG

- STATIONS
- 108-10 AUG
 - 109-11 AUG
 - 110-11-12 AUG
 - 111-12 AUG
 - 112-12 AUG
 - 113-12 AUG
 - 114-12 AUG
 - 115-12 AUG

SPECIAL SURVEY 9
MID ATLANTIC RIDGE

BOUY POSITION (FINAL)

CHAIN 43.
SPECIAL SURVEY #9.
11-13 AUG, 1964
ATLANTIC OCEAN - MID ATLANTIC RIDGE

3TA.
(109) - H.F. CORE (G) #32 - 1924-2058
(110) - DREDGE (MR) #39 - 2336-0133
(111) - E.C.L. #18 - 0251-6450

STA.
 (112) - DREDGE (MR) #40 - 0605 - 0708
 (113) - DREDGE (MR) #41 - 0730 - 0842
 (114) - D. D. M. #2 - 1052 - 1215

STA.
(115) - H.F. CORE (P)TH 33
1340 - 1530

#124
13-14 AUG.
43°N

#124
CHAIN 43
13-14 AUG., 1964
ATLANTIC OCEAN

#125
14 AUG

#125
CHAIN 43
14 AUG, 1964
ATLANTIC OCEAN

#126

14-15 AUG.

42°N

40°W

39°W

38°W

#126

CHAIN 43
14-15 AUG, 1964
ATLANTIC OCEAN

41°N

41°N

40°W

40°W

39°W

38°W

15 AUG.

CHAIN 43
15 AUG, 1964
ATLANTIC OCEAN

#128

15-16 AUG.

#128

CHAIN 43
15-16 AUG, 1964
ATLANTIC OCEAN

#129
16-17 AUG.

#129
CHAIN 43
16-17 AUG, 1964
ATLANTIC OCEAN

17 AUG

CHAIN 43
17 AUG, 1964
ATLANTIC OCEAN

55°W

54°W

53°W

(#131)

17-18 AUG.

131

CHAIN 43
17-18 AUG., 1964
ATLANTIC OCEAN

40°N

40°N

39°N

39°N

55°W

54°W

53°W

#134
19 AUG.

#134

CHAIN 43
19 AUG. 1964
ATLANTIC OCEAN

#135
19-20 AUG

#135 CHAIN 43
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