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REPORT No. 51 CG 373-51

INVESTIGATION OF THE WEDDELL SEA COASTAL CURRENT

FEBRUARY-MARCH 1970



Gary L. Hufford James M. Seabrooke

WASHINGTON, D.C. 5 MARCH 1972



Abstract

A physical and chemical investigation of the Weddell Sea Coastal Current was made during the austral summer of 1970 as part of the International Weddell Sea Oceanographic Expedition. This Coastal Current has been hypothesized to be a major component in the formation of Antarctic Bottom Water. The 1970 data indicated that the Coastal Current existed from the surface to the abyssal depths in the eastern Weddell Sea and that it decreased in temperature and increased in salinity as it flowed south over the continental shelf. This may be due to alteration of the shelf water as it flowed along and under the extensive ice shelves along the east coast or surface cooling. Nutrient concentrations below the surface layer remained relatively constant from station to station on the shelf. From the edge of the shelf to the depth of 2000 meters Warm Deep Water was found to have the highest nutrient concentrations. This warm water is believed to be carried into the Weddell Sea by a branch of the Circumpolar Current. Origin of the abyssal water in the eastern Coastal Current is unknown.

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Investigation of the Weddell Sea Coastal Current February-March 1970

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James M. Seabrooke²

INTRODUCTION

The Coastal Current in the Weddell Sea has been hypothesized as a major component in the formation of Antarctic Bottom Water (Seabrooke, Hufford, and Elder, 1971), but only a few observations have been made in it. This current has been found to exist from the surface to the bottom in the eastern Weddell Sea exhibiting uniformity in current direction (southerly) (Gordon, 1970). Sverdrup, et al. (1942), suggested that the westward flow of the Coastal Current east of the Weddell Sea is due to an extensive clockwise gyre which occurs in the Southern Ocean.

DATA ACQUISITION

From February 14 to March 21, 1970, an oceanographic investigation (32 stations) of the eastern Weddell Sea Coastal Current by the Coast Guard Oceanographic Unit was conducted aboard the icebreaker USCGC GLA-CIER (WAGB-4) as part of the International Weddell Sea Oceanographic Expedition (fig. 1). Hydrographic data were obtained using Nansen bottles with reversing thermometers, current meters, and a continuous salinity-temperaturedepth recording system (STD) with a Niskin multisampler attached. Sampling was conducted to as close to the sea floor as possible. The resulting water samples were analyzed manually at sea for dissolved oxygen, inorganic phosphate, nitrate, nitrite, and silicate using the techniques described in the manual of Strickland and Parsons (1965). Salinity was determined using an inductive salinometer. The conductivity values obtained were converted to salinity by use of the International Oceanographic Tables published jointly by UNESCO and the National Institute of Oceanography of Great Britain (1966). A summary of data collected at each station is given in Table 1.

Direct measurements of currents from the surface to the bottom were made at Halley Bay (fig. 1). The ship was anchored to the fast ice and continuous measurements were taken for two days. The current data are being processed by the University of Bergen, Norway, and the results will not be reported here.

Eight oceanographic stations of opportunity were occupied in the Bransfield Strait region during 6-29 January 1970 to determine if any flow of Antarctic Bottom Water from the Weddell Sea occurred there as suggested by Hollister and Elder (1969). The data indicated water with Antarctic Bottom Water characteristics $(-.4 \ ^{\circ}C, 34.66 \ \%_{00})$ was not present.

WATER MASS DISTRIBUTION

Analysis of the temperature-salinity relations of the data obtained during IWSOE-70, revealed three water masses present in the Coastal Current: Antarctic Surface Water, Warm Deep Water, and a Bottom Water (fig. 2). The properties of these three water masses (Table 2) closely resemble those observed previously by Hufford and Seabrooke (1970).

Above the eastern continental shelf of the Weddell Sea, the water column is occupied by one water mass, Antarctic Surface Water $(T=-0.8 \text{ to } -1.9^{\circ}\text{C}, S=33.50 \text{ to } 34.50\%_{0})$ (fig. 2). This water mass shows an increase in

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Table 1. IWSOE '70 OCEANOGRAPHIC STATION SUMMARY

STA NO.	POSIT Lat.	LONG.	N A S S E T N A	N A N O S E E E N P	S T O	N I S K I N	C O R E	P H O T O	P L N V K. E T T R D O T N W	02	CHE NO2	MIST N ₀₃	RY ^P O4	Si0 ₃	DEPTH IN METERS	DATE 1970
1 2 3	74 ⁰ 21.5'S 76 ⁰ 35.6'S 76 ⁰ 50 4'S	38 ⁰ 18'W 31 ⁰ 45.0'W 32 ⁰ 30_0'W	~		\sim	✓✓	√	\checkmark	~	~		\mathbf{v}			512 390 310	19 FEB 21 FEB 21 FEB
4	76055 1'S	32 ⁰ 47 5'W			J.						Ĵ	J.	J.	Ĵ	322	21 FF8
5	77°26.5'S	36 ⁰ 01.7'W			V	V	V		V		,	V	V		901	01 MAR
6	77 ⁰ 34.6'S	35°39.9'W	v			V	V	V	v	V	V	V	V	v	585	03 MAR
7	77°33.0'S	35 ⁰ 38.1'W			V										575	03 MAR
8	76 ⁰ 24.6'S	30 ⁰ 36.2'W	 ✓ 			V			✓	✓	V	↓	v	V	320	06 MAR
*9	75 ⁰ 25.5'S	26 ⁰ 28.5'\	1		\checkmark		 ✓ 								238	07 MAR
10	75 ⁰ 25.5'S	26°28.5 W	V			\checkmark	,		✓	✓		✓	V	✓	235	08 MAR
11	75°25.5'S	26°28.5'W													235	08 MAR
12	75°25.5'S	26°28.5'W				\checkmark				✓					235	US MAR
13	75°25.5'S	26°28.5'W		1		,				Ι,					230	US MAK
14	15025.5 5	20°20.3 W						Į		~		 *			235	OO MAR
10	75025.5 5'0	20°20.0 M			Ň										235	ING MAR
10	75 25.5 5	26 ⁰ 28 5'W	ľ							ľ	ľ	ľ	ľ	l v	235	N9 MAR
18	74054 0'S	20 20.5 W			J.					V					410	10 MAR
19	74052.3'S	25 ⁰ 47 1'W			l v	V.				V.	V.	V	V.	V	481	10 MAR
20	74 ⁰ 28.5'S	25 ⁰ 40.6'W	l v			V	V		V	V.	V	V	V	V	506	11 MAR
21	73058.7'S	23039.0'W			V	V	1		1	V		1	V		274	11 MAR
22	73 ⁰ 38.0'S	23 ⁰ 40.0°W		l .	V	✓	\checkmark		V	V	$ \vee $	V		V	1456	11 MAR
23	72 ⁰ 08.2'S	24 ⁰ 08.8'W		1		V	V		✓	\checkmark		V			4078	12-13 MAR
24	71014.8'S	24º32.0'W	√	V		V			V			V	V		4200	13-14 MAR
25	70 ⁰ 25.2'S	24 ⁰ 33.1'W	↓ ✓			V	\checkmark		✓			\lor	$ \vee $		4279	14 MAR
26	69 ⁰ 31.2'S	24 ⁰ 57.2'₩				V	 ✓ 	 ✓ 			V	⊻.	✓	 ✓	4572	14-15 MAR
27	71 ⁰ 03.3'S	13 ⁰ 16.0'W							\checkmark	✓				✓	1920	15-16 MAR
28	71004.0'S	12º09.2'W			V	✓	✓				.	.	Ι.		1189	11/ MAR
29	71º10.0'S	12º22.7'W	V		ļ ,	✓			✓	 ✓		 ✓			465	17 10 MAR
30	170°57.5'S	11°21.6'W					Ι.		Ι,	,			1.1		502	10 MAD
31		1 08055.0'	V			۱ ۲			↓ ✓			V			740	18 MAR
32	10-20.8.2	0/~29.8.			L_		<u> </u>		L				L	L	140	I'U MAR

*current meter station at Station No. 9 through 18 (Halley Bay)

salinity and a decrease in temperature as it flows into the Weddell Sea. This modification of properties is shown in a T–S diagram (fig. 3) where an "upstream" station (sta. 31) is compared to a "downstream" station (sta. 5). These changes are probably due to freezing of the shelf water as it flows south along and under the extensive ice shelves of the east coast or surface cooling at the sea-air interface, which may be very rapid during periods of strong gradient winds.

A temperature maximum of -1.5 to -1.6 °C was found between 100 and 125 meters in the Antarctic Surface Water at stations 5, 6, and 7

Water mass	Temperature and salinity	PO _{4p} mean (µg-at/l)	Number of samples	NO _{3p} mean (µg-at 1)	Number of samples
Antarctic Surface Water	T = -0.8 to -1.9 C S = 33.50 to 34.50° ₀₀	$1.70 \pm .11$	71	22.66 ± 2.13	67
Warm Deep Water	T = 0.0 to 0.6 C S = 34.65 to 34.70° ₀₀	$1.31 \pm .10$	23	14.85 ± 1.97	26
Eastern Weddell Sea Bottom Water	T = -0.2 to -0.3 C S = 34.65 to 34.660 ₀₀	$1.32 \pm .13$	7	17.24 ± 2.23	7

TABLE 2.—Properties of water masses in the Weddell Sca Coastal Current during IWSOE-70.

 $\mathrm{PO}_{4p_{*}}$ NO_{3p} = Preformed phosphate and nitrate.

(fig. 6). This feature has not been described before and its origin is unknown.

Past investigations have rarely found water temperatures below -1.8 °C in the Antarctic Surface Water east of 35°W (Lusquinos, 1963). However, low temperatures were observed in two different areas east of 35°W during 1970. In the Halley Bay area (stations 9 through 17), temperatures as low as -1.98 °C were observed with salinities ranging between 34.0 and $34.4\%_0$ (figs. 4 and 5). This cold water was evident from the surface to the bottom suggesting formation at the surface, probably by intense cooling and evaporation imposed on the surface by gradient winds. During the occupation of the stations at Halley Bay, continuous winds of 40 knots were measured.

The area sampled near Halley Bay was in a polynya extending over 600 miles, which is a seasonal feature of the Weddell Sea. In the summer, southwesterly winds predominate in the area (Gordon, 1970). Since the direction of ice drift is approximately 45° to the left in the southern hemisphere, the pack ice would concentrate to the north leaving open the polynya in the eastern portion of the Weddell Sea. The mechanism which prevents the closing of the polynya by freezing is unknown. The heat content of the subsurface shelf water is not sufficient to prevent ice formation if it were brought to the surface by some upward process (convection, diffusion). The probable answer is that the surface water does freeze but the action of wind and currents removes the ice. The southward flowing average surface current in the area of Halley Bay is quite slow (Kvinge, 1969) and probably does not play a major role in removal of ice.

Another possible mechanism preventing the closing of the polynya by freezing is the formation of ice in small crystals kept separate and in suspension in the water by turbulence from the action of the wind. The formation of ice crystals in the surface layers has been studied by Littlepage (1965) and Zubov (1945). They found that the ice crystals were carried by vertical mixing to a depth where they would melt because of lowered freezing point (due to pressure). The heat required for melting the ice would come from the surrounding water, lowering its temperature further, possibly explaining the colder temperatures near the bottom at Halley Bay.

Sea water with temperatures near the freezing point was observed in the southeastern Weddell Sea at stations 5, 6, and 7 (fig. 6). Water temperatures below the freezing point were recorded at 19 subsurface levels (below 250 meters) at the three stations. All three stations are located near the Filchner Ice Shelf in a deep depression on the continental shelf. The greatest depth measured in the depression was 1200 meters with a sill depth of 400 meters (Kvinge, 1969). The underside of the edge of the ice shelf is approximately 250 meters below sea level, increasing to over 500 meters before the ice contacts the sea floor shoreward (Zumberge and Swithinbank, 1965). The salinity of the upper 250 meters at the three stations was less than $34.40\%_0$, which is less than the salinity of the deeper cold water. Since no advection of near freezing water at depth in the Coastal Current was observed, it is reasonable to conclude that the very cold water was derived by freezing either at the surface or at the underside of the ice shelf.

From the edge of the continental shelf to a depth of 2000 meters, a relatively warm, saline water mass exists in the Weddell Sea Coastal Current (fig. 2). This water mass, called Warm Deep Water by Deacon (1937), is the major mass in the Coastal Current. We found it characterized by above-zero temperatures (0.0 to 0.6 °C) and salinities of 34.65 to $34.70\%_{00}$. Deacon (1963) stated that this water mass consists of a mixture of Antarctic Circumpolar Water and small amounts of North Atlantic Deep Water. A. Gordon (personal communication) believes that part of the Warm Deep Water is bottom water from the Southeast Pacific Basin.

Origin of the bottom water in the eastern Weddell Sea (east of 35°W, fig. 2) is unknown. The first detailed description of this water mass, called Eastern Weddell Sea Bottom Water, was given by Seabrooke, Hufford, and Elder (1971). They found (during IWSOE 1968, 1969) the water mass properties to be slightly different from Antarctic Bottom Water. Results of the 1970 cruise (Table 2) substantiate this. They also suggested that Eastern Weddell Sea Bottom Water may be composed of deep Circumpolar Water and recirculated Antarctic Bottom Water, the Antarctic Bottom Water being the largest component. Further invesigation is necessary to determine the origin of this water mass.

OXYGEN AND NUTRIENT DISTRIBUTION

Dissolved oxygen was measured at all stations where Nansen casts were made. Concentrations exceeded 7.1 ml/l on the continental shelf, with maximum concentrations of up to 8.9 ml/l occurring in the near-surface layers (fig. 7). The Warm Deep Water had the lowest dissolved oxygen content (4.2 to 4.9 ml/l) in the Weddell Sea, and Eastern Weddell Sea Bottom Water had slightly higher concentrations (5.2 to 5.6 ml/l) (fig. 7). Percent saturation, computed from solubility relationships developed by Green and Carritt (1967), varied from 90-97% in Antarctic Surface Water to 59-60% in the Warm Deep Water and 62-68% in the Eastern Weddell Sea Bottom Water. A possible reason for the higher saturation values in Eastern Weddell Sea Bottom Water is recirculation of some Antarctic Bottom Water back into the Weddell Sea by way of the Antarctic Coastal Current where it is mixed with deep Circumpolar Water to form Eastern Weddell Sea Bottom Water. Antarctic Bottom Water formed in the Weddell Sea has a high saturation value (about 80%, Hufford and Tennyson, 1970) because of recent contact of one of its components (shelf water) with the sea surface.

According to Clowes (1938), the nutrient concentrations in the Antarctic rarely fall below the winter maximum concentrations of temperate regions. Concentrations of the various nutrients measured in the Weddell Sea support this. Ranges of concentrations found in 1970 were:

inorganic phosphate	$0.6-2.5 \ \mu g-at/l.$
nitrate— Nitrogen	14.0-33.0 µg-at/l.
nitrite— Nitrogen	0.1–0.5 µg-at/l.
silicate— Silicon	32–125 μg-at/l.

In general the vertical distributions of the nutrients in the Weddell Sea (figs. 8–13) fit the classical description. On the continental shelf, phosphate, nitrate, and silicate concentrations increased with depth to about 100 meters, then remained fairly constant to the bottom (figs. 8–10). Off the shelf, the nutrients increased with depth until a maximum was reached between 800 and 1000 meters (figs. 11–13). Below the maximum, concentrations decreased slightly and then remained constant to the bottom.

To differentiate further the principal water masses involved in the Weddell Sea Coastal Current, preformed phosphate and nitrate concentrations were computed using the equations of Pytkowicz (1968). Oxidative ratios were estimated from the changes in the concentration of oxygen and nutrient ions. Preformed concentrations were computed only from samples below 75 meters to eliminate discrepancies that exist in the surface layer because of exchange of oxygen with the atmosphere and mixing of the surface waters. Mean values and variation about the mean were computed separately for Antarctic Surface Water, Warm Deep Water, and Eastern Weddell Sea Bottom Water (Table 2). The preformed nutrient concentrations in the Warm Deep Water and Eastern Weddell Sea Bottom Water are almost identical and significantly lower than that of Antarctic Surface Water. Because of the similarity in preformed values, Warm Deep Water and Eastern Weddell Sea Bottom Water can only be separated by temperature, salinity, and oxygen characteristics. The 1970 preformed nutrient concentrations correspond closely with the 1968 and 1969 values found by Hufford and Seabrooke (1970).

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March 1970.



FIGURE 2. Scatter plot of temperature (°C)-salinity (‰) from all the stations taken in the eastern Weddell Sea during IWSOE-70, 14 February-21 March 1970.

TEMPERATURE °C



SALINITY %

FIGURE 3. Temperature (°C)-salinity (%) diagram of stations 5 and 31 from IWSOE-70, 14 February-21 March 1970.



FIGURE 4. Envelope of temperature (°C) versus depth (m) for stations 9 through 17 from IWSOE-70, 14 February-21 March 1970.



FIGURE 5. Envelope of salinity (%) versus depth (m) for stations 9 through 17 from IWSOE-70, 14 February-21 March 1970.







FIGURE 7. Dissolved oxygen (ml/l) versus depth (m) for all stations taken during IWSOE-70, 14 February-21 March 1970.



FIGURE 8. Envelope of inorganic phosphate (μ g-at/l) versus depth (m) for all shelf stations taken during IWSOE-70, 14 February-21 March 1970.

REACTIVE NITRATE - N (µg-at/L)



FIGURE 9. Envelope of nitrate (μ g-at/l) versus depth (m) for all shelf stations taken during IWSOE-70, 14 February-21 March 1970.

SILICATE - Si (µg-at/L)







FIGURE 11. Envelope of inorganic phosphate (µg-at/l) versus depth
(m) for all deep stations taken during IWSOE-70, 14 February-21 March 1970.

NITRATE - N (µg-at/L)



FIGURE 12. Envelope of nitrate (µg-at/l) versus depth (m) for all deep stations taken during IWSOE-70, 14 February-21 March 1970.

SILICATE - Si (µg-at/L)





APPENDIX A OCEANOGRAPHIC DATA

Cruises Listed

Table	Page
I. CGC GLACIER, January 1970	
II. CGC GLACIER, February-March 1970	

Codes Utilized

A complete description of the codes utilized in the tabulation of oceanographic station data can be found in National Oceanographic Data Center publication M-2, Processing Physical and Chemical Data from Oceanographic Stations. (Rev. August 1964, supplement issued May 1966.)

To facilitate use of the oceanographic station data listing, entry headings which are not self-explanatory are described below.

Depth to Bottom	Corrected or uncorrected sounding in meters.
Max. Depth of Samples	Depth of deepest sample to nearest multiple of one hundred meters.
Wave observations	
DIR	Rounded to nearest multiple of 10 degrees.
HGT	Increments of $\frac{1}{2}$ m. Sum of 5 meters plus increments of $\frac{1}{2}$ m if 50 is added to direction.
PER	If numerals 2 through 9 are entered, period in seconds is twice the numeric entry or 2X (numeric entry) +1. For other entries see WMO Code 3155.
SEA	Sea state according to WMO Code 3700
Weather Code	If preceded by X, weather according to WMO Code 4501. If a two-digit entry, weather according to WMO Code 4677.
Cloud Code	
Туре	Cloud type according to WMO Code 0500.
Amount	Cloud amount in eighths. Entry of the numeral 9 indicates cloud amount could not be estimated.
Water	
Color Code	Color according to Forel-Ule scale.
Trans.	Transparency in whole meters as determined by Secchi disc.
Wind	
Dir.	Rounded to nearest multiple of 10 degrees.
Speed or Force	If preceded by letter S, wind speed in knots; if preceded by letter F, wind force according to Beaufort scale.
Barometer	Barometric pressure given in tens, units, and tenths of millibars.
Air Temp. °C	Air temperature to tenths of a degree centigrade.
Vis. Code	Visibility according to WMO Code 4300.
No. obs. depths	Number of observed levels associated with the station.
Messenger time	Entered in hours and tenths of an hour GMT. For Nansen casts, indicates time of release of messenger applicable to the observational level. For STD casts, indicates the starting time of lowering the sensor.
Card type	OBS designates observed levels. STD indicates the values at this standard level were interpolated by a modified 3-point LaGrange formula.

Depth(m)	Depth to nearest meter. A postscript T indicates depth was obtained therometrically; Z indicates uncorrected "wire out" depth. Postscript Q indicates value was marked doubtful by originator; P indicates value was considered doubtful by NODC. Post- scripts P and Q retain this meaning throughout the following entries.
T °C	Temperature to hundredths of a degree centigrade
S 0 ['] ₀₀	Salinity in parts-per-thousand.
SIGMA-T	Entered to hundredths.
Specific-volume	Multiply entry by 10^{-7} to obtain specific-volume anomaly in cubic centimeters per gram.
ΣΔD Dyn. M × 10 ³	Multiply entry by 10^{-3} to obtain anomaly of dynamic depth in dynamic meters referenced to the sea surface.
Sound Velocity	Sound velocity according to Wilson's formula entered to tenths of a meter per second.
0 ₂ ml/l	Dissolved oxygen in milliliters per liter entered to hundredths.
PO_4 -P μg -at/l	Inorganic phosphate in microgram-atoms per liter entered to hundredths.
Total-P µg-at/l	Total phosphous in microgram-atoms per liter entered to hundredths.
NO_2 -N μ g-at/l	Nitrite-nitrogen in microgram-atoms per liter entered to hundedths.
NO_3 -N μ g-at/l	Nitrate-nitrogen in microgram-atoms per liter entered to tenths.
SiO ₄ -Si µg-at/l	Silicate-silicon in microgram-atoms per liter entered to whole units.
pH	Entered to hundredths.

TABLE I.-CGC GLACIER, January 1970.

REFERENCE SHIP LATITUDE LONG		- 5	MAR	SDEN	STATION TIME				ORIGINATOR		ATOR'S	R'S DEPTH		н	MAX.	WAVE			WEA	. CLOUD		· · ·	NODC				
CODE	а 0.0	CODE	LATITU	DE 1/10	LONGITUDE	10"	1°	MO	MO DAY HR.1/10		YEAR	CRUI	SE).	STATIO	N R	TO BOTTO	m	OF S'MPL'S	DIR.	HGT P	TIONS	COD	CODE	1	5	UMBER	
31	8155	GL	6106	S	05539 W	521	15	01	06	209	1970	-	00	1		004	5		27	6 4	4	X4	X 9			0001	
							WA	TER		WIND	BAR	0. L	AIR TE	MP. °C		NO.		Seco	141								
							COLOR	TRAN (m)	S. DIR	- DR PORC	D MET	ER s)	DRY BULE	W ET BULB	COD	DEPTI	45	DBSERV	ATIONS								
									24	S14	89	3	006	009	5 3	04											
		MESSENGI TIME HR 1/10	CAST	C A I T YI	PE OEPTH (m)	т	т'с s •		•/	sig	MA-T	SPECI	SPECIFIC VOLUA ANOMALT-110		₹ △ D DYN. M x 10 ³	. v		OF TTC	0 ; ml/	10 19	4-P - 01/I	101AL-1 29 - 01/1	NO ₂ —N µg = at/t	NO3-N 20 - 01/1	SI O4-Si µg - ot/I	рН	soo
		2.04		S	0000	- 00	-0012		3426		2754		05559		0000	1	44	77									
		200	4	S	ro 0010	-01	013	34	264	27	54	00	0557	5 (0005	i	44	78									
		209	9	085	5 0010	-00	013	34	262	27	'54 '54	0.0	0556	4 0	011	1	44	78 80									
		209	9	08	5 0025	-00	013	34	264	27	54	00	0554	- (5 (016	1	44	81 82									
		209	9	083	S 0035	-00	013	34	266	27	54	00	0,54	5 (010	1	44	83									

REFERENCE			±5			MAR	DEN	N STATION TIME				ORIGINATOR		INATOR'S		н	MAX.		WAVE		WEA	CLO	un			NODC	1		
CTRY 10.	CODE	LATITUS	DE	LONGITU	OE		sou	ARE		IGMT	1	YEAR	CRUIS	E 1	STATIO	N	10		DEPTH	085	ERVA TIC	DNS	THER	co	585			STATION	1
CODE NO.		•	1/10	•	1/10	- 4	10'	1.	MÖ	DAY	HR.1/10		NO.		NUMBI	R	10110	2M 4	S'MPL'S	DIR	H G T PER	SEA	CODE	TYPE	A MIT			NUMBER	1
1 318159	GL	6450	85	06410) W		522	44	01	11	000	1970		00	2		063	7		32	1 4		X1	7	7			0002	Í
2.0.222		•••••						WA	ER	Ť,	WIND			AIR TE	MP. C		NO.	Ť				'							
								COLOR	TRANS	DIR	SPEE	MET	ER	DRY	WEI	COD	085		SPEC DBSERVA	ATIONS									
								CODE	1ml		FOID	E lmb	•)	BULB	RUL	8	DEPT	15											
										22	504	97	5 0	000	-00	1 7	11			1									
	MESSENG	CAST	C 4 9						T	•	1		. Secon	C VOIU		₹ <u>\</u> 0	Τ.		10		10							T	Τ,
	TIME	Y NO.	TYPE	1 01	EPTH (m)	T	r	s •/		Sic	MA-T	ANOA	ALT-I	07	DYN. M	· VELO		YTIC	0 2 m1/1	20.0	//	101×L-P	Pg - g	1/1	NO3-N	yg - at/	1 рн	8
	HR 1710															X 10.	+				+	-+-			+		-		+
	1			. 1													1											1	
			ST	0 0	0000)	-01	098	32	80	26	39	001	644	6	0000	1	44	17										
	000	000 OBS 0000 -0		-0	098	32798 26		39						44	17														
	000)	OBS	C	0009	7	-0	111	32	191	26	39					1	44	12										
			51	0 0	0010)	-0	113	3288 26		46	001	0015751		0016	1	44	13											
			ST	υυ	0020)	-0	125	33	58	21	603	0010364		4	0029	14419		19										
	000)	QB2	. 0	022	5	-0	127	33	130	21	16						44	21										
			ST	0 0	030)	-0	107	33	3386 27		25	000	08246		0038		44	55										
	000)	085		04	(-01	070	34	160	21	42	0.00			0050	1	44	50										
			51	0 0	050	,	-01	105	34	145	21	42	000	0006671		1 0053		1447											
	000)	005			;	~0	0 3 2	34	107	21	47	~~~	602	2	~~ ~ ~	14477		02										
	0.00	、 、	080	0 0		,	-00	205	34	236	21	50	000	1992	٠	0069	- 1	440	02										
	000	,	005		1095	*	-0	202	34	350	27	59	000	497	<u> </u>	0082	ī.	44	00										
			51	0 0	125		-00	111	34	10	27	63	000	471	ň	0002	î	45	10										
	0.00	`	085	Č 0	130	Ś	0	116	34	17P	27	370	000		v	0074	•		••										
	000	/	СТ СТ		150	1	ň	110	34	4.2	27	65	000	447	8	0106	1	45	1.8										
	0.00	`	OBC	Č 0	195		0	5 2 7 5 2 7	34	464	27	6.8	000		0		ī	45	28										
	000	, ,	500	0 0	1200	'n	0	128	34	404	27	68	000	420	2	0128	i	4 5	32										
			51	0 0	250	'n	Ő	320	34	49	27	70	000	407	3	0148	ī	45	44										
	0.00	`	OBS	Č 0	275		0	163	34	sóa	27	71	000		-		ī	45	51										
	000	/	ST	0 0	300)	0	054	34	53	27	72	000	386	3	0168	ī	45	61										
	0.00	,	085	_ 0	360)	0	74	34	586	27	75			-		ī	451	80										
	0.00		ST	o ŏ	400)	00	083	34	51	27	77	000	345	4	0205	ī	45	91										
	000)	OBS	το	443	3	00	088	34	540	27	79					1	46(01										

REFERENCE CTAY ID. CODE NO.	SHIP CODE	LATITU	DE 1/10	LONGITUE	DE 1/10	MA SC 10*	RSDEN UARE	STATION IGM	TIME T) HR, 1/11	YEAR	с	ORIGIN RUISE NO.	NATOR STATIC NUMB	'S DN ER	8	DEPTH TO OITOM	MAX, DEPTH OF S'MPL'S	OB:	WAVE ERVATION	WEA THER CODI	- CLOUD CODE	7		NODC STATION NUMBER	
318155	GL	6114	S	05811	w	52	1 18	01 17	182	197	0	00	3		0	636		16	2 6	×1	8 2			0003	
							WA	TER	WIND	34	RO-	A IR TE	MP. "	:		NO.								-	•
							COLDR	TRANS. DI	R. 01	ID MI	ETER	ORY	WE	1 00	De	OBS.	OSSERV	ATIONS							
							CODE		FOR	CE (#	101)	8018	800		-l°										
		.,,						0	3 50	59	76	-010	-02	1 8		13									
	MESSENGE TIME HR 1/10	CAST ND.	C AR TYP	E DEF	1H (m)		1 °C	s •4.	. 51	GMA-T	5	PECIFIC VOLI	JME 10 ⁹	₹ △ DYN. x 10	D M.	SOU VELO	OND CITY	02 m1/1	PO4-P µg - of/I	TOTAL-P Pg = 01/1	NO7-N 2g - 01/1	NO3-N 99 - et/l	SI 04-	Si pH	s c c
																				1			1		
			ST	0 01	000		0066	3411	2	738	(000710	3	000	0	145	511		,						,
	182	2	OBS	5 0	000		0066	3411	52	738						145	511								
			ST	0 01	010	1	0068	3395	2	725	(000834	1	000	7	145	511								
	182	2	OBS	5 00	010	(2068	3395	32	725						145	511								
			ST	D 00	020	(0049	3405	2	733	(000750	1	001	5	145	506								
	182	2	OBS	5 00	25	1	0042	3408	32	737						145	504								
			ST	D 00	030	(0039	3408	2	737	(000718	3	002	3	145	503								
			ST	D 0	050	(027	3409	2	738	(000707	3	003	7	145	501								
	182	2	OBS	5 00	251	(0026	3409	D 2	738						145	501								
			ST	D 00	075	(013	3412	2	741	(000674	3	005	4	144	499								
	182	2	OBS	5 00)76	(0012	3412	72	742						144	499								
			ST	D 0	100	- (0007	3423	2	751	(000579	7	007	0	144	196								
	182	2	OBS	5 0	102	- (8000	3424	12	752						144	496								
			ST	D 0	125	- (0014	3426	- 2	754	(000553	9	008	4	144	+97								
			ST	0 0	150	- (0022	3429	2	756	(000529	8	009	7	144	+98								
	182	2	OBS	0	152	- (023	3429	2 2	757						144	+98								
			ST	D 0.	200	- (0042	3435	2	763	(000470	2	012	2	144	+98								
	182	2	OBS	0.	203	- (0043	3435	3 2	763					_	144	+98								
			ST	D 01	250	-(0017	3443	2	767	(000425	1	014	5	145	519								
	182	2	085	0.	254	- (0015	3443	4 2	768						145	520								
			ST	D 0	300	- (2002	3448	2	771	(000391	5	016	5	145	534								
	182	2	OBS	0	305	-(0002	34486	5 2	771						145	535								
			ST	D 04	+00	(0026	3453	2	776	(000338	7	020	2	145	541								
	182	2	OBS	04	+06	- (028	3453	4 2	776						145	541								
			ST	0 0	000	- (060	3453	2	778	(000316	3	023	5	145	542								
	182	2	OBS	0	800	- (063	3453	5 2	778						145	642								
			ST	0 00	00	- (096	3453	2	779	(000301	7	026	5	145	42								
	182	2	OBS	5 106	518	- (0102	3452	32	779						145	542								

REFERENCE	SHIP	LATITU	DE	LONGI	TUDE	DCTR	MARS	DEN ARE	STAT	ION T GMT	IME	YEAR	CRUISE		ATOR'S		DEP	РТН О	MAX. DEPTH OF	OBSE	WA RV	VE A TION S	W TI	HER	CLOUT	s		5	NODC	
CODE NO.	CODE	•	1/10	•	'1/10	Ĩ	10*	1.	MO	AY	R.1/10		NO.		NUMBER		8011	IOM	S'MPL'S	CIR.	нG	PER SE	A	UDE	TYPE AT	11		N	UMBER	
210165	GL	6226	c	0593	15 W		521	20 1	1 1	8	167	1970		00	4		054	46		21	2	2		(2	6 8				0004	
. 210122		0230	5				[WAT	ER		WIND			AIR TE	MP. C		NC													
							Ì	COLOR	TRANS.	DIR	SPEED	MET	ER	DRY	WET	COD	OB	is.	OBSERV	A TION S										
								CODE	(m)	uik	FORC	£ (mb	1 8	UL8	BULB		DEPI	THS												
										21	518	94	9 0	10	-004	7	12	2												
	MESSENGR TIME	CAST NO.	C A TY	RD PE	DEPTH	m)	, I	Ċ	s	•4.	SIG	MA-T	SPECIFI	C VOLU	IME 0	E A D TN, M X 10 ³	. ,	SOUN	ол CITY	02 m1/1	P الا	'O ₄~ P ⊒ • 01/I	тота +8 *	L P 01/1	NO2-N µg - 01/	NO3- 10 - 10	-N 1	51 O4—Si 49 - 01/1	pн	500
				-		_	+				-										+			-		1				t
		1	۱ د	то	00.00	2	0	137	340	9	27	37	000	716	7 0	000	1	144	97		1		1	1		1	1			1
	167		OB	5	0000	Ś	0	037	340	86	27	37					1	144	97											
	167		0B	s	000	9	00	38	340	91	27	37					1	144	99											
			5	10	0010	5	0	038	340	9	27	37	000	713	0 0	007	1	144	99											
			ŝ	TD	0020)	0	035	340	9	27	37	000	714	8 0	014	1	145	00											
	167		OB	5	002	3	0	035	340	86	27	37					1	145	00											
			S	то	0030)	0	035	34(7 (27	36	000	723	7 (021	. 1	145	01											
	167		OB	S	004	6	0	034	340	74	27	36					1	145	03											
			S	тD	005)	0	030	34(9	27	37	000	712	7 (035	1	145	02											
	167		ОB	S	006	9	00	011	341	. 39	27	43					1	144	97											
			S	TD	007	5	0	003	34]	15	27	44	000	647	1 0	052	1	144	95											
	167		0 B	S	009	2	-0	015	34]	93	27	48					1	144	90											
			S	то	010	C	-0	022	342	22	27	51	000	585	6 0	068		144	89											
			S	10	012	5	-0	38	342	28	27	56	000	531	4 (082		144	85											
	167		ΟВ	S	013	8	-0	043	343	300	27	58						144	084											
			S	TD	015)	-0	043	34:	51	27	59	000	506	4 (1045		144	04											
	167		08	S	018	2	-0	042	34:	332	27	61	000			110	. 1	144	00											
			5	TD	020	5	-0	039	34:	22	21	62	000	411	0 (113	' :	1/6	0.0											
	167	,	08	S	022	/	-0	030	34.	578	21	64	000	4.21		1.47	, :	140	20											
			- 5	10	025	0	-0	014	344	44 1. E. E.	21	67	000	451	0 (142		145	529											
	167		08	10	027	0	-0	003	34	+)) 5 a	27	71	0.00	391	4 (163		145	39											
	147		08	e l	030	6	0	007	34	₹7 53 Я	27	75	000	- / 1		-0-		145	552											
	10/		00	10	040	n	0	010	34	56	27	77	000	338	3 (199		145	558											
	167		0B	S .	T043	8	0	000	34	572	27	78	000				1	145	60											

REFERENCE			-		-	MARS	DEN	STATI	0N 1	ME			DRIGIN	ATOR'S	Í	010		MAX.		WAVE			CLOUD	1			
CTRY 10.	SHIP	LATITUOE	LATITUDE LONGITUDE				ARE	(1	SMT		YEAR	CRUISE		TATION		TC	0	DEPTH	085	ERVATION	s	THER	CODES		5	ADDC LATION	
CODE NO.	CODE	• 1,	/10	1/10	°≚⊦	10"	1.1	NOID	AYH	R.1/10		NO.	Ň	UMBER		8011	OW S	S'MPL'S	DIR	H GT PER	SEA	COOE	TTPE ANT	•	N	UMBEP	
	c					6.00	0.4			1.2	10.70		0.0	+													
31815	51 61	601255	5 1 0 4	4615 WI		520	106 0	212	1 2	12	1970	- T-	00	5	, 1	212	27 L		୍ରୁତ୍ରା	0 X	1	X4	X 19	I		0005	
						}			······	SPEED	- BAR			wr. C	V15.	NO	2.	SPEC	1AL								
						}	COLOR	TRANS. Im1	OIR.	08	. (mb)	EK 1	ULB	BULB	CODE	DEPT	THS C	DBSERVA	TIONS								
										FURC				0.1.6	+												
									32	505	92	1 0	17	015	1	16											_
	MESSENG	CAST	CARD	0.011			**		• /			SPECIFIC	. volu	ME S	Δο		SOUN	10		PO -P	1 10	141.00	NO1-N	NON	SLO LINSI		
	TIME 1/1	Y NO.	TYPE	OTHER D	m i	l '	C.	`		SIG	M A1	ANOM	AL7-X1	o, 0	(10 ³	• v	VELOC	TTY	02 ml/l	y0 = 01/1	94	- 01/1	ug - 01/1	ug - a1/1	yg = 01/l	рН	
		<u>+</u> +																		+	+						┿
	1	(1	- 1					<u> </u>		- · ·		1		ł					Į
			STD	0000	}	-00	34	333	4	26	81	001	2500	0 0	000	1	44	54									
	21	2 (DUS	0000	}	-00	134	333	44	26	81			_		1	44	54									
			STD	0010)	-00	34	333	5	26	82	001	241	5 0	12	1	44	56									
	21.	2 (JBS_	0010		-00	34	333	54	26	82					1	44	56									
			STD	0020		-00	173	333	9	26	86	001	201	Z 01	024	1	444	40									
	21	2 (DBS_	0026		-00	91	334	31	26	90					1	44	33									
			STD	0030)	-00)95	335	0	26	96	001	102	9 0)36	1	44	33									
			STO	0050)	-01	.18	338	2	27	22	000	8550	0 0)55	1	44	30									
	21	2 (DBS	0052	2	-01	20	338	43	27	24					1	443	30									
			STD	0075	6	-01	48	340	9	27	45	000	638	4 0	74	1	44	24									
	21	2 ()BS	0077	7	-01	50	341	04	27	46					1	442	24									
			STD	0100	}	-01	115	342	9	27	60	000	492	B 0	388	1	444	46									
	21	2 0	BS	0103		-01	11	343	08	27	62					1	444	49									
			STD	0125	i i	-00	89	343	7	27	66	000	440	4 0	100	1	446	64									
			STD	0150	1	-00	65	344	3	27	70	000	4036	5 0	110	1	448	80									
			STO	0200		-00	27	345	2	27	75	000	3514	4 O	129	1	450	07									
	21	2 (BS	0203		-00	25	345	24	27	76					1	450	08									
			STD	0250)	00	03	345	6	27	77	000	334	в О	l46	1	453	30									
			STD	0300	1	00	19	345	9	27	78	000	323	30	l63	1	454	46									
	21	2 0)BŞ	0303		00	20	345	90	27	79					1	454	47									
			STO	0400)	00	12	346	0	27	80	000	306	2 0	194	1	45	59									
	21.	2 0) B S	0400		00	12	346	05	27	80					1	45	59									
	21.	2 0	DBS	T0498		00	07	345	98	27	80					1	45	73									
			STD	0500		00	07	346	0	27	80	000	3079	э о.	225	1	45	74									
	21.	2 0	BS	T0591		00	11	346	13	27	81					1	459	91									
			STD	0600		00	11	346	1	27	81	000	298	2 0	255	1	459	92									
			STD	0700		00	09	346	2	27	82	000	289	5 0.	285	1	460	0.8									
	21	2 0	DBS	0793		00	07	346	29	27	82					1	462	23									
			STD	0800		00	07	346	3	27	82	000	2834	+ 0	313	1	462	24									
			STD	0900		00	06	346	3	27	82	0.00	2819	9 0	342	1	464	40									
	21	2 0	BS	0993		00	04	346	30	27	83					ī	465	55									
			STP	1000		00	04	346	3	27	83	000	2790	0 0	370	1	46	56									
			STO	1100		-00	000	346	3	27	83	000	272	B 0	397	ī	46	71									
	21	2 0	BS	1193		-00	004	346	35	27	83					ī	468	85									
			STD	1200		-00	04	346	3	27	83	000	2684	4 0-	+24	ī	468	86									
			STD	1300	1	-00	800	346	3	27	84	000	265	6 Ö	+51	ī	470	01									
			STD	1400)	-00	11	346	3	27	84	000	263	7 0	+77	1	47	17									
	21	2 0	BS	11492		-00	13	346	31	27	84			•		ī	47	32									
			STD	1500		~00	13	346	3	27	84	000	261	8 0	504	ĩ	47	33									
			STD	1750		-00	18	346	3	27	83	000	259	3 0	569	ī	47	73									
			STD	2000		-00	119	346	2	27	R 3	000	260	4 0	534	ī	48	15									
	21	> (BS	12008		-00	119	346	19	27	83	000				- î	4.8	17									
	~ * *	- `	00	12000		00	/	240	• /	61	~ ~ ·					1	-+0.	± '									

TABLE I.--Continued.

REFERENCE	C1110				-	= MA	RSDEN	STATION TH	ME		T	ORIGIN	ATOR'S	Ī	DEPTH	MAX.		WAVE	WE	4. 0	CLOUD			NODE	
CTRY 10.	CODE	LATITU	Of	LONG		<u>9</u> 50	UARE	(GMT)		YEAR	CRUIS	E S	TATION		to	OF	085	ERVATIONS	S THE	R I	CODES			TATION	
CODE NO.	↓		1/10		'1/10	= 10*	1.	MO DAY H	1/10		NO.	· · · · ·	UMBER		sunuw	S'MPL"	DIP	HGT PER S	IEA COL	71	YPE AMT			UMBER	
318155	GL	6012	s	046	15 W	520	06	01 28 0	50	1970		00	6			1				ι	0 3			0006	
							WA	TER W	IND	BAR		AIR TEA	MP. °C	Τ.	NO.			, , ,							
							COLDR	TRANS. DIR.	SPEED	MET	ir 🗌	DRY	WET	cop	DBS.	OBSERV	ATIONS								
							CODE	(m)	FORCE	(mb)	"	ULB	BUL9		Derins										
							DT	SD 36	\$04	1	0	15		7	27										
	MESSENG	CAST	C 4 2	0							SPECIE	c voiu	4. 2	Δp	1 50			20			a			_	1.
	TIME	Y NO.	TYP	Ē	DEPTH (m)		T C	\$ *4.	SIGA	A A — T	ANOA	ALY-I	07 D	YN. M	VEL	DCITY	02 ml/l	1/1 + 01/1	yg + o1/		0- at/1	NO3-N	>1045	ρH	ć
	HR 1/10					_		+							+					+ '					
		1 1																	1		1			ļ	1
		_	51	0	0000		024	3342	268	36	001	195	8 0	000	14	460									
	050	J	085	2	0000	- (024	33420	268	36	~~ 1	1051	- 0		14	460									
			000	U	0010	-(024	3342	200	36	001	192:	5 0	012	14	402									
			005	, . n	0010	- (024	33420	200	00	001	160	• •	0.2.2	14	402									
	0.0.7	7	080		0020	- 0	1040	33470	200	יר 22	001	100	6 0	023	14	454									
	00	(5003	, 	0020	-0	1102	3351	260	37	001	097	4 N	035	14	430									
			DBS		0030	-0	102	33508	269	, , , ,	001	• / / /	• •		14	430									
			SI	D	0050	-0	118	3388	272	27	000	806	3 0	054	14	431									
			OBS	5	0050	-0	118	33880	272	27		-		-	14	431									
			51	0	0075	-0	159	3420	275	54	000	547	90	071	14	420									
			OBS	,	0075	- 0	159	34200	275	54					14	420									
			085	5	0078	-0	162	34220	275	56					14	420									
			ST	0	0100	-0	142	3441	271	71	000	393	8 0	082	14	435									
			085	5	0100	-0	142	34406	27	71					14	435									
			ST	0	0125	-0	124	3444	271	73	000	372	5 0	092	14	448									
			OBS		0125		124	34440	277	73					14	448									
			51	U	0150	-0	080	3454	211	(9 70	000	310	3 0	101	14	475									
			003		0200	- 0	0.00	34545	270	17	000	205	5 0	116	14	475									
			089		0200		046	34580	276	21	000		<i>,</i> 0	- 10	14	499									
			ST	D	0250	Ċ	015	3465	278	34	000	2746	5 0	130	14	536									
			OBS		0250	Ċ	015	34650	278	4					14	536									
			ST	D	0300	C	015	3467	278	35	000	2610	0 0	143	14	545									
			OBS		0300	C	015	34668	278	35					14	545									
			OBS		0338	C	022	34690	278	36					14	555									
			OBS		0354	C	005	34650	278	34					14	549									
			OBS		0374	C	036	34710	278	37					14	567									
			51	D	0400	C	1034	3471	278	37	000	2400	50	168	14	571									
			085		0400	C	034	34710	278	37					14	571									
			OBS		0443	ç	026	34710	278	38					14	574									
			OBS		0470	(006	34710	278	39					14	570									
			ST	U	0500	(001	3469	278	38	000	2299	9 0	192	14	571									
			085		0500	-0	001	34692	210	00	~~~	176/		216	14	571									
			16	0	0600		021	34720	278	59	000	2250	0	415	14	598									
			51	0	0700	0	011	3472	278	37	000	218	7 0	237	14	610									
			nB<	č	0700			34720	278	39	000	- 10			14	610									
			ST	D	0800	Ċ	010	3473	279	90	000	210	3 0	258	14	627									
			OBS		0800	Ċ	010	34730	279	90					14	627									
			ST	D	0900	C	002	3472	275	90	000	211	7 0	279	14	640									
			OBS		0900	C	002	34720	279	90					14	640									
			ST	0	1000	- 0	001	3480	270	97	000	1450) 0	297	14	6 56									
			085		1000	- C	001	34805	279	7					14	656									
			ST	0	1100	- 0	007	3480	279	97	000	1402	2 0	11	140	570									
			085		1100	- Ç	007	34805	279	77	000	125	~	2.25	140	570									
			51	U	1200	-0	012	3480	219	78 19	000	1354	• 0	\$25	140	505 605									
			003		ICUV	- L	012	3-000	613	7 O					140	,0,									

REFER	ENCE					. = MA	RSDEN	STATION T	IME		ORI	GINATO	8'5			MAX.				1						
CTRY	10.	SHIP	LATITU	DE	LONGITUDE	50 SC	UARE	IGMT		YEAR	CRUISE	STAT	ON.	-	TO	DEPTH	085	ERVATION	45	THER	C00	DES		- I .	NODC	
CODE	NO.		•	1/10	1/10	10	1.	MO DAY H	IR,1/10		NO.	NUN	BER		BOTTOM	S"MPL'S	DIR.	HGT PER	SEA	CODE	TYPE	MT			NUMBER	
318	3155	Gil	5627	5	04507 W	48	4 65	01 28	175 1	970		0.7		1	1380		01	12	-	¥ 7		3			0007	
				<u> </u>			WA	ATER Y	VIND	BARC	AIR	TEMP.	2		NO			- (-)		1 47	0	-			0007	
							COLOR	TRANS. DIR.	SPEED	METE	R DRY	W	ET CO	15. DDE	OBS.	OBSERV	ATION S									
							CODE	Im)	FORCE	(mbs) BULE	8 81	LB		DEPTHS											
							DT	5D 36	504	91!	5 018	3 0	17 7	·	14											
		MESSENGR	CAST	CAR				1			INCOME IN		5 ^						-	1		-	-1		-	٦.
		TIME	Y NO.	TYP	E DEPTH 0	m)	1 * C	s •/	SIGM	A-T	ANOMALT	-#10 ⁷	DYN.	м.	VELC		0 ₂ m1/1	PO4-P		01AL-P	NO2-	N	NO3-N	SIO4-S	PH	1
		HK 1/10												,	+				+		Pg - 01	<u> </u>	0g = 01/1	20-00		-
		ĺ																1		1		-1	1		1	
				51	D 0000) –(0007	3342	268	6	00120	30	000	0	144	468										
		175	•	OBS	0000) –(0007	3342	268	6				_	144	468										
				51	0 0010		1007	3342	268	6	00120	27	001	Z	144	469										
				085	0010		0007	3342	268	6				2	144	+69										
		0.06		081	0020		1069	2202	269	,	00109	54	002	3	144	444										
		005	,	51	D 0025		1120	3374	270	2	00001	1 1	003	2	144	432										
				085	0030		1120	2374	271	4	00091	11	003	2	14	+ 4 L 5 D 1										
				51	0 0050		1149	3412	274	a	00061	36	004	9	14	20										
				OBS	0050	- (149	3412	274	8	00001	50	004	0	14	20										
				ST	D 0075	- ()164	3428	276	1	00048	47	006	2	144	10										
				OBS	0075	- (164	3428	276	î	00040		000	2	144	10										
				OBS	0081	- (172	3429	276	2					144	16										
				ST	D 0100	-0	166	3438	276	9	00040	66	007	3	144	24										
				085	0100	- (166	3438	276	9				-	144	24										
				ST	D 0125	- (144	3445	277	4	00035	82	008	3	144	39										
				OBS	0125	- (144	3445	277	4					144	39										
				ST	D 0150	- 0	099	3455	278	1	00029	69	009	1	144	66										
				OBS	0150	- 0	099	3455	278	1					144	66										
				\$T	D 0200	- (056	3462	278	5	00026	08	010	5	144	95										
				OBS	0200	- (056	3462	278	5					144	95										
				ST	D 0250	- 0	043	3464	278	6	00025	07	011	8	145	10										
				OBS	0250	- 0	043	3464	278	6					145	10										
				ST	U 0300	-0	1039	3465	Z78	6	00024	48	013	0	145	20										
				OBS	0300	-0	039	3465	278	6					145	20										
				UΒS	0369	- (1033	3466	278	7					145	34										

REFER	ID.	SHIP CODE	LATITU	DE	LONGITUDE		SDEN	STAT	ION TI	IME	rEAR		ORIGIN	ATOR'S	_	DEPTH TO BOTTO	H DEPT	х. ^Н ОВ	W SER	AVE VATIONS	WEA THER CODE	CLO CO	U D DES			NODC STATION NUMBER	
				1/10		10-		MO	DAYH	R.1/10		140.	<u>'</u>	10 MBER			SMP	L'S DIR	HC	FT PER SI	A	TYPE	A 411				
318	3155	GL	6030	S	04433 W	520	04	01	29 1	180 1	970		00	8		0600)	05	2	4	X4	0	3			0008	
							WA	TER	×	VIND	BARC	·	AIR TE	M.P. °C	VIS.	NO.	l si	PECIAL									
							COLOR	TRANS. LmJ	DIR.	01	imbs imbs	R } E	DRY IULB	W ET BULB	COD	DEPTH	S OBSE	RVATIONS									
							DT	SD	11	513	81	8 0	09	009	3	16											
		MESSENGR TIME H.R. 1/10	CAST NO.	C AR TYP	E DEPTH Im)	т *с	s	•4.	SIGM	A – T	SPECIFI	C VOLU	M E D	△ D YN. M X 10 ³	Å. SC ∀E	DUND	0 ; ml/	1	PO4-P yg - 01/1	101AL-1 20 - 01/1	NO2- 99-0	-N st/\	NO3-N kg - 01/1	51 O 4~ 49 - 0	5) /1 рН	500
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				51	0000 D	- 0	039	33	42	268	7	001	189	4 0	000	14	4453										
		180)	085	6 0000	- C	039	33	420	268	7					14	4453										
				51	D 0010	- C	039	33	42	268	7	001	189	1 0	011	. 14	4455										
				OBS	5 0010	- C	039	33	420	268	7					14	4455										
				51	D 0020	-0	087	33	49	269	4	001	119	7 0	023	3 14	4435										
		005	ò	OBS	5 0025	- C	103	33	620	270	6					14	4430										
				51	rD 0030	- C	114	33	8 Z	272	2	000	855	2 0	033	14	4429										
				OBS	5 0030	- C	114	33	820	272	2					14	4429										
				51	rD 0050	- C	156	34	0.8	274	5	000	641	4 0	048	14	4416										
				OBS	6 0050	- C	156	34	080	274	5					14	4416										
				OBS	5 0065	- C	161	34	320	276	4					14	4419										
				51	D 0075	- C	156	34	34	276	6	000	437	1 0	061	. 14	4424										
				QBS	5 0075	-0	156	34	345	276	6					14	4424										
				51	rD 0100	~ C	148	34	46	277	5	000	350	3 0	071	. 14	4433										
				OBS	0100	- C	148	34	460	217	5		25.4			14	4493										
				51	0 0125	-0	122	34	46	211	4	000	356	3 0	080) 14	4450										
				OBS	0125	-0	122	34	462	277	4					14	4450										
				51	0150	-0	046	34	52	277	9	000	111	/ 0	088	5 14	4401										
				005	5 0150	-0	096	24	224	211	9	000	246		103	1	4401										
				00	0200	-0	054	34	01	210	4	000	209	4 0	103	, 1,	4470										
				005	5 0200	-0	0.0.0.7	34	615	278	4		220	<u>د</u>	114	. 1	4490										
				080	0250	-0	1037	34	640	278	2	000	2 20	6 0	110	1	4513										
				003	5 0290 th 0300	- 0	10.26	34	67	278	2	000	236	0 0	127	1	4526										
				O R C	5 0300	- (020	34	670	270	7	000	2.20	0	- 2 1	1	4526										
				50.0	ID 0400	-0	1023	34	69	279	é	000	221	7 0	150	1	4544										
				OB	5 0400	-0	0 23	34	690	279	á	000		, 0		1	4544										
				c 1	TD 0500	- 0	021	34	69	278	á	000	217	3 0	172	2 1	4562										
				08	\$ 0500	- (021	34	695	278	9	000		- 0	- 1 L	1	4562										
				OB	5 0595	- (020	34	710	279	0					i	4579										
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REFERENC	E					MAR	SOEN	STAT				Т	ORIGI	NATO	P**		MA	c.								
CTET 10		DE	LATITU	DE	LONGITUDE	SOL	ARE	1	GMT		YEAR	CRI		STAT	ION	TO	DEPT	H 06	SERVA	TIONS	THE	4- CLO 8 CO				NOOC
CODE NC			•	1/10	1/10	10*	1.	MÓ []	AY	R,1/10		N	10.	NUM	BER	BOTTO	M S'MPL	SDIR	HGT	PERSE	A COC	E TYPE	AMT			NUMBER
31815	4 G		7421	45	038182W	555	48 (02 1	9 0	155	1970		00	1		0512					X4	0	3		- +-	0001
							WAT	ER		NINO		0.	AIR TI	EMP.	6	I NO	1		י 'ו		1 0 1	101	5		1	0001
							COLOR	TRANS,	DIR.	SPEED	MET	ER	DRY	w	ET COD	e OBS.		ECIAL VATIONS								
							CODE	fen 1		FORC	E (mb	L)	BULB	BL	ILB	DEPTH	5									
							DT	SD	14	S08	86	1 -	022	+0	24 6	15										
	MES	SENGR	CAST	CAR	0	Ι.	tro.	Ι.				SPE		IIME	₹∆c											
	не	1/10	NO.	TYP	E DEPTH (m)	1 '	Ç	1,	• • •	SIG	MA-T	AM	OMALY-2	107	DYN. A	 Vei 	LOCITY	O2 m1/	1 10	• ot/i		NU2-		NO3~N	5104-	и рн
	110	17 10				-		<u> </u>		+					X 10	+-								- ui/i		
			ļ		0 0000	1		1 2 2 0	-	1		1							1							
		155		51	0000	-0	176	339	4	27	36	00	00723	9	0000	14	391									
	(100		005	0.0000	-0	170	220	2	21	26 24	0.0		6	0007	14	391									
				OBS	0010	-0	179	230	ż	27	36	υu	10122	2	0007	1 /	207									
				ST	D 0020	-0	179	340	'a	27	50 41	0.0	0675	я	0014	14	300									
	C	0.05		OBS	0025	-0	179	340	7	27/		00	10015	0	0014	14	401									
				ST	0 0030	-0	178	341	2	270	4.8	00	0606	2	0021	14	403									
				085	0030	-0	178	341	2	274	48	00		2	0021	14	403									
				ST	D 0050	-0	181	343	0	276	53	00	0466	1	0031	14	407									
				OBS	0050	-0	181	343	0	270	53					14	407									
				ST	0 0075	-02	182	343	4	276	56	00	0433	6	0043	14	411									
				OBS	0075	-0:	182	343	4	276	56					14	411									
				ST	D 0100	-01	182	343	6	276	58	00	0416	7	0053	14	416									
				OBS	0100	-0	182	343	6	276	58					14	416									
				ST	D 0125	-0	180	343	7	276	59	00	0408	0	0064	14	421									
				ÓBS	0125	-0	180	343	7	270	69					14	421									
				ST	0 0150	-0	179	343	9	27	70	00	0391	5	0074	14	426									
				OBS	0150	-0	179	343	9	27	70					14	426									
				ST	0 0200	-0	174	344	1	27	72	00	0374	7	0093	14	437									
				OBS	0200	-0	174	344	1	27	72			_		14	437									
				51	0 0250	-0	162	344	4	27	74	00	0352	8	0111	14	451									
				UBS	D 0250	-0	162	344	4	27	14			~	01.20	14	451									
				51	0000	-0.	152	344	0	27	15	00	10338	5	0128	14	465									
				005	0000	-0	192	344	2	27	15					14	465									
				005		-0	192	345	2	278	5U aa	0.0	0.244	c	0160	14	483									
				080	0400	-00	190	245	0	210	22	υĻ	10206	2	0128	14	509									
				ст ст	0 0500	-00	163	346	2	270	5 J 8 L	0.0	0.26.2	6	0184	14	509									
				089	0500	-00	163	344	2	270	86	υĻ	0242	U.	0104	14	542									
				000	0.200	-00	202	7-0	2	< I (00					14	146									

TABLE II.-CGC GLACIER, February-March 1970.

REFERENCE	61410				ļ	. E	MARS	DEN	STAT	ON TI	ME			ORIGIN	ATOR'S		DE	EPTH	MAX.		WAVE		WEA-	CLOUD			NODC	
CTRY ID.	COOF	LATITU	DE	LONG	TUDE		sou	ARE	(5 MTI		YEAR	CRUIS	٤ ١	TATIO	N.	807	10 110 M	OF	085	ERVAT	IONS	THER	CODES				
CODE NO.			1/10		1/10	-	10*	1.	MOL	AY H	R.1/10		NO.		NUMBE	R		10/11	S'MPL'S	DIR.	HGTPE	R SEA	0000	TTPE A.M.	t 			
318154	GL	7421	45	0381	182W		555	48 0	02 1	9 0	70	1970		00	1		05	12					X4	6 8	1		0002	
							1	WA1	ER		VIND	BAR	>- L	AIR TE	мр. °С		N	10.	SPEC									
								COLOR	TRANS.	DIR.	SPEED OR	METE	R	DRY	WET	cos	DE	PTHS	OBSERV	TIONS								
								CODE	101		FORCE	(moi	<u>'</u>	0010	0010	+	+											
										14	508	86	-0	22	-024	6	1	0										_
	MESSENG	CAST	CA	20	-			~		• /			SPECIF	ic volu	ME .		2	sou	ND	0	PO	(-P	TOTAL-P	NO2-N	N03-N	SI 04S		s
	HR 1/1	MO.	TY	PE	DEFIN #	1 1	'	C	'	·••	3167		ANO	4ALY-21	107	x 10 ³	ñ.	VELO	CITY	02 1071	40.	01/1	µg • 01/I	vg - e1/1	yg ∎1/1	µg - αt∕	r ""	č
							1		1		1										-							T
	1	1			0000			182	230	0	27	۱	000	774	8 (000	, I	143	93	844	1	1	,				1	1.
	0.7	0	080		0000		-0	182	330	0.2	27	31	000					143	93	844	12	7		800	190	050		
	07	0	5	r D	0010		~0	181	338	7	27	28	000	801	2 0	008	3	143	94	867	-							
	07	n	089	5	0010		+0	181	338	67	27	28						143	94	867	13	1		800	189	050		
		Ť	S	rD	0020		-0	182	339	1	27	31	000	767	3 (016	5	143	96	845								
	07	0	OB	5	0025		-0	182	339	39	27	34						143	97	833	14	2		007	210	054		
			S	ro	0030		-0	182	340	0	27	39	000	697	5 (0 2 3	3	143	99	817								
			S	rρ	0050		-03	180	342	1	27	56	000)535	4 (035	5	144	06	768								
	07	0	OBS	5	0051		-0	180	342	16	27	56						144	07	766	18	9		008	268	062		
			S	rD	0075		-0	181	342	7	27	51	000)487	4 (048	3	144	11	763								
			S	r D	0100)	-0	183	343	1	27	54	000)454	8 (060)	144	15	760				_		_		
	07	0	083	5	0102		-0	183	343	16	27	54						144	15	760	20	2		005	285	065		
			S	rρ	0125		-0	184	343	3	27	56	000)437	8 (0071	L	144	19	752								
			S	T D	0150		-0	184	343	4	271	56	000)428	4 (0082	2	144	23	743		-			205	o (7		
	07	0	0 B (5_	0152		- Q (184	343	42	27	67						144	23	742	20	1		003	295	067		
			S	TD	9200		-0	179	343	6	27	58	000)411	4 (10:	5	144	24	130	20	0		000	204	04.0		
	07	0	OB:	5	0203		-0	179	343	62	27	58	0.00	304				144	134	714	20	9		000	274	009		
			5		0250		-0	1/6	343	8	270	77	000	1344	7 (12:	2	144	50	604								
	0.7	~	5		0300		-0	163	344	1.	21	12	000	1212	/ (144	2	144	62	600	21	1		000	304	072		
	07	0	083	- -	06.00		-0	100	2/6	14	21	1 L 7 7	0.07	1222	1 (117	7	145	04	642	- 1	•			20.	J · -		
	0.7	~			00400	,	-0	102	345	0.4	27	77	000	1223			,	145	05	640	21	6		000	303	084		
	07	0	00	5 T ()	0403	, 1	-0	104	345	04	27	1 / R /	0.00	1248	3 (204	4	145	19	594		0						
	07	0	08	5	10500 10508	5	-0	114 114	345	92	27	85	000	/ 40	5			145	19	590	21	7		000	310	094		
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REFERE	NCE	SHIP				5	MAR	SDEN	STAT	ON TI	ME		OR	GINAT	DR'S		DEPTH	MAX	T	WAVE	WEA	- CLOUC			NODE	
CODE	10. NO	COOF		UE L/IA	LONGITUDE	E O A	500	ARE		5 M II	'	re A R	CRUISE	STA	TION		TO	OF	08	ERVATION	IS THE	CODE		S	ATION	
\vdash +				1/10	17		10-	1.	MOLD	AYH	R.1/10		NU.	NUN	VEEK	-	-	SMPL	S DIR	HGTPER	SEA	TYPE AN	1	~ ~	UMBER	
315	154	GL	7635	65	0314501	v	555	61	022	1 0	35 1	970		002			0392				X 2	0 3			0003	
								WA	TER	W	IND	BARO	A18	TEMP.	3	VIS	NO.	525	CIAL							
								COLOR	TRANS.	D1R.	OR	(mba)	R DR) BUL	r v s s	VET I	CODI	E OBS. OEPTHS	OBSERV	ATIONS							
								DT	SD	03	516	903	3 -03	5 -0	44	7	15									
		MESSENGI TIME HR 1/10	CAST NO.	CAL	E DEPTH	(m)	т	r	s	•/	SIGM	A-T	SPECIFIC V	DLUME 7-X107	E Z OYN X	△ D 9. M 10 ³	SOU VELO	UND DCITY	0 2 m l/1	PO4-P	TOTAL= - 1/10 - وبر	NO2-N µg - ai/l	NO3-N Vg + a1/1	SIO4→Sr µg = at/i	рн	500
																				1		-				+
				S1	D 000	0 0	-0	184	339	9	273	8	00070	Зь7	00	00	14:	393 '		1	1		r	1		1
		035	,	085	5 000	0	-0	184	339	Ģ	273	8					14	393								
				SI	100 D1	. 0	-0	184	339	9	273	8	00070	060	00	07	141	395								
				OBS	5 001	0	-0	184	339	9	273	8					143	395								
				S1	rD 302	0	-0	184	339	9	273	8	00070	353	00	14	143	396								
		005)	OBS	5 002	5	-0	184	339	9	273	9					141	397								
				51	0 003	0	-0	194	339	9	273	9	00070)47	00	21	143	398								
				085	003		-0	184	339	9 9	2/31	8					141	398								
				083	003	7	-0	184	337	9 6	2/30	5					14:	398								
				003	002		-0	1 70	342	2	215	1	00046	110	00	2 2	144	+U7								
				089	. 005	iŭ -	-0	179	342	8	276	1	00040	17	00	رر	144	408 108								
				SI	D 007	5	-0	183	342	9	2762	2	00041	717	00	45	144	410								
				08.5	007	5	-0	183	342	9	2762	2			• •		144	10								
				ST	D 010	0	-0	184	343	0	276	3	00046	522	0.0	57	144	414								
				085	010	0	-0	184	343	0	276	3				-	144	414								
				ST	D 012	5	-0	84	343	0	276:	3	00046	506	00	68	144	18								
				085	012	5	-0	184	343	0	276	3					144	+18								
				ST	D 015	0	-0	184	343	1	2764	4	00045	514	001	80	144	+23								
				OBS	015	0	-0	184	343	1	2764	÷					144	23								
				ST	D 020	0	-0	184	343	2	2769	5	00044	06	01	02	144	31								
				OBS	020	0	-0	84	343	2	2769	5					144	+31								
				ST	0 025	0	-01	83	343	3	2766	5	00043	302	01	24	144	40								
				OBS	025	0	-0:	83	343	3	2766	5					144	40								
				ST	0 030	0	-0	191	343	5	276	7	00041	.25	014	45	144	+49								
				OBS	030	0	-01	81	3+3	5	276	7					144	+49								
				085	. 039	0	-0:	81	343	9	2770)					144	+65								

REFER	ENCE						MARS	DEN	STAT	ION T	IME			ORIGI	NATOR	r's	T	DEPTH	MAX.	· · · · ·	WAVE	WEA	CLOUT	1		NODC	1
CTRY	10.	CODE	LATITUDE LONGITUDE				sou.	384		(GMT)		YEAR	CRU	ISE	STATI	DN	٦.	TO	OF	085	ERVA TIONS	THER	CODES			STATION	
	ND.			1/10	1/10	-	10*	1'	MO	DAYH	IR, 1/10		N	5.	NUM	BER		MOTION	S'MPL'S	DIR	HGT PER S	EA CODE	TYPE AM	it .		NUMBER	1
318	154	GL	7650	4 S	032300W		555	62 (2 20	21 0	75 1	970	1	00	3		0	310				× 2	03			0004	
							[WAT	ER	V	VIND	BAR	5.	AIR TE	EMP. 1	c .		NO.	tati								
								COLGR	TRANS.	OIR.	SPEED	MET	R	ORY	w	T co	DE,	OBS.	OBSERV	ATIONS							
								CODE	1007		FORCE	(mb)		BULB	80		-1`	0071113									
			-					DT	SD	06	512	90	5 +	028	103	4 7		15									
		MESSENGE TIME H.R. 1/10	CAST NO.	C AR TYP	DEPTH (n)	T	٣	s	•/	SIGM	A-1	SPEC AN	IFIC VOL	UME	₹ △ DYN, x 10		SOU VELO	UND DCITY	0.2 ml/l	PO4-P µg = 01/1	TOTAL-P	NO2-N 29 - 01/1	NO3+N 49 - at/l	51 O4-1 V0 - 01	Si pH	SCC
							1			-	-							+		_							+
			1 1	c 1			-01	127	240	35	273	5	0.0	0737	0	000	~	1.63	104					I	i		
		075		080	: 0000		_01	192	330	35	272	5	00	0121	7	000	0	142	206								
		015		51	0010		-01	182	130	5	273	5	0.0	0737	2	000	7	143	195								
				OBS	5 0010		-01	82	339	35	273	5	00		۲.			14	395								
				51	0 0020		-01	81	339	96	273	6	00	0729	0	001	5	143	397								
		005		OBS	0025		-01	81	339	7	273	6						143	398								
				51	0 0030		-01	79	339	8	273	7	00	0713	5	002	2	144	+00								
				OBS	5 0030		-01	79	339	8	273	7						144	•00								
				S 1	D 0050		-01	74	340)1	273	9	00	0690	4	003	6	144	+06								
				085	0050		-01	74	340	1	273	9						144	+06								
				51	D 0075		-01	43	341	0	274	6	00	0628	4	005	2	144	+26								
				OBS	0075		-01	43	341	0	274	6						144	+26								
				S1	.D 0100		-01	.39	341	. 3	274	8	00	0605	3	006	8	144	+33								
				OBS	0100		+01	39	341	. 3	274	8						144	+33								
				085	0112		-01	. 45	342	23	275	6						144	+34								
				OBS	0116		-01	33	341	.9	275	3			_		_	144	+39								
				51	0125		-01	35	342	22	275	5	00	0536	5	008	2	144	+40								
				005	0125		-01	35	342	2	2/5	5	~ ~	05.74	4	000	c	144	+40								
				084	: 0150		-01	30	342		275	0 4	00	0920	0	009	5	144	44.2								
				OBS	. 0102		-01	53	340		275	1						144									
				500	0200		-01	70	347	99	276	2	0.0	0467	7	012	0	144	37								
				OB	0200		-01	70	342	9	276	2	00	0-01	1	5.21	0	144	37								
				SI	0250		-01	74	342	13	276	5	00	0433	0	014	3	144	44								
				OBS	0250		-01	74	343	33	276	5	00	0.23	÷		-	144	+44								
				OBS	0291		-01	79	343	5	276	7						144	+49								
										-	0							-									

REFERENCE CTRY ID. CODE NO.	SHIP CODE		/10	ONGHUDE	DRIFT IN DC TR	SOUARE	STATION T	IME 1/10	YEAR	ORIGIN CRUISE NO.	A TOR'S	4	DEPTH TO BOTTOM	MAX. DEPTH OF	085	WAVE ERVATION	WEA THER CODE	CLOUD		S	NODC	
318154	61	76651	. 0	12475W	5	55 42	0.7 21	37 1	070	0.0	/		0.24.0	SMPL	0.0	HGT PER	IEA	TYPE A M	r			
1 2 1 0 1 2 1	Loc I	10331.	10.	22 4 1 2 M					710	- 100	4		0340		L		× 2	03		I	2005	
						COLO	TRANS. DIR.	SPEED	BARO METER	DRY	WET	VIS.	NO. OBS. DEPTHS	SPEC OBSERV	CIAL ATIONS							
						DT	50 03	SOF	911	- 0.26	- 0.2.7		17									
	MESSENGE TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T "C	s •4.	sigm	A-1	SPECIFIC VOLL		€ △ 0 21N. M X 10 ³			02 ml/l	PO4-P	TOTAL=P pg + of/I	NO2-N μg = σ1/1	NO3-N 49 - 01/1	SI O 4 - Si µg - a1/i	рH	s
								-	-+		-+-		-	-		+					├ ──	Ŧ
	t		STD	0000	· '.	-0154	3394	273	3 '	000752	3 0	000	144	•07						į – 1	i i	
	137		BS	0000		-0154	3394	273	9	000.32			144	.07								
			STD	0010		-0154	3394	273	3	000751	7 0	0.08	144	109 108								
		C	BS	0010		-0154	3394	273	3	000.71		000	144	0.0								
			STO	0020		-0137	3395	273	3	000750	4 0	015	144	18								
	005	, C	BS	0025		-0134	3395	273	3				144	20								
			STD	0030		-0135	3395	273	3	000748	2 0	023	144	+21								
		C	BS	0030		-0135	3395	273	3				144	+21								
			STD	0050		-0139	3396	2734	4	000738	2 0	037	144	22								
		C	85	0050		-0139	3396	2734	4				144	22								
		C	BS	0054		-0137	3396	2734	4				144	24								
		C	BS	0073		-0139	3398	2736	6				144	26								
			STD	0075	-	-0151	3398	2736	5	000718	0 0	056	144	21								
		C	85	0075		-0151	3398	2736	5				144	21								
		C	BS	0091	-	-0140	3400	2738	9				144	29								
			STD	0100	-	-0144	3401	2739	9	000695	7 0	073	144	29								
		0	BS	0100	-	-0144	3401	2739	9				144	29								
		0	BS	0107	-	-0157	3402	2740	C				144	24								
			STO	0125	-	-0137	3410	2746	5	0006276	5 0	090	144	38								
		O	8 S	0133	-	-0134	3413	2748	3				144	41								
			STD	0150	-	-0139	3418	2752	2	000564	5 0	105	144	42								
		0	BS	0150	-	-0139	3418	2752	2				144	42								
			STD	0200	-	-0159	3423	2757	7	0005170	0 0	132	144	42								
		0	85	0206	-	-0159	3423	2757	7				144	42								
			STD	0250	-	-0165	3425	2759	9	000497(0 0	157	144	47								
		0	BS	0250	-	-0165	3425	2755)				144	47								
			STD	0300	-	-0172	3429	2762	2	0004612	2 0	181	144	53								
		0	BS	0300	-	-0172	3429	2762	2				144	53								
		0	BS	0335	-	-0182	3433	2766	5				144	55								

REFER	ENCE	5 JU 10				+	E MAI	SDEN	STAT	TION	IME				ORIGIN	ATOR'S		DEPTH	MAX	:	WAVE		WEA-	CLOUO			NOOC	
CTRY	10.	CODE	LATITU	DE	LONGITUC	E	sol	JARE		IGMT		YEA	AR	CRUISE		TATION		TO	OF	1 08	SERVATI	ONS	THER	CODES			STATION NUMBER	
	NU.			1/10		1/10	10*	1.	MO	DAY	HR.1/10			NO,	<u> '</u>	NUMBER		101101	S*MPL	S DIR,	HGT PE	R SEA		TYPE AM	1			
318	3154	GL	7726	5S	03601	7 W	555	76	03 0	21	232	19	70		00	5		0937					X7	03			0006	
								WA	TER	-	WIN0		BARO		AIR TE	NP. °C	VIE	NO.	SP	CIAL]							
								COLOR	TRANS	· DIR.	SPEED		A ETER	: ,		WET	COD	OBS.	OBSER	VATIONS								
								0.7	0.0	0.7	FORC	31		+	60			1,7										
					-			01	50	02	506		925	10	28		1	17			L							
		MESSENG	CAST	CAP				- °C	s	•/	SIG	MA-		SPECIFI	c volu	ME S		so	ם אינו		1 104	~P	TOTAL-P	NO2-N	NO3-N	51 04-	51 a.H	S
		HR 1/10	NO.	TYP	PE			-						ANON	(ALY-X)	0/ 0	x 10 ³	" VEL	00111	•.	. P.	¢1/1	vg = 01/1	nð - 01/1	yg - e1/1	μ β - α ί,	1	č
																											-	T
				51	ro o	000		173	33	94	27	34		000	747	ь 'о	000	14	398		1		1				'	
		232	,	OBS	5 00	000	- 0	173	339	94	27	34						14	398									
				ST	0 0	010	-0	173	339	94	27	34		000	747	0 C	007	14	399									
				085	5 00	010	-0	173	339	94	27	34						14	399									
				SI	00 01	20	-0	180	339	99	27	38		000	706	30	015	14	398									
		006	5	085	5 00	25	-0	182	34(00	27	39						14	398									
				S	0 00	030	-0	182	341	00	27	39		000	697	4 0	022	14	399									
				OBS	5 00)30	-0	182	34(00	27	39						14	399									
				51	1D 00	050	-0	181	341	04	27	42		000	665	5 0	035	14	404									
				OBS		150	-0	181	340	J4 17	21	42			402	< 0.	1	14	404									
				000	- 00)75	-0	177	34.	12	21	48		000	003	5 0	721	14	411									
				51	5 00	100	-0	180	34	20	27	55		000	539	9 0	066	14	415									
				085	5 0	00	- C	180	34	20	27	55		•••				14	415									
				089	5 0	07	-0	157	34	30	27	62						14	428									
				51	D OI	125	-0	160	34	23	27	57		000	521	0 0	079	14	429									
				OBS	5 01	25	-0	160	34	23	27	57						14	429									
				51	rD 01	150	-0	180	34	28	27	61		000	475	5 0	091	14	424									
				OBS	5 01	150	-0	180	342	Z 8	27	61						14	424									
				51	ID 02	200	-0	183	34:	3 Z	27	65		000	440	9 0	114	14	431									
				085	5 02	200	-0	183	34:	32	27	65						14	431									
				SI	0 02	250	-0	186	34.	34	27	66		000	421	5 0	136	14	439									
				085	5 07	250	-0	186	34	34	27	66			2 7 1		167	14	439									
				51	rb J.	300	-0	190	344	40	21	71		000	311	5 0	120	14	440									
				085	· 0.	300	-0	190	344	40	21	71						14	440									
				UB:	s 0. ro ov	200	0	102	341	40 52	27	11		000	272	1 0	188	14	463									
				080	5 0/	100	-0	192	34	52	27	81		000	212	. 0	-00	14	463									
				039	5 04	467	-0	199	34	58	27	86						14	472									
				500	ro 01	500	- C	211	340	ь1	27	89		000	191	8 0	211	14	472									
				OBS	5 0	506	- C	214	346	6 Z	27	90			-			14	472									

REFERENCE	SHIP	LATITUDE	LONGITU		MARS	DEN ARE	STATION	TIME TI	YEAR	ORIGIN CRUISE	ATOP'S		DEPTH TO	MAX. DEPTH OF	OBSE	NAVE RVATIONS	WEA- THER	CLOUD		1	NODC	
LUDE NO.		1/1		1/10 =	10*	1.	NO DAY	HR.1/10		NO. 1	NUMBER		BOHOM	S'MPL"	Dut	GT PER SI	A CODE	TYPE ANT	1	,	UM BER	
31815	4 GL	772655	03601	7 w 📄	555	76 3	3 02	027	1970	00	5		0918				X 2	6 8			0007	
						WAT	ER	WIND	RARC	AIR TE.	M.P. °C	1.	NO.		· · · · · · · · · · · · · · · · · · ·		-		1			
					ſ	COLOR	TRANS O	R_ SPEED	METE	R DRY	WET	CODI	OBS.	SPEI OBSERV	ATIONS							
					-	LUUE	1001	FORC	t Imps	1 BULS	BULS	+										
							04	1509	800	<u>+067</u>		6	14									
	MESSENGI TIME HR 1/10	V NO. T	ARD DE	PTH (m)	т	3	s •4.	sig	MA-T	SPECIFIC VOLU ANOMALT-EI	ME 0	∆ D YN. M x 10 ³	SOU VELO	ND CITY	02 m1/1	PO4-P 20 + 01/1	10TAL-P μg + α1/)	NO2-N 49 - 01/l	NO3-N 29 - 021	SI 04-5 #9 - 0!/	pН	500
									1													T
		S	TD OI	000	-01	82	3399	27	38	000704	1 00	000	143	94	802							
	027	0 E	5 0	200	-01	82	33994	+ 27	38				143	94	802	131		013	195	044		
		5	10 01	010	-01	85	3400	27	38	0007020	D 00	007	143	94	819							
	027	08	S 01	016	-01	86	33995	5 27	38				143	95	827	136		012	196	045		
		5	TD O	020	-01	85	3400	27	39	000697	4 00	014	143	96	831							
		S	TD O	030	-01	84	3401	27	40	000689	3 0,	J 2 1	143	98	837							
	027	08	5 0	042	-01	83	34025	5 27	41				144	01	840	137		012	208	047		
		9	TD O	050	-01	93	3405	27	43	0006575	5 00	34	144	03	835							
	027	08	S 00	168	-01	83	34094	+ 27	46				144	06	826	162		011	229	051		
	0.2.5		10 01	J / 5	-01	83	3411	27	48	000609	9 01	250	144	08	825							
	021	08	5 100	196	-01	81	34140	21	51	0005 70			144	13	816	1/4		010	234	055		
		3	TO 0	100	-01	80	3415	27	52	0005700	5 00	265	144	14	809							
	0.7.7		0.	122	-01	74	3422	21	20	0005240	5 00) / 9	144	22	112	10.			2 (1			
	ŲΖΥ	08	5 U.	140	-01	13	3426:	> 21	50	0.001.01			144	26	151	146		012	261	062		
	227		ΓU U.	150		74	3421	27	60	0004841	9 00	741	144	27	757				3.75			
	021	00	3 IV.	200	-01	67	34300	2 21	04 67.	000440		115	144	21	752	¢00		009	215	061		
		3		260	-01	0,7	2424	21	6 4 6 7	0004460		1 3 4	144	20	153							
		3		200	-01	01	2/20	27	70	000386		1 50	144		740							
	027	. OB	с то:	300	01	20	34381	27	70	000300	/ Q.	1) (144	40	730	202		016	200	064		
	02,	5	TD 04	+00	-01	03	3450	27	9.0 9.0	0002880	וח ר	100	144	63	723	203		010	290	064		
	327	08	5 04	+13	-01	95	34514	27	81	0002000			144	64	721	200		000	786	067		
		5	τD 0'	500	-02	12	3459	27	87	000206	7 02	215	144	72	712	203		000	200	007		
	327	OB	S T05	510	-02	14	34596	27	88	000200			144	72	711	213		001	294	070		
		S	TD 06	00	-02	24	3465	27	92	0001514	9 04	:33	144	83	709			001	2 / 4	010		
	027	OB	S T06	502	-02	24	34649	27	92			- 2 2	144	84	709	214		002	297	073		
		S	TD DT	700	-02	19	3466	2.7	93	0001382	2 04	48	145	03	710					v . J		
	027	OB	s 37	710	-02	18	34666	27	94				145	05	710	216		001	309	072		
		S	TD DE	300	-02	18	3467	27	94	0001244	• 04	261	145	20	703				- • /			
	027	OB	S 108	312	-02	18	34675	27	94				145	22	702	215		005	294	071		
		S	TD 09	900	-02	18	3468	27	95	0001120	02	272	145	37	701							
	027	OB	s tog	913	-02	18	34678	27	95				145	39	701	215		001	296	073		

REFER	ENCE				E MAR	SDEN	STAT		ME		OR	GINAT	OR'S	DE	PTM	MAX,	-	WAVE	WEA	. cronp	1		NOOC	
C787	10.	CODE	LATITUDE	LONGITUDE	8 sau	ARE		GMT)		YEAR	CRUISE	STA	TION		0	DEPTH	085	RVATION	S THER	CODES			STATION	
CODE	NO.		1/30	1/10	3 10	1.	MOTO	AYH	8.1/10		NO.	NU	MBER	BOT	TOM	S'MPL'S	DIR.	H GT PER	SEA CODE	TYPE AM	1		NUMBER	
318	8154	GL	773465	035399W	555	75	03 0	3 0	73 1	970		006		05	85				X7	4 8	1		8000	
						WA	TER	W	1110	BARC	A19	TEMP.	5	. N	o.									
						COLOR	TRANS.	CIR.	SPEED	METE	R DR		WET CO	DE OI	85.	DBSERV	ATIONS							
						CODE	(m.)		FORCE	(mba	BUL		ULB	Of P										
								00	\$00	930	05	5 C)57 6	1.	2									
		MESSENG	CASE CA				1.		1			OLIME	٤ ۵	0	SOUN	vn		10P	10141	NO N	NON	510.5		5
		TIME	TNO. T	TPE DEPTH Im	I T	τ	S	•/	SIGM	A-T	ANOMAL	r-x107	DYN.	3	VELOC	TITY	O 2 m1/1	20 + at/1	49 - of/I	ug = 61	vg - 66/1	yg = 61/	рн	C C
		HR 1210	+ +				+						1-1					<u> </u>	+		-			+
			1	10 0000			1220	E	1	ا ₁	0007		1	, I.	1	0. I	708	ļ.					1	1
		077	5 1	10 0000	-0	167	337	5	213	2	0007.	992	000	۰ :	144	02	708	146		011	105	04.6		
		073	, UB	S 0000	-0	172	230	7	273	2	0007	220	000	-	1441	02	700	190		011	195	040		
		073	1 OB	S 0010	-0	175	330	75	273	7	0001	,	000	' :	144	00	800	140		010	196	047		
		<i>v</i> , <i>j</i>	, 05	TD 0020	-0	175	330	R	273	7	0007	74	001	5	144	01	801	•••		0.0	• / 0	••••		
		073	3 OB	\$ 0029	-0	175	339	80	273	7	0001		001	- ·	144	02	802	145		011	2.00	048		
			S	TO 0030	- 0	175	339	8	273	7	0007	145	002	2	144	02	801				- • •			
			S	TD 0050	- 0	173	339	9	273	7	0007	0.90	003	6	144	06	792							
		073	в ов	S 0054	-0	173	339	87	273	7	•••			-	144	07	791	147		010	222	049		
			S	TD 0075	-0	169	340	1	273	9	0006	901	005	3	144	13	792							
		073	3 OB	S 0079	-0	168	340	20	274	0					144	14	792	155		009	216	051		
			S	0100	-0	157	340	7	274	4	0006	+58	007	0 3	144	24	810							
		073	3 08	S 0104	-0	156	340	75	274	4					144	25	811	166		009	219	053		
			S	TD 0125	-0	156	341	0	274	6	0006	216	00.8	6	144	28	793							
			S	TD 0150	-0	157	341	. 3	274	9	0005	970	010	1	144	33	777							
		073	3 08	S 0154	-0	157	341	31	274	9					144	33	775	181		008	243	058		
			S	TD 0200	-0	173	341	9	275	4	0005	+33	013	0	144	34	765				2.07	0 (1		
		073	3 08	S 1J203	-0	174	341	98	275	5	000/		015	, 1	144	34	764	191		009	284	061		
			S	TD 0250	-0	178	342	4	275	8	0004	990	015	6	144	41	152							
		071	,	TD 0300	-0	182	342	29	276	4	0004	996	018	0	144	48	730	201		010	284	062		
		J (<u>-</u>		TD 3400	-0	204	340	.07	210	5	0003	296	021	<u>م</u>	144	40 5/1	728	201		010	204	002		
		073	3 OB	S T0404	-0	210	344	42	277	5	0000		UL 1	'	144	54	727	207		012	287	067		
		U .	, ,	TD 0500	-0	218	346	5	279	2	0001	590	024	3	144	70	707	201		~				
		073	3 08	S T0511	-0	219	346	56	279	3	0001		÷ = 4		144	71	706	216		000	299	072		
		073	. 0B	S T0564	- Õ	272	346	55	279	3					144	78	701	216		005	322	072		
			, ,							-					-									

REFEA CTRY CODE	ID. NO.	SHIP CODE	LA TITU	DE 1/10	LONGITUDE	DRIFT INDCTR	MARS SQU	DEN ARE		M TI M TI AY H	ME R.1/10	YE AR	CRUISI NO.	ORIGIN	NATOR'S STATION NUMBE	J R	DEPT TO BOTTO		MAX. IEPTH OF MPL'S	OBS	WAVE ERVATIO	DNS I SE	WEA- THER CODE	CLOUD			NODC STATION NUMBER	
318	3154	GL	7734	6S	035399W		555	75	03 0:	3 0	87 1	970		00	6		058	5					X7	03	-		0009	
							[WA	TER	N I	IN D	84.90		AIR TE	MP. C	-	NO	-1	1	'	1		1	010	1	1	0007	1
								COLOR	TRANS, 1m1	DIR,	SPEED OR FDRCE	M ETE	8	DRY	W ET BULB	COD	E OBS	HS 08	SPEC	TIONS								
								DT	SD (00	S00	930) - 0	56	-057	6	14			-								
		MESSENGR TIME HR 1/10	CAST NO.	CAS	D DEPTH	(m)	т	°C	5 .	<i>.</i> .	SIGM	^ -T	SPECIFI	C VOLI	UME 0	Σ Δ D ΣΥΝ. Μ × 10 ³	· v		D (02 mt/i	PO4-	- P 11/1	101AL-P µg - o1/1	NO2-N 49 - 01/1	ND3-N 29 - 01/1	51 O 4 - 5 29 - 61/	рн	1.00
					0						1			370							1					-	1	+
				51	0 000	0	-01	. 12	3390	J	273	0	000	118	6 0	0000	1	439	8									
		087		OBS	000	0	-01	72	3390	2	273	0					1	439	8									
				000	001	0	-01	70	3300	2	213	0	000	111	9 0	008	1	439	9									
				002	001	3	-01	72	3306		272	6	000	7 2 1	2 0	015	1	439	2									
		0.05		DBS	002	5	-01	72	1306	2	273	7	000	121	2 0	015	1	440	2									
		00,		SI	D 0030	Ś	-01	71	3400	5	273	8	000	700	1 0	0.2.2	1	440	4									
				OBC	003)	-01	71	3400)	273	8		,	1	~	- î.	440	4									
				ST	D 0050)	-01	70	3402	2	274	0	000	683	7 0	036	1	440	8									
				085	005	С	-01	7Ŭ	3402	2	274	0	• •				ī	440	8									
				ST	D 007	5	-01	59	3408	3	274	5	000	639	1 0	053	1	441	9									
				OBS	007	5	-01	59	3408	3	274	5					1.	441	9									
				ST	D 0100)	-01	58	3410)	274	6	000	622	6 0	069	1 -	442	4									
				OBS	0100)	-01	58	3410)	274	6					14	442	4									
				ST	D 012	5	-01	57	3415	i.	275	0	000	583	1 0	084	1	442	Q.									
				OBS	012	5	-01	57	3415)	275	U					14	442	9									
				ST	D 0150)	-01	58	3416	>	275	1	000	573	7 0	890	14	443	3									
				QBS	0150)	-01	58	3416		275	1					14	443	3									
				5 T	D 0200)	-01	62	3423	3	275	7	000	516	1 0	125	14	444	0									
				OBS	0200)	-01	62	3423	3	275	7					14	444	0									
				ST	D 0250	0	-01	79	3430)	276	3	000	454	3 0	150	14	444	1									
				065	0250)	-01	79	3430)	276	3					14	444	1									
				51	0 0300	J	-01	84	3433	5	276	6	000	426	8 0	172	14	444	8									
				UBS	0300	ן -	~01	84	3433	5	276	6					14	444	8									
				UBS	034	1	-01	89	3436		276	8					14	445	4									
				085	038	/	-02	09	3456)	278	5					14	4451	4									

												~							-	_	_			r			
REFERENCE CTRY ID.	SHIP	LATITUD	LOP	NGITUDE	DUFT 4DCTR	MARS	DEN ARE	STAT	ION T	IME	YEAR	CRU	ORIGIN	ATOR'S		0	EPTH TO	MAX. DEPTH OF	OBSE	WAVE RVATIO	NS	WEA-	CLOUD			NDDC STATION	
CDDE NO.	0001	· ,	/10	° 1/10	Ξ	10.	1.	MO	DAY	18,1/10		N	0.	NUMBER	t	80	TTOM	S'MPL'	DIR.	HGT PER	SE A	000	TYPE AMI	1		NUMBER	
318154	GL	77330	s 03	5381W		555	75	03 0	3 2	229	1970		00	7		05	75					X 7	03			0010	
						[WA	169	1	N IN D	BAR	o.	AIR TE	MP. °C		•	١O.	5.05									
						1	COLOR	tRANS. (m)	DIR.	SPEED OR FORC	M ET	ER 81	DRY BULB	WET BULB	COD	DE	DBS. PTHS	OBSERV	ATIONS								
							DT	SD	19	S03	90	7	085		7	1	6										
	MESSENGE TIME H.R. 1/10	CAST NO.	CARD TYPE	DEPTH (n 1	T	•c	s	•/	SIG	MA-T	SPEC	OMALY-X	107 C	E Δ D DYN, A X 10 ³		SOU VELO	ND CITY	0 2 m1/1	PO4-	171 I	tOTAL—P yg = st/l	NO2=N µg = at/l	NO3-N 28 - at/l	51 O 4 49 - 01	St pH	500
			STD	0000		-01	78	339	8 9	27	37	00	0715	7 0	000	l í	143	96									
	220) (DBS	0000		-01	78	339	98	27	37						143	96									
			STD	0010		-01	78	339	98	27	37	00	0715	1 0	007		143	97									
			OBS	0010		-01	78	330	8	27	37						143	97									
			STD	0020		-0]	175	34(03	27	41	00	0676	7 0	014		144	01									
	005	,	085	0025		-01	72	340)4	27	42						144	04									
			STD	0030		-01	67	34()4	27	42	00	0670	4 0	021		144	07									
			OBS	0030		-01	67	340)4	27	42						144	.07									
			STD	0050		-01	66	340) 3	27	41	00	0677	0 0	034		144	11									
			OBS	0050		-01	66	340	53	27	41			¢ 0			144	11									
			STD	0075		-01	161	340	25	21	42	00	00661	5 U	051		144	17									
			OBS	0075		~0]	161	340	15	21	42	0.0	0631	7 0	067		144	26									
				0100		-01	153	340	10	27	45	00	0051	, 0	007		144	26									
			CTD	0125		-01	157	34	12	27	4.8	0.0	0607	6 0	0.83		144	31									
			0.84	0125		-0.	162	34	1 2	27	40	00	,0001	0 0	005		144	31									
			STD	0150	j	-0	159	34	15	27	50	00	0581	1 0	098		144	32									
			OBS	0150)	-0	159	34	15	27	50						144	32									
			STD	0200)	-0	161	34	21	27	55	00	0531	7 C	125	,	144	40									
			OBS	0200)	-0	161	34.	21	27	55						144	40									
			OBS	0229)	-0	182	34	25	27	59						144	36									
			STD	0250)	-0	170	34	26	27	60	00	0487	7 C	151		144	45									
			OBS	0256)	-0	170	34.	26	27	60						144	45									
			OBS	0266)	-0	178	34.	29	27	62						144	44									
			STD	0300)	-0	184	34	32	27	65	00	00434	5 C	174	•	144	48									
			OBS	0300)	-0	184	34.	32	27	65						144	48									
			STD	0400)	-0	193	341	44	27	75	00	00333	8 C	1212	2	144	162									
			OES	0400)	-0	193	34	44	27	75						144	62									
			OBS	0419	a -	-0.	206	34	50	27	80						144	60									

REFEI	ENCE			1			MAR		STA	ION	TIME		1	ORIGIN	ATOR	S		COTH	MAX.	-	W.A.V	/5		L CLOU					
CTRY	10.	SHIP	LATITUDE		LONGITUOL	Part of the second	sou	ARE		GMT		YEAR	CRUIS	1	STATIC	IN		TO	DEPTH	085	ERVA	TIONS	THEF	coo	is		STA	ATION	
CODE	NO.	0001	· 1/	10	1/10	Ξ	10*	1.	MO	DAY	HR.1/10	~	NO.		NUMB	ER	80	NOTION	S'MPL'S	DiR.	HGT	PER S	EA COD	TYPE A	MŤ		NU	MBER	
31	3154	GL	762469	5 1	030362W		555	60	03	06	211	1970		00	8		03	350					X7	8	,		0	011	
								WAT	TER	Γ.	WIND		0.	AIR TE	MP. 1		T.	NO.				•							
								CDLOR	TRANS	DIR	SPEED	MET	ER	DRY	WE		C	OBS.	SPEC DBSERV	ATIONS									
								CODE	1001	-	FORC	E (mb	•)	ULS	BUL	8	108	ENIHS											
										03	527	85	3 +0	89	1	15	0	08											
		MESSENG	CAST	CAR					1		1	-	SPECIEI		IME	¥ΔC	, _	5011	NO		Pr)P	1014	NO	NO				Ts
		TIME	Y NO.	TYPE		m)	1	C	5	•/	SIG	M A - I	ANOA	ALY-XI	0'	DYN, A x 10 ³	A.	VELO	CITY	0 z ml/l	10	a1/1	µg + ot/l	20 - of,	1 yg - a	/1 40	01/1	pН	c
		1 010	·				+		+								+				+				+		+		+
			[]	ST)	-0	183	34) 3	27	42	000	673	۱ I	0000	, I.	143	94	775	1				1				I
		21	ı r) A S	0000)	-0	183	34	34	27	42	000	÷ · 2	-	0000		143	94	775	1.	44		019	202	04	8		
		L .		ST	D 0010)	-0	183	341)4	27	42	000	667	9	0007		143	96	785	-			0			0		
				ST	D 0020)	-0	82	34	5	27	43	000	662	0	0013		143	98	791									
		21	1 C	085	0025	5	-0	182	34	050	27	43						143	99	793	1	53		026	205	05	0		
				ST	D 0030)	-0	181	34)6	27	44	000	651	6	0020		144	01	788									
				STI	D 0050)	-0	180	34	8	27	45	000	635	2	0033		144	05	772									
				ST	D 0075	÷	-0	179	34	12	27	48	000	604	6	0048		144	10	758									
		21	1 C	BS	0075	5	-0	179	34	118	27	48						144	10	758	1	83		021	243	05	6		
				ST	D 0100)	-0	181	34	16	27	52	000	570	3	0063		144	14	754									
				ST	D 0125	>	-0	182	34.	10	27	55	000	535	5	0077		144	18	748									
		21	1 0	BS	0125	i i	-0	182	34.	203	27	55						144	18	748	1	97		018	282	06	0		
				ST	D 0150)	~0	84	34	25	27	59	000	497	4	0090		144	22	738									
		21	1 C	BS.	T0175	>	-0	185	34.	284	27	62						144	26	732	2	11		026	284	06	2		
				ST	D 0200		-0	185	34	29	27	62	000	463	4	0114		144	30	732									
		21	1 0)BS	T0225	>	-0	184	34	294	27	63						144	35	731	2	11		016	293	06	2		
				ŞTI	D 0250)	-0	183	34	30	27	63	000	451	7	0137		144	40	730									
				510	D 0300)	-03	190	34	32	27	64	000	437	9	0159		144	49	727									
		21	1 0	BS	T0325	>	-0	179	34	325	27	65						144	54	725	2	16		015	297	06	5		
		21	1 Č	85	T0348	3	-0	180	34	349	27	67						144	58	714	2	15		018	312	06	7		

REFE	RENCE	SHIP				-	MAR	SOEN	ATZ	1 DN	TIME			ORIGIN	ATOR	''S	OEPT	н	MAX.		WA	VE		WEA-	CLO	UD			NODC	
CODE	ID.	COOF	LATITU	DE	LONGITUOE	3	5 500	A.R.C.		IG M	1	YEAR		(5	TATIO	DN	01 1080	M	OF	082	: * * *	ION:	,	CODE	ço	012			NUMBER	
		+ +	-	1/10		•	10'	1.	MO	DAY	HR.1/10		140.	<u>'</u>	10 / 10			-+	S.Whf.2	010.	HGT	PER	SEA		TYPŁ	A 44 T				
31	8154	GL	7525	5 S	026285	I	554	56	03	U7	223	1970		00	9		024	5			ļ			X 2	0	3			0012	
								W A	TÊR	+	WIND	8AR	»- <u>⊢</u>	AIR TE/	λP. 7		NO.		SPEC											
								COLOR	TRANS Im)	810	L OR	D AAET CE (mb:	ER	DRY ULB	W E B U 1	LB COD	DEPTH	is (OBSERV	a tion s										
								DT	SD	07	534	.93	6 -1	17		7	11	T												
		MESSENGI TIME HR 1/10	CAST	C A TY	RD DEPTH	(m.)	т	Ċ	s	•/	\$10	SMA-T	SPECIFIC	VOLU	M E 07	₹ △ C DYN. A X 10 ³	4. S	OU1 ELOO	ND CITY	D2 mt/l	Pi 29	04-P	۲C بر)1AL_P g + ot/1	NO2- 20-0	-N 1/1	NO3-N 49 - 01/1	SIO₄−: µg - at	51 рн	
				S	TD 000	0	~0	183	330	92	27	32	000	760	7	0000	14	43	93											
		223	3	08:	s 000	0	+0	183	33	92	27	32					14	43	93											
				S	TD 001	0	-0	183	33	92	27	32	000	760)	0008	14	43	94											
				08	5 001	0	-0	183	33	92	27	32			_		1.	43	94											
				S	TD 002	0	-0	181	34	18	27	45	000	636	3	0015	14	43	99											
		00	5	OB	5 002	5	-0	180	34	12	27	48					14	44	01											
				- 5		0	-0	182	34	13	21	49	000	2971	>	0021	1.	44	01											
				06	5 003	0	-0	182	34	13	21	49	000	674		0033	1	44	01											
				08		0	-0	194	24	22	21	57	000	524.	•	0032	1	44 /./.	00											
				00		10	-0	194	34	22	27	57	000	514	2	0045	1		0.4											
				OB	5 007	5	-0	195	34	23	27	58	000	-1	5	0042	1	44	04											
				S	TD 010	οū.	-0	195	34	23	27	58	000	513	1	0058	- î-	44	08											
				08	5 010	0	-0	195	34	23	27	58					1.	44	0.8											
				S	TD 012	5	-0	195	34	2.5	27	159	000	496	1	0070	1	44	12											
				08	5 012	5	~ 0	195	34	2.5	27	59					14	44	12											
				S	TD 015	0	-0	195	34	26	27	60	000	4861	3	0083	1.	44	17											
				08	5 015	0	-0	195	34	26	27	60					1 -	44	17											
				S	TD 020	0	- 0	196	34	30	27	63	000	4526	5	0106	1	44	25											
				08	5 020	0	-0	196	34	30	27	63					14	44	25											
				OВ	s 024	1	-0	196	34	37	27	69					1	44	33											

.

REFERENCE	ID SHIP LATITUDE			E MA		STATIO	N TIME	¥5.4.0	L	DR	GINAT	DR'S	1	DEPTH	MAX, DEPTH	015	WAV	E	WEA	. CLOUD			NDDC	
CODE ND.	CODE	1/10	1/10	8 2 1A		MO DA	Y HR 1/1		C	RUISE ND,	STA NU	TID N MBER	80	MOTIC	DF S'MPL'S	08	Lucel I	ILC IN S	CDDI	CODES			NUMBER	
310154		763556	0.26.206.0		, <u> </u>	03 08	0.5.2	107		- 1	010		0	24.0			1.01		~ 	V O	+		0013	i
1 218124	IGEI	102005	1020289W	5 5	4 120 1		_ 10 5 5	1147	0		010	*	4	240	L	L	11	(^ /	1 4 1 9	ļ		0019	1
					0100	1	SPE	ED 84	RD-	0.0	K IEMP.	VET VI	5.	ND. OBS.	SPEC	IAL								
					CODE	(m) E	0 FOI	8 ICE (17	hbal	BUL	Le e	ULE	0	EPTHS	DRZFAAN	ATIONS								
						0	7 53	2 9	56	-14	4	3	1	08										
	MESSENGE TIME		RD DEPTH	(m.)	T ℃	5.	. s	IGMA-T	51	PECIFIC A	VOLUME	₹ △ 0 DYN. /	р м.	SOU VELD		02 ml/l	PC PC)4-P - 01/1	TOTAL=#	NO ₂ -N ¥g = a1/l	NO ₃ -N yg - at/1	SID4-	Si pH	500
	THE TO BE					1							-				+-			<u> </u>				+
	1	' S	TD 000	o '-	0185	3392	2	732	10	0007	641	0000) '	143	92	815	1			1	1		I	Ţ,
	053	9 QB	s 000	0 –	0185	3391	5 2	732						143	92	815	12	27		009	181	049		
		s	TD 001	D -	0183	3400	2	739	C	0006	963	000	7	143	895	788								
	053	9 OB	s 001	0 -	0183	3400	3 2	739						143	95	788	15	57		007	214	054		
		S	TD 002	0 -	0185	3408	2	745	C	0006	360	0014	÷	143	97	767								
	053	9 OB	S 002	6 -	0186	3411	4 2	748						143	398	759	18	35		005	249	060		
		S	TD 003	0 -	0187	3412	2	748	C	0006	058	0020)	143	199	759								
		S	TD 005	- 0	0190	3414	2	750	C	0005	883	0032	2	144	+01	759								
	053	3 OB	S 005	1 –	D190	3413	9 2	750						144	01	759	18	88		004	266	061		
		S	TD 007	5 -	0192	3416	2	752	0	0005	/16	004	(144	04	750								
			10 010	- 0	0194	3418	2	153	Ç	0005	549	006.	L	144	08	152				0.05	262	o (1		
	053	5 UB	S 010	2 - 5 -	0194	3417	8 2	755	~	0.05	406	00.7/		144	.12	748	13	99		005	292	061		
		3	TD 012	· -	0195	3421	2	756		0005	265	007-	*	144	15	740								
	053	с ов	S T015	4 -	0196	3421	0 2	756		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	-05	0000		144	16	743	20	5		006	261	064		
	52-	. 05	TD 020	0 -	0196	3423	2	758	C	0005	062	0114		144	24	744	20			000		004		
	053	3 OB	S T020	3 -	0196	3423	8 2	758						144	25	744	20	7		002	278	065		
	053	8 OB	S T023	7 -	0196	3429	8 2	763						144	31	727	2	12		003	302	067		

REFE C187 CODE	ID. ND.	SHIP CODE	LATITUDE	LONGITUDE	DRIFT	M A.RS: SOU A	DEN ARE	STA MO	IG M	TIME T) [HR,1/10	YEAR	CRUISE NO.	STATION NUMBER	DEPTH TD BDTTOM	MAX. DEPTH OF S'MPL'S	DB DIR	WA SERV	A TIC	N S SEA	WEA- THER CDDE	CLC CD TYPE	DUD DES	NDDC STATION NUMBER
31	8154	GL	75255\$	026285W	5	554	56	03	08	110	1970		011	0235			Γ			X3	0	3	0014
						F	W/	TER		WIND			AIR TEMP. C	NO									

WAT	ER	W	IND	BAR		AIR TE	MP.	٣		NO				1		
COLDR CODE	TRANS. (m)	DIR.	SPEED OR FORCE	METE (mbs	R	DRY BULB	W 81	'ET JLB	CODE	DEPT	s. Hs	DBSER	VA TION S			
DT	SD	07	\$30	98	1	-136			6	11						
10					SPE	CIFIC VOLU	ME	÷	ΔD	Τ	501	UND			POINT	TOTAL

MESSENGR TIME HR 1/10	CAST	CARD TYPE	DEPTH (m)	1.0	s */	SIGMA-T	SPECIFIC VOLUME	₹ △ D DYN. M. x 10 ³	SDUND VELDCITY	D2 ml/i	PD 4-P 29 • 01/1	1014L-P 28 - 01/1	ND2N vg - at/l	NØ3-N µg = at/l	51 O 4-51 xg - 01/1	рн	500
					-												
		STD	0000	-0182	3387	2728	0007994	0000	14392								
110		OBS	0000	-0182	3387	2728			14392								
		STD	0010	-0182	3388	2729	0007910	8000	14394								
		OBS	0010	-0182	3388	2729			14394								
		STD	0020	-0183	3404	2742	0006671	0015	14397								
205		085	0025	-0184	3408	2745			14399								
		STD	0030	-0189	3409	2746	0006267	0022	14397								
		OBS	0030	-0189	3409	2746			14397								
		STD	0050	-0193	3418	2754	0005553	0034	14400								
		OBS	0050	-0193	3418	2754			14400								
		STD	0075	-0194	3420	2755	0005381	0047	14404								
		OBS	0075	-0194	3420	2755			14404								
		STD	0100	-0195	3421	2756	0005285	0061	14408								
		OBS	0100	-0195	3421	2756			14408								
		STD	0125	-0195	3422	2757	0005191	0074	14412								
		OBS	0125	-0195	3422	2757			14412								
		STD	0150	-0196	3424	2759	0005019	0086	14416								
		OBS	0150	-0196	3424	2759			14416								
		STD	0200	-0197	3428	2762	0004676	0111	14424								
		OBS	0200	-0197	3428	2762			14424								
		OBS	0229	-0196	3434	2767			14430								

REFERENCE CODE NO.	SHIP CODE	LATITU	DE 1/10	LONGITUDE	MAR 500	SDEN IARE		ON T SMTI	IME 18.1/10	YEAR	CRUISE NO.	O RIGINA S N	A TOP	I'S DN BER	DE T 801	PTH IO TOM S	MAX. DEPTH OF 'MPL'S	OBSE	WAVE RVATIO	DNS SEA	WEA- THEP CODE		2		NODC STATION NUMBER	
318154	GL	7525	55	026285W	554	56	03 0	8	174	1970		012	2		02	35					X 2	68			0015	
						WA.	ER	1	NINO	BAR	- T	AIR TEN	AP. 1	:		0.								,		
						COLOR	TRANS. (m)	OR.	SPEED DP FORCE	M ET E	R	ORY UL9	8U		DE DE P	BS. THS O	BZERVA	TIONS								
								09	\$26	98	8 -1	12		7	01	8										
	MESSENGI TIME H.R. 1/10	CAST NO.	CAR TYP	D OEPTH (m)	г	٣	s	•⁄	sign	MA-T	SPECIFIC	ALT-I	ме 2 ⁷	₹ △ D OYN. N X 10 ³	Å.	SOUNG	0	0 2 m 1/1	PO 4-	•P 1	07AL-P	NO2=N µg = at/1	NO3-N 28 - 01/1	SLO ₄ —5 µg - at	й рн	5 C C
																										T
			ST	0000	-0	184	338	8	27.	29	000	7905	2	0000		1439	2	817								
	1/4	•	085	0000	-0	184	338	81	27	29					. :	1439	12	817	142	-		010	182	054		
	17/		51	0010	-0	182	340	10	214	+0	000	6904	•	0007		1439	10	788	160	,			3.0.0	o (7		
	1/4	•	ST	D 0020	-0	197	341	10	27	+U 4.8	000	6126		0014	. 1	1439	7	773	100	5		009	200	067		
	17/		0.8S	0025	-0	188	341	<u>4</u> 0	274	50	000	0125		0014	1	1439	7	768	190	\ \		005	748	063		
	4 1 -		ST	0 0030	- 0	189	341	5	27	51	000	5806	,	0020	1	1439	8	768		/		005	2.00	005		
			ST	D 0050	-0	192	341	7	279	53	000	5656	5	0031	1	1440	0	766								
	174		OBS	0050	- 0	192	341	67	279	53					1	1440	0	766	193	ļ.		006	238	079		
			ST	D 0075	-0	192	341	7	275	53	000	5600)	0045	1	1440	4	762								
			ST	D 0100	-0	193	341	8	279	53	000	5535	5	0059	1	1440	8	758								
	174	r i	085	0100	- 0	193																				
			ST	D 0125	-0	194	341	8	279	54	000	5477	7	0073	- 1	1441	2	754								
			ST	D 0150	-0	196	341	9	275	54	000	5418	3	0087	1	1441	5	750								
	174	•	OBS	T0154	-0	196	341	89	279	54					1	1441	6	749	200)		004	261	084		
			ST	D 0200	- C	195	342	1	275	56	000	5217	7	0113	1	1442	4	745								
	174		OBS	T0203	-0	195	342	11	279	56					1	1442	5	745	197	,		002	265	095		
	174	L	035	0234	~0	198	342	83	276	2					1	1442	9	739	206	,		004	273	098		

R E	FERENCE	SHIP				MARS	OEN	STA	TION	TIME			ORIGIN	A TOR'S		OEPTH	MAX.		WAY	/E		WEA-	CLO	000	NOD	c
C1 C0	IT ID. DE NO.	2002	LATITUOE 1/10	LONGITUOE	NDGN	10"		MOI	IG MT) HR 1/10	YEAR	CRUISE NO.		NUMBER		OT MOTION	OF S'MPL'S	06	SERVA	TION	NS SEA	THER	CO	230	STATIC	N C 936
Γ,	1815	4 GL	752555	026285W		554	56	03	08	232	1970		01	3		0235		Q 10.			765	×1	0	3	00	16
						[WA	TER		MIND	BARC		AIR TE	M.P. °C		NO.	1010									
							COLOR CODE	TRAN Imt	S. DIR	SPEE OR FORG	METE	R 1	DRY	W ET BULB	CODI	OBS. DEPTHS	OBSERV	ATION S								

				DT	SD 07	526	996	-117	7	12									
MESSENGR TIME 0 HR 1/10	CAST	CARD TYPE	DEPTH (mi	סי ד	s •/	SIGMA	-T	SPECIFIC VOLUME ANOMALY-X107	₹ △ D DYN. M. x 10 ³	SOU VELO	DOITY	0.2 ml/l	PO 4-P µg - 01/1	101AL-P #2 = 01/1	NO2N µg - ot/l	NO3-N 49 - 01/1	SLO4-Si µg + ot/1	pН	500
						İ	i i												
		STD	0000	-0179	3384	2726	5	0008231	0000	143	393								
232		085	0000	-0179	3384	2726	5			143	393								
		STD	0010	-0179	3384	2726		0008224	0008	143	995								
		OBS	0010	-0179	3384	2726	,			143	995								
		STD	0020	-0183	3400	2739	,	0006979	0016	143	397								
005		OBS	0025	-0184	3406	2744	•			143	398								
		STD	0030	-0184	3410	2747	7	0006202	0022	144	•00								
		OBS	0030	-0184	3410	2747	7			144	00								
		STD	0050	-0194	3418	2754	•	0005551	0034	143	399								
		OBS	0050	-0194	3418	2754	۱.			143	399								
		STD	0075	-0194	3420	2755	5	0005381	0048	144	•04								
		OBS	0075	-0194	3420	2755	5			144	04								
		STD	0100	-0195	3420	2755	5	0005362	0061	144	+07								
		OBS	0100	-0195	3420	2755	5			144	+07								
		SID	0125	-0196	3422	2757	7	0005189	0074	144	+11								
		OBS	0125	-0196	3422	2757	7			144	+11								
		STD	0150	-0189	3423	2758	3	0005113	0087	144	+19								
		OBS	0150	-0189	3423	2758	3			144	19								
		OBS	0183	-0196	3428	2762	2			144	22								
		STD	0200	-0196	3431	2764	•	0004449	0111	144	25								
		0B5	0200	-0196	3431	2764	•			144	25								
		OBS	0233	-0105	3435	2767	'			144	32								

REFERENCE	SHIP	LATITUDE	LON	GITUDE	0011		DEN RÉ	STA TI	DN T	IME	YEAR	CRI	O RIG	INATO	R'S		OEPTH TO	OEPTI	0	WA BSERVA	VE	s	WEA- THER	CLOUO CODES			NOOC	
CODE NO.		1/1	0	1/10	± 1	0*	1.	MOTO	AYF	1R.1/10		N	10.	NUA	ABER		10110	S'MPL	S DIR.	HGI	PER	SE A	CODE	TYPE A M			NUMBER	
318154	GL	752555	026	5285W	5	54	56 0	0 80	9 0	055	1970		0	14			0235	1	1				Х3	X 4			0017	
						Ć	WAT	ER	,	WIND	34.5		AIR	TEMP.	°C		NO.			' 'ך								
						C	CODE	1 RA N 5. 1m1	DIR.	SPEED OR PORC	P MET	ER B}	ORY BULB	9 8	JLB	CODE	OBS. OEPTHS	OBSER	ATION	s								
						ſ			07	S21	98	7	-153			7	08			7								
	MESSENG TIME HR 1/30	CAST C	ARD TYPE	OEPTH (r	n)	T	°C	s	·/	sig	M A = 1	SPE	CIFIC VO	-LUME -X10 ⁷	S / OYN X	10 ³	SO VEL	UNO OCITY	Og mi	/ p	04-9 • • •1/	t د بر	DTALP 19 • 01/1	NO2-N µg - at/i	NO3-N 29 - 01/1	SI O 4 -	Si pH	5 C C
			 STD	0000		-01	87	339	4	27	34	00	0074	83	00	00	14	391	817	, 1			l				ļ	
	05	5 01	3S	0000	-	-01	87	339	35	27	34						14	391	817	1	34			010	197	053		
		:	STD	0010	-	-01	87	339	9	27	38	00	0070	92	00	07	14	393	776									
	05	5 01	3S_	0010		-01	87	339	85	27	38						14	393	776	1	59			010	217	057		
	<u> </u>		STD	0020		-01	87	341	0	27	47	00	0062	02	00	14	14	397	771		0.5							
	05	5 01	35	0025		-01	88	341	30	21	50	~		~ ′	~~	2.0	14	391	160	1	65			028	220	061		
				0030		10-	90	341	2 7	21	21	00	0056	04	00	20	14	200	763									
	0.64		310	0050		-01	04	241	1 73	27	53	01	0000	0)	00	21	14	200	751	1	05			014	247	063		
	0.0		STD	0075		-01	94	341	8	27	54	0.0	0.055	35	00	45	14	404	760	. 1	,,			014	241	005		
			STD	0100		-01	93	341	R	27	54	0	0055	12	00	59	14	408	762									
	0.5	5 01	35	0100		-01	93	341	81	27	54		0025	• ~~	00		14	408	762	2	01			007	250	062		
		-	STD	0125		-01	93	341	3	27	54	00	0054	80	00	73	14	412	749	1								
			STD	0150		-01	93	341	8	27	54	00	0054	56	00	86	14	416	742									
	055	5 01	BS	0150		-01	93	341	84	27	54						14	416	742	1	97			010	251	063		
			STD	0200		-C1	96	341	9	27	55	00	0053	61	01	14	14	423	744									
	05	5 01	BS	0200		-01	96	341	91	27	55						14	423	744	1	99			027	238	063		
	05	5 08	3S	0230	-	-01	95	342	01	27	55						14	429	739	2	04			013	252	063		

REFE CTRY CODE	IO. NO.	SHIP CODE	LATITUGE	LONGITUCE	DRUFT	MARS SOU	OEN ARE	STA MO	TION IGMT	TIME) HR,1/10	YEAR	CRUISE NO.	DRIGINA ST N	TOR'S ATION UMBER	-	OEPTH TO BOTTOM	MAX, OEPTH OF S'MPL'S	OB DiR,	WA SERVA	FER	NS SEA	WEA- THER GOOE	CLO CO	OES	NOI STAT NUN	JC ION IBER
31	8154	GL	752555	026285W		554	56	03	09	110	1970		015			0235			\square			Xl	0	3	00	18
							COLOR	TRANS Iml	i. QIR	SPEEL OR FORC	BARC METE E (mbs)- R [] B	DRY ULB	WET BULB	VIS CODE	NO. OBS. DEPTHS	SPEC OBSERV	A TION S								

			DT	SD 09	S16 96	5 -133	7	11								
MESSENGE CAT	ST CARD TYPE	DEPTH (m)	T ℃	s •4.	SIGMA-T	SPECIFIC VOLUME	₹ △ 0 DYN. M. x 10 ³	SOUND VELOCITY	0 2 m1/l	PO4P µg - 01/1	TOTAL=P μg + 61/1	NO2N ¥9 + a1/l	NO3-N 49 • at/l	\$104-51 µg - 61/1	рН	500
	STD	0000	-0185	3376	2719	0008833	0000	14389								
110	OBS	0000	-0185	3376	2719			14389								
	STD	0010	-0185	3376	2719	0008826	0009	14391								
	OBS	0010	-0185	3376	2719			14391								
	STD	0020	-0186	3403	2741	0006741	0017	14396								
005	OBS	0025	-0197	3409	2746			14397								
	STD	0030	-0187	3409	2746	0006272	0023	14398								
	OBS	0030	-0187	3409	2746			14398								
	STD	0050	-0192	3414	2750	0005863	0035	14400								
	OBS	0050	-0192	3414	2750			14400								
	STD	0075	-0194	3416	2752	0005688	0050	14403								
	OBS	0075	-0194	3416	2752			14403								
	STD	0100	-0195	3416	2752	0005668	0064	14407								
	OBS	0100	-0195	3416	2752			14407								
	STD	0125	-0195	3417	2753	0005575	0078	14411								
	OBS	0125	-0195	3417	2753			14411								
	STO	0150	-0196	3418	2754	0005479	0092	14415								
	OBS	0150	-0196	3418	2754			14415								
	STD	0200	-0197	3426	2760	0004830	0118	14424								
	OBS	0200	-0197	3426	2760			14424								
	OBS	0233	-0196	3431	2764			14431								

COOR NO. COUNT V V/10 V V/10 V NO. NUMBER BOTOM (svints) Output (start) COOR NO. NUMBER BOTOM (svints) Output (start) COOR NO. NUMBER BOTOM (svints) Output (start) COOR NO. NO. NUMBER BOTOM (svints) Output (start) NO.	REFERENCE	SHIP	LATITUDE	LONGITUOE	ONIFT FDCTR	ARSDEN SOUARE	STATION IGMT	TIME	YEAR	ORIGINA CRUISE S	TOR'S	DEPTH TO	MAX, DEPTH OF	085	WAVE	WEA- THER	CLOUD		5	NODC	
318154 GL 752555 026295₩ 554 56 03 09 175 1970 016 0238 00 0 019	CODE NO.		1/10	1/10		0. 1.	MO DAY	HR.1/10		NO. N	UMBER	BOTTOM	S'MPL'S	DIR.	HGTPERS	EA CODE	TYPI AM	7	N	UMBER	
Image: construction of the construction of	31815	4 GL	752555	026295W	5	54 56	03 09	175 1	970	016		0238	l			x o	0			0019	
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$						COLOR	TRANS. DIR	SPEED OR FORCE	AA ETE (mba	DRY BULB	WET COD BULB	DEPTHS	SPEC OBSERV	ATION S							
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$							14	S05	92	7 -110	7	0.8									
STD 00000 -0182 3389 2730 0007832 0000 14393 802 175 0BS 0010 -0185 3393 2733 0007504 0008 14393 802 132 006 184 050 175 0BS 0010 -0185 33932 2733 0007504 0008 14393 797 146 009 193 052 175 0BS 0010 -0185 33932 2743 0006581 0015 14393 797 146 009 193 052 175 0BS 0026 -0191 34102 2747 14396 782 171 004 247 058 5TD 0030 -0192 3411 2748 000511 0033 14396 782 171 004 247 058 5TD 0030 -0193 34148 2751 0005811 0033 14396 764 14399 771 <		MESSENG	CAST CA	ARO DEPTH	um t	т°с	s •4.	SIGN	T-A	SPECIFIC VOLUA	AE E A D DYN A X 10 ³	A. VELO	UND DCITY	0.2 ml/i	PO 4 = P vg = 01/1	TOTAL=P ug + ot/i	NO2~N µg = 01/1	NO3-N 99 - ot/l	\$1.04=\$1 µg = 03/1	рн	S C C
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		1	s	TD 000	- c	-0182	3389	273	30	0007832	0000	14	393	802							İ
175 DBS 0010 -0185 33932 2733 14393 797 146 009 193 052 STD 0020 -0189 3405 2743 0006581 0015 14395 787 171 004 247 058 175 085 0026 -0191 34102 2747 14396 782 171 004 247 058 STD 0050 -0195 3415 2751 0005811 0033 14398 771 175 085 0051 -0195 3414 2751 0005811 0033 14398 771 175 085 0051 -0195 3414 2751 14399 771 187 004 255 060 STD 0075 -0194 3417 2754 0005140 047 14403 764 STD 0100 -0193 3418 2754 0005464 0075 14408 756 14408 756 14408 756 150 1025 -0193 3419 2754 </td <th></th> <td>175</td> <td>5 OB</td> <td>S 0000</td> <td>- C</td> <td>-0182</td> <td>33891 3393</td> <td>273</td> <td>30</td> <td>0007504</td> <td>0008</td> <td>14</td> <td>393 393</td> <td>802 797</td> <td>132</td> <td></td> <td>006</td> <td>184</td> <td>050</td> <td></td> <td></td>		175	5 OB	S 0000	- C	-0182	33891 3393	273	30	0007504	0008	14	393 393	802 797	132		006	184	050		
STD 0020 -0189 3405 2747 14396 787 175 085 0026 -0191 34102 2747 14396 782 171 004 247 058 STD 0030 -0192 3411 2748 0006116 0021 14396 780 STD 0030 -0192 3415 2751 0005811 0033 14398 771 175 0BS 0051 -0195 34148 2751 14399 771 187 004 255 060 STD 0075 -0194 3417 2753 0005510 0041 14408 756 175 085 0102 -0193 3418 2754 0005464 0075 14412 756 175 085 0125 -0193 3419 2754 0005464 0075 14412 756 175 085 0154 -0194 3419 2755 14417 757 200 002 276 063 STD 0200 -0194		175	5 OB	S 001	- 0	-0185	33932	273	33			14	393	797	146		009	193	052		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		175	5 08	TD 0020 S 0020	- C	-0189 -0191	3405 34102	274	• 3 • 7	0006581	0015	14	395 396	787 782	171		004	247	058		
175 0BS 0051 -0195 34148 2751 14399 771 187 004 255 060 STD 0075 -0194 3417 2753 0005611 0047 14403 764 STD 0100 -0193 3418 2754 0005520 0061 14408 756 175 0BS 0122 -0193 3418 2754 0005464 0075 14412 756 STD 0125 -0193 3419 2754 0005464 0075 14412 756 STD 0150 -0194 3419 2754 0005407 0088 14416 757 175 0BS 0154 -0194 3419 2755 14417 757 200 002 276 063 STD 0200 -0196 3424 2759 0004986 0114 14424 744 175 0BS T0205 -0196 34248 2759 14425 742 210 000 288 066 175			S	TD 0030 TD 0050) -) -	-0192	3411 3415	274	•8 •1	0006116	0021	14	396 398	780 771							
S1D 0077 -0194 3417 2753 0005511 047 14403 754 S1D 0100 -0193 3418 2754 0005520 0061 14408 756 175 085 0102 -0193 3418 2754 0005464 0075 14412 756 STD 0125 -0193 3419 2754 0005464 0075 14412 756 STD 0150 -0194 3419 2754 0005464 0075 14412 756 STD 0150 -0194 3419 2755 0005407 0088 14417 757 200 002 276 063 STD 0200 -0196 3424 2759 0004986 0114 14424 744 175 0BS 10255 -0196 34248 2759 14425 742 210 000 288 066 175 0BS 10255 -0196 34248 2759 14425 742 210 003 292 067 <th></th> <th>175</th> <th>6 0B</th> <th>S 005</th> <th>1 -</th> <th>-0195</th> <th>34148</th> <th>275</th> <th>1</th> <th>0005411</th> <th>0047</th> <th>14</th> <th>399</th> <th>771</th> <th>187</th> <th></th> <th>004</th> <th>255</th> <th>060</th> <th></th> <th></th>		175	6 0B	S 005	1 -	-0195	34148	275	1	0005411	0047	14	399	771	187		004	255	060		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$			5	TD 0100) -	-0193	3418	275	5 54	0005520	0047	144	408	756							
STD O150 -01°4 3419 2754 0005407 0088 14416 757 175 085 0154 -01°4 34191 2755 14417 757 200 002 276 063 STD 0200 -01°6 3424 2759 0004986 0114 14424 744 175 085 T0205 -0196 34248 2759 14425 742 210 000 288 066 175 085 T0235 -0196 34303 2764 14431 730 210 003 292 067		179	5 0B	S 0103 TD 0124	2 -	-0193	34181	275	54 54	0005464	0075	144	408 412	755 756	198		002	275	062		
STD 0200 -0196 3424 2759 0004986 0114 14424 744 175 0BS T0205 -0196 34248 2759 14425 742 210 000 288 066 175 0BS T0235 -0196 34248 2759 14431 730 210 003 292 067		179	S OB	TD 0150		-0194	3419	275	4	0005407	0088	144	416	757	200		002	276	063		
175 OBS T0205 -0196 34248 2759 14425 742 210 000 288 066 175 OBS T0236 -0196 34303 2764 14431 730 210 003 292 067		1/1	s ob	TD 0200		-0196	3424	275	9	0004986	0114	14	424	744	200		002	210	100		
		175	0B 08	S T0205 S T0236	5 - 5 -	-0196 -0196	34248 34303	275	9 4			144	425 431	742 730	210 210		000	288 292	066 067		

REFER	ENCE			I		. E M	ARSDEN	STATION	TIME		ORIO	GINATO	R*S	DEPTH	MAX.		WA	VE.	WEA	CLOUD			NODC	
CTRY	10.	CODE	LATITU	106	LONGITUDE	S S	QUARE	(G M	T)	YEAR	CRUISE	STAT	10 N	to	. OF	085	ERVA	TIONS	THER	CODE	4		STATION	
CODE	NO.			1/10	1/10	10	. 1.	MO DAY	HR.1/10		но.	NÜN	SER	801107	S.W. b.F.	S DIR	HGT	PER SE	EA CODE	TTPE AN	Ť		NUMBER	
318	3154	GL	7525	55	026285W	55	4 56	03 09	232	1970	c	17		0235					×1	03			0020	
							W.A	TER	WIND	BAR	AIR	TEMP.	2	NO.	1	<u></u>								
							COLOR	TRANS. DI	R. OR FORC	E Umbi	R ORY	4 8 8	ET COD	OBS. DEPTH	OBSERV	ATIONS								
							DT	SD 14	504	90	+ -107	•	7	11										
		MESSENG TIME HR 1/10	CAST	C AS TY	:О	1	י ד	s •4.	SIG	MA-T	SPECIFIC VI	01UME -1107	₹ △ D DYN. N x 10 ³	SC VEL	OUNO OCITY	0.2 m1/1	p ×s	0.4-P - 01/1	total=P yg+ar/l	NÖ3-N VQ - el i	NO3-N 98 - 01/1	51 O 4 - 5 10 4 - 61/	рн	100
			1																					
				- 51	D 0000	-	0185	3382	27	24	00083	72	0000	14	390									
		23.	2	089	0000	-	0185	3382	27	24				14	390									
				SI	D 0010	-	0185	3382	27	24	00083	65	0008	14	392									
				085	0010	-	0185	3382	27	24				14	392									
			_	51	D 0020	-	0187	3397	27	36	00072	00	0016	14	395									
		00	5	083	0025	-	0189	3402	27	41				14	395									
				S1	D 0030	-	0191	3406	27	44	00064	93	0023	14	396									
				OBS	0030	-	0191	3406	27	44				14	396									
				SI	D 0050	-	0193	3407	27	45	00063	98	0036	14	398									
				085	0050	-	0193	3407	27	45				14	398									
				51	0075	-	0194	3408	27	46	00063	02	0052	14	402									
				OB3	0075	-	0194	3408	27	46				14	402									
				SI	0 0100	-	0195	3408	27	46	00062	82	0067	14	406									
				OBS	0100	-	0195	3408	27	46				14	406									
				SI	D 0125	-	0194	3413	27	50	00058	84	0083	14	411									
				OBS	0125	-	0194	3400F	27	39P														
				51	D 0150	-	0196	3417	27	53	00055	55	0097	14	415									
				083	0150	-	0196	3417	27	53				14	415									
				S1	D 0200	-	0197	3424	27	59	00049	83	0123	14	424									
				085	0200	-	0197	3424	27	59				14	424									
				OBS	0233	-	0198	3428	27	62				14	429									

REFERENCE	SHIP	LATITUDE	LONGITU	DE LIBO	SQU	SDEN ARE	STATIC	IT NC	WE	YEAR	CRUI	ORIGIN	ATO:	1'S ON	D	EPTH TD	MAX. OEPTH OF	OBS	WAVE ERVATION	is	WEA- THER	CLOUD	5		NODC	
318154	GL	745405	02714	1/10 = 4 W	10 554	47	MO D/		8.1/10 25	1970	NO	. 01	8 8	BER	04	+20	S'MPL'	S DIR.	HGTPER	SEA	X 1	TYPE AN			0021	
					· .	WA	ER	v	IND	94.01		AIR TE	M.P. *	c T	Ť	NO.		· · · · · · · · · · · · · · · · · · ·					1	1		
						COLOR	TIANS. Imj	DIA.	SPEED OR FORCE	METI (mbi	R	ORY BULB	90 80		DE	DBS. EPTHS	OBSER/	ATION S								
								19	S04	88	9 -	087		7	0	8										
	MESSENGI TIME HR 1/10	CAST CA	APD DEF	PTH Im)	T	٣	s •	<i></i>	sign	-1-AN	SPECI AN C	MALY-X	3 M E 1 g 7	₹ △ 0 DYN. 1 X 10 ¹	й. -	SDU VELO	ND CITY	0.2 ml/i	PO4-P yg - ot/	דסז 1 עע	A L - P = 01/1	NO2-N µg - ot/l	NO3~N Vg + al/1	SI O ₄ = 1 µg = 01	51 pH	S C C
		S	TO OF	000	-0	180	336	3	270	09	00	0985	1	0000)	143	90	886								
	125	5 08	5 00	000	~0	180	336.	29	270	99	~ ~		c	0000		143	90	886	III			008	1/1	052		
		5	10 0	010	-0	178	3214	4	21	18	00	0899	2	0001	1	143	0.94	850								
	176	. 08	c 01	020	-0	176	338	35	27	25	00	1020	2	0010)	143	08	819	140			007	205	055		
	161	, , ,	10 GT	030	-0	3 76	338	9	27	30	0.0	1783	٩	0026		144	00	800	14)			001	200	0,0,0		
		5	TD 00	050	-0	176	3400	ź	27	39	00	0697	5	0041	[144	0.5	770								
	125	5 08	S 00	072	- 0	178												748								
		S	TD O	075	-0	179	341	1	27	48	00	0610	8	0051	7	144	10	748								
		S	TD 0	100	-0	186	341	9	27	54	00)546	0	0072	2	144	12	747								
	125	6 OB	s 0.	123	-0	190	342	35	27	58						144	14	746	207			007	297	065		
		S	TD 0	125	-0	190	342	4	27	58	00	0505	1	0085	ò	144	15	747								
		5	TD 0	150	-0	189	342	5	27	59	00	0496	0	009	7	144	19	751								
	125	5 OB	S 10	176	-0	188	342	59	270	50						144	24	753	205			004	282	064		
		5	TD 03	200	-0	188	342	8	271	52	00	0470	2	0122	2	144	29	747								
		5	TD 0	250	-0	187	343	2	270	55	00	1436	8	0144	+	144	38	734						_		
	125	5 OB	S TO	276	-0	186	343:	32	276	56			-			144	43	728	211			013	293	067		
		5	TO 0.	300	-0	184	3434	+	276	57	000)417	1	0166)	144	48	722	212			010	100			
	12"	6 08	S TO:	179	-0	177	343	/4	270	59	0.0		7	0205		144	65	103	217			015	302	070		
	1.70	S 0.0	TU 04	400	-0	153	344	1	27	1 I 7 /.	000	15/1	۷	0205)	144	80	642	222			006	314	0.01		
	125	06	5 10	410	-0	1 2 9	244:	2	21	1 4						144	7)	782	660			000	214	091		

REF	ERENCE	SHIP			ΞĔ	MARS	DEN	STA	TION	TIME			ORIGIN	ATOR'S		DEPTH	MAX, DEPTH		w/	VE		WEA-	CL	DUD		NODC
CODE	1D. NO.	CODE	LA TITUDE	LONGITUDE '1/10	NO N	10.	1.	MD	DAY	, HR.1/10	YEAR	CRUISE NO.	1	TATION		TO BOTTOM	DF S'MPL"S	01	HG	t PER	SEA	CODE	TYPE	DDES	ī	NUMBER
31	8154	GL	745405	027144W		554	47	03	10	131	1970	018				0410						X1	0	3		0022
							WAT CDLOR COOE	TRANS (m)	DIR	WIND SPEED OR PORC	BARO METER		AIR TE	WET BULB	VIS CODI	ND. OBS. DEPTHS	SPEC	TAL ATION S								

				D.T.	60.10	co	0.007		16							
	r	r	1	101	150 114	1504 18	1 1087		12	1	T			· · · · · · · · · · · · · · · · · · ·	1	
MESSENGR TIME C	CAST NO.	CARD TYPE	DEPTH (m1	ט ד	s •4.	SIGMA-	T SPECIFIC VOLUME	2 0 D DYN. M. X 10 ³	SOUND VELOCITY	D ₂ ml/i	PO4-P yg - 01/1	TOTAL-P #8 - 01/1	NO2-N V9-01/1	NO3-N 48 - 01/l	SID 4 - Si µg + ol/I	рН
								i i								
		STD	0000	-0183	3342	2692	0011452	0000	14386							
131		OBS	0000	-0183	3342	2692			14386							
		STD	0010	-0183	3342	2692	0011444	0011	14387							
		OBS	0010	-0183	3342	2692			14387							
		STD	0020	-0178	3367	2712	0009525	0022	14395							
006		085	0025	-0176	3372	2716			14397							
		STD	0030	-0179	3372	2716	0009132	0031	14397							
		085	0030	-0179	3372	2716			14397							
		085	0045	-0189	3392	2732			14397							
		STD	0050	-0187	3403	2741	0006719	0047	14401							
		OBS	0050	-0187	3403	2741			14401							
		STD	0075	-0187	3407	2745	0006395	0064	14405							
		OBS	0075	-0187	3407	2745			14405							
		STD	0100	-0189	3412	2749	0005990	0079	14409							
		085	0100	-0189	3412	2749			14409							
		STD	0125	-0192	3414	2750	0005812	0094	14412							
		085	0125	-0192	3414	2750			14412							
		STD	0150	-0195	3415	2751	0005711	0108	14415							
		065	0150	-0195	3415	2751			14415							
		STD	0200	-0188	3421	2756	0005237	0136	14428							
		085	0200	-0188	3421	2756			14428							
		STD	0250	-0185	3429	2762	0004602	0160	14438							
		OBS	0250	-0185	3429	2762			14438							
		STD	0300	-0186	3432	2765	0004338	0182	14447							
		OBS	0300	-0186	3432	2765			14447							
		STD	0400	-0176	3441	2772	0003625	0222	14469							
		085	0400	-0176	3441	2772			14469							
		OBS	0410	-0141	3443	2773			14488							

REFERENCE	SHIP	LATITUDE	L	ONGITUDE		SDEN	STATI	ON T	IME	YEAR	CRUIS	ORIGIN		'5 DN	DEPT TO	H DEPTI	H	W A OBSERV	A VE (A TIONS	W EA THER	CLOUD	T	Î	NODC	1
CODE NO.	CODE	• 1.	/10	1/10	3 10°	1.	MOD	AY H	R.1/10		NO.		NUMI	ER	BOTTO	S'MPL	*5 D1	R. HG	T PER S	CODE	TTPE A M	1		NUMBER	í.
318154	GL	74523	s lo	25471W	554	45	03 1	0 2	212	1970		01	9		049	1				x 2	58			0023	í -
						WAT	r e R	v	VINO	BAR	o. L	AIR TE	M.P. 1	C	NO.	5.0	EPTA1								
						COLOR	TRANS Imi	DIR.	SPEEC OR FORC	D AAET .:: (mb)	ER	DRY BUL8	90 190	T COD	DEPT	OBSER	VATION	NS							
								20	503	89	1 - (99		7	09										
	MESSENGI THME HR 1/10	CAST NO.	C ARD TYPE	DEPTH (л Т	r	s	٠4.	\$1G	MA -1	SPECIP	10 VOLU VAL7~31	1 M E 107	≦ △ D DYN. N x 10 ³	s v	OUND ELOCITY	02 *	-	PO4-P	TOTAL-P	NÖ2-N VQ - ot/	NO3+N yg + at/1	51 O ₄ =5 vg - a1/	рН	500
	1																								
			STD	0000	- 0	181	337	8	27	21	000	868	0	0000	1	4392	87	2							
	212	2 (DBS	0000	-0	181	337	81	27	21	0.00		2	0000	1	4392	87	2 (099		007	149	046		
			STD	0010	-0	181	331	9	27	21	000	0004	3	0009	1	4394	87	5							
	2.1.4		SIU	0020	-0	180	331	9	21	22	000	000	0	0017	1	4393	0/	(0 /	102		0.0.9	166	044		
	212		105	0020	-0	100	220	4 L .	27	22	0.07	806	1	0026	1	4 3 7 1 / 3 0 7	95	2	072		000	100	040		
			STO	0050	-0	180	341	2	27	49	000	602	4	0020	1	4377	75	2							
	21 5	, (DRS	0051	-0	189	341	31	27	50	000	002		V V 4 0	î	4401	74	8	194		008	276	062		
	610		STD	3075	-0	188	341	6	27	52	000	571	8	0054	- î.	4406	74	7			000	2.0	002		
			STO	0100	-0	186	341	9	27	54	000	549	1	0068	1.	4411	74	6							
	212	2	DBS	0101	-0	186	341	87	27	54					1	4412	74	6	202		800	302	063		
			STD	0125	-0	188	342	1	27	56	000	528	6	0082	1	4415	75	0							
	212	2 0	DBS	T0149	-0	189	342	37	27	58					1	4419	75	2	200		007	279	063		
			STD	0150	- 0	189	342	4	27	58	000	505	2	0095	1	4419	75	2							
			STO	0200	-0	187	342	7	27	61	000	480	3	0119	1	4429	74	6							
	212	2 0)BS	0201	-0	187	342	68	27	61					1	4429	74	6.	204		004	283	064		
			STD	0250	-0	187	342	8	27	62	000	467	2	0143	1	4437	74	7	_				_		
	212	2	085	10299	-0	187	343	02	27	63			-		1	4446	74	8,	204		001	294	065		
			STO	2300	-0	187	343	Ų	27	63	000	447	٤	0166	1	4440	74	8							
	· · ·		STD	0400	-0	181	343	4	27	67	000	411	8	0209	1	4466	72	2	.		00/	213	0.0		
	212	2 0	282	10404	-0	181	343	45	27	57					1	446/	72	4 e	214		004	312	069		
	212		18S	10487	-0	188	343	60	27	67					- 1·	44/8	72	2	215		005	240	071		

REFE	RENCE	SHIP					RSDEN	STAT	ION T	ME			ORIGIN	ATOR!		D	EPTH	MAX. DEPTH		WAVE	WEA-	CLOUO			NODC	1
CTRY	ID.	CODE	LATITUDE	LO	NGITUDE		UARE		GMI		YEAR		E	TATIO	N	80	TO NOTIOM	OF	0851	KVATIONS	CODE	CODES			STATION NUMBER	
+			1.	/10	1/10	- 10		MOLO	DAY H	R.1/10		NO.	+'	40 M 80		-		2.Wbf.2	DIR	H GT PEP SI	A	TYPE A M	r	-	-	
318	8154	IG∟I	74285	5 02	5406W	55	4 45	03 1	1 1	00 1	970		02	0		05	506				X7	03	1		0024	
							WA	TER	V V	VIND	BARC	• L	AIR TE	U.P. °C	vis	11	NO,	SPE								
							COLOR	TRANS.	DIR.	SPEED OB FORGE	AA ET E (mba	R)	DRY BULB	WE1 BUL	000		OBS. EPTHS	OBSERV	A TION S							
							DT	SD	28	504	891	1	43		7	1	15									
		MESSENGI TIME H.R. 1/10	MO.	C ARD TYPE	DEPTH (n)	5 1	s	•/	SIGM	A-T	SPECIF	IC VOLU	M E 07	₹ △ 0 0 YN. 7 x 10 ³	й.	SOU VELO	ND CITY	02 ml/l	PD4-P 29 + 01/1	10TAL=# yg+o1/1	ND2-N 29 - at/l	NO3-N V9 - 01.	51 O 4 - 5 V9 - 61	рН	500
				STD	0000	-	0184	338	12	272	4	000	837	4 (0000)	143	91								
		100) (BS	0000	-	0184	338	32	272	4						143	91								
				STD	0010	-	0184	338	32	272	4	000	836	7 (0008	3	143	92								
			(08S	0010	- (0184	338	2	272	4						143	92								
				STD	0020	- (0184	340	7 (274	. 4	000	643	9 (0016	>	143	98								
		006	, (BS	0025	- 0	0184	341	2	274	.9						143	99								
				STD	0030	- 1	0185	341	2	274	.9	000	604	5 (0 2 2		143	99								
			(DBS_	0030	- (0185	341	. 2	274	9						143	99								
				STD	0050	- 1	0186	342	0	275	5	000	541	5 (0033	3	144	03								
			(DBS	0050	-	0186	342	0	275	5						144	03								
				STD	0075	-	0187	342	2	275	7	000	524	4 (0047	7	144	07								
			(DBS	0075	-	0187	342	2.2	275	7						144	07								
				STD	0100	-	0188	342	23	275	8	000	1514	8 (0060)	144	11								
			(DBS	0100	-	0188	342	: 3	275	8						144	11								
				STD	0125	- (0188	342	.5	275	9	000)497	9 (072	2	144	16								
			(DBS	0125	+1	2188	342	! 5	275	9						144	16								
				STD	0150	- (0189	342	6	276	0	000	488	4 (0085	>	144	19								
			(DBS	0150	-	0189	342	26	276	0						144	19								
				STD	0200	- 0	0189	343	0	276	3	000	454	5 (3108	3	144	28								
			(DBS	0200	- (0189	343	0	276	3						144	28								
				STD	0250	- (0184	343	17	276	9	000	1399	3 (0130)	144	40								
			(DBS_	0250	- (0184	343	17	276	9						144	40								
				STD	0300	- (0184	343	8	277	0	000	388	5 (149	2	144	48								
			(DBS	0300	-	0184	343	8	277	0						144	48								
				STD	0400	- 0	0179	344	2	277	3	000	353	9 (0187	7	144	68								
			(DBS	0400	- 0	0179	344	2	277	3						144	68								
			(85	0467	- 0	0168	344	8	Z77	7						144	85								
				STU	0500	- (1129	345	1	277	9	000	006	5 (1419	1	145	01								
			(DBS	0500		0129	345	1	277	9						145	10								

REFERENC	SHIP	LATITU	DE		SOU	SDEN ARE	STATION	N TIME	YEAR	CRUSE	RIGINA	TOR'S		DEPTH TO	MAX	085	WAVE	IONS	WEA-	CLOUD			NODC	
CODE N	o	·	1/10	1/10	10*	1*	MO DA	Y HR.1/10		NO.	Ň	MBER		NOTION	S'MPL'S	DIR	HGTP	E SEA	CODE	TYPI AM	7	i	NUMBER	1
3181	54 GL	7428	55 (025406W	554	45	03 11	112	1970		020			0506					X 7	6 8			0025	1
						- WA	TER -	WIND	BAR	20	NETEM	P. °C	VIS.	NO.	SPEC	CIAL								
						COLOR	TRANS. Im)	IR. OF	CE (mb	18R D	JL8	WET BULB	CODE	DEPTHS	OBSERV	ATIONS								
							0	0 500) 89	2 -12	28		7	11										
	MESSENC TIME HR 1/1	CAST	CARD TYPE	DEPTH (m)	,	۴	5 •4	510	GMA-T	SPECIFIC	VOLUM	E DY	△ □ N. M 10 ³	SOU VELO	ND CITY	0 g m1/1	PO.	- P 01/1	ТОТАЦ—Р µg + qt/l	NO ₂ —N µg - at/1	NO3-N 19- 61/1	2 ⊷ ۽ 0 اک ⁄اه - ڀر	рн	500
					-	_		-		-			_	1			+-						+	-+-
			ST	0000	-0	174	3379	2	122	່ດດດຣ	3603	00	00	143	95	840	1	1		1	1		I	11
	11	2	085	0000	-0	174	3379	3 2	722					143	95	840	14	3		009	194	056		
	11	2	OBS	0008	-0	181	3384	8 21	126					143	94	847	14	5		009	195	056		
			STE	D 0010	~0	181	3389	2	730	0007	7835	00	08	143	95	833								
			STO	0020	-02	181	3406	27	744	0006	522	00	15	143	99	779								
	11	2	085	0022	-02	181	3408	0 27	145					143	99	771	19	0		009	237	063		
			STD	0030	-0:	183	3412	2	149	0006	050	00	22	144	00	756								
	11	2	085	0042	-01	186	3417	4 27	753					144	02	739	20	3		009	256	065		
			ST	0050	-0	186	3418	27	753	0005	569	00	33	144	03	739								
			STE	0075	-02	87	3420	27	755	0005	398	00	47	144	07	739								
	11	2	OBS	0093	-0	187	3421	5 27	156					144	10	739	20	9		009	264	067		
			STO	0100	-0	187	3422	27	57	0005	228	00	60	144	12	739								
		_	STU	0125	-01	187	3423	21	58	0005	135	00	73	144	16	741								
	11	2	085	0144	-01	187	3423	6 21	58				<u>.</u>	144	19	742	21	0		008	265	066		
		2	511	J 0150	-01	187	3424	2 2	58	0005	042	00	86	144	20	143	2.1				2 (0			
	11	2	005	10196	-0.	189	3421	0 21	61	0004	75.0	0.1	• •	144	21	744	21	0		005	208	067		
			516	0200	-0.	189	3421	21	61	0004	1153	01	10	144	28	743								
		2	085	J 0250	-0.	182	3431	0 27	164	0004	418	01	33	144	39	735	2.1	2		000	770			
	11	2	005	0295	-01	102	3435	0 21	101	0.004	114	0.1	c c	144	40	720	21	2		003	270	068		
	11	2	085	0307	-01	170	2437	0 27	140	0004	114	01	22	144	47	716	21	6		001	271	070		
	11	۷.	503	0 0400	-01	178	3437	27	64	0003	1908	01	05	144	68	712	21	ر		001	211	010		
	11	2	085	T0498	-01	27	3444	5 27	73	000-		01	, ,	144	00	636	27	0		004	284	082		
	11	-	555	0500	0.	6 C T	3445	- 21						140	V 7	635	66	0		004	204	002		
	11	2	085	0504			3445	6								634	22	3		006	286	082		

REFERENCE				=	E MAR	SDEN	STAT	DN .	TIME			ORIGIN	ATO	i's	1	DEPTH	MAX. DEPTH		WA	VE		WEA-	CLOI	0			NODC	
CTRY ID.	1000	LATITUDE	108	GITUDE	3 200	ARE			,	YEAR	CRUIS	E	STAT	ON	80	01 MOTTO	OF	08	SERVA	TIONS		THER	COD	15		5	TATION UMBER	
				1/10	10*	1.	MOLD	A Y	HR, 1710			+ <u>`</u>	NUM		+		SWPLS		HGT	PER 5	EA		TYPE	MT				
318 1 5	4 GL	735875	02	3390W	554	33	03 1	1	174	1970	L	02	1		0.	274						X 7	6	3			0026	
						WA	TER		WIND	6AP	»- ⊨	AIR TE	MP.			NO.	SPEC	CIAL										
						COLOR	TRANS.	D1R.	SPEE OR	D MET	R	ORY	W	ET COI		OBS. DEPTHS	OBSERV	ATIONS										
							+ + +		FOR		7 7	04	+		+	07			-									
				,			1, 1	00	1500	103	<u></u>	00	1	1	1				ł,		-							_
	MESSENG TIME HR 1/1	CAST C.	A R D Y P E	DEPTH (m)	T	°C	s ·	4.	sic	MA-T	SPECIF	KALY-XI	1 M E	₹ Δ (01N. / × 103	D M.	SOU VELO	CITY	O 2 m1/	n Pi Pi	04-P	101 94	AL-P - of/l	NO2 99 - 01	NO3-	-N SI 1/1 P	04-5i 9 - at/l	. ₽H	500
																						_		1			+	t
	I		TD	0000	-0	181	339	0	27	30	000	778	1 '	0000	0	143	93	818				1						1
	17	4 OE	35	0000	-0	181	338	98	27	30						143	93	818	1	61			014	248	0	61		
	_		STD	0010	-0	182	339	0	27	30	000	778	8	0008	3	143	95	821										
		5	TD	0020	-0	182	338	9	27	30	000	780	3	0016	5	143	96	825										
	17	4 OE	35	0021	-0	182	338	93	27	30						143	96	825	1	71			013	249	0	61		
		9	STD	0030	-0	182	339	9	27	38	000	705	2	0023	3	143	99	805										
	17	4 06	35	0046	-0	181	341	18	27	48						144	04	778	1	93			009	269	0	64		
		9	5TD	0050	-0	181	341	2	27	48	000	604	2	0036	5	144	05	777										
		9	5TD	0075	-0	183	341	7	27	53	000	563	7	0051	1	144	09	768										
	17	4 05	35	0096	-0	184	342	01	27	'55						144	12	760	2	03			010	287	0	65		
		9	STD	0100	-0	184	342	1	27	56	000	531	2	0064	4	144	13	759										
		9	STD	0125	-0	183	342	5	21	59	000	499	2	007	7	144	18	750										
	17	4 OE	35	0146	-0	182	342	78	27	61						144	22	742	2	09			011	291	0	68		
			STD	0150	-0	182	342	8	27	61	000)474	9	008	9	144	23	740										
	17	4 06	3s	T0195	-0	184	343	11	27	64						144	30	724	2	12			010	294	0	69		
			STD	0200	-0	184	343	1	27	64	000)446	0	0112	2	144	31	724										
		ç	STD	0250	-0	182	343	3	27	66	000	430	4	0134	4	144	40	724										
	17	4 06	35	T0265	-0	182	343	35	27	66						144	43	724	2	12			074	283	0	69		

REFE	RENCE	SHIP				ΞĒ	MAR	OEN	STATIO	N TH	ME	~~		DRIGIN	A TOR"		OEPTH	M.A. DEP	X.	WAVE	2.1.1	WEA-	CLOUD			NODC	
CODE	10.	COOE	LAINU		LONGHUOE	a di	300	1				TEAK	CRUISE	S	TATIO	N D	BOTTOR	0			1 11	- CODE	CODES	4		NUMBER	
				1/10	1/10		10-	++	MO DA	1 10	4,1/10							5 00 P	LSIDIR	HGTPER	25	A	TTP) A M				ł
31	8154	GL	7358	7S	023390W		554	33	03 1:	1 1	84 1	970	L	02	1		0274	· [X7	03			0027	
								W.A.	TER	w	IND	8480	-	AIR TEA	∧ P. ℃	vis	NO.	l s	PECIAL								
								COLOR	TRANS.	DIR.	OR	AA ETE	R :	DRY ULB	W E1 BULI	000	DEPTHS	OBSE	RVATIONS								
								5.7	0		5000	80	, 1	0.6			12	+		-							
							-	01	30 10	/0	300	107	1	00	-	1	1.4	1	1	1,							
		MESSENGE	CAST	CAI		m)	1	°C	5.	4.	SIGM	A-T	SPECIFIC	volu	ME	E A O	SC	UNO	0.2 mi	PO4-	- P	TOTAL=P	NO2-N	NO3-N	5104-5		
		HR 1/10	NO.	T TY	PE					•••			ANON	ALT~11	0'	x 10 ³	VEL	OCITY	01	پ ر و	171	µg · a†/1	40 - 61/1	yg − ofri	µg + 01/	I Pri	i
			1																	1						1	1
		r		51	ro ' 0000)	-0	181	3390)	273	1	000	776	ŝί	0000	14	393	1							,	. *
		184		OBS	5 0000)	- O	181	3390)	273	1					14	393									
				S	D 0010)	-0	181	3390)	273	1	000	7759	9 (0008	14	395									
				085	5 0010)	-0	181	3390)	273	1					14	395									
				51	rD 0020)	-0	182	3393	3	273	3	000	754	3 (015	14	397									
		005		083	5 0025	5	-0	182	3394	+	273	4					14	398									
				ST	D 0030)	-0	179	3402	2	274	0	000	6828	3 (0023	14	401									
				083	5 0030)	-0	179	3402	2	274	0					14	401									
				OBS	5 0038	3	-0	176	3404	+	274	2					14	404									
				51	rD 0050)	-0	180	3413	3	274	9	000	5968	3 (035	14	405									
				083	5 0050)	-0	180	341	3	274	.9			_		14	405									
				\$1	D 0075	>	-0	185	3422	2	275	7	000	5249	9 (049	14	408									
				085	0075	>	-0	185	3422	2	275	7			. ,		14	408									
				51	r0 0100)	-0	184	3428	5	276	2	000	477		10.62	14	414									
				083	5 0100)	-0	184	3428	5	216	2	0.00			10 7 2	14	414									
				51	FD J125	>	-0	184	3432	2	276	5	Duti	445.	3 (1013	14	419									
				083	0125)	-0.	184	3430	_	210	7	000			100/	14	417									
				51	0 0150	,	-0	184	3435	2	210	7	000	4208	5 1	1084	14	423									
				083	5 UI5U	<u>,</u>	-0	104	3435	,	270	0	000	402.	7 6	106	14	423									
				080		<u>.</u>	-0	183	343	7	210	0	000	702	, (105	14	432									
				 	0200	ń	-0	102	3430	2	210	'n	000	384	a /	1125	14	441									
				0 R 0	0 0250	,	-0	102	3430	Ś	277	0	000	204.	- '		14	444									
				003			-0	100	5-53	·	211	0					14	1									

RE CT	FERE	NCE ID.	SHIP	LATITUDE	LONGITUOE	DCTR	M ARS SOU	IOEN ARE	STA	ION T	IME	YEAR	CRUISE	ORIGIN A	TOR'S		OEPTH TO	MAX DEPTH	0	W A B S E R V	A VE	DNS	WEA- THER	CL CC	000		NODC
co	DE	NO.		• 1/10	* 1/10	Ξ	10*	1.	MO	DAY H	18.1/10		NO,	NU	UMBER		BOTTOM	S'MPL'S	D IR.	НĢ	PER	SEA	CODE	TYPE	AMT	1	NUMBER
3	18	154	GL	73380S	023400W		554	33	03	12	212	1970		022		:	1490						X 2	6	8		0028
							-	COLOR CODE	TER TRANS	DIR.	SPEED OR FORCI	BARO METEI Imba	R 1	AIR TEM	P. °C WET BULB	VIS. CODE	NO. OBS. DEPTHS	SPEC OBSERVA	TIAL	s							
				·····			_ [Ļ	25	\$03	901	- 1	10		7	13			1.,-			,				

MESSENGR TIME HR 1/10	CAST NO.	C ARD TYPE	OEPTH (m)	т °с	s •/	SIGMA-1	SPECIFIC VOLUME ANOMALY-X107	₹ Δ D OYN. M. x 10 ³	SOUND	02 ml/t	PO4-P 29 - 01/1	TOTAL—P µg - si/l	NO2-N 99 - 01/1	NO3=N 29 - 01/1	SIO4—Si µg - at/1	pН	SOC
																	I
		\$TD	0000	-0179	3363	2708	0009868	0000	14390	830							
012		OBS	0000	-0179	33627	2708			14390	830	143		010	216	058		
		STD	0010	-0180	3363	2709	0009836	0010	14392	829							
		STO	0020	-0181	3365	2710	0009673	0020	14393	824							
		STD	0030	-0182	3369	2714	0009345	0029	14395	816							
012		OBS	0030	-0182	33691	2714			14395	816	158		010	228	061		
		STD	0050	-0180	3396	2735	0007272	0046	14403	768							
		STD	0075	-0179	3421	2756	0005342	0062	14411	723							
012		085	0081	-0178	34263	2760			14413	714	211		010	286	071		
		STD	0100	-0179	3428	2761	0004788	0074	14416	714							
		STD	0125	-0180	3431	2764	0004540	0086	14420	713							
		STD	0150	-0181	3433	2766	0004368	0097	14424	713							
012		OBS	0183	-0183	34352	2767			14429	712	207		001	302	072		
		STD	0200	-0181	3436	2768	0004110	0118	14433	706							
		STD	0250	-0174	3437	2769	0004025	0138	14445	688							
012		OBS	0285	-0169	34388	2770			14453	675	216		000	304	076		
		STD	0300	-0165	3439	2770	0003873	0158	14458	673							
012		085	0387	-0122	34450	2774			14493	638	222		000	308	081		
		STD	0400	-0107	3447	2775	0003450	0195	14503	624							
012		085	10488	-0031	34550	2778			14554	552	234		000	314	092		
		STD	0500	-0027	3456	2779	0003160	0228	14557	549							
012		OBS	10596	0005	34601	2780			14589	524	231		000	321	098		
		STD	0600	0007	3460	2780	0003039	0259	14590	522							
		STD	0700	0047	3464	2781	0003034	0289	14026	490							
012		065	0796	0068	34677	2783			14652	470	235		000	325	113		
		STD	0800	0068	3468	2783	0002910	0319	14652	470							
		STO	0900	0061	3468	2783	0002870	0348	14660	468							
		STO	1000	0055	3468	2784	0002829	0376	14630	466	_						
012		OBS	11002	0055	34681	2784			14681	466	8 د 2		001	321	117		
		ST0	1100	0052	3468	2784	0002812	0405	14696	470							
		STD	1200	0047	3467	2783	0002852	0433	14710	474							
012		085	1259	0043	34667	2783			14718	477	237		000	325	125		
		STD	1300	0038	3467	2784	0002816	0461	14723	479							
		STD	1400	0029	3466	2784	0002777	0489	14736	484							
012		OBS	T1468	0025	34657	2784			14745	488	236		001	332	122		
012		OBS	11487	0024	34666	2784			14748	492	235		000	328	122		

REFERENCE	SHIP	LATITU	1/10	LON	GITUDE		RSDEN UARE	STAT	ION T GMTI	ME 8,1/10	YEAR	CR	OPIG	STAT NUN	ION IBER	-	OEPT TO BOTTO	н 5м.	MAX. DEPTH OF S*MPL*S	OBS	WAVE ERVATION	NS SEA	WEA- THER CODE	CLOUD CODE	7		NODC STATION NUMBER	
31815	GI	7338	5	0.23	40 W	55	4 33	03	2 0	20	1970	1	0	22			149	0	-				×2	X 3			0029	1
21012		1 1 2 1 3	0 1	0			W.A	TER	V V	IND		10-	AIR	TEMP.	τ	VIS.	NO.		SPEC	CIAL			,			,		Ċ
							COLO	TRANS,	DIR.	SPEED	MET (mb	(ER (#)	BULB	BI	/ET JLB	CODE	OBS	HS C	OBSERV	ATIONS								
							DT	SD	00	500	90	3	-111	-		7	26	+										
	MESSENG							1	1		_				٤	Δ ο	ί,	1			10			NO. N		10		-
	TIME	NO.	TY	PE	DEPTH Im	'	1°C	5	•/	SIG	MA-T	1	NOMALY-	-110'	DY	N. M. 10 ³	· ·	ELDO	CITY	0 2 ml/l	yg = 01,	Л	Pg - 61/1	49 - et/l	NO3-N V9 - 01/5	νg = σ1.	» /I рН	
	HR 1/1	0								+		+-			-						+	+						
	I.	1	่รา	rb ^I	0000		0181	33	9	27	05	഻൦	0101	49	00	00	1	43	89		ţ	J				1	1	
	02	0	OBS	5	0000	- 1	0181	335	9	27	05						1	43	89									
			S	TD	0010	(0181	339	9	27	05	0	0101	41	00	10	1	43	91									
			OB:	5	0010		0181	335	9	27	05	~		0.0	~ ~	2.0	1	43	91									
	0.0	-	5	TD	0020	-1	0181	330	2	27	07	0	0094	80	00	20	1	43	92									
	00	1	083	s Th	0025		0181	330	2	21	08	0	0098	96	00	30	1	43	94									
			084	5	0030	_	0181	336	2	27	08	0	00/0			20	î	43	94									
			OB:	s	0044	-	0182	33	7	27	20						1	43	98									
			5	ŤÞ	0050	-	0174	343	31	27	64	0	0046	01	00	45	1	44	11									
			085	S	0050	1	0174	34	31	27	64						1	44	11									
			OB:	S	0054	-	0165	343	30	27	63	~	00/7		~~	c /	1	44	15									
			5	TO	0075	-	0174	344	:9	21	62	0	0047	40	00	26	1	44	15									
			UB:	5 T D	0100	-	0180	34	33	27	04 65	0	0044	0.2	00	68	ì	44	16									
			08	S	0100	_	0180	34	33	27	65	0	0.7.1.1		00	00	ī	44	16									
			S	TD	0125		0182	34	35	27	67	0	0042	28	00	79	1	44	20									
			085	s	0125	-	0182	34.	35	27	67						1	44	20									
			5	TD	0150	~	0182	34	38	27	70	0	0039	83	00	89	1	44	24									
			OB:	S	0150	-	0182	34:	38	27	70	0	0037	2.2	0.1	0.0	1	44	24									
			- 5		0200	_	0179	344	+1	21	72	0	0031	52	01	00	1	44	35									
			00:	⊃ Th	0200	_	0175	344	•2	27	73	0	0036	39	01	27	1	44	45									
			OB	S	0250	-	0175	344	2	27	73			-	-		ī	44	45									
			S	TO	0300	~	0168	344	+6	27	76	0	0033	28	01	44	1	44	57									
			08	S	0300	-	0168	344	+6	27	76					_	1	44	57									
			S	TD	0400	-	0122	34	52	27	79	0	0030	03	01	76	1	44	96									
			OB	5 • n	0400	-	0122	34	2	27	02	0	0027	00	02	04	1	44	58									
			08	ς ς	0500	_	0028	34	52	27	83	0	0021	00	0-	.04	i	45	58									
			S	TD	0600		0007	34	57	27	86	0	0025	34	02	30	1	45	91									
			OB.	s	0600		0007	34	57	27	86						1	45	91									
			S	TD	0700		0051	34	12	27	87	0	0024	70	02	255	1	46	29									
			08	Ş	0700		0051	34	72	27	87				0.7		1	46	29									
			5	TD	0800		0066	34	74	27	88	0	0024	46	02	80	1	46	52									
			OB:	S TD	0800		0065	34	14	21	88	0	0024	35	03	04	1	40	68									
			08	s	0900		0063	34	74	27	88	0	002,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	0.2		î	46	68									
			S	TD	1000		0056	34	74	27	89	0	0023	89	03	28	ī	46	81									
			ов	S	1000		0056	34	74	27	89						1	46	81									
			S	тD	1100		0048	34	74	27	89	0	0023	31	03	52	1	46	95									
			OВ	S	1100		0048	34	74	27	89	~		0.7	0.3		1	46	95									
			S	TD	1200		0043	34	14	27	89	0	0022	41	وں	015	1	41	09									
			UB.	5	1200		0043	34	14 74	21	99 90	0	0022	51	03	98	1	41	23									
			с 80	S	1300		0037	34	74	27	90	0		<i>~</i> .	U		i	47	23									
			50	TD	1400		0025	34	73	27	90	0	0022	23	04	20	i	47	35									
			08	s	1400		0025	34	73	27	90						ī	47	35									
			0B	5	1480		0022	34	73	27	90						1	47	47									

REFERENCE	Chun .			L #	MAR	SDEN	STATION	TIME		1	ORIGINA	TOR'S		DEPTH	MAX.		WAVE		WEA.	CIOL	0			
CTRY ID.	CODE	LATITUOE	LONGITUDE	NDC N	sau	ARE	IGMT	1)	YEAR	CRUISE	51	ATION		TO	OF	OB	SERVA TIO	NS	THER	COD	ES		STATION	
	1 1	1/10	1/	10 ~	10*	1.	MO DAY	HR,1/10		NO.	- N	UMBER		BOTTOM	S'MPL'S	DIR.	H GT PER	SEA	- 0001	TYPE A	MT		NUMBER	1
318154	I GL I	720825	024088	w I	554	24	03 13	036	1970		023			4078					X 2	61	3		0030	Í.
						WAT	TER	WIND	BAR	o-	A IR TEN	Р. С	- vis.	NO.	SPE									
						COLOR	IRANS. OIR	- OR		ER B	DRY	WET BULB	COD	DEPTHS	OBSERV	ATIONS								
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			-1		l		12	1505	192	3 -0	67		17	14							· · · · · · · · · ·			_
	MESSENGR	CAST C	DEPT	H (m)	1	°C	5 ./	SIG	MA-T	SPECIFIC	VOLUA	E S		sou	ои	0.1 m1/l	PO4-	P	OTAL-P	NO2-1	NO3-N	5104-	5.	s
	HR 1/10	1			_					ANOM			k 10 ³	VELC	DCITY		4 0 • 0	71 -	yg = α≢/1	ug = a1/	1/10 - gu	10 - 24	// //	č
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	•	. s	TD 00	00	-01	183	3396	27	36	000	7292	00	000	143	393 '	789	1				1	1	1	
	036	08	S 00	00	-01	183	33961	27	36					143	393	789	184			012	252	074		
		5	TD 00	10	-01	189	3397	27	37	000	7172	00	07	143	392	776								
	036	08	S 00	10	-01	189	33974	27	37					143	392	776	189			006	255	073		
		S	TD 00	20	-01	188	3397	27	37	000	7175	00	014	143	394	774								
	036	08	S 00	25	-01	187	33973	27	37					143	396	773	190			800	252°	074		
		S	TD 00	30	-01	182	3408	27	45	000	6360	00	21	144	00	747								
		S	TO 00	50	-01	169	3440	27	71	000	3893	00)31	144	14	667								
	036	08	S 00	50	-01	169	34404	27	71					144	14	667	213			005	289	080		
		S	TD 00	75	-01	170	3441	27	72	000	3832	00)41	144	18	658								
	036	OB	S 00-	79	-01	170	34433	27	74					144	+22	650	221			002	289	082		
		5	TD 014	00	-01	169	3444	27	74	000	3626	00)50	144	23	650								
	0.17	5	10 01.	25	-01	154	3448	21	11	000	3343	00)59	144	135	646								
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	0.36	08	S 01	10	-00	1.27	34440	27	7 2 0	000	5045	00	001	144	+ 4 /	634	222				2.04	003		
	0.00		TD 020	20	-00	70	3459	27	92	000	2843	0.0	102	144		580	252			000	290	092		
			TD 020	50	-00	102	3463	27	92 93	000	2707	00	106	144	29	524								
	0.36	08	S T02	28	00	143	34660	27	83	000	2171	00	790	145	57	495	243			000	324	106		
	0 2 0	ŝ	TO 030	0	00	144	3466	27	83	000	2835	01	10	149	58	484	245			000	524	102		
	036	OB	5 1030	\$5	00	72	34689	27	83	000				145	87	466	245			000	313	109		
		s	TD 040	00	00	72	3469	27	84	000	2812	01	38	145	88	466						107		
	036	OB	S T044	99	00	69	34691	27	84					146	03	464	245			000	317	114		
		S	TD 050	0	00)69	3469	27	84	000	2804	01	66	146	03	464						-		
	036	ОB	S 1054	7	00	63	34666	27	82					146	16	470	248			000	307	117		
		S	TD 060	0 (00	63	3467	27	82	000	2924	01	95	146	17	470								
		S	TD 070	0	00)55	3468	27	84	000	2800	02	24	146	30	469								
	036	ОB	S 070	3	00	149	34685	27	85					146	43	468	245			006	323	120		
		S	TD 080	0	00	49	3468	27	84	000	2764	02	51	146	44	468								
		S	TD 090	0	00	42	3468	27	85	0003	2716	02	79	146	57	471								
	036	OB	S T099	95	00	36	34677	27	85					146	71	474	248			009	325	123		
		S	100 100	00	00	36	3468	27	85	000	2697	03	06	146	72	474								
		S	10 110	0	00	130	3467	271	85	000	2696	03	33	146	86	481								
	0.2.4	5	IU 120	0	00	25	3467	27	84	0003	2702	03	60	147	00	488	215				2.24			
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REFERENCE	SHIP				= 5	MARSE	DEN	STATION T	IME		ORIG	INAT	OR'S		OEPTH		с. Н олг	WAVE	WEA-	CLOUD			NODC	
CTRY IO. CODE NO.	COOE	LATITU	1/10	1/10	^B N	10*	1*	MODATH	R.1/10	TEAK	CRUISE NO.	AT2 UN	TION		10 80110	M S'MPL	-5 DIR	HGT PER SE	COOF	CODES		S N	UMBER	
119164	GL	7208	20 1	0.240.88₩		554	24	13 13 0	150 1	070	0	22		-	4075	5			×7	0 3			0031	
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						C	OLOR	TRANS DIR	SPEED	METE	R DRY		WET	CODE	OBS.	e OBSER	VATIONS							
						H	CODE	1001	FORCE	(mba	8018	+	BULB											
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	MESSENGI	CAST	CARD		m)	т	°C	5 ./	SIGN	A-T	SPECIFIC VO		₹ DY	∆ 0 N. M	. so	OUND	0 2 mt/l	PO 4-P	TOTAL-P	NO2-N	N03-N	5104-51		S
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			1														!							
			ST	D 0000		-01	84	3400	273	39	00069	90	00	000	14	+393								
	050)		0000		-01	84	3400	273	39	00069	A٦	0.0	0.7	14	+393 1395								
			OBS	0010		-01	84	3400	273	30	00000	0 2	00		14	395								
			ST	0020		-01	83	3413	274	+9	00059	81	00	13	14	4399								
	000	,	OBS	0025		-01	82	3422	275	57	0.0.0.1.5	~ .		1.0	14	4401								
			ST	D 0030		-01	79	3432	276	5	00045	24	00	19	14	4405								
			ST	0050		-01	76	3446	277	75 75	00034	45	00	27	14	4412								
			OBS	0050		-01	76	3446	277	76					14	4412								
			ST	D 0075		-01	74	3448	277	78	00032	83	00	35	14	4417								
			OBS	0075		-01	74	3448	277	78	00020	0.1	0.0		14	4417								
			085	0100		-01	64	3452	278	30	00029	71	00	.4.)	14	4427								
			ST	0 0125		-01	49	3454	278	32	00028	71	00	50	14	4438								
			OBS	0125		-01	49	3454	278	32					14	4438								
			ST	0 0150		-01	39	3455	278	32	00028	15	00)57	14	4447								
				0150		-01	39	3455	278	32	00021	R 4	0.0	170	14	4447								
			085	0200		-00	99	3465	278	99	00.21	0.4	00		14	4476								
			ST	0 0250		-00	14	3470	278	39	00022	ΟÚ	00	81	14	4524								
			0BS	0250		-00	14	3470	278	39					14	+524								
			ST	D 0300		00	41	3472	278	38	00023	70	00	92	14	4557								
			500	n 0300	,	00	70	3474	276	38	00024	20	01	16	14	4587								
			OBS	0400	,	00	70	3474	278	38		-	-		14	4587								
			ST	D 0500)	00	68	3474	278	38	00024	21	01	40	14	4603								
			OBS	0500	2	00	68	3474	278	38	00023	0.0	0.1	46	14	4603								
			085	0600)	00	63	3474	276	30 38	00025	40	01	. 6 2	14	4618								
			ST	0 0700	,	00	55	3474	278	39	00023	50	01	88	14	4631								
			OBS	0700)	00	55	3474	278	39					14	4631								
			ST	0 0800)	00	49	3474	278	39	00023	14	0 4	12	14	4645								
			ST	0000	,)	00	49	3474	276	19	00022	59	02	34	14	4658								
			OBS	0900)	00	41	3474	278	39					14	4658								
			ST	D 1000)	00	36	3474	279	90	00022	26	02	:57	14	4672								
			OBS	1000)	00	36	3474	279	90	00011		0.7		14	4672								
				1100))	00	28	3474	279	9 U 9 U	00021	65	02	: 19	14	4686								
			ST	D 1200)	00	24	3474	279	90	00021	35	03	800	14	4701								
			OBS	1200)	00	24	3474	279	90					14	4701								
			ST	D 1300)	00	19	3473	279	90	00021	69	03	322	14	4715								
			OBS	1300 D 1400)	00	19	3473	279	90 30	00021	26	03	143	14	4/15								
			085	1400)	00	14	3473	279	70 70	00021	20	0.2	4)	14	4730								
			ST	0 1500)	00	11	3473	270	9 0	00020	98	03	864	14	4745								
			OBS	1500)	00	11	3473	270	90					14	4745								
			OBS	1600)	00	60P	3473	278	37P					1 /	. 776								
				1/00 1760)	00	00	3413	270	20	00020	2 A	04	16	14	4783								
			OBS	1800)	-00	01	3472	279	90	30020	-0	0.1	.0	14	4791								
			OBS	1900)	-00	05	3472	279	90					14	4806								
			ST	D 2000)	-00	07	3472	270	90	00019	85	04	66	14	4822								
			OBS	2000) h	-00	07	3472	279	40 51					14	4822								
			OBS	2200)	-00	13	3472	270	⇒1					14	4854								
			OBS	2300)	-00	14	3472	279	91					14	4871								
			OBS	2400)	-00	16	3472	279	91					14	4887								

REFERENCE	SHIP		.	10110	-		MARS	OEN	572	TION T	WE		L	ORIGIN	ATOR	s	1	DEPTH	MAX. DEPTH	0.00	WAVE	WE	A-	CLOUD			NODC	
CODE NO.	CODE	•	1/10	LUNG	1/10	ŝ.	10°	1.	MO	DAY	R.1/10	TEAR	CRUI	SE).	STATIC NUMB	N ER	BC	MOTIO	OF S'MPL'S	DHA.	HIGT PERTS	CO	ER OE -	CODES			NUMBER	
319154	GL	71148	-	024	3200	6	554	14) 7	13 2	10	1970	1	0.2	4		4	224		03	2 6	x	,	7 4			0032	1
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								COLOR	TRAN	S. DIR.	SPEED	MET	ER .	DRY	9 W E		580	OBS. EPTHS	OBSERV	ATIONS								
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	MESSENGE	CAST NO.	CAR	D E	DEPTH Im	1	T	°C		s •/	SIG	MA-T	SPECI	FIC VOLU	0,7	DYN.	м.	SOU		0 2 m1/1	PO4-P	TOTAL	- 2	NO2-N	NO3-N	SID4-5	рн	
	HR 1/10	+ +									-				-+	X 103	_						<u></u>	Pq = 01/1	10 - 01/1	pg • 61/		
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	210	, ,	085		0008		-01	68	33	961	27	35						144	02	800	188			016	258	076		
			ST	0	0010		-01	67	33	46	27	35	00	0732	2	0007	7	144	02	801				0-0				
			ST	0	0020		-01	65	33	96	27	35	0.0	0732	Z	0015	5	144	05	803								
	210)	085		0022		-01	.64	33	961	27	35						144	06	804	188			016	264	077		
			ST	0	0030		-01	55	34	02	27	40	00	0688	8	0022	2	144	12	787						_		
	210)	OBS	5	0043		-01	45	34	114	27	47	~ ~		,			144	20	757	192			011	273	079		
			51	0	0050		-01	63	34	1.1	27	יי דו	00	0387	6 9	0034	*	144	26	642								
	210		089		0075		-01	56	34	474	27	77	00	0.001	0	0040	2	144	27	644	220			012	287	085		
	210		ST	0	0100		-01	31	34	50	27	78	00	0324	7	0055	5	144	42	622	,				201	002		
			ST	D	0125		-00	92	34	53	27	79	00	0315	2	0063	3	144	65	589								
			ST	D	0150		-00	57	34	56	27	80	00	С 306	6	0071	L	144	85	560								
	210	l.	OBS	5 1	0165		-00	38	34	581	27	81						144	97	545	23C			000	305	095		
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	Z 1 C	1	OBS	5 1	0235		00	34	33	86P	27	14P	0.0		_	0101		1.6	1.4	493	236			000	315	104		
	210		080		0250		00	130	34	656	27	84	00	0294	U	0101		145	55	489	230			000	3.2	105		
	210	,	51	, D	0300		00	44	34	66	27	83	0.0	0284	3	0115	5	145	58	477	20)			000	24 b	102		
	210		OBS	5 1	0351		00	62	34	676	27	83	00		-			145	75	466	239			000	312	100		
			ST	D	0400		00	67	34	69	27	83	00	0281	5	0143	3	145	85	456								
	210	1	OBS	5 1	10426		00	69	34	690	27	84						145	91	453	237			000	315	112		
			ST	D	0500		00	67	34	69	27	84	00	0279	0	0171	L	146	02	454	245				3 1 9			
	210)	085		0562		00	164	34	690	21	84	0.0	~ 774	۷	0100		146	14	454	245			000	520	116		
			51		0700		00	156	34	69	27	84	00	0272	3	0193	7	140	30	404								
	210	,	085	Š	10708		00	155	34	688	27	84	00	0000	2	0 - 2	1	146	31	454	245			007	328	118		
			ST	D	0800		00	48	34	68	27	84	00	0274	5	0254	+	146	43	474								
			ST	D	0900		00	39	34	67	27	84	00	0274	8	0282	2	146	56	495								
	015	1	OBS	5	0905		00	39	34	672	27	84						146	57	496	224			000	309	124		
	Z 1 C)	OBS	5 1	10909		00	21	34	68Z	27	86			~			146	50	468	245			000	309	120		
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			ST	0	1300		00	800	34	67	27	85	00	0255	8	0386	5	147	09	502								
	015		085	5	1333		00	07	34	665	27	85						147	14	503	2 Z Q			000	315	126		
			ST	D .	1400		00	06	34	67	27	85	00	0253	8	0412	2	147	25	505								
			ST	0	1500		00	05	34	66	27	85	00	0253	4	0437	7	147	42	508	721				2 7 2	174		
	015	1	002	,	1750		-00	04	34	664	27	85	0.0	0245	1	05.00	h	147	51 91	207 513	291			000	262	120		
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	015	i	OBS	5	2185		-00	12	34	655	27	85						148	51	529	225			000	313	125		
			ST	0	2500		-00	18	34	65	27	86	00	0231	5	0679	9	149	03	544								
	015	1	OBS	5 1	12621		-00	20	34	653	27	86			-			149	23	547	225			000	317	126		
	<u> </u>		ST	0	3000		-00	24	34	65	27	86	00	0221	5	0192	2	149	87	548	710				210	1 7 7		
	015	,	OBC		13001		-00	124	34	052	27	86						149	10 (15 8	548 551	219			000	300	123		
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REFERENCE				-	# MAI	SOEN	STAT	ION T	IME			ORIGIN	ATOR'S		DE	EPTH	MAX.		WAVE	WEA-	CLOUD	-		NOOC	
CTAY IO.	CODE	LATITUOE	LONGI	TUDE	SO 20	JARE		GMTI		YEAR	CRUIS	E	STATIO	N	1 1	TO M	OF	085	ERVATIONS	THER	COOES			STATION	
NO.	+	1/1	0	'1/10	- 10*	1.	MO	DAY	R.1/10		NO.	4	NUMBE	R			S'MPL'S	DIR,	H GT PER SE	A 000L	TYPE AM	·		NO MORE	
318154	GLI	702525	0243	331W	554	04	03	14	178	1970	1	02	5		42	79		09	4 6	X1	5 6			0033	
						WA.	TER	\`	VINO		o. L	AIR TE	мр. °С		N	10,	SPEC								
						COLOR	TRANS.	OIR.	OR	MET	ER	ORT	WET	COD	E O E P	PTHS	OBSERV	TIONS							
						0001		-	FORC	E (1110				+	+										
							L	12	S13	88	6 + 0)38		7	1	3			· · · · · · · · ·						_
	MESSENG TIME HR 1/10	NO.	ARO YPE	OEPTH (m	,	r "c	s	•/	SIG	MA-T	SPECIF	IC VOLU	ME 0 ⁷	€ △ C OYN. A X 10 ³	л.	VEL O	ND CITY	0 2 m1/1	PO4-P ×9 = 01/1	101AL-P µg - o1/l	NO2-N #g - #//	NO3—N µg = at/l	SIO∉— ⊭g - al	ii /i pH	s C C
	1																								
			STD	0000	- 0	089	34	13	27	46	000	626	6 0	0000) '	144	40	783							
	178	8 01	35	0000	- C	089	34	130	27	46						144	40	783	100		014	253	076		
	178	3 06	35	0009	- C	088	341	29	27	46						144	42	785	186		015	264	077		
			STD	0010	-0	088	34	13	27	46	000	626	6 (0006		144	42	785							
		1	STD	0020	-0	087	34	. 3	27	46	000	626	5 (013	;	144	44	784							
	178	3 06	3S	0024	-0	087	341	36	27	47						144	45	783	186		015	267	077		
			5TD	0030	-0	094	34]	7	27	50	000	1593	1 (019	1	144	43	753							
	178	3 06	3S	0048	-0	113	342	274	27	59				_		144	39	680	193		007	281	078		
			STD	0050	-0	116	342	28	27	60	000	500	4 (0030)	144	38	678							
			STD	0075	-0	143	343	19	27	69	000	406	2 0	0041		144	31	651							
	178	3 06	35	0097	-0	150	344	+74	27	76						144	32	626	222		007	291	085		
			STD	0100	-0	143	344	+8	27	77	000)336	1 (0050)	144	36	620							
			STD	0125	- C	090	349	53	27	79	000)316	0 0	058	}	144	66	571							
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REFERENCE	SHIP	LATITUI	DE	LONGITUDE	NDCT1	ARSDEN DUARE	STATIO	IN TH	W.E	YEAR	ORIGI CRUISE		'S)N	801	EPTH TO TTOM	MAX OEPTH OF	085	WAVE RVATIONS	WEA- THER CODE	CLOUD			NODC STATION NUMBER	
	+ +		1/10	1/10	- 10		MOLO	AY HE	2,1/10			140 14-0		-		SWIL	Dir,	H GT PER SE	<u> </u>	TYPE AM				
l 31815	4 GL I	7103	3 S	013160W	55	3 13	03 1	7 0	37 1	970	0.	27		19	20				X4	X 9			0035	
						WA	TER	w	INÓ	BARC	AIR T	EMP. 1	- VIS	N	10.	SPE	CIAL							
						COLOR	TRANS.	DIR.	OR	METE	R DRY	- W E 6.U1	T COD	DE	PTHS	OBSERV	ATIONS							
						0001			+DRCE			+		+	-									
	r						4 1	11	526	111	-007	1	3	11	4									_
	MESSENGR TIME HR 1/10	CAST NO.	CARD TYPE	О СЕРТН (m)	r ℃	5	·/	SIGM	A = T	SPECIFIC VOI ANOMALY-	UME 2107	₹ △ D DYN, A x 10 ³		SOU VELO	ND CITY	0 2 ml/1	PO4-P ug + 01/1	101AL-P µg + 01/1	NO2-N 49 • 01/1	NO3-N 9 - ai/l	51 O 4 - 5 yg + 61/	й 4 рн	s c c
										1														
			SŤ	D 0000) –	0177	339	9	273	8	00070	33	0000)	143	96	794							
	037		0BS	0000) –	0177	339	90	273	8					143	96	794	189		016	258	063		
	037		OBS	0009) -	0177	339	88	273	8					143	98	794	191		016	262	063		
			ST	D 0010) –	0177	339	9	273	8	00070	92	0007	7	143	98	794							
			ST	D 0020) –	0176	339	9	273	8	00070	36	0014	•	144	00	794			- 2 4	245			
	037		OBS	0024	+	0176	339	88	273	8					144	01	794	190		016	265	063		
			ST	D 0030) –	0176	339	9	273	8	00070	30	0021		144	102	796	1.0.0			37.0			
	037	•	OBS	004	<u> </u>	0177	339	89	273	8					144	04	798	189		012	208	054		
			ST	0 0050) -	0176	340	0	273	9	00069	/5	0035		144	105	790							
			ST	D 0075		0170	340	7	274	4	00064	98	0052		144	10	778	202		013	271	015		
	037		OBS	0094	+ -	0169	341	33	274	9	00057		00/-	,	144	10	764	203		015	211	065		
			ST	0 0100	. –	0171	341	6	275	1	00007	30	006	ſ	144	21	151							
			ST	0 012		0176	342	6	276	0	00049	: 4	0081		144	21	134	212		011	200	044		
	037	,	OBS	014		0178	343	06	276	3	00045	2.0	000	1	144	24	125	213		011	200	064		
			ST	0 0150) –	0179	343	1	215	4	00045	2.0	0092		144	20	727	212		004	203	065		
	037	·	OBS	10188	5 -	0180	343	29	215	2	000/1		0116		144	27	727	~ I ć		004	6,0	000		
			51	0 0200	. –	0179	343	3	215	2	00043	+) 5 6	0134		144	1.1.	720							
			51	0250) -	0176	343	5	216	8	00040	74	0130	2	144		698	212		003	298	074		
	031	·	OBS	1028.	· -	0174	343	12	210	~	00-30		0164		1.44	57	600	6 4 6		001	2.70	074		
			51	0 0300		0112	345	0	270	а т	000099	2.2	0106)	144	76	640	214		000	293	077		
	031	·	UBS	037:	-	0124	244	17	277	4	00036	2.2	0103	2	1.0.0	85	649			000	675	0		
	0.7.7		51	0 0400		0145	344	4	277	2	000000		017.		149	18	610	220		000	301	082		
	031		065	D 0500	+ -	0100	344	90	277	2	00032	6.0	0223	7	145	34	592	220		000	201	002		
	0.3-		000	0 0500	, -	0077	345	4 3	277	0	00022	50	0-2		149	67	55.	222		000	307	091		
	031	,	005	0.000		0027	345	с о	279	0	00030	2.4	0/59	2	145	86	528			000	501	0.1		
			51	0 0000		0001	346	5	213	1	000000	11	0280	Ś	146	.29	483							
	0.3-	,	000	10700	2	0055	346	70	278	-	000000	• •	020	·	146	44	470	232		000	317	108		
	100		005	D 0800	5	0065	346	7	278	2	00029	55	0319)	146	51	471							
			ा ट ट न	0 0000	ĥ	0059	346	7	278	3	00028	96	0348	3	146	65	473							
	027	,	089	TU0701	5	0056	346	75	278	3		-		-	14+	71	474	234		006	310	115		
	031		сцо ст	n 1000	- 1	0053	346	8	278	4	00028	4.2	0371	7	146	79	475				-			
			51	0 1100	5	0046	346	8	279	4	00027	34	040	5	146	93	477							
	0.3-	,	OBS	T110	1	0040	346	78	278	4	200-1				147	05	479	232		000	315	122		
	001		000	1 4 4 7 1	-		2.0																	

REFERE	NCE	CHIP	SHIP LATITUI				NAR .	SDEN	STAT	ON TI	ME			ORIGINA	TOR'S		DEPTH	MAX	;		A V E	WEA-	CLOUD			NODC	
CTRY	1D.	CODE	CDE LATITUDE 1/1 GL 710335		LONG	SITUDE A	SOL	ARE		GMTI		YEAR	CRUISE	S	ATION		TO NOTION	OF	`'	OBSERV	ATIONS		CODES		S	TATION	
-+-						1/10 -	10.	+ + +	MOL	AY H	R.1/10		NU.	N	UMBER	- +		S.W.PL.	'S DI	R. HG	T PER SE		TYPE A.M.1				
318	154	IGL I			013	16 w	553	بلهدا	03 1	7 10	47]	1970	<u> </u>	027		<u></u> !	1920	L _				×1	03			0036	1
								WAT	ER	W I	IND	BARC	>-	AIR TEN	P C	vis,	NO.	SPE	CIAL								
								COLOR	TRANS. Imł	DIR.	OR	(mba	R 1 E	ULB	WET BULB	CODE	DEPTHS	OB2E8/	A TION	45							
								La T	c ()	0.0	0.00	0.1				1-	20										
				r			1	DI	150	00	500	1416		26		1	28									1	
		TIME			D	DEPTH (m)	1	°C	s	• 4.	SIG	MA-T	SPECIFI	VOLUA	5 S	γ <u>Ω</u> Μ.	SOL	DND	07 1	si/t	P04-P	TOTAL	NO2-N	NO3-N	51 04-5		S
		HR 1/10	1		•		1				1		4.00.0		_	x 103	VELC			_	·9 • 01/1	1/10 - 94	µg - ai/i	H8 - 01/1	µg - el/i		c
															1								ĺ				
				ST	D	0000	-0	174	340	5	27	43	000	6629	00	000	143	399									
		047		OBS		0000	-0	174	340	5	27	43					14	399									
				ST	D	0010	-0	174	340	5	27	43	000	6622	00	207	144	+00									
				OBS		0010	-0	174	340	5	27	43	000	1	0.0	112	144	400									
		000		085	0	0020	-0	174	340	5	27	43	000	0010	0.	515	14	402 1.03									
		000		5000	D	0030	-0	174	340	5	27	43	000	6609	0	020	144	404									
				OBS		0030	-0	174	340	5	27	43					144	404									
				ST	D	0050	-0	174	340	5	27	43	000	6597	00	033	144	407									
				OBS	,	0050	-0	174	340	5	27	43					14.	+07									
				ST	D	0075	-0	172	340	7	27	44	000	6432	00	049	144	412									
				OBS		0075	-0	172	340	7	27	44					144	412									
				ST	D	0100	-0	176	342	8	271	51	000	4 /96	00	063	144	418									
				085		0100	-0	1/0	342	8	271	51	000		0/	176	14.	+18									
				085	0	0125	-0	181	343	5	27	51 57	000	4231		575	14	420									
				ST	D	0150	-0	180	343	6	27	58	000	4142	00	085	144	425									
				OBS	-	0150	-0	180	343	6	27	58					144	425									
				ST	D	0200	-0	181	343	8	27	70	000	3956	0	105	144	433									
				OBS		0200	-0	181	343	8	27	70					144	433									
				ST	D	0250	-0	175	344	0	27	71	000	3792	0	125	144	445									
				OBS		0250	-0	175	344	0	27	71					144	445									
				51	0	0300	-0	169	344	2	21	73	000	3630	0.	143	144	456									
				000	. n	0300	-0	199	344	2	27	15 78	000	3120	0.	177	144	490									
				085		0400	-0	130	345	õ	27	78	000	120	0.	- / /	144	492									
				ST	D	3500	-0	074	345	8	271	32	000	2746	02	206	149	536									
				OBS		0500	- Ū	074	345	8	27	82					14	536									
				ST	0	0600	-0	010	340	2	27	83	000	2800	04	234	149	583									
				OBS		0600	- 0	010	346	2	27	83				_	145	583									
				ST	D	0700	0	048	346	7	27	83	000	2823	0.	262	146	527									
				OBS	0	0700	0	048	346	7	278	83		2000		200	146	527									
				080	0	0800	0	074	341	0	27	54 84	000	2009	0.	290	140	522									
				ST	D	0900	a	070	347	ĩ	27	35	000	2716	0.	318	146	571									
				OBS		0900	õ	070	347	1	27	35					146	571									
				ST	D	1000	0	059	347	1	271	36	000	2637	0	345	146	582									
				OBS		1000	Ū	059	347	1	27	86					146	582									
				ST	D	1100	0	051	347	1	271	86	000	2580	03	371	146	596									
				OBS		1100	0	051	347	1	27	96					146	596									
				ST	D	1200	0	044	347	0	270	36	000	2603	0.	397	14	709									
				UD S ST	D.	1200	0	044 122	341	1	270	36 97	000	21.26	04	422	14	709									
				OBS		1300	0	333	347	i	27	57 7 F	000	2430	0-	. 22	14	721									
				ST	D	1400	ő	030	347	ō.	27	87	000	2490	04	447	14	737									
				OBS		1400	0	030	347	Ū	271	37					14	737									
					D	1500	0	023	347	0	271	87	000	2429	04	+71	14	750									
				OBS		1500	0	23	347	0	271	37					14	750									
				OBS		1600	0	017	347	0	271	58					14	765									
				UBS cT	0	1750	0	000	347	0	271	58	000	2224	0.6		14	719									
				0 B S	0	1800		007	241	0	211	30 37	000	4 و رے	0:	- 21	14	794									
				OBS	,	1900	0	005	346	9	271	37					149	811									
							-																				

REFERENCE CTRY ID. CODE NO.	SHIP CODE	LATITU	1/10 1/10 04 5 01205			44 A.R. SQU 10"	SDEN ARE	STATI IC	ON TIN	∧E ,1/10	YEAR	CRUISE NO.	ORIGIN	ATOR'S		OEPT TO BOTTO	H DEI	AX. PTH DF PL'S	OBSE DIR	NAVE RVATION	S SEA	WEA- THER CODE	CLOUD CODES	,	S N	NODC IATION UMBER	
318154	GL	7104	s i	012091	W	553	12	03 1	7 1	10 1	1970	I	02	8		118	9		36	0 X		X1	013		1	0037	
							COLOR	TRANS		SPEED	BARO METR	D	ORY	WET	VIS.	NO.		SPECIA									
							COOE	(m)	014.	FORCE	(mbi	1) E	ULB	BULS		DEPTY	-15		_								
	,						DT	SD	08	504	93	3 +0	48		7	23					-						_
	MESSENGI TIME HR 1/10	CAST NO.	CAR		H (m.)	Ţ	٣	s	•4.	SIGA	4A-T	SPECIFH	C VOLU	ME 07	X 10 ³	·. v	ELOCITY	0	12 ml/i	PO4-P ug - 01/		0TALP /g = e1/i	NO2~N ug + at/l	NO3-N µg - a1/l	SIO ₄ —Si ν _θ - α1/i	рн	500
								1	_									1			1					l	
			51	D 00	00	-0	180	335	2	270	20	001	068	9 (0000	1	4388 4388	5									
	110	J	OBS		10	-0	180	220	2	270	10	001	068	1 (011	1	4300	• 1									
			089	0 00	10	-0	180	335	2	270	10	001	000	1 1	1011	i	4390)									
			51	D 00	20	-0	181	335	4	270	01	001	051	8 0	021	1	4391										
	00.	7	OBS	00	25	-0	182	335	5	270	52					1	4392	>									
			51	D 00	30	-0	181	335	5	270	2 2	001	043	4 (032	1	4393	,									
			OBS	00	30	-0	181	335	5	270	D 2					1	4393	l.									
			ST	D 00	50	-0	180	335	6	27(3	001	034	5 (053	1	4397	7									
			OBS	. 00	50	-0	180	335	6	27(3					1	4397	,									
			S1	D 00	75	-0	179	335	9	27(05	001	009	8 (078	1	4402	2									
			OBS	00	75	-0	179	335	9	270	05					1	4402	-									
			51	D 01	00	-0	174	336	1	27(07	000	993	9 (103	1	4409	2									
			OBS	01	00	-0	174	336	1	270	57			~ ~		1	4404	4									
			51	D 01	25	-0	170	330	9	21.	13	000	931	9 (1121	1	4410	2									
			OBS	01	25	-0	1/0	320	9	21.	13	000	007	7 (160	1	4410)									
			0.00	0 01	50	-0	160	227	2	27	16	000	907	/ \	150	1	4422	-									
			083	01	50	-0	160	220	5	27	10 24					1	4422	-									
			003	02	00	-0	171	338	6	27	20	000	796	4 (193	i	4431	1									
			089	02	00	-0	171	338	6	27	27	000				1	4431	1									
			085	02	08	-0	176	339	4	27	34					ī	4431										
			085	02	25	-0	167	340	4	27	42					1	4439	,									
			ST	D 02	50	0	176	341	0	27	47	000	608	1 (228	1	44 40)									
			OBS	02	50	-0	176	341	0	27.	47					1	4440)									
			S1	D 03	00	-0	179	342	4	27	58	000	497	1 (256	1	4449	7									
			OBS	, 03	00	-0	179	342	4	27	58					1	4449	9									
			SI	D 04	00	-0	186	343	4	27	66	000	412	4 (301	1	4464	•									
			OBS	, 04	00	-0	186	343	4	270	66					1	4464	•									
			S	D 05	00	-0	182	343	8	27	70	000	311	ا د	1941	1	4483	5									
			OBS	5 05	00	-0	182	343	8	21	70	000	261	1			4402	2									
			5	0 06	00	-0	176	344	1	21	72	000	221	T (1511	1	4503	2									
			063		00	-0	148	344	6	27	76	000	311	2 1	1410	i î	4524										
			000	0 07	00	-0	148	344	6	27	76	000	511	-		์ ī	4524										
			003	, 07 IN 08	00	-0	117	345	4	27	81	000	271	9 ()439	i 1	4566	5									
			08	5 08	00	-0	117	345	4	27	81	•••			-	1	4566	5									
			S	00 Q1	00	- 0	020	346	2	27	83	000	264	2 (9466	, ī	4624	÷									
			OB	09	00	-0	029	346	2	27	83	-				1	4624	+									
			S	10 IO	00	0	029	346	9	27	86	000	254	4 ()492	1	4669	9									
			OB	5 10	00	0	029	346	9	27	86					1	4669	7									
			OB	5 10	66	0	052	347	0	27	86					1	4690)									

REFERENCE	5.WIR		1	-	MAR	SDEN	STATION	TIME	1	Τ	DRJ	GINATO	or's	T	OEPTH	MAX.		WAY	/ E	WEA	CLOUD			NDDC	l
CIRY IO.	CODE	LATITUDE	LONGITU	DE B	son Son	ARE	(G.M	1)	YEAF	c	RUISE	STA	ION		01 MOTION	OF	08	SERVA	TIONS	THER	CODES			STATION	
NO.	+	1/10		1/10	10*	1.	MD OAY	HR.1/10		\rightarrow	NU.	NUA	VEFE	-+		S'MPL'S	DIR	NGT	PEN SI	A 000	TYPE AN	1		NUMBER	
318154	GL	711005	01222	7w	553	12	03 17	162	197	0		29			0465		07	0	2	X2	5 7			0038	
						WAI	ER	WIND		RO.	AIR	TEMP,	3		ND.	CRE		1							
						COLOR	TRANS. OI	R. 01		ETER	ORY		VET C	:001	OBS. OEPTHS	OBSERV	ATIONS								
							0.8	3 504	4 9	37	-034	•	-	7	09		-	1							
	MESSENGI TIMP HR 1/10	CAST C	ARD DE	PTH (m)	1	τ	s •/.	. SI	GMA-T	59	ECIFIC V	OLUME	₹ ∆ DYN X 1	2 0 	SOI VELC	UND DCITY	0 2 ml/	1 PC	Da-P + 01/1	101AL-P 29 = 01/1	NO2-N 29 - 01/1	NO3-N 49 + 01/1	51 Da - 1 29 - 01	pH	S C C
						1			3403																
	167		10 0	000	-0	181	3344	20	597	0	0109	48	000	00	14	387	808	1.	67		010	224	050		
	104	(UB	-S 0	0010 -0		100	3350	20	597 600	0	0106	66	001	1 1	14.	200	808	1.	0 (019	230	052		
	16.3	> 0e	ic 0	014	-0	180	33500	20	508	0	0100	100	001		14.	390	014 813	1.	60		016	240	052		
	102		.τ0 Ο	0020 -0		181	3350	21	508	0	0107	96	002	22	14	391	813				010	240	072		
	162	, OB	5 0	0027 -0		181	33509	26	599	0	010.		001		14	392	813	1.0	67		018	241	052		
	101		TD 0	0030 -0		179	3352	2	700	0	0106	69	003	32	14	394	813	-			0.0	2 . 2	072		
	162	06	S 0	0048 -0		171	33591	2	705						144	402	811	1	75		015	248	054		
		5	TD O	050	-0	171	3359	21	2705		0010113		005	53	144	402	810								
	162	2 08	S 0	070	-0	167	33612	2 2	707						144	407	802	ì	75		017	237	054		
		S	TD O	075	-0	167	3362	2	708	0	0098	98	007	78	144	408	8 n 2								
		S	TD 0	100	-0	166	3369	2	713	0	0093	45	010	20	144	414	799								
	162	2 08	S 0	113	-0	166	33729	2	716						144	417	797	1	79		016	248	057		
		5	TD 0	0125 -0		167	3377	2	720	0	0087	15	012	25	144	419	790								
		S	TD 0	0150 -0		168	3385	2	726	0	0080	83	014	+6	144	424	778								
		5	TD 0	200	-0	170	3401	27	739	0	0068	20	018	33	144	433	759								
	162	2 08	S TO	205	-0	170	34022	2 2 7	740						144	434	757	20	04		011	275	063		
		S	TD O	250	-0	179	3418	2	753	0	0054	61	021	14	144	440	749								
	162	08	S TO	294	-0	184	34263	3 27	2760				-		144	446	741	2	11		015	292	066		
		S	TD 0	300	-0;	184	3427	27	761	0	0047	26	023	39	144	447	740								
	162	2 08	S TO	351	-01	186	34282	2 2 7	762						144	455	722	- 2.	11		009	286	068		

REPERENC	SHIP			E.F.	MAR	SOEN	STATIC	IN TIME				DRIGIN	AIDR	3	_	DEPTH	DEPTH		WAVE	WEA	- CLOUD	1		NDDC	1
CTRY IC	CODE		105		300	ARC		MU	*	EAR	CRUIS	E	STATIC	N .		OT MOTIOB	OF	085	SERVATIONS	- THER	CODIS		1	STATION	
			1/10	1/10 -	10*	+ " +	MO 0/	AY HR.1/	10		I NO.	+'	NUMI	E K	-+-		S'M PL'S	DIR	HGT PER S	(A	TYPE AM	1			
3181	54 GL	7057	55	011216₩	553	01	03 1	7 221	1 19	970	<u> </u>	03	0			0320		36	0 X	X 2	03			0039	
						WAT	ER	WING	2	BAR	>- _	AIR TE	MP. 7	: ,	V15.	ND.	SPEC	IAL I							
						COLOR	TRANS.	DIR.	OR	METE		DRY BULB	WE	1 C	ODE	DEPTHS	DBSERV	A TION 5							
						DT	SD	11 50	9	95	5 -0)44		7	7	15									
						0.					_		-	-	_	<u> </u>					1			1	
	HR 1/1	MD.	CARC	OEPTH (m)	1	τ	2.	/ ·	SIGMA	-1	ANO	VOLU	10 ⁷	οτη. x 1	. M.	VELC	DONICITY	02 ml/l	PD4-P #9 - 01/1	TOTAL-P ug = st/l	ND3-N µg - ot/1	ND3-N 29 - 011	51 O ₄ —5 99 + 91/	й 19 рН	500
	1		ST	0000 0	-0	182	3354	4 2	2701	ι '	00	053	1	000	00	143	388 '		1	4	1			,	
	22	7	OBS	0000	- C	182	3354	4 2	701	l						143	388								
			ST	D 0010	-0	182	3354	4 2	701	L	00	052	4	0 U 1	1	143	89								
			OBS	0010	-0	182	3354	4 2	2701	l						143	389								
			ST	D 0020	-0	182	3355	5 2	2702	2	000	046	2	002	21	143	391								
	0.0	5	OBS	0025	-0	182	3355	5 2	2702	2						143	392								
			ST	0010	-0	182	3355	5 2	2702	2	00	043	2	0Ú3	31	143	393								
			QBS	0030	-0	182	3355	5 2	702	2						143	393								
			ST	D 0050	-0	181	3356	5 2	703	2	00	034	2	005	52	143	397								
			OBS	0050	-0	181	3356	5 2	2703	3						143	397								
			ST	D 0075	-0	177	3362	2 2	2708	3	000	987	3	007	78	144	+04								
			OBS	0075	-0	177	336;	2 2	2708	3						144	•04								
			ST	0 0100	-0	162	3370	2	2714	+	000	928	0	010)1	144	+16								
			OBS	0100	-0	162	3370) 2	714	•						144	+16								
			ST	D 0125	-0	167	3375	5 2	2718	3	000	886	7	012	24	144	18								
			OBS	0125	-0	167	3375	5 2	2718	3						144	18								
			OBS	0142	-0	174	3383	32	725	5						144	19								
			ST	D 0150	~0	172	3384	4 2	2726	5	000	814	7	014	۶,	144	+22								
			OBS	0150	-0	172	3384	4 2	2726	>						144	+22								
			OBS	0173	-0	145	3395	5 2	734	•						144	+40								
			ST	D 0200	-0	162	3402	2 2	2740)	000	676	7	016	33	144	+37								
			OBS	0200	-0	162	3402	2 2	740)						144	+37								
			085	0217	-0	182	3422	2 2	2757	7						144	33								
			ST	D 0250	-0	184	3425	5 2	759)	000	491	0	021	2	144	•38								
			OBS	0250	-0	184	3425	5 2	759	,						144	+38								
			OBS	0282	-0	186	3428	3 2	762	2						144	43								

REFERENCE	2MIP COOE	LATITUC	DE		MAR SOU		STAT	ION 1 GMT	IME	YEAR	CRUIS NO.	ORIGIN	ATO TATI	R'S ON BER		DEPTH TO BOTTOA	MAX DEPTH OF S'MPL		WAY BSERVA		WEA THER COOE	CLOUD		S	NODC TATION UMBER	
318154	GL	70210)S	008550W	552	08	03 1	8	167	1970		03	1	- 1		0503		28	2	7	×1	5 5			0040	
						COLOR	TRANS.	DiR.	SPEER	BAR METI	D	ORY BULB	W BU	ET C	VIS. CODE	NO. OBS. OEPTHS	SPI ORSER	CIAL ATIONS	s							
								12	504	97	2 - 0	53		ŀ	7	10	1		1							
	MESSENGI TIME HR 1/10	CAST NO.	CAR	E OEPTH (m)	г	٣	s	s •/4. si		MA-T	SPECIF	C VOLU	ME 07	₹ ∠ OYN X	. ". 10"	SO VEL	OCITY	02 ml	/1 PC	D 4− P • 01/1	101A L=P µg = o1/1	NO2=N yg + o1/1	NO3-N 48 - 01/1	SI O4—Si µg = ol/i	рн	s c c
					1		2265		2710		0009697		, I	0.07	0.0	1	204	80/						1	ļ	11
		-	51	0000	-0	172	1000 C		27	10	000	909	1	000	00	14	394	804	1.	66		013	237	053		
	10	(003	D 0010	-0	172	12 336		27	2710		849	5	00	10	14	396	801	1-0			019	201	000		
			51	0010	-0	172	3365		27	10	000	967	ő	00	19	14	397	798								
			51	D 0030	-0	-0171		3365		2710		965	8	002	29	14	400	797								
	16	7	085	0049	-0	-0170		33656		2711			-		-	14	403	795	1	69		012	236	053		
			ST	D 0050	-0	170 336		66 27		11	000	960	0	004	48	14	403	795								
			ST	D 0075	-0	169	3366		2711		000958		6	00.	72	14	408	708								
	16.	7	OBS	0089	-0	168	336	3672 27		12						14	411	799	1	71		012	237	054		
			51	D 0100	-0	169	336	3368		2712		0009416		0096		14	4413 7		799							
	16	7	085	0110	-0	169	336	88	2713							14	414	799	1	69		011	235	053		
			SI	D 0125	-0	159	33	73	27	16	000	904	3	01	19	14	422	797		-			7 / 7	0.5.1		
	16	7	085	0131	-0	156	33	756	27	18						14	425	795) 1	74		012	242	054		
			S1	D 0150	-0	156	338	34	27	25	000	819	3	014	41	14	429	784		0.2		012	744	050		
	16	7	OBS	5 0174	-0	159	339	155	21	35	0.00	(1)		01	7/	14	499	7/0		92		012	204	059		
		_	51	0200	-0	170	94.		21	47	000	619	1	01	10	14	636	157		0.7		012	200	045		
	16	7	OBS	0217	-0	1/6	34.	201	21	52	000	514	6	020	05	14	430	665	, <u> </u>	07		012	290	000		
	14	7	000	U UZOU	-0	104	24	260	27	161	000	1.1.4	0	020	~ ~	14	446	622	2	13		009	302	066		
	16	(000	0300	-0	107	343	28	27	6.1	0.00	46.5	6	02	29	14	448	634		- /		007	3 V L	000		
	14.	7	080	T0370	_0	170	34	331	27	65	000		5	v = 1	- /	14	466	717	2	19		003	307	070		
	10	,	500	D 0400	-0	167	34	34	27	66	000	419	1	02	73	14	473	713	, –			–				
	16	7 OB		T0471	-0	167	34	354	27	67					-	14	485	705	2	15		003	308	072		

REFERENCE	-				_	. :	MARS	DEN	51	ATION T	IME			1	DRIGIN	A TOR'S	-		TERTH	MAX		WAVE	1		CLOUD	T	T		
CTBY IO.	CODE	LATITUDE L. 1/10			SITUDE 🚆	8	50 U	ARE		(GMT)		YEA	.a	CRUISE	5	TATION		1	TO	DEPTH	085	ERVATION	s	THER	CODES			STATION	
CODE NO.		•	1/10		'1/10	-	10"	1.1.	MO	DAY	IR,1/10			NÖ.	٢	UMBE	ŧ.	80	MOTTOM	S'MPL'S	Dit	HGT PER	SEA	COOE	TYPE AN	Ť		NUMBER	
318154	GL	7020	85	007	298W		552	07	03	19 0	115	197	70		03	2		0.	740		00	0 X		×2	03			0041	
							1	WA	TER	÷Τ-,	VIND	· .			IR TER	AP TC		1	NO			• I I			015	1		00.1	
								COLOR	TRA	NS DIR	SPEED		AETER) R Y	WET	COD	E_	OBS.	SPEC OBSERV	TIONS								
								CODE	1 17	1	1010	E	(mb•)		ULB	8019		0	EPTHS										
								DF	S	00 0	500	9	940	+0	50		7	2	27										
	MESSENGE	CAST	CAR	n					T		T			sucus	VOUL		۲ ۵ ۵	, 1	1011			1	1.					1	Τ.
	TIME	Y NO.	TYP	ĕ	DEPTH (m		T	Ċ		s ·/	SIG	M A -	1	ANOM	ALY-IS	67 t	N, NYN	A.	VELO	CITY	0 ; m1/1	PO P	r c		ND2-N	NO3=N	5104-	Si pH	c
	NK 1/10	+ +					-		+		+		-+		-			-											
		1	c t		0000		·	70	1	25.0	1 7 7	0 F	1	001		, I ,	0.00		1 / 2	E			1	1					
	015		080	U	0000		-01	170	2	350	21	05		001	515.	5 U	000		143	90									
	010		5 U U U	n	00000		-01	179	ر ۲	350	27	05		001	114	6 0	010		143	90									
			OBS	Č	0010		-0	179	3	359	27	05		001			010		143	92									
			51	D	0020		-01	174	3	368	27	13		000	9451	3 0	020		143	97									
	007		OBS	-	0025		-01	173	3	370	27	14					0		143	98									
			ST	D	0030		-01	172	3	370	27	14		000	930	2 0	029		144	00									
			OBS		0030		-01	172	3	370	27	14							144	00									
			ST	D	0050		-01	167	3	80	27	22		000	853	3 0	047		144	07									
			OBS		0050		-01	167	3	380	27	22							144	07									
			ST	D	0075		-01	154	3	391	27	31		000	7708	3 0	067		144	19									
			0 B S		0075		-01	154	3	391	27	31							144	19									
			ST	D	0100		-01	49	3	394	27	33		000	7478	3 0	086		144	26									
			0 B S	_	0100		-01	149	3	394	27	33							144	26									
			ST	D	0125		-01	40	34	+04	27	41		0000	5726	> 0	104		144	35									
			085	-	0125		-01	40	3,	+04	21	41					1		144	35									
			51	U	0150		-01	1.35	3	+07	21	43		0000	5499	<i>Y</i> 0	121		144	42									
			005		0150		-01	132	• و د	+07	21	43							144	42									
			000		0101		-01	1.72	2	10	27	947 E7							144	40									
			5 T	D	0200		-01	74	3	122	27	56		000	520	0	150		144	34									
			OBS		0200		-01	174	3.	+22	27	56		000			- 20		144	34									
			ST	D	0250		-01	80	3	+31	27	64		0004	464	• 0	174		144	41									
			OBS		0250		-01	180	34	31	27	64							144	41									
			ST	0	0300		-01	78	34	+34	27	66		000	+21	1 0	196		144	51									
			QBS		0300		-01	78	34	+34	27	66							144	51									
			ST	D	0400		-01	69	34	+39	27	70		000	3801	3 0	236		144	72									
			085		0400		-01	69	3	•39	27	70							144	72									
			085		0435		-01	28	31	+48	27	76							144	99									
			OBS		0443		-01	132	34	+44P	27	73P	>																
			OBS		0451		-01	111	34	+52	27	79							145	10									
			OBS		0490		-01	107	34	157	27	83					2		145	19									
			080	D	0500		-00) / 4	34	157	27	81		000	282.	0	269		145	36									
			085		0500		-00)/4)¢0	بر رد	+) (2/	01 01							145	30									
			OBS		0546		-00	100	34	61	27	01 01							145	43									
			085		0569		-00	130	34	62	27	0 2 R 4							145	68									
			085		0577		-00	124	3/	66	27	8.6							145	73									
		OBS ST		Ð	0600		00	28	34	67	27	85		0003	676		297		146	01									
			OBS	-	0600		00	28	34	67	27	85				. 0	- / /		146	01									
			ST	D	0700		00	51	34	69	27	85		0002	2695	0	323		146	28									
			085		0700		00	51	34	69	271	85				-			146	28									
			OBS		0722		00	51	34	70	271	86							146	32									

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