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**OCEANOGRAPHY OF THE
WEDDELL SEA (IWSOE)**

February-March 1969

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REPORT No. 31 CG 373-31

OCEANOGRAPHY OF THE WEDDELL SEA IN 1969 (IWSOE)

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and

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WASHINGTON, D.C. ⚓ FEBRUARY 1970

Abstract

This report discusses the physical oceanography of the Weddell Sea during the austral summer of 1969. The work was done on the icebreaker USCGC GLACIER (WAGB-4) as part of the second phase of the International Weddell Sea Oceanographic Expedition. Temperature, salinity, and oxygen measurements were obtained from a salinity-temperature-depth recorder and from Nansen bottles.

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OCEANOGRAPHY OF THE WEDDELL SEA (1969—IWSOE)

Introduction

Deacon (1963) indicated that the Weddell Sea is the largest source of Antarctic Bottom Water (-0.4°C ., 34.66%). The generally accepted theory states that it is a mixture of warm deep water and water formed on the Antarctic continental shelf. The shelf water gets its particular properties by convection due to cooling and ice formation during the winter. Owing to the nonlinear dependency of density of seawater on temperature and salinity, the processes determining the formation of Antarctic Bottom Water are hampered or even prevented until a certain stage has been reached. The formation of Bottom Water may, therefore, appear as a sudden flow, with a perceptible current speed (Fofonoff, 1956).

In the summer of 1968, the icebreaker USCGC GLACIER (WAGB-4), modified for oceanographic research, became available for the International Weddell Sea Oceanographic Expedition (IWSOE) under the coordination of the National Science Foundation. The major purpose of the expedition was to study the formation of Antarctic Bottom Water. From the data of IWSOE '68, Elder and Seabrooke (in press) proposed a theory for the formation of Antarctic Bottom Water in the summer. They found the shelf water below 200 meters in the southwest Weddell Sea to be sufficiently dense to flow down the slope and mix with the warm deep layer and form Antarctic Bottom Water. Analysis of the data indicated that the dense shelf water did not form at the air-sea interface nor was it transported in from other areas. Bathymetric data indicate it was not water formed in the winter, trapped on the shelf, and prevented from flowing off the shelf. They concluded that the dense water was formed on the continental shelf by contact with the underside of the Filchner and Ronne Ice shelves.

The IWSOE '69 is the second phase of the oceanographic program carried out in the Weddell Sea and is a direct continuation of IWSOE '68. The USCGC GLACIER, Captain E. C. McCorry, USCG, commanding, was assigned for the cruise. In addition to the already existing oceanographic facilities, a new level luffing crane with a trawl winch was installed to give piston coring and heavier dredging capabilities to the ship.

IWSOE '69 Programs

A number of institutions took part in the expedition conducting the following programs:

University of Bergen: To evaluate the theories of the formation of Antarctic Bottom Water, Dr. Thor Kvinge of the University of Bergen installed four current meter buoy arrays on the continental shelf near 74°S ., 40°W . during IWSOE '68 to measure currents and temperature throughout the winter. One of the primary objectives of IWSOE'69 was to recover the current meters.

The University of Connecticut: Dr. John S. Rankin of the University of Connecticut studied the population density and diversity of the deep sea benthos of the Weddell Sea using an anchor dredge and an epibenthic sled.

The University of Minnesota: A program to study the population dynamics of Antarctic seals was conducted by Dr. Albert W. Erickson of the Bell Museum of Natural History, University of Minnesota. The seal census was conducted from the air by helicopter as well as from the ship. Specimens were also captured and blood samples taken for studies of phylogenetic and population of relationships.

The University of California, Los Angeles: Sedimentation processes operating in the Weddell Sea were studied by Richard D. LeFever of the Department of Geology, University of California, Los Angeles. A modified Ewing pis-

ton corer 20 feet in length was utilized to obtain sedimentary material. The cores were returned to the United States where they will be exposed to X-rays to determine the types and extent of sedimentary structures which are not otherwise visible. In addition, chemical analyses will be made on the sediments to determine carbonate or sulfate concentrations and source rock composition.

The U.S. Coast Guard Oceanographic Unit: The program conducted by the U.S. Coast Guard Oceanographic Unit consisted of physical oceanographic measurements, determinations of dissolved oxygen, pH, and nutrients, and bottom photography. Personnel making up the Unit's field party included:

Gary L. HUFFORD	Oceanographer
LT James M. SEABROOKE,	
USCG	Oceanographer
MST1 Peter R. SAN JULE,	
USCG	Oceanographic Technician
SO2 Robert C. MURRELL,	
USCG	Oceanographic Technician
MST2 Kenneth THOENI, USCG	Oceanographic Technician
YN2 Dwight E. OLSON, USCG	Oceanographic Technician
MST3 Bruce B. EDWARDS,	
USCG	Oceanographic Technician

Initially, the cruise was to be conducted over an eighty day period, starting in early January and ending on April first. However, GLACIER was assigned to first break a channel to McMurdo Station and met unexpectedly heavy ice concentrations, which delayed the start of IWSOE '69 until mid-February. The cruise lasted till March 24, 1969.

Station Procedure

On February 13, GLACIER departed Punta Arenas, Chile. It was tentatively agreed to concentrate the investigations in the southeastern part of the Weddell Sea in the area of the current meter arrays planted during IWSOE '68 until their recovery. However, the ship ran into heavy ice that was impenetrable sixty miles from the current meter arrays. After several unsuccessful attempts were made, it was necessary to abandon recovery of the arrays during IWSOE '69. A series of stations were then taken in the area.

The initial procedure followed by the ship upon arriving at station depended largely on ice conditions. During IWSOE '69 heavy ice concentrations were encountered, and only twenty-seven oceanographic stations were taken. It was usually possible to ease the ship's bow into an ice floe and by slowly turning the screws, hold the bow in the floe until it froze, at the same time clearing a small area on either side aft of brash ice. This provided a clear area in which to lower oceanographic equipment. This procedure was adopted instead of the one utilized during IWSOE '68, i.e., easing the starboard side against a floe. It was necessary to keep both sides clear for work due to the addition of a starboard luffing crane and winch.

Although station plans were constantly changing owing to a number of circumstances, a station usually consisted of a Nansen cast, bottom photography, an STD cast, piston coring and bottom trawls and dredges.

Satellite navigation contributed greatly to the success of station position determination. No navigational aids are available in the Weddell Sea, and celestial navigation is hampered by generally overcast skies. Since the accuracy of satellite navigation is not affected by either clouds or indistinct horizon, use of this method during the expedition yielded accurate positions.

Data Acquisition and Initial Analysis

A summary of data collected at each station is presented in table 1.

Temperature Data

Teflon-lined Nansen bottles were equipped with two protected reversing thermometers and, at alternate depths below 150 meters, with unprotected thermometers. Sampling depths were approximately 0, 10, 25, 50, 75, 100, 150, 200, 300, 400, 500, 600, 700, 800, 1000, 1250, 1500 meters and at 300 meter intervals below 1500 meters, except that several bottles were placed at 25 meter intervals near the bottom.

With the ship firmly held in the ice on most stations, a zero wire angle was generally obtained and an acoustic depth-telemetering pinger was placed on the wire to make it possible to obtain samples within a few meters of the bottom.

Table I. Summary of Data Collected at Each Station.

Station	Date	Time (GMT)		Position		Depth of Water	Maximum Sampling Depth-Nansen STD	Nansen	STD	Bottom Bio	Cores	Bottom Photo.	Seal Census
	1969	On	Off	LAT S	LONG W	(meters)							
0001	24 Feb	0120	1824	74-31.6	30-18.9	513	510	X		X	X		X
0002	25	0100	1454	75-31.5	30-08.3	378	375	X	X	X	X		X
0003	26	0230	1020	76-38.1	31-48.4	436	434	X			X		X
0004	26	1730	2350	77-05.4	35-02.6	803	800	X		X	X		X
0005	27	0800	1730	77-19.7	36-41.3	1065	1063	X	X	X	X		X
0006	28 Feb-01 Mar	2330	0900	76-50.2	40-55.4	513	510	X		X	X		X
0007	01 Mar	1305	2050	77-16.0	42-38.3	500	495	X		X	X		
0008	02	0112	1054	77-38.5	42-27.8	570	565	X		X	X		X
0009	03-04	2110	0245	77-54.2	45-13.3	250	246	X		X	X		
0010	04	1215	2045	77-50.0	42-05.2	657	655	X		X	X		X
0011	05	1700	2300	77-10.2	38-40.8	820	815	X		X	X	X	X
0012	06	1645	2330	77-18.9	37-42.3	988	985	X		X	X	X	X
0013	07	0600	0900	77-50.2	35-32.9	343	341	X	X				
0014	07	1245	1610	77-22.0	34-29.2	362	360	X	X				X
0015	08	0300	0645	76-52.9	32-49.7	375	372	X	X		X		
0016	09	0230	0630	74-40.0	31-04.1	510	508	X	X				
0017	09	1355	1638	74-19.0	32-28.6	591	590	X	X				X
0018	10-11	0112	1418	74-15.0	32-30.0	640	240	Current Meter Station					X
0019	11-12	1715	0100	74-06.3	32-36.2	1447	1445	X		X	X	X	X
0020	12	1008	1850	73-49.4	31-40.9	2317	2314	X		X	X	X	X
0021	13	0500	1616	73-52.0	31-17.6								
0022	14	0045	0958	73-29.0	30-24.1	3035	3035	X		X	X		X
0023	14-15	1448	0540	72-47.5	30-28.3	3658	3658	X		X	X		
0024	15-16	2104	0950	71-36.1	30-36.1	3840	3800	X		X	X		X
0025	16-17	2348	0506	70-38.8	33-32.3	4343	4340	X				X	
0026	17-18	2148	1204	68-36.8	32-03.6	4483	1090	X		X	X		
0027	19-21	2344	1725	64-50.6	41-24.7	4572	4572	X		X	X		

Standard analysis procedures were used for correcting thermometers and determining thermometric and accepted depths. Use of the shipboard computer made accurate real time data analysis and quality control possible on board.

Salinity Determination

Salinity was determined using an inductive salinometer, and the onboard computer.

Oxygen and pH

Dissolved oxygen and pH were determined on all the water samples using the methods described by Strickland and Parsons (1965). From the oxygen data, percent saturation and apparent oxygen utilization were calculated giving a gross estimate of biological activity.

Nutrient Analysis

Water samples were analyzed at sea for in-

organic phosphate, nitrate, nitrite and silicate using the methods described by Strickland and Parsons (1965). The ultraviolet spectrophotometer was shock-mounted to counteract the continual vibration of the ship in breaking ice. This arrangement worked quite well.

Frozen samples for ammonia and total phosphorus were returned to the U.S. Coast Guard Oceanographic Unit for later analysis. Due to problems with the distilled water and de-ionizer, the data will be given in a later report.

Salinity-Temperature-Depth System (STD)

A continuous trace of temperature and salinity versus depth was obtained at only 8 stations due to malfunctions of the salinity sensor. A Nansen bottle was attached to the STD wire just above the sensor unit for calibration of the STD data.

Bottom Photography

A Thorndike (1959) type bottom contact camera system was used for bottom photographs. The camera system was set up to take a photograph when the camera lens was three feet above the bottom and at a sixty-degree angle from the vertical. The ship's photographer developed the film. The compass-oriented photographs revealed many benthic organisms as well as current ripple marks.

Results of Preliminary Analysis

Due to the limited number of oceanographic stations (27) only one vertical section was selected for analysis (figure 2-7).

Analysis of the data using preformed nutrients (figures 5-6) as well as temperature and salinity (figures 2-3) indicate that three water masses were present in the southeast Weddell Sea (table 2). These were the water mass found on the continental shelf; a warm intrusion which was found from about 400 meters to 1600 meters depth off the shelf; and the bottom water mass which may or may not be Antarctic Bottom Water.

The temperature and salinity distribution of the shelf water and warm deep water showed that the bottom water present could not be produced by mixing of these two masses (figure 2-3). Deacon (1937) postulated that the formation of Antarctic Bottom Water takes

place only in the southwestern Weddell Sea. Elder and Seabrooke (in press) found formation of Antarctic Bottom Water in the southwestern Weddell Sea, (west of 40° longitude) during IWSOE '68 by mixing of dense shelf water with warm deep water. Data from IWSOE '69 indicates that Antarctic Bottom Water formation does not take place in the southeastern Weddell Sea (east of 40° longitude) in the summer.

A question arises as to where the bottom water comes from in the cross section for IWSOE '69. Bottom photographs obtained from the USNS Eltanin and IWSOE '68 (Hollister and Elder, 1969) indicate a westerly flowing bottom current which follows the bathymetric contours in the southern Weddell Sea. Only a few photographs were obtained during IWSOE '69, but they also suggest a westerly flowing bottom current. Therefore, the bottom water present in the southeast Weddell Sea in 1969 may be part of the westerly flowing Antarctic coastal current which is evident only in the Weddell Sea area, where an extensive cyclonic motion occurs to the south of the Circumpolar current (Sverdrup, Johnson and Fleming, 1942). Further investigation is being conducted to determine the origin of the bottom water found in the southwestern Weddell Sea. Data collected during IWSOE '70 will hopefully add light to the problem.

Table II. Mean Characteristics of water masses present in the Weddell Sea in February 1969.

Year	Water Mass	Temperature	Salinity	Preformed Nutrients ($\mu\text{g-at/l}$)	
				Phosphate	Nitrate
1969	Shelf Water	-1.60° C	<34.60‰	1.65 ± .19	22.37 ± 2.46
	Warm Intrusion	0.40° C	34.67‰	1.15 ± .22	14.57 ± 2.89
	Bottom Water	-0.26° C	34.66‰	1.31 ± .12	17.38 ± 2.10

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Figure 1. IWOSE '69 hydrographic station locations.

Figure 2. Vertical distribution of temperature ($^{\circ}\text{C}$) during IWSOE '69.

Figure 3. Vertical distribution of salinity (‰) during IWSOE '69.

Figure 4. Vertical distribution of dissolved oxygen (ml/L) during IWSOE '69.

Figure 5. Vertical distribution of performed phosphate ($\mu\text{g-at/L}$) during IWSOE '69.

Figure 6. Vertical distribution of performed nitrate ($\mu\text{g-at/L}$) during IWSOE '69.

Table III. Table of Oceanographic Data (IWSOE '69).

EXPLANATION OF OCEANOGRAPHIC STATION DATA

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

1. Surface Observations

<i>Entry</i>	<i>Description of Field</i>
NODC REF. ID. NO.	NODC reference identity number.
COUNTRY CODE	Indicates nationality of the institute or agency conducting the survey or expedition.
CRUISE NUMBER	A reference number assigned by NODC for storage-retrieval purposes. NODC Publication C-1, <i>Reference Sources of Oceanographic Station Data</i> , gives complete bibliographic and other pertinent information for each cruise.
SHIP CODE	Alphabetic representation of ship's name (or ICES numeric ship code).
LATITUDE	Degrees, minutes, and tenths of minutes, N or S.
LONGITUDE	Degrees, minutes, and tenths of minutes, E or W.
DRIFT INDICATOR	The letter D appears in this column if extensive drift occurred while on station.
MARSDEN SQUARE	
10°	Marsden square number according to the Marsden square system.
1°	The one-degree square number according to the Marsden square system.
STATION TIME	
(GMT)	Date and time given by the originator (GMT).
MONTH	Month (GMT).
DAY	Day (GMT).
HR. 1-10	GMT to nearest tenth of an hour.
YEAR	Year.
ORIGINATOR'S CRUISE NUMBER	Alphabetic or alpha-numeric designator as assigned by the originator. If the year of the cruise forms part of the cruise numbering system, the year digits are found in preceding field.
STATION NUMBER	Originator's station number or designator.
DEPTH OF BOTTOM	Corrected or uncorrected sounding depth in meters.
MAX. DEPTH OF SAMPLES	Depth of deepest sample in hundreds of meters to nearest hundred-meter interval.
WAVE OBSERVATIONS	
DIR.	Direction from which the dominant waves are coming, in tens of degrees, according to WMO Code 0885.
HGT.	Height of dominant waves according to WMO Code 1555.
PER.	Period of dominant waves according to WMO Code 3155.
SEA AMT.	Sea amount (sea state) according to WMO Code 3700 (preceded by the letter A).
WEATHER CODE	If preceded by the letter X, weather according to WMO Code 4501. A numeric two-digit entry indicates weather according to WMO Code 4677.
*INSTR./CLOUD	This field is used either for recording instrument code when electronically obtained data are being reported, or for reporting cloud type and cloud amount when conventional Nansen cast data are being reported.
*INSTR.	A two character code representing instrument package of system.
TYPE	Cloud type according to WMO Code 0500.
AMT.	Cloud amount according to WMO Code 2700.
NODC STATION NUMBER	Assigned by NODC for data storage and retrieval purposes. The NODC Reference Identity and Station numbers combined, uniquely define each station in the NODC archives.

*DT/S ^u /D	This indicator specifies that the reported data have been obtained electronically rather than by Nansen-type casts. U (up) and D (down) are cast indicators for electronically obtained serial data and specify that the data were taken while hoisting or lowering respectively.
WATER COLOR	Water color according to Forel-Ule Code.
TRANS. (m)	Water transparency in meters as determined by Secchi disc.
WIND	
DIR.	Direction from which wind is blowing in tens of degrees, according to WMO Code 0877.
SPEED OR FORCE	If preceded by letter S, wind speed in knots; if preceded by letter F, wind force in Beaufort code.
BAROMETER (mbs)	Barometric pressure in millibars; tens, units, and tenths places only.
AIR TEMPERATURE °C.	
DRY BUL	Dry bulb air temperature in degrees centigrade, to tenths.
WET BULB	Wet bulb air temperature in degrees centigrade, to tenths.
VIS CODE	Visibility according to WMO Code 4300.
NUMBER OBS, LEVEL	The number of observed levels associated with the station.
SPECIAL	Entries in this space vary with individual cruises or stations. Information concerning
OBSERVATIONS	entries in this field can be requested from the NODC.

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

REFERENCE		SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	DEPTH INCHES	1/2 RSDEN		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF S'PL'S	WAVE OBSERVATIONS				WEA- THER CODE	CLOUD CODES		NOOC STATION NUMBER				
CTRY CODE	IO. NO.					10'	1"	MO	DAY	HR./10		CRUISE NO.	STATION NUMBER			DIR	HGT	PER	SEA		TYPE	AMT					
318085	GL		74316S	030189W	555	40	02	24	115	1969		001		0515	05	24	1	8		X4	2	6	0001				
					WATER		WIND		BARO- METER		AIR TEMP. °C																
					COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE	(mb)		DRY BULB	WET BULB	VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS												
								22	503	928	-071	-073	7	11													

MESSNGR TIME OF HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-σ _t	Σ Δ σ DYN. M. X 10 ³	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P μg - at/l	TOTAL-P μg - at/l	NO ₃ -N μg - at/l	NO ₃ -N μg - at/l	SiO ₄ -Si μg - at/l	pH	CTC
		STD	0000	-0113	3398	2735	0007365	0000	14426	805							
	130	OBS	0000	-0113	33976	2735			14426	805	124		012	222	057	783	
		STD	0010	-0114	3397	2734	0007403	0007	14428	808							
	130	OBS	0010	-0114	33970	2734			14428	808	130		013	227	056	792	
		STD	0020	-0121	3398	2735	0007300	0015	14426	811							
	130	OBS	0026	-0125	33986	2736			14425	812	123		014	230	055	792	
		STD	0030	-0128	3405	2741	0006736	0022	14425	810							
		STD	0050	-0147	3427	2760	0004982	0033	14423	799							
	130	OBS	0052	-0149	34289	2761			14423	798	161		018	280	064	790	
		STD	0075	-0177	3436	2768	0004195	0045	14414	741							
	130	OBS	0078	-0179	34361	2768			14414	735	180		026	283	068	788	
		STD	0100	-0185	3438	2770	0004006	0055	14415	731							
	130	OBS	0104	-0186	34384	2770			14415	741Q	191		012	294	070	784	
		STD	0125	-0185	3438	2770	0003967	0065	14419	727							
		STD	0150	-0184	3438	2770	0003963	0075	14424	724							
	130	OBS	0156		34382				723	180			014	316	069	784	
		STD	0200	-0181	3438	2770	0003932	0095	14433	721							
	130	OBS	0208	-0181	34383	2770			14435	720	181		007	304	070	788	
		STD	0250	-0180	3439	2770	0003867	0114	14442	714							
		STD	0300	-0179	3440	2771	0003787	0133	14451	706							
	130	OBS	0311	-0179	34396	2771			14453	704	176		027	321	072	788	
		STD	0400	-0102	3446	2774	0003548	0170	14505	643							
	130	OBS	T0415	-0088	34479	2775			14514	611Q	219		044	311	085	781	
		STD	0500	0001	3460	2780	0003028	0203	14571	523							
	130	OBS	T0512	0015	34626	2782			14580	505	000		016	346	101	780	

REFERENCE	SHIP	LATITUDE	LONGITUDE	DEPTH	1/2 RSDEN		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH	MAX. DEPTH	WAVE OBSERVATIONS			WEATHER CODE	CLOUD CODES		NOOC STATION NUMBER							
					INCHES	FOOT	10'	1"	MO		DAY	HR./10			CRUISE NO.	STATION NUMBER	TO BOTTOM		OF S'PL'S	DIR		HGT	PER	SEA	TYPE	AMT		
318085	GL	75314S	030080W	555	50	02	25	056	1969		002		0421	04	00	0	X		X4	0	3	0002						
					WATER		WIND		AIR TEMP. °C																			
					COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE	BARO-METER (mb)	DRY BULB	WET BULB	VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS														
					DT	SD	00	500	951	-078	-082	8	25															

MESSNGR TIME OF HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-σ _t	Σ Δ σ DYN. M. X 10 ³	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P μg - at/l	TOTAL-P μg - at/l	NO ₃ -N μg - at/l	NO ₃ -N μg - at/l	SiO ₄ -Si μg - at/l	pH	CTC
	065	STD	0000	-0180	3418	2754	0005593	0000	14398								
		OBS	0000	-0180	34183	2754			14398								
		STD	0010	-0178	3419	2754	0005576	0006	14400								
		OBS	0010	-0178	34185	2754			14400								
		STD	0020	-0177	3423	2757	0005242	0011	14403								
	000	OBS	0020	-0177	34228	2757			14403								
		OBS	0025	-0174	34258	2759			14406								
		STD	0030	-0175	3427	2760	0004941	0016	14406								
		OBS	0030	-0175	34267	2760			14406								
		STD	0050	-0175	3429	2762	0004768	0026	14410								
		OBS	0050	-0175	34288	2762			14410								
		STD	0075	-0176	3431	2764	0004604	0038	14414								
		OBS	0075	-0176	34307	2764			14414								
		STD	0100	-0175	3432	2764	0004500	0049	14419								
		OBS	0100	-0175	34319	2764			14419								
		STD	0125	-0177	3433	2765	0004418	0060	14422								
		OBS	0125	-0177	34327	2765			14422								
		OBS	0136	-0177	34330	2765			14424								
		STD	0150	-0175	3434	2766	0004332	0071	14427								
		OBS	0150	-0175	34337	2766			14427								
		STD	0200	-0174	3436	2767	0004160	0092	14436								
		OBS	0200	-0174	34356	2767			14436								
		OBS	0220	-0170	34362	2768			14442								
		STD	0250	-0169	3439	2770	0003880	0112	14447								
		OBS	0250	-0169	34391	2770			14447								
		OBS	0260	-0170	34396	2771			14449								
		STD	0300	-0128	3445	2774	0003537	0131	14476								
		OBS	0300	-0128	34452	2774			14476								
		OBS	0312	-0136	34440	2773			14474								
		OBS	0328	-0100	34462	2774			14494								
		OBS	0350	-0140	34520	2780			14479								
		OBS	0369	-0087	34519	2778			14507								
		OBS	0372	-0088	34560	2781			14508								
		OBS	0376	-0075	3448P	2774P											
		OBS	0384	-0107	3460P	2785P											
		OBS	0392	-0067	34553	2780			14521								
		STD	0400	-0098	3454	2780	0002967	0163	14508								
		OBS	0400	-0098	34539	2780			14508								

REFERENCE		SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	DEPT INCHES	MARSDEN SQUARE		STATION TIME (GMT)				YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF S'MPL'S	WAVE OBSERVATIONS				WEA- THER CODE	CLOUD CODES		NODC STATION NUMBER
CTRY CODE	ID. NO.					10"	1"	MO	DAY	HR	1/10		CRUISE NO.	STATION NUMBER			DIR	HGT	PER	SEA		TYPE	AMT	
318085	GL		75314S	030080W		555	50	02	25	085	1969		002		0421	03	00	0	X		X4	0	3	0003
						WATER		WIND		BARO- METER		AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS								
						COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE	METER (mbs)	DRY BULB	WET BULB												
						DT	SD	00	500	951	-145	-147	1	20										
MESSENGR TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-σ _t	Σ Δ D DYN. M. x 10 ³	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P μg - ol/l	TOTAL-P μg - ol/l	NO ₂ -N μg - ol/l	NO ₃ -N μg - ol/l	SiO ₄ -Si μg - ol/l	pH	S C							
		STD	0000	-0196	3394	2734	0007426	0000	14387															
080		OBS	0000	-0196	33940	2734			14387															
		OBS	0008	-0179	34185	2754			14400															
		STD	0010	-0179	3425	2759	0005074	0006	14401															
000		OBS	0010	-0179	34250	2759			14401															
		STD	0020	-0180	3431	2764	0004605	0011	14403															
		OBS	0020	-0180	34310	2764			14403															
		OBS	0025	-0180	34303	2763			14404															
		STD	0030	-0180	3430	2763	0004691	0016	14404															
		OBS	0030	-0180	34298	2763			14404															
		STD	0050	-0175	3430	2763	0004676	0025	14410															
		OBS	0050	-0175	34300	2763			14410															
		STD	0075	-0170	3431	2764	0004582	0037	14417															
		OBS	0075	-0170	34312	2764			14417															
		STD	0100	-0170	3432	2765	0004491	0048	14421															
		OBS	0100	-0170	34322	2765			14421															
		STD	0125	-0173	3433	2765	0004406	0059	14424															
		OBS	0125	-0173	34330	2765			14424															
		STD	0150	-0169	3434	2766	0004334	0070	14430															
		OBS	0150	-0169	34339	2766			14430															
		STD	0200	-0162	3436	2767	0004167	0091	14442															
		OBS	0200	-0162	34360	2767			14442															
		STD	0250	-0155	3438	2769	0003995	0112	14454															
		OBS	0250	-0155	34382	2769			14454															
		OBS	0264	-0148	34402	2770			14460															
		OBS	0277	-0102	34440	2772			14484															
		STD	0300	-0088	3445	2773	0003699	0131	14495															
		OBS	0300	-0088	34453	2773			14495															
		OBS	0306	-0105	3439P	2768P																		
		OBS	0319	-0066P	34430	2770P																		
		OBS	0332	-0073	34460	2772			14507															
		OBS	0335	-0098	34450	2773			14496															

REFERENCE	SHIP ID. NO.	SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	DEPT INCHES	MARSDEN SQUARE		STATION TIME (GMT)				YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF S'MPL'S	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES		NODC STATION NUMBER	
						10"	1"	MO	DAY	HR	1/10		CRUISE NO.	STATION NUMBER			DIR	HGT	PER	SEA	TYPE	AMT		
318085	GL		75317S	030089W		555	50	02	25	115	1969		002		0421	04	00	0	X		X4	7	6	0004
						WATER		WIND		BARO- METER		AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS								
						COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE	METER (mbs)	DRY BULB	WET BULB												
								00	500	951	-117	-118	2	10										
MESSENGER TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-σ _t	Σ Δ D DYN. M. x 10 ³	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P μg - ol/l	TOTAL-P μg - ol/l	NO ₂ -N μg - ol/l	NO ₃ -N μg - ol/l	SiO ₄ -Si μg - ol/l	pH	S C							
		STD	0000	-0180	3423	2757	0005255	0000	14398	764														
	109	OBS	0000	-0180	34227	2757			14398	764	196			016	273	065	752							
		STD	0010	-0180	3423	2758	0005210	0005	14400	769														
109		OBS	0010	-0180	34232	2758			14400	769	198			007	273	065	781							
		STD	0020	-0180	3424	2758	0005142	0010	14402	766														
109		OBS	0026	-0180	34251	2759			14403	764	195			008	280	066	789							
		STD	0030	-0180	3427	2761	0004905	0015	14404	761														
		STD	0050	-0181	3432	2765	0004507	0025	14408	748														
109		OBS	0052	-0181	34322	2765			14408	747	204			008	288	067	785							
		STD	0075	-0179	3433	2765	0004419	0036	14413	764														
109		OBS	0079	-0179	34336	2766			14413	765	204			009	296	062	785							
		STD	0100	-0181	3434	2766	0004322	0047	14416	753														
109		OBS	0105	-0182	34342	2767			14416	751	212			003	292	069	788							
		STD	0125	-0181	3435	2767	0004230	0058	14420	748														
		STD	0150	-0180	3435	2767	0004218	0068	14425	744														
109		OBS	0157	-0180	34353	2767			14426	742	199			050	310	069	788							
		STD	0200	-0179	3436	2768	0004115	0089	14434	728														
109		OBS	T0209	-0178	34365	2768			14436	725	180			005	293	070	789							
		STD	0250	-0164	3438	2769	0003980	0109	14450	710														
		STD	0300	-0138	3442	2772	0003742	0129	14471	680														
109		OBS	T0307	-0134	34429	2772			14474	675	210			006	306	078	785							
109		OBS	T0390	-0066	34530	2778			14521	592	206			008	321	089	783							

REFERENCE		SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	DEPTH METER	MARSEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAR. DEPTH OF S'MPL'S	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES		NODC STATION NUMBER	
CITY CODE	IO. NO.					10'	1'	MO	DAY	HR.1/10		CRUISE NO.	STATION NUMBER			DIR.	HGT	PER		SEA	TYPE		AMT
318085		GL	76281S	031484W		555	61	02	26	055	1969		003	0436	04	00	0	X		X2	7	8	0005
						WATER		WIND		BARO- METER (mb)	AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS								
						COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE		DRY BULB	WET BULB											
									00	500	928	-051	-056	8	12								
MESSNGR TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-20°	Σ Δ ρ DYN. M. x 10 ³	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P μg - at/l	TOTAL-P μg - at/l	NO ₃ -N μg - at/l	NO ₂ -N μg - at/l	SiO ₄ -Si μg - at/l	pH	ST CODE						
		STD	0000	-0172	3402	2740	0006879	0000	14399	794													
	056	OBS	0000	-0172	34018	2740			14399	794	179			017	268	062	750						
		STD	0010	-0173	3403	2741	0006786	0007	14401	794													
056		OBS	0018	-0174	34038	2742			14402	794	176			009	263	063	781						
		STD	0020	-0175	3407	2744	0006460	0013	14402	788													
		STD	0030	-0179	3420	2755	0005446	0019	14403	762													
056		OBS	0043	-0182	34306	2764			14406	739	205			005	289	065	781						
		STD	0050	-0182	3431	2764	0004581	0029	14407	735													
056		OBS	0068	-0183	34316	2764			14409	732	201			010	269	066	782						
		STD	0075	-0183	3432	2765	0004510	0041	14411	735													
056		OBS	0094	-0183	34318	2765			14414	743	204			001	291	066	782						
		STD	0100	-0183	3432	2765	0004471	0052	14415	743													
		STD	0125	-0182	3432	2765	0004457	0063	14419	741													
056		OBS	0144	-0182	34329	2765			14423	742	202			000	295	068	782						
		STD	0150	-0182	3433	2766	0004366	0074	14424	739													
056		OBS	0195	-0183	34344	2767			14431	735	197			025	314	070	780						
		STD	0200	-0183	3435	2767	0004180	0096	14432	735													
		STD	0250	-0181	3437	2769	0004001	0116	14441	732													
056		OBS	T0295	-0180	34384	2770			14450	726	201			008	280	071	780						
		STD	0300	-0181	3439	2770	0003820	0136	14450	724													
056		OBS	0345	-0183	34406	2772			14457	716	208			000	300	071	782						
056		OBS	0370	-0179	34424	2773			14463	719	207			002	300	072	781						
056		OBS	T0395	-0187	34438	2774			14464	726	213			000	270	071	781						
		STD	0400	-0188	3445	2775	0003279	0171	14464	725													
056		OBS	0429	-0191	34514	2781			14469	703	211			000	303	076	782						

REFERENCE		SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	WAVE MOODIE	MARSEN SQUARE		STATION TIME (GMT)		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF S'MPL'S	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES		NODC STATION NUMBER	
CITY CODE	IO. NO.					10'	1'	MO	DAY		HR.1/10	CRUISE NO.			STATION NUMBER	DIR.	HGT		PER	SEA		TYPE
318085	GL		77054S	035026W		555	75	02	26	205	1969	004	0805	08	00	0	X		X7	5	7	0006
					WATER		WIND		AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS									
					COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE	BARO- METER (mb)	DRY BULB					WET BULB							
									00	500	915	-050	-054	8	13							
MESSNGR TIME HR. 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-20°	Σ Δ ρ DYN. M. x 10 ³	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P μg - at/l	TOTAL-P μg - at/l	NO ₃ -N μg - at/l	NO ₂ -N μg - at/l	SiO ₄ -Si μg - at/l	pH	ST CODE					
		STD	0000	-0183	3426	2760	0004964	0000	14397	763												
195		OBS	0000	-0183	34264	2760			14397	763	180			009	280	067	731					
		STD	0010	-0183	3427	2760	0004935	0005	14399	765												
		STD	0020	-0182	3427	2761	0004914	0010	14401	768												
		STD	0030	-0182	3427	2761	0004886	0015	14403	770												
195		OBS	0031	-0182	34272	2761			14403	770	185			006	282	067	769					
		STD	0050	-0183	3430	2763	0004656	0024	14406	743												
195		OBS	0056	-0183	34309	2764			14407	740	193			002	294	068	779					
		STD	0075	-0182	3433	2766	0004412	0036	14411	754												
195		OBS	T0082	-0182	34331	2766			14412	757	206			004	292	069	782					
		STD	0100	-0182	3435	2767	0004244	0046	14416	745												
		STD	0125	-0182	3436	2768	0004152	0057	14420	733												
195		OBS	0133	-0182	34369	2769			14421	730	201			002	296	070	783					
		STD	0150	-0182	3438	2770	0003983	0067	14424	729												
195		OBS	0183	-0183	34392	2771			14430	728	208			299	070	781						
		STD	0200	-0183	3440	2771	0003797	0087	14433	728												
		STD	0250	-0185	3444	2775	0003455	0105	14441	726												
195		OBS	0284	-0186	34466	2777			14445	724	208			000	299	071	781					
		STD	0300	-0187	3449	2779	0003037	0121	14449	722												
195		OBS	T0384	-0191	34580	2786			14462	717	192			000	295	069	782					
		STD	0400	-0191	3459	2787	0002201	0147	14465	718												
195		OBS	T0484	-0192	34610	2789			14479	721	197			000	297	068	784					
		STD	0500	-0193	3461	2789	0001960	0168	14481	721												
195		OBS	T0587	-0197	34629	2790			14494	719	200			000	295	069	782					
		STD	0600	-0197	3463	2790	0001756	0187	14496	718												
195		OBS	0687		34660				712	212				001	302	071	782					
		STD	0700	-0198	3467	2794	0001391	0202	14513	711												
195		OBS	0765	-0198	34713	2797			14524	707	212			000	297	073	782					
		STD	0800	-0195	3472	2798	0000959	0214	14532	707												
195		OBS	T0800	-0195	34721	2798			14532	707	209			002	296	071	788					

REFERENCE		SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	MARS DEN SQUARE	STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF S'AMPL'S	WAVE OBSERVATIONS				WEA- THER CODE	CLOUD CODES		NODC STATION NUMBER			
						10°	1°	MO DAY HR.1/10		CRUISE NO.	STATION NUMBER			DIR.	HGT	PER	SEA		TYPE	AMT				
318085	GL	77197S	036413W	555	76	02	27	115	1969		005	1085	11	00	0	X		X7	5	8		0007		
					WATER		WIND		AIR TEMP. °C		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS											
					COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE	BARO-METER (mba)	DRY BULB	WET BULB	VIS. CODE												
								06	505	926	-059	-061	5	16										

MESSNGR TIME HR 1/10	CASST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- σ_t	$\Sigma \Delta \sigma$ DYN. M. $\times 10^3$	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P $\mu\text{g} - \text{at/l}$	TOTAL-P $\mu\text{g} - \text{at/l}$	NO ₃ -N $\mu\text{g} - \text{at/l}$	NO ₃ -N $\mu\text{g} - \text{at/l}$	Si O ₄ -Si $\mu\text{g} - \text{at/l}$	pH	ST CIC
		STD	0000	-0181	3428	2761	0004853	0000	14399	839							
138		OBS	0000	-0181	34279	2761			14399	839	169		021	262	070	764	
		STD	0010	-0182	3428	2761	0004838	0005	14400	845							
138		OBS	0019	-0182	34282	2762			14401	836Q	170		007	252	068	792	
		STD	0020	-0182	3428	2762	0004815	0010	14402	852							
138		OBS	0024	-0182	34280	2761			14402	854	163		006	248	064	795	
		STD	0030	-0182	3430	2763	0004670	0014	14403	814							
		STD	0050	-0183	3436	2768	0004195	0023	14407	727							
138		OBS	0051	-0183	34365	2768			14407	725	210		007	287	069	788	
		STD	0075	-0184	3440	2771	0003869	0033	14411	725							
138		OBS	0076		34403				725		202		006	297	068	787	
		STD	0100	-0186	3442	2773	0003697	0043	14415	733							
138		OBS	0103	-0186	34424	2773			14415	734	209		005	293	069	784	
		STD	0125	-0187	3444	2775	0003524	0052	14419	727							
		STD	0150	-0189	3446	2776	0003352	0060	14422	723							
138		OBS	0155	-0189	34464	2777			14423	722	219		002	300	069	785	
		STD	0200	-0195	3450	2780	0002998	0076	14428	723							
138		OBS	T0208	-0196	34502	2780			14429	723	204		001	298	068	788	
		STD	0250	-0195	3453	2782	0002738	0091	14437	720							
		STD	0300	-0193	3456	2784	0002482	0104	14447	716							
138		OBS	0311	-0193	34561	2785			14449	715	192		000	293	068	788	
		STD	0400	-0190	3459	2787	0002203	0127	14465	721							
138		OBS	T0412	-0190	34591	2787			14467	722	198		000	295	068	788	
		STD	0500	-0191	3461	2788	0001991	0148	14482	719							
138		OBS	T0511	-0191	34616	2789			14484	719	205		000	295	067	788	
138		OBS	0583	-0194	34620	2789			14494	725	204		001	293	067	788	
		STD	0600	-0196	3462	2790	0001821	0167	14496	725							
		STD	0700	-0206	3464	2791	0001614	0184	14509	724							
138		OBS	T0758	-0208	34644	2792			14517	720	207		003	299	069	784	
		STD	0800	-0207	3465	2792	0001444	0200	14525	714							
138		OBS	T0883	-0204	34670	2794			14541	706	199		000	294	071	786	
		STD	0900	-0202	3468	2794	0001216	0213	14545	706							
138		OBS	T0989	-0194	34702	2796			14564	706	202		001	298	070	788	
		STD	1000	-0193	3471	2797	0000940	0224	14566	705							
138		OBS	T1083	-0191	34743	2799			14582	697	198		002	299	072	789	

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REFERENCE	SHIP	LATITUDE	LONGITUDE	DEPTH	PARSEDEN	STATION TIME	YEAR	ORIGINATOR'S	DEPTH	MAX. DEPTH	WAVE	WEA-	CLOUD	NODC
CTRY	ID.			INDIC	SQUARE	IGMT		CRUISE	TO	OF	OBSERVATIONS	THER	CODES	STATION
CODE	NO.	1/10	1/10		10° 1'	MO DAY HR.1/10		NO.	BOTTOM	S'MPL'S	DIR. HGT PER SEA	CODE	TYPE AMT	NUMBER

WATER		WIND		BARO-METER (mb)	AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS
COLOR CODE	TRANS. (m)	DIR.	SPEED OF FORCE		DRY BULB	WET BULB			
		15	S16	947	-149	-153	8	11	

MESSAGE	CAST	CARD	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME	Δ D	SOUND	O ₂ ml/l	PO ₄ -P	TOTAL-P	NO ₂ -N	NO ₃ -N	SiO ₄ -Si	pH	S
TIME OF	NO.	TYPE					ANOMALY-2107	DYN. M. X 10 ³	VELOCITY		μg - at/l	μg - at/l	μg - at/l	μg - at/l	μg - at/l		CCS
		STD	0000	-0177	3439	2771	0003979	0000	14402	828							
031	OBS	0000	-0177	34394	2771				14402	828	185		011	255	060	770	
	STD	0010	-0180	3438	2769	0004089	0004		14402	814							
031	OBS	0013	-0181	34373	2769				14402	813	191		008	264	061	780	
	STD	0020	-0183	3439	2770	0003983	0008		14403	816							
031	OBS	0023	-0184	34392	2771				14403	817	189		007	264	061	783	
	STD	0030	-0183	3440	2771	0003931	0012		14404	817							
031	OBS	0048	-0181	34406	2772				14408	800	194		008	258	062	782	
	STD	0050	-0182	3441	2772	0003814	0020		14408	792							
031	OBS	0074		34469					729	221			005	268	064	778	
	STD	0075	-0187	3447	2777	0003326	0029		14411	729							
	STD	0100	-0190	3452	2781	0002942	0037		14414	731							
031	OBS	0100	-0190	34517	2781				14414	731	212		003	294	063	778	
	STD	0125	-0190	3454	2783	0002766	0044		14419	725							
	STD	0150	-0190	3456	2784	0002590	0050		14423	719							
031	OBS	T0151	-0190	34560	2784				14423	719	217		001	297	066	779	
	STD	0200	-0193	3459	2787	0002315	0063		14431	719							
031	OBS	T0204	-0193	34596	2787				14431	719	214		000	292	064	778	
	STD	0250	-0197						719								
	STD	0300	-0201						720								
031	OBS	0309	-0202						720	224			000	294	064	780	
	STD	0400	-0199						722								
031	OBS	T0412	-0198						722	230			000	296	064	779	
	STD	0500	-0194						715								
031	OBS	T0513	-0193						713	212			007	295	065	781	

REFERENCE	SHIP	LATITUDE	LONGITUDE	DEPTH	PARSEDEN	STATION TIME	YEAR	ORIGINATOR'S	DEPTH	MAX. DEPTH	WAVE	WEA-	CLOUD	NODC
CTRY	ID.			INDIC	SQUARE	IGMT		CRUISE	TO	OF	OBSERVATIONS	THER	CODES	STATION
CODE	NO.	1/10	1/10		10° 1'	MO DAY HR.1/10		NO.	BOTTOM	S'MPL'S	DIR. HGT PER SEA	CODE	TYPE AMT	NUMBER

WATER		WIND		BARO-METER	AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS
COLOR CODE	TRANS. (m)	DIR.	SPEED OF FORCE		DRY BULB	WET BULB			
		13	S30	937	-165	-167	6	11	

MESSAGE	CAST	CARD	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME	Δ D	SOUND	O ₂ ml/l	PO ₄ -P	TOTAL-P	NO ₂ -N	NO ₃ -N	SiO ₄ -Si	pH	S
TIME OF	NO.	TYPE					ANOMALY-2107	DYN. M. X 10 ³	VELOCITY		μg - at/l	μg - at/l	μg - at/l	μg - at/l	μg - at/l		CCS
		STD	0000	-0188						751							
157	OBS	0000	-0188	34630	27900					751	209		010	287	065	761	
	STD	0010	-0188							751							
157	OBS	0015	-0188	34437	2774				14400	751	218		008	286	064	779	
	STD	0020	-0188	3444	2775	0003588			14401	750							
	STD	0030	-0187	3444	2775	0003553			14403	747							
157	OBS	0030	-0187	34444	2775				14403	747	201		008	297	065	782	
	STD	0050	-0189	3447	2777	0003337			14406	737							
157	OBS	0055	-0189	34473	2777				14407	735	223		007	291	065	780	
	STD	0075	-0188	3449	2779	0003169			14411	731							
157	OBS	0080	-0188	34494	2779				14412	730	222		006	297	065	780	
	STD	0100	-0191	3454	2783	0002763			14414	723							
157	OBS	T0105	-0192	34544	2783				14415	722	215		001	300	065	780	
	STD	0125	-0192	3455	2784	0002670			14418	724							
	STD	0150	-0191	3456	2784	0002580			14423	726							
157	OBS	0156	-0191	34562	2785				14424	727	224		000	298	066	761	
	STD	0200	-0190	3457	2785	0002476			14432	718							
157	OBS	0207	-0190	34578	2786				14433	717	208		000	300	067	783	
	STD	0250	-0193	3463	2790	0001977			14439	719							
	STD	0300	-0197	3467	2794	0001630			14446	721							
157	OBS	T0309	-0198	34681	2794				14448	721	208		000	298	065	781	
	STD	0400	-0198	3470	2796	0001362			14463	719							
157	OBS	T0412	-0198	34680	27940				719	213			000	298	067	783	
	STD	0500	-0190	3471	2797	0001203			14484	718							
157	OBS	T0504	-0189	34715	2797				14485	718	217		001	294	066	782	

REF ID	SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	DRIFT INDICATOR	ISOEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF S'MPL'S	WAVE OBSERVATIONS			WEATHER CODE	CLOUD CODES		NODC STATION NUMBER	
					10°	1°	MO	DAY	HR.1/10		CRUISE NO.	STATION NUMBER			DIR.	HGT	PER		SEA	TYPE		AMT
318085	GL	77385S	042278W		556	72	03	02	085	1969		008	0585	06	00	0	X		X7	5 7		0011
					WATER		WIND		BARO-METER		AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS							
					COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE	METER (mbars)	DRY BULB	WET BULB											
								15	519	931	-138	-140					5	12				
MESSAGE TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-σ _t	Σ Δ ρ DYN. M. x 10 ³	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P μg - at/l	TOTAL-P μg - at/l	NO ₃ -N μg - at/l	NO ₃ -N μg - at/l	SiO ₄ -Si μg - at/l	pH	SC					
		STD	0000	-0189						815												
	076	OBS	0000	-0189	35620	28700				815	199		008	289	065	753						
		STD	0010	-0189						746												
	076	OBS	0010	-0189	34430	27740				746	169		010	288	064	779						
		STD	0020	-0188						746												
		STD	0030	-0187	3440	2772	0003860		14402	746												
	076	OBS	0030	-0187	34404	2772			14402	746	203		010	283	063	782						
		STD	0050	-0189	3441	2772	0003804		14405	746												
	076	OBS	0056	-0190	34410	2772			14405	746	208		009	286	065	785						
		STD	0075	-0188	3441	2772	0003768		14410	745												
	076	OBS	0081	-0187	34413	2772			14411	744	209		009	288	064	785						
		STD	0100	-0187	3446	2776	0003386		14415	733												
		STD	0125	-0188	3451	2780	0002986		14419	723												
	076	OBS	0132	-0188	34517	2781			14421	721	216		003	291	065	784						
		STD	0150	-0190	3454	2783	0002736		14423	719												
	076	OBS	0182	-0192	34566	2785			14428	717	207		000	294	065	788						
		STD	0200	-0192	3457	2785	0002470		14431	719												
		STD	0250	-0193	3459	2787	0002285		14439	723												
	076	OBS	0283	-0193	34598	2788			14444	724	205		000	293	064	789						
		STD	0300	-0197	3461	2789	0002089		14446	723												
	076	OBS	T0383	-0211	34635	2791			14453	721	212		000	295	066	789						
		STD	0400	-0211	3464	2791	0001754		14456	721												
	076	OBS	T0483	-0213	34649	2792			14469	722	213		000	299	068	784						
		STD	0500	-0214	3465	2792	0001605		14472	720												
	076	OBS	T0546	-0215	34659	2793			14479	719	219		001	297	068	782						
	076	OBS	T0574	-0203	34683	2795			14489	721	226		002	294	067	783						

REFERENCE CITY CODE	SHIP NO.	SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	DRIFT INDICATOR	ISOEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF S'MPL'S	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES		NODC STATION NUMBER	
						10°	1°	MO	DAY	HR.1/10		CRUISE NO.	STATION NUMBER			DIR.	HGT	PER		SEA	TYPE		AMT
318085	GL		77542S	045133W		556	75	03	03	235	1969		009	0250	02	00	0	X		X7	5 8		0012
						WATER		WIND		BARO- METER		AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS							
						COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE	METER (mbars)	DRY BULB	WET BULB											
									00	500	973	-106	-111	5	09								
MESSAGE TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-σ _t	Σ Δ ρ DYN. M. x 10 ³	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P μg - at/l	TOTAL-P μg - at/l	NO ₃ -N μg - at/l	NO ₃ -N μg - at/l	SiO ₄ -Si μg - at/l	pH	SC						
		STD	0000	-0188	3450	2779	0003154	0000	14398	730													
	231	OBS	0000	-0188	34498	2779			14398	730	211		007	294	065	760							
		STD	0010	-0188	3449	2779	0003210	0003	14400	729													
	231	OBS	0016	-0188	34487	2778			14401	729	221		007	295	065	780							
		STD	0020	-0188	3449	2778	0003226	0006	14401	732													
		STD	0030	-0189	3449	2778	0003218	0010	14403	737													
	231	OBS	0031	-0189	34487	2778			14403	738	223		013	291	064	785							
		STD	0050	-0189	3448	2778	0003229	0016	14406	744													
	231	OBS	0056	-0189	34483	2778			14407	746	222		007	292	067	782							
		STD	0075	-0191	3449	2779	0003162	0024	14409	734													
	231	OBS	0081	-0192	34497	2779			14410	733	217		008	293	065	781							
		STD	0100	-0191	3450	2779	0003095	0032	14414	739													
	231	OBS	0106	-0190	34497	2779			14415	740	213		008	295	065	784							
		STD	0125	-0190	3450	2780	0003057	0040	14418	739													
		STD	0150	-0190	3450	2780	0003042	0047	14422	738													
	231	OBS	T0155	-0190	34501	2780			14423	737	222		007	294	064	788							
		STD	0200	-0193	3450	2780	0002974	0062	14430	729													
	231	OBS	T0207	-0193	34505	2780			14430	728	207		005	292	063	789							
	231	OBS	0247	-0195	34512	2781			14436	721	219		007	297	064	789							

REFERENCE		SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	MOON ROSE	W. ROSEN		STATION TIME (GMT)		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH FATHOMS	WAVE OBSERVATIONS				WEA- TER CODE	CLOUD CODES		NOOD STATION NUMBER
CRIP	IO, NO.					10"	1"	MO	QAT		NR/10	CRUISE NO.			STATION NUMBER	DIR	HGT	PER		SEA	1/10	
318085	GL	77500S	042052W	556	72	03	04	145	1969		010	0680	07	00	0	X		X7	5	6		0013

WATER		WIND		BARO- METER (mmHg)	AIR TEMP. °C		VIL CODE	NO. OBS. DEPTNS	SPECIAL OBSERVATIONS
COLOR CODE	TRANSL (MI)	DIR.	SPEED OR FORCE		DRY BULB	WET BULB			
		16	513	999	-169	-171	8	13	

MESSAGE	CAST	CARD	DEPTH	T °C	S %	SIGMA-T	SPECIFIC VOLUME	Σ Δ ρ	SOUND	O ₂ ml/l	PO ₂ -P	TOTAL-P	NO ₂ -N	NO ₃ -N	SiO ₄ -Si	pH	CO ₂
NR 1/10	NO.	TYPE	(m)				AND MALT-8187	OTN, M. x 10 ³	VELOCITY		pg - wt/l	pg - wt/l	pg - wt/l	pg - wt/l	pg - wt/l		
		STD	0000	-0188	3442	2773	0003784	0000	14397	756							
144	08S	0000	-0188	34416	2773				14397	756	200		010	278	062	776	
	STD	0010	-0190	3440	2771	0003919	0004		14398	765							
144	08S	0010	-0190	34397	2771				14398	765	191		008	278	062	789	
	STD	0020	-0189	3439	2771	0003969	0008		14400	761							
144	08S	0026	-0188	34383	2770				14401	760	199		009	277	061	791	
	STD	0030	-0188	3438	2770	0004019	0012		14402	761							
	STD	0050	-0187	3438	2770	0004017	0020		14406	766							
144	08S	0051	-0187	34382	2770				14406	766	201		008	277	061	791	
	STD	0075	-0189	3440	2771	0003858	0030		14409	753							
144	08S	0076	-0189	34404	2772				14409	752	204		009	292	061	789	
	STD	0100	-0188	3444	2775	0003538	0039		14414	736							
144	08S	0102	-0188	34442	2775				14415		210		007	295	062	789	
	STD	0125	-0189	3448	2778	0003213	0047		14418	724							
	STD	0150	-0190	3451	2780	0003004	0055		14422	716							
144	08S	T0150	-0190	34505	2780				14422	716	206		002	298	064	789	
	STD	0200	-0191	3453	2782	0002779	0070		14431	714							
144	08S	0205	-0191	34537	2783				14432	714	210		000	297	063	789	
	STD	0250	-0191	3456	2784	0002518	0083		14439	714							
	STD	0300	-0192	3458	2786	0002334	0095		14448	714							
144	08S	T0308	-0192	34585	2786				14449	714	206		001	295	062	789	
	STD	0400	-0189	3462	2789	0001981	0117		14466	711							
144	08S	0413	-0188	34625	2790				14469	711	210		000	284	064	789	
	STD	0500	-0225	3464	2791	0001666	0135		14466	711							
144	08S	T0517	-0229	34639	2792				14467	711	212		002	283	067	774	
	STD	0600	-0226	3464	2791	0001588	0151		14482	711							
144	08S	0620	-0225	34638	2791				14486	711	216		000	282	068	776	
144	08S	T0671	-0227	34647	2792				14494	709	212		001	288	067	790	

REFERENCE		SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	MOON PHASE	W. ROSEN		STATION TIME (GMT)		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF FATHOMS	WAVE OBSERVATIONS				WEA- TER CODE	CLOUD CODES		NODC STATION NUMBER
CRIP CODE	ID. NO.					10"	1"	MO	QAT		NR/10	CRUISE NO.			STATION NUMBER	OR	HGT	PER		SEA	FTW	
318085	GL	77102S	038408W	555	78	03	05	205	1969	011	0845	08	00	0	X	X7	5	8	0014			

WATER		WIND		BARO-METER		AIR TEMP. °C		VTL CODE	NO. OBS. DEPTNS	SPECIAL OBSERVATIONS
COLOR CODE	TRANSL. MI	DIR.	SPED OR FORCE	INCHES	MM.	DRY RULE	WET RULE			
		01	508	921	-118	-122	5	15		

MESSAGE	CAST	CARD	DEPTH	T °C	S %	SIGMA-T	SPECIFIC VOLUME	Σ Δ ρ	SOUND	O ₂ ml/l	PO ₂ -P	TOTAL-P	NO ₂ -N	NO ₃ -N	SiO ₄ -Si	pH	CO ₂
NR 1/10	NO.	TYPE	(m)				AND MALT-8187	OTN, M. x 10 ³	VELOCITY		pg - wt/l	pg - wt/l	pg - wt/l	pg - wt/l	pg - wt/l		
		STD	0000	-0185	3431	2764	0004590	0000	14397	796							
199	08S	0000	-0185	34312	2764				14397	796	175		007	249	059	793	
	STD	0010	-0186	3430	2763	0004704	0005		14398	793							
199	08S	0010	-0186	34296	2763				14398	793	173		007	248	059	792	
	STD	0020	-0186	3431	2764	0004591	0009		14400	793							
199	08S	0025	-0186	34314	2764				14401	792	181		006	236	061	775	
	STD	0030	-0186	3433	2765	0004470	0014		14402	790							
	STD	0050	-0184	3437	2769	0004139	0022		14407	781							
199	08S	0051	-0184	34369	2769				14407	780	188		007	272	061	789	
	STD	0075	-0188	3438	2770	0004014	0033		14409	780							
199	08S	0076	-0188	34380	2770				14409	779	193		007	278	062	790	
	STD	0100	-0189	3446	2776	0003390	0042		14414	738							
199	08S	T0100	-0189	34459	2776				14414	738	203		011	293	064	786	
	STD	0125	-0189	3450	2780	0003060	0050		14419	726							
	STD	0150	-0189	3453	2782	0002815	0057		14423	717							
199	08S	0153	-0189	34535	2782				14424	716	201		001	296	059	789	
	STD	0200	-0191	3454	2783	0002703	0071		14431	706							
199	08S	T0204	-0191	34545	2783				14432	705	205		000	299	065	782	
	STD	0250	-0191	3456	2784	0002520	0084		14439	711							
	STD	0300	-0191	3458	2786	0002367	0096		14448	717							
199	08S	0307	-0191	34578	2786				14449	718	199		000	294	065	787	
	STD	0400	-0190	3459	2787	0002204	0119		14465	718							
199	08S	T0410	-0190	34593	2787				14467	718	196		000	292	064	786	
	STD	0500	-0191	3462	2789	0001915	0140		14482	721							
199	08S	T0511	-0191	34621	2789				14484	721	205		000	292	065	789	
	STD	0600	-0199	3463	2790	0001748	0158		14495	718							
199	08S	0614	-0200	34633	2791				14497	717	207		000	296	066	786	
	STD	0700	-0201	3466	2793	0001453	0174		14511	714							
199	08S	T0714	-0201	34666	2793				14514	714	208		000	278	064	784	
	STD	0800	-0198	3468	2794	0001257	0188		14530	713							
199	08S	0820	-0197	34689	2795				14534	713	204		000	302	067	784	
199	08S	T0839	-0199	34696	2796				14536	709	205		000	294	068	789	

REFERENCE CSTY CODE	SHIP ID. NO.	SNIP CODE	LATITUDE 1/10	LONGITUDE 1/10	DUTY OFFICER	STATION TIME (GMT)		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF S'AMPLES	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES		NODC STATION NUMBER					
						1/25 DEN SQUARE			CRUISE NO.	STATION NUMBER			DIR.	HGT PER	SEA		TYPE	AMT						
						10'	1"													MO	DAY	HR.1/10		
318085	GL		77189S	037423W		555	77	03	06	205	1969	012	1024	10	00	0	X		X4	5	8		0015	
						WATER		WIND		AIR TEMP. °C		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS										
						COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE	BARO-METER (mba)	DRY BULB	WET BULB	VIS. CODE											
										18	513	869	-157	-159	8	14								
MESSAGE TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-σ _t		Σ Δ ρ DYN. M. x 10 ³	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P μg - dl/l	TOTAL-P μg - dl/l	NO ₃ -N μg - dl/l	NO ₂ -N μg - dl/l	SiO ₄ -Si μg - dl/l	pH	S C						
		STD	0000	-0187	3440	2771	0003902		0000	14398	780													
194		OBS	0000	-0187	34401	2771				14398	780	184			007	267	063	779						
		STD	0010	-0186	3434	2767	0004336		0004	14399	792													
194		OBS	0010	-0186	34344	2767				14399	792	183			006	266	063	789						
		STD	0020	-0185	3434	2767	0004347		0008	14401	785													
194		OBS	0020	-0185	34342	2767				14401	785	186			007	268	063	790						
		STD	0030	-0191	3434	2767	0004343		0013	14400	765													
194		OBS	0031	-0191	34338	2766				14400	764	191			007	269	063	790						
		STD	0050	-0185	3434	2766	0004351		0022	14406	786													
194		OBS	T0056	-0184	34339	2766				14407	789	194			007	274	062	790						
		STD	0075	-0190	3442	2773	0003702		0032	14409	755													
		STD	0100	-0195	3450	2780	0003060		0040	14412	727													
194		OBS	0110	-0196	34525	2782				14413	720	210			002	295	066	788						
		STD	0125	-0196	3453	2782	0002812		0047	14416	724													
		STD	0150	-0196	3455	2784	0002643		0054	14420	729													
194		OBS	T0163	-0196	34553	2784				14422	731	202			001	293	066	771						
		STD	0200	-0194	3457	2785	0002464		0067	14430	729													
		STD	0250	-0192	3458	2786	0002364		0079	14439	727													
194		OBS	0268	-0191	34586	2787				14443	726	209			001	293	066	785						
		STD	0300	-0191	3459	2787	0002260		0091	14448	723													
194		OBS	T0374	-0192	34599	2788				14460	720	204			001	293	065	788						
		STD	0400	-0195	3460	2788	0002111		0112	14463	722													
194		OBS	0478	-0199	34612	2789				14474	724	205			001	291	064	787						
		STD	0500	-0196	3462	2789	0001934		0133	14479	723													
194		OBS	0582	-0191	34625	2790				14496	718	212			000	292	065	786						
		STD	0600	-0194	3463	2790	0001768		0151	14497	718													
		STD	0700	-0205	3463	2790	0001664		0168	14509	716													
194		OBS	T0780	-0210	34644	2792				14520	714	215			001	295	068	786						
		STD	0800	-0210	3465	2792	0001439		0184	14524	714													
		STD	0900	-0208	3468	2794	0001189		0197	14542	711													
194		OBS	T0996	-0206	34700	2796				14559	709	213			001	299	070	789						
		STD	1000	-0206	3471	2797	0000874		0207	14560	710													
194		OBS	T1016	-0207	34760	2801				14563	716	209			000	301	072	790						

REFERENCE	SHIP ID. NO.	LATITUDE 1/10	LONGITUDE 1/10	ACTION LINE	1/2 DEGREE SQUARE		STATION TIME (GMT)		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF S'MPL'S	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES		NODC STATION NUMBER
					10"	1"	MO	DAY		HR./1/10	CRUISE NO.			STATION NUMBER	DIR.	HGT		PER	SEA	
318085	GL	77502S	035329W		555	75	03	07	085	1969	013	0347	03	00	0	X		X1	7 2	0016
					WATER		WIND		BARO- METER (mba)	AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS						
					COLOR CODE	TRANS. (m)	DIR.	SPEED OF FORCE		DRY BULB	WET BULB									
								18	510	791	-208	-211	8	11						
MESSAGE TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- σ_t		$\Sigma \Delta \rho$ DYN. M. x 10 ³	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P $\mu\text{g} \cdot \text{dl/l}$	TOTAL-P $\mu\text{g} \cdot \text{dl/l}$	NO ₃ -N $\mu\text{g} \cdot \text{dl/l}$	NO ₂ -N $\mu\text{g} \cdot \text{dl/l}$	SiO ₄ -Si $\mu\text{g} \cdot \text{dl/l}$	pH	S	C	
		STD	0000	-0187	3457	2785	0002588		0000	14400	738									
	075	OBS	0000	-0187	34572	2785				14400	738	208			009	289	067	780		
	075	OBS	0006	-0186	34420	2773				14399	736	205			006	288	066	791		
		STD	0010	-0185	3440	2771	0003908		0003	14400	745									
	075	OBS	0014	-0184	34386	2770				14401	751	209			007	287	066	795		
		STD	0020	-0185	3438	2770	0004055		0007	14401	749									
		STD	0030	-0186	3437	2769	0004124		0011	14403	745									
	075	OBS	0040	-0187	34365	2768				14404	742	211			007	283	067	751		
		STD	0050	-0187	3437	2769	0004140		0020	14406	737									
	075	OBS	0066	-0186	34367	2769				14408	735	214			005	290	067	793		
		STD	0075	-0186	3437	2769	0004127		0030	14410	739									
	075	OBS	0092	-0185	34365	2768				14413	744	214			007	290	067	753		
		STD	0100	-0185	3437	2768	0004121		0040	14415	742									
		STD	0125	-0184	3437	2768	0004107		0051	14419	738									
	075	OBS	T0143	-0184	34365	2768				14422	736	214			006	291	067	792		
		STD	0150	-0184	3436	2768	0004100		0061	14423	736									
	075	OBS	0194	-0184	34360	2768				14431	736	209			006	288	066	795		
		STD	0200	-0184	3436	2768	0004100		0081	14431	736									
		STD	0250	-0185	3436	2768	0004053		0102	14440	733									
		STD	0300	-0185	3436	2768	0004005		0122	14448	731									
	075	OBS	T0300	-0185	34364	2768				14448	731	208			005	288	066	794		
	075	OBS	T0322	-0183	34360	2768				14452	738	213			006	289	067	781		
	075	OBS	T0343	-0184	34377	2769				14456	724	217			010	291	067	792		

REFERENCE	SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	DEPTH METER	WAVE SQUARE	STATION TIME (GMT)	YEAR	ORIGINATOR'S CRUISE NO.	STATION NUMBER	DEPTH TO BOTTOM	MAX. DEPTH OF SAMPL'S	WAVE OBSERVATIONS	WEA- THER CODE	CLOUD CODES	NODC STATION NUMBER

318085	GL	77502S	035329W	555	75	03 07 085	1969	013	0347	03	00	0 X	X1	0 3	0017
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MESSNGR TIME HR 1/10	CAST NO.	CARO TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- σ_t	$\Delta \rho$ DYN. M. $\times 10^3$	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P $\mu\text{g} - \text{at/l}$	TOTAL-P $\mu\text{g} - \text{at/l}$	NO ₂ -N $\mu\text{g} - \text{at/l}$	NO ₃ -N $\mu\text{g} - \text{at/l}$	SiO ₄ -Si $\mu\text{g} - \text{at/l}$	pH	S C
		STD	0000	-0188	3427	2761	0004899	0000	14395								
	065	OBS	0000	-0188	34271	2761			14395								
		STD	0010	-0188	3428	2762	0004823	0005	14397								
		OBS	0010	-0188	34280	2762			14397								
		STD	0020	-0187	3429	2762	0004750	0010	14399								
	000	OBS	0020	-0187	34289	2762			14399								
		OBS	0025	-0187	34289	2762			14400								
		STD	0030	-0187	3429	2762	0004743	0014	14401								
		OBS	0030	-0187	34289	2762			14401								
		STD	0050	-0187	3429	2762	0004723	0024	14404								
		OBS	0050	-0187	34290	2762			14404								
		STD	0075	-0187	3429	2762	0004707	0036	14408								
		OBS	0075	-0187	34290	2762			14408								
		STD	0100	-0187	3429	2762	0004683	0047	14413								
		OBS	0100	-0187	34291	2762			14413								
		STD	0125	-0187	3429	2763	0004660	0059	14417								
		OBS	0125	-0187	34292	2763			14417								
		STD	0150	-0187	3429	2763	0004636	0071	14421								
		OBS	0150	-0187	34293	2763			14421								
		STD	0200	-0186	3429	2763	0004607	0094	14430								
		OBS	0200	-0186	34293	2763			14430								
		STD	0250	-0186	3430	2763	0004560	0117	14438								
		OBS	0250	-0186	34295	2763			14438								
		STD	0300	-0186	3430	2763	0004491	0139	14446								
		OBS	0300	-0186	34300	2763			14446								
		OBS	0320	-0186	34309	2764			14450								

REFERENCE	SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	DEPTH METER	WAVE SQUARE	STATION TIME (GMT)	YEAR	ORIGINATOR'S CRUISE NO.	STATION NUMBER	DEPTH TO BOTTOM	MAX. DEPTH OF SAMPL'S	WAVE OBSERVATIONS	WEA- THER CODE	CLOUD CODES	NODC STATION NUMBER

318085	GL	77220S	034292W	555	74	03 07 140	1969	014	0370	04	00	0 X	X7	7 8	0018
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MESSNGR TIME HR 1/10	CAST NO.	CARO TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- σ_t	$\Delta \rho$ DYN. M. $\times 10^3$	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P $\mu\text{g} - \text{at/l}$	TOTAL-P $\mu\text{g} - \text{at/l}$	NO ₂ -N $\mu\text{g} - \text{at/l}$	NO ₃ -N $\mu\text{g} - \text{at/l}$	SiO ₄ -Si $\mu\text{g} - \text{at/l}$	pH	S C
		STD	0000	-0183	3421	2756	0005363	0000	14397	772							
	140	OBS	0000	-0183	34212	2756			14397	772	190		012	267	061	788	
		STD	0010	-0183	3421	2756	0005357	0005	14398	774							
	140	OBS	0010	-0183	34212	2756			14398	774	189		011	270	062	791	
		STD	0020	-0185	3425	2759	0005055	0011	14400	759							
		STD	0030	-0186	3428	2762	0004814	0016	14401	749							
	140	OBS	0036	-0187	34286	2762			14402	746	213		011	284	065	758	
		STD	0050	-0186	3428	2762	0004770	0025	14404	753							
	140	OBS	0061	-0186	34283	2762			14406	754	206		011	284	067	789	
		STD	0075	-0186	3429	2762	0004709	0037	14409	744							
	140	OBS	0087	-0186	34299	2763			14411	738	206		011	288	066	790	
		STD	0100	-0186	3430	2763	0004610	0049	14413	739							
		STD	0125	-0185	3431	2764	0004557	0060	14418	741							
	140	OBS	T0136	-0185	34308	2764			14420	742	211		010	287	066	790	
		STD	0150	-0185	3431	2764	0004526	0071	14422	740							
	140	OBS	T0191	-0186	34307	2764			14428	736	207		008	288	066	789	
		STD	0200	-0186	3431	2764	0004500	0094	14430	736							
		STD	0250	-0187	3431	2764	0004452	0116	14438	735							
	140	OBS	0291	-0187	34310	2764			14445	732	209		009	291	066	790	
		STD	0300	-0185	3431	2764	0004387	0138	14447	731							
	140	OBS	T0339	-0183	34332	2766			14455	725	207		012	296	067	790	
	140	OBS	0366	-0187	34372	2769			14458	722	206		005	294	068	790	

REFERENCE	SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	WAVE NO.	STATION TIME (GMT)		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPL'S	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES		NOOC STATION NUMBER
					10'	1"		CRUISE NO.	STATION NUMBER			DR.	HGT	PER		SEA	TYPE	
318085	GL	76529S	032497W	555	62	03 08 055	1969		015	0375	04	00	0	X		X7	X19	0019
				WATER		WIND		AIR TEMP. °C		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS						
				COLOR CODE	TRANS. MM	DR.	SPEED OR FORCE	BARO-METER (mm)	DRY RULE	WET RULE	VIS. CODE							
							22	518	733	-161	-162	4	05					
MESSAGE TIME HR 1/10	CARD NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-σ _t	Σ Δ σ _{OTN, M, S} 10 ³	SOUND VELOCITY	O ₂ ml/l	PO ₂ -P pg - ml/l	TOTAL-P pg - ml/l	NO ₂ -N pg - ml/l	NO ₃ -N pg - ml/l	SiO ₄ -Si pg - ml/l	pH	CO ₂	
		STD	0000	-0177	3399	2738	0007113	0000	14396	808								
	063	OBS	0000	-0177	33986	2738			14396	808	165			017	236	054	799	
		STD	0010	-0176	3397	2737	0007201	0007	14398	811								
	063	OBS	0010	-0176	33974	2737			14398	811	170			018	238	054	799	
		STD	0020	-0175	3403	2741	0006766	0014	14401	806								
		STD	0030	-0175	3408	2745	0006378	0021	14404	801								
		STD	0050	-0173	3418	2753	0005601	0033	14409	791								
	063	OBS	T0051	-0173	34184	2753			14410	790	192			014	263	058	797	
	063	OBS	0346	-0186	34377	2769			14455	731	219			003	290	069	790	
	063	OBS	T0372	-0184	34389	2770			14461	727	220			004	293	069	789	

REFERENCE CIR CODE	SHIP NO.	LATITUDE ° 1/10	LONGITUDE ° 1/10	WAVE NO.	STATION TIME IGMT		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPL'S	WAVE OBSERVATIONS				WEA- THER CODE	CLOUD CODES		NOOC STATION NUMBER
					10'	1"		CRUISE NO.	STATION NUMBER			DIR.	HGT	PER	SEA		1/10	AMT	
318085	GL	76529S	032497W	555	62	03 08 055	1969		015	0375	04	00	0	X		X7	03		0020
					WATER		WIND		BARO- METER		AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTH'S	SPECIAL OBSERVATIONS				
				COLOR CODE	TRANS. MM	DIR.	SPEED OR FORCE	INCHES	DRY RULE	WET RULE									
				DT	SD	22	518	733	-161	-162	4	15							
MESSAGE TIME NR	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-σ _t	Σ Δ σ OTN, M, R 10 ³	SOUND VELOCITY	O ₂ ml/l	PO ₂ -P pg - ml/l	TOTAL-P pg - ml/l	NO ₂ -N pg - ml/l	NO ₃ -N pg - ml/l	SiO ₄ -Si pg - ml/l	pH	CO ₂		
		STD	0000	-0178	3393	2733	0007542	0000	14395										
	050	OBS	0000	-0178	33930	2733			14395										
		STD	0010	-0178	3393	2733	0007535	0008	14397										
		OBS	0010	-0178	33930	2733			14397										
		STD	0020	-0181	3400	2739	0006983	0015	14398										
	000	OBS	0020	-0181	34000	2739			14398										
		OBS	0025	-0180	34071	2744			14400										
		STD	0030	-0178	3410	2747	0006216	0021	14402										
		OBS	0030	-0178	34100	2747			14402										
		STD	0050	-0171	3422	2756	0005338	0033	14411										
		OBS	0050	-0171	34215	2756			14411										
		STD	0075	-0182	3427	2761	0004888	0046	14410										
		OBS	0075	-0182	34268	2761			14410										
		STD	0100	-0185	3428	2761	0004788	0058	14413										
		OBS	0100	-0185	34278	2761			14413										
		STD	0125	-0186	3429	2762	0004670	0070	14417										
		OBS	0125	-0186	34291	2762			14417										
		STD	0150	-0186	3430	2763	0004570	0081	14421										
		OBS	0150	-0186	34302	2763			14421										
		OBS	0176	-0183	34310	2764			14427										
		STD	0200	-0187	3432	2765	0004398	0104	14430										
		OBS	0200	-0187	34320	2765			14430										
		STD	0250	-0187	3433	2766	0004282	0125	14438										
		OBS	0250	-0187	34331	2766			14438										
		STD	0300	-0187	3434	2767	0004167	0146	14446										
		OBS	0300	-0187	34342	2767			14446										
		OBS	0352	-0187	34348	2767			14455										

REFERENCE		SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	TIME INDICATOR	15 DEGREE SQUARE		STATION TIME (GMT)		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLE'S	WAVE OBSERVATIONS				WEA- THER CODE	CLOUD CODES		NODC STATION NUMBER	
CTRY CODE	ID. NO.					10"	1"	MO	DAY		HR./10	CRUISE NO.			STATION NUMBER	DIR.	HGT	PER		SEA	TYPE		AMT
						WATER		WIND			BARO- METER				AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS		SPECIAL OBSERVATIONS			
		COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE	(mbars)	(mbars)	DRY BULB	WET BULB														
				21	S11	886	-175	-181	8	12													
MESSNGR TIME HR 1/10	CA. I NO.	C. IRO TYPE	DEPTH (m)	T °C	S %	SIGMA-T	SPECIFIC VOLUME ANOMALY- σ_t	$\Sigma \Delta$ O DYN. M. $\times 10^3$	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P $\mu\text{g} - \text{ml/l}$	TOTAL-P $\mu\text{g} - \text{ml/l}$	NO ₂ -N $\mu\text{g} - \text{ml/l}$	NO ₃ -N $\mu\text{g} - \text{ml/l}$	SiO ₄ -Si $\mu\text{g} - \text{ml/l}$	pH	S CUD						
		STD	0000	-0170	3409	2746	0006339	0000	14401	795													
056		OBS	0000	-0170	34089	2746			14401	795	167		015	241	055	801							
		STD	0010	-0168	3408	2745	0006376	0006	14404	793													
056		OBS	0010	-0168	34084	2745			14404	793	173		014	243	054	798							
		STD	0020	-0168	3409	2745	0006361	0013	14405	794													
056		OBS	0025		34085				795	168			015	243	054	796							
		STD	0030	-0169	3412	2748	0006086	0019	14407	787													
		STD	0050	-0169	3422	2756	0005305	0030	14412	758													
056		OBS	0051	-0169	34223	2757			14412	757	193		012	285	060	792							
		STD	0075	-0175	3428	2761	0004798	0043	14414	743													
		STD	0100	-0182	3434	2767	0004299	0054	14416	728													
056		OBS	T0102	-0182	34348	2767			14416	727	206		008	293	065	790							
		STD	0125	-0182	3435	2767	0004230	0065	14420	734													
035		OBS	0146	-0181	34361	2768			14424	740	211		002		066	788							
		STD	0150	-0181	3436	2768	0004109	0075	14425	727													
056		OBS	0152	-0181	34366	2768			14425	722	200		000	296	067	786							
035		OBS	0194	-0178	34368	2769			14433	722	205		002	294	068	786							
		STD	0200	-0174	3437	2769	0004053	0096	14436	720													
		STD	0250	-0140	3438	2768	0004064	0116	14461	707													
035		OBS	0292		34405				695	203			000	295	076	786							
		STD	0300	-0108	3442	2771	0003863	0136	14485	683													
035		OBS	T0390	-0050	34540	2778			14528	573	220		001	308	089	780							
		STD	0400	-0019	3457	2779	0003143	0171	14545	540													
035		OBS	T0494	0014	34663	2785			14577	502	231		002	312	103	779							
		STD	0500	0000	3466	2785	0002568	0200	14571	516													
035		OBS	T0509	-0024	34645	2785			14562	542	229		002	309	099	780							

REFERENCE		SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	TIME INDICATOR	15 DEGREE SQUARE		STATION TIME (GMT)		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLE'S	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES		NODC STATION NUMBER				
CTRY CODE	ID. NO.					10"	1"	MO	DAY		HR./10	CRUISE NO.			STATION NUMBER	DIR.	HGT		PER	SEA		TYPE	AMT		
318085	GL		74400S	031041W		555	41	03	09	030	1969	016	0534	05	00	0	X		X7	0	3	0022			
						WATER		WIND		AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS											
						COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE	BARO- METER (mbars)	DRY BULB			WET BULB											
						DT	SD	21	S11	871	-182	-183		16											
MESSNGR TIME HR 1/10	CA. I NO.	C. IRO TYPE	DEPTH (m)	T °C	S %	SIGMA-T	SPECIFIC VOLUME ANOMALY- σ_t		$\Sigma \Delta$ O DYN. M. $\times 10^3$	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P $\mu\text{g} - \text{ml/l}$	TOTAL-P $\mu\text{g} - \text{ml/l}$	NO ₂ -N $\mu\text{g} - \text{ml/l}$	NO ₃ -N $\mu\text{g} - \text{ml/l}$	SiO ₄ -Si $\mu\text{g} - \text{ml/l}$	pH	S CUD							
		STD	0000	-0186	3402	2741	0006824		0000	14393															
030		OBS	0000	-0186	34021	2741				14393															
		OBS	0008	-0182	34062	2744				14396															
		STD	0010	-0184	3406	2744	0006492		0007	14396															
000		OBS	0010	-0184	34064	2744				14396															
		STD	0020	-0187	3421	2756	0005341		0013	14398															
		OBS	0020	-0187	34212	2756				14398															
		OBS	0025	-0186	34260	2760				14400															
		STD	0030	-0178	3428	2761	0004841		0018	14405															
		OBS	0030	-0178	34279	2761				14405															
		STD	0050	-0185	3432	2765	0004497		0027	14406															
		OBS	0050	-0185	34320	2765				14406															
		STD	0075	-0187	3434	2766	0004323		0038	14409															
		OBS	0075	-0187	34340	2766				14409															
		STD	0100	-0188	3435	2767	0004220		0049	14413															
		OBS	0100	-0188	34351	2767				14413															
		STD	0125	-0188	3436	2768	0004128		0059	14417															
		OBS	0125	-0188	34361	2768				14417															
		STD	0150	-0188	3437	2769	0004059		0069	14421															
		OBS	0150	-0188	34368	2769				14421															
		STD	0200	-0188	3438	2770	0003913		0089	14430															
		OBS	0200	-0188	34383	2770				14430															
		STD	0250	-0184	3440	2771	0003756		0108	14440															
		OBS	0250	-0184	34401	2771				14440															
		STD	0300	-0157	3446	2775	0003367		0126	14462															
		OBS	0300	-0157	34460	2775				14462															
		STD	0400	-0054	3461	2784	0002632		0156	14529															
		OBS	0400	-0054	34612	2784				14529															
		OBS	0488	-0013	34644	2785				14563															

REFERENCE		SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	DEPTH INCH	1/2 RS DEN SQUARE		STATION TIME (GMT)		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF S'AMPL'S	WAVE OBSERVATIONS		WEA- THER CODE	CLOUD CODES		NODC STATION NUMBER			
CTRY CODE	ID. NO.					10"	1"	MO	DAY		HR.1/10	CRUISE NO.			STATION NUMBER	DIR.		HGT PER SEA	TYPE		AMT		
318085	GL		74187S	032282W	555	42	03	09	145	1969	017		0620	06	00	0	X		X7	5	8		0023
		WATER		WIND		BARO- METER (mb)		AIR TEMP. °C		VIS. CODE		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS									
		COLOR CODE	TRANS. INCH	DIR.	SPEED OR FORCE			DRY BULB		WET BULB													
				27	S04	921		-176		-178		7		12									
MESSAGE TIME HR 1/10	CARD NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T		SPECIFIC VOLUME ANOMALY-σ _t		Σ Δ DYN. M. x 10 ³	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P μg - at/l	TOTAL-P μg - at/l	NO ₃ -N μg - at/l	NO ₃ -N μg - at/l	SiO ₄ -Si μg - at/l	pH	S C				
		STD	0000	-0167	3407	2744		0006484		0000	14402	796											
		OBS	0000	-0167	34071	2744					14402	796	218		001	291	065	802					
164		STD	0010	-0170	3406	2743		0006547		0007	14402	794											
		OBS	0010	-0170	34061	2743					14402	794	235		001	294	068	801					
164		STD	0020	-0170	3407	2744		0006510		0013	14404	793											
		OBS	0020	-0170	34068	2744					14405	792	234		000	295	070	800					
164		STD	0030	-0169	3410	2747		0006237		0019	14407	786											
		OBS	0030	-0165	3427	2760		0004931		0031	14414	751											
164		STD	0050	-0165	34278	2761					14415	748	229		001	299	080	771					
		OBS	0052	-0173	3432	2765		0004512		0042	14415	735											
		STD	0100	-0179	3436	2768		0004175		0053	14417	725											
164		OBS	0104	-0180	34363	2768					14418	724	261		003	316	110	792					
		STD	0125	-0181	3437	2769		0004077		0064	14421	722											
		OBS	0150	-0183	3437	2769		0004058		0074	14424	720											
148		STD	0171	-0184	34375	2769					14427	719	237		002	303	091	781					
		OBS	0171	-0184	34375	2769					14432	719											
		STD	0200	-0183	3438	2770		0003949		0094	14434	719	181		015	240	058	790					
164		OBS	0210	-0183	34381	2770					14434	719											
		STD	0250	-0181	3438	2770		0003926		0113	14442	718											
148		OBS	0273	-0180	34378	2769					14446	717	186		014	240	057	788					
		STD	0300	-0178	3438	2770		0003905		0133	14451	714											
148		OBS	0377	-0173	34401	2771					14467	705	182		014	242	057	788					
		STD	0400	-0164	3442	2772		0003593		0171	14475	695											
148		OBS	0476	-0105	34482	2776					14516	632	205		015	272	064	784					
		STD	0500	-0039	3450	2774		0003544		0206	14551	546											
148		OBS	0574	0040	3467P	2784P					14596	528	218		014	286	068	780					
		STD	0600	0022	3454	2774		0003614		0242	14589	576	213		000	293	069	783					
148		OBS	0616	0000	34542	2776																	

REFERENCE		SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	DEPTH INCH	1/2 RS DEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF S'PL'S	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES		NODC STATION NUMBER					
CTRY CODE	ID. NO.					10"	1"	MO	DAY	HR.1/10		CRUISE NO.	STATION NUMBER			DIR.	HGT PER SEA	TYPE		AMT							
318085	GL		74187S	032282W	555	42	03	09	145	1969	017		0620	06	00	0	X		X7	0	3	0024					
						WATER		WIND		BARO- METER (mb)		AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS											
						COLOR CODE	TRANS. INCH	DIR.	SPEED OR FORCE			DRY BULB	WET BULB														
						01	SD	27	S04	921	-176	-178	7	17													
MESSAGE TIME HR 1/10	CARD NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- σ_t	$\Sigma \Delta$ DYN. M. $\times 10^3$	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P $\mu g - \text{at/l}$	TOTAL-P $\mu g - \text{at/l}$	NO ₃ -N $\mu g - \text{at/l}$	NO ₃ -N $\mu g - \text{at/l}$	SiO ₄ -Si $\mu g - \text{at/l}$	pH	S C										
		STD	0000	-0181	3405	2743	0006628	0000	14395																		
		OBS	0000	-0181	34048	2743			14395																		
143		STD	0010	-0176	3405	2743	0006617	0007	14399																		
		OBS	0010	-0176	34050	2743			14399																		
		STD	0020	-0173	3409	2746	0006311	0013	14403																		
		OBS	0020	-0173	34090	2746			14403																		
001		OBS	0025	-0163	34150	2750			14409																		
		STD	0030	-0163	3421	2755	0005402	0019	14411																		
		OBS	0030	-0163	34211	2755			14411																		
		STD	0050	-0182	3435	2767	0004305	0029	14407																		
		OBS	0050	-0182	34346	2767			14407																		
		STD	0075	-0186	3437	2769	0004111	0039	14410																		
		OBS	0075	-0186	34368	2769			14410																		
		STD	0100	-0187	3438	2769	0004024	0049	14414																		
		OBS	0100	-0187	34377	2769			14414																		
		STD	0125	-0188	3438	2770	0003990	0059	14417																		
		OBS	0125	-0188	34379	2770			14417																		
		STD	0150	-0188	3438	2770	0003944	0069	14422																		
		OBS	0150	-0188	34383	2770			14422																		
		STD	0200	-0188	3439	2770	0003874	0089	14430																		
		OBS	0200	-0188	34388	2770			14430																		
		STD	0250	-0182	3439	2771	0003831	0108	14441																		
		OBS	0250	-0182	34392	2771			14441																		
		STD	0300	-0183	3440	2771	0003737	0127	14449																		
		OBS	0300	-0183	34400	2771			14449																		
		STD	0400	-0142	3448	2777	0003223	0162	14486																		
		OBS	0400	-0142	34480	2777			14486																		
		STD	0500	-0008	3463	2783	0002775	0192	14567																		
		OBS	0500	-0008	34626	2783			14567																		
		STD	0600	0037	3471	2787	0002460	0218	14605																		
		OBS	0600	0037	34707	2787			14605																		
		OBS	0610	0037	34706	2787			14607																		

REFERENCE		SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	DATE MO DAY HR 1/10	STATION TIME (GMT)	YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPL'S	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES		NOOC STATION NUMBER
CTRY CODE	IO. NO.							CRUISE NO.	STATION NUMBER			DIR.	HGT.	PER SEA		TYPE	AMT	

318085		GL	74063S	032362W	555	42 03 11	205	1969	019	1500	15	00	0	X		X1	4 5	0025
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WATER		WIND		BARO- METER (mb)	AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS
COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE		DRY BULB	WET BULB			

			19	S07	896	-163	-167	8	16
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MESSNGR TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S %	SIGMA-T	SPECIFIC VOLUME ANOMALY- σ_t	$\Sigma \Delta \sigma$ DYN. M. $\times 10^3$	SOUND VELOCITY	D ₂ ml/l	PO ₄ -P $\mu\text{g} \cdot \text{at/l}$	TOTAL-P $\mu\text{g} \cdot \text{at/l}$	NO ₃ -N $\mu\text{g} \cdot \text{at/l}$	NO ₂ -N $\mu\text{g} \cdot \text{at/l}$	SiO ₄ -Si $\mu\text{g} \cdot \text{at/l}$	pH	S C
		STD	0000	-0177	3411	2748	0006145	0000	14398	807							
191		OBS	0000	-0177	34112	2748			14398	807	155		024	243	055	800	
		STD	0010	-0182	3411	2748	0006158	0006	14397	808							
191		OBS	0010	-0182	34108	2748			14397	808	169		015	245	055	798	
		STD	0020	-0184	3411	2748	0006132	0012	14398	814							
191		OBS	0026	-0185	34121	2749			14399	817	158		013	246	054	799	
		STD	0030	-0184	3416	2752	0005740	0018	14400	802							
		STD	0050	-0181	3430	2763	0004660	0029	14407	748							
191		OBS	0052	-0181	34313	2764			14408	745	200		014	289	065	791	
		STD	0075	-0184	3433	2766	0004408	0040	14410	735							
191		OBS	0077	-0184	34332	2766			14411	734	200		009	287	066	791	
		STD	0100	-0184	3434	2766	0004315	0051	14415	733							
		STD	0125	-0184	3434	2766	0004300	0062	14419	731							
191		OBS	0129	-0184	34343	2767			14420	731	204		003	293	066	789	
		STD	0150	-0184	3434	2767	0004255	0072	14423	728							
191		OBS	0181	-0183	34345	2767			14429	725	205		000	294	067	789	
		STD	0200	-0183	3435	2767	0004180	0093	14432	724							
		STD	0250	-0183	3436	2768	0004073	0114	14440	721							
191		OBS	T0282	-0184	34362	2768			14445		204		001	297	068	789	
		STD	0300	-0185	3437	2768	0003999	0134	14448	718							
191		OBS	0388	-0188	34382	2770			14461	712	196		000	298	068	785	
		STD	0400	-0173	3439	2770	0003789	0173	14470	699							
191		OBS	0491	-0080	34465	2773			14530	609	217		000	308	080	782	
		STD	0500	-0073	3448	2774	0003508	0210	14535	601							
191		OBS	T0593	-0011	34578	2779			14581	535	226		000	311	093	779	
		STD	0600	-0010	3458	2779	0003104	0243	14582	534							
		STD	0700	0011	3463	2782	0002859	0273	14609	513							
		STD	0800	0031	3466	2784	0002780	0301	14636	492							
		STD	0900	0052	3468	2784	0002794	0329	14662	471							
191		OBS	T0906	0053	34682	2784			14663	470	227		000	313	110	780	
		STD	1000	0049	3468	2784	0002779	0356	14677	473							
		STD	1100	0044	3468	2784	0002745	0384	14692	476							
191		OBS	1113	0043	34678	2784			14694	476	229		012	318	120	779	
		STD	1200	0035	3468	2785	0002689	0411	14705	500							
		STD	1300	0026	3468	2785	0002608	0438	14718	527							
191		OBS	T1368	0022	3449P	2770P			546	203			003	300	077	781	
		STD	1400	0019	3468	2786	0002548	0464	14731	529							
191		OBS	1466	0017	34679	2786			14742	497	237		001	321	121	780	
191		OBS	T1492	0017	34681	2786			14746	485	226		000	320	122	779	

REFERENCE CRUISE CODE	SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	DEPTH METER	STATION TIME (GMT)		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPL'S	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES		NOOC STATION NUMBER	
					STATION TIME (GMT)			CRUISE NO.	STATION NUMBER			DIR.	HGT PER	SEA		TYPE	AMT		
					10"	1"													MO
318085	GL	73494S	031409W	555	31	03	12	115	1969		020	2360	24	00	0	X			0026
					WATER		WIND		BARO- METER (mb)		AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTH	SPECIAL OBSERVATIONS				
COLOR CODE		TRANS. UNIT	DIR.	SPEED OR FORCE	DRY BULB		WET BULB												
					16		S05		903		-147		-150		8		25		
MESSNGR TIME NR 1/10	CARD NO.	CARD TYPE	DEPTH (m)	T °C	S %	SIGMA-T	SPECIFIC VOLUME ANDALTY-2107		Σ Δ D DYN. M. X 10 ³	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P μg - at/l	TOTAL-P μg - at/l	NO ₂ -N μg - at/l	NO ₃ -N μg - at/l	SiO ₄ -Si μg - at/l	pH	S C C	
		STD	0000	-0239	3405	2744			0006530	0000	14368	805							
117		OBS	0000	-0239	34047	2744					14368	805	160		014	234	053	792	
		STD	0010	-0170	3404	2742			0006678	0007	14402	809			012	237	043	796	
117		OBS	0010	-0170	34044	2742					14402	809	151						
		STD	0020	-0169	3405	2742			0006659	0013	14404	808			012	236	052	798	
117		OBS	0026	-0168	34047	2742					14406	808	156						
		STD	0030	-0171	3411	2747			0006156	0020	14406	792							
		STD	0050	-0181	3432	2765			0004507	0030	14408	737							
117		OBS	0052	-0182	34334	2766					14408	734	206		017	288	065	790	
		STD	0075	-0184	3434	2766			0004331	0041	14411	731							
117		OBS	0078	-0184	34342	2767					14411	730	202		003	292	066	789	
		STD	0100	-0183	3436	2768			0004194	0052	14415	732							
117		OBS	0104	-0183	34358	2768					14416	732	213		002	293	067	788	
		STD	0125	-0183	3436	2768			0004165	0062	14420	730							
		STD	0150	-0182	3436	2768			0004144	0073	14424	727							
117		OBS	0156	-0182	34359	2768					14425	726	199		000	301	067	789	
		STD	0200	-0182	3437	2769			0004029	0093	14433	720							
117		OBS	T0208	-0182	34373	2769					14434	719	205		000	295	068	789	
		STD	0250	-0180	3438	2769			0003959	0113	14442	718							
		STD	0300	-0178	3438	2770			0003905	0133	14451	717							
117		OBS	T0306	-0178	34380	2769					14452	717	208		000	294	068	789	
		STD	0400	-0145	3440	2770			0003819	0172	14484	673							
117		OBS	T0405	-0142	34407	2771					14486	670	210		000	293	073	788	
		STD	0500	-0051	3452	2776			0003325	0207	14546	579							
117		OBS	0510	-0043	34529	2777					14551	571	223		000	312	088	779	
		STD	0600	0009	3461	2781			0002999	0239	14591	520							
117		OBS	0610	0014	34616	2781					14595	515	224		000	315	097	780	
		STD	0700	0037	3465	2783			0002878	0268	14621	491							
		STD	0800	0054	3469	2785			0002712	0296	14646	464							
117		OBS	0810		34696						14658	461	222		000	321	106	779	
150		OBS	T0858	0059	34692	2785					14658	468	221		000	322	119	786	
		STD	0900	0059	3469	2785			0002751	0324	14665	468							
		STD	1000	0058	3470	2785			0002727	0351	14682	468							
117		OBS	T1006	0058	34697	2785					14683	468	216		000	325	115	779	
150		OBS	T1059	0052	34694	2785					14689	513	221		000	322	115	781	
		STD	1100	0048	3469	2785			0002682	0378	14694	505							
		STD	1200	0041	3469	2785			0002659	0405	14708	487							
117		OBS	T1256	0038	34687	2785					14716	476	217		000	322	118	780	
		STD	1300	0036	3469	2786			0002617	0431	14722	502							
150		OBS	1312	0036	34693	2786					14724	508	232		000	322	119	781	
		STD	1400	0029	3469	2786			0002562	0457	14736	513							
		STD	1500	0022	3469	2786			0002531	0482	14750	519							
150		OBS	1566	0018	34682	2786					14759	522	233		000	325	122	780	
		STD	1750	0012	3468	2786			0002474	0545	14788	529							
150		OBS	1872	0008	34676	2786					14807	533	233		000	322	122	780	
		STD	2000	0004	3468	2786			0002425	0606	14827	516							
150		OBS	T2068	0002	34675	2786					14838	515	222		000	322	122	782	
150		OBS	T2172	-0001	34674	2786					14854	524	227		000	322	120	782	
150		OBS	2281	-0004	34678	2787					14872	524	236		000	324	122	781	
150		OBS	T2332	-0008	34668	2786					14878	524	213		000	322	124	781	
150		OBS	T2358	-0010	34694	2788					14882	520	219		000	322	126	783	

REF ID	SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	WIND SPEED KNOTS		STATION TIME GMT			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLE	WAVE OBSERVATIONS				WEA- THER CODE	CLOUD CODES		NOOC STATION NUMBER
				10"	1"	MO	DAY	HR./10		CRUISE NO.	STATION NUMBER			DIR.	HGT.	PER	SEA		TYPE	AMT	
				10"	1"	MO	DAY	HR./10		CRUISE NO.	STATION NUMBER			DIR.	HGT.	PER	SEA		TYPE	AMT	
318085	GL	73290S	030241W	555	30	03	14	055	1969	022	3109	31	31	0	2			X2	7	8	0027
				WIND		WIND		BARO- METER		AIR TEMP. °C		NO. OBS. DEPTH		SPECIAL OBSERVATIONS							
				COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE	(mbars)	DRY BULB	WET BULB	VIL CODE										
				31	S10		893		-050	-058	8	24									
MESSAGE TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME AND MALT-210°		Σ Δ D DYN. M. x 10 ³		SOUND VELOCITY	O ₂ ml/l	PO ₄ -P μg - dl/l	TOTAL-P μg - dl/l	NO ₂ -N μg - dl/l	NO ₃ -N μg - dl/l	Si O ₄ -Si μg - dl/l	pH	NOOC STATION NUMBER		
		STD	0000	-0151	3405	2742	0006725		0000		14410	799									
056		OBS	0000	-0151	34045	2742					14410	799	137			013	219	052	797		
		STD	0010	-0150	3404	2741	0006783		0007		14412	804									
056		OBS	0010	-0150	34037	2741					14412	804	145			013	216	051	800		
		STD	0020	-0141	3405	2742	0006703		0013		14418	813									
056		OBS	0025	-0136	34057	2742					14421	815	147			013	218	052	801		
		STD	0030	-0128	3407	2743	0006583		0020		14426	815									
		STD	0050	-0112	3414	2748	0006066		0033		14437	805									
056		OBS	0050	-0112	34143	2748					14437	805	203			010	241	054	800		
		STD	0075	-0154	3428	2761	0004872		0046		14424	756									
		STD	0100	-0179	3436	2768	0004183		0058		14417	726									
056		OBS	0100	-0179	34359	2768					14417	726	199			025	294	067	790		
		STD	0125	-0179	3437	2769	0004083		0068		14422	724									
		STD	0150	-0180	3437	2769	0004058		0078		14425	722									
056		OBS	0150	-0180	34371	2769					14425	722	201			000	298	068	789		
		STD	0200	-0183	3438	2769	0003989		0098		14432	716									
056		OBS	T0203	-0183	34375	2769					14433	716	201			000	293	067	790		
		STD	0250	-0182	3438	2770	0003923		0118		14441	715									
		STD	0300	-0181	3439	2770	0003858		0138		14450	714									
056		OBS	0300	-0181	34385	2770					14450	714	204			000	300	068	789		
056		OBS	T0399	-0164	34403	2771					14475	686	201			000	298	070	789		
		STD	0400	-0163	3440	2771	0003719		0176		14475	685									
056		OBS	T0499	-0109	34470	2775					14518	622	207			000	304	078	788		
		STD	0500	-0108	3447	2775	0003400		0211		14519	621									
		STD	0600	-0017	3454	2777	0003329		0245		14579	545									
		STD	0700	0043	3462	2779	0003192		0277		14624	492									
056		OBS	T0797	0070	34687	2783					14653	463	204			000	307	104	782		
		STD	0800	0070	3469	2784	0002852		0308		14653	463									
		STD	0900	0063	3469	2784	0002809		0336		14667	458									
087		OBS	T0920	0062	34692	2784					14670	457	222			000	320	110	782		
		STD	1000	0060	3470	2785	0002750		0364		14683	461									
056		OBS	1000	0060	34696	2785					14683	461	230			000	319	111	780		
		STD	1100	0053	3469	2785	0002739		0391		14696	466									
087		OBS	T1111	0052	34690	2785					14698	466	221			000	321	116	781		
		STD	1200	0045	3469	2785	0002686		0418		14709	469									
056		OBS	T1250	0042	34690	2785					14717	470	230			000	321	117	781		
		STD	1300	0039	3469	2785	0002677		0445		14724	467									
087		OBS	1310	0038	34684	2785					14725	466	221			000	321	118	781		
		STD	1400	0033	3468	2785	0002639		0472		14738	473									
		STD	1500	0027	3468	2785	0002602		0498		14752	480									
087		OBS	1510	0026	34681	2786					14753	481	223			000	323	121	783		
		STD	1750	0025	3468	2786	0002599		0563		14794	496									
087		OBS	1811	0022	34678	2786					14803	499	224			000	320	122	786		
		STD	2000	0005	3467	2786	0002472		0626		14827	506									
087		OBS	T2013	0004	34669	2786					14829	507	227			000	321	123	782		
087		OBS	T2216	-0001	34663	2786					14862	519	226			000	321	120	783		
		STD	2500	-0008	3466	2786	0002353		0747		14907	527									
087		OBS	2524	-0009	34664	2786					14911	528	224			000	321	119	788		
087		OBS	2837	-00140	34661	27860					523	219				001	313	118	789		
		STD	3000	-0009	3466	2786	0002338		0864		14994	537									
087		OBS	T3056	-0017	34658	2786					15000	538	222			000	319	121	788		
087		OBS	T3093	-0023	34650	27860					538										

REFERENCE		SHIP CODE	LATITUDE 1°10'	LONGITUDE 1°10'	CHIT INDIC	STATION TIME (GMT)		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLE	WAVE OBSERVATIONS				WEA- THER CODE	CLOUD CODES		NODC STATION NUMBER				
CTRY CODE	ID. NO.					10°	1°		MD	DAY			HR.1/10	CRUISE NO.	STATION NUMBER	DIR.		HGT	PER		SEA	TYPE	AMT	
318085		GL	72475S	030283W		555	20	03	15	025	1969		023	3658	35	00	0	X		X8	7	8		0028
		WATER		WIND		BARO- METER		AIR TEMP. °C		VIS. CODE	NO. DPS. DEPTHS	SPECIAL OBSERVATIONS												
		COLOR CODE	TRANS. mm	DIR.	SPEED OR FORCE	DRY BULB	WET BULB																	
				05	513	846	-036	-047	7	27														
MESSAGE TIME HR. 1/10	CA. T NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-σ _t	Σ Δ D DYN. M. x 10 ³	SOUND VELOCITY	D ₂ m/l	PD ₂ -P µg - dl/l	TOTAL-P µg - dl/l	NO ₂ -N µg - dl/l	NO ₃ -N µg - dl/l	SIO ₄ -Si µg - dl/l	pH	S CC							
		STD	0000	-0161	3388	2729	0007966	0000	14402	829														
003		OBS	0000	-0161	33880	2729			14402	829	113		013	200	050	799								
003		OBS	0008	-0164	33879	2729			14402	828	121		013	196	050	802								
		STD	0010	-0160	3388	2728	0007962	0008	14405	828														
		STD	0020	-0142	3389	2729	0007927	0016	14415	825														
003		OBS	0021	-0140	33898	2729			14416	825	127		013	202	050	801								
		STD	0030	-0116	3399	2736	0007234	0023	14430	809														
003		OBS	0042	-0100	34102	2745			14441	788	167		013	247	057	799								
		STD	0050	-0120	3417	2751	0005833	0037	14434	773														
		STD	0075	-0166	3433	2765	0004455	0049	14419	738														
003		OBS	0084	-0176	34361	2768			14416	729	213		022	282	067	789								
		STD	0100	-0177	3437	2769	0004103	0060	14418	722														
		STD	0125	-0179	3438	2769	0004029	0070	14422	715														
003		OBS	0125	-0179	34377	2769			14422	715	201		021	296	069	789								
		STD	0150	-0180	3438	2770	0003988	0080	14425	715														
003		OBS	T0167	-0181	34384	2770			14428	715	201		004	299	070	789								
		STD	0200	-0179	3439	2770	0003884	0100	14434	704														
003		OBS	0244	-0177	34404	2771			14443	686	214		002	301	074	789								
		STD	0250	-0176	3441	2772	0003735	0119	14444	686														
		STD	0300	-0154	3443	2773	0003591	0137	14463	667														
003		OBS	T0323	-0133	34443	2773			14477	648	205		002	300	079	786								
		STD	0400	-0012	3456	2778	0003259	0172	14548	538														
003		OBS	0405	-0006	34569	2778			14551	532	214		001	297	095	781								
		STD	0500	0036	3463	2781	0003028	0203	14587	495														
		STD	0600	0063	3468	2783	0002849	0232	14617	469														
003		OBS	T0663	0072	34695	2784			14632	458	220		001	297	111	779								
		STD	0700	0069	3470	2784	0002793	0261	14636	457														
		STD	0800	0062	3470	2785	0002752	0288	14650	455														
003		OBS	T0843	0060	34695	2785			14656	454	220		000	299	116	779								
035		OBS	T0880	0059	34701	2785			14662	461	214		000	310	115	779								
		STD	0900	0055	3470	2785	0002669	0315	14664	463														
		STD	1000	0043	3470	2786	0002581	0342	14675	469														
003		OBS	T1079	0042	34697	2786			14688	472	226		000	318	117	779								
		STD	1100	0043	3470	2786	0002617	0368	14692	473														
035		OBS	T1120	0044	34695	2786			14696	473	215		000	316	120	778								
		STD	1200	0039	3469	2786	0002612	0394	14707	476														
		STD	1300	0033	3469	2786	0002580	0420	14721	481														
035		OBS	1360	0029	34690	2786			14729	484	215		000	313	127	779								
		STD	1400	0027	3469	2786	0002537	0445	14735	488														
		STD	1500	0021	3469	2787	0002485	0471	14749	496														
035		OBS	1650	0014	34688	2787			14772	503	216		000	314	124	778								
		STD	1750	0011	3468	2786	0002464	0532	14787	504														
035		OBS	1864	0007	34676	2786			14805	505	217		000	312	124	779								
		STD	2000	0001	3468	2787	0002380	0593	14826	512														
035		OBS	2040	0000	34677	2787			14832	514	216		000	315	122	779								
035		OBS	T2334	-0009	34675	2787			14878	526	216		000	316	124	775								
		STD	2500	-0012	3467	2787	0002244	0709	14906	532														
035		OBS	T2636	-0014	34671	2787			14928	535	215		000	315	125	779								
035		OBS	2834	-0017	34670	2787			14961	538	216		000	311	121	779								
		STD	3000	-0018	3467	2787	0002159	0819	14990	541														
035		OBS	3036	-0018	34668	2787			14996	542	213		000	314	122	779								
035		OBS	3238	-0023	34643	2785			15029	548	215		000	315	123	779								
035		OBS	3441	-0023	34666	2787			15065	555	214		000	314	122	779								
035		OBS	T3475	-0024	34664	2787			15071	553	213		001	311	123	779								
035		OBS	T3500	-0023	34665	2787			15076	546	211		000	314	121	780								

REFERENCE		SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	DRIFT INCHES	ROSEN SQUARE	STATION TIME (GMT)		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPL'S	WAVE OBSERVATIONS				WEA- TH-ER CODE	CLOUD CODES		NOOC STATION NUMBER
CITY CODE	ID. NO.						CRUISE NO.	STATION NUMBER		DIR.	HGT			PER	SEA	TYPE	AMT				
318085	GL	713615	030361W	555	10	03	16	025	1969	024	3848	35	00	0	X		X1	7	7		0029

REFERENCE	SHIP CODE	LATITUDE	LONGITUDE	DRIFT METER	2500N SQUARE		TATION TIME (GMT)		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF S'PL'S	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES		NOOC STATION NUMBER					
					10"	1"	MO	DAY		HR.1/10	CRUISE NO.			STATION NUMBER	DR.	HGT		PER	SEA		TYPE	AMT			
					10"	1"	MO	DAY		HR.1/10	CRUISE NO.			STATION NUMBER	DR.	HGT		PER	SEA		TYPE	AMT			
318085	GL	703885	033323W		555	03	03	17	056	1969	025	4297	34	00	0	X		X	9	0030					
					WATER		WIND		BARO- METER		AIR TEMP. °C		NO. OBS. DEPTH		SPECIAL OBSERVATIONS										
					COLOR CODE	TRANS. m	DIR.	SPEED OR FORCE	METER (mbs)		DRY BULB		WET BULB		VIS. CODE		NO. OBS. DEPTH		SPECIAL OBSERVATIONS						
								17	506	878	-056	-067	4	21											
MESSAGE TIME HR 1/10	CAS NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-σ _t	Σ Δ O OYN. M. x 10 ³	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P μg - ml/l	TOTAL-P μg - ml/l	NO ₃ -N μg - ml/l	NO ₃ -N μg - ml/l	SiO ₄ -Si μg - ml/l	pH	S								
		STD	0000	-0183	3400	2739	0006992	0000	14394	812															
068		OBS	0000	-0183	34000	2739			14394	812	148		009	257	066	800									
		STD	0010	-0183	3399	2738	0007032	0007	14395	813															
068		OBS	0010	-0183	33994	2738			14395	813	160		010	252	066	799									
		STD	0020	-0184	3399	2738	0007022	0014	14396	813															
068		OBS	0027	-0185	33994	2738			14397	813	157		009	258	066	799									
		STD	0030	-0184	3405	2743	0006586	0021	14399	796															
		STD	0050	-0177	3437	2769	0004133	0032	14410	704															
068		OBS	0053	-0176	34405	2771			14412	694	195		005	287	076	790									
		STD	0075	-0178	3442	2773	0003733	0041	14415	686															
		STD	0100	-0180	3443	2774	0003637	0051	14418	676															
068		OBS	0106	-0180	34432	2774			14419	674	203		004	290	078	790									
		STD	0125	-0174	3443	2774	0003621	0060	14425	667															
		STD	0150	-0167	3443	2773	0003621	0069	14432	657															
068		OBS	0159	-0164	34433	2773			14435	654	194		000	296	079	789									
		STD	0200	-0078	3452	2778	0003264	0086	14483	580															
068		OBS	0212	-0057	34536	2778			14495	562	214		000	321	090	784									
		STD	0250	-0008	3459	2780	0003068	0102	14525	522															
		STD	0300	0038	3465	2782	0002881	0117	14555	484															
068		OBS	T0317	0050	34659	2782			14564	475	223		000	311	101	780									
		STD	0400	0070	3469	2784	0002798	0145	14587	461															
068		OBS	0421	0072	34692	2784			14591	459	219		000	314	107	781									
		STD	0500	0069	3470	2784	0002759	0173	14603	460															
068		OBS	T0531	0068	34698	2784			14608	460	243		000	322	112	780									
		STD	0600	0064	3470	2785	0002728	0200	14617	461															
		STD	0700	0057	3470	2785	0002703	0227	14631	461															
		STD	0800	0051	3469	2785	0002681	0254	14645	462															
068		OBS	T0835	0049	34692	2785			14650	462	227		000	326	117	781									
		STD	0900	0045	3469	2785	0002665	0281	14659	465															
		STD	1000	0038	3469	2786	0002615	0307	14673	470															
068		OBS	T1042	0036	34684	2785			14679	472	228		000	327	119	781									
		STD	1100	0033	3468	2785	0002654	0334	14687	473															
		STD	1200	0028	3468	2785	0002615	0360	14702	476															
		STD	1300	0023	3468	2786	0002575	0386	14716	480															
045		OBS	T1321	0022	34679	2786			14719	481	227		000	319	116	781									
		STD	1400	0018	3468	2786	0002554	0412	14731	487															
		STD	1500	0014	3468	2786	0002533	0437	14746	494															
045		OBS	T1561	0011	34674	2786			14755	498	227		000	324	117	781									
		STD	1750	0003	3467	2786	0002462	0500	14784	503															
045		OBS	1877	-0002	34665	2786			14803	508	224		000	311	123	780									
		STD	2000	-0007	3466	2786	0002403	0560	14822	515															
045		OBS	2080	-0009	34662	2786			14834	519	228		000	314	124	779									
045		OBS	2284	-0013	34671	2787			14868	526	221		000	314	123	779									
		STD	2500	-0017	3467	2787	0002210	0676	14903	530															
045		OBS	2589	-0019	34668	2787			14918	533	225		000	313	121	782									
045		OBS	T2778	-0022	34661	2786			14949	541	225		000	313	123	780									
		STD	3000	-0025	3466	2787	0002137	0784	14987	553															
045		OBS	3097	-0026	34661	2787			15003	555	227		004	309	122	779									
045		OBS	T3402	-0028	34659	2787			15056	552	224		000	311	120	781									

MESSNGR TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S %.	SIGMA-T	SPECIFIC VOLUME ANOMALY-310°	$\Sigma \Delta D$ DYN. M. $\times 10^3$	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P $\mu\text{g} - \text{ml/l}$	TOTAL-P $\mu\text{g} - \text{ml/l}$	NO ₂ -N $\mu\text{g} - \text{ml/l}$	NO ₃ -N $\mu\text{g} - \text{ml/l}$	Si O ₄ -Si $\mu\text{g} - \text{ml/l}$	pH
		STD	0000	-0165	3387	2728	0008041	0000	14400	801						
062		OBS	0000	-0165	33869	2728			14400	801	159		014	253	072	797
062		OBS	0008	-0165	33862	2727			14402	804	170		013	256	071	795
		STD	0010	-0165	3386	2727	0008103	0008	14402	805						
		STD	0020	-0165	3386	2727	0008097	0016	14404	807						
062		OBS	0022	-0165	33857	2727			14404	808	153		014	252	071	798
		STD	0030	-0164	3387	2727	0008047	0024	14406	808						
062		OBS	0044	-0162	33883	2729			14409	795	170		009	250	072	796
		STD	0050	-0162	3399	2737	0007088	0039	14412	771						
		STD	0075	-0161	3432	2764	0004545	0054	14421	682						
062		OBS	0087	-0161	34428	2773			14425	647	215		006	295	083	791
		STD	0100	-0162	3446	2776	0003457	0064	14427	616						
		STD	0125	-0163	3451	2780	0003057	0072	14431	567						
062		OBS	0129	-0163	34520	2780			14432	560	223		000	302	091	785
		STD	0150	-0079	3456	2781	0002969	0080	14475	528						
062		OBS	T0171	-0009	34593	2780			14512	509	227		000	313	100	782
		STD	0200	0014	3463	2782	0002919	0094	14527	525						
		STD	0250	0046	3468	2785	0002678	0108	14551	552						
062		OBS	0256		34690				555	233			000	311	110	780
		STD	0300	0066	3470	2785	0002682	0122	14568	484						
062		OBS	T0339	0074	34703	2784			14579	446	227		000	320	112	779
		STD	0400	0070	3470	2785	0002715	0149	14587	445						
062		OBS	T0425	0068	34700	2785			14590	444	230		000	316	115	781
		STD	0500	0063	3470	2785	0002686	0176	14600	445						
		STD	0600	0057	3470	2785	0002655	0202	14614	447						
062		OBS	0682	0052	34693	2785			14626	448	234		000	322	120	778
		STD	0700	0051	3469	2785	0002695	0229	14628	449						
		STD	0800	0046	3469	2785	0002666	0256	14643	453						
062		OBS	T0852	0043	34689	2785			14650	456	231		000	318	124	782
		STD	0900	0040	3469	2785	0002641	0282	14657	458						
		STD	1000	0034	3469	2786	0002606	0309	14671	464						
062		OBS	T1072	0030	34686	2786			14681	468	234		000	327	125	781

REF ID	SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	TIME 1/10	1/2 SDEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLS	WAVE OBSERVATIONS				WEA- THER CODE	CLOUD CODES		NODC STATION NUMBER	
					10"	1'	MD	DAT	HR.1/10		CRUISE NO.	STATION NUMBER			DIR	HGT	PER	SEA		TYPE	AMT		
					COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE	BARO- METER (mb)		DRY RULR	WET RULR			VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS						
318085	GL	64506S	041247W	520	41	03	20	145	1969		027		4572	22	26	0	5		X9	6	5		0032
					WATER		WIND		AIR TEMP. °C														
					COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE	BARO- METER (mb)	DRY RULR	WET RULR	VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS									
								26	505	925	-009	-012	8	14									
MESSAGE TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-σ _t	Δ ρ DYN. Δ ρ x 10 ³	SOUND VELOCITY	D ₂ ml/l	PO ₄ -P μg - ml/l	TOTAL-P μg - ml/l	NO ₂ -N μg - ml/l	NO ₃ -N μg - ml/l	Si O ₄ -Si μg - ml/l	pH							
		STD	0000	-0021	3393	2727	0008091	0000	14468	774													
138		OBS	0000	-0021	33927	2727			14468	774	140			007	197	075	793						
		STD	0010	-0024	3392	2727	0008121	0008	14469	774													
138		OBS	0010	-0024	33921	2727			14469	774	142			005	192	075	799						
		STD	0020	-0072	3407	2741	0006781	0016	14450	734													
		STD	0030	-0111	3419	2752	0005718	0022	14435	702													
		STD	0050	-0167	3437	2768	0004190	0032	14415	658													
138		OBS	0050	-0167	34366	2768			14415	658	211			009	277	085	778						
		STD	0075	-0171	3438	2769	0004058	0042	14417	663													
156		OBS	0096	-0174	34428	2773			14420	667	190			007	296	086	774						
		STD	0100	-0165	3444	2774	0003608	0052	14425	645													
138		OBS	0100	-0165	34439	2774			14425	645	212			008	289	086	774						
		STD	0125	-0108	3446	2774	0003625	0061	14456	600													
		STD	0150	-0064	3449	2775	0003568	0070	14481	562													
156		OBS	0197	-0022	34591	2781			14510	504	206			003	313	103	768						
		STD	0200	-0021	3460	2781	0002935	0086	14511	501													
138		OBS	0200	-0021	34599	2781			14511	501	225			007	325	104	768						
		STD	0250	0024	3457	2785	0002643	0100	14541	465													
156		OBS	0298	0055	34692	2785			14563	430	224			001	331	118	764						
		STD	0300	0055	3469	2785	0002671	0113	14563	501													
138		OBS	0300		34692				501	242				005	327	115	768						
		STD	0400	0052	3470	2786	0002600	0139	14579	465													
156		OBS	0499	0048	34701	2786			14593	442	230			001	331	124	764						
		STD	0500	0048	3470	2786	0002574	0165	14594	442													
		STD	0600	0043	3470	2786	0002584	0191	14608	437													
		STD	0700	0038	3469	2786	0002593	0217	14622	432													
156		OBS	0701	0038	34691	2786			14622	432	216			019	333	124	768						
		STD	0800	0033	3469	2786	0002576	0243	14637	433													
		STD	0900	0028	3469	2786	0002549	0269	14651	433													
		STD	1000	0023	3469	2786	0002528	0294	14666	434													
		STD	1100	0018	3468	2786	0002504	0319	14680	434													
		STD	1200	0013	3468	2786	0002478	0344	14695	435													
156		OBS	T1205	0013	34682	2786			14696	435	217			001	322	126	771						
		STD	1300	0009	3469	2787	0002418	0368	14710	454													
		STD	1400	0006	3469	2787	0002368	0392	14726	471													
		STD	1500	0002	3469	2788	0002307	0416	14741	486													
156		OBS	T1712	-0005	34698	2789			14774	509	225			000	320	124	770						
		STD	1750	-0006	3470	2788	0002185	0472	14780	510													
		STD	2000	-0014	3469	2788	0002172	0526	14819	515													
156		OBS	T2222	-0020	34675	2787			14854	519	229			006	320	125	770						

532-AA

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