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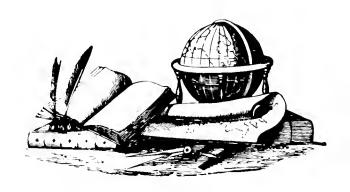
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UNITED STATES COAST GUARD OCEANOGRAPHIC



UNITED STATES COAST GUARD OCEANOGRAPHIC UNIT

REPORT No. 24

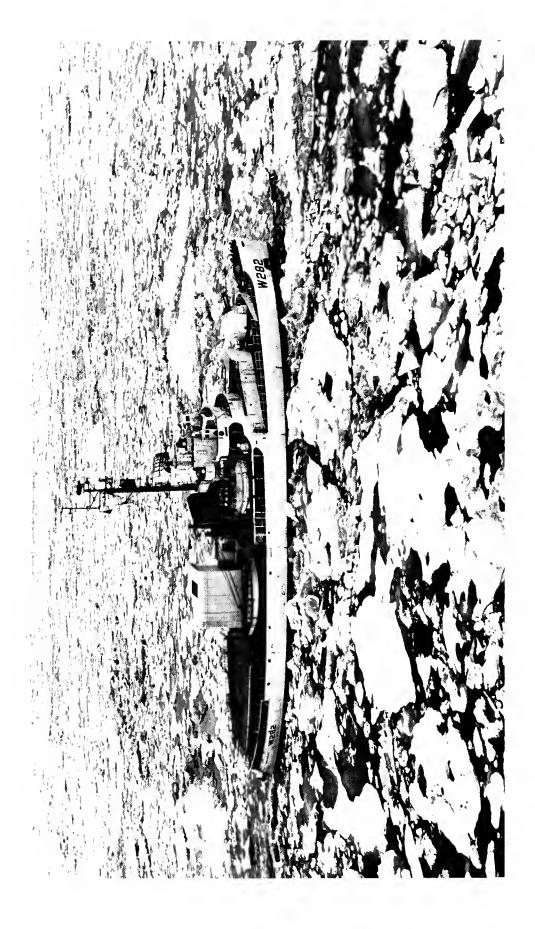


REPORT OF OCEANOGRAPHIC CRUISE USCGC NORTHWIND NORTHERN BERING SEA-BERING STRAIT— CHUCKCHI SEA

July 1967

By David M. Husby





ABSTRACT

This report contains the observed and interpolated temperature, salinity and dissolved oxygen data plus the computed sigma-t, geopotential anomalies and sound velocities for 83 oceanographic stations occupied by the USCGC NORTHWIND (WAGB 282) in the Bering and Chukchi Seas during 12–23 July 1967. Also included are the direct current observations made at 66 of the oceanographic stations. Serial observations were made of temperature, salinity, oxygen and water flow at 5-meter intervals from the surface to near the bottom. This survey was a cooperative effort by the U.S. Coast Guard Oceanographic Unit, Washington, D.C. and the University of Washington, Seattle, Washington.

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Oceanographic Cruise of USCGC NORTHWIND, Northern Bering Sea-Bering Strait—Chuckchi Sea

By David M. Husby

Introduction

This report contains the oceanographic data obtained on the cruise of the USCGC NORTH-WIND (WAGB 282) from 8-30 July 1967 in the northern Bering Sea-Bering Strait-Chukchi Sea area. The oceanographic survey was a joint U.S. Coast Guard-University of Washington project with the purpose of providing information on: (1) the circulation and interaction of the water masses of the northern Bering and Chukchi Seas for the peak summer period; (2) the flow regime in Bering Strait, its short-term variations and possible causes; (3) the exchange of water, salt and heat between the Bering and Chukchi Seas during summer, and (4) the tidal wave pattern in the northern Bering and Chukchi Seas.

All physical and chemical data collected aboard the USCGC NORTHWIND during the 8–30 July 1967 period are contained in this report as well as all the direct current observations made by the University of Washington personnel on the 83 oceanographic stations. This report also includes a discussion of methods used in collecting and processing the data, plots of vertical and horizontal distribution of the various water properties measured and a tabulation of the physical and chemical data.

Personnel

CAPTAIN J.F. PHAIR, U.S. Coast Guard, Commanding Officer, USCGC NORTHWIND (WAGB 282).

The following personnel were associated with the data collected aboard the USCGC NORTHWIND:

U.S. Coast Guard Oceanographic Unit: DAVID M. HUSBY, Field Party Chief. DONALD A. HAAGENSON, Oceanographer. PETER SAN JULE, Aerographer Second Class.

University of Washington:

JERRY A. GALT, Senior Scientist.

J. ROSENBERG.

L. LAYMAN.

P. JOPPA.

Military (stationed aboard USCGC NORTH-WIND):

CDR S. S. BECKWITH, U.S. Coast Guard, Executive Officer and Scientific Coordinator

ENS A. W. LONGACRE, U.S. Coast Guard, Oceanography Officer.

SEAMAN R. EDWARDS.

Chronology of Events

The events listed below were taken from the ship's cruise report. The locations of the ocean-ographic stations are shown in figure 1.

$Date\ 1967$	Event
15 June	USCGC NORTHWIND (WAGB 282) departed Seattle, Wash. enroute Bering Sea on 1967 Arctic West Patrol.
8 July	Arrived U.S. Coast Guard LORAN Station, Port Clarence, Alaska, embarked scientific party.
10 July	Placed water level pressure gauge on bottom at position 67°04′N, 171°12′W.
11 July	Anchored first current meter array in position 66°36'N, 168°15'W.
12 July	Anchored second current meter array in position 64°55′N, 168°39′W.

Date 1967	Event
12 July	Arrived at first oceanographic station in position 65°01'N, 171°34'W.
17 July	Completed station 42 and first occupation of sections E-E', D-D', C-C' and B-B'. Enroute section E-E' for re-occupation.
19 July	Completed re-occupation of section E-E'.
23 July	Completed re-occupation of section B-B' with the exception of one station; ship at position 67°15′N, 170°48′W. Enroute Point Barrow to assist CSS RICHARDSON, trapped in 10/10 concentration of thick winter ice.
26 July	Completed RICHARDSON SAR case. Enroute southern Chukchi Sea to recover tidal gauge.
28 July	Retrieved tidal gauge and two anchored current meter arrays with little difficulty. Enroute Port Clarence, Alaska.
29 July	Arrived Port Clarence and disembarked

scientific party.

Cruise Narrative

The oceanographic phase of the USCGC NORTHWIND 1967 Arctic West Patrol began with the embarkation of seven scientific personnel at the U.S. Coast Guard LORAN Station, Port Clarence, Alaska on 8 July 1967. The ship then steamed north to the position 67°04′N, 171°12′W off the northern Siberian coast to install a recording water level gauge on the sea bottom. This gauge was one of six such instruments anchored by the University of Washington during the survey period at various locations in the Chukchi Sea-Bering Sea area to monitor the tidal oscillations. On 11 and 12 July two buoys with current meter arrays attached were anchored in the positions 66°36'N, 168°15'W and 64°55'N, 168°39'W. Each buoy marked the location of two Braincon Type 316 Histogram Current Meters at depths of about 13 and 25 meters. These meters utilize a Savonious Rotor as a current speed sensor and current direction is sensed by complete instrument pressure case orientation to flow. Three of the four meters recorded continuously over the entire observational period from 12 July to 29 July.

Between 12 July and 23 July the USCGC NORTHWIND occupied 83 oceanographic stations comprising two occupations of the four sections shown in figure 1. The ship anchored at each of these stations and the water properties of temperature, salinity, and dissolved oxygen were measured as well as making direct current measurements. The oxygen data are incomplete for section D-D' due to a shortage of sample bottles and the close station spacing.

On 23 July the USCGC NORTHWIND was diverted from the survey to assist in the rescue of the CSS RICHARDSON trapped in thick winter ice five miles northwest of Point Barrow. After the rescue mission the USCGC NORTHWIND returned to the survey area on 28 July and recovered the water level gauges and the two current meter arrays. The oceanographic field party was disembarked at Port Clarence on 29 July completing one of the most successful surveys of the Bering Strait current regime to date.

Data Collection

Personnel from the U.S. Coast Guard Oceanographic Unit (CG Oceanographic Unit) conducted Nansen bottle casts at each station, taking observations from the surface to near the bottom at 5-meter intervals. A total of 83 oceanographic stations were occupied. The Nansen bottles were equipped with two protected reversing thermometers, mainly of Yoshino Keike manufacture. Shoal water in the Bering Sea area precluded the use of unprotected thermometers. Water depth rarely exceeded 50 meters. The Nansen bottles were allowed to sit at the desired depths for a minimum of six minutes before being reversed.

Upon retrieval of the cast, water samples were drawn immediately for the dissolved oxygen analyses. The method used was a modified Winkler determination involving the titration of an aliquot portion of the treated sample with sodium thiosulfate using starch as an endpoint indicator.

Salinity samples were drawn from each Nansen bottle and determinations run at least every fourth station. Salinities were determined using the Model 6220 inductive salinometer manufactured by the Bissett-Berman Corporation. This instrument has an accuracy stated by the manufacturer of $\pm .003\%$. At least two determinations were made on each sample.

Temperature, salinity and oxygen data were processed by personnel at CG Oceanographic Unit, Washington, D.C. Corrected data were recorded on form NHO/NODC-3167/1(1-61), Physical and Chemical Data form for oceanographic stations, and delivered to the National Oceanographic Data Center (NODC). These data are listed by NODC as Ref. No. 31–1089 NW.

The field party from the University of Washington made direct measurements of currents from 5 meters to near the bottom at 5-meter intervals at each station. Current velocity and direction were measured by the Kelvin-Hughes Direct Reading Current Meter. The ship was anchored at each station when the meter was operating and the ship's magnetic heading was recorded. The meter was inoperative on the first line of stations due to a faulty termination between the conducting cables and the deck read-out. Current measurements were made on a total of 66 stations. All current data were processed at the University of Washington Department of Oceanography.

Mechanical bathythermograph lowerings were made on all 83 oceanographic stations by the ship's personnel. The slides and completed logs were submitted to the NODC for final processing.

A continuous sounding program was undertaken during the survey utilizing an AN/UQN-1C echo sounded. However, routine electronic failures hampered full-time use of the echo sounder, along with several instances when the instrument was needed on the bridge for navigation purposes and no soundings were obtained. The bottom profiles are included in the vertical profiles of temperature, salinity, oxygen, and current velocity.

Weather and Ice Observations

Weather

Surface observations were taken at the rate of four per day at 0000, 0600, 1200 and 1800 hrs. GMT. These regular surface observations were transmitted to the appropriate weather stations. No upper air observations were taken during the survey. Four bathythermograph observations were taken daily in conjunction with the six-hourly surface observations. In addition, bathythermograph observations were taken on each oceanographic station.

Sea surface temperature observations were taken on the odd hours, 24 hours per day, in support of the Antisubmarine Warfare Environmental Prediction System (ASWEPS).

One collective sea surface temperature message was transmitted daily after the 2300 GMT observation to Fleet Weather Central, Pearl Harbor. A summary of the 147 recorded and transmitted surface observations is given in Table 1.

In general, in summer when low pressure cells move into the Bering Sea, they occasionally continue northward, then eastward following the coast of Alaska. The air which moves in from the northeast is relatively moist having picked up some moisture from the Arctic Ocean. This airflow frequently causes widespread low level cloudiness. During the survey period this cloudiness was very prevalent, nearly 90% of the time. Fog was also very common with a 35% occurrence, In general there was good visibility with light winds and calm seas despite the low level cloudiness. The average air temperature on station for the first occupation of the four sections was 46°F. For the second occupation the average air temperature on station was 45°F. The lowest air temperature recorded during the survey was 39°F on the second occupation of section E-E'.

Ice Conditions

No ice was encountered in the survey area since the southern boundary of the ice pack during the entire period was about 70°N (figure 2). Figure 2 is a reproduction of a U.S. Navy Ice forecast received by facsimile from Fleet Weather Central, Kodiak, Alaska. The USCGC NORTHWIND encountered the first ice of the cruise off Wainwright, Alaska on 23 July while on the rescue mission to save the Canadian vessel CSS RICHARDSON trapped north of Point Barrow. Scattered brash ice increased in concentration becoming 10/10 coverage of thick winter ice by midnight. Some young polar ice was observed from time to time. Figure 3 shows the ice conditions from Point Barrow to approximately 80°N on 24 July as a result of a U.S. Navy ice observer flight from the Arctic Research Laboratory, Point Barrow, Alaska.

Ice observations were made at six-hourly intervals when the USCGC NORTHWIND was in sight of or operating in ice. Ice observations were taken at 0000, 0600, 1200 and 1800 hrs. GMT in conjunction with the surface weather observations. Several ice reconnaissance flights

were flown by the ship's helicopters with R. A. LINDSAY, AGC, as ice observer. The observations during these flights together with the ice observations made during U.S. Navy flights were used to prepare the chart of figure 4 showing the ice conditions of 26–30 July from Point Barrow eastward to Barter Island.

Field Data Disposition

- 1. U.S. Coast Guard Oceanographic Unit, Washington, D.C.
 - (a) Temperature
 - (b) Salinity
 - (c) Oxygen
- University of Washington, Seattle, Washington
 - (a) Direct current measurements
 - (b) Water level measurements
- 3. U.S. Naval Oceanographic Office, Washington, D.C.

- (a) Fathometer traces
- 4. National Oceanographic Data Center, Washington, D.C.
 - (a) Mechanical BT logs and slides

Data Presentation

The temperature and salinity distributions at the surface for the two occupations of the sections are shown in figures 5–8. These figures were prepared making the assumption of quasisynoptic observations. Figure 9 and 10 are representations of the mean current vectors at 5 meters from direct measurement at each oceanographic station taken nearly simultaneously with the physical and chemical observations. Vertical profiles of temperature, salinity, oxygen and current speed for each section are included in this report along with the bottom profiles (figures 11–18). The vertical exaggeration for these cross sections is 1798:1.

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EXPLANATION OF OCEANOGRAPHIC STATION DATA

A. Description of Entries, Units and Codes on NODC Station Listing

1. Surface Observations

Entry Description of Field

NODC REF. ID. NO. NODC reference identity number.

COUNTRY CODE Indicates nationality of the institute or agency conducting the survey or expedition.

CRUISE NUMBER A reference number assigned by NODC for storage-retrieval purposes. NODC Pub-

lication C-1, Reference Sources of Oceanographic Station Data, gives complete bibli-

ographic and other pertinent information for each cruise.

SHIP CODE Alphabetic representation of ship's name (or ICES numeric ship code).

LATITUDE Degrees, minutes, and tenths of minutes, N. or S. LONGITUDE Degrees, minutes, and tenths of minutes, E. or W.

DRIFT INDICATOR The letter D appears in this column if extensive drift occurred while on station.

MARSDEN SQUARE:

10° Marsden square number according to the Marsden square system.

1° The one-degree square number according to the Marsden square system.

STATION TIME:

(GMT) Date and time given by the originator. (GMT).

MONTH Month (GMT)
DAY Day (GMT).

HR. 1/10 GMT to nearest tenth of an hour.

YEAR Year.

ORIGINATOR'S Alphabetic or alpha-numeric designator as assigned by the originator. If the year of

CRUISE NUMBER the cruise forms part of the cruise numbering system, the year digits are found in

preceding field.

STATION NUMBER Originator's station number or designator.

DEPTH TO BOTTOM Corrected or uncorrected sounding depth in meters.

MAX. DEPTH OF

NUMBER

SAMPLES Depth of deepest sample in hundreds of meters to nearest hundred-meter interval.

WAVE OBSERVATIONS:

DIR. Direction from which the dominant waves are coming, 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.

SEA AMT. Sea amount (sea state) according to WMO Code 3700 (preceded by the letter A).

WEATHER CODE If preceded by the letter X, weather according to WMO Code 4501. A numeric two-digit

entry indicates weather according to WMO Code 4677.

*INSTR./CLOUD This field is used either for recording instrument code when electronically obtained data

are being reported, or for reporting cloud type and cloud amount when conventional

Nansen cast data are being reported.

*INSTR. A two character code representing instrument package of system.

TYPE Cloud type according to WMO Code 0500.
AMT. Cloud amount according to WMO Code 2700.

NODC STATION Assigned by NODC for data storage and retrieval purposes. The NODC Reference

Identity and Station numbers combined, uniquely define each station in the NODC

archives.

*DT/*SU/D This indicator specifies that the reported data have been obtained electronically rather

than by Nansen-type casts. U (up) and D (down) are cast indicators for electronically obtained serial data and specify that the data were taken while hoisting or lowering

respectively.

WATER COLOR Water color according to Forel-Ule Code.

Entry Description of Field

TRANS. (m) Water transparency in meters as determined by Secchi disc.

WIND:

DIR. Direction from which wind is blowing in tens of degrees, according to WMO Code 0877.

SPEED OR FORCE If preceded by letter S, wind speed in knots; if preceded by letter F, wind force in

Beaufort code.

BAROMETER (mbs) Barometric pressure in millibars; tens, units, and tenths places only.

AIR TEMPERATURE

°C:

DRY BULB Dry bulb air temperature in degrees centigrade, to tenths.
WET BULB Wet bulb air temperature in degrees centigrade, to tenths.

VIS CODE Visibility according to WMO Code 4300

NUMBER OBS. LEVEL The number of observed levels associated with the station.

SPECIAL Entries in this space vary with individual cruises or stations. Information concerning

OBSERVATIONS entries in this field can be requested from the NODC.

2. A complete description of the codes can be found in NODC publication M-2 (Rev. August 1964), "Processing Physical and Chemical Data from Oceanographic Stations,"

Publications of U.S. Coast Guard Oceanographic Unit Relating to Arctic Research

CG 373-1—Gladfelter, W. H. et al (1964) Oceanographic Cruise USCGC NORTHWIND, Bering and Chukchi Seas, July-September 1962.

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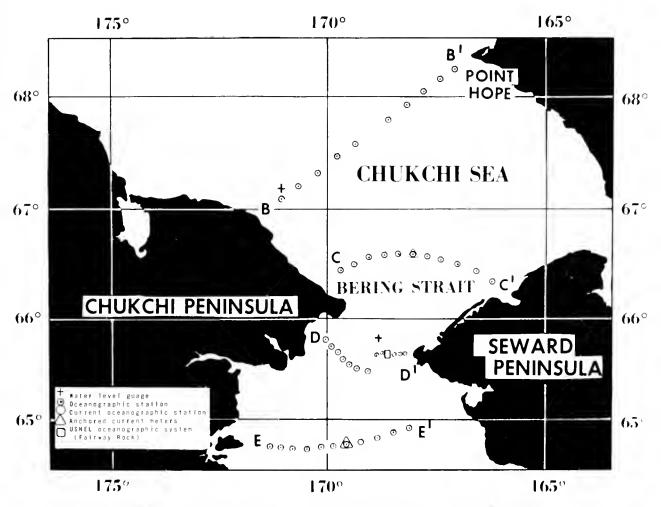


Figure 1. Oceanographic stations occupied by the USCGC NORTHWIND in the Bering and Chukchi Seas, 12-23 July 1967.

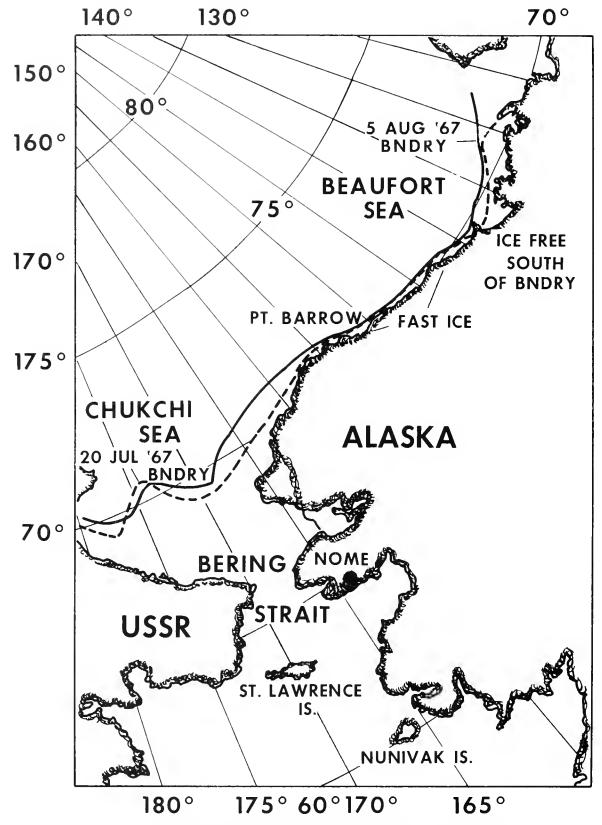


Figure 2. U. S. Navy Ice Chart from Fleet Weather Central, Kodiak, Alaska, 5 July 1967, NAVOCEANO 15-30 day forecast (boundary for 20 July and 5 August 1967.)

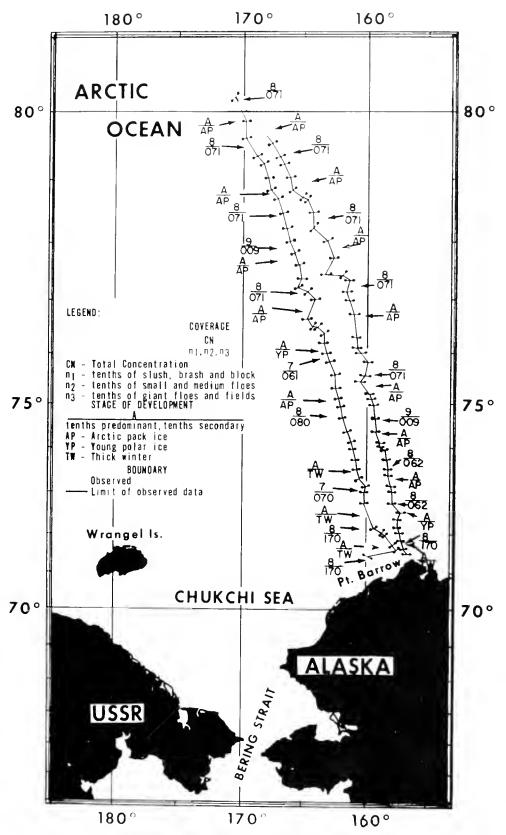


Figure 3. Results of flight by U. S. Navy Ice Observer from Arctic Research Laboratory, Point Barrow, Alaska to approximately 80°N., 24 July 1967.

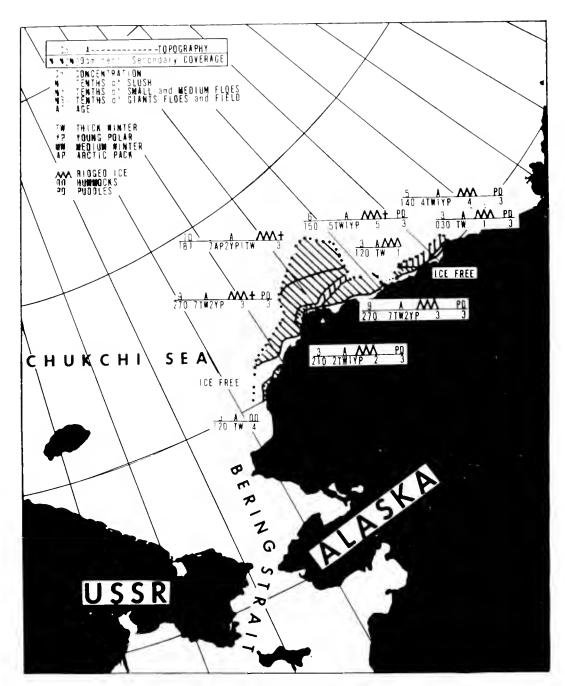


Figure 4. NAVOCEANO Ice Chart, 26-30 July 1967 from Icy Cape, Alaska to Barter Island (conditions along coastline).

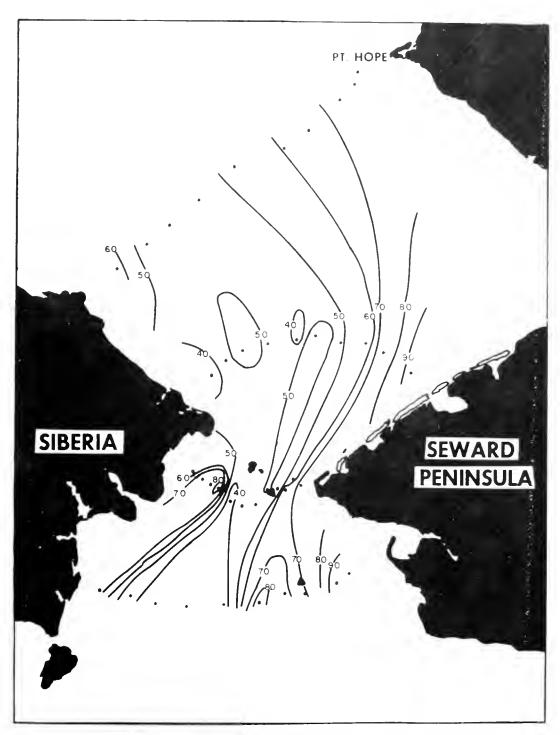


Figure 5. Horizontal distribution of surface water temperature (°C) on first occupation of the four oceanographic sections, 12-17 July 1967.

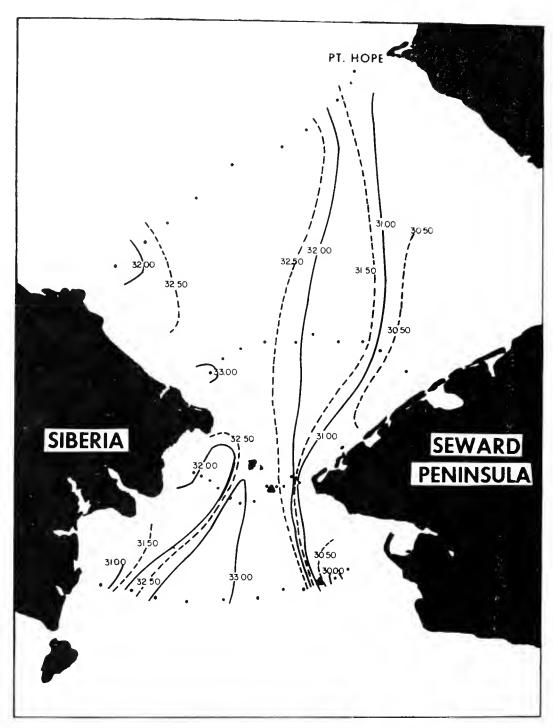


Figure 6. Horizontal distribution of surface salinity (°/00) in first occupation of the four oceanographic sections, 12-17 July 1967.

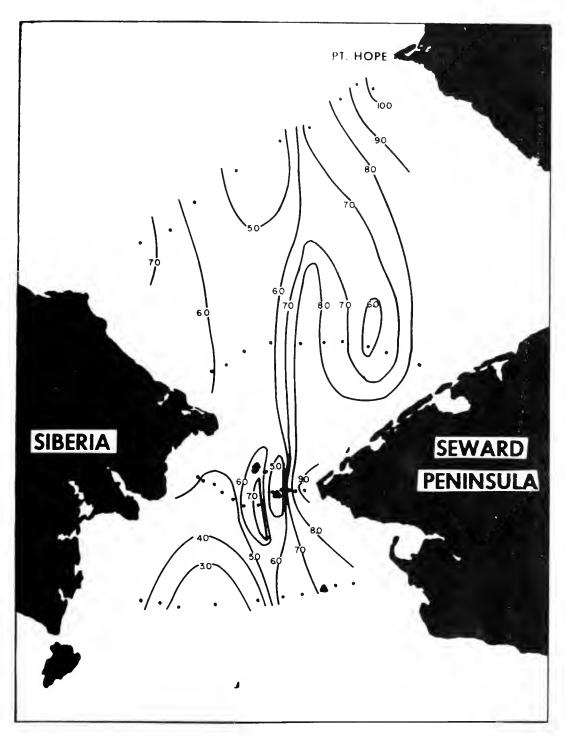


Figure 7. Horizontal distribution of surface water temperature (°C) on second occupation of the four oceanographic sections, 18-23 July 1967.

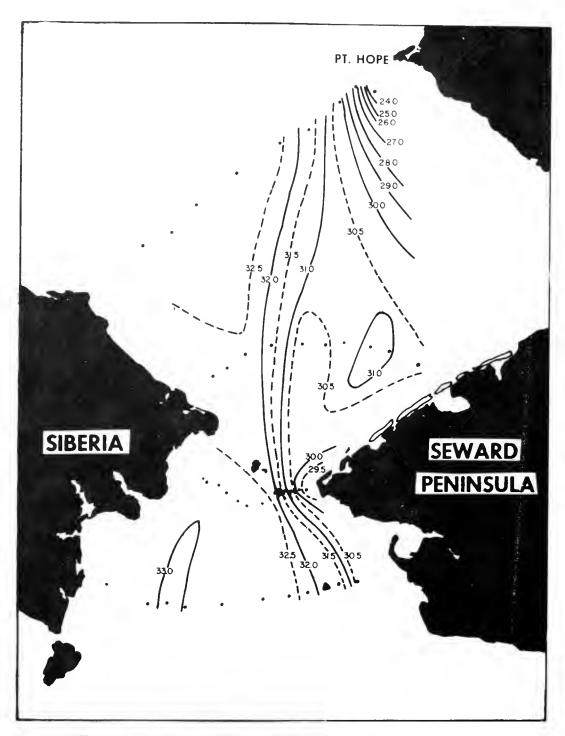


Figure 8. Horizontal distribution of surface salinity ($^{\circ}/_{\circ 0}$) on second occupation of the four oceanographic sections, 18-23 July 1967.

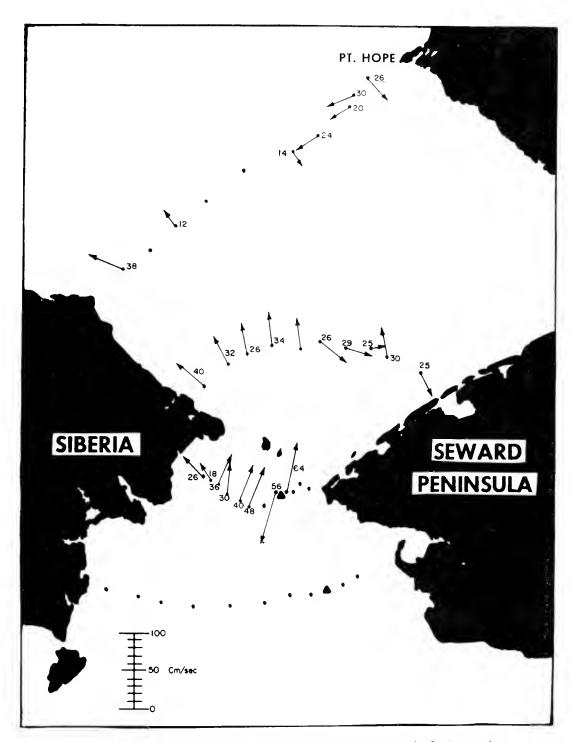


Figure 9. Mean current vectors, direction in degrees true and magnitude in centimeters per second, at depth of 5 meters, based on average of two readings taken on oceanographic stations occupied between 12-17 July 1967. Numerals indicate magnitude of current.

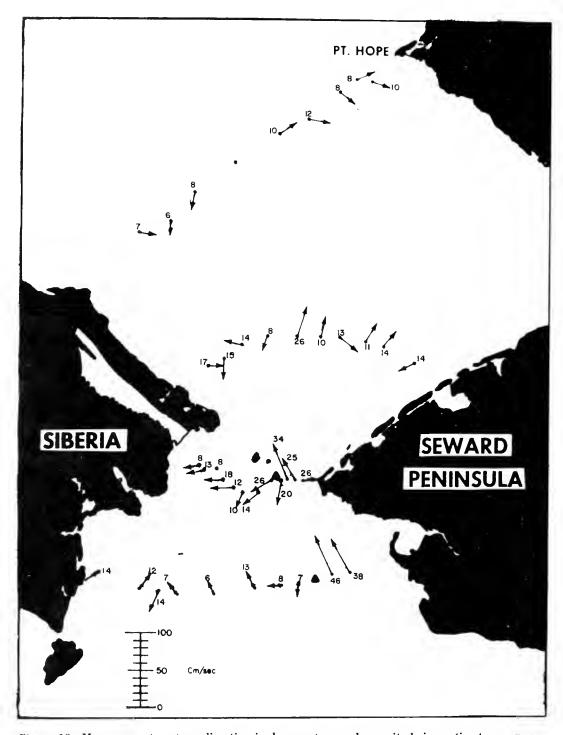
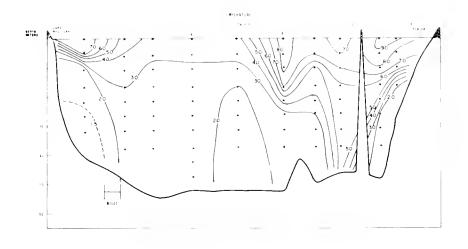
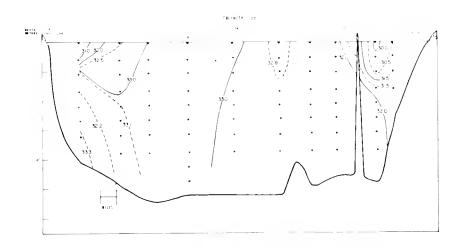


Figure 10. Mean current vectors, direction in degrees true and magnitude in centimeters per second, at depth of 5 meters; based on average of two readings taken on oceanographic stations occupied between 18-23 July 1967. Numerals indicate magnitude of current.





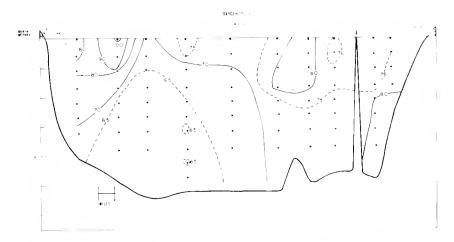
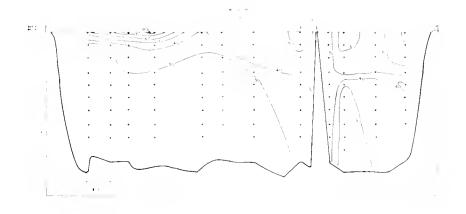


Figure 11. Cross-sections of (a) temperature (b) salinity and (c) oxygen on section E-E' from USCGC NORTHWIND data of 12-13 July 1967. Points indicate observed values. Distances between Cape Nygligan and station 1 and between station 10 and Point Spencer have been exaggerated.



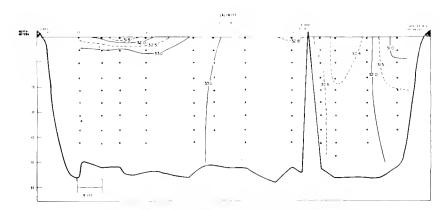
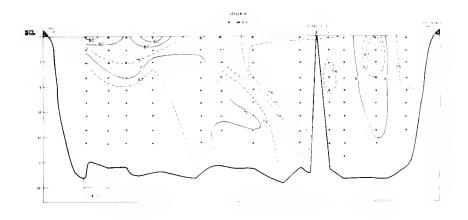


Figure 12 (a) (b). Cross-sections of temperature and salinity on section D-D' from USCGC NORTHWIND data of 13-14 July 1967. Points indicate observed values. Distances between Cape Litke and station 11 and between station 22 and Cape Prince of Wales have been exaggerated.



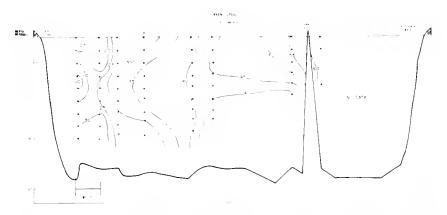
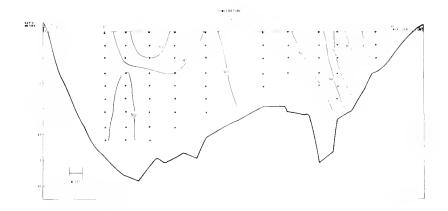


Figure 12 (c), (d). Cross-sections of oxygen and current speed on section D-D' from USCGC NORTHWIND data of 13-14 July 1967. Points indicate observed values. Distances between Cape Litke and station 11 and between station 22 and Cape Prince of Wales have been exaggerated.



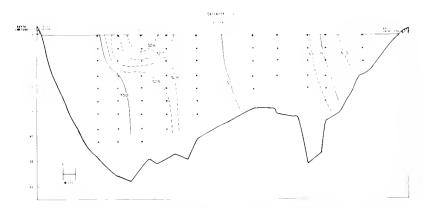
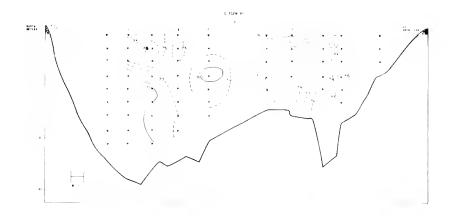


Figure 13 (a), (b). Cross-sections of temperature and salinity on section C-C' from USCGC NORTHWIND data of 15 July 1967. Points indicate observed values. Distances between Cape Uelen and station 32 and between station 23 and Cape Lowenstern have been exaggerated.



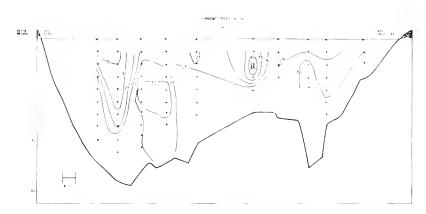
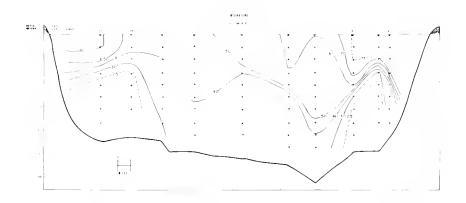


Figure 13 (c), (d). Cross-sections of oxygen and current speed on section C-C' from USCGC NORTHWIND data of 15 July 1967. Points indicate observed values. Distances between Cape Uelen and station 32 and between station 23 and Cape Lowenstern have been exaggratd.



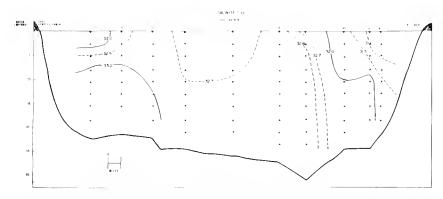
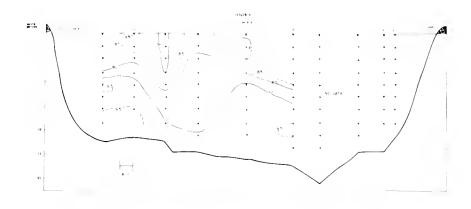


Figure 14 (a), (b). Cross-sctions of temperature and salinity on section B-B' from USCGC NORTHWIND data of 16-17 July 1967. Points indicate observed values. Distances between Cape Serdtse-Kamen and station 33 and between station 42 and Point Hope have been exaggerated.



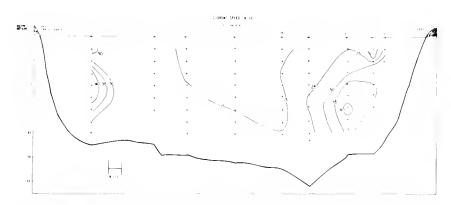
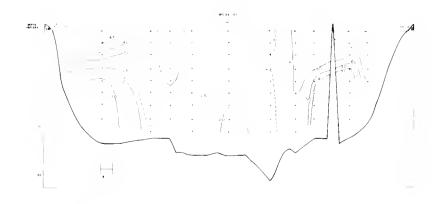


Figure 14 (c). (d). Cross-sections of oxygen and current speed on section B-B' from USCGC NORTHWIND data of 16-17 July 1967. Points indicate observed values. Distances between Cape Serdtse-Kamen and station 33 and between station 42 and Point Hope have been exaggerated.



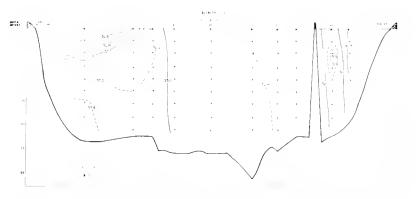
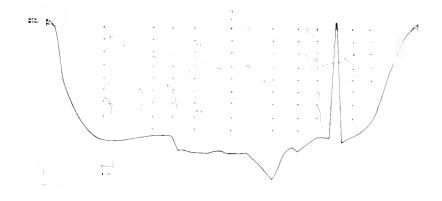


Figure 15 (a), (b). Cross-sections of temperature and salinity on section E-E' from USCGC NORTHWIND data of 18-19 July 1967. Points indicate observed values. Distances between Cape Nygligan and station 52 and between station 43 and Point Spencer have been exaggerated.



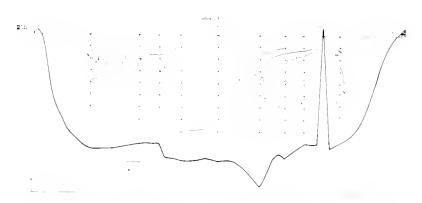
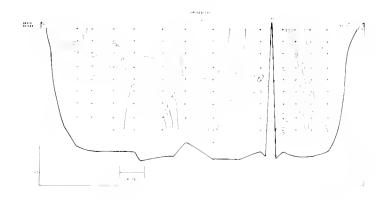


Figure 15 (c). (d). Cross-sections of oxygen and current speed on section E-E' from USCGC NORTHWIND data of 18-19 July 1967. Points indicate observed values. Distances between Cape Nygligan and station 52 and between station 43 and Point Spencer have been exaggerated.



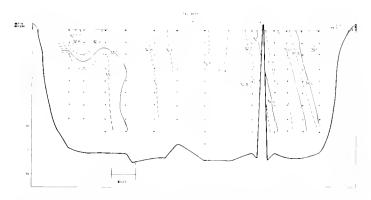
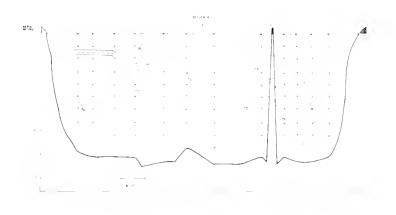


Figure 16 (a), (b). Cross-sections of temperature and salinity on section D-D' from USCGC NORTHWIND data of 19-20 July 1967. Points indicate observed values. Distances between Cape Litke and station 53 and between station 64 and Cape Prince of Wales have been exaggerated.



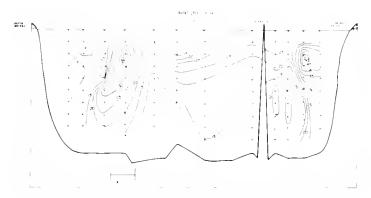
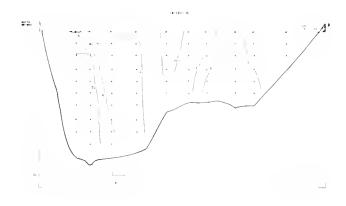


Figure 16 (c). (d). Cross-sections of oxygen and current speed on section D-D' from USCGC NORTHWIND data of 19-20 July 1967, Points indicate observed values. Distances between Cape Litke and station 53 and between station 64 and Cape Prince of Wales have been exaggerated.



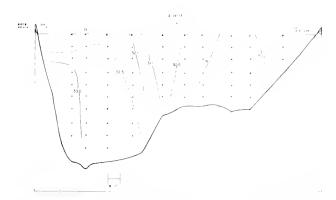
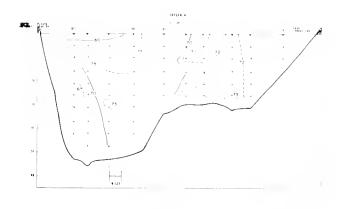


Figure 17 (a). (b). Cross-sections of temperature and salinity on section C-C' from USCGC NORTH-WIND data of 20-21 July 1967. Points indicate observed values. Distances between Cape Uelen and station 65 and between station 74 and Cape Lowenstern have been exaggerated.



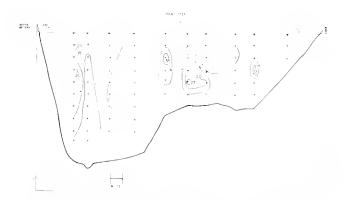
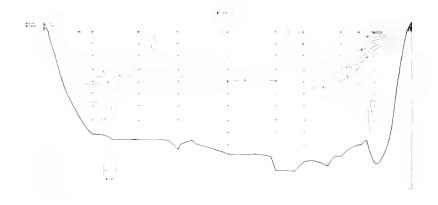


Figure 17 (c), (d). Cross-sections of oxygen and current speed on section C-C' from USGCG NORTH-WIND data of 20-21 July 1967. Points indicate observed values. Distances between Cape Uelen and station 65 and between station 74 and Cape Lowenstern have been exaggerated.



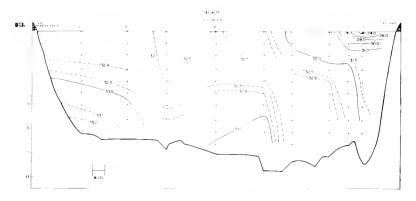
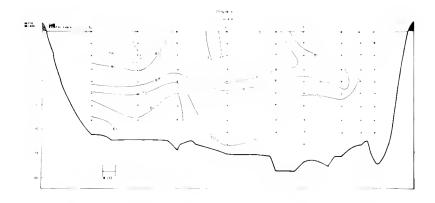


Figure 18 (a). (b). Cross-sections of temperature and salinity on section B-B' from USCGC NORTHWIND data of 22-23 July 1967. Points indicate observed values. Distances between Cape Serdtse-Kamen and station S3 and between station 75 and Point Hope have been exaggerated.



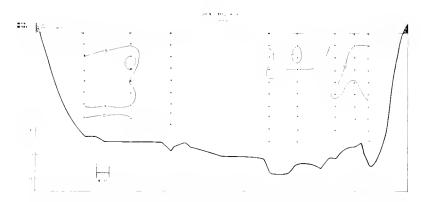


Figure 18 (c). (d). Cross-sections of oxygen and current speed on section B-B' from USCGC NORTHWIND data of 22-23 July 1967. Points indicate observed values. Distances between Cape Serdtse-Kamen and station 83 and between station 75 and Point Hope have been exaggerated.

Table I.—Weather observations given in percentage occurance in Cape Prince of Wales to Point Barrow area.

Total obs: 147	%
Sky Coverage:	
Clear to few scattered	12
Cloudy	
Visibility :	
¼ mile or less	16
½ mile or less	
1 mile	
2 miles	
5 miles	
10 miles	50
Weather:	
No weather or obstructions to vision	54
Fog	
Rain or drizzle	
Snow or snow showers	0
Wind Direction:	
N	20
NE	
E	10
SE	5
S	28
SW	8
W	9
NW	8
Wind Speed:	
0–5 knots	14
6-10 knots	27
11–15 knots	22
16–20 knots	14
21–25 knots	
26–30 knots	5
31-35 knots	5

Average Barometric Pressure 29.698 inches

All physical and chemical data are presented in Table II. This tabulation is accompanied with an explanation of codes used for the environmental data. The direct current measurements made at each oceanographic station are tabulated in Table III.

Table II.—Observed and interpolated oceanographic data for stations taken by USCGC NORTH-WIND, 12–23 July 1967, prepared from NODC listing No. 31-1089 NW.

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174	085	2026	0147	336.1	2001			14539	714						
	510	0 0030	0136	3361	2067	1.32.2		1453€	750						
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					0513		618	258		002211	-			689 689	714						
276		085	0031																		

RENC	SHIP	LATITU	DE L	ONGITUDE	RIFT	MARS SQU			ION I		YEAR		NATOR"		DEPTH TO	DEP	TH		WAVE		W. EA		OUD ODES			NODC TATION
N			1. 10	1:10		10*	1.	MO	DAY	HR.1 10			NUMBE		801104	A S'ME		-ip	HGT PE	SE.	COD	TYP	E AM	+		UNBER
10	89 14	6500	0N 1	6748UN		233	57	0.7	د 1	096 1	967	EE1 00) 4		U04U	U	0	7	2		1,4		7			0009
							WA	ER		WIND	BARO	A ID TE	MP. °C		NO	T			_ /			, ,,				000.
							COLOR	TRANS (m)	DIR.	SPEED OR FORCE	METE	R DRY	W ET		1		PECIA (RVATI(
									23	505	196	5 094	28	3 3												
	MESSENGI TIME HR 1,10	및 NO.	C ARD TYPE	DEPTH	(m.)	r	*c	s	٠.,	SIGM	A-T	SPECIFIC VOL		₹ △ D DYN. M x 10 ³	, ,,,	UND	02	ml 'I	PO 4		TOTA ()			1103−N µg - at l	SI O4-Si pg = o1 1	pН
			STU	000	U	0	936	29	94	231	. 3	004748	33	0000	14	815	7	3								
	119	6	085	200	J	Ü	936	29	938	231	13				14	815	7	و ن								
	39	6	OBS	000	5	Û	488	3.0	029	232	8.5				14	799	7	3								
			STD			Ü	796	50	27	236	0	00430	35	0U45	14	700	7	jø								
	3.9		ORZ	201		Q	770	30	274	236	50				14	768	7	30								
	0.9	5	065	001			544		636	250					14	667	7	10								
			STÙ				509		U 5	253		002632	16	0080	14	678	7	93								
	39	6	085	002			473		115	254	44				14	664	ㅂ	J 5								
	10	6	083	002			133		250	258	34				14	519	8	7								
			STO				120		25	258	35	30-163	0.0	0104	14	514	Ե	ž ()								
	, 9		083	003			110		247		35				14	514	8	31								
	3.0	6	385	003	7	0	117	3.2	251	258	3.5				14	514	d	30								

SHIP LATITU	JDE LO	NGITUDE TO	MARCDEN SQUARE	STATION TO	YEAR	CRIHSE STA		DEPTH DE	PTH OBSE	WAVE RVATIONS HGT PER SEA	WFA- THEP CODE	CODES	5	51	NODC MOITAT MARKET
84 NA 65 12	.UN 10	7350W	T 1 11		υ7 1+67	SET OIL			10 22		+ 14	4 4			001
			WAI	ER V	IND BAR	A ID TE LAD	'C	110	SPECIAL					. ,	501
			COLOR	TEANS DIR	SPEED MET	ER DRY V	VET OFF		ERVATIONS						
				24	507 19	5 086	81.2								
TIME OF NO	TYPE	DEFTH (m)	1 'C	5 * 1.	SIGMA-1	SPECIFIC VOLUME ANOMALY	x 10 ³	SOUND VELOCITI	0 2 ml l		nå. a, 1 (⊕1∀f=6	NOg-N ug-ali	NO3-N pg - at 1	\$1.04~5; pg = of 1	
	STU	1000	0920	∃034	2347	 	00.12	1481:	7 4	1					
1 ⊕ 7	085	0000	0920	30341	2347			14815							
107	065	0005	0763	30940	2417			1476							
	STD	1910	0682	3,198	2430	0536314	0040	1473,	: 762						
1:7	OBS	0010	0682	30979	2430			14732	76-						
107	OBS	0016	0185	31690	2536			1453:	3						
	STD	0020	0161	3172	2547	0025882	0571	14524	+						
107	065	0021	0157	31723	2540			1452							
107	085	0026	0155	31720	2540			14522	,						

CODE NO.	SHIP	LATITU	D£ 1,110	LONGITUDE	PRINT			TION T		YEAR	CRUISE NO.		ATOR HATI	NC.	DEPTH TO BOTTON	DEPTH OF S'MPL	OBSE	WAVE RVATIONS		CODES		51	NODC TATION UMBER	
3111089	NM E	6542	ON	169540W		233 59	0.7	14		967	001				ووول	00	19	i	1.2	7 8			0011	
							P TRAN	5 D18	SPEED OR FORCE	M ETE (mbs	8	DRY DLB	W E	T CODE	NO. OBS DEPTHS		CIAL (A TIONS							
								20	516	16	7 0	83	0.7	2 4										
	MESSENGR TIME HR 1/10	및 NO.	C A R		m I	1 °C		-4.	SIGM	A = T		C VOLU		₹ △ D DYN. M x 10 ³		UND OCITY	0: ml/l	PO4-P	fOTAL=P	NO2-N ug - ot l	NO3-N ug + at I	SIO4-SI ug - atil		i c
				-2		0.501			1															
				TD 0000		0591		30	254		0.02	534	1	0000		711								
	0.2		06			0591		299	254							711	8739							
	2.2	5	065			0275		1095	264							590	730							
			5			0260		15	264		001	573.	2	0051		うちつ	645							
	92		083			0260		150	264							505	645							
	0.5	8	08:			0259		161	264						14	586	624							
			5.			0259		17	264		001	561	5	0036	14	587	015							
	2.2		OB:			0259		166	264						14	587	615							
	0.23	5	ŬΒ:			0259		173	264						14	うせど	616							
			5.			0258		17	264		001	561.		0052		568	615							
	0.23		OB:			0258		163	264	В					14	588	615							
	0.23		089			0258		158	264	7					14	584	514							
	0.23	R	089	5 004.	-	0256	3 3	15 ₹	264	В					14	509	6040							

FEFERENCE	SHIP					ARSDEN	ST-	ATION T			01	RIGINAT	DR"S		DEPTH	MAX.		WAV		WEA					NODC
TRY ID.	CODE	LATITU	ì	LONGITUDE		SQUARE	ļ	(GMT)		YEAR	CRUISE NO.		TION	8	10 0110M	OF		SERVA		THER CODE					TATION
+	+ +		1 10	1.10	++'	0, 1,	MO				+		VIBER	-		S,Wbr.	S DIR	HGT	PEP 58	A	TYPE				
31108	A MM	6542	UN	169480W	i i	3 54	0.7			1967		012		Ų	1003	Un	20	12		1.4	7	8 I		1	0012
							ATER	_	SPEEC	BAR	0-	R TEMP.	_	VIS	NO. OBS.		CIAL								
						COLO			FORC	74161			VET ULB	CODE	DEPTHS	OBSERV	A TION S								
						-		35	517	1	6 08	4 7	63	i i											
	MESSENGR	CAST	CARD								SPECIFIC		٤ /	Δο	501	UND		Pr	4-P	TOTAL-P	10-	N NC) _ N	5104-5	
	TIME HR 1/10	일 NO.	TYPE		(m)	1 °⊂		\$	SIG	MA-T	ANOMA			1. M. 10 ³		YIIDO	Op ml/		• 01'1	10 1 A 1 - P			- 01 1	ug - at	
	HR 1710	-					-		+				1		+			_				+		-	1
	1	1	ST	D 500	0	0735	1	186	27	93	0030	1467	- 00	00	1	763		-			l			l	1
	94	1	085			0735		1863		173	0000	1002	00	OU		763									
	04		085			0358		3005		26						625									
	,		5.1			0245		316		49	0015	517	0.0	د کے		579									
	0.4	1	085			0245		3163		49	0015	- 1	0 -			579									
	0.4	1	OBS			0236		3188		52						576									
			ST			0211		321		56	0014	890	0.0	3.8		566									
	0.4	1	065	002	1	0208	3.	3220		56				-		565									
	0.4	1	OBS			0208		3219		56						566									
			ST	0 003	0	0207		322		56	0014	825	0.0	53		566									
	Ü 4	1	085	003	1	0207		3218		56			-			500									
	0.4	1	085	063	7	0208		3222		5.7						568									
	0.4	1	085	004	2	0207		3220		56						568									

TRY ID.	SHIP	LATITUD	E	LONGITUDE	DRIFT	MAR			TION T		YE AR		STATION		DEPTH TO BOTTOM	DEPTH OF	085	WAVE ERVATIONS	W.E.A- THER CODE			5.	NODE TATION UVBER
ODE NO.		•	10	1 10	=	10"	1"	MO	DAY	HR,1 10		NO I	NUMBER		801107	Z, WI br	S D10	HIGT PER SE	A CCCC	TYPE A //*	-		OABER
311089	l ww l	65360	N	169420W	1	233	59	37	14	053	1967	001 01	3		دونان	100	1 21	0	F 44	7 8			0013
							WA			WIND	BAR	A ID TS			NO.					, ,			0011
							COLOR	TRANS (m)	DIR	SPEED OR FORCE	MET	R DRY	WET	CODE	0.00	Dacen	CIAL						
		, ,							20	518	16	094	076	4									
	MESSENGE TIME & HR 1, 10	CASI NO.	CARD TYPE	DEPTH	(m.)	T	*c	s	•4.	SIG	M A - T	SPECIFIC VOLU ANDWALT-RI	0.7	E A D YN. M X 10 ³		UND	0 2 ml 1	PO4-P	1014 (= P		NO3-N µg - at 1	\$1.04-51 ug = 01	рн
	1		ST	D 000	0	. 0	760	31	07	24	27	003657	8 0	000	14	763	791						
	053	3	055	000	C	J	760	3.1	074	24	2.7				14	763	741						
	053	3	085	200	5	ũ	406	33	134	26	32				14	647	1057						
			ST	D 901	0	0	318	33	13	26	40	001633	6 0	1026	14	610	754						
	053	3	085	001	0	0	318	3 3	133	26	40				14	610	754						
	053	3	085	001	6	Û	306	33	157	26	43				14	606	714						
			5 T	D 002	J	0	257	33	19	26	50	001541	0 0	1442	14	586	615						
	053	3	085	002	1		250	3 3	193	26	51				14	583	605						
	053	,	085				251		183	26					14	584	639						
			ST				249		19	26		001535	4 (058	14	584	611						
	053	3	OBS	003	1	0	249	33	280	26	58Q						607						
	053	}	08\$	003	7		248	33	213	26	53				14	585	603						
	053	ş	085	004	2	0	246	33	230	26	54				14	586	607						

REFERENCE	SHIP				RIFT	MAR			TIDN '			1	DRIGIN	ATOR"	5		PTH	MAX. DEPTH		WAV			wea.	CLOUE			NODC
TRY ID.	CODE	LATITU	1/10	LONGITUDE		10"	ARE		IGMT	HR.1/10	YEAR	CRUIT		STATIO			70	OF S'MPL*!		ERVA "			THEF	CODES			TATION LUMBER
21122			-		\top		+ -					-	+							1		\neg					
31 108	9 NW	6538	ONI	1693601	V	233	59 WA			068 WIND	1967	DD	1 01 AIR TE		_	00		00	1 2 1	10		- 1	К÷	L X 19	,		0014
							COLOR	_	+	1992	BAR MET		DRY	WEI	- VIS	1 0	BS		CIAL								
							CODE	Imi	DIR.	FORC	17.		BULB	BUL		DE	PTHS)B2ERV	A TIDN S								
									20	519	16	4	078	0.7	8 5	\top											
	MESSENGI TIME	° NO.	C A R		lm1	1	*c	9	٠/	SIC	MA-T	SPECI	FIC VOLU		₹ Δ C DYN, A × 10 ³	۸, ۱	SOUN		0 2 ml/l		4-P			NO2-N ug - of 1	NO3=N ug - ot. l		i nH
	MK IVIO	+	-			+		1		+		-		_		+						-					_
	1	1	ا 5	TD 00	0.0	1 0	837	31	73	24	+72	0.0	3230	6	0006)	147	89		1						1	1
	0.6	8	ОB	5 90	00	Ó	807		731	24	+72						147	89	992	ì							
	06	8	OB.	5 00	0.5	0	452	3.2	899	26	09						146	63	773								
			S	TD OU	10	0	331	3.3	17	2 6	542	00	1016	9	0024	+	146	16	663								
	0.6	8	ОВ	s ou	10	0	331	3.3	170	2 €	42						146	16	563								
	0.6	8	08	5 00	16	0	294	33	164	2 t	45						146	01	638								
			5	TD 90.	20	0	294	33	16	26	45	00	1593	5	0040)	146	ے ل	646								
	0.6	8	OB	5 00.	21	0	294	3.3	153	20	44						140	ūΖ	640								
	06	8	ОВ	s 00.	26	0	293	33	144	26	543						146	υŽ	638								
			5	OC QT	30	0	291	3 3	14	20	.43	0.0	1604	7	0056	5	146	02	633								
	06	8	08	S 00	31	٥	291	33	143	Ž	043						146	02	634								
	06	8	08	s 00	37	0	292	3.3	156	2 0	544						146	04	641								
	0.6	8	OB	s 00-	42	0	291	3.3	165	26	45						146	Ü4	632								

REFER	RENCE	SHIP				_=	MARSDEN		TION .				ORIGIN	ATOR'	5	DEPTH	DEPT	3.1	WAVE RVATION	w		CLDUD			NDDC
ODE	1D,	CODE	LATITU	1/10	LONGITUDE 1/10	NOON	SQUARE		CGMT:	HR.1/10	YEAR	c		STATIO NUMBI		TO 801104	0.5	0031	HGT PER	- 60	D.C	CODES			UMBER
31	1089	NW	6534	ON	169250w		233 59 WAT	ER	Γ.	OE 7 WIND	1967 BAR MET	RD-	DD 1 0 1	MP. C	VIS	NO, 085.	92.50	17	0	x	4	x 9			0015
							CODE	lm)	1.7	S10	_	58	056	05		DEPTH!									
		MESSENGE TIME of HR 1/10	CAST ND.	C ARD TYPE	DEPTH	lm)	1 %	5	٠/	SIC	MA-1		PECIFIC VOLU		≨ △ D DYN. M. x 10 ³		UND OCITY	O2 ml/1	PO4-P pg - al.	TOTAL		102-N g - al. l	NO3+N pg - ol/I	SI O 4 - 51 pg - of 1	рН
				ST) D 000	0	0397	 د 3	06	- 2	527		001756	9	0000	14	641	719	I		1				1
		087		OBS	000	U	0397	33	063	20	27					14	641	719							
		087		OBS ST			0394 0270		U66 U5		528 538		001658	3	0017		641 588	723 680							
		087 087		0B5 0B5	001		0270 0269		U48		538 538						588	680 669							
				ST			0268	3.3	U5	21	538		001658	J	0034	14	1589	674							
		087		QBS	002	1	0268	33	047	21	538					14	589	670							
		087		085			0270		040		537		001440		0050		591	681							
		087		ST 085			0269 0269		05 048		538 538		001660	0	0050		+591 +591	689							
		087		085	003		0270		350		538						1593	685							
		087		085			0268		050		538						593	666							

SHIP LATIT	NDE IN	NOITUDE \$	MARSOEN SQUARE		ION T		re AP		TATION		DEPTH TO MOTTOM	MAX. DEPTH OF	OBS	WAVE ERVATION	15 71		ES .	5	NODC TATION UMBER
	1 10	1 10	10" 1"	MO E	AY H	R 1/10		, ON	41 W SEP		BOTTOM	S'MPL"	DIR	HGT PEP	SEA	DE TYPE A	h ha T		OWNER
3 / NW 055	23N 16	116. w	. 33 54	27 1	14	152 1	967	001 61	6		1051	UÜ	18	1			,		0010
			WA	TER	٧	MIND	BARO	AIP TE	M.P. "C	vis	NO.	5.00	CIAL						
			COLOP	TRANS Im I	DIR	SPEED UR FORCE	M ETE	₹ DRY	WET BULB	Cood	OBS. DEPTHS	OBSERV							
					16	524	150	761	061	3									
TIME OF NO.	C A R D TYPE	(DEPTH (m)	1 %	\$	٠/	SIGMA	A – T	SPECIFIC VOLU ANOMALY-EI	0 D	∴ D (N. M (10 ³		DCITY	0 : ml/l	PO4-P		-P NO2+ ∀I μg + dt			pH
	SID	Journal	0473	330	13	261	7	001856	9 01	UUU	14	€73	745	,					
1 1.2	OBS	1000	0473	33	.30	261	7				14	673	745						
1 .1	0B5	0005	0469	331	14.2	261	R				14	672	734						
	SID	0010	0288	331		263		001712	1 0	018	14	545	741						
102	OBS	0010	0288		996							590	741						
1 112	055	0016	0237		454							574	704						
	STO	11050	0252	320		263		001700	5 01	035		57.	701						
102	055	0021	0231		75 1	263						572	700						
102	OBS	1026	0228		952							571	594						
	STD	0030	0226	32	95	263	3	001699	6 0	ひちょ	14	571	690						
1 - 12	085	∩∪31	0226	32	950	263	3				14	571	689						
102	085	9037	0225	329	948	263	3				14	574	713						

REFERENCE	SHIP					a	MARS		STA	TION T				OPIGIN	ATOR'	5		DEPTH	MAX. DEPTH		WAVE		WEA-	CLOUG			NODC
RY ID. DE NO.	CODE	LATITU				NOC	SQU.			IGMTI		YEAR	CRUISE NO.		TATIO		BC	OT MOTIC	OF	00.	EPVATIO		THEP CODE	CODE			TATION
140.	-		1/10		'T 10		10"	1,	MO	DAY	rR,1'10		145.		4 U W B		-	-	S,W br.	S DIP	HGT PES	187	-	TYPE AA	^ T	-	
31108	NW P	6532	∠N	104	(C 1 '∀W		233	59	ΰ7	14	116 1	967	001	01	7		10	000	Û0	19	1		X→	X 9	1		0017
								WA'	ER		MIND	BARC) -	AIR TE	MP. C	- vis		NO.	SPE	CIAL							
								COLOR	TRAN	DIR.	SPEED OR FORCE	A* ETE Imbs		DR4	BNF.	COL	- e	OBS.		ATIONS							
										18	515	15	7 C	6 l	Ub	1 2											
	MESSENGI TIME HR 1/10	% NO.	CAF		OEPTH (im)	τ	"C		٠4.	SIGM	7 – A		C VOLU		₹ △ 0 DYN. A x 10 ³	м.	VELO		O 2 m1/1	PO4-		101AL-P μg· σ1/1			51 O4-51 ug - 01:11	
																			1							İ	
				TD	000		0	462	32	43	261	O	001	9-2	5	UUUL	.1	140	67								
	1.1		08		1100		0	452		458		, i)						145	67	7531	Į.						
	1.1	6	ОВ		700			400		936								146		762	1						
				TD	201		0	407		93	260		001	727	Þ	90 P	4	145	70								
	1.1		06		001	Ú	0	467	3 2	929	260	, G						145	70	7621	Į.						
	11	6	08	5	001	6	Ű	314	3.2	924	26.	4						145	Ú 7	764							
			S	TD	005	J	U	468	34	92	252	8	90 î	75Ú	4	ひひりと	t	145	57	744							
	11	6	00		うろい	1	0	258	ے 3	724	26.	4						145	0.5	739							
	1 1	6	ŪΒ	5	002	6	0	218	3.	401	20:	3						145	07	714							
			S	TD	وباز	U	Ü	214	32	43	26.	3	ÛU 1	702	0	û v 5 !	5	145	65	706							
	11	6	08	5	003	1	0	213	34	935	263	3 3						145	60	700							
	11	6	0.8	5	0.03	7	0	214	3.2	937	263	3						145	67	700							
	11	6	06	5	.04		0	215	32	934	263	3.2						145	68	707							

FERENC PY ID DF NO	SHIP	LA TITU	DE 1/10	FONGITUDE P		PSDEN UARE		ION TI IGMT)		YEAR	CRU		ATOR'S STATIO: NUMBE	4	DEPT TO BOTTO	UEPIP	0851	WAVE ERVATIONS	WEA- THER CODE	CODES		51	NODC FATION UMBER	
3110	8 - N.W	5538	ON	168500W	23	3 58	07	14 i	.33	1967	D	01 01	8		005	00	15	1	X 4	x 9			0018	
						W A	TER	W	IND	BAR		AIR TE		VIS	NO.	1	CIAL							
						COLOR		OIR.	SPEED OR FORCE	1 "1"		ORY BULB	BULE	COL	DEPTH	COLCER	VATIONS							
							+	20	516	+	5	061	00	1 2										
	MESSENGR TIME HR 1/10	T NO.	C A P			T *C	5	٠	T	1-AA		CIFIC VOLU	ME	≨ ∆ c oyn. A x 10 ³	ن ۸	TOCILA	02 ml/1	PO 4-P µg - at 1	1014L-P µg • ol 'l		NO3-N µg - of.'t		рН	
																						1		
			S1			0513	32		25		0	02073	2	0000		4686								
	1.3		OB:			0513		798	2.5							4686								
	13	3	OB:			0507		843	25							4685								
			51			0495	32		26		0	02009	2	0020		4681								
	13		OB:			0445		859	26							4681								
	13	.5	OB:			0462	32	859	26	-		010/0	0	1040		4668								
	1.2	2	5.			0367		894	26	-	U	01860	8	JU40		4629								
	13 13		085 085			0354		894	26 26	-						4624 4623								
	1 5		5			0345		89	26 26		0	01841	7	0058		4622 4622								
	13	2	081			0344		888	26		0	01941	1	2000		4621								
	13		063			0344		878	26							4521								
	13		089			0340		874	26							4621								

REFERENCE	SHIP	LATITU		LONGITUDE	ALFT DCTA	MAR			TION I		YE A				TOR'S		DEPTH	M A X	085	WAVE		A E		CLOUD			NODE TATION	
OOE NO.	CDDE		1. 10	11/10	10 =	10"	1*			HR.1.'10		"	NO.		A TION J M BER		80TT04	S'MPL	S CIP.	HGT PI	0 51		5 E L	19P) A 0			U MBE?	
31108	Nw.	6538	aN	168400W		633	58	17	14	155	19/	57	001	019			2053	00	114	2		¥ 4		K Q	1		2019	
							Vs A	TER	T.	WIND	1	BARO	A 10	TEAN	P. °C	T .	NO.		CIAL									
							COLOR		DIR.	SPEED OR FORC	^	A ETER	DRY		W ET BULB	CODE	OBS. DEPTHS		ATIONS									
									17	013		158	0.7	4	061	٦												
	MESSENGR TIME O	CAST ND.	C A R C		(m)	т	*c	5	٠	SIG	MA-	т	SPECIFIC V		, DA	△ D N. M 10 ³		UND	D; ml l	PO.	-	TOTAL-		NO ₂ -N	NO3~N ug = of 1	51 O4+5:	рН	
	1		ST	0 000	U	. 0	480	32	52	25	7 h		0022	+75	0.0	000	14	669	757									
	155	5	085	200	0	0	480	3 2	52	25	76						14	669	757									
	150		OBS	000	5	0	487	3.2	555	25	7 R						14	673	773									
			ST			0	494		6.9		81		0055	105	0 (22	14	677	781									
	150		085			-	494		6 <u>03</u>		91							677	791									
	150	7	085				491		h 17		8 :							677	771									
			51				486		63		83		0021	757	0.0) 44		676	781									
	156		085				485		628		94							676	782									
	155	7	0R2				477		63±		145		00.11					673	777									
			ST				475		64		35		0021	512	0.0	166		673	~ ~									
	15		085				474		637		96							673	7761									
	159 159		085 085				475 475		638 639		86							674	777. 771.									
	100	,	053	004	_	U	· · ·	2 4	0.54	4 /	0.0						1	0 ()	1 / 4 .	ai .								

EFERENCE BY ID.	SHIP	LATITUE	DE .	LONGITUDE	PC 18	MARSDE		ATION IGMT		YE AR	CRUISE	TATE	024	DEPTH TO	OEPTH OF		WAVE SERVATIO		WEA- THER	Crons		51	NODE TATION
DE ND.	CODE	•	1, 10	* 11.	10 7		1° MO	DAY	HP,1/10			NUN		BOTTOM	S'MPL	5 D10	HGT PER	SEA	CODE	TTPE A N	1	- N	UNBER
31108	O NW	6577	74	158034	Λ ^t	233 5	8 07	14	180	1967	DD1 02	0		2057	00	15	2		Y 14	x 19			0000
							WATER		WIND	BAR	O+ AIR TE	MP.	°C vis.	NO.	CPI	CIAL							
							LOR TRAP		SPEED OR FORCE	MET	ER DRY		ET CODE	OBS. OEPTHS		ATIONS							
								16	515	16	0 078	0	57 2										
	MESSENGE TIME HR 1/10	ON P	CAR		i (m)	τ *c		s •4.	SIGA	7 – A A	SPECIFIC VOLE		₹ ∆ 0 0YN. M x 10 ³		OCITY	02 ml/	PO4-		TAL~P g = al, l	NO7=N ug • of 1	NO3-N ug = of 1	\$1.02+5: µg = 01:1	рН
			51	00 di	0.0	062		236	25		002531	0	0000	1 1 1 1 1 1	746		1						
	18	0	080			062		2355 2355			002771	. 7	0000		726								
	18		089			062		2358							726								
	• •	-	51			057		242	25	-	002429	2	0025		709								
	18	^	OBS			057		2419							709								
	18		069			056		2441	25	ь0				14	706								
			51	D 20	20	034	6 3	236	25	76	002242	0.5	0048	14	613								
	18	0	085	0.0	21	031	1 3	2348	2.5	78				1 +	598								
	1.8	0	039	0.0	26	025	5 3	2316	25	81				14	574								
			S 1	D 00	50	024	6 3	231	25	81	002196	O	0070	1 4	571								
	18)	089	ņů	31	024	5 3	2314	25	1.8				14	571								
	1 4	7	089	0.0	3.7	024	-3 3	2311	25	21				14	571								
	18	0	089	0.0	42	024	1 3	2513	2.5	81				14	571								
	18	0	089	5 00	47	024	+2 3	2324	2.5	8.2				14	572								

ID. CODE	LATITUDE	10	NGITUDE 11/10	DRIFT	MARS SQU	ARE		ION I		YEAR	OR CRUHSE NO.	IGINATO STA NU!	ION		DEPTH TO BOTTON	MA: DEPT OF S'MP!	H OBS	WAVE ERVATION	COD	CODES		51	NODC TATION IUMBER
1089 NW 6	53601	v 16	8240W		233	58	07	14	212	1967	DDI	021			0053	00	19	1	x 2	7 8			0021
						WAT	ER	Г,	WIND	BARC	AIF	TEMP.	°C		NO.	1							
						COLOR	TRANS.	D1R.	SPEED OR FORCE	METE	R OR		/ET ULB	CODE	005		ECIAL VATIONS						
					Ì			21	518	166	5 08	3 0	72	7									
MESSENGR TIME OF HR 1/10	CAST NO.	CARO TYPE	DEPTH	lm1	т	°c	s	٠/	SIGA	^ A = T	SPECIFIC V		DY	△ D N. M 10 ³		UND	02 ml/l	PO4-P		NO2-N µg = at/l	NO3-N	51 O 4-51 pg - 01/1	
										İ									1	Ì			
		STD	000	0	0	576	32	40	25	55	0024	421	00	000	14	707	830						
212)BS	000	0		576		399							14	7∪7	830						
212		285	000			580		396								709	829						
		SID	001		0	563	32	39	25	56	0024	344	01	124		703	830						
212		065	001			563		491								703	830						
212		085	001			505		326								679	821						
		STD	002	0		346	3.2		251		0023	704	00) 4 2		c 1 I	809						
212		065	Ü115	1		323	3.2	175	25	64					14	601	807						
212		085	002	6	0	313	32	165	25	54					14	598	807						
		STD	Ü∪3	Ü	Û	313	3 2	18	25	65	0023	504	0	172	14	598	814						
212		0B5	003	1	0	313	3.2	182	25	65					14	599	815						
212		085	n03	7	0	313	3.2	185	25	65					14	600	812						
212		085	004	2	0	312	3.2	202	25	67					14	600	794						

	LATITUDE	. 10	GITUDE		JARE I		ION TI	Y	EAR		ATOR)N	DEP TO 80 TT	0	DEPTH OF S'MPL'S	082	WAVE ERVATIONS	WEA- THER CODE	CLOUD CODES		51	NODC ATION UMBER
84 NW 5	S. Se in	9 10.	AIS W	1	5 H	0.7	14 4	221 10	967	DD1 02.	<u>.</u>		004	+6	00	23	2	× i	36			0022
					WAI	ER	٧	DNIV	BARD	AIR TEA	и Р. "I	:	L	- 1		CIAL		,			,	, ,
					COLOR	TRANS	DIR	SPEED OR FORCE	(mbs)	R DRY	W E					ATIONS						
							2.3	315	178	078	0.6	1 7										
MESSENGE OF	CAST NO.	C ARD TYPE	DEPTH (m	,	т *с	s	٠/	SIGMA	-т	SPECIFIC VOLU		∑ ∆ D DYN A X 10 ³	Α ,	SOUN		O2 m1/1	PO4-P pg = 01/1	TOTAL-P 49 - 01/)	NO ₂ -N ug - at/1	NO3-H		
	- 1																					
,	,	STO	الرابال	(707	30	92	242	3 '	003703	8	0000) ' :	147	40		1	4	'			
223		OBC	nunu	(1707	30	922	242	3					147	40	7160	J					
2.5		OBF	0.005	l,	1647	30	939	242	5					147	37	716						
		STO	0.110		0003	31	0.0	243	5	003580	0	0036	, .	147	25	716						
27.9		TRS	$-\alpha\alpha_{\perp}\alpha$	1	0663	3.1	017	2431	5					147	25	716						
224		ngs.	0.019		0548	31	230	246	ь					146	82	723						
		SID	りつてり	(0415	31	48	250	0	0029/1	0	0069	9 :	146	32	745						
223		UBA	2,151	4	0394		517	250						146	23	752						
4.23		6.59	UU59		04103	3.1	513	250	30													
		STD	0030		J329		59	251		005808	7	0098		145								
2.23		082	0031		1326		60l	251						145								
223		OBS	11037		322	3.1	613	251	Q					145	96							

PEFERE TRY ODE	ID.	SHIP	LATITU		LONGITU		DRIFT	MARS	A.R.E.		(GM		YE A	R C	RUISE	5	ATOR'S TATION		DEPTH TO BOTTOM	MAX. DEPTH OF		WAVE SERVATI	10 M S	W EA-	CLO	DES		5	NODC TATION
-				1 10		1, 10		10*				HR,1/10		-	NO,		UMBER			2 WAT	1	HGT PE	P SE	A	TYPE				
311	084	NW.	6624	FON	1662	4 U W		233		07	15	062	190	57	CCI	02.			0024	0.0	15	1		×1	0	6			0023
									W.A.	-		WIND		ARO-	_	IR TEA		- VIS	NO.	SPE	CIAL								
									COLOR	TRAN:	S DIF	SPEE OR FOR		(mbs)		JLB	W E 1 8 U L B	CODI	DEPTHS		A TION S								
											24	+ 52	1	168	1	11	100	8											
		MESSENGI TIME HF 1/10	및 ND.	CAR		EPTH I	m)	ī	*c		·	SIC	5MA-	7 5	PECIFIC	VOLU!	, D	∆ D yn, M x 10 ³		DC1EA THD	02 ml/l	PO 4		fora L=P µg = at/l			NO3=N ug - of 1	51 O ₄ -5:	
				5	TD	000	0	0	95U		04		319		0046	546.	1 0	000		822									
		0.5	2	0.8	S	000	U	0	950	3.	036	2	319						14	822									
		0.6	2	OB	5	θÜÜ	5	0	953	30	003	2 2	318						14	824									
				5	TD :	001	U	0	923	30	UB	2.	326		0040	524.	3 0	047	141	814									
		0.6	2	0.8	ς	001	0	0	923	3.0	003	. 2	326						141	814									

REFERENCE	ZHIP	LATITU	DE	LONGITUDE	RIFT	MARS			TION T		YEAR	-	ATOR'S	_	DEPTH TO	DEPTH		WAVE ERVATIONS	WEA- THER	CLOUD			NDDC IATION
ODE NO.	CODE		1. 10	• 1,	10 7	10*	3.	MO	DAY	HR.1/10			NUMBER	В	MOTTOM	S'MPL'	DIR	HGT PER SE	CDDE	TYPE A M	T	И	UMBER
31108	NN P	6632	NO	166580	W	د 3 غ	66	07	15	086	1967	CC1 02	4	0	038	00	22	2	x 2	7 8			0024
						[WA	TER	1	WIND	BAR	AIR TE	MP. °C	vis	NO.		CIAL						
							CODE	TRAN!	DIR.	SPEED OR FORC	MET	ER DRY	W ET BULB	I CODII	OBS. DEPTHS	OBSERV							
									22	527	16	4 083	072	7									
	MESSENG TIME HR 1/1	CAST NO.	C AR TYP		H lm)	T	°C	5	*/	SIG	MA-T	SPECIFIC VOLU	DY DY	△ D N. M. 10 ³		DCITY	0 ₂ ml/l	PO4-P pg - of/I	FOTAL=P ug = o1/1	NO2=N µg - at-l	NO3-N µg - at/l	\$1 O4 - \$1	рН
		1			00		745		96		21	003722	7 00	000		755	722						
	0.8		089	_	0.0		745		961		+21					755	722						
	0.8	36	ОВ:	_	0.5		746		961	_	+21					757	718						
					10		739		99		+24	003694	6 00	137		755	732						
	0.8	16	OB:	5 00	10	0	739		990		+24				14	755	732						
	0.6	36	OB:	s 00	16	0.	654	31	203	24	51				14	727	751						
			S	TD 10	20	0	635	31	23	24	F56	003388	2 00	73	14	718	728						
	3.6	36	08	5 00	21	0	626	31	256	24	159				14	715	726						
	3.6	36	081	s 00	26	0	566	3.1	502	24	86				14	695	737						

ID NO	SHIP	ATITUI		A COLLADE TO THE STATE OF THE S	SOU ARE	STATION TI	YEAR	CRUISE STA	2180	10	OF BSE	NALE RLATIONS	i ccii	- F5		NOD STATICN NUMBER
1 8-	14.6	00	V 1 1 *	7		7 1: 4	1 11457	1000 004		.55.	33 24	- 1	x .:	7 в		00.5
					V. A.	ER W	INC BAR	O. AIR TEMP	*Cs	NO.	SPECIAL					
					COLOR	TRANS DIR.	SPEED ALET OR (mb	ER DRY V	LET COST	OBS. DEPTHS	OBSERVATIONS					
						2.2	29 16	1 774 7	+1 -							
1	MESSENUR TIME HR 1 II	및 N.	CARD	C'ERTH Im!	1 1/2	s ·	SIGM#=T	SPECIFIC VOLUME ANOMALY-X10*	2 2 0 M M M 103	\$00.		P⊙ 4=P	101AL-P	14 - 3 - N nd + at	NO3-N	2.4
			c pr	الالالا	0551	3155	2441	0.031150.6	0000	146	85 751					
	1		115	10.50	C551	91561	2441			145	85 751					
			DH:	3 1 5	6562	31536	2400			146	86 76-					
			- *3	, U	U55,	4154	2471	1036624	0031	146	86 781					
	1		0.65	1010	じっちい	31535	2447			146	56 781					
	1 1	*	эыс	1116	0547	31603	2496			146	87 756					
			STO	· -	25.14	3175	2512	0028528	0000	146	72 751					
	1.09		JES	30.21	0488	31502	2518			146	66 751					

PEFERENCE	SHIP				_≅, MAR				TIME			0	PIGINA	ATOP'S		DEPTH	DEPT			AVE		A E A .				NOCC
10.	CODE	LATITU			- O	ARE		IG M1		YE 4	A.R	CRUISE		TATION		OT NGTTO8	. OF	-		v A TIC↑		THEP	CODE			STATION NUMBER
.cf] NO.	1		1 10	1 10	10°	1.	MO	DAY	HP,111	0	-	NO.	N	U M BES		001101	. Z.M DF	S DIF	H	"4 bed	154		TaPl A	<u> </u>		
5111 ie.	- NA	004-	, 1	67366W	6:3	6.7	. 7	15	162	1 4	67	001	026			1231	1.50	1.8	4			1	7 12			0025
						Ø AT	ER	Т	WIND	1	BARO.	A	IR TEA	AP TC		NO.		CIAL	7							
						COLOR	TRANS	DIR	SPE C	ED	METER	: D	R/	WET	C D D	OBS. DEPTHS	Oneta	ZATIONS								
						CODE	Im)	+-	101	NT E	(mbs)	80	JLB .	BULB	+-		-		4							
								120	5.2	3	151	1.06	3.3	161	7											
	MESSENGR	CAST	CARD			°c		.,			_	SPECIFIC	VOLUE		€ △ D	50	UND		. [PO 4= F		OTAL-P	NON	NO3-N	SIC4-	-51
	HR 1 10	V NO.	TYPE	DEPTH	m)	C	,	* 4.	21	GMA-	-1	ANOMA	/ [Y = K ' (57 L	γΝ, Α ⁴ χ 10 ³	VEL	OCITY	02 m′	1	1 g + 1		g = 0.1			νg - 3	
											\neg								_					•	1	
	1		STD	100	u i	441	ا ا	83	_ 2	514	1	0021	7 - 1 - 4	4 0	وورد	14	664	755								
	12:	2	055	0.00		491		H2:		519			-				554	755								
	12:	2	OB5	0.710	, :	491	31	н1#	3 2	510						14	665	75.								
			< T ()	1.01	J 3	489	31	82	2	519		00.0	7 8 2 4	4]	1728	14	555	729								
	133	Ž.	OBS	0.01	υ C	489	3.1	80.	2 2	F 1 0						14	655	793								
	12	-	JE C	631	h .	480	4	526	, ,	4.50						1 4	665	796								

EFERENCE	SHIP			-		MARS		STA	TION				ORIGI	NATO	R'S		DEPTH.	MAX. DEPTH		WAV			WEA-	CLC				HODE
TRY ID.	CODE	LATITU	3 C	LONGITUDE		200	APE		(GM)	[]	YEAR	150	RUISE	STATI			10 BOTTOM	OF		SERVA	HONS		THER		DES			TATION UMBER
DE NO.		·	1 10	, 1	10 =	10*	1,	MO	DAY	HR,1,:1	0		NO.	NUM	BER		BOILOW	S'MPL'S	DIR	НGT	PER S	Ę A	COLE	1+11	4.657			USOCH
31108	7 1.8	5636	24	167056	w	233	67	Ũ 7	15	148	196	7 1	CC1 0:	2.7		- 1,	10c+	00	18	1			* 2	7	a			0027
							WA	TER		WIND	1	ARO-	AIR T	EMP.	°C		NO.			}								
							COLOR	TRAN	DIR	SPE O	ED M	ETER nbs1		W BU		CODE	000	SPEC VR328O										
									21	1 52		27	157	10	: 0	7												
	MESSENG TIME HR 1 1	CAST	CAR		H Imi	1	°C		5 14.	s	GMA-T		SPECIFIC VOL		DYN	10 ³	SOL	IND	O ₂ ml		4-P			ND2-		NO3−N NO3−N	51 O4-51 10 - 64	ş H
	}		ς	TD DU	υU	1	514	3.1	55	١,	405		00301.		au	20	141	.7.	757									
	1 4	ú	03		ΗÜ		519		554		495		00.01					72	75.7									
	1.4		08		05		520		54	_	4941								766									
					10	0	517	3.]	5=		494		0040	1.7	0.0	3.3	144	574	764									
	14	9	08	5 10	10	J	51+	3.1	54	5 2	41/4						14	74	76 ₹									
	14	R	0.8	5 00	16	0	517	3.]	560	a 2	496						144	574	782									
			5	TD	20	Ü	505	3.1	66	2	514		111242	4 1	6.0	h ji	146	71	773									
	1 /	я	06	c 011	2.1	· ·	5.11	2.1	64	2 2	507						1	570	764									

SHIP LA	ATITUDE L	ONGITUDE (\$\frac{1}{6}	MARSTIEN 1.	STATION IGMT	YEAR		ATION UMBER	DEPTH DEPT TO OF BOTTOM S'MP	H OBS	WAVE ERVATIONS HGT PER SEA	WEA- THER CODE	CLOUD	}	5.1	ODC ATION UMBER
59 44 F	n N 1	6182 119	21. 00	17 15	110 196	سدن لا ے ۲		ng4. ng	15	2	Y 14	x 0	-		0028
			W.A.	TER	WIND BA	PO- AIR TEM	P °C VIS.	NO.	PECIAL						
			COLOR	TRANS DIR	SPEEDe.	TER DRY	WET COD:		PVATIONS						
				1 .	-21 1.	20 071	35e 3								
MESSENGR CA	AST CAPD	DEPTH Imi	r to	s ·	SIG M A - T	SPECIFIC VOLUM		SOUND	02 ml/l	PO4=P +3+311	101AL-P		NO3≈N yg = at I	SI O4-Si ug + of I	: **
							i ,	1							
Ltir	0hS	701mg 701ml	0345	12 14	2574	11000000	3000		755						
163	OBS	0005	(1445	3225				14633 14631	785 785						
110	510		0.191	3237	2573	00 12 71 3	1023		794						
16.	OHS	aaju	0491	32374		0.012711	1923	14601	794						
16.	085	0.016	0340	12376				14632	857						
	STD	30.0	0.488	3238	2574	Curree.) (July 5		792						
160	069	1021	0487	3237	≥ 174			14631	791						
1.4	/183	111126	2347	4, 384	2574			14632	79 m						
	SID	10:0	1385	1218	2574	7022622	. June	14633	786						
160	0 ± 5	1331	3388	32284	2574			14533	781						

EFERENCE	SHIP						AARSDEN SQUARE	4	STATION			FAR	ORIGIN				DEPTH	M A DEPI		WAVE ERVATIONS	NEA			NODC
EF NO	CODE	LATITU	1.10	LONG		5 5 L	10° 1	. ,	VO DAY			tax		STAT NUM			OT MOTTCE	0.0	003	HGT PER S	CODE			TATION LUNBER
1 1 18	v. 1 W.	F 6 19		lnn	4 9 D W		5 - 1	0 3	7 15	1	80 I	967	CC1 02	4			340	0.0		2	X 14	K 9		0029
								W AT	ER	N	IND	BARC	AIP TE	MP.		VIS	NO.	S	ECIAL					
							COL		TRANS D	IR.	SPEED OR FORCE	METE (mbs				OBS	OBS. DEFTHS		VATIONS					
									2	1	513	134	4 057	Ç	56	2								
	MESSENS: TIANL HR 1, 10	NO.	CAR		DEPTH I	n l	т *С		s */.		SIGMA	-T	SPECIFIC VOLU		Σ Δ DYN	. M		UND OCITY	Og mirl	P⊙4=P vg = 01 I	101AL-P	NO2=N ug = 3F I	SI O4-Si ug - at I	рН
			. s.	TD .	0000)	047	O.	3265		258	7	002141	7	00	0.0	14	hititi	731					
	18	O	OB:	S	OUD.)	047	ij.	3254	. 7	258	7					14	665	731					
	1.8	1	OB:	÷	000E	,	047	_	3266	7	25,8	Q					14	667	726					
			5	TD	9910	J	4.	J	3604		540	7	001947	to	00.	ان نے	14	65%	730					
	1.5	1	DB:		1010		746	3	3284	7	2 n û	7					14	650	730					
	1.6		UH.		1316		04		1286	· K	261	1					14.	541	737					
				TD	101-1		03 m		1243		261		001884	Ü	50	4)		637	734					
	1 H		06		111		038		3 (48		2 € 1						14.	637	733					
	1 h	}	0 %				139		3505		261						14.	642	735					
				TO	111136		039		3271		261	6	001867	4	0.0	58	14	542	730					
	1.42		OB.		0.03		040	_	3.01		, ' to 1						14.	642	729					
	1.5	' }	OB:	S	30.3		037	8	4545	1	25.1	8					14.	637	736					

REFERENCE	SHIP					a.	MARS			ON T				OPIGIN	ATOR	2.		DEPTH	MAX		WAVE	 W.EA-			NODC
ODF NO.	CODE	LATITU	DE 1/10	LONG	11/10	DREE	5QU			GMTI DAY H	R.1/10	YEAR			STATIO NUME		80	TO MOTTO	OF S'MPL"	083	HGT FER	 CODE	TYPE A		TATION 438 W.U.
31108	1 NW	66.41)	ñΝ	169	120w		233	54	n 7	5 .	. 22 1	967	100	01 03	0		0	055	00	16	1	Х.4	Υ (,	0030
								WA	T E R	V	VIND	BARG	<u>.</u> T	AIR TE	MP. C			NO.		CIAL					
								COLOR CODE	TRANS (m)	DIR.	SPEED OR FORCE	METE (mbs	R	DRY BULB	w E		real.	OBS. EPTHS	OBSERV						
										16	515	0.7	7	076	06	1 6	1								
	MESSENG TIME HR 1, 11	NO.	C AP		DEPTH	m)	т	°C	s	٠	SIGM	A-T		CIFIC VOLU		₹ △ DYN. x 10	Μ.	\$OU VELC		0, m1/1	PO4-	OTAL—P		- 3	
			_	TD	1111111			581	325		256		0 (02357	1	000	0		710	778					
	5.0		OB:		910411			581		120	256								710	778					
	20	_	ОВ:	-	ŭñu.		_	5.74	32:		256				_				709	782					
				T D	201		-	509	32		258		Ú.	0.133	Ü	002	2	146		786					
	20		08:		701		_	509		714	259								585	786					
	ں ے	2	OB:		001		-	309		139	262								5 3 0	714					
				TD	902		-	354	321		262		Ü	01796	3	004	2		525	699					
	2.0		OB:		0.05			352		462	262								524	697					
	. 1	2	09	-	OUT		-	349		976	262								524	695					
				TD	003			348	32		202		0	01783	4	006	0		524	719					
	2		OB:		403			348		770	202								524	723					
	3.0		OB:		003			346		983	260								525						
	2.0	2	06	5	1104	2	J	344	36	966	262	5						146	524	696					

												, .				-			-							
REFERENCE	SHIP	LATITUE	.,	LONGITUD	F 9057	MAR			ON TI		YEAR	L	ORIGIN				DEPTH	DEPTH		WAVE ERVATIONS	WEA	CLOUD			ATICN	
CODE NO.	CODE		1/10	, I		10"	11.			R 1/10	10 48			TATION UNI		Б	оттом	S'MPL"		HGT PER S	CODE				S MOLD	
-	+		-			_	-	-				+				1.	- 1	† 				1	-	+		
47/108	y VA	511,14	M	10000) W.	233					967	C	C1 03	_		10	1058	0.0	10	[1	X.4	K 3	ŀ		1031	
							W A	-		SPEED	BAR		AIR TE		- v	115	NO. OBS.		CIAL							
							COLOR	TRANS.	DIS	FORLE	METI {mbs		DRY BULB	BUI			DEPTHS	OBSER/	A TION S							
									12	520	04	3	067	0.5	1 5	,										
	MESSEN TIME	⊈ NC	CAR		TH Imi	T	*c	5	٠4.	SIGM	A-T		CIFIC VOLU		₹ ∆ DYN. x 10	A4		DOLLA	O2 m1/1	PO4=P	101AL-P		NO3-N up - at 1		рН	S.C.C
												_										1				П
			5	ro c	100	.0	474	36	7.1	254	1	0	02100	0 '	000	0	14	669	748	1		1	1			
	2.1	ų.	0.83	5 0	0.00	J	474	3.2	708	259	1						14	663	748							
		9	0.83	5 0) 75	0	473	3.2	720	259	2						14	669	758							
			5.	ro n	110	0	471	32	15	259	5	Э	02068	4	002	1	14	570	755							
	. 1	Ç	7B	5 14	210	0	471	32	747	259	E,						14	570	755							
	- 1	G	16	s n.	.lo	J	_ 47	3 ± .	125	263	4						14	596	664							
			S	10 CT	2.0	Ų.	200	330	13	200	c,	0	01682	ь	004	0	14	545	667							
	_ 1	Q.	19	5 0.	J I	O	286	330	133	263	5						14	595	555							
	2.3	2	nja:	5 71	2h	0	281	3.31	34	263	6						14	595	674							
			5	ra o.	J30	Ü	200	30.	3	263	5)	01680	9	005	6	14	596	688							
	2.1	9	26	S ()	331	0	280	330	128	263	5						14	596	690							
	/ 1	9	08	5 0.	337	0	280	330	126	263	5						14	597	666							
	1.1	Q.	ge.		141	0	279	330	3.7	263	6						14	597	662							

REFERENCE CTRY ID. CODE NO.	SHIP	LATITU	DE 1/10	LONGITUDE	200	MAPSDEN SOUARE		TION		YEAR		STAT	ION	DEPTH TO BOTTOS	<u>'</u> °	MAX EPTH OF MPL"S	0858	WAVE ERVATIONS HGT PER SE	CODE	CODES		5	NODC TATION ILIMBER
31108	V NW	5624	UN	16 442UW		33 69	υ7	15	235	1967	CC1 03	12		0055	,	00	12	2	X 4	XQ			0032
						W 4	TER		WIND	BARG	A IR T	MP.	°C vis.	NO.	Ť	SPECIAL							
						COLO	TRAN		SPEED OF FORCE	M ET I	R DRY		ET COD	OBS. DEPTH	80 2	BSERVATIO							
								10	524	30	4 061	0	01 5										
	MESSENGR TIME HR 1 10	CAST NO.	C ARD TYPE		m)	1 ℃		s ·	SIGA	Λ A = T	SPECIFIC VOL		X 103 ≥ 7 D		LOCI		m1/1	PO4-P	TOTAL-P ug = atri	NO2≁N ug + al-l	NO3≁N µg - ol l	SI ⊙4=Si µg = ali l	рН
			ST	0 000	0	0312	3.	3114	26	34	001646	0	0000	14	+60	5							
	236		0 to 5	000	Ü	0312	3.	3043	26	34				14	+60	15							
	234	١	055)	0312	3.	3043	26	34				14	+6 Ü	0							
			ST	0 1101	U	0304	3.	306	26	35	001684	+ 2	0017	14	+60	15							
	236		085	701	J	0504	3.	けいちゃ	26	35				14	+60	15							
	236) # S			0309		2087							+6 Ü								
			ST			0310		7 ز د	26		J0167.	5	0034	14	+6 Ü	7							
	4 5 t		055			0310		3 U 7 O							+6 Ü	_							
	234	ĥ	085			0.40.9		3 Û B 3							+50								
			ST			0338		3118	26		001004	+ 1	0050		+60								
	235		OBS			0308		3083							+60								
	235		OBS			0308		3086		_					+6 l	-							
	3 5		045	0.04		0308	- 3	5089	26	38				1 4	+61	. U							

FERENCE Y ED.	SHIP	LATITU	DE	LONGITUDE	100	ARSDEN SQUARE		TION IGMT		YEAR			TATIO	N	DEPTH TO BOTTON	DEPT:	H 08	WA:	TION		WEA- THER CODE	CC	OUD		51	NODC TATION UNBER
NO.			T/10	* 1/10	- 1	0" 1"	MO	DAY	HR, 1/10		!	NO. 1	NUMBE	R	801104	S*MPL	'S DIR	HGT	PER	SEA	CODE	TYPE	A 4/11		^~	n v. ac.
11089	NW	67115	ON	171110W	1 2	34 71	07	16	062	196	7 в	81 03	3		0046	00	05	2	- 1		X 4	l x	9			0033
						COLOR			FOR	t lm	TER	DRY BULB	WET BULE	COD	NO. OBS, OEPTHS	O O C E B	ECIAL VATIONS									
	MESSENGE TIME HR 1/10	CAST NO.	CAR		(m)	1 °C	2	•4.	+	SMA-T	SPI	ECIFIC VOLU	ME	₹ Δ D DYN. 4* x 10 ³		UND OCITY	0 g m1/		04-F		D TA L - P			NO3-N pg - ol·l	\$1 O4~\$1 ug = of 1	ρН
							١				1									1						
			51			0609		73	_	+99	0	002978	3	3000		711										
	062		QB3			0604		734		+99						711	854	-								
	062	2	089			0638		.73r		400			_			712	848	-								
			51			0559		46		562	0	002362	0	0027		702	847	3								
	009		089			0559		455		62						702	847									
	10%	2	089			0261		1068		540						586	794									
			S 1			0250		000		543	С	001611	2	0047		566	646									
	06.		083			0247		309±		543						581	628									
	06.	2	069			0234		11:	2	546						576	654									
			51	ro oul	U	0233	33	11	4	546	C	001583	14	0Uh3	14	576	663									
	06;	2	083	5 00:	1	0232	3.3	104	2	545					14	576	660									
	963)	089	5 003	7	0222	3 3	3093	3 2	545					1.4	572	617									

THIP LATITU		ACITUDE SU	MARSDEN SQUAPE	STATION 1 (GMT)	YEAR	CRUISE STAT	ION .	DEPTH DEPT OF OTTOM S'MPI	OBSE	WAVE RVATIONS	WEA- THEP CODE	CODES		NODC STATION NUMBER
+- + -+	. nt.				H /] 40, 1	bhl 14		5 4 U	-	HIGH PER 18	£4	A -4	1	0034
			WAI	IER V	VIND BAR	A ID #5 (4.0)		110		-	1	1 4 17	1	1 0054
			COLOR CODE	TRANS DIR	SPEED ALETT	ER DRY W		One 34	ECIAL VATIONS					
				ы	715 14	G THE	L Z, 1							
AVESTENCE CAST TIME OF NO HR 10	C ARD Type	DEPTH (m)	T *C	\$ *4.	SIGMA=T	SPECIFIC VOLUME	x 103 ΣΛΝ 1 V2 Σ ∇ D	SOUND	O ₂ ml/l	PO4~P			1103-11 S	
							1				-			
	111	1,71(31)	(14 mg	1:41	2564	196 2 31 3	ûndn	14601						
183	740	25.70	0464	32411	3469			14651	H47:					
183	11 5 5	0, 0	U451	1 64 tr	2551			1455.	865.					
	1 T 1	1.115	1347	3254	2500	71.0031	7.0	14516						
F 3	12.	0.510	0447	32541	,15.78			1451n	dwj.					
18.4	.15,	0.116	0233	33130	20.47			14574	737					
	- 1	1520	3-20	3:13	2644	101561.	30.	1457.	A.A.					
ч.	H17	50.1	02.25	33131	Mañ			1457	4,72					
- m = 2	16	hJ.h	0224	45[5]	1648			14571	683					
	SIG	10.30	0.2.0	1014	2641	110110148	04155	14571	659					
5.9.3	063	0.731		33136	1649			14571						

FEPENCE IV ID.	SHIP	LATITU	- 1	LONGITUDE	5 7	M ARS SOU	A.R.E.		TION (GMT)		YEAR			TATI	NC	DEPTH TO 80110A	. DEP	H O	BSER	A V E V A TION	2 1	HER ODE	CLOUR	5	5	NODC TATION UMBER
			1/10	-17	-	10'		-	DAY	HR.1/10		-	NO. 1	4UW	BER	801101	S'MP	L'S DIR	Н €	of PEP	SEA	OU.	TYPE AV	1	N	UMBER
11084	Nw	0721	3 <i>N</i>	170214	h	234	70	71	16	102	1967	В	51 03	5		1046	0.0	0.9	3		•	4	X 14		1	0035
							WAT	E R		OHIW	BAR	0+	AIR TE	м P. *	VIS	NO,	,	PECIAL	7							
							COLOR	TRANS	DIR.	SPEED	1,000		DRY	8U	I CODE	OBS. DEPTHS	OBEC	VATION S	5							
						}	CODE		1,0	FORC	-		-				-		-							
									10	507	95	h	0.72	n:	,6 1				1						,	,
	MESSENGE	CAST	CAR		d (m)	,	"C		- 1.	110	MA-T		ECIFIC VOLU		₹ ∆ D OYN. M	50	UND	O ₂ ml		PO4-P	FOTA	L - F	NO2-N	N-FCN	5104-5	
- 1	TIME :	NO.	TYPE	000.00				1	••	310	W.A-1	A	NOMALY-XI	6.7 	x 10 ³	. VEL	OCITY	02 161	1	yy - at	ug -	of I	ug = otrl	yg = at/1	µg - at I	pН
																1			7					1		
		' '	ST	D au	Ūυ	0.4	404	32	94	26	17	0	01858	5 '	0000	14	543	1	1		1			1	1	1
	102		083	. UJ	UJ	Ü é	404	36	937	26	17					14	643	91-	1							
	102		083	. 90	05	04	40 =	3.2	957	26	1.8					14	643	930	ij.							
			ST	D 00	10	0.6	400	32	96	2€	19	()	01835	U	0018	14	643									
	1 72		089		10	0.4	400	32	964	26	1 -					14	64	927	3							
	10.		065	. Ad	16	0.	3 8 4	32	971	26	15					14	6.19	905	1							
			ST	u nu	_ U	0.	186	32	48	26	166	0	01805	В	0037	1 4	537									
	100		086	. 110	<i>2</i> 1	0	376	32	984	26	25					14	635	844	0							
	100		083	riu	26	0	3.4%	25	944	26	28					14	518	768								
			ST	D 00	5.1	0.	117	3.3	.1.3	26	32	0	01711	L	0054	14	e 12	744								
	100		085	a)	3.1	0	313	3.3	932	26	33					14	611	737								
	1 12	1	080	9.0	3.7	0.1	3011	4.5	950	26	35					1 4	606	692								

PEFERENCE	SHIP	LATITUE	£ .	LONGITUDE	PIFT DC 19	MARSDEN SQUARE		TION T		re a R		ATOR'S		DEPTH	M AX DEPTH		WAVE ERVATIONS	WEA-	CLOUD			NODC
DDE NO.	CODE	•	1/10	1/10	10 7 1	10" 1"	MO	DAY	(R.1/10			NU MBER		MOTTOM	S'MPL'	S D19	HGT PER 3	CODE	77 PE A M	7		UMBER
31108	9 NW	67306	áΝ	164540W		233 74	0.7	16	132 1	967	861 03	6	(0051	0.0	00	0	X 4	x 9			0036
						7	ATER		WIND	BARO	AIR TE	MP C	T 1	NO.	,	-	- ' '	,			,	0030
						COL	OR TRANS	OIR,	SPEED OR FORCE	METER (mbs)	DRY	W E T BULB	CODE	0.00		CIAL 'ATIONS						
								13	506	246	0.67	056	3									
	MESSENGR TIME HR 1/10	CAST NO.	C A R TYPE		(m)	T *C	S	٠4.	SIG M	4-1	SPECIFIC VOLU	107 0	∆ D YN. M. x 10 ³		JND	02 ml/l	PO4-P vg - a1/1	TOTA (- P		NO3~N ug - 01/1		
			ST	.u . 000	U	0442	32	66	259	1	002103	0 0	000	144	055	812						
	133		OH:			0442		b b Û						14	655	814						
	13.	2	083			0446	3.2	552	259	Ú.				14	657	807						
			S T	.U 001	Ü	043	3.2	66	259	1	960200	2 0	021	14	654	796						
	130		OR3	001	U	043.	7 32	662	259	1				14	654	796						
	1.3		089	001	h-	0425	3.2	666	259	3				14	650	790						
			51	D 002	U	042.	7 32	70	259	5	002060	9 0	042	14	552	794						
	13.	-	OBS	0.02	1	0428	3.2	703	259	6				14	653	795						
	137	2	089	00%	b	0418	3.2	727	259	Q.				14	650	795						
			51	003	U	0384	32	73	260	4	001998	5 0	062	14	636	777						
	13.	2	089	. ലെ	1	0378	3.2	724	260	3				14	634	774						
	138	2	089	003	1	036	32	151	260	ь				144	530	774						
	13.	?	083	0.04	2	0325	3.2	830	261	6				14	614	684						

	ID.	SHIP	LATITU	DE		GITUDE	DB157 VDC 18	MAR SQU			ION T		YEAR	CRU		TATIO	-	1 -	TO TO	MAX. DEPTH OF		SER.	V E A TION!	S	S EA- THER	00088			COL.
DE F	١٥.			1, 10		1/10	-	10"	1.	MO	DAY	R.1. 10		N	0.	V U A* BE	₹	BC)	HIOM	S' Nº PL'	5 0 4	HG!	960	EA	CODE	THE A W	T	- 1	_ 1/ DER
111	.64	74.87	6741	* N	165	1 6 31 A		6 13	79	. 7	16 .	101 1	957	be	11 03	7		00)53	20	04	_			1.4	x Q			C 3 7
									WA	TER	1	MIND	BAR	à. T	AIR TE	MP °C			NO.			1						,	
									CODE	TRANS	DIR.	SPEED OR FORCE	M ETI	ER	DRY BULB	WET	COS	5.1	200		CIAL /ATIONS								
											34	SUB	45	e.	072	J.P.	1												
		MESSENGR TIME HR 1, 10	CAST NO	CAR		DEPTH	(m l	Т	°C	s	*/	SIGM	A - T		IFIC VOLU		2 A 3	4.4	\$3u		Op ml		104-P 9 - 31			NC;-1:	403−N 10 - 94		; н
																		1											
	- 1		'	ς,	TD '	11131	U	0	5.75	32	61	257	,	0.0	02280	5 (000	0 '	147	rug '					1				
		16		OK!	5	רו ר	Ų	0	575	42	614	257	2						147	00	899								
		16		0 2	5	100	5	Ű	~ 7 L	5.2	546	257	2.5						147	73∋	952								
				5.	ΤĎ	501	U	Ų	573	26	67	157	7.7	0.0) _ 238.	8 (102	5	147	11									
		16	l	C 3 :	5	301	J	U	773	32	667	257	7 7						147	711	918								
		16	t	0 ₫		101		0	411		670	253	5 5						146	45	794								
					T)	いしと			320	3 2		260		00	1947	1 (} U 44 4	4	146	11	706								
		16		0.8		71. 2			317		743	260							146		693								
		16		0.3		Un 3			31h		745	261							146		685								
				5		703			320	32		260		0.0	018-8	E (106.	3	146	04	715								
		16		OB.		001			357		597										717								
		16.		5,5		203			514		74	-61							146		h 56								
		16		UP:	5	1104	2	0	31U	32	75c	261	1						146	0.7	570								

_	ID.	SHIP	LATITU	DE	LONGITUD	E ST	MAR! SQU			ION T		YEAR	CRUISE!	RIGINATI		_	DEPTH	M A X DEPTH	. 1	WA:	VE ATIONS	A EA-	CLOUD			NODE TATION
DE DE	NO.	CODE	•	1,10	,		10*	11.	MO I	DAYIF	(R.1/10		NO.	NUI			BOTTOM	S'MPL"	5 0 8	H-51	PER SE		TYPE A N			UNBER
1	1089	NA	0740	7.54	168:00		233	1				967	861	038			0055	00	0.1			Υ.4	X Q	1		2 2 2
- 1	H 0 C .	1 1	0 -0		100.30		1600	WAT			WIND	1		R TEMP.	*C T			00	1 2 4	712		14	1 4 14)		0 Q 3 5
								COLOR		-	SPEED	BARO	2.		_	VIS	NO. 085.		CIAL /ATION!							
								CODE	(m)	DIR.	FORCE	(mbs			ULB		DEPTHS	OBSERV	A HUN.	•						
										0.1	518	94	8 08	e č	93	3				7						
		MESSENGE TIME HP : 10	CAST NO.	C A R D TYPE	DEP	H Im1	ı	*c	5	٠	51G M	A T	SPECIFIC		DYF	A D.	SOU VELO		O 2 m		04-0	TOTA L= P	NC3-N	NO3-N ug = of 1	\$1.04-\$ yy - a1	Į FH
									1															1	1	•
			,	ST	1 10	00	0	b ∪ +	321	51	258	4	0021	716	0.0	0.0	14	725								
		188	3	055	11	ΙŲψ	0	604	326	311	256	4					147	725	553	وال						
		188	3	085	٦,	0.5	0	608	321	304	258	3					147	726	878	ماا						
				SI) 1	10	0	505	361	31	258	4	0021	687	00	22	147	725								
		131	1	035	0.0	/10	U	605	321	310	258	4					147	125	869	()						
		189	•	085	3(16	0	598	321	:65	254	9					1	724	873	ij.						
				5 T		J U		584	321		259	۷	0040	جه الله ال	00	43	147	720								
		188	1	055	Ü	2.1	0	581	321	385	259	3					14	719	205	ā .						
		189	3	0 B S	٠,	Zh	0	332	32	397	262	Û					146	16	720							
				5 T		3 u	\cup	318	32	9 Ü	262	1	0018	137	00	63	146	10	594							
		188	ξ.	085	→ (31	0	316	32	R96	262	2					146	10	6.88							
		188	3	085	1)(137	0	214	321	581	262	1					146	09	650							
		180	3	085	0.	142	Ų	312	32	883	202	1					146	504	655							
		168	3	085	.01	47	C	309	32	883	262	1					146	0.9	6.16							

ERENCE	SHIP	LATITU	DE L	ONGITUDE		ARSDEN QUARE	STA	TION	TIME	YEAR	-	RIGINATO		-	DEPTH	DEPT	H OF	WAVE SERVATION	WEA				NODC TATION
F NO	CODE	•	1/10	1.10		0, 1,	моТ	DAY	HR.1/10	1	NO.	STAT			BOTTOM	S'MPL	.*5 512	HGT PER !	CODE				UNBER
1108	34 NW	6754	DN 1	ь в О в О м	- 2.	78 دو	0.7	16	220	1967	B1	039			0062	00	0.3	2	X 44	10			0039
						WA	TER	Т.	MIND	BARG	n- A	IR TEMP.	*c		NO.	`	ECIAL	1					
						COLOR	TRAN (m)	S. DIR	SPEE OR FOR	D METE	ER D		VET C	VIS	OBS. DEPTHS		VATIONS						
								0.3	SO	94	4 08	33 0	78	2									
	MESSENGS TIME HR 1/10	CAST NO.	CARD	DEPTH (m!	T *C		-4.	SIC	SMA-T		VOLUME	∑ Z DYN X	2 D 1. M 10 ³		DCITY	02 ml/	PO4-P	TOTAL-P	NO2-N ug - al. i	NO3-N	\$1 04-50 pg - al	рН
	'		510			0605	3 2	66	2 5	576	00-	2622	00	0.0	14	722		*					
	220		085	200		0605		657		572					14	722							
	220		085	200	5	0570	32	786	2	585					14	713							
			STD	001	J	0554	32	84	2 :	592	2021	3884	0.0	22	14	704							
	220)	085	001	J	0552	32	836	2:	592					14	704							
			STD	002	U	0546	3.2	84	2 '	594	0020	0876	0.0	43	14	703							
	220	1	065	0.02	ь	054.	3 2	846	2 6	594					14	703							
			STO	0.03	Ü	0525	3.2	86	2 :	598	0010)4Z6	00	63	14	647							
	221	1	085	0.33	1	0521	32	863	2 :	598					14	695							
	220	1	2BC	103	7	0492	3.2	857	21	501					14	684							
	220	1	085	204.	Ž	0388	32	831	. 26	510					14	641							
	220)	085	304	7	0336	3.2	8830	2 6	515					14	620							

FERENCE BY ID. DE NO.	SHIP	LATITU	DE 1/10	LONGITUE	.10 E	N A	RSDEN UARE		GMTI		YEAR	CRUI		TATIO	4	1	DEPTH TO OTTOM	MAX DEPTH OF S'MPL'	1	WAVE ISERVATION	-	WEA- THER CODE	CLOUE	5	51	NODC MATION UMBER
11083	N.V	5840	-	16736	_	2.3		0.7 1			467	ьв	-		_	0	049	00	01	5	36.A	X4	X 9			0040
	,					1	WA	TER	W	VIND	BARC	1	AIR TE	WP. °C		Ť	NO.		-] '		,		'	1	70 +0
							COLOR	TRANS (m)	DIR.	SPEED OR FORCE	METE	R	DRY BULB	WET	CO	DE	OBS. EPTHS	OBSERV	CIAL ATIONS							
									0.4	522	391	Я	083	0.74	3 2	1										
	MESSENGE TIME &		C A R		TH Imi		1 °C	5	٠	SIGM	A-1		FIC VOLU		₹ Δ DYN. x 10	Μ,		JND	0 2 ml/	PO4-6		OTA L - P	NO2~N µg - ot/l	NO3=N µg = at/l	\$1 O4-5; vg = at/1	ρН
			5.	10 0	000		J755	315	. 1	246		0.0	3325		าษก	0	10	766							1	
).i.		08		000		0755		10	246		00	10020	0 1	,00	U		766								
	2012		085		005		0757		9.09	246								768								
			5	rn o	010		0754	315	1	246		0.0	3324	4	003	3		767								
	0.00	2	0.65		010		0753	315	10	246	3						14	767								
	905		06	5 0	Ulь		0726	31t	36	247	6						14	759								
			5		J Z U		0676	31°		251	1	00	2869	1 ()U 6	4	14	745								
	0.05)	OB	5 0	021		063H	320	153	252	0						14	731								
	11(12	2	08		U26		0243		178	256	6						14	589								
			5	LD U	130		0235	323	31	258	2	0.0	2190	9 (09	0	14	566								
	0.05		081	ė. ū	031		0225	32	332	258	4						14	562								
	0.00		089	, n	937		0209	323		258	9						149	557								
	003		08:	5 0	042		0209	323	360	259	8						14	557								

FERENCE PY ID.	SHIP	LATITU	DE	LONGITUDE	DRIFT	MARS SOU			IGM	TIME		YE A R	CRUISE		A TIO	IN	DEPTH TO BOTTOM	DEPTI	01		VE A TID?	15	WEA- THER CODE	cro) ES		5	NODC TATION UMBER
DE NO.	1		1/10	* 1v	0 =	10*	1.	MO	DAY	HR,1/	10		NO.	N	UMB	ER	801108	" S'MPL	'S DIR.	НG	PER	SEA	CODE	TYPE .	A AA T		- "	DWBER
1108	NW	58.15	ñΝ	167180	v	233	87	07	17	025	1	967	881	041			0049	100	00	0			X 4	4	6			0041
							WAI	EP		WIN		BAR	O- A	IR TEN	P. °C	VIS.	ND.		ECIAL	٦'								
							COLOR	TRANS	OII	R.	EED OR ORCE	M ET	ER C	DRY ULB	W E	CODE	OBS. DEPTHS		VATIONS									
									0.	_	15	94	5 0	72	06	7 2												
	MESSENG TIME HR 1/10	or NO.	CAR		(m)	ī	°c	s	٠		SIGM	A-1	SPECIFIC ANOM	VOLUA ALY-110		\$ ∆ 0 0YN. M x 10 ³		UNO	O ₂ mi.		PO4-6		01AL-P µg = 01/1	NO2-		NO3-N ug - at i	\$4 O4 - \$1	
					5.0		77	1						720	Ţ											ĺ		
	12	_	S1 OBS				787 787	31	02		242		003	(39)	,	0000		773 773										
	0.2		083	-			784		04.		242 242							774										
	02	-1	S1				783		16		243		003	6230	7	0037		774										
	0.2	5	08				783		16.		243		000	02)		0451		774										
	0.2		08				279		876		254							577										
			51				245		10		25ь		002	357		0067		566										
	0.3	5	069		21	0	241		12		256						14	565										
	0.2	5	OB:	s 00	66	0	242	32	13)	256	7					14	566										
			5	rD OU	3 U	0	241	3.2	13		256	7	002	3319	•	0090	14	566										
	3.2	-	0B	5 00	3.1	0	241	3.2	12	5	256	t					14	566										
	2. 2		0.7								~ ~																	

TAY TO.	SHIP	LATITU	1/ 10	LONGITU DE	# P SC	RSDEN UARE		TION T		YE AR	CRUI		OTATI M UN	ON	1	TO OF	OBS	WAVE ERVATIONS	WEA- THER CODE	CODES		S	NODC TATION IUMBER
31108	NW	551_	NG.	16718UW	د ع	3 87	07	17 (044	1967	вв	1 04	2		00	53 00	32	3	X 2	7 8			0042
						WA	TER	T	MIND	BAR	o. L	AIR TEA	M.P. 1		IN	10.	ECIAL						
						COLOR	TRAN'	S. DIR.	SPEED OR EQRCE	MET	ER	DRY BULB	W BU	T COL	DE		VATIONS						
								36	S 2 0	94	4	178	0 5	7 7									
	MESSENGR TIME HR 1/10	♀ NO.	C A R		m)	⊺ *c	5	٠/	SIG	MA-I		IFIC VOLU		₹ △ E DYN. A x 10 ³	и,	SDUND	D 2 ml/l	PO4=P ug = 01/1	101AL-P pg - 01/1		NO3-N 1/10 - gy	51 O451 49 - 01/1	
			SI	.D 000)	0779	<i>3</i> 1	ÜЬ	24	24	0.0	3694)	0000)	14770	699						
	0.4	4	OR 5	000)	0779	31	059	24	24						14770	699						
	04	4	OBS			0780		061	24	24						14771	706						
			S 1			0777		0.7	24		0.0	3683	6	0037	7	14771	703						
	04		089			0777		071	24							14771	703						
	0 4	4	OB 9			0721		402	24							14754	717						
			ST			0432		52	25		00	2954	1	0070)	14639	735						
	0.44		OBS			0342		537	25							14622	739						
	0.44	' +	OR:		ь	0382	31	524	25	0.7						14618	754						
			S 1			0381		うう	25	0.7	0.0	12900	1	0000	7	14619	748						
	0.4	4	069	003	1	0381	31	532	25	0.7						14619	747						
	0.4	4	OB 5	5 003	7	0381	31	535	2.5	0.8						14620	747						

RENCE	SHIP					MARSDEN	514	TION			1	ORIGINA	TOR'S		DEPTH	DEPTH		WA		NEA.	Cron			NCDC
ID.	CODE	LATITU	1 10	LONGITUDE	NDC	SQUARE	MO	IGMT	HR,1 10	YEAR	CPUISE NO.		ATION UMBER		TO MOTTOB	OF S'MPL'S	CIR		A TIONS	 THER ODE	COD			TATION VLINIBER
135	4 NW	65. 1		167-1JW	-	. 33 57	2.7		(143	1467	tEa	040			.031	20	17	1		14	4 1			0043
	1		4			W	ATER	_	WIND	BAR	1	AIR TEN		1	NO.			1	'					
						COLO	R TRAN		SPEED OR FORCE	METI	R	DRY IULB	W ET BULB	CODI	O or I	SPEC OBSERV								
								17	SIF	14.4	4 1	06	Ū₩Ģ	3				1						
	MESSENGE TIME HR 1/10	약 NO.	C ARD TYPE	DEPTH I	m i	7 °C		s • 1.	SIGA	A A - T		C VOLUM	7 DY	△ D N. M 10 ³	50L VELC		Oş mi		04-P 1 - 01/1		NO;+1		51 (04=5) yg - at 1	
			STÉ	.011	J	J 785	3.	44	ا د ے	70	CO+	100:	100	Jua	14	765	663	ĺ				1		
	34	4	185	3000)	3785	31	1485	23	7.8					14	765	663							
) 4	3	DBS		5	0705	31	486	23	78					14	766	674							
			5 T :) 1010)	0781	31	349	23	79	004	1195	00	41	14	765	676							
	4	3	085	001	j	0781	31	494	2.3	79					14	765	676							
	` 4	1	ÜBS	301	5	0782	31	491	2.41	79					14	766	665							
			STI	0000	j	3782	31	15	23	80	004	1123	0.0	8.	14	767	067							
	34	1	DBS	002	1	0762	3 :) 5 Ü 4	23:	8.0					14	767	664							

EFERENCE	SHIP	LATITU		LONGITUDE	- X	MARS		STA	TION T		YEAR		ORIGIN	_			PTH	MAX, DEPTH		WAVE ERVATIONS	∴ EA-	CLOUD			NODC
DE NO.	CODE	·	1/10	11/1	NO N	10,		MO	DAY		16.00	CRUIS		STATE IM U M			*0	OF S'MPL'S		HGT PER S	CODE	TYPL A AA	T		UMBER
31100	5 1A	6570		1674809	+ +	و و خ	+	0.7			967	EE	2 04	4		00.	45	00	14	1	X.3	X 9		-	0044
'	1		1		1 1	ſ	WAT	ER	7	MIND	1	1	AIR TÉ	MP. "	: T	N	~ T	_		- 1 1	1				
							COLOR	TRAN (m)	DIR.	SPEED OR EOPCE	M ETI (mbs	ER	BUL8 DRY	WI			BS.	SPEC OBSERVA							
								-	16	513	43	8	094	0.0	3 6										
	MESSENGE TOME HR 1/10	약 NO.	C A R TYP		lm I	ī	*c		٠	SIGM	A-T		FIC VOLU		₹ ∆ 0 0, A 10 ⁰	۸ ,	VELO SOU		Og ml I	PO4+P	fotal=6	NÔ2≈N µg • ob :	NO3-5	\$1.04=\$1 ug = a1 i	ţ-+
	,		51		-		725		66	247	-	0.0	3176	4	0000		147		713						
	0.5	0	083	5 000	U	U	725	3.1	dca.	247	7.8						147	757	713						
	7.5	Q	055	<u>^</u> 000	5	0	712		01b	244							147	754	713						
			51				50 l	-	+4	250		0.0	೭೮೬೮	Ü	0030		147		714						
	115	•	0.63	5 001	Ú	0	56l	3.1	440	250	- 3						147	737	714						
) 5	3	083	6 OV.	6	Ū	337	31	851	25:	12						146	63	740						
			5.		Ų.	0	326		80	253		0.0	6040	7	0058	3	145	95	746						
	15		083	5 20%	1	0	3.44	3 1	792	253	3						145	595	742						
	~ 5	9	i= 9				1 د 1		792	253							1 45		736						
			5.		0		321		.80	25:		0.0	2047	5	0084	4	145	97	741						
	11.5		b1	30.	1	C	421		.797	25	4 4						1 45	47	741						
		3	069		7	0	525	31	798	253	34						146	. UC	745						

ICE	SHIP	LATITU		LONGITUDE	DRIFT	sou	ARE		IGM	1)	YE.	AR		STATIO)N	7	DEPTH TO OTTOM	DEPTH	08	W A V	1017		W EA-	C	OUD		5.7	NODC ATION UMBER
١٥.			1, 10	11/	_	10.	1.	мо	DAY	HR.1/	10	_	NO.	NUM	ER	-	01107	S'MPL	S DIR.	ноп	P E 0	SEA		TYP	A At	T		U 10 10 C
P8C	NW	6454	N	198180.	v I	233	48	07	18	083	19	67	EE2 04	5		0	051	0.0	18	2			X4	X	9	i		0045
							WAT	ER	\perp	WIND	_	BARO	AIR TE	MP. 1			NO.	SPE	CIAL									
							COLOR	TRAN (m.)		٤ ((mbs)		8U	T co	n.d	OBS. DEPTHS		/A TIONS									
						[1	3 51	4	÷25	078	0.2	2 6	Ι				<u> </u>								
- 1	MESSENGR TIME (HR 1/10	CAST NO.	CARE		l (m l	1	*c		5 %.	,	IGM A -	-1	SPECIFIC VOLE		₹ △ DYN. x 10	Μ.		ND OCITY	0 g m1/	1	- 01		OTAL-P		2-N 01 I	NO ₃ -N	51 O4=51 yg = at 1	pН
																						1						
			5 T	D 00	ÜÜ	06	536	3.2	47	-	2547		002518	9	000	Ú	14	75.	725									
	0.83	3	065	00	OC	06	686	3 0	247.	2 2	2547						14	752	725									
	0.83	•	085	0.0	0.5	06	684	3.	247	5 8	548						14	752	721									
			ST	D 00	10	U é	6 B U	34	148	2	2548		002508	14	0.05	5	14	75 I	724									
	763	4	ORE	UV	10	0.6	606	30	247	7 2	2548						14	751	724									
	183	3	085	UC .	16	0.6	519	30	242.	4	2552						14	727	719									
			ST	D 00	.' Ü	0 4	485	30	235	2	2562		002382	1	005	C	146	57 <i>2</i>	709									
	0.83	3	065	00	21	0.6	456	30	: 13	3 2	2563						141	56U	707									
	083	2	085	00	26	Ů.	337	32	230	7 2	573						146	610	69€									
			ST	0 00	30	0.	334	30	224	2	57L		002265	0	007	5	141	509	700									
	183	3	085	0.0	31	0.	333	32	228	2 2	2571						146	509	701									
	`83	3	OBS	Ūυ	3.7	0	332	30	227	5 2	2571						146	609	695									
	183	3	OBS		42	0	331	30	227	7 2	2571						140	6 U Y	692									

SHIP	LA TITU	DE LON	iciinde Pgg	MARSOEN SQUARE		ON TIN SM11 AY HR,	YEAR	L.F		ATOR'S TATION IIIMBER		DEPTH OT OTTOM	DEPTH OF S'MPL"	0856	WAVE PYATIONS HGT PIP SI	WEA- THER CODE	CLOUD CODES		21	A TION A TION MARR
THAT	1114 ** 4	N 16	F - r ilyy	3/4	1	P 1	01 196	7 E	E. 1140		-	ng hiji	10	17		¥4	x 1.4			0046
				WA	ER	WI	ND .	ARO-	AIR TEA	18 °C	T	NO.	l		, ,				,	
				COLOR	TRANS Imi	DIR.	SPEED M	ETER nbs)	DRY BIJLB	W ET BULB		OBS. DEPTHS		CIAL /ATIONS						
						10	507 /	15	275	-7.	-									
MELSENGR TIME O HR 1 TO	CAST NO	C ARD TYPE	DEPTH (m)	ı, jö	5	٠	51G M A – T		FCIFIC VOLUI	, D	X 10 ³		OUITY	0 2 ml/l	904=P pg = of I	101AL-P		NO3-N µg - ab l	St O4-Si pg • at 1	ρН
		S.T. J.	, 1390	201.	1260	6	1 - 7 -	0	10-1-65	5 0	ÜΠ	14		684						
1 - 1		14.	U U U	U51.	3 40	ih"	2072					14	7.4	た8メ						
. 1		1.1H =	9000	05.7	526		2472					14	724	084						
		STI	Juliu	06.23	326	7	2674	C	10.270	> 0	u25		722	200						
k 1 - 1		1160	UNITU	0603	368		2572						723	P () P						
		1162	1015	0671	421		2573						723	643						
		-TU	1020	U601	326		2573	(ю70)	U45		164	590						
10,		16.	0021	0601	366		£574						724	554						
1 +1		183	100 ° P	リカノロ	360		2975						7.4	597						
		2 T ()	ひっこう	0544	326		4575		00.261	5 0	068		725	69-						
1]		1156	1031	0200	326		2574						725	591						
1113		9H2	0037	0548		78	2574						725	583						

RENCE ID.	SHIP	LA TITU	Dŧ	LONGI		DRIFT	M ARSI SQU A			TION T		YEAR			TATE)N		DEPTH	DEPTH	1 08	3VAW OITAVR3	15	WEA- THER CODE	CLOUD		S1	NODC TATION UMBER
NO.			1 10		'1 10	=	10*	1"	MO	DAY	iR 1/10		1	NO,	40 WI	ER	_ ,	BOTTOM	S'MPL	Z DIR	HGT PER	SEA	CODE	TYPE AM	1	N	OWREN
1035	4.6	F1454	ň,	165	OA		J33	44	. 7	18	122	1967	E	E2 04	7		1	د و شر	00	20	2		x	X Q			0047
								WA	ER	T	W1ND	BAS	0-	AIR TE	MP. 1			NO.		CIAL							
								CODE	TRANS (m)	DIR.	OR FORC	MET	ER	DRY BULB	W 9 BU	1 0	008	OBS. DEPTHS		2 MOIT AV							
								_		26	SAH	4.3	7	0.78	0.7	8	1										
	MESSENGI TIME HP 1 TO	01 110	CAP		DEPTH	m}	1	*C	s	٠/	SIG	MA-T		NOMALY-XI		₹ Z	. M		DCITY	O 2 ml/1	PO4-6	1 -	A L - P	NO2+N µg + al. l	NO3-N µg • al/l	\$1 O4=\$1	рН
									T				t					_									
	1	' '		т 1	17	J.	٠.	500	ے د	7 m	2.6	13	۱.	0.1892	Q	οu	no.	1 +	634	744	1	1					1
	1.3		O.F	-	190) :	3) 4		174	7.6	12						14	599	744							
	4.1		ÛЬ	ς.	390	>	3	4 (13	3.	79h	16	15						14	590	755							
			5	Ţ	101	J).	100	36	50	26	15	0	01469	ć,	00	14	14	548	75≥							
	1.2	2	UB	,	101	U	J :	300	32	801	20	15						14	598	754							
	1.2		15	5	3.71	Ėι	0.	164	- 5 <u>-</u>	814	26	1.3						14	586	731							
			3	Ť	100	U	Ü.	'u -i	3.2	5 2	26	. 1	0	01014	d	ŞŪ	3.7	14	57d	723							
	12)	HH	-	2 -	1		45	3 _'	024	26	2.2						14	676	721							
	1 '		10		192	6	J.	127	3.2	330	20	24						14	460	714							
				Titl	1012	J.	0.2	225	32	85	26	25	()	01774	t	00	55	14	559	714							
	1.	2	. B		103	1	U.	1.5	32	85l	2.6	125						14	569	714							
	1.		- OP:	5	DHZ	7	0.	125	4.2	H4 n	26	25						14	570	705							
			0.13	C C	304	2	1.5	24	3.2	847	.2 +	.15						14	571	711							

PEFERENCE	SHIP					ARSDEN		T NOI	IME		ORIGIN	ATOR'S	DEPT		1	WAVE	WEA				400C
RY ID.	CODE	LATITU	DE 1/10	LONGITUDE 1.10		QUARE		IGMTI DAY II	IR.1/10	YEAR		NOITATI REMUN	BOTT	1 0	1 00,	ERVATIONS	COD				UMBER
1108	- IN N	C445	NO	169360W		بايد وا		-	147	1967	EEZ U4	8	005	_	_	2	X+	Х Э	_		0048
						WA	TER	V	VINO	BAR	AIR TE		. NO	1			,			1	
						COLO	TRANS	DIR,	SPEED OR FORCE	WEI	ER DRY	WET C	DE DEPT	. 0806	ECIAL VATIONS						
								36	510	90	6 039	039 1									
	MESSEN - TOME BR 1 10	T NO.	CARD		m)	1 °C	s	٠.,	SIG/	/ A - T	SPECIFIC VOLU		M	OUND ELOCITY	0; ml/l	PO4-P ug = 01/1	101At-P	NO2-N		\$1.04~\$1 ug + a1.1	рн
																				i -	
	1	,	['] ⊃⊺	000 0	J '	0200	32	04	26		001804	o 'ouç	0 1	4578	721	1	1			'	
	14	7	083	0.00)	0258	32	8.46	26	22			1	4578	721						
	1.4	7	Ubs	000	5	0258	3.2	839	26	2.2			1	4579	721						
			ST	001	J	0258	3.2	84	26	2.2	001808	5 001	8 1	4580	739						
	1 4	7	089	. 001	Ü	0258	3.2	837	26	2.2			1	4580	7314						
	1 +	7	088	001	b	0524	3.2	840	26	22			1	4582	740						
			ST	ט סכ	J	0500	3.2	44	26	_' <	001806	n 003	5 l	4583	732						
	14	7	085	. 702	1	0260	32	843	25	22			1	4583	730						
	14	7	OBS	002	ь	0244	32	843	26	23			1	4579	751						
			ST	0 005	U	0210	3.2	85	26	27	001764	.' 005	4 1	4503	724						
	14	7	ÜBS	. 110.3	į	0,20 :	32	850	26	2.7			1	4560	717						
	14	7	085	003	7	01 +6	32	854	26	28			i	4555	712						
	14	7	085	2014	2	0178	3.2	850	26	3.0			ì	4551	705						

	1.17	PULLOSE PAR	SQUARE BC WATE		7 F A R	AIP TE VP TO SER ORT WE SEVE SULE SULE SULE	EP 8:	DEFTH SEPTH 10 OF MARE 10 OF MARE 10 ORS. ORSEPTHS CREEPING	S - 181F	NAVE RVATIGNS VARIGNS	101			
012359 F - 45 1 VI 0 40 He 1 1	CARD	DEPTH IM	r °C	5 *	SIG M 4 = T	SPET TOT A TOTAL AND AND MACHINET	≨ _ D D1N N Y - 2)	SOUND VELOCITY	C, ml	POP	*OTA,-F	NO3-11	4m' 12 1 21 4	, H
	- T		J. /r	1.00		17611	1.1	1477						
		5 0	-27*	* ~	F 2			14548						
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	- +		2 14.7	121.	200	(++H	1 -1 -	14" B1	りまた					
1.11				1 416	10 0			145HI	6 E M					
171			" "	5, -54	1.5			14551	715					
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1 '.		:	UIAL	200	100			14505	71 -					
1 1		- 4 -	0.25		, h h h			19587	711					
	T ·		0.51	1, 2	. 1. 1.	0 + 7 + 1	. 15.	14557	694					
1 1		1.141	J. b.	4, [6.0			14565	6.10					
	E 5	2.3.7	C 2 (4)	1 1 -	25.54			14558	5-4					
	0.7	1 4 -	the fire	1, + 1	. 1. 14			14584	bt 1					

4 SHIP			MARSDEN	STATION TIP	YE AR	-	GINATO		DEPTH	DEPT		WAVE RZATIONS	A EA-			%000 TATIO
LATEU		57		YO DAY HA		CRUISE NO	STA*		801104	OF STMPL		HGP PER S				UNFF
				7 12 1		t.E.J	-]]46	0.0	_		*	1 x u		005
" 1A + =	4 -	4.2% ()			IND.	A 16	TEMP					- 1	_			- 0
				-	SPELD MET	0.		VIS ZOD	NO. OBS.		FCIAL					
			CODE	TRANS DIR.	FORCE (mb			ULB 200	DEPTHS	DAZEX	SAHON S					
				4.	516 -1	7 65	1 .	16 5								
MESSEN DE LEST	CAPD TYPE	DEPTH Im1	T *C	5 *	SIGN A =T	SPECIFIC Y		₹ ∴ D DYN. M ¥ 10 ³		DELTY DELTY	O ₂ ml l	PO4-P +9 - 21 1	TOTAL=P		\$1 0 g = 91 1	
		1														
	Ţ	Same and	1326	33	264"	07.15	886	0000	14	613	623					
* G *	18.5	1200	5326	43. 1	, 1 to 44 "				1.4	c 1 5	623					
1977	3.	111115	1380	3314	2541				1.14	511	6.7					
	T - 1	0.10	0318	3314	644	00.5	645	0016	1 4	hil	O					
1.44		50.10	0316	5 * 1 4 1	16.95					cl.	5 -					
1.1	1.4	16	0424	3.24 5	2541				1 4	h 14	U 3 .					
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~		1	2924	3 *. 1	300				14	6.8	60-					
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2.47		- 7	5.753	11245	1566				1 4	548	4 - 5					

FEFNCE ID.	SHIP	LATITU	DE L	ONGITUDE 🛊 🛭	M APS	DEN		ION TI		YEAR	CRUISE	STAT	ION	DEPTH TO	DEPTH OF		WAVE EPVATION!	W EA THER	CODES		51	NODE TATION UMBER
NO	.000	•	1, 10	1,10	ie"	11.	M-O T	AY H	R.1 10		NO	NUN	868	BOTTON	S'MPL	S DIF	HOT PER	d'A CUE	TYPE A G	Ť.		0.25851
11 -	4 4 4	0 +1 4	14 1 1	120 11	- 14	-a 1	27	10 .	1 3]	46.7	ELL C	51		3344	0.0	34	_	K.2	X 10			0051
						WAT	E R	7	V IN D	BARC	AIRT	FMP	*C VIS	NO.		CIAL						
						COLOR CODE	TRANS	DIR.	SPEED OP ICPCE	METE	R DRY		IET COFF	ORS. DEPTHS	CALLE	VATIONS						
				_				34	512	93	5 071		67 5				_		,			
	MESSENGR TIME C	Y NO.	CARD	DEPTH (m)	т	°C	S	٠	SIGM	A-1	SPECIFIC VO	LUME -x1g ⁷	₹ ∆ D D\N. M x 10 ³		UND	O ₂ ml·l	PO P		NO2-N µg - ni i		51 (%=5) µg = 61 1	
					1											_	1					
			S.T.	" 0		441	3 -		754		00215	16	2000		653	7 4 3						
			114			44]		541	258						← 5,3	785						
	-		, Ц	10113		270		150	203						Ç - 4	629						
			5 T	J		- /4	2.5		F D 4		10,100	3	0017		5 w]	61.						
			10.5	1.4.1		_ / 4	- 5.5		26.4						591	617						
		-	16.	0.15		27:		160	2 - 4						592	584						
			Ŧ	1 2 1		-71	2.3		a 5 4		3: 155	51	0035		.542	579						
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			Т	1 *1.		_ 0 b	3 .		265		154	とう	01.5		543	5 8 ₹						
		,	111	* 1		.5"		1 46	256						693	5 € €						
		2	hh a	1.00		L 0 4		~ 2 4							592	5.74						
		4	110 -	. +	_	0.04		- 1						14	590	564						

CODE	LA TITU	1 10	1 10 E	SOUARE	MD I	- +	YEAP	NO N	TATION HUMBER B	DEPTH DEPT TO OF GITOM S'MPI	H OBSE	VAVE RVATIONS	THER	CLOUD COGES	}	51 NI	ATION DATER UARRE	
				-	ATEP	-	SPEED MET	ER DRY	WEL COOL		PECIAL EVATIONS							
				000	1	44,	524 14		1.12.7									
VESSENGE TIALE O	CAST NO	C ARD TYPE	DEPTH (m)	т *с	S	٠	SIGMA-1	SPECIFIC VOLU		SOUND	O ₂ ml/l	PO4-P	TOTAL-P		NO3-N pg - atri	51 O4−51 py - o⊁1	ρН	
		STL	DILU	0457	3 -		2584	0.07 100	_ 0000	14650								
J		193	1 00	0457		597	2584			1455)	4500							
13.1		ORS	1100-	U456		E-UD	2585			14661	9879							
		. 10	1.010	0379			2601	005006	9 0021	14631								
		-185	1010	3374		71	2601			14631	9673							
		16.7	Uulo	017.		2.0	2654			14548	763							
		510	7020	0096			2672	001336	0 0038	14514	719							
10.5		110	0.051	J078		32ti	2674			14509	71.							
		0.65	2016	0 n n 7		4-6	2677			14505	697							
		5T0	UH30	0003			268.	001543	5 0050	14508	7 O Q							
.1115		0.85	0031	0070	3 3	426	268.			14503	701							
1.12		0.83	0037	0051	3.3	458	2586			14501	701							

	нір	LATITU	DE	LONG	SITUDE	RIFT	M ARS			TION IGM1			YEAR	CRUIS	ORIGIN	STAT		4	DEPTH	DEPTH	08		A VE /A TIC	NS	WEA		OUD			NODE
NO. CO	DDE	•	1 10			0 Z	10*	1.	MO	DAY	HR 1/	10		NO		NUM		6	MOTTOR	OF S'MPL*	DIP	HG	T PED	SEA	CODE	1/61	AVI		N	U V. 8 E a
11084 N	lw!	654.	1.74	In9	540W		_33	54	υ /	19	. 4	+ 1	9 n 7	50.	_ U5	3		T,	, 144	υŭ	36	4			4.2	7	14			0053
							(WA	FER	-	WIN	,	BARC		AIR TE	MP			NO.		CIAL	ľ		,						
								COLOR	TEAN (m)		۶.	PEED OR ORCE	METE	R	DRY BULB			15	OB5 DEPTHS	OBSERV										
										14	5	30	±7°	5	0 6 7	,	3 Fr F													
1	SSENGR TIME of	CAST NO.	C AR 1 y p		DEPTH (m į	Ť	'c		· ,,		SIGM	A = T		MALT-#		₹ ∆ DYN X 1	M	SOU		Oş mi		PO.		1014L-P	NO:		NO3-N ug + at l	51 O4-21	pН
1		. ,	5	τ , '	UÜÜ)	່ ປ	530	32	64		25.7	ų i	0.0	2212	5	000	0	146	91										
	1.30		0.5	ς.	300	J	0	5 1 .	20	103	7	257	4						141	5 ¥ ↓	877	_								
	099		063	5	000	5	Ü	5.30	36	00	/	257	Sa.						145	542	вчi	2								
			5	TD .	1101	J	U	224	<i>5</i> 1	1.		664	b	0.0	15/7	>	001	Ģ	14:	71	674									
	149		08		- ûn I			124		11		354	t						145		574									
	μAd		06.		0.1			, L 1		1 ,	1	25-								57U	519									
			5		110 -			2 - 6		1.		2-5		O.	1543	h.,	000	7		7 U	614									
	1) 44		760		002			222		115		265	9							57ú	618									
	1.13	1) d		005			22.		140		264	Q						145	571	6Ų4									
			5.		,117-51			221		15		265		0.0	1544	1	J O 5			72	540									
	100	1	08	5	003	1	0	2,1	33	1150	+	265	.1						145	574	5 70									
	10)	OH	-	3113	1	1.1	2 1.	2.4	1155	١,	91.6	O.						1.6	. 7 .	5 7h									

EFEPENCE	SHIP				- 2	MAR			I MON	1ME			ORIGIN	ATOR'	S	DEP	IH ne	AX PTH o	WAV		WEA-				NODC
IPY ID.	CODE		1-10	LONGITUDE		10,	18.A.R.	мо	IGMT) DAY TH	(R,1 10	YE A.R	CPU		STATIC BPA USP		8011		PL'S DIR	BSERVA HGT	TIONS PER SE	THER CODE	TYPL			STATION NUMBER
311085	y NW	6544	LN -	16/4-1		233	214	υ7	14.	113	1907	En	0- 00	4		UU:	· (0 35	۷.		٠.	7 8			0054
							WA	TER	V	VIND	BAR	0-	AIR TE	MP. °C		TNO	. 1	CRCC14.	7						
							COLOR	TRANS	DIR.	SPEED OF FORCI	MET	ER	DRY BUL8	W E)- Der	SPECIAL ERVATION	2						
									36	53L	9.7	· ·	b.7	ľъ	7 7	T									
	MESSENGR TIME HR 1, 10	CASI NO.	C AR TYPI		+ lm!	,	°C	s	٠,,	SIG	M A -T		CIFIC VOLU		≥ △ 0 DYN. A x 10 ³	A	SOUND ELOCITI	. Opmi		04-P - 21"1	TOTAL-P		NO3-N pg - of 1	SI O4+S 49 + 01	рм
			5	10 00	Ó Ü	0	483	32	83	26	30		02018	,	guac	,	.4674		ŀ						
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	113	2.	089	3.0	U 5	Ü	471	32	637	26	٦.					3	4675								
			51	טט טז	10	U	453	32	88	26	U 7	U	01950	1	JU20		4654								
	11:	2	083	5 00	1υ	Ū	453	3.2	880	26	0.7]	4664								
	113	2	083	5 nu	16	0	241	3.5	UNE	26	30					1	4400)							
			51	riu ou	20	U	245	33	13	26	4 h	0	01577	1	0037	7]	4580)							
	1.1	2	083	5 70	2.1	0	238	33	138	26	47					1	4577	7							
	111	3	083	5 QU	Zh.	0	234	3.3	150	26	49					1	4577	7							
			S1	[D UU	30	Ũ	1 د ء	53	16	46	44	0	01547	i	005:	- 1	457e								
	11:	2	0.69	n.,	3.1	0	230	33	158	26	C ₁ "1					1	4576								
	11	Ł	089	5 00	3.7	0	228	3 3	165	26	51					1	4576)							

WATER	
WATER WIND COLOR TANK CIP OFFICE COLOR C	
COLCE TRANS CIR. SPEC MITTER DPT WEE COSE SPECIAL COSE C	
COLDE MI CP SPEC MESS CASE CASE CONTROL CASE	
ST. 1001 St. SIGNA-T SMERIC VOLUME SAD SOUND O2 m POL-P STALL NON NO	
ST. 1000 1000 22. 2611 10.4036 2000 14650 2000	
ST. 1000 324 2611 1014086 2000 14656 225 127 268 15 15 15 15 15 15 15 1	
127 288 (2.1 0.44 (2.1 2.41) 14655 020. 127 089 27 0.474 2.1 281 14655 020. 127 085 27 0.474 2.4 284 (7.2845 2.1) 14655 020. 127 085 001 0.47 22. 284 (7.2845 2.1) 14671 888 127 085 001 0.47 22. 284 (7.2845 2.1) 14671 886 127 085 001 0.47 22. 284 (7.2845 2.1) 14677 810 127 08 02 0.44 3117 285 00144. 0034 14677 810 127 081 0.47 0.47 32187 28 14677 828	-
127	
STT 1. 1.07 22.1 254	
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147 - 668 - 1007 - 665 - 33170 - 265 - 14578 - 616	

EFERENCE (e) ID.	SHIP	ATITUDE	LC	DNG-TUDE	12 3	MARSDEN SQUARE	1	STATION (GMT		YE A P		ATION		HTT30 CT	DEPTH		AVAVE EF / ATION	5	A E A - THEP	CICES CICES		51	CODE ATILN LISSE
DE NO.			0	1 10	3 = -	10" 1	. A.	O DAY	HR,1 10		NO. N	UMBER		BOTTOM	Z, W br,	S C P	HGT PER	E A	CCDE	1101 A11			- 1.81.
11184	dw	55164	1.0	5 4. 5Uw	-	.3 2	4 .	7 1+	145 1	9 t 7	00- 05e			u 0 > 5	0.0	35	3		x	5 8		1 0	0055
							W ATE	R	WIND	BAR	O- AIR TEM	P. "C		NO.	c n c	CIAL							
						00 001	OR . DE	PANS DIR	SPEED OR FORCE	As ET I		W ET BUL8	CODE	DEPTHS	OBSER	/A TIONS							
								36	3.2.7	О н	7 356	144	7										
	MESSENGI TIME HR 1 10	0 NO	CAPD 3417	DEPTH I	m I	т "с		s ·	SIGM	A — T	SPECIFIC VOLUA	- C	103 103	301	JND	02 m11	PQ 4 = P				NO3-N P9 - of		
		•			•							,						1				·	
			ЭT.	14		04+1	T	2542	201	r	00136B	. 0	0.00	14	5 4 5								
	1 4		65			. +1	1	3542	261	h				14	545	8614							
	14		E -	4131	-	.41		3. 333							545	8733							
			STL		-	L 4.	-	3692	261		001465:	. 0	(C 1 -4	1 4	540								
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	14	* O	3 °	7 +	_	019	1	34511	264	1				14	558	678							

EPENCE ID.	SHIP	LATIT	101	ONGITUDE EN	MARSDEN SQUARE	STATION TI	V E YEAR	OFIGINATO		DEPTH	A" AX DEPTH	WAVE OBSERVATION	WEA	CLOUD		NODO
NC.	CODE	•	1 10	· ., 10 = =		MO DAY H	2 1 10	NO. NU		воттом	S'M PL"	DIR HGF PER	0.000	TYPE A SE		LYBER
1/10	+4	D., .	24 1	MC+2+4	2 1 1 54	07 19 .	58 1467	002 357		0053	00	10 2	1.2	7 8		0057
					Vs A T	ER A	IND BAR	O- AIR TEMP.	*C	NO.	Spr	TIAL				
					COLOR	TRANS DIR	SPEED MET OR (mb:		VET COD	OBS. DEPTHS	OBSERV					
						16	323 09	4 007	20 7							
	MESSENGR TIME HP 1 10	or NO.	C A P E	CHEPTH Im1	7 10	s ·	SIGMA=T	SPECIFIC VOLUME	₹ △ D DYN, V ¥ 103	SOL	OCITY		, TOTAL=P			рМ
		+	+		<u>.</u>	•					-+		1		 -	-
			StD	ı iç u	U+++6	3 4 7 6	2598	0020326	Jude	14	558					
	158	14	365		U445	3.76	2598			14	558					
	158	_	1155	0005	U44:	32154	2598			14.	557					
			J⊤.		シチとう	3211	4601	0020044	0021	14	65l					
	157	2	0 d S	6 10	1.475	72771	2501			14	551					
	15	2	125	3 (16	∪ ₹8]	31914	2600			14	633					
			9 7 0		U365	204	2613	0018463	0041	14	628					
	154		0.45	U051	0362	12841	2613			14.	£27					
	153	5	163	0620	0351	きょうりょ	2015				623					
			S T]	1 10	0250	3287	2624	0017851	0(58	14	585					
	158		UB1	0001	0242	32676	2606			14	577					
	159	В	085	∩u37	0181	32840	2628			14	551					
	158		CBS	1 U 44 .7	0:75	12846	2627			14	549					

SHIP LATITU		GITUDE # SO	MARSDEN SQUARE	STATION ISMT		EAR		TION	10	OF OBS	WAVE ERVATIONS	MEA- THER CODE	CLOUD CODES		5.	NODC FATION UNBER
J 40		4120%	2 1 14	27 19	470 1	467)() _L (!) ⁴		146	10 15	2	X.	6 8	i	1	005×
			WAT	ER	WIND	BARO	AIR TEMP	*C VIS	NO,	SPECIAL						
			COLOR	TRANS DIP	SPEED OR FORCE	M ETE	R DR1	WET CODE	DEPTHS	BSERVATIONS						
				35	-52n	1.47	H 07. 0	050 7								
MESSENGE CAST	CAPD TYPE	DEPTH (m)	1 °C	s ·	SIGMA	_T	SPECIFIC VOLUME	₹ ∆ D DYN. M x 10 ¹	SOUN VELOC		PO4-P		N∩2=N 9g - at I	NO3=N yg = at 1	\$1.04-\$1 #g - 01,1	рН
			1													
	STP (6" 2	. h21	325E	570		0023623	200	147							
1.7	ORG		5627	32558					147							
17.	085	Chilina	Dn2/	3255					147							
1.2.5	STO	min Lor	052/	1256	7,25		0023657	0).4								
17.1	URC	0.010	3527	3255					147							
1.70	085 3 T D	0016	06.07	32557 3261			0		147							
1.7	165	6221	0444	32618	256 257		0023161	UU47	147							
17.	065	0077	11407	5 655					147							
1 / /	5.12	11/10	Ubak	5.20	257		00.2346	áu 71)								
1.7 :	185	11 11	2586	3211				0.07 11	147							
17	. 6	1.47	มราช	1,691					147							

REFERENCE CTRY ID. ODE NO.	CODE	LATITU	IDE 1/10	LONGITUDE	CARCTO	MARS SQU	ARE	\$T 4	IG M	TIME TI HR.1/		YEAR	CRU		STAT NUA	ION		DEPTH TO BOTTOM	DI	MAY, EPTH OF MPL'S	O E	W A BSERV		WEA- THER CODE	C	LOUD		2	NODC TATION IUM8EP
21 100	- NW	653.	1,1	1640200		633	59	0.7	19	166	1	967	DE	0-10	5.9			0055		6.0	3.3	. 2		1 × 2	×	(a			0059
							WA	1.68		W 184 [_	BAR	J- T	A IP T	EMP.		ers.	NO.	ľ	SPEC	IA.	7							
							COLOR	TRAN		R.	DRCE EED	(mb:		DRY BULB		JLB C	001	OBS. DEPTHS	0.00	SERVA		5							
									3.	5 5.	2 F.	0.0	4	0 h 7	1	56 7	7					7							
	MESSENG TIME HP 1/10	및 NO.	CAR		(m I	T	·c		s ·		SIG M	A = T		DIFIC VOI		N ∆ DYN.	. 7/		OCIT		02 m1		PO 4=1	OTAL-P) ₂ = N - at.	NO3-N 10- gq	51 0 4 - 51	рН
			5	10 000	υ	0	736	3 4	264	- 1	255	4	0.0	0245	05	00.) i i	14	77	1									
	18	6	08	ς ηυι) U	Ü	736	3 6	263	ų.	24.5	4						14	77	1									
	16	r	ΟĒ	5 000	'n	Û	733	3.	04	Ģ.	254	**						14	77	5									
			- 5	TĎ NU.	U	Ü	726	٥,	263		255	4	0.0	1.45	40	-002	25	14	77	1									
	1.8	6	08	5 01 3	()	Ĵ	72h	3.	2 e 2 :	R	2 5, 5	4						14	7.7	1									
	18	ь	OB c	5 (GG) TO (GG)			69. 585		:61 :52		255 256		0.0	3236	4 F	004	14		75 71										
	10	6	08				571		la c		25e								70										
	1.8	6	0.3	S 00,	6	J	575		151		256	5						14	71	_									
			5	TD 10.	50	0	571	3.5	251		256	5	0 (0.35	6.2	001	7 .	14	71	1									
	1.5	6	0.8	5 00	3.1	U	551	3.	249	. `	296	-						14	7∪	4									
	18	6	(IR	S Du.	5.7	U	3 +1	30	224	7	257	1						14	59	15									
	18	6	03	5 1	+ 2	0	295	3.	:25	5	257	2						14	59	5									
	18	6	미년	5 0 1	4 7	Ũ	4114																						

REFERENCE CTPY ID. CODE NO.	SHIP	LATITU	DE 1/10	FONCILADE	CPIFF	MARSDEN SQUARE		TION (GM)		YEAP	CRU		NATO STATI MUM	ON	DEPTH TO BOTTON	DEP O S'MF	TH OF	BSERV		INS SEA	THER CODE	C	OUO. ODES		51	HODG FATION UNBER	
311089	NW	6537	UN	168490W		233 58	0.7	19	208	1967	DE	12 40	U		0053	Ü	0 35	12			x 2	7	8		(0000	
					' '	WA	150	T	WIND	BAR	o. I	AIR TE	MP.	'C VIS	NO.	Ι΄,	PECIAL	7									
						COLOR CODE	1RAN!	DIR	SPEED OR FORC	MET	ER	DRY BULB	W BU	ET COD	OBS. DEPTHS	A D C C	RVATIONS	5									
								3,	515	0.1	3	0.72	0	25 7													
	MESSENG TIME HR L 11	CAST NO.	CARE		m t	r *c	5	٠	SIG	M A ~ T		DIFIC VOL		DYN. № V 103		UND	O 2 ml		PO 4-		fOTAL→P μg - at/l		g=N abl	NO3-N µg - or l	\$1 0 4 − \$1 µg + a1 1	ρМ	4.0
		1	ST	.D 000	U	0458	32	11	25	4_	0.0	0.506	0.4	0000	14	667	756										
	23	B	ÜBS	000	J	Û488	32	10	7 25	46					14	567	754										
	211	B	089	000	5	0485	32	11	7 25	43					14	665	752										
			ST	TD: 001	U	0466	32	10	25	51	0 (02485	0 -	0025	. 14	551	756	,									
	, 11		065			0468		189		51						661	756										
	20	8	065			0483		25		54						669	755										
	_		ST			0501		3.3		58	0.0	02414	4.2	0050		67H											
			OBS			05Un		33,		58						440	731										
	2.0	ч	0.65			0342		25		63						634	766										
			ST			0387		44		63	Ų (0-30	16	0 U 7 4		631	761										
	20		063			0386		24.		64						631	760										
	20		069			0.377		24.		64						628											
	2.3	H	039	004	-	0369	3 <	23	25	64					14	625	759	′									

TRY ID.	SHIP	LATITU	DE	LONG		DCTP	MARS			ON T		EAR.	CRUISE	STAT	ION	1	DEPTH TO OTTOM	DEPTI		WAVE SERVATION	45	WEA+ THER CODE	CODES		5 T	INDIC ATION UNBER	
DOE NO.	COUR		1, 10	•	1 10	- Z	10*	1*	MO 1	Y YAC	P 1.10		NO.	NUA	18ER	80	OHOM	S*MPL	"S DIR	HGT PER	SEA	LUDE	TYPE A 61	-	-+ "	or with	
31108	/ NW	65.18	٦N	150	4 D D W		234	58	7 1	9 2	663 1	9 to 7	002 0	61		0	051	0.0	3.5	3		X -	7 8			0061	
								WA	ER	V	VIND	BARC	A)P	TEMP	,C		NO.		ECIAL								
								COLOR	TRANS Im!	DIR.	SPEED OR FORCE	A4 ETE (mbs	R DRY		E1 (OBS. EPTHS		VATIONS								
										35	510	0.16	1 161	Ü	50	7											
	MESSENG TIME	NO.	CAR		DEPTH	(m)	T	*c	s	٠	SIGM	A - T	SPECIFIC VO			D I. M. 10 ³	SOU VELC	DCITY	O2 ml	PO4+ pg + ot		A L P	NO2-N µg + atrl	N⊙3−N µg - of l	51 O4=51 µg − al 1	рН	
				r D	000	. 1	1	463	J.	/ н	Z 4 7	,	00316	19	00	an	145	545									
	2.2	3	08		000			461	31.		647			-			146	545									
	2.2		ЭB	5	700	5	0	462	31.	280	247	Q					146	546									
				T D	001	U	Û	433	31.	5 l	244	h	00011	27	0.0	31	146	500									
	2.2	3	OH	5	001	Ō	0	433	31	310	248	5					146	535									
	2.2	3	OB	5	201	6	0	414	314	443	249	7					146	529									
			S	T D	000	U	Ü	351	5.1		500		00285	59	Ðυ	61		504									
	2.2	-	08		0.05			344		543	251							602									
	22	3	0.8		00-			329		5-4	253			_				614									
				TD	0.0.3			343	3.1		254		00255	73	01	8.3		t - 7									
	5.5		0.9		003			320		300	254							6.5									
	2.2		09		503			43.		329	254							547									
	2.2		08		004			5 U 1		160								580									
	2.2	3	0.8	5	004	7	0	4∋0	32	155	255	1					146	979									

ID. CODE	LATI	UDE	LONG	HTUDE	DOC TR	MARS SQUA			TION T		YEAR			STATI	ON	-	DEPTH 10	DEPT OF	H c		VAVE RVATIO		W EA THEP	(LOUD			STA	DOC TON
NO.		1 10		11, 10	- Z	10*	1,	MO	DAY	HR,1/10			NO.	NUM	BER		BOTTOM	S'M P	,*S C18	Н	IGT PER	5.E	4 CODI	IY F	A M			~ U ·	<.= B € ₽
1089 NW	653	8 ° N	lnb	3401		233	58	37	19	235	196	7 0	D2 06	2		- 1	1655	0.0	3.	1 2	4		¥ ->	1	,			0.0	262
						[WAT	ER		MIND	B.A	RO-	AIR TE	M.P		VIS	NO.		ECIAL										
							COLOR CODE	TRANS	DIR.	SPEEL OR FORC	1 ""	TER bal	DRY BUL8	B U	ET C	ODE	OBS. DEPTHS		VATION	ıs									
									3.5	514	. 2	22	067	0.	57	1				7									
MESSEN TIME HR 171	CAS	CATY		DEPTH (m)	ī	°C	s	٠	SIG	MA-1		ECIFIC VOLU		₹ ∆ DYN. x 1	1.4		JND	0; m	0	PO4-		TOTAL=#)_⊷N - ot i	13⊕3=11 µg = 01 =	h3 - 0 21.0.₹-		ρН
																												1	
1			TO '	0000			743		53		387)+14040	υ.	000	ЭÙ		749	67										
2:		0B		0000			743		533		87							744	57										
2:	3.5	08		0009			744	_	531		387							750	53										
			TD.	001.			502		10		+ 68	Ų	0032-8		00.	37		662	71										
2.		0.8		001.			502		134		+ <u>€</u> P						14	652	71										
2:	3 5	OB		001:			454		250		+ 7 E						14	- 44	7.2										
			GT	1020			+24		= 2		* H &	(00.50 = 7	7.4	200	58	14	500	71										
	35	08		0021		0.4	+15		250		+ 4							629	7.1	7									
2.	3.5	08	2	2056		U	363	31	431	2.5	0.1						14	613	74	0									
		S	TD	0030)	0.	350	31	54	2.5	11	(002965	5.2	00	48	14	hilb	74	5									
	3.5	06	5	003	1	Û.	345		555		1-						14	5 -4	7.4	7									
2	3.5	03	5	003	7	Ü.	378	31	612	25	20						14	590	75	4									
2	3.5	90	S	0042	2	J.	285	3.1	71 ₆	25	330						14	582	7.7	1									

ERENCE ID.	SHIP	LATITU	DE	LONGITUDE	10 4	M ARS			ION T GMTI		YEAR	CRUISE	STATI	DN	-	DEPTH	DEPTI OF	н (W RESER	AVE VATIO	ONS	W E A THER CODI	COD			5	NODC TATION
E NO.	1		1/10	11,	0 =	10"	1.	MO I	YAC	R.1/10		NO.	NUM	EF	_ '	BOTTOM	5'MPL	'S DB	R H	T PER	SEA	COL	I FPL A	MT			DYNER
11039	NW	6538	ON	168260	N	233	58	u7 .	. 5 1) L B I	967	DD2 0	53			1053	1.0	- 3	1 3			Х	7 9	1			0063
						. [WAT	ER	1	DNIN	BARC	AIR T	EMP.			NO.			Π'								
							CODE	TPANS imi	DIR.	SPEED OR FORCE	M ETE	R DRY	W 1	T c	VIS CODE	OBS. DEPTHS		ECIAL VATION	4.5								
									35	517	112	4 078	24	4	7												
	MESSENGR TIME of HR 3/10	CAST NO.	C APD TYPE		1 (m)	Т	٠.	S	٠4.	SIGN	1A-T	SPECIFIC VO		DYN X	I. M.		DCITY	0) #	91. b	PO 4 -		TOTAL F	NC 1-1		3-N	\$1 04\$ µg + at 1	рн
													1														
			ST				876	50		230	38	00479	85	00	0.0	14	746										
	008		083				876		755	230	3.8					14	79Û										
	008		055	0.0	0.5	Ú	575	24	767	230) Q					14	792										
			ST	D 20	10	Ü	d44	29	5.7	23.	2.1	00467	58	00	47	14	783										
	3 Q B		065	00	10	0	849	20	871	23.	2.1					14	783										
	009	1	085	20	16	Ü	7.7.	30	27b	236	5.2					14	762										
			ST	D 00	2 Ů	0	753	30	4.7	238	8.1	00410	21	00	9.1	14	755										
	008		085	0.0	21	0	7+1	30	566	238	8.7					14	752										
	800		OBS	0.0	26	0	545	30	516	24,	4					14	718										
			SI	D 00	30	0	5.14	3.0	⊋7	240	4.0	00353	58	01	20	14	700										
	0.08		088	0.0	31	Q	يه ⊌ ≟	3 ∪	-92	240	4 5					14	646										
	008		045	0.0	3.7	Ũ	55 J	31	261	24	53					1 4	684										
	008		0 d s	οū	42	0	52 -		114	245	e u						677										

REFERENCE					SDEN		TION TI		1	-	DRIGINA	A TOR'S		DEPTH	DEPT		WA			NEA-					IODC
TRY TO CODE	LATITU			2	JARE		(GMT)		RA31	CRITISE		TATIO	4	TO BOTTOM				TION!	1 6	HER	COL			51	A TION
LOCI NO		1/10	1/10	10		WO T	DAY	P 1 10		NO.	- 1	UMBE			S.W bf	S DIP	HGT	9E0 1	E A	_	1121	A 2/ T			
- 12[108의 학짜] 7	739	UN T	WU-180	233	58	117	- 11 1		4117	007	156	-	İ	16.	. 0	3.4	1			(1)	7	ы		(0064
					WA	931	٧	VIND	BARO		IR TEN	AP °C	- vis	NO.	5.0	CIAL	}								
					COLOR	TRAN' (m)	DIR	SPEED OR FORCE	METER (mbs)		ULB	W ET	CODE	OBS. DEPTHS		VATIONS									
							4.4	120	0,54		7 4	1151	, ,												
MESSENIT PLOT	145T NO.	C A R D T Y F E	DEPTH (m	1	r tc	s	٠	SIG M	A — T	SPECIFIC	ALY-EIG		≥ △ D 2YN. M × 10 ³		UND DUITY	O2 m11		O4-P			NO2-		9 - 01 (I		ρН
			+			1		+				-		+					1		-		-		
		SID	1 1000	1 (7431	123	36	2.0	4	000	lha:	1 ') () ()	14	du6	553	-			1		1			
320		085	0.100	(7931	24	364	. 25						14	806	553									
3.24		0115	1005	0	939	_ 4	264	4.5	-					14	8∪7	659									
		STU	2010	(11.5	24	47	448	4	195	. 4 c 1	+ 1	Nobe	14	748	667									
0.20		065	1010	() ≠∪ 1	2.4	451	224	2					14	7 + d	657									
うこじ		065	0016	()438	24	ちゃせ	229	3					1 4	7 +5	678									
		SITU		-) 44 4	८ '₹	h 1	2212	4	004	4.7.	1 () † (j. f.	14	747	553									
100		0.65	0021	(3309	£ 14	613	225	5					14	747	551									
1127		065	00.6	(345	29	637	224	7					1 4	748	658									
		STU	0.030	(0837	2.14	5'-	250	1	004	h/ 5	5	1100	14	7-12	654									
120		065	0041	(0886	29	702	240	Ľ.					14	744	654									
25.7		OBS	∩U37		387 -	29	771	2.40	q					14	7 4 8	661									
021		085	5.4.		717	3 U	E . 4	2 - 0	м					14	747	684									

REFERENCE	SHIP CODE	LATITU	1/ 10	LONGITUDE	10:	MAR SOU	ARE		TION T IGMTI		YEAR	C R U		STATI NUM	JN.	1	EPTH TO TTOM	MAX DEPTH OF S'MPL	1 0	BSERY	A VE VA TION		WEA- THER CODE	CLO	DES		S1	NODC FATION UMBER
3110	MN ER	5525	CN	159450	al	235	69	07	20	191 1	957	100	2 00	9)	53	50	3.0	1			13	7	В			0065
							WA	TER	1	WIND	BARG	o. L	AIR TE	MP.	C VIS		10.	50	CIAL	7								
							COLOR	TRAN!	DIR.	SPEED OR FORCE	M ET I		DRY BULB	W BU	T cor	ari U	BS. PTHS		VATION!	s								
									0.5	507	0.5	7	056	Э.	4 7													
	MESSENG TIME HR 1/10	of NO.	CAF		l (m)	т	°C	5	٠	SIGM	A - T		IFIC VOLU		₹ ∆ 0 DYN, 7 x 10 ³	M.]	\$OU √ELO		Og ml	71	PO 4=1	- 1	OTAL-P ug - of 1	NO ₂ -		NO3-N	SIO4=Si ug = at I	На
				- 0				Ι.,			,						1											
	1.0		-	ID . 00			604		01	252		0.0	12763	4	0000	J		713	807									
	19		0.6	-			504 497		013 172	252								713	807 796									
	114	1	ÖΑ	3 110 TD 110			277		4/4	254 250		0.0	11763	7	002		145		704									
	19	1	08				277		915			00	11103	,	002.	,	149		704									
	19		08				152		0.72								149		669									
	1	1		TB 00			264		. 3	264		n c	1630		0041	1	145		644									
	19	1	06				264		ÚEC.				,			_	144	-	54									
	19		Ов				2+		87.		. 1						145		635									
			S	TD 00			251	3.3	0.4	264	. 1	0.0	16.4	1	0054	5	145		545									
	19	1	08	5 00	51	0	261	3.3	0.85	254	1						145		650)								
	10	1	05	c ju	± 7	Ų	264	3.3	1197,	204	. 1						149	589	647	7								
	1 1	1	08	S 10	+	Ü	200	33	ار ۷ را	264							1 45	589	635	>								

I CODE	A TITUDE		1	DRIFT INDCTP	MARS SQU		STAT	ION TI		YE A.R	CRL		TATIO	N		DEPTH TO	DEPTH	1 0	W A BSERV	VE A TION	s	WEA- THER	CLOUE		S	NODC TATION UMBER
NO.	1/10		1.10	_=	10"	1"	MÓ D	AY H	P, 1/10		N	0.	NUMB	E R	BC	MOTTC	S'M PL	S D1P	HG1	PER	SEA	CODE	TYPE AA	VI.		UWBER
1084 14 6	6270N	169	9320W		233	D.11	07 2	20 .	16 1	967	CO	12 06	e		Q:	057	00	31	3			X.Z	7 8			0066
						W 4.1	ER	v	VIND	BARG	· I	AIR TE	MP. *C		.]	NO.		CIAL	٦.							
						COLOR	TRANS Im1	DIR.	SPEED OF FORCE	METE (mbs	R	DRY BULB	W E BUL	T c		OBS. EPTHS		/ATION								
					f			11	306	0.3	7	072	05	٥ .	7											
MESSENGR C TIME OF	AST CA NO. TY		DÉPTH I	m)	T	*C	s	٠,,	SIGM	A -T		DIFIC VOLU		₹ ∆ DYN.	Μ.	SOL	CITY	O 2 ml		PO4-P g - al/		TA L = P	NO2-N µg - at ii	NO3=N ug - al-l	51 O 4 → 21 1, 10 + 64	рН
·	S	TD :	0000)	Ú:	76	363	34	255	1	0.0	02 4 78	8	000	0.0	14	704									
216	OR	S	0000)	0.5	572	323	344	255	1						14	704									
216	08	S	000+	7	0 9	45	320	+30	256	1						146	595									
	S	CT	0019)	0.	282	324	+3	262	7	0.6	31757	4	000	2.1	14	542									
216	05	5	0010)	0.	282	32'	124	262	7						145	592									
216	OR	S	0016)	0.	277	320	+3t-	262	8						145	591									
	5	T D	2020)	0.	. 77	324	+4	262	8	0.0	01746	7	003	39	149	591									
216	08	5	0.021		0.3	277	329	49	262	9						145	592									
216	08	5) Ū_ b)	0.	175	32	144	252	ů,						149	592									
	5	TD	0030)	0.2	64	32	14	262	9	0.6	01740	0	005	56	144	590									
216	OB	S	0031	l	0.3	6.5	32	135	262	7						145	589									
216	08	S	0037	7	0.	168	3.21	334	262	4						149	590									
216	08	S	004.	4	0.	110	32	440	262	4						149	590									
216	08	S	0047	7	0.3	25h	320	244	263	0						144	591									

REFEREN		SHIP	LATITU	0.	LONG	SITUDE \$		SDEN		NON T		1 F A R		RIGINATO			EPTH DEF	TH OI	WAVE SERVATIO	NS.	WEA.	CODE			VC. NATEN
ODE N	D.	CODE		1, 10		1 10	10*	1 10	MO	DAY IF	12 1 - 10		CRUISE NO.	NL 1			TTDW S'M		HGT PER	18.4	- CODE	1171 A.U		*4	17 17 5 4 8
3110	144	Na	6531	-		lauw	2.32	6.4				1967	CC.	U67			ر دد	: .7	1	_	A	7 3	1		J367
, 1110	2 1		002		10.		1		TER		WIND		Α.	IR TEMP.	*c				1						
								COLOR	TRANS	DIS	SPEED OR FORCE	METE (mbs	R D			5.0	nor .	PECIAL RVATIONS							
										3	506	2.97	: 1	. 7	44 -										
	- 1	PESSENGE TIME	및 NO.	C AR TYP		DEPTH imi	T	*c	s	٠	SIGA	ла-т		VOLUME VOLUME	₹ .∆ DYN. ¥ 1	M	SOUND • ELOCITY	O ₂ ml	PO4-		10 TA L = P vg + of T	NOg-h ug - at I		51 C 4~"	рН
											1									1					
				5.1	ro i	ULĆI	Ú	544	3	ન ઇ	254	t to	302	3423	100	L	14532	8:1							
		2.3		08:		4000		j. u.u.		4 - 1	3.57						14595								
		231	7	053		0000		400		7.1	25						1457								
				5.		7910		45:	36		25		11 -	L'.	۽ لاڻ	- 1	14571	765							
		23		063		0.07.45		+ " ."		, ^ T	2.5						14017	7と、							
		2.37	7	0.20		01-10		44.		5 10	2 :			-			-4573	150							
				S		JU _ J		400		22	- 5		00-	= 347	00-	5	14675	i + 5							
		23		ÚĒ:		0.751		484		407	2.5						14577	7.4							
		33	7	ЭЬ		1050		400		550							1455								
				S.		0.130		451	3.2		25		0000	000	ŮΠ÷	,	1465								
		_ 3		059		0031		451		754	2.5						14554								
		53.		061		3037		41		814	2+						14649								
		231		î [⊢ s	5	0642	C	3 4 7	3,1	931	25	1					1454]	718							
			-		-	3.1.7		21	3.7	nt (-		1					146.7	75.							

REFERENCE TRY ID.	SHIP	LATITU	DE	LONGITUS		g sai	SDEN JARE		TION T		YEAR	CRU1		STATI) N	\neg	DEPTH 10	DEPTH		WAVE SERVATI	IONS	WEA	CODE	2	5:	NODE TATION
DDE NO.	1	•	1, 10	٠,	10	10*	1*	MO	DAY	IR 1 10		NO).	MUM	B E R		MOTTOM	S'MPL	S DIP	H G P PE	R SE	CODI	TYPE A	,4 °		OWAER
311091	146	55.15	5	10043	~ V+	2.33	5.5	57	±1	035	1957	150	4 . 5	-		J	1 در	5.0	3.	12						3058
							NA.	ER	1 '	WIND	BAR	a. T	AIR TE	M.P. *	0		NO.		CIAL]						
							COLOR	TRAN	DIR.	SPEED OR FORCE	MET	£R	DR1 BULB	BU.	7 C	ODE	200		VATIONS							
									1.5	500	3	-	067		1	7				<u> </u>						
	MESSENGE TIME HR 1/10	CAST NO.	CAF		TH (m)		, <u>,</u> c	,	٠	SIG/	7 — A N		FIG VOLU		X 1 X 1 X 1	. M.	VELO SOU		02 ml	PO4		* O T A L = P		h ⊃3=h yg = of f		рн
				i																						
				າລໍ ເ	000		1522	31	85			0.0	_7/5	1	OU.	H	145	5 7 B	771							
	2.35		05	3 0	JOU		522	3.1	5 C 1	2.5							14:	7 d	770							
	0.34	-	CE	3 2	215		1453	31	ñ 4	25	6.						145	50	767							
			S		11J		14.3	3.	+	20		0.0	/1	1	J.,	15	144	J 🕶 S	755							
	0.35		Оb		u 1Ú		1422		414									945	755							
	0.35		(3		015) u 1]		420	25							145	1	.57							
					ردرا		4		-4-4	4.5		0.0			00	+		7+61	2 44.54							
	035		0.8		ULI		. 417		425	15							T ++ C		142							
	0.35	5	0.8		125		آ په په ا		,, Q ,	2.5							145		.4-2							
			5	TD L	030)+51	20	53	25	8 .	0.0	25,17		37,	7 -	140	0.	7.2 ±							
	. 3 5		0.8		U 3 1		454	3.	1152	25	51						1 44 5	563	7 _ 7							
	0.35	5	00		C 3 🔭		455	3 -	577	25	3 T						145	7.	- 10							
	0.35	5	J.E	5 0	_ • _		455	3.0	- 7 -	2.5	4						146	72	937							

REFERENCE	SHIP					£ 5	MARS			ION T			-		ATOR"		DEPTH	MA) DEPT	!	WAVE SERVAT	WEA	Cro				NODC
CTRY ID.	CODE	LATITU	1/10	LONG	1/10	1 N N	10"	1			HR.1 10	YEAR	CRUISE NO.		STATIO NU 4188		TO 101108	S'MPL		HGT PE	 - 0006					UNBER
31108	9 44	5536	QN.		1904		233	1		21	557	1 45 7	1452	£	4			1 :		3		-	ć			0169
	1				,		[WA	ER	Τ,	WIND	BAR	'	AIR TE	MP, *C		NO.	1	ECIAL	l .						
								COLOR	TRANS	DIR.	SPEE OR FOR	D MET	ER C	DRY ULB	WET		DEPTH	ORECO	VATIONS							
										10	_	_	9 -	78	JE	7 7										
	MESSENG TIME HR 1/11	CAST NO.	CAR		DEPTH IA	n]	ī	*c	5	•/	SIC	SMA-T	SPECIFIC			€ ∴ D DYN. M x 10 ³		DUND OCITY	Opml'	PO.	TOTAL=P	NO2-		03-N - at I	SI O4=Si ug - at '	
				rD	0000		0	867	[و	1 .	,	335	004	6 7	, 1	0000	1.	79.								,
	0.5	7	005		2000		_	567		120		:3F	00			U L 00		74_	- ಕಡ್ತ - ಕಡ್ಪ							
	05		083		3005			860		126		338						795	580							
	0 0	,		ro To	0010			839	30			35.	004	374	. As	0U 44		784	667							
	15	7	089		001			839		254		75.	• • •			00.		744	667							
	0.5		063		0016			u (u		344		364						775	567							
		'		10	0020		_	d. 1	3 U			3 t 7	0(4	239	7 n	0 v d :		773	6.75							
	0.5	7	083		0021			9 U U		174		167						773	676							
	35		083		0046			800		377		367						773	6.74							

RENCE SHIP LATH	1/10	ONGITUDE 17/10	-	MO E	OAY HE	1/10	YEAR 96.7	CRUISE NO.	STAT NUM	ION	DEPTH TO BOTTOM	2 W.L.	085	WAVE ERVATIONS HOT PLR SEA	WEA- THER CODE	CLOUD CODES		11	HODC HATION UMBER
			COLOR	_	DIR.	SPEED OR FORCE	BARC METE (mbs	R DR		C VIS	NO. OBS. DEPTHS	O access	CIAL ATIONS						
			-		++-	307	11	_	9 U	78							,		,
MESSENGE CAST	CARD	DEPTH (m)	t tc	S	٠4.	SIGM	A =T	SPECIFIC		∑ ∆ (DYN. / x 10	W VEI	DAUI OCITY	O2 ml/l	PO4-P yg - 01/1	TOTAL-P µg·ai/l		NO3+N	SI O4→Si µg = o1/I	pН
278	STU OBS	0000	0785 0785		471	237 237	7.7	J041	4 () b	000i	14	765 765	646 646	1	I			l	I
978 278	OB1. STE OBS	0010 1010	0763 0733 0733	30 30	564 65 644	238 239 239	14 18	00 21	434	ÚU4	14	758 748 748	713 713						
178 278 278	055 310 250 085	0016 0020 0021 0026	0725 0719 0717 0713	30 30	685 72 727 750	240 240 24 240	15	Q17.28	721	ŌΠЬ	1 4	1748 1745 1745 1744	703 704 706 710						

EFERENCE	SHIP				L &	MARS			TION IGMT		1		0	RIGIN	ATOR'	s	_	DEPTH	MAX. DEPTH	001	WAV ERVA		WEA		QUD.			NODC
PY ID.	CODE	LATITU		LONGITUDE	PINOCI						YE A	R	CPUISE NO.		OITATIO NUMBI			TO OTTOM	OF				THER		I AMT			MOITAT
NO NO	1		1'10	1/10	+-	10"				HR,1/1	1		NO.			C.K.	+		S'MPL'S	T	HGTI	PER SEA	-	1778	A MT	-	_	
1 108	NW	6636	ŮΝ	10/360W		233	67	07	21	091	190	57	CCC	0.7	1		Ų	10-6	0.0	3.1	13		- X =	5	16			0071
						[WAI	ER		ONIW		ARO-	Α.	IR TEA	MP. "C		/IS	NO.	SPE	CIAL								
							COLOR CODE	TRAN Im I	DIR.	SPE	P ''	AETER Imbs)		RY JLB	BOT M.E.	T Co	200	OBS. DEPTHS	OBSERV									
									25	Sû	5	121	. ે ટ	3.3	0.7	8 6	>											,
	MESSENG TIME HR 1/10	y NO.	CAR		(m)	T	*c		٠/	SI	GMA-	1	SPECIFIC ANOMA			₹ ∆ DYN. x 1	M	VETO 200		02 ml/l		04-P - 01/1	101AL-9			NO3-N vg • at/I	SIO4-Si	рН
		1	51	000		1	738	37	68	1 -	399		2035	J - 7	_	000	١.	143	749	7:8	1				ļ			
	- 59	-1	069				738		675	_	399		505.			000	,,,		749	705								
	6.9		OB.				717		746		427								742	715								
		•	5.				6 10		84		41H		0031	751	1	003	3 8		736	704								
	0.9	- 1	083				646		1842		418								736	704								
	d 9	-	OB:				632		986		437								713	718								
			5			0	592	3.1	16	2	456		0053	341	2	007	74	147	700	725								
	0.9	1	OB:		1	J.	586	31	187	. 2	45H							146	98	727								
	3.4	1	083	002	6	0	574	31	265	2	405							146	95	718								

EFERENCE IRY ID.	SHIP	LATITU	DE	LONGITUE	10.3	MAR. SOU			TION	1	YE AR			STATIC) N	1 1	PTH TO TOM	MAX. DEPTH OF	1		TIONS	WEA- THER CODE	CODES		51	NODC FATION UMBER	
DE NO.		•	1/10		1/10 =	10"	1.	MO	DAY	HR,1'10		^	10.	NUMB	ER	-		S.W. br.	DIN	HGT	PER SE	A	TYPE A A1	T	_		1
31108	NW.	5630	INO	16/12	U W	233	67	37	۷1	111	196	7 C	C. 07	2		00	30	0.0	31	2		× 2	5 8	1	(2072	
							WA	TER	T	WIND	B.A.	RO-	AIR TE	MP. *C		. N	0.	5 D C	CIAL								
							COLOR			SPEES OF FORCE	M E	TÉR	DRY BULB	W E BUL	T CO	DE	BS. PTHS	OBSERV		:							
								1	0.3	_		3.0	0.89	0.7	2 6												
	TIME	of NO.	CAR		PTH (m)	ı	*€		s •/	SIG	MA-1		CIFIC VOLI		₹ △ DYN. x 10	Μ.	AEFO 200		O ₂ ml		O4-P 3 - a1/I	TOTAL=P g = al/l	NO2-N µg - at/i	NO3~N µg - al/l			
			S1	to lo	000	0	587	13	121	1 24	+60	10	03347	, 1	000	0	146	95	726	. 1							
	11	1	083	5 0	000	0	587	3	1209	24	+60						146	95	726								
	MESSENGP CA TIME OF NO HE 1/10	ī	08.9	5 0	005	0	577	3	1260	24	465						146	543	727								
	MESSENGP CASTIME OF NO		51	TD 0	010	0	573	3	128	24	+67	0	03279	8	003	3	146	92	724								
	11	1	089	5 0	010	0	573	3	1279	24	467						146	592	724								
			OB:		016	0	568	3	1333	24	472						146	592	729	1							
					020	0	569	3	139	24	476	0	03192	? 7	006	5	146	94	729								
	11	1	083	5 0	021	0	569	3	1400	24	+77						146	94	729								
	11	1	069	5 0	026	0	570	3	1436	24	+80						146	596	732								

REFERENCE	SHIP					MAR		STA	TION 1	(ME			OPIGII	NATO	5.4	_ j_	DEPTH	MAX		WAVE		WEA-				NCI.
ODE NO	5000	LATITU	1 10	LONGITUDI		10*		14.0	DAY	(3.1.1	YEA	L.P		STAT			OT MOTTOR	0.6	1 '	BSERVATI		THER	CODE			TAT DN. LWREE
1135		0011		1e/JJU	-	د 3 د	_	J 7		126	1 -	5.7	.C. 57		000	1	ر به ن	30	2		25.4	1	5 5	-	+	0073
1	1						WA	TER		WIND	1		A IO TO		€ 1	-	NO.	T			1		1 - 10		,	
							COLOR	TRAN (m.)	DIR.	SPE	ED A	BARO AETER Imbs:	R DRY	. W	ET LB	CODE	OBS. DEPTHS	OBSER/	CIAL A TION	5						
									3.1	50	3	3.6	189	1	78	7										
	MESSEN TANI	GR CAST	CAR		H (m)	T	*c		٠	51	GMA-	T	SPECIFIC VOL		DYN	2 D 1. M. 10 ³		COUL	O2 m	PO.				2+03=4 2+03=4		유Ħ
	1	26	S1		00		04L		11		445		003458	: 1	00	00		716 716	71.							
		26	0.61 S1	5 00 TD 00	05 15	0	635 621	31	128 15		448 451		003432	24	0.5	35	14	715 710	71	В						
		26 46	05: 05:	5 10	10	0	621 500	3.1	14d 20d	2	45. 45.8						14	715 7טכ	71: 71:	5						
		26	0.5	5 2	20	0	582 579	3.1	3-7	2	469 469		003282	. 4	00	56		698 697	7.1							
	1	26	CB:	5 11	26	0	577	3.1	314	2	47i						14	697	71	1						

REFER	ENCE	SHIP		Ĭ				MARS			ION T			1	ORIGINA1	R'S	OEPTH	MAX. DEPTH		WAVE	WEA				NODC
CODE	ID.	CODE	LATITU	1, 10	LONG		PADC	5QU			IGMTI	R.1/10	YEAR	CRUISE NO.	STA	ION	TO BOTTOM	0.0		SERVATIONS	THER			5	TATION
31	1089	11.01	,1M 2054		itt	140%		233			-		1907	202	374		J0 = 5	_	:1	HGT PEP SE	• 1	D D	1		0074
							' '	f	WA.	ER	1 '	WIND	BARC		AIR TEMP.		NO	1			-	,			
									COLOR CODE	TEANS (m)	DIR.	SPEED OR FORCE	METE	R . I		VET COE	0.00	OBSERV							
								Ì			01	505	014	+ 3	94 0	78 7									
		MESSENGI TIME HR 1/10	° NO	CAR		DEPTH (m1	T	*€	s	-4.	SIGM	T-A	SPECIFIC	VOLUME ALTHE 102	≨ △ D DYN. A x 10 ³	. 1	UND	0.2 ml 4	PO4-P	TOTAL-P	NO2-N ug - at 1	NO3-N	St O4-Si	рН
		14		S. 08:	T5	2000			848 848	30	52 524	237		004	1565	000		795 793	682					İ	
		14		06:		2000	5	0	838 831		519	231	7.3	004	1666	0043	14	797 787 785	582 681						
		14	9	0Ē		าบไ			831		521	237		00.		00.1		785	681						

	LATITUDE 1/10	LONG	SITUDE BOOK	NA 0.5	ARE		ION TI		YEAR	CRUISE NO.		DR'S TION MBER	DEPTH TO BOTTO	DEPTI	→ 08	WAVE SERVATION	ONS	WEA- THER CODE	COL	DES		NOD STATIO	OΝ
89 NW 6	6100N	167	020W	233	+-+	-	_		967	882	075	- 5211	1050	_		2	Sta	X.2	1	9		00	7 5
					WAI			VIND	T	1	IP TEMP.	Y 1	4	1 01		12 1	1	1 ~=	1 ' '	2 1	1	• 0	12
					COLOR	_	DIR.	SPEED OR FORCE	MET (mb	ER E	ORY V	VET CD		1 Ageco	ECIAL VATIONS								
							00	514	0.9	0 7	76	37 7	+	-									
	CAST CA		DEPTH Imi	Т	*c	s	٠	SIGM	A = T		VOLUME ALT-1107	\$ ∆ OYN. x 10	M. 1151	OUND OCITY	O 2 ml	PO.		1014 L=P 110 - Qu	NO2-				рН
		TÚ	0000	١,	0.05	د ځ	7 1	181	10	_ വരം	4905	900	,	ر 100	654								
038	05		0000		005		712	181		0.0	4700	30 1		763	654								
0.38	06		0005		757		735	240						758	709								
		CT	0010		476	31		247		003	2012	000		654	71.								
038	0.8	5	0010	0	476	31		247				• - 0		652	71.								
038	0.5	S	0016	0	434		228	24						635	718								
	S	CT	0020	0	421	3.1	27	248	3.3	003	1321	004		631	713								
338	0.5	S	0021	0	420	31	292	248	3.5				14	1631	714								
038	03	S	0U2t	0	428	31	445	249	96				14	637	730								
	S	TD	0030	C	547	3.1	84	251	4	002	8319	012	14	693	725								
0.38	03	5	2031	0	558	3.1	895	251	1.8				14	1000	724								
338	9 B	S	2037	0	469	31	#70	252	5				14	1552	734								
038	0.5	5	191147	0	408	3 1	831	253	3.2				14	637	739								
038	08	S	JU47	C	410	31	874	253	3.2				14	638	727								
	S	TΟ	0050	0	411	31	8 3	253	3 2	002	6547	0.18	14	639	7.34								
0.38	08	_	0053		413	- 1	883	253							75.								

ID. CODE	LA TITU	DE 1, 10	LONGITUDE	20 SC	RSDEN IU ARE		TION TI	,	EAR	ORIGI CRUISE NO.	NATOS ITATS MUN)N	DEPT		MAX DEPTH OF S'MPL'S			VE ATION:	5	WEA- THER CODE	CLOUD CODES		5	NODC LATION UNBER
1 189 NW	5 0 1 1	3.4	16727 W	23	5 07	U.7	22 0	5.8 1	967	882 01	76		ځړ ن	8	0.0	ĮБ	4			13	7 3			0076
, ,					WA	TER	V	VIND	BARO	A IR T	EMP. "		NO.	7			1''		- 1		1	1	,	3010
					COLOR	TRANS Im I	DIR.	SPEED OR FORCE	METES	DRY	W 8U		0.00		SPEC OBSERVA									
							26	\$20	0.44	0.72	16.	9 8												
MESSENGR TIME O	CAST NO.	CARD		lm)	1 °C	s	٠	SIGMA	1-1	SPECIFIC VOL ANOMALY-		₹ Δ t DYN, r x 10	4 0	ELOC	CITY	0 2 ml '		04-P 1-61/1			NOI-N	NO3-4 ug - at l	\$1.04=\$1 ug = of 1	рН
		51) F03		- 	7	30		,	00668	7.5	000		/. 7	74									
358		185	100		0016		297	211		20000	1	0001			74									
5 8		085			085		24)	235							'n H									
		S.T.			077ti		63	246		00325	3.8	005			7-									
158		565	70.1	D	077t		63.	245				-			7 n									
0.58		OFS	0 0 1	ė.	0421	3.2	278	256	3				1	45	4 (
		ST	D 102	J.	0417	3.2	3.1	256	7	00.33	51	00.74	1	46	5.7									
258		085	905	1	04112	3.2	312	256	7				1	4 E	3.7									
759		085			OBH?		3.1	25.7	Û					4+,	40									
		ST			0382		24	25.7	1	10758	3.1	240	1	41	-U									
058		082	003		0382	3.2	344	257	Ľ.				1	4-										
75₽		085	0.03	7	0379	3 2	360	257	44				1	4 +	-									
958		085	0.04	_	0380	32	433	257	0				1	46	3.									

TRY ID.	CODE	LATITUDE			DRIFT	SQUA	RE		TION	1	YE A R			OITATE	N	1	HT930 OT MO11C	MAX DEPTH OF	00	SERV	A VE /A TIC		WEA THER	. (LOUD		5	NODC TATION UMBER
110.		1.	/10	11,110	-	10"			_	HP,1/10		+		NUMBI	R	+-		S'MPL'S	_	_	T PER	S.E.	A COO	111	PE A M	7		017-01-
31 1084	MM	680601	N	15735AW		230	87	07	22	J 75	196	7 8	562 07	7		10	357	0.0	_ +	4		İ	X.1	1 6	3 t			2077
						1	WA	-	+	WIND	BA		AIR TE	MP, C	- vi		NO.	SPE	CIAL									
							COLOR CODE	TRANS	DIR.	SPEEL	1		DRY BULB	BUL	(00)	n tl	OBS.		A TION S									
									29)6	967	01	1 8	Ť				1								
	MESSENGR TIME 6 HR 1/10	CAST NO.	C ARO TYPE		(m)	ī	*c	s	٠/	SIG	MA-T	5	PECIFIC VOLU ANOMALY—YI		₹ △ 0 1 NYO 1 NYO	Μ.	SOL		O 2 ml/	1	PO ₄	- 1	†ΟΤΑ L + 9 υς - αι Ι		D2-N - 017	NO3-N µg • al l	12-50 IS	pΗ
	0.75		5 T				314												709									
	0.75		085				314	2.1		2.							1		704									
	0.75)	OBS ST				781		616	_	67		202112	,				779	716									
	0.75						758 758		66		74		003219	1			14		719									
	075		055 085				583		560 519		74						14		719									
	075						901 901				48						14		843	*								
	275		ST						60		80		00_211	Ų.			146											
	275		OBS				+79		648		86							74	P 70									
	0.75		OBS				355		741		0.5						14.		726									
	0.75		\$1				331		79		14		001404	9				5 L 4	673									
	0.75		085				3.25		805		14						144) L _	667									
	075		085 085				+68 284		300 640		600 950								829									

RENCE ID.	SHIP	LATITU	DE	LONGITUDE	14/8/	MAP SQU		STA	TION		YE	AR	CRUISE	ORIGIN	A10	_		DEPTH	OE	AX. PTH OF	085	WAVE		WI	ER	CLOUE		51	ODC ATION	
NO.	CODE		1/10	11.	10	10"	1"	мо	DAY	HP,1/10	<u> </u>	_	NO.		NUM			BOTTOM			DIR.	HGT PE	ER SE	A CO	DE -	The A A	7	N	UMBER	
1089	Nw	6754	ΩN	168.00	W	233	78	0.7	22	096	19	57	882	0.7	8			0008	Ū	00	30	4		k	2	6 8			0078	
							WA	ΕŖ	\top	O NI W		BARC	. [AIR TE	MP.		vis	NO,	1	SPECIA	.]									
							COLOR CODE	TRAN Imi	S. DIR.	SPEI	0	METE	R 1	ORY ULB	BU	ET (cont	OBS. DEPTHS		ERVATI										
									3.0	52	5	124	p Ö	56	0	17	7													_
	MESSENGP TIME HR 1/10	of NO.	CAR		H (m)	1	*c		s +4.	51	GMA	-1	SPECIFIC	VOLU ALY=X1			2 D 1. M. 10 ³		UND	, 0	2 m l l	PO.	•	TOTAL o - gu		NO 2-N ug - o1 1	NO3-N µg - of 'l	SI O4-St vg = 01'l	ρН	
			ς.	TD 00	100		721	3.1	182	1,	49]		003	051	, i	υū	0.0	14	757	7 6	97				1					
	096	5	08:		0.0		721		1818		49]	_				9 -	-		757		97									
	096	5	ОЬ:		05	0	723	3.	1 Н З Н	2	494							14	759	7	64									
			S	TD 00	UI	0	505	3 .	228	2	544		002	546	3	00	18	14	710	7	53									
	09	5	08	5 04	10	0	585	32	2275	2	544	+						14	710	9	67.	J.								
	0.96	6	0 B	5 00	16	0	453	32	2595	2	584	+						14	661	1 8	63.	j.								
			S	TD OV	20	0	419	3 6	262	2	590)	002	113	U	0.0	51	14	645	3 7	35									
	096	-	08		2.1		41 1		6623		591							14	645	5 7	33									
	0.46	5	08:		25	_	377		2605		593								6:1		0.1									
					130		383		264		594		005	070	4	00	72	14	037	7 6	85									
	0.90	-	0B		31	0	390	-	2641		594							14	638	3 6	81									
	0.9		08		137		383		2638		595							14	63t	5 6	62									
	098	-	00:	-	142		374		2623		595							14	633	3 6	53									
	096	6	08	5 00	47	0	341	3 6	26U8	2	596	5						14	015	1 6	15									

NCE SHIP	LATITO	Df 1 10	LONGITUDE		M ARS			TION TO		9 A 3 Y	CRU		STATI NU M	0 N	-	DEPTH TO BOTTOM	E EPTH OF S' V PL	1 08	WAVE SERVATIONS		I CE		11 11369
189 104	574-		15:330	4	233	7 d	37		. 1 ~ 1	707	3:		.,		1	364	- 0	24	12		2	÷	5 14
						W A	TER	V	IND	BAR	2	A IR T	MP.	'C		NO.]				
						COLOR	124 NS	CIR.	SPEED TW FORTE	MET	ER	DRY BULB	W BU		SODE	DBS DEPTHS		VATIONS					
								123	120	1 +	2	5.7		2 2	-				1			-	
MENSEN TOO!	CAST NO.	CAR:		4 lm)	7	c	5	٠	51G N	A - 7		THE VOL		∑ NYN	l. N		JND DCITY	0: **		PRIOR DE	n NO:=N ug cat	14=F F2 = 31	ŗН
	-						-																
		ST	e e e			+32	34	54	_ 5 s			1. 150	3.5	-		14	5 T a						
1	1.5	138	0.0		Ĵ	40.	ے ز	b44	200	4 1-						14	571	924					
1	19	157	0.0	0.5		+0	34	038	251	4						1 4	574	93-	J				
		_ T		1 -		4 ~ ~			1,5%	4		1 1 1 4	+ 0	Ĵυ			57.						
1	1.9	0.60	5.6	A -	0	477	2 4	017	2716	i in						14	571	× 3 1	ur.				
1	1 5	183	. 04	1 to	Ū	463	3 4	045	200	3.7						14	566	300					
		5 T			Ü	4.7	3.2	7.3	250	7		l 4]	١ ٠	30	43	14	544						
1	1.8	085	0.0	_ 1	0	307	3.2	7.2.7	35.	7.1						14	54.	761					
1	18	385	0.0	16	0	364	3 _	45h	_ 1	1 6						1 ↔	531	711					
		ST	0.00	3.7	- 0	36 n	3.2	0.1	2 = 1	18		1.24.4	7.3	2.5	b =	14	534	714					
1	19	2 B S	2.0	3.1	C	366	3 4	355	241	10						1 4	5:1	715					
1	1.9	0.85) U	37	Q	335	3.5	245	253	3.1						1 ⊶	5.1	713					
1	1.8	OHS	. 30	4 _	Ü	120	3.3	, h) 14	26	44						14	515	574					

ID. CODE	LATITUCE	10,	AGLIDE POS	MARSDEN SQUARE	STATION TIN	Y € A 9	CRUISE STAT	IION .	DEPTH CEPT TO OF	OBSE	NAVE RVATIONS		CLOUD			NUDC TATION UNISER
NO.	1		* '1 10 Z		VO DAY HR		NO NUA	~ D . •	3 771		COMPER TO	FA COL	11PL A 17	-	-	
_ H = 4 H	. 7	1 1.	41 W	232 7 1		1 1967			158 11	- "	-		5 5			30=0
				COLOR CODE	TRANS DIR	SPEED MET OR (mb	ER DRY / s1 BULB B	21.		ECIAL ATIONS						
MESSINGR TIME C	CAST NO.	CARD TYPE	DEPTH (m)	1 "C	s *.,	SIGMA+T	SPECIFIC VOLUME	≥ : D DYN. A ⁵ x 10 ³	SOUND	0 ; ml 1	PO4=P	101AL=P		NC3-N	\$1 0 4 ~ \$1 yg • qt +	ρН
	1											1	ļ			
		STL	, 1000	0491	3271	2584	00.1103	2009	14575							
153		088	2000	0491	32707	2539			14576	972.						
153		033	0005	0492	327 7	2589	22111.7	00.21	14677	987,						
1.5.0		STO	3010	0487	3271 32710	2510	0021127	0021	14575	0.5.7						
153) U S	0917 0516	0457 0451	3271+	25 - J 25 0 u			14676	987.						
153		085 5 T 0	3010	2430	3273	251.	- ,	1.10	14662	751.						
165			2.21	0301	31745	26.03	7	J J 4 L	14533	9304						
153 163)	3026	3353	32946	450			140.5	745						
4-23		STL	3030	034	2646	2524	1.,7424	1.61	14524	7						
153		311	0031	J343	3276	2624	1111111111		1	7.5						
153		083	5037	U 344	31.74	2525			145.4	71:						
153		35	0.4.	332 -	32900	2616			4-018	713						
163		268	30	1314	330.9	2031			14513	693						

FERENCE	SHIP	LATITU		ONGITUDE	PIFT	MARS			TION T	IME	YEAR	-	ORIGIN			DEPTH	DEPTH		WAVE EPVATIONS	WEA.	CLOUD			NODE
DE NO.	CODE		1-10	1,10		16"			DAY	IR,1 10	11.00	CRUISE NO.		STATIO1 NU MBE		воттом	S'MPL	S EIR.	HGT PER SE	0001	79.01 A.A.	,		. V-868
11089	1 14	672	CN 1	64561 W		230	79	17		1 +2	1967	25.	00	1		0348	100	34	c		7 9	i		0081
- 1	NW 673					,	WA		_	MIND	BAR		AIR TE		Τ.,	NO,		CIAL						
							COLOR		DIR.	SPEED	MET	ER	DRY	WET		OBS. DEPTHS		ATIONS						
						-	CODE	Imi	-	FORC	(mb	s) (BULE	BULE	•									
									23	520	1.8	4 1	7.	0	3 d	!								
	MESSENGE TIME	CAST	CARD	DEPTH	lm i	т	*C		٠	SIG	M A - T		C VOLU		¥ 103 ▼ 7 D		JND	0; m1 l		TCTAL=P				ţН
	HR 1:10					+				-					X 10°	+			1				-	
																1.								
			STD				562		00		7.7	17	400	C	10 11		7.4	804						
	19		J 5	0.40			502		660		7.7						1 J 4	80 -						
	1.3	2	060	000	÷	Ģ	561	3.2	634	25	7.7						7 J 5	855						
			5-3			Ü	5 51	ے د	b 7	25	7.4		4-6	4	3022		7-1	45,0						
	19	2	0.8.5	1.1	Ü	- C	4, 4, 7	3 4	b+ 7	2 €	73					I 4	7							
	19	2	087	20.1	6	0	5 . 5	- A	575	_ L	9.1					1 +	ř jř	826						
			515	301	U		4 = 7	54	E +	- 5	= 7	0.	12.4	-	ر ار نو ب	14	5/1/2	09+						
	19	2	085	0 - 2	1	0	475	3 4	547	2.5						7 ->	± 73							
	19	2	035	0.12	5	ū	31.	3.3	767	25	12					1 +	<u>~</u> →	544						
			SIC	0.3	U	ŷ	325	3.	.77	2.5	12	0.01	345	7	0-54	14	としゅ	590						
	19	2	065	Ju3	1	0	305	3.5	771	4.6	13					± ++	500	585						
	1 (3	2	3 H F	3.0.3	. 7		2.3.5	- a .	15.50	3 4	2.1					1 6	100	A 3 A						

SHIP	LATITU	DE LO	NGITUDE	ZGU ZGU	ARE	STATION (GA	(T)	٧	E A R		TAT	ION	DEPTH TO BOTTO	1 D	OF OBSE	VAVE RVATIONS	WEA- THER CODE	CODES		ST	IODC ATION JWBER
NW I			וער ס שני	234	1	1	+		Q +, ';	bez la.			0040		00 35 4	\neg	×1	5 6	1		1082
1 1					WAT		WI		BARC	A ID TE		°C	NO	-			1 - 1	, 5 ,6	'	1 (100
					COLOR	TRANS D	IR	SPEED OR FORCE	METE (mbs	R DRY	W BL	ET COD	OBS. DEPTH	5 08	SPECIAL BSERVATIONS						
						2	4	5C6	198	8 583	0	44 3									
MESSENGR TIME OF	TAST NO	C ARD TYPE	DEPTH In	т т	°C	s •:		SIGMA	-1	SPECIFIC VOLU		≨ △ D DYN. M x 10 ³		LOCI		PO4-P pg - al'l	TOTAL_P	NO7=N Pg - 0M	NO3−N late - gq	51 O4~51 vg - al 1	рН
		STO	1000	J	533	3 - 8J		255	.)	002209	_	2000	1.	+7 1	15 /BU						
223		055	3000	0	633	3279	2	258	3				14	+73	35 790						
223		053	1005	· J	633	3274	ie.	2541	0				14	475	16 784						
		STU	3510	. 0	530	3.51		155	9	00.2.7		0011	1.4	+7 +	(5 15 4						
223		065	0010	0	530	3-79	4	258	J				1	473	55 765						
223		085	0 U 1 t	0	635	3279	5	258	3				1 4	47.	. t = 74 →						
		SIJ	0.000	0	347	3284		2 € 1		1117-6	4	1 4 7	14	454	12 MJ-						
223		088	000)	367	3285	4	261	4				1.4	ے را 4	4 84+						
223		OBS	0026		345	3294	2	262	š				1.4	462	fu /01						
		STJ	0034	0	344	3300		253)	00.7-5	4	0.61	. 1	4 r. c	.2 574						
223		085	0.03]	0	344	3304	~	253	1				1	993	13 654						
223		085	9037		310	3336	H	263	5				1 -	44.1	. 584						

	D. COD		LATITUDE		IGITUDE	DRIFT	MARS SQU	APE		ION TI		YEAR	CPU		STATE	N.	_	DEPTH TO OTTOM	MAX DEPTH OF S'MPL"	00:	WAVE SERVATION		WEA- THER CODE	CLOU	5	5	NODC TATION TUMBER	
-	-	+	1, 10		1 10	+-	10*	+	MO I	JAY H	R,1/10		+ ''	J.			+		3 MPL	DIA	HGT PER	25 W		11PL A	M13			ł
1 31/10	18 IN	1 6	7130N	1.7	U48UW		234	1				967	45				Ģ	055	90	1 21	i	į	< ì	7 16	.		00831	
								W.A.	· · · · ·	v	VIND	BAR		AIR TE	MP. 1			NO.	SPE	CIAL								
								COLOR	TRANS.	OIR.	SPEED OR FORCE	M ET (mb		DRY BULB	BU	7 C	SOF	OBS. SEPTHS	OBSERV	A TION S								
										36	Sűb	21	2	J8 +	0 :	5 6				-								
	MESSE 11A	'E OJ	CAST C	A P D Y P E	DEPTH	(m.)	T	c	s	٠4.	SIGM	A-T		OMALT-I	JME	≨ ∆ DYN. X 1	M.	SOU		O2 ml/l	PO 4-) TA L = P 2 = 01/1	NO2≈t µg • al				200
	1	1	1	STÜ	.00	ij	' a	710	32	70	256	, a	3.0	2314	'	000	0	14	765	776	1	1	,		1	1	,	
	0	14	0.5		0.00			710	3.2	785	256	, ü					-	14		770								
	Ċ	14	0.5	35	300	5	0	カララ	3.2	704	257	76						14	745	734								
				SID	001	Ĵ	0	534	3.3	7.5	257	78	0.0	0.228	В	002	1.1	14	739	784								
	0	14	0.0	35	0.1	Ü	0	630	3.2	784	251	7.8						147	739	784								
	0	14	0.5	3.5	001		0	625		810	258	3.1						1 4	735	815								
				SID	0.05			440	3.21		261		0.0	1877	7	507	3	146	561	638								
		14		35	0.02			4)2		28 <i>₽</i>	260	0.0						145	549	84-								
		14		35	0.02			345		048	263							146	522	560								
				STD	. 33		Ü	501	3.3	6	263	: 7	0.	J1667	1	Jule	1	140	5-1	556								
	Ü	14	0 i	35	0.03	1	Ũ	274	3.3	.77	253	9.0						14:	94	540								
	Ü	14	01	35	003	7	0	13e	33	209	256	1						145	535	519								

Table III.—Direct current measurements, USCGC NORTHWIND (WAGB 282), 14-23 July 1967, prepared by University of Washington, Department of Oceanography. Figure in parentheses represents corresponding station number in Table II. Time is given in Greenwich Mean Time, Depth in meters, Speed in centimeters/second, and Direction in degrees true.

Station 1 (11) Date: 14-vii-67		Lat: 65°42.0′N Long: 169°54.0′W		Station 3 (12) Date: 14-vii-67		Lat: 65°42.0′N Long: 169°48.0′W	
Time	m Depth	Speed	n/sec Direction	Time	m Depth	Speed cr	n/sec Direction
0235	5	30	328	0359	5		
	10	8	352		10	11	344
	15	0			15	23	004
	20	0			20	29	015
	25	9	040		25	26	024
	30	18	039		30	20	039
	35	20	040		35	16	046
0243	39	17	045	0407	40	11	045
	35	15	045		35	21	038
	30	14	060		30	27	031
	25	15	055		25	25	025
	20	15	057		20	21	025
	15	16	031		15	17	007
	10	16	354		10	16	337
0250	5	22	317	0415	5	18	331
Station 3 (13) Date: 14-vii-67		Lat: 65°36.0′N Long: 169°42.0′W		Station 4 (14) Date: 14-vii-67		Lat: 65°38.0′N Long: 169°36.0′W	
Time	m Depth	cı Speed	n/sec Direction	Time	m Depth	cr Speed	n/sec Direction
0505	Береп	Dpccu OA	0.42	2012	Берен	D peed	Direction

Date: 14-VII-67		Long: 169 42.0 W		Date: 14-v11-67		Long: 169 36.0 W	
	m	cm/sec			m	cm/sec	
Time	Depth	$_{ m Speed}$	Direction	Time	Depth	\mathbf{Speed}	Direction
0505	5	34	042	0642	5	28	028
	10	31	025		10	34	028
	15	28	010		15	38	019
	20	29	005		20	39	009
	25	29	001		24	38	001
	29	30	354		29	34	357
	34	27	353		33	30	354
	38	27	350		39	25	348
	34	31	352		34	26	351
	29	33	350		29	_	354
	24	34	354		24	36	005
	20	33	009		19	_	353
	15	33	023		15	35	021
	10	29	046		10	29	028
0535	5	39	077	0656	5	33	033

5 10 15 19	39 40 43	n/sec Direction 048 031
10 15	40	
15		031
	43	
19	40	017
	44	360
24	42	351
28	38	342
32	38	215
37	41	350
32	39	354
28	45	354
23	46	001
19	45	005
14	47	021
10	44	043
5	42	075
	32 37 32 28 23 19 14 10	32 38 37 41 32 39 28 45 23 46 19 45 14 47 10 44 5 42

	19	45	005		
	14	47	021		
	10	44	043		
0841	5	42	075		
Station 7 Date: 14-v		Lat: 65°3 Long: 168			
	m	cn	cm/sec		
Time	Depth	Speed	Direction		
1335	5	56	201		
	10	52	210		
	14	51	031		
	18	46	047		
	23	39	051		
Station 9 (23)		Lat: 66°24.0′N			
Date: 15-vii-67		Long: 166°24.0′W			
	m	er	n/sec		
Time	Depth	\mathbf{Speed}	Direction		
0611	5	30	130		
	9	22	146		
0015	_				

Station 6 Date: 14-v		Lat: 65°32.3′N Long: 169°16.2′W		
Time	m Depth	cm/sec Speed Direction		
Time	Depth	Speeu	Direction	
1012	5	44	037	
	10	46	024	
	14	45	013	
	19	43	007	
	24	41	358	
	28	36	354	
	33	28	354	
	28	40	339	
	23	37	348	
	19	44	358	
	14	45	013	
	10		026	
1024	5	51	070	
Station 8 (19) Date: 14-vii-67		Lat: 65°38.0'N Long: 168°40.0'W		
m m		cm/sec		

	m	cr	n/sec	
Time	Depth	Speed	Direction	
1525	5	64	009	
	19	62	079	
Station 10 (24) Date: 15-vii-67		Lat: 66°32.0'N Long: 166°58.0'W		

m:	m		n/sec
Time	Depth	Speed	Direction
0843	5	21	019
	10	27	330
	15	22	340
	20	28	342
	25	31	342
	30	33	043
	25	25	
	19	31	344
	15	25	298
	10	16	282
0855	5	40	288

Station 11 (25) Date: 15-vii-67		Lat: 66°3 Long: 167	5.0'N '°14.0'W	Station 12 (26) Date: 15-vii-67		Lat: 66°35.0′N Long: 167°38.2′W	
Time	m Depth	cn Speed	n/sec Direction	Time	m Depth	Speed	em/sec Direction
1003	5	25	094	1210	5	23	106
1000	10	33	098		10	26	109
	15	33	098		15	22	105
	19	39	128		10	27	
	15 15	39	104		5	33	
	10	44	104	_			
			104				
	5	28		Station 14 Date: 15-		Lat: 66° Long: 1	°35.0′N 68°20.0′W
Ct - 12 10	(97)	Lat: 66°3	c o'N				
Station 13 Date: 15-v	(27) vii–67	Lat: 66 3 Long: 16'		Time	Depth	Speed	em/sec Direction
	m		n/sec_	1555	5	24	341
Time	Depth	\mathbf{Speed}	Direction		10	30	335
1345	5	36	104		15	18	059
1040	10	46	106		20	11	067
	15	39	112		25	13	063
	20	21	120		30	18	071
	15	23	137		25	19	044
			127		20	15	003
	10	27			15	16	313
	5	22	177		10	23	297
	2	24				23 27	349
					$rac{5}{2}$	37	$\frac{343}{327}$
Station 15 Date: 15-v		Lat: 66°3 Long: 168					
Time	m Depth	Speed	n/sec Direction	Station 16 Date: 15-		Lat: 66 Long: 1	°30.0′N 69°12.0′W
1750	5	28	350	Time	m Depth	Speed	cm/sec Direction
	10	23	084				
	15	28	110	1900	5	20	321
	20	33	114		10	29	036
	24	34	110		15	28	073
	29	33	109		20	31	084
	34	28	110		25	31	102
	30	29	096		29	25	094
	25	41	046		34	27	098
	19	47	037		38	26	099
	15	47	018		43	23	099
	10	45	306		39	25	068
	5	39	350		34	26	088
1802	$\overset{\circ}{2}$	21	215		30	25	055
	-				25	24	047
					20	25	037
					15	25	031
					10	33	006
					,	21	3.19

Station 17 (31) Date: 15-vii-67

Time

Lat: 66°24.0′N Long: 169°30.0′W

em/sec m Direction Depth Speed

Station 19 (33) Date: 16-vii-67

Lat: 67°05.0′N Long: 171°11.0′W

	m	en	n/sec
Time	Depth	\mathbf{Speed}	Direction
0645	5	33	275
	10	27	253
	15	43	240
	20	44	253
	25	43	271
	30	38	297
	35	31	327
	40	24	354
	35	18	025
	30	18	012
	25	23	003
	20	24	348
	15	20	349
	10	37	301
	5	43	287

Lat: 66°24.0′N Long: 169°42.0′W Station 18 (32) Date: 15-vii-67

	m	cn	cm/sec	
Time	Depth	\mathbf{Speed}	Direction	
2319	5	39	290	
	10	29	309	
	15	20	065	
	20	14	048	
	25	16	049	
	30	16	095	
	35	14	095	
	40	1 6	119	
	35	25	119	
	30	21	109	
	25	20	090	
	20	21	065	
	15	18	033	
	10	31	301	
	5	41	290	

Station 20 (35) Date: 16-vii-67 Lat: 67°21.0'N Long: 170°21.0'W

Time	$^{\rm m}_{\rm Depth}$	cn Speed	ı/sec Direction	
1045	5	<5	317	
	10	8	307	
	15	9	335	
	20	<5	008	
	25	<5 <5	055	
	30	9	055	
	25	7	047	
	20	8	041	
	15	11	_	
	10	10	_	
	5	12	_	
	2	9	338	

Station 21 (36) Date: 16-vii-67 Lat: 67°30.6′N Long: 169°54.0′W Station 22 (38) Date: 16-vii-67 Lat: 67°48.0′N Long: 168°30.0′W

	m	cm/sec	
Time	Depth	\mathbf{Speed}	Direction
1310	5	21	
	10	22	
	15	20	
	20	14	
	25	11	
	30	13	
	35	14	ships
	40	13	heading
	35	15	155°
	30	15	
	25	5	
	20	9	
	15	11	
	10	14	
1325	5	16	

	m	cm/sec		
Time	Depth	Speed	Direction	
1945	5	10	164	
	10	12	131	
	15	18	054	
	20	13	044	
	25	12	036	
	30	12	036	
	35	11	036	
	40	16	034	
	35	16	034	
	30	19	032	
	25	15	036	
	20	15	041	
	15	21	051	
	10	18	146	
1959	5	18	146	

Station 23 (39) Date: 16-vii-67 Lat: 67°54.0′N Long: 168°06.0′W Station 24 (40) Date: 17-vii-67 Lat: 68°30.0′N Long: 167°36.0′W

Time	m Depth	cn Speed	n/sec Direction	
2100	5	26	239	
2100	10	27	049	
	15	29	047	
	20	29	049	
	24	25	037	
	29	26	045	
	34	22	039	
	39	22	039	
	43	22	039	
	39	31	035	
	34	31	041	
	29	30	037	
	24	31	035	
	20	29	035	
	15	28	034	
	10	22	017	
	5	21	207	

Time	m Depth	Speed	n/sec Direction	
0006	5	25	252	
	10	27	072	
	15	29	072	
	20	37	072	
	25	36	047	
	29	42	047	
	34	39	077	
	39	37	067	
	34	47	059	
	29	48	050	
	24	49	051	
	20	39	055	
	15	23	052	
	10	25	052	
	5	15	207	

Station 25 (41) Date: 17-vii-67 Lat: 68°06.0′N Long: 167°18.0′W

	m	cm/sec		
Time	Depth	Speed	Direction	
0222	5	32	242	
	10	23	221	
	15	30	111	
	20	36	041	
	24	37	037	
	29	32	043	
	34	27	043	
	29	30	037	
	24	45	041	
	20	39	030	
	15	25	132	
	10	23	217	
0235	5	29	222	

Station 28 (44) Date: 18-vii-67 Lat: 65°00.0′N Long: 167°48.0′W

m Depth	cn Speed	n/sec Direction
5	45	336
10	33	340
15	29	014
20	28	029
24	30	041
29	31	041
34	23	056
29	32	049
24	38	048
19	39	036
15	32	028
10	34	350
5	47	336
	Depth 5 10 15 20 24 29 34 29 24 19 15 10	Depth Speed 5 45 10 33 15 29 20 28 24 30 29 31 34 23 29 32 24 38 19 39 15 32 10 34

Station 26 (42) Date: 17-vii-67

	m	cm/sec		
Time	Depth	\mathbf{Speed}	Direction	
0400	5	26	147	
	10	34	077	

Lat: 68°12.0′N Long: 167°18.0′W

Station 27 (43) Date: 18-vii-67		Lat: 65°5.00'N Long: 167°31.0'W		
Time	m Depth	cm/sec Speed Directio		
0410	5	36	335	
	10	42	007	
	14	43	013	
	18	55	024	
	14	57	011	
	10	54	352	
0416	5	41	332	
	2	36	346	

Station 29 (45) Date: 18-vii-67		Lat: 64°54.0′N Long: 168°18.0′W		
m Depth	cn Speed	n/sec Direction		
5	6	145		
10	19	241		
15	16	349		
20	22	351		
25	21	016		
30	16	028		
35	12	048		
40	8	077		
35	7	054		
30	10	35 9		
25	14	353		
20	13	345		
15	13	332		
10	10	275		
5	8	215		
	m Depth 5 10 15 20 25 30 35 40 35 30 25 20 15 10	m Long: 16 m Speed 5 6 10 19 15 16 20 22 25 21 30 16 35 12 40 8 35 7 30 10 25 14 20 13 15 13 10 10		

Station 30 (46) Date: 18-vii-67 Station 31 (47) Date: 18-vii-67 Lat: 64°54.0′N Long: 169°00.0′W Lat: 64°54.0′N Long: 168°36.0'W cm/sec Direction $\mathop{\rm Depth}\limits^{\rm m}$ cm/sec m ${\bf Speed}$ Depth Time Speed Direction Time

Station 32 Date: 18-		Lat: 64°4 Long: 16		Station 33 Date: 18-v		Lat: 64°4 Long: 170	
Time	m Depth	cr Speed	n/sec Direction	Time	m Depth	cn Speed	n/sec Direction
1425	5	7	344	1701	5	 <5	
1420		7		1701	10		_
	10	7	300			<5	_
	15	8	354		15	<5	_
	20	6	030		20	<5	_
	25	<5	024		25	<5	_
	30	< 5	007		30	<5	
	35	5	007		35	<5	_
	40	<5	009		40	8	018
	35	< 5	029		35	10	350
	30	<5	029		30	11	336
	25	<5	039		25	10	326
	20	6	042		20	9	324
	15	5	044		15	8	319
	10	<5	044		10	7	319
1450	5	6	309	1714	5	7	314

Station 34 (50) Date: 18-vii-67

Time

Lat: 64°54.0'N Long: 170°39.0'W

cm/sec \mathbf{m} Depth Speed Direction <5

Station 36 (52) Lat: 65°00.0'N Date: 19-vii-67 Long: 171°36.0'W

		9		
	m	m cm/sec		
Time	Depth	$_{ m Speed}$	Direction	
-2010	5	21	232	
	10	31	232	
	15	21	201	
	20	13	131	
	25	11	121	
	30	13	123	
	35	14	117	
	30	16	106	
	25	16	121	
	20	10	121	
	15	15	151	
	10	6	217	
0019	5	7	223	

Station 35 (51) Date: 18-vii-67

Lat: 64°54.0′N Long: 171°20.0′W cm/sec \mathbf{m} Time Depth Speed Direction

Station 37 (53)

Lat: 65°42.0'N Long: 169°54.0'W Date: 19-vii-67

Time	m Depth	cr Speed	n/sec Direction
0955	5	7	280
	10	5	345
	15	9	331
	20	7	325
	25	6	295
	30	5	235
	35	6	235
	40	5	230
	35	14	190
	30	14	190
	25	10	198
	20	6	223
	15	7	230
	10	<5	275
1010	5	8	255

Station 38 (54) Date: 19-vii-67 Lat: 65°42.0′N Long: 169°48.0′W Station 39 (55) Date: 19-vii-67 Lat: 65°36.0′N Long: 169°42.0′W

	m em		n/sec
Time	Depth	\mathbf{Speed}	Direction
1116	5	19	240
	10	12	275
	15	5	330
	20	5	348
	25	7	348
	30	5	348
	35	0	269
	40	13	240
	35	8	219
	30	10	168
	25	15	205
	20	8	235
	15	6	263
	10	7	280
	5	7	265

	m em		n/sec
Time	Depth	Speed	Direction
1250	5	10	285
	10	13	345
	15	5	333
	20	7	025
	25	31	131
	30	29	149
	34	25	149
	40	20	151
	35	14	149
	30	12	141
	25	7	130
	20	6	130
	15	5	200
	10	0	225
1305	5	7	325

Station 40 (56) Date: 19-vii-67 Lat: 65°36.0′N Long: 169°36.0′W Station 41 (57) Date: 19-vii-67 Lat: 65°30.0′N Long: 169°24.0′W

Date: 10 th of		Bong! for sole !!		
	m	cm/sec		
Time	Depth	\mathbf{Speed}	Direction	
1417	5	27	232	
	10	39	219	
	15	39	178	
	20	29	159	
	25	25	155	
	30	21	155	
	34	20	153	
	39	18	146	
	44	14	146	
	39	15	151	
	35	9	151	
	30	8	165	
	25	9	200	
	20	<5	251	
	15	< 5	335	
	10	6	320	
1432	5	8	305	

11 01	Bong. 100 2110		
m Depth	Speed	n/sec Direction	
5	15	223	
10	16	195	
15	13	158	
20	8	145	
25	5	133	
30	6	148	
35	0	195	
40	5	093	
35	5	238	
30	5	222	
25	6	222	
20	7	222	
15	7	255	
10	5	230	
5	8	350	
	m Depth 5 10 15 20 25 30 35 40 35 30 25 20 15 10	m Depth Speed cn 5 15 10 16 15 13 20 8 25 5 30 6 35 0 40 5 35 5 30 5 25 6 20 7 15 7 10 5	

Statio Date:	, ,
	 -

Lat: 65°30.0′N Long: 169°12.0′W Station 43 (59) Date: 19-vii-67 Lat: 65°32.0′N Long: 169°02.0′W

	m	cm/sec	
Time	Depth	Speed	Direction
1708	5	10	234
	10	13	223
	15	28	163
	20	22	133
	25	15	129
	30	9	144
	35	7	143
	30	6	123
	25	9	115
	20	1 5	113
	15	15	148
	10	12	163
1722	5	10	197
	2	12	_

	m	cm/sec		
Time	Depth	Speed	Direction	
1932	5	23	256	
	10	23	220	
	15	25	192	
	20	20	171	
	25	18	159	
	30	18	152	
	35	17	152	
	40	16	152	
	45	15	152	
	40	18	152	
	35	20	153	
	30	16	159	
	25	8	173	
	20	6	211	
	15	0		
	10	0	288	
1948	5	6	240	
	2	13		

Station 44 (60) Date: 19-vii-67 Lat: 65°37.0′N Long: 168°49.0′W Station 45 (61) Date: 19-vii-67 Lat: 65°38.0′N Long: 168°40.0′W

		Hong: 100 40.0 W		
m.	m	cm/sec		
Time	Depth	$_{ m Speed}$	Direction	
2045	5	26	242	
	10	21	238	
	15	15	181	
	20	18	163	
	25	15	163	
	30	12	159	
	35	11	163	
	40	8	163	
	45	11	174	
	40	7	174	
	35	7	166	
	30	6	166	
	25	7	180	
	20	0	223	
	15	6	135	
	10	7	135	
2100	5	6		
	2	28	_	

	m	cn	n/sec
Time	Depth	\mathbf{Speed}	Direction
2211	5	29	261
	10	25	245
	15	22	137
	20	15	137
	25	24	144
	30	23	148
	35	20	159
	40	18	166
	45	17	166
	40	10	166
	35	7	155
	30	0	166
	25	0	152
	20	8	350
	15	8	339
	10	13	170
2226	5	11	174
	2	16	_

Lat: 65°38.0'N Lat: 65°38.0'N Station 47 (63) Station 46 (62) Long: 168°34.0'W Date: 20-vii-67 Long: 168°26.0'W Date: 19-vii-67 cm/sec m Depth cm/sec \mathbf{m} Depth Direction $_{\mathrm{Time}}$ Speed Direction Time Speed Lat: 66°25.0'N Lat: 65°38.0′N Station 49 (65) Station 48 (64)

Date: 20-vii-67		Long: 168	$8^{\circ}18.0'\mathrm{W}$	8.0'W Date: 20-vii-67		Long: 169°45.0′W	
	m		n/sec		nı		n/sec
Time	Depth	Speed	Direction	Time	Depth	Speed	Direction
0155	5	26	110		5	26	117
	10	38	107		10	14	169
	15	42	096		15	21	189
	20	33	095	1910	20	21	189
	25	38	088		25	18	199
	30	27	088		30	16	197
	35	28	099		35	15	201
	40	36	148		40	13	200
	35	30	104		45	8	211
	30	32	096		40	13	215
	25	36	088		35	14	201
	20	33	085		30	12	200
	15	39	077		25	14	199
	10	36	077		20	13	173
0210	5	25	065		15	18	173
	2	23			10	13	092
				1919	5	8	052

Station 50 (66) Date: 20-vii-67 Lat: 66°27.0′N Long: 169°32.0′W Station 51 (67) Date: 20-vii-67 Lat: 66°33.0′N Long: 169°12.0′W

	m	cm/sec	
Time	Depth	Speed	Direction
2125	5	13	185
	10	9	211
	15	7	232
	20	5	155
	25	6	185
	30	7	195
	35	6	195
	40	6	215
	45	6	245
	40	9	205
	3 5	7	205
	30	8	195
	25	9	195
	20	6	165
	15	5	145
	10	8	125
2145	5	17	180
	2	13	

	m	cm/sec	
Time	Depth	Speed	Direction
2345	5	14	286
	10	12	286
	15	13	286
	20	10	256
	25	13	271
	30	10	271
	35	12	271
	40	12	271
	35	13	271
	30	7	271
	25	14	271
	20	10	266
	15	7	276
	10	9	276
2357	5	13	276
	2	26	_

Station 52 (68) Date: 21-vii-67 Lat: 66°36.0′N Long: 168°48.0′W Station 53 (69) Date: 21-vii-67 Lat: 66°36.0′N Long: 168°19.0′W

Time	m Depth	cn Speed	n/sec Direction	
0325	5	6	151	
	10	9	226	
	15	7	208	
	20	7	261	
	25	9	286	
	30	8	286	
	35	9	306	
	40	9	316	
	35	10	306	
	30	14	286	
	25	16	286	
	20	16	281	
	15	13	266	
	10	13	296	
0337	5	9	296	

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m	cm/sec	
Depth	Speed	Direction
5	28	017
10	39	007
15	32	296
19	32	367
25	27	257
20	27	267
15	27	327
10	25	022
5	25	037
	5 10 15 19 25 20 15	Depth Speed 5 28 10 39 15 32 19 32 25 27 20 27 15 27 10 25

Station 54 (70) Date: 21-vii-67 Lat: 66°36.0′N Long: 167°54.0′W

Station 55 (71) Date: 21-vii-67 Lat: 66°36.0′N Long: 167°36.0′W

Date. 21-vn-01		Hong: 101 one tr		
	m	em/sec		
Time	Depth	Speed	Direction	
0740	5	7	017	
	10	18	015	
	15	19	005	
	20	27	312	
	25	15	312	
	20	18	317	
	15	16	322	
	10	14	337	
0754	5	14	052	

	m	cm/sec	
Time	Depth	Speed	Direction
0910	5	7	140
	10	7	140
	15	8	027
	20	21	027
	25	12	027
	20	34	062
	15	30	075
	10	24	102
0920	5	19	102

Station 56 (72) Date: 21-vii-67 Lat: 66°30.0′N Long: 167°12.0′W Station 57 (73) Date: 21-vii-67 Lat: 66°30.0′N Long: 167°00.0′W

m $\mathrm{cm/sec}$ Time Depth Speed Direction 1100 5 10 06810 9 011 15 317 11 20 328 14 25 14 294 20 302 14 15 13 298 10 12 338 12 1110 5 013

	m	m cm/sec		
Time	Depth	\mathbf{Speed}	Direction	
1228	5	16	020	
	10	16	003	
	15	5	328	
	20	20	303	
	25	18	273	
	20	18	308	
	15	12	321	
	10	10	344	
1242	5	9	052	

Station 58 (74) Date: 21-vii-67 Lat: 66°24.0′N Long: 166°24.0′W

	m	cn	n/sec
Time	\mathbf{Depth}	\mathbf{Speed}	Direction
1446	5	14	223
	10	10	182
	5	13	288

Station 59 (75) Date: 22-vii-67 Lat: 68°10.0′N Long: 167°02.0′W Station 60 (76) Date: 22-vii-67 Lat: 68°11.0′N Long: 167°27.0′W

	m cn		n/sec	
Time	Depth	Speed	Direction	
0345	5	10	093	
	10	15	093	
	15	14	288	
	20	12	338	
	25	12	318	
	30	8	068	
	35	<5	258	
	40	6	218	
	44	<5	228	
	40	9	263	
	35	10	278	
	30	8	268	
	25	11	278	
	26	18	283	
	15	15	283	
	10	14	308	
	5	9	094	
	2	7	_	

		6		
	m	cm/sec		
$_{ m Time}$	\mathbf{Depth}	\mathbf{Speed}	Direction	
0530	5	10	057	
	10	13	007	
	15	14	305	
	20	9	305	
	25	9	282	
	30	9	282	
	35	8	282	
	30	5	287	
	25	0		
	20	6	287	
	15	0		
	10	0	_	
0546	5	7	087	

Station 61 (77) Date: 22-vii-67 Lat: 68°06.0′N Long: 167°36.0′W Station 62 (78) Date: 22-vii-67 Lat: 67°54.0′N Long: 168°00.0′W

	m	cn	n/sec
Time	Depth	Speed	Direction
0710	5	9	087
	10	6	087
	15	9	287
	20	9	297
	25	11	287
	30	8	287
	35	9	277
	40	7	275
	35	8	275
	30	10	277
	25	9	285
	20	12	287
	15	14	287
	10	10	102
0724	5	7	197

	_	6	
Time	m Depth	cr Speed	n/sec Direction
0927	5	14	107
	10	20	112
	15	9	167
	20	7	217
	25	7	214
	30	8	262
	35	9	287
	40	8	277
	45	8	277
	40	10	287
	35	9	282
	30	8	287
	25	9	287
	20	10	287
	15	13	282
	10	6	102
0940	5	10	102

Station 63 (79) Date: 22-vii-67 Lat: 67°48.0′N Long: 168°30.0′W Station 64 (81) Date: 22-vii-67 Lat: 67°30.0′N Long: 169°56.0′W

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Time	m Depth	en Speed	n/sec Direction
1135	5	11	026
	10	5	086
	15	12	106
	20	9	076
	25	7	086
	30	8	066
	35	6	016
	40	9	286
	45	7	286
	40	17	286
	35	10	286
	30	6	076
	25	8	076
	20	8	106
	15	10	106
	10	8	106
1150	5	9	096

Date. 22-VII-01		Long : 103 30:0 W		
Time	m Depth	cn Speed	n/sec Direction	
1920	5	9	185	
	10	10	185	
	15	9	165	
	20	7	165	
	25	8	105	
	30	6	080	
	35	6	080	
	40	5	065	
	35	6	015	
	30	<5	320	
	25	<5	330	
	20	<5	005	
	15	< 5	205	
	10	5	165	
1935	5	6	165	

Station 65 (82) Date: 22-vii-67 Lat: 67°20.0′N Long: 170°20.0′W

Station 66 (83) Date: 23-vii-67 Lat: 67°13.0′N Long: 170°48.0′W

	m		n/sec
Time	Depth	Speed	Direction
2220	5	6	159
	10	0	
	15	0	
	20	6	145
	25	0	
	30	5	180
	35	0	
	30	0	
	25	0	
	20	5	065
	15	0	
	10	0	
2230	5	7	165
	2	8	_

Time	m Depth	cn Speed	n/sec Direction
0120	5	8	195
	10	5	085
	15	6	065
	20	6	070
	25	8	095
	30	6	105
	35	0	
	30	0	
	25	0	
	20	0	
	15	0	
	10	5	039
	5	6	021
	2	7	_

9		

