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84024

CRUISE REPORT

R/V OCEANUS 159

November 13-20, 1984

Brad Butman

U.S. Geological Survey

Woods Hole, MA 02543

Vessel: R/V OCEANUS 159

Dates: November 13-20, 1984

Ports: Woods Hole, MA to Woods Hole, MA

Area of Operation: Southern New England Shelf and Slope between 68° and 71°W.

Objectives:

This cruise was part of a study of currents and sediment transport on the Continental Slope. The major objectives were:

- 1) To recover an array of current meters and bottom instrumentation deployed on the Continental Slope in March 1984 (Slope Array III, see fig. 1).
- 2) Conduct a hydrographic survey across the outer shelf and upper slope between 68° and 71°W.

OC159 was the third and last cruise associated with the long-term slope measurements.

<u>Personnel:</u>		
Brad Butman		USGS
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Narrative:

Nov. 13 1600 Depart Woods Hole.

Nov. 14 0600 Arrive station SG. Sea conditions marginal for mooring recovery. Hove to.

Nov. 15 0600 Seas moderate. Prepare to recover moorings.
0739 Mooring 281 alongside.
0845 Complete recovery. Underway to station SH.
0915 Arrive station SH.
1035 Mooring 282 recovered. Underway to station SE.
1130 Release mooring 278. Release confirmed but no floats on surface.
1215 Prepare to drag for mooring.
1350 Start dragging.
1505 Subsurface float sighted.
1700 Mooring 278 recovered. Underway to station SF.

Nov. 15 1753 Release mooring 279.
 (Cont.) 1922 Mooring 279 recovered.
 2000 Underway to station SE for CTD. Wind picked up and too
 rough for further mooring work.
 2100 Start CTD section.

Nov. 16 0047 Complete CTD section to station T. Hove to for night.
 0830 Prepare to recover mooring 283 at station T.
 1000 Mooring 283 recovered.
 1240 Start CTD section.

Nov. 17 0018 End CTD section. Steam to station SA.
 0900 Arrive station SA. Prepare to recover mooring 277.
 0915 Mooring released, but didn't come up. Prepare to drag.
 1100 Complete first pass with no luck.
 1200 Mooring knocked free - cut mooring above lower current
 meter and release.
 1400 Mooring recovery complete. Attempt pass at remaining
 release and current meter.
 1720 Complete pass with no luck. Disable release.
 1830 Start CTD transect.

Nov. 18 0215 Complete CTD transect through station SA. Weather forecast
 moderate. Underway to station T to recover tripod and
 surface buoys.
 1000 Arrive station T.
 1115 Tripod recovered.
 1220 Prepare to recover surface buoy J.
 1335 Surface buoy J recovered. Underway to station SF.
 1450 Arrive station SF.
 1545 Surface buoy and current meter recovered.
 1630 Begin CTD transect.

Nov. 19 0125 Arrive hydrostatically damped core (HDC) site.
 0235 Coring complete. Continue with CTD transect.
 0915 Complete offshelf CTD transect. Underway to station SG for
 detailed CTD survey.
 1120 Arrive SG and begin CTD's.
 1600 Complete CTD's around SG and SH.
 1945 Start CTD transect on "SEEP" line.

Nov. 20 0100 Arrive BTF station 13A. Attempt core.
 0145 HDC not working properly. Continue CTD transect.
 0510 Complete CTD transect.
 0915 Arrive Woods Hole.

Highlights and Summary:

OC159 was the last in a series of 3 cruises conducted as part of a USGS program to study currents and sediment transport on the Continental Slope. The program is supported by USGS and by the Minerals Management Service.

The highlight of OC159 was the weather, which was awful. Winds were almost constantly 30-40 knots and seas 10-15' with the exception of November

18 and 19. It seems that winter began in New England at the beginning of the cruise.

Despite the weather, all major scientific objectives were accomplished. All moorings were recovered (fig. 1, table 1), and a moderate CTD survey was completed (table 2, fig. 2). One section was repeated 3 times during the cruise which should illustrate temporal changes in suspended sediment during typical storm conditions. A 1-m Sea Tech transmissometer was used to make suspended sediment observations. The oxygen sensor on the CTD failed early in the cruise.

Two moorings did not surface although both releases indicated that the release mechanism functioned. Both moorings were recovered by dragging. The mooring at SE was jarred free. The mooring at SA was cut above the lower current meter and release. Close inspection of the release recovered at station Se suggests that crevice corrosion in the release pin may have held the mechanism closed. Fifteen of sixteen current meters and 1 tripod were recovered.

Tabulated Information:

Days at sea: 8
Moorings recovered: 6
Tripods recovered: 1
Surface buoys recovered: 2
CTD stations: 41
XBT stations: 3
Salinity samples: 65
Suspended sediment samples: 54
Nutrient samples: 24

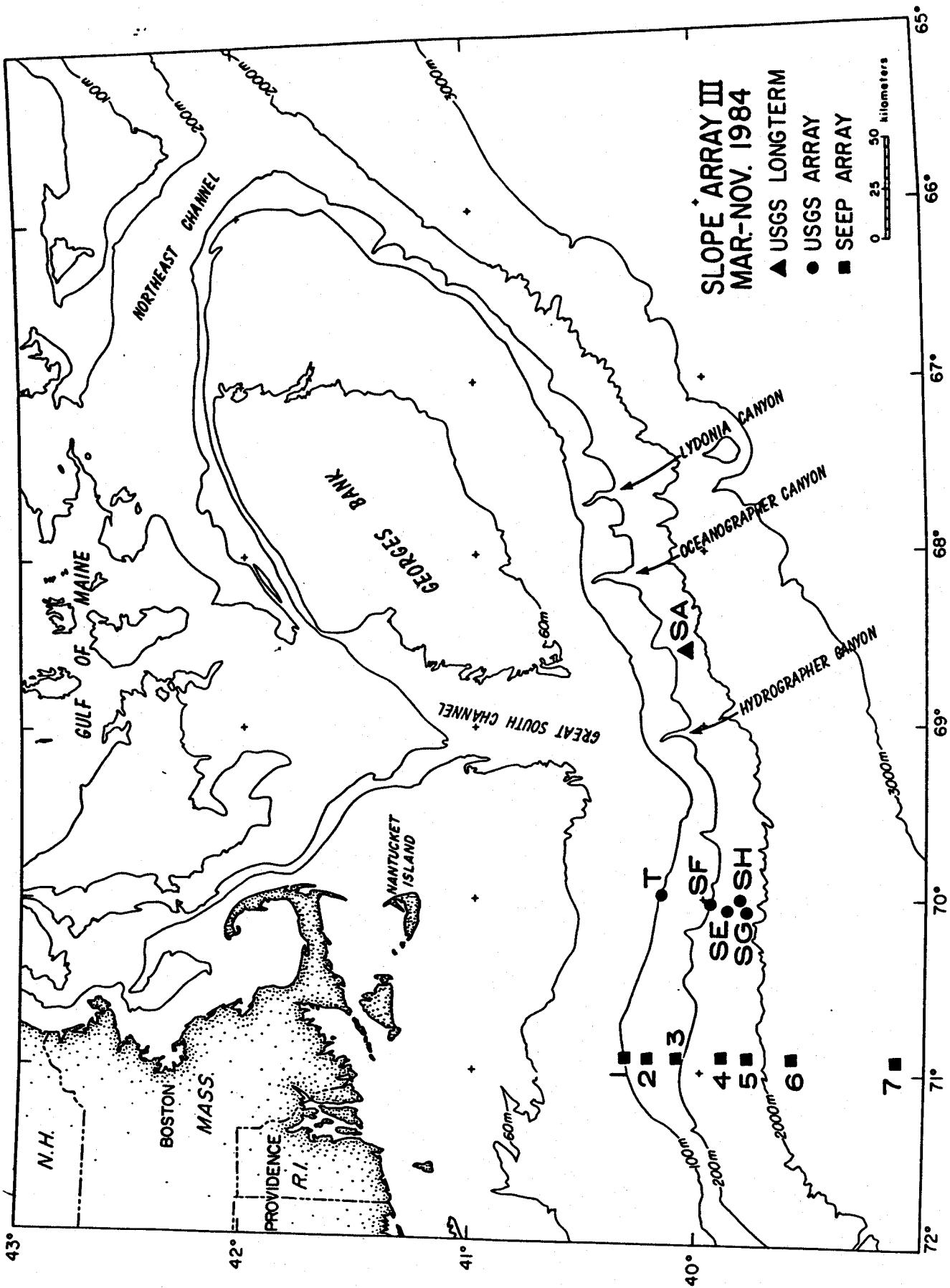


Figure 1a. Location of moorings recovered on OC159.

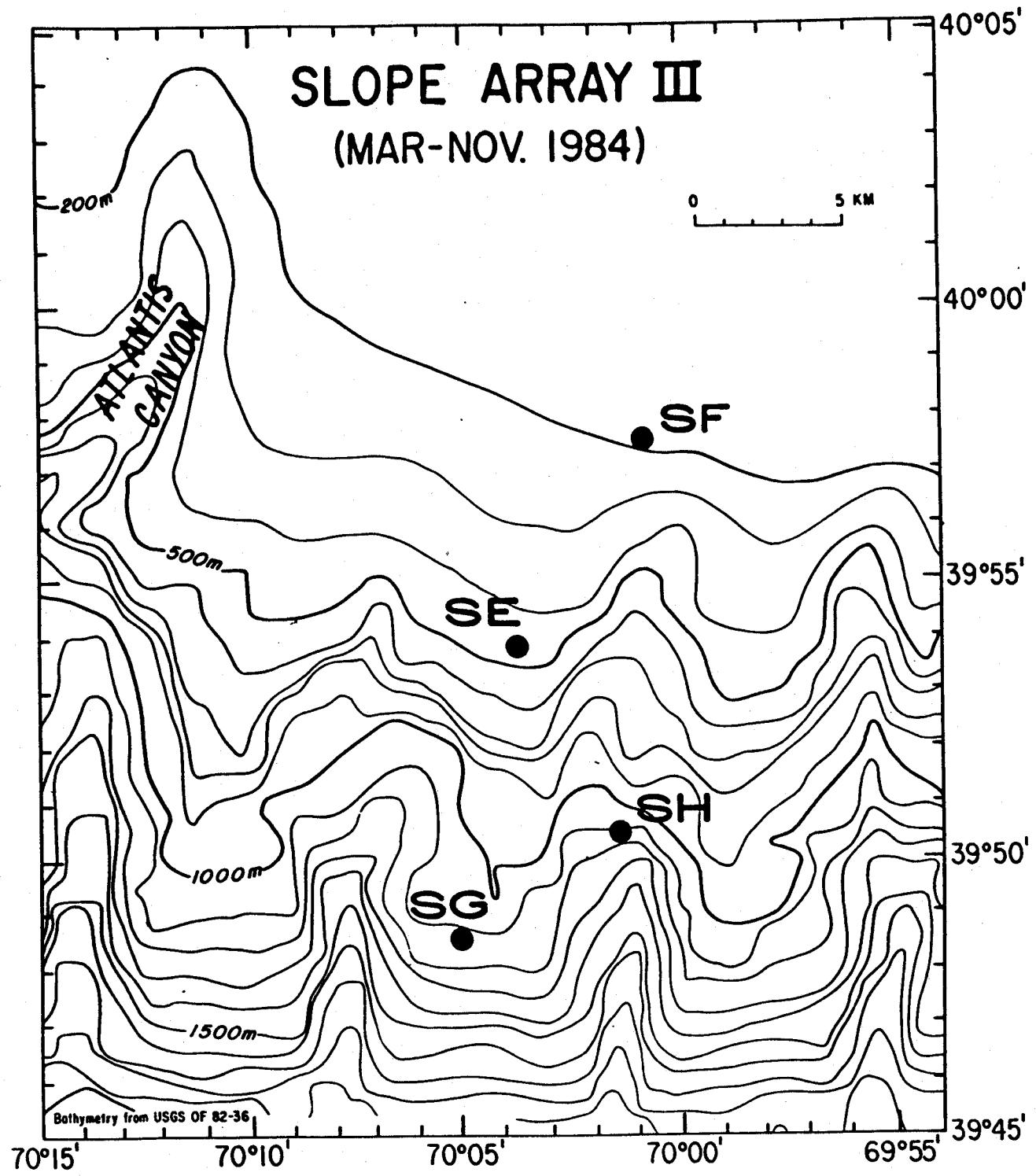


Figure 1b. Detailed map showing location of moorings SE, SF, SG and SH.

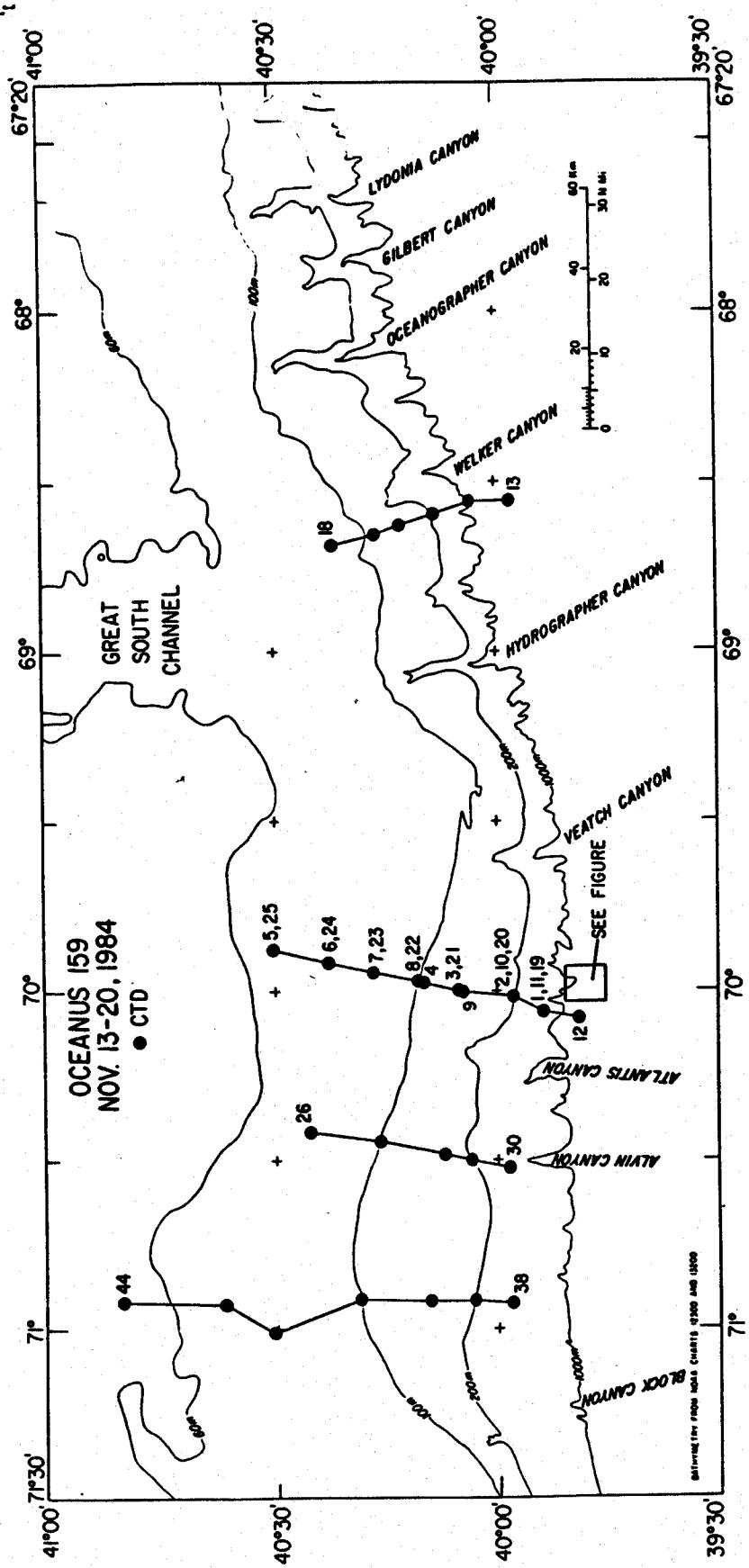


Figure 2a. Location of hydrographic stations conducted on OC159.

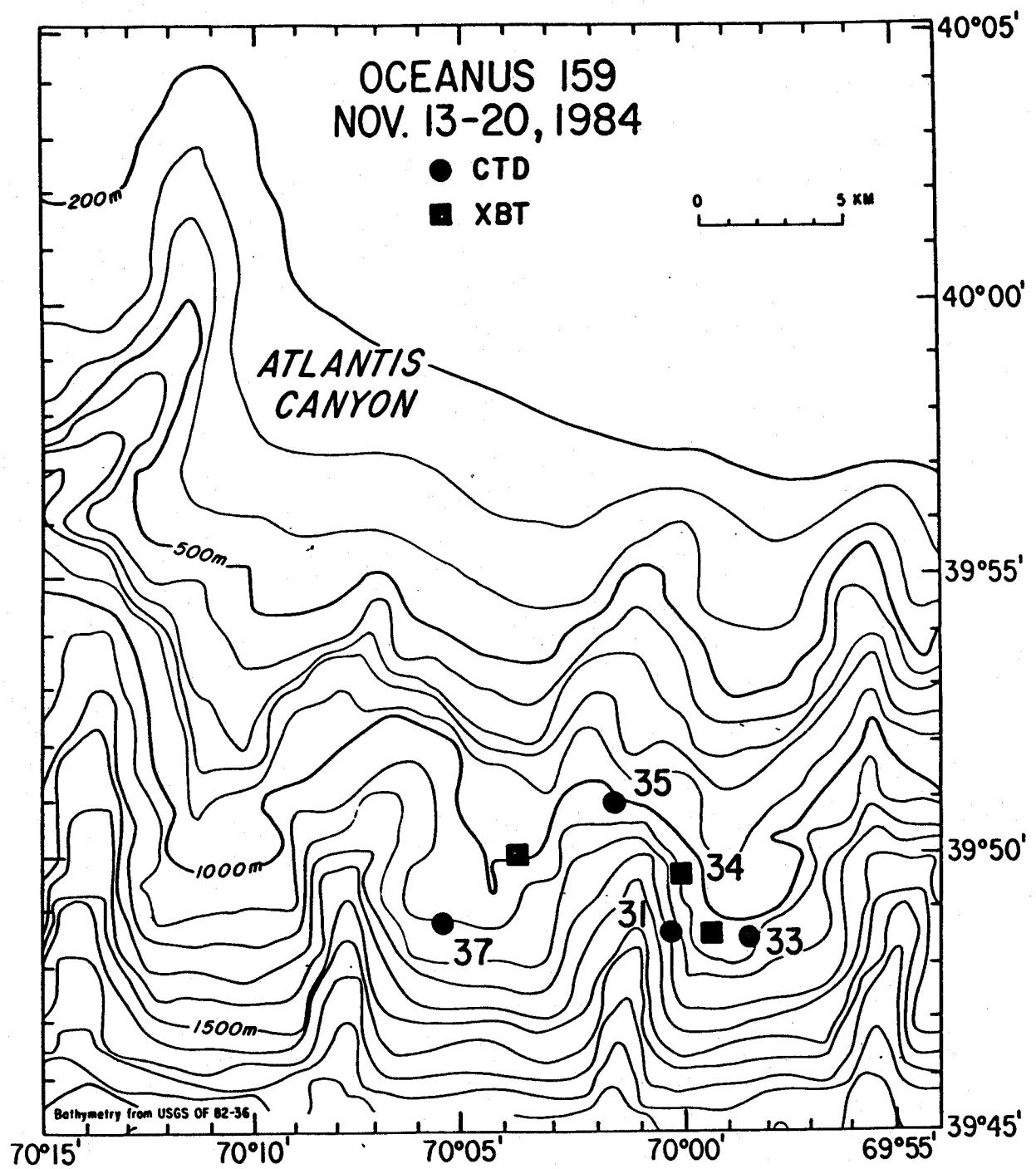


Figure 2b. Detailed map showing the location of hydrographic stations west of Atlantis Canyon.

Table 1. Slope Array - Deployment III - Continued

Station	Moor. no.	Water depth (m)	Latitude (N.)/ Longitude (W.)	Moor. type	Inst. type	Inst. depth (m)	Inst. S.M.	Deployed (YrMoDy)	Recovered (YrMoDy)
T	280	102	40°10.9' 68°58.3'	T				840316	841118
	283	100		SS	V	56	549	840516	
					ST	60	864T		
					ST	75	867T		
					ST	85	866		
					ST	90	868T		
					VTCT	93	477		
					ST	97	865T		
SG	281	1150	39°48.5' 70°05.0'	SS	V	950	541	840313	841113
					ST	955	856		
					ST	1,000	857T		
					ST	1,050	858T		
					ST	1,100	859		
					ST	1,125	860T		
					ST	1,140	861T		
					VTCT	1,144	443		
					ST	1,146	862		
					ST	1,147	863T		
SH	282	1220	39°50.6' 70°01.4'	SS	V	1,020	405	840315	841113
					ST	1,025	844		
					ST	1,070	845T		
					ST	1,120	846T		
					ST	1,170	847		
					ST	1,195	848T		
					ST		Tilt		
					ST	1,210	853T		
					VTCT	1,214	442		
					ST	1,216	854		
					ST	1,217	855T		

Mooring type: SS=Subsurface; T= Tripod.

Instrument type: ST=Sediment Trap (tube trap or Anderson trap); V=standard Vector Averaging Current Meter (VACM); VTCT=VACM modified for Transmission, Conductivity, and Temperature.

Table 1. Slope Array - Deployment III

Station	Moar. no.	Water depth (m)	Latitude (N.)/ Longitude (W.)	Moar. type	Inst. type	Inst. depth (m)	Inst. S.N.	Deployed (YrMoDy)	Recovered (YrMoDy)
SA	277	500	40°04.6' 68°33.8'	SS	TDR	134	163	840317	841117
				ST	143	805			
				V	150	506			
				ST	350	806T			Lost
				ST	400	807			Lost
				ST	450	808T			Lost
				ST	475	809T			Lost
				ST				Tilt	Lost
				ST	490	814T			Lost
				V	494	408			Lost
				ST	496	815			Lost
				ST	498	816T			Lost
SE	278	500	39°53.9' 70°03.7'	SS	TDR	134	162	840315	841115
				ST	143	817T			
				V	150	558			
				ST	175	818T			
				ST	200	819			
				ST	225	820T			
				V	250	491			
				ST	357	821T			
				ST	385	822T			
				ST	386	823			
				ST	389	824T			
				ST	390	825			
				ST	393	826T			
				ST	394	827			
				ST	397	828T			
				V	400	585			
				ST	450	829T			
				ST	475	830T			
				ST	490	831T			
				VTCT	494	626			
				ST	496	832			
				ST	498	833T			
SP	279	204	39°57.6' 70°00.9'	S	V	10	624	840316	841118
S	279	204	39°57.7' 70°01.1'	SS	V	54	562	840316	841115
				VTCT	129	518			
				ST	134	834			
				ST	154	835T			
				ST	179	836T			
				ST				Tilt	
				ST	196	841T			
				VTCT	198	321			
				ST	200	842			
				ST	202	843T			

Mooring type: S=Surface; SS=Subsurface.

Instrument type: ST=Sediment Trap (tube trap or Anderson trap); TDR=Temperature-Depth Recorder; V=standard Vector Averaging Current Meter (VACM); VTCT=VACM modified for Transmission, Conductivity, and Temperature.

"Tilt" refers to a special sediment trap which measures the effect of mooring tilt on trap efficiency.

Table 2. Hydrographic stations OCEANUS 159, March 16-19, 1984

Station	Date	Time ¹	Latitude ² (N.)	Longitude (W.)	Water depth (m)	Type	Samples				Sample ³ depth (m)
							Salinity surf.	Salinity deep	Nutrients surf.	Nutrients deep	
1	11/15	2109	39°53.8'	70°03.7'	505	CTD	X				-
2	11/15	2235	39°57.8'	70°00.9'	179	CTD	X				-
3	11/15	2358	40°05.1'	69°59.8'	134	CTD	X				-
4	11/16	0033	40°10.0'	69°58.4'	105	CTD	X				-
5	11/16	1244	40°30.1'	69°52.8'	70	CTD	X	X	X	X	60
6	11/16	1350	40°22.9'	69°54.9'	80	CTD	X	X	X	X	71
7	11/16	1450	40°16.9'	69°56.5'	88	CTD	X	X	X	X	78
8	11/16	1600	40°10.9'	69°58.1'	100	CTD	X	X	X	X	90
9	11/16	1716	40°04.8'	70°00.1'	145	CTD	X	X	X	X	132
10	11/16	2025	39°57.8'	70°00.8'	195	CTD	X				-
11	11/16	2126	39°53.8'	70°04.0'	565	CTD	X				-
12	11/16	2319	39°48.7'	70°05.0'	1,175	CTD	X				-
13	11/17	1905	39°57.7'	68°33.1'	~2,200	CTD	X		X		-
14	11/17	2038	40°03.5'	68°33.3'	~900	CTD	X		X		-
15	11/17	2233	40°08.4'	68°35.5'	193	CTD	X		X		-
16	11/17	2341	40°13.0'	68°37.6'	148	CTD	X		X		-
17	11/18	0045	40°16.5'	68°39.1'	110	CTD	X				-
18	11/18	0156	40°22.1'	68°41.1'	90	CTD	X				-
19	11/18	1703	39°54.1'	70°03.7'	465	CTD	X		X	X	460
20	11/18	1812	39°58.0'	70°00.8'	175	CTD	X	X	X	X	168
21	11/18	1916	40°05.0'	69°59.8'	143	CTD	X	X	X	X	132
22	11/18	2010	40°11.0'	69°57.7'	100	CTD	X	X	X	X	91
23	11/18	2111	40°17.0'	69°56.3'	87	CTD	X	X	X	X	78
24	11/18	2207	40°23.0'	69°54.8'	79	CTD	X	X	X	X	70
25	11/18	2307	40°30.0'	69°52.8'	70	CTD	X	X	X	X	61
26	11/19	0403	40°25.1'	70°25.1'	80	CTD	X	X	X	X	68
27	11/19	0509	40°16.1'	70°26.5'	103	CTD	X	X	X	X	99
28	11/19	0612	40°07.6'	70°28.9'	120	CTD	X	X	X	X	111
29	11/19	0652	40°03.6'	70°30.0'	200	CTD	X	X	X	X	190
30	11/19	0825	39°58.3'	70°31.1'	605	CTD	X	X	X	X	583
31	11/19	1122	39°48.6'	70°00.3'	1,370	CTD	X		X		-
32	11/19	1231	39°48.5'	69°59.4'	1,055	XBT					-
33	11/19	1242	39°48.4'	69°58.5'	1,165	CTD	X		X		-
34	11/19	1341	39°49.6'	70°00.1'	1,065	XBT					-
35	11/19	1355	39°50.9'	70°01.6'	1,085	CTD	X				-
36	11/19	1404	39°50.0'	70°03.8'	1,065	XBT					-
37	11/19	1510	39°48.7'	70°05.3'	1,040	CTD	X				-
38	11/19	1950	39°58.2'	70°55.4'	375	CTD	X	X	X	X	359
39	11/19	2102	40°03.5'	70°54.9'	195	CTD	X	X	X	X	189
40	11/19	2159	40°09.5'	70°54.9'	137	CTD	X	X	X	X	128
41	11/19	2313	40°19.0'	70°54.9'	103	CTD	X	X	X	X	94
42	11/20	0200	40°30.1'	71°00.7'	79	CTD	X	X	X	X	68
43	11/20	0325	40°36.8'	70°55.4'	71	CTD	X	X	X	X	61
44	11/20	0500	40°50.1'	70°55.2'	55	CTD	X	X	X	X	44

¹Time is EST.²Latitude and longitude from NORTHSTAR 5101 algorithm.³Deep sample corrected for deck offset = 9.0 m and bottle height above CTD.

APPENDIX I
POSITION LOG
R/V OCEANUS 159

Vessel รายการ

Cruise # 159

LORAN LOG

Page 1

Tuesday Nov 13 1984

Access Control Log

Cruise # 151

LORAN LOG

Page 1

11/14 1984 151000Z

Date	Time	Sta.	Type +/-.	Rn./D.	N	W	Remarks
				Reading	Latitude	Longitude	
11/14	0004	0504	LC		40-30.7	70-29.3	
	0030	0530	LC		40-37.4	70-36.8	
	0100	0600	LC		40-24.1	70-24.4	
	0208	0708	LC		40-16.3	70-19.0	
	0300	0800	LC		40-10.4	70-15.3	
	0330	0830	LC		40-07.0	70-13.0	0324 % 148°5
	0400	0900	L/C		40-03.6	70-10.57	
	0415						S/C 1549
	0447	0947	SAT	28 ²	39-58.51	70-06.89	SAT
	0500	1000	L/C		39-57.08	70-06.17	
	0600	1100	L/C		39-50.26	70-01.73	
	0615	1115	L/C		39-48.40	70-00.30	H.T. HEAD TO W X V/S
	0700	1200	SAT	23 ²	39-48.40	70-01.20	SAT FIX
	0700	1200	L/C		39-48.36	70-01.41	CONT H.T.
	0715	1215	SAT	7 ³	39-48.30	70-01.26	SAT
	1000				39-49.74	70-06.3	
	1155	1655	LC		39-50.7	70-09.8	
	1300	1800	LC		39-51.4	70-12.0	
	1415	1915	LC		39-52.3	70-14.5	
	1500	2000	LC		39-52.9	70-15.9	
	1540	2040	LC		39-53.4	70-17.4	CONT H.T.
-	1600	2100	L/C		39-53.62	70-18.00	
	1625	2125	L/C		39-53.89	70-18.47	V/S REPOSITION
	1700	2200	L/C		39-52.23	70-13.40	
	1800	2300	L/C		39-49.61	70-04.45	

Vessel OC-844115

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Cruise 159

LORAN LOG

1050 NOV 14 1984

Vessel PC ERNESTCruise 159LORAN LOGPage 4

THUR NOV 15 1974

Date	+S Time	Z Sta.	TYPE +/-.	T.D/FM Reading	N Latitude	W Longitude	Remarks
11/15	0000	0500	LC		39-49.4	70-08.8	CONT. H.T WIX
	0100	0600	LC		39-50.3	70-00.5	
	0200	0700	LC		39-51.3	70-02.5	
	0300	0800	LC		39-52.4	70-04.8	
	0337	0837	LC		39-53.4	70-06.6	
	0400	0900	LC		39-53.92	70-07.62	
↑	0432	0932	LC		39-54.89	70-08.94	U/S REPOSITION
↓	0434	0934	SAT	37 ²	39-54.50	70-08.81	SAT
	0600	1100	LC		39-50.63	70-03.32	POSIT
	0636	1136	LC		39-48.48	70-00.60	H/S 51A "SG" U/S
	0754	1254	LC	25333.8 43200.7	39-48.42	70-05.39	RECOVER SUBSURFACE MOO @ S.7E "SG" CMC N.W.
	0844		LC		39-48.09	70-05.56	"SG" abt Val C. & Spur
	0955		LC		39-50.44	70-01.82	0930 Cmc Recovery of "S"
	1034		LC		39-50.14	70-01.88	Gen abt. Val C. & Spur
	1104		LC		39-52.6	70-03.6	* 1100 - D "SE" site
	1200	1700	LC		39-53.8	70-02.5	
	1300	1800	LC		39-53.6	70-02.2	
	1344				39-53.25	70-01.58	Fleet
	1400						BEGIN DRAG FOR GEAR
	1423						DRAG HUNG UP ON BOTTOM
	1500	2000	LC		39-53.6	70-03.2	
	1534						FINISH W TRAWL - SKINNED ABOARD
							V/S TO RECOVER GEAR

Vessel *Chrysanthemum*

Cruise 2015?

LORAN LOG

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THURS 15 MAR '34

FRI JUL 16 1984

Date	+5 Time	2 Sta.	Type	T.D./AM +/-.	Reading	N Latitude	W Longitude	Remarks
11/16	0001	0501	LC			40-05'0	70-00.0	S/C 016° S 150 RPM TO CTD STA=4
	0035	0535	LC			40-11.0	69-58.0	H.T. CTD=4 COMMENCE CTD.
	0045 ⁴	0544	LC			40-11.0	69-58.0	FINISH CTD=4 H.T. WX BTW
	0100	0600	LC			40-09.8	69-58.7	CONT H.T. WX
	0200	0700	LC			40-08.3	69-59.0	
	0300	0800	LC			40-08.6	69-59.2	CONT H.T. WX
	0400	0900	2/c			40-08.08	69-59.65	POSIT
	0544	1044	4/c			40-06.56	70-02.13	S/C 035 (T) S/A REPOSITION
	0544	1044	SAT	11 ²		40-07.59	70-02.21	SAT
	0630	1130	4/c			40-11.06	69-58.03	H.T. HEAD TOWK ON STA
	0709	1209	SAT	17 ²		40-10.64	69-58.70	SAT
	0730	1230	4/c	-		40-10.35	69-58.34	POSIT
	0925		LC			40-10.91	69-58.24	Cme recovery of SS morning @ "T" Morning on deck
	1002		LC					
	1042		LC			40-09.98	69-59.9	S/C 015.6 - 150 RPM
	1200	1700	LC			40-24.0	69-54.7	
	1232	1732	LC			40-30.0	69-53.1	H.T. CTD=5 FIN. CTD=5
	1300	1800	LC			40-29.8	69-52.9	S/C 193.5 @ 160 RPM ARRIVING CTD STA=6
	1345	1845	LC			40-23.0	69-55.0	ARRIVING S/C 180 @ 160 RPM
	1408	1908	LC			40-22.7	69-55.2	TO CTD STA=7
	1445	1945	LC			40-17.0	69-56.6	AIRR. STA=7 CNC. CTD=7
	1510	2010	LC			40-16.5	69-56.8	FIN CTD=7 JARL S/S TO STA "T"
	1553	2053	LC			40-11.0	69-58.1	ARR. STA "T"

Vossel Officer

Cruise 11.55

LCRAN LOG

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FBI NOV 16 1984

Vessel C.C.G.S. ...
Cruise " 157

LORAN LOG

Page 6

SAT Nov 17, 1984

Date	+5 Time	2 Sta.	Type +/-.	T.D./Fin Reading	N Latitude	W Longitude	Remarks
11/17	0000	0500	LC		39-47.8	70-05.8	
	0010	0510	LC		39-47.7	70-05.9	FIN CTD ±12 40°07.5' S @ 140 RPPM
	0100	0600	LC		39-48.9	69-58.9	
	0200	0700	LC		39-51.0	69-48.4	
	0300	0800	LC		39-52.8	69-37.1	S/C 074°S
	0400	0900	L/C		39-54.81	69-26.69	POSIT
	0447	0947	L/C		39-56.54	69-18.48	S/C 076°S
	0500	1000	L/C		39-56.96	69-16.31	POSIT
	0600	1100	L/C		39-58.89	69-05.80	
	0636	1136	SAT	36 ²	40-00.00	68-59.14	SAT
	0700	1200	L/C		40-00.75	68-54.67	
	0735	1235	L/C		40-01.91	68-48.02	S/C 075°S
	0800	1300	LC		40-02.82	68-43.82	
	0858	1358	LC		40-04.59	68-33.81	H-T TO "SA" site (TRANSISTOR FAULTED) MOORING STRIPPED
	1200	1700	LC		40-04.1	68-33.3	25054.7 43267.5
	1205	1705					TRANSISTOR ON DECK
	1315						MOORINGS ^{EXC} STRIPPED.
	1348	1848	LC		40-02.5	68-34.3	MOORING ABD.
	1400	1900	LC		40-02.2	68-34.1	
	1422						V/S TO STA. 40-04.6N 68-36.0
	1500	2000	LC		40-04.2	68-35.4	V/C/S TO DICHES FOR RE- MOORING "SA"
	1600	2100	L/C		40-04.57	68-33.42	POSIT
	1710	2210	L/C		40-02.78	68-33.15	TRAILER ADD EMPTY
	1721	2221	L/C		40-02.50	68-33.41	V/S ABD STA "SA"

Vessel OCEANUS

Cruise #159

LORAN LOG

Page 1

SAT NOV 17 1984

Vessel CHALMERS
Cruise 159

LORAN LOG

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SUNDAY NOV. 18, 1984

Date	+5 Time	2 Sta.	Type +/-.	T.D Reading	N Latitude	W Longitude	Remarks
11/18	0000	0500	LC		40-12.7	68-38.3	S/C 353° S 140 RPM
	0041	0541	LC		40-16.5	68-39.1	H.T. CTD #17
	0102	0102	LC		40-16.3	68-40.0	S/C 351° S @ 140 RPM
	0154	0654	LC		40-22.1	68-41.1	H.T. CTD #18
	0200	0700	LC		40-22.1	68-41.2	"
	0226	0726	LC		40-22.4	68-42.3	Deck SECURE - ROUND S/C 258° @ 130 RPM STA
	0300	0800	LC		40-21.8	68-47.7	S/C 256° CONT. ON CAS. TO "
	0332	0832	LC		40-21.2	68-52.2	"
	0400	0900	C/C		40-20.55	68-56.11	Pos. T
	0500	1000	C/C		40-19.31	69-04.43	Pos. T
	0553	1053	C/C		40-18.11	69-11.81	C/S 150 RPM
	0600	1100	C/C		40-17.90	69-13.01	Pos. T
	0638	1138	SAT	7 ²	40-16.51	69-19.58	SAT FIX
F -	0700	1200	C/C		40-15.73	69-24.07	S/C 260
	0800	1300	LC		40-13.89	69-35.94	
	0900	1400	LC		40-12.16	69-47.72	
	0955	1455	LC				H.T @ site "T" for Tripod Recovery
	1112	1612	LC		40-10.84	69-58.5	Tripod on deck
	1200	1700	LC		40-11.1	69-58.8	H.T @ STA "T" - PELL FOR S.B. : J ABD.
	1314	1814	LC		40-10.9	69-58.7	
	1335	1835	LC		40-10.8	69-58.5	S/C 180° @ 160 RPM TO STA "SF"
	1400	1900	LC		40-07.1	69-59.1	V @ 160 RPM TO STA "S"
	1454	1954	LC		39-52.5	70-01.1	ARRIVE H.T. STA "SF"
	1518	2018	LC		39-57.5	70-01.1	S.B. "SF" ABD.

Vessel Oceanus

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Cruise 157

LORAN LOG

SUN. NOV 12, 1984

11/18 Date	+5 Time	2 Sta.	Type +/-.	T.D. Reading	N Latitude	W Longitude	Remarks
11/18	1545	2045	LC		39-57.5	70-01.1	HT STA "SF" ^{CONT. RECOVERY OPERATION}
	1600	2100	4/c		39-57.50	70-01.00	POSIT ON STA "SF"
	1608	2108	4/c		39-57.47	70-00.96	F/w HALING CHAIN + MOULDS
	1615	2115	4/c		39-57.43	70-00.94	F/w STA 5/c 21K(2) S/4
	1658	2158	4/c		39-54.00	70-03.98	H-T CTD STA # 19
	1739	2239	4/c		39-54.14	70-03.71	CTD ABD
	1743	2243	2/c		39-54.17	70-03.67	F/w STA 5/c 023 F/A
	1809	2309	4/c		39-57.98	70-01.01	H-T CTD STA # 20
	1826	2326	4/c		39-57.97	70-00.99	CTD ABD
	1834	2334	LC		39-57.96	70-01.0	F/w STA 5/c 006(G) F/A
	1915	0015	4/c		40-04.96	69-59.99	H-T CTD STA # 21
	1930	0030	4/c		40-04.92	69-59.90	CTD ABD
	1934	0034	4/c		"	"	F/w STA 5/c 013(G) F/A
	2013	0113	LC		40-10.98	69-57.92	H-T CTD # 22
	2035	0135	"		40-10.9	69-57.56	S/C 007-G - 160 RPM
	2113	0213	"		40-16.98	69-56.48	H-T CTD # 23
	2129	0229	"		40-16.89	69-56.34	S/C 010-G - 160 RPM
	2207	0307	"		40-23	69-54.97	H-T CTD # 24
	2220	0320	"		40-22.92	69-54.81	S/C 011-G - 160 RPM
	2308	0408	"		40-30.0	69-52.98	H-T CTD # 25
	2323	0423	"		40-29.88	69-52.9	S/C 000-G 160 RPM
	2342				40-32	69-52.7	C/C 270-G

N.C.C Nov 19, 1984

Date	+/-	2	Type	T.D.	Reading	N Latitude	W Longitude	Remarks
11/19	0010	0510	LC		40-32.2	69-57.4		
0102	0602	0602	LC		40-32.5	70-11.75	%C 187°C	
0124	0624	0624	LC		40-29.1	70-12.9	ARR. CAPE ST. HELENA	
0200	0700	0700	LC		40-29.3	70-12.7	ON STA.	
0300	0800	0800	LC		40-29.4	70-14.1	%C 242.5°C 160 RPM CTD	70 ETD
0330	0830	0830	LC		40-27.3	70-19.9	%C 238.5	
0359	0859	0859	%C		40-24.97	70-25.09	H.T. CTD STA #26	
0415	0915	0915	%C		40-25.09	70-25.36	F/W STA %C 185@ 160 RPM	
0508	1008	1008	%C		40-16.04	70-26.54	H.T. CTD STA #27	
0520	1020	1020	%C		40-16.08	70-26.74	F/W STA %C 191@ 160 RPM	
0608	1108	1108	%C		40-07.53	70-29.03	H.T. CTD STA #28	
0622	1122	1122	%C		40-07.55	70-29.10	F/W STA %C 189@ F/A	
0651	1151	1151	%C		40-03.55	70-30.05	H.T. CTD STA #29	
0705	1205	1205	%C		40-03.59	70-30.15	F/W STA %C 190 F/A	
0727	1227	1227	%C		40-00.06	70-31.07	H.T. CTD STA #30 N/G	
0733	1233	1233	%C		" "	" "	VS SEEK DEPTH FOR #30	
0746	1246	1246	%C		39-59.65	70-32.03	H.T. CTD STA #30	
0756	1256	1256	%C		39-59.81	70-32.19	F/W STA VS	
0813	1313	1313	LC		39-59.9	70-31.49	%C 180.6 U/S	
0825	1325	1325	LC		39-58.32	70-31.44	CTD #30 - H-T	
0910	1410	1410	LC		39-57.96	70-30.78	%C 112.6 - 175 RPM	
1030	1530	1530	LC		39-51.23	70-12.22	C/C 105	
1122	1630	1630	LC		39-48.5	70-00.46	H-T CTD #31	
1220	1720	1720	LC		39-48.1	70-01.2	%C 112.6 @ 160 RPM	
* 1238	1738	1738	LC		39-48.2	69-58.5	H.T. CTD #32	

Vessel CORPORACION
Cruise " / < "

LORAN LOG

Mon Nov 19, 1884

rage 3

Date	+ 5 Time	2 Sta.	Type +/-.	T.D. Reading	N Latitude	W Longitude	Remarks
11/19	1330	1830	LC		39-48.5	70-58.9	V/c @ 160 RPM TO STA 33
	1350	1850	LC		39-50.5	70-01.5	H-T CTD STA #33
	1400	1900	LC		39-51.0	70-02.1	VAR CDS @ 160 RPM STA 33
	1445	1945	LC		39-51.0	70-02.5	VAR/C @ 160 RPM STA 33
	1505	2005	LC		39-48.5	70-05.3	H-T CTD STA #34
	1600	2100	L/C		39-49.15	70-05.50	F/w CTD #34
	REMAINING VICINITY STA #34 RE DETERMINATE						CTD WIRE
	1610	2110	L/C		39-49.37	70-05.69	S/C 282, 160 RPM
	1700	2200	L/C		39-51.68	70-17.54	POSIT S/C 284
	1702	2202	SAT	18 ²	39-51.91	70-18.04	SAT
	1800	2300	L/C		39-54.45	70-31.98	POSIT
	1900	0000	L/C		39-57.25	70-46.27	POSIT
	1937	0037	L/C		39-58.00	70-54.57	H-T CTD STA #35
	2000	0100	L/C		39-58.15	70-55.50	POSIT
	2024	0124			39-58.15	70-55.67	V/c Co - 160 RPM
	2102	0202	L/C		40-03.5	70-55.0	H-T CTD #36
							2120 S/C 001-G - 160
	2200	2215	LC		40-09.51	70-55.0	H-T CTD #37
	2215				40-09.47	70-55.16	S/C 001-F @ 160
	2313				40-19.01	70-55	H-T CTD F38
	2326				40-18.99	70-55	S/C 009-G @ 170

Vessel COCOROS
Cruise 159

LORAN LOG

Fago 14

TUES NOV 28, 1984

Date	Time	Sta.	Type	T.D +/-	Reading	N Latitude	E Longitude	Remarks
11/20	0000	0510	LC		40-23.2	70-57.5'		VARCES @ 160 RPM STA #
	0546	0546	LC		40-30.0	71-00.6		H.T. CORE #2 CTD STA # 29
	0602	0602	LC		40-30.0	71-00.6		WIRE REPAIR
	0630	0630	LC	25557.1 43545.4	40-30.0	71-00.6		REPAIRED
	0632	0632	LC		40-30.0	71-00.6		MUD GRAB DAMAGED
	0717	0717	LC		40-30.4	71-01.3		VARCES @ 160 RPM TO CTD STA # 40
	0805	0805	LC		40-36.5	70-55.0		H.T. CTD STA # 40
	0841	0841	LC		40-36.9	70-55.5'		VARCES @ 165 RPM TO CTD STA # 41
	0900	0900	LC		40-40.21	70-55.55		Posit
	0956	0956	LC		40-49.97	70-55.11		H.T. CTD STA # 41
	1012	1012	LC		40-50.18	70-55.47		F/W STA # 41 F/A
	1038	1038	SAT	65°	40-55.07	70-54.53		SAT
	1100	1100	LC		40-58.88	70-55.13		Posit
	1130	1130	LC		41-04.57	70-55.04		Posit
	1204	1204	LC		41-11.09	70-54.84		Posit
	1211	1211	LC					S.W. SHORAL BOUY → 3-S.
	1227	1227	SAT	9°	41-15.13	70-54.82		SAT
	0911		Bouys # 1 & 2	→	ARRIVE W.H.I.			
	0930		MADE FIRST ALONGSIDE		WHOI DOCK			

APPENDIX II

DECK LOG

R/V OCEANUS 159

DECK LOG

CRUISE NO. 159

TIME ZONE -5

ORIGINUS

From Woods Hole

DATE 11 13 84

To Woods Hole

Remarks

Wind & Force

Sea State

Swell & Direction

Gnd.

Air

Water

Weather

Hour Pol. Log

Course

Stand

Dirg.

True

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CRUISE NO. 159

DECK LOG

DATE 11-16-84

Hour	Poi- Log	Course Stand	Wind & Dirn. Force	Sea State True	Swell & Dirn.	Bear. Air	Wear. Weather	Stations			Time
								No.	Lat.	Long.	
1											
2											
3		NNW	5	NNW							
4	168	148	6	4	1007	42	0	0324 c/c 148°G	V10.	good. Rough seas	JMW
5								0415 c/c 154°R			
6								0615 H.T. head to WK Vc/s to maintain			
7											
8	H.T.	NNW 7-8	5	NW 3	1010	43	0	Vis fair	Mod motion cont.	H.T. to WK L.T.B.	
9											
10											
11											
12	H.T.	NW 7-8	5	NW 3	1011	44	0	Jogging to weather, mod. roll and pitch P.H.			
13											
14											
15											
16	H.T.	NW 7-8	4	NW 43	1014	49	0	Vis. fair, Mod motion, cont.	H.T. WK	JMW	
17								1625 Vc/s to reposition			
18								1930 H.T. jog to WK Vc/s			
19											
20	H.T.	NW 8-9	5	NW 3	1018	50	hc	V10. Excellent. Mod. motion	L.T.B.		
21											
22											
23											
24	H.T.	NW 7-8	4	NW 3	1022	50	bc	Jog to WK Mod. roll and pitch P.H.			
	Oil	On Hand		Water	Used 400			I.O. O.H. 1156			
	Gallon Used	On Hand		Water	400 per 7600			I.O. used 0			
	799	39964		0							
	At See							Length of Day	19h 55m		
								At See	19h 55m		

CAUSE NO. 159

OCEANUS DECK LOG

CRUISE NO. 159

OCEANUS DECK LOG

DATE 11/16/84

TO

WOODS HOLE WOODS HOLE TIME ZONE AT

Hour	Poi- Log Sign	Course Strg.	Wind Force	Sea State	Bear. Dir.	Air Westerly	Water Westerly	Stations			Remarks	Time
								No.	Lat	Long		
1												
2												
3												
4	H.I.	SW 8 5 SW 4 1015 62			0	Vg/s to hold position		0001 c/c 016°@0150rpm to CTD sta. 4				
5	Jogging	SW/N SW/N 7-8 SW-3 1014 61			c	excellent, mod. motion, cont. Wt to WK. NW		0035-0044 HT CTD#4 0044 s/c CTD cont. HT sec				
6								0544s/c 035°s/a reposition				
7								0630 HT head to wk jogging near sta. T				
8	Jogging	SWNW 5 SW 3 1014 61			c	Vg good, mod. pitch, cont. to 10gg LTB						
9								0925 Cmc recovery of SS mooring @ T				
10								1042 s/c 012°s 160rpm				
11												
12	012	WSW 5 4 SW 3 1011 60			c	Vg. good. mod. roll		PH				
13								1345 arr. CTD sta. 6				
14								1445 arr. CTD sta. 7				
15								1553 arr. CTD sta. 8				
16		WSW 4 1009 56			c	Vg. good. Mod motion to heavy motion. Cont CTD		1200 L.A.N. LC	40-24.0	69-59.6		
17		WSW 8 4 VAR			c	1600-1621 CTD sta. 8 1621s/c 192°T 130rpm		1600 P.M Sun LC	40-24.0	-69-54.7		
18								1706-1734 CTD#9 1734-1810 HT resecure deck gear				
19								for heavy WK 1810 s/c 173°T 130rpm				
20								1830 HT WK				
21								1945 s/c 146°T 130rpm 2018 HT CTD sta#10 S.O.H.				
22								Deservative				
23								Arrival				
24								Steaming Time	14h-02m	9h-58m		
								Station Time Total				
								Days Run Total	35m1	194mi		
								Ave Speed	2.5kts			
								Grand Total Dist	33095			
								Length of Day	24h			
								At Sea	2d 19hrs 55m			
												MASTER
Callout Used	01	On Hand	None	Used	800		LO used 2					
620	38823	0		"	6200		LOOH 1154					

CRUISE NO. 159
DATE 11/18/84

OCEANIS DECK LOG

Hour	Poi- Log	Course	Stbd Sigr.	Wind & Dir.	See State	Sect & Direction	Bsr.	Air	Water	Weather	TIME ZONE +5			
											WOODS HOLE			Stations
											No	Lat	Long	Time
1														
2											0041 HT CTD #17 0102 HT CTD#18			
3											Round made all secure 0226 s/c 259°g @ 130rpm to STAT			'1
4	256	275	W5	3	W3	1022	43	c	Vis excellent, Mod motion	JRW				
5											0300 s/c 256°g			
6											0553 s/c 150rpm			
7											0700 s/c 260°g			
8	278	260	NNW5.6	3-4	NNW3	1025	44	c	Vis. Excellent.	LIS				
9											0955 HT Site T for trawl recovery			
10											1112 Recover tripod Varca/s			
11														
12	Vac	NF3	3	NW 1	1024	44	o	Vis Good, easy roll	PH					
13											1314 S.B. "J" abd.			
14											1454 arrive sta. "SF"			
15											1518 Surface Buoy "SF" abd.			
16	Vac	SSW4	3	SW 2	1023	52	o	Vis. excellent, Slight motion HT Sta.2SF"	"		1600 A.M Sun			
17											1615 F/M sta."SF" s/c 0211°gs/a 1658-1743 ctd sta#19			
18											1809-1834 Ctd#20 s/c 006°t f/a			
19											1915-1934 ctd sta.# 21 s/013°g f/A			
20	HT	WSW4	2	SW 1	1021	50	or	Vis. fair-good, easy motion, cont. CTD ops.	PH		Departure Arrival			
21											2013 HT CTD#22 2035 s/c 007°g 160rpm			
22											2113 HT CTD#23 2129 s/c 010°g 160rpm			
23											2207 HT CTD#24 2220 s/c 011°g 160rpm			
24											2308 HT CTD#25 2323 s/c 000°g 160rpm			
											2342 s/c 270°g			
											Ave Speed			
											5.4kts			
											Grand Total Dist			
											33286			
											Oil			
	Gallon Used	On Hand	Miles	Raised	Lat	Long	LO used	2	PH		Length of Day			
573	37249	0	"4700	800	LOOH 1152						24h			
											At Sea			
											4d19h55m			

CRUISE NO. 159

OCEANUS DECK LOG

DATE 11/19/84
X-Subsidized

TIME ZONE +5

Hour	Poi- Log	Course	Wind & Force	Sea State	Swell & Direction	Sov.	Air	Water	Remarks	Stations			Time
										No.	Lat.	Long.	
1									0124-0300 HT Core staff				1
2													
3									0300 n/c 242°g 160rpm to CTD #3126				
4	240	259	SW5	2	SW1	1013.5	46	d	Vis. good, easy motion, lt. rain, TSM				
5									0359-0415 CTD #26 0508-0520 CTD #27				
6									0608-0622 CTD #28 0631-0705 CTD #29				
7									0746-0756 CTD #30				
8	NW5	3	W1	1013	47	04	VIS. fair to good, cont. CTD ops.	LTS					
9	Var.								0813 n/c 180°g V/S 0825 HT CTD #30				
10									0910-44-112°g-175°rpm 1030n/c 105°g				
11									1112 HT CTD #31				
12	Var.	NE 5-6	3	N1	1012	46	op	Vis. good		PH			
13									1122-1220 HT CTD #31 1238-1330 HT CTD #32				
14									1350-1445 HT CTD #33				
15									1505-1600 HT DTP #34 Var/crs to CTD sta.				
16	Var.	N6-7	3	NNE 1	1012	46	op	VIS. good, easy motion, lt. rain.	JRW				
17									1610 S/C 282°g 160rpm 1700S/C 284°g				
18									1710 STD RADAR OUT loud noise-smell smoke-breaker				
19									1937 HT CTD #35				
20	HT	N 7	3-4	N 1	1016	42	o	VIS. good	LTS				
21									2024 Var Crs. 160rpm				
22									2102 HT CTD #36 2120 s/c 001°g 160rpm				
23									2200 HT CTD #37 2215 s/c 001°g 160rpm				
24	339	N 5	3	N 1	1020	34	bc	VIS. excellent	PH				
Galleon Used		011											
On Hand		36334											
Used													
Rein.		0											
Left													
LOON 1149													
LOON 1149													
Length of Day													
at Sea													
5d 19h 55m													

MASTER

1st OFFICER

CRUISE NO. 159

DECK LOG

OCEANUS

DATE	From	WOODS HOLE	To	WOODS HOLE	TIME ZONE										
					STATIONS				STATIONS						
Hour	Pel- Log	Course Stand	Straight	Wind & True	See Buoys	Small & Direction	Sec.	Air	Water	Weather	Remarks	No.	Lat.	Long.	Time
1											0046-0217 HR core #2 CTD #39 mud grab damaged				
2											0217 Var/crs 160rpm to CTD440				
3											0305-0341 HF CTD 440 0341s/c 002°E 165°SW				
4	0002	002	017	NNW 5-6 3-4	NNW 1 1021	33	bc	Via excellent, easy motion.			JMM				
5											0456-0512 CTD 441 0512 s/c 001°E FIA				
6											0711 SW shoal Buoy abeam to stbd 3.5 mi				
7															
8	013	258	NNW 6 3-4	NNW 1 1023	32	bc	Via excellent, easy motion				LTB				
9											0911 Arrival Buoy 162 shear				
10											0930 Made fast alongside WHOI dock				
11											ARRIVAL DRAFTS: FWD 11-03 HEAN 14-00 AFT 16-03				
12															
13												POSITIONS			
14												Indicate Type & Time	Lat	Long	W
15												O/H/O	Other		
16												A.W.Ships	LC	40-40.21	70-55.55
17												0800			
18												AM Sun			
19												1100			
20												L.A.N			
21												1600			
22												PM Sun			
23												1800			
24												2000			
												PM Stars			
												2400			
												Grand Total Dist			
												33534			
												Arrived 0911			
												Steaming Time	15h 27m	5h 44m	
												Station Time Total			
												Days Run	140 m1	633m1	
												Ave Speed	9k03		
												Grand Total Dist			
												Length of Day	21h 11m		
												At Sea	6d 17h 06m		
												O/H			
												On Water			
												Food			
												Pot			
												LO used			
												LOOH	1131		