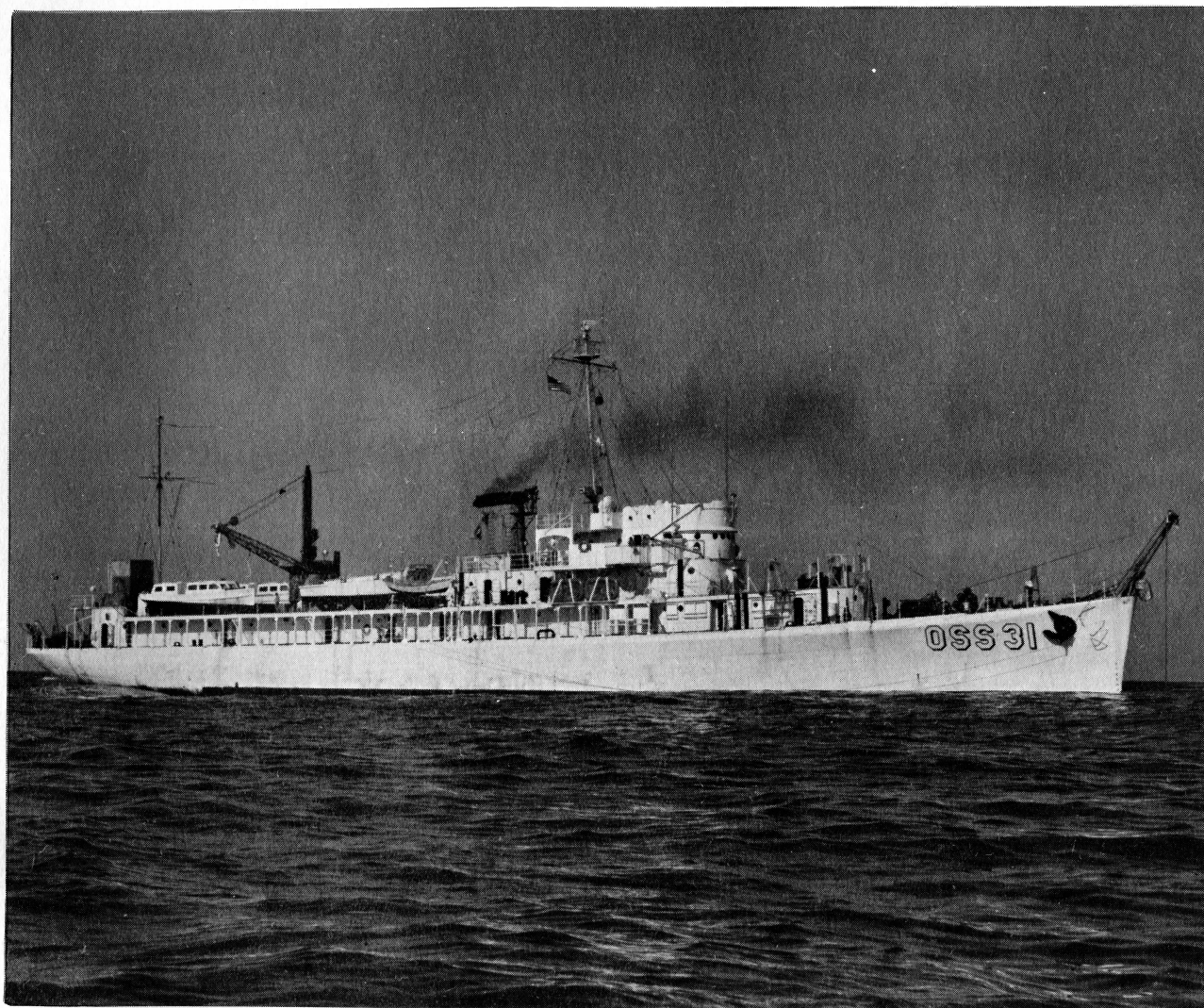


INTERNATIONAL  
INDIAN OCEAN EXPEDITION

USC&GS SHIP PIONEER - 1964



VOLUME

2

**Data Report: Oceanographic Stations,  
BT Observations, and Bottom Samples**

U.S. DEPARTMENT OF COMMERCE  
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION

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# INTERNATIONAL INDIAN OCEAN EXPEDITION USC&GS SHIP PIONEER - 1964

## VOLUME 2

**Data Report: Oceanographic Stations,  
BT Observations, and Bottom Samples**

11 February to 11 August, 1964



**U.S. DEPARTMENT OF COMMERCE**  
John T. Connor, Secretary

**ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION**  
Robert M. White, Administrator

**COAST AND GEODETIC SURVEY**  
James C. Tison, Jr., Director

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# Introduction

The results of the Coast and Geodetic Survey ship *Pioneer's* 1964 cruise to the Indian Ocean are presented in the U.S. Environmental Science Services Administration's series of publications entitled *International Indian Ocean Expedition, USC&GS Ship Pioneer—1964*. Volume 1 of the series, Cruise Narrative and Scientific Results, gives the account of the 1964 *Pioneer* field operations, summarizes the data obtained, and presents preliminary scientific findings of the cruise. This second volume contains the oceanographic station data, bathythermograph log sheets, and field descriptions of bottom samples. At the time volumes 1 and 2 were being prepared, further analyses of geological and biological samples, processing of trackline gravity and magnetic measurements, and interpretative studies of all observations were underway. When complete, additional listings of data and scientific findings will be published.

The *Pioneer's* 1964 cruise covered 31,507 nautical miles from San Francisco, Calif., across the North Pacific Ocean, through the South China and Andaman Seas, Bay of Bengal, northeast Indian Ocean, Java and Celebes Seas, and again across the North Pacific to San Francisco. During the 6-month cruise from February 11 to August 11, 1964, the *Pioneer* made stops at Honolulu, Hawaii (en route and returning); Manila, Republic of the Philippines; Jesselton, Singapore, and Penang, Malaysia; Calcutta, India; Colombo, Ceylon; Ko Phuket, Thailand; Djakarta, Republic of Indonesia; and at the Palau Islands and Guam in the western North Pacific. The principal objective of the cruise was the *Pioneer's* participation in the International Indian Ocean Expedition. This phase of the work was accomplished between March 23 and June 23, 1964.

Chart 1 (facing page 184) shows the cruise trackline. Figures 1 through 3 show the trackline in greater detail and indicate the type of data collected in the Strait of Malacca, Andaman Sea, Bay of Bengal, northeast Indian Ocean, and South China, Java, Celebes, and Philippine Seas.

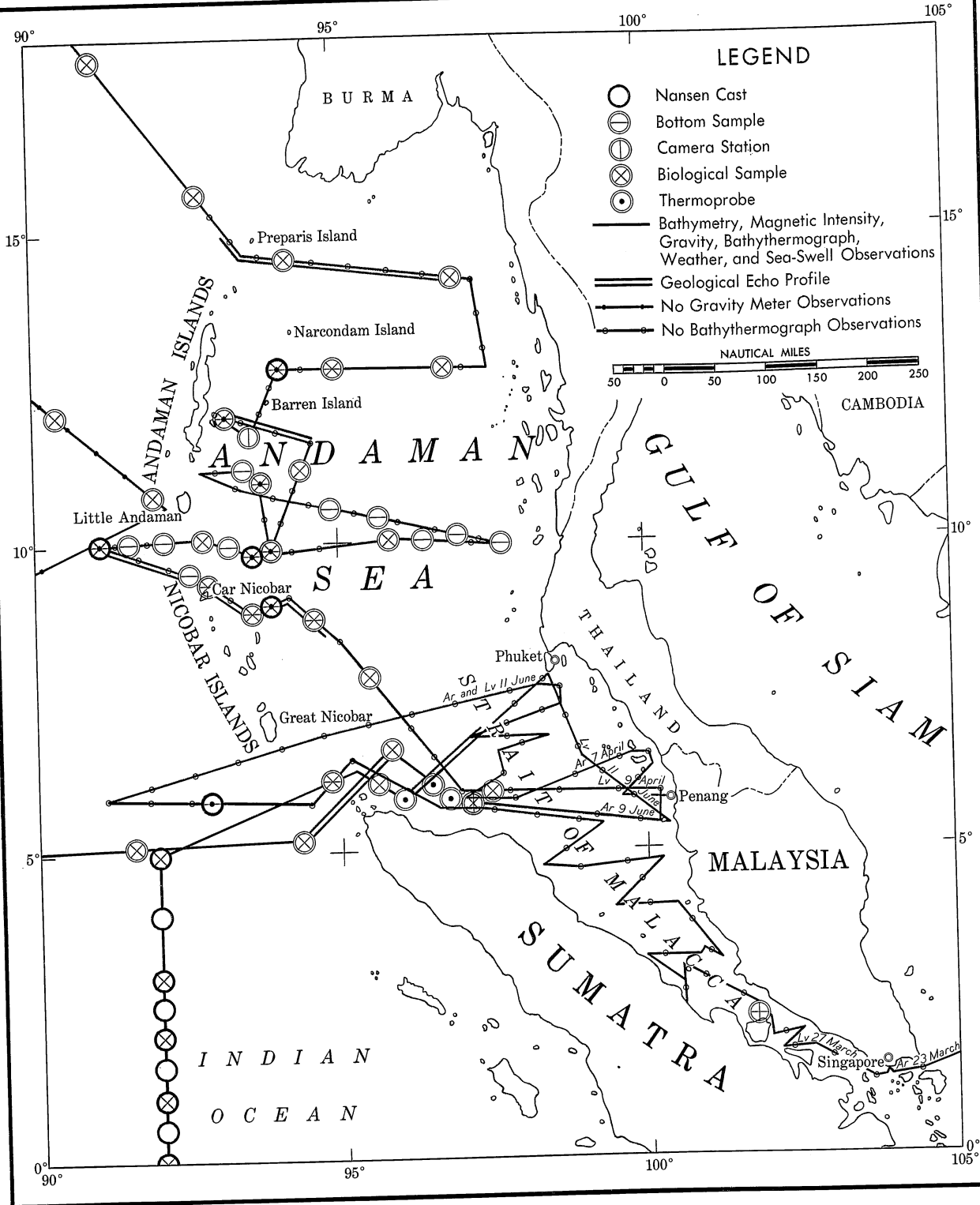


FIGURE 1.—USC&GS ship *Pioneer* observations in Andaman Sea and Strait of Malacca, March–June, 1964.

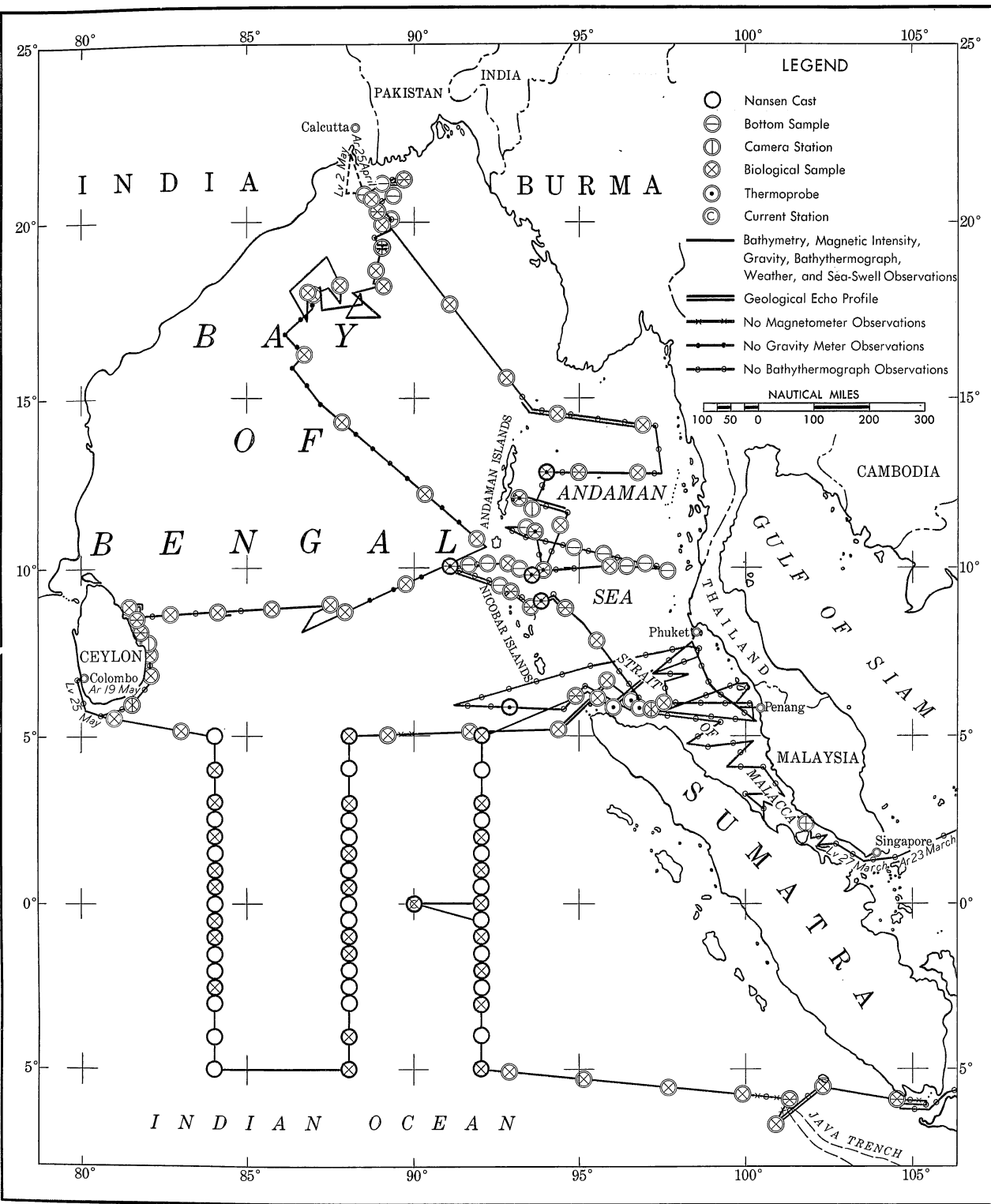


FIGURE 2.—USC&GS ship *Pioneer* observations in Bay of Bengal and northeast Indian Ocean, May–June, 1964.

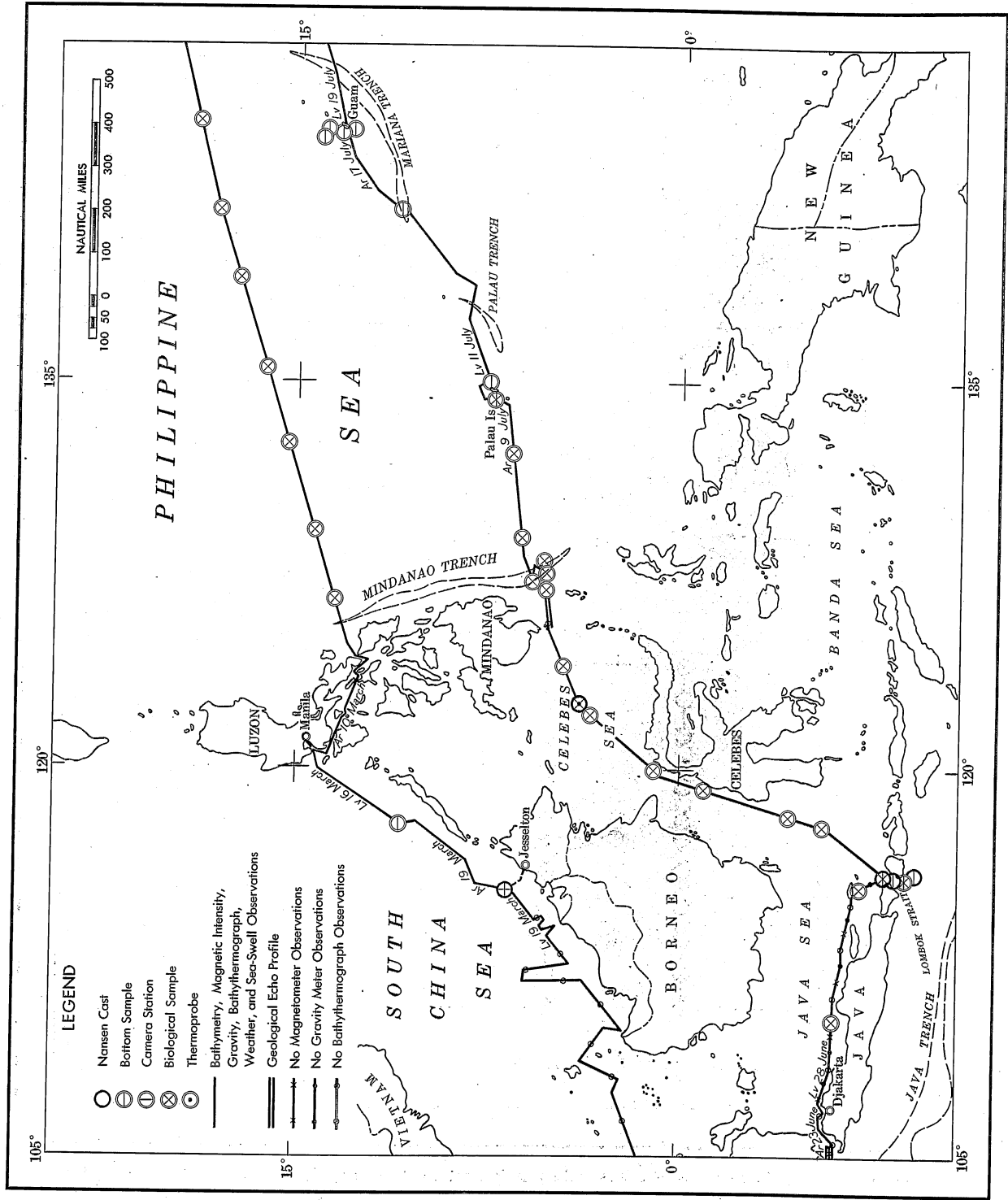


FIGURE 3.—USC&CS ship *Pioneer* observations in South China, Java, Celebes, and Philippine Seas, March, June-July, 1964.

# Oceanographic Station Data

Sixty-three oceanographic stations were occupied during the expedition. Their locations are shown on figures 1 to 3, and their positions are given in the station position list. The detailed explanation of the machine listings is presented ahead of the data. The machine interpolation to standard depths, the computations for sigma-*t*, dynamic height anomaly, and sound velocity, and the data printout presented here were completed at the National Oceanographic Data Center, Washington, D.C.

Sea-water temperature measurements were made with deep-sea reversing thermometers at each oceanographic station. Salinity samples were drawn from the Nansen bottles and determinations were made aboard ship. Dissolved oxygen determinations were made on all samples. Silicate determinations were made on selected samples from stations 0009 to 0057.

## Oceanographic Station Positions

<i>Station Number</i>	<i>Date</i>	<i>Time</i>	<i>Latitude</i>	<i>Longitude</i>
1.....	Mar. 18	0722	07 00.2 N	115 21.2 E
2.....	Apr. 2	1921	05 51.3 N	92 32.6 E
3.....	Apr. 11	0736	09 16.0 N	93 57.7 E
4.....	Apr. 13	2046	10 06.0 N	91 08.9 E
5.....	Apr. 15	0349	09 56.3 N	93 44.8 E
6.....	Apr. 20	0540	12 49.1 N	93 58.3 E
7.....	May 26	0944	04 57.8 N	84 12.5 E
8.....	May 26	1545	04 00.9 N	84 14.8 E
9.....	May 27	0430	02 53.0 N	84 14.4 E
10.....	May 27	0741	02 26.2 N	84 06.0 E
11.....	May 27	1246	01 55.8 N	84 15.1 E
12.....	May 27	1903	01 25.7 N	84 09.2 E
13.....	May 28	0939	00 58.9 N	84 29.1 E
14.....	May 28	1939	00 29.0 N	84 06.2 E
15.....	May 29	0914	00 00.4 N	84 09.5 E
16.....	May 29	1510	00 28.0 S	84 07.1 E
17.....	May 29	2210	01 03.8 S	84 00.0 E
18.....	May 30	0342	01 29.2 S	83 59.6 E
19.....	May 30	0833	01 56.9 S	84 01.2 E
20.....	May 30	1305	02 28.3 S	84 03.8 E
21.....	May 30	2113	03 00.8 S	83 55.2 E
22.....	May 31	0211	03 59.7 S	83 58.9 E
23.....	May 31	0830	04 58.9 S	84 07.9 E
24.....	June 1	0626	05 03.9 S	88 16.5 E
25.....	June 1	1412	04 03.2 S	88 03.1 E
26.....	June 1	2355	03 00.3 S	87 55.5 E
27.....	June 2	0533	02 31.2 S	87 57.2 E

## Oceanographic Station Positions—Continued

<i>Station Number</i>	<i>Date</i>	<i>Time</i>	<i>Latitude</i>	<i>Longitude</i>
28-----	June 2	0959	01 59.8 S	88 00.6 E
29-----	June 2	1443	01 29.5 S	87 57.4 E
30-----	June 2	2054	01 00.7 S	87 56.5 E
31-----	June 3	0641	00 30.1 S	88 04.4 E
32-----	June 3	0935	00 01.8 S	88 07.0 E
33-----	June 3	1509	00 25.8 N	88 06.3 E
34-----	June 3	2044	00 58.8 N	87 54.3 E
35-----	June 4	0310	01 30.8 N	87 54.8 E
36-----	June 4	0908	02 00.2 N	87 51.7 E
37-----	June 4	1156	02 29.1 N	87 52.8 E
38-----	June 4	1720	03 01.2 N	87 53.2 E
39-----	June 5	0043	04 00.0 N	87 50.4 E
40-----	June 5	0655	05 00.2 N	87 51.7 E
41-----	June 13	1420	04 59.5 N	92 00.6 E
42-----	June 13	2239	03 46.7 N	92 00.5 E
43-----	June 14	0509	02 46.0 N	92 00.1 E
44-----	June 14	1043	02 14.8 N	92 00.9 E
45-----	June 14	1421	01 51.0 N	91 59.9 E
46-----	June 14	1821	01 27.1 N	91 58.2 E
47-----	June 14	2330	00 54.1 N	91 55.7 E
48-----	June 15	0540	00 28.8 N	91 57.6 E
49-----	June 15	0949	00 03.2 N	91 55.8 E
50-----	June 15	2100	00 04.2 N	89 55.2 E
51-----	June 16	0934	00 19.6 S	91 51.4 E
52-----	June 16	1410	00 44.3 S	91 49.9 E
53-----	June 16	2212	01 16.3 S	91 58.7 E
54-----	June 17	0332	01 50.7 S	92 01.0 E
55-----	June 17	1009	02 27.2 S	91 59.6 E
56-----	June 17	1438	02 58.3 S	92 00.9 E
57-----	June 17	2307	04 04.1 S	92 06.5 E
58-----	June 18	0543	05 05.2 S	92 08.4 E
59-----	June 30	1155	09 03.3 S	115 39.5 E
60-----	June 30	1814	08 41.3 S	115 41.0 E
61-----	June 30	2121	08 30.9 S	115 44.5 E
62-----	July 3	2049	04 00.4 N	122 36.0 E
63-----	July 3	2238	04 00.4 N	122 36.0 E



## Explanation of Oceanographic Station Data

The oceanographic station data in this publication were collected aboard the USC&GS ship *Pioneer*, processed, checked, and coded by personnel of the U.S. Coast and Geodetic Survey, and printed from 80-column Hollerith punch cards prepared by the National Oceanographic Data Center. The code tables used in coding certain information appear in *Processing Physical and Chemical Data from Oceanographic Stations*, National Oceanographic Data Center, Manual Series, Publication M-2, Revised August 1964. An explanation of the column headings and entries that appear in the data listings follows. Abbreviations of organizations used in the explanations are: NODC, National Oceanographic Data Center; ICES, International Council for the Exploration of the Sea (Denmark); and, WMO, World Meteorological Organization.

### ENTRIES IN TOP ROW OF DATA LISTINGS

<i>Entry</i>	<i>Explanation</i>
Reference.....	NODC Reference Identity Number: The NODC Publication C-1, <i>Reference Sources of Oceanographic Station Data</i> , gives complete bibliographic and other pertinent information about each cruise.
Country code.....	NODC country code: This numerical and alphabetical code system designates the nationality of the institution or agency conducting the survey or expedition.
Identity number.....	An archive reference number assigned by NODC for storage-retrieval purposes.
Ship code.....	NODC alphabetical designation of ship names, or ICES numerical ship code, if available.
Latitude.....	In degrees, minutes, and tenths of minutes N or S.
Longitude.....	In degrees, minutes, and tenths of minutes, E or W.
Drift indicator.....	The letter D appears in this column whenever extensive drift occurred while on station.
Marsden square.....	According to Marsden square system:
10°	3-digit Marsden square number, and
1°	2-digit one-degree square number.
Station time (GMT).....	Greenwich Mean Time when station was occupied, using 2-digit entries for month and day and 3-digit entry for the hour and fraction thereof, to the nearest tenth of an hour.
Year.....	4-digit year designation.
Originator's.....	This double entry refers to the originator's alphabetical
Cruise number	and/or numerical cruise designation and station numbering
Station number	system. If the year of the cruise forms part of the cruise
	numbering system, the year appears in the preceding entry.
Depth to bottom.....	Corrected or uncorrected sounding in meters. (Read A in first column as 10.)
Max. depth of samples...	Depth of deepest sample in hundreds of meters to nearest hundred-meter interval. Example: 4983=50.
Wave observations:	
Dir.....	Direction from which the dominant waves are arriving, in tens of degrees, according to WMO Code 0885.
Hgt.....	Height of dominant waves according to WMO Code 1555.
Per.....	Period of dominant waves according to WMO Code 3155.

ENTRIES IN TOP ROW OF DATA LISTINGS—Continued

<i>Entry</i>	<i>Explanation</i>
Sea amt.....	Sea amount, or sea state, according to WMO Code 3700 (preceded by letter A).
Weather code.....	Weather according to WMO Code 4501 if preceded by the letter X; or according to WMO Code 4677 if a 2-digit entry is used.
Cloud codes:	
Type.....	Cloud type according to WMO Code 0500.
Amt.....	Cloud amounts in eighths according to WMO Code 2700.
NODC station number...	This number is assigned by NODC for data storage and retrieval purposes. The reference (first entry on sheet) and NODC station number combined uniquely define each station in the NODC archives.

ENTRIES IN CENTER ROW OF DATA LISTING

<i>Entry</i>	<i>Explanation</i>
Water:	
Color code.....	Water color according to Forel-Ule Code.
Trans. (m).....	Transparency in meters as determined by Secchi disc.
Wind:	
Dir.....	Direction from which the wind is blowing in tens of degrees according to WMO Code 0877.
Speed or force.....	Wind speed in knots if preceded by letter S, or wind force in Beaufort code if preceded by letter F.
Barometer (mbs).....	Pressure in millibars, only tens, units, and tenths are shown.
Air temp. °C.:	
Dry bulb.....	Dry-bulb air temperature in degrees and tenths Celsius.
Wet bulb.....	Wet-bulb air temperature in degrees and tenths Celsius.
Vis. code.....	Visibility according to WMO Code 4300.
No. obs. depths.....	Number of observed levels (depths) comprising the station.
Special observations.....	(None.)

ENTRIES IN BOTTOM ROWS OF DATA LISTINGS

<i>Entry</i>	<i>Explanation</i>
Messenger time:	
Hr. $\frac{1}{10}$ .....	Greenwich Mean Time of messenger release, a 3-digit number giving hour and tenths of hour and repeated for each observed level. When multiple cast series extend past midnight, the messenger time is increased by 24 hours.
or	
Cast No.....	The number of the cast is omitted when a messenger time is given.
Card type.....	OBS—Observed (sampled) level. STD—Standard interpolated depth. Interpolation of temperature, salinity, and oxygen computed by a modified 3-point LaGrange formula.

## ENTRIES IN BOTTOM ROWS OF DATA LISTINGS—Continued

*Entry**Explanation*

\*STD—Standard depth values interpolated by the originator or hand-interpolated by NODC.

LIT—Interpolated standard depth values; original observed values not available.

*NOTE:* When a valid observed level coincides with a standard depth level, both the OBS and STD lines are given.

Depth(m)-----	Depth of sample or standard level in meters. An entry of tenths of meters appears as the fifth digit in the depth entry. Postscript T indicates a depth at which both a protected and an unprotected thermometer were used. Subscript Q indicates that the value is marked doubtful by the originator. A value designated as potentially implausible by NODC is marked with a P. Z indicates uncorrected "wire out" depth.
T °C-----	Temperature in degrees Celsius to hundredths; a thousandths place appears as a fifth numeral.
S ‰-----	Salinity in parts per thousand (ppt) to hundredths of ppt.
Sigma-t-----	Sea water density expressed as sigma-t ( $\sigma_t$ ) to hundredths (g/l-1000). When temperature and/or salinity is marked doubtful, P, Q, or * is suffixed to $\sigma_t$ .
Specific volume anomaly — $\times 10^7$ .	Specific volume anomaly in (cm <sup>3</sup> /gm) $\times 10^7$ . Appears at standard depths only.
$\Sigma\Delta D$ Dyn. M. $\times 10^3$ -----	Dynamic depth anomaly in dynamic meters $\times 10^3$ . Appears at standard depths only.
Sound velocity-----	In meters per second to tenths of a meter, according to Wilson's formula.
O <sub>2</sub> ml/L-----	Oxygen in ml/L to hundredths. Q indicates doubtful value as determined by either the originator or the NODC.
PO <sub>4</sub> -P $\mu$ g-at/L-----	Inorganic phosphate in microgram-atoms per liter of P to hundredths.
Total-P $\mu$ g-at/L-----	Total phosphorus in microgram-atoms per liter of P to hundredths.
NO <sub>2</sub> -N $\mu$ g-at/L-----	Nitrites in microgram-atoms per liter of N to tenths.
NO <sub>3</sub> -N $\mu$ g-at/L-----	Nitrates in microgram-atoms per liter of N to tenths.
SiO <sub>4</sub> -Si $\mu$ g-at/L-----	Silicates in microgram-atoms per liter of Si.
pH-----	pH to hundredths.

# Oceanographic Station Data Listings

REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	ORBIT INDICATOR	MARSDEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			WEATHER CODE	CLOUD CODES		NODC STATION NUMBER	
COUNTRY CODE	IDENTITY NUMBER					10"	1"	MONTH	DAY	HR. 1/10		CRUISE NUMBER	STATION NUMBER			DIR.	HGT.	PER.		SEA AMT.	TYPE		AMT.
31	201	PI	07002N	115212E		025	75	03	18	074	1964	442	001	1189	08	05			3	X1	1	6	0001
						WATER		WIND		BAROMETER		AIR TEMP. °C		VIS. CODE		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS					
						COLOR CODE	TRANS. (m)	DIR.	SPEED (KTS)	DRY BUB	WET BUB												
									09	S14	112	292	264	8									

MESSAGING TIME	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- $\sigma_{\theta}$	$\Sigma \Delta D$ DYN. M. $\times 10^2$	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P $\mu\text{g-at/l}$	TOTAL-P $\mu\text{g-at/l}$	NO <sub>3</sub> -N $\mu\text{g-at/l}$	NO <sub>2</sub> -N $\mu\text{g-at/l}$	SiO <sub>2</sub> -Si $\mu\text{g-at/l}$	pH $\mu\text{g-at/l}$	SCC
		STD	0000	2673	3428	2228	0055593	0000	15380	484							
074		OBS	0000	2673	3428	2228			15380	484							
074		OBS	0007	2642	3428	2238			15374	487							
		*STD	0010	2627	3428	2243	0054248	0055	15371	490							
074		OBS	0015	2609	3427	2248			15368	495							
		*STD	0020	2603	3426	2249	0053715	0109	15367	476							
074		OBS	0023	2595	3426	2251			15366	473							
		STD	0030	2559	3422	2259	0052740	0162	15358	461							
074		OBS	0039	2485	3421	2281			15342	442							
		STD	0050	2307	3433	2343	0044850	0260	15302	407							
074		OBS	0059	2212	3439	2374			15280	383							
		STD	0075	2173	3438	2384	0040966	0367	15272	348							
074		OBS	T0079	2161	3438	2388			15270	341							
		STD	0100	2083	3442	2412	0038415	0466	15253	311							
074		OBS	T0100	2083	3442	2412			15253	311							
065		OBS	T0101	2080	3446Q	2416Q				313							
074		OBS	T0122	2014	3446	2433			15239	285							
		STD	0125	1987	3447	2441	0035702	0559	15232	282							
		STD	0150	1805	3455	2493	0030781	0642	15185	262							
065		OBS	T0152	1794	3456	2497			15183	261							
		STD	0200	1654	3459	2533	0027177	0787	15149	247							
065		OBS	T0200	1654	3459	2533			15149	247							
065		OBS	T0249	1430	3455	2579			15087	239							
		STD	0250	1426	3455	2580	0022723	0912	15085	238							
065		OBS	T0298	1260	3451	2611			15038	208							
		STD	0300	1255	3451	2612	0019764	1018	15036	207							
065		OBS	T0399	1051	3447	2647			14981	170							
		STD	0400	1049	3447	2647	0016542	1199	14980	170							
		STD	0500	0890	3446	2673	0014167	1353	14938	161							
065		OBS	T0505	0883	3446	2674			14936	161							
		STD	0600	0774	3447	2692	0012469	1486	14911	160							
065		OBS	T0620	0753	3447	2695			14906	160							
		STD	0700	0672	3448	2707	0011056	1604	14888								
		STD	0800	0581	3451	2721	0009708	1708	14868								
065		OBS	T0832	0554	3452	2725			14863	182Q							

REFERENCE COUNTRY IDENTITY NUMBER	SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	MARS DEN SQUARE	STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODE	CLOUD CODES		NODC STATION NUMBER			
					10°	1'	MONTH		DAY	HR.			CRUISE NUMBER	STATION NUMBER	DIR.	HGT.		PER.	SEA AMT.		TYPE	AMT.	
31	201	PI	05513N	092326E	027	52	04	02	194	1964	442	002	4206	43	20				3	X1	2	1	0002
				WATER		WIND		BAROMETER		AIR TEMP. °C		NO. OBS. DEPTS.		SPECIAL OBSERVATIONS									
				COLOR CODE		DIR.		(mb)		DRY BULB		WET BULB		VIS. CODE									
				07		S06		095		278		256		7									

MESSANGER TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>3</sup>	Σ Δ D DYN. M. X 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l	SCC
194		STD	0000	2954	3421	2131	0064907	0000	15440	433							
		OBS	0000	2954	3421	2131			15440	433							
		STD	0010	2953	3421	2131	0064916	0065	15442	436							
		STD	0020	2952	3421	2132	0064925	0130	15443	438							
194		OBS	0020	2952	3421	2132			15443	438							
		STD	0030	2940	3425	2139	0064290	0194	15443	448							
194		OBS	0030	2940	3425	2139			15443	448							
		STD	0050	2456	3431	2297	0049178	0308	15338	272							
194		OBS	0050	2456	3431	2297			15338	272							
		STD	0075	2040	3470	2445	0035201	0413	15241	164							
194		OBS	0075	2040	3470	2445			15241	164							
		STD	0100	1842	3471	2496	0030334	0495	15190	128							
194		OBS	0100	1842	3471	2496			15190	128							
		STD	0125	1700	3499	2552	0025074	0565	15156	087							
194		OBS	T0125	1700	3499	2552			15156	087							
		STD	0150	1565	3504	2588	0021792	0623	15119	096							
194		OBS	T0150	1565	3504	2588			15119	096							
		STD	0200	1382	3503	2627	0018188	0723	15069	067							
194		OBS	T0200	1382	3503	2627			15069	067							
		STD	0250	1274	3504	2649	0016124	0809	15041	075							
194		OBS	0300	1184	3505	2668	0014479	0885	15019	079							
		STD	T0300	1184	3505	2668			15019	079							
194		OBS	0400	1092	3504	2684	0013119	1023	15003	069							
		STD	0500	1006	3503	2698	0011909	1149	14988	066							
194		OBS	T0500	1006	3503	2698			14988	066							
		STD	0600	0924	3502	2711	0010804	1262	14974	073							
194		OBS	0700	0850	3500	2722	0009934	1366	14963	083							
		STD	0800	0850	3500	2722			14963	083							
194		OBS	0800	0788	3498	2730	0009275	1462	14956	095							
		STD	0900	0731	3496	2736	0008706	1552	14950	108							
178		OBS	0919	0720	3493Q	2736Q			14950	108							
		STD	1000	0676	3494	2743	0008176	1636	14945	124							
178		OBS	T1118	0618	3492	2749	0007725	1716	14941	140							
		STD	1200	0590	3491	2752			14941	143							
178		OBS	1300	0545	3490	2756	0007408	1791	14944	153							
		STD	T1317	0536	3490	2757	0006960	1863	14942	169							
178		OBS	1400	0479	3488	2763			14942	172							
		STD	1500	0419	3485	2767	0006294	1929	14931	192							
178		OBS	T1516	0410	3485	2768	0005797	1990	14923	215							
		STD	1750	0313	3479	2773			14922	218							
178		OBS	T1815	0292	3478	2774	0005047	2125	14920	263							
		STD	2000	0254	3477	2776			14922	274							
178		OBS	T2314	0206			0004591	2246	14937	290							
		STD	2500	0191	3476	2781			298Q								
178		OBS	2807	0170	3475	2782	0004079	2463	14995	331							
		STD	3000	0162	3475	2782			15038	355							
178		OBS	T3296	0148	3474	2782	0003934	2663	15068	369							
178		OBS	T3539	0134	3473	2783			15113	390							
178		OBS	T3781	0118	3473	2784			15149	408							
		STD	4000	0116	3472	2783	0003724	3046	15185	424							
178		OBS	T4023	0116	3472	2783			15222	434							
		STD	4265Q	0115	3473	2784			15227	435							
178		OBS							433								

REFERENCE		SHIP CODE	LATITUDE ° ' /10	LONGITUDE ° ' /10	MARS DEN SQUARE	STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODES		CLOUD CODES		NODC STATION NUMBER
COUNTRY CODE	IDENTITY NUMBER					10"	1"	MONTH		DAY	HR. /10			CRUISE NUMBER	STATION NUMBER	DIR.	HST.	PER.	SEA AMT.	TYPE	AMT.	
31	201	PI	09160N	093577E	027	93	04	11	076	1964	442	003	38	00				0	X0	0		0003
		WATER		WIND		BAROMETER		AIR TEMP. °C		VIS. CODE		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS								
		COLOR CODE		DIR.		DRY BULB		WET BULB		VIS. CODE		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS								
				05		502		110		306		272		8								

MESSANGER TIME HR. /10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>3</sup>	SAD DYN. AL. X 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P ug-at/l	TOTAL-P ug-at/l	NO <sub>3</sub> -N ug-at/l	NO <sub>2</sub> -N ug-at/l	SiO <sub>2</sub> -Si ug-at/l	pH ug-at/l
		STD	0000	2977	3270	2010	0076505	0000	15429	455						
076		OBS	0000	2977	3270	2010			15429	455						
076		OBS	0009	2956	3273	2020			15427	462						
		STD	0010	2956	3284	2028	0074856	0076	15428	461						
076		OBS	0018	2950	3353	2082			15435	459						
		STD	0020	2946	3361	2089	0069040	0148	15436	460						
076		OBS	0027	2930	3384	2111			15436	462						
		STD	0030	2919	3386	2117	0066414	0215	15434	463						
076		OBS	0046	2858	3400	2147			15425	465						
		STD	0050	2688	3406	2207	0057830	0340	15389	404						
076		OBS	0069	2100	3431	2399			15251	199						
		STD	0075	2031	3437	2422	0037361	0459	15235	179						
076		OBS	0092	1873	3452	2474			15195	139						
		STD	0100	1830	3457	2489	0031064	0544	15185	132						
076		OBS	T0115	1751	3464	2513			15165	120						
		STD	0125	1698	3467	2528	0027354	0617	15151	113						
076		OBS	T0138	1635	3471	2546			15135	105						
		STD	0150	1585	3475	2561	0024338	0682	15122	099						
076		OBS	T0185	1457	3484	2596			15088	086						
		STD	0200	1417	3487	2607	0020066	0793	15078	083						
049		OBS	0250	1300	3495	2637	0017285	0886	15049	076						
		STD	T0287	1230	3499	2654			15032	074						
076		OBS	0300	1215	3500	2658	0015423	0968	15029	075						
		STD	T0378	1120	3504	2679			15009	077						
049		OBS	0400	1087	3504	2685	0013030	1110	15001	077						
		STD	0476	0986	3503	2702			14977	077						
076		OBS	0500	0951	3502	2707	0011051	1231	14968	081						
		*STD	T0574	0880	3501	2718			14954	089						
049		OBS	0600	0879	3501	2718	0010140	1337	14958	092						
		STD	T0663	0868	3501	2720			14964	094						
		STD	0700	0843	3500	2723	0009822	1436	14960	098						
		STD	0800	0779	3498	2731	0009135	1531	14952	110						
049		OBS	0900	0722	3496	2738	0008569	1620	14947	120						
		STD	T0945	0698	3495	2740			14944	125						
		STD	1000	0671	3494	2743	0008101	1703	14943	130						
		STD	1100	0627	3493	2748	0007667	1782	14942	140						
		STD	1200	0590	3492	2752	0007335	1857	14944	149						
		STD	1300	0558	3491	2756	0007073	1929	14947	157						
049		OBS	1400	0533	3489	2757	0006980	1999	14954	165						
		STD	T1415	0530	3489	2757			14955	166						
		STD	1500	0525	3488	2757	0007053	2069	14967							
		STD	1750	0509	3488	2759	0007098	2246	15003							
049		OBS	T1883	0500	3488	2760			15021							
049		OBS	2353Q	0492	3487	2760				185						
049		OBS	2824Q	0499	3487	2759				188						
049		OBS	3061Q	0500	3487	2759				185						
049		OBS	3298Q	0504	3488	2760				182						
049		OBS	3538Q	0507	3487	2759				188						
049		OBS	3776Q	0512	3488	2759				188						



REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	HAUSDEN SQUARE	STATION TIME (GMT)				YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			WEATHER CODE		CLOUD CODES		NODC STATION NUMBER	
COUNTRY CODE	IDENTITY NUMBER					10°	1°	MONTH	DAY		HR. 1/10	CRUISE NUMBER			STATION NUMBER	DIR.	HGT.	PER.	SEA AMT.	WEATHER CODE	TYPE		AMT.
31	201	PI	10060N	091089E	063	01	04	13	208	1964	442	004	3391	34	00			0	X0		0	0004	
				WATER		WIND		BAROMETER		AIR TEMP. °C		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS									
				COLOR TRANSM. (m)		DIR.		SPEED OF CURR.		(mba)		DRY BULB WET BULB		VIS. CODE									
						07		509		100		278 256		7									

MESSANGER TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- $\sigma_{\theta}$	$\Sigma \Delta D$ DYN. M. $\times 10^3$	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P $\mu\text{g-at/l}$	TOTAL-P $\mu\text{g-at/l}$	NO <sub>2</sub> -N $\mu\text{g-at/l}$	NO <sub>3</sub> -N $\mu\text{g-at/l}$	SiO <sub>2</sub> -Si $\mu\text{g-at/l}$	pH $\mu\text{g-at/l}$	SCC
208		STD	0000	2942	3278	2028	0074795	0000	15423	446							
		OBS	0000	2942	3278	2028			15423	446							
		STD	0010	2946	3278	2027	0074964	0075	15425	452							
191		OBS	0012	2947	3278	2026			15426	454							
208		OBS	0019	2932	3286	2037			15425	464							
		STD	0020	2934	3287	2037	0073970	0149	15425	463							
208		OBS	0029	2938	3298	2044			15429	454							
		STD	0030	2932	3299	2047	0073083	0223	15428	453							
208		OBS	0048	2848	3309	2083			15414	442							
		STD	0050	2845	3315	2088	0069237	0365	15414	442							
208		OBS	0072	2806	3378	2148			15416	436							
		*STD	0075	2780	3387	2163	0062125	0529	15412	423							
208		OBS	T0095	2238	3437	2365			15292	139							
		STD	0100	2153	3443	2394	0040167	0657	15272	130							
		*STD	0125	1760	3472	2517	0028414	0743	15170	092							
208		OBS	T0143	1581	3481	2566			15120	073							
		STD	0150	1540	3484	2578	0022711	0807	15109	070							
		STD	0200	1302	3497	2638	0017046	0906	15042	058							
191		OBS	T0210	1266	3499	2647			15031	057							
		STD	0250	1177	3500	2665	0014593	0985	15008	060							
208		OBS	0287	1115	3501	2677			14992	062							
		STD	0300	1105	3501	2679	0013339	1055	14991	062							
208		OBS	T0384	1046	3502	2691			14983	064							
		STD	0400	1036	3502	2692	0012282	1183	14983	065							
		STD	0500	0988	3502	2701	0011675	1303	14982	070							
191		OBS	T0506	0986	3502	2701			14982	070							
208		OBS	T0580	0964	3502	2705			14986	073							
		STD	0600	0949	3502	2707	0011222	1418	14984	074							
		STD	0700	0875	3500	2718	0010339	1525	14972	079							
208		OBS	T0777	0820	3498	2725			14964	086							
		STD	0800	0802	3498	2728	0009495	1625	14961	090							
		*STD	0900	0729	3496	2737	0008675	1715	14949	102							
191		OBS	T0998	0671	3494	2743			14943	121							
		STD	1000	0670	3494	2743	0008086	1799	14942	121							
		STD	1100	0629	3493	2748	0007696	1878	14943	130							
208		OBS	T1168	0600	3492	2751			14942	136							
		STD	1200	0584	3491	2752	0007321	1953	14941	142							
		STD	1300	0536	3489	2757	0006905	2024	14938	159							
		STD	1400	0490	3488	2761	0006446	2091	14936	176							
191		OBS	T1488	0452	3486	2764			14935	191							
		STD	1500	0446	3486	2765	0006089	2154	14934	193							
		STD	1750	0340	3482	2773	0005178	2295	14932	233							
191		OBS	T1976	0275	3479	2776			14942								
		STD	2000	0271	3479	2777	0004664	2418	14944	268							
191		OBS	T2219	0237	3477	2778			14966	294							
191		OBS	2462	0209	3476	2779			14996	306Q							
		*STD	2500	0205	3476	2780	0004265	2641	15001	316							
191		OBS	T2704	0186	3475	2780			15027	336							
191		OBS	T2947	0174	3475	2781			15064	344							
		STD	3000	0173	3475	2781	0004088	2850	15073	346							
191		OBS	T3190	0164	3474	2781			15102	360							
191		OBS	T3433	0136	3473	2783			15132	396							

REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	MARS DEN SQUARE	STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			WEATHER CODE	CLOUD CODES		MDC STATION NUMBER
COUNTRY CODE	IDENTITY NUMBER					10"	1"	MONTH		DAY	HR. 1/10			CRUISE NUMBER	STATION NUMBER	DIR.		WGT.	PER.	
31	201	PI	09563N	093448E	027	93	04	15	038	1964	442	005	4206	42	02					0005
		WATER		WIND		BAROMETER		AIR TEMP. °C		VIS. CODE		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS						
		COLOR CODE		TRANS. (m)		DIR.		SPEED OF FLOW		DRY BULB		WET BULB		8						
		04		S06		064		289		267		8								
MESSANGER TIME hr. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- $\times 10^3$	$\Sigma \Delta D$ DYN. ML $\times 10^3$	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P µg-at/l	TOTAL-P µg-at/l	NO <sub>2</sub> -N µg-at/l	NO <sub>3</sub> -N µg-at/l	SiO <sub>2</sub> -Si µg-at/l	pH µg-at/l	SCC			
		STD	0000	3005	3218	1962	0081157	0000	15430	462										
038		OBS	0000	3005	3218	1962			15430	462										
		STD	0010	2996	3225	1970	0080398	0081	15430	469										
038		OBS	0018	2988	3231	1977			15430	474										
		STD	0020	2968	3238	1989	0078591	0160	15427	462										
038		OBS	0027	2882	3267	2040			15413											
		STD	0030	2815	3289	2078	0070084	0235	15401	396										
038		OBS	0046	2512	3377	2240			15345	272										
		STD	0050	2452	3388	2266	0052161	0357	15333	232										
038		OBS	0068	2236	3424	2356			15286	063										
		STD	0075	2198	3428	2370	0042352	0475	15278	063										
038		OBS	0091	2094	3439	2407			15254											
		STD	0100	2002	3447	2437	0035992	0573	15232	065										
		STD	0125	1771	3467	2511	0029033	0654	15173	066										
038		OBS	T0137	1673	3475	2540			15147											
		STD	0150	1591	3479	2563	0024177	0721	15124	067										
		STD	0200	1328	3493	2630	0017846	0826	15050	069										
038		OBS	T0229	1214	3499	2657			15017											
		STD	0250	1186	3500	2663	0014759	0907	15011	072										
		STD	0300	1124	3502	2677	0013605	0978	14997	074										
038		OBS	T0367	1052	3504	2691			14983	077										
		STD	0400	1026	3504	2696	0011963	1106	14979	081										
		STD	0500	0954	3505	2709	0010881	1220	14969	092										
038		OBS	T0553	0920	3506	2715			14966	098										
		STD	0600	0897	3504	2717	0010213	1326	14 65	104										
		STD	0700	0847	3501	2723	0009812	1426	14962	117										
		STD	0800	0797	3498	2728	0009417	1522	14959	128										
038		OBS	T0842	0776	3497	2731			14958	103Q										
		STD	0900	0738	3496	2735	0008813	1613	14953	138										
		STD	1000	0680	3494	2742	0008235	1698	14946	146										
		STD	1100	0630	3492	2747	0007784	1778	14943	153										
		STD	1200	0589	3491	2752	0007394	1854	14943	158										
038		OBS	T1236	0576	3490	2753			14944	160										
		STD	1300	0555	3490	2755	0007103	1927	14946	162										
014		OBS	T1318	0551	3490	2756			14947	163										
		STD	1400	0539	3489	2756	0007066	1998	14956	166										
014		OBS	T1406	0538	3489	2756			14957	166										
		STD	1500	0525	3489	2758	0006980	2068	14967	167										
014		OBS	T1586	0514	3489	2759			14977	169										
		STD	1750	0497	3488	2761	0006922	2242	14998	173										
014		OBS	1770	0496	3488	2761			15001	181Q										
014		OBS	T1957	0489	3488	2761			15029	178										
		STD	2000	0490	3488	2761	0007080	2417	15037	179										
014		OBS	T2242	0492	3488	2761			15079											
		STD	2500	0493	3488	2761	0007637	2785	15123	183										
014		OBS	T2726	0494	3488	2761			15162	184										
		STD	3000	0500	3488	2760	0008249	3182	15212	184										
014		OBS	T3213	0503	3488	2760			15250	184										
052		OBS	T3343	0504	3487	2759			15272	183										
014		OBS	3458	0504	3488	2760			15292	181										
052		OBS	3592	0507	3487	2759			15317	181										
014		OBS	3703	0509	3487	2758			15337	190Q										
052		OBS	T3841	0512	3487	2758			15362	184										
014		OBS	T3948	0512	3487	2758			15381	180										
		STD	4000	0512	3487	2758	0009491	4069	15390	181										
052		OBS	T4091	0512	3488	2759			15406	183										
014		OBS	T4193	0516	3487	2757			15425	184										

REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	DATE INDICATOR	MARS DEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODE	CLOUD CODES		NODC STATION NUMBER
COUNTRY CODE	IDENTITY NUMBER					10°	1°	MONTH	DAY	HR. 1/10		CRUISE NUMBER	STATION NUMBER			DIR.	HGT.	PER.	SEA AMT.		TYPE	AMT.	
31	201	PI	12491N	093583E	063	23	04	20	057	1964	442	006	2151	21	34				2	X0	0		0006
WATER		WIND		BAROMETER		AIR TEMP. °C		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS													
COLOR		TRANS. (m)		DIR.		SPEED & FORCE		(mbs)		DRY BULB		WET BULB		VIS. CODE									
						34		S09		085		289		278		8							

MESSANGER TIME HR. 1/10	CASST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- $\sigma_{\theta}^t$	$\frac{\Delta \rho}{\rho}$ DYN. M. $\times 10^3$	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P $\mu\text{g-at/l}$	TOTAL-P $\mu\text{g-at/l}$	NO <sub>3</sub> -N $\mu\text{g-at/l}$	NO <sub>2</sub> -N $\mu\text{g-at/l}$	SiO <sub>2</sub> -Si $\mu\text{g-at/l}$	pH $\mu\text{g-at/l}$	SCC
		STD	0000		3208					435							
057		OBS	0000		3208					435							
057		OBS	0008	3068	3208	1933			15443	441							
		STD	0010	3064	3211	1936	0083644		15443	444							
057		OBS	0017	3049	3219	1948			15442	459							
		STD	0020	3012	3222	1962	0081177		15435	471							
057		OBS	0025	2966	3227	1982			15426	482							
		STD	0030	2963	3242	1994	0078181		15428	478							
057		OBS	0034	2928	3262	2021			15424	474							
057		OBS	0042	2772	3320	2116			15397	429							
		STD	0050	2605	3351	2192	0059289		15364	340							
057		OBS	0063	2378													
		STD	0075	2234	3427	2359	0043389		15287	138							
057		OBS	T0084	2128	3446	2403			15263	092							
		STD	0100	1917	3460	2469	0032943		15210	090							
		STD	0125	1669	3476	2542	0026046		15144	081							
057		OBS	T0128	1646	3477	2548			15137	079							
		STD	0150	1559	3483	2573	0023192		15115	059							
057		OBS	T0172	1476	3488	2595			15093	045							
		STD	0200	1351	3494	2626	0018226		15058	051							
		STD	0250	1196	3501	2662	0014870		15014	059							
057		OBS	T0261	1174	3502	2667			15009	060							
		STD	0300	1138	3502	2674	0013857		15002	061							
045		OBS	T0314	1126	3502	2676			15000	062							
		STD	0400	1060	3503	2689	0012627		14991	066							
045		OBS	T0405	1056	3503	2690			14991	066							
045		OBS	T0496	0996	3503	2700			14984	072							
		STD	0500	0995	3503	2700	0011721		14984	072							
045		OBS	T0588	0952	3502	2707			14983	079							
		STD	0600	0944	3502	2708	0011138		14982	080							
045		OBS	T0681	0886	3500	2716			14973	088							
		STD	0700	0868	3499	2718	0010298		14970	090							
		STD	0800	0784	3497	2729	0009286		14954	103							
045		OBS	T0867	0736	3495	2735			14946								
		STD	0900	0716	3494	2737	0008624		14944	116							
		STD	1000	0660	3493	2744	0008011		14938	129							
045		OBS	T1054	0634	3492	2747			14937	136							
		STD	1100	0615	3492	2749	0007565		14937	142							
045		OBS	1149		3491					148							
		STD	1200	0579	3490	2752	0007322		14939	151							
		STD	1300	0551	3490	2756	0007045		14944	156							
045		OBS	1387	0531	3489	2757			14951	160							
		STD	1400	0529	3489	2758	0006923		14952	161							
		STD	1500	0515	3489	2759	0006836		14963	166							
045		OBS	1627	0504	3488	2760			14980	169							
		STD	1750	0502	3488	2760	0006995		15000	167							
045		OBS	T1869	0501	3488	2760			15019	165							
		STD	2000	0502	3488	2760	0007262		15042	169							
045		OBS	T2113	0502	3488	2760			15061	175							

REFERENCE		SHIP CODE	LATITUDE * * 1/10	LONGITUDE * * 1/10	MARS DEN- SIFICATION	MARS DEN SQUARE		STATION TIME (GMT)		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODE	CLOUD CODES		NODC STATION NUMBER		
COUNTRY CODE	IDENTITY NUMBER					10"	1"	MONTH	DAT		HR. 1/10	CRUISE NUMBER			STATION NUMBER	DIR.	RET.	PER.		SEA AMT.	TYPE		AMT.	
31	201	PI	04578N	084125E		028	44	05	26	097	1964	442	007	3959	33	25							0007	
						WATER		WIND		BAROMETER		AIR TEMP. °C		NO. OFS. DEPTHS		SPECIAL OBSERVATIONS								
						COLOR CODE	TRANS. (m)	DIR.	SPEED (KNOTS)	DIR. (mbs)	DRY BULB	WET BULB	WET BULB	WET BULB										
								25	S25	051	278	256	8											

MESSENGER TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>3</sup>	± Δ D DYN. M. X 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>2</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l	SCC
		STD	0000	2853	3388	2140	0064044	0000	15415	462							
097		OBS	0000	2853	3388	2140			15415	462							
097		OBS	0008	2853	3387	2139			15417	464							
		STD	0010	2852	3387	2140	0064124	0064	15417	460							
097		OBS	0015	2851	3387	2140			15417	452							
		STD	0020	2851	3387	2140	0064133	0128	15418	452							
097		OBS	0027	2850	3388	2141			15419	452							
		STD	0030	2848	3391	2144	0063791	0192	15420	452							
097		OBS	0039	2827	3411	2166			15419	449							
		STD	0050	2764	3477	2236	0055062	0311	15414	447							
097		OBS	0060	2684	3515	2290			15402	431							
		STD	0075	2512	3524	2351	0044199	0435	15366	374							
097		OBS	0083	2421	3525	2379			15346	340							
		*STD	0100	2226	3513	2426	0037060	0537	15299	255							
097		OBS	T0105	2173	3511	2440			15286	338Q							
		*STD	0125	1983	3509	2489	0031116	0622	15238	099							
097		OBS	T0127	1966	3509	2494			15234	102							
		*STD	0150	1829	3510	2530	0027362	0695	15199	096							
097		OBS	T0171	1703	3510	2560			15165	105							
		STD	0200	1522	3504	2597	0021018	0816	15114	079							
097		OBS	T0211	1464	3503	2609			15097	075							
097		OBS	T0245	1320	3506	2642			15056	081							
		STD	0250	1304	3507	2646	0016486	0910	15052	092							
107		OBS	T0266	1261	3509	2656			15040	120							
		STD	0300	1213	3508	2664	0014800	0988	15029	144							
107		OBS	T0317	1192	3508	2669			15025	150							
		STD	0400	1112	3507	2683	0013258	1128	15010	104							
107		OBS	0420	1094	3507	2686			15007	096							
		STD	0500	1027	3504	2696	0012199	1255	14996	080							
107		OBS	0532	0998	3503	2700			14991	075							
		STD	0600	0930	3502	2710	0010904	1371	14977	068							
107		OBS	0652	0883	3501	2717			14968	066							
		STD	0700	0848	3500	2722	0009902	1475	14962	072							
		STD	0800	0779	3498	2731	0009135	1570	14952	086							
		STD	0900	0717	3496	2738	0008493	1658	14945	101							
107		OBS	T0946	0690	3495	2741			14941	108							
		STD	1000	0666	3494	2744	0008027	1741	14941	118							
		STD	1100	0620	3491	2748	0007711	1820	14939	136							
		STD	1200	0574	3489	2752	0007324	1895	14937	155							
068		OBS	T1268	0542	3488	2755			14935	168							
		STD	1300	0527	3488	2757	0006851	1966	14934	176							
068		OBS	T1345	0514	3489Q	2759Q			156Q								
		STD	1400	0480	3486	2761	0006454	2032	14932	196							
068		OBS	T1426	0467	3486	2762			14931	200							
		STD	1500	0427	3485	2766	0005905	2094	14926	204							
068		OBS	T1575	0394	3484	2769			14925	212							
068		OBS	T1723	0348	3482	2772			14930	242							
		STD	1750	0339	3482	2773	0005165	2232	14931	245							
068		OBS	1867	0306	3482	2776			14937								
		STD	2000	0277	3481	2778	0004596	2354	14947	269							
068		OBS	T2070	0264	3477Q	2776Q			275								
068		OBS	T2380	0223	3478	2780			14988	302							
		STD	2500	0208	3478	2781	0004160	2573	15002	318							
068		OBS	T2680	0190	3477	2782			15025	338							
		STD	3000	0170	3474	2781	0004117	2780	15071	358							
068		OBS	T3005	0170	3474	2781			15072								
068		OBS	T3350	0152	3473	2781			15124	359							

REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	MARS DEN SQUARE	STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				CLOUD CODES		NODC STATION NUMBER		
COUNTY CODE	IDENTITY NUMBER					TOP	TP	MONTH		DAY	HR. 1/10			CRUISE NUMBER	STATION NUMBER	DIR.	HGT.	PER.	SEA AMT.		WEATHER CODE	TYPE
31	201	PI	04009N	084148E	028	44	05	26	158	1964	442	008	4050	16	25			4	X1	8	3	0008

WATER		WIND		BAROMETER (mb-s)	AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS
COLOR CODE	TRANS. (m)	DIR.	SPEED (KTS)		DRY BULB	WET BULB			
		25	S23	071	278	256	7		

MEASUREMENT TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>3</sup>	∆ D DYN. AL X 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P µg-at/l	TOTAL-P µg-at/l	NO <sub>2</sub> -N µg-at/l	NO <sub>3</sub> -N µg-at/l	SiO <sub>2</sub> -Si µg-at/l	pH µg-at/l	SCC
158		STD	0000	2835	3408	2161	0062037	0000	15414	452							
158		OBS	0000	2835	3408	2161			15414	452							
158		OBS	0006	2834	3408	2161			15414	449							
		STD	0010	2836	3408	2161	0062109	0062	15416	447							
158		OBS	0013	2837	3408	2160			15416	446							
		STD	0020	2838	3408	2160	0062213	0124	15418	448							
158		OBS	0022	2838	3408	2160			15418	449							
		STD	0030	2838	3409	2161	0062182	0186	15419	448							
158		OBS	0032	2838	3410	2162			15420	448							
158		OBS	0048	2834	3416	2167			15422	449							
		STD	0050	2832	3426	2176	0060852	0309	15423	449							
158		OBS	T0064	2815	3481	2222			15428	440							
		STD	0075	2701	3502	2275	0051427	0450	15407	420							
158		OBS	0081	2638	3511	2302			15395								
158		OBS	T0098	2454	3524	2368			15356	358							
		STD	0100	2418	3524	2379	0041589	0566	15348	348							
		STD	0125	2050	3520	2480	0032018	0658	15258	236							
158		OBS	T0133	1962	3518	2502			15235	207							
170		OBS	T0145	1858	3518Q	2528Q				169							
		STD	0150	1785	3511	2541	0026249	0731	15186	142							
158		OBS	T0170	1601	3507	2582			15134	076							
170		OBS	T0181	1572	3507	2588			15127	069							
		*STD	0200	1500	3509	2606	0020186	0847	15108	080							
158		OBS	T0210	1452	3510	2617			15094	109							
170		OBS	T0220	1448	3511	2619			15095	118							
		STD	0250	1355	3510	2638	0017274	0941	15069	128							
170		OBS	T0298	1236	3509	2661			15037	136							
		STD	0300	1232	3509	2662	0015085	1022	15036	136							
170		OBS	0373	1126	3505	2679			15010	129							
		STD	0400	1110	3505	2682	0013369	1164	15009	123							
170		OBS	T0448	1076	3504	2687			15005								
		STD	0500	1022	3504	2696	0012112	1291	14994	105							
170		OBS	T0566	0960	3503	2706			14982	096							
		STD	0600	0938	3502	2709	0011037	1407	14980	094							
		STD	0700	0873	3501	2719	0010233	1513	14972	088							
		STD	0800	0807	3499	2728	0009501	1612	14963	082							
170		OBS	T0805	0804	3499	2728			14963	082							
		STD	0900	0735	3497	2737	0008694	1703	14952	094							
		STD	1000	0672	3495	2744	0008043	1787	14943	109							
170		OBS	1035	0652	3494	2746			14941	114							
		STD	1100	0626	3493	2748	0007652	1865	14942	125							
		STD	1200	0583	3491	2752	0007307	1940	14941	142							
170		OBS	T1283	0546	3490	2756			14939	156							
		STD	1300	0538	3490	2757	0006860	2011	14939	159							
		STD	1400	0491	3488	2761	0006460	2077	14936	177							
		STD	1500	0441	3486	2765	0006021	2140	14932	195							
170		OBS	T1613	0382	3483	2769			14926	216							

REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	TIME INFLATION	MARSDEN SQUARE	STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODE	CLOUD CODES		NODC STATION NUMBER		
COUNTRY CODE	IDENTITY NUMBER						MONTH	DAY	HR. 1/10		CRUISE NUMBER	STATION NUMBER			DIR.	NET	PER.	SEA AMT.		TYPE	AMT.			
31	201	PI	02530N	084144E		028	24	05	27	045	1964	442	009	4169	38	27								0009
							WATER		WIND		BAROMETER		AIR TEMP. °C		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS							
							COLOR	TRANS. (m)	DIR.	SPEED OF GALE	(mb)	DRY BULB	WET BULB	YS. CODE										
											086	278	256	7										
MESSANGER TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>2</sup>	Σ Δ D DYN. M. X 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>2</sub> -P ug-at/l	TOTAL-P ug-at/l	NO <sub>2</sub> -N ug-at/l	NO <sub>3</sub> -N ug-at/l	SiO <sub>2</sub> -Si ug-at/l	pH ug-at/l	SCC							
045		STD	0000	2864	3420	2160	0062092	0000	15421															
		OBS	0000	2864	3420	2160			15421															
		STD	0010	2864	3420	2160			15423															
045		OBS	0010	2864	3420	2160	0062133	0062	15423	449														
045		OBS	0019	2861	3420	2161			15423	449														
		STD	0020	2863	3420	2161			15424	446														
040		OBS	0020	2863	3420	2161	0062142	0124	15424	452														
040		OBS	0028	2859	3420	2162			15424	452														
		STD	0030	2861	3421	2162			15425	449														
040		OBS	0042	2864	3425	2164	0062047	0186	15426	449														
		STD	0050	2861	3449	2183			15429	449														
040		OBS	0056	2846	3465	2200	0060118	0309	15432	448														
040		OBS	T0068	2786	3493	2241			15431	443														
		STD	0075	2760	3495	2251			15423	425							004							
040		OBS	T0081	2708	3498	2270	0053747	0451	15419	417														
		STD	0100	2294	3518	2411			15409	405														
040		OBS	T0106	2204	3522	2439	0038551	0566	15317	327														
		STD	0125	2084	3527	2476			15295	310														
040		OBS	0134	2040	3528	2489	0032388	0655	15268	288														
		STD	0150	1995	3527	2500			15257	278														
040		OBS	0161	1956	3526	2509	0030204	0733	15248	262														
		STD	0200	1760	3516	2551			15239	250														
040		OBS	T0212	1685	3514	2568	0025464	0872	15188	171														
		STD	0250	1370	3510	2635			15167	284Q														
040		OBS	T0260	1314	3509	2645	0017574	0980	15074	120														
		STD	0300	1219	3509	2664			15057	117														
040		OBS	T0307	1204	3509	2667	0014840	1061	15031	131														
		*STD	0400	1088	3506	2686			15027	133														
		*STD	0500	0984	3503	2702	0012902	1200	15002	130							014							
		*STD	0600	0901	3502	2715	0011533	1322	14980	115														
014		OBS	T0684	0847	3501	2723	0010425	1432	14966	100														
		STD	0700	0839	3501	2724			14959	090														
014		OBS	T0763	0810	3501	2729	0009684	1532	14959	089														
		STD	0800	0794	3501	2731			14958	088														
014		OBS	T0847	0772	3500	2734	0009150	1626	14958	089														
		STD	0900	0746	3499	2737			14958	091														
		STD	1000	0693	3497	2743	0008717	1716	14956	097														
014		OBS	T1024	0680	3496	2744	0008211	1800	14952	110														
		STD	1100	0634	3494	2748			14951	114														
		STD	1200	0577	3490	2752	0007697	1880	14945	128							054							
014		OBS	T1203	0575	3490	2753	0007294	1955	14938	146														
		STD	1300	0523	3488	2757			14938	147														
014		OBS	T1361	0492	3487	2760	0006795	2025	14933	166														
		STD	1400	0472	3486	2762			14930															
		STD	1500	0425	3485	2766	0006344	2091	14928	184														
014		OBS	1604	0381	3483	2769	0005878	2152	14925	203														
		STD	1750	0329	3481	2773			14924	221														
		STD	2000	0261	3478	2777	0005108	2289	14927	248							082							
014		OBS	T2005	0260	3478	2777	0004608	2411	14940	285														
014		OBS	2417	0210	3475	2779			14940	286														
		STD	2500	0203	3475	2779			14988	325							094							
014		OBS	T2845	0177	3474	2780	0004311	2634	15000	328														
		STD	3000	0168	3474	2781			15047	343														
014		OBS	T3300	0154	3473	2781	0004089	2844	15070	353							085							
014		OBS	T3783	0140	3472	2781			15116	368														
									15195	381							097							



REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	DRIFT INDICATOR	MARDEN SQUARE		STATION TIME (GMT)				YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODE	CLOUD CODES		NODC STATION NUMBER		
COUNTRY CODE	IDENTITY NUMBER					10"	1"	MONTH	DAY	HR. 1/10	CRUISE NUMBER		STATION NUMBER	DIR.			HGT.	PER.	SEA AMT.	TYPE		AMT.				
31	201	PI	02262N	084060E		028	24	05	27	076	1964	442	010	4233	18	27			3	X1	8	2		0010		
						WATER		WIND		BAROMETER		AIR TEMP. °C		VIS.		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS								
						COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE	(mbs)	DRY BULB	WET BULB														
											25	S21	054	283	261	8										
MESSANGER TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY - X10 <sup>3</sup>	Σ Δ Δ D DYN. M. X 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P ug-at/l	TOTAL-P ug-at/l	NO <sub>2</sub> -N ug-at/l	NO <sub>3</sub> -N ug-at/l	SiO <sub>2</sub> -Si ug-at/l	pH ug-at/l	SCC									
076		STD	0000	2882	3436	2166	0061515	0000	15427	452																
		OBS	0000	2882	3436	2166			15427	452																
076		OBS	0006	2881	3436	2167			15428	439																
		STD	0010	2881	3436	2167	0061524	0062	15428	446																
076		OBS	0012	2881	3436	2167			15429	449																
		STD	0020	2878	3436	2168	0061469	0123	15429	449																
076		OBS	0022	2877	3436	2168			15429																	
		STD	0030	2875	3436	2169	0061415	0184	15430	448																
076		OBS	0031	2875	3436	2169			15430	448																
076		OBS	0046	2876	3437	2169			15433	443																
		STD	0050	2873	3443	2175	0060930	0307	15434	447																
076		OBS	0061	2866	3460	2190			15436	449																
		STD	0075	2811	3485	2227	0056057	0453	15429	437																016
076		OBS	T0075	2811	3485	2227			15429	437																
076		OBS	T0087	2750	3492	2252			15419	419																
		STD	0100	2509	3507	2339	0045433	0580	15368	361																
076		OBS	T0112	2314	3517	2404			15323																	
		STD	0125	2138	3522	2458	0034158	0679	15281	266																
076		OBS	T0140	1966	3524	2505			15238	220																
		STD	0150	1884	3521	2524	0027890	0757	15216	193																
076		OBS	T0180	1664	3514	2572			15156	136																
		STD	0200	1524	3512	2603	0020478	0878	15116	137																
086		OBS	T0240	1332	3510	2642			15060	139																
		STD	0250	1312	3510	2646	0016423	0970	15055	141																
086		OBS	T0278	1256	3509	2657			15040	148																
		STD	0300	1213	3508	2664	0014800	1048	15029	159																
086		OBS	T0312	1192	3508	2669			15024																	
086		OBS	T0388	1102	3505	2683			15004	172																
		STD	0400	1093	3505	2685	0013064	1187	15003	159																
086		OBS	0460	1044	3505	2693			14996	138Q																022
		STD	0500	1010	3505	2699	0011832	1312	14990	087																
086		OBS	0538	0978	3504	2704			14984	075																
		STD	0600	0924	3502	2711	0010804	1425	14974	084																
086		OBS	0650	0883	3501	2717			14967	091																
		STD	0700	0853	3500	2721	0009982	1529	14964	093																
		STD	0800	0796	3498	2728	0009401	1626	14959	098																
		STD	0900	0739	3496	2735	0008829	1717	14953	106																
		STD	1000	0685	3495	2742	0008237	1802	14948	117																
		STD	1100	0632	3493	2748	0007740	1882	14944	129																
086		OBS	1139	0612	3492	2749			14942	135																
		STD	1200	0580	3491	2753	0007264	1957	14939	147																071
		STD	1300	0529	3489	2758	0006806	2028	14935	166																
		STD	1400	0482	3487	2761	0006409	2094	14933	185																
086		OBS	T1464	0454	3486	2764			14932	196																
		STD	1500	0439	3485	2765	0006067	2156	14931	202																
		STD	1750	0345	3481	2771	0005317	2298	14933	243																
086		OBS	T1836	0318	3480	2773			14936	256																094

REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	WAVE INDICATOR	MARS DEN SQUARE		STATION TIME (GMT)				YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			WEATHER CODE	CLOUD CODES		NODC STATION NUMBER
COUNTRY CODE	IDENTITY NUMBER					10"	1"	MONTH	DAY	HR.	1/10		CRUISE NUMBER	STATION NUMBER			DIR.	HGT.	PER.		SEA AMT.	TYPE	

31	201	PI	01558N	084151E	028	14	05	27	128	1964	442	011	4270	32	25		4	X1	3	2		0011
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WATER		WIND		BAROMETER		AIR TEMP. °C		NO. OBS. DEPTH	SPECIAL OBSERVATIONS
COLOR CODE	TRANS. (m)	DIR.	SPEED KNOTS	(mbs)	DRY BULB	WET BULB	WTS. CODE		

			25	S10	09	278	261	7	
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MESSAGE NO.	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>7</sup>	Δ Δ Δ DYN. M. X 10 <sup>4</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>2</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l	SCC
128		STD	0000	2882	3433	2164	0061730	0000	15426	441							
		OBS	0000	2882	3433	2164			15426	441							
		STD	0010	2879	3434	2166	0061604	0062	15428	446							
128		OBS	0010	2879	3434	2166			15428	446							
128		OBS	0017	2884	3434	2164			15430	444							
		STD	0020	2883	3434	2165	0061772	0123	15430	445							
128		OBS	0025	2882	3435	2166			15431	446							
		STD	0030	2881	3435	2166	0061678	0185	15431	446							
128		OBS	0038	2877	3436	2168			15432	446							
		STD	0050	2866	3468	2196	0058912	0306	15435	446							
128		OBS	0052	2863	3472	2200			15435	446							
		*STD	0075	2812	3488	2229	0055873	0449	15430	430							
128		OBS	T0078	2799	3491	2235			15428	425							
128		OBS	0092	2440	3510	2362			15350	343							
		STD	0100	2258	3520	2423	0037422	0566	15308	324							
128		OBS	0106	2152	3525	2456			15282	310							004
		*STD	0125	2055	3525	2482	0031785	0652	15260	268							
128		OBS	T0136	2004	3525	2496			15248	239							
		STD	0150	1850	3519	2531	0027213	0726	15206	188							
128		OBS	T0168	1671	3513	2570			15156	132							
		*STD	0200	1470	3512	2615	0019337	0842	15098	136							
		*STD	0250	1300	3510	2649	0016189	0931	15051	143							
		*STD	0300	1198	3508	2667	0014519	1008	15024	150							
140		OBS	T0347	1127	3507	2680			15007	156							
		STD	0400	1084	3506	2687	0012831	1145	15000	143							
140		OBS	T0489	1012	3504	2698			14989	123							
		STD	0500	1002	3504	2700	0011767	1268	14987	120							
		STD	0600	0921	3503	2713	0010681	1380	14973	101							
140		OBS	T0640	0891	3503	2718			14969	096							040
		STD	0700	0852	3502	2723	0009820	1482	14964	095							
140		OBS	T0793	0793	3500	2730			14957	093							
		STD	0800	0789	3500	2731	0009144	1577	14956	094							
		STD	0900	0731	3497	2737	0008633	1666	14950	104							
		STD	1000	0674	3495	2744	0008072	1750	14944	115							
140		OBS	T1033	0656	3494	2745			14942	118							
		STD	1100	0617	3493	2750	0007521	1828	14938	132							
		STD	1200	0562	3490	2754	0007080	1901	14932	153							
		STD	1300	0512	3489	2760	0006568	1969	14928	173							
		STD	1400	0465	3487	2763	0006175	2033	14926	192							
140		OBS	T1445	0446	3486	2765			14925	200							068
		STD	1500	0424	3485	2766	0005864	2093	14925	210							
		STD	1750	0339	3482	2773	0005165	2231	14931	252							
140		OBS	T1877	0303	3480	2774			14937								
		STD	2000	0274	3479	2776	0004703	2354	14945	288							
140		OBS	T2315	0219	3476	2779			14975	323							107
		STD	2500	0203	3475	2779	0004311	2579	15000	340							
140		OBS	T2758	0184	3477Q	2782Q			355								
		STD	3000	0169	3473	2780	0004175	2792	15071	357							
140		OBS	T3205	0159	3473	2781			15102	359							109

REFERENCE	SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	DRIFT INDICATOR	MARDEN SQUARE		STATION TIME (GMT)			ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				CLOUD CODES		NODC STATION NUMBER			
					10"	1"	MONTH	DAY	HR. 1/10	YEAR	CRUISE NUMBER			STATION NUMBER	DIR.	HGT.	PER.	SEA AMT.	WEATHER CODE		TYPE	AMT.	
31	201	PI	01257N	084092E	028	14	05	27	191	1964	442	012	4325	23	25					4			0012
					WATER		WIND		BAROMETER		AIR TEMP. °C		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS								
					COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE	BAROMETER (mb)		DRY BULB	WET BULB	VIS. CODE										
							25	S20	058	278	261	7											

MESSAGE NO. or RE. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>3</sup>	ΣΔΔ DYN. M. X 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l	SCC
191		STD	0000	2878	3434	2166	0061531	0000	15426	452							
		OBS	0000	2878	3434	2166			15426	452					004		
191		OBS	0005	2878	3434	2166			15427	449							
		STD	0010	2878	3434	2166	0061572	0062	15427	452							
191		OBS	0010	2878	3434	2166			15427	452							
		STD	0020	2881	3434	2165	0061709	0123	15430	448							
191		OBS	0020	2881	3434	2165			15430	448							
		STD	0030	2880	3435	2166	0061646	0185	15431	449							
191		OBS	0033	2880	3435	2166			15432	449							
191		OBS	0042	2882	3435	2166			15434	451							
		STD	0050	2882	3437	2167	0061648	0308	15435	452							
191		OBS	0052	2880	3439	2169			15435	452							
191		OBS	0062	2864	3457	2188			15435	452							
191		OBS	0072	2860	3486	2211			15439	452							
		STD	0075	2855	3486	2213	0057374	0457	15439	449							
191		OBS	0081	2848	3486	2215			15438	445							
191		OBS	T0090	2843	3486	2217			15439	448							
191		OBS	T0099	2828	3487	2223			15437	442					003		
		STD	0100	2814	3488	2228	0056038	0599	15434	439							
235		OBS	0120	2486	3500	2340			15365	380							
		STD	0125	2352	3512	2389	0040687	0720	15334	362							
235		OBS	T0139	2103	3530	2473			15275	313							
		STD	0150	2069	3528	2481	0032018	0810	15268	278							
235		OBS	0154	2042	3527	2487			15261	260							
235		OBS	0171	1839	3515	2531			15206	156							
235		OBS	0187	1629	3513	2580			15146	133							
		STD	0200	1376	3512	2635	0017410	0934	15068	165							
235		OBS	0200	1376	3512	2635			15068	165							
		STD	0250	1279	3511	2654	0015709	1017	15044	167							
		STD	0300	1193	3509	2669	0014353	1092	15022	168							
200		OBS	T0300	1193	3509	2669			15022	168							
200		OBS	T0389	1064	3504	2689			14991	151					016		
		STD	0400	1055	3504	2691	0012466	1226	14990	147							
200		OBS	T0486	0991					14980	117							
		STD	0500	0982	3504	2703	0011426	1346	14972	099							
200		OBS	T0585	0924	3503	2712			14970	099							
		STD	0600	0912	3503	2714	0010532	1455	14962	099							
200		OBS	T0684	0853	3502	2723			14962	098							
		STD	0700	0846	3502	2724	0009723	1557	14958	097							
217		OBS	T0781	0800	3501	2730			14954	098							
		STD	0800	0784	3500	2732	0009066	1651	14944	102							
217		OBS	0881	0722	3498	2739			14942	105							
		STD	0900	0711	3497	2740	0008329	1738	14937	121							
		STD	1000	0656	3494	2745	0007879	1819	14932	137							
		STD	1100	0603	3492	2751	0007391	1895	14929	150					064		
217		OBS	1177	0564	3490	2754			14928	155							
		STD	1200	0552	3489	2755	0007011	1967	14924	176							
		STD	1300	0503	3487	2759	0006590	2035	14923	197							
		STD	1400	0458	3486	2763	0006153	2099	14922	216							
		STD	1500	0416	3484	2766	0005830	2159	14926	254					076		
217		OBS	T1120	0338	3482	2773			259								
		STD	1750	0329					295								
		STD	2000	0264					329						089		
217		OBS	T2310	0217													

REFERENCE		SHIP CODE	LATITUDE * ' 1/10	LONGITUDE * ' 1/10	MARS DEN SQUARE	STATION TIME (GMT)				YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODE	CLOUD CODES		NODC STATION NUMBER	
COUNTRY CODE	IDENTITY NUMBER					10°	1°	MONTH	DAY		HR.	1/10			CRUISE NUMBER	STATION NUMBER	DIR.	HGT.		PER.	SEA AMT.		TYPE
31	201	PI	00589N	084291E	028	04	05	28	096	1964	442	013	4325	24	23			3	X1	1	3	0013	
						WATER		WIND		BAROMETER		AIR TEMP. °C		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS							
						COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE	(mb)	DRY BULB	WET BULB	VS. CODE										
										23	S15	112	278	261	7								
MESSANGER TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>7</sup>	Δ D DYN. M. X 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>2</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l	SCC						
096		STD	0000	2896	3442	2166	0061531	0000	15430	452													
		OBS	0000	2896	3442	2166			15430	452													
096		OBS	0009	2893	3442	2167			15431	452													
		STD	0010	2893	3442	2167	0061476	0062	15431	452													
096		OBS	0018	2891	3442	2168			15432	452													
		STD	0020	2891	3442	2168	0061453	0123	15433	452													
		STD	0030	2890	3442	2168	0061462	0184	15434	450													
096		OBS	0032	2890	3442	2168			15434	450													
096		OBS	0035	2888	3443	2170			15435	450													
096		OBS	0045	2890	3445	2171			15437	451													
		STD	0050	2895	3460	2180	0060412	0306	15440	451													
096		OBS	0067	2904	3492	2201			15448	451													
		STD	0075	2903	3495	2204	0058260	0455	15450	453													
096		OBS	T0081	2900	3496	2206			15450	454													
096		OBS	T0096	2882	3495	2211			15449	450													
		STD	0100	2882	3492	2209	0057907	0600	15449	449													
096		OBS	T0110	2848	3489	2218			15443	439								003					
		STD	0125	2704	3494	2268	0052295	0738	15415	406													
096		OBS	T0125	2704	3494	2268			15415	406													
096		OBS	T0140	2332	3514	2397			15332	341													
		STD	0150	2223	3515	2429	0037021	0849	15307	275													
104		OBS	T0175	1924	3516	2510			15231	164													
		STD	0200	1558	3514	2597	0021064	0994	15126	140													
104		OBS	T0208	1470	3513	2616			15100	136													
		STD	0250	1349	3510	2639	0017154	1090	15067	162													
104		OBS	T0277	1283	3509	2651			15049	172													
		STD	0300	1242	3509	2660	0015275	1171	15039	173													
104		OBS	T0355	1146	3507	2676			15015	176													
		STD	0400	1055	3504	2691	0012466	1310	14990	158													
104		OBS	T0465	0968	3502	2704			14968	140								028					
		STD	0500	0959	3502	2706	0011185	1428	14971	138													
042		OBS	T0559	0936	3501	2709			14972	132								036					
		STD	0600	0908	3501	2713	0010613	1537	14968	121													
042		OBS	T0683	0854	3501	2722			14962	106													
		STD	0700	0845	3501	2723	0009780	1639	14961	106													
		STD	0800	0792	3501	2731	0009118	1733	14958	106													
		STD	0900	0734	3499	2738	0008532	1822	14952	105													
042		OBS	T0900	0734	3499	2738			14952	105													
		STD	1000	0667	3496	2745	0007895	1904	14942	123													
		STD	1100	0605	3492	2750	0007420	1980	14933	141													
042		OBS	T1107	0601	3492	2751			14933									062					
		STD	1200	0549	3490	2756	0006896	2052	14927	159													
		STD	1300	0498	3488	2760	0006448	2119	14922	177													
042		OBS	T1316	0491	3488	2761			14922	180													
		STD	1400	0455	3486	2764	0006112	2182	14921	196													
		STD	1500	0417	3485	2767	0005771	2241	14922	215													
042		OBS	T1542	0402	3484	2768			14923	222								064					
		STD	1750	0345	3482	2772	0005244	2379	14934	253													
042		OBS	1815	0326	3481	2773			14936	263													
		STD	2000	0266	3479	2777	0004600	2502	14942	293													
042		OBS	T2055	0253	3478	2777			14946	302								076					
042		OBS	2215	0226	3476	2778			14961	329								070					
122		OBS	2423	0202																			

REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	MARS DEN SQUARE	STATION TIME (GMT)				YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODE	CLOUD CODES		NODC STATION NUMBER		
COUNTRY CODE	IDENTITY NUMBER					10"	1"	MONTH	DAY		HR.	1/10			CRUISE NUMBER	STATION NUMBER	DIR.	HGT.		PER.	SEA AMT.		TYPE	AMT.
31	201	PI	00290N	084062E	028	04	05	28	196	1964	442	014	4398	18	18		3	X1	8	2		0014		
						WATER		WIND		BAROMETER		AIR TEMP. °C												
						COLOR CODE	TRANS. (m)	DIR.	SPEED KTS	DRY BULB	WET BULB	VIS. CODE	NO. OBS. DEPTH	SPECIAL OBSERVATIONS										
									22	S10	078	267	256	8										
MESSANGER TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- $\times 10^7$	$\frac{\Delta \rho}{\rho}$ DYN. AL. $\times 10^3$	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P µg-at/l	TOTAL-P µg-at/l	NO <sub>2</sub> -N µg-at/l	NO <sub>3</sub> -N µg-at/l	SiO <sub>2</sub> -Si µg-at/l	pH µg-at/l	SCC							
		STD	0000	2899	3439	2163	0061842	0000	15431	451														
196		OBS	0000	2899	3439	2163			15431	451					002									
196		OBS	0007	2898	3440	2164			15432	456														
		STD	0010	2898	3440	2164	0061779	0062	15432	453														
196		OBS	0014	2899	3440	2164			15433	451														
		*STD	0020	2903	3442	2164	0061837	0124	15435	452														
196		OBS	0029	2912	3455	2171			15440	454														
		STD	0030	2914	3460	2174	0060939	0185	15441	453														
196		OBS	0036	2922	3479	2185			15446	451														
196		OBS	0043	2916	3481	2189			15446	451														
		STD	0050	2913	3481	2190	0059482	0305	15446	453														
196		OBS	0057	2911	3480	2190			15447	454														
196		OBS	T0072	2908	3484	2194			15449	454														
		STD	0075	2911	3489	2197	0058948	0453	15451	451														
245		OBS	T0078	2912	3493	2199			15452	450														
196		OBS	T0086	2908	3494	2201			15453	451														
245		OBS	T0094	2909	3496	2202			15454	451					002									
		STD	0100	2909	3496	2202	0058485	0600	15455	451														
196		OBS	T0101	2902	3496	2205			15454	451														
245		OBS	T0102	2893	3496	2208			15452	447														
245		OBS	T0111	2876	3497	2214			15450	445														
196		OBS	T0115	2862	3498	2220			15448	442														
245		OBS	T0119	2834	3495Q	2227Q				442														
		STD	0125	2763	3498	2252	0053829	0741	15428	422														
196		OBS	T0131	2638	3498	2292			15401	394														
245		OBS	0137	2458	3503	2351			15361	359														
245		OBS	T0149	1828	3513	2532			15199	143														
		STD	0150	1796	3513	2540	0026362	0841	15190	143														
245		OBS	T0166	1418	3511	2625			15076	146														
209		OBS	T0188	1335	3511	2643			15052	169														
245		OBS	T0189	1313	3510	2646			15045	170														
		STD	0200	1296	3510	2650	0015978	0947	15041	170														
245		OBS	T0218	1268	3509	2654			15035	170														
209		OBS	T0240	1236	3508	2660			15027	173														
		STD	0250	1220	3508	2663	0014805	1024	15023	176														
245		OBS	T0251	1219	3508	2663			15023	176														
		STD	0300	1174	3506	2670	0014221	1096	15015	190														
209		OBS	T0304	1170	3506	2671			15015	191														
209		OBS	T0376	1096	3503	2683			15000	182														
		STD	0400	1063	3501	2687	0012826	1232	14992	188														
209		OBS	0435	1022	3499	2693			14983	191														
		STD	0500	0970	3501	2703	0011443	1353	14975	170														
209		OBS	T0507	0965	3501	2704			14974															
209		OBS	0572	0922	3499	2709			14969	151														
		*STD	0600	0899	3499	2713	0010612	1463	14965	140					025									
		*STD	0700	0824	3498	2724	0009666	1565	14953	115														
		*STD	0800	0758	3497	2733	0008883	1657	14944	107														
		*STD	0900	0703	3497	2741	0008208	1743	14939	110														
209		OBS	T0995	0660	3496	2746			14938															
		*STD	1000	0659	3496	2746	0007776	1823	14938	115														
209		OBS	T1084	0628	3493	2748			14940	128														
		STD	1100	0616	3492	2749	0007580	1899	14937	132														
		STD	1200	0548	3490	2756	0006882	1972	14926	154														
		STD	1300	0488	3487	2761	0006384	2038	14918	176														
209		OBS	1300	0488	3487	2761			14918	176														
		STD	1400	0436	3485	2765	0005930	2100	14913	197														
		STD	1500	0392	3483	2768	0005586	2157	14911	218														
		STD	1750	0318	3480	2773	0005039	2290	14922	267														
209		OBS	T1795	0310	3480	2774			14926	275					074									

REFERENCE		SHIP CODE	LATITUDE ° ' /10	LONGITUDE ° ' /10	DRIFT HOURS	MARDEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			WEATHER CODES		CLOUD CODES		NODC STATION NUMBER					
COUNTRY CODE	IDENTITY NUMBER					10°	1°	MONTH	DAY	HR. /10		CRUISE NUMBER	STATION NUMBER			DIR.	HGT.	PER.	SEA AMT.	WEATHER CODE	TYPE	AMT.		TYPE	AMT.			
31	201	PI	00004N	084095E	028	04	05	29	092	1964	442	015	4435	44	22	3	3	X1	3	2			0015					
		WATER		WIND		BAROMETER		AIR TEMP. °C		VIS. CODE		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS														
		COLOR CODE		TRANS. (m)		DIR.		SPEED OF GALE		BAROMETER (mbs)		DRY BULB		WET BULB		VIS. CODE		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS								
						22		S11		068		278		256		8												
MESSNGER TIME HR. /10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>3</sup>	± Δ P DYN. M. X 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>3</sub> -N μg-at/l	NO <sub>2</sub> -N μg-at/l	SiO <sub>4</sub> -Si μg-at/l	pH μg-at/l	SC											
092		STD	0000	2914	3454	2169	0061246	0000	15435	445																		
		OBS	0000	2914	3454	2169			15435	445																		
092		OBS	0006	2913	3453	2169			15436	450																		
		STD	0010	2912	3454	2170	0061223	0061	15437	449																		
092		OBS	0012	2911	3454	2170			15437	448																		
		STD	0020	2906	3453	2171	0061143	0122	15437	450																		
092		OBS	0023	2905	3452	2171			15437	450																		
		STD	0030	2903	3454	2173	0061017	0183	15438	451																		
092		OBS	0037	2900	3456	2175			15439	451																		
092		OBS	0047	2907	3460	2176			15442	445																		
		STD	0050	2907	3461	2177	0060725	0305	15443	446																		
092		OBS	0058	2905	3464	2180			15444	448																		
092		OBS	0069	2900	3469	2185			15446	451																		
		STD	0075	2900	3472	2187	0059814	0456	15447	451																		
092		OBS	0079	2900	3474	2189			15448	451																		
092		OBS	T0090	2897	3483	2197			15450	448																		
092		OBS	T0099	2887	3492	2207			15450	453																		
		STD	0100	2885	3493	2208	0057931	0603	15450	452							000											
092		OBS	T0107	2872	3497	2216			15449	445																		
104		OBS	T0114	2858	3497	2220			15447	441																		
104		OBS	T0122	2754	3494	2252			15425	414																		
		STD	0125	2658	3499	2287	0050535	0739	15405	387																		
104		OBS	0140	2222	3519	2432			15305	275																		
		*STD	0150	2035	3517	2482	0031941	0842	15257	248																		
117		OBS	T0186	1323	3510	2644			15048	180																		
		STD	0200	1270	3510	2655	0015478	0960	15032	165																		
104		OBS	T0210	1239	3497Q	2651Q			158																			
		STD	0250	1208	3508	2665	0014581	1035	15019	190																		
061		OBS	T0280	1178	3507	2670			15014	202																		
		STD	0300	1149	3506	2675	0013764	1106	15007	198																		
104		OBS	T0352	1084	3502	2684			14992	188							016											
		STD	0400	1037	3499	2690	0012520	1238	14982	179																		
104		OBS	T0422	1018	3498	2692			14979								027											
		STD	0500	0969	3499	2702	0011573	1358	14974	160																		
104		OBS	T0587	0916	3500	2711			14969	143																		
		STD	0600	0911	3500	2712	0010736	1470	14969	140																		
104		OBS	T0697	0850	3500	2722			14963	120																		
		STD	0700	0846	3500	2722	0009870	1573	14961	119																		
104		OBS	0795	0754	3497	2734			14942	108																		
		STD	0800	0752	3497	2734	0008791	1666	14942	108																		
104		OBS	0898	0708	3495	2739			14941	112							050											
		STD	0900	0707	3495	2739	0008415	1752	14941	112																		
		STD	1000	0665	3493	2743	0008085	1835	14940	129																		
		STD	1100	0614	3491	2748	0007624	1913	14936	145																		
		STD	1200	0553	3489	2755	0007025	1986	14928	161																		
104		OBS	T1211	0546	3489	2755			14927	163																		
061		OBS	T1294	0488	3487	2761			14917	188							055											
		STD	1300	0486	3487	2761	0006357	2053	14917	189																		
		STD	1400	0446	3485	2764	0006064	2115	14917	207																		
		STD	1500	0409	3484	2767	0005737	2174	14919	224																		
		STD	1750	0330	3481	2773	0005121	2310	14927	262																		
104		OBS	T1797	0317	3480	2773			14929	268							062											
		STD	2000	0283	3479	2775	0004820	2434	14949	290																		
		STD	2500	0213	3477	2780	0004300	2662	15004	337																		
061		OBS	T2615	0200	3476	2780			15018	346																		
		STD	3000	0187	3475	2780	0004285	2877	15079	372																		
		STD	4000	0153	3472	2780	0004305	3307	15238	404																		
061		OBS	T4375	0140	3472	2781			15299	404																		



REFERENCE	SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	MARS DEN- SQUARE	STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			HEATHER CODE	CLOUD - CODES		NODC STATION NUMBER		
					10"	10"	MONTH		DAY	HR. 1/10			CRUISE NUMBER	STATION NUMBER	DIR.		HGT.	PER.		SEA AMT.	TYPE
COUNTRY CODE	IDENTITY NUMBER				10"	10"	MONTH	DAY	HR. 1/10												
31	201	PI	002805	084071E	327	04	05	29	152	1964	442	016	4453	24	18			3	X1		0016
				WATER		WIND		BAROMETER		AIR TEMP. °C		VIS. CODE		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS					
				COLOR CODE	TRANS. (m)	DIR.	SPEED OF GALE	(mba)	DRY BULB	WET BULB											
							20	516	078	278	261	8									
MESSAGE- TIME 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- $\sigma_{\theta}$	$\Sigma \Delta$ DYN. AL. $\times 10^3$	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P $\mu\text{g-at/l}$	TOTAL-P $\mu\text{g-at/l}$	NO <sub>2</sub> -N $\mu\text{g-at/l}$	NO <sub>3</sub> -N $\mu\text{g-at/l}$	SiO <sub>2</sub> -Si $\mu\text{g-at/l}$	pH $\mu\text{g-at/l}$	SCC				
152		STD	0000	2902	3467	2183	0059927	0000	15434	450											
		OBS	0000	2902	3467	2183			15434	450											
152		OBS	0005	2898	3467	2184			15434	452											
		STD	0010	2899	3466	2183	0059944	0060	15435	450											
152		OBS	0011	2899	3466	2183			15435	449											
		STD	0020	2903	3468	2183	0059970	0120	15438	445											
152		OBS	0021	2903	3468	2183			15438	444											
152		OBS	0026	2900	3468	2184			15438	447											
		STD	0030	2900	3467	2184	0059987	0180	15439	448											
152		OBS	0032	2900	3466	2183			15439	449											
152		OBS	0042	2902	3468	2184			15441	447											
		STD	0050	2900	3470	2186	0059854	0300	15442	449											
152		OBS	0052	2900					15442	450											
152		OBS	T0063	2904	3473	2187			15446	446											
152		OBS	T0073	2902	3474	2188			15447	446											
		STD	0075	2903	3474	2188	0059767	0449	15448	447											
152		OBS	T0083	2904	3475	2188			15449	449											
152		OBS	0094	2902	3466Q	2182Q			15449	449											
		STD	0100	2882	3481	2200	0058696	0597	15448	451											
176		OBS	T0105	2868	3483	2206			15446	452											
176		OBS	T0116	2847	3488	2217			15444	437											
		STD	0125	2763	3493	2248	0054188	0738	15428	420											
176		OBS	0126	2746	3494	2255			15424	416											
176		OBS	0137	2450	3503	2354			15359	335											
176		OBS	T0148	1796	3511	2538			15189	174											
		STD	0150	1726	3511	2555	0024877	0837	15169	168											
176		OBS	T0159	1468	3512	2615			15091	148											
176		OBS	T0189	1276	3509	2653			15033	177											
		STD	0200	1258	3508	2656	0015395	0938	15028	170											
176		OBS	T0222	1230	3507	2660			15022	169											
		STD	0250	1211	3507	2664	0014710	1013	15020	195											
176		OBS	T0256	1206	3507	2665			15019	200											
176		OBS	T0290	1178	3506	2670			15015	230											
		STD	0300	1167	3506	2672	0014092	1085	15013	225											
176		OBS	T0324	1139	3504	2675			15007	218											
176		OBS	T0358	1092	3501	2682			14995	220											
		STD	0400	1056	3501	2688	0012704	1219	14990	190											
163		OBS	T0423	1036	3501	2692			14986	177											
		STD	0500	0967	3500	2703	0011466	1340	14974	151											
163		OBS	T0535	0941	3499	2706			14970	144											
		STD	0600	0908	3500	2712	0010686	1451	14968	142											
163		OBS	T0647	0882	3500	2717			14966	138											
		STD	0700	0853	3499	2720	0010055	1555	14964	126											
163		OBS	T0761	0811	3498	2726			14958	117											
		STD	0800	0772	3497	2731	0009099	1650	14949	119											
163		OBS	T0871	0713	3496	2739			14938												
		STD	0900	0697	3495	2740	0008265	1737	14937	125											
163		OBS	T0982	0650	3493	2745			14931	129											
		STD	1000	0638	3492	2746	0007761	1817	14930	132											
163		OBS	1098	0581	3490	2752			14923	150											
		STD	1100	0580	3490	2752	0007209	1892	14923	150											
		STD	1200	0536	3488	2756	0006860	1962	14921	168											
163		OBS	1216	0528	3488	2757			14921	171											
		STD	1300	0484	3487	2761	0006329	2028	14917	185											
163		OBS	T1333	0468	3486	2762			14915	191											
		STD	1400	0441	3485	2764	0005997	2090	14915	204											
		STD	1500	0403	3484	2768	0005658	2148	14916	223											
163		OBS	T1702	0337	3481	2772			14922	257											
		STD	1750	0323	3480	2773	0005103	2283	14924	264											
		STD	2000	0266	3478	2776	0004672	2405	14942	297											
163		OBS	T2356	0222	3476	2778			14983	328											

REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	BRIEF DESCRIPTION	MAARSDEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODES		CLOUD CODES		NODC STATION NUMBER	
COUNTRY CODE	IDENTITY NUMBER					10"	1"	MONTH	DAY	HR. 1/10		CRUISE NUMBER	STATION NUMBER			DIR.	HGT.	PER.	SEA	WIND	TYPE	AMT.	TYPE		AMT.
31	201	PI	01038S	084000E	327	14	05	29	222	1964	442	017	4499	28	25				3	X1	6	4		0017	
						WATER		WIND		BAROMETER		AIR TEMP. °C		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS									
						COLOR CODE	TRANS. (m)	DIR.	SPEED OF GALE	DRY BULB	WET BULB	VIS. CODE													
									25	S12	071	267	250	8											

MESSANGER TIME of 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>7</sup>	± Δ D DYN. AL X 10 <sup>6</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l
		STD	0000	2888	3466	2187	0059551	0000	15431	440						
222		OBS	0000	2888	3466	2187			15431	440						
222		OBS	0005	2888	3466	2187			15432	446						004
		STD	0010	2889	3466	2187	0059624	0060	15433	446						
222		OBS	0010	2889	3466	2187			15433	446						
222		OBS	0019	2892	3467	2186			15435	452						
		STD	0020	2894	3469	2187	0059610	0119	15436	452						
222		OBS	0029	2900	3486	2198			15441	452						
		STD	0030	2899	3487	2199	0058519	0178	15441	452						
222		OBS	0038	2892	3494	2207			15441	452						
222		OBS	T0048	2884	3494	2209			15441	452						
		STD	0050	2883	3494	2210	0057588	0294	15441	451						
222		OBS	0057	2880	3493	2210			15442	450						
222		OBS	T0067	2878	3495	2212			15443	449						
		STD	0075	2876	3497	2214	0057253	0438	15444	446						
222		OBS	0077	2876	3497	2214			15445	444						
222		OBS	T0086	2813	3495	2234			15433	426						
222		OBS	T0091	2762	3495	2250			15422	416						
		STD	0100	2706	3496	2269	0052112	0575	15411	402						005
245		OBS	0104	2690	3496	2274			15409	398						
245		OBS	T0113	2675	3497	2280			15407	393						
245		OBS	T0123	2577	3499	2312			15386	368						
		STD	0125	2539	3502	2326	0046769	0698	15378	363						
245		OBS	T0132	2407	3509	2371			15349	347						
245		OBS	T0142	1584	3512	2589			15125	141						
		STD	0150	1516	3512	2605	0020159	0782	15105	164						
245		OBS	T0166	1403	3513	2630			15071	190						
245		OBS	T0190	1289	3509	2650			15037	183						
		STD	0200	1273	3509	2653	0015608	0871	15033	180						
245		OBS	0215	1258	3508	2656			15031	177						
245		OBS	T0239	1256	3508	2656			15034	174						
		STD	0250	1248	3508	2658	0015334	0949	15033	178						
245		OBS	T0264	1238	3508	2660			15032	183						
245		OBS	T0289	1223	3508	2663			15031	194						
		STD	0300	1217	3508	2664	0014875	1024	15030	201						
232		OBS	T0332	1190	3506	2667			15026	218						
		STD	0400	1063	3497	2684	0013119	1164	14992	228						
232		OBS	T0418	1036	3496	2688			14985	230						
		STD	0500	0949	3496	2703	0011458	1287	14966	169						017
232		OBS	T0506	0943	3496	2704			14965	166						
232		OBS	0595	0872	3498	2717			14954	138						
		STD	0600	0871	3498	2717	0010231	1395	14954	136						
232		OBS	0684	0858	3499	2720			14963	117						
		STD	0700	0847	3499	2721	0009959	1496	14962	117						
232		OBS	T0775	0792	3498	2729			14953							
		*STD	0800	0772	3498	2732	0009026	1591	14950	109						
232		OBS	T0867	0723	3496	2738			14941	114						
		STD	0900	0704	3495	2739	0008370	1678	14939	119						058
		STD	1000	0649	3492	2745	0007922	1760	14934	133						
232		OBS	1053	0620	3490	2747			14931	141						
		STD	1100	0593	3489	2750	0007467	1837	14928	149						
		STD	1200	0538	3487	2755	0006961	1909	14922	166						
		STD	1300	0489	3485	2759	0006544	1976	14918	182						
232		OBS	1335	0473	3484	2760			14918	188						
		STD	1400	0447	3484	2763	0006151	2040	14918	199						065
		STD	1500	0410	3483	2766	0005824	2100	14919	216						
		STD	1750	0330	3481	2773	0005121	2237	14927	257						
232		OBS	1809	0314	3480	2773			14930	266						
		STD	2000	0269	3478	2776	0004711	2359	14943	299						061
232		OBS	T2285	0219	3475	2778			14970	334						
		STD	2500	0195	3474	2779	0004277	2584	14996	349						
232		OBS	T2765	0182	3474	2780			15036	353						095

REFERENCE COUNTRY CODE	SHIP IDENTITY NUMBER	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	MARS DEN SQUARE	STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				CLOUD CODES		NODC STATION NUMBER							
					10'	MONTH	DAY		HR. 1/10	CRUISE NUMBER			STATION NUMBER	DIR.	HGT.	PER.	SEA AMT.	TYPE		AMT.						
31	201	PI	01292S	083596E	327	13	05	30	037	1964	442	018	4544	26	14			3.	X1	4	7		0018			
				WATER		WIND		BAROMETER		AIR TEMP. °C		VIS. CODE		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS										
				COLOR CODE		TRANS. (m)		DIR.		SPEED OR FORCE (mb-s)		DRY BULB		WET BULB		VIS. CODE		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS						
						20		S08		088		278		256		8				SPECIAL OBSERVATIONS						

MESSNGER TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- $\times 10^7$	$\Sigma \Delta D$ DYN. AL $\times 10^2$	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P $\mu\text{g-at/l}$	TOTAL-P $\mu\text{g-at/l}$	NO <sub>3</sub> -N $\mu\text{g-at/l}$	NO <sub>2</sub> -N $\mu\text{g-at/l}$	SiO <sub>2</sub> -Si $\mu\text{g-at/l}$	pH $\mu\text{g-at/l}$	SCC
037		STD	0000	2884	3467	2189	0059351	0000	15430	450							
037		OBS	0000	2884	3467	2189			15430	450							
037		OBS	0005	2883	3468	2190			15431	449							
037		STD	0010	2885	3468	2190	0059353	0059	15432	449							
037		OBS	0010	2885	3468	2190			15432	449							
037		OBS	0019	2886	3467	2188			15434	449							
037		STD	0020	2886	3471	2191	0059210	0119	15435	450							
037		OBS	0029	2885	3494	2209			15438	453							
037		STD	0030	2884	3494	2209	0057536	0177	15438	453							
037		OBS	0038	2872	3496	2215			15437	449							
037		OBS	0048	2856	3497	2221			15436	443							
037		STD	0050	2854	3497	2222	0056449	0291	15436	443							
037		OBS	0057	2848	3496	2223			15435	444							
037		OBS	0067	2845						429							
037		STD	0075	2816	3494	2232	0055568	0431	15431	426							
037		OBS	0076	2812	3494	2233			15431	425							
037		OBS	0086	2768	3497	2250			15423	425							
037		OBS	T0096	2756	3499	2255			15422	422							
055		STD	0100	2751	3501	2258	0053139	0567	15422	422							004
055		OBS	0104	2746	3502	2261			15422	422							
055		OBS	T0117	2633	3502	2297			15398	398							
055		STD	0125	2524	3503	2331	0046257	0691	15375	358							
055		OBS	T0126	2496	3503	2340			15368	352							
055		OBS	0134	2164	3518	2447			15289	304							
055		OBS	T0147	1552	3514	2598			15116	168							
055		STD	0150	1534	3514	2602	0020397	0774	15111	167							
055		OBS	T0169	1449	3513	2620			15087	162							
055		OBS	0196	1424	3512	2625			15083	166							
055		STD	0200	1408	3512	2628	0018058	0871	15078	170							
055		OBS	T0223	1338	3510	2641			15059	180							
055		STD	0250	1310	3510	2647	0016384	0957	15054	165							
055		OBS	T0250	1310	3510	2647			15054	165							
055		OBS	T0278	1296	3510	2650			15054	181							
055		STD	0300	1255	3508	2656	0015596	1037	15043	183							
055		OBS	T0303	1249	3508	2657			15042	183							
044		OBS	T0370	1111	3501	2678			15004	200							
044		STD	0400	1059	3497	2684	0013049	1180	14990	198							
044		OBS	T0476	0956	3493	2699			14965	194							020
044		STD	0500	0935	3495	2704	0011299	1302	14961	180							
044		OBS	T0572	0882	3498	2715			14954	150							
044		STD	0600	0867	3498	2717	0010167	1409	14953	146							
044		OBS	T0678	0827	3496Q	2722Q			14953	135							
044		STD	0700	0818	3498	2725	0009571	1508	14951	131							
044		OBS	0776	0782	3498	2731			14949	123							
044		STD	0800	0770	3497	2732	0009068	1601	14949	124							
044		OBS	T0883	0721	3494	2736			14943								
044		STD	0900	0706	3494	2738	0008473	1689	14940	130							
044		OBS	0990	0640	3491	2745			14929	135							052
044		STD	1000	0635	3491	2746	0007791	1770	14928	136							
044		OBS	T1092	0586					150								
044		STD	1100	0581	3488	2750	0007370	1846	14923	152							
044		OBS	1195	0522	3486	2756			14915	174							
044		STD	1200	0520	3486	2756	0006785	1916	14915	175							
044		STD	1300	0480	3485	2760	0006421	1982	14915	192							
044		STD	1400	0440	3484	2764	0006057	2045	14915	210							
044		STD	1500	0399	3483	2767	0005678	2104	14914	227							
044		OBS	1501	0399	3483	2767			14915	227							
044		STD	1750	0324	3481	2773	0005043	2238	14925	270							060
044		STD	2000	0265	3478	2776	0004659	2359	14941	304							
044		OBS	2033	0258	3478	2777			14944	308							085
044		STD	2500	0197	3475	2780	0004231	2581	14997	346							
044		OBS	T2585	0192	3475	2780			15009	350							075

REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	MARS DEN SQUARE	STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODE		CLOUD CODES		NODC STATION NUMBER	
COUNTRY CODE	IDENTITY NUMBER					1°	'	"		MONTH	DAY			HR. 1/10	CRUISE NUMBER	STATION NUMBER	DIR.	PER.	PER.	SEA AMT.	TYPE		AMT.
31	201	PI	01569S	084012E	327	14	05	30	085	1964	442	019	4599	24	20			4	X1	2	7		0019
						WATER		WIND		BAROMETER		AIR TEMP. °C		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS							
						COND.	TEMP.	DIR.	SPEED	(mbs)	DRY BALL	WET BALL	YS. CODE										
						CODE	(m)		(KTS)														
								25	S14	068	289	256	8										
MISSION NO.	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- $\times 10^3$	$\Sigma \Delta$ DYN. M. $\times 10^3$	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P ug-at/l	TOTAL-P ug-at/l	NO <sub>3</sub> -N ug-at/l	NO <sub>2</sub> -N ug-at/l	SiO <sub>2</sub> -Si ug-at/l	pH ug-at/l							
085		STD	0000	2898	3464	2182	0060014	0000	15433	447													
		OBS	0000	2898	3464	2182			15433	447													
		STD	0010	2882	3464	2188	0059544	0060	15431	447													
085		OBS	0010	2882	3464	2188			15431	447													
		STD	0020	2877	3464	2189	0059426	0119	15432	445													
085		OBS	0022	2876	3464	2189			15432	445													
		STD	0030	2876	3492	2211	0057425	0178	15436	447													
085		OBS	0031	2875	3494	2212			15437	447													
085		OBS	0044	2828	3497	2230			15429	447													
		STD	0050	2818	3498	2234	0055241	0290	15428	445													
085		OBS	T0067	2791	3499	2244			15425	438													
		STD	0075	2746	3500	2259	0052954	0426	15417	423													
085		OBS	T0090	2647	3501	2291			15397	393													
		*STD	0100	2586	3502	2311	0048059	0552	15385	385						002							
085		OBS	T0112	2468	3504	2349			15360	342													
		STD	0125	2006	3510	2484	0031622	0651	15244	222													
085		OBS	T0136	1717	3514	2560			15164	149													
		STD	0150	1673	3514	2570	0023452	0720	15154	147													
085		OBS	T0185	1558	3514	2597			15124	146													
		STD	0200	1501	3513	2609	0019916	0829	15108	149													
085		OBS	T0238	1375	3511	2634			15074	155													
		STD	0250	1343	3510	2640	0017035	0921	15065	177													
085		OBS	T0292	1240	3508	2659			15037	232													
		STD	0300	1222	3507	2662	0015043	1001	15032	229													
093		OBS	T0417	1040	3498	2689	0012645	1140	14983	198													
		STD	0500	0936	3493	2702	0011463	1260	14977	194													
093		OBS	T0532	0912	3492	2706			14961	180													
		STD	0600	0884	3495	2712	0010661	1371	14958	174						024							
093		OBS	T0651	0861	3497	2718			14959	155													
		STD	0700	0833	3496	2721	0009955	1474	14956	144													
		STD	0800	0776	3495	2729	0009308	1570	14951	135													
093		OBS	T0892	0722	3493	2735			14945	134													
		STD	0900	0717	3493	2736	0008713	1660	14944	135													
		STD	1000	0652	3491	2743	0008040	1744	14935	142													
093		OBS	T1100	0593	3489	2750	0007467	1822	14928	149													
		STD	1200	0538	3487	2755			14925	152													
		STD	1300	0488	3485	2759	0006961	1894	14922	168						062							
093		OBS	T1382	0450	3484	2763	0006530	1961	14918	192													
		STD	1400	0442	3484	2764			14916														
		STD	1500	0399	3482	2767	0006084	2024	14916	213													
		STD	1750	0311	3479	2773	0005751	2084	14914	233													
093		OBS	T1755	0310	3479	2773	0005022	2218	14919	276													
		STD	2000	0251	3477	2777			14919	277													
093		OBS	T2381	0211	3476	2779	0004553	2338	14935	308						079							
									14983	337						092							

REFERENCE COUNTRY IDENTITY NUMBER	SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	MARS DEN SQUARE	STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODE	CLOUD CODES		NODC STATION NUMBER					
					10°	1°	MINUTE		DAY	HR. 1/10			CRUISE NUMBER	STATION NUMBER	DIR.	HGT.		PER.	SEA AMT.		TYPE	AMT.			
31	201	PI	022835	084038E	327	24	05	30	131	1964	442	020	4544	46	18				3	X1	7	2			0020

WATER		WIND		BAROMETER (mbs)	AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTH	SPECIAL OBSERVATIONS
COLOR CODE	TRANS. (m)	DIR.	SPEED (KTS)		DRY BULB	WET BULB			
		20	S12	11	278	250	8		

MESSNGR TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>7</sup>	Σ Δ D DYN. M. X 10 <sup>7</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>2</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l	SCC
		STD	0000	2876	3457	2184	0059815	0000	15428	450							
131		OBS	0000	2876	3457	2184			15428	450							
		STD	0010	2875	3457	2185	0059824	0060	15429	435					003		
131		OBS	0010	2875	3457	2185			15429	435							
		STD	0020	2876	3459	2186	0059753	0120	15431	436							
131		OBS	0024	2876	3460	2186			15432	436							
		STD	0030	2868	3475	2200	0058391	0179	15433	437							
131		OBS	0048	2826	3505	2237			15430	441							
		STD	0050	2822	3505	2238	0054864	0292	15430	439							
133		OBS	0073	2727	3504	2268			15413	408							
		STD	0075	2717	3503	2271	0051845	0425	15411	405							
133		OBS	0097	2530	3502	2329			15371	354					004		
		STD	0100	2484	3507	2346	0044707	0546	15362	344							
133		OBS	0122	2155	3525	2455			15286	259							
		STD	0125	2105	3523	2467	0033222	0643	15273	239							
133		OBS	T0146	1812	3515	2538			15194	138							
		STD	0150	1786	3515	2544	0025982	0717	15187	139							
133		OBS	T0196	1528	3514	2604			15116	149							
		*STD	0200	1515	3514	2606	0020140	0833	15113	151							
133		OBS	*STD	0250	1352	3513	2641	0016995	0926	15068	217						
		STD	T0294	1200	3506	2665			15023	250							
148		OBS	0300	1175	3504	2669	0014386	1004	15016	241							
133		OBS	T0318	1114	3500	2677			14997	220							
		STD	T0393	1057	3497	2685			14988	214							
133		OBS	0400	1054	3497	2685	0012962	1141	14988	211							
		STD	T0493	0970	3493	2697			14973	1590							
148		OBS	0500	0959	3492	2698	0011918	1265	14970	176					030		
		STD	T0518	0932	3491	2702			14963	170							
148		OBS	0600	0866	3491	2712	0010665	1378	14951	145							
		STD	0700	0793	3491	2723	0009694	1480	14940	127							
148		OBS	T0718	0781	3491	2725			14939	125							
		STD	0800	0729	3491	2733	0008882	1573	14932	126					045		
148		OBS	0900	0672	3490	2740	0008261	1658	14926	130							
		STD	T0918	0662	3490	2741			14925	131							
148		OBS	1000	0628	3489	2745	0007836	1739	14925	138							
		STD	1100	0586	3488	2750	0007441	1815	14925	148							
148		OBS	1200	0544	3487	2754	0007045	1888	14924	159							
		STD	T1218	0536	3487	2755			14924	161					064		
148		OBS	1300	0493	3486	2759	0006526	1956	14920	179							
		STD	1400	0445	3484	2763	0006124	2019	14917	199							
148		OBS	1500	0402	3482	2766	0005791	2078	14916	218							
		STD	T1688	0334	3480	2772			14918						068		
148		OBS	1750	0318	3479	2772	0005112	2215	14922	260							
		STD	2000	0264	3477	2776	0004719	2338	14941	294							
148		OBS	T2175	0235	3476	2777			14958	313					099		
		STD	2500	0203	3475	2779	0004311	2563	15000	336							
148		OBS	T2663	0190	3474	2779			15022	345					062		
		STD	3000	0171	3473	2780	0004203	2776	15072	358							
148		OBS	T3151	0163	3473	2781			15094	363					088		
148		OBS	T3643	0140	3473	2782			15170	378							
		STD	4000	0139	3473	2782	0004013	3187	15233	388							
148		OBS	T4334	0137	3472	2782			15291	393							
148		OBS	T4630	0142	3472	2781			15345	395							

REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	MARS DEN SQUARE	STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			WEATHER CODE	CLOUD CODES		NODC STATION NUMBER		
COUNTRY CODE	IDENTITY NUMBER					1 <sup>st</sup>	2 <sup>nd</sup>	MONTH		DAY	HR. 1/10			CRUISE NUMBER	STATION NUMBER	DIR.		RET.	PER.		SEA AM.	TYPE
31	201	PI	03008S	083552E	327	33	05	30	212	1964	442	021	4663	25	22			4	X1	8	4	0021
		WATER		WIND		BAROMETER		AIR TEMP. °C		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS										
		COLOR		DIR.		(mbs)		DRY BULB		WET BULB												
		25		S12		078		272		250		8										

MESSAGE NO.	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>3</sup>	σ <sub>t</sub> Δ DYN. H. X 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l	SCC
212		STD	0000	2872	3462	2189	0059328	0000	15427	439							
		OBS	0000	2872	3462	2189			15427	439							
		STD	0010	2875	3480	2202	0058172	0059	15432	440							
		STD	0020	2877	3494	2212	0057271	0116	15435	442							
		STD	0030	2880	3504	2218	0056691	0173	15439	444							
212		OBS	0030	2880	3504	2218			15439	444							
		STD	0050	2759	3513	2265	0052321	0282	15417	450							
212		OBS	0050	2759	3513	2265			15417	450							
212		OBS	0070	2632	3499	2295			15390								
		STD	0075	2592	3501	2309	0048210	0408	15382	384							
212		OBS	0091	2452	3510	2358			15353	354							
		STD	0100	2365	3518	2390	0040523	0519	15334	342							
212		OBS	0101	2356	3519	2394			15332	340							
212		OBS	T0112	2270	3524	2422			15313	317							
212		OBS	T0122	2250	3522	2426			15310	314							008
		STD	0125	2179	3523	2447	0035172	0614	15292	288							
212		OBS	T0133	2054	3525	2483			15261	237							
212		OBS	T0144	2039	3525	2487			15258	206							
		STD	0150	2014	3525	2493	0030829	0696	15253	201							
212		OBS	T0155	1982	3524	2501			15244	197							
212		OBS	T0165	1888	3523	2525			15220	214							
202		OBS	T0180	1571	3513	2593			15127	201							
		STD	0200	1480	3512	2613	0019546	0822	15102	217							
202		OBS	T0200	1480	3512	2613			15102	217							
		STD	0250	1336	3513	2644	0016677	0913	15063	240							
202		OBS	T0250	1336	3513	2644			15063	240							
		STD	0300	1234	3507	2660	0015269	0993	15036	261							
202		OBS	0300	1234	3507	2660			15036	261							
		STD	0400	1055	3497	2685	0012979	1134	14989	225							
202		OBS	0400	1055	3497	2685			14989	225							
		STD	0500	0941	3491	2700	0011692	1257	14963	190							
202		OBS	0600	0844	3487	2712	0010608	1369	14943	165							018
		STD	0600	0844	3487	2712			14943								
		STD	0700	0766	3487	2724	0009573	1470	14929	148							
202		OBS	0800	0698	3487	2734	0008713	1561	14919	141							
		STD	0900	0637	3486	2741			14912	148							
		STD	1000	0590	3486	2748	0008046	1645	14910	154							
202		OBS	1000	0590	3486	2748	0007514	1723	14910	154							
		STD	1100	0567	3487	2751			14910	154							
		STD	1200	0537	3488	2756	0007245	1796	14917	158							058
202		OBS	1200	0537	3488	2756	0006874	1867	14922	166							
		STD	1300	0491	3486	2760			14922	166							
		STD	1400	0448	3484	2763	0006498	1934	14919	185							
		STD	1500	0409	3482	2766	0006164	1997	14918	203							
202		OBS	T1500	0409	3482	2766	0005883	2057	14918	221							
		STD	1750	0327	3479	2771			14918	221							
		STD	2000	0264	3477	2776	0005228	2196	14926	268							064
202		OBS	2000	0264	3477	2776	0004719	2321	14941	305							
		STD	2500	0198	3475	2779			14941	305							
202		OBS	2500	0198	3475	2779	0004244	2545	14997	348							081
									14997	348							084

REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	MARS DEN SQUARE	STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			WEATHER CODE	CLOUD CODES		NODC STATION NUMBER		
COUNTRY CODE	IDENTITY NUMBER					10"	1"	MONTH		DAY	HR. 1/10			CRUISE NUMBER	STATION NUMBER	DIR.		HGT.	PER.		SEA AMT.	TYPE
31	201	PI	03597S	083589E	327	33	05	31	022	1964	442	022	4746	20	16			3	X1	8	1	0022
		WATER		WIND		BAROMETER		AIR TEMP. °C		VIS		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS								
		COLOR CODE		DIR. (m)		SPEED (KNOTS)		DRY BULB		WET BULB												
				25		508		12		278		250		8								

MESSANGER TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>7</sup>	Σ Δ D DYN. AL. X 10 <sup>2</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l	SCC
022		STD	0000	2869	3465	2193	0059017	0000	15427	449							
		OBS	0000	2869	3465	2193			15427	449							
		STD	0010	2864	3465	2194	0058899	0059	15428	455							
022		OBS	0010	2864	3465	2194			15428	455							
		STD	0020	2859	3466	2197	0058710	0118	15428	454							
		STD	0030	2854	3474	2204	0058018	0176	15430	453							
022		OBS	0035	2852	3480	2209			15431	452							
		STD	0050	2683	3510	2287	0050201	0284	15400	428							
022		OBS	0050	2683	3510	2287			15400	428							
		STD	0075	2502	3513	2345	0044699	0403	15363	365							
022		OBS	0075	2502	3513	2345			15363	365							
		STD	0100	2430	3521	2373			15348	357							
		OBS	T0100	2336	3530	2408	0038849	0507	15328	349							
022		OBS	T0100	2336	3530	2408			15328	349							
		STD	0125	2228	3532	2440	0035837	0601	15306	323							
		OBS	T0125	2228	3532	2440			15306	323							
		STD	0150	2032	3530	2492	0030925	0684	15258	292							
022		OBS	T0150	2032	3530	2492			15258	292							
		STD	0200	1520	3506	2599	0020830	0814	15114	185							
022		OBS	T0200	1520	3506	2599			15114	185							
		STD	0250	1278	3509	2652	0015836	0905	15043	249							
022		OBS	T0250	1278	3509	2652			15043	249							
		STD	0300	1200	3507	2666	0014630	0981	15025	268							
022		OBS	T0300	1200	3507	2666			15025	268							
029		OBS	T0388	1066	3496	2682			14991	255							
		STD	0400	1058	3496	2684	0013105	1120	14990	254							
029		OBS	T0486	0994	3493	2693			14980	234							
		STD	0500	0982	3492	2694	0012306	1247	14978	227							
029		OBS	T0584	0910	3487	2702			14965	191							
		STD	0600	0897	3487	2704	0011460	1366	14962	185							
		STD	0700	0817	3486	2716	0010436	1475	14949	159							
029		OBS	T0782	0754	3485	2724			14938	148							
		STD	0800	0738	3485	2727	0009459	1575	14935	149							
		STD	0900	0659	3483	2736	0008585	1665	14920	154							
029		OBS	T0981	0608	3482	2742			14913	160							
		STD	1000	0601	3482	2743	0007963	1748	14913	162							
		STD	1100	0562	3483	2749	0007468	1825	14915	174							
029		OBS	T1180	0531	3484	2753			14915								
		STD	1200	0523	3484	2754	0006973	1897	14916	186							
		STD	1300	0483	3483	2758	0006609	1965	14916	199							
		STD	1400	0446	3482	2762	0006284	2030	14917	212							
029		OBS	1478	0418	3481	2764			14918	223							
		STD	1500	0410	3481	2765	0005970	2091	14919	226							
		STD	1750	0333	3479	2771	0005306	2232	14928	262							
029		OBS	T1976	0276	3478	2775			14942	298							

REFERENCE		SHIP CODE	LATITUDE * 1/10	LONGITUDE * 1/10	MARS DEN SQUARE	STATION TIME (GMT)				YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODE	CLOUD CODES		NODC STATION NUMBER	
COUNTRY CODE	IDENTITY NUMBER					10"	1"	MONTH	DAY		HR.	1/10			CRUISE NUMBER	STATION NUMBER	DIR.	PER.		SEA AMT.	TYPE		AMT.
31	201	PI	04589S	084079E	327	44	05	31	085	1964	442	023	4865	49	25			2	X1	8	3		0023

WATER		WIND		BAROMETER (mbs)	AIR TEMP. °C			NO. OBS. DEPTH	SPECIAL OBSERVATIONS
COLOR CODE	TRANS. (m)	DIR.	SPED. OF FORCE		DRY BULB	WET BULB	W.S. CODE		
				064	278	244	8		

MESSNGER TIME ML 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S %/∞	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>7</sup>	± Δ D DYN. M. X 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>3</sub> -N μg-at/l	NO <sub>2</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l	SCC
		STD	0000	2888	3446	2172	0060988	0000	15429	446							
085		OBS	0000	2888	3446	2172			15429	446							
		STD	0010	2861	3445	2180	0060241	0061	15425	449							005
085		OBS	0010	2861	3445	2180			15425	449							
		STD	0020	2834	3480	2215	0056913	0119	15425	454							
085		OBS	0029	2789	3499	2244			15418	458							
		STD	0030	2782	3500	2247	0053887	0175	15417	456							
085		OBS	0039	2715	3505	2273			15404	442							
		STD	0050	2570	3521	2331	0046019	0274	15375	419							
085		OBS	0072	2382	3533	2396			15336	376							
		STD	0075	2368	3532	2400	0039503	0381	15332	371							
085		OBS	0077	2358	3532	2403			15330	367							
		STD	0100	2251	3529	2431	0036583	0477	15307	338							
085		OBS	0121	2123	3526	2465			15277	290							005
		STD	0125	2098	3525	2471	0032896	0563	15271	274							
085		OBS	T0140	1982	3522	2500			15242	229							
		STD	0150	1864	3521	2529	0027405	0639	15210	221							
085		OBS	T0169	1666	3518	2575			15155	208							
		STD	0200	1514	3513	2606	0020192	0758	15113	214							
		STD	0250	1315	3507	2644	0016701	0850	15055	223							
085		OBS	T0290	1198	3503	2663			15022	231							
		STD	0300	1183	3503	2666	0014607	0928	15018	224							
085		OBS	T0388	1069	3499	2684			14992	193							
		STD	0400	1059	3498	2685	0012976	1066	14990	197							
085		OBS	T0487	0984	3492	2694			14977	214							025
		STD	0500	0973	3492	2695	0012154	1192	14975	209							
		STD	0600	0889	3489	2707	0011183	1308	14960	175							
		STD	0700	0811	3487	2718	0010268	1416	14947	153							
		STD	0800	0738	3485	2727	0009459	1514	14935	143							
103		OBS	T0827	0719	3484	2729			14932	142							
		STD	0900	0670	3483	2735	0008745	1605	14924	149							
		STD	1000	0609	3482	2742	0008077	1689	14917	159							
103		OBS	1001	0608	3482	2742			14916	159							
		STD	1100	0552	3481	2748	0007476	1767	14910	172							
103		OBS	T1178	0514	3480	2752			14908	182							050
		STD	1200	0506	3480	2753	0007033	1840	14908	184							
		STD	1300	0470	3481	2758	0006579	1908	14910	197							
103		OBS	T1355	0450	3481	2760			14911	205							
		STD	1400	0432	3481	2762	0006170	1972	14911	214							
		STD	1500	0394	3480	2766	0005832	2032	14912	232							
103		OBS	T1619	0354	3479	2769			14915	252							066
		STD	1750	0319	3478	2771	0005198	2169	14922	271							
		STD	2000	0264	3476	2775	0004792	2294	14941	303							
103		OBS	T2065	0252	3476	2776			14947								077
		STD	2500	0202	3475	2779	0004297	2522	14999	350							
103		OBS	T2516	0201	3475	2779			15001	351							
103		OBS	T2970	0171	3475	2782			15067	374							082
		STD	3000	0169	3475	2782	0004031	2730	15071	375							
103		OBS	T3447	0146	3474	2783			15139	390							084
103		OBS	T3930	0139	3472	2781			15220	396							
		STD	4000	0139	3472	2781	0004083	3136	15232	397							
103		OBS	T4420	0140	3474Q	2783Q				403							
103		OBS	T4913	0140	3473	2782			15395	416							



REFERENCE COUNTRY L CODE	IDENTITY NUMBER	SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	MARSDEN SQUARE	STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				CLOUD CODES		NODC STATION NUMBER
						10"	1"	MONTH		DAY	HR. 1/10			CRUISE NUMBER	STATION NUMBER	DIR.	HEI.	PER.	SEA AMT.	
31	201	PI	05039S	088165E	327	58	06	01	064	1964	442	024	4920	30	16					0024
						WATER		WIND		AIR TEMP. °C		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS						
						COLOR	TRANS. (m)	DIR.	SPEED OR FORCE	BAROMETER (mbs)	DRY BULB	WET BULB	VIS. CODE							
								29	S12	081	292	253	8							

MESSAGE TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>3</sup>	± Δ D DYN. M. X 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P µg-at/l	TOTAL-P µg-at/l	NO <sub>2</sub> -N µg-at/l	NO <sub>3</sub> -N µg-at/l	SiO <sub>2</sub> -Si µg-at/l	pH µg-at/l	SCC
064		STD	0000	2863	3436	2173	0060910	0000	15423	451							
064		OBS	0000	2863	3436	2173			15423	451							
064		OBS	0009	2863	3436	2173			15424	464							
064		STD	0010	2862	3440	2176	0060632	0061	15425	464							
064		OBS	0017	2856													
064		STD	0020	2852	3473	2204	0057985	0120	15428	467							
064		STD	0030	2837	3496	2226	0055900	0177	15429	470							
089		OBS	0032	2834	3500	2230			15429	471							006
089		OBS	0044	2728	3514	2275			15409	471							
089		STD	0050	2703	3521	2289	0050021	0283	15405	468							
089		OBS	0067	2588	3533	2334			15383	440							
089		STD	0075	2487	3531	2364	0042969	0399	15361	410							
089		OBS	T0091	2319	3527	2410			15322	351							
089		STD	0100	2289	3525	2417	0037909	0500	15316	314							
089		OBS	T0113	2159	3522	2452			15285	271							
089		STD	0125	1896	3517	2518	0028386	0583	15215	243							
089		OBS	T0133	1758	3475Q	2520Q				228							
089		STD	0150	1637	3509	2575	0023009	0647	15142	207							
089		OBS	T0172	1508	3506	2602			15105	196							
089		STD	0200	1392	3509	2629	0017952	0750	15073	213							
089		OBS	T0211	1355	3510	2638			15063	219							
089		OBS	T0248	1262	3508	2655			15037	237							
089		STD	0250	1259	3508	2655	0015544	0834	15037	237							
089		STD	0300	1188	3505	2667	0014553	0909	15020	238							
089		OBS	T0332	1148	3503	2673			15011	239							
089		STD	0400	1081	3499	2682	0013290	1048	14998	238							
089		OBS	T0424	1056	3497	2685			14993	237							
033		OBS	T0475	1000	3492	2691			14981	222							017
033		STD	0500	0966	3490	2695	0012182	1175	14972	207							
089		OBS	T0529	0935	3488	2699			14965	191							028
033		OBS	T0560	0913	3488	2702			14962	176							
033		STD	0600	0880	3488	2708	0011110	1292	14956	161							
033		OBS	T0642	0848	3487	2712			14951	149							
033		STD	0700	0809	3488	2719	0010164	1398	14946	142							
033		OBS	T0730	0788	3488	2722			14943	139							
033		STD	0800	0735	3486	2728	0009340	1496	14934	139							
033		OBS	T0866	0690	3485	2734			14927	139							
033		STD	0900	0670	3484	2735	0008672	1586	14925	143							
033		STD	1000	0616	3483	2742	0008103	1670	14920	154							
033		STD	1100	0565	3482	2748	0007584	1748	14916	167							
033		OBS	T1100	0565	3482	2748			14916								048
033		STD	1200	0518	3482	2753	0007050	1821	14913	180							
033		STD	1300	0476	3481	2757	0006660	1890	14913	194							
033		OBS	T1342	0459	3481	2759			14913	200							
033		STD	1400	0439	3481	2762	0006263	1954	14914	210							
033		STD	1500	0407	3481	2765	0005930	2015	14917	227							
033		STD	1750	0331	3480	2772	0005207	2155	14927	267							
064		OBS	T1755	0330	3480	2772			14928	268							094
064		STD	2000	0266	3478	2776	0004672	2278	14942	304							
064		OBS	T2012	0263	3478	2776			14943	305							070
064		OBS	T2302	0218	3476	2779			14972	334							
064		STD	2500	0202	3475	2779	0004297	2502	14999	359							
064		OBS	T2632	0192	3475	2780			15017	370							
064		STD	3000	0169	3475	2782	0004031	2711	15071	377							
064		OBS	T3011	0168	3475	2782			15072	377							071

REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	MARS DEN SQUARE	STATION TIME (GMT)				YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			WEATHER CODE		CLOUD CODES		NODC STATION NUMBER
COUNTRY CODE	IDENTITY NUMBER					10°	1°	MONTH	DAY		HR. 1/10	CRUISE NUMBER			STATION NUMBER	DIR.	HGT.	PER.	SEA AMT.	TYPE	AMT.	
31	201	PI	04032S	088031E	327	48	06	01	142	1964	442	025	4764	27	18			3	X1	3	2	0025

WATER		WIND		BAROMETER (mb)	AIR TEMP. °C		NO. OBS. DEPTH	SPECIAL OBSERVATIONS
COLOR CODE	TRANS. (m)	DIR.	SPEED & FORCE		DRY BULB	WET BULB		
			29	S10	085	272	244	8

MESSNGER TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY--X10 <sup>7</sup>	± Δ D DYK. M. X 10 <sup>2</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>2</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l
142		STD	0000	2876	3454	2182	0060030	0000	15427	449						
		OBS	0000	2876	3454	2182			15427	449						
		STD	0010	2878	3454	2181	0060145	0060	15430	455					004	
142		OBS	0013	2879	3454	2181			15430	456						
		STD	0020	2875	3455	2183	0060011	0120	15431	454						
		STD	0030	2870	3457	2186	0059772	0180	15431	452						
142		OBS	0032	2869	3457	2187			15432	451						
		OBS	0045	2830	3510	2239			15431	457						
		STD	0050	2791	3509	2251	0053604	0293	15423	453						
142		OBS	T0063	2687	3508	2284			15402	437						
		STD	0075	2576	3516	2325	0046656	0419	15380	412						
142		OBS	T0095	2422	3526	2379			15348	374						
		STD	0100	2416	3527	2382	0041345	0529	15348	372						
		STD	0125	2277	3530	2425	0037329	0627	15318	332						
142		OBS	0127	2258	3530	2430			15313	327						
		STD	0150	1899	3519	2519	0028400	0709	15220	224					006	
142		OBS	0160	1777	3516	2547			15186	199						
142		OBS	T0193	1523	3511	2602			15114	206						
		STD	0200	1497	3511	2608	0019977	0830	15107	210						
		STD	0250	1334	3510	2642	0016856	0922	15062	231						
142		OBS	T0262	1302	3509	2648			15053	233						
		STD	0300	1223	3505	2660	0015208	1002	15032	229						
142		OBS	T0333	1164	3502	2669			15017	224						
		STD	0400	1075	3497	2681	0013367	1145	14996	208						
142		OBS	T0406	1066	3496	2682			14993	207						
170		OBS	T0424	1040	3495	2686			14987	210						
		STD	0500	0961	3490	2696	0012099	1273	14970	194						
170		OBS	T0516	0946	3489	2698			14967	190						
		STD	0600	0886	3490	2708	0011061	1388	14959	158					027	
170		OBS	0692	0823	3491	2719			14950	138						
		STD	0700	0817	3491	2720	0010069	1494	14949	138						
		STD	0800	0749	3488	2728	0009406	1591	14939	141						
170		OBS	T0882	0698	3487	2734			14933	143						
		STD	0900	0688	3487	2735	0008718	1682	14932	144						
		STD	1000	0637	3486	2741	0008187	1767	14928	150						
170		OBS	1098	0588	3485	2747			14925	156						
		STD	1100	0587	3485	2747	0007675	1846	14925	156					048	
		STD	1200	0538	3484	2752	0007196	1920	14922	173						
		STD	1300	0492	3483	2757	0006761	1990	14919	189						
		STD	1400	0450	3481	2761	0006382	2056	14919	205						
170		OBS	T1432	0437	3481	2762			14919	210						
		STD	1500	0411	3481	2764	0006012	2118	14919	224					048	
		STD	1750	0326	3479	2771	0005222	2258	14925	270						
		STD	2000	0261	3477	2776	0004659	2382	14940	307						
170		OBS	T2048	0251	3477	2777			14943	313						
		STD	2500	0189	3475	2780	0004125	2601	14993	353					075	
170		OBS	T2725	0182	3474	2780			15029	362						

REFERENCE COUNTRY CODE	SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	MARS DEN INDICATOR	STATION TIME (GMT)				YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			WEATHER CODE	CLOUD CODES		NODC STATION NUMBER		
					10"	1"	MONTH	DAY		HR. 1/10	CRUISE NUMBER			STATION NUMBER	DIR.	HGT.		PER.	SEA AMT.		TYPE	AMT.
31	201	P1	03003S	087555E	327	37	06	01	239	1964	442	026	4709	48	29			2	X1	8	1	0026
					WATER		WIND		BAROMETER		AIR TEMP. °C		VIS.	NO. OBS. DUPES	SPECIAL OBSERVATIONS							
					COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE	DRY BULB		WET BULB		VIS. CODE									
								29	S08	078	267	244	8									

MESSAGE TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- $\sigma_t$	$\Sigma \Delta D$ DYN. AL X 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P µg-at/l	TOTAL-P µg-at/l	NO <sub>2</sub> -N µg-at/l	NO <sub>3</sub> -N µg-at/l	SiO <sub>2</sub> -Si µg-at/l	pH µg-at/l	SCC
		STD	0000	2876	3469	2193	0058952	0000	15429	448							
239		OBS	0000	2876	3469	2193			15429	448					003		
239		OBS	0008	2881	3468	2191			15431	456							
		STD	0010	2881	3468	2191	0059212	0059	15432	455							
		STD	0020	2878	3468	2192	0059183	0118	15433	449							
239		OBS	0022	2878	3468	2192			15433	448							
		STD	0030	2859	3470	2200	0058461	0177	15430	446							
		STD	0050	2811	3480	2223	0056313	0292	15425	433							
239		OBS	0055	2799	3484	2230			15423	428							
239		OBS	T0073	2660	3500	2287			15397	405							
		STD	0075	2641	3504	2296	0049461	0424	15394	403							
239		OBS	T0092	2441	3526	2374			15352	384							
		STD	0100	2299	3527	2416	0038040	0533	15319	342							
239		OBS	0110	2155	3528	2458			15284	296							
		STD	0125	2057	3526	2483	0031764	0621	15260	237							
239		OBS	T0146	1953						181							
		STD	0150	1944	3523	2510	0029211	0697	15233	178							
239		OBS	T0184	1865	3518	2527			15216	161							
		STD	0200	1703	3516	2565	0024147	0830	15171	166							
239		OBS	T0220	1536	3513	2601			15123								
		STD	0250	1415	3511	2626	0018414	0937	15089	181							
239		OBS	T0295	1268	3508	2654			15047	196							
		STD	0300	1255	3507	2656	0015670	1022	15043	199							
239		OBS	T0370	1111	3500	2677			15004	224					015		
		STD	0400	1080	3498	2682	0013346	1167	14998	222							
239		OBS	0448	1032	3495	2688			14988	215							
		STD	0500	0980	3495	2696	0012074	1294	14978	187							
		STD	0600	0890	3494	2711	0010825	1409	14961	148							
239		OBS	T0619	0874	3494	2713			14958	143							
		STD	0700	0814	3492	2721	0009963	1513	14948	140							
		STD	0800	0746	3489	2729	0009272	1609	14938	135							
239		OBS	0806	0742	3489	2729			14938	135					041		
		STD	0900	0683	3487	2736	0008644	1698	14930	138							
254		OBS	T0961	0649	3486	2740			14927	141							
		STD	1000	0632	3486	2742	0008085	1782	14926	143							
		STD	1100	0589	3488	2749	0007520	1860	14926	150							
254		OBS	T1144	0570	3488	2752			14926	155							
		STD	1200	0543	3487	2754	0007046	1933	14924	166							
		STD	1300	0496	3485	2758	0006669	2001	14921	184							
		STD	1400	0452	3482	2761	0006335	2066	14920	202							
254		OBS	T1420	0444	3482	2762			14920	206					065		
		STD	1500	0411	3481	2765	0005983	2128	14919	222							
		STD	1750	0322	3480	2773	0005090	2266	14924	265							
254		OBS	T1886	0284	3479	2775			14930								
		STD	2000	0260	3478	2777	0004595	2387	14939	302							
254		OBS	T2355	0204	3476	2780			14975	342							
		STD	2500	0193	3475	2780	0004178	2607	14995	353							
254		OBS	T2830	0172	3474	2781			15043	373					069		
		STD	3000	0164	3474	2781	0004033	2812	15069	377							
254		OBS	T3311	0152	3474	2782			15117	385							
254		OBS	T3795	0136	3473	2783			15195	400					075		
		STD	4000	0138	3473	2782	0003997	3214	15232	404							
254		OBS	T4283	0139	3473	2782			15283	410							
254		OBS	T4770	0138	3474	2783			15369	422							

REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	MARSQUEN SQUARE	STATION TIME (GMT)				YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODE	CLOUD CODES		NODC STATION NUMBER
COUNTRY CODE	IDENTITY NUMBER					10°	1°	MONTH	DAY		HR.	1/10			CRUISE NUMBER	STATION NUMBER	DIR.	HGT.		PER.	SEA AMT.	
31	201	PI	02312S	087572E	327	27	06	02	056	1964	442	027	4700	27	29			2	X1	8	2	0027

WATER COLOR CODE	TRANS. (m)	DIR.	WIND SPEED OF FORCE	BAROMETER (mbs)	AIR TEMP. °C		YS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS
					DRY BULB	WET BULB			
			29	S04	091	289	256	8	

MESSENGER TIME HR. 1/10	CASST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>7</sup>	± Δ D DYN. M. X 10 <sup>7</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>2</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l	SCC
056		STD	0000	2929	3476	2181	0060148	0000	15441	448							
		OBS	0000	2929	3476	2181			15441	448					004		
		STD	0010	2897	3475	2191	0059226	0060	15436	451							
056		OBS	0011	2895	3475	2191			15436	451							
		STD	0020	2894	3475	2192	0059179	0119	15437	448							
056		OBS	0020	2894	3475	2192			15437	448							
		STD	0030	2895	3475	2192	0059243	0178	15439	448							
056		OBS	0035	2895	3475	2191			15439	448							
		STD	0050	2894	3476	2192	0059239	0297	15442	448							
056		OBS	0051	2893	3476	2193			15442	448							
		STD	0075	2858	3483	2210	0057685	0443	15439	447							
056		OBS	0077	2845	3484	2215			15437	445							
		STD	0100	2585	3509	2317	0047526	0574	15385	405							
056		OBS	0101	2572	3510	2322			15383	402					008		
		STD	0125	2200	3527	2444	0035444	0678	15298	293							
056		OBS	T0128	2166	3528	2454			15290	281							
		STD	0150	2015	3526	2494	0030782	0761	15253	205							
056		OBS	T0155	1976	3525	2503			15243	193							
		STD	0200	1517	3515	2607	0020110	0888	15114	189							
056		OBS	T0204	1488	3514	2612			15105	189							
		STD	0250	1330	3510	2643	0016777	0980	15061	194							
056		OBS	T0260	1300	3509	2648			15052	196							
		STD	0300	1199	3505	2665	0014758	1059	15024	217							
056		OBS	T0318	1162	3503	2670			15014	221							
063		OBS	T0368	1084	3499	2682			14994	218							
		STD	0400	1041	3495	2686	0012882	1197	14983	214							
063		OBS	T0475	0956	3490	2697			14964	201					019		
		STD	0500	0935	3490	2700	0011666	1320	14961	193							
063		OBS	T0576	0876	3489	2709			14951	172							
		STD	0600	0862	3490	2712	0010674	1432	14950	165							
		STD	0700	0805	3492	2722	0009807	1534	14945	142							
063		OBS	T0791	0753	3493	2731			14940	132							
		STD	0800	0747	3493	2732	0009016	1628	14939	133							
		STD	0900	0688	3492	2739	0008388	1715	14933	140							
		STD	1000	0632	3490	2745	0007806	1796	14927	148							
063		OBS	1014	0625	3490	2746			14926	149					064		
		STD	1100	0581	3488	2750	0007370	1872	14923	162							
		STD	1200	0532	3487	2756	0006877	1943	14920	177							
063		OBS	T1238	0515	3486	2757			14919								
		STD	1300	0489	3485	2759	0006544	2010	14918	192							
		STD	1400	0449	3483	2762	0006251	2074	14918	207							
		STD	1500	0412	3482	2765	0005923	2135	14920	223							
063		OBS	1564	0389	3481	2767			14921	233						052	
		STD	1750	0326	3479	2771	0005215	2274	14925	269							
		STD	2000	0260	3478	2777	0004595	2397	14939	308							
063		OBS	T2125	0234	3477	2778			14949	324						075	
		STD	2500	0187	3475	2780	0004099	2614	14993	355							
063		OBS	T2690	0181	3475	2781			15023	362						097	

REFERENCE COUNTRY ID NUMBER	SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	SQUARE	(GMT)			YEAR	CRUISE NUMBER	STATION NUMBER	TO BOTTOM	DEPTH OF SAMPLES	OBSERVATIONS				WEATHER CODE	CODES		STATION NUMBER			
					10"	1'	MONTH						DAY	HR. 1/10	DIR.	HGT.		PER.	SEA AMT.		TYPE	AMT.	
31	201	PI	01598S	088006E	327	18	06	02	100	1964	442	028	4307	30	17				3	X8	9	3	0028
				WATER		WIND		BAROMETER (mba)	AIR TEMP. °C		REL. HUMIDITY	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS										
				COLOR CODE	TRANS. (m)	DIR.	SPEED (KNOTS)		DRY BULB	WET BULB					WIND CODE								
							29	S05	060	291	246	8											

MESSAGE TIME HR. 1/15	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>3</sup>	Σ ΔD DYN. AL. X 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>3</sub> -N μg-at/l	NO <sub>2</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l	SCC
100		STD	0000	2941	3469	2171	0061038	0000	15443	444							
		OBS	0000	2941	3469	2171			15443	444					002		
100		OBS	0009	2902	3466	2182			15436	447							
		STD	0010	2901	3466	2183	0060008	0061	15436	447							
100		OBS	0018	2897	3466	2184			15436	446							
		STD	0020	2897	3466	2184	0059907	0120	15436	446							
100		OBS	0027	2897	3467	2185			15438	447							
		STD	0030	2897	3467	2185	0059881	0180	15438	447							
100		OBS	0045	2895	3467	2185			15440	449							
		STD	0050	2881	3470	2192	0059247	0300	15438	443							
100		OBS	0068	2817	3481	2222			15429	424							
		STD	0075	2809	3483	2226	0056138	0444	15429	423							
100		OBS	0091	2706	3492	2266			15410	403					003		
		STD	0100	2548	3505	2325	0046719	0572	15376	374							
100		OBS	T0115	2330	3521	2403			15328	324							
		STD	0125	2233	3525	2433	0036477	0676	15306	288							
100		OBS	T0138	2106	3528	2471			15276	247							
		STD	0150	1967	3523	2504	0029790	0759	15239	209							
100		OBS	T0188	1614	3512	2583			15142	154							
		STD	0200	1543	3512	2599	0020885	0886	15122	177							
100		OBS	T0235	1363	3512	2638			15069	221							
		STD	0250	1302	3509	2648	0016301	0979	15051	224							
100		OBS	T0283	1186	3504	2667			15017	227							
		STD	0300	1161	3502	2670	0014276	1055	15010	225							
		STD	0400	1034	3494	2687	0012835	1191	14981	208							
110		OBS	T0460	0974	3492	2695			14969	191					019		
		STD	0500	0947	3493	2701	0011645	1313	14965	170							
110		OBS	T0580	0890	3495	2711			14958	141							
		STD	0600	0872	3495	2714	0010468	1424	14954	139							
		STD	0700	0793	3495	2727	0009400	1523	14941	126							
110		OBS	T0702	0792	3491Q	2724Q			126								
		STD	0800	0749	3494	2732	0008966	1615	14940	126							
		STD	0900	0702	3493	2738	0008487	1702	14938	126							
110		OBS	T0945	0680	3492	2740			14937	126					050		
		STD	1000	0649	3491	2744	0007996	1785	14934	133							
		STD	1100	0595	3489	2749	0007496	1862	14929	147							
110		OBS	1189	0548	3487	2754			14924	160							
		STD	1200	0542	3487	2754	0007017	1935	14924	163							
		STD	1300	0489	3484	2758	0006617	2003	14918	185							
		STD	1400	0442	3482	2762	0006230	2067	14915	207							
110		OBS	T1433	0428	3481	2763			14915								
		STD	1500	0404	3481	2765	0005905	2128	14916	227							
		STD	1750	0327	3480	2772	0005148	2266	14926	270							
110		OBS	T1798	0314	3480	2773			14928	277							
		STD	2000	0272	3478	2776	0004750	2390	14944	301					052		
110		OBS	2410	0208	3475	2779			14986	340					107		
		STD	2500	0198	3475	2779	0004244	2614	14997	346							
		STD	3000	0165	3474	2781	0004047	2822	15069	369							
110		OBS	T3026	0164	3474	2781			15073	370					093		

REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	STATION	STATION TIME (GMT)				YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			WEATHER CODE	CLOUD CODES		NODC STATION NUMBER		
COUNTRY CODE	IDENTITY NUMBER					MAARSDEN SQUARE	10"	1"	MONTH		DAY	HR. 1/10			CRUISE NUMBER	STATION NUMBER	DIR.		HGT.	PER.		SEA AMT.	TYPE
31	201	PI	01295S	087574E	327	17	06	02	147	1964	442	029	4554	28	29			2	X1	8	2	0029	
				WATER		WIND		BAROMETER		AIR TEMP °C		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS									
				COLOR		DIR.		(mbs)		DRY BULB		WET BULB											
				TRANSM. (m)		SPEED (KNOTS)				272		250		7									

MESSNGER TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-10 <sup>7</sup>	± Δ D DYN. M. X 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>2</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l	SO <sub>4</sub>
147		STD	0000	2916	3466	2178	0060448	0000	15437	447							
		OBS	0000	2916	3466	2178			15437	447							
147		OBS	0005	2921	3466	2176			15439	449							
		STD	0010	2911	3467	2180	0060257	0060	15438	447							
147		OBS	0010	2911	3467	2180			15438	447							
		STD	0020	2905	3467	2182	0060106	0121	15438	447							
147		OBS	0029	2901	3467	2183			15439	446							
		STD	0030	2901	3467	2183	0060019	0181	15439	446							
147		OBS	T0049	2898	3467	2184			15442	447							
		STD	0050	2898	3467	2184	0060006	0301	15442	447							
147		OBS	0059	2898	3470	2187			15444	449							
147		OBS	0068	2884	3483	2201			15443	446							
		STD	0075	2865	3482	2207	0057979	0448	15440	442							
147		OBS	T0078	2856	3481	2209			15439	440							
147		OBS	0088	2822	3482	2221			15433	430							
147		OBS	T0098	2802	3482	2227			15431	418							
		STD	0100	2798	3482	2229	0055967	0591	15430	418							
147		OBS	T0107	2784	3484	2235			15428	417							
173		OBS	T0110	2728	3487	2255			15417	408							
147		OBS	T0117	2578	3502	2314			15386	375							
173		OBS	T0119	2257	3523	2425			15311	285							
		STD	0125	2168	3524	2451	0034807	0704	15289	229							
173		OBS	T0127	2144	3524	2458			15283	215							
173		OBS	T0136	2066	3518	2474			15263	183							
173		OBS	T0145	1995	3522Q	2496Q			1866Q								
		STD	0150	1859	3514	2525	0027792	0782	15208	142							
173		OBS	T0153	1790	3513	2541			15189	141							
173		OBS	0162	1532	3511	2600			15112	152							
173		OBS	T0170	1484	3511	2611			15098	164							
		STD	0200	1405	3508	2626	0018289	0897	15077	166							
		STD	0250	1286	3503	2646	0016429	0984	15045	170							
		STD	0300	1183	3499	2663	0014900	1063	15018	173							
		STD	0400	1026	3494	2688	0012697	1201	14978	180							
155		OBS	T0450	0972	3493	2696			14966	184							015
		STD	0500	0941	3494	2702	0011472	1321	14963	177							
155		OBS	T0542	0914	3494	2707			14960	168							
		STD	0600	0876	3495	2714	0010532	1431	14956	144							
155		OBS	0635	0854	3496	2718			14953	135							
		STD	0700	0818	3495	2723	0009791	1533	14950	134							
155		OBS	0728	0802	3495	2725			14949	131							
		STD	0800	0756	3494	2731	0009073	1627	14943	114							
155		OBS	0821	0742	3497Q	2736Q			111								
		STD	0900	0690	3492	2739	0008381	1715	14933	121							
155		OBS	T0915	0681	3492	2740			14932								
		STD	1000	0632	3490	2745	0007821	1796	14927	134							033
155		OBS	T1008	0628	3490	2746			14927	135							
		STD	1100	0591	3488	2749	0007512	1872	14927	148							
155		OBS	1103	0590	3488	2749			14927	148							
		STD	1200	0542	3487	2754	0007017	1945	14924	165							
		STD	1300	0497	3485	2758	0006654	2013	14922	182							
155		OBS	1386	0460	3484	2762			14921	197							054
		STD	1400	0454	3484	2762	0006245	2078	14921	200							
		STD	1500	0417	3483	2765	0005917	2139	14922	218							
		STD	1750	0335	3480	2771	0005259	2278	14929	260							
155		OBS	T1860	0304	3479	2774			14934	276							064
		STD	2000	0271	3478	2776	0004737	2403	14944	296							
155		OBS	T2340	0210	3475	2779			14975	334							
		STD	2500	0192	3474	2779	0004237	2628	14995	347							
155		OBS	T2830	0174	3474	2781			15044	365							064

REFERENCE	COUNTRY CODE	SHIP NUMBER	SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	DEPTH OBSERVED	MARSDEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS					WEATHER CODE		CLOUD CODES		NODC STATION NUMBER	
							10'	1"	MONTH	DAY	HR. 1/10		CRUISE NUMBER	STATION NUMBER			DIR.	HGT.	PER.	SEA AMT.	TYPE	AMT.					
31	ZOI	PI		01007S	087565E	327	17	06	02	209	1964	442	030	4526	45	32						3	X1	3	5		0030
WATER		WIND		BAROMETER		AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS																	
COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE	(mba)	DRY BULB	WET BULB																					
			36	S00	081	267	250	8																			
MESSNGR. TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- $\times 10^3$	$\Sigma \Delta D$ DYN. AL. $\times 10^3$	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P $\mu\text{g-at/l}$	TOTAL-P $\mu\text{g-at/l}$	NO <sub>3</sub> -N $\mu\text{g-at/l}$	NO <sub>2</sub> -N $\mu\text{g-at/l}$	SiO <sub>2</sub> -Si $\mu\text{g-at/l}$	pH $\mu\text{g-at/l}$	SCC										
209		STD	0000	2903	3469	2184	0059815	0000	15435	442																	
		OBS	0000	2903	3469	2184			15435	442								003									
209		STD	0010	2906	3469	2183	0059953	0060	15437	445																	
		OBS	0011	2906	3469	2183			15437	445																	
209		STD	0020	2905	3469	2184	0059962	0120	15438	445																	
		OBS	0030	2904	3468	2183	0060043	0180	15440	446																	
209		STD	0033	2903	3468	2183			15440	446																	
209		OBS	0042	2901	3468	2184			15441	442																	
209		STD	0050	2899	3468	2185	0059966	0300	15442	444																	
		OBS	0056	2898	3468	2185			15443	445																	
209		STD	0066	2899	3468	2185			15445	445																	
209		OBS	0075	2899	3468	2185	0060069	0450	15446	445																	
		STD	0075	2899	3468	2185			15446	445																	
209		OBS	0085	2899	3469	2186			15448	445																	
209		STD	0098	2876	3486	2206			15447	442																	
		OBS	0100	2865	3486	2210	0057795	0597	15445	439																	
209		STD	T0107	2829	3486	2222			15438	428								003									
209		OBS	T0116	2794	3483	2231			15432	417																	
		STD	0125	2521	3503	2332	0046169	0727	15374	384																	
209		OBS	0129	2399	3510	2374			15346	344																	
209		STD	T0138	2122	3519	2460			15279	196																	
		OBS	0150	2025	3513	2481	0031975	0825	15254	181																	
242		STD	0153	1955	3512	2499			15235	178																	
242		OBS	T0162	1633	3510	2577			15143	169																	
242		STD	0171	1428	3510	2622			15080	175																	
242		OBS	T0185	1330	3510	2643			15050	199																	
242		STD	0194	1315	3507	2644			15046	215																	
242		OBS	T0200	1305	3506	2645	0016446	0946	15044	227																	
		STD	0204	1297	3505	2646			15042	233																	
242		OBS	T0232	1223	3502	2658			15021	230																	
		STD	0250	1190	3498	2661	0014979	1024	15012	191																	
242		OBS	0261	1172	3497	2664			15007	172																	
		STD	0300	1132	3498	2672	0014042	1097	15000	150																	
242		OBS	0320	1110	3499	2677			14995	141																	
		STD	0400	0989	3499	2698	0011700	1226	14965	127																	
242		OBS	T0430	0961	3499	2703			14960	126																	
		STD	0500	0943	3499	2706	0011138	1340	14965	135								021									
221		OBS	T0520	0937	3499	2707			14966	137																	
242		STD	T0550	0926	3497	2707			14966	114Q																	
		OBS	0600	0900	3497	2711	0010775	1449	14965	142																	
221		STD	0632	0880	3497	2715			14963	144																	
242		OBS	T0660	0860																							
		STD	0700	0848	3498	2720	0010048	1554	14962	121																	
221		OBS	T0735	0826	3499	2725			14960	114																	
242		STD	0780	0783																							
		OBS	0800	0770	3497	2732	0009068	1649	14949	112																	
221		STD	T0843	0744	3496	2735			14946	110																	
		OBS	0900	0721	3495	2737	0008627	1738	14946	117																	
221		STD	T0952	0698	3494	2739			14945	123								050									
		OBS	1000	0669	3493	2743	0008144	1822	14942	132																	
		STD	1100	0611	3491	2749	0007580	1900	14935	151																	
		OBS	1200	0557	3489	2754	0007082	1973	14930	170																	
221		STD	T1260	0527	3488	2757			14928									052									
		OBS	1300	0509	3487	2758	0006673	2042	14927	187																	
		STD	1400	0465	3486	2763	0006248	2107	14925	204																	
		OBS	1500	0425	3484	2765	0005951	2168	14925	221																	
		STD	1750	0339	3480	2771	0005311	2309	14931	259																	
221		OBS	T1772	0332	3480	2772			14932	262								058									
		STD	2000	0275	3478	2775	0004789	2435	14946	295																	
		OBS	T2310	0218	3476	2779			14974	330																	
221		STD	2500	0203	3475	2779	0004311	2662	15000	346																	
		OBS	T2857	0177	3474	2780			15050	367								080									
		STD	3000	0166	3474	2781	0004061	2872	15070	371																	
221		OBS	T3320	0147	3473	2782			15117	380								089									
221		STD	T3885	0138	3472	2782			15212	400																	
		OBS	4000	0139	3472	2781	0004083	3279	15232	400																	
221		STD	T4455	0142	3472	2781			15314	399																	

REFERENCE		SHIP CODE	LATITUDE * ' 1/10	LONGITUDE * ' 1/10	DATE MO/YR	MARDEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODE	CLOUD CODES		NODC STATION NUMBER	
COUNTRY CODE	IDENTITY NUMBER					10"	1"	MONTH	DAY	HR. 1/10		CRUISE NUMBER	STATION NUMBER			DIR.	HGT.	PER.	SEA AMT.		TYPE	AMT.		
31	201	PI	00301S	088044E	327	08	06	03	067	1964	442	031	4435	29	27			2	X1	3	5	0031		
						WATER		WIND		BAROMETER		AIR TEMP. °C		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS								
						COLOR CODE	TRANL. (m)	DIR.	SPEED (KNOTS)		DRY BULB	WET BULB	VIS. CODE											
									27	508	105	272	250	8										

MESSAGE TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>3</sup>	Σ Δ D DYN. M. X 10 <sup>2</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH	SCC
		STD	0000	2911	3458	2173	0060862	0000	15435	449							
067		OBS	0000	2911	3458	2173			15435	449							
067		OBS	0009	2910	3458	2174			15437	453							
		STD	0010	2909	3458	2174	0060839	0061	15436	452							
067		OBS	0018	2902	3458	2176			15436	448							
		STD	0020	2903	3458	2176	0060688	0122	15437	448							
067		OBS	0027	2905	3458	2175			15438	449							
		STD	0030	2903	3458	2176	0060729	0182	15439	447							
067		OBS	0035	2901	3458	2177			15439	445							
067		OBS	0043	2902	3459	2177			15441	449							
		STD	0050	2903	3460	2177	0060668	0304	15442	448							
067		OBS	0052	2903	3460	2177			15442	448							
067		OBS	T0060	2900	3461	2179			15443	445							
067		OBS	T0068	2901	3463	2180			15445	448							
		STD	0075	2900	3466	2183	0060245	0455	15446	448							
067		OBS	T0084	2898	3469	2186			15448	448							
067		OBS	T0099	2878	3471	2194			15446	445							
		STD	0100	2875	3473	2197	0059046	0604	15446	445							
067		OBS	T0105	2856	3482	2210			15444	442							
040		OBS	T0115	2813	3481	2223			15436	423							
040		OBS	T0123	2785	3482	2233			15431	422							
		STD	0125	2668	3492	2278	0051341	0742	15407	400							
040		OBS	0130	2419	3510	2368			15351	337							
040		OBS	T0138	2150	3520	2453			15286	213							
040		OBS	0146	2044	3517	2479			15259	187							
		STD	0150	1895	3516	2517	0028520	0842	15218	178							
040		OBS	T0167	1447	3511	2619			15086	156							
040		OBS	T0189	1308	3509	2646			15043	170							
		STD	0200	1287	3509	2651	0015877	0953	15038	171							
040		OBS	T0236	1227	3507	2661			15023	178							
		STD	0250	1216	3507	2663	0014804	1029	15022	187							
		STD	0300	1169	3505	2671	0014202	1102	15014	208							
040		OBS	T0336	1130	3503	2676			15006	212							
		STD	0400	1053	3499	2687	0012798	1237	14988	192							
051		OBS	T0430	1005	3498	2695			14976	181							
040		OBS	T0443	0982	3498	2699			14969								
		STD	0500	0945	3499	2706	0011171	1357	14965	148							028
051		OBS	T0537	0924	3499	2709			14964	137							
		STD	0600	0902	3498	2712	0010735	1466	14966	136							
051		OBS	T0642	0879	3498	2716			14964	132							
		STD	0700	0824	3498	2724	0009666	1568	14953	119							
051		OBS	0753	0786	3497	2729			14947	112							
		STD	0800	0773	3497	2731	0009115	1662	14950	115							
051		OBS	T0866	0747	3496	2734			14951								
		STD	0900	0728	3495	2736	0008734	1752	14949	120							
051		OBS	T0980	0680	3493	2741			14943	124							
		STD	1000	0667	3493	2743	0008115	1836	14941	128							058
051		OBS	1085	0612	3491	2749			14933	141							
		STD	1100	0603	3491	2750	0007465	1914	14932	142							
		STD	1200	0545	3487	2754	0007059	1986	14925	153							
051		OBS	1206	0542	3487	2754			14925	154							
		STD	1300	0501	3486	2758	0006636	2055	14923	175							
		STD	1400	0460	3485	2762	0006253	2119	14923	195							
		STD	1500	0422	3484	2766	0005911	2180	14924	215							
051		OBS	T1568	0398	3483	2767			14925	227							
		STD	1750	0342	3481	2772	0005278	2320	14932	255							
		STD	2000	0278	3478	2775	0004828	2446	14947	289							
051		OBS	T2205	0236	3476	2777			14963	313							
		STD	2500	0194	3474	2779	0004263	2673	14995	341							066
051		OBS	T2950	0170	3474	2781			15063	368							



COUNTRY CODE	IDENTITY NUMBER	SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	DRIFT INDICATOR	MARSDEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			WEATHER CODES		NODC STATION NUMBER		
						10°	1°	MONTH	DAY	HR. 1/10		CRUISE NUMBER	STATION NUMBER			DIR.	HT.	PER.	SEA AMT.	TYPE		AMT.	
31	201	PI	00018S	08870E		327	08	06	03	096	1964	442	032	4407	31	27		3	X1	8	2	0032	
						WATER		WIND		BAROMETER	AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS								
						COLOR CODE	TRANS. (m)	DIR.	SPEED (KNOTS)	(mbs)	DRY BULB	WET BULB											
								32	508	081	278	250	8										

MESSNGR. TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY--10 <sup>7</sup>	Σ Δ D DYN. M. 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH	SCC
096		STD	0000	2906	3450	2169	0061276	0000	15433	443							
		OBS	0000	2906	3450	2169			15433	443							
096		OBS	0009	2891	3450	2174			15432	446							
		STD	0010	2891	3450	2174	0060837	0061	15432	446							
		STD	0020	2887	3450	2175	0060751	0122	15433	446							
096		OBS	0028	2885	3450	2176			15434	446							
		STD	0030	2885	3450	2176	0060728	0183	15434	447							
096		OBS	0047	2886	3450	2176			15437	448							
		STD	0050	2886	3451	2176	0060770	0304	15437	447							
096		OBS	T0056	2886	3452	2177			15439	445							
096		OBS	0066	2888	3452	2176			15441	443							
		STD	0075	2889	3454	2178	0060754	0456	15443	443							
096		OBS	0075	2889	3454	2178			15443	443							
096		OBS	T0085	2891	3459	2181			15445	446							
096		OBS	T0094	2902	3468	2184			15450	442							
		STD	0100	2901	3469	2185	0060165	0607	15451	442							
096		OBS	T0104	2900	3470	2186			15451	440							
096		OBS	T0113	2849	3475	2207			15443	429							
096		OBS	T0122	2794	3482	2230			15433	416							
		*STD	0125	2756	3483	2243	0054688	0751	15425	411							
		OBS	0145	2341	3520	2399			15336	314							
		*STD	0150	2170	3522	2449	0035096	0863	15294	243							
122		OBS	0153	2097	3523	2470			15275	210							
122		OBS	T0162	1802	3514	2539			15194	156							
122		OBS	0171	1554	3513	2597			15120	155							
122		OBS	T0194	1355	3510	2638			15060	160							
		STD	0200	1343	3510	2640	0016899	0993	15057	161							
122		OBS	T0217	1306	3510	2648			15047	166							
		STD	0250	1218	3507	2663	0014841	1072	15023	184							
122		OBS	T0265	1184	3506	2668			15013	190							
		*STD	0300	1135	3504	2676	0013656	1144	15002	188							
122		OBS	T0362	1060	3501	2687			14985	184							
106		OBS	T0392	1008	3499	2695			14971	171							
		STD	0400	1001	3499	2696	0011903	1271	14969	170							
122		OBS	T0461	0964	3498	2702			14966	160							
106		OBS	T0464	0963	3498	2702			14966	157							
		STD	0500	0941	3499	2706	0011105	1386	14964	145							
106		OBS	T0537	0922	3500	2710			14963	136							
		STD	0600	0899	3500	2714	0010539	1495	14965	132							
106		OBS	T0612	0894	3500	2715			14965	130							
106		OBS	T0685	0857	3500	2721			14963	116							
		STD	0700	0848	3500	2722	0009902	1597	14962	117							
		STD	0800	0789	3499	2730	0009218	1692	14956	121							
106		OBS	0835	0767	3498	2733			14953								
		STD	0900	0719	3496	2738	0008523	1781	14945	126							
		STD	1000	0652	3493	2745	0007893	1863	14935	130							
106		OBS	1059	0616	3492	2749			14931	133							
		STD	1100	0597	3492	2751	0007305	1939	14930	139							
		*STD	1200	0549	3490	2756	0006896	2010	14927	155							
		*STD	1300	0504	3489	2760	0006457	2077	14925	172							
		*STD	1400	0460	3488	2765	0006034	2139	14924	189							
106		OBS	1438	0449	3487	2765			14925	196							
		STD	1500	0421	3486	2767	0005751	2198	14924	211							
		STD	1750	0327	3481	2773	0005082	2334	14926	262							
106		OBS	1828	0304	3480	2774			14929	274							
		STD	2000	0270	3479	2777	0004651	2455	14944	292							
106		OBS	T2231	0234	3477	2778			14967	312							
		STD	2500	0207	3476	2780	0004292	2679	15001	329							
106		OBS	T2662	0193	3475	2780			15023	339							
		STD	3000	0170	3474	2781	0004117	2889	15071	360							
106		OBS	T3125	0164	3474	2781			15090	368							

REFERENCE COUNTRY CODE	IDENTITY NUMBER	SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	MARS DEN SQUARE	STATION TIME (GMT)				YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODE	CLOUD CODES		MDDC STATION NUMBER		
						10"	1"	MONTH	DAY		HR. 1/10	CRUISE NUMBER			STATION NUMBER	DIR.	WGT.	PER.		SEA AMT.	TYPE		AMT.	
31	201	PI	00258N	088063E	028	08	06	03	152	1964	442	033	4352	28	27		2	X1	X	9			0033	
						WATER		WIND		BAROMETER		AIR TEMP. °C		VIS. CODE		NO. OF ORIG. DEPTHS		SPECIAL OBSERVATIONS						
						COLOR	TRANS. (m)	DIR.	SPEED IN KNOTS	(mb)		DRY BULB	WET BULB											
									27	S03	098	278	256	8										
MESSANGER TIME ML. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>7</sup>	± Δ D DYN. M. X 10 <sup>7</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l								
152		STD	0000	2890	3450	2174																		
		OBS	0000	2890	3450	2174	0060764	0000	15430	445														
		STD	0010	2890	3450	2174																		
152		OBS	0012	2890	3450	2174	0060805	0061	15432	445						004								
		STD	0020	2887	3450	2175																		
		OBS	0030	2884	3450	2176	0060751	0122	15433	447														
152		OBS	0034	2882	3450	2177	0060696	0182	15434	446														
152		OBS	0044	2885	3451	2177			15434	446														
		STD	0050	2884	3451	2177			15436	446														
152		OBS	0058	2883	3452	2178	0060707	0304	15437	447														
152		OBS	0068	2884	3454	2179			15438	448														
		STD	0075	2885	3457	2181			15440	446														
152		OBS	0077	2885	3458	2182	0060410	0455	15442	446														
152		OBS	0087	2887	3462	2184			15442	446														
		STD	0100	2888	3464	2186			15445	445														
152		OBS	T0101	2888	3464	2186	0060107	0606	15448	443														
152		OBS	T0111	2864	3470	2198			15448	443														
152		OBS	T0121	2775	3483	2237			15445	439						004								
		*STD	0125	2621	3502	2300			15429	416														
152		OBS	0136	2148	3526	2458	0049204	0742	15397	400														
168		OBS	T0145	1709	3514	2562			15286	219														
		STD	0150	1600	3514	2587			15163	156														
168		OBS	T0155	1515	3513	2606	0021827	0831	15131	150														
168		OBS	0169	1401	3512	2630			15105	145														
168		OBS	0179	1362	3511	2637			15071	142														
168		OBS	T0189	1334	3511	2643			15060	153														
		STD	0200	1319	3510	2645			15052	158														
168		OBS	T0204	1311	3510	2647	0016426	0927	15049	170														
168		OBS	0214	1286	3511	2652			15047	145Q														
168		OBS	T0224	1280	3510	2653			15040	176														
		STD	0250	1212	3509	2665			15040	174														
168		OBS	T0254	1203	3509	2667	0014582	1004	15021	179														
168		OBS	T0284	1152	3507	2675			15018	151Q														
		STD	0300	1118	3505	2680			15005	183														
168		OBS	0314	1092	3504	2684	0013277	1074	14996	183														
168		OBS	T0344	1046	3502	2691			14989	183														
		STD	0400	0998	3500	2697			14977	177														
158		OBS	T0441	0969	3499	2702	0011778	1199	14968	167														
		STD	0500	0939	3500	2707			14965	160														
158		OBS	T0552	0914			0010998	1313	14963	149						034								
		*STD	0600	0893	3501	2716			14963	139														
158		OBS	T0664	0862	3501	2721	0010368	1420	14963	129														
		STD	0700	0843	3501	2724			14962	119														
158		OBS	T0781	0800	3500	2729	0009748	1521	14961	114														
		STD	0800	0790	3500	2731			14957	108														
158		OBS	0891	0738	3498	2737	0009160	1615	14957	108														
		STD	0900	0733	3498	2738			14951	110														
		STD	1000	0663	3496	2746	0008590	1704	14951	112														
158		OBS	T1001	0662	3496	2746	0007836	1786	14940	135														
		STD	1100	0560	3492	2756			14940															
158		OBS	1110	0554	3491	2756	0006780	1859	14915	152						052								
		*STD	1200	0530	3490	2758			14914	154														
158		OBS	1219	0528	3490	2758	0006630	1926	14919	165														
		STD	1300	0493	3489	2762			14922	168														
158		OBS	1328	0481	3489	2763	0006306	1991	14921	183														
		STD	1400	0449	3487	2765			14920	188														
		STD	1500	0408	3486	2769	0005958	2052	14919	204						059								
158		OBS	T1655	0352	3483	2772	0005578	2110	14919	224														
		STD	1750	0327	3482	2774			14921	252														
		STD	2000	0272	3480	2777	0005009	2242	14926	265						055								
158		OBS	T2255	0230	3478	2779	0004604	2362	14945	296														
		*STD	2500	0209	3477	2780			14970	321														
158		OBS	T2791	0188	3476	2781	0004246	2584	15002	338														
									15043	351														

REFERENCE COUNTRY CODE	SHIP IDENTITY NUMBER	SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	DATE INDICATOR	STATION TIME (GMT)					YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES			WAVE OBSERVATIONS			WEATHER CODE		CLOUD CODES		NODC STATION NUMBER
						MAERSDEN SQUARE	10°	1°	MONTH	DAY		HR. 1/10	CRUISE NUMBER		STATION NUMBER	DIR.	HGT.	PER.	SEA AMT.	WEATHER CODE	TYPE	AMT.			
31	201	PI	00588N	087543E	028	07	06	03	207	1964	442	034	4297	44	27			3	X1	6	1			0034	

WATER		WIND		BAROMETER (mbs)	AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTH	SPECIAL OBSERVATIONS
COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE		DRY BULB	WET BULB			
		20	S10	085	267	256	8		

MESSNGR TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>3</sup>	Σ Δ D DYN. M. X 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l	SCC
207		STD	0000	2887	3446	2172	0060956	0000	15429	446							
		OBS	0000	2887	3446	2172			15429	446							
		STD	0010	2888	3446	2172	0061029	0061	15431	449							
207		OBS	0010	2888	3446	2172			15431	449							
		STD	0020	2888	3445	2171	0061142	0122	15432	449							
207		OBS	0020	2888	3445	2171			15432	449							
		STD	0030	2891	3446	2171	0061207	0183	15435	448							
207		OBS	0030	2891	3446	2171			15435	448							
207		OBS	0040	2890	3449	2174			15436	449							
		STD	0050	2897	3454	2175	0060907	0305	15440	445							
207		OBS	0050	2897	3454	2175			15440	445							
207		OBS	0060	2896	3457	2178			15442	446							
207		OBS	T0070	2891	3459	2181			15443	445							
		STD	0075	2892	3460	2181	0060419	0457	15444	445							
207		OBS	T0080	2892	3460	2181			15445	445							
207		OBS	T0090	2890	3461	2183			15446	442							
		STD	0100	2883	3468	2190	0059660	0607	15447	440							
207		OBS	T0100	2883	3468	2190			15447	440							
207		OBS	T0110	2868	3471	2197			15446								
		*STD	0125	2422	3523	2377	0041872	0734	15353	343							
207		OBS	T0130	2278	3526	2421			15318	298							
		STD	0150	1730	3512	2555	0024897	0817	15170	135							
207		OBS	T0150	1730	3512	2555			15170	135							
207		OBS	0160	1446	3510	2618			15084	127							
240		OBS	T0170	1418	3510	2624			15077	123							
240		OBS	T0180	1377	3510	2633			15065	135							
240		OBS	T0190	1353	3509	2637			15058	135							
		STD	0200	1346	3510	2639	0016958	0922	15058	129							
240		OBS	0200	1346	3510	2639			15058	129							
240		OBS	T0225	1296	3509	2649			15045	138							
		STD	0250	1238	3508	2660	0015144	1002	15029	163							
240		OBS	T0250	1238	3508	2660			15029	163							
		STD	0300	1127	3506	2679	0013366	1074	14999	160							
240		OBS	0300	1127	3506	2679			14999	160							
		STD	0400	1029	3505	2696	0011941	1200	14980	144							
240		OBS	0400	1029	3505	2696			14980	144							
		STD	0500	0943	3502	2708	0010918	1314	14965	135							
240		OBS	T0500	0943	3502	2708			14965	135							
		STD	0600	0894	3501	2716	0010384	1421	14963	123							
240		OBS	T0600	0894	3501	2716			14963	123							
		STD	0700	0849	3500	2722	0009918	1523	14963	114							
240		OBS	T0700	0849	3500	2722			14963	114							
222		OBS	T0754	0832	3501	2725			14965								
		STD	0800	0792	3500	2731	0009192	1618	14957	106							
240		OBS	T0800	0792	3500	2731			14957	106							
222		OBS	T0852	0754	3499	2735			14951	109							
		STD	0900	0736	3498	2737	0008636	1707	14952	110							
222		OBS	T0951	0707	3497	2741			14949	110							
		*STD	1000	0670	3495	2744	0008013	1790	14943	118							
222		OBS	T1050	0622	3493	2749			14932	129							
		STD	1100	0580	3491	2753	0007135	1866	14923	145							
222		OBS	T1148	0544	3490	2756			14916	160							
		STD	1200	0522	3489	2758	0006592	1935	14916	169							
		STD	1300	0481	3487	2762	0006288	1999	14915	186							
		STD	1400	0443	3486	2765	0005951	2060	14916	203							
222		OBS	1442	0428	3485	2766			14917								
		*STD	1500	0409	3484	2767	0005737	2119	14919	224							
		*STD	1750	0340	3481	2772	0005252	2256	14931	255							
222		OBS	T1932	0291	3479	2775			14941	279							
		*STD	2000	0278	3479	2776	0004755	2381	14947	283							
222		OBS	T2418	0213	3476	2779			14990	333							
		STD	2500	0205	3476	2780	0004265	2607	15001	339							
222		OBS	T2905	0174	3474	2781			15057	362							
		STD	3000	0168	3474	2781	0004089	2816	15070	365							
222		OBS	T3396	0150	3473	2782			15131	380							
222		OBS	T3886	0142	3473	2782			15214	399							
		STD	4000	0142	3473	2782	0004060	3223	15234	402							
222		OBS	T4380	0142	3473	2782			15301	405							

REFERENCE COUNTRY CODE	SHIP IDENTITY NUMBER	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	DEPTH METERS	MARDEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODE	CLOUD CODES		NODC STATION NUMBER		
					10°	1°	MONTH	DAY	HR. 1/10		CRUISE NUMBER	STATION NUMBER			DIR.	HGT.	PER.	SEA AMT.		TYPE	AMT.			
31	201	PI	01308N	087548E	028		17	06	04	032	1964	442	035	4224	25	22			3	X1	8	3		0035

WATER		WIND		AIR TEMP. °C		BAROMETER (mb)	VIS. CODE		NO. OBS. DEPTHS	SPECIAL OBSERVATIONS
COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE	DRY BULB	WET BULB		DIR.	VIS. CODE		
				22	S08	098	283	261	8	

MESSAGE TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>7</sup>	± ΔD DTN. M. X 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l	SCC
		STD	0000	2885	3434	2164	0061754	0000	15427	447							
032		OBS	0000	2885	3434	2164			15427	447							
032		OBS	0005	2886	3434	2164			15428	450							
		STD	0010	2884	3434	2164	0061763	0062	15429	449							
032		OBS	0010	2884	3434	2164			15429	449							
		STD	0020	2887	3435	2164	0061828	0124	15431	449							
032		OBS	0029	2889	3436	2164			15433	449							
		STD	0030	2889	3436	2164	0061861	0185	15433	449							
032		OBS	T0049	2888	3439	2167			15436	446							
		STD	0050	2888	3440	2167	0061624	0309	15437	446							
032		OBS	0059	2888	3450	2175			15439	446							
032		OBS	0069	2889	3457	2180			15442	446							
		STD	0075	2887	3458	2181	0060403	0461	15443	444							
032		OBS	0078	2886	3460	2183			15443	443							
032		OBS	T0088	2890	3469	2189			15447	443							
032		OBS	T0098	2796	3478	2226			15429	421							005
		*STD	0100	2750	3481	2244	0054544	0605	15420	419							
032		OBS	T0108	2669	3496	2281			15404	409							
032		OBS	T0118	2280	3525	2420			15317	283							
		*STD	0125	2218	3522	2435	0036288	0719	15302	237							
050		OBS	T0147	2047	3514	2476			15260	172							
		STD	0150	2034	3514	2480	0032132	0804	15257	169							
050		OBS	0157	1981	3512	2492			15243	157							
050		OBS	T0167	1851	3509	2523			15208	132							
050		OBS	0177	1788	3509	2539			15191	120							
050		OBS	0187	1558	3507	2591			15123	111							
050		OBS	T0197	1460	3508	2614			15094	112							
		STD	0200	1438	3508	2619	0018964	0932	15088	113							
050		OBS	T0222	1320	3508	2643			15053	120							
050		OBS	T0247	1272	3508	2653			15041	121							
		STD	0250	1263	3508	2655	0015620	1018	15038	124							
050		OBS	T0271	1207	3508	2666			15022	135							
050		OBS	T0296	1166	3507	2673			15012	118							
		STD	0300	1161	3507	2674	0013909	1092	15011	117							
039		OBS	T0394	1056	3506	2692			14989	103							
		STD	0400	1049	3506	2693	0012215	1223	14988	104							
039		OBS	T0492	0962	3503	2706			14971	108							025
		STD	0500	0958	3503	2707	0011095	1339	14971	107							
039		OBS	T0591	0910	3503	2715			14968	097							
		STD	0600	0905	3503	2715	0010417	1447	14968	096							
039		OBS	T0689	0853	3502	2723			14963	092							
		STD	0700	0845	3502	2724	0009707	1548	14961	092							
039		OBS	0788	0788	3500	2731			14954	094							
		STD	0800	0782	3500	2732	0009035	1641	14954	095							
039		OBS	T0886	0734	3498	2738			14949								
		STD	0900	0727	3498	2739	0008498	1729	14949	108							
039		OBS	0985	0676	3495	2743			14942	121							
		STD	1000	0663	3495	2745	0007909	1811	14940	123							062
039		OBS	1083	0600	3493	2752			14928	138							
		STD	1100	0591	3492	2752	0007219	1887	14927	142							
039		OBS	1182	0548	3490	2756			14923	161							
		STD	1200	0538	3490	2757	0006741	1956	14922	165							
		*STD	1300	0491	3487	2760	0006425	2022	14920	186							
		*STD	1400	0444	3485	2764	0006037	2085	14917	206							
039		OBS	1478	0406	3484	2767			14914	221							086
		STD	1500	0399	3484	2768	0005605	2143	14915	225							
		STD	1750	0325	3481	2773	0005056	2276	14925	263							
039		OBS	1972	0273	3479	2776			14940	292							095
		STD	2000	0267	3479	2777	0004612	2397	14942	295							
039		OBS	T2466	0206	3475	2779			14995	340							

REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	DRIFT INDICATION	MARSDEN SQUARE		STATION TIME (GMT)			ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			WEATHER CODE	CLOUD CODES		NODC STATION NUMBER	
COUNTRY CODE	IDENTITY NUMBER					10"	1"	MONTH	DAY	HR. 1/10	YEAR	CRUISE NUMBER			STATION NUMBER	DIR.	HGT.		PER.	SEA AMT.		TYPE
31	201	PI	02002N	087517E	028	27	06	04	091	1964	442	036	4060	25	25			3	X1	4	7	0036
		WATER		WIND		BAROMETER		AIR TEMP. °C		VIS.		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS								
		COLOR CODE		DIR.		(mbs)		DRY BULB		WET BULB												
		22		S10		081		300		267		8										
MESSSENGER TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>3</sup>	± Δ D DYN. M. X 10 <sup>2</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l	SCC					
091		STD	0000	2905	3434	2157	0062394	0000	15431	449												
		OBS	0000	2905	3434	2157			15431	449												
		STD	0010	2890	3434	2162	0061955	0062	15430	452					003							
091		OBS	0010	2890	3434	2162			15430	452												
		STD	0020	2886	3435	2164	0061796	0124	15431	452												
091		OBS	0029	2884	3435	2165			15432	452												
		STD	0030	2884	3435	2165	0061773	0186	15432	452												
091		OBS	0048	2887	3434	2163			15436	449												
		STD	0050	2887	3435	2164	0061951	0310	15436	449												
091		OBS	0068	2888	3440	2167			15440	449												
		STD	0075	2888	3449	2174	0061080	0463	15442	448												
091		OBS	0087	2887	3464	2186			15445	440												
		*STD	0100	2860	3476	2204	0058353	0613	15443	428												
091		OBS	0106	2782	3483	2235			15428	413					005							
091		OBS	0121	2380	3505	2376			15340	283												
		STD	0125	2313	3510	2399	0039746	0735	15325	271												
091		OBS	T0145	2022	3526	2492			15254	215												
		STD	0150	1974	3523	2502	0029966	0822	15241	198												
091		OBS	T0194	1600	3505	2580			15137	105												
		STD	0200	1548	3506	2593	0021430	0951	15122	108												
091		OBS	T0243	1282	3509	2652			15043	126												
		STD	0250	1269	3509	2654	0015662	1044	15040	130												
091		OBS	T0293	1199	3508	2667			15023	144												
		STD	0300	1190	3508	2669	0014371	1119	15021	140												
082		OBS	T0395	1078	3505	2687			14997	108												
		STD	0400	1073	3505	2688	0012709	1254	14996	108												
082		OBS	T0494	0988	3503	2702			14981	105					032							
		STD	0500	0983	3503	2702	0011516	1375	14980	105												
082		OBS	T0593	0917	3502	2713			14971	108												
		STD	0600	0913	3502	2713	0010622	1486	14970	108												
		STD	0700	0857	3501	2721	0009973	1589	14966	104												
082		OBS	T0791	0802	3500	2729			14960	101												
		STD	0800	0796	3500	2730	0009254	1685	14959	102												
		STD	0900	0728	3496	2737	0008660	1775	14949	118												
082		OBS	0989	0670	3494	2743			14941	132					042							
		STD	1000	0663	3494	2744	0007982	1858	14940	134												
		*STD	1100	0600	3492	2751	0007348	1934	14931	141												
082		OBS	T1187	0550	3490	2756			14925													
		*STD	1200	0543	3490	2757	0006811	2005	14924	163												
		*STD	1300	0495	3488	2761	0006407	2071	14921	180												
		STD	1400	0450	3486	2764	0006045	2134	14919	201												
082		OBS	1485	0415	3484	2766			14919	215					089							
		STD	1500	0409	3484	2767	0005737	2193	14919	218												
		STD	1750	0328	3480	2772	0005168	2329	14926	259												
082		OBS	T1980	0270	3478	2776			14940	292					094							
		STD	2000	0266	3478	2776	0004672	2452	14942	295												
082		OBS	T2477	0203	3475	2779			14996	344					113							

REFERENCE COUNTRY CODE	MONTH NUMBER	SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	MARS DEN SQUARE	STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODE	CLOUD CODES		NODC STATION NUMBER	
						10"	1"	MONTH DAY HR. 1/10		CRUISE NUMBER	STATION NUMBER			DIR.	HGT.	PER.	SEA AMT.		TYPE	AMT.		
31	201	PI	02291N	087528E	028	27	06	04	119	1964	442	037	4142	25	28			3	X2	8	8	0037
					WATER		WIND		BAROMETER		AIR TEMP. °C		VIS. CODE		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS					
					COLOR CODE	TRANK (m)	DIR.	DIR.	DIR.	(mbs)	DRY BULB	WET BULB										
							23	S12	078	278	256	7										

MESSANGER TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>7</sup>	± Δ D DYN. M. X 10 <sup>2</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P ug-at/l	TOTAL-P ug-at/l	NO <sub>3</sub> -N ug-at/l	NO <sub>2</sub> -N ug-at/l	SiO <sub>2</sub> -Si ug-at/l	pH ug-at/l	SCC
		STD	0000	2894	3433	2160	0062113	0000	15429	453							
119		OBS	0000	2894	3433	2160			15429	453							
		STD	0010	2893	3433	2161	0062122	0062	15430	452					004		
119		OBS	0010	2893	3433	2161			15430	452							
119		OBS	0019	2892	3433	2161			15432	450							
		STD	0020	2892	3433	2161	0062131	0124	15432	450							
119		OBS	0029	2893	3434	2161			15434	452							
		STD	0030	2893	3434	2161	0062133	0186	15434	452							
119		OBS	0048	2893	3435	2162			15437	450							
		*STD	0050	2899	3442	2165	0061832	0310	15439	450							
119		OBS	0073	2900	3459	2178			15445	446							
		*STD	0075	2898	3460	2179	0060611	0463	15445	445							
119		OBS	0097	2761	3488	2245			15422	415							
		STD	0100	2714	3492	2263	0052644	0605	15413	404							
		*STD	0125	2361	3517	2391	0040579	0721	15337	330							
119		OBS	T0147	2110	3528	2470			15278	254							
		*STD	0150	2086	3525	2474	0032675	0813	15272	244							
119		OBS	T0196	1750	3513	2551			15184	135							
		STD	0200	1721	3513	2558	0024778	0957	15176	136							
		*STD	0250	1400	3511	2629	0018108	1064	15084	139							
119		OBS	T0295	1224	3509	2663			15032	144							
		STD	0300	1215	3509	2665	0014764	1146	15030	144							
119		OBS	T0394	1078	3505	2687			14997	138							
		*STD	0400	1075	3505	2688	0012744	1284	14997	135							
119		OBS	T0493	1002	3504	2700			14986	103							
128		OBS	T0494	1003	3504	2700			14986								
		STD	0500	0998	3504	2701	0011699	1406	14985	101					030		
128		OBS	T0592	0920	3502	2712			14972	085							
		STD	0600	0915	3502	2713	0010655	1518	14971	085							
		STD	0700	0848	3501	2723	0009829	1620	14962	086							
128		OBS	T0791	0786	3499	2731			14954	086							
		STD	0800	0779	3499	2732	0009062	1714	14952	088							
		STD	0900	0708	3496	2740	0008357	1802	14941	112							
128		OBS	T0990	0650	3494	2746			14933	131							
		STD	1000	0644	3494	2747	0007702	1882	14932	133							
		STD	1100	0585	3491	2752	0007207	1956	14925	152							
128		OBS	T1188	0539	3489	2756			14921	168							
		STD	1200	0534	3489	2757	0006759	2026	14921	170							
		STD	1300	0490	3487	2761	0006411	2092	14919	188							
		STD	1400	0449	3486	2764	0006031	2154	14919	205							
128		OBS	T1482	0418	3485	2767			14920								
		STD	1500	0411	3485	2768	0005691	2213	14920	221							
		STD	1750	0329	3481	2773	0005108	2348	14927	257							
128		OBS	T1968	0275	3479	2776			14940	284							
		STD	2000	0268	3479	2777	0004625	2470	14943	288							
128		OBS	T2452	0212	3475	2778			14995	330							

REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	HAARS DEN SQUARE	STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			CLOUD CODES		NODC STATION NUMBER	
COUNTRY CODE	IDENTITY NUMBER					TYPE	°	MONTH		DAY	HR. 1/10			CRUISE NUMBER	STATION NUMBER	DIR.	HGT.	PER.		SEA AM
31	201	PI	03012N	087532E	028	37	06	04	173	1964	442	038	4096	42	28				0038	
				WATER		WIND			BAROMETER		AIR TEMP. °C		VIS.		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS			
				COLOR CODE		TRANS. (m)		DIR.		SPEED (KNT)		(mb)		DRY BULB		WET BULB		VIS. CODE		
								22		S13		098		256		244				

MESSNGR TIME HR.	CAST NO. 1/10	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- $\sigma_{\theta}$	$\Delta \rho$ DYN. AL $\times 10^3$	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P $\mu\text{g-at/l}$	TOTAL-P $\mu\text{g-at/l}$	NO <sub>2</sub> -N $\mu\text{g-at/l}$	NO <sub>3</sub> -N $\mu\text{g-at/l}$	SiO <sub>2</sub> -Si $\mu\text{g-at/l}$	pH $\mu\text{g-at/l}$	SCC
		STD	0000	2866	3428	2166	0061581	0000	15422	450							
173		OBS	0000	2866	3428	2166			15422	450					003		
		STD	0010	2868	3427	2164	0061757	0062	15424	451							
		STD	0020	2871	3425	2162	0062037	0124	15427	452							
173		OBS	0022	2871	3425	2162			15427	452							
		STD	0030	2870	3426	2163	0061974	0186	15428	452							
		OBS	0044	2869	3427	2164			15430	450							
		STD	0050	2871	3428	2164	0061944	0309	15432	448							
		STD	0075	2878	3432	2165	0061981	0464	15438	442							
173		OBS	0088	2882	3434	2165			15441	438							
		*STD	0100	2759	3464	2228	0056043	0612	15420	418							
173		OBS	0106	2681	3496	2277			15407	403							
173		OBS	0115	2544	3510	2330			15379	375							
		*STD	0125	2418	3524	2379	0041686	0734	15352	331							
173		OBS	0133	2324	3525	2407			15330	297							
		*STD	0150	2162	3522	2451	0034884	0830	15292	215							
176		OBS	0178	1921	3503	2501			15229	123							
		STD	0200	1759	3500	2539	0026601	0984	15186	102							
176		OBS	T0223	1598	3499	2576			15141	089							
		*STD	0250	1409	3502	2620	0018948	1097	15086	085							
176		OBS	0268	1310	3504	2642			15056	089							
		*STD	0300	1243	3506	2657	0015514	1184	15039	110							
176		OBS	T0360	1140	3507	2678			15013	146							
		*STD	0400	1095	3505	2684	0013100	1327	15004	145							
176		OBS	T0455	1035	3504	2694			14991	132					015		
189		OBS	T0462	1023	3504	2696			14988	128							
		STD	0500	1001	3504	2700	0011750	1451	14986	108							
176		OBS	T0551	0970	3504	2705			14984	088							
		STD	0600	0933	3503	2711	0010881	1564	14978	090							
		STD	0700	0859	3501	2721	0010006	1668	14967	093							
176		OBS	T0745	0825	3500	2726			14961	095							
189		OBS	T0752	0807	3500	2728			14955	095							
		STD	0800	0772	3499	2733	0008953	1763	14950	101							036
		STD	0900	0705	3496	2740	0008312	1850	14940	115							
176		OBS	T0943	0678	3495	2743			14936	121							069
		STD	1000	0648	3494	2746	0007761	1930	14934	133							
		STD	1100	0597	3492	2751	0007305	2005	14930	152							
		STD	1200	0549	3491	2757	0006822	2076	14927	171							
189		OBS	1236	0532	3490	2758			14926								062
		STD	1300	0501	3489	2761	0006416	2142	14924	189							
		*STD	1400	0460	3487	2764	0006107	2205	14923	206							
		*STD	1500	0421	3485	2767	0005824	2264	14924	222							
189		OBS	T11721	0339	3482	2773			14926	255							
		STD	1750	0331	3482	2773	0005061	2400	14928	259							
		STD	2000	0274	3480	2777	0004630	2522	14945	290							
189		OBS	2209	0237	3478	2779			14965	312							074
		*STD	2500	0200	3476	2780	0004198	2742	14998	336							
189		OBS	T2698	0188	3475	2780			15027	349							107
		STD	3000	0166	3474	2781	0004061	2949	15070	361							
189		OBS	T3188	0156	3476Q	2783Q				369							
189		OBS	T3678	0140	3473	2782			15176	392							
		STD	4000	0140	3473	2782	0004029	3353	15233	405							
189		OBS	T4170	0140	3473	2782			15263	412							

REFERENCE		SHIP CODE	LATITUDE * 1/10	LONGITUDE * 1/10	MARS DEN SQUARE	STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			WEATHER CODE	CLOUD CODES		NODE STATION NUMBER			
COUNTRY CODE	IDENTITY NUMBER					10 <sup>1</sup>	10 <sup>1</sup>	MONTH		DAY	HR. 1/10			CRUISE NUMBER	STATION NUMBER	DIR.		HGT.	PER.		SEA AMT.	TYPE	AMT.
31	201	PI	04000N	087504E	028	47	06	05	007	1964	442	039	3977	23	26			3	X5	4	8	0039	
		WATER		WIND		BAROMETER		AIR TEMP. °C		VIS. CODE		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS									
		COLOR CODE		TRANS. (m)		DIR.		SPEED (KNOTS)		DRY BULB		WET BULB											
						21		S09		091		267		256		6							

MESSANGER TIME RE 1/12	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>7</sup>	Σ Δ D DYN. M. X 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>2</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH
007		STD	0000	2855	3398	2147										
007		OBS	0000	2855	3398	2147	0063388	0000	15417	447						
		OBS	0009	2856	3398	2147			15417	447						
		STD	0010	2856	3398	2147			15419	448						
		STD	0020	2857	3400	2148	0063460	0063	15419	448					002	
007		OBS	0027	2858	3401	2148	0063388	0127	15421	446						
		*STD	0030	2857	3407	2153			15422	445						
007		OBS	0045	2834	3431	2179	0062926	0190	15423	446						
		STD	0050	2830	3432	2181			15423	448						
007		OBS	0063	2818	3446	2195	0060358	0313	15423	448						
		*STD	0075	2779	3470	2226			15424	447						
007		OBS	0080	2756	3487	2246	0056133	0459	15421	442						
007		OBS	0098	2640	3516	2305			15418	439						
		*STD	0100	2635	3519	2309			15398	421						
007		OBS	T0112	2546	3529	2344	0048304	0589	15398	415					003	
		*STD	0125	2281	3520	2416			15381	377						
007		OBS	T0134	2133	3509	2449	0038145	0698	15318	241						
		STD	0150	2021	3505	2476			15280	171						
007		OBS	T0180	1819	3501	2525	0032452	0786	15252	145						
		STD	0200	1681	3503	2560			15200	111						
007		OBS	T0227	1524	3506	2598	0024590	0928	15163	100						
		STD	0250	1424	3507	2621			15119	093						
007		OBS	T0276	1328	3508	2642	0018891	1037	15091	101						
		*STD	0300	1278	3508	2652			15064	107						
		STD	0400	1114	3507	2682	0016039	1124	15051	105						
014		OBS	T0411	1100	3507	2685	0013294	1271	15011	075						
		STD	0500	1018	3506	2699			15008	072						
014		OBS	T0500	1018	3506	2699	0011897	1397	14993	088						
014		OBS	T0587	0932	3503	2711			14993	088						
		STD	0600	0925	3503	2712			14975	064					032	
		STD	0700	0865	3502	2721	0010747	1510	14975	065						
014		OBS	T0764	0820	3501	2727	0010030	1614	14969	077						
		STD	0800	0783	3500	2732			14962	087						
		STD	0900	0698	3496	2741	0009051	1710	14954	095						
014		OBS	T0942	0670	3495	2744	0008207	1796	14937	114						
		STD	1000	0648	3494	2746			14933	122						
		STD	1100	0608	3492	2750	0007761	1876	14934	127					040	
014		OBS	T1120	0600	3492	2751	0007463	1952	14934	138						
		STD	1200	0566	3491	2755			14934							
014		OBS	T1388	0524	3489	2758	0007063	2024	14934	150						
		STD	1400	0480	3488	2762	0006736	2093	14933	164						
		*STD	1500	0435	3486	2766			14933	177						
		*STD	1750	0331	3481	2773	0006308	2159	14932	180					069	
014		OBS	1857	0292	3480	2775	0005940	2220	14930	202						
		*STD	2000	0267	3478	2776	0005134	2358	14928	250						
014		OBS	T2342	0218	3476	2779	0004685	2481	14929	267						
									14942	286					096	
									14979	317					104	



REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	MARSden SQUARE	STATION TIME (GMT)				YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER		CLOUD CODES		NODC STATION NUMBER				
COUNTRY CODE	IDENTITY NUMBER					10 <sup>°</sup>	1 <sup>'</sup>	MONTH	DAY		HR. 1/10	CRUISE NUMBER			STATION NUMBER	DIR.	HGT.	PER.	SEA AMT.	WEATHER CODE	TYPE	AMT.		TYPE	AMT.		
31	201	PI	05002N	087517E	028	57	06	05	069	1964	442	040	3886	39	25				3	X9	9	8		0040			
				WATER		WIND		BAROMETER		AIR TEMP. °C		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS													
				COLOR CODE		TRANS. (m)		DIR.		SPEED OR FORCE		(mbs)		DRY BULB		WET BULB		VIC CODE									
						22		S15		098		261		244		8											
MESSNGER TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>3</sup>	σ <sub>t</sub> Δ D DYN. M. X 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l	SCC										
069		STD	0000	2864	3397	2143	0063745	0000	15419																		
		OBS	0000	2864	3397	2143			15419																		
069		OBS	0009	2865	3397	2143			15420																		
		STD	0010	2865	3397	2143	0063817	0064	15421																		
069		OBS	0019	2864	3397	2143			15422	447																	
		STD	0020	2865	3397	2143	0063858	0128	15422	447																	
069		OBS	0028	2869	3397	2142			15424	447																	
		STD	0030	2869	3397	2142	0064025	0192	15425	447																	
069		OBS	0047	2868	3398	2143			15427	445																	
		*STD	0050	2861	3417	2159	0062416	0318	15428	431																	
069		OBS	0070	2722	3505	2271			15411																		
		*STD	0075	2702	3510	2281	0050883	0460	15408	328																	
069		OBS	0094	2650	3524	2308			15401	261																	
		STD	0100	2622	3525	2317	0047482	0583	15396	244																	
		*STD	0125	2500	3527	2357	0043831	0697	15372	183																	
069		OBS	T0141	2330	3528	2408			15333	282Q																	
		*STD	0150	2205	3527	2443	0035671	0796	15303	125																	
069		OBS	T0189	1756	3510	2547			15184	084																	
		STD	0200	1690	3510	2563	0024286	0946	15166	085																	
		STD	0250	1440	3509	2619	0019075	1054	15097	087																	
069		OBS	T0285	1311	3508	2645			15060	088																	
		STD	0300	1285	3508	2650	0016175	1143	15054	086																	
069		OBS	T0382	1156	3508	2675			15023	076																	
		STD	0400	1132	3507	2679	0013620	1291	15017	072																	
069		OBS	0479	1038	3505	2694			14997	059																	
		STD	0500	1023	3505	2697	0012057	1420	14995	060							023										
		*STD	0600	0944	3503	2709	0011065	1535	14982	058																	
082		OBS	T0634	0913	3502	2713			14976	064																	
		STD	0700	0845	3501	2723	0009780	1640	14961	088																	
082		OBS	T0722	0825	3500	2726			14957	094																	
		STD	0800	0771	3498	2732	0009011	1734	14949	098																	
082		OBS	T0897	0711	3496	2739			14942	107																	
		STD	0900	0709	3496	2740	0008372	1821	14941	108																	
		STD	1000	0660	3494	2745	0007938	1902	14938	128																	
082		OBS	T1075	0625	3493	2749			14937	139																	
		STD	1100	0615	3493	2750	0007492	1979	14937	140							061										
		STD	1200	0574	3492	2754	0007104	2052	14937	146																	
082		OBS	T1257	0550	3491	2757			14937	151																	
		STD	1300	0528	3490	2758	0006719	2121	14935	160																	
		STD	1400	0480	3488	2762	0006308	2187	14932	180																	
		STD	1500	0436	3487	2767	0005880	2247	14930	199																	
082		OBS	1530	0423	3486	2767			14930																		
		STD	1750	0337	3482	2773	0005139	2385	14930	242							079										
082		OBS	1987	0268	3479	2777			14941	277																	
		STD	2000	0266	3479	2777	0004600	2507	14942	279																	
082		OBS	T2450	0205	3476	2780			14992	328																	
		STD	2500	0201	3476	2780	0004212	2727	14999	331																	
082		OBS	T2916	0171	3475	2782			15057	355							110										
		STD	3000	0166	3475	2782	0003989	2932	15070	359																	
082		OBS	T3391	0146	3474	2783			15129	375																	
082		OBS	T3680	0138	3473	2782			15176	384							108										
082		OBS	T3875	0140	3473	2782			15211	381																	

REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	MARS DEN SQUARE	STATION TIME (GMT)				YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			WEATHER CODE		CLOUD CODES		NODC STATION NUMBER
COUNTRY CODE	IDENTITY NUMBER					1°	1'	MONTH	DAY		HR. 1/10	CRUISE NUMBER			STATION NUMBER	DIR.	PER.	SEA AMT.	TYPE	AMT.		
31	201	PI	04595N	092006E	027	42	06	13	143	1964	442	041	3895	39	22		3	X1	X	9	0041	

WATER		WIND		BAROMETER (mba)	AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTH	SPECIAL OBSERVATIONS
COLOR CODE	TRANS. (m)	DIR.	SPID OR DIR		DRY BULB	WET BULB			
		22	S14	075	267	256	7		

MESSAGE TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>3</sup>	Σ ΔD DYN. AL X 10 <sup>2</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>3</sub> -N μg-at/l	NO <sub>2</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l
143		STD	0000	2844	3405	2156	0062537	0000	15415	4.75						
		OBS	0000	2844	3405	2156			15415	4.75						
		STD	0010	2846	3405	2155	0062641	0063	15417	4.75						
		STD	0020	2848	3405	2155	0062744	0125	15419	4.74						
143		OBS	0023	2848	3405	2155			15420	4.74						
		STD	0030	2847	3405	2155	0062753	0188	15421	4.70						
143		OBS	0045	2846	3406	2156			15423	4.65						
		*STD	0050	2850	3407	2155	0062785	0314	15425	4.65						
143		OBS	0067	2856	3411	2156			15430	4.62						
		STD	0075	2830	3447	2192	0059383	0466	15429	4.58						
143		OBS	T0090	2781	3488	2239			15425	4.49						
143		OBS	T0099	2686	3497	2276			15407	4.13						
		*STD	0100	2683	3498	2278	0051266	0605	15407	4.05						
143		OBS	T0112	2606	3512	2313			15393	3.91						
		*STD	0125	2447	3520	2367	0042803	0722	15358	2.86						
143		OBS	0135	2281	3521	2417			15319	2.19						
		*STD	0150	1916	3498	2498	0030337	0814	15222	1.50						
143		OBS	0157	1784	3490	2525			15185	1.10						
		STD	0200	1550	3494	2583	0022346	0945	15121	0.88						
143		OBS	T0203	1536	3494	2586			15118	0.87						
		*STD	0250	1345	3498	2630	0017951	1046	15064	0.78						
143		OBS	T0270	1290	3500	2643			15049	0.76						
		STD	0300	1231	3502	2656	0015578	1130	15035	0.75						
143		OBS	T0361	1129	3505	2678			15010	0.74						
		STD	0400	1073	3505	2688	0012709	1271	14996	0.78						
143		OBS	T0453	1018	3504	2697			14985	0.81						
		STD	0500	0998	3504	2701	0011699	1393	14985	0.82						
143		OBS	T0547	0977	3504	2704			14985	0.83						
157		OBS	T0549	0974	3503	2704			14985	0.84						
		STD	0600	0935	3503	2710	0010914	1506	14979	0.85						
		STD	0700	0861	3502	2722	0009965	1611	14967	0.86						
143		OBS	T0739	0832	3501	2725			14963	0.87						
		*STD	0800	0790	3499	2730	0009233	1707	14957	0.94						
		*STD	0900	0720	3497	2739	0008465	1795	14946	1.05						
		*STD	1000	0651	3495	2747	0007732	1876	14935	1.20						
157		OBS	T1023	0631	3494	2749			14931							
		*STD	1100	0587	3493	2753	0007088	1950	14926	1.36						
		*STD	1200	0534	3491	2758	0006612	2019	14921	1.55						
		*STD	1300	0485	3489	2763	0006196	2083	14917	1.75						
		STD	1400	0440	3487	2766	0005837	2143	14915	1.98						
		STD	1500	0399	3485	2769	0005532	2200	14915	2.15						
157		OBS	1503	0398	3485	2769			14915	2.15						
		*STD	1750	0325	3481	2773	0005056	2332	14925	2.60						
157		OBS	1985	0263	3479	2777			14938	2.94						
		STD	2000	0261	3479	2777	0004535	2452	14940	3.95						
157		OBS	2468	0204	3477	2781			14995	3.33						
		STD	2500	0202	3477	2781	0004153	2669	14999	3.34						
157		OBS	2953	0169	3475	2782			15063	3.59						
		STD	3000	0166	3475	2782	0003989	2873	15070	3.63						
157		OBS	T3439	0140	3474	2783			15135	3.98						
157		OBS	T3925	0116	3473	2784			15209	4.30						

REFERENCE COUNTRY CODE	IDENTITY NUMBER	SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	MARS DEN- SITY	STATION TIME (GMT)				YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODE		CLOUD CODES		NODC STATION NUMBER	
						10°	1°	MONTH	DAY		HR. 1/10	CRUISE NUMBER			STATION NUMBER	DIR.	HGT.	PER.	SEA AMT.	CODE	TYPE	AMT.		
31	201	PI	03467N	092005E	027	32	06	13	226	1964	442	042	3986	22	22				3	X1	7	2		0042
						WATER		WIND		BAROMETER		AIR TEMP. °C		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS								
						COLOR CODE	TRANS. (m)	DIR.	SPEED (m/sec)	(mb)	DRY BULB	WET BULB	VS. CODE											
								22	S13	064	267	244	8											
MESSANGER TIME HR. 1/10	CASST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>3</sup>	Δ D DYN. HL. X 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l	SCC							
226		STD	0000	2884	3401	2140	0064094	0000	15423	445														
		OBS	0000	2884	3401	2140			15423	445														
		STD	0010	2886	3401	2139	0064198	0064	15426	445							001							
226		OBS	0018	2887	3401	2139			15427	445														
		STD	0020	2887	3401	2139	0064271	0128	15427	445														
		STD	0030	2886	3402	2140	0064208	0193	15429	446														
226		OBS	0036	2885	3403	2141			15430	446														
		STD	0050	2883	3407	2144	0063834	0321	15432	445														
226		OBS	0054	2880	3408	2146			15432	445														
226		OBS	0069	2857	3415	2159			15431	445														
		STD	0075	2858	3417	2160	0062422	0478	15432	445														
226		OBS	T0076	2858	3417	2160			15432	445														
226		OBS	T0088	2860	3427	2167			15436	442							002							
226		OBS	T0099	2864	3431	2169			15439	436														
		*STD	0100	2842	3432	2177	0060940	0633	15434	434														
226		OBS	0111	2642	3449	2254			15394	357														
		*STD	0125	2554	3486	2309	0048361	0769	15380	335														
226		OBS	T0130	2503	3494	2331			15370	325														
		STD	0150	2198	3503	2427	0037214	0876	15299	163														
226		OBS	T0150	2198	3503	2427			15299	163														
226		OBS	T0192	1505	3496	2595			15106	087														
		STD	0200	1472	3498	2604	0020399	1020	15097	089														
		STD	0250	1300	3508	2647	0016335	1112	15050	099														
233		OBS	T0261	1270	3509	2654			15042	100														
		STD	0300	1202	3508	2667	0014594	1189	15025	100														
233		OBS	T0338	1144	3507	2677			15011	096														
		STD	0400	1066	3506	2690	0012512	1325	14994	079														
233		OBS	T0415	1050	3506	2693			14990	077														
233		OBS	T0495	0979	3504	2704			14978	076							035							
		STD	0500	0976	3504	2704	0011324	1444	14977	076														
		STD	0600	0905	3503	2715	0010417	1553	14968	079														
233		OBS	0658	0862	3502	2721			14961	080														
		STD	0700	0824	3501	2727	0009446	1652	14953	088														
		*STD	0800	0744	3499	2737	0008522	1742	14939	103														
233		OBS	T0823	0728	3498	2738			14936															
		STD	0900	0685	3496	2743	0008013	1825	14932	124														
233		OBS	0994	0636	3494	2748			14928	138							066							
		STD	1000	0633	3494	2748	0007542	1903	14928	139														
		STD	1100	0589	3492	2752	0007190	1976	14927	150														
		STD	1200	0545	3491	2757	0006766	2046	14925	162														
233		OBS	1252	0523	3490	2759			14925	169							058							
		STD	1300	0499	3489	2761	0006388	2112	14923	179														
		*STD	1400	0457	3488	2765	0005993	2174	14922	194														
		*STD	1500	0418	3486	2768	0005711	2232	14923	210														
		STD	1750	0323	3482	2774	0004957	2365	14924	255														
233		OBS	1777	0315	3482	2775			14925	259							088							
		*STD	2000	0270	3480	2777	0004578	2485	14944	286														
233		OBS	T2228	0232	3478	2779			14966	308														

REFERENCE COUNTRY CODE	SHIP IDENTITY NUMBER	SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	MARS DEN SQUARE NUMBER	STATION TIME (GMT)					YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			WEATHER CODE	CLOUD CODES		NODC STATION NUMBER
						10"	1"	MONTH	DAY	HR. 1/10		CRUISE NUMBER	STATION NUMBER			DIR.	HGT.	PER.		SEA AMT.	TYPE	
31	201	PI	02460N	092001E	027	22	06	14	052	1964	442	043	4069	41	23	3	X2	4	8	0043		
						WIND		BAROMETER		AIR TEMP. °C		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS								
						COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE	(mb)	DRY BULB	WET BULB	RES. CODE									
									24	S14	085	272	250	7								

MESSANGER TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>3</sup>	Σ Δ D DYN. AL X 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>2</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l
		STD	0000	2896	3327	2080	0069796	0000	15418							
052		OBS	0000	2896	3327	2080			15418							
		STD	0010	2897	3327	2080	0069868	0070	15420						001	
		STD	0020	2898	3327	2079	0069939	0140	15422							
052		OBS	0024	2899	3327	2079			15423	450						
		STD	0030	2901	3329	2080	0069931	0210	15424	450						
052		OBS	0048	2906	3334	2082			15429	447						
		STD	0050	2909	3346	2090	0069046	0349	15431	446						
052		OBS	0071	2929	3436	2151			15448	440						
		STD	0075	2927	3437	2152	0063194	0514	15449	439						
		STD	0100	2914	3445	2163	0062304	0671	15451	431						
052		OBS	T0109	2909	3448	2166			15452	428						006
052		OBS	0119	2726	3437	2218			15413	367						
		*STD	0125	2625	3469	2274	0051695	0813	15394	358						
052		OBS	T0128	2610	3471	2280			15392	348						
052		OBS	T0143	2390	3507	2374			15346	251						
		*STD	0150	2158	3506	2440	0035932	0923	15289	193						
052		OBS	0167	1711	3495	2547			15165	091						
		*STD	0200	1410	3503	2621	0018755	1060	15078	095						
052		OBS	T0215	1338	3505	2637			15057	097						
		STD	0250	1244	3506	2657	0015405	1145	15031	111						
052		OBS	T0287	1162	3506	2673			15009	116						
		*STD	0300	1141	3506	2677	0013618	1218	15004	115						
052		OBS	T0383	1034	3505	2695			14979	086						
		STD	0400	1022	3505	2697	0011821	1345	14978	089						
052		OBS	T0480	0964	3504	2706			14970	097						030
		*STD	0500	0949	3504	2709	0010871	1458	14967	094						
065		OBS	T0571	0890	3502	2717			14957	090						
052		OBS	T0577	0887	3503	2718			14957	090						
		*STD	0600	0875	3503	2720	0009929	1562	14956	091						
		*STD	0700	0825	3501	2726	0009462	1659	14954	095						
065		OBS	T0763	0793	3500	2730			14952	097						048
052		OBS	T0773	0785	3500	2732			14950	102						
		STD	0800	0773	3499	2733	0008968	1751	14950	103						
		STD	0900	0722	3497	2738	0008496	1839	14947	110						
065		OBS	0957	0690	3496	2742			14943	116						
		STD	1000	0656	3495	2746	0007805	1920	14937	126						
		STD	1100	0583	3492	2753	0007105	1995	14924	147						
		STD	1200	0520	3489	2759	0006565	2063	14915	168						
065		OBS	T1247	0493	3488	2761			14912	177						079
		STD	1300	0473	3487	2762	0006180	2127	14912	187						
		STD	1400	0437	3486	2766	0005870	2187	14914	204						
		STD	1500	0404	3485	2768	0005598	2244	14917	221						
065		OBS	1730	0336	3482	2773			14926	263						094
		STD	1750	0331	3482	2773	0005061	2378	14928	257						
		*STD	2000	0273	3479	2776	0004690	2499	14945	273						
065		OBS	2213	0236	3477	2778			14965							
		STD	2500	0212	3476	2779	0004358	2726	15004	326						
065		OBS	2696	0196	3475	2780			15030	342						075
		STD	3000	0172	3474	2781	0004145	2938	15072	364						
065		OBS	T3179	0159	3474	2782			15098	377						111
065		OBS	3662	0131	3472	2782			15169	412						
		STD	4000	0118	3472	2783	0003755	3333	15223	431						
065		OBS	T4144	0114	3472	2783			15247	438						

REFERENCE COUNTRY CODE	IDENTITY NUMBER	SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	DATE IMPLICATED	MARS DEN SQUARE				STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODE		CLOUD CODES		NODC STATION NUMBER
						10"	1"	MONTH	DAY	HR. 1/10	CRUISE NUMBER	STATION NUMBER		DIR.	HGT.			PER.	SEA AMT.	TYPE	AMT.					
31	201	PI	02148N	092009E	027	22	06	14	107	1964	442	044	4133	24	28					3	X1	6	7	0044		

WATER		WIND		BAROMETER (mba)	AIR TEMP. °C		VIS. CODE	NO. ONE REFRIS	SPECIAL OBSERVATIONS
COLOR CODE	TRANS. (m)	DIR.	SPEED OF FORCE		DRY BULB	WET BULB			
		20	S10	051	267	250	7		

MESSANGER TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANDOMAL-X10 <sup>7</sup>	Σ Δ D DYN. M. X 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>2</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l	SCC
107		STD	0000	2903	3340	2088	0069085	0000	15421	453							
		OBS	0000	2903	3340	2088			15421	453							
		STD	0010	2903	3340	2088	0069125	0069	15423	453					001		
		STD	0020	2902	3339	2087	0069205	0138	15424	454							
107		OBS	0024	2902	3339	2087			15425	454							
		*STD	0030	2907	3340	2086	0069333	0208	15427	454							
107		OBS	0049	2917	3350	2090			15433	450							
		STD	0050	2917	3356	2095	0068585	0345	15434	450							
107		OBS	0073	2921	3456	2168			15449	441							
		STD	0075	2920	3458	2170	0061462	0508	15450	439							
107		OBS	T0098	2912	3471	2183			15453	429					001		
		STD	0100	2905	3471	2185	0060150	0660	15452	431							
107		OBS	T0108	2874	3470	2195			15447	435							
107		OBS	T0123	2808	3476	2221			15435	418							
		*STD	0125	2700	3476	2256	0053465	0802	15412	398							
107		OBS	0132	2506	3477	2317			15369	319							
107		OBS	0147	1937	3499	2494			15228	110							
		STD	0150	1858	3499	2514	0028854	0905	15206	105							
107		OBS	T0172	1447	3500	2611			15085	087							
107		OBS	0197	1334	3506	2639			15053	104							
		STD	0200	1327	3506	2640	0016876	1019	15051	105							
107		OBS	T0247	1232	3506	2659			15027	115							
		STD	0250	1226	3506	2660	0015064	1099	15025	115							
115		OBS	T0295	1147	3506	2675			15005	115							
		STD	0300	1138	3506	2677	0013564	1171	15003	114							
115		OBS	T0393	1001	3504	2700			14969	104							
		STD	0400	0995	3504	2701	0011434	1296	14968	104							
115		OBS	T0491	0926	3503	2712			14957	100					037		
		STD	0500	0920	3503	2713	0010465	1405	14957	100							
115		OBS	T0589	0868	3502	2720			14952	099							
		STD	0600	0863	3502	2721	0009809	1507	14952	099							
		STD	0700	0814	3500	2727	0009362	1602	14949	102							
115		OBS	0785	0773	3499	2733			14948	104							
		STD	0800	0767	3499	2734	0008875	1694	14948	106							
		STD	0900	0721	3497	2739	0008480	1780	14946	118							
115		OBS	T0980	0680	3495	2743			14943						044		
		*STD	1000	0667	3494	2744	0008041	1863	14941	127							
		*STD	1100	0604	3491	2750	0007479	1941	14932	143							
115		OBS	1175	0560	3489	2754			14927	161							
		STD	1200	0546	3489	2755	0006927	2013	14925	167							
		STD	1300	0491	3487	2760	0006425	2079	14919	189							
		STD	1400	0443	3485	2764	0006024	2142	14916	210							
115		OBS	1464	0415	3484	2766			14915	222							
		STD	1500	0403	3484	2768	0005658	2200	14916	228					089		
		STD	1750	0328	3481	2773	0005095	2334	14926	263							
115		OBS	1944	0282	3479	2776			14939	287					086		
		STD	2000	0271	3479	2777	0004664	2456	14944	293							
115		OBS	T2420	0213	3476	2779			14990	329							

REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	MARS DEN SQUARE	STATION TIME (GMT)				YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			WEATHER CODE	CLOUD CODES		NODC STATION NUMBER
COUNTRY CODE	IDENTITY NUMBER					TOP	1 <sup>st</sup>	MONTH	DAY		HR. 1/10	CRUISE NUMBER			STATION NUMBER	DIR.	PER.		SEA AMT.	TYPE	
31	201	PI	01510N	091599E	027	11	06	14	144	1964	442	045	4151	25	24				0045		
		WATER		WIND		BAROMETER		AIR TEMP. °C		VIS. CODE		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS							
		COLOR		DIR.		(mbs)		DRY BULB		WET BULB											
		24		S11		071		267		250		8									
MESSAGE TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>7</sup>	Σ Δ D DYN. M. X 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l					
144		STD	0000	2908	3343	2088	0069029	0000	15422	448											
		OBS	0000	2908	3343	2088			15422	448											
		STD	0010	2909	3343	2088			15422	448											
		STD	0020	2910	3344	2088	0069102	0069	15424	449					001						
144		OBS	0025	2911	3344	2088	0069102	0138	15426	450											
		*STD	0030	2917	3346	2087			15427	450											
		STD	0050	2930	3392	2117	0069223	0207	15430	450											
144		OBS	0050	2930	3392	2117	0066418	0343	15440	450											
		STD	0075	2926	3449	2162			15440	450											
144		OBS	0075	2926	3449	2162	0062301	0504	15450	450											
144		OBS	0095	2862	3463	2193			15450	450											
		STD	0100	2856	3463	2195			15441	432											
144		OBS	0105	2848	3462	2197	0059159	0656	15441	426											
144		OBS	T0120	2808	3465	2213			15440	421											
		*STD	0125	2650	3479	2274			15434	411					003						
144		OBS	0135	2418	3497	2359	0051730	0794	15401	375											
		STD	0150	1680	3500	2558			15351	284											
144		OBS	0150	1680	3500	2558	0024627	0890	15154	097											
144		OBS	T0175	1350	3504	2634			15154	097											
		STD	0200	1284	3507	2650			15054	096											
144		OBS	T0200	1284	3507	2650	0015966	0991	15037	136											
		STD	0250	1220	3506	2662			15037	136											
144		OBS	T0250	1220	3506	2662	0014952	1069	15023	113											
150		OBS	T0297	1156	3506	2674			15023	113											
		STD	0300	1150	3506	2675			15009	119											
150		OBS	T0396	1005	3503	2699	0013782	1140	15007	118											
		STD	0400	1002	3503	2699			14971	107											
150		OBS	T0495	0938	3502	2709	0011626	1267	14970	107											
		STD	0500	0935	3502	2710			14962	113											
150		OBS	T0594	0884	3501	2717	0010786	1379	14962	113					040						
		STD	0600	0881	3501	2718			14958	116											
		STD	0700	0832	3501	2725	0010173	1484	14958	116											
150		OBS	0791	0788	3500	2731	0009573	1583	14956	114											
		STD	0800	0784	3500	2732			14954	113											
150		*STD	0900	0740	3498	2737	0009066	1676	14954	114											
		OBS	T0988	0692	3496	2742	0008698	1765	14954	118											
		*STD	1000	0683	3495	2742			14949												
		STD	1100	0611	3492	2750	0008207	1850	14948	130					050						
150		OBS	1186	0556	3489	2754	0007507	1928	14935	148											
		STD	1200	0549	3489	2755			14927	161											
		STD	1300	0499	3487	2759	0006969	2000	14927	164											
		STD	1400	0453	3485	2763	0006535	2068	14923	184											
150		OBS	T1481	0419	3484	2766	0006159	2131	14920	203											
		STD	1500	0411	3484	2767			14920	218											
		STD	1750	0327	3480	2772	0005764	2191	14920	221					059						
150		OBS	1971	0275	3478	2775	0005155	2328	14926	261											
150		OBS	2459Q	0215	3475	2778			14941	290											
									331						069						
															083						

REFERENCE	SHIP CODE	LATITUDE ° ' /10	LONGITUDE ° ' /10	DEPTH (m)	MARS DEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			WEATHER CODE	CLOUD CODES		NOOC STATION NUMBER	
					10°	1'	MONTH	DAY	HR. /10		CRUISE NUMBER	STATION NUMBER			DIR.	HGT.	PER.		SEA AMT.	TYPE		AMT.
31	201	PI	01271N	091582E	027	11	06	14	184	1964	442	046	4142	25	22		3	X1	8	2	0046	
					WATER		WIND		BAROMETER		AIR TEMP. °C		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS							
					COLOR CODE	TRANK. (m)	DIR.	SPEED (KNOTS)	BAROMETER (mbs)		DIRY BULB	WET BULB	VIS. CODE									
								21	S05	092	281	254	8									

MESSNGER TIME or NO.	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>7</sup>	Σ Δ D DYN. M. X 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>2</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l	SCC
184		STD	0000	2911	3351	2093	0068551	0000	15424	448							
		OBS	0000	2911	3351	2093			15424	448							
184		OBS	0005	2913	3351	2092			15425	448							
		STD	0010	2913	3351	2092	0068655	0069	15426	448							
184		OBS	0010	2913	3351	2092			15426	448							
		STD	0020	2923	3358	2094	0068513	0137	15430	449							
		STD	0030	2928	3369	2101	0067925	0205	15434	450							
184		OBS	0030	2928	3369	2101			15434	450							
		STD	0050	2920	3404	2130	0065235	0339	15440	447							
184		OBS	0050	2920	3404	2130			15440	447							
		STD	0060	2924	3415	2137			15443	444							
184		OBS	0070	2921	3432	2150			15446	444							
		STD	0075	2917	3452	2167	0061795	0497	15448	444							
184		OBS	0080	2910	3464	2178			15449	441							
		STD	0090	2884	3464	2187			15445	429							
184		OBS	0100	2878	3463	2188	0059859	0649	15445	425							
		STD	T0100	2878	3463	2188			15445	425					002		
184		OBS	T0110	2856	3464	2196			15442	423							
		STD	T0120	2772	3468	2227			15426	403							
		*STD	0125	2603	3474	2285	0050677	0788	15390	301							
204		OBS	T0128	2484	3475	2322			15363								
		STD	0138	1994	3506	2484			15243								
204		OBS	0148	1553	3500	2587			15115	084							
		*STD	0150	1493	3502	2602	0020402	0876	15096	085							
204		OBS	0157	1347	3506	2636			15051	113							
		STD	T0167	1312	3510	2646			15041	128							
204		OBS	T0177	1284	3508	2651			15033	136							
		STD	T0187	1278	3508	2652			15033	144							
204		OBS	0197	1256	3508	2656			15027	157							
		STD	0200	1256	3508	2656	0015357	0966	15027	157							
204		OBS	0222	1244	3507	2658			15027	154							
		STD	T0247	1213	3507	2664			15020	133							
204		OBS	T0262	1166	3506	2672	0014542	1041	15017	133							
		STD	0250	1202	3507	2666			15006	132							
193		OBS	T0398	0986	3502	2701	0013294	1110	14998	117							
		STD	0400	0985	3502	2701	0011412	1234	14964	128							
193		OBS	T0498	0927	3500	2709	0010784	1345	14959	131					029		
		STD	0500	0926	3500	2710			14958	131							
193		OBS	T0597	0892	3502	2717	0010262	1450	14962	115							
		STD	0600	0891	3502	2717			14962	115							
193		OBS	T0697	0852	3502	2723	0009771	1550	14964	107							
		STD	0700	0849	3502	2723			14963	107							
193		OBS	T0795	0782	3500	2732	0009004	1644	14953	104							
		STD	0800	0780	3500	2732			14953	104							
193		OBS	T0894	0741	3498	2737	0008667	1732	14953	112							
		STD	0900	0738	3498	2737			14946	119					064		
193		OBS	T0992	0683	3495	2742	0008132	1816	14946	120							
		STD	1000	0678	3495	2743			14936	133							
193		OBS	T1088	0618	3493	2750	0007419	1894	14935	136							
		STD	1100	0610	3493	2751			14926	157							
193		OBS	T1185	0554	3490	2755	0006868	1965	14926	160							
		STD	1200	0547	3490	2756			14923	179							
		STD	1300	0500	3488	2760	0006475	2032	14922	198							
		STD	1400	0457	3486	2763	0006140	2095	14922	212					066		
193		OBS	T1475	0426	3485	2766	0005744	2155	14921	217							
		STD	1500	0415	3485	2767	0005030	2289	14924	262							
		STD	1750	0323	3481	2773			14936	291							
193		OBS	T1959	0268	3479	2777	0004523	2409	14939	296					087		
		STD	2000	0260	3479	2778			14999	326							
193		OBS	T2452	0220	3477	2779											

REFERENCE		SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	DATE DD MM YY	MARS DEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			WEATHER CODE	CLOUD CODES		NODC STATION NUMBER
COUNTRY CODE	IDENTITY NUMBER					10"	1"	MONTH	DAT	HR.		1/10	CRUISE NUMBER			STATION NUMBER	DIR.	HGT.		PER.	SEA AMT.	
31	201	PI	00541N	091557E	027	01	06	14	235	1964	442	047	4307	44	19			3	X1	4	6	0047

WATER		WIND		BAROMETER (mbs)	AIR TEMP. °C		VIS. CODE	NO. ONE DEPTH	SPECIAL OBSERVATIONS
COLOR CODE	TRANS. (m)	DIR.	SPEED KNOTS		DRY BULB	WET BULB			
				064	267	250	8		

MESSAGE NO. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- $\sigma_{\theta}$	$\Sigma \Delta D$ DYN. M. $\times 10^3$	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P µg-at/l	TOTAL-P µg-at/l	NO <sub>3</sub> -N µg-at/l	NO <sub>2</sub> -N µg-at/l	SiO <sub>2</sub> -Si µg-at/l	pH µg-at/l	SCC
		STD	0000	2884	3394	2134	0064597	0000	15423	446							
235		OBS	0000	2884	3394	2134			15423	446							
235		OBS	T0005	2886	3394	2134			15424	449							
		STD	0010	2888	3396	2135	0064621	0065	15425	446							
235		OBS	0010	2888	3396	2135			15425	446							
		STD	0020	2895	3400	2135	0064598	0129	15429	446							
235		OBS	0029	2899	3402	2135			15432	446							
		STD	0030	2899	3402	2135	0064623	0194	15432	446							
235		OBS	T0049	2896	3403	2137			15434	446							
		STD	0050	2896	3403	2137	0064536	0323	15434	446							
235		OBS	T0058	2897	3402	2136			15436	444							
235		OBS	T0068	2896	3402	2136			15437	447							
		STD	0075	2909	3441	2161	0062328	0482	15445	442							
235		OBS	0078	2911	3452	2169			15448	440							
235		OBS	0088	2904	3462	2179			15449	438							
235		OBS	T0097	2897	3463	2182			15449	433							
		STD	0100	2896	3464	2183	0060363	0635	15449	431							003
235		OBS	0107	2827	3465	2206			15436	410							
235		OBS	0117	2564	3481	2302			15380	339							
		STD	0125	2288	3514	2409	0038769	0759	15319	228							
235		OBS	T0127	2202	3517	2436			15298	203							
235		OBS	T0137	1667	3499	2560			15148	093							
235		OBS	T0147	1425	3501	2616			15074	116							
		STD	0150	1398	3504	2624	0018298	0830	15066	122							
235		OBS	T0157	1346	3509	2639			15051	132							
262		OBS	T0170	1293	3510	2650			15035	140							
262		OBS	T0180	1268	3509	2654			15028	146							
262		OBS	0190	1219	3508	2663			15013	168							
		STD	0200	1222	3507	2662	0014789	0913	15016	164							
262		OBS	0200	1222	3507	2662			15016	164							
262		OBS	T0225	1214	3506	2663			15017	165							
		STD	0250	1202	3506	2665	0014616	0986	15017	177							
262		OBS	T0250	1202	3506	2665			15017	177							
262		OBS	T0275	1197	3506	2666			15019	177							
		STD	0300	1144	3505	2675	0013746	1057	15005	156							
262		OBS	T0300	1144	3505	2675			15005	156							
		STD	0400	1040	3503	2693	0012278	1187	14984	130							
262		OBS	0400	1040	3503	2693			14984	130							
		STD	0500	0933	3499	2708	0010973	1304	14961	130							
262		OBS	T0500	0933	3499	2708			14961	130							
		STD	0600	0902	3500	2713	0010588	1411	14966	119							
262		OBS	T0600	0902	3500	2713			14966	119							
		STD	0700	0847	3500	2722	0009886	1514	14962	110							
262		OBS	T0700	0847	3500	2722			14962	110							
246		OBS	T0778	0798	3501	2730			14956	101							
		STD	0800	0784	3500	2732	0009066	1609	14954	102							
246		OBS	T0876	0738	3498	2737			14949	104							
		STD	0900	0723	3497	2738	0008511	1697	14947	108							
246		OBS	T0976	0678	3494	2742			14942	119							
		STD	1000	0665	3494	2744	0008012	1779	14940	120							066
246		OBS	T1075	0620	3492	2748			14935	130							
		STD	1100	0602	3491	2750	0007450	1856	14932	136							
246		OBS	1174	0554	3489	2754			14924	155							
		STD	1200	0542	3489	2756	0006871	1928	14924	161							
		*STD	1300	0500	3487	2759	0006549	1995	14923	180							
		*STD	1400	0459	3485	2762	0006240	2059	14923	198							
246		OBS	T1471	0432	3484	2765			14923								
		*STD	1500	0423	3484	2766	0005924	2120	14925	217							
		*STD	1750	0338	3480	2771	0005298	2260	14930	259							
246		OBS	1963	0278	3478	2775			14941	289							
		STD	2000	0274	3478	2775	0004776	2386	14945	292							066
246		OBS	T2454	0223	3475	2777			15000	324							
		STD	2500	0218	3475	2778	0004511	2618	15006	328							
246		OBS	2944	0174	3473	2780			15063	362							074
		STD	3000	0170	3473	2780	0004189	2836	15071	365							
246		OBS	T3433	0140	3472	2781			15133	395							070
246		OBS	T3921	0114	3471	2782			15207	438							
		*STD	4000	0115	3471	2782	0003779	3234	15222	439							
246		OBS	T4407	0118	3472	2783			15295	441							



REFERENCE COUNTRY CODE	IDENTITY NUMBER	SHIP CODE	LATITUDE * ' 1/10	LONGITUDE * ' 1/10	NODC STATION NUMBER	MARS DEN SQUARE				STATION TIME (GMT)				YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			CLOUD CODES		NODC STATION NUMBER
						TR	1°	MONTH	DAY	HR.	1/10	CRUISE NUMBER	STATION NUMBER		DIR.	REF.			PER.	SEA AMT.	WEATHER CODE	TYPE	AMT.	
31	201	PI	00288N	091576E	027	01	06	15	057	1964	442	048		4361	25	23			3			0048		

WATER		WIND		AIR TEMP. °C		NO. OBS. DEPTH	SPECIAL OBSERVATIONS
COLOR CODE	TRANS. (m)	DIR.	SPEED IN KNOTS	BAROMETER (mb)	DRY BULB		
		23	S06	075	278	256	8

MESSSENGER TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>7</sup>	Σ Δ D DYN. ML X 10 <sup>2</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l	SCC
		STD	0000	2904	3400	2132	0064805	0000	15428	442							
057		OBS	0000	2904	3400	2132			15428	442					001		
057		OBS	0005	2892	3399	2135			15426	444							
		STD	0010	2893	3400	2136	0064493	0065	15427	445							
057		OBS	0010	2893	3400	2136			15427	445							
		*STD	0020	2900	3404	2137	0064471	0129	15430	445							
		STD	0030	2909	3413	2140	0064153	0193	15435	445							
057		OBS	0030	2909	3413	2140			15435	445							
		STD	0050	2920	3428	2148	0063512	0321	15442	444							
057		OBS	0050	2920	3428	2148			15442	444							
057		OBS	0060	2922	3433	2151			15445	444							
057		OBS	0070	2926	3441	2156			15448	451							
		*STD	0075	2919	3446	2162	0062290	0478	15448	447							
057		OBS	0080	2914	3454	2169			15449	444							
057		OBS	0090	2911	3459	2174			15450	444							
		STD	0100	2901	3462	2180	0060667	0632	15450	448							
057		OBS	T0100	2901	3462	2180			15450	448					002		
057		OBS	T0110	2883	3463	2186			15448	434							
057		OBS	0120	2634	3461	2265			15395	354							
		STD	0125	2458	3481	2335	0045924	0765	15357	300							
071		OBS	T0130	2313	3496	2389			15324	253							
071		OBS	T0140	2117	3513	2457			15277	183							
		STD	0150	1778	3506	2539	0026447	0856	15184	122							
071		OBS	0150	1778	3506	2539			15184	122							
071		OBS	0160	1492	3508	2607			15098	122							
071		OBS	0170	1341	3508	2639			15051	134							
071		OBS	T0180	1304	3508	2647			15040	150							
071		OBS	T0190	1294	3508	2649			15039	163							
		STD	0200	1258	3507	2655	0015468	0961	15028	164							
071		OBS	T0200	1258	3507	2655			15028	164							
071		OBS	0225	1204	3506	2665			15013	183							
		STD	0250	1183	3506	2669	0014264	1035	15010	201							
071		OBS	T0250	1183	3506	2669			15010	201							
071		OBS	T0275	1179	3506	2669			15013	185							
		STD	0300	1138	3506	2677	0013564	1104	15003	167							
071		OBS	T0300	1138	3506	2677			15003	167							
063		OBS	T0399	1042	3500	2690			14984	182							
		STD	0400	1041	3500	2690	0012516	1235	14984	181							
063		OBS	T0498	0947	3499	2705			14966	138					031		
		STD	0500	0946	3499	2705	0011188	1353	14966	138							
063		OBS	T0597	0908	3499	2712			14968	127							
		STD	0600	0908	3499	2712	0010760	1463	14968	126							
063		OBS	0695	0874	3500	2718			14971	113							
		STD	0700	0870	3500	2719	0010257	1568	14971	112							
063		OBS	0793	0800	3500	2729			14959	106							
		STD	0800	0793	3500	2730	0009207	1666	14958	107							
063		OBS	T0891	0715	3496	2739			14942								
		STD	0900	0711	3496	2739	0008402	1754	14942	116							
063		OBS	0988	0668	3494	2744			14940	124					048		
		STD	1000	0663	3494	2744	0007982	1835	14940	126							
063		OBS	T1086	0618	3492	2749			14936	140							
		STD	1100	0607	3492	2750	0007449	1913	14934	143							
063		OBS	1182	0550	3489	2755			14924	160							
		STD	1200	0543	3489	2756	0006885	1984	14924	163							
		STD	1300	0507	3487	2759	0006645	2052	14926	177							
		STD	1400	0471	3486	2762	0006330	2117	14928	193							
063		OBS	T1471	0446	3485	2764			14929	204					084		
		STD	1500	0433	3484	2765	0006059	2179	14929	209							
		STD	1750	0338	3480	2771	0005298	2321	14930	251							
063		OBS	T1963	0279	3478	2775			14941	291						099	
		STD	2000	0271	3478	2776	0004737	2446	14944								
063		OBS	T2455	0222	3476	2778			15000	183Q					089		

REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	SUN RISE 10°	MARDEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			WEATHER CODE		CLOUD CODES		NODC STATION NUMBER
COUNTRY CODE	BENTH NUMBER					10°	1°	MONTH	DAY	HR. 1/10		CRUISE NUMBER	STATION NUMBER			DIR.	HGT.	PER.	SEA AMT.	TYPE	AMT.		
31	201	PI	00032N	091558E	027	01	06	15	098	1964	442	049	4398	24	36			3	X1	4	6	0049	
		WATER		WIND		BAROMETER		AIR TEMP. °C		VIS. CODE		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS									
		COLOR CODE		DIR.		(mbs)		DRY BUBB		WET BUBB													
				22		S08		051		283		261		8									

MESSANGER TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>3</sup>	± Δ D DYN. M. X 10 <sup>2</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>2</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>3</sub> -Si μg-at/l	pH μg-at/l
		STD	0000	2914	3389	2121	0065916	0000	15429	444						
098		OBS	0000	2914	3389	2121			15429	444						
098		OBS	0005	2911	3389	2122			15429	444						
		STD	0010	2887	3388	2129	0065164	0066	15424	452						
098		OBS	0010	2887	3388	2129			15424	452						
		*STD	0020	2900	3424	2151	0063034	0130	15433	448						
		STD	0030	2926	3447	2160	0062258	0192	15442	445						
098		OBS	0030	2926	3447	2160			15442	445						
		STD	0050	2922	3457	2169	0061494	0316	15446	444						
098		OBS	0050	2922	3457	2169			15446	444						
098		OBS	0060	2922	3461	2172			15448	444						
098		OBS	0070	2910	3461	2176			15447	440						
		STD	0075	2907	3461	2177	0060828	0469	15447	436						
098		OBS	0080	2904	3460	2177			15447	434						
098		OBS	0090	2902	3463	2180			15449	435						
		STD	0100	2878	3465	2190	0059716	0620	15446	427						
098		OBS	T0100	2878	3465	2190			15446	427						004
098		OBS	T0110	2869	3463	2191			15445	427						
098		OBS	0120	2680	3466	2255			15406	366						
		*STD	0125	2550	3478	2304	0048818	0755	15378	348						
116		OBS	0127	2538	3484	2313			15376	334						
116		OBS	T0137	2124	3517	2458			15279	199						
116		OBS	0147	1945	3516	2505			15232	160						
		STD	0150	1847	3514	2528	0027503	0851	15205	152						
116		OBS	0157	1657	3511	2572			15149	138						
116		OBS	T0167	1480	3509	2610			15096	133						
116		OBS	T0177	1324	3509	2643			15047	148						
116		OBS	T0186	1280	3508	2651			15033	179						
116		OBS	0196	1254	3507	2656			15026							
		STD	0200	1241	3507	2658	0015146	0957	15022	181						
116		OBS	0221	1188	3505	2667			15007	184						
116		OBS	T0246	1153	3504	2673			14999							
		STD	0250	1151	3504	2673	0013826	1030	14999	193						
116		OBS	T0271	1140	3504	2675			14999	196						
116		OBS	T0296	1132	3504	2677			15000	195						
		*STD	0300	1131	3504	2677	0013584	1098	15000	191						
106		OBS	T0388	1016	3502	2696			14973	138						
		STD	0400	1006	3502	2698	0011767	1225	14972	138						
106		OBS	0486	0945	3499	2706			14963	138						033
		STD	0500	0939	3499	2707	0011072	1339	14963	138						
106		OBS	T0583	0904	3498	2712			14964	135						
		STD	0600	0901	3499	2713	0010645	1448	14966	131						
106		OBS	T0680	0870	3500	2719			14967	115						
		STD	0700	0856	3500	2721	0010031	1551	14965	113						
106		OBS	0778	0799	3498	2728			14956	108						
		STD	0800	0779	3497	2730	0009208	1647	14952	109						
106		OBS	T0875	0724	3495	2737			14943							
		STD	0900	0715	3495	2738	0008536	1736	14944	114						
106		OBS	0972	0678	3494	2742			14941	118						
		STD	1000	0654	3493	2745	0007922	1818	14936	123						066
106		OBS	T1068	0607	3491	2749			14928	135						
		STD	1100	0595	3491	2751	0007349	1895	14929	141						
106		OBS	1165	0570	3490	2753			14929	153						
		STD	1200	0554	3489	2754	0007039	1967	14929	158						
		STD	1300	0509	3487	2758	0006673	2035	14927	174						
		STD	1400	0467	3485	2762	0006349	2100	14926	191						
106		OBS	1453	0446	3484	2763			14926	200						088
		STD	1500	0426	3483	2764	0006038	2162	14926	211						
		STD	1750	0333	3480	2772	0005233	2303	14928	262						
106		OBS	T1936	0281	3478	2775			14937	291						074
		STD	2000	0267	3477	2775	0004758	2428	14942	299						
106		OBS	T2429	0214	3475	2778			14992	334						

REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	ORBIT NUMBER	MARS DEN SQUARE	STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODE	CLOUD CODES		NODC STATION NUMBER	
COUNTRY CODE	IDENTITY NUMBER						10 <sup>°</sup>	MONTH	DAY		HR. 1/10	CRUISE NUMBER			STATION NUMBER	DIR.	HGT.	PER.		SEA AMT.	TYPE		AMT.
31	201	PI	00042N	089552E	028	09	06	15	210	1964	442	050	4371	39	18			3	X5	X	9		0050

WATER		WIND		BAROMETER (mbs)	AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS
COLOR CODE	TRAC. (m)	DIR.	SPEED OR FORCE		DRY BULB	WET BULB			
		22	S09	071	256	250	6		

MESSANGER TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>7</sup>	± Δ D DYN. M. X 10 <sup>2</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P µg-at/l	TOTAL-P µg-at/l	NO <sub>3</sub> -N µg-at/l	NO <sub>2</sub> -N µg-at/l	SiO <sub>2</sub> -Si µg-at/l	pH µg-at/l	SCC
210		STD	0000	2892	3414	2147	0063415	0000	15427	442							
		OBS	0000	2892	3414	2147			15427	442					001		
		STD	0010	2894	3413	2145	0063591	0064	15428	452							
210		OBS	0010	2894	3413	2145			15428	452							
		STD	0020	2900	3420	2148	0063321	0127	15432	448							
210		OBS	0020	2900	3420	2148			15432	448							
210		OBS	0029	2919	3443	2159			15440	450							
		STD	0030	2918	3444	2160	0062216	0190	15440	450							
210		OBS	T0049	2904	3455	2173			15442	450							
		STD	0050	2904	3455	2173	0061059	0313	15442	450							
210		OBS	0074	2905	3458	2175			15446	445							
		STD	0075	2905	3458	2175	0060979	0466	15446	445							
210		OBS	T0098	2902	3462	2179			15450	442							
		STD	0100	2897	3462	2181	0060539	0617	15449	440					002		
		*STD	0125	2855	3462	2195	0059301	0767	15444	418							
210		OBS	0132	2822	3462	2206			15438	412							
210		OBS	0147	2152	3501	2438			15286	210							
		STD	0150	2088	3502	2456	0034387	0884	15270	203							
210		OBS	T0196	1387	3510	2631			15071	150							
		STD	0200	1368	3510	2635	0017396	1014	15065	154							
210		OBS	T0246	1206	3507	2665			15018	193							
		STD	0250	1203	3507	2666	0014561	1094	15017	195							
210		OBS	T0295	1160	3504	2671			15009	210							
		STD	0300	1154	3504	2673	0014001	1165	15008	210							
210		OBS	T0394	1042	3498	2688			14983	196							
		STD	0400	1033	3498	2690	0012524	1298	14981	193							
210		OBS	T0494	0926	3497	2707			14957	151					035		
		STD	0500	0924	3497	2708	0010971	1415	14957	150							
210		OBS	T0594	0888	3499	2715			14960								
		*STD	0600	0885	3499	2715	0010384	1522	14960	127							
		STD	0700	0838	3499	2723	0009815	1623	14958	121							
222		OBS	T0704	0836	3499	2723			14958	120							
		STD	0800	0781	3497	2730	0009239	1718	14953	116							
222		OBS	T0882	0736	3496	2736			14949	112					048		
		STD	0900	0727	3496	2737	0008645	1808	14948	114							
		STD	1000	0674	3494	2743	0008146	1892	14944	123							
222		OBS	T1062	0642	3493	2746			14942	130							
		STD	1100	0621	3492	2748	0007652	1971	14939	138							
		STD	1200	0566	3490	2754	0007136	2045	14934	159							
		STD	1300	0516	3488	2758	0006697	2114	14930	178							
222		OBS	T1335	0499	3487	2759			14929						062		
		STD	1400	0467	3486	2762	0006276	2179	14926	197							
		STD	1500	0422	3484	2766	0005911	2240	14924	214							
		*STD	1750	0330	3481	2773	0005121	2377	14927	260							
222		OBS	1792	0318	3480	2773			14929	1270					072		
		*STD	2000	0277	3478	2775	0004815	2502	14946	293							
222		OBS	2251	0237	3476	2777			14972	317							
		STD	2500	0210	3475	2779	0004404	2732	15003	339							
222		OBS	2715	0190	3474	2779			15031	354					082		
		STD	3000	0168	3473	2780	0004161	2946	15070	365							
222		OBS	T3182	0156	3473	2781			15097	375					076		
222		OBS	T3660	0129	3472	2782			15168	414							
222		OBS	T3949	0116	3472	2783			15213	438							

REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	STATION NUMBER	MARSDEN SQUARE					STATION TIME (GMT)				ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODE	CLOUD CODES		NODC STATION NUMBER
COUNTRY CODE	IDENTITY NUMBER					10°	1°	MINUTE	DAY	HR. 1/10	YEAR	CRUISE NUMBER	STATION NUMBER	DIR.	PER.	SIX AMT.			TYPE	AMT.						
31	201	PI	00196S	091514E	326	01	06	16	096	1964	442	051			4407	24	22			3	X1	7	7		0051	
						WATER		WIND		BAROMETER		AIR TEMP. °C		VIS. CODE		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS								
						COLOR CODE	TRABIC (m)	DIR.	SPEED OR FORCE	(mbx)	DRY BULB	WET BULB														
								00	500	058	278	256	8													

MESSNGER TIME RE. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- $\times 10^3$	$\Sigma \Delta D$ DYN. AL X 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P $\mu\text{g-at/l}$	TOTAL-P $\mu\text{g-at/l}$	NO <sub>2</sub> -N $\mu\text{g-at/l}$	NO <sub>3</sub> -N $\mu\text{g-at/l}$	SiO <sub>2</sub> -Si $\mu\text{g-at/l}$	pH
		STD	0000	2907	3399	2130	0064973	0000	15428							
096		OBS	0000	2907	3399	2130			15428							
096		OBS	0005	2895	3399	2134			15426	442						
		STD	0010	2893	3401	2137	0064422	0065	15427	443						
096		OBS	0010	2893	3401	2137			15427	443						
		STD	0020	2914	3435	2155	0062693	0128	15437	444						
096		OBS	0029	2924	3454	2166			15442	445						
		STD	0030	2924	3454	2166	0061691	0190	15443	445						
096		OBS	0047	2922	3456	2168			15445	448						
		STD	0050	2920	3457	2170	0061430	0314	15445	447						
096		OBS	0057	2918	3458	2171			15446	445						
096		OBS	0066	2920	3458	2170			15448	446						
		STD	0075	2907	3461	2177	0060828	0466	15447	440						
096		OBS	0076	2906	3461	2177			15447	439						
096		OBS	0085	2900	3461	2179			15447	433						
096		OBS	T0095	2896	3462	2181			15448	430						
		STD	0100	2887	3461	2184	0060290	0618	15447	428						
096		OBS	T0104	2880	3460	2185			15446	426						
096		OBS	T0114	2758	3454	2221			15421	395						002
		STD	0125	2432	3502	2358	0043668	0748	15353	317						
111		OBS	T0125	2432	3502	2358			15353	317						
111		OBS	T0135	2152	3518	2451			15286	221						
111		OBS	0144	1885	3515	2519			15215	160						
		STD	0150	1776	3511	2543	0026038	0835	15184	145						
111		OBS	0154	1709	3510	2559			15164	139						
111		OBS	0164	1558	3510	2594			15120	139						
111		OBS	T0174	1346	3509	2639			15053	145						
111		OBS	T0183	1284	3508	2651			15034	170						
111		OBS	T0193	1248	3507	2657			15023	190						
		*STD	0200	1232	3506	2659	0015050	0938	15019	188						
111		OBS	0218	1196	3505	2665			15009	180						
111		OBS	T0242	1163	3504	2671			15002	211						
		STD	0250	1156	3504	2672	0013916	1010	15001	214						
111		OBS	T0267	1143	3503	2674			14999	218						
111		OBS	T0292	1132	3503	2676			14999	221						
		*STD	0300	1119	3502	2678	0013515	1079	14996	220						
102		OBS	T0367	1028	3499	2691			14974	185						
		STD	0400	1003	3499	2696	0011937	1206	14970	163						
102		OBS	T0451	0966	3499	2702			14965	139						
		STD	0500	0927	3499	2709	0010874	1320	14959	133						024
102		OBS	T0538	0904	3499	2712			14956	129						
		STD	0600	0883	3499	2716	0010352	1426	14959	121						
102		OBS	T0626	0871	3499	2718			14959	118						
		STD	0700	0826	3499	2725	0009624	1526	14954	109						
102		OBS	0715	0816	3499	2726			14952	108						
		STD	0800	0760	3497	2733	0008914	1619	14945	109						
102		OBS	T0806	0756	3483Q	2723Q										
102		OBS	0898	0700	3495	2740			14937	115						
		STD	0900	0700	3495	2740	0008310	1705	14938	115						038
102		OBS	0990	0666	3494	2744			14939	124						
		STD	1000	0659	3494	2745	0007923	1786	14938	126						
102		OBS	1084	0602	3491	2750			14929	142						
		STD	1100	0594	3491	2751	0007335	1862	14928	145						
		STD	1200	0544	3489	2756	0006899	1933	14925	164						
		STD	1300	0498	3487	2760	0006521	2000	14922	182						
102		OBS	T1370	0468	3486	2762			14922	195						070
		STD	1400	0456	3485	2763	0006199	2064	14922	201						
		STD	1500	0417	3484	2766	0005844	2124	14922	220						
		STD	1750	0337	3480	2771	0005285	2263	14930	261						
102		OBS	T1860	0308	3479	2773			14936	276						070
		STD	2000	0278	3478	2775	0004828	2390	14947	293						
102		OBS	T2353	0232	3476	2778			14987	323						

REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	MARS DEN SQUARE	STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			WEATHER CODE	CLOUD CODES		NODC STATION NUMBER						
COUNTRY CODE	IDENTITY NUMBER					10 <sup>1</sup>	10 <sup>1</sup>	MONTH		DAY	HR. 1/10			CRUISE NUMBER	STATION NUMBER	DIR.		PER.	SEA AMT.		TYPE	AMT.				
31	201	PI	00443S	091499E	326	01	06	16	141	1964	442	052	4453	46	22			3	X1	3	2	0052				
		WATER		WIND		BAROMETER		AIR TEMP. °C		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS														
		COLOR		DIR.		SPEED		DRY BULB		WET BULB		HYS CODE														
		TRANS. (m)		FOOT		(mb)																				
						18		S05		078		267		250		8										

MESSNGER TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALLY-X10 <sup>2</sup>	σ <sub>t</sub> Δ D DYN. AL. X 10 <sup>2</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>3</sub> -N μg-at/l	NO <sub>2</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l	SCC
141		STD	0000	2902	3391	2126	0065387	0000	15426	444							
		OBS	0000	2902	3391	2126			15426	444							
141		OBS	0005	2900	3392	2128			15427	447							
		STD	0010	2901	3396	2130	0065037	0065	15428	445							
141		OBS	0010	2901	3396	2130			15428	445							
		STD	0020	2915	3427	2149	0063300	0129	15436	443							
141		OBS	0029	2921	3444	2159			15441	442							
		STD	0030	2920	3444	2160	0062281	0192	15441	443							
141		OBS	0049	2911	3446	2164			15442	445							
		*STD	0050	2911	3446	2164	0061930	0316	15442	441							
141		OBS	0059	2912	3450	2167			15444	436							
141		OBS	0069	2913	3458	2173			15447	435							
		STD	0075	2913	3460	2174	0061093	0470	15448	436							
141		OBS	0078	2912	3461	2175			15449	436							
141		OBS	0088	2908	3463	2178			15450	434							
141		OBS	T0098	2891	3458	2180			15447	428							003
		STD	0100	2880	3453	2180	0060640	0622	15445	423							
141		OBS	T0107	2831	3446	2191			15435	410							
141		OBS	T0117	2738	3466	2236			15418	406							
		STD	0125	2340	3509	2391	0040568	0749	15331	293							
141		OBS	T0127	2274	3515	2414			15316	272							
141		OBS	T0137	2151	3517	2450			15286	208							
141		OBS	T0146	1804	3513	2538			15191	155							
		STD	0150	1721	3511	2557	0024762	0830	15167	152							
141		OBS	T0156	1613	3509	2581			15136	147							
177		OBS	0174	1415	3510	2625			15076	133							
177		OBS	T0183	1332	3509	2642			15050	153							
177		OBS	0192	1291	3509	2650			15038	176							
		STD	0200	1255	3508	2656	0015338	0931	15027	183							
177		OBS	0202	1248	3508	2658			15025	184							
177		OBS	T0229	1207	3506	2664			15015	173							
		STD	0250	1179	3506	2669	0014190	1005	15009	182							
177		OBS	T0255	1175	3506	2670			15008	184							
177		OBS	T0281	1169	3505	2671			15010	191							
		STD	0300	1135	3504	2676	0013656	1074	15002	197							
177		OBS	0308	1122	3503	2678			14998	198							
		STD	0400	0999	3498	2696	0011942	1202	14969	174							
177		OBS	0410	0988	3497	2697			14966	171							
		*STD	0500	0917	3498	2709	0010783	1316	14955	145							
177		OBS	T0514	0909	3498	2711			14954	142							032
		STD	0600	0889	3499	2715	0010449	1422	14961	129							
177		OBS	0620	0882	3499	2716			14962	126							
		STD	0700	0846	3499	2722	0009943	1524	14961	113							
177		OBS	T0728	0832	3499	2724			14961	110							
		STD	0800	0792	3498	2729	0009338	1620	14957	110							
177		OBS	T0837	0768	3497	2732			14954	110							
		STD	0900	0715	3494	2737	0008609	1710	14943	119							
177		OBS	T0947	0682	3493	2741			14938	124							
		STD	1000	0657	3493	2744	0007967	1793	14937	127							
157		OBS	T1070	0624	3492	2748			14936	134							051
		STD	1100	0610	3491	2749	0007566	1871	14935	138							
157		OBS	T1159	0580	3490	2752			14933	147							
		STD	1200	0551	3489	2755	0006997	1943	14928	158							
157		OBS	T1250	0523	3488	2757			14924	168							
		STD	1300	0508	3488	2759	0006586	2011	14927	172							
157		OBS	T1342	0493	3487	2760			14927	178							
		STD	1400	0466	3486	2762	0006262	2076	14926	193							
157		OBS	1434	0450	3485	2763			14925	201							070
		STD	1500	0419	3484	2766	0005871	2136	14923	211							
157		OBS	T1716	0335	3474Q	2767Q			241								
		STD	1750	0328	3481	2773	0005095	2273	14926	246							
		*STD	2000	0282	3479	2776	0004807	2397	14949	278							
157		OBS	2194	0252	3477	2777			14969	303							100
		STD	2500	0214	3475	2778	0004457	2629	15004	328							
157		OBS	T2681	0195	3474	2779			15027	341							079
		STD	3000	0169	3473	2780	0004175	2845	15071	361							
157		OBS	3170	0157	3473	2781			15095	373							100
157		OBS	T3590	0131	3472	2782			15157	405							
		STD	4000	0114	3471	2782	0003763	3241	15221	434							
157		OBS	T4080	0113	3471	2782			15235	438							
157		OBS	T4572	0117	3472	2783			15324	444							

REFERENCE		SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	DRAFT METERS	MARSDEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODE	CLOUD CODES		NODC STATION NUMBER				
COUNTRY CODE	IDENTITY NUMBER					10"	1"	MONTH	DAY	HR. 1/10		CRUISE NUMBER	STATION NUMBER			DIR.	HGT.	PER.	SEA AMT.		TYPE	AMT.					
31	201	PI	01163S	091587E	326	11	06	16	222	1964	442	053	4517	24					2	X1	3	3		0053			
		WATER		WIND		BAROMETER		AIR TEMP. °C		VIS. CODE		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS													
		COLOR CODE		TRANS. (m)		DIR.		SPEED OF FORCE		(mbs)		DRY BULB		WET BULB		8											
				29		S05		075		267		250		8													
MESSSENGER TIME of HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>3</sup>		± Δ D DYN. AL X 10 <sup>2</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>3</sub> -N μg-at/l	NO <sub>2</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l	SCC									
		STD	0000	2905	3386	2121	0065843		0000	15426	441																
222		OBS	0000	2905	3386	2121				15426	441																
222		OBS	0005	2902	3387	2123				15427	444																
		STD	0010	2901	3388	2124	0065612		0066	15427	443																
222		OBS	0010	2901	3388	2124				15427	443																
		STD	0020	2930	3419	2138	0064357		0131	15438	444																
222		OBS	0029	2944	3437	2146				15445	444																
		STD	0030	2943	3438	2148	0063454		0195	15445	444																
222		OBS	T0049	2932	3446	2157				15447	444																
		STD	0050	2932	3445	2157	0062678		0321	15447	444																
222		OBS	T0059	2926	3444	2158				15447	443																
222		OBS	T0069	2917	3452	2167				15447	441																
		STD	0075	2918	3457	2170	0061469		0476	15449	441																
222		OBS	0078	2918	3459	2172				15450	441																
222		OBS	0088	2908	3466	2180				15450	444																
222		OBS	T0098	2845	3477	2210				15439	438							003									
		STD	0100	2831	3479	2216	0057220		0624	15437	439																
222		OBS	T0108	2776	3485	2238				15427	441																
222		OBS	T0118	2352	3516	2392				15334	279																
		STD	0125	2235	3516	2426	0037180		0742	15306	235																
240		OBS	0129	2163	3516	2446				15288	215																
240		OBS	0139	1970	3516	2498				15238																	
240		OBS	0149	1828	3511	2531				15199	164																
		STD	0150	1783	3510	2541	0026274		0822	15186	163																
240		OBS	0159	1500	3506	2604				15101	158																
240		OBS	T0169	1438	3507	2618				15082	157																
240		OBS	T0179	1400	3509	2627				15072	151																
240		OBS	T0189	1361	3510	2636				15061	151																
240		OBS	0198	1332	3508	2641				15053	157																
		STD	0200	1320	3508	2643	0016592		0929	15049	161																
240		OBS	0223	1223	3506	2661				15020	186																
240		OBS	T0248	1204	3506	2665				15017	174																
		STD	0250	1203	3506	2665	0014634		1007	15017	176																
240		OBS	T0273	1174	3506	2670				15011	192																
240		OBS	T0298	1107	3502	2680				14991	193																
		STD	0300	1105	3502	2680	0013265		1077	14991	193																
230		OBS	T0390	1020	3496	2691				14974	183																
		STD	0400	1012	3496	2692	0012310		1204	14973	178																
230		OBS	T0488	0944	3497	2704				14963	147																
		STD	0500	0934	3497	2706	0011136		1322	14961	146							027									
230		OBS	T0586	0872						142																	
		*STD	0600	0864	3498	2718	0010119		1428	14952	140																
230		OBS	T0683	0822	3499	2725				14949	113																
		STD	0700	0815	3499	2726	0009451		1526	14950	111																
230		OBS	0780	0779	3497	2730				14949	109																
		STD	0800	0770	3496	2731	0009142		1619	14949	114																
230		OBS	T0878	0726	3477Q	2722Q				128																	
		STD	0900	0708	3493	2737	0008577		1707	14941	128																
230		OBS	0976	0653	3491	2743				14931	128																
		STD	1000	0638	3490	2745	0007908		1790	14929	133							072									
230		OBS	1074	0595	3488	2749				14924	147																
		STD	1100	0583	3488	2750	0007398		1866	14924	151																
230		OBS	1172	0551	3488	2754				14923																	
		STD	1200	0540	3488	2755	0006916		1938	14923	166																
		STD	1300	0503	3487	2759	0006590		2005	14924	181																
		STD	1400	0467	3486	2762	0006276		2070	14926	196																
230		OBS	T1465	0444	3485	2764				14927	206																
		STD	1500	0430	3484	2765	0006018		2131	14927	213							054									
		STD	1750	0341	3480	2771	0005338		2273	14932	255																
230		OBS	T1955	0286	3478	2774				14943	284																
		STD	2000	0276	3478	2775	0004802		2400	14946	290							060									
230		OBS	T2445	0218	3475	2778				14997	331																

REFERENCE		SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	DRIFT INDICATOR	MARDEN SQUARE		STATION TIME (GMT)				YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			WEATHER CODE	CLOUD CODES		NODC STATION NUMBER
COUNTRY CODE	IDENTITY NUMBER					10"	10"	MONTH	DAY	HR.	1/10		CRUISE NUMBER	STATION NUMBER			DIR.	HGT.	PER.		SEA AMT.	TYPE	
31	201	PI	01507S	092010E		326	12	06	17	035	1964	442	054	4581	25	19			4	X1	3	6	0054
						WATER		WIND		BAROMETER		AIR TEMP. °C		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS							
						COLOR		DIR.		DRY BULB		WET BULB		VIS. CODE									
						35		S02		081		278		250		8							

MESSNGER TIME # 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- $\times 10^3$	$\frac{\Delta \rho}{\rho}$ DYN. M. $\times 10^2$	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P µg-at/l	TOTAL-P µg-at/l	NO <sub>2</sub> -N µg-at/l	NO <sub>3</sub> -N µg-at/l	SiO <sub>2</sub> -Si µg-at/l	pH µg-at/l	SCC
035		STD	0000	2912	3396	2126	0065349	0000	15429	450							
		OBS	0000	2912	3396	2126			15429	450							
		STD	0010	2922	3402	2128	0065280	0065	15433	446							
		STD	0020	2930	3411	2132	0064932	0130	15438	444							
035		OBS	0025	2932	3416	2135			15439	443							
		STD	0030	2932	3426	2142	0063960	0195	15441	444							
035		OBS	0049	2932	3451	2161			15447	446							
		STD	0050	2932	3451	2161	0062248	0321	15447	446							
035		OBS	0074	2920	3457	2170			15449	443							
		STD	0075	2915	3458	2172	0061300	0476	15449	443							
035		OBS	T0098	2803	3489	2232			15432	436							
		*STD	0100	2781	3493	2243	0054646	0620	15428	435							
035		OBS	0113	2584	3511	2319			15388	366							
035		OBS	T0123	2366	3520	2391			15338	288							
		STD	0125	2332	3520	2401	0039553	0738	15330	274							
035		OBS	T0133	2194	3518	2439			15297	226							
035		OBS	0148	1932	3514	2506			15228	164							
		STD	0150	1890	3513	2516	0028615	0823	15217	163							
035		OBS	0172	1542	3504	2593			15116	158							
035		OBS	0197	1414	3508	2624			15079	172							
		STD	0200	1404	3508	2626	0018268	0941	15077	173							
035		OBS	T0246	1270	3506	2652			15039	178							
		STD	0250	1263	3506	2653	0015767	1026	15038	178							
042		OBS	T0298	1177	3503	2667			15016	179							
		STD	0300	1172	3503	2668	0014404	1101	15014	179							
042		OBS	T0396	0999	3493	2692			14967	185							
		STD	0400	0996	3493	2692	0012258	1234	14967	185							
042		OBS	0495	0934	3495	2704			14960	171					030		
		STD	0500	0930	3495	2705	0011217	1352	14959	169							
042		OBS	T0594	0866	3474Q	2699Q			142								
		STD	0600	0863	3495	2716	0010323	1460	14951	141							
		STD	0700	0812	3495	2724	0009697	1560	14948	130							
042		OBS	0792	0765	3495	2731			14945	124							
		STD	0800	0762	3495	2731	0009092	1654	14945	124							
		STD	0900	0714	3493	2736	0008667	1742	14943	126							
042		OBS	T0988	0665	3491	2742			14938	127					054		
		STD	1000	0655	3491	2743	0008084	1826	14936	130							
		STD	1100	0581	3488	2750	0007370	1903	14923	152							
042		OBS	1182	0530	3486	2755			14916	169							
		STD	1200	0523	3486	2756	0006826	1974	14916	172							
		STD	1300	0485	3485	2760	0006489	2041	14917	187							
		STD	1400	0449	3485	2764	0006105	2104	14919	203							
042		OBS	T1472	0424	3484	2766			14920	214					066		
		STD	1500	0413	3484	2767	0005790	2163	14920	220							
		*STD	1750	0335	3480	2771	0005259	2301	14929	264							
042		OBS	T1960	0276	3478	2775			14939	294					079		
		STD	2000	0268	3478	2776	0004698	2426	14943	299							
042		OBS	T2455	0212	3475	2778			14996	339							

REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	MARS DEN SQUARE INDETER	STATION TIME (GMT)				YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODE		CLOUD CODES		MOC STATION NUMBER	
COUNTRY CODE	IDENTITY NUMBER					10"	1"	MONTH	DAY		HR. 1/10	CRUISE NUMBER			STATION NUMBER	DIR.	HGT.	PER.	SEA AMT.	WEATHER CODE	TYPE	AMT.		
31	201	PI	02272S	091596E	326	21	06	17	102	1964	442	055	4636	25	20				4	X1	3	3		0055
		WATER		WIND		BAROMETER		AIR TEMP. °C		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS												
		COLOR		DIR.		(mbs)		DRY BULB		WET BULB														
		35		S10		077		287		253		8												
MESSANGER TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>3</sup>	± ΔD DYN. H. X 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l	SCC							
102		STD	0000	2939	3429	2142	0063847	0000	15438	446														
		OBS	0000	2939	3429	2142			15438	446														
		STD	0010	2928	3431	2147	0063389	0064	15438	446							002							
		STD	0020	2920	3434	2152	0062958	0127	15438	447														
102		OBS	0025	2918	3437	2155			15439	447														
		STD	0030	2919	3441	2158	0062464	0190	15440	446														
		STD	0050	2922	3459	2170	0061351	0313	15446	444														
102		OBS	0050	2922	3459	2170			15446	444														
102		OBS	0074	2840	3484	2216			15435	440														
		*STD	0075	2823	3486	2224	0056362	0460	15432	439														
102		OBS	T0089	2619	3517	2312			15392	430														
102		OBS	T0094	2559	3516	2330			15379	370														
102		OBS	T0099	2505	3518	2348			15368															
		STD	0100	2495	3518	2351	0044235	0586	15366	353							005							
		STD	0125	2227	3521	2432	0036603	0687	15304	274														
102		OBS	0133	2132	3522	2459			15281	246														
102		OBS	0148	1941	3520	2509			15232	191														
		STD	0150	1915	3519	2515	0028792	0769	15224	185														
102		OBS	T0172	1678	3512	2568			15158	150														
102		OBS	T0196	1516	3500	2595			15111	164														
		STD	0200	1490	3501	2602	0020558	0892	15103	169														
102		OBS	T0245	1264	3508	2655			15038	208														
		STD	0250	1255	3508	2656	0015468	0982	15035	208														
108		OBS	T0299	1166	3503	2670			15012	200														
		STD	0300	1164	3503	2670	0014257	1057	15012	200														
108		OBS	T0398	1012	3492	2689			14972	165														
		STD	0400	1010	3492	2689	0012570	1191	14972	165														
108		OBS	T0498	0935	3493	2703			14961	155														
		STD	0500	0933	3493	2703	0011413	1311	14960	154							030							
108		OBS	T0597	0860	3495	2716			14949	132														
		STD	0600	0859	3495	2716	0010259	1419	14949	132														
		STD	0700	0810	3495	2724	0009666	1519	14947	124														
108		OBS	0795	0758	3494	2731			14943	122														
		STD	0800	0755	3494	2731	0009057	1612	14942	123														
		STD	0900	0690	3491	2738	0008454	1700	14933	134														
108		OBS	0993	0634																				
		STD	1000	0630	3488	2744	0007938	1782	14926	146							023							
		STD	1100	0573	3486	2750	0007403	1859	14919	158														
108		OBS	1190	0528	3485	2754			14916	169														
		STD	1200	0524	3485	2755	0006913	1930	14916	170														
		STD	1300	0487	3485	2759	0006517	1997	14918	181														
		STD	1400	0451	3484	2763	0006205	2061	14919	193														
108		OBS	T1485	0422	3484	2766			14922	205														
		STD	1500	0417	3484	2766	0005844	2121	14922	208							079							
		STD	1750	0335	3480	2771	0005259	2260	14929	257														
108		OBS	1972	0278	3478	2775			14942	292														
		STD	2000	0272	3478	2776	0004750	2385	14944	296							097							
108		OBS	T2452	0205	3475	2779			14992	343														



REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	DRIFT INDICATOR	STATION TIME (GMT)				YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				CLOUD CODES		NODC STATION NUMBER				
COUNTRY CODE	IDENTITY NUMBER					10 <sup>m</sup>	1 <sup>m</sup>	MONTH	DAY		HR. 1/10	CRUISE NUMBER			STATION NUMBER	DIR.	NET	PER.	SEA HGT.	WEATHER CODE		TYPE	AMT.		
31	201	PI	02583S	092009E		326	22	06	17	146	1964	442	056	4673	48	19			4	X6			0056		
		WATER		WIND		BAROMETER		AIR TEMP. °C		VIS.		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS											
		COLOR CODE		TRANS. (m)		DIR.		SPEED OR FORCE		(mba)		DRY BULB		WET BULB		VIS. CODE									
						03		S10		075		272		250		6									

MESSANGER NO.	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>3</sup>	Σ Δ D DYN. M. X 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>3</sub> -N μg-at/l	NO <sub>2</sub> -N μg-at/l	SiO <sub>3</sub> -Si μg-at/l	pH μg-at/l	SCC
146		STD	0000	2910	3452	2169	0061261	0000	15434	446							
		OBS	0000	2910	3452	2169			15434	446							
		STD	0010	2908	3452	2170	0061238	0061	15436	447							
		STD	0020	2906	3452	2170	0061215	0122	15437	448							
146		OBS	T0025	2905	3452	2171			15437	449							
		STD	0030	2904	3453	2172	0061120	0184	15438	449							
		STD	0050	2902	3455	2174	0060995	0306	15441	446							
146		OBS	0050	2902	3455	2174			15441	446							
		STD	0075	2880	3466	2190	0059605	0457	15442	435							
146		OBS	0075	2880	3466	2190			15442								
		STD	0100	2618	3524	2318	0047434	0590	15395	424							
146		OBS	T0100	2618	3524	2318			15395	424							003
146		OBS	T0110	2471	3517	2358			15361	314							
		STD	0125	2382	3519	2386	0041026	0701	15343	281							
146		OBS	T0125	2382	3519	2386			15343	281							
		STD	0150	1975	3513	2495	0030714	0791	15240	200							
146		OBS	0150	1975	3513	2495			15240	200							
146		OBS	0175	1636	3509	2575			15146	156							
		STD	0200	1427	3502	2616	0019176	0915	15083	159							
146		OBS	T0225	1274	3498	2645			15036	165							
		STD	0250	1228	3499	2655	0015615	1002	15025	180							
		STD	0300	1146	3500	2671	0014149	1077	15005	195							
146		OBS	T0300	1146	3500	2671			15005	195							
		STD	0400	1024	3493	2688	0012736	1211	14977	168							
146		OBS	T0400	1024	3493	2688			14977	168							
		STD	0500	0910	3487	2702	0011477	1332	14951	150							
146		OBS	T0500	0910	3487	2702			14951	150							034
		STD	0600	0877	3491	2710	0010842	1444	14956	136							
146		OBS	T0600	0877	3491	2710			14956	136							
		STD	0700	0803	3488	2720	0010070	1548	14944	130							
		STD	0800	0736	3487	2729	0009282	1645	14934	129							
146		OBS	T0800	0736	3487	2729			14934	129							
		STD	0900	0681	3487	2736	0008614	1735	14929	132							
		STD	1000	0629	3488	2744	0007924	1817	14925	139							
160		OBS	T1053	0602	3488	2748			14923	145							075
		STD	1100	0579	3487	2750	0007414	1894	14922	152							
		STD	1200	0531	3484	2753	0007083	1966	14919	168							
160		OBS	T1252	0507	3483	2755			14918	177							
		STD	1300	0484	3482	2757	0006695	2035	14916	186							
		STD	1400	0440	3480	2761	0006350	2101	14914	206							
		STD	1500	0401	3479	2764	0005997	2162	14915	224							
160		OBS	1549	0383	3478	2765			14915	232							084
		STD	1750	0329	3477	2770	0005400	2305	14926	265							
		STD	2000	0273	3476	2774	0004908	2434	14944	299							
160		OBS	T2043	0265	3476	2775			14948	304							100
		STD	2500	0203	3474	2778	0004383	2666	14999	345							
160		OBS	2535	0199	3474	2779			15004	347							
		STD	3000	0168	3473	2780	0004161	2879	15070	369							
160		OBS	3028	0166	3473	2780			15074	370							
160		OBS	3519	0142	3472	2781			15149	399							
		STD	4000	0115	3471	2782	0003779	3276	15222	436							
160		OBS	T4009	0114	3471	2782			15223	437							
160		OBS	T4498	0114	3471	2782			15310	445							
160		OBS	T4790	0118	3471	2782			15364	449							

REFERENCE COUNTRY CODE	IDENTITY NUMBER	SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	MARS DEN INDICATOR	MARS DEN SQUARE		STATION TIME (GMT)				YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODE	CLOUD CODES		NODC STATION NUMBER
						10"	1"	MONTH	DAY	HR. 1/10	CRUISE NUMBER		STATION NUMBER	DIR.			HGT.	PER.	SEA AMT.	TYPE		AMT.		
31	201	PI	04041S	092065E	326	42	06	17	231	1964	442	057	4746	25	18			4	X8	7	7	0057		

WATER			WIND			AIR TEMP. °C			NO. OCS DEFTHS	SPECIAL OBSERVATIONS
COLOR CODE	TRANS. (m)	DIR.	SPEED IN KNOTS	BAROMETER (mbs)	DRY BULB	WET BULB	VEL. CODE			
		34	S10	064	267	256	7			

MESSENGER TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- $\times 10^7$	$\Sigma \Delta D$ DYN. M. $\times 10^3$	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P $\mu\text{g-at/l}$	TOTAL-P $\mu\text{g-at/l}$	NO <sub>2</sub> -N $\mu\text{g-at/l}$	NO <sub>3</sub> -N $\mu\text{g-at/l}$	SiO <sub>2</sub> -Si $\mu\text{g-at/l}$	pH $\mu\text{g-at/l}$	SC
231		STD	0000	2873	3446	2177	0060510	0000	15426	447							
		OBS	0000	2873	3446	2177			15426	447							
		STD	0010	2876	3448	2177	0060502	0061	15428	447						002	
		STD	0020	2879	3449	2177	0060567	0121	15431	448							
231		OBS	0025	2881	3450	2177			15432	448							
		STD	0030	2878	3456	2183	0060074	0181	15433	448							
		STD	0050	2868	3476	2201	0058402	0300	15436	450							
231		OBS	0050	2868	3476	2201			15436	450							
		STD	0075	2725	3497	2264	0052522	0438	15412	432							
231		OBS	0075	2725	3497	2264			15412	432							
231		OBS	T0095	2609	3516	2315			15391	412							
		STD	0100	2603	3520	2320	0047272	0563	15391	413							
231		OBS	T0105	2580	3522	2328			15387	414						003	
231		OBS	T0120	2409	3521	2379			15349	358							
		STD	0125	2356	3523	2397	0040007	0672	15337	323							
231		OBS	T0135	2230	3524	2434			15307	264							
		STD	0150	1990	3516	2493	0030873	0761	15245	200							
231		OBS	0150	1990	3516	2493			15245	200							
231		OBS	T0175	1635	3498	2567			15144	165							
		*STD	0200	1478	3498	2602	0020525	0889	15099	165							
231		OBS	T0200	1478	3510Q	2612Q			1970								
		STD	0250	1226	3499	2655	0015577	0980	15024	165							
231		OBS	T0250	1226	3482Q	2642Q			165								
		STD	0300	1167	3500	2667	0014532	1055	15012	186							
237		OBS	T0300	1167	3500	2667			15012	186							
		STD	0400	1035	3492	2685	0012999	1193	14981	167							
237		OBS	T0400	1035	3492	2685			14981	167							
		STD	0500	0933	3488	2699	0011780	1316	14960	160							
237		OBS	0500	0933	3488	2699			14960	160							
237		OBS	T0598	0854	3486	2710			14946	139						027	
		STD	0600	0853	3486	2710	0010824	1430	14946	139							
		STD	0700	0785	3486	2721	0009938	1533	14936	138							
237		OBS	0795	0722	3485	2729			14928	136							
		STD	0800	0718	3485	2730	0009158	1629	14927	137							
		STD	0900	0651	3483	2737	0008469	1717	14917	147							
237		OBS	T0990	0596	3481	2743			14910	157						070	
		STD	1000	0590	3481	2744	0007881	1799	14909	159							
		STD	1100	0536	3479	2749	0007401	1875	14903	176							
237		OBS	1182	0498	3478	2752			14901	189							
		STD	1200	0492	3478	2753	0006989	1947	14902	191							
		STD	1300	0459	3479	2758	0006578	2015	14905	203							
		STD	1400	0427	3480	2762	0006177	2079	14909	216							
237		OBS	T1474	0404	3480	2764			14912	226						074	
		STD	1500	0395	3480	2765	0005845	2139	14912	231							
		STD	1750	0319	3478	2771	0005198	2277	14922	270							
237		OBS	T1965	0268	3477	2775			14937	299						100	
		STD	2000	0261	3477	2776	0004681	2400	14939	303							
237		OBS	T2465	0203	3474	2778			14993	345							

REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	DEPTH METER	MARSDEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODE	CLOUD CODES		NODC STATION NUMBER
COUNTRY CODE	IDENTITY NUMBER					10"	1"	MONTH	DAY	HR. 1/10		CRUISE NUMBER	STATION NUMBER			DIR.	HGT.	PER.	SEA AMT.		TYPE	AMT.	
31	201	PI	05052S	092084E	326	52	06	18	057	1964	442	058	4856	43	36			4	X1	8	6		0058
		WATER		WIND		BAROMETER		AIR TEMP. °C		VIS. CODE		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS									
		COLOR CODE		TRANS. DIR.		SPEED (KNOT)		DRY BULB WET BULB															
				36 S16		071		272 256		8													

MESSANGER TIME 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- $\sigma_{\theta}$	$\Delta \rho$ DYN. M. X 10 <sup>2</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P $\mu\text{g-at/l}$	TOTAL-P $\mu\text{g-at/l}$	NO <sub>3</sub> -N $\mu\text{g-at/l}$	NO <sub>2</sub> -N $\mu\text{g-at/l}$	SiO <sub>2</sub> -Si $\mu\text{g-at/l}$	pH $\mu\text{g-at/l}$	SCC
057		STD	0000	2839	3442	2185	0059720	0000	15418	448							
		OBS	0000	2839	3442	2185			15418	448							
		STD	0010	2853	3450	2187	0059628	0060	15424	449							
057		OBS	0018	2857	3453	2188			15426	450							
		STD	0020	2856	3453	2188	0059549	0119	15426	449							
057		OBS	0029	2854	3454	2189			15427	447							
		STD	0030	2855	3455	2190	0059415	0179	15428	447							
057		OBS	0033	2856	3456	2190			15429	447							
		STD	0050	2751	3495	2254	0053366	0292	15413	435							
057		OBS	T0056	2717	3505	2272			15408	432							
057		OBS	T0074	2624	3523	2315			15392	453Q							
		STD	0075	2622	3524	2317	0047453	0418	15392	425							
057		OBS	T0093	2541	3532	2348			15377	418							
		*STD	0100	2469	3532	2370	0042475	0530	15361	405							
057		OBS	0113	2370	3530	2398			15339	364							
		STD	0125	2340	3528	2405	0039200	0632	15333	350							
057		OBS	0132	2303	3526	2414			15325	337							
		STD	0150	2067	3519	2475	0032617	0722	15266	258							
057		OBS	T0172	1818	3512	2534			15200	192							
		*STD	0200	1572	3504	2586	0022095	0859	15130	183							
057		OBS	T0232	1364	3498	2627			15068	180							
		STD	0250	1322	3499	2636	0017423	0957	15057	178							
057		OBS	0300	1219	3502	2659	0015352	1039	15030	174							
057		OBS	T0316	1189	3503	2665			15023	225Q							
074		OBS	T0360	1117	3496	2673			15004	168							
		STD	0400	1063	3494	2681	0013339	1183	14991	178							
057		OBS	T0405	1058	3494	2682			14990	180							
074		OBS	T0431	1035	3492	2685			14986	190							
		STD	0500	0960	3489	2695	0012155	1310	14970	174							
074		OBS	T0562	0904	3487	2703			14959	160							
		STD	0600	0880	3487	2707	0011184	1427	14956	149							
		STD	0700	0815	3487	2717	0010331	1535	14948	132							
074		OBS	T0708	0810	3487	2718			14947	131							
		STD	0800	0751	3484	2724	0009730	1635	14940	135							
074		OBS	T0848	0719	3483	2728			14935	139							
		STD	0900	0678	3482	2733	0008937	1728	14927	146							
		STD	1000	0606	3480	2741	0008181	1814	14915	159							
074		OBS	1085	0552	3479	2747			14907	171							
		*STD	1100	0548	3479	2747	0007567	1892	14908	174							
		*STD	1200	0502	3479	2753	0007052	1966	14906	191							
		STD	1300	0455	3478	2757	0006598	2034	14903	207							
		*STD	1400	0410	3478	2762	0006099	2097	14902	223							
074		OBS	T1467	0392	3478	2764			14905	234							
		STD	1500	0381	3478	2765	0005808	2157	14906	240							
		STD	1750	0310	3477	2771	0005155	2294	14918	279							
074		OBS	1905	0275	3476	2774			14929	299							
		STD	2000	0261	3476	2775	0004754	2418	14939	308							
074		OBS	T2360	0215	3475	2778			14981	337							
		STD	2500	0202	3474	2778	0004369	2646	14999	345							
074		OBS	2830	0177	3473	2779			15045	363							
		STD	3000	0169	3473	2780	0004175	2859	15071	369							
074		OBS	T3320	0151	3472	2781			15118	387							
074		OBS	T3860	0114	3474Q	2785Q				435							
		STD	4000	0114	3473	2784	0003622	3249	15222	441							
074		OBS	T4320	0115	3473	2784			15279	443							

REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	MARS DEN INDICATOR	MARS DEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODE	CLOUD CODES		NODC STATION NUMBER
COUNTRY CODE	IDENTITY NUMBER					10°	1°	MONTH	DAY	HR. 1/10		CRUISE NUMBER	STATION NUMBER			DIR.	HGT.	PER.	SEA AMT.		TYPE	AMT.	

31	201	PI	09033S	115395E		324	95	06	30	119	1964	442	059	1362	04	14				4	X1	X	9			0059
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WATER		WIND		BAROMETER (mbx)	AIR TEMP. °C		VIC CODE	NO. OBS. DEPTH	SPECIAL OBSERVATIONS
COLOR CODE	TRANS. (m)	DIR.	SPEED OR DIR.		DRY BULB	WET BULB			

			14	S18	085	256	228		
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MESSANGER TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-10 <sup>7</sup>	± ΔD DYN. M. X 10 <sup>2</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l	SCC
119		STD	0000	2520	3410	2262	0052346	0000	15343	449							
		OBS	0000	2520	3410	2262			15343	449							
		STD	0010	2458	3415	2285	0050235	0051	15330	424							
119		OBS	T0013	2438	3416	2291			15326	418							
		STD	0020	2382	3419	2310	0047831	0100	15314	404							
		STD	0030	2313	3421	2332	0045807	0147	15299	390							
119		OBS	0030	2313	3421	2332			15299	390							
119		OBS	0043	2243	3422	2353			15283	380							
		STD	0050	2204	3424	2365	0042710	0236	15275	368							
119		OBS	T0056	2185	3425	2371			15271	361							
119		OBS	T0068	2184	3426	2372			15273	359							
		STD	0075	2174	3427	2376	0041787	0341	15271	357							
119		OBS	T0080	2168	3427	2377			15271	355							
		STD	0100	2163	3428	2379	0041514	0445	15273	352							
119		OBS	T0104	2162	3429	2380			15273	350							
		*STD	0125	2035	3442	2425	0037274	0544	15244	311							
119		OBS	0148	1646	3450	2528			15137	288							
		STD	0150	1629	3450	2532	0027123	0624	15132	289							
119		OBS	T0190	1386	3448	2583			15062	296							
		STD	0200	1374	3448	2586	0022045	0747	15059	293							
119		OBS	T0232	1334	3449	2595			15052	281							
		*STD	0250	1289	3450	2605	0020362	0853	15040	271							
119		OBS	T0267	1137	3450	2634			14990	262							
		*STD	0300	1120	3453	2639	0017127	0947	14990	247							
119		OBS	T0346	0934	3456	2674			14931	231							
		STD	0400	0817	3459	2695	0011891	1092	14896	218							
119		OBS	T0436	0748	3460	2706			14875	213							

REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	DRIFT INDICATOR	MARS DEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODE		CLOUD CODES		NODC STATION NUMBER	
COUNTRY CODE	IDENTITY NUMBER					10"	1"	MONTH	DAY	HR. 1/10		CRUISE NUMBER	STATION NUMBER			DIR.	HGT.	PER.	SEA AMT.	TYPE	AMT.				
31	201	PI	08413S	115410E		324	85	06	30	182	1964	442	060	0564	04	13				3	X1	8	2		0060
		WATER		WIND		BAROMETER		AIR TEMP. °C		VIS.		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS											
		COOR. CODE	TRANK. (m)	DIR.	SPEED OF FLEET	(mbs)		DRY BULB	WET BULB	CODE															
					13	S12	088	256	217	8															

MESSANGER TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY--X10 <sup>7</sup>	± Δ D DYN. AL. X 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l	SCC
182		STD	0000	2767	3374	2158	0062358	0000	15395	455							
		OBS	0000	2767	3374	2158			15395	455							
182		STD	0010	2768	3374	2157	0062428	0062	15397	458							
		STD	0020	2769	3373	2156	0062571	0125	15399	461							
182		OBS	T0022	2769	3373	2156			15399	461							
		*STD	0030	2778	3382	2160	0062243	0187	15403	460							
182		OBS	0047	2789	3393	2165			15410	455							
		STD	0050	2785	3393	2166	0061750	0311	15409	455							
182		OBS	0065	2765	3393	2173			15408	443							
		*STD	0075	2646	3398	2214	0057232	0460	15383	406							
182		OBS	T0094	2477	3418	2281			15349	361							
		STD	0100	2455	3420	2289	0050132	0594	15345	358							
182		OBS	T0116	2375	3424	2316			15329	352							
		STD	0125	2294	3427	2342	0045204	0713	15310	351							
182		OBS	T0144	2154	3433	2386			15278	349							
		STD	0150	2129	3435	2394	0040293	0820	15273	345							
182		OBS	T0162	2060	3439	2416			15257	337							
		*STD	0200	1565	3449	2545	0025946	0986	15121	308							
182		OBS	0212	1488	3451	2564			15099	301							
		STD	0250	1364	3450	2589	0021834	1105	15064	292							
182		OBS	T0279	1274	3450	2608			15039	285							
		STD	0300	1212	3450	2620	0019026	1207	15021	280							
182		STD	0400	0949	3450	2667	0014635	1376	14944	250							
		OBS	T0435	0870	3450	2679			14920	239							

REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	MARS DEN INDICATOR	MARS DEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODE	CLOUD CODES		NODC STATION NUMBER				
COUNTRY CODE	IDENTITY NUMBER					T <sup>0</sup>	T <sup>1</sup>	MONTH	DAY	HR		1/10	CRUISE NUMBER			STATION NUMBER	DIR.	HGT.	PER.		SEA AMT.	TYPE		AMT.			
31	201	PI	08309S	115445E		324	85	06	30	214	1964	442	061	0882	07	16			3	X1	6	1		0061			
		WATER		WIND		BAROMETER		AIR TEMP. °C		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS															
		COLOR CODE		TRANS. (m)		DIR.		SPEED OR FORCE		BAROMETER (mb)		DRY BULB		WET BULB		VIS. CODE											
				16		S12		12		250		217		8													

MESSANGER TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>7</sup>	Σ Δ D DYN. M. X 10 <sup>7</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l	SCC
214		STD	0000	2771	3371	2154	0062698	0000	15396	454							
		OBS	0000	2771	3371	2154			15396	454							
		STD	0010	2772	3371	2154	0062768	0063	15398	456							
		STD	0020	2772	3371	2154	0062808	0126	15399	458							
214		OBS	T0020	2772	3371	2154			15399	458							
		*STD	0030	2740	3375	2167	0061571	0188	15394	423							
214		OBS	0039	2659	3386	2201			15379	399							
		STD	0050	2568	3407	2245	0054162	0303	15362	381							
214		OBS	0057	2508	3416	2270			15350	371							
		STD	0075	2347	3426	2326	0046555	0429	15315	354							
214		OBS	T0076	2335	3427	2330			15313	353							
214		OBS	T0094	2062	3435	2412			15246	327							
		STD	0100	2013	3437	2427	0036993	0534	15234	325							
214		OBS	T0112	1921	3419Q	2437Q			358Q								
		STD	0125	1828	3446	2481	0031897	0620	15187	318							
214		OBS	T0147	1690	3451	2518			15151	312							
		STD	0150	1677	3451	2521	0028121	0695	15147	312							
		STD	0200	1473	3451	2567	0023846	0825	15092	301							
214		OBS	0218	1406	3451	2581			15073	297							
		*STD	0250	1300	3449	2602	0020648	0936	15043	277							
214		OBS	T0288	1180	3448	2624			15008	275							
		STD	0300	1137	3448	2632	0017798	1032	14995	271							
214		OBS	T0359	0972	3448	2661			14946	253							
		STD	0400	0959	3449	2664	0014873	1196	14948	250							
		STD	0500	0902	3450	2674	0014066	1340	14943	242							
214		OBS	T0512	0893	3450	2676			14942	241							
		STD	0600	0809	3451	2690	0012708	1474	14925	234							
214		OBS	T0686	0700	3453	2707			14897	228							

REFERENCE COUNTRY IDENTITY NUMBER	SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	MARS DEN SQUARE	STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODE	CLOUD CODES		NODC STATION NUMBER	
					10"	1"	MONTH DAY HR. 1/10		CRUISE NUMBER	STATION NUMBER			DIR.	HGT.	PER.	SEA AMT.		TYPE	AMT.		
31	201	PI	04004N	122360E	024	42	07 03	208	1964	442	062	4837	50	21				1	X1	4 3	0062
				WATER		WIND		BAROMETER		AIR TEMP. °C		NO. OBS. DEPTH	SPECIAL OBSERVATIONS								
				COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE	mmHg		DRY BULB	WET BULB		YES CODE								
						21		S06	075	267	256	8									

MESSSENGER TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>3</sup>	± Δ D DYN. M. X 10 <sup>3</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>2</sub> -N μg-at/l	NO <sub>3</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH μg-at/l	SCC
208		STD	0000	2895	3392	2129	0065092	0000	15425	452							
		OBS	0000	2895	3392	2129			15425	452							
		STD	0010	2894	3390	2128	0065244	0065	15426	468							
208		OBS	0010	2894	3390	2128			15426	468							
		STD	0020	2880	3396	2137	0064407	0130	15425	457							
208		OBS	0020	2880	3396	2137			15425	457							
		STD	0030	2875	3403	2144	0063785	0194	15427	457							
208		OBS	0030	2875	3403	2144			15427	457							
		STD	0050	2870	3414	2154	0062917	0321	15430	457							
208		OBS	0050	2870	3414	2154			15430	457							
		STD	0075	2688	3445	2236	0055125	0468	15398	448							
208		OBS	0075	2688	3445	2236			15398	448							
186		OBS	0098	2610	3450	2265			15384	427							
		STD	0100	2579	3451	2275	0051517	0602	15378	423							
		STD	0125	2231	3465	2389	0040749	0717	15299	388							
186		OBS	T0147	1992	3472	2459			15240	370							
		STD	0150	1972	3472	2464	0033604	0810	15235	371							
186		OBS	0196	1689	3470	2533			15161	376							
		*STD	0200	1650	3469	2541	0026361	0960	15149	375							
		*STD	0250	1410	3457	2585	0022250	1081	15080	357							
186		OBS	0294	1262	3450	2610			15038	334							
		STD	0300	1242	3449	2613	0019663	1186	15032	328							
186		OBS	T0391	0982	3445	2657			14954	261							
		STD	0400	0962	3446	2661	0015143	1360	14948	257							
186		OBS	T0489	0803	3450	2690			14904	234							
		STD	0500	0792	3451	2692	0012278	1497	14902	236							
186		OBS	T0587	0709	3454	2706			14884	247							
		STD	0600	0699	3454	2708	0010851	1613	14882	246							
		STD	0700	0624	3455	2719	0009868	1717	14869	238							
186		OBS	T0783	0566	3455	2726			14860	233							
		STD	0800	0552	3455	2728	0009025	1811	14857	232							
		*STD	0900	0490	3457	2737	0008184	1897	14848	227							
186		OBS	0980	0440	3458	2743			14841	224							
		STD	1000	0435	3458	2744	0007517	1976	14842	224							
		STD	1100	0415	3459	2747	0007288	2050	14851	222							
186		OBS	T1177	0402	3459	2748			14858	221							
		STD	1200	0399	3459	2748	0007177	2122	14861	221							
		STD	1300	0389	3459	2749	0007137	2193	14873	222							
		STD	1400	0380	3459	2750	0007105	2265	14886	223							
186		OBS	T1474	0374	3459	2751			14896	224							
		STD	1500	0372	3459	2751	0007083	2336	14900	225							
		STD	1750	0362	3459	2752	0007146	2513	14938	231							
186		OBS	T1968	0358	3459	2752			14973	233							
		STD	2000	0358	3459	2752	0007279	2694	14978	233							
202		OBS	T2043	0358	3459	2752			14986	233							
		STD	2500	0358	3459	2752	0007640	3067	15063	227							
202		OBS	T2523	0358	3459	2752			15067	227							
		STD	3000	0358	3460	2753	0007917	3456	15149	218							
202		OBS	T3008	0358	3460	2753			15151	218							
202		OBS	3497	0360	3460	2753			15236	219							
202		OBS	3988	0366	3460	2752			15324	217							
		STD	4000	0366	3460	2752	0008718	4287	15327	217							
202		OBS	4480	0373	3460	2752			15414	221							
202		OBS	4679	0377	3460	2751			15451	218							
202		OBS	4778	0377	3460	2751			15468	218							
202		OBS	4828	0380	3460	2751			15478	219							
202		OBS	T4878	0380	3460	2751			15487	218							
202		OBS	T4928	0380	3460	2751			15496	218							
202		OBS	T4978	0382	3460	2751			15506	219							

REFERENCE		SHIP CODE	LATITUDE ° ' 1/10	LONGITUDE ° ' 1/10	PORT INDICATOR	MARSDEN SQUARE	STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				WEATHER CODE	CLOUD CODES		NDBC STATION NUMBER
COUNTRY CODE	IDENTITY NUMBER						CRUISE NUMBER	STATION NUMBER	10 <sup>m</sup>		1 <sup>m</sup>	MONTH			DAY	HR. 1/10	NO.	STATION NUMBER		DIR.	HGT.	

31	201	PI	04004N	122360E		024	42	07	03	226	1964	442	063	4837	50	00				0	X1	4	3		0063
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WATER		WIND		BAROMETER (mbs)	AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTH	SPECIAL OBSERVATIONS
COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE		DRY BULB	WET BULB			

			21	S06	091	267	256	8	
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MESSAGE TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-X10 <sup>7</sup>	Σ Δ D DYN. M. X 10 <sup>7</sup>	SOUND VELOCITY	O <sub>2</sub> ml/l	PO <sub>4</sub> -P μg-at/l	TOTAL-P μg-at/l	NO <sub>3</sub> -N μg-at/l	NO <sub>2</sub> -N μg-at/l	SiO <sub>2</sub> -Si μg-at/l	pH	SCC
		STD	0000	2896	3389	2127	0065339	0000	15425	445							
226		OBS	0000	2896	3389	2127			15425	445							
226		OBS	0009	2898	3388	2125			15427	457							
		STD	0010	2895	3389	2127	0065348	0065	15426	457							
226		OBS	0019	2877	3398	2140			15425	457							
		STD	0020	2877	3398	2140	0064167	0130	15425	457							
226		OBS	0028	2873	3402	2144			15426	460							
		STD	0030	2873	3403	2145	0063721	0194	15426	460							
226		OBS	0047	2868	3412	2153			15429	457							
		STD	0050	2846	3418	2165	0061869	0320	15425	457							
226		OBS	0071	2716	3444	2227			15403	454							
		STD	0075	2710	3445	2229	0055797	0467	15403	452							
226		OBS	T0094	2628	3448	2258			15388	439							
		*STD	0100	2590	3452	2272	0051772	0601	15380	428							
		*STD	0125	2290	3466	2373	0042283	0719	15314	392							
226		OBS	0142	2023	3471	2450			15247	377							
		STD	0150	1965	3471	2465	0033502	0813	15233	377							
226		OBS	0189	1706	3468	2527			15164	376							
		STD	0200	1643	3465	2540	0026495	0963	15147	367							
		STD	0250	1388	3452	2586	0022169	1085	15073	329							
226		OBS	T0284	1245	3446	2610			15030	306							
		STD	0300	1190	3445	2620	0018983	1188	15013	296							
226		OBS	T0380	0970	3442	2657			14948	256							
		STD	0400	0934	3442	2663	0014979	1358	14938	248							
226		OBS	T0477	0822	3444	2682			14908	230							
		STD	0500	0802	3446	2687	0012797	1497	14905	233							
226		OBS	T0575	0736	3451	2700			14892	239							
		STD	0600	0712	3451	2704	0011260	1617	14887	237							
		STD	0700	0626	3452	2716	0010117	1724	14870	232							
226		OBS	T0772	0571	3453	2724			14860	230							
		STD	0800	0550	3453	2727	0009146	1820	14856	230							
		STD	0900	0487	3455	2736	0008293	1907	14847	230							
241		OBS	0946	0464	3455	2738			14845	230							
		STD	1000	0447	3455	2740	0007889	1988	14847	230							
		STD	1100	0421	3456	2744	0007584	2066	14853	230							
241		OBS	T1144	0411	3456	2745			14856	230							
		STD	1200	0403	3456	2746	0007447	2141	14862	230							
		STD	1300	0391	3457	2748	0007309	2215	14874	230							
		STD	1400	0381	3457	2749	0007265	2287	14887	230							
241		OBS	T1442	0377	3457	2749			14892	230							
		STD	1500	0373	3457	2749	0007243	2360	14900	229							
		STD	1750	0361	3457	2751	0007279	2542	14937	228							
241		OBS	T1937	0355	3457	2751			14966	227							
		STD	2000	0355	3457	2751	0007383	2725	14977	227							
241		OBS	2432	0354	3458	2752			15050	227							
		STD	2500	0354	3458	2752	0007653	3101	15062	225							
241		OBS	T2925	0355	3458	2752			15135	217							
		STD	3000	0356	3458	2752	0008028	3493	15148	219							
241		OBS	3415	0363	3458	2751			15223	225							
241		OBS	T3905	0367	3458	2751			15310	218							
		STD	4000	0369	3458	2751	0008911	4340	15328	218							
241		OBS	4395	0374	3458	2750			15399	218							
241		OBS	T4788	0378	3458	2750			15470	215							
241		OBS	T4935	0380	3458	2749			15497	221							
241		OBS	T4983	0382	3458	2749			15506	265Q							



# Bathythermograph Data

Eight hundred and eighty-five bathythermograph lowerings were made during the expedition. Normally, observations were made every two hours while the ship was underway. All BT traces and log sheets were forwarded to the National Oceanographic Data Center.

Locations of BT sections (profiles) are shown on chart 1 inside the back cover. An explanation of the bathythermograph log, modified to show surface salinity and density data, follows. The station positions on the log sheets are uncorrected. They are the same as positions shown on bathythermogram prints. Prints may be ordered from the National Oceanographic Data Center.

## Explanation of Bathythermograph Data

A description of the bathythermograph log sheet column designations, the units used under each, and the codes which apply to each, is given below.

<i>Column designation</i>	<i>Explanation of entry</i>
Consec. slide number.....	BT slides were numbered consecutively from the time the ship left San Francisco, California.
Greenwich Mean Time:	
Hour.....	Hour and minute BT entered water.
Date.....	Day of the month, 01 through 31.
Latitude.....	In degrees and minutes, N or S.
Longitude.....	In degrees and minutes, E or W.
Depth.....	In fathoms.
Sea surface temp.....	In degrees and tenths Celsius.
Wind:	
Dir.....	Direction as given in World Meteorological Organization (WMO) table 23, see table 1 below.
Speed.....	Speed in knots.
Air Temp.:	
Dry bulb.....	Dry-bulb air temperature in degrees and tenths Fahrenheit.
Wet bulb.....	Wet-bulb air temperature in degrees and tenths Fahrenheit.
Barom. (MBS).....	Barometric pressure recorded in millibars using last two digits only, table 2, inches to millibars.
Weather.....	Coded in accordance with WMO 90 A, table 3.
Clouds:	
Type.....	Coded in accordance with WMO 10, table 4.
Amount.....	Coded in accordance with WMO 60, table 5.
Vis.....	Visibility: not recorded; table 6 omitted.
Sea.....	Coded according to state of the sea WMO 75, table 7.
Swell.....	Not recorded.
Salinity.....	As expressed in parts per thousand, ‰.
Sigma- <i>t</i> .....	Density, $\sigma_t$ , computed from observed temperature and salinity values.

TABLE 1.—True wind direction, in tens of degrees, from which wind is blowing (WMO 23)

Code figure									
00	Calm	08	75°-84°	16	155°-164°	24	235°-244°	31	305°-314°
01	5°-14°	09	85°-94°	17	165°-174°	25	245°-254°	32	315°-324°
02	15°-24°	10	95°-104°	18	175°-184°	26	255°-264°	33	325°-334°
03	25°-34°	11	105°-114°	19	185°-194°	27	265°-274°	34	335°-344°
04	35°-44°	12	115°-124°	20	195°-204°	28	275°-284°	35	345°-354°
05	45°-54°	13	125°-134°	21	205°-214°	29	285°-294°	36	355°-4°
06	55°-64°	14	135°-144°	22	215°-224°	30	295°-304°	99	variable
07	65°-74°	15	145°-154°	23	225°-234°				

TABLE 2.—Barometric pressure conversion—*inches to millibars*

[Neglecting 900 and 1,000 millibars. For example: 45=945, and 03=1003.]

Inches	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
27.9	45	45	46	46	46	46	47	47	48	48
28.0	48	48	49	49	50	50	50	51	51	51
28.1	52	52	52	53	53	53	54	54	54	55
28.2	55	55	56	56	56	57	57	57	58	58
28.3	58	59	59	59	60	60	60	61	61	61
28.4	62	62	62	63	63	63	64	64	64	65
28.5	65	66	66	66	66	67	67	68	68	68
28.6	68	68	69	70	70	70	70	71	72	72
28.7	72	72	73	73	73	74	74	74	75	75
28.8	75	76	76	76	77	77	77	78	78	78
28.9	79	79	79	80	80	80	81	81	81	82
29.0	82	82	83	83	83	84	84	84	85	85
29.1	85	86	86	86	87	87	88	88	88	88
29.2	89	89	90	90	90	90	91	91	92	92
29.3	92	93	93	93	94	94	94	95	95	95
29.4	96	96	96	97	97	97	98	98	98	99
29.5	99	99	00	00	00	01	01	01	02	02
29.6	02	03	03	03	04	04	04	05	05	05
29.7	06	06	06	07	07	08	08	08	08	09
29.8	09	10	10	10	10	11	+ 11	12	12	12
29.9	12	13	13	14	14	14	15	15	15	16
30.0	16	16	17	17	17	+ 18	18	18	19	19
30.1	19	20	20	20	21	21	21	22	22	22
30.2	23	23	23	24	24	24	25	25	25	26
30.3	26	26	27	27	27	28	28	28	29	29
30.4	30	30	30	30	31	31	32	32	32	32
30.5	33	33	34	34	35	35	35	35	36	36
30.6	36	37	37	37	38	38	38	39	39	39
30.7	40	40	40	41	41	41	42	42	42	43
30.8	43	43	44	44	44					

TABLE 3.—*Present weather (WMO 90A)*

Code figure	
0	Clear (no cloud at any level)
1	Partly cloudy (scattered or broken)
2	Continuous layer(s) of cloud(s)
3	Sandstorm, duststorm, or storm of drifting snow
4	Fog, thick dust or haze
5	Drizzle
6	Rain
7	Snow, or rain and snow mixed
8	Shower(s)
9	Thunderstorm(s)

TABLE 4.—*Cloud type (WMO 10)*

Code figure	
0	Cirrus
1	Cirrocumulus
2	Cirrostratus
3	Alto cumulus
4	Altostratus
5	Nimbostratus
6	Stratocumulus
7	Stratus
8	Cumulus
9	Cumulonimbus
x	Cloud not visible owing to darkness, fog, duststorm, sandstorm, or other phenomena.

TABLE 5.—*Cloud amount (WMO 60)*

Code figure	
0	0
1	$\frac{1}{10}$ or less, but not zero
2	$\frac{2}{10}$ – $\frac{3}{10}$
3	$\frac{4}{10}$
4	$\frac{5}{10}$
5	$\frac{6}{10}$
6	$\frac{7}{10}$ – $\frac{8}{10}$
7	$\frac{9}{10}$ or more, but not $1\frac{1}{10}$
8	$1\frac{1}{10}$
9	Sky obscured, or cloud amount cannot be estimated.

TABLE 6.—*Visibility*—omitted because visibility was not recordedTABLE 7.—*State of sea, or wind waves (WMO 75)*

Code	Description	Height	
		Feet	Meters
0	Calm—glassy-----	0	0
1	Calm—ripples-----	0– $\frac{1}{8}$	0– $\frac{1}{10}$
2	Smooth—wavelets-----	$\frac{1}{8}$ – $1\frac{2}{3}$	$\frac{1}{10}$ – $\frac{1}{2}$
3	Slight-----	$1\frac{2}{3}$ –4	$\frac{1}{2}$ – $1\frac{1}{4}$
4	Moderate-----	4–8	$1\frac{1}{4}$ – $2\frac{1}{2}$
5	Rough-----	8–13	$2\frac{1}{2}$ –4
6	Very rough-----	13–20	4–6
7	High-----	20–30	6–9
8	Very high-----	30–45	9–14
9	Phenomenal-----	over 45	over 14

NOTE: The exact bounding height is to be assigned to the lower code figure, that is, a height of 4 feet is coded as 3.

# Bathythermograph Data Listings

VESSEL		PIONEER		MONTH		YEAR		TIME ZONE		CRUISE		OPR 394 and OPR 442		SHEET NO.		
		February		February		1964						1		1		
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Buckets)	WIND		BAROM. (MBS) (Tab. 2)	WEATHER (Tab. 3)	CLOUDS		SEA DIR. (Tab. 7)	SWELL AMT. (Tab. 8)	SALINITY	SIGMA - t
	hour	DATE					DIR. (Tab. 1)	SPEED (Knots)			TYPE (Tab. 4)	AMT. (Tab. 5)				
1	0510	14	37° 26' N	123° 05' W	384	11.6	35	25	21.0	0	X	-	-	-	-	
2	0845	14	37° 17' N	123° 27' W	1520	11.7	31	19	24.0	0	X	-	-	-	33.33	
3	1045	14	37° 08' N	123° 51' W	2015	12.3	31	19	24.0	0	X	-	-	-	-	
4	1245	14	37° 04' N	124° 00' W	2000	11.0	32	18	52.0	0	X	-	-	-	33.14	
5	1845	14	36° 54' N	124° 20' W	2160	12.2	33	15	66.0	1	6	4	-	-	33.12	
6	2245	14	36° 37' N	125° 12' W	2375	12.4	30	16	66.0	1	0	8	-	-	32.87	
7	0045	15	36° 26' N	125° 41' W	2430	13.2	-	-	68.0	-	6	7	-	-	32.93	
8	0215	15	36° 20' N	126° 00' W	2465	13.3	-	-	60.0	-	8	1	-	-	-	
9	0645	15	36° 10' N	126° 17' W	2532	13.4	32	23	61.0	1	X	9	-	-	33.00	
10	0845	15	36° 02' N	126° 43' W	2530	13.3	33	26	62.0	2	X	X	-	-	32.96	
11	1445	15	35° 35' N	128° 00' W	2601	13.9	02	20	60.0	1	8	5	-	-	33.10	
12	1645	15	35° 26' N	128° 25' W	--	14.1	32	16	57.0	1	3	5	-	-	33.07	
13	1845	15	35° 16' N	128° 52' W	2575	14.3	32	22	57.0	1	3	6	-	-	33.12	
14	2045	15	35° 03' N	129° 17' W	2590	14.2	36	24	58.0	2	6	8	-	-	33.20	
15	2245	15	34° 52' N	129° 41' W	2690	14.3	36	28	58.0	2	6	8	-	-	33.19	
16	0045	16	34° 46' N	130° 04' W	2752	14.5	36	15	63.0	2	5	8	-	-	33.33	

VESSEL		MONTH		YEAR		TIME ZONE		CRUISE						SHEET NO.							
PIONEER		February		1964		OPR 394 and OPR 442						2									
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME	LATITUDE		LONGITUDE		DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND		AIR TEMP.		BAROM. (MB)	WEA. (MBS)	CLOUDS		VIS. (Tab. 6)	SEA DIR. (Tab. 7)	SWELL DIR. (Tab. 1)	SWELL AMT. (Tab. 8)	SALINITY	SIGMA - t
		DATE	HOUR	DIR. (Knots)	SPEED (Knots)			DRY BULB	WET BULB	TYPE	AMT.										
17	0245	16	34 29N	130 37W		2806	14.7	36	15	63.0	58.0	27	1	5	8	-	5	-	-	33.32	24.76
18	0515	16	34 21N	131 00W		2740	15.4	36	18	62.0	56.0	25	1	X	X	-	4	-	-	--	--
19	0845	16	34 15N	131 14W		2800	15.8	02	22	60.0	57.0	25	2	X	X	-	4	-	-	33.70	24.81
20	1045	16	34 03N	131 42W		2816	16.0	03	20	68.0	58.0	25	2	X	X	-	4	-	-	33.91	24.93
21	1245	16	33 53N	132 07W		2784	16.7	09	15	60.0	58.0	30	2	X	X	-	4	-	-	34.16	24.96
22	1445	16	33 44N	132 31W		2752	16.2	36	17	60.0	57.0	30	2	8	8	-	3	-	-	34.05	24.99
23	1645	16	33 33N	132 56W		2705	15.8	36	14	57.0	51.0	27	2	6	8	-	3	-	-	33.77	24.87
24	1845	16	33 23N	133 22W		2658	15.9	36	17	58.0	53.0	29	2	6	8	-	4	-	-	33.84	24.90
25	2045	16	33 13N	133 47W		2560	15.5	03	20	60.0	53.0	28	2	6	8	-	4	-	-	33.74	24.91
26	2245	16	33 03N	134 16W		2564	16.7	05	20	60.0	53.8	26	2	6	8	-	4	-	-	34.26	25.04
27	0045	17	32 52N	134 37W		2717	16.7	08	14	61.0	56.0	31	2	8	8	-	3	-	-	34.18	24.98
28	0245	17	32 43N	135 01W		2418	16.7	08	14	61.0	56.0	31	2	8	8	-	3	-	-	34.17	24.97
29	0645	17	32 25N	135 18W		2094	17.4	09	15	60.0	56.0	29	X	-	-	-	3	-	-	34.61	25.14
30	0945	17	32 09N	135 27W		2350	17.6	05	20	61.5	56.8	28	2	X	X	-	4	-	-	34.74	25.19
31	1145	17	32 02N	136 54W		2616	17.6	08	20	60.1	54.8	27	2	X	X	-	4	-	-	34.73	25.18
32	1345	17	31 43N	137 17W		2633	17.6	09	15	60.1	54.8	30	2	X	X	-	4	-	-	34.67	25.14

VESSEL		MONTH		YEAR		TIME ZONE		CRUISE		SHEET NO.							
PIONEER		February		1964		OPR 394 and OPR 442		3		3							
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Buckets)	WIND		AIR TEMP.	BAROM. (MBS) (Tab. 2)	WEA. THER. (Tab. 3)	CLOUDS	VIS. (Tab. 6)	SEA DIR. (Tab. 7)	SWELL DIR. (Tab. 8)	SALINITY	SIGMA - t
	DATE	HOUR					DIR. (Knots)	DRY BULB									
33	1545	17	31 37N	137 45W	2690	17.6	09 15	63.0	59.0	31	2	6	8	---	---	34.65	25.12
34	1945	17	31 18N	138 36W	2480	18.4	13 15	66.0	58.0	27	1	8	3	---	---	34.96	25.16
35	2145	17	31 08N	139 02W	2550	18.5	08 20	60.3	59.1	25	2	6	7	---	---	35.03	25.19
36	2345	17	30 58N	139 28W	2600	18.5	- -	---	---	-	-	-	-	---	---	35.03	25.19
37	0145	18	30 48N	139 57W	2616	18.4	09 12	61.0	59.0	28	1	8	3	---	---	34.98	25.18
38	0230	18	30 44N	140 00W	2668	18.3	09 12	61.0	59.0	28	1	8	3	---	---	---	---
39	0745	18	30 37N	140 14W	---	18.0	- -	---	---	-	-	-	-	---	---	34.92	25.23
40	0945	18	30 27N	140 38W	2785	18.2	08 26	64.0	59.2	24	2	X	X	---	---	34.95	25.20
41	1145	18	30 16N	141 03W	2820	18.3	09 20	63.0	59.1	24	2	X	X	---	---	35.00	25.22
42	1345	18	30 03N	141 30W	2789	18.4	09 16	62.0	60.0	23	2	X	X	---	---	34.94	25.15
43	1545	18	29 55N	141 50W	2942	18.8	09 16	63.0	62.0	26	2	8	5	---	---	35.07	25.14
44	0345	19	29 05N	143 49W	2752	19.6	09 16	68.0	64.0	24	2	8	4	---	---	35.23	25.06
45	0545	19	28 56N	144 06W	2752	19.8	09 16	68.0	64.0	22	X	-	-	---	---	35.20	24.98
46	0745	19	28 50N	144 29W	2005	19.7	09 16	67.0	63.0	21	X	-	-	---	---	35.23	25.04
47	1045	19	28 35N	135 04W	2280	20.2	09 18	66.5	63.8	20	2	X	X	---	---	35.31	24.96
48	1245	19	28 25N	145 29W	2575	20.3	10 18	66.5	64.3	19	2	X	X	---	---	35.30	24.93

VESSEL		PIONEER		MONTH		February		YEAR		1964		TIME ZONE		CRUISE		OPR 394 and OPR 442		SHEET NO.		4	
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		DATE	LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND		AIR TEMP.		BAROM. (MBS) (Tab. 2)	WEA. THER. (Tab. 3)	CLOUDS		VIS. (Tab. 6)	SEA DIR. (Tab. 7)	SWELL		SALINITY	SIGMA - t
	HOUR	MINUTE						DIR. (Tab. 1)	SPEED (Knots)	DRY BULB	WET BULB			TYPE (Tab. 4)	AMT. (Tab. 5)			DIR. (Tab. 1)	AMT. (Tab. 8)		
49	1445	19	28 13N	145 56W	2663	20.6	09 14	67.0	64.0	22	1	6	2	---	4	---	---	35.32	24.86		
50	1645	19	28 04N	146 17W	1772	20.7	09 15	68.0	65.0	20	1	6	2	---	3	---	---	35.32	24.84		
51	1845	19	27 54N	147 43W	2784	20.7	-	---	---	-	1	8	2	---	-	---	---	35.32	24.84		
52	0045	20	27 21N	147 57W	2760	21.2	12 08	72.8	65.8	18	1	3	5	---	4	---	---	35.37	24.74		
53	0245	20	27 12N	148 20W	2954	21.5	12 08	71.5	65.0	21	1	9	3	---	3	---	---	35.36	24.65		
54	0445	20	27 02N	148 45W	2942	21.5	05 12	69.0	63.0	22	1	9	2	---	4	---	---	35.35	24.64		
55	0645	20	26 48N	149 06W	2880	21.5	18 10	69.0	64.0	20	X	-	-	---	3	---	---	35.33	24.63		
56	0845	20	26 39N	149 27W	2964	21.1	05 10	68.0	64.0	20	X	-	-	---	3	---	---	35.33	24.74		
57	1045	20	26 29N	149 55W	2860	20.6	09 10	69.0	64.5	19	2	X	X	---	4	---	---	35.29	24.84		
58	1245	20	26 16N	150 27W	2974	21.1	09 10	69.8	64.8	19	2	X	X	---	4	---	---	35.31	24.72		
59	1345	20	26 15N	150 30W	3006	21.1	-	10	69.7	64.6	19	2	X	X	---	4	---	---	35.33	24.74	
60	1645	20	26 05N	150 30W	2942	21.6	09 10	69.0	64.0	22	1	9	3	---	4	---	---	35.29	24.57		
61	1845	20	25 55N	151 20W	2996	22.2	11 12	71.5	64.5	20	1	7	3	---	3	---	---	35.24	24.36		
62	0245	21	25 12N	152 42W	2984	22.4	09 14	73.0	66.5	21	1	8	3	---	3	---	---	35.18	24.26		
63	0445	21	24 58N	153 10W	2779	22.9	09 14	71.0	65.0	21	1	8	3	---	4	---	---	35.19	24.13		
64	0645	21	24 45N	153 33W	2912	22.8	09 15	71.5	66.0	19	X	-	-	---	4	---	---	35.21	24.17		

VESSEL		PIONEER		MONTH		YEAR		TIME ZONE		CRUISE		OPR 394 and OPR 442		SHEET NO.						
		February		1964										5						
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND		AIR TEMP.		BAROM. (MBS) (Tab. 2)	WEA. THER. (Tab. 3)	CLOUDS		VIS. (Tab. 6)	SEA DIR. (Tab. 7)	SWELL		SALINITY	SIGMA - t
	DATE	HOUR					DIR. (Knots) (Tab. 1)	SPEED (Knots)	DRY BULB	WET BULB			TYPE (Tab. 4)	AMT. (Tab. 5)			DIR. (Tab. 1)	AMT. (Tab. 8)		
65	0845	21	24 43N	153 43W	2868	23.0	09	14	71.5	66.0	19	X	-	-	-	4	--	--	35.20	24.10
66	1045	21	24 27N	154 10W	2660	22.8	11	14	70.1	65.8	19	2	X	X	-	4	--	--	35.17	24.14
67	1245	21	24 11N	154 39W	2610	22.8	11	14	70.1	66.2	18	2	X	X	-	4	--	--	35.19	24.16
68	1445	21	24 00N	155 03W	2544	23.2	09	15	71.5	66.5	21	2	X	X	-	4	--	--	35.19	24.04
69	1645	21	23 45N	155 32W	1948	22.8	09	10	69.0	64.0	22	2	8	5	-	4	--	--	35.26	24.21
70	1845	21	23 45N	155 39W	2324	22.9	09	15	72.0	68.0	19	8	8	6	-	3	--	--	35.26	25.18
71	2045	21	23 29N	156 06W	2297	23.1	09	16	74.0	66.0	19	1	8	6	-	4	--	--	35.24	24.11
72	2245	21	24 14N	156 30W	2302	23.2	13	12	74.5	65.5	18	2	7	7	-	4	--	--	35.38	24.18
73	0045	22	22 57N	156 52W	2366	23.3	11	14	74.2	68.0	16	2	6	7	-	3	--	--	35.25	24.06
74	0315	22	20 32N	157 20W	2549	23.5	09	12	74.2	68.1	21	2	6	6	-	4	--	--	--	--
75	0245	26	21 20N	158 53W	2525	24.6	31	15	73.0	68.0	16	1	1	3	-	3	--	--	35.15	23.60
76	0645	26	21 36N	160 04W	2203	23.9	07	26	72.2	68.9	19	2	X	X	-	4	--	--	35.20	23.84
77	0845	26	21 37N	160 38W	1218	23.9	07	20	72.5	67.8	19	2	X	X	-	3	--	--	35.19	23.84
78	1145	26	21 46N	161 34W	2502	24.0	05	21	72.0	69.0	20	2	X	X	-	4	--	--	35.20	23.81
79	1345	26	21 51N	162 11W	2445	23.8	05	21	72.0	69.0	20	2	X	X	-	4	--	--	35.20	23.87
80	1545	26	21 52N	162 37W	2475	23.3	05	15	71.5	64.0	19	X	-	-	-	3	--	--	35.25	24.06



VESSEL		YEAR		MONTH		TIME ZONE		CRUISE		SHEET NO.												
PIONEER		1964		February		1964		OPR 394 and OPR 442		6												
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND		AIR TEMP.		WET BULB	BAROM. (MBS) (Tab. 2)	WEA. THER. (Tab. 3)	CLOUDS		VIS. (Tab. 6)	SEA DIR. (Tab. 7)	SWELL		SALINITY	SIGMA - t	
	DATE	HOUR					DIR. (Knots)	SPEED	DRY BULB	WET BULB				TYPE	AMT. (Tab. 4)			DIR. (Tab. 1)	AMT. (Tab. 8)			
81	1745	26	21 56N	163 11W	2465	23.7	05	16	72.0	64.5	21	1	1	8	1	-	4	--	--	35.22	23.92	
82	1945	26	22 02N	163 43W	2569	23.8	07	26	72.1	64.5	22	2	2	2	5	-	4	--	--	35.21	23.88	
83	2145	26	22 08N	164 17W	1940	24.7	07	24	72.0	67.0	23	2	2	2	5	-	4	--	--	35.00	23.45	
84	2345	26	22 15N	164 54W	2522	24.6	08	23	75.5	70.0	22	2	2	2	5	-	4	--	--	34.92	23.42	
85	0145	27	22 19N	165 29W	2527	24.8	08	23	74.0	67.0	20	2	2	2	5	-	4	--	--	34.84	23.30	
86	0345	27		BT LOST																		
87	1830	27	22 51N	170 13W	2470	24.2	10	26	77.8	69.5	22	2	6	6	7	-	4	--	--	35.18	23.74	
88	2145	27	22 55N	170 52W	2591	24.7	11	24	79.2	68.2	22	2	6	6	6	-	4	--	--	35.07	23.51	
89	2345	27	22 55N	171 22W	2621	24.1	11	21	78.5	68.5	20	2	6	6	6	-	4	--	--	35.19	23.78	
90	0145	28	22 59N	171 50W	2643	24.0	11	19	78.5	68.5	18	2	6	6	6	-	4	--	--	35.22	23.83	
91	0345	28	23 02N	172 19W	2530	24.6	11	18	77.0	68.5	19	1	8	2	2	-	4	--	--	35.13	23.58	
92	0545	28	23 07N	172 52W	2620	24.6	11	15	75.0	68.0	19	X	-	-	-	-	3	--	--	35.16	23.60	
93	0745	28	23 11N	173 25W	2700	23.7	10	16	74.5	67.8	20	2	X	X	X	-	4	--	--	35.20	23.90	
94	0945	28	23 13N	173 59W	2759	23.7	13	16	74.8	67.0	20	2	X	X	X	-	4	--	--	35.21	23.91	
95	1245	28	23 12N	174 54W	2843	23.7	13	10	74.0	68.0	20	1	1	1	4	-	4	--	--	35.16	23.87	
96	1445	28	23 14N	175 30W	2821	24.1	13	11	74.0	68.0	20	1	1	1	4	-	-	--	--	35.24	23.81	

VESSEL		PIONEER		MONTH		YEAR		TIME ZONE		CRUISE		SHEET NO.						
		February		1964		OPR 394 and OPR 442		7										
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		DEPTH (Fathoms)	SEA SURFACE TEMP. (Buckets)	WIND		AIR TEMP.		BAROM. (MBS) (Tab. 2)	WEA. THER. (Tab. 3)	CLOUDS		VIS. (Tab. 5)	SEA DIR. (Tab. 6)	SWELL DIR. (Tab. 7)	SWELL AMT. (Tab. 8)	SALINITY	SIGMA-t
	HOUR	DATE			LATITUDE	LONGITUDE	DIR. (Knots) (Tab. 1)	SPEED (Knots)			DRY BULB	WET BULB						
97	1645	28	23 16N	176 05W	2775	24.3	15	10	73.5	68.0	19	X	-	-	4	--	35.22	23.74
98	1900	28	23 18N	176 38W	2895	24.1	15	07	76.0	69.0	20	1	8	2	3	--	35.17	23.76
99	2045	28	23 18N	176 52W	2910	24.1	12	16	77.0	70.2	20	2	4	5	3	--	35.43	23.96
100	2245	28	23 21N	177 28W	3080	24.1	13	16	79.0	71.0	19	2	4	4	3	--	35.40	23.94
101	0045	29	23 21N	178 06W	3090	24.7	11	10	78.0	69.0	17	2	8	3	3	--	35.11	23.54
102	0245	29	23 22N	178 39W	3090	24.7	13	10	78.0	70.0	16	2	8	3	3	--	35.12	23.54
103	0445	29	23 21N	179 19W	3000	24.8	14	12	77.0	69.5	16	1	8	2	3	--	35.13	23.52
104	0645	29	23 21N	179 55W	3090	24.4	14	12	75.0	69.0	16	X	-	-	3	--	35.18	23.68
105	0845	29	23 20N	179 34E	3107	23.6	12	12	75.0	69.0	17	2	X	X	3	--	--	--
106	1045	29	23 27N	179 04E	3122	24.1	14	16	74.8	68.8	18	2	X	X	3	--	35.21	23.79
107	1245	29	23 25N	178 28E	3139	24.4	13	13	75.0	70.0	17	2	X	X	3	--	35.18	23.68
108	1445	29	23 23N	177 53E	3070	24.3	13	13	75.0	70.0	16	2	X	X	3	--	35.35	23.84
109	1645	29	23 21N	177 19E	2960	23.9	14	13	74.5	70.0	14	2	8	4	3	--	35.18	23.83
110	1930	29	23 18N	176 40W	2960	23.9	14	20	75.0	70.0	15	2	4	4	4	--	35.17	23.82
111	2045	29	23 18N	176 25E	3048	25.0	17	20	78.0	71.5	15	2	4	4	3	--	35.06	23.41
112	2245	29	23 15N	175 50E	3060	25.0	19	20	79.8	76.5	14	2	4	3	4	--	35.04	23.39

VESSEL		PIONEER		MONTH		March		YEAR		1964		TIME ZONE		CRUISE		OPR 394 and OPR 442		SHEET NO.		8	
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Buckets)	WIND		AIR TEMP.	WET BULB	BAROM. (MBS) (Tab. 2)	WEA. THER. (Tab. 3)	CLOUDS		VIS. (Tab. 6)	SEA DIR. (Tab. 7)	SWELL DIR. (Tab. 8)	SALINITY	SIGMA - t		
	HOUR	DATE					DIR. (Tab. 1)	SPEED (Knots)					TYPE	AMT. (Tab. 5)						AMT.	
113	0045	01	23 15N	175 15E	2991	25.0	13	20	78.5	71.5	13	2	4	3	-	4	---	35.09	23.43		
114	0245	01	23 14N	174 41E	3028	24.7	13	20	78.0	72.0	11	2	4	3	-	4	---	35.19	23.60		
115	0445	01	23 12N	174 05E	2965	24.3	23	25	77.0	72.5	11	2	5	6	-	3	---	35.28	23.78		
116	0645	01	23 09N	173 26E	2930	--	27	35	75.0	71.0	13	6	8	6	-	3	---	35.24	23.78		
117	0845	01	23 07N	173 02E	3065	25.1	20	26	74.0	68.2	13	6	X	X	-	4	---	35.20	23.48		
118	1045	01	23 05N	172 31E	3117	24.7	01	22	73.5	70.0	13	6	X	X	-	4	---	35.15	23.57		
119	1345	01	23 02N	171 39E	3097	24.8	01	23	70.0	66.0	13	2	X	X	-	5	---	---	--		
120	1745	01	22 57N	170 31E	3140	24.7	01	22	69.0	65.0	14	6	7	7	-	4	---	35.21	23.61		
121	1945	01	22 55N	170 02E	3130	24.6	01	20	71.0	64.0	16	2	5	8	-	4	---	35.20	23.63		
122	2145	01	22 53N	169 40E	3255	24.9	03	22	71.0	64.2	17	2	5	8	-	4	---	35.16	23.51		
123	2345	01	22 50N	169 07E	3108	24.8	03	20	69.5	62.5	18	2	5	8	-	4	---	35.16	23.54		
124	0945	02	22 34N	166 26E	3292	23.9	04	24	68.5	58.0	18	2	X	X	-	4	---	35.17	23.82		
125	1145	02	22 37N	165 59E	2038	23.9	04	24	69.0	60.1	19	2	X	X	-	4	---	35.16	23.81		
126	1345	02	22 32N	165 25E	3228	24.3	04	19	69.0	61.0	17	2	X	X	-	4	---	---	--		
127	1545	02	22 26N	164 50E	3028	24.0	01	16	69.0	59.0	17	X	-	-	-	4	---	35.13	23.76		
128	1745	02	22 20N	164 12E	2965	25.0	05	15	70.0	61.5	17	2	8	6	-	3	---	35.09	23.43		

VESSEL		PIONEER		MONTH		YEAR		TIME ZONE		CRUISE		OPR 394 and OPR 442		SHEET NO.						
		March		1964								OPR 394 and OPR 442		9						
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND		AIR TEMP.		BAROM. (MBS) (Tab. 2)	WEA. THER. (Tab. 3)	CLOUDS		VIS. (Tab. 6)	SEA (Tab. 7)	SWELL		SALINITY	SIGMA - t
	DATE	HOUR					DIR. (Tab. 1)	SPEED (Knots)	DRY BULB	WET BULB			TYPE	AMT. (Tab. 4)			DIR.	AMT. (Tab. 8)		
129	2005	02	22 14N	163 37E	2922	24.5	07	14	72.0	67.5	17	1	1	5	-	3	--	--	35.14	23.62
130	2345	02	22 09N	163 00E	2964	24.4	09	16	79.5	67.5	16	1	1	4	-	4	--	--	35.14	23.65
131	0145	03	22 05N	162 30E	2880	25.1	07	09	76.0	64.0	15	1	4	0	-	4	--	--	35.07	23.38
132	0345	03	21 58N	162 15E	2826	24.7	07	12	74.0	64.0	13	1	4	0	-	4	--	--	35.12	23.54
133	0545	03	21 55N	161 40E	2655	25.0	07	13	75.0	65.0	13	1	8	1	-	4	--	--	35.08	23.42
134	0810	03	21 52N	161 01E	2770	25.0	07	10	73.0	64.0	14	X	-	-	-	3	--	--	35.06	23.41
135	0945	03	21 50N	160 35E	2680	25.0	10	14	74.2	66.5	15	2	X	X	-	4	--	--	35.06	23.41
136	1145	03	21 46N	160 05E	2917	25.1	13	10	74.1	66.0	14	2	X	X	-	4	--	--	35.02	23.35
137	1445	03	21 40N	159 12E	2146	24.9	14	04	74.0	66.0	13	0	0	0	-	4	--	--	35.03	23.42
138	1645	03	21 35N	158 41E	2937	24.3	14	03	74.0	66.0	12	0	0	0	-	4	--	--	35.11	23.66
139	1845	03	21 31N	158 11E	2620	24.7	14	05	74.0	67.0	13	1	8	3	-	3	--	--	35.06	23.50
140	2045	03	21 25N	157 40E	2905	24.7	14	07	74.5	69.0	13	1	8	2	-	3	--	--	35.05	23.49
141	2245	03	21 22N	157 14E	2875	24.6	05	06	76.5	69.0	14	2	2	4	-	4	--	--	35.11	23.57
142	2330	03	21 20N	157 01E	2774	24.9	38	08	77.9	68.8	14	2	2	4	-	3	--	--	35.18	23.53
143	0045	04	21 17N	156 40E	2658	25.4	35	08	78.2	69.0	13	1	2	3	-	4	--	--	35.35	23.50
144	0245	04	21 12N	156 07E	2848	25.8	34	03	77.0	68.0	11	1	8	2	-	3	--	--	35.30	23.34

VESSEL		PIONEER		MONTH		YEAR		TIME ZONE		CRUISE		OPR 394 and OPR 442		SHEET NO.					
		March		1964								10							
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND		AIR TEMP.		BAROM. (MBS) (Tab. 2)	WEA. THER. (Tab. 3)	CLOUDS		VIS. (Tab. 6)	SEA DIR. (Tab. 7)	SWELL DIR. (Tab. 8)	SALINITY	SIGMA - t
	DATE	HOUR					DIR. (Knots)	SPEED (Knots)	DRY BULB	WET BULB			TYPE (Tab. 4)	AMT. (Tab. 5)					
145	0445	04	21° 07'N	155° 33'E	3117	25.8	34	06	76.0	68.0	11	1	8	2	-	3	---	35.14	23.22
146	0645	04	21° 02'N	155° 04'E	1400	25.5	32	11	76.0	68.0	12	2	8	2	-	3	---	35.28	23.42
147	0845	04	20° 56'N	154° 39'E	2600	25.4	32	11	75.5	68.0	13	X	-	-	-	3	---	35.04	23.27
148	1045	04	20° 48'N	154° 04'E	3271	25.8	05	14	78.2	68.2	14	2	X	X	-	3	---	35.04	23.15
149	1245	04	20° 42'N	153° 34'E	3244	25.6	36	12	76.0	68.5	13	2	X	X	-	3	---	34.88	23.09
150	1445	04	20° 35'N	152° 59'E	3192	25.4	24	08	75.0	69.0	13	1	1	2	-	3	---	35.00	23.24
151	1645	04	20° 29'N	152° 25'E	2636	25.1	24	08	75.0	69.0	12	1	1	2	-	3	---	35.04	23.36
152	1845	04	20° 22'N	151° 50'E	3180	25.1	23	08	75.0	68.0	12	2	8	2	-	3	---	---	---
153	2110	04	20° 15'N	151° 20'E	2990	25.0	09	10	77.0	69.0	13	1	8	2	-	3	---	34.96	23.33
154	0045	05	20° 11'N	150° 54'E	3044	25.1	14	10	79.0	70.2	12	1	1	3	-	3	---	35.03	23.36
155	0245	05	20° 04'N	150° 21'E	1090	25.4	11	10	82.0	71.0	11	1	8	2	-	3	---	34.92	23.18
156	0445	05	19° 57'N	149° 48'E	2460	25.6	11	10	81.0	72.0	09	1	8	2	-	3	---	34.97	23.16
157	0645	05	19° 50'N	149° 14'E	1260	25.7	16	10	77.5	70.0	13	1	8	2	-	3	---	34.96	23.12
158	0845	05	19° 43'N	148° 36'E	1395	25.6	16	10	77.0	69.5	10	1	8	2	-	3	---	34.91	23.11
159	1045	05	19° 34'N	148° 06'E	2271	25.3	19	06	76.8	70.0	11	1	X	X	-	3	---	34.90	23.20
160	1245	05	19° 28'N	147° 37'E	2464	25.7	18	06	77.0	70.5	11	1	X	X	-	3	---	34.97	23.12

VESSEL		PIONEER			YEAR		MONTH		TIME ZONE		CRUISE				SHEET NO.					
		1964			March		1964		OPR 394 and OPR 442		11				11					
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Buckets)	WIND		AIR TEMP.		BAROM. (MBS) (Tab. 2)	WEA. THER. (Tab. 3)	CLOUDS		V.S. (Tab. 6)	SEA (Tab. 7)	SWELL		SALINITY	SIGMA - t
	HOUR	DATE					DIR. (Tab. 1)	SPEED (Knots)	DRY BULB	WET BULB			TYPE (Tab. 4)	AMT. (Tab. 5)			DIR. (Tab. 7)	AMT. (Tab. 8)		
161	1445	05	19 21N	147 03E	2006	25.8	18 02	77.0	70.0	11	1	X	X	-	3	---	---	34.97	23.10	
162	1645	05	19 14N	146 29E	1877	25.6	18 03	77.0	71.0	10	1	X	X	-	3	---	---	34.89	23.10	
163	1845	05	19 02N	145 50E	1345	26.1	18 05	77.0	70.0	10	2	8	2	-	3	---	---	34.81	22.88	
164	2115	05	18 57N	145 16E	--	26.1	18 04	80.0	73.0	11	2	8	1	-	3	---	---	--	--	
165	2245	05	18 55N	145 03E	2063	26.3	17 06	80.0	72.0	12	1	5	4	-	3	---	---	34.83	22.83	
166	2330	05	18 51N	144 47E	2048	26.3	29 06	78.5	72.2	12	1	5	4	-	4	---	---	34.82	22.82	
167	0045	06	18 47N	144 31E	2140	26.4	34 06	78.5	72.5	11	1	5	4	-	3	---	---	35.03	22.95	
168	0245	06	18 39N	143 58E	2323	27.3	00 00	80.5	72.0	09	0	0	0	-	2	---	---	34.92	22.58	
169	0445	06	18 28N	143 19E	1654	27.3	00 00	80.5	73.0	08	0	0	0	-	2	---	---	34.82	22.51	
170	0645	06	18 21N	142 44E	1490	27.5	18 05	85.0	73.0	08	1	8	1	-	3	---	---	--	--	
171	0845	06	18 14N	142 11E	2220	27.0	18 05	80.0	73.5	13	1	8	1	-	3	---	---	34.69	22.51	
172	1045	06	18 08N	141 40E	2516	26.9	35 08	78.0	73.5	10	2	X	X	-	3	---	---	34.60	22.47	
173	1245	06	18 02N	141 12E	2575	26.8	35 06	79.0	72.0	10	2	X	X	-	3	---	---	34.57	22.48	
174	1545	06	17 40N	140 21E	2637	26.5	02 07	78.0	71.5	10	2	0	0	-	3	---	---	34.64	22.63	
175	1745	06	17 41N	139 47E	2958	26.8	07 08	77.0	72.0	12	1	8	1	-	3	---	---	34.56	22.47	
176	1945	06	17 33N	139 17E	2850	26.8	07 08	77.5	73.0	09	1	8	1	-	3	---	---	34.53	22.45	

VESSEL		PIONEER		MONTH		YEAR		TIME ZONE		CRUISE		OPR 394 and OPR 442		SHEET NO.						
				March		1964								12						
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND		AIR TEMP.		BAROM. (MBS) (Tab. 2)	WEATHER (Tab. 3)	CLOUDS		VIS. (Tab. 6)	SEA (Tab. 7)	SWELL DIR. (Tab. 1)	SWELL AMT. (Tab. 8)	SALINITY	SIGMA - t
	DATE	HOUR					DIR. (Knots)	SPEED	DRY BULB	WET BULB			TYPE	AMT. (Tab. 5)						
177	2150	06	17 25N	138 50E	--	26.6	05	07	80.0	74.0	10	1	8	1	-	3	--	--	34.60	22.56
178	2345	06	17 20N	138 30E	2716	25.9	12	06	82.2	75.0	10	1	1	2	-	3	--	--	34.72	22.88
179	0545	07	16 39N	136 53E	--	27.6	02	03	82.0	75.0	08	1	8	2	-	2	--	--	--	--
180	0745	07	16 40N	136 18E	2595	27.7	02	06	81.0	74.5	08	2	8	3	-	3	--	--	34.98	22.50
181	0945	07	16 31N	135 44E	2745	--	02	06	79.5	73.5	09	2	8	7	-	3	--	--	34.77	22.63
182	1145	07	16 24N	135 14E	2286	26.8	35	06	80.0	74.5	10	2	X	X	-	-	--	--	34.84	22.68
183	1345	07	16 16N	134 46E	1711	27.6	34	06	80.0	73.5	10	1	X	X	-	3	--	--	34.48	22.16
184	1545	07	16 06N	134 14E	3017	27.1	31	07	79.5	74.0	09	1	8	1	-	3	--	--	34.55	22.37
185	1745	07	15 56N	133 40E	3249	27.1	31	11	79.0	73.0	09	0	6	0	-	3	--	--	34.54	22.36
186	1945	07	15 41N	133 05E	3215	26.8	32	12	79.0	73.0	09	0	X	X	-	3	--	--	34.60	22.50
187	2200	07	15 33N	132 33E	2345	--	32	07	79.5	73.5	10	1	8	1	-	3	--	--	34.50	22.46
188	2345	07	15 28N	132 45E	2328	26.9	34	10	80.0	73.0	11	2	8	6	-	3	--	--	34.55	22.43
189	0145	08	15 20N	131 42E	2730	27.0	35	12	81.8	74.0	10	2	1	5	-	3	--	--	34.72	22.53
190	0345	08	15 11N	131 09	2905	27.2	31	07	83.0	74.5	10	1	8	2	-	2	--	--	34.59	22.37
191	0545	08	14 58N	130 34E	3010	27.4	31	10	80.8	73.5	08	5	8	4	-	3	--	--	34.61	22.32
192	0745	08	14 50N	129 59E	2940	27.1	31	08	81.0	73.0	08	5	8	3	-	3	--	--	34.58	22.39

VESSEL		PIONEER		MONTH		YEAR		TIME ZONE		CRUISE		OFR 394 and OFR 442		SHEET NO.					
				March		1964								13					
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Buckets)	WIND		AIR TEMP.		BAROM. (M/S) (Tab. 2)	WEA. THER. (Tab. 3)	CLOUDS		VIS. (Tab. 6)	SEA (Tab. 7)	SWELL	SALINITY	SIGMA - t
	DATE	HOUR					DIR. (Tab. 1)	SPEED (Knots)	DRY BULB	WET BULB			TYPE (Tab. 4)	AMT. (Tab. 5)					
193	0945	08	14 40N	129 26E	2960	27.1	31	12	79.5	73.5	08	5	8	3	-	3	---	34.55	22.37
194	1145	08	14 29N	128 56E	3150	27.0	35	18	79.8	75.0	11	2	X	X	-	4	---	34.56	22.41
195	1345	08	--	--	--	--	01	20	79.5	74.0	12	2	X	X	-	4	---	34.57	22.38
196	1645	08	14 04N	127 43E	3100	27.2	02	14	79.0	73.0	12	1	X	X	-	4	---	34.52	22.31
197	1845	08	13 53N	127 10E	3235	27.4	02	16	79.0	73.0	10	1	X	X	-	4	---	34.50	22.24
198	2045	08	13 42N	126 37E	2800	27.2	02	12	79.0	73.0	10	1	8	3	-	3	---	34.47	22.28
199	2225	08	13 36N	126 18E	2690	27.1	02	14	79.5	73.0	13	1	8	4	-	4	---	34.45	22.29
200	0045	09	13 24N	125 46E	2875	27.0	04	24	80.5	71.5	13	1	2	2	-	4	---	34.44	22.32
201	0245	09	13 13N	125 16E	2365	26.4	03	25	82.0	73.0	12	2	1	3	-	4	---	34.58	22.61
202	0445	09	13 03N	124 44E	1875	27.2	03	15	82.0	72.0	11	2	1	3	-	4	---	34.46	22.27
203	0845	16	13 52N	119 48E	0950	27.3	05	08	89.0	78.5	09	1	1	2	-	3	---	34.11	21.97
204	1045	16	13 26N	119 31E	2735	27.1	06	08	78.5	74.0	10	2	5	6	-	3	---	34.01	21.96
205	1245	16	12 58N	119 20E	1310	28.0	06	07	78.0	73.0	14	2	5	6	-	3	---	33.90	21.59
206	1445	16	12 35N	119 07E	1370	27.2	05	06	78.0	73.0	11	2	5	6	-	3	---	33.94	21.88
207	1645	16	12 12N	118 53E	0640	27.7	05	06	78.0	76.0	11	1	8	2	-	3	---	33.90	21.69
208	1845	16	11 54N	118 37E	0965	27.5	05	07	76.0	74.0	10	1	8	2	-	2	---	33.88	21.74



VESSEL		PIONEER		YEAR	MONTH	CRUISE		OPR 394 and OPR 442										SHEET NO.
				1964	March	TIME ZONE												14
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		DEPTH (Fathoms)	SEA SURFACE TEMP. (Buckets)	WIND DIR. (Knots)	AIR TEMP.		BAROM. (MBS)	WEA. THER.	CLOUDS		VIS.	SEA DIR.	SWELL		SALINITY	SIGMA - t	
	HOUR	DATE				DRY BULB	WET BULB			TYPE	AMT.			DIR.	AMT.			
209	2045	16 11 29N	1115	27.5	02 12	78.0	75.0	14	2	X	X	-	3	---	---	33.76	21.65	
210	2245	16 11 09N	0945	27.5	02 12	78.0	76.0	11	2	4	6	-	3	---	---	33.84	21.71	
211	0045	17 10 58N	0825	27.3	07 14	80.0	75.0	12	2	4	6	-	3	---	---	33.97	21.87	
212	1045	17 10 38N	0925	27.4	08 14	79.0	76.0	11	2	5	8	-	3	---	---	33.81	21.72	
213	1245	17 10 11N	0795	27.3	09 12	78.0	76.0	13	2	5	8	-	3	---	---	33.77	21.72	
214	1445	17 09 48N	0990	--	09 12	78.0	76.0	13	2	5	8	-	3	---	---	33.78	21.73	
215	1645	17 09 11N	1095	26.9	09 18	78.0	75.0	13	X	X	X	-	3	---	---	33.90	21.94	
216	1845	17 08 50N	0820	27.3	09 16	79.0	75.0	12	X	X	X	-	3	---	---	33.77	21.72	
217	2045	17 08 31N	1115	27.0	12 10	78.0	75.0	12	1	X	X	-	3	---	---	33.82	21.85	
218	2245	17 08 16N	1520	27.2	11 12	78.0	76.0	13	2	4	5	-	3	---	---	33.96	21.89	
219	0045	18 08 05N	1570	27.5	12 10	81.0	77.0	13	2	4	5	-	3	---	---	34.11	21.91	
220	0245	18 07 38N	1505	26.7	12 10	82.0	78.0	13	2	4	5	-	3	---	---	34.22	22.25	
221	0445	18 07 05N	--	26.8	09 13	84.0	79.0	11	1	8	2	-	3	---	---	34.32	22.29	
222	0515	18 06 51N	0665	26.8	09 14	84.5	79.5	11	1	8	2	-	3	---	---	34.27	22.25	
223	1245	19 06 30N	0513	26.8	03 12	80.0	78.0	10	1	8	2	-	3	---	---	34.26	22.25	
224	1445	19 06 12N	0640	26.9	03 12	80.0	77.0	11	1	8	2	-	3	---	---	34.06	22.06	

VESSEL		MONTH		YEAR		TIME ZONE		CRUISE		SHEET NO.								
PIONEER		March April		1964				OPR 394 and OPR 442		15								
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Buckets)	WIND		AIR TEMP.	BAROM. (#35) (Tab.2)	WEA. THER. (Tab.3)	CLOUDS		VIS. (Tab.6)	SEA (Tab.7)	SWELL	SALINITY	SIGMA - t
	HOUR	DATE					DIR. (Tab.1)	SPEED (knots)				DRY BULB	WET BULB					
225	1645	19	05 52N	114 27E	0600	27.3	03	12	79.5	77.5	11	X	X	-	3	---	33.90	21.82
226	0045	20	05 12N	113 46E	0740	27.6	05	10	81.0	79.0	11	2	8	-	3	---	33.69	21.56
227	0445	20	05 03N	113 30E	0206	28.1	05	12	85.0	80.0	10	2	8	-	3	---	33.52	21.27
228	1915	20	06 04N	111 54E	--	27.4	05	12	80.0	77.0	09	X	X	-	3	---	33.90	21.78
229	2115	20	05 39N	111 45E	0605	27.3	08	08	78.0	77.0	10	1	X	-	3	---	33.84	21.77
230	2315	20	05 11N	111 45E	0066	27.4	08	08	78.0	77.0	11	2	1	7	3	---	33.89	21.78
231	0600	29	02 35N	100 28E	0015	29.9	-	-	--	--	-	-	-	-	-	---		
232	0616	29	02 35N	100 29E	0020	29.7	-	-	--	--	-	-	-	-	-	---	31.00	18.86
233	0632	29	02 35N	100 30E	0017	29.7	-	-	--	--	-	-	-	-	-	---	31.10	18.93
234	0515	01	05 50N	097 06E	0614	29.9	05	08	85.0	78.0	09	2	4	5	3	---	32.57	19.96
235	0730	01	05 48N	096 28E	0700	29.9	05	08	88.0	79.0	06	2	4	3	3	---	32.58	19.97
236	0130	02	06 24N	095 20E	--	--	05	07	82.0	77.0	10	1	8	2	2	---	32.98	20.60
237	0409	02	---	---	--	--	-	-	--	--	-	-	-	-	-	---	33.58	20.92
238	0915	02	05 50N	094 16E	1095	30.2	-	-	--	--	-	-	-	-	-	---	34.19	21.06
239	1115	02	05 50N	093 43E	0600	29.9	04	06	82.0	76.0	09	2	8	4	3	---	34.08	21.09
240	1315	02	05 50N	093 12E	0880	29.8	04	07	83.0	77.0	11	X	X	-	3	---	33.96	21.04

VESSEL		PIONEER		YEAR	TIME ZONE	CRUISE	SHEET NO.									
		April	1964	--	OPR 394 and OPR 442	16										
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		DEPTH (Fathoms)	SEA SURF. TEMP. (Buckets)	WIND DIR. (Knots)	AIR TEMP.		WET BULB	BAROM. WEA. (MBS) (Tab. 2)	CLOUDS TYPE (Tab. 4)	AMT. (Tab. 5)	VIS. (Tab. 6)	SEA DIR. (Tab. 7)	SWELL DIR. (Tab. 8)	SALINITY	SIGMA - t
	DATE	HOUR				DRY BULB	WIND SPEED									
241	02 1515	02 05 50N 092 47E	-	29.7	-	-	-	-	-	-	-	-	-	-	34.06	21.14
242	02 1630	02 05 50N 092 31E	2365	29.2	-	-	-	-	-	-	-	-	-	-	34.23	21.44
243	03 0515	03 05 52N 092 11E	2190	30.1	05 06	85.0	79.0	10	2	4	5	3	-	-	34.30	21.18
244	03 0715	03 05 51N 091 37E	2125	30.1	05 10	86.0	78.0	09	2	4	6	3	-	-	34.10	21.04
245	03 0915	03 05 50N 091 08E	1995	30.1	04 07	84.0	78.0	07	2	4	6	3	-	-	34.00	20.97
246	05 1515	05 05 56N 097 13E	0550	29.6	34 08	82.0	78.0	10	-	-	-	0	-	-	32.78	20.22
247	05 1715	05 05 49N 096 58E	0645	29.0	-	83.0	79.0	09	1	-	-	0	-	-	32.80	20.44
248	05 2115	05 05 50N 097 21E	0262	29.1	-	80.0	77.0	09	1	-	-	0	-	-	31.90	19.73
249	06 1400	06 05 58N 099 39E	0029	30.0	-	-	-	-	-	-	-	-	-	-	31.52	19.14
250	09 1515	09 06 03N 097 17E	0518	29.6	-	-	-	-	-	-	-	-	-	-	32.79	20.23
251	09 2015	09 06 53N 096 17E	0585	29.5	11 18	79.0	73.0	07	9	-	-	3	-	-	32.94	20.37
252	09 2215	09 07 19N 095 56E	0432	29.8	09 14	82.0	79.0	07	1	-	-	3	-	-	32.86	20.21
253	10 0015	10 07 40N 095 40E	0532	29.8	-	-	-	-	-	-	-	-	-	-	32.77	20.14
254	10 0215	10 07 57N 095 26E	1155	29.8	09 05	84.0	80.0	11	2	8	5	3	-	-	32.75	20.13
255	10 0415	10 08 23N 095 05E	1530	30.1	-	86.0	79.0	10	2	8	4	2	-	-	32.87	20.11
256	10 1505	10 08 40N 094 43E	1060	29.3	-	-	-	-	-	-	-	-	-	-	32.74	20.12

VESSEL		PIONEER		MONTH		YEAR		TIME ZONE		CRUISE		SHEET NO.							
		April		1964		--		OPR 394 and OPR 442		17									
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND		AIR TEMP.	WET BULB	BAROM. (MBS) (Tab. 2)	WEA. THER. (Tab. 3)	CLOUDS		VIS. SEA (Tab. 6)	SWELL DIR. (Tab. 1)	SWELL AMT. (Tab. 8)	SALINITY	SIGMA - t
	DATE	HOUR					DIR. (Tab. 1)	SPEED (knots)					TYPE	AMT. (Tab. 4)					
257	0320	11	09 10N	093 57E	1940	30.0	-	-	--	--	-	-	-	-	-	-	-	32.72	20.03
258	0630	11	09 10N	093 57E	2040	30.5	09 05	90.0	82.0	08	2	8	7	-	3	-	-	32.85	19.97
259	0315	12	08 55N	093 32E	0284	29.8	-	-	--	--	-	-	-	-	-	-	-	33.59	20.76
260	1750	13	10 03N	091 10E	1905	29.7	-	-	--	--	-	-	-	-	-	-	-	32.76	20.17
261	0515	14	10 04N	091 39E	0840	30.1	-	-	--	--	-	-	-	-	-	-	-	32.77	20.04
262	0915	14	10 04N	092 07E	-	30.4	04 06	84.0	78.0	06	1	2	4	-	3	-	-	32.75	19.94
263	1100	14	10 04N	092 26E	0610	30.4	05 12	84.0	80.0	06	1	8	2	-	3	-	-	32.12	19.45
264	1315	14	10 09N	092 36E	0558	30.3	-	-	--	--	-	-	-	-	-	-	-	32.15	19.51
265	1518	14	10 07N	092 59E	0780	30.4	-	-	--	--	-	-	-	-	-	-	-	32.28	19.57
266	1630	14	10 04N	093 14E	1105	30.3	-	-	--	--	-	-	-	-	-	-	-	32.34	19.68
267	2115	14	10 04N	093 36E	1220	30.0	04 06	81.0	78.0	06	1	-	-	-	0	-	-	32.29	19.72
268	0145	15	10 01N	093 43E	2255	29.9	03 07	84.0	80.0	08	1	-	2	-	1	-	-	32.21	19.70
269	1525	15	09 52N	093 51E	2085	30.2	05 08	83.0	78.0	06	1	-	-	-	2	-	-	32.19	19.57
270	1715	15	09 55N	094 22E	1670	30.2	05 08	82.0	78.0	06	1	-	-	-	2	-	-	32.39	19.72
271	1915	15	09 59N	094 53E	0920	30.1	03 10	82.0	79.0	05	2	-	-	-	3	-	-	32.71	19.98
272	2115	15	10 02N	095 27E	1445	30.0	04 10	82.0	78.0	05	2	-	-	-	3	-	-	32.87	20.15

VESSEL		PIONEER		MONTH		YEAR		TIME ZONE		CRUISE		OPR 394 and OPR 442		SHEET NO.					
		April		1964		--		OPR 394 and OPR 442				18							
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Bottle)	WIND		AIR TEMP.		BAROM. (MBS) (Tab. 2)	WEA. THER. (Tab. 3)	CLOUDS		VIS. SEA (Tab. 6)	SWELL DIR. (Tab. 7)	SWELL AMT. (Tab. 8)	SALINITY	SIGMA - t
	DATE	HOUR					DIR. (Knots)	SPEED	DRY BULB	WET BULB			TYPE (Tab. 4)	AMT. (Tab. 5)					
273	2315	15	10 04N	096 01E	1340	30.0	04	09	83.0	80.0	06	1	8	2	-	-	-	32.89	20.17
274	0115	16	10 04N	096 43E	0558	30.0	-	-	-	-	-	-	-	-	-	-	-	32.80	20.09
275	0300	16	10 04N	096 23E	0235	30.2	05	07	84.0	79.0	08	1	8	2	-	-	-	32.80	20.03
276	0515	16	10 04N	096 45E	-	30.7	05	06	83.0	79.0	08	1	8	2	-	-	-	32.34	19.52
277	1500	17	11 01N	093 42E	1370	30.9	05	03	85.0	78.0	06	1	8	2	-	-	-	32.29	19.40
278	0315	18	09 51N	093 57E	2000	30.6	-	-	-	-	-	-	-	-	-	-	-	32.57	19.72
279	1515	19	11 56N	093 22E	0845	30.5	-	-	84.0	82.0	08	1	8	2	-	-	-	32.11	19.41
280	0345	20	12 50N	093 59E	1145	31.0	34	09	84.0	78.0	09	-	-	-	-	-	-	32.22	19.32
281	1115	20	12 44N	094 06E	1205	31.3	01	08	85.0	79.0	04	1	8	2	-	-	-	32.07	19.11
282	1315	20	12 48N	094 36E	0514	30.9	01	08	83.0	79.0	06	1	-	-	-	-	-	32.38	19.48
283	1430	20	12 49N	094 44E	0320	30.4	34	07	83.0	78.0	07	1	8	2	-	-	-	32.58	19.79
284	1915	20	12 49N	095 24E	1415	31.0	36	08	82.0	78.0	05	1	-	-	-	-	-	32.44	19.49
285	2115	20	12 49N	095 59E	1185	30.5	33	04	81.0	77.0	05	1	-	-	-	-	-	32.01	19.34
286	2315	20	12 49N	096 34E	0494	30.4	32	06	83.0	78.0	07	1	8	2	-	-	-	32.54	19.76
287	0115	21	12 49N	096 43E	0232	30.9	32	06	84.0	78.0	09	1	8	2	-	-	-	33.06	19.99
288	1315	23	15 18N	092 58E	1495	30.0	34	07	83.0	79.0	07	-	-	-	-	-	-	31.87	19.40

CONSEC. SLIDE NUMBER	PIONEER		YEAR		TIME ZONE		CRUISE		SHEET NO.									
	MONTH		1964		--		OPR 394 and OPR 442		19									
	April May																	
GREENWICH MEAN TIME	HOUR	DATE	LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND		BAROM. (MBS)	WEATHER	CLOUDS		VIS.	SEA	SWELL		SALINITY	SIGMA - t
							DIR. (Knots)	SPEED (Knots)			TYPE (Tab. 4)	AMT. (Tab. 5)			DIR. (Tab. 7)	AMT. (Tab. 8)		
289	1515	23	15 36N	092 44E	1450	30.2	-	-	82.0	77.0	08	1	8	4	-	-	32.37	19.70
290	1715	23	15 56N	092 28E	1375	30.2	-	-	81.0	77.0	08	1	8	4	-	-	31.02	18.66
291	1915	23	16 23N	092 08E	1325	30.2	25	06	80.0	77.0	08	1	-	-	-	-	31.37	18.96
292	2035	23	16 41N	091 53E	1290	29.1	25	06	80.0	77.0	08	1	-	-	-	-	32.48	20.16
293	2115	23	16 49N	091 47E	1275	29.2	-	-	80.0	76.0	08	1	-	-	-	-	32.40	20.07
294	2315	23	17 16N	091 26E	1220	28.9	30	05	81.0	77.0	09	1	8	1	-	-	32.71	20.40
295	0145	24	17 29N	091 13E	1220	29.1	30	10	82.0	78.0	10	1	8	2	-	-	33.22	20.72
296	0315	24	17 55N	090 53E	1175	29.2	29	06	82.0	76.0	10	-	-	-	-	-	32.76	20.34
297	0515	24	18 20N	090 35E	1115	29.8	29	06	82.0	76.0	10	-	-	-	-	-	33.02	20.33
298	0715	24	18 47N	090 18E	1020	30.2	09	07	82.0	78.0	08	1	1	3	-	-	32.80	20.02
299	0915	24	19 14N	089 56E	0935	30.6	04	04	82.0	78.0	07	1	1	2	-	-	33.13	20.14
300	1115	24	19 41N	089 32E	0820	30.0	04	07	83.0	77.0	07	1	8	2	-	-	32.72	20.03
301	1315	24	20 09N	089 09E	-	28.8	-	-	--	--	-	-	-	-	-	-	33.08	20.71
302	1530	24	20 29N	088 54E	0110	28.7	18	08	80.0	76.0	08	1	8	4	-	-	33.36	20.96
303	0050	03	21 07N	089 30E	0052	28.8	21	16	83.0	81.0	06	2	4	-	-	-	31.69	19.67
304	0703	03	21 13N	089 28E	0299	29.2	18	18	84.0	82.0	06	1	2	4	-	-	31.86	19.67

OPR 394 and OPR 442

CRUISE

TIME ZONE --

YEAR 1964

MONTH May

PIONEER

VESSEL

CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND		AIR TEMP.		BAROM. (MBS) (Tab. 2)	WEA. THER. (Tab. 3)	CLOUDS		VIS. (Tab. 6)	SEA (Tab. 7)	SWELL		SALINITY	SIGMA - t
	HOUR	DATE					DIR. (Tab. 1)	SPEED (Knots)	DRY BULB	WET BULB			TYPE (Tab. 4)	AMT. (Tab. 5)			DIR. (Tab. 1)	AMT. (Tab. 8)		
305	0006	04	20 24N	089 07E	0636	29.2	20	15	82.0	81.0	06	1	2	2	-	3	-	-	32.82	20.38
306	0315	04	20 00N	089 05E	0765	29.8	20	16	83.0	81.0	06	1	2	2	-	4	-	-	33.12	20.41
307	2000	04	19 22N	089 02E	0855	29.7	18	14	82.0	80.0	06	2	8	5	-	3	-	-	32.49	19.97
308	2130	04	19 05N	089 07E	0870	29.8	18	15	82.0	80.0	06	2	8	5	-	3	-	-	32.62	20.03
309	2315	04	18 47N	089 03E	0945	29.8	21	18	81.0	79.0	04	2	4	5	-	3	-	-	32.83	20.19
310	0030	05	18 39N	089 05E	1005	29.7	21	18	81.0	79.0	04	2	1	4	-	3	-	-	32.71	20.14
311	0315	05	18 32N	088 50E	1035	29.6	18	13	84.0	81.0	06	2	2	3	-	3	-	-	33.19	20.53
312	0515	05	18 47N	088 53E	0990	30.1	18	12	85.0	81.0	05	2	2	3	-	3	-	-	32.71	20.00
313	0715	05	19 07N	089 05E	0950	30.3	06	08	85.0	82.0	04	2	2	2	-	3	-	-	32.53	19.80
314	1440	05	19 24N	089 06E	0860	30.0	06	08	83.0	80.0	05	2	8	2	-	3	-	-	32.38	19.78
315	1445	06	19 22N	089 13E	0855	30.1	16	09	83.0	80.0	02	2	2	3	-	3	-	-	32.91	20.15
316	1900	06	19 22N	089 10E	0825	30.0	18	09	82.0	80.0	05	2	-	4	-	3	-	-	32.87	20.15
317	2115	06	18 45N	088 53E	1005	29.8	18	09	82.0	80.0	01	2	-	4	-	3	-	-	33.07	20.37
318	2315	06	18 19N	088 47E	1110	29.8	15	08	82.0	80.0	02	2	4	7	-	3	-	-	32.97	20.29
319	0030	07	18 19N	088 59E	1075	30.0	-	-	-	-	-	-	-	-	-	-	-	-	33.18	20.38
320	0315	07	18 08N	088 39E	1135	29.6	11	09	84.0	80.0	04	2	2	2	-	3	-	-	34.12	21.22

VESSEL		PIONEER			MONTH		YEAR		TIME ZONE		CRUISE			OPR 394 and OPR 442			SHEET NO.		
		MAY			1964		--								21				
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Buckets)	WIND		AIR TEMP.		BAROM. (MS)	WEATHER (Tab. 2)	CLOUDS		VIS. SEA (Tab. 6)	SWELL DIR. (Tab. 7)	SWELL AMT. (Tab. 8)	SALINITY	SIGMA - t
	HOUR	DATE					DIR. (Tab. 1)	SPEED (Knots)	DRY BULB	WET BULB			TYPE (Tab. 4)	AMT. (Tab. 5)					
321	0515	07	17 37N	088 53E	1230	29.7	15	08	87.0	83.0	02	2	4	7	-	3	-	33.10	20.43
322	0715	07	17 22N	088 44E	1285	29.6	07	07	85.0	82.0	02	2	6	5	-	3	-	34.05	21.17
323	0915	07	17 22N	088 09E	1335	30.1	07	07	85.0	81.0	01	2	6	5	-	3	-	33.34	20.46
324	1115	07	17 32N	088 03E	1265	30.1	12	14	84.0	81.0	00	2	8	7	-	3	-	33.49	20.59
325	1315	07	17 56N	088 18E	1180	29.9	10	14	83.0	80.0	01	2	8	8	-	4	-	33.25	20.47
326	1445	07	17 41N	088 20E	1290	29.9	09	10	82.0	80.0	01	2	8	4	-	3	-	33.23	20.46
327	1715	07	17 41N	087 57E	1285	29.9	09	09	82.0	80.0	02	2	2	3	-	3	-	33.77	20.86
328	1915	07	17 41N	087 27E	1315	30.0	11	04	82.0	80.0	03	1	-	2	-	3	-	32.17	19.62
329	2115	07	17 59N	087 06E	1295	30.1	11	04	82.0	80.0	02	1	-	2	-	3	-	32.46	19.81
330	2330	07	18 07N	086 51E	1320	30.5	-	-	82.0	80.0	01	2	8	5	-	3	-	31.97	19.31
331	0045	08	18 02N	086 44E	1300	30.2	25	06	84.0	80.0	03	2	8	2	-	3	-	32.22	19.60
332	0315	08	17 27N	086 44E	1370	30.9	25	06	84.0	80.0	03	2	8	2	-	3	-	31.96	19.16
333	0715	08	18 12N	086 16E	1360	31.5	24	04	85.0	79.0	02	1	8	2	-	3	-	31.83	18.85
334	0917	08	18 36N	086 42E	-	31.3	24	05	84.0	79.0	-	1	8	2	-	3	-	33.75	20.38
335	1115	08	18 59N	087 06E	1270	30.9	29	04	85.0	80.0	00	1	8	3	-	3	-	33.48	20.30
336	1315	08	18 53N	087 22E	1275	31.0	-	-	--	--	-	-	-	-	-	-	-	32.92	19.85



VESSEL		PIONEER		YEAR		1964		TIME ZONE		CRUISE		OPR 394 and OPR 442		SHEET NO.		22		
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND		AIR TEMP.		BAROM. (MBS) (Tab. 2)	WEA. THER. (Tab. 3)	CLOUDS		SEA DIR. (Tab. 7)	SWELL DIR. (Tab. 1)	SALINITY	SIGMA - t
	DATE	TIME					DIR. (Knots) (Tab. 1)	SPEED (Knots)	WET BULB	DRY BULB			TYPE (Tab. 4)	AMT. (Tab. 5)				
337	1445	08	18 15N	87 48E	1255	29.9	17	06	84.0	79.0	01	2	8	6	4	-	33.75	20.84
338	1915	08	17 59N	087 43E	1220	30.1	19	12	83.0	82.0	03	2	-	9	3	-	32.66	19.96
339	2115	08	18 10N	087 27E	1255	30.1	19	12	83.0	82.0	03	2	-	9	4	-	33.83	20.84
340	2330	08	18 05N	087 01E	1300	30.3	22	14	83.0	83.0	01	2	8	8	4	-	32.30	19.62
341	0045	09	18 01N	086 54E	-	30.3	-	-	-	-	-	-	-	-	-	-	31.78	19.26
342	0315	09	17 28N	086 45E	1360	30.9	21	14	87.0	83.0	04	2	8	8	4	-	31.91	19.12
343	0515	09	17 05N	086 20E	1420	30.8	21	14	88.0	84.0	04	2	8	8	4	-	32.32	19.46
344	0715	09	16 59N	086 14E	1425	30.7	23	17	86.0	84.0	03	2	8	6	4	-	32.27	19.46
345	0915	09	16 48N	086 07E	1435	30.8	23	17	85.0	83.0	02	2	8	6	4	-	32.76	19.79
346	1115	09	16 24N	086 32E	1435	30.5	24	20	84.0	83.0	02	2	8	7	4	-	32.23	19.48
347	1315	09	16 01N	086 30E	1495	30.7	24	20	84.0	82.0	03	2	-	-	4	-	32.22	19.42
348	1455	09	16 04N	086 56E	1530	30.3	24	16	85.0	83.0	03	2	8	3	4	-	32.41	19.70
349	1745	09	15 45N	087 16E	1540	30.2	24	16	83.0	82.0	04	2	8	3	4	-	32.67	19.93
350	1945	09	15 22N	087 38E	1555	30.3	24	21	84.0	82.0	06	2	-	9	4	-	32.05	19.43
351	2115	09	15 06N	087 28E	1590	30.2	24	21	84.0	82.0	06	2	-	9	4	-	31.91	19.36
352	2330	09	14 38N	087 53E	1610	29.7	23	20	84.0	81.0	04	2	4	6	4	-	32.83	20.22

VESSEL		PIONEER		MONTH	YEAR	TIME ZONE	CRUISE	OPR 394 and OPR 442		SHEET NO.																									
				May	1964	--				23																									
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Buckets)	WIND		SEA TEMP. (Buckets)	VIS. (Tab. 6)(Tab. 7)	CLOUDS	WEATHER (Tab. 2)(Tab. 3)(Tab. 4)(Tab. 5)	BAROM. (Tab. 2)	WET BULB	DRY BULB	AIR TEMP.	SEA SWELL DIR. (Tab. 7)	SWELL AMT. (Tab. 8)	SALINITY	SIGMA-t															
	HOUR	DATE					DIR. (Tab. 1)(Knots)	SPEED (Knots)													WIND DIR. (Tab. 1)(Knots)	WIND SPEED (Knots)	TYPE (Tab. 4)(Tab. 5)	AMT. (Tab. 5)	WEATHER (Tab. 2)(Tab. 3)(Tab. 4)(Tab. 5)	BAROM. (Tab. 2)	WET BULB	DRY BULB	AIR TEMP.						
353	0045	10	14 32N	087 59E	1610	29.7	23	20	84.0	81.0	04	2	04	81.0	84.0	20	23	4	6	-	4	-	-	-	-	-	-	-	-	-	-	-	33.32	20.59	
354	0315	10	13 40N	088 19E	1645	30.1	23	16	84.0	82.0	06	2	06	82.0	84.0	20	23	4	9	-	4	-	-	-	-	-	-	-	-	-	-	-	-	33.09	20.28
355	0515	10	13 20N	088 47E	1650	29.7	23	16	84.0	82.0	06	2	06	82.0	84.0	20	23	4	2	-	4	-	-	-	-	-	-	-	-	-	-	-	32.83	20.22	
356	0715	10	13 00N	089 14E	1650	29.6	24	15	84.0	82.0	05	2	05	82.0	84.0	20	24	4	7	-	4	-	-	-	-	-	-	-	-	-	-	-	32.32	19.88	
357	0930	10	12 51N	089 26E	1640	29.8	24	15	85.0	83.0	04	2	04	83.0	85.0	20	24	4	7	-	4	-	-	-	-	-	-	-	-	-	-	-	32.41	19.88	
358	1115	10	12 34N	089 49E	1655	29.5	24	14	83.0	82.0	04	2	04	82.0	83.0	20	24	4	8	-	4	-	-	-	-	-	-	-	-	-	-	-	32.50	20.04	
359	1315	10	12 14N	090 16E	1675	29.7	25	14	83.0	81.0	06	2	06	81.0	83.0	20	25	4	9	-	4	-	-	-	-	-	-	-	-	-	-	-	32.37	19.88	
360	1450	10	12 03N	090 31E	1390	29.4	23	13	82.0	79.0	06	2	06	79.0	82.0	20	23	4	-	-	4	-	-	-	-	-	-	-	-	-	-	-	32.71	20.24	
361	1715	10	11 50N	090 48E	1725	29.1	23	14	81.0	79.0	07	9	07	79.0	81.0	20	23	4	-	-	4	-	-	-	-	-	-	-	-	-	-	-	32.76	20.37	
362	1915	10	11 34N	091 05E	1795	29.1	05	10	82.0	82.0	09	6	09	82.0	82.0	20	05	10	7	9	4	-	-	-	-	-	-	-	-	-	-	-	32.46	20.15	
363	2115	10	11 18N	091 29E	1860	28.9	05	12	78.0	76.0	08	6	08	76.0	78.0	20	05	12	7	9	4	-	-	-	-	-	-	-	-	-	-	-	32.30	20.10	
364	2315	10	11 01N	091 52E	1010	28.8	28	16	78.0	76.0	07	5	07	76.0	78.0	20	28	16	6	8	4	-	-	-	-	-	-	-	-	-	-	-	32.61	20.36	
365	0030	11	10 56N	092 00E	0564	28.9	31	13	78.0	77.0	08	2	08	77.0	78.0	20	31	13	6	8	4	-	-	-	-	-	-	-	-	-	-	-	32.65	20.36	
366	0315	11	10 31N	092 02E	0580	29.1	22	08	78.0	75.0	09	6	09	75.0	78.0	20	22	08	8	8	4	-	-	-	-	-	-	-	-	-	-	-	32.36	20.07	
367	0515	11	10 20N	091 36E	1440	28.8	21	08	78.0	74.0	09	6	09	74.0	78.0	20	21	08	8	8	4	-	-	-	-	-	-	-	-	-	-	-	32.18	20.04	
368	0715	11	10 08N	091 10E	1875	29.2	24	08	77.0	75.0	06	5	06	75.0	77.0	20	24	08	7	8	4	-	-	-	-	-	-	-	-	-	-	-	32.84	20.40	

VESSEL		PIONEER		YEAR	TIME ZONE	CRUISE	OPR 394 and OPR 442		SHEET NO.										
		MONTH	May	1964	--				24										
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND		AIR TEMP.	BAROM. (MBS) (Tab. 2)	WEA. (MBS) (Tab. 3)	CLOUDS		SEA DIR. (Tab. 1)	SWELL DIR. (Tab. 1)	SALINITY	SIGMA-t		
	DATE	HOUR					DIR. (Knots) (Tab. 1)	SPEED (Knots) (Tab. 1)				DRY BULB	WET BULB					TYPE (Tab. 4)	AMT. (Tab. 5)
369	0915	11	09 58N	090 46E	1845	29.0	18	04	82.0	76.0	04	2	8	7	-	3	-	32.67	20.34
370	1115	11	09 47N	090 21E	1765	29.4	22	10	82.0	77.0	06	2	6	8	-	4	-	33.01	20.46
371	1315	11	09 36N	089 56E	1840	29.1	15	10	82.0	78.0	08	2	-	-	-	4	-	33.59	21.00
372	1450	11	09 29N	089 41E	1855	29.0	11	08	81.0	79.0	07	9	-	-	-	3	-	33.47	20.94
373	1715	11	09 20N	089 21E	1875	29.0	11	08	80.0	78.0	06	9	-	-	-	3	-	33.51	20.97
374	1915	11	09 09N	088 53E	1890	29.1	23	15	82.0	80.0	08	2	-	9	-	4	-	33.57	20.98
375	2115	11	08 58N	088 30E	1930	29.0	23	15	82.0	80.0	07	2	-	9	-	4	-	33.48	20.95
376	2315	11	08 47N	088 04E	1945	29.2	23	18	82.0	80.0	05	2	6	8	-	4	-	33.28	20.73
377	0100	12	08 42N	087 54E	1955	29.3	23	18	82.0	80.0	05	2	4	7	-	4	-	33.24	20.67
378	0315	12	08 32N	087 30E	-	29.5	-	-	--	--	-	-	-	-	-	-	-	33.30	20.64
379	0515	12	08 22N	087 08E	2010	29.7	22	16	84.0	80.0	06	1	8	2	-	4	-	33.10	20.43
380	0715	12	08 13N	086 47E	2030	29.5	22	16	84.0	80.0	06	1	8	2	-	4	-	33.05	20.46
381	0915	12	08 23N	086 48E	-	29.4	22	15	86.0	82.0	04	1	8	2	-	4	-	33.04	20.52
382	1115	12	08 43N	087 02E	1995	29.7	21	10	85.0	82.0	05	2	1	4	-	3	-	33.06	20.40
383	1505	12	08 56N	087 28E	1980	29.4	24	10	82.0	80.0	06	1	8	2	-	3	-	33.34	20.71
384	1715	12	08 58N	087 54E	1970	29.4	24	10	83.0	80.0	06	1	8	2	-	4	-	33.29	20.67

VESSEL		PIONEER		MONTH	YEAR	TIME ZONE	CRUISE	OPR 394 and OPR 442										SHEET NO.	
		May		1964	--											25			
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND		AIR TEMP.		BAROM. (MBS) (Tab. 2)	WEA. THER. (Tab. 3)	CLOUDS		VIS. (Tab. 6)	SEA (Tab. 7)	SWELL		SALINITY	SIGMA - t	
	DATE	HOUR			DIR. (Tab. 1)	SPEED (knots)	DRY BULB	WET BULB			TYPE (Tab. 4)	AMT. (Tab. 5)			DIR. (Tab. 1)	AMT. (Tab. 8)			
385	1915	12	08 56N 086 42E	1985	29.6	24	10	82.0	80.0	08	1	8	3	-	4	-	-	33.24	20.56
386	2315	12	08 53N 085 53E	1990	29.6	23	10	82.0	80.0	05	2	1	4	-	3	-	-	32.96	20.36
387	0100	13	08 52N 085 40E	2010	29.7	23	10	82.0	80.0	06	2	8	2	-	3	-	-	32.85	20.24
388	0315	13	08 52N 085 12E	2005	29.8	21	10	82.0	80.0	06	2	8	2	-	3	-	-	32.73	20.12
389	0515	13	08 50N 084 47E	2015	30.0	-	-	--	--	-	-	-	-	-	-	-	-	32.54	19.90
390	1915	13	08 48N 083 28E	2045	29.6	18	10	83.0	81.0	09	2	-	-	-	3	-	-	32.65	20.12
391	2115	13	08 45N 082 59E	2060	29.6	18	10	83.0	81.0	09	2	-	-	-	3	-	-	32.78	20.22
392	0320	13	08 32N 081 46E	1850	29.7	-	08	84.0	80.0	04	1	8	2	-	3	-	-	33.24	20.53
393	1440	15	08 45N 081 32E	1350	30.0	11	08	84.0	80.0	04	1	8	2	-	3	-	-	33.62	20.72
394	0115	17	08 29N 081 31E	0550	29.9	24	12	81.0	78.0	07	2	4	3	-	3	-	-	33.44	20.61
395	0845	18	05 56N 081 25E	-	29.4	-	-	--	--	-	-	-	-	-	-	-	-	33.62	20.92
396	1445	18	05 46N 081 10E	0815	29.6	23	19	79.0	78.0	07	2	8	2	-	4	-	-	33.78	20.97
397	1715	18	05 46N 080 54E	1320	29.2	23	19	83.0	80.0	07	6	8	5	-	4	-	-	33.74	21.07
398	1545	25	05 45N 080 46E	1205	27.7	18	21	81.0	78.0	13	1	8	2	-	4	-	-	34.08	21.82
399	1715	25	05 39N 081 12E	-	28.1	18	21	81.0	78.0	13	1	8	2	-	4	-	-	34.03	21.65
400	1915	25	05 31N 081 46E	2205	28.6	23	18	80.0	77.0	06	2	1	4	-	3	-	-	33.80	21.32

VESSEL		PIONEER		MONTH		YEAR		TIME ZONE		CRUISE		SHEET NO.					
		May		1964		--		OPR 394 and OPR 442		26							
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND		AIR TEMP.	BAROM. (MBS) (Tab. 2)	WEA. THER. (Tab. 3)	CLOUDS		SEA DIR. (Tab. 6)	SWELL DIR. (Tab. 7)	SALINITY	SIGMA - t
	HOUR	DATE					DIR. (Tab. 1)	SPEED (Knots)				DRY BULB	WET BULB				
401	2115	25 05 24N	082 18E	2255	28.9	23 18	80.0	77.0	06	2	2	1	4	3	-	33.55	21.03
402	2315	25 05 16N	082 51E	2245	29.1	23 14	80.0	79.0	05	2	2	8	2	3	-	33.52	20.94
403	0115	26 05 10N	083 15E	2245	29.0	-	--	--	-	-	-	-	-	-	-	33.80	21.19
404	0315	26 05 04N	083 33E	2235	29.3	25 20	84.0	78.0	10	1	1	8	2	4	-	33.86	21.13
405	0515	26 05 00N	084 00E	2220	29.3	25 19	82.0	78.0	10	1	1	8	2	4	-	-	-
406	1310	26 04 30N	084 00E	2250	28.4	25 20	82.0	79.0	05	1	1	8	2	4	-	34.04	21.56
407	1515	26 04 06N	084 12E	2775	28.4	25 21	82.0	78.0	10	2	2	8	6	4	-	-	-
408	2357	26 03 00N	084 00E	2345	--	26 21	80.0	78.0	10	2	2	8	6	-	-	-	-
409	0700	27 02 30N	084 00E	2380	28.9	26 18	85.0	79.0	05	2	2	1	5	3	-	34.41	21.68
410	1215	27 02 00N	084 00E	2400	--	26 15	82.0	79.0	05	2	2	1	5	4	-	-	-
411	1830	27 01 30N	084 00E	2430	--	-	--	--	11	-	-	-	-	-	-	-	-
412	0230	28 00 57N	084 05E	2455	29.0	-	--	--	11	-	-	-	-	-	-	-	-
413	1900	28 00 30N	084 00E	2475	29.1	23 12	82.0	78.0	06	2	2	3	4	3	-	34.44	21.63
414	0445	29 00 00	083 52E	2490	29.1	23 12	82.0	78.0	13	2	2	3	4	3	-	-	-
415	1430	29 00 24S	084 03E	2505	29.1	20 16	82.0	79.0	13	2	2	3	4	3	-	-	-
416	2140	29 01 00S	084 00E	2530	29.0	-	--	--	-	-	-	-	-	-	-	34.76	21.90

VESSEL		PIONEER		MONTH	YEAR	TIME ZONE	CRUISE		SHEET NO.									
		May	June	1964	--	OPR 394 and OPR 442		27										
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND		AIR TEMP.	BAROM. (MBS) (Tab. 2)	WEA. THER. (Tab. 3)	CLOUDS		VIS. (Tab. 6)	SEA DIR. (Tab. 7)	SWELL DIR. (Tab. 1)	SALINITY	SIGMA - t
	DATE	HOUR					DIR. (Tab. 1)	SPEED (Knots)				DRY BULB	WET BULB					
417	0330	30 01 30S	083 56E	2555	29.0	20 12	82.0	78.0	12	2	5	3	-	-	-	-	-	-
418	0810	30 02 00S	083 57E	2590	28.9	24 14	84.0	78.0	07	2	6	3	-	-	-	-	34.66	21.86
419	1235	30 02 30S	083 56E	2550	28.6	21 12	82.0	77.0	07	1	2	3	-	-	-	-	-	-
420	1932	30 03 00S	084 00E	2550	28.8	21 -	--	--	-	-	-	-	-	-	-	-	34.75	21.97
421	2340	30 03 31S	084 00E	2665	28.6	21 10	81.0	77.0	07	1	2	3	-	-	-	-	34.66	21.93
422	0150	31 04 00S	084 00E	2665	28.9	21 10	82.0	77.0	09	1	8	2	-	-	-	-	-	-
423	0545	31 04 31S	083 59E	2710	29.2	-	--	--	-	-	-	-	-	-	-	-	34.61	21.83
424	0800	31 05 00S	084 00E	2640	29.0	-	--	--	-	-	-	-	-	-	-	-	34.46	21.68
425	1515	31 04 58S	084 59E	2735	29.4	27 07	80.0	76.0	08	2	2	3	-	-	-	-	34.51	21.58
426	1715	31 04 58S	085 29E	2690	28.9	27 07	80.0	76.0	08	2	2	3	-	-	-	-	34.52	21.76
427	1915	31 04 58S	086 03E	2675	28.9	28 12	80.0	75.0	08	2	-	-	-	-	-	-	34.56	21.79
428	2115	31 04 58S	086 36E	2745	28.8	28 12	80.0	76.0	06	2	2	3	-	-	-	-	34.52	21.79
429	2315	31 04 58S	087 09E	2765	28.7	28 10	80.0	76.0	06	2	8	2	-	-	-	-	34.42	21.75
430	0115	01 04 58S	087 42E	2765	28.6	28 11	82.0	78.0	08	2	8	2	-	-	-	-	34.39	21.76
431	0215	01 05 00S	088 00E	2770	--	-	--	--	-	-	-	-	-	-	-	-	-	-
432	1123	01 05 00S	088 09E	2700	28.7	28 12	82.0	76.0	06	2	8	2	-	-	-	-	-	-

VESSEL		MONTH		YEAR		TIME ZONE		CRUISE		OPR 394 and OPR 442				SHEET NO.						
PIONEER		June		1964		--								28						
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND		AIR TEMP.		BAROM. (W.B.S.) (Tab. 2)	WEATHER (Tab. 3)	CLOUDS		VIS. (Tab. 6)	SEA (Tab. 7)	SWELL		SALINITY	SIGMA-t
	Hour	Date					Dir. (Tab. 1)	Speed (Knots)	Dry Bulb	Wet Bulb			Type (Tab. 4)	Amt. (Tab. 5)			Dir. (Tab. 1)	Amt. (Tab. 8)		
433	1345	01	04 00S	087 58E	2685	28.4	-	-	--	--	-	-	-	-	-	-	-	-	-	-
434	2100	01	03 32S	088 02E	2695	28.8	31	08	80.0	76.0	08	2	1	4	-	3	-	-	34.58	21.84
435	2317	01	03 00S	088 00E	2650	28.8	29	10	82.0	76.0	08	2	8	2	-	3	-	-	-	-
436	0500	02	02 30S	087 57E	-	--	-	-	--	--	-	-	-	-	-	-	-	-	-	-
437	0930	02	01 58S	088 00E	2570	29.6	31	08	84.0	78.0	06	1	8	2	-	3	-	-	34.69	21.65
438	1421	02	01 30S	088 00E	2560	29.2	27	05	81.0	77.0	09	1	8	2	-	3	-	-	-	-
439	2030	02	00 59S	087 57E	2550	29.1	32	06	80.0	77.0	08	-	3	5	-	-	-	-	34.70	21.83
440	0320	03	00 30S	088 00E	-	--	27	08	81.0	77.0	11	-	3	4	-	3	-	-	-	-
441	0912	03	00 00	087 59E	2480	29.1	-	-	--	--	-	-	-	-	-	-	-	-	34.51	21.68
442	1450	03	00 30N	088 00E	2450	28.9	27	03	82.0	78.0	10	1	8	2	-	2	-	-	-	-
443	2015	03	01 01N	087 58E	2410	28.9	20	10	80.0	78.0	12	2	-	-	-	-	-	-	-	-
444	0230	04	01 30N	088 00E	2215	28.9	21	08	83.0	79.0	10	1	8	3	-	3	-	-	-	-
445	0745	04	02 00N	087 56E	2280	29.1	23	08	86.0	77.0	12	2	4	7	-	3	-	-	-	-
446	1135	04	02 30N	087 56E	2325	29.1	23	09	82.0	78.0	08	2	1	6	-	3	-	-	-	-
447	1640	04	03 00N	088 00E	-	28.5	22	13	78.0	76.0	10	2	8	3	-	3	-	-	-	-
448	2220	04	03 32N	088 01E	2255	28.6	22	10	78.0	76.0	08	8	8	7	-	3	-	-	34.13	21.56

VESSEL		PIONEER		MONTH		YEAR		TIME ZONE		CRUISE		OPR 394 and OPR 442		SHEET NO.				
		June		1964		--		OPR 394 and OPR 442				29						
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND		AIR TEMP.		BAROM. (MBS) (Tab. 2)	WEA. THER. (Tab. 3)	CLOUDS		VIS. (Tab. 6)	SEA DIR. (Tab. 7)	SWELL DIR. (Tab. 1)	SWELL AMT. (Tab. 8)	SALINITY	SIGMA - t
	HOUR	DATE			LATITUDE	LONGITUDE	DIR. (Tab. 1)	SPEED (Knots)			DRY BULB	WET BULB						
449	0032	05	04 00N	088 00E	2235	--	22 10	80.0	78.0	09	8	8	7	-	3	-	-	-
450	0413	05	04 30N	088 00E	2155	28.6	20 12	79.0	76.0	11	6	6	8	-	3	-	33.96	21.44
451	0610	05	05 00N	088 00E	2180	--	19 14	79.0	76.0	13	2	3	8	-	4	-	-	-
452	1115	05	05 03N	088 23E	2165	28.7	23 16	80.0	78.0	09	2	8	6	-	4	-	34.01	21.44
453	1315	05	05 04N	088 56E	2200	28.4	23 16	80.0	77.0	09	2	8	6	-	4	-	33.82	21.40
454	1515	05	05 05N	089 16E	2015	28.4	22 12	78.0	76.0	11	6	-	-	-	3	-	33.79	21.38
455	1715	05	05 06N	089 45E	-	28.6	22 10	78.0	74.0	10	6	-	-	-	3	-	34.05	21.51
456	2015	05	05 08N	090 35E	1815	28.9	20 18	78.0	76.0	09	2	-	-	-	3	-	34.33	21.62
457	2215	05	05 09N	091 08E	1585	28.8	21 10	78.0	76.0	08	2	8	7	-	3	-	34.29	21.62
458	0012	06	05 10N	091 38E	2085	28.9	21 10	81.0	78.0	09	2	8	7	-	3	-	34.12	21.46
459	0215	06	05 05N	091 50E	2105	29.0	20 11	82.0	78.0	09	1	8	2	-	3	-	34.03	21.36
460	0415	06	05 06N	092 10E	-	30.2	20 11	82.0	78.0	09	1	8	2	-	3	-	33.99	20.91
461	0615	06	05 09N	092 42E	2405	29.2	17 16	83.0	79.0	08	2	1	5	-	3	-	33.81	21.13
462	0825	06	05 11N	093 10E	0830	29.3	17 16	83.0	79.0	08	2	1	5	-	3	-	33.48	20.85
463	1015	06	05 13N	093 41E	-	29.3	-	--	--	-	-	-	-	-	-	-	33.52	20.88
464	1615	07	06 36N	096 03E	0294	29.1	22 12	82.0	78.0	08	1	-	-	-	3	-	33.40	20.85



VESSEL		PIONEER		MONTH		YEAR		TIME ZONE		CRUISE		OPR 394 and OPR 442		SHEET NO.						
		June		1964		--						30								
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND		AIR TEMP.		BAROM. (MBS) (Tab. 2)	WEA. (Tab. 3)	CLOUDS		VIS. (Tab. 6)	SEA (Tab. 7)	SWELL		SALINITY	SIGMA - t
	HOUR	DATE					DIR. (Tab. 1)	SPEED (Knots)	DRY BULB	WET BULB			TYPE (Tab. 4)	AMT. (Tab. 5)			DIR. (Tab. 1)	AMT. (Tab. 8)		
465	1907	07	06 06N	096 29E	0735	29.0	19	12	80.0	77.0	04	2	-	-	3	-	-	33.51	20.97	
466	0145	08	05 48N	096 52E	0650	29.1	11	08	81.0	77.0	07	2	8	6	3	-	-	33.53	20.95	
467	0415	08	05 47N	096 58E	-	29.1	11	08	83.0	78.0	06	2	8	6	3	-	-	32.86	20.45	
468	0639	08	05 44N	097 26E	0135	29.4	16	14	83.0	77.0	05	2	6	8	3	-	-	-	-	-
469	1700	12	05 51N	096 05E	0720	28.8	18	06	82.0	78.0	11	2	-	-	3	-	-	33.62	21.12	
470	2145	12	06 09N	095 19E	0905	28.9	22	09	80.0	77.0	06	2	8	6	3	-	-	33.50	20.99	
471	2345	12	06 16N	094 54E	-	28.9	29	09	78.0	76.0	07	2	8	6	4	-	-	33.48	20.98	
472	0145	13	06 10N	094 40E	0835	28.9	19	16	80.0	78.0	09	2	6	8	3	-	-	33.51	21.08	
479	0345	13	06 05N	094 24E	0975	28.9	20	18	82.0	77.0	08	2	4	5	3	-	-	33.47	20.97	
480	0545	13	05 52N	093 56E	0720	28.8	20	18	82.0	78.0	11	6	4	6	3	-	-	33.44	20.98	
481	0745	13	05 39N	093 25E	0312	28.6	20	18	79.0	75.0	06	6	4	6	3	-	-	33.76	21.29	
482	0945	13	05 27N	092 57E	1450	28.8	27	12	77.0	75.0	07	6	8	7	4	-	-	33.92	21.34	
483	1145	13	05 14N	092 28E	2315	28.9	27	12	78.0	76.0	06	6	8	7	3	-	-	32.86	21.26	
484	1351	13	05 02N	092 00E	2185	28.3	-	-	--	--	-	-	-	-	-	-	-	34.10	21.64	
485	1955	13	04 30N	092 02E	2220	28.6	-	-	--	--	11	-	-	-	-	-	-	34.21	21.63	
486	2210	13	03 59N	091 57E	2235	--	-	-	--	--	-	-	-	-	-	-	-	-	-	-



VESSEL		PIONEER		MONTH	YEAR	TIME ZONE	CRUISE	OPR 394 and OPR 442				SHEET NO.						
				June	1964	--						32						
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND		AIR TEMP.		BAROM. (MBS) (Tab. 2)	WEA. THER. (Tab. 3)	CLOUDS		VIS. (Tab. 6)	SEA (Tab. 7)	SWELL		SALINITY	SIGMA - t
	DATE	HOUR			DIR. (Tab. 1)	SPEED (Knots)	DRY BULB	WET BULB			TYPE (Tab. 4)	AMT. (Tab. 5)			DIR. (Tab. 1)	AMT. (Tab. 8)		
507	0145	16 00 02S	090 07E	2495	29.0	21	25	81.0	77.0	08	2	9	9	3	-	-	34.27	21.54
508	0345	16 00 10S	090 39E	2490	29.0	23	12	83.0	77.0	08	2	9	9	3	-	-	34.08	21.40
509	0545	16 00 17S	091 08E	2490	29.1	23	08	78.0	76.0	06	2	8	5	3	-	-	34.05	21.34
510	0745	16 00 25S	091 40E	2465	29.1	23	08	80.0	78.0	06	2	8	5	3	-	-	34.12	21.39
511	0907	16 00 30S	092 00E	2475	29.1	20	08	83.0	78.0	06	2	9	9	3	-	-	-	-
512	1330	16 00 57S	092 00E	2505	29.0	25	05	82.0	77.0	06	2	9	9	3	-	-	33.98	21.32
513	2135	16 01 19S	092 00E	2540	--	29	04	80.0	77.0	07	1	8	4	2	-	-	-	-
514	0319	17 01 51S	092 00E	2505	29.4	99	-	82.0	77.0	08	1	8	2	2	-	-	34.03	21.22
515	0328	17 01 51S	092 00E	2505	29.4	99	-	82.0	77.0	08	1	8	2	2	-	-	-	-
516	0334	17 01 51S	092 00E	2505	29.4	99	-	82.0	77.0	08	1	8	2	2	-	-	-	-
517	0338	17 01 51S	092 00E	2505	29.4	99	-	82.0	77.0	08	1	8	2	2	-	-	-	-
518	0930	17 02 25S	092 00E	-	--	31	05	85.0	78.0	05	1	8	3	3	-	-	-	-
519	1415	17 02 57S	092 00E	2630	29.0	34	05	82.0	78.0	06	2	9	9	2	-	-	34.57	21.76
520	2020	17 03 30S	092 00E	2650	28.9	11	06	80.0	77.0	06	-	-	-	3	-	-	34.63	21.84
521	2240	17 04 00S	092 00E	2675	--	-	-	80.0	77.0	06	2	8	7	3	-	-	-	-
522	0245	18 04 30S	092 00E	2700	28.4	07	13	81.0	78.0	07	2	9	9	3	-	-	34.48	21.89

VESSEL		PIONEER		MONTH	YEAR	TIME ZONE	CRUISE	OPR 394 and OPR 442		SHEET NO.						
		June		1964	--					33						
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Buckets)	WIND		AIR TEMP.	BAROM. (MBS) (Tab. 2)	WEA. (Tab. 3)	CLOUDS	VIS. SEA (Tab. 6)	SWELL	SALINITY	SIGMA - t
	HOUR	DATE					DIR. (Tab. 1)	SPEED (Knots)								
523	0500	18	05 00S	092 00E	2730	28.5	01 16	81.0	78.0	07	2	8 6	-	3	-	-
524	1145	18	05 03S	092 29E	2740	28.6	04 14	80.0	78.0	06	2	8 6	-	3	34.57	21.90
525	1312	18	05 05S	092 46E	2430	28.4	05 13	80.0	78.0	06	2	9 9	-	3	34.61	21.99
526	1545	18	05 16S	093 17E	2750	28.6	-	--	--	-	-	-	-	-	34.57	21.90
527	1745	18	05 19S	093 42E	2730	28.6	05 13	80.0	77.0	08	2	8 6	-	3	34.55	21.88
528	1945	18	05 22S	094 08E	2735	28.6	05 10	80.0	76.0	06	2	8 6	-	3	34.55	21.88
529	2145	18	05 25S	094 34E	2750	28.6	05 06	80.0	78.0	06	2	8 6	-	3	34.60	21.92
530	0000	19	05 28S	095 02E	-	28.4	-	--	--	-	-	-	-	-	34.54	21.94
531	0145	19	05 28S	095 21E	2750	28.4	05 05	80.0	76.0	08	2	3 4	-	3	34.46	21.88
532	0345	19	05 31S	095 46E	2240	28.4	-	--	--	-	-	-	-	-	34.31	21.77
533	0545	19	05 34S	096 12E	2875	29.6	05 06	82.0	77.0	06	2	8 4	-	3	34.16	21.25
534	0745	19	05 36S	096 37E	2670	29.7	05 06	82.0	77.0	05	2	8 4	-	3	-	-
535	0945	19	05 39S	097 03E	2700	30.2	08 02	82.0	75.0	06	1	8 2	-	3	34.14	21.04
536	1145	19	05 39S	097 03E	-	29.3	08 11	80.0	76.0	06	1	8 2	-	3	34.20	21.38
537	1312	19	05 42S	097 44E	3030	29.6	-	--	--	-	-	-	-	-	33.99	21.13
538	1545	19	05 41S	098 03E	2960	28.9	-	--	--	-	-	-	-	-	33.88	21.28

VESSEL		PIONEER		MONTH	YEAR	TIME ZONE	CRUISE	OPR 394 and OPR 442				SHEET NO.						
		June		1964	--							34						
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND		AIR TEMP.		BAROM. (MBS) (Tab. 2)	WEA. THER. (Tab. 3)	CLOUDS		VIS. (Tab. 6)	SEA DIR. (Tab. 7)	SWELL DIR. (Tab. 8)	SWELL AMT. (Tab. 8)	SALINITY	SIGMA - t
	HOUR	DATE			DIR. (Tab. 1)	SPEED (Knots)	DRY BULB	WET BULB			TYPE (Tab. 4)	AMT. (Tab. 5)						
539	1745	19 05 43S	098 27E	2895	28.8	05 08	81.0	77.0	06	2	8 6	-	3	-	-	33.96	21.37	
540	1945	19 05 46S	098 51E	3070	29.1	05 08	80.0	76.0	05	2	8 6	-	3	-	-	33.86	21.20	
541	2145	19 05 49S	099 16E	2845	28.9	05 08	80.0	-	06	2	8 6	-	3	-	-	33.78	21.20	
542	2345	19 05 52S	099 42E	2800	29.0	-	-	-	-	-	-	-	-	-	-	33.45	20.92	
543	0145	20 05 53S	100 05E	2845	29.0	05 05	80.0	76.0	07	1	8 4	-	3	-	-	33.32	20.83	
544	0345	20 05 56S	100 34E	2890	29.4	-	-	-	-	-	-	-	-	-	-	33.57	20.88	
545	0700	20 06 00S	101 17E	3260	30.5	11 03	84.0	78.0	07	2	8 3	-	3	-	-	33.55	20.49	
546	1313	20 06 07S	101 06E	3070	29.6	-	-	-	-	-	-	-	-	-	-	33.55	20.80	
547	1145	21 05 39S	102 07E	0800	29.2	15 12	82.0	77.0	06	1	8 2	-	3	-	-	33.54	20.92	
548	1325	21 05 46S	102 24E	0344	29.2	14 05	82.0	77.0	06	1	8 3	-	3	-	-	33.54	20.92	
549	1600	21 05 50S	102 48E	0370	29.1	16 16	82.0	78.0	08	1	8 3	-	3	-	-	33.06	20.60	
550	1745	21 05 55S	103 13E	0860	28.9	14 07	82.0	78.0	08	1	8 2	-	3	-	-	33.07	20.67	
551	1945	21 06 01S	103 41E	1220	29.1	14 07	82.0	78.0	06	2	8 2	-	3	-	-	32.95	20.51	
552	2145	21 06 06S	104 07E	1205	29.1	11 10	82.0	77.0	06	2	8 4	-	3	-	-	32.80	20.40	
553	2345	21 06 10S	104 29E	0570	29.2	11 10	82.0	78.0	08	2	8 4	-	3	-	-	32.94	20.47	
554	1345	22 06 22S	104 53E	0895	29.2	15 06	81.0	77.0	08	1	2 3	-	3	-	-	32.90	20.31	

VESSEL		MONTH		YEAR		TIME ZONE		CRUISE		SHEET NO.									
PIONEER		June July		1964		--		OPR 394 and OPR 442		35									
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND DIR. (Tab. 1)(Knots)	AIR TEMP.		BAROM. (MBS) (Tab. 2)	WEA. THER (Tab. 3)	CLOUDS TYPE AMT. (Tab. 4)(Tab. 5)	VIS. (Tab. 6)(Tab. 7)	SEA DIR. (Tab. 1)(Tab. 8)	SWELL DIR. (Tab. 1)(Tab. 8)	SALINITY	SIGMA - t		
	DATE	AMT.						WET BULB	DRY BULB										
555	0145	30	07 15S	115 20E	0282	28.0	14	16	82.0	74.0	09	2	8	2	-	3	-	33.84	21.54
556	0345	30	07 39S	115 29E	0640	28.0	14	18	82.0	74.0	07	2	8	2	-	3	-	33.86	21.56
557	0545	30	08 00S	115 41E	0748	27.9	16	15	82.0	75.0	06	1	8	2	-	3	-	33.65	21.44
561	0814	30	08 29S	115 49E	0606	27.9	16	10	82.0	73.0	06	2	8	2	-	3	-	33.71	21.48
569	0905	30	08 38S	115 45E	0364	28.0	16	15	82.0	74.0	08	2	8	2	-	3	-	33.58	21.35
581	1015	30	08 52S	115 42E	0162	--	16	15	82.0	74.0	08	2	8	2	-	3	-	33.09	-
582	1021	30	08 53S	115 41E	0174	--	16	15	82.0	74.0	08	2	8	2	-	3	-	34.10	-
589	1730	30	08 42S	115 42E	0334	27.8	13	12	78.0	71.0	09	2	8	2	-	3	-	-	-
590	2043	30	08 30S	115 45E	0496	--	-	-	--	--	-	-	-	-	-	-	-	-	-
591	0145	01	08 05S	116 05E	0775	28.1	24	06	82.0	74.0	09	2	8	2	-	3	-	33.94	21.59
592	0345	01	07 43S	116 23E	0612	27.9	11	08	80.0	73.0	08	2	8	2	-	3	-	34.04	21.73
593	0545	01	07 22S	116 40E	0264	27.8	15	10	78.0	74.0	07	1	8	1	-	3	-	34.03	21.75
594	0745	01	06 59S	116 58E	0314	27.8	15	10	79.0	74.0	06	1	8	1	-	3	-	34.08	21.79
595	0945	01	06 37S	117 17E	0210	27.5	14	16	79.0	74.0	06	1	4	4	-	3	-	34.04	21.86
596	1145	01	05 46S	117 36E	-	26.9	13	18	78.0	74.0	07	2	-	-	-	3	-	34.11	22.10
597	1345	01	05 53S	117 46E	0116	26.9	14	14	78.0	74.0	08	2	6	2	-	3	-	34.21	22.18

VESSEL		PIIONEER		MONTH		YEAR		TIME ZONE		CRUISE		OPR 394 and OPR 442		SHEET NO.						
		July		1964		--		OPR 394 and OPR 442		36										
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Buckets)	WIND		AIR TEMP.		BAROM. (MB)	WEATHER (Tab. 2)	CLOUDS		VIS. (Tab. 6)	SEA DIR. (Tab. 7)	SWELL		SALINITY	SIGMA - t
	Hour	Date					Dir. (Knots)	Speed (Knots)	Dry Bulb	Wet Bulb			Type (Tab. 4)	Amt. (Tab. 5)			Dir. (Tab. 1)	Amt. (Tab. 8)		
598	1545	01	05 40S	118 05E	0164	26.4	14	10	78.0	74.0	08	2	6	2	-	3	-	-	34.26	22.37
599	1745	01	05 21S	118 14E	0308	27.1	15	10	78.0	75.0	08	2	6	2	-	3	-	-	34.24	22.14
600	1945	01	04 53S	118 18E	0960	27.4	15	10	78.0	75.0	07	2	6	2	-	3	-	-	34.16	21.98
601	2145	01	04 23S	118 24E	1095	27.3	15	16	78.0	76.0	08	2	6	8	-	3	-	-	34.19	22.03
602	2345	01	04 06S	118 27E	1090	27.5	15	16	80.0	77.0	09	2	6	8	-	3	-	-	34.17	21.96
603	0145	02	03 36S	118 31E	1085	28.0	14	08	82.0	80.0	08	2	5	3	-	3	-	-	34.00	21.67
604	0345	02	03 12S	118 27E	0890	28.0	14	06	82.0	80.0	08	2	5	3	-	3	-	-	33.91	21.60
605	0545	02	02 47S	118 33E	0985	27.9	15	07	82.0	78.0	06	1	8	2	-	2	-	-	33.85	21.58
606	0745	02	02 20S	118 41E	1000	28.6	15	05	82.0	78.0	05	1	8	2	-	2	-	-	33.44	21.05
607	0945	02	01 52S	118 50E	0940	29.0	31	10	80.0	78.0	06	2	8	7	-	3	-	-	33.50	20.96
608	1145	02	01 24S	118 58E	1015	29.0	31	10	80.0	78.0	09	6	-	-	-	3	-	-	33.52	20.98
609	1345	02	00 58S	119 06E	1165	29.0	25	06	80.0	76.0	09	9	-	-	-	2	-	-	32.78	20.42
610	1545	02	00 35S	119 13E	0960	28.6	-	-	--	--	-	-	-	-	-	-	-	-	33.30	20.94
611	2045	02	00 36N	119 37E	1595	28.7	22	07	78.0	76.0	09	2	-	-	-	3	-	-	33.22	20.85
612	2245	02	00 55N	119 53E	1625	28.5	21	06	80.0	78.0	09	2	8	7	-	3	-	-	33.22	20.92
613	0045	03	01 11N	120 08E	0795	28.6	14	05	82.0	79.0	10	8	6	5	-	2	-	-	33.32	20.96

VESSEL		PIONEER		YEAR	MONTH	TIME ZONE	CRUISE	OPR 394 and OPR 442		SHEET NO.								
		July		1964	--	--				37								
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND		BAROM. (MBS) (Tab. 2)	WEA. THER. (Tab. 3)	CLOUDS		V.S. (Tab. 6)	SEA (Tab. 7)	SWELL		SALINITY	SIGMA - t
	HOUR	DATE					DIR. (Tab. 1)	SPEED (Knots)			DRY BULB	WET BULB			TYPE (Tab. 4)	AMT. (Tab. 5)		
614	0245	03 01 29N	120 29E	1525	28.5	14 06	82.0	78.0	10	8	6	5	-	2	-	-	33.28	20.96
615	0445	03 01 50N	120 48E	2035	29.0	15 06	83.0	78.0	09	2	6	4	-	3	-	-	33.90	21.26
616	0645	03 02 10N	121 08E	2500	29.2	15 02	80.0	76.0	08	2	6	4	-	0	-	-	33.89	21.18
617	0845	03 02 31N	121 29E	2965	29.4	11 06	81.0	78.0	08	2	8	8	-	3	-	-	34.01	21.21
618	1045	03 02 53N	121 51E	2815	29.1	18 08	80.0	78.0	09	2	-	-	-	3	-	-	34.02	21.32
619	1245	03 03 12N	122 10E	2745	28.8	16 07	80.0	78.0	10	2	-	-	-	3	-	-	34.00	21.40
620	1455	03 03 31N	122 28E	2720	28.8	16 06	79.0	76.0	09	2	-	-	-	3	-	-	33.62	21.12
621	1645	03 03 50N	122 47E	2720	29.0	02 03	80.0	78.0	09	2	8	5	-	2	-	-	33.90	21.26
622	1745	03 04 00N	122 40E	2725	28.9	-	80.0	78.0	08	2	8	5	-	0	-	-	-	-
623	0645	04 04 04N	122 47E	2725	29.8	27 04	84.0	78.0	06	1	8	3	-	2	-	-	33.92	21.01
624	0845	04 04 14N	123 13E	2715	29.8	22 10	85.0	79.0	06	1	1	4	-	3	-	-	33.88	20.98
625	1045	04 04 28N	123 40E	2710	29.8	22 10	84.0	79.0	08	2	-	-	-	3	-	-	34.03	21.09
626	1245	04 04 39N	124 03E	2735	29.6	23 07	82.0	79.0	08	2	5	3	-	-	-	-	33.88	21.04
627	1445	04 04 49N	124 21E	2795	29.3	23 08	82.0	79.0	09	2	5	3	-	-	-	-	33.76	21.06
628	1645	04 05 02N	124 52E	3160	29.3	25 10	80.0	78.0	08	1	8	3	-	3	-	-	33.95	21.20
629	1900	04 05 15N	125 17E	2300	28.8	31 11	78.0	77.0	07	1	8	2	-	3	-	-	34.16	21.52



VESSEL		PIONEER		MONTH	YEAR	TIME ZONE	CRUISE		OPR 394 and OPR 442				SHEET NO.							
				July	1964	--							38							
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND		AIR TEMP.		BAROM. WEA. (MBS) THER. (Tab. 2)	WEA. THER. (Tab. 3)	CLOUDS	VIS. (Tab. 6)	SEA (Tab. 7)	SWELL		SALINITY	SIGMA - t	
	HOUR	DATE					DIR. (Knots) (Tab. 1)	SPEED	DRY BULB	WET BULB						DIR. (Tab. 1)	AMT. (Tab. 8)			
630	0245	06	05° 25' N	128° 14' E	2995	28.9	21	16	80.0	77.0	08	2	8	3	-	3	-	-	34.17	21.50
631	0600	06	05° 25' N	127° 37' E	4550	28.9	22	10	80.0	76.0	06	8	8	6	-	3	-	-	34.19	21.51
632	1245	06	05° 28' N	127° 50' E	3975	29.0	18	06	80.0	76.0	09	1	8	2	-	3	-	-	34.16	21.46
633	1530	06	05° 23' N	127° 27' E	3940	28.8	18	06	80.0	76.0	08	2	8	2	-	3	-	-	34.28	21.61
634	-	06	05° 23' N	127° 27' E	3710	28.8	-	-	81.0	77.0	09	2	8	6	-	3	-	-	34.24	21.58
635	0045	07	05° 25' N	127° 15' E	2920	29.4	11	05	80.0	76.0	09	2	8	3	-	2	-	-	34.18	21.34
636	0245	07	05° 38' N	127° 30' E	4175	29.7	11	05	83.0	78.0	09	2	8	3	-	2	-	-	34.20	21.25
637	0500	07	05° 41' N	127° 55' E	3030	30.4	-	-	82.0	77.0	07	1	8	2	-	0	-	-	34.28	21.06
638	0645	07	05° 46' N	127° 53' E	-	31.2	-	-	83.0	77.0	06	1	8	2	-	0	-	-	34.30	20.82
639	0845	07	05° 47' N	127° 29' E	-	30.8	-	-	84.0	77.0	06	1	1	4	-	3	-	-	34.25	20.91
640	1045	07	05° 48' N	127° 06' E	-	29.4	-	-	80.0	76.0	08	2	-	-	-	3	-	-	34.22	21.37
641	1230	07	05° 54' N	127° 08' E	2970	29.5	-	-	81.0	76.0	09	2	5	3	-	2	-	-	34.18	21.30
642	1445	07	06° 04' N	127° 28' E	4115	29.8	-	-	80.0	76.0	09	2	5	3	-	2	-	-	34.24	21.25
643	1745	07	06° 20' N	128° 00' E	2940	29.0	-	-	-	-	-	-	-	-	-	-	-	-	34.18	21.47
644	1945	07	06° 26' N	128° 24' E	3115	28.9	22	06	80.0	76.0	08	2	-	-	-	3	-	-	34.19	21.51
645	2143	07	06° 28' N	128° 52' E	3095	28.9	34	08	80.0	76.0	08	2	2	7	-	3	-	-	34.22	21.50

VESSEL		PIONEER		MONTH		YEAR		TIME ZONE		CRUISE		OPR 394 and OPR 442		SHEET NO.				
		July		1964		---		---		---		39						
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND		AIR TEMP.		BAROM. (MBS) (Tab. 2)	WEA. THER. (Tab. 3)	CLOUDS		VIS. SEA (Tab. 6)	SWELL DIR. (Tab. 7)	SALINITY	SIGMA - t
	DATE	HOUR					DIR. (Tab. 1)	SPEED (Knots)	DRY BULB	WET BULB			TYPE (Tab. 4)	AMT. (Tab. 5)				
646	07 2345	07 06 17N	129 17E	2935	29.0	05 08	80.0	76.0	09 2	2	5	6	2	-	-	-	34.20	21.48
647	08 0145	08 06 19N	129 44E	3025	29.0	05 07	81.0	76.0	09 2	2	5	6	2	-	-	-	34.17	21.46
648	08 0345	08 06 27N	130 12E	3040	28.9	04 12	79.0	76.0	09 2	2	8	6	3	-	-	-	34.24	21.55
649	08 0545	08 06 32N	130 41E	3065	28.4	04 12	78.0	77.0	07 2	2	8	6	3	-	-	-	34.19	21.68
650	08 0745	08 06 36N	131 11E	2945	28.6	04 12	80.0	76.0	06 2	2	8	7	4	-	-	-	34.17	21.60
651	08 0945	08 06 41N	131 40E	2620	28.8	-	-	-	-	-	-	-	-	-	-	-	34.25	21.59
652	08 1130	08 06 44N	132 05E	2045	28.7	05 10	80.0	76.0	09 2	2	8	6	3	-	-	-	34.27	21.64
653	08 1345	08 06 51N	132 39E	1690	28.8	04 03	80.0	76.0	09 1	1	8	2	2	-	-	-	34.22	21.57
654	08 1545	08 06 52N	133 10E	1560	28.8	04 03	80.0	76.0	09 1	1	8	2	2	-	-	-	34.16	21.52
655	08 1745	08 06 52N	133 39E	1850	28.7	-	78.0	76.0	08 1	1	8	2	2	-	-	-	34.07	21.49
656	08 1945	08 07 01N	134 06E	1295	28.9	32 08	79.0	76.0	07 1	1	-	-	3	-	-	-	33.94	21.32
657	08 2145	08 07 22N	134 10E	0890	28.9	32 04	80.0	77.0	08 2	2	1	5	4	-	-	-	34.15	21.48
658	08 0545	11 07 50N	134 24E	1205	29.4	23 05	84.0	77.0	07 2	2	8	4	2	-	-	-	34.01	21.21
659	12 1100	12 07 05N	135 06E	2750	29.7	16 04	81.0	76.0	07 2	2	8	4	2	-	-	-	34.02	21.12
660	12 2345	12 07 43N	135 04E	3895	29.2	16 09	80.0	77.0	10 1	1	8	2	2	-	-	-	34.11	21.35
661	13 0145	13 07 44N	135 34E	2450	29.4	16 09	81.0	77.0	10 1	1	8	2	2	-	-	-	34.21	21.36

VESSEL		PIONEER		YEAR	TIME ZONE	CRUISE	OPR 394 and OPR 442		SHEET NO.									
		MONTH	July	1964	--				40									
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Buckets)	WIND		BAROM. (MBS) (Tab. 2)	WEA. THER. (Tab. 3)	CLOUDS		V.S. (Tab. 6)	SEA DIR. (Tab. 7)	SWELL DIR. (Tab. 1)	AMT. (Tab. 8)	SALINITY	SIGMA - t
	DATE	HOUR					DIR. (Knots) (Tab. 1)	SPEED			DRY BULB	WET BULB						
662	0345	13 07 52N	136 00E	2615	30.0	14 12	83.0	79.0	09	1	8	2	-	3	-	-	34.34	21.25
663	0545	13 08 01N	136 27E	1915	29.8	14 12	83.0	79.0	09	1	8	2	-	3	-	-	34.26	21.26
664	0745	13 08 07N	136 52E	1805	29.8	14 16	85.0	79.0	09	2	8	6	-	3	-	-	34.27	21.27
665	0945	13 08 15N	137 21E	1295	29.4	13 08	82.0	78.0	10	2	8	6	-	3	-	-	34.27	21.40
666	1100	13 08 15N	137 29E	0685	29.7	07 11	82.0	78.0	11	1	8	2	-	3	-	-	34.31	21.33
667	1345	13 08 10N	138 01E	2725	29.2	07 11	82.0	78.0	11	1	8	2	-	3	-	-	34.22	21.43
668	1545	13 08 05N	138 01E	1515	29.4	07 16	80.0	78.0	10	8	8	3	-	3	-	-	34.18	21.34
669	1745	13 08 01N	138 58E	1385	29.2	14 15	80.0	76.0	10	8	8	3	-	3	-	-	34.08	21.33
670	1945	13 08 16N	139 19E	1390	29.1	09 10	82.0	78.0	10	2	8	7	-	4	-	-	34.04	21.33
671	2135	13 08 28N	139 29E	1035	29.1	03 08	82.0	78.0	10	2	2	7	-	3	-	-	34.09	21.37
672	2345	13 08 47N	139 37E	2310	29.2	-	--	--	-	-	-	-	-	-	-	-	34.04	21.30
673	0145	14 09 07N	139 56E	1885	29.0	07 11	84.0	79.0	11	1	8	2	-	3	-	-	34.15	21.45
674	0345	14 09 27N	140 07E	1740	29.2	07 11	83.0	79.0	11	1	8	2	-	3	-	-	34.14	21.37
675	0745	14 09 57N	140 52E	1740	29.1	09 08	84.0	78.0	09	1	8	5	-	3	-	-	34.20	21.45
676	0945	14 10 12N	141 18E	2105	29.1	02 07	82.0	78.0	09	2	8	5	-	3	-	-	34.00	21.30
677	1130	14 10 24N	141 38E	2145	29.1	02 05	82.0	78.0	11	1	8	2	-	3	-	-	34.04	21.33

CONSEC. SLIDE NUMBER	VESSEL		MONTH		YEAR		TIME ZONE		CRUISE										SHEET NO.		
	PIONEER		July		1964		--		OPR 394 and OPR 442										41		
	GREENWICH MEAN TIME	DEPTH (Fathoms)	LATITUDE	LONGITUDE	SEA SURFACE TEMP. (Bucket)	WIND DIR. (Knots)	WIND SPEED (Knots)	AIR TEMP. DRY BULB	AIR TEMP. WET BULB	BAROM. (MBS)	WEATHER (Tab. 2)	WEATHER (Tab. 3)	CLOUDS TYPE (Tab. 4)	CLOUDS AMT. (Tab. 5)	VIS. (Tab. 6)	SEA DIR. (Tab. 7)	SEA AMT. (Tab. 8)	SWELL DIR. (Tab. 1)	SWELL AMT. (Tab. 8)	SALINITY	SIGMA - t
678	1345	14	10 38N	142 00E	2680	29.0	30	14	80.0	77.0	11	1	8	3	-	3	-	-	-	34.35	21.60
679	1545	14	11 05N	142 08E	4120	28.9	34	12	80.0	76.0	10	8	7	3	-	3	-	-	-	34.25	21.56
680	1745	14	11 15N	142 10E	5320	28.9	34	16	80.0	77.0	10	8	7	3	-	3	-	-	-	34.27	21.57
681	0345	15	11 20N	142 00E	4470	29.2	12	07	83.0	77.0	08	1	8	3	-	3	-	-	-	34.24	21.45
682	0545	15	11 43N	142 08E	3000	29.3	12	07	83.0	78.0	08	1	8	3	-	3	-	-	-	34.27	21.44
683	0745	15	11 58N	142 33E	1640	29.3	15	08	82.0	78.0	08	2	8	5	-	3	-	-	-	34.19	21.38
684	0945	15	12 16N	142 59E	2240	29.2	15	08	81.0	77.0	09	2	-	-	-	3	-	-	-	34.31	21.50
685	1130	15	12 32N	143 19E	1505	29.2	14	07	82.0	78.0	11	1	7	4	-	2	-	-	-	34.33	21.52
686	1345	15	12 46N	143 42E	1515	28.9	14	07	81.0	77.0	11	1	7	4	-	2	-	-	-	34.29	21.59
687	1545	15	13 10N	144 22E	2110	29.0	14	07	80.0	78.0	10	1	8	3	-	3	-	-	-	34.29	21.55
688	0645	19	13 12N	144 53E	0940	29.8	06	10	82.0	78.0	06	2	7	6	-	3	-	-	-	34.39	21.36
689	0845	19	13 16N	145 21E	1560	29.4	03	08	82.0	79.0	06	2	8	7	-	3	-	-	-	34.41	21.51
690	1045	19	13 21N	145 48E	2285	29.2	03	09	81.0	79.0	08	2	8	7	-	3	-	-	-	34.35	21.53
691	1245	19	13 25N	146 12E	3790	29.4	03	09	81.0	79.0	09	2	8	7	-	3	-	-	-	34.46	21.55
692	1445	19	13 28N	146 33E	4050	29.3	03	09	82.0	78.0	08	2	8	7	-	3	-	-	-	34.45	21.57
693	1645	19	13 31N	146 55E	4415	29.2	03	09	81.0	78.0	07	2	8	2	-	3	-	-	-	34.46	21.61

VESSEL	PIONEER		YEAR	TIME ZONE	CRUISE		OPR 394 and OPR 442				SHEET NO.						
	MONTH		1964	--			OPR 394 and OPR 442				42						
	JULY																
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND		AIR TEMP.		BAROM. (M.S.) (Tab. 2)	WEA. THER. (Tab. 3)	CLOUDS		VIS. (Tab. 6)	SEA (Tab. 7)	SWELL	SALINITY	SIGMA-t
	DATE	LATITUDE			LONGITUDE	DIR. (Tab. 1)	SPEED (Knots)	DRY BULB			WET BULB	TYPE (Tab. 4)					
694	1845	19	13 35N	147 17E	2175	29.3	03 08	82.0	78.0	07 2	2	-	-	3	-	34.46	21.58
695	2030	19	13 38N	147 38E	3280	29.2	03 08	82.0	78.0	08 2	2	1	6	3	-	34.50	21.64
696	2245	19	13 44N	147 51E	3165	29.1	03 08	82.0	76.0	08 2	2	1	6	3	-	34.43	21.62
697	0045	20	13 49N	148 20E	2330	29.1	03 08	82.0	78.0	08 1	1	1	6	3	-	34.47	21.65
698	0245	20	13 53N	148 52E	3210	29.3	11 14	83.0	80.0	08 1	1	8	4	3	-	34.46	21.58
699	0445	20	13 57N	149 15E	3100	29.4	11 16	82.0	78.0	06 1	1	8	6	3	-	34.50	21.58
700	0645	20	13 59N	149 44E	3260	29.4	13 12	82.0	78.0	06 2	2	8	7	4	-	34.50	21.58
701	0845	20	14 01N	150 11E	3280	29.3	05 18	82.0	78.0	08 8	8	8	6	4	-	34.51	21.62
702	1030	20	14 02N	150 36E	3290	29.1	05 09	82.0	78.0	09 2	2	8	6	4	-	34.54	21.71
703	1245	20	14 08N	150 53E	3200	29.1	05 09	82.0	76.0	09 2	2	8	6	4	-	34.54	21.71
704	1445	20	14 11N	151 21E	3300	28.9	09 16	81.0	77.0	08 8	8	8	6	4	-	34.54	21.77
705	1645	20	14 14N	151 48E	3280	28.9	09 16	81.0	77.0	07 1	1	8	4	4	-	34.54	21.77
706	1845	20	14 18N	152 17E	3275	29.1	12 10	81.0	77.0	07 2	2	8	7	4	-	34.54	21.71
707	2030	20	14 20N	152 33E	3290	28.9	12 08	81.0	78.0	08 2	2	8	7	4	-	34.58	21.80
708	2245	20	14 25N	152 46E	3300	29.1	10 08	82.0	76.0	09 2	2	8	7	3	-	34.57	21.80
709	0045	21	14 28N	153 16E	3280	28.9	05 10	82.0	78.0	09 2	2	8	4	4	-	34.50	21.74

VESSEL		PIONEER		YEAR	MONTH	TIME ZONE	CRUISE	OPR 394 and OPR 442		SHEET NO.								
		July	1964	--						43								
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		DEPTH (Fathoms)	SEA SURFACE TEMP. (Buckets)	WIND DIR. (Tab. 1)	WIND SPEED (Knots)	AIR TEMP.		BAROM. (MS) (Tab. 2)	WEATHER (Tab. 3)	CLOUDS		VIS. (Tab. 6)	SEA (Tab. 7)	SWELL DIR. (Tab. 1)	SWELL AMT. (Tab. 8)	SALINITY	SIGMA - t
	HOUR	DATE					DRY BULB	WET BULB			TYPE (Tab. 4)	AMT. (Tab. 5)						
710	0245	21	14 31N 153 45E	3280	28.9	09 16	82.0	78.0	07 2	2	8	8	-	4	-	-	34.54	21.77
711	0445	21	14 34N 154 13E	3220	29.1	09 14	82.0	78.0	06 2	2	4	8	-	4	-	-	34.60	21.75
712	0645	21	14 37N 154 41E	2215	29.2	08 10	82.0	78.0	06 2	2	8	5	-	4	-	-	34.57	21.70
713	0845	21	14 40N 155 10E	3210	28.9	12 10	80.0	77.0	08 2	2	8	6	-	4	-	-	34.51	21.75
714	1045	21	14 53N 155 34E	3330	28.9	10 18	80.0	78.0	09 2	2	8	6	-	4	-	-	34.52	21.76
715	1245	21	14 56N 156 04E	3315	28.9	10 18	80.0	78.0	09 2	2	8	6	-	4	-	-	34.59	21.81
716	1445	21	14 59N 156 33E	3325	28.8	08 12	80.0	78.0	07 2	2	8	4	-	4	-	-	34.56	21.82
717	1645	21	15 02N 157 02E	3315	28.6	09 14	81.0	77.0	07 1	1	8	5	-	4	-	-	34.58	21.90
718	1845	21	15 05N 157 31E	3260	28.8	11 10	80.0	77.0	07 2	2	8	7	-	4	-	-	34.57	21.83
719	2030	21	15 06N 157 43E	3250	28.6	09 08	80.0	78.0	07 2	2	8	7	-	4	-	-	34.64	21.95
720	2245	21	15 01N 158 09E	3220	28.8	10 09	82.0	78.0	09 2	2	8	6	-	4	-	-	34.60	21.85
721	0045	22	15 16N 158 22E	3235	28.9	10 16	82.0	78.0	08 2	2	6	8	-	4	-	-	34.59	21.81
722	0245	22	15 19N 158 50E	1370	28.9	10 14	82.0	78.0	08 2	2	3	5	-	4	-	-	34.63	21.84
723	0645	22	15 24N 159 36E	3070	28.9	12 10	82.0	78.0	07 2	2	8	6	-	4	-	-	34.62	21.83
724	0845	22	15 26N 160 04E	2775	28.8	13 14	81.0	77.0	09 2	2	8	6	-	4	-	-	34.61	21.86
725	1030	22	15 28N 160 21E	1965	28.6	10 18	82.0	78.0	09 2	2	8	6	-	4	-	-	34.64	21.95

VESSEL		PIONEER		MONTH		YEAR		TIME ZONE		CRUISE		OPR 394 and OPR 442		SHEET NO.						
		July		1964		--		OPR 394 and OPR 442		44		44		44						
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND		AIR TEMP.		BAROM. (MBS) THER. (Tab. 2)	WEA. THER. (Tab. 3)	CLOUDS		VIS. (Tab. 5)	SEA DIR. (Tab. 7)	SWELL		SALINITY	SIGMA - t
	HOUR	DATE					DIR. (Tab. 1)	SPEED (Knots)	DRY BULB	WET BULB			TYPE	AMT. (Tab. 4)			DIR. (Tab. 1)	AMT. (Tab. 8)		
726	1245	22	15 32N	160 46E	2890	28.6	10	10	82.0	78.0	09	2	8	6	-	4	-	-	34.64	21.95
727	1445	22	15 36N	161 14E	3050	28.4	12	14	82.0	78.0	09	2	8	4	-	4	-	-	34.75	22.10
728	1645	22	15 40N	161 43E	2985	28.2	12	10	80.0	78.0	08	2	8	3	-	4	-	-	34.61	22.06
729	1845	22	15 44N	162 12E	3015	28.2	14	10	81.0	78.0	08	2	8	7	-	4	-	-	34.79	22.19
730	2045	22	15 51N	162 18E	3020	28.2	05	14	82.0	80.0	08	6	8	6	-	4	-	-	34.82	22.22
731	2245	22	15 54N	162 46E	2320	28.5	05	14	82.0	80.0	08	6	8	6	-	4	-	-	34.66	22.00
732	0045	23	15 57N	163 14E	1720	28.2	08	14	82.0	78.0	08	2	8	6	-	4	-	-	34.82	22.22
733	0245	23	16 02N	163 39E	2945	28.2	09	12	82.0	79.0	08	8	8	9	-	4	-	-	34.85	22.24
734	0445	23	16 05N	164 07E	1685	28.3	09	12	81.0	78.0	08	2	3	7	-	4	-	-	34.80	22.17
735	0645	23	16 07N	164 35E	2875	28.3	11	12	82.0	79.0	09	2	8	7	-	4	-	-	34.76	22.14
736	0845	23	16 09N	165 03E	2960	28.3	13	12	80.0	78.0	10	2	8	7	-	4	-	-	34.86	22.21
737	1030	23	16 09N	165 23E	3015	28.1	12	10	80.0	78.0	11	2	6	8	-	4	-	-	34.84	22.26
738	1245	23	16 14N	165 49E	2965	28.0	10	10	80.0	78.0	10	2	8	6	-	4	-	-	34.80	22.27
739	1545	23	16 20N	166 30E	3010	27.8	11	12	80.0	77.0	09	2	6	6	-	4	-	-	34.83	22.36
740	1745	23	16 25N	166 57E	2600	28.1	11	10	80.0	77.0	08	2	9	6	-	4	-	-	34.77	22.21
741	1930	23	16 28N	167 13E	0670	27.8	10	06	82.0	78.0	09	2	8	6	-	4	-	-	34.77	22.31

VESSEL		PIONEER		YEAR	TIME ZONE	CRUISE	OPR 394 and OPR 442		SHEET NO.									
		MONTH	July	1964	--				45									
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		DEPTH (Fathoms)	SEA SURFACE TEMP. (Buckets)	WIND		AIR TEMP.		BAROM. (M/S)	WEA. THER. (Tab. 2)	CLOUDS		VIS. (Tab. 6)	SEA (Tab. 7)	SWELL		SALINITY	SIGMA - t
	HOUR	DATE			LATITUDE	LONGITUDE	DIR. (Tab. 1)	SPEED (Knots)			DRY BULB	WET BULB			TYPE (Tab. 4)	AMT. (Tab. 5)		
742	2145	23	16° 34' N	167° 30' E	10	06	82.0	78.0	09	2	8	6	4	-	-	34.82	22.31	
743	2345	23	16° 37' N	167° 59' E	10	04	82	78.0	09	2	8	6	4	-	-	34.82	22.22	
744	0145	24	16° 39' N	168° 28' E	11	08	84.0	79.0	08	8	8	8	4	-	-	34.86	22.18	
745	0345	24	16° 42' N	168° 58' E	11	08	82.0	78.0	09	8	7	9	4	-	-	34.60	22.12	
746	0545	24	16° 44' N	169° 27' E	13	14	80.0	78.0	09	6	6	8	4	-	-	34.12	21.85	
747	0745	24	16° 46' N	169° 57' E	11	10	77.0	75.0	11	6	6	8	3	-	-	34.67	22.23	
748	0930	24	16° 48' N	170° 23' E	11	08	78.0	76.0	11	2	6	8	3	-	-	34.82	22.35	
749	1145	24	16° 51' N	170° 49' E	10	08	78.0	76.0	11	2	6	8	4	-	-	34.93	22.49	
750	1345	24	16° 54' N	171° 18' E	10	10	79.0	76.0	07	1	8	4	4	-	-	34.93	22.52	
751	1545	23	16° 58' N	171° 47' E	10	08	79.0	76.0	07	1	3	5	4	-	-	34.93	22.56	
752	1745	24	17° 00' N	172° 17' E	06	14	78.0	76.0	08	8	7	8	3	-	-	34.96	22.52	
753	1930	24	17° 02' N	172° 28' E	07	10	77.0	75.0	12	2	6	8	3	-	-	34.79	22.45	
754	2145	24	17° 16' N	172° 46' E	05	10	80.0	78.0	12	2	6	8	3	-	-	34.90	22.47	
755	2345	24	17° 20' N	173° 14' E	08	10	80.0	78.0	12	2	6	8	3	-	-	34.81	22.40	
756	0145	25	17° 24' N	173° 44' E	08	08	82.0	78.0	10	2	3	8	3	-	-	34.88	22.39	
757	0745	25	17° 34' N	175° 11' E	07	14	79.0	76.0	10	2	-	-	3	-	-	34.73	22.34	



VESSEL	PIONEER			YEAR	TIME ZONE	CRUISE	OPR 394 and OPR 442		SHEET NO									
	CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME	MONTH				JULY	1964	---	OPR 394 and OPR 442	46							
											LATITUDE	LONGITUDE	SALINITY	SIGMA - t				
HOUR	DATE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND DIR. (Tab. 1)(Knots)	WIND SPEED (Knots)	DRY BULB	WET BULB	BAROM. (MBS) (Tab. 2)(Tab. 3)	WEA. THER. (Tab. 4)	CLOUDS TYPE (Tab. 4) AMT. (Tab. 5)	VIS (Tab. 6)	SEA DIR. (Tab. 7)	SWELL DIR. (Tab. 1)	AMT. (Tab. 8)				
758	0930	25	17 37N 175 37E	1985	27.7	07	10	79.0	76.0	10	2	-	-	3	-	-	34.82	22.38
759	1145	25	17 39N 175 55E	2320	27.6	07	08	79.0	76.0	10	2	6	8	3	-	-	34.83	22.42
760	1445	25	17 44N 176 39E	2380	27.5	11	10	80.0	76.0	11	1	8	3	3	-	-	34.92	22.52
761	1645	25	17 47N 177 08E	2265	27.6	06	12	80.0	76.0	10	2	8	8	3	-	-	34.83	22.42
762	1830	25	17 49N 177 27E	2450	27.5	06	07	77.0	76.0	10	2	8	8	3	-	-	34.79	22.42
763	2045	25	17 55N 177 44E	2430	27.6	06	10	80.0	76.0	10	2	6	8	3	-	-	34.85	22.43
764	2245	25	18 00N 178 12E	0875	--	05	08	80.0	76.0	10	2	6	8	3	-	-	34.92	22.49
765	0045	26	18 04N 178 41E	2230	27.8	10	10	84.0	77.0	10	2	-	7	4	-	-	34.86	22.38
766	0245	26	18 08N 179 10E	2555	27.8	10	10	83.0	78.0	10	2	-	8	4	-	-	34.84	22.36
767	0445	26	18 14N 179 38E	2365	28.0	12	10	83.0	77.0	11	2	8	6	4	-	-	34.82	22.28
768	0645	26	18 18N 179 52W	2400	27.8	12	10	83.0	77.0	11	2	8	6	4	-	-	34.80	22.34
769	0830	26	18 20N 179 27W	0875	27.7	10	10	82.0	78.0	11	2	8	6	4	-	-	34.80	22.34
770	1045	26	18 28N 179 01W	1020	27.7	12	08	80.0	76.0	13	2	8	6	4	-	-	34.81	22.34
771	1245	26	18 32N 178 32W	2120	27.8	11	10	79.0	77.0	11	1	8	4	4	-	-	34.76	22.30
772	1445	26	18 35N 178 03W	2580	27.7	11	12	78.0	76.0	11	8	7	9	4	-	-	34.76	22.33
773	1645	26	18 38N 177 36W	2615	27.5	12	12	77.0	75.0	12	2	6	8	4	-	-	34.32	22.07

VESSEL		PIONEER		MONTH	YEAR	TIME ZONE	CRUISE	OPR 394 and OPR 442										SHEET NO.		
		July		1964	--											47				
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		DEPTH (Fathoms)	SEA SURFACE TEMP. (Buckets)	WIND DIR. (Tab. 1)	WIND SPEED (knots)	AIR TEMP.		BAROM. (MBS) (Tab. 2)	WEATHER (Tab. 3)	CLOUDS		SEA DIR. (Tab. 7)	SWELL DIR. (Tab. 8)	SALINITY	SIGMA - t				
	HOUR	DATE					LONGITUDE	DRY BULB			WET BULB	TYPE (Tab. 4)					AMT. (Tab. 5)	AMT. (Tab. 6)		
774	1830	26	18 39N	177 20W	2635	27.3	12	12	77.0	75.0	12	2	2	6	7	4	-	-	34.70	22.38
775	2045	26	18 42N	176 59W	2640	27.6	12	10	80.0	76.0	12	2	2	6	8	4	-	-	34.78	22.38
776	2245	26	18 45N	176 30W	2655	27.7	10	12	82.0	76.0	13	2	2	6	8	4	-	-	34.81	22.34
777	0045	27	18 48N	176 00W	2710	27.7	11	12	84.0	78.0	12	2	2	2	6	4	-	-	34.97	22.49
778	0245	27	18 52N	175 31W	2590	27.8	11	10	83.0	77.0	12	2	2	2	8	4	-	-	35.02	22.50
779	0445	27	18 55N	175 00W	1325	27.9	06	10	81.0	77.0	12	2	2	8	6	4	-	-	35.20	22.60
780	0645	27	18 58N	174 31W	2630	27.6	06	10	82.0	77.0	12	2	2	8	8	4	-	-	34.82	22.41
781	0830	27	19 08N	174 04W	2310	27.6	10	08	82.0	76.0	13	2	2	6	8	4	-	-	34.83	22.42
782	1045	27	19 11N	173 37W	1225	27.4	12	10	82.0	76.0	13	2	2	6	8	4	-	-	34.82	22.48
783	1345	27	19 16N	172 52W	1550	27.3	10	10	79.0	75.0	13	1	1	2	4	3	-	-	34.82	22.51
784	1545	27	19 20N	172 22W	1845	27.3	09	10	80.0	76.0	12	1	1	-	-	3	-	-	34.83	22.52
785	1745	27	19 23N	171 56W	1940	27.2	12	10	79.0	77.0	13	2	2	6	8	4	-	-	34.89	22.59
786	1945	27	19 27N	171 47W	2115	27.4	12	10	80.0	78.0	13	2	2	6	8	4	-	-	34.88	22.52
787	2145	27	19 30N	171 20W	1295	27.3	-	-	-	-	-	-	-	-	-	-	-	-	34.97	22.62
788	2345	27	19 32N	171 01W	1415	27.2	09	08	80.0	75.0	13	1	1	-	2	3	-	-	35.05	22.71
789	0145	28	19 33N	170 43W	0870	27.6	09	06	80.0	76.0	12	1	1	8	3	3	-	-	34.95	22.51

VESSEL		PIONEER		MONTH	YEAR	TIME ZONE	CRUISE		OPR 394 and OPR 442				SHEET NO.						
				July	1964	--							48						
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Buckets)	WIND		AIR TEMP.		BAROM. (W.S.) (Tab. 2)	WEA. THER. (Tab. 3)	CLOUDS		VIS. SEA (Tab. 6)	SWELL DIR. (Tab. 7)	SALINITY	SIGMA - t	
	HOUR	DATE					DIR. (Tab. 1)	SPEED (Knots)	DRY BULB	WET BULB			TYPE (Tab. 4)	AMT. (Tab. 5)					DIR. (Tab. 8)
790	0345	28	19° 35' N	170° 23' W	2640	27.7	06	10	79.0	75.0	12	1	2	5	-	3	-	35.03	22.54
791	0545	28	19° 38' N	169° 52' W	2655	27.6	06	11	78.0	76.0	12	1	2	4	-	3	-	34.88	22.46
792	0730	28	19° 40' N	169° 33' W	2700	27.4	06	11	78.0	76.0	12	1	2	4	-	3	-	34.96	22.58
793	0945	28	19° 44' N	168° 59' W	2725	--	06	10	78.0	76.0	13	2	2	4	-	3	-	34.88	22.52
794	1145	28	19° 47' N	168° 29' W	2715	27.1	11	10	78.0	75.0	13	1	8	1	-	3	-	34.76	22.53
795	1345	28	19° 51' N	167° 58' W	2380	26.8	09	10	78.0	75.0	12	1	8	2	-	3	-	34.76	22.62
796	1545	28	19° 54' N	167° 28' W	2235	27.0	10	14	78.0	74.0	13	2	2	5	-	3	-	34.71	22.52
797	1745	28	19° 56' N	167° 08' W	2810	26.9	10	12	80.0	76.0	13	2	2	5	-	3	-	34.74	22.58
798	1945	28	20° 04' N	166° 55' W	2790	27.1	10	12	80.0	76.0	13	2	2	5	-	3	-	34.77	22.53
799	2145	28	20° 06' N	166° 35' W	2620	27.1	10	08	80.0	76.0	13	2	2	5	-	3	-	34.77	22.53
800	2345	28	20° 09' N	166° 15' W	2775	27.3	10	08	81.0	75.0	13	1	8	2	-	3	-	34.84	22.52
801	0145	29	20° 13' N	165° 55' W	2770	27.4	09	10	81.0	75.0	12	1	8	3	-	3	-	34.83	22.48
802	0345	29	20° 15' N	165° 34' W	2660	27.3	09	20	81.0	76.0	12	2	2	6	-	4	-	34.83	22.52
803	0545	29	20° 17' N	165° 11' W	2725	27.1	08	18	80.0	75.0	13	2	8	5	-	4	-	34.87	22.61
804	0745	29	20° 20' N	146° 46' W	2710	27.0	08	15	79.0	76.0	13	2	6	8	-	4	-	34.86	22.63
805	0945	29	20° 21' N	164° 22' W	2690	27.0	08	14	78.0	74.0	13	2	6	8	-	3	-	34.87	22.64

VESSEL		PIONEER		MONTH		YEAR		TIME ZONE		CRUISE		OPR 394 and OPR 442		SHEET NO.			
				July		1964		--		OPR 394 and OPR 442				49			
				August													
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Buckets)	WIND		AIR TEMP.	WEA. THER. (MBS) (Tab. 2)	CLOUDS	V.S. SEA (Tab. 6)	SWELL		SALINITY	SIGMA - t	
	DATE	HOUR					DIR. (Tab. 1)	SPEED (Knots)					DRY BULB	WET BULB			DIR. (Tab. 1)
806	1245	29	20 29N	163 42W	2650	26.9	11	12	77.0	74.0	14	1	8	2	-	34.89	22.69
807	1445	29	20 33N	163 12W	2560	26.5	08	14	77.0	73.0	14	2	8	5	-	34.91	22.83
808	1645	29	20 35N	162 43W	2660	26.7	08	14	77.0	76.0	15	2	8	5	-	34.90	22.76
809	1845	29	20 36N	162 28W	2550	26.7	08	14	77.0	74.0	16	2	6	8	-	34.92	22.77
810	2045	29	20 40N	162 03W	2640	26.5	08	14	80.0	76.0	16	2	6	8	-	34.91	22.83
811	2245	29	20 44N	161 35W	2610	26.4	09	12	82.0	75.0	15	1	8	4	-	35.14	23.03
812	0045	30	20 49N	161 06W	2595	26.4	08	10	82.0	75.0	14	1	8	3	-	35.04	22.96
813	0245	30	20 54N	160 39W	2580	26.7	06	16	79.0	75.0	14	1	1	4	-	34.88	22.74
814	0445	30	21 01N	160 22W	2560	26.4	06	18	79.0	75.0	14	2	8	7	-	34.82	22.79
815	0645	30	21 01N	160 00W	2570	26.4	06	18	79.0	74.0	14	2	8	7	-	34.87	22.83
816	0845	30	21 03N	159 33W	2520	26.4	06	20	79.0	74.0	14	2	6	8	-	34.90	22.85
817	1045	30	21 47N	159 04W	2515	26.4	11	10	77.0	73.0	15	2	6	9	-	34.90	22.85
818	1245	30	21 11N	158 35W	2165	26.2	11	08	79.0	73.0	13	2	2	9	-	34.94	22.95
819	2045	04	21 46N	157 13W	2085	25.3	08	14	79.0	73.0	17	1	8	3	-	35.14	23.38
820	2255	04	22 03N	156 49W	2650	25.3	08	14	80.0	74.0	17	1	8	3	-	35.10	23.35
821	0045	05	22 17N	156 25W	2605	25.4	08	14	80.0	74.0	13	1	8	3	-	35.16	23.36

VESSEL		PIONEER		MONTH		YEAR		TIME ZONE		CRUISE		OPR 394 and OPR 442		SHEET NO.						
		August		August		1964		--						50						
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND		AIR TEMP.		BAROM. (MBS) (Tab. 2)	WEA. (Tab. 3)	CLOUDS		VIS. (Tab. 6)	SEA (Tab. 7)	SWELL		SALINITY	SIGMA - t
	HOUR	DATE					DIR. (Tab. 1)	SPEED (knots)	DRY BULB	WET BULB			TYPE (Tab. 4)	AMT. (Tab. 5)			DIR.	AMT. (Tab. 8)		
822	0245	05	22 31N	156 09W	2365	25.6	10	18	80.0	73.0	16	2	4	5	-	4	-	-	35.19	23.32
823	0445	05	22 45N	155 43W	2355	25.4	10	18	78.0	72.0	16	2	4	5	-	4	-	-	35.19	23.38
824	0645	05	22 58N	155 18W	2320	25.3	10	16	77.0	73.0	17	1	8	3	-	4	-	-	35.13	23.37
825	0845	05	23 15N	154 50W	2355	25.3	10	16	76.0	72.0	17	1	8	3	-	3	-	-	34.82	23.14
826	1055	05	23 30N	154 20E	2390	25.3	10	14	74.0	72.0	17	2	8	3	-	4	-	-	34.67	23.02
827	1245	05	23 43N	153 54W	2470	24.9	10	16	74.0	70.0	17	2	8	3	-	4	-	-	34.93	23.34
828	1445	05	23 55N	153 38W	2670	25.0	09	10	74.0	70.0	16	2	-	-	-	3	-	-	34.99	23.36
829	1645	05	24 09N	153 12W	2815	24.6	09	10	75.0	70.0	17	2	8	5	-	3	-	-	35.10	23.56
830	1845	05	24 24N	152 42W	2905	24.3	09	10	76.0	72.0	18	1	8	6	-	3	-	-	35.32	23.82
831	2045	05	24 37N	152 16W	2895	24.6	09	10	79.0	73.0	18	1	8	5	-	3	-	-	35.28	23.69
832	2255	05	24 53N	151 52W	2910	24.8	06	08	80.0	72.0	18	2	8	3	-	3	-	-	35.39	23.72
833	0045	06	25 07N	151 27W	2975	24.9	-	-	--	--	-	-	-	-	-	-	-	-	35.17	23.52
834	0245	06	25 20N	150 58W	2965	24.9	11	10	78.0	72.0	17	2	2	5	-	3	-	-	35.19	23.54
835	0445	06	25 32N	150 28W	3085	24.8	11	10	76.0	71.0	17	2	2	5	-	3	-	-	35.18	23.56
836	0645	06	25 44N	149 58W	2880	24.8	07	10	75.0	71.0	18	1	2	3	-	3	-	-	35.32	23.66
837	0845	06	25 56N	149 31W	2960	24.8	07	10	75.0	71.0	18	2	2	8	-	3	-	-	35.10	23.50

VESSEL		PIONEER		YEAR	MONTH	TIME ZONE	CRUISE	OPR 394 and OPR 442		SHEET NO.									
		August		1964	August	--		OPR 394 and OPR 442		51									
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND		BAROM. (MBS) (Tab. 2)	WEA. THER. (Tab. 3)	CLOUDS		VIS. (Tab. 6)	SEA (Tab. 6)	SWELL		SALINITY	SIGMA - t	
	HOUR	DATE					DIR. (Tab. 1)	SPEED (Knots)			DRY BULB	WET BULB			TYPE (Tab. 4)	AMT. (Tab. 5)			DIR. (Tab. 1)
838	1145	06	26 11N	148 54W	2885	23.9	07 08	70.0	70.0	18	1	2	8	-	3	-	-	35.48	24.05
839	1345	06	26 24N	148 24W	2895	23.8	09 10	72.0	70.0	18	2	-	-	-	3	-	-	35.48	24.08
840	1545	06	26 38N	147 55W	2875	23.9	09 10	73.0	70.0	19	2	8	6	-	3	-	-	35.44	24.02
841	1745	06	26 50N	147 22W	2885	23.9	07 08	74.0	71.0	20	8	6	8	-	3	-	-	35.33	23.94
842	1945	06	27 03N	146 55W	2885	24.1	09 08	77.0	72.0	20	2	6	5	-	3	-	-	35.32	23.88
843	2145	06	27 16N	146 24W	2220	24.1	08 08	78.0	72.0	19	2	6	5	-	3	-	-	35.37	23.91
844	2345	06	27 29N	146 12W	2765	24.1	08 08	80.0	72.0	19	2	6	5	-	3	-	-	35.47	23.99
845	0145	07	27 39N	145 41W	2780	24.0	10 08	78.0	70.0	19	1	2	2	-	3	-	-	35.50	24.04
846	0345	07	27 49N	145 10W	2645	24.3	10 08	77.0	69.0	19	2	8	4	-	3	-	-	35.32	23.82
847	0545	07	27 59N	144 39W	2670	24.1	07 08	75.0	70.0	20	2	2	8	-	3	-	-	35.51	24.02
848	0745	07	28 13N	144 09W	-	23.8	05 08	72.0	71.0	21	1	2	4	-	3	-	-	35.33	23.97
849	0945	07	28 24N	143 37W	2610	24.1	05 08	72.0	70.0	21	1	2	4	-	3	-	-	35.46	23.98
850	1145	07	28 37N	143 07W	2680	22.9	05 08	72.0	70.0	21	1	2	5	-	3	-	-	35.40	24.29
851	1345	07	28 50N	142 37W	2705	23.7	13 06	72.0	67.0	21	2	-	-	-	3	-	-	35.20	23.90
852	1545	07	29 04N	142 07W	2715	23.2	14 06	72.0	70.0	21	2	8	6	-	3	-	-	35.46	24.24
853	1745	07	29 17N	141 48E	2760	23.2	04 08	74.0	69.0	21	2	6	8	-	3	-	-	35.43	24.22

VESSEL		PIONEER		MONTH		YEAR		TIME ZONE		CRUISE		OPR 394 and OPR 442		SHEET NO.					
		August		1964		--		--		OPR 394 and OPR 442		52							
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Bucket)	WIND		AIR TEMP.	WET BULB	BAROM. (MBS) (Tab. 2)	WEA. THER. (Tab. 3)	CLOUDS		VIS. SEA (Tab. 6)	SWELL DIR. (Tab. 7)	SALINITY	SIGMA - t	
	DATE	HOUR					DIR. (Tab. 1)	SPEED (Knots)					DRY BULB	TYPE (Tab. 4)					AMT. (Tab. 5)
854	1945	07	29 28N	141 19E	2720	24.1	05 08	76.0	71.0	21	2	2	6	5	-	3	-	35.40	23.94
855	2145	07	29 37N	140 46W	2710	23.2	05 08	78.0	70.0	21	2	2	6	5	-	3	-	35.48	24.26
856	2345	07	29 48N	140 14W	2685	23.8	05 08	78.0	68.0	21	2	2	6	5	-	3	-	35.40	24.02
857	0145	08	30 03N	139 48W	2550	23.1	09 06	73.5	66.0	21	1	1	1	4	-	3	-	35.47	24.28
858	0345	08	30 14N	139 17W	2410	22.8	03 06	72.5	65.5	21	2	2	2	5	-	3	-	35.15	24.12
859	0545	08	30 27N	138 46W	2155	22.9	05 08	71.0	63.5	21	1	1	8	3	-	3	-	34.97	23.96
860	0745	08	30 38N	138 21W	2595	22.3	06 08	70.2	64.0	21	1	1	8	2	-	3	-	35.10	24.23
861	1045	08	30 56N	137 36W	2500	22.3	06 08	72.0	64.0	20	1	1	8	2	-	3	-	34.96	24.12
862	1245	08	31 09N	137 05W	2340	21.8	01 06	72.5	65.5	21	2	2	-	-	-	3	-	34.55	23.95
863	1445	08	31 21N	136 34W	2395	21.4	13 08	71.0	65.5	21	2	2	8	6	-	3	-	34.44	23.98
864	1645	08	31 28N	136 09W	2660	21.4	06 08	73.0	66.0	21	1	1	8	5	-	3	-	34.39	23.94
865	1845	08	31 41N	135 42E	2475	21.7	10 04	74.8	64.8	21	1	1	3	5	-	3	-	34.50	23.94
866	2045	08	31 54N	135 13W	2680	22.9	08 06	72.0	64.0	21	2	2	5	8	-	3	-	34.20	23.38
867	2245	08	32 09N	134 44W	2665	22.9	08 06	72.0	64.0	21	2	2	5	8	-	3	-	34.28	23.44
868	0045	09	32 21N	134 14W	2645	23.4	-	74.2	66.2	20	2	2	2	7	-	3	-	34.32	23.32
869	0245	09	32 33N	133 43W	2465	22.5	02 06	72.1	65.5	19	2	2	2	7	-	3	-	34.03	23.36

VESSEL	PIONEER		YEAR		TIME ZONE		CRUISE		OPR 394 and OPR 442		SHEET NO.							
	MONTH		1964		--		--		OPR 394 and OPR 442		53							
	August		August		--		--		OPR 394 and OPR 442		53							
CONSEC. SLIDE NUMBER	GREENWICH MEAN TIME		LATITUDE	LONGITUDE	DEPTH (Fathoms)	SEA SURFACE TEMP. (Buckets)	WIND		AIR TEMP.		BAROM. WEA. (MBS)	CLOUDS	VIS. SEA (Tab. 6)	SWELL		SIGMA - t		
	DATE	HOUR					DIR. (Tab. 1)	SPEED (Knots)	DRY BULB	WET BULB				TYPE (Tab. 4)	AMT. (Tab. 5)		DIR. (Tab. 7)	AMT. (Tab. 8)
870	0645	09	32 56N	132 41W	2155	21.8	05	08	69.9	64.8	21	2	3	9	-	3	34.00	23.54
871	0845	09	33 08N	132 10W	2735	21.7	05	08	69.9	64.8	21	2	3	9	-	3	33.99	23.56
872	1045	09	33 19N	131 40W	2715	21.2	-	-	-	-	-	-	-	-	-	-	33.89	23.62
873	1245	09	33 31N	131 10W	2685	21.0	32	06	69.8	65.0	20	2	-	-	-	3	33.81	23.61
874	1845	09	34 08N	129 42W	2390	20.4	05	08	69.4	62.2	20	1	3	3	-	3	33.32	23.40
875	2045	09	34 20N	129 12W	2700	19.6	05	08	69.0	60.0	20	2	5	8	-	3	33.10	23.44
876	2245	09	34 28N	128 49W	2605	19.5	05	08	69.0	62.0	20	2	5	8	-	3	33.33	23.67
877	0245	10	34 48N	127 49W	2620	18.8	36	15	67.0	62.0	18	2	8	7	-	3	33.08	23.63
878	0445	10	35 02N	127 23W	2705	18.6	35	18	64.5	61.4	18	2	6	9	-	3	32.84	23.49
879	0645	10	35 12N	126 55W	2455	18.3	35	18	63.9	54.8	17	2	6	8	-	3	32.62	23.41
880	0945	10	35 31N	126 08W	2560	16.9	35	18	64.0	56.0	17	2	6	8	-	3	32.65	23.76
881	1145	10	35 43N	125 37W	2530	16.7	33	16	69.5	64.0	15	2	-	-	-	-	32.97	24.05
882	1345	10	35 55N	125 05W	2440	17.0	35	18	65.1	59.8	15	2	8	8	-	4	32.70	23.77
883	1545	10	36 06N	124 34W	2285	16.4	35	16	62.2	59.4	15	2	6	9	-	3	32.73	23.94
884	1745	10	36 18N	124 02W	-	16.6	34	14	63.5	60.0	15	2	6	9	-	3	32.70	23.87
885	1945	10	36 30N	123 33W	2020	16.9	10	14	64.0	60.0	15	2	6	8	-	3	32.93	23.97



# Bottom Sampling Data

One hundred and four dredge, core, and grab samples were obtained during the expedition. This section lists the bottom samples by both serial and sample number, gives the location of the samples, and provides a field description of each. Unsuccessful attempts (failure to obtain a sample) are not listed.

Laboratory analyses of portions of many samples have been undertaken by Mr. George Keller of the U.S. Naval Oceanographic Office, Suitland, Md., and by Mr. K. Rodolfo, Geology Department, University of Southern California, Los Angeles. Mr. Keller's principal interest is the Strait of Malacca and Mr. Rodolfo's is the Andaman Sea.

## Bottom Sample Locations

<i>Serial No.</i>	<i>Sample No.</i>	<i>Latitude</i>	<i>Longitude</i>
306	Dredge 1	10 46.4 N	117 44.6 E
307	Dredge 2	10 49.4 N	117 51.3 E
339	Core 1	06 59.0 N	115 16.6 E
358	Core 2	01 55.7 N	101 50.0 E
359	Core 3	01 54.9 N	101 50.2 E
360	Grab 1	01 51.4 N	101 51.3 E
361	Grab 2	01 46.7 N	101 51.9 E
362	Grab 3	01 41.8 N	101 52.4 E
364	Core 4	02 13.7 N	101 35.8 E
365	Core 5	02 13.9 N	101 36.7 E
366	Grab 4	02 14.1 N	101 36.9 E
368	Grab 5	02 18.1 N	101 42.2 E
371	Grab 6	02 48.0 N	100 27.0 E
372	Core 6	02 48.3 N	100 26.7 E
373	Core 7	02 30.8 N	100 28.7 E
381	Core 8	03 15.5 N	101 10.4 E
382	Grab 7	03 15.6 N	101 10.2 E
383	Grab 8	03 19.2 N	101 06.4 E
384	Grab 9	03 25.7 N	100 59.4 E
385	Grab 10	03 28.4 N	100 56.3 E
386	Grab 11	03 36.7 N	100 49.0 E
387	Grab 12	03 46.3 N	100 40.8 E
388	Grab 13	04 09.5 N	100 29.1 E
390	Grab 14	04 09.5 N	100 22.4 E
393	Grab 15	04 09.2 N	99 52.1 E
394	Core 10	04 09.4 N	99 52.3 E
396	Grab 16	04 01.1 N	99 24.1 E
398	Grab 17	04 29.9 N	99 54.3 E
400	Grab 18	04 52.2 N	100 14.6 E
401	Core 12	04 52.5 N	100 14.5 E

## Bottom Sample Locations—Continued

<i>Serial No.</i>	<i>Sample No.</i>	<i>Latitude</i>	<i>Longitude</i>
404	Grab 19	04 42.9 N	99 09.3 E
410	Grab 20	05 46.4 N	98 13.7 E
411	Core 14	05 46.5 N	98 13.3 E
416	Grab 21	05 31.7 N	99 14.9 E
417	Core 15	05 31.2 N	99 14.3 E
422	Grab 22	05 48.6 N	97 28.8 E
423	Grab 23	05 48.6 N	97 28.8 E
424	Grab 24	05 48.0 N	97 28.0 E
429	Core 16	05 44.5 N	96 31.3 E
440	Dredge 3	06 14.0 N	94 59.5 E
472	Core 17	05 52.5 N	92 33.0 E
497	Dredge 4	06 44.8 N	98 09.9 E
505	Core 18	05 46.6 N	97 00.7 E
507	Dredge 5	05 46.5 N	97 31.4 E
521	Grab 25	05 25.5 N	100 21.3 E
540	Dredge 6	08 50.4 N	94 31.4 E
575	Core 19	09 21.3 N	93 56.2 E
582	Dredge 8	08 57.0 N	93 33.0 E
589	Grab 26	09 21.0 N	92 44.8 E
590	Dredge 9	09 24.2 N	92 34.6 E
625	Core 20	10 09.4 N	91 06.9 E
628	Dredge 10	10 07.6 N	91 37.9 E
630	Core 21	10 09.8 N	92 27.0 E
637	Core 22	10 02.6 N	93 12.3 E
681	Core 23	09 54.1 N	93 44.7 E
690	Dredge 11	10 01.8 N	96 23.1 E
709	Core 24	10 58.7 N	93 42.0 E
710	Dredge 12	11 12.9 N	93 34.7 E
717	Core 25	09 47.6 N	93 55.7 E
737	Dredge 13	11 50.7 N	93 33.0 E
766	Core 26	12 48.6 N	93 57.3 E
772	Dredge 14	12 50.4 N	94 44.4 E
821	Grab 27	20 55.8 N	88 36.0 E
822	Grab 28	20 55.8 N	88 25.9 E
823	Grab 29	20 54.0 N	88 14.3 E
826	Grab 30	21 12.8 N	89 27.2 E
827	Core 27	21 12.8 N	89 27.2 E
829	Core 28	21 13.8 N	89 29.0 E
830	Dredge 15	21 13.1 N	89 22.8 E
858	Dredge 16	19 15.3 N	89 04.9 E
859	Core 29	19 17.1 N	89 10.2 E
860	Core 30	19 21.7 N	89 17.1 E
970	Dredge 17	08 44.0 N	81 22.6 E
971	Core 31	08 50.5 N	81 22.6 E
972	Core 32	08 51.7 N	81 24.8 E
979	Dredge 19	08 29.7 N	81 31.3 E
3791	Core 33	05 53.1 S	101 10.8 E
3815	Grab 31	06 11.0 S	104 56.2 E
3816	Grab 32	06 11.0 S	104 56.2 E

## Bottom Sample Locations—Continued

<i>Serial No.</i>	<i>Sample No.</i>	<i>Latitude</i>	<i>Longitude</i>
3817	Grab 33	06 15.9 S	104 50.1 E
3891	Grab 35	08 46.9 S	115 42.4 E
3892	Grab 36	08 42.2 S	115 41.9 E
3893	Grab 37	08 42.2 S	115 41.9 E
3906	Grab 38	08 37.9 S	115 36.8 E
3907	Grab 39	08 30.7 S	115 45.3 E
3921	Grab 40	08 31.2 S	115 43.7 E
3922	Grab 41	08 23.7 S	115 49.1 E
3146	Core 35	05 24.7 N	127 46.8 E
3181	Dredge 21	07 35.5 N	134 26.2 E
3182	Dredge 22	07 39.3 N	134 26.8 E
3200	Dredge 23	07 37.6 N	134 44.3 E
3202	Dredge 25	07 41.9 N	134 41.7 E
3229	Core 36	11 16.0 N	141 58.5 E
3239	Grab 42	13 14.8 N	144 29.9 E
3240	Grab 43	13 13.0 N	144 27.9 E
3241	Grab 44	13 13.6 N	144 26.6 E
3242	Grab 45	13 13.6 N	144 26.6 E
3243	Grab 46	13 13.6 N	144 26.6 E
3244	Grab 47	13 13.2 N	144 26.7 E
3246	Grab 48	13 14.6 N	144 26.8 E
3247	Dredge 26	13 39.0 N	144 25.3 E
3248	Dredge 27	13 39.1 N	144 25.6 E
3251	Core 37	13 32.4 N	144 33.4 E
3252	Dredge 28	13 17.1 N	144 37.2 E

Volume 1, Cruise Narrative and Scientific Results, contains the results of the following laboratory examinations: (1) Megascopic analysis of core 33 from the northern slope of the Java Trench, core 35 from the flank of the Mindanao Trench, and core 36 from an estimated depth of 5,700 fms in the Mariana Trench; and, (2) results of heavy-mineral separations and mineral-content analyses for 22 sediment samples from the Strait of Malacca.

### Bottom Sample Field Descriptions

VESSEL PIONEER		DATE March 17, 1964	DEPTH 7	FMS.
CORE NO. -	LATITUDE	LONGITUDE		
DREDGE NO. - 1	10° 46.4' N	117° 44.6' E		
GRAB NO. -				
SERIAL NO. 306	POSITION NO. 32 B			
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Chain Bag Dredge	300 lbs.	- - ft. - in.		

**FIELD DESCRIPTION:**

2" fragments of hard and soft coral.

VESSEL PIONEER		DATE March 17, 1964	DEPTH 435	FMS.
CORE NO. -	LATITUDE	LONGITUDE		
DREDGE NO. - 2	10° 49.4' N	117° 51.3' E		
GRAB NO. -				
SERIAL NO. 307	POSITION NO. 38 B			
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Chain Bag Dredge	300 lbs.	- - ft. - in.		

**FIELD DESCRIPTION:**

Dredge badly damaged. Recovered 10" chunk of dioritic or grano dioritic rock cooled with  $\frac{1}{2}$ " MnO<sub>2</sub>. 6" chunk of fossiliferous buff white limestone with 3" x 3/8" pholad boring.

VESSEL PIONEER		DATE March 18, 1964	DEPTH 670	FMS.
CORE NO. - 1	LATITUDE	LONGITUDE		
DREDGE NO. -	06° 59.0' N	115° 16.6' E		
GRAB NO. -				
SERIAL NO. 339	POSITION NO. 73 B			
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Hydroplastic Corer	200 lbs.	20 ft. 0 in.		

**FIELD DESCRIPTION:**

1 1/4" of trigger core. Top 1/2" brownish; rest 10 Y 5/2 (light olive) clay with sand grains. Approximately 400 grams sediment in core catcher. Piston used.

VESSEL PIONEER		DATE March 28, 1964	DEPTH 18	FMS.
CORE NO. - 2	LATITUDE	LONGITUDE		
DREDGE NO. -	01° 55.7' N	101° 50.0' E		
GRAB NO. -				
SERIAL NO. 358	POSITION NO. 105 D			
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Phleger Corer	90 lbs.	9 ft. 0 in.		

**FIELD DESCRIPTION:**

1/4 ft. barrel smeared; clayey sand mod. yel-grn 5 GY 6/2. Core catcher silty clay, very stiff: med grn-gry 5 GY 5/1.

VESSEL PIONEER		DATE March 28, 1964		DEPTH 18	FMS.
CORE NO. - 3	LATITUDE		LONGITUDE		
DREDGE NO. -	01° 54.9' N		101° 50.2' E		
GRAB NO. -					
SERIAL NO. 359		POSITION NO. 106 D			
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Phleger Corer		90 lbs.		9 ft. 0 in.	

FIELD DESCRIPTION:

Barrel smear 3'. Recovered 7½" silty clay, grnsh-gray 5 G 4/1.

VESSEL PIONEER		DATE March 28, 1964		DEPTH 28	FMS.
CORE NO. -	LATITUDE		LONGITUDE		
DREDGE NO. -	01° 51.4' N		101° 51.3' E		
GRAB NO. - 1					
SERIAL NO. 360		POSITION NO. 107 D			
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Shipek Grab		155 lbs.		- - ft. - in.	

FIELD DESCRIPTION:

Stiff slightly sandy clay; moderate yellow brown 5 GY 6/2.

VESSEL PIONEER		DATE March 28, 1964	DEPTH 24	FMS.
CORE NO. -	LATITUDE	LONGITUDE		
DREDGE NO. -	01° 46.7' N	101° 51.9' E		
GRAB NO. - 2				
SERIAL NO. 361	POSITION NO. 109 D			
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Shipek Grab	155 lbs.	- - ft. - in.		

FIELD DESCRIPTION:

Stiff clay, sand grains -5 GY 4/2; numerous puritized wood bark and stems; 1 live bryozoan

VESSEL PIONEER		DATE March 28, 1964	DEPTH 12	FMS.
CORE NO. -	LATITUDE	LONGITUDE		
DREDGE NO. -	01° 41.8' N	101° 52.4' E		
GRAB NO. - 3				
SERIAL NO. 362	POSITION NO. 111 D			
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Shipek Grab	155 lbs.	- - ft. - in.		

FIELD DESCRIPTION:

Full load soft silty clay; med grn-gray 5 GY 5/1

VESSEL PIONEER		DATE March 28, 1964		DEPTH 20	FMS.
CORE NO. - 4	LATITUDE	LONGITUDE			
DREDGE NO. -	02° 13.7' N	101° 35.8' E			
GRAB NO. -					
SERIAL NO. 364		POSITION NO. 132 D			
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Phleger Corer		90 lbs.		9 ft. 0 in.	

FIELD DESCRIPTION:

Core 4"; 2" well washed coarse sand. Stiff sandy clay 5G 6/1

VESSEL PIONEER		DATE March 28, 1964		DEPTH 18	FMS.
CORE NO. - 5	LATITUDE	LONGITUDE			
DREDGE NO. -	02° 13.9' N	101° 36.7' E			
GRAB NO. -					
SERIAL NO. 365		POSITION NO. 133 D			
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Phleger Corer		90 lbs.		9 ft. 0 in.	

FIELD DESCRIPTION:

3" clean white well washed sand. 1/2" stiff clay



VESSEL PIONEER		DATE March 28, 1964		DEPTH 18	FMS.
CORE NO. -	LATITUDE	LONGITUDE			
DREDGE NO. -					
GRAB NO. - 4	02° 14.1' N	101° 36.9' E			
SERIAL NO. 366		POSITION NO.		134 D	
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Shipek Grab		155 lbs.		- - ft. - in.	

FIELD DESCRIPTION:

Well washed coarse - med white sand with bark and wood fragments.

VESSEL PIONEER		DATE March 28, 1964		DEPTH 16	FMS.
CORE NO. -	LATITUDE	LONGITUDE			
DREDGE NO. -					
GRAB NO. - 5	02° 18.1' N	101° 42.2' E			
SERIAL NO. 368		POSITION NO.		134 D	
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Shipek Grab		155 lbs.		- - ft. - in.	

FIELD DESCRIPTION:

Loose sand and stiff silty clay with worm holes in the clay. The bottom is probably made up of the silty-clay material with sand spread around over the material.

VESSEL PIONEER		DATE March 29, 1964		DEPTH 24	FMS.
CORE NO. -	LATITUDE		LONGITUDE		
DREDGE NO. -	02° 48' N		100° 27.0' E		
GRAB NO. - 6					
SERIAL NO. 371		POSITION NO. 184 D			
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Shipek Grab		155 lbs.		- - ft. - in.	

**FIELD DESCRIPTION:**

Silty sand, considerable black sand size particles. Color grayish-olive 10 Y 4/2.

VESSEL PIONEER		DATE March 29, 1964		DEPTH 26	FMS.
CORE NO. - 6	LATITUDE		LONGITUDE		
DREDGE NO. -	02° 48.3' N		100° 26.7' E		
GRAB NO. -					
SERIAL NO. 372		POSITION NO. 185 D			
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Hydroplastic Corer		350 lbs.		10 ft. 0 in.	

**FIELD DESCRIPTION:**

Penetration: 4 feet, core length 18" core flushed out on deck during liner removal. Sample appears similar to Grab No. 6.

No sample retained.

VESSEL PIONEER		DATE March 29, 1964	DEPTH 10 FMS.
CORE NO. - 7	LATITUDE	LONGITUDE	
DREDGE NO. -	02° 30.8' N	100° 28.7' E	
GRAB NO. -			
SERIAL NO. 373	POSITION NO. 193 D		
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH	
Hydroplastic Corer	350 lbs.	10 ft. 0 in.	

FIELD DESCRIPTION:

Penetration 10'. Core 8' 10" gravity core. Gray silt-clay not pre-consolidated. Cut in 3 sections: Section 1- 0" to 36", 8 GY 5/2 at 0"; Section 2- 36" to 72", 5 Y 5/1 at 36"; Section 3- 72" to 106", 56 Y 5/1 at 72" med gray-green; color 5 3Y 5/1 at 106".

VESSEL PIONEER		DATE March 30, 1964	DEPTH 10 FMS.
CORE NO. - 8	LATITUDE	LONGITUDE	
DREDGE NO. -	03° 15.5' N	101° 10.4' E	
GRAB NO. -			
SERIAL NO. 381	POSITION NO. 284 D		
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH	
Hydroplastic Corer	350 lbs.	10 ft. 0 in.	

FIELD DESCRIPTION:

Penetration 2' 8". Core length 17". Color: at bottom 5 Y<sub>2</sub>/1; 5" from bottom 5 GY 4/1. Bottom appears to be decayed peat 5 1/2" top is clean sand & shells.

VESSEL PIONEER		DATE March 30, 1964		DEPTH 10	FMS.
CORE NO. -	LATITUDE	LONGITUDE			
DREDGE NO. -	03° 15.6' N	101° 10.2' E			
GRAB NO. - 7					
SERIAL NO. 382		POSITION NO. 285 D			
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Shipek Grab		155 lbs.		- - ft. - in.	

**FIELD DESCRIPTION:**

Shell and sand mainly loaded with dark particles.

VESSEL PIONEER		DATE March 30, 1964		DEPTH 12	FMS.
CORE NO. -	LATITUDE	LONGITUDE			
DREDGE NO. -	03° 19.2' N	101° 06.4' E			
GRAB NO. - 8					
SERIAL NO. 383		POSITION NO. 289 D			
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Shipek Grab		155 lbs.		- - ft. - in.	

**FIELD DESCRIPTION:**

Full load of silty-sand. Color 5 GY 4/2.

VESSEL PIONEER		DATE March 30, 1964		DEPTH 14	FMS.
CORE NO. -	LATITUDE	LONGITUDE			
DREDGE NO. -	03° 25.7' N	100° 59.4' E			
GRAB NO. - 9					
SERIAL NO. 384	POSITION NO. 295 D				
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH			
Shipek Grab	155 lbs.	- - ft. - in.			

FIELD DESCRIPTION:

Sampler one-half full. Soft silt overlying a stiff preconsolidated-like silty clay, the latter contains wood or peat fragments (A great deal of this material) Soft silt color, dusty yellow-green, 5 GY 5/2 Stiff silty clay color, 5 GY 5/1.

VESSEL PIONEER		DATE March 30, 1964		DEPTH 14	FMS.
CORE NO. -	LATITUDE	LONGITUDE			
DREDGE NO. -	03° 28.4' N	100° 56.3' E			
GRAB NO. - 10					
SERIAL NO. 385	POSITION NO. 297 D				
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH			
Shipek Grab	155 lbs.	- - ft. - in.			

FIELD DESCRIPTION:

Full load. Surface with yellow-green color, below which all looks the same, 5 GY 4/2 Silty sand.

VESSEL PIONEER		DATE March 30, 1964		DEPTH 20	FMS.
CORE NO. -	LATITUDE		LONGITUDE		
DREDGE NO. -	03° 36.7' N		100° 49.0' E		
GRAB NO. - 11					
SERIAL NO. 386	POSITION NO.		301 D		
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Shipek Grab		155 lbs.		- - ft. - in.	

FIELD DESCRIPTION:

Recovered full sample, mostly medium sand with some silt, shells and shell fragments.

VESSEL PIONEER		DATE March 30, 1964		DEPTH 20	FMS.
CORE NO. -	LATITUDE		LONGITUDE		
DREDGE NO. -	03° 46.3' N		100° 40.8' E		
GRAB NO. - 12					
SERIAL NO. 387	POSITION NO.		307-D		
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Shipek Grab		155 lbs.		- - ft. - in.	

FIELD DESCRIPTION:

Full load, medium sand with considerable shell content, fines inter-mixed, a dirty sand. Color 5 GY 4/2.

VESSEL PIONEER		DATE March 30, 1964		DEPTH 26	FMS.
CORE NO. -	LATITUDE	LONGITUDE			
DREDGE NO. -	04° 09.5' N	100° 29.1' E			
GRAB NO. - 13					
SERIAL NO. 388	POSITION NO.		318 D		
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH			
Shipek Grab	155 lbs.	- - ft. - in.			

**FIELD DESCRIPTION:**

Full load. Medium to coarse sand. (The quartz is granite wash according to Dr. Alexander) The islands nearby and streams in the area contain this material. Coarse quartz grains sub rounded just as those in nearby streams. (Dr. Alexander felt that the sediments from this grab are derived from a very local source.)

VESSEL PIONEER		DATE March 30, 1964		DEPTH 26	FMS.
CORE NO. -	LATITUDE	LONGITUDE			
DREDGE NO. -	04° 09.5' N	100° 22.4' E			
GRAB NO. - 14					
SERIAL NO. 390	POSITION NO.		323 D		
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH			
Shipek Grab	155 lbs.	- - ft. - in.			

**FIELD DESCRIPTION:**

Full load sand. Medium to coarse sand, some shell material. A rather clean sand. Color, light olive-gray, 5 Y 5/2.

VESSEL PIONEER		DATE March 30, 1964		DEPTH	28	FMS.
CORE NO. -	LATITUDE		LONGITUDE			
DREDGE NO. -	04° 09.2' N		099° 52.1' E			
GRAB NO. - 15						
SERIAL NO.	393	POSITION NO.		336 D		
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH		
Shipek Grab		155 lbs.		- - ft. - in.		

**FIELD DESCRIPTION:**

Full load silty sand - lots of dark minerals.

VESSEL PIONEER		DATE March 30, 1964		DEPTH	28	FMS.
CORE NO. - 10	LATITUDE		LONGITUDE			
DREDGE NO. -	04° 09.4' N		099° 52.3' E			
GRAB NO. -						
SERIAL NO.	394	POSITION NO.		337 D		
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH		
Hydroplastic Corer		425 lbs.		10 ft. 0 in.		

**FIELD DESCRIPTION:**

Core length 11 inches. Silty-sand on top.



VESSEL PIONEER		DATE March 31, 1964	DEPTH 12 FMS.
CORE NO. - DREDGE NO. - GRAB NO. - 16	LATITUDE 04° 01.1' N	LONGITUDE 099° 24.1' E	
SERIAL NO. 396	POSITION NO. 349 D		
SAMPLER TYPE Shipek Grab	SAMPLER WEIGHT 155 lbs.	CORE BARREL LENGTH - - ft. - in.	

FIELD DESCRIPTION:

Full load silty sand with much coarse shell debris, including whole pelecypods, gastropods, and sand dollars. Color 5 GY 4/2. One live marine worm recovered.

VESSEL PIONEER		DATE March 31, 1964	DEPTH 32 FMS.
CORE NO. - DREDGE NO. - GRAB NO. - 17	LATITUDE 04° 29.9' N	LONGITUDE 099° 54.3' E	
SERIAL NO. 398	POSITION NO. 367 D		
SAMPLER TYPE Shipek Grab	SAMPLER WEIGHT 155 lbs.	CORE BARREL LENGTH - - ft. - in.	

FIELD DESCRIPTION:

Full load clean, coarse to medium sand, predominantly medium sand, considerable shell material.

Core # 11 attempted this position - no recovery.

VESSEL PIONEER		DATE March 31, 1964	DEPTH 18	FMS.
CORE NO. -	LATITUDE	LONGITUDE		
DREDGE NO. -	04° 52.2' N	100° 14.6' E		
GRAB NO. - 18				
SERIAL NO. 400	POSITION NO. 381 D			
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Shipek Grab	155 lbs.	- - ft. - in.		

**FIELD DESCRIPTION:**

Full load fine to medium sand with a live brittle star.

VESSEL PIONEER		DATE March 31, 1964	DEPTH 18	FMS.
CORE NO. - 12	LATITUDE	LONGITUDE		
DREDGE NO. -	04° 52.5' N	100° 14.5' E		
GRAB NO. -				
SERIAL NO. 401	POSITION NO. 382 D			
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Hydroplastic Corer	425 lbs.	10 ft. 0 in.		

**FIELD DESCRIPTION:**

Penetration 4' 9". Core length 3' 8". gravity core, no sample inside core catcher on in cutting head. Fine to medium sand on top of core.

VESSEL PIONEER		DATE March 31, 1964	DEPTH 38	FMS.
CORE NO. -	LATITUDE	LONGITUDE		
DREDGE NO. -	04° 42.9' N	099° 09.3' E		
GRAB NO. - 19				
SERIAL NO. 404	POSITION NO. 402 D			
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Shipek Grab	155 lbs.	- - ft. - in.		

FIELD DESCRIPTION:

Sampler half full of fine to medium sand, fairly clean. Sample taken just prior to start of 2 hour bottom camera run. Core #13 attempted this position. No sample.

VESSEL PIONEER		DATE March 31, 1964	DEPTH 28	FMS.
CORE NO. -	LATITUDE	LONGITUDE		
DREDGE NO. -	05° 46.4' N	098° 13.7' E		
GRAB NO. - 20				
SERIAL NO. 410	POSITION NO. 430 D			
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Shipek Grab	155 lbs.	- - ft. - in.		

FIELD DESCRIPTION:

Full load silty-sand, shell debris, much greener and dirtier than samples from the Malayan side of the strait.

VESSEL PIONEER		DATE March 31, 1964	DEPTH 26	FMS.
CORE NO. - 14	LATITUDE		LONGITUDE	
DREDGE NO. -	05° 46.5' N		098° 13.3' E	
GRAB NO. -				
SERIAL NO. 411	POSITION NO. 431 D			
SAMPLER TYPE		SAMPLER WEIGHT	CORE BARREL LENGTH	
Hydroplastic Corer		425 lbs.	10 ft. 0 in.	

**FIELD DESCRIPTION:**

Penetration 3' 6". Core length 3' 6". No sample in cutting head or below catcher. Core appeared to be a silty clay throughout but slightly stiffer at the bottom.

VESSEL PIONEER		DATE April 1, 1964	DEPTH 44	FMS.
CORE NO. -	LATITUDE		LONGITUDE	
DREDGE NO. -	05° 31.7' N		099° 14.9' E	
GRAB NO. - 21				
SERIAL NO. 416	POSITION NO. 453 D			
SAMPLER TYPE		SAMPLER WEIGHT	CORE BARREL LENGTH	
Shipek Grab		155 lbs.	- - ft. - in.	

**FIELD DESCRIPTION:**

Full load silty-sand and considerable fine shell material.

VESSEL PIONEER		DATE April 1, 1965	DEPTH 44	FMS.
CORE NO. - 15	LATITUDE	LONGITUDE		
DREDGE NO. -	05° 31.2' N	099° 14.3' E		
GRAB NO. -				
SERIAL NO. 417	POSITION NO.	454 D		
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Hydroplastic Corer	425 lbs.	10 ft. 0 in.		

**FIELD DESCRIPTION:**

Gravity corer. Penetration 4' 4". Core length 3' 4". Sample in cutting head varies from a gray silty clay to med to coarse sand, very heterogenous.

VESSEL PIONEER		DATE April 1, 1965	DEPTH 116	FMS.
CORE NO. -	LATITUDE	LONGITUDE		
DREDGE NO. -	05° 48.6' N	097° 28.8' E		
GRAB NO. - 22				
SERIAL NO. 422	POSITION NO.	493 D		
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Shipek Grab	155 lbs.	- - ft. - in.		

**FIELD DESCRIPTION:**

2 pieces hard material. One rock. The other looks like a fossil worm tube. The rock has been riddled with worm holes, it looks like a dirty quartzite. Note in this area 10 fathom relief ridges were noted on PDR. Water appeared bluer or darker and chopier (rougher). Grabs 22 & 23 taken on the side of one of these ridges.

VESSEL PIONEER		DATE April 1, 1965	DEPTH 116	FMS.
CORE NO. - DREDGE NO. - GRAB NO. - 23	LATITUDE 05° 48.6' N	LONGITUDE 097° 28.8' E		
SERIAL NO. 423	POSITION NO. 493 D			
SAMPLER TYPE Shipek Grab	SAMPLER WEIGHT 155 lbs.	CORE BARREL LENGTH - - ft. - in.		

**FIELD DESCRIPTION:**

Pieces of coral, rounded rock, sand appears to cover the hard bottom, some sand in grab. Coral is dead and displaced. Rounded rock looks like indurated sand cemented by iron. See Grab No. 22, Ser. 422.

VESSEL PIONEER		DATE April 1, 1964	DEPTH 144	FMS.
CORE NO. - DREDGE NO. - GRAB NO. - 24	LATITUDE 05° 48.0' N	LONGITUDE 097° 28.0' E		
SERIAL NO. 424	POSITION NO. 496 D			
SAMPLER TYPE Shipek Grab	SAMPLER WEIGHT 155 lbs.	CORE BARREL LENGTH -- ft. - in.		

**FIELD DESCRIPTION:**

Full load medium sand with some shell fragments, considerable amount of heavy minerals. Clean sand. This sample collected approximately 200 yds. west of Grab Nos. 22 & 23. (Ser. 422 & 423)

VESSEL PIONEER		DATE April , 1964	DEPTH 700	FMS.
CORE NO. - 16	LATITUDE	LONGITUDE		
DREDGE NO. -	05° 44.5' N	096° 31.3' E		
GRAB NO. -				
SERIAL NO. 429	POSITION NO.	517 D		
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Hydroplastic Corer	475 lbs.	20 ft. 0 in.		

**FIELD DESCRIPTION:**

Used 10' free fall with piston. Phleger corer 3' barrel as trip weight. Hydroplastic corer did not trip but penetrated about 4 feet. No same from larger corer. Phleger corer penetrated 2 feet and obtained 6" sample of soft silty clay.

VESSEL PIONEER		DATE April 2, 1964	DEPTH 118	FMS.
CORE NO. -	LATITUDE	LONGITUDE		
DREDGE NO. - 3	06° 14.0' N	094° 59.5' E		
GRAB NO. -				
SERIAL NO. 440	POSITION NO.	571 D		
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Chain Bag Dredge	300 lbs.	- - ft. - in.		

**FIELD DESCRIPTION:**

Rock and coral fragments. Largest rock 2" x 1" x 1"; reddish volcanic porphyry or possibly agglomerate. Smaller rock fragments of similar lithology; also small fragments of greenish, fresh volcanic rock.

VESSEL PIONEER		DATE April 3, 1964		DEPTH 2365	FMS.
CORE NO. - 17	LATITUDE	LONGITUDE			
DREDGE NO. -	05° 52.5' N	092° 33.0' E			
GRAB NO. -					
SERIAL NO. 472	POSITION NO. 615		D		
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH			
Hydroplastic Corer	425 lbs.	20 ft. 0 in.			

**FIELD DESCRIPTION:**

Piston used. Phleger corer used as trigger weight. Phleger penetration 14". Core 11" moderate olive green, 5 Y 4/2. Piston corer penetration 8'. Core 11' 8". Core sectioned: top, 0' to 6' and Bottom 6' to 11'. Color: 0' = 5 Y 4/2; 6' = 5 GY 3/1; 11' 8" = 5 GY 3/1.

VESSEL PIONEER		DATE April 5, 1964		DEPTH 100	FMS.
CORE NO. -	LATITUDE	LONGITUDE			
DREDGE NO. - 4	06° 44.8' N	098° 09.9' E (est.)			
GRAB NO. -					
SERIAL NO. 497	POSITION NO. 777		D		
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH			
Chain Bag Dredge	300 lbs.	- ft. - in.			

**FIELD DESCRIPTION:**

Full load calcareous sandstone concretions  $\frac{1}{2}$ " to 10" in size; numerous root-line tubes, some hollow; also tabular pieces with apparent bedding; numerous irregular rounded pieces. Matrix of stiff clay, 5 GY 4/1. (Clay indicates a slow depositional rate.) Concretions either residual or brought down from nearby slope.



VESSEL PIONEER		DATE April 6, 1964	DEPTH 645	FMS.
CORE NO. - 18	LATITUDE	LONGITUDE		
DREDGE NO. -	05° 46.6' N	097° 00.7' E		
GRAB NO. -				
SERIAL NO. 505	POSITION NO.		813 D	
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Hydroplastic Corer	520 lbs.	20 ft. 0 in.		

**FIELD DESCRIPTION:**

Piston with 10' free fall. Phleger corer trip weight. Phleger penetration complete. Phleger core about 6" in length lost on deck. Piston corer penetration 18 feet. Core length 17 9-3/4". Sediment appeared similar from top to bottom with H<sub>2</sub>S odor at bottom. Core cut into 6 sections. No additional field description.

VESSEL PIONEER		DATE April 6, 1964	DEPTH 95	FMS.
CORE NO. -	LATITUDE	LONGITUDE		
DREDGE NO. - 5	05° 46.5' N	097° 31.4' E		
GRAB NO. -				
SERIAL NO. 507	POSITION NO.		829 D	
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Chain Bag Dredge	300 lbs.	- - ft. - in.		

**FIELD DESCRIPTION:**

Full sample, principally composed of tubular calcareous sandstone concretions in matrix of stiff clay.

VESSEL PIONEER		DATE April 9, 1964	DEPTH 12	FMS.
CORE NO. -	LATITUDE	LONGITUDE		
DREDGE NO. -	05° 25.5' N	100° 21.3' E		
GRAB NO. - 25				
SERIAL NO. 521	POSITION NO. Penang Harbor			
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Shipek Grab	155 lbs.	- - ft. - in.		

**FIELD DESCRIPTION:**

Sampler 3/4 full. Medium sand with considerable shell. Sample taken where ship was anchored. No H<sub>2</sub>S smell.

VESSEL Pioneer		DATE April 10, 1964	DEPTH 1030	FMS.
CORE NO. -	LATITUDE	LONGITUDE		
DREDGE NO. - 6	08° 50.4' N	094° 31.4' E		
GRAB NO. -				
SERIAL NO. 540	POSITION NO. 103 E			
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Chain Bag Dredge	lbs.	- - ft. - in.		

**FIELD DESCRIPTION:**

Small sample. No rock. Only one sediment tube filled with brownish-gray clay. Mixture of colors 5 Y 4/2 (probably surface "fluff") and firm 5 Y GY 6/1.

VESSEL PIONEER		DATE April 11, 1964	DEPTH 1950	FMS.
CORE NO. - 19	LATITUDE	LONGITUDE		
DREDGE NO. -	09° 21.3' N	093° 56.2' E		
GRAB NO. -				
SERIAL NO. 575	POSITION NO.	134 E		
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Hydroplastic Corer	520 lbs.	20 ft. 0 in.		

FIELD DESCRIPTION:

Piston corer with Phleger corer trip weight. Phleger corer penetration 18" with 3" fine clay 5 Y 4/2 core. Piston corer penetration 14' + with core length 16' 8". Core sectioned: 0' to 3' 5" with fine clay 5 Y 4/2 at top 1/2". Core not described.

VESSEL Pioneer		DATE April 12, 1964	DEPTH 479	FMS.
CORE NO. -	LATITUDE	LONGITUDE		
DREDGE NO. - 8	08° 57.0' N	093° 33.0' E		
GRAB NO. -				
SERIAL NO. 582	POSITION NO.	179 E		
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Chain Bag Dredge	300 lbs.	- - ft. - in.		

FIELD DESCRIPTION:

Full dredge. Mainly fissile shale, soft, foraminifer common; weathered yellow on outside but bluish gray inside. Weathered pieces with worm tubes and some live worms. Many worm tubes filled with fecal matter composed mainly of foraminifer. Pieces of shale areas large as 16" x 16" x 10". One piece basalt 10" around, angular, stained manganese-black on outside but fresh inside.

VESSEL Pioneer		DATE April 13, 1964	DEPTH 26	FMS.
CORE NO. -	LATITUDE		LONGITUDE	
DREDGE NO. -	09° 21.0' N		092° 44.8' E	
GRAB NO. - 26				
SERIAL NO. 589	POSITION NO. 223 E			
SAMPLER TYPE		SAMPLER WEIGHT	CORE BARREL LENGTH	
Shipek Grab		155 lbs.	- - ft. - in.	

**FIELD DESCRIPTION:**

Sampler full of coarse coral sand and gravel.

VESSEL Pioneer		DATE April 13, 1964	DEPTH 235	FMS.
CORE NO. -	LATITUDE		LONGITUDE	
DREDGE NO. - 9	09° 24.2' N		092° 34.6' E	
GRAB NO. -				
SERIAL NO. 590	POSITION NO. 231 E			
SAMPLER TYPE		SAMPLER WEIGHT	CORE BARREL LENGTH	
Chain Bag Dredge		300 lbs.	- - ft. - in.	

**FIELD DESCRIPTION:**

Full dredge. Mainly pieces of soft gray mudstone, 1" to 8"; some worm borings. One chunk of indorated foraminiferal sand 6" x 6" x 14". Two rounded cobbles of indurated calcareous shale with manganese patina.

VESSEL Pioneer		DATE April 14, 1964	DEPTH 1895	FMS.
CORE NO. - 20	LATITUDE	LONGITUDE		
DREDGE NO. -	10° 09.4' N	091° 06.9' E		
GRAB NO. -				
SERIAL NO. 625	POSITION NO.	322 E		
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Hydroplastic Corer	525 lbs.	20 ft. 0 in.		

**FIELD DESCRIPTION:**

Freefall 8 feet. Phleger corer trip weight penetration 13" with 11-3/4" clay 5 Y 4/2 core. Piston core penetration 11' 8" with 16' 9" core. Top of core clay 5 Y 4/2. Section (1), 0" to 8' 2 1/2". Water void 1' 7". Section (2), 9' 9 1/2" to 10' 1 1/2". Water void 3' 9". Bottom section (3), 13' 10 1/2" to 16' 9". Errors in cutting caused by redistribution of sediment into sections above and below. Correct depth sequence maintained.

VESSEL Pioneer		DATE April 14, 1964	DEPTH 865	FMS.
CORE NO. -	LATITUDE	LONGITUDE		
DREDGE NO. - 10	10° 07.6' N	091° 37.9' E		
GRAB NO. -				
SERIAL NO. 628	POSITION NO.	342 E		
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Chain Bag Dredge	300 lbs.	- - ft. - in.		

**FIELD DESCRIPTION:**

Three 2" chunks friable (partly indurated) clayer globulina ooze. One 10cc lump of soft gray clay.

VESSEL Pioneer		DATE April 14, 1964		DEPTH 625	FMS.
CORE NO. - 21	LATITUDE		LONGITUDE		
DREDGE NO. -	10° 09.8' N		092° 27.0' E		
GRAB NO. -					
SERIAL NO. 630	POSITION NO.		375 E		
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Hydroplastic Corer		520 lbs.		20 ft. 0 in.	

**FIELD DESCRIPTION:**

Piston corer rigged for 10' freefall using Phleger corer trip weight. No Phleger core. Piston corer penetration 7½' with 6' 7" olive gray sandy clay core.

VESSEL Pioneer		DATE April 14, 1964		DEPTH 1410	FMS.
CORE NO. - 22	LATITUDE		LONGITUDE		
DREDGE NO. -	10° 02.6' N		093° 12.3' E		
GRAB NO. -					
SERIAL NO. 637	POSITION NO.		406 E		
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Hydroplastic Corer		525 lbs.		20 ft. 0 in.	

**FIELD DESCRIPTION:**

Piston corer with Phleger corer trip weight. Phleger core 6" clay, top 5 Y 5/2 and bottom 5 GY 5/1. Piston core penetration 5' 10" with 3' 7" + 10" cutter core length. Top of soft clay 5 Y 5/2. Catcher clay very stiff, 5 Y 5/1.

VESSEL Pioneer		DATE April 15, 1964	DEPTH 2320	FMS.
CORE NO. - 23	LATITUDE	LONGITUDE		
DREDGE NO. -	09° 54.1' N	93° 44.7' E		
GRAB NO. -				
SERIAL NO. 681	POSITION NO. 440 E			
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Hydroplastic Corer	525 lbs.	20 ft. - in.		

**FIELD DESCRIPTION:**

Piston corer with Phleger corer as trip weight. 10' free fall - Phleger core 6" clay, 5 Y 4/2. Piston core penetration 10' 8 1/2". Core 16' 3". Section: (1) 0" to 11" loose 5 Y 4/2; (2) 11" to 3' 11" firm 5 Y 4/2; (3) 3' 11" to 6' 11" firm 5 Y 4/2; (4) 6' 11" to 9' 11" loose 5 GY 4/1; water gap 9' 11" to 12' 4"; (5) 12' 4" to 15' 4" loose 5 Y 4/2; (6) 15' 4" to 16' 3" loose 5 Y 4/2. Thermoprobe ser. 682 taken this site.

VESSEL Pioneer		DATE April 16, 1964	DEPTH 242	FMS.
CORE NO. -	LATITUDE	LONGITUDE		
DREDGE NO. - 11	10° 01.8' N	096° 23.1' E		
GRAB NO. -				
SERIAL NO. 690	POSITION NO. 484 E			
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Chain Bag Dredge	300 lbs.	- - ft. - in.		

**FIELD DESCRIPTION:**

One 4" x 4" x 4" chunk vesicular basalt; freshly fractured. Twelve other smaller pieces of identical material.

VESSEL Pioneer		DATE April 17, 1964	DEPTH 1405	FMS.
CORE NO. - 24	LATITUDE	LONGITUDE		
DREDGE NO. -	10° 58.7' N	93° 42.0' E		
GRAB NO. -				
SERIAL NO. 709	POSITION NO.	590 E		
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Hydroplastic corer	800 lbs.	20 ft. 0 in.		

**FIELD DESCRIPTION:**

PVC liner in steel barrel. Phleger corer trip weight. Ten foot free fall trigger core 2' many sandy streaks (top lost). Piston corer penetration 17' with 17' 8" core. Sectioned: (1) 0" to 7"; (2) 7" to 5' 8"; (3) 5' 8" to 11' 8" (clay/sand at top this section) (4) 11' 8" to 17' 8". (corer probably tripped in sand. Cutter and catcher washed clean.)

VESSEL Pioneer		DATE April 17, 1964	DEPTH 262	FMS.
CORE NO. -	LATITUDE	LONGITUDE		
DREDGE NO. - 12	11° 12.9' N	093° 34.7' E		
GRAB NO. -				
SERIAL NO. 710	POSITION NO.	584 E		
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Chain Bag Dredge	300 lbs.	- - ft. - in.		

**FIELD DESCRIPTION:**

Two chunks of sedimentary rock; one calcareous shale; one friable coarse sandstone. One dredge sediment tube was full of sandy clay, 5 Y 5/5.



VESSEL Pioneer		DATE April 18, 1964	DEPTH 2065	FMS.
CORE NO. - 25	LATITUDE	LONGITUDE		
DREDGE NO. -	09° 47.6' N	093° 55.7' E		
GRAB NO. -				
SERIAL NO. 717	POSITION NO. 618		E	
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Hydroplastic corer	700 lbs.	20 ft. 0 in.		

**FIELD DESCRIPTION:**

Steel barrel with PVC liner. Phleger corer trip weight. Phleger core 1' 5-3/4" clay of 5 Y 3/4. Piston core 18 1/2' barrel penetration. Core 18' 8 1/2" fine homogenous clay sectioned: (1) 0" to 6' 8 1/2" 5 GY 3/4 top; (2) 6' 8 1/2" to 12' 8 1/2" top 5 Y 3/2; (3) 12' 8 1/2" to 18' 8 1/2" 5 Y 3/2 top and 5 GY 3/1 bottom.

VESSEL PIONEER		DATE April 19-20, 1964	DEPTH 230	FMS.
CORE NO. -	LATITUDE	LONGITUDE		
DREDGE NO. - 13	11° 50.7' N	093° 33.0' E		
GRAB NO. -				
SERIAL NO. 737	POSITION NO. 721		E	
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Chain Bag Dredge	300 lbs.	- - ft. - in.		

**FIELD DESCRIPTION:**

Full load coarse yellow tuffaceous sandstone. One slab 18" x 12" x 6", eight other smaller pieces. Three glass sponges. Three small gastropod shells.

VESSEL USC&GS PIONEER DATE Apr. 20, 1964 DEPTH 1180 FMS.

CORE NO. - 26	LATITUDE	LONGITUDE
DREDGE NO. -	12°48.6'N	093°57.3'E
GRAB NO. -		
SERIAL NO. 766	POSITION NO.	750 E
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH
Hydroplastic Corer	800 lbs.	20 ft. 0 in.

FIELD DESCRIPTION:

Steel barrel, PVC liner, 10-foot free fall, Phleger Corer trip weight. No Phleger core. Piston corer penetration 20' with 19'3" core and top 2" lost around piston. Sectioned: (1) 0" to 7'3", 5 Y 4/2 at top; (2) 7'3" to 13'3", 10 Y 3/2 at top; (3) 13'3" to 19'3" with 10 Y 3/2 at top and bottom.

VESSEL USC&GS PIONEER DATE Apr. 20, 1964 DEPTH 357 FMS.

CORE NO. -	LATITUDE	LONGITUDE
DREDGE NO. - 14	12°50.4'N	094°44.4'E
GRAB NO. -		
SERIAL NO. 772	POSITION NO.	765E
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH
Chain Bag Dredge	300 lbs.	ft. in.

FIELD DESCRIPTION:

Good load, principally of dark, medium-to-fine grained igneous rock with some conglomeratic material of the same color. Largest piece, 4" x 12" x 18" of igneous rock.

VESSEL USC&GS PIONEER      DATE Apr. 24, 1964 DEPTH      18 FMS.

CORE NO. -	LATITUDE	LONGITUDE
DREDGE NO. -	20°55.8'N	088°36.0'E
GRAB NO. - 27		

SERIAL NO. 821      POSITION NO. 1019 E

SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH
Shipek Grab	155 lbs.	ft. in.

FIELD DESCRIPTION:

Full sample of soft, silty clay, moderate olive gray, 5 Y 4/2.

VESSEL USC&GS PIONEER      DATE Apr. 25, 1964 DEPTH      18 FMS.

CORE NO. -	LATITUDE	LONGITUDE
DREDGE NO. -	20°55.8'N	088°25.9'E
GRAB NO. - 28		

SERIAL NO. 822      POSITION NO. 1022 E

SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH
Shipek Grab	155 lbs.	ft. in.

FIELD DESCRIPTION:

Full sample soft, silty clay, 5 Y 4/2. One inch below surface is a 1/2" layer of odorless black material.

VESSEL USC&GS PIONEER      DATE Apr.25, 1964 DEPTH 24 FMS.

CORE NO. -	LATITUDE	LONGITUDE
DREDGE NO. -	20°54.0'N	088°14.3'E
GRAB NO. - 29		

SERIAL NO. 823      POSITION NO. 1027 E

SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH
Shipek Grab	155 lbs.	ft. in.

FIELD DESCRIPTION:

Full sample soft, silty clay, 5 Y 4/2.

VESSEL USC&GS PIONEER      DATE May 3, 1964 DEPTH 310 FMS.

CORE NO. -	LATITUDE	LONGITUDE
DREDGE NO. -	21°12.8'N	089°27.2'E
GRAB NO. - 30		

SERIAL NO. 826      POSITION NO. 64 F

SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH
Shipek Grab	155 lbs.	ft. in.

FIELD DESCRIPTION:

Two tablespoons fluffy clay, 5 Y 4/2.

VESSEL USC&GS PIONEER		DATE May 30, 1964	DEPTH 310 FMS.
CORE NO. - 27	LATITUDE	LONGITUDE	
DREDGE NO. -	21°12.8'N	089°27.2'E	
GRAB NO. -			
SERIAL NO. 827	POSITION NO. 65 F		
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH	
Hydroplastic Corer	600 lbs.	10 ft. 0 in.	

FIELD DESCRIPTION:

Steel barrel with PVC liner. Free fall 10 feet. Phleger Corer trip weight. Phleger core, 14" silty clay, 5 Y 4/2. Piston corer penetration 10 feet. Core length 4'8" with top and bottom silty clay, 5 Y 4/2.

VESSEL USC&GS PIONEER		DATE May 3, 1964	DEPTH 230 FMS.
CORE NO. - 28	LATITUDE	LONGITUDE	
DREDGE NO. -	21°13.8'N	089°29.0'E	
GRAB NO. -			
SERIAL NO. 829	POSITION NO. 66 F		
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH	
Hydroplastic Corer	600 lbs.	20 ft. 0 in.	

FIELD DESCRIPTION:

Steel barrel with PVC liner. Phleger corer trip weight. Phleger core 10" silty clay, 5 Y 4/2. Piston core 19'9" with top 3" lost around piston. Sectioned: (1) 0" to 7'9", with silty clay, 5 Y 4/2 at top; (2) 7'9" to 13'9" sandy silt, 5 Y 4/2 at top of section; (3) 13'9" to 19'9" with 5 Y 4/2 clayey silt at top and bottom.

VESSEL USC&GS PIONEER		DATE May 3, 1964	DEPTH 230	FMS.
CORE NO. -	LATITUDE	LONGITUDE		
DREDGE NO. - 15	21°13.1'N	089°22.8'E		
GRAB NO. -				
SERIAL NO. 830	POSITION NO. 73		F	
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Chain Bag Dredge	300 lbs.	ft. in.		

FIELD DESCRIPTION:

Only small sample recovered as gear failure at surface dumped major portion of sample. Handful of fine, stiff clay, 5 GY 4/1 recovered.

VESSEL USC&GS PIONEER		DATE May 6, 1964	DEPTH 885	FMS.
CORE NO. -	LATITUDE	LONGITUDE		
DREDGE NO. - 16	19°15.3'N	089°04.9'E		
GRAB NO. -				
SERIAL NO. 858	POSITION NO. 267		F	
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH		
Chain Bag Dredge	300 lbs.	ft. in.		

FIELD DESCRIPTION:

Only sample found was in sediment tube. Material was olive-gray, clayey silt.

VESSEL USC&GSS PIONEER DATE May 6, 1964 DEPTH 945 FMS.

CORE NO. - 29	LATITUDE	LONGITUDE
DREDGE NO. -	19°17.1'N	089°10.2'E
GRAB NO. -		

SERIAL NO. 859 POSITION NO. 272 F

SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH
Hydroplastic Corer	800 lbs.	20 ft. 0 in.

FIELD DESCRIPTION:

Steel barrel over PVC liner, 10 ft. free fall. Phleger trip weight core 17" silty clay, 5 Y 4/2. Piston core penetration 13 ft. Core of fine sand, silt, 5 GY 4/1 with occasional pea-size wood fragments. Core washed out badly and cannot be positioned beyond being at least 17' below surface.

VESSEL USC&GSS PIONEER DATE May 6, 1964 DEPTH 855 FMS.

CORE NO. - 30	LATITUDE	LONGITUDE
DREDGE NO. -	19°21.7'N	089°17.1'E
GRAB NO. -		

SERIAL NO. 860 POSITION NO. 278 F

SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH
Hydroplastic Corer	700 lbs.	20 ft. 0 in.

FIELD DESCRIPTION:

Steel barrel with PVC liner. Freefall 10 feet. Phleger trip core 15" silty clay. Top 1", 10 YR 4/2, rest 5 Y 4/2. Piston core 17'0", all silty clay. Sectioned: (1) 0" to 6'2"; (2) 6'2" to 12'2"; (3) 12-1/2" to 17'10".  
No additional field description.

VESSEL USC&GSS PIONEER			DATE May 16, 1964			DEPTH 975 FMS.		
CORE NO. -		LATITUDE			LONGITUDE			
DREDGE NO. - 17		08°44.0'N			081°22.6'E			
GRAB NO. -								
SERIAL NO. 970			POSITION NO.			954 F		
SAMPLER TYPE			SAMPLER WEIGHT			CORE BARREL LENGTH		
Chain Bag Dredge			300 lbs.			ft. in.		

FIELD DESCRIPTION:

No rock. Only mud (two types):  
 (1) Silty clay lumps, 5 Y 2/1  
 (2) Soft clay smear, 10 Y 4/2

VESSEL USC&GSS PIONEER			DATE May 16, 1964			DEPTH 1375 FMS.		
CORE NO. - 31		LATITUDE			LONGITUDE			
DREDGE NO. -		08°50.5'N			081°22.6'E			
GRAB NO. -								
SERIAL NO. 971			POSITION NO.			961 F		
SAMPLER TYPE			SAMPLER WEIGHT			CORE BARREL LENGTH		
Phleger Corer			50 lbs.			2 ft. 0 in.		

FIELD DESCRIPTION:

Six inch clay core with top 1/2" 10 YR 4/4.  
 Remainder of core, 5 Y 5/2.



VESSEL USC&GSS PIONEER		DATE May 16, 1964		DEPTH	1485	FMS.
CORE NO. - 32	LATITUDE		LONGITUDE			
DREDGE NO. -	08°51.7'N		081°24.8'E			
GRAB NO. -						
SERIAL NO. 972	POSITION NO.		964 F			
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH		
Hydroplastic Corer		600 lbs.		20 ft. 0 in.		

FIELD DESCRIPTION:

Steel barrel with PVC liner. Rigged for 10 ft. free fall. Phleger core 5-1/4" clay with top 1/4" 10 YR 4/4. Remainder sandy 5 Y 5/2. Piston core 8'6".

Sectioned: (1) 0" to 1'9", sandy clay over gravel and sand; (2) 1'9" to 7'9" sandy clay at top and coarse to medium sand at bottom; (3) 7'9" to 8'8", with bottom 2" of stiff clay under gravel and coarse sand.

VESSEL USC&GSS PIONEER		DATE May 17, 1964		DEPTH	44	FMS.
CORE NO. -	LATITUDE		LONGITUDE			
DREDGE NO. - 19	08°29.7'N		081°31.3 E			
GRAB NO. -						
SERIAL NO. 979	POSITION NO.		998 F			
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH		
Chain Bag Dredge		300 lbs.		ft. in.		

FIELD DESCRIPTION:

Recovered eight chunks of medium-grained saccharoidal dark green to black igneous rock; angular, manganese-stained. Rock comprised of dark crystals in light green to colorless transparent matrix. Orange corals, crinoids, and crustaceans preserved by biologists.

VESSEL USC&GSS PIONEER DATE June 20, 1964 DEPTH 3375 FMS.

CORE NO. - 33	LATITUDE	LONGITUDE
DREDGE NO. -	05°53.1'S	101°10.8'E
GRAB NO. -		

SERIAL NO. 3791 POSITION NO. 587 H

SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH
Hydroplastic Corer	700 lbs.	20 ft. 0 in.

FIELD DESCRIPTION:

Steel barrel with PVC liner. Free fall 10 feet, Phleger core as top weight did not obtain core.  
Core sectioned: (1) 0" to 3'6½"; (2) 1'6" of space; (3) lower 4'9". No field description.

VESSEL USC&GSS PIONEER DATE June 22, 1964 DEPTH 38 FMS.

CORE NO. -	LATITUDE	LONGITUDE
DREDGE NO. -	06°11.0'S	104°56.2'E
GRAB NO. - 31		

SERIAL NO. 3815 POSITION NO. 694 H

SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH
Shipek Grab	155 lbs.	ft. in.

FIELD DESCRIPTION:

Recovered few spoonful of medium-coarse shelly coral sand.

VESSEL PIONEER		DATE Jun. 22, '64		DEPTH 38	FMS.
CORE NO. -	LATITUDE		LONGITUDE		
DREDGE NO. -	06° 11.0' S		104° 56.2' E		
GRAB NO. - 32					
SERIAL NO. 3816	POSITION NO.		695 H		
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Shipek Grab		155 lbs.		- - ft. - in.	

FIELD DESCRIPTION:

Recovered about 400 grams coarse coralline shelly sand with some live coral.

VESSEL PIONEER		DATE Jun. 22, '64		DEPTH 865	FMS.
CORE NO. -	LATITUDE		LONGITUDE		
DREDGE NO. -	06° 15.9' S		104° 50.1' E		
GRAB NO. - 33					
SERIAL NO. 3817	POSITION NO.		723 H		
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Shipek Grab		155 lbs.		-- ft. - in.	

FIELD DESCRIPTION:

Recovered about 10 grams black sand.

VESSEL PIONEER		DATE Jun. 30, '64		DEPTH 118	FMS.
CORE NO. -	LATITUDE		LONGITUDE		
DREDGE NO. -	08° 46.9' S		115° 42.4' E		
GRAB NO. - 35					
SERIAL NO. 3891	POSITION NO. 200 J				
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Shipek Grab		155 lbs.		- - ft. - in.	

FIELD DESCRIPTION:

Recovered 50-100 grams small pea-sized chips of coralline material and shell debris.

VESSEL PIONEER		DATE July 1, '64		DEPTH 346	FMS.
CORE NO. -	LATITUDE		LONGITUDE		
DREDGE NO. -	08° 42.2' S		115° 41.9' E		
GRAB NO. - 36					
SERIAL NO. 3892	POSITION NO. 206 J				
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Shipek Grab		155 lbs.		-- ft. - in.	

FIELD DESCRIPTION:

Recovered approximately 200 grams of coarse shelly sand. See also Grab No. 37.

VESSEL PIONEER		DATE July 1, '64		DEPTH 338	FMS.
CORE NO. -	LATITUDE		LONGITUDE		
DREDGE NO. -	08° 42.2' S		115° 41.9' E		
GRAB NO. - 37					
SERIAL NO. 3893	POSITION NO. 206 J				
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Shipek Grab		155 lbs.		-- ft. - in.	

FIELD DESCRIPTION:

Recovered about 200 grams coarse shelly sand with much black material.  
See also Grab No. 36.

VESSEL PIONEER		DATE July 1, '64		DEPTH 246	FMS.
CORE NO. -	LATITUDE		LONGITUDE		
DREDGE NO. -	08° 37.9' S		115° 36.8' E		
GRAB NO. - 38					
SERIAL NO. 3906	POSITION NO. 213 J				
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Shipek Grab		155 lbs.		-- ft. - in.	

FIELD DESCRIPTION:

Recovered only a very few coarse to fine sand grains and brown vegetal debris.

VESSEL PIONEER		DATE July 1, '64		DEPTH 506	FMS.
CORE NO. -	LATITUDE		LONGITUDE		
DREDGE NO. -	08° 30.7' S		115° 45.3' E		
GRAB NO. - 39					
SERIAL NO. 3907	POSITION NO.		221 J		
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Shipek Grab		155 lbs.		-- ft. - in.	

FIELD DESCRIPTION:

Recovered only a few coarse grains of fine to coarse sand.

VESSEL PIONEER		DATE July 1, '64		DEPTH 468	FMS.
CORE NO. -	LATITUDE		LONGITUDE		
DREDGE NO. -	08° 31.2' S		115° 43.7' E		
GRAB NO. - 40					
SERIAL NO. 3921	POSITION NO.		223 J		
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Shipek Grab		155 lbs.		-- ft. - in.	

FIELD DESCRIPTION:

Recovered about 50 grams of coarse sand and granules and some shell debris.

VESSEL	PIONEER	DATE	July 1, '64	DEPTH	710	FMS.
CORE NO. -		LATITUDE		LONGITUDE		
DREDGE NO. -						
GRAB NO. -	41	08° 23.7' S		115° 49.1' E		
SERIAL NO.	3922	POSITION NO.	228 J			
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH		
Shipek Grab		155 lbs.		-- ft. -in.		

FIELD DESCRIPTION:

Recovered few grains coarse to medium grained brown sand.

VESSEL	PIONEER	DATE	July 6, '64	DEPTH	4745	FMS.
CORE NO. -	35	LATITUDE		LONGITUDE		
DREDGE NO. -						
GRAB NO. -		05° 24.7' N		127° 46.8' E		
SERIAL NO.	3146	POSITION NO.	548 J			
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH		
Hydroplastic Corer		600 lbs.		20 ft. 0 in.		

FIELD DESCRIPTION:

Red clay core 16' 4½" in length.

Sectioned: (1) 0" to 6' 7½"  
(2) 6' 7½" to 12' 7½"  
(3) 12' 7½" to 16' 4½"

Mindanao Trench

Depth 4530 fm. uncorrected

Wire out at pull out 26,488 feet

VESSEL PIONEER		DATE July 11, '64		DEPTH 400	FMS.
CORE NO. -		LATITUDE		LONGITUDE	
DREDGE NO. - 21		07° 35.5' N		134° 26.2' E	
GRAB NO. -					
SERIAL NO. 3181		POSITION NO.		1 K	
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Chain Bag Dredge		300 lbs.		-- ft. - in.	

FIELD DESCRIPTION:

Recovery insignificant, few smears of clayey foraminiferal sand, few echinoderms, etc.

VESSEL PIONEER		DATE July 11, '64		DEPTH 610	FMS.
CORE NO. -		LATITUDE		LONGITUDE	
DREDGE NO. - 22		07° 39.3' N		134° 26.8' E	
GRAB NO. -					
SERIAL NO. 3182		POSITION NO.		6 K	
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Chain Bag Dredge		300 lbs.		-- ft. - in.	

FIELD DESCRIPTION:

Recovered  $\frac{1}{4}$  bag material. Predominantly chunks up to 8" of soft friable yellow-brown sandstone. Also 2 chunks detrital limestone, 3" and 4".



VESSEL PIONEER		DATE July 12-13, DEPTH 1420 FMS.	
CORE NO. -		LATITUDE	LONGITUDE
DREDGE NO. - 23		07° 37.6' N	134° 44.3' E
GRAB NO. -			
SERIAL NO. 3200		POSITION NO. 131K	
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH	
Chain Bag Dredge	300 lbs.	-- ft. -in.	

FIELD DESCRIPTION:

Small sample recovery. Sampled small smear of clay and silt for Foraminifera.

VESSEL PIONEER		DATE July 13, '64 DEPTH 760 FMS.	
CORE NO. -		LATITUDE	LONGITUDE
DREDGE NO. - 25		07° 41.9' N	134° 41.7' E
GRAB NO. -			
SERIAL NO. 3202		POSITION NO. 141 K	
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH	
Chain Bag Dredge	300 lbs.	-- ft. - in.	

FIELD DESCRIPTION:

Recovered 3 Kg. limestone with volcanic and tuffaceous material.

VESSEL PIONEER		DATE July 14, '64		DEPTH 5700	FMS. *
CORE NO. - 36	LATITUDE		LONGITUDE		
DREDGE NO. -	11° 16.0' N.		141° 58.5' E		
GRAB NO. -					
SERIAL NO. 3229	POSITION NO.		266 K		
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Hydroplastic Corer		600 lbs.		20 ft. 0 in.	

FIELD DESCRIPTION:

No field description.

\* Estimated depth.

VESSEL PIONEER		DATE July 16, '64		DEPTH 542	FMS.
CORE NO. -	LATITUDE		LONGITUDE		
DREDGE NO. -	13° 14.8' N		144° 29.9' E		
GRAB NO. - 42					
SERIAL NO. 3239	POSITION NO.		310 K		
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Shipek Grab		155 lbs.		-- ft. - in.	

FIELD DESCRIPTION:

Recovered 1 tablespoon forams, and 1 to 5 mm granular black volcanic rock.

VESSEL PIONEER		DATE July 16, '64		DEPTH 426	FMS.
CORE NO. -	LATITUDE		LONGITUDE		
DREDGE NO. -	13° 13.0' N		144° 27.9' E		
GRAB NO. - 43					
SERIAL NO. 3240	POSITION NO. 313		K		
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Shipek Grab		155 lbs.		-- ft. - in.	

FIELD DESCRIPTION:

Recovered 1 gram sand. No additional description.

VESSEL PIONEER		DATE July 16, '64		DEPTH 20	FMS.
CORE NO. -	LATITUDE		LONGITUDE		
DREDGE NO. -	13° 13.6' N		144° 26.6' E		
GRAB NO. - 44					
SERIAL NO. 3241	POSITION NO. 315		K		
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Shipek Grab		155 lbs.		-- ft. - in.	

FIELD DESCRIPTION:

Recovered limestone rock fragments. No additional description.

VESSEL PIONEER		DATE July 16, '64		DEPTH 20	FMS.
CORE NO. -	LATITUDE		LONGITUDE		
DREDGE NO. -	13° 13.6' N		144° 26.6' E		
GRAB NO. - 45					
SERIAL NO. 3242		POSITION NO.		316 K	
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Shipek Grab		155 lbs.		-- ft. - in.	

FIELD DESCRIPTION:

Recovered few grams of silt and sand.  
See also Grab No. 46.

VESSEL PIONEER		DATE July 16, '64		DEPTH 20	FMS.
CORE NO. -	LATITUDE		LONGITUDE		
DREDGE NO. -	13° 13.6' N		144° 26.6' E		
GRAB NO. - 46					
SERIAL NO. 3243		POSITION NO.		316 K	
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Shipek Grab		155 lbs.		-- ft. - in.	

FIELD DESCRIPTION:

Halimedia grains and fine sand.  
See also Grab No. 45.

VESSEL PIONEER		DATE July 16, '64		DEPTH 164	FMS.
CORE NO. -	LATITUDE		LONGITUDE		
DREDGE NO. -	13° 13.2' N		144° 26.7' E		
GRAB NO. - 47					
SERIAL NO. 3244	POSITION NO. 317 K				
SAMPLER TYPE		SAMPLER WEIGHT	CORE BARREL LENGTH		
Shipek Grab		155 lbs.	-- ft. - in.		

FIELD DESCRIPTION:

Few grains sand and silt.

VESSEL PIONEER		DATE July 16, '64		DEPTH 360	FMS.
CORE NO. -	LATITUDE		LONGITUDE		
DREDGE NO. -	13° 14.6' N		144° 26.8' E		
GRAB NO. - 48					
SERIAL NO. 3246	POSITION NO. 319 K				
SAMPLER TYPE		SAMPLER WEIGHT	CORE BARREL LENGTH		
Shipek Grab		155 lbs.	-- ft. - in.		

FIELD DESCRIPTION:

Small sand and silt sample.

VESSEL PIONEER		DATE July 16, '64		DEPTH 578	FMS.
CORE NO. -		LATITUDE		LONGITUDE	
DREDGE NO. -	26	13° 39.0' N		144° 25.3' E	
GRAB NO. -					
SERIAL NO. 3247		POSITION NO.		371 K	
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Chain Bag Dredge		155 lbs.		-- ft. - in.	

FIELD DESCRIPTION:

One 4" chunk brown pumice.

VESSEL PIONEER		DATE July 16, '64		DEPTH 765	FMS.
CORE NO. -		LATITUDE		LONGITUDE	
DREDGE NO. -	27	13° 39.1' N		144° 25.6' E	
GRAB NO. -					
SERIAL NO. 3248		POSITION NO.		376 K	
SAMPLER TYPE		SAMPLER WEIGHT		CORE BARREL LENGTH	
Chain Bag Dredge		155 lbs.		-- ft. - in.	

FIELD DESCRIPTION:

Several Kgs. gravel including 2" piece of pumice with large feldspar crystals.

VESSEL PIONEER		DATE July 16, '64		DEPTH 1470	FMS.
CORE NO. - 37	LATITUDE	LONGITUDE			
DREDGE NO. -	13° 32.4' N	144° 33.4' E			
GRAB NO. -					
SERIAL NO. 3251	POSITION NO. 388		K		
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH			
Hydroplastic Corer	500 lbs.	20 ft. 0 in.			

FIELD DESCRIPTION:

Recovered 2" of brown silty sand.

VESSEL PIONEER		DATE July 16, '64		DEPTH 540	FMS.
CORE NO. -	LATITUDE	LONGITUDE			
DREDGE NO. - 28	13° 17.1' N	144° 37.2' E			
GRAB NO. -					
SERIAL NO. 3252	POSITION NO. 396		K		
SAMPLER TYPE	SAMPLER WEIGHT	CORE BARREL LENGTH			
Chain Bag Dredge	300 lbs.	ft. in.			

FIELD DESCRIPTION:

Recovered 1-2" pebbles, one 3" cobble, mostly basalt.

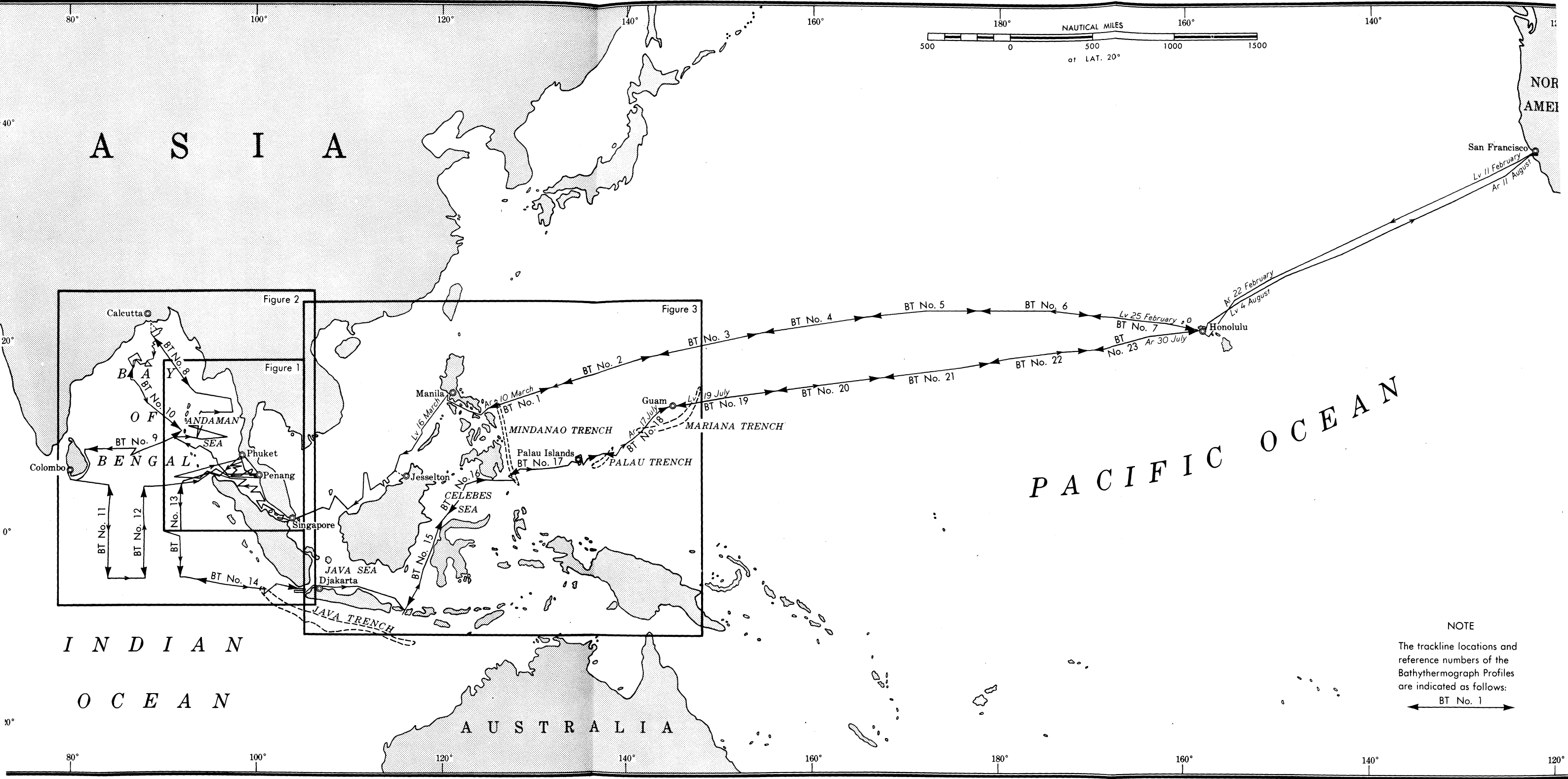


CHART 1.—USC&GS ship *Pioneer* trackline during 1964 Indian Ocean Expedition and locations of selected bathythermograph profiles. Bathythermograph profiles are shown in volume 1.