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CRUISE REPORT

OCEANUS 88

October 23 - 31, 1980

Bradford Butman
U.S. Geological Survey
Woods Hole, MA 02543

Vessel: OCEANUS

Cruise No.: 88

Dates of Operation: 0925 October 23 - 1300 October 31, 1980

Ports: Woods Hole, Mass. to Woods Hole, Mass.

Area of Operation: Atlantic Continental Shelf (Georges Bank to
New Jersey shelf.)

Personnel: Paul Howland, Master

Brad Butman, Chief Scientist, USGS

Mike Bothner, USGS

Scott Chalker, USGS

John Larson, USGS

Frank Musialowski, USGS

Rick Rendigs, USGS

Bill Strahle, USGS

Marlene Noble, USGS

Carol Parmenter, USGS

Nancy Copley, WHOI

Rose Petrecca, WHOI

William MacLeish, WHOI

Objectives: The objectives of the cruise were:

- 1) Recover three tripod moorings and three current moorings on the Continental Shelf.
- 2) Deploy three tripods and four current moorings in and around Lydonia Canyon.
- 3) Conduct hydrographic measurements (XBT, CTD, and suspended sediments along several shelf transects and in Lydonia Canyon.)
- 4) Recover seven surface buoys.
- 5) Obtain surface grab samples at tripod stations at the head of

Lydonia Canyon.

6) Obtain samples at stations A, K, and Q for seasonal benthic study.

Equipment: Northstar Loran-C with cassette recording

Gifft echo sounder (12 kHz)

XBT

Neil Brown Instrument Systems CTD

Smith-MacIntyre grab sampler

Van Veen grab

AMF acoustic command system

Narrative: (All times are Eastern Standard Time)

Oct. 23 0925 Depart Woods Hole. Underway to Lydonia Canyon.

Oct. 24 0100 Arrive Lydonia Canyon.

Start bathymetric survey around canyon head.

0900 Complete survey. Arrive station LCL.

1005 Deploy surface buoy K.

1058 Deploy surface buoy M.

1100 Depart station L. (Tripod to be deployed at L malfunctioned. Decide to delay launch.)

1145 Arrive station LCA.

1312 Deploy eastern marker buoy Q.

1421 Deploy western marker buoy U.

1530 Deploy tripod (mooring 204).

1615 Underway to station LCM.

1645 Arrive station LCM.

1750 Deploy eastern surface buoy V.

Deploy western surface buoy R.

1947 Deploy tripod (mooring 203)

Underway to station LCD.

2142 Deploy subsurface current mooring at LCC (mooring 209).
Underway to station LCA.

2309 Arrive station LCA.
Grab sample at station LCA.

Oct. 25 0020 Complete grab samples.
Underway to station GBK.

0520 Arrive station K.
0713 Complete grab sample.
0740 Recover subsurface current mooring (mooring 196).
Release tripod - no recovery float on surface.

1000 Start dragging operation.
1300 Tripod float on surface.
Recovered float, but tripod line cut.

1345 Seas building, too rough to work. Secure ship.
Commence jogging into seas.

Oct. 26 Winds 40-60 mph from SW.
Jog slowly toward SW. Seas 10-20'.

Oct. 27 0900 Arrive station LCG.
1154 Start setting mooring LCG.
1302 Deploy subsurface mooring 213 at station LCG
(east wall, depth 500 m).
1610 Start setting mooring at LCF.
1734 Deploy subsurface mooring 212 at station LCF
(west wall, depth 500 m).
2049 Deploy subsurface mooring 210 at station LCD
(east wall, depth 200 m).
Setup CTD for canyon transect.
2300 Unexplained CTD failure.

Oct. 28 0000 Underway to station Q.

1030 Arrive station Q.

1100 Recover subsurface mooring (197).

1233 Start bottom grab samples.

1325 End bottom grab sampling.

1436 Recover tripod.

Seas building. Too rough to work.

1500 Underway to Woods Hole for medical attention. Warecki
(Bosn) and Howland (Master) injured. (Bosn had badly
cut ear from fall during rough weather on Oct. 26.
Master had crushed finger from deck work on Oct. 27.

2300 Arrive Woods Hole.

Oct. 29 0110 Depart Woods Hole.

Underway to station Q.

0400 Start XBT transect.

0730 Arrive station Q.

0900 Deploy Grassle tripod (mooring 206).

0910 Underway to station MAB.

Continue XBT transect.

1146 Complete XBT transect.

Oct. 30 0320 Start XBT transect.

0600 Arrive station MB.

0720 Recover subsurface mooring (198).

0843 Recover tripod (mooring 193).

Surface buoy F within VACM missing (mooring 1981).

0936 Recover surface buoy A.

1029 Recover surface buoy S.

1135 Recover surface buoy T.

1300 Start CTD transect across shelf.

1644 Complete CTD transect.

Underway to Woods Hole.

Oct. 31 1250 Arrive Woods Hole.

Cruise summary: All moorings were deployed as planned with the exception of the tripod at station L. The instrument malfunctioned on deck and will be deployed on the November OCEANUS cruise. Because of the two days of bad weather and the return to Woods Hole for medical attention, there was no time for hydrography on Georges Bank.

All moorings were recovered as planned except for a lost surface mooring at station MAB and the tripod system at GBK. The surface buoys at GBK were left until the tripod is recovered.

Tabulated information:

Moorings deployed: 8 (3 tripods, 4 subsurface [6 VACM], and

1 surface [1 V VACM])

Station	Mooring	Latitude	Longitude	Mooring	Inst.
	no.	N.	W.		
LCM	203	40°29.6'	67°48.6'	Tripod	
LCA	204	40°34.2'	67°44.8'	Tripod	
GBQ	206	40°29.6'	70°12.2'	Tripod (Grassle)	
LCC	209	40°29.4'	67°43.5'	Subsurface	1V
LCD	210	40°29.3'	67°41.3'	Subsurface	1V
LCF	212	40°21.2'	67°39.1'	Subsurface	2V
LCG	213	40°21.4'	67°41.6'	Subsurface	2V
LCL	2181	40°32.3'	67°36.4'	Surface	1V

Moorings recovered: 5 (2 tripods, 3 subsurface)

Station	Mooring	Latitude	Longitude	Mooring	Inst.
	no.	N.	W.		
MAB	193	38°42.5'	73°38.8'	Tripod	
GBQ	194	40°29.7'	70°12.2'	Tripod	
GBK	196	41°02.0'	67°34.0'	Subsurface	2V
GBQ	197	40°29.6'	67°12.1'	Subsurface	2V
MAB	198	38°42.6'	73°38.6'	Subsurface	2V
				(surface lost)	

Surface buoys: Deployed 6 (K, M, Q, U, V, R)

Recovered 3 (A, S, T)

Days at sea: 9

CTD stations: 3

XBT stations: 16

Surface salinity: 15

Samples: 1 grab sample

Moorings lost: 1 (surface mooring at MAB [1 VACM])

Moorings temporarily missing: 1 (tripod at GBK, recovery line
fouled, tripod tipped.)

Note: Mooring recovered on Dec. 2

(OC 90) by dragging.

OC 88 HYDROGRAPHIC STATION LIST

Station	Depth (m)	Latitude N.	Longitude W.	XBT	SS	CTD	Date	Time
1	43	41°05.25'	70°46.12'	x	x		10/29/80	0410
2	52	40°53.98'	70°36.29'	x	x		10/29/80	0510
3	52	40°45.14'	70°27.87'	x	x		10/29/80	0555
4	57	40°37.33'	70°20.52'	x	x		10/29/80	0645
5	68	40°29.18'	70°12.05'	x	x		10/29/80	0914
6	88	40°19.91'	70°14.51'	x			10/29/80	1004
7	89	40°18.84'	70°14.79'	x			10/29/80	1011
8	101	40°12.98'	70°16.20'	x	x		10/29/80	1040
9	122	40°06.32'	70°17.89'	x	x		10/29/80	1120
10	228	40°01.51'	70°18.84'	x	x		10/29/80	1146
11	750	38°29.25'	73°13.80'	x	x		10/30/80	0320
12	30	38°31.41'	73°18.64'	x	x		10/30/80	0344
13	95	38°33.78'	73°22.91'	x	x		10/30/80	0412
14	75	38°36.94'	73°28.41'	x	x		10/30/80	0447
15a,b	63	38°39.01'	73°34.02'	x	x		10/30/80	0520
16	63	38°41.65'	73°38.90'			x	10/30/80	1300
17	47	38°46.18'	73°47.76'		x	x	10/30/80	1438
18	45	38°43.37'	73°43.97'	x	x		10/30/80	1521
19	85	38°34.07'	73°27.93'			x	10/30/80	1644

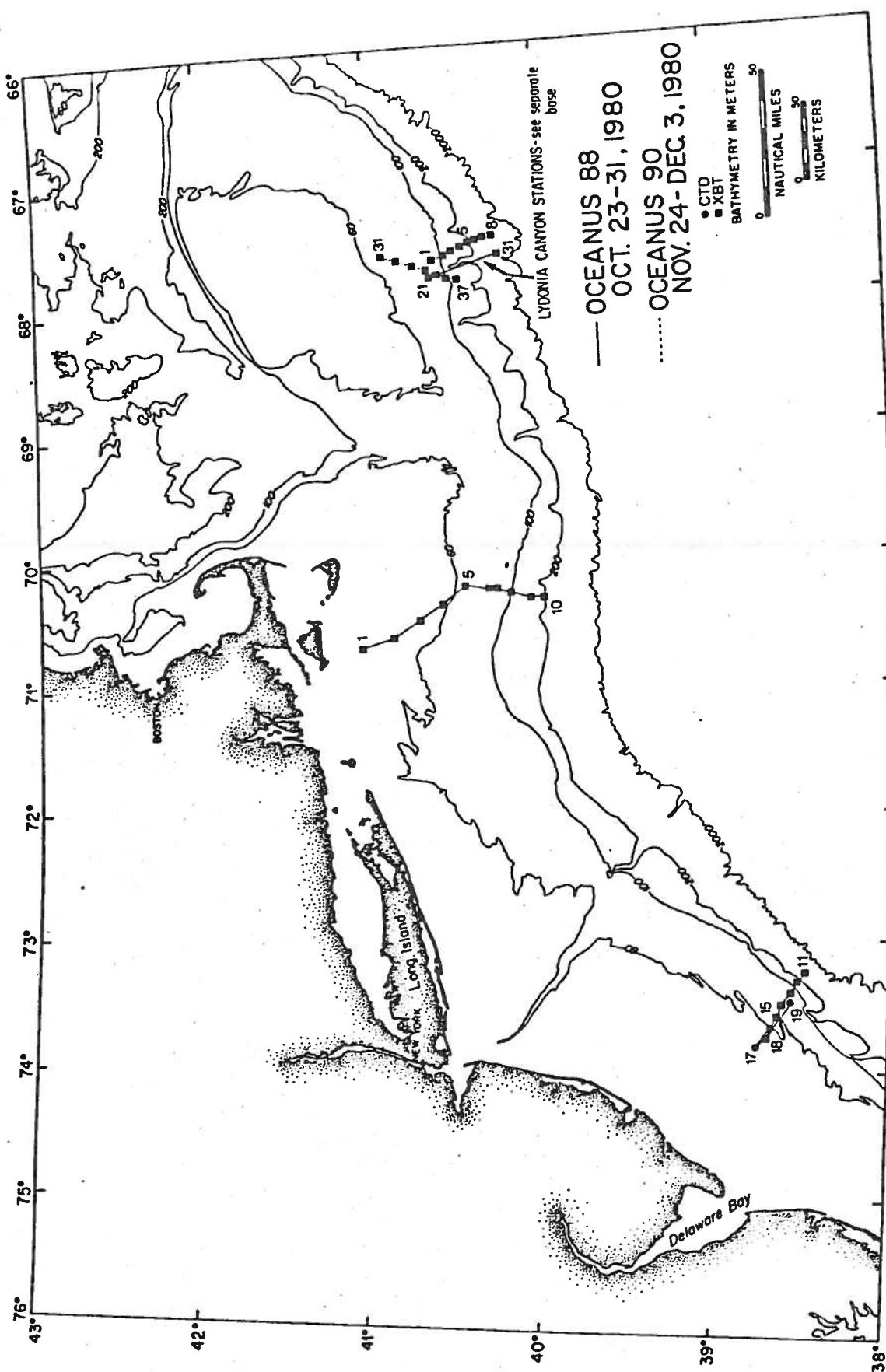


Figure 1. Cruise track OCEANUS 88 October 23 - 31, 1980.

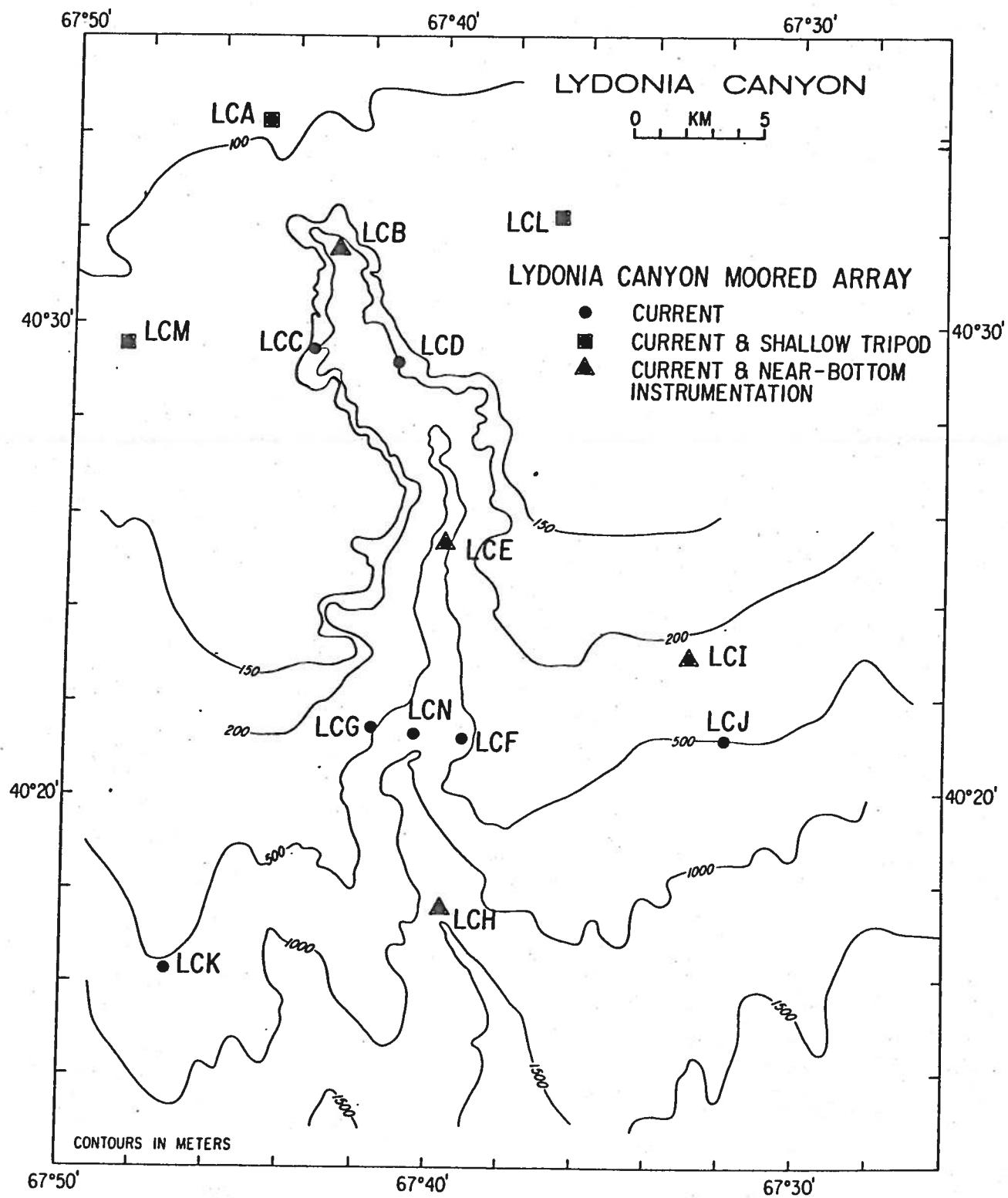


Figure 2. Location of moorings in Lydonia Canyon. (Moorings at stations LCA, LCC, LCD, LCL, LCM, LCF, and LCG deployed on OC 88.)

APPENDIX I

Bridge Log OCEANUS 88 October 23 - 31, 1980

Vessel OCEANUS
Cruise 88

LORAN LOG

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Date	Time	Sta.	+/-	Reading	Latitude	Longitude	Remarks
1025	CAST OFF V/C IN TRANSIT VINYARD & NANTUCKET SOUNDS.						
1200	1600	LC		41-27.42	70-20.88		
1508	1908	V/B	CL/AY	B&W "GRS" BUOY	DEPARTURE 5/1086	7/0	
1600	2000	LC		41-26.12	69-31.55		
1619	2019	LC		41-26.2	69-27.3	5/1526	
1700	2100	LC		41-19.8	69-23.1		
1800	2200	LC		41-10.2	69-16.9		
18 ¹⁸	2218	SAT	21 ⁰ /3	41-07.633	69-15.168		
1905	2305	LC		41-00.8	69-10.3		
2000	0000	LC		40-53.5	69-04.5		
2039	0039	LC		40-48.7	69-00.5	C/C 103	
2100	0100	LC		40-48.5	69-55.9	C/C 108	

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LORAN LOG

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Date	Time	Sta.	+/-.	Reading	Latitude	Longitude	Remarks
10/23	+4	GMT			N	W	Thursday 23-OCT-81
	2200	0200			40 47.2	68-43.1	c/c 110.6
	2304	0304			40-44.4	68-29.3	c/c 106
	0000	0400	LC		40-41.89	68-17.05	
	0100	0500	DR		40 39.0	68-03.8	
	0203	0603	LC		40-36.15	67-49.65	0203 ARRIVE LYDONIA 0203 CME SURVEY c/c 180°
	0258	0658	LC		40 25.7	67-48.8	0258 c/c 087°
	0306	0706	LC		40.25.6	67-47.32	0306 c/c 000°
	0400	0800	LC		40-32.5	67-47.1	
	0427	0827	LC		40-30	67-47.0	c/c 090S.
	0437	0837	LC		40-34.0	67-45.0	c/c 180
	0457	0857	LC		40-36.6	67-45.0	c/c 083S
	0505	0905	LC		40-32.7	67-43.4	c/c 000S
	0527	0927	LC		40-36	67-43.4	c/c 090S.

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Date	Time	Sta.	+/-.	Reading	Latitude	Longitude	Remarks
10/24	14	SAT			N	W	FRI 24 OCT '86
0534	0934	LC		40-36	67-42.0		GC 180G, GS 150RPM
0535	0935	SAT	31°/3	40-35.64	67-42.013		
0552	0952	LC		40-33.5'	67-42		GC 142G
0600	1000	LC		40-32.5'	67-41.1		
0611	1011	LC		40-31.3	67-40.0		GC 000G,
0630	1030	LC		40-34	67-40.06		
0643	1043	LC		40-36	67-39.9		GC 090G
0652	1052	LC		40-36.1	67-38		GC 180G.
0700	1100	LC		40-34.9	67-38		
0726	1126	LC		40-30.7	67-38		GC 144G
0742	1142	LC		40-28.8	67-36.1		GC 000G.
0758	1158			40-30.95	67-36.01		C/C 003

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Cruise _____

Date	Time	Sta.	+/-.	Reading	Latitude	Longitude	Remarks
					N	W	
	+4	GMT					Friday - 24 OCT-8
0805	1205			40-32.10	67-36.04		C/C 270
0808	1208			40-32.13	67-36.67		C/C 267-G-6k
0812	1212			40-32.13	67-37.26		
0827	1227			40-32.16	67-39.54		C/C 000
0836	1236			40-33.06	67-39.81		C/C 090.
0901	1301			40-33.27	67-36.51		
0906	1306			40-33.30	67-35.9		C/C 180
0924	1324			40-31.32	67-35.93		C/C 270
0933	1333			40-31.27	67-37.37		C/C 000
0942	1342			40-32.15	67-37.56		C/C 045
0952	1352			40-32.77	67-36.8		H-T
1105	1505			40-32.38	67-36.94		- Let go anchor to Surface Mooring Site

Vessel OCEANUSPage 5Cruise # 88LORAN LOG

Date	Time	Sta.	+/-.	Reading	Latitude	Longitude	Remarks
					N	W	
1158	1558	LC		40-32.31	67-36.42		Let go anchor to Surface Site "L"
1206	1606	LC		40 32.3	67 36.5		
1244	1644	LC		40 34.3	67 43.8	H.T.	
1412	2012	LC		40 34.31	67 44.41		1412 ANCHOR OVER LYDONIA CANYON SITE "A" EASTERN BUOY
1521	1921	WESTERN BUOY	φ 085°	00.4 MI			1521 ANCHOR OVER, WESTERN BUOY SITE "A"
			TO EASTERN BUOY				
1630	2030						SET TRIPOD 0.14M FROM WESTERN BUOY
1644	2044						VYS TO TRAIL LINE
1653	2053						PICK UP BUOY,haul back
1717	2117	LC		40-33.6	67-44.8		VYS TO SITE "M"
1746	2146	LC		40-28.5	67-48.1		HOIST, SITE "M"
1850	2250	LC		40-29.5	67-48.5		ANCHOR over BUOY "B" Site "M"
2014	0014	LC		40-29.5	67 48.05		Anchor over Buoy "R"
2050				Launched Trawl	• 14 mi from		Buoy "B" φ 269°

Vessel OCEANUS
Cruise H-88

LORAN LOG

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LORAN LOG

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Date	Time	Sta.	+/-.	Reading	Latitude	Longitude	Remarks
	14	GMT			NORTH	WEST	SATURDAY OCT 26, 198
0016	0416	LC		40.34.10	67.44.73	#1 0016 MUD GRAB ON BOTTOM	
0026	0426	LC		40.34.07	67.44.76	#2 0026 " " "	"
0034	0434	LC		40.34.05	67.44.86	#3 0034 " " "	"
0042	0442	LC		40.34.00	67.44.88	#4 0042 " " "	"
0048	0448	LC		40.33.99	67.44.91	#5 0048 " " "	"
0054	0454	LC		40.33.94	67.44.97	#6 0054 " " "	"
0102	0502	LC		40.33.86	67.45.03	#7 0102 " " "	"
0109	0509	LC		40.33.80	67.45.07	#8 0109 " " "	"
0120	0520	LC		40.33.7	67.45.1	END STA S/C 017°g	
0200	0600	LC		40.39.90	67.42.38	C/L 013°g	
0300	0700	LC		40.47.98	67.39.36	0300 C/L 015°g 0350 C/L 021°g	
0400	0800	LC		40-55.7	67-37.3		
0400	0800	SAT	20°/3	40-55.973	67-37.135		

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Date	Time	Sta.	+/-.	Reading	Latitude	Longitude	Remarks
34	0454	GM1			N 41- 02.4	W 67- 34.2	10/25/80 HOVE TO
0621	1021	LC			41-02.3	67- 34.4	HOVE TO, CMC BOTTOM SAM
0636	1036	LC		" 02.3	" 34.6	GRAB SAMPLE	
0641	1041	LC		" 02.3	" 34.8	" "	
0645	1045	LC		" 02.3	" 34.8	" "	
0651	1051	LC		" 02.3	" 34.8	" "	
0655	1055	LC		" 02.4	" 34.8	" "	
0659	1059	LC		" 02.4	" 34.8	" "	
0704	1104	LC		" 02.4	" 34.9	" "	
0707	1107	LC		" 02.4	" 34.9	" "	
0713	1113	LC		" 02.4	" 34.9	" "	
0748	1148	LC		41-02.7	67- 34.2		SET FISH TRAWL

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Date	Time	Sea.	+/-	Reading	Latitude	Longitude	Remarks
					N	W	10/25/80
14	GUÍ						
0903	1303			41-02.8	67-35.25		Sub Surface Mooring haul in abd.
							1100 CME running (dragging) for typical
1225	1625	LC		41-0235	67-33.93		
1410	1810	VB		TRIPOD RELEASE FLOAT SURFACES WITH 20 METERS OF LINE. TRIPOD NOT RECOVERED			
1445	1845	/		CME JOGGING INTO HEAVY SEAS.			
1500	1900	LC		41-02.62	67-32.26		
1648	2048	SAT	59°/3	40-56.915	67-26.52		
1700	2100	LC		40-56.5	67-26.1		
1800	2200	LC		40-54.	67-24.5		
1853	2253	LC		40-52.17	67-23.12		
2000	2400	LC		40-50.16	67-21.4	9C 110G,	
2118	0118	LC		40-50.66	67-19.2	c/c 140	
2200	0200	LC		40-50.75	67-18.8		

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Date	Time	Sta.	+/-	Reading	Latitude	Longitude	Remarks
				CLOCKS & CHRONOMETERS SET TO +5 GMT			
				(RETARDED ONE HOUR)			
0000	0500				40 45.0	67 15.6	
0100	0600				40 44.39	67 23.95	
0135	0635	LC			40 43.8	67 28.3	0135 CME JO661N6 S/L 180° g/
0200	0700	LC			40 42.05	67 27.94	0200 C/L 200° g/ JO661N6 CONTINUOUS
0300	0800	LC			40 38.92	67 28.39	0300 C/L 225° g/
0405	0905	LC			40-35.2	67-29.7	4C200G.
0500	1000	LC			40-31.6	67-30.3	0530 4C220G
0538	1038	SAT	07/4		40-28.905	67-30.883	
0600	1100	LC			40-28.6	67-31.9	
0624	1124	SAT	80°/3		40-27.622	67-32.575	
0700	1200	LC			40-26.2	67-35.6	4C240G.
0800	1300	LC			40-23.76	67-39.86	
0850	1350	LC			40 21.72	67 43.59	Long Line ↗

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Date	Time	Sta.	+/-.	Reading	Latitude	Longitude	Remarks
		+5	GMT		N	W	Sunday - 26-OCT
1000	1500				40-19 22	67- 48 30	c/c 250
1200	1700	LC			40-16.9	67-53.4	
1400	1900	LC			40-12.5	68-02.4	
		SIMUL FIX					
1458	1958	SAT	S7 ³		40-10.24	68-04.807	
1458	1958	LC			40-10.33	68-04.88	
1600	2100	LC			40-07.6	68-07.4	402605
1646	2146	SAT	19/3		40-06.63	68-09.467	
1700	2200	LC			40-05.9	68-10.3	
1800	2300	LC			40-04.3	68-12.8	
1900	2400	LC			40-02.7	68-15.0	
2002	0102	LC			41-00.97	68-16.85	
2104	0204	LC			40-59.3	68-19.0	
2202	0302	LC			40-57.5	68-21.6	

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Date	Time	Sta.	+/-.	Reading	Latitude	Longitude	Remarks
	+5	6MT			NORTH	WEST	MONDAY OCT 27, 1980
0000	0500	LC		40-00.61	68-13.74		
0100	0600	LC		40-04.24	68-06.53		
0200	0700	LC		40-07.95	68-00.83	0218 R/S 0249 C/L TRAFFIC	
0300	0800	LC		40-11.25	67-55.67	0316 NEW COURSE 065°	
0400	0900	LC		40-12.9	67-49.2		0440-0455' U/S
0500	1000	LC		40-14.1	67-46.3	0455-5/C 0406	
0518	1018	SAT		40-14.613'	67-45.283		
0600	1100	LC		40-14.5'	67-42.7		
0700	1200	LC		40-18.8	67-39.4		
0730	1230	LC		40-20	67-37.9	462706, Tossing liquid with	
1000	1500	LC		40-19.6	67-44.0		
1154	1654	LC		40-21.64	67-40.57	Cone Setting Sub-Surface Monitor C	

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Date	Time	Sta.	+/-.	Reading	Latitude	Longitude	Remarks
	+5	6mT			NORTH	WEST	TUESDAY OCT 28, 198
	0000	0500	LC		40-29.95	67-45.88	LC LATITUDE ERROR? (LC ON 51 & 52)
	0100	0600	LC		40-31-57	68-01.21	CHANGED 51 - 53 MAIN CAROLINA
	0200	0700	LC		40-32.06	68-15.78	
	0300	0800	LC		40-32.09	68-29.82	0300 R/S 180 RPM 0330 C/C 274° gy
	0400	0900	LC		40-32.2	68-41.9	
	0414	0914	SAT	5/3	40-32.360	68-44.884	
	0454	0954	SAT	20/3	40-32.483	68-53.361	
	0556	1000	LC		40-32.6	68-54.4	
	0600	1100	LC		40-33	69-07.3	C/C 270 G
	0700	1200	LC		40-32.4	69-20	C/C 272 G
	0800	1300	LC		40-32.7	69-35.4	C/C 267 G
	0905				40-32.45	69-51.3	C/C 262 G

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Date	Time	Sta.	+/-.	Reading	Latitude	Longitude	Remarks
	+5	6MT			NORTH	WEST	TUESDAY OCT 28, 198
1233	1733	LC		40-29.05	70-11.72		1233 CME MULTIPLE MUD GRABS
1325	1825	LC		40-28.59	70-10.90		1325 END MULTIPLE MUD GRABS
1432	1932	LT		40-28.5	70-10.0		1432 TRIPOD ADD
1607	2107	LC		70-28.1	70-14.5		SC 3245. 200 RPM
-1652	2152	SAT	170/3	40-35.65	70-22.038		
1700	2200	LC		70-36.3	70-22.5		
1800	2300	LC		70-45.8	70-32.1		
1900	2400	LC		70-55.3	70-41.9		
2029				41-11.0	70-53.5		1927 4C3345. SW shoal 1/0 cre 3. c/c 000. a
2117				41-21.8	70-54.1		Devils Bn. Buoy 2095. 1.7 mi. off c/c 052° E
2149		Bluenose Hob Bremen		c/c/b			Var. c/c pols in VINEYARD SOUND
2240	ARRIVNL	WN#1	E#2				
2255	DOCKSIDE WN0)						

Vessel OCEANUSPage 16Cruise 88LORAN LOG

Date	Time	Sta.	+/-.	Reading	Latitude	Longitude	Remarks
		GMT	+5		NORTH	WEST	WED OCT 29, 1980
0110	0610	CAST OFF					
0120	0620	VB	DEPARTURE	WN #1 f #2			
0205	0705	CL/3Y	ROBINSONS HOLE BUOY	(0.3 MI O→)	C/C 228		
0235	0735	DEVILS BRIDGE	BUOY	0.7 M' E	C/C 180°	g	
0300	0800	LC		41-16.87	70-52.25	C/C 184°	g
0321	0821	LC		41-12.29	70-52.56	C/C 145°	
						0341	C/C 142°
0400	0900	LC		41-05.7	70-46.5'		
-	0450	0950	SAT	14° 1/2	40-52.882	70-39.035'	
0500	1000	LC		40-55.3	70-37.5'		
0552	1052	SAT	6 1/2	40-46.322	70-29.248'		
0600	1100	LC		40-45.0	70-27.7		
0700	1200	LC		40-34.8	70-18		
0730	1230	LC		40-29.5	70-12.3	VISAT SIA 'Q'	

Vessel _____

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LORAN LOG

Cruise _____

Vessel OCEANUS
Cruise 88

LORAN LOG

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Vessel OCEANUS
Cruise 88

LORAN LOG

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Date	Time	Sta.	+/-.	Reading	Latitude	Longitude	Remarks
	+5	6mT			NORTH	WEST	THURS OCT 30, 1980
0000	0500	LC		38-49.16	72-41.83		
0100	0600	LC		38-43.29	72-52.38	0100 C/L 5° R/L	
0200	0700	LC		38-36.53	73-01.45	0200 C/L 234° g	
0300	0800	LC		38-30.84	73-11.3C		
0316	0816	LC		38-29.21	73-13.95	0316 C/L 306° g 0345 C/L 308° g	
0400	0900	LC		38-32.8	73-21.2		
0500	1000	LC		38-38.3	73-30.7		
0552	1052	LC		38-42.1	73-38.5	HANGID CLOTHY Buoys	
0554	1054	SAT	8°/2	38-41.956	73-38.280		0710 PICKUP SUBSURFACE MOORINGS
0843	1333	LC		38-42.49	73-38.78	RECOVER TRIP TO	
0930				38-42.46	73-38.93	" Surface Moorings	1029. Recover S. Moorings and others
1135	1635	LC		38-42.27	73-38-54	Surface Moorings and others	

Vessel OCEANUS
Cruise 88

LORAN LOG

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Date	Time	Sta.	+/-.	Reading	Latitude	Longitude	Remarks
	+ 5	6 MT			NORTH	WEST	THURS OCT 30, 1980
1336	1836	LC		38-41.42	73-38.95		1245-1336 CTD's END STA S/C 305°
1400	1900	LC		38-43.28	73-42.24		1436-1500 CTD's
1500	2000	LC		38-45.73	73-48.07		1500 END STA S/C 120° 170 RPM
1600	2100	LC		38-39.63	73-36.03		
1642	2142	LC		38-34.1	73-28		HACTO, CTD SIA
1705	2205	DR		"	"		S/C 035°, 170 RPM
1800	2300	LC		38-42.15	73-20		
1850	2350	SAT	30°/2	38-50.129	73-12.707		
1900	2400	LC		38-51.7	73-11.6		
2000	0100	LC		39-01.2	73-02.8		
2105	0205	LC		39-10.9	72-53.9		
2204	0304	LC		39-19.9	72-46.0		
2251	0351	LC		39-27.28	72-39.24		PIGS & 125°-8.75° 120°-9.4°

Vessel OCEANUS

Cruise 88

LORAN LOG

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Date	Time	Sta.	+/-	Reading	Latitude	Longitude	Remarks
	6 MT	+5			NORTH	WEST	FRIDAY, ALL HALLOWS EVE 1980
0000	0500	LC		39-38.07	72-29.34		
0103	0603	LC		39-47.90	72-19.9	c/o 033°	
0200	0700	LC		39-56.66	72-11.91		
0300	0800	LC		40-05.93	72-03.64		
0824	0824	SAT	10 ² /2	40-09.495'	72-00.419		
0400	0800	LC		40-11.3	71-55.4		
0500	1000	LC		40-24.8	71-47.2		
0600	1100	LC		40-34.5	71-38.8	c/o 035°	
0602	1102	SAT	57/4	40-34.574	71-38.672		
0700	1200	LC		40-43.6	71-30.0		
0800	1300	LC		40-52.7	71-20.8		
0900	1400			41-01.6	71-12.0		

Vessel OCEANUS

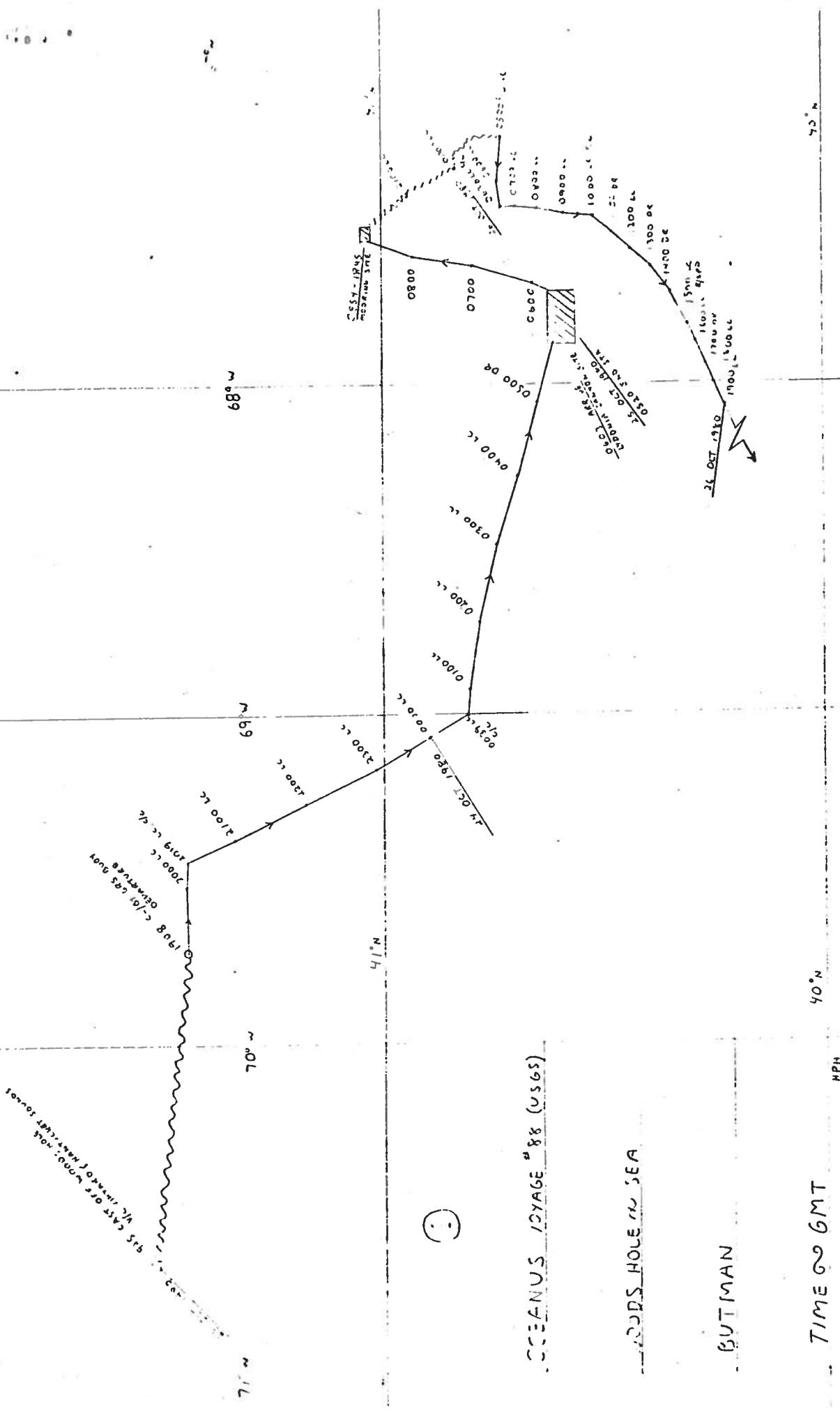
Cruise #88

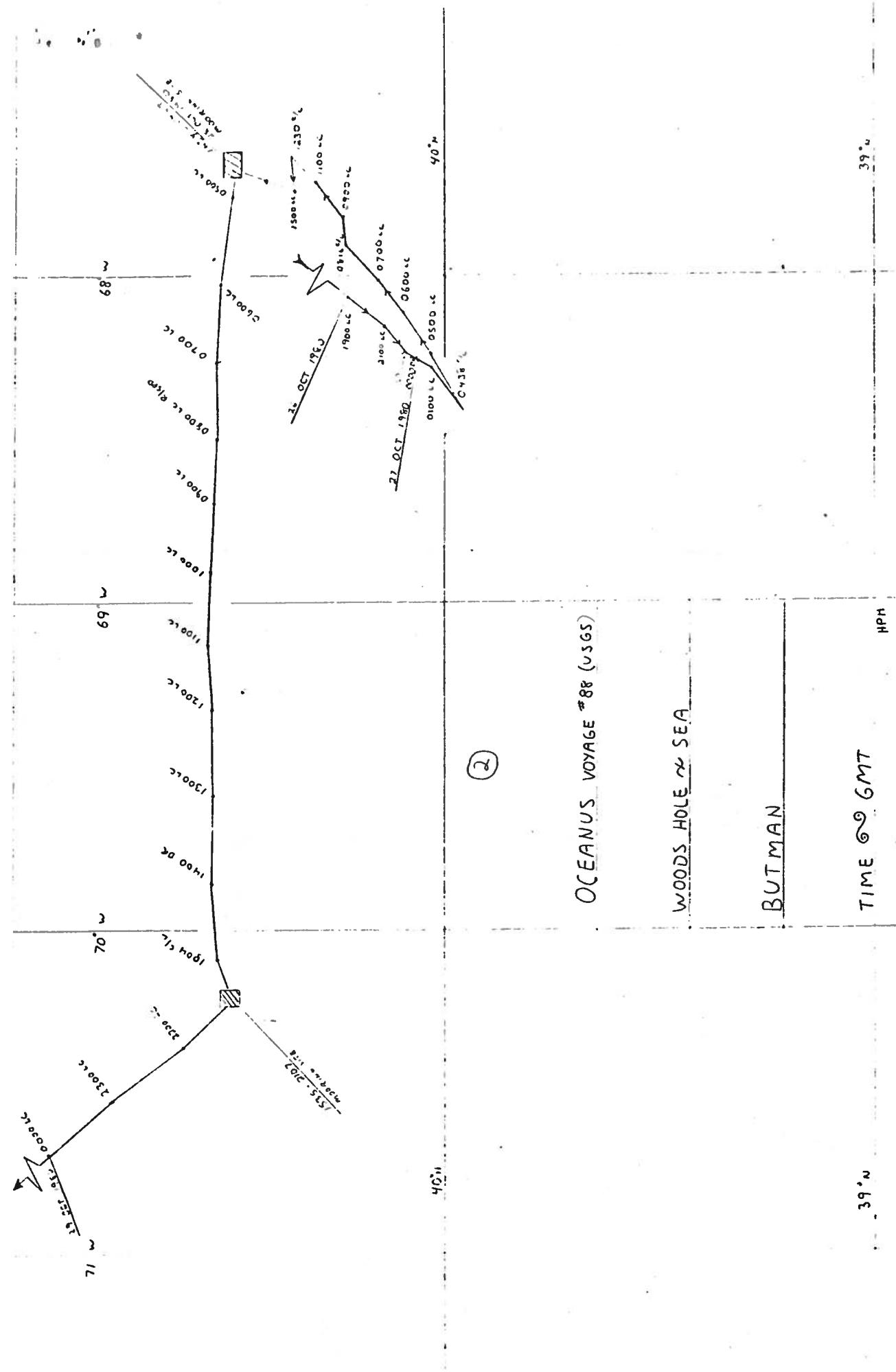
LORAN LOG

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APPENDIX II

Smooth Sheets





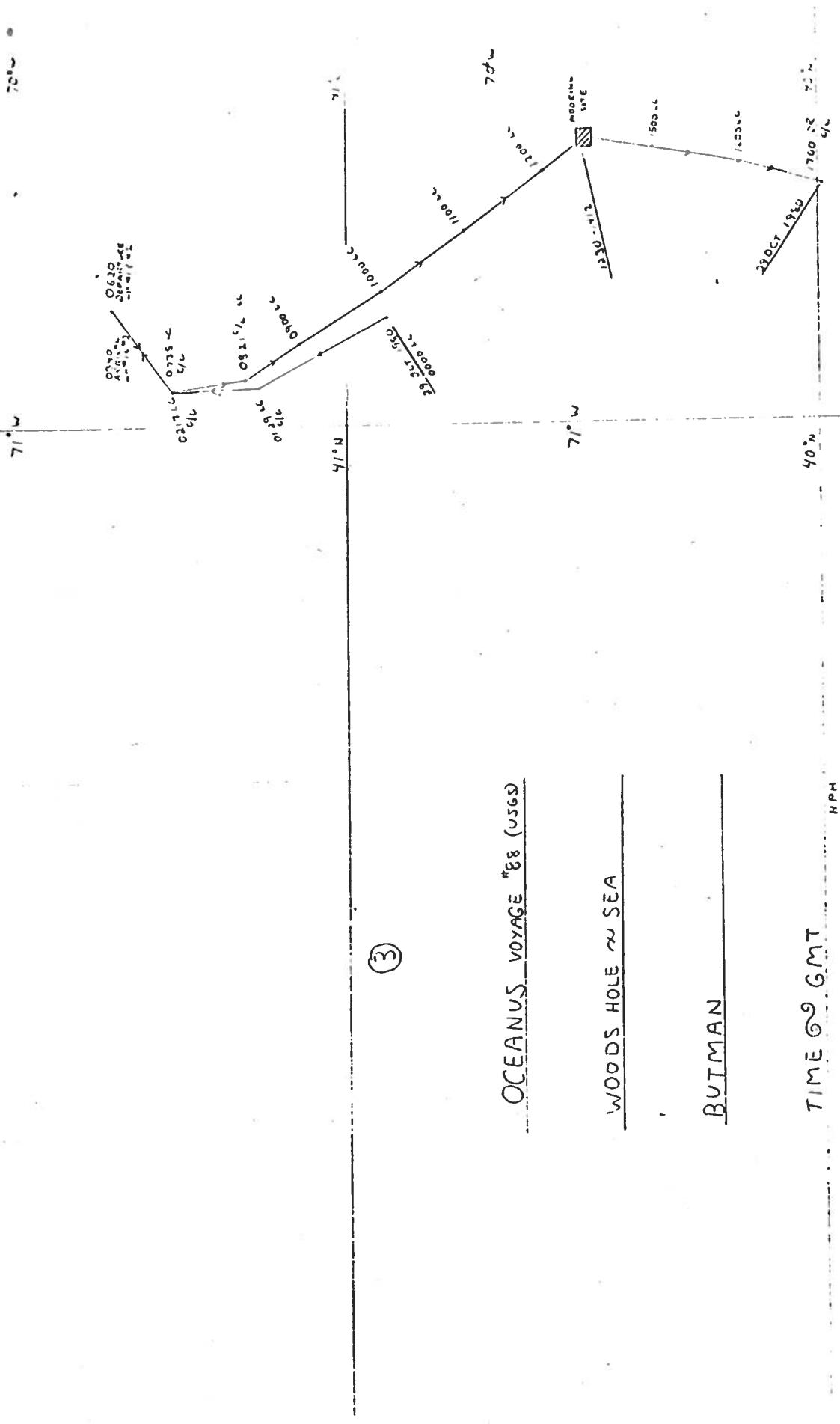
OCEANUS VOYAGE #88 (1950)

WOODS HOLE SEA

BUTMAN

TIME 600 GMT

39°W HPH



OCEANUS VOYAGE #88 (USSG)

(3)

WOODS HOLE ~ SEA

BUIMAN

TIME GMT

40°N

760 : 2
c/s

760 : 2
c/s

500

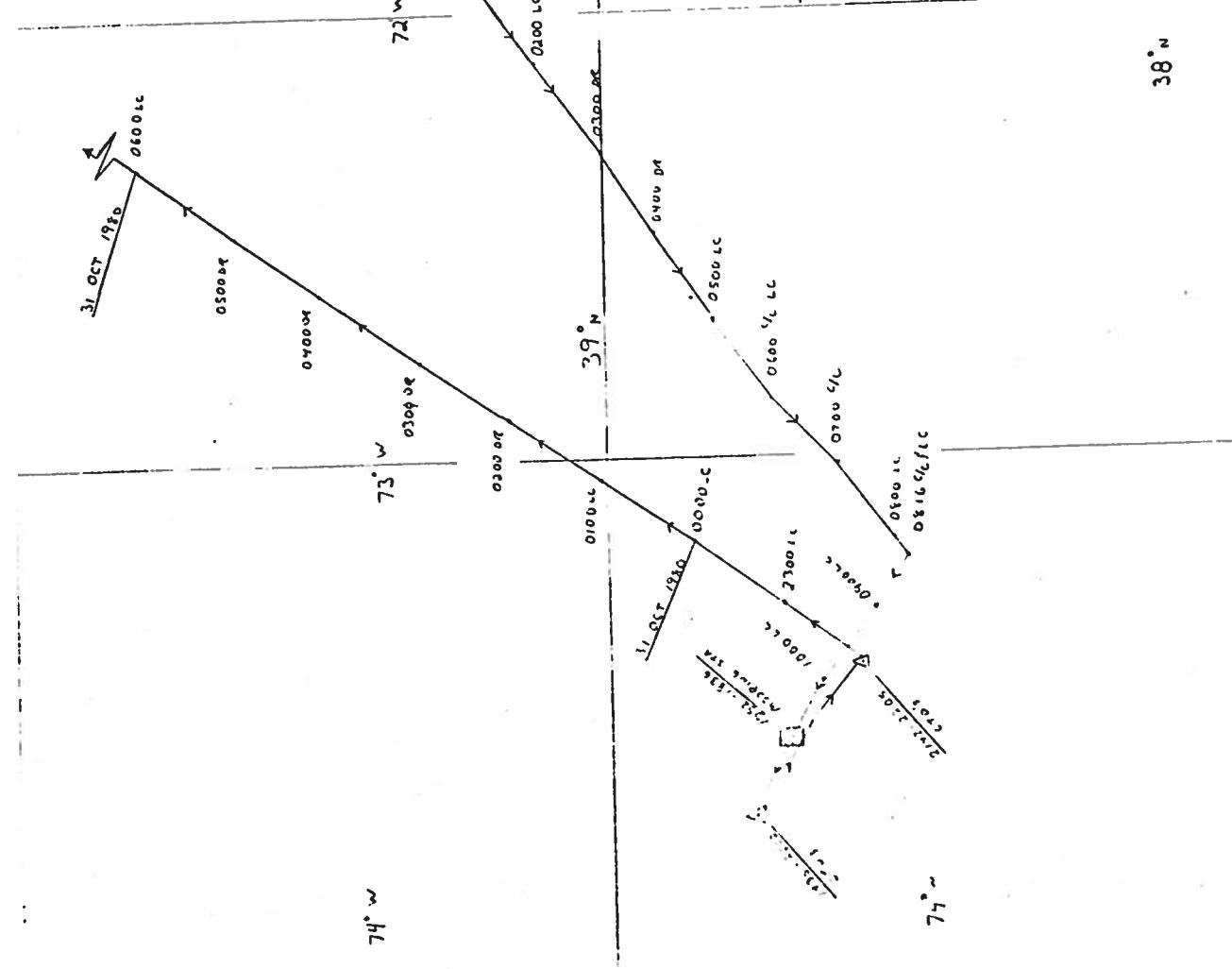
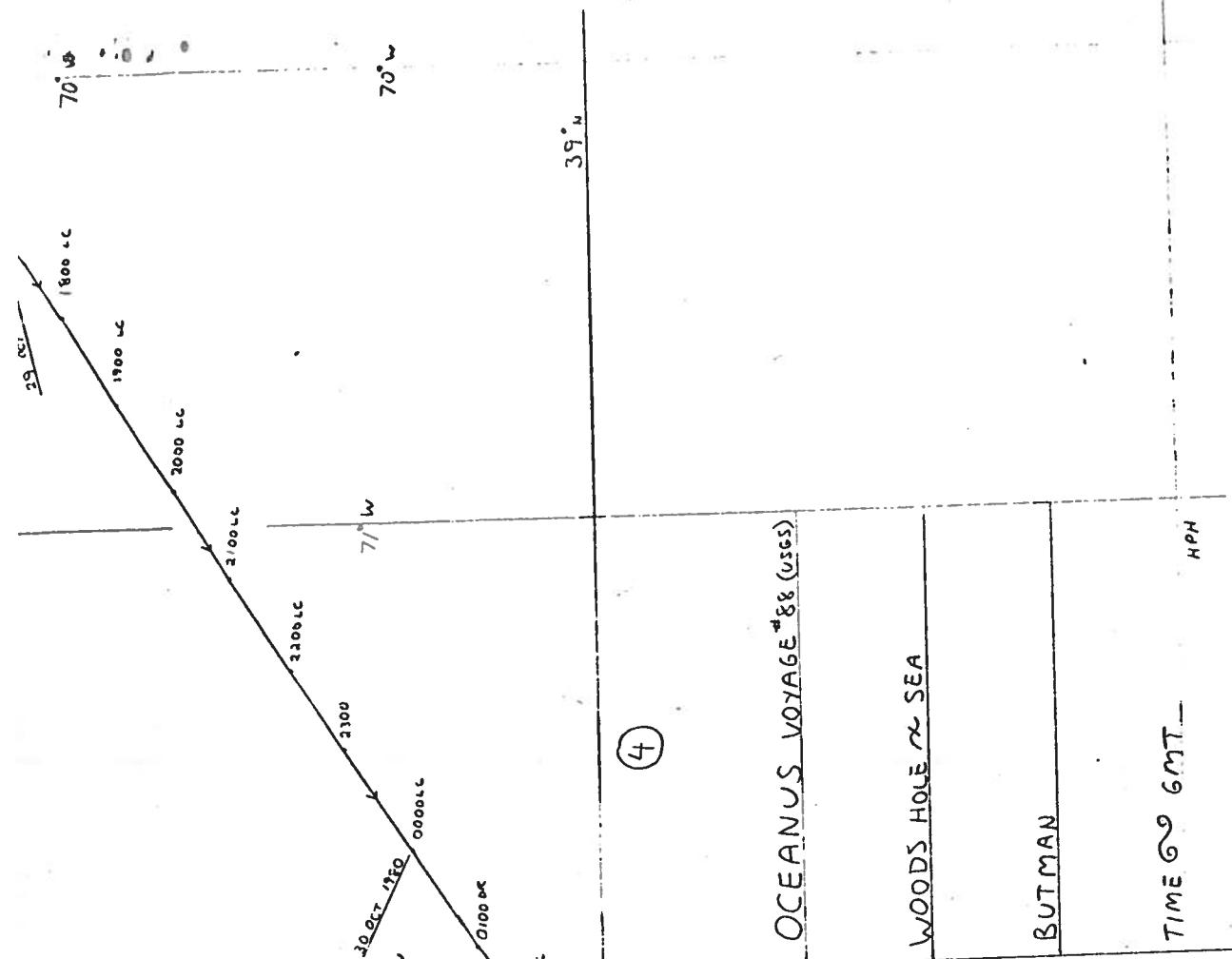
71°N

72°W

71°N

75°N

N



69° ~

70° ~

71° ~

72° ~

21 OCT 1950
1740 APPROX
Lat 61° 1' N
Long 161° 15' E
Devils Gp Buoy
Phone "578-3416"

1509 LL

41° N

1400 DQ

1300 LC

1200 LC

71° ~

1100 LC

1000 LC

72° ~

0900 LC

0800 LC

40° N

0700 LC

0600 LC

0500 LC

0400 LC

0300 LC

0200 LC

0100 LC

0000 LC

HOM

TIME 69 GMT

BUTMAN

WOODS HOLE ~ SEA

OCEANUS VOYAGE '58 (SOS)

(5)

Appendix III
Meteorological Observations

Key to Meteorological Observations

Swell

- 0 No swell
- 1 Low, short or average
- 2 Low, long
- 3 Moderate, short
- 4 Moderate, average
- 5 Moderate, long
- 6 Heavy, short
- 7 Heavy, average
- 8 Heavy, long
- 9 Confused

Sea height

- 0 Calm
- 1 Smooth, less than 1'
- 2 Slight 1-3'
- 3 Moderate 3-5
- 4 Rough 5-8
- 5 Very Rough 8-12'
- 6 High 12-20
- 7 Very high 20-40
- 8 Mountainous 40 and higher
- 9 Confused

Weather

- b blue skies
- bc scattered clouds
- d drizzle
- f fog
- h hail
- l lightening
- o overcast
- c mostly cloudy
- p passing rain showers
- q squalls
- r rain
- s snow
- t thunder
- z haze

Wind

	<u>knots</u>	<u>mph</u>
0	under 1	under 1
1	1-3	1-3
2	4-6	4-7
3	7-10	8-12
4	11-16	13-18
5	17-21	19-24
6	22-27	25-31
7	28-33	32-38
8	34-40	39-46
9	41-47	47-54
10	48-55	55-63
11	36-63	64-72
12	64-71	73-82

OCEANUS-88		WEATHER	WIND DIRECTION	*BEAUFORT	*KNOTS	FROM DECK LOG	SEA	SWELL	*DIRECTION BEAUFORT	*HEIGHT	*BARO	VETER	AIR TEMP	*WEATHER
	YYYYDDHHH													
8010231200	WWW	4				3			NLY	3	1033	44	BC	
8010231600	WWW	5				4			N	1	1033	46	B	
8010232000	N	4-5				3			N	3	1033	46	BC	
8010240000	NLY	4				3			N	3	1034	50	C	
8010240400	NLY	4-5				4			N	4	1033	48	O	
8010240830	N	4				3			NNE	1	1034	52	C	
9010241200	NNE	4				3			NE	1	1034	53	C	
8010241600	NE	4				3			NNE	1	1033	50	BC	
8010242000	NE	3				3			NE	1	1032	50	C	
8010250000	ENE	4				3			ENE	1	1030	50	C	
8010250400	ENE	4-5				3			E1Y	1	1028	54	C	
8010250800	ESE	4-5				3			E1Y	1	1022	58	C	
9010251200	ESE	4				3			E1Y	1	1013	61	CR	
8010251600	SE	6				6			SE	6	1003	62	OP	
8010252000	SE	9-10				6			SE	7	997	58	C	
8010260000	SSW	5				6			confused	9	998	58	C	
9010260400	SW	6-7				6			confused	9	1002	56	C	
8010260800	WSW	6				6			WSW	6	1005	51	C	
8010261200	W/S	6-8				6			WSW	6	1008	52	C	
8010261600	W1Y	6-7				6			WXS	6	1010	52	C	
8010262000	W	8-9				6			WSA	6	1012	58	C	
8010270000	W1Y	7-8				6			WSW	6	1015	54	C	
8010270400	WXX	7				5-6			WNW	3	1018	54	C	
8010270800	WXX	6-7				5-6			WNW	4	1020	57	C	
8010271200	W/Y	6-7				5			W1Y	3	1021	54	C	
8010271600	WXX	5				3			W1Y	2	1021	54	C	
8010272000	W1Y	3				3			W	3	1019	53	BC	
8010280000	W1Y	3				3			W	1	1019	54	C	
8010280400	W	6				4			W	3	1017	58	C	
8010290800	WSW	4-5				4			WSW	3	1019	62	C	
8010281200	SW	6				4			WSW	1	1019	61	C	
8010281600	WXS	5-7				5			WXS	6	1033	50	C	
8010282000	NW	5-6				4			W1Y	3	1010	46	C	
8010290000	N	5				5			--	--	1014	47	C	
8010290400	NW	6				3			NW	1	1014	52	C	
8010290800	NW	5				3			NW	1	1018	46	C	
8010291200	NW	5				3			NW	1	1019	48	C	
8010291600	NW	5				3			NNW	1	1021	45	C	
8010292000	NW	5				3			NNW	1	1023	51	C	
8010292400	NW	4				3			NNW	1	1024	51	C	
8010300000	4					3			NNW	1	1025	47	BC	
8010300400	NW	3				3			NNW	1	1022	49	C	
8010300800	NWXX	3				3			NNW	1	1025	50	C	
8010301200	N	3-4				3			NNW	1	1024	51	C	
8010301600	NW	3				2			NNW	1	1023	47	BC	
8010302030	NW	3				2			NNW	1	1022	49	C	
8010310000	W1Y	2-3				2			NNW	1	1023	49	C	
8010310400	lt airs	---				2			NNW	1	1019	52	C	
8010310800	WSW	4-5				2			NNW	1	1019	52	C	