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 measurments.

Personnel:

Brad Butman	USGS
Dann Blackwood	USGS
Mike Bothner	USGS
Gregg DiLisio	USGS
John Larson	USGS
John Moody	USGS
Joe Newell	USGS
Carol Parmenter	USGS
Rick Rendigs	USGS
Polly Shoukimas	USGS
Bill Strahle	USGS
Andy Eliason	Eliason Data Services

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 suggported 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

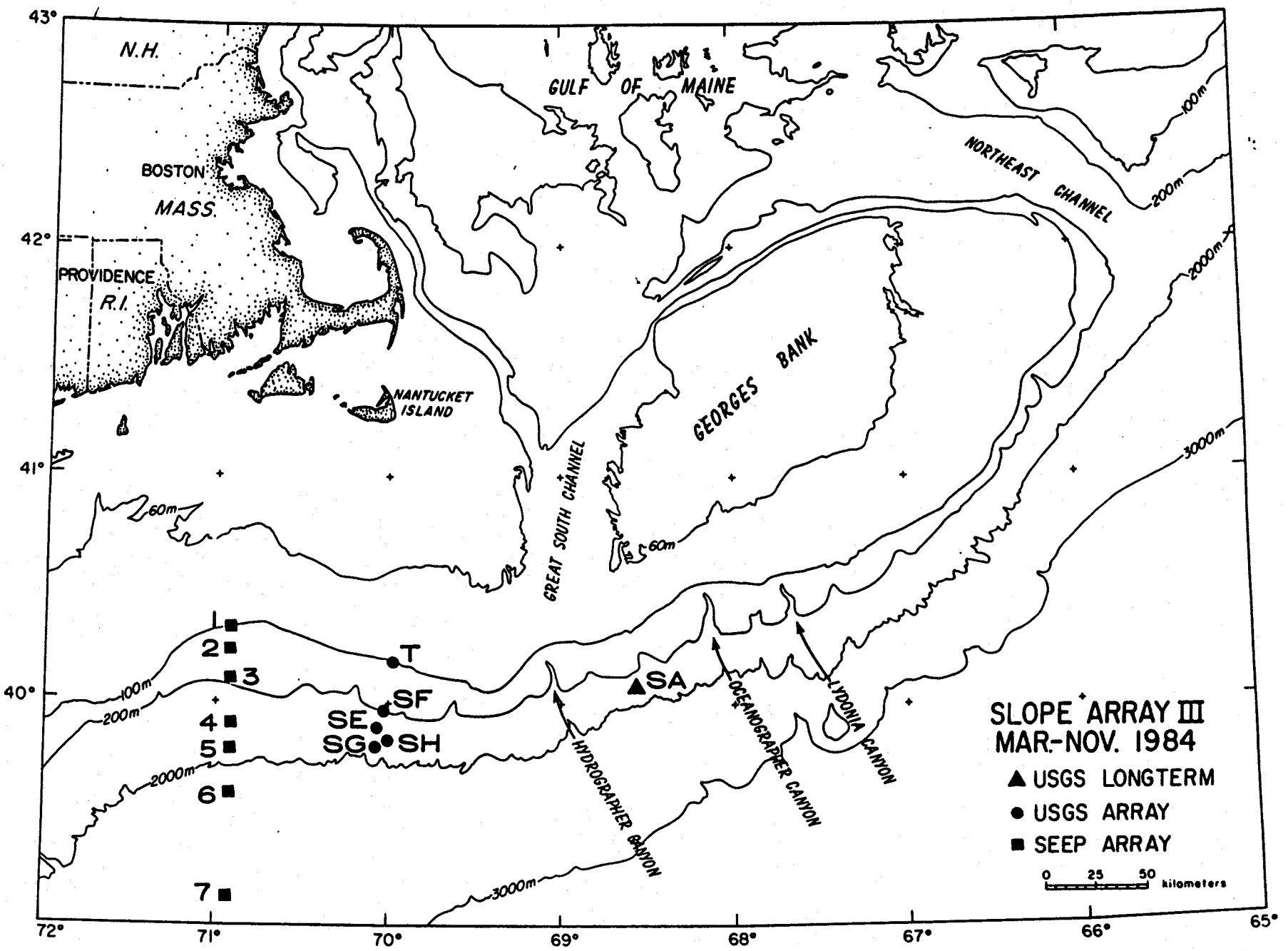

Figure 1a. Location of moorings recovered on OC159.

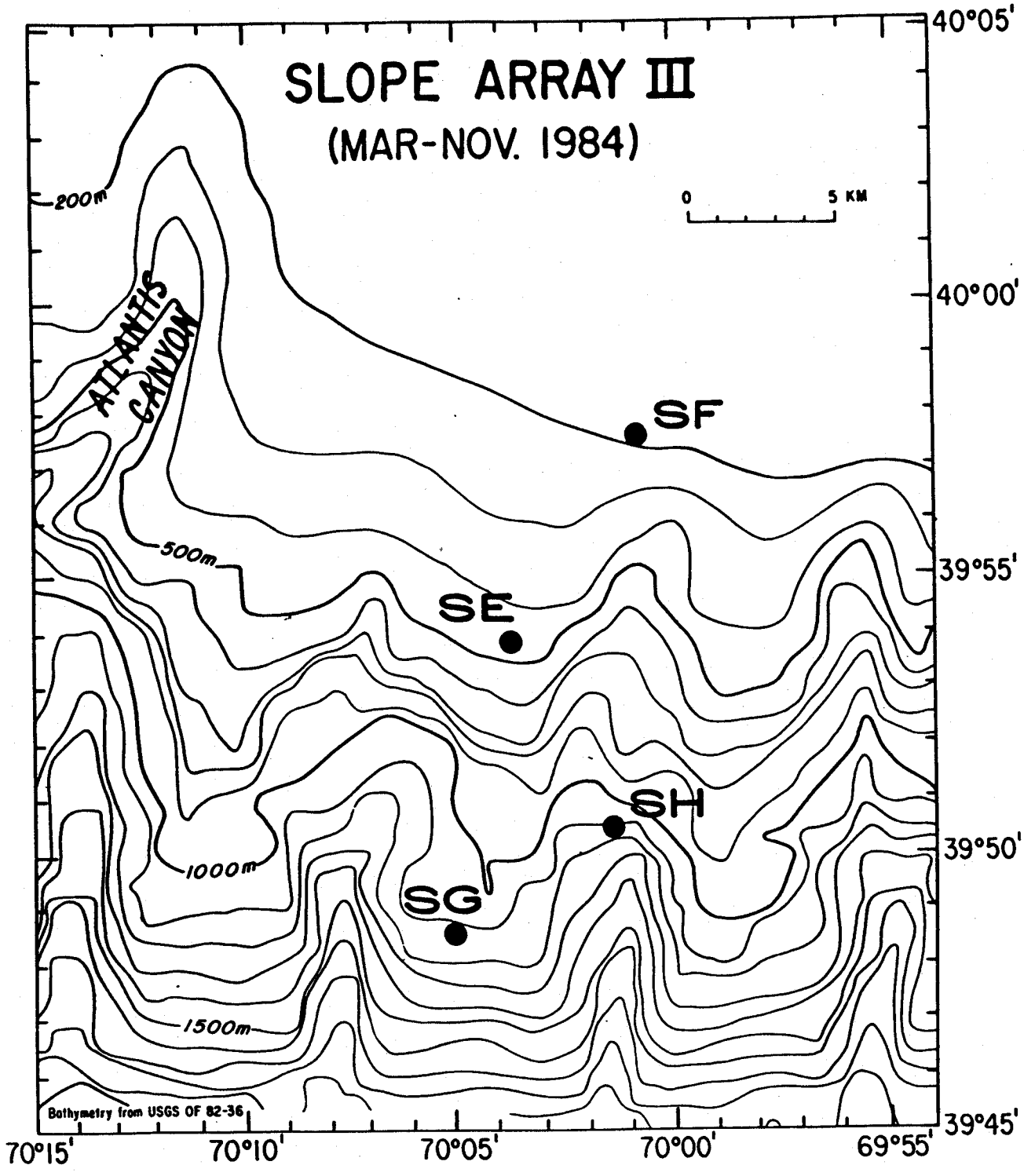

Figure 1b. Detailed map showing location of moorings SE, SF, SG and SH.

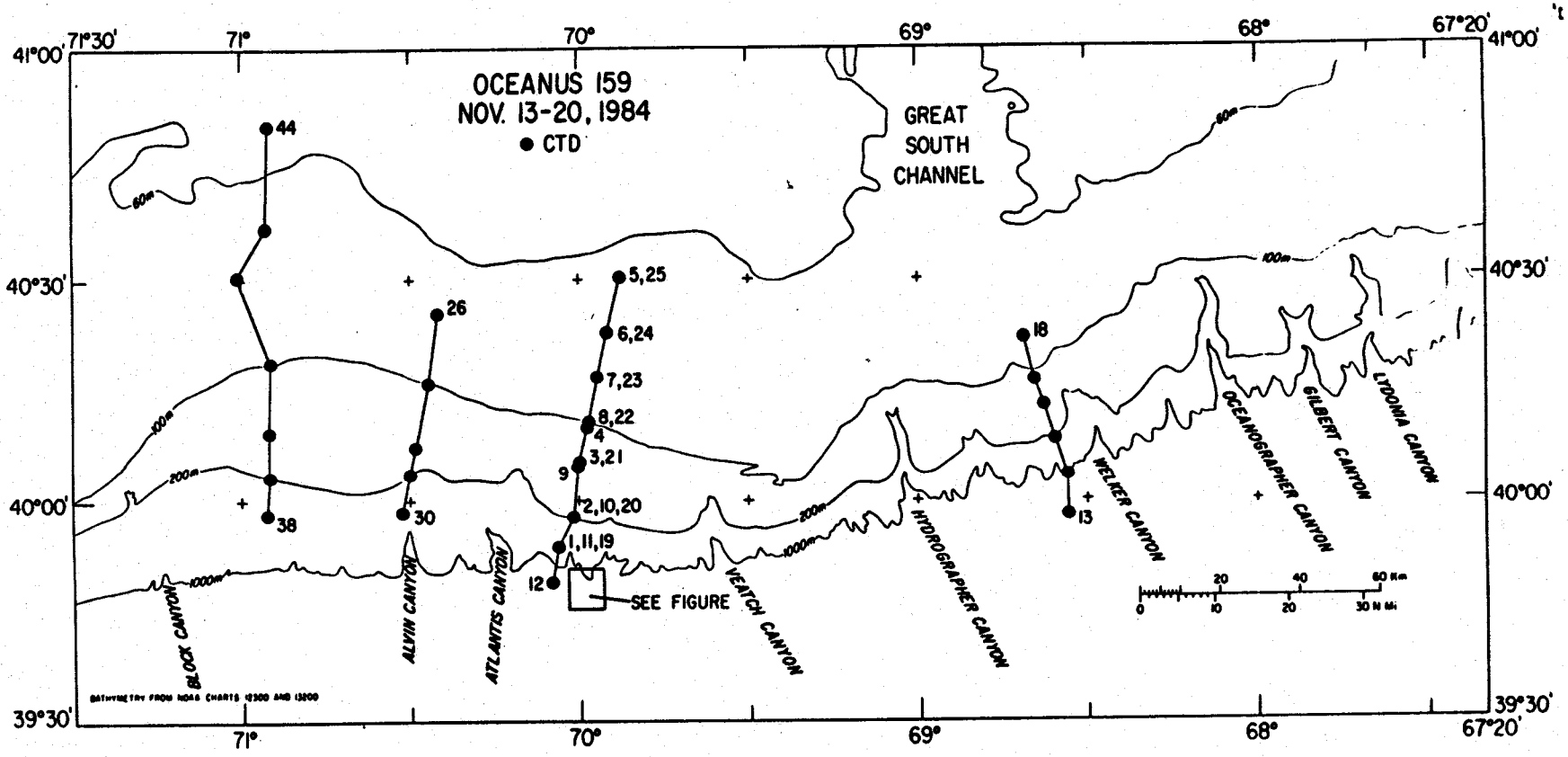

Figure 2a. Location of hydrographic stations conducted on OC159.

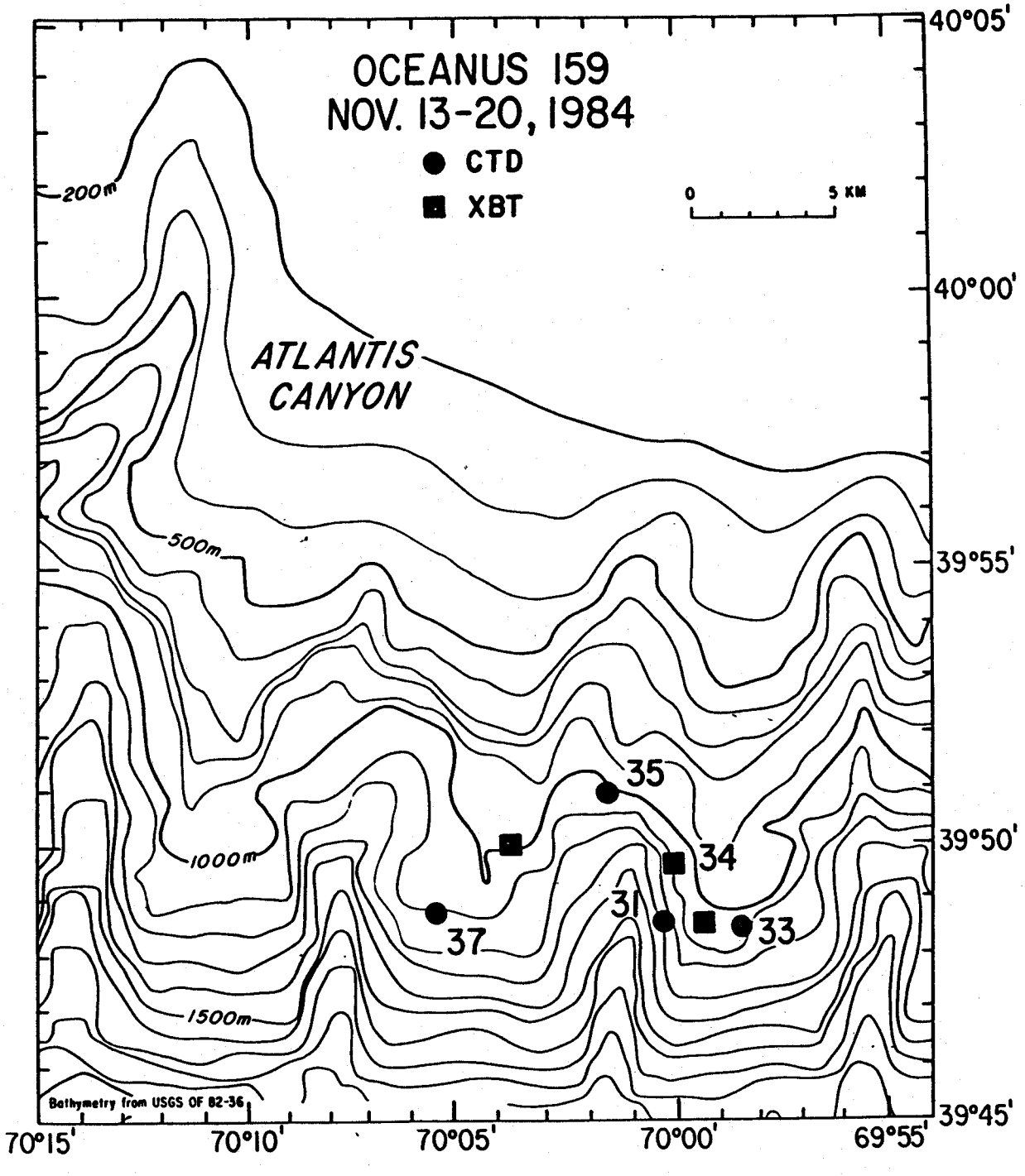

Figure 2b. Detailed map showing the location of hydrographic stations west of Atlantis Canyon.

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.N.	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	Moor. no.	Water depth (m)	Latitude (N.)/ Longitude (W.)	Moor. 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		
SF	279	204	39°57.6' 70°00.9'	S	V	10	624	840316	841118
S	279	204	39°57.7'	SS	V	54	562	840316	841115
		204	70°01.1'		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: Salinity surf.	Salinity deep	Nutrients surf.	Nutrients deep	Susp. sed.	Sample[3] depth (m)
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	X	60
6	11/16	1350	40°22.9'	69°54.9'	80	CTD	X	X	X	X	X	71
7	11/16	1450	40°16.9'	69°56.5'	88	CTD	X	X	X	X	X	78
8	11/16	1600	40°10.9'	69°58.1'	100	CTD	X	X	X	X	X	90
9	11/16	1716	40°04.8'	70°00.1'	145	CTD	X	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	X	X	460
20	11/18	1812	39°58.0'	70°00.8'	175	CTD	X	X	X	X	X	168
21	11/18	1916	40°05.0'	69°59.8'	143	CTD	X	X	X	X	X	132
22	11/18	2010	40°11.0'	69°57.7'	100	CTD	X	X	X	X	X	91
23	11/18	2111	40°17.0'	69°56.3'	87	CTD	X	X	X	X	X	78
24	11/18	2207	40°23.0'	69°54.8'	79	CTD	X	X	X	X	X	70
25	11/18	2307	40°30.0'	69°52.8'	70	CTD	X	X	X	X	X	61
26	11/19	0403	40°25.1'	70°25.1'	80	CTD	X	X	X	X	X	68
27	11/19	0509	40°16.1'	70°26.5'	103	CTD	X	X	X	X	X	99
28	11/19	0612	40°07.6'	70°28.9'	120	CTD	X	X	X	X	X	111
29	11/19	0652	40°03.6'	70°30.0'	200	CTD	X	X	X	X	X	190
30	11/19	0825	39°58.3'	70°31.1'	605	CTD	X	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	X	359
39	11/19	2102	40°03.5'	70°54.9'	195	CTD	X	X	X	X	X	189
40	11/19	2159	40°09.5'	70°54.9'	137	CTD	X	X	X	X	X	128
41	11/19	2313	40°19.0'	70°54.9'	103	CTD	X	X	X	X	X	94
42	11/20	0200	40°30.1'	71°00.7'	79	CTD	X	X	X	X	X	68
43	11/20	0325	40°36.8'	70°55.4'	71	CTD	X	X	X	X	X	61
44	11/20	0500	40°50.1'	70°55.2'	55	CTD	X	X	X	X	X	44

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

APPENDIX I

POSITION LOG

R/V OCEANUS 159

Vessel [illegible]

Cruise # 159

LORAN LOG

Page 1

TUESDAY NOV 13 1984

Date	+5 Time	Z Sta.	TYPE +/-	FIM/T.D. Reading	N Latitude	W Longitude	Remarks
11/13	1605	BOUYS #	1+2 ⊖		DEP CH.		
	1638	ROBINSONS	#28	⊖→	CLOSE	S/C 225	
	1712	DEVILS BR	BOUY	Ø	100(T) 8/10mi.	S/C 188	
	1723						S/C 175
	1731						S/C 178
	1749	NOMANS	I. + BOUY	⊖→	2.5mi		
	1800	2300	L/C		41-14.00	70-53.3	
	1810	2310	L/C RA		41-12.25	70-53.35	S/C 158(T) SW SHOAL BOUY ⊖ 2.4mi
	1823	2323	L/C		41-10.12	70-52.25	S/C 153
	1834						125RPM
	1900	2400	L/C		41-05.34	70-49.58	POINT
	2000	0100	LC		40-58.2	70-45.69	
	2100	0200	LC		40-51.15	70-41.65	
							2110 C/C 155°-6
							2119 C/C 153°-6
	2203	0303	LC		40-44.07	70-37.83	C/C 150°-6
	2303	0403	LC		40-37.14	70-33.64	
	0000	0500	LC		40-30.7	70-29.3	

Vessel [illegible] Page [illegible]

Cruise [illegible] LORAN LOG [illegible]

Date	+5 Time	Z Sta.	TYPE +/-	RD. Reading	N Latitude	W Longitude	Remarks
11/14	0004	0504	LC		40.30.7	70-29.3	
	0030	0530	LC		40-27.4	70-26.8	
	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 S/C 148°S
	0400	0900	L/C		40-0369	70-10.57	
	0415						S/C 154°S
	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	70-00.80	H.T. HEAD TO WX V°/S
	0700	1200	SAT	23^2	39-48.40	70-01.20	SAT FIX — SIMULFIX
	0700	1200	L/C		39-48.36	70-01.41	CONT H.T. — SIMULFIX
	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 OCEANUS

Cruise #159

LORAN LOG

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WED NOV 14 1984

Date	+5 Time	Z Sta.	TYPE +/-.	T.D/Fim Reading	N Latitude	W Longitude	Remarks
11/14	1811	2311	SAT	49^2	39-49.12	70-02.78	SAT FIX
	1900	2400	L/C	—	39-47.59	69-56.08	
	1930	0030	L/C		39-46.76	69-52 48	H.T. JOG TO WX
	1931	0031	SAT	11^3	39-45.21	69-51.89	SAT
	2000	0100	LC		39-47.14	69-53.0	
	2211				39-48.47	69-56.04	

Vessel DC GRANTS

Cruise # 159

LORAN LOG

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THURSDAY 15 1984

Date	45 Time	Z Sta.	TYPE +/-.	T.D/EM Reading	N Latitude	W Longitude	Remarks
11/15	0000	0500	LC		39-49.4	69-58.8	CONT. H.T WX
	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	
	0332	0832	LC		39-53.4	70-06 6	
	0400	0900	L/C		39-53.92	70-07 .62	
↑	0432	0932	L/C		39-54.89	70-08 .94	U/S REPOSITION
↓	0424	0924	SAT	27^2	39-54.50	70-08.81	SAT
	0600	1100	L/C		39-50.63	70-03 .32	POS.T
	0636	1136	L/C		39-48.48	70-00.60	H.T. SIA "SG" U/S
	0754	1254	L/C	25333.8 43200.7	39-48.42	70-05 .39	RECOVER SUBSURFACE MOO @ SITE "SG" CMC HIT
	0844		LC		39-48.09	70-05.56	"SG" abd Val Co 1 Spkr
	0955		LC		39-50.44	70-01.82	0930 Comm Recovery of "S
	1034		LC		39-50.14	70-01.88	Gear abd. Val Co 2 spkrs
	1104		LC		39-52.6	70-03.6	* 1100.0 "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	Flint
	1400	BEGIN DRAG FOR GEAR					
	1423	DRAG HUNG UP ON BOTTOM					
	1500	2000	LC		39-53.6	70-03.2	
	1534	FINISH W TRAWL-SKAMEL ABOARD					
		V/S TO RECOVER GEAR					

Vessel [illegible]

Cruise [illegible]

LORAN LOG

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[illegible] 15 Nov '54

Date	+5 Time	Z Sta.	TYPE +/-.	T.D/min Reading	N Latitude	W Longitude	Remarks
11/15	1556	2056	LC	25311.2 43237.9	39-53.7	70-03.7	RECOVER 55 BUOY-56 COMM. HAULING GEAR
	1656	2156	L/C		39-53.62	70-02.89	F/W HAULING GEAR S/C 004
	1736	2236	L/C		39-57.56	70-01.27	H.T. STA S.F V/S CTD AT STA
	1845	2345	L/C		39-57.68	70-01.30	RECOVER SUB SURFACE FLOAT @ S.F. COMP HAULING GS
	1921	0021	L/C		39-57.91	70-01.34	F/W HAULING GEAR CONT H.
	2000	0100	L/C		39-58.40	70-01.44	F/W STA S.F S/C 20 & F/A
	2050	0150					H.T CTD STA #1
	2109	0109	LC		39-53.82	70-03.95	CTD over HL sil.
	2200	0300	LC		39-53.55	70-03.73	End St S/C 025-6 · 1
	2240				39-57.92	70-01.06	H-T CTD # 2
	2258				39-57.84	70-01.04	End STA S/C 007-6
	2347				40-05.02	70-00.02	H-T CTD #3
	2359				40-05	70-00	End St S/C 014-6

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Vessel OCEANUS

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Cruise #159

LORAN LOG

F.Z. NOV 16 1924

Date	+5 Time	Z Sta.	TYPE +/-	T.D/Am Reading	N Latitude	W Longitude	Remarks
11/16	0001	0501	LC		40-05.0	70-00.0	S/C 016K @ 150 RPM TO CTD STA #4
	0035	0535	LC		40-11.0	69-58.0	H.T. CTD #4 COMMENCE CTD.
	0045	0544	LC		40-11.0	69-58.0	FINISH CTD #4 H.T. WX
	0100	0600	LC		40-09.8	69-58.7	CONT H.T. WX
	0200	0700	LC		40-09.3	69-59.0	
	0300	0800	LC		40-08.6	69-59.2	CONT H.T WX
	0400	0900	L/C		40-08.08	69-59.65	POS.T
	0544	1044	L/C		40-06.56	70-02.13	S/C OSS (T) S/A REPOSITION
	0544	1044	SAT	11^2	40-07.59	70-02.21	SAT
	0630	1130	L/C		40-11.06	69-58.03	H.T. HEAD TO WX ON STA
	0709	1209	SAT	17^2	40-10.64	69-58.70	SAT
	0730	1230	L/C	—	40-10.35	69-58.34	POS.T
	0925		LC		40-10.91	69-58.24	Come secured of SS Mooring @ "T"
	1002						Mooring on deck
	1042		LC		40-09.98	69-59.9	S/C 015.6 - 150RPM
	1200	1700	LC		40-24.0	69-54.7	
	1232	1732	LC		40-30.0	69-53.1	H.T. STA CTD #5
	1300	1800	LC		40-29.8	69-52.9	FIN. CTD #5 S/C 193 S @ 160 RPM
	1345	1845	LC		40-23.0	69-55.0	ARRIVE CTD STA #6 VARIOUSLY S/C 150 @ 160 RPM
	1408	1908	LC		40-22.7	69-55.2	TO CTD STA #7
	1445	1945	LC		40-17.0	69-56.6	ARR. STA #7 CMC. CTD #7
	1510	2010	LC		40-16.5	69-56.8	FIN CTD #7 VAR S/S TO STA "T"
	1553	2053	LC		40-11.0	69-58.1	ARR. STA "T"

Vessel [illegible]

Cruise #.[illegible]

LORAN LOG

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FRI NOV 16 1984

Date	+5 Time	Z Sta.	TYPE +/-.	T.D Reading	N Latitude	W Longitude	Remarks
	1600	2100	L/C		40-10.83	69-58.29	CMC CTD # 8
	1613	2113	L/C		40.10.76	69-58.36	F/W CTD # 8
	1621	2121			"	"	F/W STA S/C 192(G) @ 150 R
	1706	2206	L/C		40-05.00	70-00.04	H.T. CTD STA # 9
	1719	2219	L/C		40-04.74	70-00.26	CMC CTD #9
	1734	2234	L/C		40-04.47	70-00.57	F/W CTD # 9
	"	"	"	CONT H.T	TO RESECURE DECK GEAR FOR HEAVY WX 2.7
	1810	2310	L/C		40-03.88	70-01.95	F/W STA S/C 178(G) 150 RPM
	1830	2330	L/C		40-02.00	70-02.58	H.T. HEAD TO WX
	1847	2347	SAT	31^2	40-01.94	70-01.97	SAT H.T.
	1945	0045	L/C		40-01.41	70-04.04	S/C 146(G) 150 RPM
	2010	0110	L/C		39-58.86	70-02.01	POSIT
	2018	0118	L/C		39-58.60	70-00.97	H.T. CTD STN #10
	2046	0146			39-57.52	70-01.29	S/C 211-6
	2126	0226			39-53.94	70-04.04	H.T CTD #11
	2230	0330			39-53.24	70-04.82	S/C 181-6 130 RPM
	2313	0413			39-48.43	70-05.07	H-T CTD #12

Vessel Oceanus

Cruise # 157

LORAN LOG

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SAT Nov 17, 1984

Date	+5 Time	Z Sta.	TYPE +/-	T.D./Fix 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 S/C 077°S @ 140 RPM
	0100	0600	LC		39-48.9	69-58.9	
	0200	0700	LC		39-51.0	69-48.41	
	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°
	0500	1000	L/C		39-56.96	69-16.31	POSIT
	0600	1100	L/C		39-58.88	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°
	0800	1300	LC		40-02.82	68-43.82	
	0858	1358	LC		40-04.59	68-33.81	H.T @ "SA" site
	1200	1700	LC		40-04.1	68-33.3	(TRANSISTOR & ANCHOR) MOORING TRIPPED 25054.7 & 43267.5
	1205	1705					TRANSISTOR ON DECK
	1315						MOORING EQUALIZED.
	1348	1848	LC		40-02.5	68-34.3	MOORING ADD.
	1400	1900	LC		40-02.2	68-34.1	
	1422						V C/S TO STA. 40-04.6N 68-36.0
	1500	2000	LC		40-04.2	68-35.41	V C/S TO DICAS 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	TRAWL AED EMPTY
	1721	2221	L/C		40-02.50	68-33.41	V C/S ABOUT STA "SA"

Vessel OCEANUS

Cruise #159

LORAN LOG

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SAT NOV 17 1984

Date	+5 Time	Z Sta.	Type +/-.	T·D Reading	N Latitude	W Longitude	Remarks
11/17	1748	2248	L/C		40-04.50	68-33.57	A/S DISAPLS RELEASE "S
	1753	2253	"		"	"	S/C 167(T) 135 RPM
	1837				39-58.01	68-32.01	H-T CTD #13
	1908	0008	L/C		39-57 70	68-33.00	CMC CTD #13
	1938	0038	L/C		39-57 .44	68-34 .05	CTD #13 ABD
	1943	0043	L/C		39-57 40	68-34 27	F/W STN S/C 006(T) 140 R
	2038	0138	"		40-03.44	68.33.49	H-T CTD #14
	2131		"		40-02.79	68-34.45	S/C 055-135 RPM
	2233		"		40-08.46	68-35.48	H-T CTD#14
	2255		"		40-08.12	68-36 04	S/C 357-C · 140 RPM
	2341		"		40-13.0	68 37.5	H-T CTD #15
11/18	0000	0500	LC		40-12.7	68-38.3	S/C 353°C 140 RPM
	0041	0541	LC		40-16.5	68-39.1	H-T CTD#17
	0102	0602	LC		40-16.3	68-40.0	S/C 352° @ 140 RPM

Vessel OCEANUS

Cruise 159

LORAN LOG

SUNDAY NOV. 18, 1984

Date	+5 Time	2 Sta.	TYPE +/-.	T.D Reading	N Latitude	W Longitude	Remarks
11/18	0015	0500	LC		40-12.7	68-38.3	S/C 353° @ 140 RPM
	0041	0541	LC		40-16.5	68-39.1	H.T. CTD #17
	0102	0602	LC		40-16.3	68-40.0	S/C 352° @ 140 RPM
	0154	0654	LC		40-22.1	68-41.1	H.T. CTD #18
	0200	0700	LC		40-22.1	68-41.2	S/C " " "
	0226	0726	LC		40-22.4	68-42.3	DECK SECURE. ROUNDED S/C 256° @ 130 RPM TO STA
	0300	0800	LC		40-21.8	68-47.7	S/C 256° CONT. ON CRS. TO
	0332	0832	LC		40-21.2	68-52.2	" " " " "
	0400	0900	L/C		40-20 .55	68-56 .11	POS. T
	0500	1000	L/C		40-19.31	69-04.43	POS. T
	0553	1053	L/C		40-18 .11	69-11 .81	C/S 150 RPM
	0600	1100	L/C		40-17.90	69-13 .01	POS. T
	0638	1138	SAT	72	40-16.51	69-19.58	SAT FIX
	0700	1200	L/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" FOR SB RECOV
	1314	1814	LC		40-10.9	69-58.7	S.B. "J" ABD.
	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/S @ 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

Cruise 157

LORAN LOG

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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 "F" CONT. REGULAR OPERATIONS
	1600	2100	L/C		39-57.50	70-01.00	POS.T ON STA "F"
	1608	2108	L/C		39-57.47	70-00.96	F/W HAULING CHAIN & MOORING
	1615	2115	L/C		39-57.43	70-00.94	F/W STA S/C 21(G) S/A
	1658	2158	L/C		39-54.00	70-03.98	H.T. CTD STA # 19
	1739	2239	L/C		39-54.14	70-03.71	CTD ABD
	1743	2243	L/C		39-54.17	70-03.67	F/W STA S/C 023 F/A
	1809	2309	L/C		39-57.98	70-01.01	H.T. CTD STA # 20
	1826	2326	L/C		39-57.97	70-00.99	CTD ABD
	1834	2334	LC		39-57.96	70-01.0	F/W STA S/C 006(G) F/A
	1915	0015	L/C		40-04.96	69-59.99	H T CTD STA # 21
	1930	0030	L/C		40-04.92	69-59.90	CTD ABD
	1934	0034	L/C		"	"	F/W STA S/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

Vessel Mr Chris

Cruise #: 11-84

LORAN LOG

Mon Nov 19, 1984

Date	+5 Time	Z Sta.	Type +/-.	T.D. Reading	N Latitude	W Longitude	Remarks
11/19	0010	0510	LC		40-32.2	69-57.4	
	0102	0602	LC		40-32.5'	70-11.75	S/C 182°C
	0124	0624	LC		40-29.1	70-12.9	ARR CAPE STA #1
	0200	0700	LC		40-29.3	70-12.7	ON STA.
	0300	0800	LC		40-29.4	70-14.1	70 STA S/C 242°C 160 RPM CTD.
	0330	0830	LC		40-27.3	70-19.9	S/C 238°C
	0359	0859	L/C		40-24.97	70-25.09	H.T. CTD STA #26
	0415	0915	L/C		40-25.09	70-25.36	F/W STA S/C 185(T) 160 R
	0508	1008	L/C		40-16.04	70-26.54	H.T. CTD STA #27
	0520	1020	L/C		40-16.08	70-26.74	F/W STA S/C 191(T) 160 RPM
	0608	1108	L/C		40-07.53	70-29.03	H.T. CTD STA #28
	0622	1122	L/C		40-07.55	70-29.10	F/W STA S/C 189(T) F/A
	0651	1151	L/C		40-03.55	70-30.05	H.T. CTD STA #29
	0705	1205	L/C		40-03.59	70-30.15	F/W STA S/C 190 F/A
	0727	1227	L/C		40-00.06	70-31.07	H.T. CTD STA #30 N/G
	0733	1233	L/C		"	"	U/S SEEK DEPTH FOR #30
	0746	1246	L/C		39-59.65	70-32.03	H.T. [redacted]
	0756	1256	L/C		39-59.81	70-32.19	F/W STA U/S
	0813	1313	LC		39-59.9	70-31.49	S/C 180-C U/S
	0825	1325	LC		39-58.32	70-31.44	CTD #30 - H-T
	0910	1410	LC		39-57.96	70-30.78	S/C 112-C - 175 RPM
	1030	1530	LC		39-51.23	70-12.22	C/C 105
	1122	1630	LC		39-48.5	70-00.46	H-T CTD #31
	1220	1720	LC		39-49.1	70-01.2	S/C 112° @ 160 RPM
*	1238	1738	LC		39-48.2	69-58.5	H.T. CTD #32

Vessel [illegible]

Cruise [illegible]

LORAN LOG

MON Nov 19, 1984

Date	+5 Time	Z Sta.	TYPE +/-.	T.D. Reading	N Latitude	W Longitude	Remarks
11/19	1330	1830	LC		39-48.5	68-58.9	VL/C @ 160 RPM TO STA CTD
	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~~
	1445	1945	LC		39-51.0	70-02.5	VAR/C @ 160 RPM TO CTD STA
	1505	205	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
	REMAIN VICINITY STA # 34 RETRIEVE						CTD WIRE
	1610	2110	L/C		39-49.37	70-05.69	S/C 282.5 160 RPM
	1700	2200	L/C		39-51.68	70-17.54	POSIT S/C 284.5
	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	70-54.97	H.T. CTD STA # 35
	2000	0100	L/C		39-58.15	70-55 .50	POSIT
	2024	0124			39-58.15	70-55.67	VOL 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 R
	2313				40-19.01	70-55	H-T CTD # 38
	2326				40-11.99	70-55	S/C 339 ~~000~~-G @ 170 R

Vessel C.C.M.A.C.S

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Cruise # 159

LORAN LOG

TUES NOV 20, 1984

Date	GMT Time	Z Sta.	TYPE +/-.	T.D Reading	N Latitude	W Longitude	Remarks
11/20	0000	0600	LC		40-23.2	70-57.5	VARIES @ 160 RPM TO CTD STA #
	0046	0546	LC		40-30.0	71-00.6	H.T. CORE #2 & CTD STA # 39
	0102	0602	LC		40-30.0	71-00.6	WIRE REPAID
	0130	0630	LC	25557.1 43545.4	40-30.0	71-00.6	" REPAIRED
	0132	0632	LC		40-30.0	71-00.6	MUD GRAB DAMAGED
	0217	0717	LC		40-30.4	71-01.3	VARIES @ 160 RPM TO CTD STA # 40
	0305	0805	LC		40-36.5	70-55.0	H.T. CTD STA # 40
	0341	0841	LC		40-36.9	70-55.5	VARIES. @ 165 RPM TO CTD STA # 41
	0400	0900	L/C		40-40.21	70-55.55	POS.T
	0456	0956	L/C		40-49.97	70-55.11	H.T. CTD STA #41
	0512	1012	L/C		40-50.18	70-55.47	F/W STA S/C 00 KT F/A
	0538	1038	SAT	65 2	40-55.07	70-54.53	SAT
	0600	1100	L/C		40-58.88	70-55.13	POS.T
	0630	1130	L/C		41-04.57	70-55.04	POS.T
	0704	1204	L/C		41-11.09	70-54.84	POS.T
	0711	1211	L/C				S.W. SHOAL BOUY ⊖ 3.5
	0727	1227	SAT	9 2	41-15.13	70-54.82	SAT
	0911	BOUYS # 1 & 2 ⊖			ARRIVE W.H.		
	0930	MADE FIRST ALONGSIDE			W HOI		DOCK

APPENDIX II

DECK LOG

R/V OCEANUS 159

DECK LOG

CRUISE NO. 159 — OCEANUS — TIME ZONE +5

DATE 11 13 84 — From Woods Hole — To Woods Hole

Hour	Pat-Log	Course Stand	Course Strg.	Course True	Wind & Force	Sea State	Swell & Direction	Bar.	Air	Water	Weather	Remarks
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												1400 Tested all bridge gear JAW
15	1530	single up 1558 u/w from dock										Departure Drafts fwd 11" 07" mean 14'03" aft 16'03
16	1605	Buoys #162 abeam -Departure										1638 Robinsons #28 abeam close
17	Woods Hole	commence Vc/s to transit Vineyard Sound										1712 Devils Bridge brg. 100°T s/c 180°T
18												1810 S.W. Shoal buoy abeam to port 2.4 mi
19												s/c 157°T @150rpm 1834125 rpm
20	163	153	NW-7-	NW 7	3-4	NW1		1007	40		C	vis good easy motion L.T.B.
21												2110c/c 155°G 2119 c/c 153°G
22												2203 c/c 150° G
23												
24		150			NNW 6	4	NNW 3	1007	40		O	Vis Good mod. roll at times P.H.

Oil		Water	
Gallon Used	On Hand	Made	Feed / Pot

Stations			
No	Lat	Long	Time

Positions			
Indicate Type & Time		Lat.	Long
0400	Other		
A M Stars			
0800			
A M Sun			
1200			
L A N			
1600			
P M Sun			
2000			
P M Stars			
2400			
Departure Anchor		1605	
Steaming Time / Station Time Total			
Days Run / Total			
Ave Speed			
Grand Total Dist			
Length of Day			
At Sea			

1st OFFICER

27

CRUISE NO. 159 OCEANUS **DECK LOG**

DATE 11-14-84 From Woods Hole To Woods Hole TIME ZONE +5

Hour	Pat-Log	Course Stand	Course Strg.	Course True	Wind & Force	Sea State	Swell & Direction	Bar.	Air	Water	Weather	Remarks
1												
2												
3												
4		168	148		NNW 6	5	NNW 4	1007	42		0	0324 c/c 148°G Vis. good, Rough seas JMW
5												0415 c/c 154°g
6												0615 H.T. head to WX Vc/s to maintain
7												
8			H.T.		WNW 7-8	5	NW 3	1010	43		o P	Vis fair Mod motion cont. H.T. to WX 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. WX JMW
17												1625 Vc/s to reposition
18												1930 H.T. jog to WX Vc/s
19												
20			H.T.		NW 8-9	5	NW 3	1018	50		bc	Vis. Excellent, Mod. motion L.T.B.
21												
22												
23												
24			H.T.		NW 7-8	4	NW 3	1022	50		bc	Jog to WX Mod. roll and pitch P.H.

Stations

No	Lat	Long	Time

Positions

Indicate Type & Time		Lat N	Long W
0400 A.M. Stars	Other DR	40-04.0	70-11.0
0800 A.M. Sun			
1200 L.A.N.	LC	39-50.7	70-09.8
1600 P.M. Sun	DR	39-54.0	70-18.0
2000 P.M. Stars			
2400			

Departure Arrival		
Steaming Time Station Time Total	14h 10m	5h 45m
Day's Run Total	126mi	126 mi
Ave Speed	8.9 kts	
Grand Total Dist	33005	
Length of Day	19h 55m	
At Sea	19h 55m	

Oil		Water	
Gallon Used	On Hand	Made	used 400
799	39964	0	Pot 7600

L.O. O.H. 1156
L.O. used 0

MASTER 1st OFFICER

CRUISE NO. 159 OCEANUS DECK LOG

DATE 11/15/84 From Woods Hole To Woods Hole TIME ZONE +5

Hour	Pat-Log	Course Stand	Course Strg.	Course True	Wind & Force	Sea State	Swell & Direction	Bar.	Air	Water	Weather	Remarks
1												0052 c/c 323°g 0220 c/c 318°g
2												
3												
4			H.T.		NW7	4	NW4	1024	50		b	Vis good,mod. motion, cont. H.T. wx JMW
5												0432 Vc/s reposition
6												0754 Recover sub-surface mooring array at site "SG"
7												Cmc hauling gear
8			Var		NW4-5	4	NW4	1028	52		b	Vis. excellent, cont. hauling gear LTB
9												0844 "SG" mooring abd.- Vc/s
10												0930 Cmc. recovery of "SH" mooring 1034 mooring abd. Vc/s
11												
12			Var		W 4	3	NW 1	1026	58		bc	
13												1344 Let go fishing float and gear
14												1400 Begin dragging for gear
15												1534 Fin. with Trawl-Grapnel abd Vc/s to recover mooring 1556 Recover SS buoy SE comm. hauling gear
16			Var		SW 4	2	SW 1	1026.5	59		bc	1656 F/W hauling gear Vc/s to Sta. "SF"
17												1736 H.T. close by Sta."SF"
18												1845Recover SS float SF &cmc. hauling gear
19												1921 Fin. with hauling gear, cont to H.T.
20			H.T.		SSW 5	3	SW 1	1022			bc	Vis good, easy motion, Cont. H.T. LTB
21												2000s/c 201°g F/A 2050-2200 H.T. CTD #1
22												2200 s/c 025°g @ 150rpm 2240-2258 H.T.ctd#2 2258 s/c 007°g Var. spds.
23												2347-2359 H.T. CTD#3 ~~2359 s/c 015°g 150rpm~~
24					SW 6	4	SW 3	1018	66		c	Vis. good, Mod Roll. PH

Stations

No.	Lat	Long	Time

Positions

Indicate	Type & Time	Lat N	Long W
0400 A.M Stars	Other LC	39-54.0	70-06.5
0800 A.M Sun	LC	39-48.44	70-05.45
1200 L.A.M.	LC	39-53.8	70-02.5
1600 P.M Sun	LC	39-53.7	70-03.7
2000 P.M. Stars	LC	40-05.0	70-00.0
2400	LC	39-58.4	70-01.44
Departure			
Arrival			
Steaming Time		16h-32m	7h-28m
Station Time Total			
Days Run		55mi	181mi
Total			
Ave Speed		3.3kts	
Grand Total Dist		33060	
Length of Day		24h	
At Sea		1d-19h-55m	

Oil		Water		
Gallon Used	On Hand	Made	used 600	LO used 0
521	39443	0	Pot 7000	LO O.H. 1156

MASTER 1st OFFICER

CRUISE NO. 159 OCEANUS DECK LOG

DATE 11/16/84 From WOODS HOLE To WOODS HOLE TIME ZONE +5

Hour	Pat-Log	Course Stand	Course Strg.	Course True	Wind & Force	Sea State	Swell & Direction	Bar.	Air	Water	Weather	Remarks
1												0001 c/c 016°g@150rpm to CTD sta. 4 0035-0044 HT CTD#4 0044 fin CTD cont. HT wx
2												
3												
4		H.T.			SW 8	5	SW 4	1015	62		0	Vc/s to hold position Vis. excellent,mod. motion, cont. HT to WX JMW
5		jogging			SW/W 7-8	5	SW-3	1014	61		c	0544s/c 035°g s/a reposition
6												0630 HT head to wx Jogging near sta. T
7												
8		jogging			7-8 SWxW	5	SW 3	1014	61		c	Vis good,mod. pitch,cont. to jogg LTB
9												0925 Cmc recovery of SS mooring @ T
10												1042 s/c 012°g 160rpm
11												
12			012		WSW 5	4	SW 3	1011	60		c	Vis. good. mod. roll PH
13												1345 arr.CTD sta 6
14												1445 arr. CTD sta 7
15												1553 arr. CTD sta 8
16			VAR		WSW 8	4	WSW 4	1009	56		c	Vc/s JMW Vis. good, Mod motion to heavy motion,cont CTD's
17												1600-1621 CTD sta 8 1621s/c 192°T 130rpm
18												1706-1734 CTD#9 1734-1810 HT resecure deck gear for heavy WX 1810 s/c173°T 130rpm
19												1830 HT WX 1945 s/c 146T 130rpm 2018 HT CTD sta#10 S.O.W.
20			VAR		W 8-9	5-6	WSW 3-6	1013	54		b	Vis excellent,mod-heavy motion@times LTB
21												2018 HT CTD#10--2046s/c 211 g 130rpm
22												2126 HT CTD#11 2230 s/c 181°g 130rpm
23												2313 HT CTD# 12
24					WxN 8	5	W 4	1014	51		hc	

Stations

No	Lat	Long	Time

Positions

Indicate	Type & Time	Lat N	Long W
0400	Other		
A.M. Stars	LC	40-08.08	69-59.65
0800			
A.M Sun			
1200			69-59.65
L.A.N.	LC	40-24.0	-69-54.7
1600			
P.M Sun	LC	40-24.0	69-54.7
2000	2010		
P.M. Stars	LC	39-58.86	70-02.01
2400			

Departure / Arrival		
Steaming Time / Station Time Total	14h-02m	9h-58m
Day's Run / Total	35mi	194mi
Ave Speed	2.5kts	
Grand Total Dist	33095	
Length of Day	24h	
At Sea	2d-19h-55m	

Oil		Water	
Gallon Used	On Hand	Made	used 800
620	38823	0	Pot 6200

LO used 2

LOOH 1154

MASTER 1st OFFICER

CRUISE NO. 159 OCEANUS DECK LOG

DATE ~~11~~ 11/17/84 From WOODS HOLE To WOODS HOLE TIME ZONE ~~-5~~ +5

Hour	Pat-Log	Course Stand	Course Strg.	Course True	Wind & Force	Sea State	Swell & Direction	Bar.	Air	Water	Weather	Remarks
1			~~074~~	~~090~~	~~W6-7~~							0010 c/c 077g 140rpm
2												
3												0300 c/c 074°g
4			074	090	W6-7	4	W 5	1014	51		c	Vis. excellent.MOD motion JMW
5												0447 s/c 076g
6												
7												0735 s/c 075g
8			093	076	W6	4-5	W 4	1016	50 48		o	Vis excellent, mod roll LTB
9												0858 HT sta SA
10												0920 Vc/s grapple with trawl for SS mooring
11												
12			var		W 7	. 4	W 4	1015	50 48		o	Cont. to for mooring, mod roll and pitch PH
13												1315 Mooring ball Abd,
14												
15												1500 Vc/s to drag for remainder of mooring SA
16			var		WNWXW 7-8	4-5	WNW4	1017	48		bc	Cont. to tow for mooring SA .Mod motion JMW
17												1710 trawl abd empty-secure drag ops. 1721-48 Vc/s site SA 1753 s/c 167°t 140rpm
18												1837-1943 CTD#13 S.O.W.
19												1943 s/c 006°t 140rpm
20			var		WNWXW 7-8	5-6	WNW4	1020	46		bc	Vis. good,heavy rolls, cont CTD's LTB
21												2038 HT CTD#14 2131 s/c 055°t 135rpm
22												2233 HT CTD#15 2255 s/c 357°t 140rpm
23												2341 HT CTD#16
24			var		WNW7	5	WNW4	1022	44		bc	Vis good, Mod roll and pitch. PH

Oil		Water	
Gallon Used	On Hand	Made	Used 700
1001	37822	0	Pot 5500

LO used 0
LOOH 1156

Stations			
No	Lat	Long	Time

Positions			
Indicate Type & Time		Lat N	Long W
0400 A.M.Stars	Other LC	39-54.81	69-26.69
0800 A.M Sun			
1200 L.A.N.	LC	40-04.1	68-33.3
1600 P.M Sun	LC	40-04.57	68-33.42
2000 P.M. Stars			
2400			
Departure			
Arrival			
Steaming Time		XXXh 14h 0m	XXX 9h 52m
Station Time Total			
Day's Run Total		112mi	306mi
Ave Speed		XXXXXX 7.9 kts	
Grand Total Dist		33207	
Length of Day		24h	
At Sea		3d-19h-55m	

MASTER 1st OFFICER

CRUISE NO. 159 OCEANUS DECK LOG

DATE 11/18/84 From WOODS HOLE To WOODS HOLE TIME ZONE +5

Hour	Pat-Log	Course Stand	Course Strg.	Course True	Wind & Force	Sea State	Swell & Direction	Bar.	Air	Water	Weather	Remarks
1												0041 HT CTD #17 0102 HT CTD#18
2												Round made all secure
3												0226 s/c 259°g @ 130rpm to STA T
4			256	275	W5 NW	3	W3	1022	43		c	0300 c/c 256°g Vis excellent, Mod motion JMW
5												0553 c/s 150rpm
6												
7												0700 s/c 260°g
8			278	260	WNW5-6	3-4	WNW3	1025	44		c	Vis. Excellent. LTB
9												0955 HT Site T for tripod recovery
10												1112 Recover tripod Varc/s
11												
12			Var		NW3	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			Var		SSW4	3	SW 2	1023	52		o	Vis. excellent, Slight motion HT Sta."SF"
17												1615 F/W sta"SF" s/c211°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.
21												2013 HT CTD#22 2035 s/c 007°g 160rpm
22												2113 HT CTD#23 2129 s/c 010°g 160rpm 2207 HT CTD#24 2220 s/c 011°g 160rpm
23												2308 HT CTD#25 2323 s/c 000°g 160rpm 2342 c/c 270°g
24			270	290	WSW4-5	3	SW1	1017	48		op	Vis. good PH

Stations

No	Lat	Long	Time

Positions

Indicate	Type & Time	Lat	Long
0400	Other	N	W
A.M.Stars	LC	40-20.55	68-56.1
0800			
A.M.Sun			
1200			
L.A.N.	LC	40-11.1	69-58.8
1600			
P.M.Sun			
2000			
P.M.Stars			
2400			

Departure / Arrival		
Steaming Time / Station Time Total	14h 55m	9h 5m
Day's Run / Total	79mi	385mi
Ave Speed	5.4kts	
Grand Total Dist	33286	
Length of Day	24h	
At Sea	4d19h55m	

Oil: Gallon Used	Oil: On Hand	Water: Made	Water: Used
573	37249	0	Pot 800 4700

LO used 2
LOOH 1152

MASTER 1st OFFICER

CRUISE NO. 159 OCEANUS **DECK LOG**

DATE 11/19/84 From WOODS HOLE To WOODS HOLE TIME ZONE +5

Hour	Pat-Log	Course Stand	Course Strg.	Course True	Wind & Force	Sea State	Swell & Direction	Bar.	Air	Water	Weather	Remarks
1												0124-0300 HT Core sta#1
2												
3												0300 s/c 342°g 160rpm to CTD sta#26
4			240	259	SW5	2	SW1	1013.5	46		d	Vis good, easy motion, Lt. rain JMW
5												0359-0415 CTD #26 0508-0520 CTD #27
6												0608-0622 CTD #28 0651-0705 CTD #29
7												0746-0756 CTD #30
8			Var		NW5	3	W1	1013	47		Od	Vc/s during watch to CTD stations
9												Vis fair ti good, cont. CTD ops ~~JMW~~ LTB
10												0813 s/c 180°g V/S 0825 HT CTD #30
11												0910 s/c 112°g 175 rpm 1030-c/c 105°g
12			Var		NE 5-6	3	N1	1012	46		op	1112 HT Ctd #31
13												Vis good PH
14												1122-1220 HT CTD#31 1238-1330 HT CTD #32
15												1350-1445 HT CTD #33
16			Var		N6-7	3	NNE 1	1012	46		op	1505-1600 HT UTD #34 Var/crs to CTD sta.
17												Vis good, easy motion, Lt rain. JMW
18												1610 S/C 282°g 160rpm 1700S/C 284°g
19												1710 STBD RADAR OUT loud noise-smell smoke-secure breaker
20			HT		N 7	3-4	N 1	1016	42		o	1937 HT CTD #35
21												Vis good LTB
22												2024 Var Crs. 160rpm
23												2102 HT CTD #36 2120 s/c 001°g 160rpm
24			339		N 5	3	N 1	1020	34		bc	2200 HT CTD #37 2215 s/c 001°g 160rpm
												2313 HT CTD#38 2326 s/c 330°g 160rpm
												Vis. excellent. PH

Stations

No.	Lat.	Long.	Time

Positions

Indicate	Type & Time	Lat N	Long W
0400 A.M Stars	Other LC	40-24.97	70-25.09
0800 A.M Sun			
1200 L.A.N.	LC	39-48.0	70-01.0
1600 P.M Sun	LC	39-49.15	70-05.5
P.M Stars			
2400			

Departure / Arrival		
Steaming Time / Station Time Total	13h05m	10h 55m
Day's Run / Total	108mi	493mi
Ave Speed	8.3kts	
Grand Total Dist	33394	
Length of Day	24h	
At Sea	5d 19h 55m	

Oil		Water	
Gallon Used	On Hand	Made	used 1200
915	36334	0	Pot 3500

LO used 3
LOOH 1149

MASTER 1st OFFICER

CRUISE NO. 159 OCEANUS DECK LOG

DATE 11/20/84 From WOODS HOLE To WOODS HOLE TIME ZONE +5

Hour	Pat-Log	Course Stand	Course Strg.	Course True	Wind & Force	Sea State	Swell & Direction	Bar.	Air	Water	Weather	Remarks
1												0046-0217 HT core #2 CTD #39 *mud grab damaged
2												0217 Var/crs 160rpm to CTD#40
3												0305-0341 HT CTD #40 0341s/c 002°g 165rpm
4		002	002	017	NNW 5-6	3-4	NNW 1	1021	33		bc	Vis excellent, easy motion. JMW
5									32			0456-0512 CTD #41 0512 s/c 001°T F7A
6												0711 SW Shoal Buoy abeam to Stbd 3.5 mi
7												
8			013	358	NNW 6	3-4	NNW 1	1023	32		bc	Vis excellent, easy motion LTB
9												0911 Arrival Buoys 1&2 abeam
10												0930 Made fast alongside WHOI dock JMW
11												ARRIVAL DRAFTS: FWD 11-03 MEAN 14-00 AFT 16-03
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												

Stations

No.	Lat.	Long.	Time

Positions

Indicate Type & Time		Lat N	Long W
0400 A.M. Stars	Other LC	40-40.21	70-55.55
0800 A.M. Sun			
1200 L.A.N.			
1600 P.M. Sun			
2000 P.M. Stars			
2400			
Arrival	0911		
Steaming Time / Station Time Total		15h 27m	5h 44m
Day's Run / Total		140 mi	633mi
Ave Speed		9k03	
Grand Total Dist		33534	
Length of Day		21h 11m	
At Sea		6d 17h 06m	

Oil		Water	
Gallon Used	On Hand	Made	Feed
1140	37829		Pot

LO used 18
LOOH 1131

MASTER 1st OFFICER