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8-21 JUNE 1969

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REPORT No. 42 CG 373-42

OCEANOGRAPHIC INVESTIGATION OF THE
NORTHERN BERING SEA AND BERING STRAIT
8-21 JUNE 1969

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WASHINGTON, D.C.

USCGC NORTHWIND (WAGB-282)

ABSTRACT

Physical and chemical data were obtained by the USCGC NORTHWIND (WAGB-282) in the Bering Sea-Bering Strait area during 8-21 June 1969. Distributions of temperature, salinity, dissolved oxygen, inorganic phosphate, nitrate and nitrite are described and interpreted. The Deep Shelf Water of the Bering Sea was traced farther north in June than ever before reported.

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Oceanographic Investigation of the Northern Bering Sea and Bering Strait

8-21 June 1969

David M. Husby¹ and Gary L. Hufford²

INTRODUCTION

The U.S. Coast Guard Oceanographic Unit has been conducting investigations of summer conditions in the Bering Sea-Bering Strait-Chukchi Sea area since 1967. Results of the 1967 and 1968 investigations have been published as part of the Coast Guard Oceanographic Report series (Husby, 1969; and Husby, in preparation). This report contains the oceanographic results obtained in this area on the cruise of the USCGC NORTHWIND (WAGB-282) during 8-21 June 1969. The main purpose of this investigation was to provide information on the summer circulation and the interaction of the water masses in the northern Bering Sea. The Institute of Marine Science of the University of Alaska participated in the cruise with a secondary purpose to investigate the physical and chemical parameters governing the biological productivity of the Bering Sea.

The importance of the flow through the Bering Strait to the hydrography of the Arctic Ocean has been described by Coachman and Barnes (1961) and Gushchenkov (1964). The relatively warm Bering Sea water flows northward through the Bering Strait, mixes with the colder Siberian Shelf water in the Chukchi Sea, and then intrudes into the Arctic Ocean at subsurface levels in the Beaufort Sea gyral. In summer the Bering Sea water which flows into the Arctic Ocean is probably the main compo-

nent of the temperature maximum layer at 75-100 meters in the western basin of the Arctic.

METHODS

In investigation of the general physical and chemical oceanography of the northern Bering Sea was conducted during 8-21 June 1969 by personnel from the U.S. Coast Guard Oceanographic Unit. A total of 73 oceanographic stations were occupied in water depths which rarely exceeded 50 meters (fig. 1). At each station a Nansen bottle cast was made to obtain measurements of temperature, salinity, and the concentrations of dissolved oxygen and inorganic nutrients. Observations were made at 5-meter intervals from the surface to near bottom on each cast.

Water temperature was measured at each level by a pair of deepsea reversing thermometers. Corrected temperatures from the pair of thermometers were averaged when the difference between them was less than 0.05°C. The resulting *in situ* temperatures are considered accurate to within $\pm 0.025^\circ\text{C}$.

Water samples were drawn from each Teflon-lined Nansen bottle and determinations of salinity were made aboard the ship using a Bissett-Berman Model 6220 inductive salinometer. Replicate determinations were made on each sample and the resulting salinities are believed to have a laboratory accuracy of $\pm .005\%$. The conductivity values obtained were converted to salinity by use of the International Oceanographic Tables published jointly by UNESCO and the National Institute of Oceanography of Great Britain (UNESCO, 1966).

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Dissolved oxygen content was determined by a modified Winkler method using sodium thio-sulfate as a standard and a starch indicator to determine the titration endpoint. Water samples were drawn from each Nansen bottle immediately upon retrieval and treated with both manganous sulfate and alkaline iodide. Replicate determinations were made on each sample and the oxygen values are believed accurate to at least ± 0.03 ml/l.

Two samples were drawn from each Nansen bottle in 125 ml polyethylene bottles and immediately frozen in the ship's freezer. These frozen samples were returned to the Coast Guard Oceanographic Unit for determination of concentrations of inorganic phosphate, nitrate, and nitrite. The methods outlined in the manual of Strickland and Parsons (1965) were used.

Underwater photographs were taken at 25 stations using a Geodyne Model 205 bottom contact camera for study of benthic organisms as well as indication of bottom currents. The photographs were not compass-oriented, so no quantitative information was obtained on bottom currents. These photographs are retained by the Coast Guard Oceanographic Unit and will be the subject of a future report.

Three scientists from the University of Alaska Institute of Marine Science conducted investigations of primary productivity, organic carbon, and trace metal distribution. A total of 10 stations were taken in conjunction with hydrographic stations, usually near 0800 hours local time. At each station, approximately 30 liters of water were collected from four different depths corresponding to measured light extinction levels. Water was drawn from each sample to measure nitrate, total nitrogen, phosphate, total phosphorus, silicate, and ammonia concentrations as well as plant pigments. Portions of each sample were utilized to measure organic carbon content and to perform carbon and nitrogen uptake experiments. At selected stations, vertical tows for phytoplankton were conducted from near bottom to the surface with a number 20-mesh nylon net. Water samples were obtained at the same locations and depths as the productivity stations for later analysis of trace metal content. All these data are retained by the University of Alaska, Institute of Marine Science, and will be published in their report series.

DESCRIPTION OF WATER MASSES

The distribution of water properties near the surface in the northern Bering Sea and Bering Strait in June 1969 was generally similar to conditions observed in the past (Barnes and Thompson, 1938; Goodman, et al., 1942; and Saur, et al., 1954). Warm water ($5-8^{\circ}\text{C}$) of low salinity ($<31.5\%$) was found in the surface layer along the Alaskan coast (figs. 2 and 5). Water with these properties was first labeled as Alaskan Coastal Water (ACW) by Saur, et al. (1954), and is recognized by more recent authors (Coachman and Aagaard, 1966). This water mass had an oxygen content between 7.0–7.5 ml/l, which was near saturation. The warm, low salinity water seen at stations 20–27 in the northwestern portion of Norton Sound was probably the result of runoff of the Yukon River (figs. 13 and 14). The low salinity surface water of the entire region reflects the large fresh-water discharge of the Alaskan and Siberian Rivers. The most important rivers are the Yukon in Alaska, which has a mean annual discharge of $6220 \text{ m}^3/\text{sec}$, and the Anadyr River in Siberia which has a mean annual discharge of $1660 \text{ m}^3/\text{sec}$ (Sokolov, 1964).

A relatively cold, low salinity surface water mass (1.0 to 2.5°C , 31.4 to 32.3%) with an oxygen content of 9.0 to 10.0 ml/l, found on the western side of the survey area has not been classified previously (figs. 8–10, 13–15, 18–20, 23–25, 28–30, and 33–35). This water may have been advected through the Strait of Anadyr to the north, but its relatively high salinity precludes runoff from the Anadyr River as a major component.

In the western portion of the area of investigation, a cold ($0.5-2.0^{\circ}\text{C}$), highly oxygenated ($8.0-9.5$ ml/l), saline water mass ($31.9-32.5\%$) was found which corresponded closely with the Modified Shelf Water (MSW) described by Saur, et al. (1954). This MSW was found in 1969 along the east and west coast of St. Lawrence Island in sections A–A' and B–B', then near the bottom in the middle of section C–C' and from the surface to near the bottom in the western portions of sections D–D', E–E', and F–F' (figs. 8–10, 13–15, 18–20, 23–25, 28–30, and 33–35).

Near the bottom of the western portion of the survey area (figs. 4 and 7), a water mass seemed to intrude northeastward from the

Strait of Anadyr west of St. Lawrence Island to the Bering Strait then northward through the Strait (66°33'N). This water mass had the lowest temperatures (0.0 to -1.7°C) and highest salinities (32.4–32.9‰) in the entire survey area. The oxygen content of this water mass ranged from 8.0 to 9.0 ml/l, which was near or greater than the saturation value for these temperatures. A water mass having similar characteristics was labeled as Deep Shelf Water (DSW) by Saur, et al. (1954). This DSW showed an increase in temperature, but a relatively constant salinity as it was traced to the north. DSW rarely has been reported (Grider, 1968) as far north as the Bering Strait in the summer.

The origin of the DSW remains unclear. Grider (unpublished, 1968) stated that this cold, saline water seemed to concentrate near the eastern and western ends of St. Lawrence Island in July 1968 and that this should give some clues to its origin. Saur, et al. (1954), said this water originated from freezing of seawater on the Bering Sea Shelf in the winter. The distribution of properties near the bottom in June 1969, with the coldest temperatures in the Strait of Anadyr, suggest the Gulf of Anadyr, or the central Bering Sea as possible source regions. No direct measurements of current were made to substantiate the inferred direction of flow; however, the CGC NORTH-WIND was observed to drift nearly 1.5 miles to the northeast in approximately one hour while occupying station 2 west of St. Lawrence Island. The fact that the DSW could be traced as far north as the Bering Strait suggests that there may have been a northward flow in the western channel of the Bering Strait in June 1969.

A zone of transition of mixing was observed between the Alaskan Coastal Water and the Modified Shelf Water in all the cross sections in the eastern portion of the survey area. This transitional zone corresponds to the water mass labeled Intermediate Water (2–4°C, 31.5–31.9‰) by Saur, et al. (1954). Beyond section C–C', this zone was characterized by a nearly homogenous vertical distribution of properties (figs. 23–37).

DISTRIBUTION OF INORGANIC NUTRIENTS

The distribution of nutrients showed great

spatial variation. Nitrate was entirely absent or present in low concentrations ($<1.6 \mu\text{g-at/l}$) in the surface waters of the eastern portion of the survey area; however, concentrations increased towards the western side of the area with the highest values (12–16 $\mu\text{g-at/l}$) found along the Siberian coast (figs. 12, 17, 22, 27, 32, and 37). Nitrite was absent or in very low concentrations at all depths throughout the entire area of study. Surface concentrations of inorganic phosphate increased from less than 0.8 $\mu\text{g-at/l}$ on the eastern side of the area to maximum values of 1.6 $\mu\text{g-at/l}$ near the Siberian coast (figs. 11, 16, 21, 26, 31, and 36).

The horizontal gradients of inorganic nutrients at subsurface levels were similar to those at the sea surface, but higher concentrations were involved. The highest values of phosphate ($>2.0 \mu\text{g-at/l}$) and nitrate ($>18.0 \mu\text{g-at/l}$) occurred in the Deep Shelf Water on the western side of the survey area (figs. 11, 12, 21, 22, 26, 27, 31, and 32). There was a decrease in both phosphate and nitrate values northward in the Deep Shelf Water, indicating flow to the north. The high inorganic nutrient concentrations in the DSW could be used to determine the source of this cold water. The distinct stratification of the water in the northern Bering Sea and Bering Strait indicated by the temperature and salinity distributions was duplicated by the distribution of nitrate and phosphate. The large gradients of the nutrient concentrations corresponded with similar gradients of temperature and salinity suggesting the possibility that these inorganic nutrients may be considered as quasi-conservative properties in this limited area of investigation.

The source of the high nutrient concentrations in the western portion of the Bering Sea and Bering Strait has not been determined. Barnes and Thompson (1938) suggested the Gulf of Anadyr as a source. Coachman and Aagaard (1966) have stated that the distribution of properties in the northern Bering Sea and Bering Strait is probably determined by advection into the area. Our data do not solve the problem, but the nutrient distributions found in 1969 do suggest that the Gulf of Anadyr is the source of the high concentrations. The Anadyr River has a mean annual discharge of 1660 m³/sec (Sokolov, 1964) into the Gulf, and there are several smaller streams in

the area adding to the runoff. The importance of river runoff as an input of nutrients into the sea is well known. However, no data are available on the nutrient load of the Siberian rivers.

Another possible source for the high nutrient concentrations in the western Bering Sea is the recycling of the nutrients back into the water

column by turbulent action of bottom currents across shoal areas. The northern Bering Sea and Bering Strait are very shallow (less than 60 meters) with bottom currents of 16 to 76 cm/sec measured in the western portion (Coachman and Aagaard, 1966). Our data show no information to resolve the role of this mechanism.

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Figure 1. Location of stations and sections in Bering Sea and Bering Strait, 8-21 June 1969.

Figure 2. Horizontal distribution of sea surface temperature (°C) in Bering Sea and Bering Strait, 8–21 June 1969.

Figure 3. Horizontal distribution of temperature ($^{\circ}\text{C}$) at 15 meters in Bering Sea and Bering Strait, 8-21 June 1969.

Figure 4. Horizontal distribution of temperature ($^{\circ}\text{C}$) at 30 meters in Bering Sea and Bering Strait, 8–21 June 1969.

Figure 5. Horizontal distribution of salinity (‰) at the sea surface in Bering Sea and Bering Strait, 8-21 June 1969.

Figure 6. Horizontal distribution of salinity (%) at 15 meters in Bering Sea and Bering Strait, 8-21 June 1969.

Figure 7. Horizontal distribution of salinity (‰) at 30 meters in Bering Sea and Bering Strait, 8-21 June 1969.

Figure 8. Vertical distribution of temperature ($^{\circ}\text{C}$) along section A-A' during Arctic West, 8-16 June 1969. Contour interval is 0.5°C .

Figure 9. Vertical distribution of salinity (‰) along section A-A' during Arctic West, 8-16 June 1969. Contour interval is 0.1‰ .

Figure 10. Vertical distribution of dissolved oxygen (ml/l) along section A-A' during Arctic West, 8-16 June 1969. Contour interval is 0.5 ml/l.

Figure 11. Vertical distribution of inorganic phosphate ($\mu\text{g-at/l}$) along section A-A' during Arctic West, 8-16 June 1969. Contour interval is 0.2 $\mu\text{g-at/l}$.

Figure 12. Vertical distribution of nitrate ($\mu\text{g-at/l}$) along section A-A' during Arctic West, 14-16 June 1969. Contour interval is 2.0 $\mu\text{g-at/l}$ except between 18.0 and 30.0 $\mu\text{g-at/l}$ where the interval is 12.0 $\mu\text{g-at/l}$.

Figure 13. Vertical distribution of temperature ($^{\circ}\text{C}$) along section B-B' during Arctic West, 16-17 June 1969. Contour interval is 0.5°C except between 1.5 and 1.9°C .

Figure 14. Vertical distribution of salinity (‰) along section B-B' during Arctic West, 16-17 June 1969. Contour interval is 0.5‰ except between 31.9 and 32.0‰ and between 28.9 and 30.0‰ .

Figure 15. Vertical distribution of dissolved oxygen (ml/l) along section B-B' during Arctic West, 16-17 June 1969. Contour interval is 0.5 ml/l.

Figure 16. Vertical distribution of inorganic phosphate ($\mu\text{g-at/l}$) along section B-B' during Arctic West, 16-17 June 1969. Contour interval is 0.2 $\mu\text{g-at/l}$.

Figure 17. Vertical distribution of nitrate ($\mu\text{g-at/l}$) along section B-B' during Arctic West, 16-17 June 1969. Contour interval is $0.2 \mu\text{g-at/l}$.

Figure 18. Vertical distribution of temperature (°C) along section C-C' during Arctic West, 17-18 June 1969. Contour interval is 0.5°C.

Figure 19. Vertical distribution of salinity (‰) along section C-C' during Arctic West, 17-18 June 1969. Contour interval is 0.1‰ except between 31.0 and 32.0‰ where the interval is 0.5‰.

Figure 20. Vertical distribution of dissolved oxygen (ml/l) along section C-C' during Arctic West, 17-18 June 1969. Contour interval is 0.5 ml/l.

Figure 21. Vertical distribution of inorganic phosphate ($\mu\text{g-at/l}$) along section C-C' during Arctic West, 17-18 June 1969. Contour interval is 0.2 $\mu\text{g-at/l}$.

Figure 22, Vertical distribution of nitrate ($\mu\text{g-at/l}$) along section C-C' during Arctic West, 17-18 June 1969. Contour interval is $2.0 \mu\text{g-at/l}$.

Figure 23. Vertical distribution of temperature ($^{\circ}\text{C}$) along section D-D' during Arctic West, 19 June 1969. Contour interval is 0.5°C .

Figure 24. Vertical distribution of salinity (‰) along section D-D' during Arctic West, 19 June 1969. Contour interval is 0.1‰ except between 31.5 and 32.0‰ .

Figure 25. Vertical distribution of dissolved oxygen (ml/l) along section D-D' during Arctic West, 19 June 1969. Contour interval is 0.5 ml/l.

Figure 26. Vertical distribution of inorganic phosphate ($\mu\text{g-at/l}$) along section D-D' during Arctic West, 19 June 1969. Contour interval is 0.2 $\mu\text{g-at/l}$.

Figure 27. Vertical distribution of nitrate ($\mu\text{g-at/l}$) along section D-D' during Arctic West, 19 June 1969. Contour interval is $2.0 \mu\text{g-at/l}$.

Figure 28. Vertical distribution of temperature (°C) along section E-E' during Arctic West, 20 June 1969. Contour interval is 0.5°C.

Figure 29. Vertical distribution of salinity (‰) along section E-E' during Arctic West, 20 June 1969. Contour interval is 0.1‰.

Figure 30. Vertical distribution of dissolved oxygen (ml/l) along section E-E' during Arctic West, 20 June 1969. Contour interval is 0.5 ml/l.

Figure 31. Vertical distribution of inorganic phosphate ($\mu\text{g-at/l}$) along section E-E' during Arctic West, 20 June 1969. Contour interval is $0.2 \mu\text{g-at/l}$.

Figure 32. Vertical distribution of nitrate ($\mu\text{g-at/l}$) along section E-E' during Arctic West, 20 June 1969. Contour interval is $2.0 \mu\text{g-at/l}$.

Figure 33. Vertical distribution of temperature ($^{\circ}\text{C}$) along section F-F' during Arctic West, 21 June 1969. Contour interval is 0.5°C .

Figure 34. Vertical distribution of salinity (‰) along section F-F' during Arctic West, 21 June 1969. Contour interval is 0.1‰, except between 31.0 and 32.0‰ where the interval is 0.5‰.

Figure 35. Vertical distribution of dissolved oxygen (ml/l) along section F-F' during Arctic West, 21 June 1969. Contour interval is 0.5 ml/l.

Figure 36. Vertical distribution of inorganic phosphate ($\mu\text{g-at/l}$) along section F-F' during Arctic West, 21 June 1969. Contour interval is 0.2 $\mu\text{g-at/l}$.

Figure 37. Vertical distribution of nitrate ($\mu\text{g-at/l}$) along section F-F' during Arctic West, 21 June 1969. Contour interval is $2.0 \mu\text{g-at/l}$.

Table 1. Observed and interpolated oceanographic data taken by USCGC NORTHWIND during 8-21 June 1969.

REFERENCE		SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° ' 1/10	DUTY MOON	MARSON SQUARE		STATION TIME (GMT)				YEAR	ORIGINATOR'S		DEPTH BOTTOM	MAX. DEPTH OF S'MPL'S	WAVE OBSERVATIONS				WEA- THER CODE	CLOUD CODES		NODC STATION NUMBER
						10'	1'	MO	DAY	HR.	T/10		CRUISE NO.	STATION NUMBER			GR.	HGT	PER	SEA'		TYPE	AMT	
CITY CODE	ID. NO.																							
311524	NW	64000N	172240W			234	42	06	14	190	1969	B53	001		0055	2	16	0	2		X4	7 7	0001	
						WATER		WIND		BARD- METER		AIR TEMP. °C		VIL CODE		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS						
						COLOR CODE		TRANS. (MI)		DIR.		SPEED OF FORCE		DRY BULB		WET BULB								
										23		520		239		023		020		6		10		
MESSAGE TIME HR 1/10	CAST NO.	CARD TYPE	DEPTN (m)	T °C	S ‰	SIGMA-T		SPECIFIC VOLUME ANOMALY=10 ³		S Δ D DYN. M. X 10 ³		SOUND VELOCITY		D ₂ ml/l	PD ₄ =P µg - σt/l	TOTAL-P µg - σt/l	ND ₃ =N µg - σt/l	ND ₃ =N µg - σt/l	SiD ₄ =Si µg - σt/l	pH	S C C			
		STD	0000	0216	3154	2521		0027633		0000		14542		937										
190		OBS	0000	0216	31537	2521						14542		937	055			018	033					
190		OBS	0005	0212	31541	2522						14541		946	057			002						
		STD	0010	0210	3157	2525		0027334		0027		14542		954										
190		OBS	0010	0210	31571	2525						14542		954	059			076	048					
190		OBS	0015	-0005	32211	2588						14454		11260	073			004						
		STD	0020	-0093	3237	2604		0019731		0051		14417		978										
190		OBS	0020	-0093	32370	2604						14417		978	144			010	100					
190		OBS	0025	-0135	32472	2614						14399		843	216				175					
		STD	0030	-0165	3271	2634		0016948		0069		14389		799										
190		OBS	0030	-0165	32707	2634						14389		799	196			007	310					
190		OBS	0035	-0172	32841	2645						14388		760	211			012	306					
190		OBS	0040	-0173	32845	2645						14389		760	188			016	196					
190		OBS	0045	-0169	32843	2645						14391		751	176			008	250					

REFERENCE		SNIP CODE	LATITUDE ° '"/10	LONGITUDE ° '"/10	DRIFT DROGT	MARSden SQUARE		STATION TIME (GMT)				YEAR	ORIGINATOR'S		DEPTH TD BOTTOM	MAX. DEPTH D.F. S'MPL'S	WAVE OBSERVATIONS				WEA- THER CODE	CLOUD CODES		NDDC STATION NUMBER
CTRY CODE	ID. NO.					10'	1'	MO	DAY	HR./10	GRUISE NO.		STATION NUMBER	OR.			HGT	PER	SEA	TYPE		AMT		
311524	NW	63576N	172146W			234	32	06	14	227	1969	853	002	0055	2	18	0	2		X4	7	8		0002
						WATER		WIND		BARD- METER		AIR TEMP. °C		VLS CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS								
						COLOR CODE	TRANS. (m)	DIR.	SPEED OF FORCE	(mbal)	DRY BULB	WET BULB												
								20	S10	254	034	032	6	11										
MESSAGE TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-σ _t ⁰	Σ Δ D DYN. M. x 10 ³	SOUND VELD CITY	D ₂ ml/l	PD ₄ -P µg - ol/l	TD ₁ A ₁ L ₁ -P µg - ol/l	ND ₂ -N ₂ µg - ol/l	ND ₃ -N ₃ µg - ol/l	SiO ₄ -Si µg - ol/l	pH	S C C							
		STD	0000	0254	3194	2551	0024817	0000	14565															
227		OBS	0000	0254	31944	2551			14565		041		032	040										
227		OBS	0005	0254	31949	2551			14565	944	074		003											
		STD	0010	0251	3196	2552	0024706	0025	14565	949														
227		OBS	0010	0251	31956	2552			14565	949	060		049											
227		OBS	0015	0098																				
		STD	0020	-0143	3244	2611	0019066	0047	14394	931														
227		OBS	0020	-0143	32439	2611			14394	11140	139		002	109										
227		OBS	0025	-0166	32564	2622			14386	922	198		006	223										
		STD	0030	-0162	3269	2632	0017116	0065	14390	861														
227		OBS	0030	-0162	32686	2632			14390	861			007	190										
227		OBS	0035	-0168						822	194		008	160										
227		OBS	0040	-0168	32691	2632			14389	808	172		012	209										
227		OBS	0045	-0166	32699	2633			14391	791	188		012	206										
		STD	0050	-0170	3269	2632	0017044	0099	14390	790														
227		OBS	0050	-0170	32691	2632			14390	790	206		017	146										

REFERENCE	SHIP CODE	LATITUDE * 1/10	LONGITUDE * 1/10	DRIFT DIRECTION	MARSDEN SQUARE		STATION TIME (GMT)		YEAR	ORIGINATOR'S		DEPTH 10 EDITION	MAX. DEPTH DF S'MPL'S	WAVE OBSERVATIONS			WEA- TH- CODE	CLOUD CODES	HDDC STATION NUMBER			
					10"	1"	MO	DAY		HR, 1/10	CRUISE NO.			STATION NUMBER	DIR.	HGT				PER	SEA	TYPE
311524	NW	63523N	172112W		234	32	06	15	013	1969	BS3	003	0053	2	36	1		X4	X	9		0003
					WATER		WIND		BARO- METER		AIR TEMP. °C		VIS.		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS					
					COLOR CODE	TRANS UM	DIR.	SPEED OR FORCE	DRY BULB		WET BULB											
								24	507	256	072	061	5	10								
MESSAGE TIME OF HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- σ_{θ}		$\Sigma \Delta$ D DYN. M. $\times 10^3$	SOUND VELOCITY	O ₂ ml/l	PD ₄ -P $\mu\text{g} - \text{dl/l}$	TOTAL-P $\mu\text{g} - \text{dl/l}$	ND ₂ -N $\mu\text{g} - \text{dl/l}$	ND ₃ -N $\mu\text{g} - \text{dl/l}$	SiO ₄ -Si $\mu\text{g} - \text{dl/l}$	pH					
		STD	0000	0221	3231	2583	0021794		0000	14555	951											
013		OBS	0000	0221	32311	2583				14555	951	078		011	019							
013		OBS	0005	0218	32313	2583				14555	956	070		003	070							
		STD	0010	0215	3232	2584	0021715		0022	14554	918											
013		OBS	0010	0215	32316	2584				14554	918	076		009	022							
013		OBS	0015	0183	32373	2591				14542	10990	064		006	008							
		STD	0020	0123	3242	2598	0020348		0043	14516	921											
013		OBS	0020	0123	32417	2598				14516	10800	113		009								
013		OBS	0025	-0127	32492	2615				14403	922	115		015	088							
		STD	0030	-0119	3259	2623	0017991		0062	14409	876											
013		OBS	0030	-0119	32586	2623				14409	876	152		009	127							
013		OBS	0035	-0109	32622	2625				14415	865	161		010	100							
013		OBS	0040	-0108	32627	2626				14416	855	157		005	093							
013		OBS	0045	-0104	32637	2626				14419	869	164		009	089							

REFERENCE		SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	DEPTH METER	MARSDEN SQUARE		STATION TIME IGMT				YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES		NOOC STATION NUMBER
CRUISE CODE	IO. NO.					10"	1"	MO	DAY	HR.1/10	CRUISE NO.		STATION NUMBER	DR.			HGT	PER	SEA		TYPE	AMT	
311524	NW		63517N	17156 W		234	31	06	15	038	1969	BS3	004	0044	2	00		0	X4	X	9		0004
						WATER		WIND		BARO- METER		AIR TEMP. °C		VTL CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS							
						COLOR CODE	TRANS. UNIT	DIR.	SPEED OF FORCE	METER (mba)	DRY BULB	WET BULB											
									20	S07	255	028	025	4	08								
MISSING TIME HR 1/10	CAS 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 ₂ -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 C C				
		STD	0000	0158	3219	2578	0022275		0000		14526	1004											
040		OBS	0000	0158	32192	2578					14526	1004	069			005	010						
040		OBS	0005	0158	32182	2577					14526	1020	063			007	046						
		STD	0010	0120	3220	2581	0022006		0022		14510	1009											
040		OBS	0010	0120	32197	2581					14510	1009	072			007							
040		OBS	0015	0005	32322	2597					14461	895	111			008	050						
		STD	0020	-0002	3232	2597	0020424		0043		14458	886											
040		OBS	0020	-0002	32323	2597					14458	886	113			010	051						
040		OBS	0025	-0002	32331	2598					14459	888	116			007	052						
		STD	0030	-0002	3233	2598	0020351		0064		14460	885											
040		OBS	T0030	-0002	32332	2598					14460	885	115			008	045						
040		OBS	0034	-0003	32321	2597					14460	883	122			006	049						

REFERENCE		SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	DEPTH METER	MARSDEN SQUARE		STATION TIME (GMT)				YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES		NOCC STATION NUMBER
CTRY CODE	IO. NO.					10°	1°	MO	DAY	HR.	1/10		CRUISE NO.	STATION NUMBER			DIR.	HGT.	PER		SEA	TYPE	
311524		NW	63494N	17152 W		234	31	06	15	055	1969	BS3	005	0036	2	19	0	2		X1	6	6	0005
				WATER		WIND		BARO- METER		AIR TEMP. °C		VIL CODE	NO. OBS. DEPTH	SPECIAL OBSERVATIONS									
				COLOR CODE	TRANSL UNIT	DIR.	SPEED OF FORCE	METER (mbal)	DRY BULB	WET BULB													
						25		S10	253	022	020	7	06										
MESSING TIME HR 1/10	CAS 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 ₂ -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	1 C C			
		STD	0000	0176	3215	2573		0022732		0000		14533	938										
	057	OBS	0000	0176	32147	2573						14533	938	061			006	003					
	057	OBS	0005	0154	32154	2575						14524	931	067			002	004					
		STD	0010	0116	3219	2580		0022036		0022		14508	883										
	057	OBS	0010	0116	32190	2580						14508	883	084			008						
	057	OBS	0015	0109								884						016					
		STD	0020	0106	3222	2583		0021749		0044		14506	886										
	057	OBS	0020	0106	32220	2583						14506	886	089			003	019					
	057	OBS	0025	0104	32206	2582						14506	882	091			005	016					

REFERENCE	SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	DEPTH METER	MARSDEN SQUARE	STATION TIME (GMT)		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES		NOOC STATION NUMBER	
						CRUISE NO.	STATION NUMBER		DIR.	HGT FT			SEA	TYPE	AMT					
311524	NW	6253 N	169185W		233	29	06 15 169	1969	BS3	006	0044	2	02	0	2		X1	6	7	0006

REFERENCE		SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	DATE MO DAY HR.1/10	MARSEN SQUARE	STATION TIME IGMT	YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF S'AMPLES	WAVE OBSERVATIONS				WEA- THER CODE	CLOUD CODES		NODC STATION NUMBER						
CTRY CODE	ID. NO.								CRUISE NO.	STATION NUMBER			DIR.	HGT	PER	SEA		TYPE	AMT							
311524	NW	6249 N	16900 W	233	29	06	15	198	1969	853	007	0044	2	03	1	2		X1	6	7		0007				
		WATER		WIND		BARO- METER		AIR TEMP. °C		VIS CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS														
		COLOR CODE	TRANS. (m)	DIR.	SPEED OF FORCE	(mba)		DRY BULB	WET BULB																	
				01		S20		151		031		018		8		08										
MESSAGE TIME HR 1/10	CARD 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 - μl/l	TOTAL-P μg - μl/l	NO ₃ -N μg - μl/l	NO ₃ -N μg - μl/l	SiO ₂ -Si μg - μl/l	pH	1 CC							
		STD	0000	0130								899														
200	OBS	0000	0130									899	111			003	016									
200	OBS	0005	0129	32099	2572						14512	905	081			007	016									
	STD	0010	0127	3210	2572			0022793			14512	899														
200	OBS	0010	0127	32099	2572						14512	899	083			013	020									
200	OBS	0015	0126	32098	2572						14512	903	083			007	017									
	STD	0020	0112	3210	2573			0022689			14507	893														
200	OBS	0020	0112	32101	2573						14507	893	085			008	016									
200	OBS	0025	0085	32119	2576						14496	868	095			008	025									
	STD	0030	0058	3213	2579			0022175			14485	836														
200	OBS	T0030	0058								836	111				007	032									
200	OBS	0035	0050	32135	2580						14482	825	111			011	035									

REFERENCE CTRY CODE	SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	DATE MO DAY HR.1/10	YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF S'MPL'S	WAVE OBSERVATIONS				WEA- THER CODE	CLOUD CODES		NODC STATION NUMBER																								
						STATION NUMBER				DIR.	HGT PER SEA	PER	SEA		TYPE	AMT																									
						CRUISE NO.																																			
311524	NW	6245 N	168402W	233 28 06 15 221	1969	853	008	0042	2	03	2	2	X1	8	7	0008																									
<table><tr><th colspan="2">WATER</th><th colspan="2">WIND</th><th colspan="2">AIR TEMP. °C</th><th rowspan="3">VIS. CODE</th><th rowspan="3">NO. OBS. DEPTHS</th><th rowspan="3">SPECIAL OBSERVATIONS</th></tr><tr><th>COLOR CODE</th><th>TRANS. (m)</th><th>DIR.</th><th>SPEED OR FORCE</th><th>BARO- METER (mb)</th><th>DRY BULB</th><th>WET BULB</th></tr><tr><td></td><td></td><td>01</td><td>S27</td><td>129</td><td>035</td><td>025</td><td>8</td><td>05</td></tr></table>																	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			01	S27	129	035	025	8	05
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																																
		01	S27	129	035				025	8	05																														
MESSAGE TIME HR 1/10	CARD 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 - μl/l	TOTAL-P μg - μl/l	NO ₃ -N μg - μl/l	NO ₃ -N μg - μl/l	SiO ₂ -Si μg - μl/l	pH	1 CC																								
		STD	0000	0148	3191	2556	0024358	0000	14517	850																															
222	OBS	0000	0148	31910	2556				14517	850	089		006	010																											
222	OBS	0005	0152	31913	2556				14520	846	069		007	011																											
		STD	0010	0155	3192	2556	0024355	0024	14522	844																															
222	OBS	0010	0155	31916	2556				14522	844	081		013	009																											
222	OBS	0014	0142	31922	2557				14517	851	085		006	010																											
222	OBS	0019	0126	31918	2558				14511	847	088		008	011																											

REFERENCE	SHIP CODE	LATITUDE 1°/10	LONGITUDE 1°/10	DATE MO DAY HR.1/10	YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF S'AMPLES	WAVE OBSERVATIONS	WEA- THER CODE	CLOUD CODES	NODC STATION NUMBER																										
						MARSDEN SQUARE	STATION TIME (GMT)							CRUISE NO.	STATION NUMBER																								
311524	NW	6239 N	16822 W	233 28 06 15 239	1969	B53	009	0035	2	03 3 2	X1	3 7	0009																										
<table><tr><th colspan="2">WATER</th><th colspan="2">WIND</th><th rowspan="2">BARO- METER (mb)</th><th colspan="2">AIR TEMP. °C</th><th rowspan="2">VIS CODE</th><th rowspan="2">NO. OBS. DEPTHS</th><th rowspan="2">SPECIAL OBSERVATIONS</th></tr><tr><th>COLOR CODE</th><th>TRANS. (m)</th><th>DIR.</th><th>SPEED OF FORCE</th><th>DRY BULB</th><th>WET BULB</th></tr><tr><td></td><td></td><td>03</td><td>S25</td><td>109</td><td>043</td><td>033</td><td>7</td><td>06</td><td></td></tr></table>														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			03	S25	109	043	033	7	06	
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																																	
		03	S25	109	043	033	7	06																															
MESSAGE TIME HR 1/10	CARD NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- σ_t	$\Sigma \Delta D$ DYN. M. $\times 10^3$	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P $\mu g - \mu l/l$	TOTAL-P $\mu g - \mu l/l$	NO ₃ -N $\mu g - \mu l/l$	NO ₃ -N $\mu g - \mu l/l$	SiO ₂ -Si $\mu g - \mu l/l$	pH	1 CC																						
		STD	0000	0161	3185	2550	0024925	0000	14522	864																													
241		OBS	0000	0161	31846	2550			14522	864	080		005	000																									
241		OBS	0005	0159	31839	2549			14522	875	080		007	006																									
		STD	0010	0159	3184	2550	0024935	0025	14523	866																													
241		OBS	0010	0159	31843	2550			14523	866	096		003	007																									
241		OBS	0014	0161	31843	2550			14524	879	095		001	001																									
241		OBS	0019	0158	31843	2550			14524	879	093		001	006																									
		STD	0020	0158	3184	2550	0024930	0050	14524	879																													
241		OBS	0023	0159	31843	2550			14525	877	101		000	008																									

REFERENCE		SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	DATE MO DAY HR 1/10	MARSOEN 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.						CRUISE NO.	STATION NUMBER		10"	1"			DIR.	HGT PER SEA				
311524	NW		6235 N	168047 W	233	28 06 16	014	1969	853	010	0031	2	05	2	2	X1	3 6	0010	
		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										
				01		520	095			7	05								
MESSINGE TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-σ _t	Σ Δ σ DTN, 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	NODC STATION NUMBER		
		STD	0000	0237	3191	2549	0024973	0000	14557	814									
	016	OBS	0000	0237	31907	2549			14557	814	092			000	001				
	016	OBS	0005	0234	31905	2549			14556	827	088			001	000				
		STD	0010	0237	3193	2551	0024800	0025	14559	831									
	016	OBS	0010	0237	31960	25540				831	090			001	003				
	016	OBS	0015	0235	31949	2553			14559	825	090			000	001				
		STD	0020	0208	3195	2555	0024452	0050	14548	826									
	016	OBS	0020	0208	31949	2555			14548	826	092			000	001				

REFERENCE		SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	DATE MO DAY HR 1/10	MARSOEN 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.								CRUISE NO.	STATION NUMBER			DIR.	HGT PER SEA				
311524	NW		62310N	16744 W	233	27 06 16	037	1969	853	011	0031	2	36	2	2	X1	3 6	0011
		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									
					03	510	079	073	056	7	05							
MESSAGE TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-σ _t	Σ Δ σ DTN, 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	NODC STATION NUMBER	
		STD	0000	0304	3190	2543	0025575	0000	14586	806								
	039	OBS	0000	0304	31895	2543			14586	806	080			001	002			
	039	OBS	0005	0302					791	067				000	001			
		STD	0010	0300	3189	2543	0025622	0026	14585	798								
	039	OBS	0010	0300	31885	2543			14585	798	085			002	003			
	039	OBS	0015	0276	31925	2548			14576	805	089			001	001			
		STD	0020	0247	3199	2555	0024428	0051	14565	803								
	039	OBS	0020	0247	31989	2555			14565	803	092			000	001			

REFERENCE		SHIP CODE	LATITUDE +	LONGITUDE + 1/10	DATE MO DAY HR 1/10	MARSOEN 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.						CRUISE NO.	STATION NUMBER	DIR.	HGT PER SEA		16"	1"	MO			DAY	HR. 1/10	CRUISE NO.	STATION NUMBER			
311524	NW		6226 N	16726 W	233	27 06 16	055	1969	853	012		0027	2	02	2	2				X1	4 6		0012
						WATER		WIND		AIR TEMP. °C													
		COLOR CODE		TRANSP. (m)		DIR.		SPEED OR FORCE		BARO- METER (mbars)		DRY BULB		WET BULB		VIS CODE		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS			
						01		508		062		116		089		8		05					
MESSAGE TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-σ _t	Σ Δ σ DTN, 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	NODC STATION NUMBER						
		STD	0000	0473	3171	2512	0028535	0000	14655	766													
	056	OBS	0000	0473	31705	2512			14655	766	085			000	000								
	056	OBS	0005	0456	31709	2514			14649	770	087			000	001								
		STD	0010	0395	3180	2527	0027109	0028	14625	769													
	056	OBS	0010	0395	31796	2527			14625	769	095			000	001								
	056	OBS	0014	0218	32024	2560			14552	766	085			000	000								
	056	OBS	0019	0231	32035	2560			14559	766	101			000	000								

REFERENCE		SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	PORT MOON	MARSEN SQUARE		STATION TIME IGMT			YEAR	ORIGINATOR'S		DEPTH OF BOTTOM	MAX. DEPTH OF S'MPL'S	WAVE OBSERVATIONS				WEA- THER CODE	CLOUD CODES		NOOC STATION NUMBER						
CTRY CODE	ID. NO.					10"	1'	MO	DAY	HR. 1/10		CRUISE NO.	STATION NUMBER			OR.	HGT	PER	SEA		TYPE	AMT							
311524	NW		6217 N	16648 W		233	26	06	16	089	1969	B53	014	0025	2	01	1	2	X1	6	7		0014						
						WATER COLOR		WIND TENDS (m)		AIR TEMP. °C OIR.		BARO- METER (mb)		SPECIAL OBSERVATIONS															
								OIR.		SPEED OR FORCE		DRY BULB		WET BULB		VIS. CODE		NO. OBS. DEPTHS											
								32		510		042		089		081		8		05									
MESSAGE TIME HR 1/10	CASL NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T		SPECIFIC VOLUME ANOMALY-σ _t		Δ ρ DYN. 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 CC								
		STD	0000	0682	3233	2536		0026200		0000		14748		699															
090		OBS	0000	0682	32330	2536						14748		699	074		007	000											
090		OBS	0005	0674	32331	2538						14746		697	065		008	000											
		STD	0010	0675	3234	2538		0026028		0026		14747		701															
090		OBS	0010	0675	32343	2538						14747		701	073		006	000											
090		OBS	0014	0669	32343	2539						14746		701	070		006	000											
090		OBS	0019	0672	32364	2540						14748		697	074		006	000											

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REFERENCE	SHIP CODE	LATITUDE 1°/10	LONGITUDE 1°/10	MARSDEN SQUARE	STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF S'AMPLES	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	FTN		AMT
311524	NW	63240N	168210W	233	38	06 16 199	1969	853	016	0025	2	02	1	2		X1	4	6	0016	
				WATER		WIND		BARO- METER		AIR TEMP. °C		VIL CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS						
				COLOR CODE	TRANSL (m)	DIR	SPEED OF FORCE	(mbars)	DRY BULB	WET BULB										
							07	507	033	040						035	8	04		
MESSAGE TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- σ_{θ}	$\Sigma \Delta \sigma$ DYN. M. $\times 10^3$	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P pg - ml/l	TOTAL-P pg - ml/l	NO ₃ -N pg - ml/l	NO ₃ -N pg - ml/l	SiO ₄ -Si pg - ml/l	pH	T °C			
		STD	0000	0207	3190	2551	0024792	0000	14543	868										
	200	OBS	0000	0207	31903	2551			14543	868	083			010	000					
	200	OBS	0005	0186	31906	2553			14535	868	084			001	006					
		STD	0010	0141	3200	2563	0023630	0024	14517	832										
	200	OBS	0010	0141	32000	2563			14517	832	116			011	000					
	200	OBS	0015	0136	32010	2565			14516	832	110			012	006					

REFERENCE	SHIP CODE	LATITUDE 1°/10	LONGITUDE 1°/10	DEPTH METER	MARSDEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF S'AMPLES	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	FTN		AMT		
311524	NW	63292N	168030W		233	38 06	16	219	1969	853	017		0033	2	36	0	2		X1	6	7		0017	
					WATER		WIND		BARO- METER		AIR TEMP. °C		VIL CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS									
					COLOR CODE	TRANSL (m)	DIR	SPEED OF FORCE	(mbars)	DRY BULB	WET BULB													
							19		516	055	053	047	8	06										
MESSAGE TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T			SPECIFIC VOLUME ANOMALY- σ_{θ}		$\Sigma \Delta \sigma$ DYN. M. $\times 10^3$	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P pg - ml/l	TOTAL-P pg - ml/l	NO ₃ -N pg - ml/l	NO ₃ -N pg - ml/l	SiO ₄ -Si pg - ml/l	pH	T °C				
		STD	0000	0183	3200	2561			0023887		0000	14534	864											
	221	OBS	0000	0183	32001	2561						14534	864	093			011	002						
	221	OBS	0005	0171	31998	2561						14530	868	088			007	000						
		STD	0010	0155	3201	2563			0023655		0024	14523	852											
	221	OBS	0010	0155	32008	2563						14523	852	101			007	002						
	221	OBS	0014	0153	32001	2563						14523	864	098			006	000						
	221	OBS	0019	0151	31996	2563						14523	857	096			010	004						
		STD	0020	0151	3200	2563			0023721		0047	14523	857											
	221	OBS	0024	0151	31997	2563						14524	857	106			004	002						

REFERENCE CTM CODE	SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	MARS DEN SQUARE	STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF S'AMPLES	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		FTN	AMT		
311524	NW	63352N	167455W	233	37	06 17 011	1969	853	018		0030	2	32	0 2		X1	3 6		0018	
				WATER		WIND		BARO- METER		AIR TEMP. °C		VIL CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS						
				COLOR CODE	TRANSL (m)	DIR	SPEED OR FORCE	(mbars)	DRY BULB	WET BULB										
							18	511	060								8	05		
MESSAGE TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- σ_{θ}		$\Sigma \Delta \sigma$ DYN. M. $\times 10^3$	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P pg - ml/l	TOTAL-P pg - ml/l	NO ₃ -N pg - ml/l	NO ₃ -N pg - ml/l	SiO ₄ -Si pg - ml/l	pH	T °C		
		STD	0000	0242	3197	2554	0024539		0000	14560	843									
	010	OBS	0000	0242	31969	2554				14560	843	090			010	000				
	010	OBS	0005	0222	31968	2555				14552	844	091			006	002				
		STD	0010	0199	3197	2557	0024215		0024	14542	850									
	010	OBS	0010	0199	31972	2557				14542	850	097			008	000				
	010	OBS	0015	0180	31977	2559				14535	832	102			010	003				
		STD	0020	0164	3199	2561	0023818		0048	14529	833									
	010	OBS	0020	0164	31994	2561				14529	833	112			008	001				

REFERENCE CITY CODE	SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	DRIFT NO.	MARSDEN SQUARE		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"	MO	DAY	HR./10		CRUISE NO.	STATION NUMBER			DIR.	HGT	PER	SEA		TYPE	AMT	
311524	NW	63418N	167300W	233	37	06	17	037	1969	853	019	0030	2	32	2	3		X1	3	6	0019	
					WATER		WIND		BARO- METER		AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS							
					COLOR CODE	TRANSL UNIT	DIR.	SPEED OR FORCE	DRY BULB		WET BULB											
							02		508		065											
MESSAGE TIME HR 1/10	CARD NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-210?		Σ Δ D DYN. M. X 10 ³		SOUND VELOCITY	O 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	SiO ₄ -Si μg - ml/l	pH	S C			
		STD	0000	0380	3191	2537	0026115		0000		14619	830										
		STD	0000	0380	3191	2537	0026115		0000		14619	830										
	037	OBS	0000	0380	31909	2537					14619	830	085			014	004					
	037	OBS	0005	0258	31931	2550					14567	835	102			019	000					
		STD	0010	0198	3197	2557	0024238		0025		14542	841										
	037	OBS	0010	0198	31968	2557					14542	841	102			008	000					
	037	OBS	0015	0177	31972	2559					14533	839	112			010	003					

REFERENCE		SNIP CODE	LATITUDE * 1/10	LONGITUDE * 1/10	DRIFT NO.	MARSDEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPL'S	WAVE OBSERVATIONS				WEA- THER CODE	CLOUD CODES		NOOC STATION NUMBER
CITY CODE	ID. NO.					10"	1"	MO	DAY	HR./10		CRUISE NO.	STATION NUMBER			DIR.	HGT	PER	SEA		TYPE	AMT	
311524		NW	63460N	167100W		233	37	06	17	053	1969	853	020	0031	2	35	1	2		X1	8	7	0020
						WATER		WIND				AIR TEMP. °C											
						COLOR CODE	TRANS. UNIT	DIR.	SPEED OR FORCE	BARO- METER (mb)		DRY BULB	WET BULB	VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS							
										06	508	065	113	090	8	05							
MESSAGE TIME HR 1/10	CARD NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T		SPECIFIC VOLUME ANOMALY-210?		Σ Δ D DYN. M. X 10 ³		SOUND VELOCITY		O 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	SiO ₄ -Si μg - ml/l	pH	S C		
		STD	0000	0630	3022	2377		0041399		0000		14700		760									
055		OBS	0000	0630	30217	2377						14700		760	065			013	000				
055		OBS	0005	0562	30300	2391						14674		769	067			009	000				
		STD	0010	0274	3175	2534		0026448		0034		14572		848									
055		OBS	0010	0274	31749	2534						14572		848	102			011	003				
055		OBS	0015	0176	31951	2557						14533		860	085			010	001				
		STD	0020	0159	3199	2561		0023847		0059		14526		850									
055		OBS	0020	0159	31986	2561						14526		850	102			011	000				

REFERENCE CITY CODE	SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	DRIFT NO.	MARSDEN SQUARE		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"	MO	DAY		HR./10	CRUISE NO.			STATION NUMBER	DIR.	HGT	PER		SEA	TYPE		AMT
311524	NW	63495N	166510W	233	36	06	17	065	1969	853	021	0031	2	33	1	2		X1	8	6		0021
					WATER		WIND		BARO- METER		AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS							
					COLOR CODE	TRANS. UNIT	DIR.	SPEED OR FORCE	DRY BULB		WET BULB											
									04		510											
									060	100		089			8		05					
MESSAGE TIME HR 1/10	CARD NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T		SPECIFIC VOLUME ANOMALY-210?		Σ Δ D DYN. M. X 10 ³		SOUND VELOCITY	O 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	SiO ₄ -Si μg - ml/l	pH	S C		
		STD	0000	0702	3008	2357		0043299		0000		14727	760									
	067	OBS	0000	0702	30077	2357						14727	760	051			005	001				
	067	OBS	0005	0606	30053	2367						14689	764	057			005	001				
		STD	0010	0411	3120	2478		0031789		0038		14624	783									
	067	OBS	0010	0411	31195	2478						14624	783	070			009	002				
	067	OBS	0015	0230	31793	2541						14554	848	085			006	002				
		STD	0020	0147	3200	2563		0023681		0065		14521	848									
	067	OBS	0020	0147	31998	2563						14521	848	099			010	000				

REFERENCE CITY CODE	SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	DEPTH METER	MARSDEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAR. DEPTH OF S'MPL'S	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				
311524	NW	63568N	166376W	233	36	06	17	082	1969	853	022	0031	2	32	1	2		X1	8	6		0022
					WATER		WIND		BARO- METER		AIR TEMP. °C		VIL CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS							
					COLOR CODE	TRANS. UNIT	DIR.	SPEED OR FORCE	UNIT	DRY BULB	WET BULB											
								05	S23	060	108	093										8
MESSAGE TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-σ _t		Σ Δ σ DTN. M. x 10 ³	SOUND VELOCITY	O ₂ ml/l	PO ₂ -P pg - ml/l	TOTAL-P pg - ml/l	NO ₃ -N ug - ml/l	NO ₃ -N ug - ml/l	SiO ₄ -Si pg - ml/l	pH	S C C				
		STD	0000	0660	3076	2416	0037701		0000	14719	754											
082		OBS	0000	0660	30757	2416				14719	754	067				005	000					
082		OBS	0005	0631	30787	2422				14709	754	066				004	004					
		STD	0010	0295	3147	2510	0028723		0033	14578	840											
082		OBS	0010	0295	31470	2510				14578	840	072				005	000					
082		OBS	0015	0190	31819	2546				14537	830	111				006	000					
		STD	0020	0186	3182	2546	0025305		0060	14536	821											
082		OBS	0020	0186	31817	2546				14536	821	104				007	000					

REFERENCE		SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	DEPTH METER	MARSSEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAR. DEPTH OF S'PL'S	WAVE OBSERVATIONS				WEA- THER CODE	CLOUD CODES		NOOC STATION NUMBER
CITY CODE	ID. NO.					10"	1"	MO	DAY	HR./10		CRUISE NO.	STATION NUMBER			DIR.	HGT	PER	SEA		TYPE	AMT	
311524		NW	64023N	166185W	233	46	06	17	112	1969	853	023	0027	2	05	0	2		X1	8	4		0023
						WATER		WIND		BARO- METER		AIR TEMP. °C		VIL CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS							
						COLOR CODE	TRANSL (m)	DIR.	SPEED OR FORCE	UNIT	DRY BULB	WET BULB											
									11	S18	061	093	082	8	04								
MESSAGE TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- σ_t		$\Sigma \Delta \sigma$ DTN. M. $\times 10^3$	SOUND VELOCITY	O ₂ ml/l	PO ₂ -P pg - ml/l	TOTAL-P pg - ml/l	NO ₃ -N ug - ml/l	NO ₃ -N ug - ml/l	SiO ₄ -Si ug - ml/l	pH	S C C					
		STD	0000	0690	3053	2394	0039732		0000	14728	738												
		OBS	0000	0690	30534	2394				14728	738	070				007	000						
114		OBS	0005	0488	30879	2445				14651	775	077				007	000						
		STD	0010	0348	3133	2494	0030245		0035	14599	799												
114		OBS	0010	0348	31326	2494				14599	799	080				008	000						
114		OBS	0015	0157	31951	2559				14524	848	083				007	000						

REFERENCE		SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	DEPTH METER	MARSSEN SQUARE		STATION TIME (GMT)		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAR. DEPTH OF S'PL'S	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES		NOOC STATION NUMBER	
CITY CODE	ID. NO.					10"	1"	MO	DAY		HR./10	CRUISE NO.			STATION NUMBER	DIR.	HGT.		PER	SEA		TYPE
311524		NW	64080N	16600 W	233	46	06	17	124	1969	853	024	0024	2	04	0	2		X1	8	2	0024
						WATER		WIND		AIR TEMP. °C				VIL CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS						
						COLOR	TRANSL UNIT	DIR.	SPEED OR FORCE	UNIT	DRY BULB	WET BULB										
									12	S20	059	094	083									
MESSAGE TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-σ _t		Σ Δ σ DTN. M. × 10 ³	SOUND VELOCITY	O ₂ ml/l	PO ₂ -P pg - ml/l	TOTAL-P pg - ml/l	NO ₃ -N ug - ml/l	NO ₃ -N ug - ml/l	SiO ₄ -Si pg - ml/l	pH	S C C				
		STD	0000	0806	2885	2247	0053784		0000	14752	717											
125		OBS	0000	0806	28851	2247				14752	717	057				005	000					
125		OBS	0005	0581	30820	2430				14689	749	065				006	000					
		STD	0010	0255	3149	2515	0028268		0041	14560	841											
125		OBS	0010	0255	31490	2515				14560	841	095				007	000					
125		OBS	0015	0246	31519	2518				14558	848	092				009	001					

REFERENCE		SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	DEPTH METER	MARSDEN SQUARE		STATION TIME (GMT)		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS				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	PER		SEA	TYPE		AMT	
311524		NW	64134N	165394W		233	45	06	17	136	1969	BS3	025		0022	2	10	0	2		X1	3	3	0025
		WATER		WIND		BARO- METER		AIR TEMP. °C		VIS CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS												
COLOR CODE	TRANS. CODE	DIR.	SPEED OR FORCE	DIR.	SPEED OR FORCE	DRY BULB	WET BULB	DRY BULB	WET BULB															
				09	S15	064				7	04													
MESSAGE TIME 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 - 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 C C						
		STD	0000	0679	2943	2309	0047908		0000	14709	751													
138		OBS	0000	0679	29425	2309				14709	751	065				007	002							
138		OBS	0005	0538	29863	2360				14658	753					005	000							
		STD	0010	0421	3099	2461	0033398		0041	14625	746													
138		OBS	0010	0421	30994	2461				14625	746	090				006	002							
138		OBS	0015	0415	31097	2470				14625	751	101				011	004							

REFERENCE		SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	DEPTH METER	MARSDEN SQUARE		STATION TIME (GMT)		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES		NODC STATION NUMBER				
CTRY CODE	ID. NO.					10"	1"	MO	OAT HR.1/10		CRUISE NO.	STATION NUMBER			DIR	HGT PER SEA	PER		SEA	TYPE		AMT			
311524		NW	64190N	165228W		233	45	06	17	149	1969	BS3	026		0022	2	10	0	2		X1	6	7		0026
						WATER		WIND		BARO- METER		AIR TEMP. °C		VIS CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS									
						COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE	DIR.	SPEED OR FORCE	DRY BULB	WET BULB												
									06	S15	069	094	088	8	04										
MESSAGE TIME 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 - 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								
		STD	0000	0745	3062	2394	0039760		0000	14751	710														
151		OBS	0000	0745	30622	2394				14751	710	076				007	001								
151		OBS	0005	0587	31193	2459				14696	706	117				010	002								
		STD	0010	0586	3120	2459	0033565		0037	14696	701														
151		OBS	0010	0586	31196	2459				14696	701	127				011	002								
151		OBS	0015	0584	31197	2459				14696	698	133				005	004								

REFERENCE		SHIP CODE	LATITUDE * 1/10	LONGITUDE * 1/10	DEPTH METER	MARSDEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES		NODC STATION NUMBER			
						10"	1"	MO	OAT HR.1/10	CRUISE NO.		STATION NUMBER	DIR			HGT PER SEA	PER	SEA		TYPE	AMT				
CTRY CODE	ID. NO.					233	45	06	17	160	1969	BS3	027		0028	2	10	0	2		X1	8	6		0027
						WATER		WIND		BARO- METER		AIR TEMP. °C		VIS CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS									
						COLOR CODE	TRANS. CODE	DIR.	SPEED OR FORCE	DIR.	SPEED OR FORCE	DRY BULB	WET BULB												
									10	S18	075	107	096	8	05										
MESSAGE TIME 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 - 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							
		STD	0000	0822	3099	2412		0038056		0000	14786	693													
161		OBS	0000	0822	30987	2412					14786	693	099				009	000							
161		OBS	0005	0763	31007	2422					14764	701	111				010	000							
		STD	0010	0716	3105	2431		0036212		0037	14747	690													
161		OBS	0010	0716	31049	2431					14747	690	122				011	000							
161		OBS	0015	0712	31064	2433					14746	693	133				007	001							
		STD	0020	0710	3107	2434		0035976		0073	14746	692													
161		OBS	0020	0710	31072	2434					14746	692	142				007	000							

REFERENCE CTRY CODE	SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	PORT MO	MARSDEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAR. DEPTH OF S'AMPL'S	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES	NOOC STATION NUMBER	
					10"	1"	MO	DAY	HR./10		CRUISE NO.	STATION NUMBER			DR	HGT	PER				SEA
311524	NW	64364N	16635 W	233	46	06	17	214	1969	853	028		0025	2	13	0	2		X1	8 4	0028
				WATER		WIND		BARO- METER		AIR TEMP. °C		VIL CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS							
				COLOR CODE	TRANL UNIT	DIR.	SPEED OF FORCE	mmHg	mbars	DRY BULB	WET BULB										
							13	518	072	106	094	8	04								
MESSAGE TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-σ _t		Σ Δ σ DTN. 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	1 CC			
		STD	0000	0757	3021	2360	0043008		0000	14750	715										
	216	OBS	0000	0757	30208	2360				14750	715	069			008	000					
	216	OBS	0005	0602	31038	2445				14700	710	100			009	000					
		STD	0010	0603	3105	2446	0034822		0039	14702	708										
	216	OBS	0010	0603	31054	2446				14702	708	099			007	001					
	216	OBS	0014	0600	31054	2446				14701	707	090			008	000					

REFERENCE CTRY CODE	SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	PORT MO	MARSDEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAR. DEPTH OF S'AMPL'S	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES	NOOC STATION NUMBER	
					10"	1"	MO	DAY	HR./10		CRUISE NO.	STATION NUMBER			DR	HGT	PER				SEA
311524	NW	64327N	166539W	233	46	06	17	234	1969	853	029		0028	2	09	0	2		X1	8 4	0029
				WATER		WIND		BARO- METER		AIR TEMP. °C		VIL CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS							
				COLOR CODE	TRANL UNIT	DIR.	SPEED OF FORCE	mmHg	mbars	DRY BULB	WET BULB										
							11	512	071	094	084	8	05								
MESSAGE TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-σ _t		Σ Δ σ DTN. 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	1 CC			
		STD	0000	0626							762										
	235	OBS	0000	0626							762	071			008	001					
	235	OBS	0005	0622	31132	2450				14709	744	077			006	000					
		STD	0010	0458	3163	2508	0028935			14649	804										
	235	OBS	0010	0458	31633	2508				14649	804	072			009	032					
	235	OBS	0015	0217	31870	2548				14550	834	082			009						
		STD	0020	0207	3187	2549	0025022			14546	820										
	235	OBS	0020	0207	31873	2549				14546	820	084			008	034					

REFERENCE CTRY CODE	SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	PORT MO	MARSDEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAR. DEPTH OF S'AMPL'S	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES	NOOC STATION NUMBER	
					10"	1"	MO	DAY	HR./10		CRUISE NO.	STATION NUMBER			DIR.	HGT	PER				SEA
311524	NW	64288N	167150W	233	47	06	18	017	1969	853	030		0031	2	08	0	2		X1	3 2	0030
				WATER		WIND		BARO- METER		AIR TEMP. °C		VIL CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS							
				COLOR CODE	TRANL UNIT	DIR.	SPEED OF FORCE	mmHg	mbars	DRY BULB	WET BULB										
							09	514	064	090	084	8	05								
MESSAGE TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-σ _t		Σ Δ σ DTN. 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	1 CC			
		STD	0000	0590	3135	2471	0032438		0000	14698	755										
	019	OBS	0000	0590	31351	2471				14698	755	073			011	052					
	019	OBS	0005	0575	31356	2473				14693	757	070			008	022					
		STD	0010	0481	3142	2488	0030782		0032	14656	764										
	019	OBS	0010	0481	31418	2488				14656	764	073			011	027					
	019	OBS	0015	0225	31892	2549				14554	7910	082			007	029					
		STD	0020	0220	3190	2550	0024877		0059	14552	764										
	019	OBS	0020	0220	31904	2550				14552	764	085			011	033					

REFERENCE		SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	MARS 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		
CITY CODE	ID. NO.					10"	1"	MO	DAY		HR.1/10	CRUISE NO.			STATION NUMBER	DIR	HGT		PER	SEA		TYPE	AMT
311524	NW		64255N	167324W	233	47	06	18	030	1969	853	031	0031	2	08	0	2		X1	3	3		0031
		WATER		WIND		BARO- METER		AIR TEMP. °C		VIL CODE		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS									
		COLOR CODE	TRANS. (m)	DIR	SPEED OF FORCE	DRY RULR	WET RULR																
					10	509	063	086	074	8	05												
MESSNGR TIME HR 1/10	CAS NO.	CARD TYPE	DEPTH (m)	T °C	S %	SIGMA-T	SPECIFIC VOLUME ANOMALY- σ_{θ}	$\Sigma \Delta \sigma$ DYN. M. $\times 10^3$	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P $\mu g - \mu l/l$	TOTAL-P $\mu g - \mu l/l$	NO ₃ -N $\mu g - \mu l/l$	NO ₃ -N $\mu g - \mu l/l$	SiO ₄ -Si $\mu g - \mu l/l$	pH	S CC						
		STD	0000	0368	3195	2542	0025677	0000	14614	801													
	031	OBS	0000	0368	31953	2542			14614	801	083		013	034									
	031	OBS	0005	0340	31956	2545			14603	860	084		008	032									
		STD	0010	0275	3194	2549	0024978	0025	14575	843													
		STD	0010	0275	3194	2549	0024978	0025	14575	843													
	031	OBS	0010	0275	31944	2549			14575	843	084		009	031									
	031	OBS	0015	0193	32018	2561			14541	859	089		013	024									
		STD	0020	0182	3203	2563	0023684	0050	14537	846													
	031	OBS	0020	0182	32027	2563			14537	846	095		012	038									

REFERENCE	SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	OUT PORT	MARS 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						
311524	NW	6421 N	16752 W		233	47	06	18	043	1969	853	032	0034	2	09	0	2		X1	0	3	0032							
						WATER		WIND		BARO- METER (mba)	AIR TEMP. °C		VIL CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS														
						COLOR CODE	TRANS. (m)	DIR	SPEED OF FORCE		DRY RULR	WET RULR																	
						11 <td>506</td> <td>062</td> <td>114</td> <td>088</td> <td>8</td> <td>06</td> <th colspan="14"></th>					506	062				114	088	8	06										
MESSNGR TIME HR 1/10	CAS NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- σ_{θ}		$\Sigma \Delta \sigma$ DYN. M. $\times 10^3$	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P $\mu g - \mu l/l$	TOTAL-P $\mu g - \mu l/l$	NO ₃ -N $\mu g - \mu l/l$	NO ₃ -N $\mu g - \mu l/l$	SiO ₄ -Si $\mu g - \mu l/l$	pH												
		STD	0000	0376	3206	2549	0024970		0000	14619	818																		
045		OBS	0000	0376	32056	2549				14619	818	088			011	000													
045		OBS	0005	0334	32068	2554				14602	824	091			015	000													
		STD	0010	0254	3209	2562	0023743		0024	14568	829																		
045		OBS	0010	0254	32086	2562				14568	829	094			014	000													
045		OBS	0015	0185	32071	2566				14538	827	103			013	002													
		STD	0020	0167	3207	2567	0023275		0048	14531	822																		
045		OBS	0020	0167	32068	2567				14531	822	106			012	002													
045		OBS	0025	0167	32066	2567				14532	820	102			012	004													

REFERENCE	SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	DUST BUCKET	MARSOEN 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				
311524	NW	64175N	168188W		233	48	06	18	058	1969	853	033	0036	2	00	0	X		X1	8	6		0033		
					WATER		WIND		BARO- METER (mba)	AIR TEMP. °C		VIS CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS											
COLOR CODE		TRANS. (m)	DIR.	SPEED OR FORCE	DRY BULB	WET BULB																			
				29	504	060	064	054	8	06															
MESSNGR TIME HR 1/10	CAS NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- σ_{θ}		$\Sigma \Delta \sigma$ DYN. M. $\times 10^3$	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P $\mu g - \mu l/l$	TOTAL-P $\mu g - \mu l/l$	NO ₃ -N $\mu g - \mu l/l$	NO ₃ -N $\mu g - \mu l/l$	SiO ₄ -Si $\mu g - \mu l/l$	pH								
		STD	0000	0371	3150	2505	0029154		0000	14609	804														
058		OBS	0000	0371	31496	2505				14609	804	074		009	000										
058		OBS	0005	0322	31492	2509				14589	822	080		013	000										
		STD	0010	0160	3196	2559	0024051		0027	14525	825														
058		OBS	0010	0160	31960	2559				14525	825	097		011	000										
058		OBS	0015	0118	32057	2569				14508	819	106		017	010										
		STD	0020	0116	3206	2570	0023040		0050	14508	814														
058		OBS	0020	0116	32058	2570				14508	814														
058		OBS	0025	0116	32054	2569				14509	811	104		014	008										

REFERENCE		SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	TIME H:M:S	MARSDEN SQUARE		STATION TIME IGMT			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF S'AMPLES	WAVE OBSERVATIONS				WEA- THER CODE	CLOUD CODES		NOOC STATION NUMBER
CRUISE CODE	ID. NO.					10"	1"	MO	DAT	HR		1/10	CRUISE NO.			STATION NUMBER	DR	HGT	PER		SEA	EXP	
311524	NW	64150N	168300W	233	48	06	18	071	1969	853	034		0041	2	07	1	2		X1	8	6		0034
					WATER		WIND		BARO- METER		AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS								
					COLOR CODE	TRANS. UN.	DIR.	SPEED OR FORCE	UNBUL	DRY BULB	WET BULB												
									31		504	060		8	08								
MESSAGE TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T		SPECIFIC VOLUME ANOMALY-σ _t		Σ Δ σ DTN. 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 ₂ -N μg - ml/l	SiO ₄ -Si μg - ml/l	pH	S C C				
		STD	0000	0326	3201	2550		0024885		0000	14597	872											
	071	OBS	0000	0326	32010	2550					14597	872	090			012	047						
	071	OBS	0005	0190	32154	2573					14540	916	094			005	018						
		STD	0010	0089	3223	2585		0021580		0023	14497	924											
	071	OBS	0010	0089	32230	2585					14497	924	084			003	023						
	071	OBS	0014	0073	32226	2586					14490	921	101			002	029						
	071	OBS	0019	0069	32232	2586					14489	917	108			009	015						
		STD	0020	0069	3223	2586		0021442		0045	14489	916											
	071	OBS	0024	0070	32242	2587					14491	910	097			006	028						
					32249							903	098			005	025						
		STD	0030	0088	3225	2587		0021418		0066	14500	901											
	071	OBS	0034	0111	32262	2586					14511	893	102			002	029						

REFERENCE		SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	MARSSEN SQUARE	STATION TIME (GMT)		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF S'AMPLES	WAVE OBSERVATIONS				WEA- THER CODE	CLOUD CODES	NOOC STATION NUMBER	
CRUISE CODE	ID. NO.					10"	1"		MO	DAY			HR./10	CRUISE NO.	STATION NUMBER	DR				HGT
311524		NW	64092N	168510W	233	48	06 18 087	1969	853	035	0036	2					X8	6 7	0035	
					WATER		WIND		BARO- METER (mba)	AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS						
					COLOR CODE	TRANS. (m)	OIL	SPEED OR FORCE		DRY BULB	WET BULB									
								07	508	055	066	051	7	08						
MESSAGE TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T		SPECIFIC VOLUME ANOMALY-σ _t		Σ Δ σ DTN. 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 ₂ -N μg - ml/l	SiO ₄ -Si μg - ml/l	pH	S C C	
		STD	0000	0164	3234	2589		0021165		0000	14530	939								
	089	OBS	0000	0164	32343	2589					14530	939	091			011	016			
	089	OBS	0005	0131	32344	2592					14516	945	089			004	021			
		STD	0010	0089	3234	2594		0020757		0021	14498	957								
	089	OBS	0010	0089	32338	2594					14498	957	088			006	026			
	089	OBS	0015	0043	32340	2596					14478	957	096			005	021			
		STD	0020	0032	3234	2597		0020455		0042	14474	920								
	089	OBS	0020	0032	32339	2597					14474	920	100			002	041			
	089	OBS	0025	0031							907	095				006	038			
		STD	0030	0032	3235	2598		0020384		0062	14476	906								
	089	OBS	0030	0032	32348	2598					14476	906	110			002	051			
	089	OBS	0035	0048	32344	2596					14484	899	114			012	043			

REFERENCE	SHIP	LATITUDE	LONGITUDE	DEPTH	MARSEN	STATION TIME	YEAR	ORIGINATOR'S		DEPTH	MAX.	WAVE				WEA-	CLOUD	NOOC	
CRUISE	CODE				SQUARE	(GMT)		CRUISE	STATION	TO	DEPTH	OBSERVATIONS	TH	HT	PER	SEA	CODE	CODES	STATION
NO.		° 1/10	° 1/10		10"	1"	MO	DAY	HR.1/10	BOTTOM	OF							TYPE	NUMBER
311524	NW	64048N	169134W	233	49	06 18 106	1969	853	036	0036	2	09	0	2			X1	6 7	0036
				WATER		WIND	BARO-		AIR TEMP. °C		VIS.	NO.	SPECIAL						
				COLOR	TRANS.	DIR.	SPEED	METER	DRY	WET					OBS.	DEPTHS			
				CODE	UNITS		OF	UNITS	BULB	BULB									
						04	507	050	035	032	7	08							
MESSAGE	CAST	CARD	DEPTH	T	S	SIGMA-T	SPECIFIC VOLUME		Σ Δ σ	SOUND	O ₂	PO ₄ -P	TOTAL-P	NO ₃ -N	NO ₂ -N	SiO ₄ -Si	pH		
TIME	NO.	TYPE	(m)	° C	‰		ANOMALY-10 ³		DTN. M.	VELOCITY	ml/l	μg - ml/l	μg - ml/l	μg - ml/l	μg - ml/l	μg - ml/l			
HR 1/10									X 10 ³										
		STD	0000	0204	3233	2586	0021530		0000	14548	925								
	108	OBS	0000	0204	32330	2586				14548	925	081			015	042			
	108	OBS	0005	0167	32332	2588				14532	916	095			013	031			
		STD	0010	0101	3234	2593	0020838		0021	14504	888								
	108	OBS	0010	0101	32336	2593				14504	888	067			009	030			
	108	OBS	0015	0071	32332	2594				14491	885	094			008	092			
		STD	0020	0066	3234	2595	0020594		0042	14490	884								
	108	OBS	0020	0066	32343	2595				14490	884	093			009				
	108	OBS	0025	0066	32336	2595				14490	885	094			010	090			
	108	OBS	0029	0067	32339	2595				14491	887	113			012	099			
		STD	0030	0067	3234	2595	0020620		0063	14492	887								
	108	OBS	0035	0067	32344	2595				14492	888	097			017	123			

REFERENCE		SHIP CODE	LATITUDE 1°/10	LONGITUDE 1°/10	MARS SQUARE	STATION TIME IGMT				YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLES	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES		NOCC STATION NUMBER
CRUISE CODE	ID. NO.					10"	1"	MO	DAY		HR.	1/10			CRUISE NO.	STATION NUMBER	DIR		HGT PER	SEA	
311524	NW	64024N	169304W	233	49	06	18	119	1969	BS3	037	0038	2	10	0	2	X1	6	7	0037	
						WATER		WIND		BARO- METER (mb)	AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS						
		COLOR CODE	TRANSL (m)	DIR.	SPEED OR FORCE		DRY BULB		WET BULB												
					05		S08	048	033		030	8					08				
MESSAGE TIME HR 1/10	CST 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 - σ _l /l	TOTAL-P μg - σ _l /l	NO ₃ -N μg - σ _l /l	NO ₃ -N μg - σ _l /l	SiO ₄ -Si μg - σ _l /l	pH	COND	
		STD	0000	0245	3204	2559		0024061		0000		14562	928								
120		OBS	0000	0245	32035	2559						14562	928	058			005	000			
120		OBS	0005	0245	32033	2559						14563	924	056			007	001			
		STD	0010	0238	3205	2561		0023905		0024		14561	919								
120		OBS	0010	0238	32049	2561						14561	919	053			005	000			
120		OBS	0015	0137	32210	2581						14519	9660	076			007	006			
		STD	0020	0022	3239	2601		0020034		0046		14470	906								
120		OBS	0020	0022	32388	2601						14470	906	108			012	026			
120		OBS	0025	0001	32389	2602						14461	904	112			012	026			
		STD	0030	0000	3239	2603		0019909		0066		14462	899								
120		OBS	0030	0000	32391	2603						14462	899	086			009	041			
120		OBS	0035	0000	32411	2604						14463	898	115			013	034			

REFERENCE		SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	DEPTH FOOT	MARS DEN SQUARE		STATION TIME (GMT)		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX DEPTH OF SAMPLES	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES		NOOC STATION NUMBER
CRUISE CODE	ID. NO.					10"	1"	MO	DAY		HR.1/10	CRUISE NO.			STATION NUMBER	DIR.	HGT PER		SEA	TYPE	
311524	NW	64065N	169584W	233	49	06	18	136	1969	BS3	038	0035	2	09	0	X		X1	6	6	0038
						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												
								15		S06	045	072	056	8	07						
MESSAGE TIME HR 1/10	CST 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 $\mu g - \sigma_l/l$	TOTAL-P $\mu g - \sigma_l/l$	NO ₃ -N $\mu g - \sigma_l/l$	NO ₃ -N $\mu g - \sigma_l/l$	SiO ₄ -Si $\mu g - \sigma_l/l$	pH	COND
		STD	0000	0311	3159	2518		0027932		0000		14585	845								
138		OBS	0000	0311	31591	2518						14585	845	056			008	004			
138		OBS	0005	0310	31601	2519						14585	870	056			006	003			
		STD	0010	0230	3200	2558		0024196		0026		14557	897								
138		OBS	0010	0230	32003	2558						14557	897	060			009	004			
138		OBS	0015	0191	32053	2564						14541	914	062			008	004			
		STD	0020	0054	3232	2594		0020716		0049		14484	908								
138		OBS	0020	0054	32319	2594						14484	908	102			009	029			
138		OBS	0025		32361								906	114			011	029			
		STD	0030		3236								903								
138		OBS	0030		32358								903	102			015	042			

REFERENCE	SHIP CODE	LATITUDE 1°/10	LONGITUDE 1°/10	MARS DEN SQUARE	STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX DEPTH OF SAMPLES	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES		NOOC STATION NUMBER	
					10"	1"	MO DAY HR.1/10		CRUISE NO.	STATION NUMBER			DIR	HGT PER	SEA		TYPE	AMT		
311524	NW	64095N	170238W	234	40	06	18 152	1969	BS3	039	0031	2	09	0	2	X4	9	3	0039	
					WATER		WIND		BARO- METER (mb)	AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS						
		COLOR CODE	TRANSL (m)	DIR.	SPEED OR FORCE		DRY BULB	WET BULB												
					13	S15	044	033	033	2	07									
MESSAGE TIME HR 1/10	CST 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 $\mu g - \sigma_l/l$	TOTAL-P $\mu g - \sigma_l/l$	NO ₃ -N $\mu g - \sigma_l/l$	NO ₃ -N $\mu g - \sigma_l/l$	SiO ₄ -Si $\mu g - \sigma_l/l$	pH	COND			
		STD	0000	0211	3213	2569	0023104	0000	14548	964										
154		OBS	0000	0211	32129	2569			14548	964	054			006	000					
154		OBS	0005	0209	32130	2569			14548	971	059			006	000					
		STD	0010	0084	3234	2594	0020691	0022	14496	933										
		STD	0010	0084	3234	2594	0020691	0022	14496	933										
154		OBS	0010	0084	32343	2594			14496	933	093			010	022					
154		OBS	0015	0077	32378	2598			14494	910	100			010	028					
		STD	0020	0077	3238	2598	0020339	0042	14495	907										
154		OBS	0020	0077	32384	2598			14495	907	099			011	029					
154		OBS	0025	0079	32390	2598			14497	906	106			009	025					
		STD	0030	0096	3239	2598	0020374	0063	14505											
154		OBS	0030	0096	32393	2598			14505	9100	102			012	027					

REFERENCE	SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	EAST PROJ.	MARS 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	
						10°			11°				CRUISE NO.	STATION NUMBER	DR	HGT PER		SEA	TYPE		AMT
						MO	DAY		HR	1/10											
311524	NW	6413 N	17050 W		234	40	06 18 172	1969	BS3	040	0037	2	09	0	2		X4	X9		0040	
						WATER		WIND		AIR TEMP. °C		VIS CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS							
COLOR CODE		TRANL	DIR.	SPEED OR FORCE	BARO- METER (mm)	DRY BULB	WET BULB														
		14	508	047	029	027	5	07													
MESSAGE TIME HR 1/10	CAS 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 - ml/l	TOTAL-P μg - ml/l	NO ₃ -N μg - ml/l	NO ₃ -N μg - ml/l	SiO ₄ -S μg - ml/l	pH	TCC			
		STD	0000	0258	3155	2519	0027826		0000	14561	962										
174	OBS	0000	0258	31551	2519					14561	962	049			005	005					
174	OBS	0005	0230	31602	2526					14550	938	052			006	005					
		STD	0010	-0029	3237	2602	0019997		0024	14445	870										
174	OBS	0010	-0029	32365	2602					14445	870	132			010	091					
174	OBS	0014	-0036	32404	2605					14443	870	154			003	103					
174	OBS	0019	-0040	32414	2606					14442	871	146			009	081					
		STD	0020	-0040	3242	2606	0019568		0044	14442	874										
174	OBS	0023	-0039	32418	2606					14443	878	140			012	082					
174	OBS	0028	-0036	32418	2606					14445	870	139			015	088					

REFERENCE		SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	EAST PROJ.	MARSDEN 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./10	CRUISE NO.		STATION NUMBER	DR			HGT	PER	SEA	TYPE		AMT		
311524		NW	6417 N	171170W		234	41	06	18	193	1969	BS3	041	0038	2	08	1	2		X4	X9		0041	
						WATER		WIND		BARO- METER		AIR TEMP. °C		VIS CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS								
		COLOP CODE	TRANL UNIT	DIR.	SPEED OF FORCE	DRY BULB	WET BULB																	
				14	510	053	042	039	6	07														
MESSAGE TIME HR 1/10	CAS 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 - ml/l	TOTAL-P μg - ml/l	NO ₃ -N μg - ml/l	NO ₃ -N μg - ml/l	SiO ₄ -S μg - ml/l	pH							
		STD	0000	0062	3183	2555	0024462		0000	14477	844													
195	OBS	0000	0062	31834	2555					14477	844	118			047	104								
195	OBS	0005	-0091	32418	2608					14416	803	166			009	163								
		STD	0010	-0135	3253	2618	0018401		0021	14397	803													
195	OBS	0010	-0135	32529	2618					14397	803	188			013	152								
195	OBS	0015	-0139	32526	2618					14396	820	189			010	172								
		STD	0020	-0141	3254	2619	0018333		0040	14396	810													
195	OBS	0020	-0141	32535	2619					14396	810	192			007	191								
195	OBS	0025	-0139	32534	2619					14398	810	184			010	156								
		STD	0030	-0139	3255	2620	0018245		0058	14399	787													
195	OBS	0030	-0139	32546	2620					14399	787	180			012	157								

REFERENCE	SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	EAST PROJ.	MARSDEN 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								
						CRUISE NO.	STATION NUMBER		DIR.	HGT			PER	SEA	TYPE	AMT												
311524	NW	64195N	171345W		234	41	06 18 223	1969	BS3	042	0050	2	10	0	2		X2	7	8	0042								
					WATER		WIND		BARO- METER		AIR TEMP. °C		VIS CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS													
COLOR CODE		TRANL	DIR.	SPEED OR FORCE	DRY BULB	WET BULB			VIS CODE	NO. OBS. DEPTHS																		
		14	508	065	034	030																						
MESSAGE TIME HR 1/10	CAS 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 - ml/l	TOTAL-P μg - ml/l	NO ₃ -N μg - ml/l	NO ₃ -N μg - ml/l	SiO ₄ -S μg - ml/l	pH										
		STD	0000	0026	3235	2598		0020319		0000	14468	830																
225	OBS	0000	0026	32354	2598						14468	830	154			040	161											
225	OBS	0005	0028	32335	2597						14470	842	165			007	153											
		STD	0010	-0054	3252	2615		0018739		0020	14435	807																
225	OBS	0010	-0054	32517	2615						14435	807	184			009	172											
225	OBS	0015	-0127	32686	2631						14404	883	208			005	214											
		STD	0020	-0135	3270	2633		0017057		0037	14401	770																
225	OBS	0020	-0135	32703	2633						14401	770	230			002	232											
225	OBS	0025	-0134	32708	2633						14403	776	212			009	202											
		STD	0030	-0134	3271	2633		0017006		0054	14404	776																
225	OBS	10030	-0134	32709	2633						14404	776	199			006	224											
225	OBS	0035	-0135	32712	2633						14404	763	212			010	198											
225	OBS	0040	-0137	32718	2634						14404	779	216			010	210											

REFERENCE	SHIP ID. NO.	SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	MARSSEN SQUARE	STATION TIME (GMT)		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPL'S	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES	NODC STATION NUMBER																																
						MO	DAY		HR.	1/10			CRUISE NO.	STATION NUMBER	DIR				HGT	PER	SEA	TIME	AMT																											
311524	NW		6519 N	17013 W	234	50	06	19	057	1969	BS3	043		0042	2	12	0	2		X4	X 9			0043																										
<table><tr><th colspan="2">WATER</th><th colspan="2">WIND</th><th rowspan="2">BARO- METER (mbal)</th><th colspan="2">AIR TEMP. °C</th><th rowspan="2">VIS CODE</th><th rowspan="2">NO. OBS. DEPTHS</th><th rowspan="2">SPECIAL OBSERVATIONS</th></tr><tr><th>COLOR CODE</th><th>TRANS. (m)</th><th>DIR.</th><th>SPEED OR FORCE</th><th>DRY BULB</th><th>WET BULB</th></tr><tr><td></td><td></td><td></td><td>07</td><td>S15</td><td>083</td><td>096</td><td>091</td><td>5</td><td>08</td></tr></table>																									WATER		WIND		BARO- METER (mbal)	AIR TEMP. °C		VIS CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS	COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE	DRY BULB	WET BULB				07	S15	083	096	091	5	08
WATER		WIND		BARO- METER (mbal)	AIR TEMP. °C		VIS CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS																																									
COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE		DRY BULB	WET BULB																																												
			07	S15	083	096	091	5	08																																									

MESSAGE TIME HR 1/10	CAS 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 $\mu g - \sigma_l/l$	TOTAL-P $\mu g - \sigma_l/l$	NO ₃ -N $\mu g - \sigma_l/l$	NO ₃ -N $\mu g - \sigma_l/l$	SIO ₄ -Si $\mu g - \sigma_l/l$	pH	S CC
		STD	0000	0024	3289	2641	0016255	0000	14475	898							
058		OBS	0000	0024	32885	2641			14475	898	017		044	131			
058		OBS	0005	0018	32890	2642			14473	899	019		013	138			
		STD	0010	-0033	3289	2644	0016002	0016	14450	892							
058		OBS	0010	-0033	32885	2644			14450	892			021	140			
058		OBS	0015	-0084	32942	2650			14428	826	022		011	208			
		STD	0020	-0094	3294	2651	0015326	0032	14424	817							
058		OBS	0020	-0094	32944	2651			14424	817	025		012	172			
058		OBS	0025	-0094	32965	2652			14425	797	021		020	161			
058		OBS	0029	-0095	32956	2652			14425	792	024		010	194			
		STD	0030	-0095	3296	2652	0015194	0047	14426	791							
058		OBS	0034	-0096	32965	2653			14426	788	024		017	191			

REFERENCE		SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	MARS SQUARE	STATION TIME (GMT)		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX DEPTH OF SAMPL'S	WAVE OBSERVATIONS				WEA- THER CODE	CLOUD CODES		NDC STATION NUMBER
CRUISE CODE	ID. NO.					MD	DAY		HR	1/10			CRUISE NO.	STATION NUMBER	DIR	HGT		PER	SEA	
311524	NW	6515 N	16948 W	233 59 06 19 077	1969	BS3	044	0044	2	13	0	2	X2	6	8	0044				
WATER		WIND		BARO- METER (mbal)	AIR TEMP. °C		VIS CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS											
COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE		DRY BULB	WET BULB														
		06	S17	078	044	040	7	09												

MESSAGE TIME HR 1/10	CAS 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 $\mu g - \sigma_l/l$	TOTAL-P $\mu g - \sigma_l/l$	NO ₃ -N $\mu g - \sigma_l/l$	NO ₃ -N $\mu g - \sigma_l/l$	SIO ₄ -Si $\mu g - \sigma_l/l$	pH	S CC
		STD	0000	0141	3271	2621	0018199	0000	14525	919							
078		OBS	0000	0141	32714	2621			14525	919	122		026	073			
078		OBS	0005	0050	32737	2628			14485	910	182		013	105			
		STD	0010	-0072	3279	2637	0016623	0017	14430	863							
078		OBS	0010	-0072	32785	2637			14430	863	219		013	176			
078		OBS	0015	-0111	32805	2640			14413	802	248		010	210			
		STD	0020	-0114	3281	2640	0016308	0034	14413	788							
078		OBS	0020	-0114	32808	2640			14413	788	215		016				
078		OBS	0025	-0116	32822	2642			14413	790	212		012	219			
		STD	0030	-0119	3282	2641	0016211	0050	14412	791							
078		OBS	0030	-0119	32818	2641			14412	791	262		012	212			
078		OBS	0035	-0119	32817	2641			14413	793	261		011	204			
078		OBS	0040	-0123	32823	2642			14412	781	251		013	199			

REFERENCE	SHIP ID. NO.	SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	MARSSEN SQUARE	STATION TIME (GMT)	YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPL'S	WAVE OBSERVATIONS	WEA- THER CODE	CLOUD CODES	NODC STATION NUMBER																											
								CRUISE NO.	STATION NUMBER																																	
311524	NW		65105N	16921 W	233 59 06 19 092	1969	BS3	045		0052	2	00 0 X	X8	6 8	0045																											
<table><tr><th colspan="2">WATER</th><th colspan="2">WIND</th><th rowspan="2">BARO- METER (mbal)</th><th colspan="2">AIR TEMP. °C</th><th rowspan="2">VIS CODE</th><th rowspan="2">NO. OBS. DEPTHS</th><th rowspan="2">SPECIAL OBSERVATIONS</th></tr><tr><th>COLOR CODE</th><th>TRANS. (m)</th><th>DIR.</th><th>SPEED OR FORCE</th><th>DRY BULB</th><th>WET BULB</th></tr><tr><td></td><td></td><td></td><td>09</td><td>S15</td><td>078</td><td>043</td><td>041</td><td>7</td><td>10</td><td></td></tr></table>																WATER		WIND		BARO- METER (mbal)	AIR TEMP. °C		VIS CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS	COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE	DRY BULB	WET BULB				09	S15	078	043	041	7	10	
WATER		WIND		BARO- METER (mbal)	AIR TEMP. °C		VIS CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS																																	
COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE		DRY BULB	WET BULB																																				
			09	S15	078	043	041	7	10																																	

MESSAGE TIME HR 1/10	CAS 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 $\mu g - \sigma_l/l$	TOTAL-P $\mu g - \sigma_l/l$	NO ₃ -N $\mu g - \sigma_l/l$	NO ₃ -N $\mu g - \sigma_l/l$	SIO ₄ -Si $\mu g - \sigma_l/l$	pH	S CC
		STD	0000	0171	3234	2589	0021248	0000	14533	1012							
094		OBS	0000	0171	32338	2589			14533	1012	079		013	026			
094		OBS	0005	0112	32364	2594			14508	1008	082		008	058			
		STD	0010	0039	3248	2608	0019416	0020	14477	990							
094		OBS	0010	0039	32480	2608			14477	990	083		009				
094		OBS	0015	0008	32614	2620			14466	937	142		016	091			
		STD	0020	-0029	3264	2624	0017904	0039	14450	915							
094		OBS	0020	-0029	32638	2624			14450	915	152		010	106			
094		OBS	0025	-0047	32662	2626			14443	852	170		016	122			
		STD	0030	-0131	3271	2633	0017030	0056	14405	804							
094		OBS	0030	-0131	32707	2633			14405	804	201		017	183			
094		OBS	0035	-0144	32720	2634			14400	788	199		024	183			
094		OBS	T0040	-0143	32776	2639			14402	770	237		015	232			
094		OBS	0045	-0144	32773	2638			14402	777	264		010	206			

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
CRUISE CODE	ID. NO.					10"	1"	MO		DAY	HR.1/10			CRUISE NO.	STATION NUMBER	OP		HGT	PER	
311524	NW	65068N	169015W	233	59	06	19	112	1969	B53	046	0056	2	00	0	X	X2	6	8	0046
					WATER		WIND		BARO- METER		AIR TEMP. °C		VSL CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS					
					COLOR CODE	TRANS- MITS	DIR.	SPEED OF FORCE	(mbs)	DRY BULB	WET BULB									
								07	515	070	047	044	7	11						
MISSING 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 - 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	1 C		
		STD	0000	0264	3226	2575	00.2536		0000	14573	1081									
	114	OBS	0000	0264	32255	2575				14573	1081	047			009	003				
	114	OBS	0005	0198	32281	2582				14545	11340	059			008	003				
		STD	0010	0126	3230	2588	0021265		0022	14514	1076									
	114	OBS	0010	0126	32299	2586				14514	1076	063			010	005				
	114	OBS	0015	0084	32291	2590				14496	982	085			011	016				
		STD	0020	-0116	3259	2623	0017991		0042	14409	859									
	114	OBS	0020	-0116	32588	2623				14409	859	156			017	122				
	114	OBS	0024	-0115	32598	2623				14410	836	171			017	131				
	114	OBS	0029	-0110	32614	2625				14413	827	169			015	115				
		STD	0030	-0110	3262	2625	0017756		0059	14414	822									
	114	OBS	0034	-0110	32642	2627				14415	809	164			014	099				
	114	OBS	T0039	-0109	32660	2628				14416	807	194			017	112				
	114	OBS	0044	-0110	32656	2628				14417	802	192			018	099				
	114	OBS	0049	-0110	32655	2628				14417	802	192			018	136				

REFERENCE		SHIP CODE	LATITUDE * 1/10	LONGITUDE * 1/10	LEAST DEPTH METERS	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	
CRUISE CODE	ID. NO.					10"	1"	MO	DAY		HR.1/10	CRUISE NO.			STATION NUMBER	OR	HGT		PER	SEA		1PM (A.W.)
311524	NW	65024N	16837 W		233	58	06	19	130	1969	B53	047	0049	2	00	0	X		X2	6	8	0047
					WATER		WIND		BARO- METER		AIR TEMP. °C		VIS CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS							
					COLOR CODE	TRANS- MITS	DIR.	SPEED OR FORCE	(mbs)	DRY BULB	WET BULB											
							08	514	061	050	046	7	10									
MISSING 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 - 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	1 C			
		STD	0000	0220	3240	2590	0021104		0000	14556	976											
	132	OBS	0000	0220	32401	2590				14556	976	067			005	010						
	132	OBS	0005	0154	32434	2597				14528	986	050			004	006						
		STD	0010	0103	3243	2600	0020111		0021	14506	963											
	132	OBS	0010	0103	32433	2600				14506	963	058			006	008						
	132	OBS	0015	0083	32425	2601				14498	956	070			005	012						
		STD	0020	0069	3241	2601	0020068		0041	14492	956											
	132	OBS	0020	0069	32414	2601				14492	956	081			010	008						
	132	OBS	0025	0065	32411	2601				14491	951	086			010	009						
		STD	0030	0062	3242	2601	0020014		0061	14490	947											
	132	OBS	T0030	0062	32416	2601				14490	947	082			007	010						
	132	OBS	0035	0059	32416	2602				14490	943	090			008	011						
	132	OBS	0040	0054	32429	2603				14489	943	082			008	013						
	132	OBS	0045	0054	32425	2603				14489	934	086			005	012						

REFERENCE CIRCUIT NO.	SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	DEPTH METER	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	
311524	NW	64585N	16814 W		233	48	06	19	145	1969	B53	048	0043	2	10	0	2		X6	5	8	0048	
					WATER		WIND		BARO- METER (mbs)	AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS									
					COLOR CODE	TRANS- MITS	DIR.	SPEED OF FORCE		DRY BULB	WET BULB												
								13	507	058	087	071	7	08									
MISSING 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 - 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	1 C					
		STD	0000	0403	3142	2497	0029999		0000	14622	816												
	146	OBS	0000	0403	31422	2497				14622	816	044			018	001							
	146	OBS	0005	0386	31930	2538				14622	834	071			008								
		STD	0010	0271	3206	2559	0024069		0027	14575	855												
	146	OBS	0010	0271	32060	2559				14575	855	045			009	001							
	146	OBS	0015	0185	32179	2575				14540	868	075			011	001							
		STD	0020	0141	3228	2586	0021507		0050	14522	891												
	146	OBS	0020	0141	32279	2586				14522	891	101			006	001							
	146	OBS	0025	0130	32305	2589				14519	898	113			010	002							
		STD	0030	0129	3232	2590	0021152		0071	14519	900												
	146	OBS	0030	0129	32316	2590				14519	900				011	000							
	146	OBS	0035	0127	32310	2589				14519	902	106			006	001							

REFERENCE CTRY CODE	SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	MARSSEN 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						
					10"	1"	MO	DAY	HR:1/10									
311524	NW	64592N	16751 W	233 47	06 19 160	1969	BS3	049		0044	2	11 0 2		X6	7 8		0049	
WATER		WIND		BARO- METER		AIR TEMP. °C		VIS. CODE		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS						
COLOR CODE	TRANSL. (m)	DIR.	SPEED OR FORCE	DRY BULB	WET BULB	DRY BULB	WET BULB	DRY BULB	WET BULB	DRY BULB	WET BULB	DRY BULB	WET BULB					
			09	S05	055	094	077	7	08									
MISSING TIME OF HR 1/10	CARD NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- σ_t	$\Sigma \Delta D$ DYN. M. $\times 10^3$	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P $\mu g \cdot dl/l$	TOTAL-P $\mu g \cdot dl/l$	NO ₂ -N $\mu g \cdot dl/l$	NO ₃ -N $\mu g \cdot dl/l$	SIO ₄ -Si $\mu g \cdot dl/l$	pH	S C C	
		STD	0000	0400	3198	2541	0025731	0000	14628	816								
162		OBS	0000	0400	31984	2541			14628	816	047		010	001				
162		OBS	0005	0380	31990	2544			14620	822	066		007	001				
		STD	0010	0300	3200	2552	0024752	0025	14587	821								
162		OBS	0010	0300	32000	2552			14587	821	060		010	000				
162		OBS	0015	0262	31991	2554			14571	823	089		009	000				
		STD	0020	0258	3198	2554	0024556	0050	14570	827								
162		OBS	0020	0258	31983	2554			14570	827	091		008	000				
162		OBS	0025	0260	31988	2554			14572	829	065		009	000				
		STD	0030	0258	3198	2553	0024611	0074	14572	830								
162		OBS	0030	0258	31976	2553			14572	830	076		007	000				
162		OBS	0035	0257	31980	2554			14572	833	063		013	000				

REFERENCE C-TRK CODE	SHIP ID. NO.	SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	OUT IN MO	MARSOEN 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./10	CRUISE NO.		STATION NUMBER	DIR.			HGT	PER	SEA		TYPE	AMT			
311524	NW		6459 N	16743 W		233	47	06	19	167	1969	BS3	050	0036	2	11	0	2		X6	7	8	0050		
						WATER		WIND		BARO- METER		AIR TEMP. °C		VIS. CODE		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS							
						COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE	DRY BULB		WET BULB		VIS. CODE		NO. OBS. DEPTHS									
									09	S07	060		104		092		7 08								
MESSAGE 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 - 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 C C						
		STD	0000	0521	3158	2497	0029945		0000		14673	773													
169		OBS	0000	0521	31583	2497					14673	773	063			011	001								
169		OBS	0005	0249	31923	2550					14563	817	075			010	001								
		STD	0010	0240	3192	2550	0024890		0027		14560	814													
169		OBS	0010	0240	31921	2550					14560	814	085			005	000								
169		OBS	0014	0239	31915	2550					14560	809	095			005	000								
169		OBS	0019	0236	31916	2550					14559	813	072			003	000								
		STD	0020	0236	3192	2550	0024895		0052		14560	815													
169		OBS	0024	0237	31920	2550					14561	821	070			004	000								
169		OBS	0029	0234	31919	2551					14560	8090	072			001	001								
		STD	0030	0234	3192	2551	0024859		0077		14561	826													
169		OBS	0034	0235	31921	2551					14562	827	086			001	001								

REFERENCE		SHIP CODE	LATITUDE " 1/10	LONGITUDE " 1/10	DEPTH FATHOMS	MARSSEN 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	IO. NO.					10"	1"	MO	DAY	HR. 1/10		CRUISE NO.	STATION NUMBER			DIR.	HGT PER	SEA		TYPE	AMT			
311524	NW		6500 N	16735 W		233	57	06	19	189	1969	BS3	051		0027	2	00	0	X	X2	6	8	0051	
						WIND		BARO- METER		AIR TEMP. °C														
						COLOR CODE	TRANS. (m)	DIR.	SPEED OR FORCE	DRY BULB	WET BULB	VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS										
									13	S08	053	109	099	7	04									
MESSAGE TIME OF HR 1/10	CARD 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 - 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 C C						
		STD	0000	0544	3143	2482	0031354		0000	14681	766													
190		OBS	0000	0544	31428	2482				14681	766	066		006	002									
190		OBS	0005	0536	31453	2485				14679	778	067		002	003									
		STD	0010	0228	3189	2549	0025016		0028	14554	804													
190		OBS	0010	0228	31893	2549				14554	804	080		006	003									
190		OBS	0015	0225	31898	2550				14554	807			005	004									

REFERENCE CITY CODE	SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	DEPTH MOON	MARSEN SQUARE		STATION TIME (GMT)		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF S'MPL'S	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES		NOOC STATION NUMBER	
					10"	1"	MO	OAT		HR./10	CRUISE NO.			STATION NUMBER	DIR	HGT		PER	SEA		TYPE
311524	NW	65003N	16722 W	233	57	06	19	227	1969	B53	052	0020	2	11	0	2		X2	6	7	0052
					WATER		WIND		BARO- METER (mb)	AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS							
					COLOR CODE	TRANSL UNIT	DIR	SPEED OF FORCE		DRY BULB	WET BULB										
								15	516	058	079	074	8	04							
MESSAGE TIME HR 1/10	CAS NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-σ _t		Σ Δ D OYN. M. x 10 ³	SOUND VELOCITY	O ₂ ml/l	PO ₂ -P μg - σ _t /l	TOTAL-P μg - σ _t /l	NO ₃ -N μg - σ _t /l	NO ₃ -N μg - σ _t /l	SiO ₄ -Si μg - σ _t /l	pH				
		STD	0000	0568	3122	2463	0033207		0000	14688	737										
	228	OBS	0000	0568	31216	2463				14688	737	065			005	002					
	228	OBS	0005	0557	31230	2465				14684	738	068			003	001					
		STD	0010	0548	3125	2468	0032758		0033	14682	743										
	228	OBS	0010	0548	31248	2468				14682	743	069			006	002					
	228	OBS	0014	0543	31260	2469				14680	746	069			004						

REFERENCE		SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	DEPTH MOON	MARSEN SQUARE		STATION TIME (GMT)		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF S'MPL'S	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES		NOOC STATION NUMBER
CITY CODE	IO. NO.					10"	1"	MO	OAT		HR./10	CRUISE NO.			STATION NUMBER	DIR	HGT		SEA	TYPE	
311524	NW	65008N	16715 W	233	57	06	19	235	1969	B53	053	0018	2	13	0	2		X2	6	7	0053
					WATER		WIND		BARO- METER (mb)	AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS							
					COLOR CODE	TRANL UNIT	DIR	SPEED OF FORCE		DRY BULB	WET BULB										
								16	518	061	081	075	8	03							
MESSAGE TIME HR 1/10	CAS NO.	CARD TYPE	DEPTH (m)	T °C	S %	SIGMA-T		SPECIFIC VOLUME ANOMALY-σ _t		Σ Δ D OYN. M. x 10 ³	SOUND VELOCITY	O ₂ ml/l	PO ₂ -P μg - σ _t /l	TOTAL-P μg - σ _t /l	NO ₃ -N μg - σ _t /l	NO ₃ -N μg - σ _t /l	SiO ₄ -Si μg - σ _t /l	pH			
		STD	0000	0564	3122	2464		0033141		0000	14686	702									
	237	OBS	0000	0564	31219	2464					14686	702	080			008	002				
	237	OBS	0005	0565	31223	2464					14687	721	078			009	002				
		STD	0010	0564	3123	2464		0033104		0033	14688	703									
	237	OBS	0010	0564	31225	2464					14688	703	076			008	002				

REFERENCE CITY CODE	SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	DEPTH MOON	MARSSEN SQUARE		STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF S'MPL'S	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES		NOOC STATION NUMBER	
					10"	1"	MO	OAT	HR./10		CRUISE NO.	STATION NUMBER			DIR	HGT	PER		SEA	TYPE		AMT
311524	NW	65352N	168140W	233	58	06	20	047	1969	B53	054	0044	2	12	0	2		X2	7	8	0054	
					WATER		WIND		BARO- METER (mb)	AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS								
					COLOR CODE	TRANSL UNIT	DIR	SPEED OF FORCE		DRY BULB	WET BULB											
								15	515	069	071	069	7	08								
MESSAGE TIME HR 1/10	CAS NO.	CARD TYPE	DEPTH (m)	T °C	S %	SIGMA-T		SPECIFIC VOLUME ANOMALY-σ _t		Σ Δ D OYN. M. x 10 ³	SOUND VELOCITY	O ₂ ml/l	PO ₂ -P μg - σ _t /l	TOTAL-P μg - σ _t /l	NO ₃ -N μg - σ _t /l	NO ₃ -N μg - σ _t /l	SiO ₄ -Si μg - σ _t /l	pH				
		STD	0000	0449	3161	2507		0029029		0000	14644	772										
	048	OBS	0000	0449	31608	2507					14644	772	074				002	001				
	048	OBS	0005	0446	31606	2507					14643	764	063				005	001				
		STD	0010	0445	3161	2507		0028974		0029	14644	763										
	048	OBS	0010	0445	31611	2507					14644	763	061				004	004				
	048	OBS	0015	0444	31612	2508					14644	762	059				002					
		STD	0020	0439	3162	2508		0028892		0058	14643	763										
	048	OBS	0020	0439	31615	2508					14643	763	052				003	003				
	048	OBS	0025	0440	31621	2509					14644	754	066				000	004				
	048	OBS	0029	0437	31620	2509					14644	757	078				003	002				
		STD	0030	0437	3162	2509		0028843		0087	14644	759										
	048	OBS	0034	0438	31621	2509					14645	770	056				000	003				

REFERENCE		SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	DEPTH METER	MARSDEN SQUARE		STATION TIME (GMT)				YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLING	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES		NOOC STATION NUMBER	
CITY CODE	ID. NO.					10'	1'	MO	DAY	HR	1/10		CRUISE NO.	STATION NUMBER			DIR	HGT	PER		SEA	TYPE		AMT
311524	NW		65362N	168198W	233	58	06	20	057	1969	B53	055		0056	2	00	0	X		X1	6	6	0055	
						WATER		WIND		BARO- METER		AIR TEMP. °C		VIS CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS								
						COLOR CODE	TRANS. UNIT	DIR.	SPEED OR FORCE	UNIT	DRY BULB	WET BULB												
									18	507	069	108	098	7	09									
MESSAGE TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-30°		$\Sigma \Delta \sigma_t$ OYN. M. $\times 10^3$	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P $\mu g - dl/l$	TOTAL-P $\mu g - dl/l$	NO ₃ -N $\mu g - dl/l$	NO ₃ -N $\mu g - dl/l$	SiO ₄ -Si $\mu g - dl/l$	pH	S CC						
		STD	0000	0390	3178	2526	0027187		0000	14621	776													
	058	OBS	0000	0390	31779	2526				14621	776	060			005	004								
	058	OBS	0005	0314	31909	2543				14591	8030	070			006	001								
		STD	0010	0281	3195	2549	0024980		0026	14578	796													
	058	OBS	0010	0281	31950	2549				14578	796	065			009	001								
	058	OBS	0015	0275	31958	2550				14576	781	078			004	001								
		STD	0020	0270	3196	2551	0024821		0051	14575	779													
	058	OBS	0020	0270	31960	2551				14575	779	072			010	001								
	058	OBS	0025	0270	31962	2551				14576	778	072			005	000								
		STD	0030	0270	3196	2551	0024862		0076	14577	754													
	058	OBS	T0030	0270	31955	2551				14577	754	080			014	000								
	058	OBS	0035	0269	31967	2552				14577	750	084			010	001								
	058	OBS	0040	0268	31961	2551				14578	772	084			010	002								

REFERENCE CITY CODE	SHIP ID. NO.	SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	DEPTH METER	MARSDEN SQUARE	STATION TIME (GMT)				YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLING	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES	NOOC STATION NUMBER			
							10'	1'	MO	DAY		HR	1/10			CRUISE NO.	STATION NUMBER	DIR				HGT	PER	SEA
311524	NW		6536 N	16826 W	233	58	06	20	067	1969	B53	056	0056	2	19	1	2		X4	X	9	0056		
						WATER		WIND		BARO- METER		AIR TEMP. °C		VIS CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS								
						COLOR CODE	TRANS UNIT	DIR.	SPEED OR FORCE	UNIT	DRY BULB	WET BULB												
									17	508	073	099	084					6	10					
MESSAGE TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-30°		$\Sigma \Delta \sigma_t$ OYN. M. $\times 10^3$	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P $\mu g - dl/l$	TOTAL-P $\mu g - dl/l$	NO ₃ -N $\mu g - dl/l$	NO ₃ -N $\mu g - dl/l$	SiO ₄ -Si $\mu g - dl/l$	pH	S CC						
		STD	0000	0412	3169	2517	0028067		0000	14629	792													
	068	OBS	0000	0412	31689	2517				14629	792	057			005	001								
	068	OBS	0005	0376	31744	2525				14615	787	064			003	001								
		STD	0010	0299	3197	2549	0025001		0027	14586	781													
	068	OBS	0010	0299	31966	2549				14586	781	073			009	001								
	068	OBS	0015	0252	32071	2561				14568	781	075			004	002								
		STD	0020	0249	3207	2562	0023821		0051	14567	783													
	068	OBS	0020	0249	32071	2562				14567	783	075			008	000								
	068	OBS	0025	0250	32081	2562				14569	781	075			007	000								
		STD	0030	0250	3208	2562	0023801		0075	14570	788													
	068	OBS	T0030	0250	32075	2562				14570	7920				005	001								
	068	OBS	0035	0250	32070	2561				14570	790	074			006	000								
	068	OBS	0040	0249	32065	2561				14571	788	081			002	000								
	068	OBS	0045	0250	32070	2561				14572	786	075			002	000								

REFERENCE		SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	DEPTH METER	MARSDEN SQUARE	STATION TIME (GMT)				YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLING	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES	NOOC STATION NUMBER				
CITY CODE	ID. NO.						10'	1'	MO	DAY		HR. 1/10	CRUISE NO.			STATION NUMBER	DIR.	HGT PER				SEA			
311524		NW	6536 N	16834 W			233	58	06	20	077	1969	B53	057	0056	2	19	1	2		X4	X	9		0057
						WATER		WIND		BARO- METER		AIR TEMP. °C		VIS CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS									
						COLOR CODE	TRANS UNIT	DIR.	SPEED OR FORCE	UNIT	DRY BULB	WET BULB													
									17	508	078	072	069	6	10										
MESSAGE TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-30°	$\Sigma \Delta \sigma_t$ OYN. M. $\times 10^3$	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P $\mu g - \text{dl/l}$	TOTAL-P $\mu g - \text{dl/l}$	NO ₃ -N $\mu g - \text{dl/l}$	NO ₃ -N $\mu g - \text{dl/l}$	SiO ₄ -Si $\mu g - \text{dl/l}$	pH	S CC								
		STD	0000	0349	3220	2563	0023637	0000	14609	809															
	079	OBS	0000	0349	32201	2563			14609	809	057			002	000										
	079	OBS	0005	0292	32199	2568			14585	814	065			006	001										
		STD	0010	0226	3218	2572	0022848	0023	14557	798															
	079	OBS	0010	0226	32177	2572			14557	798	082			003	001										
	079	OBS	0015	0200	32173	2573			14546	794	086			005	001										
		STD	0020	0178	3217	2574	0022586	0046	14537	794															
	079	OBS	0020		32168				794	070				005	001										
	079	OBS	0025		32196				794	069				004	000										
		STD	0030	0148	3218	2578	0022272	0068	14526	794															
	079	OBS	0030	0148	32184	2578			14526	794	076			004	003										
	079	OBS	0035	0141	32171	2577			14523	792	079			004	004										
	079	OBS	0040	0139	32171	2577			14523	786	077			005	004										
	079	OBS	0045	0142	32176	2577			14526	785	087			004	003										

REFERENCE		SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	DEPTH METER	MARSDEN SQUARE		STATION TIME (GMT)		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLING	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES (1-5 mi)	NODC STATION NUMBER
CRUISE CODE	IO. NO.					10"	1"	MO	DAY		HR	1/10			CRUISE NO.	STATION NUMBER	DIR			
311524	NW	65342N	168434W	233	58	06	20	092	1969	BS3	058	0055	2	00	0	X		X4	X 9	0058
				WATER		WIND		BARO- METER		AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS						
				COLOR CODE	TRANS. M	DIR.	SPEED OR KNOTS	IMBBS	DRY BULB	WET BULB										
						19		510	083	043	042	0	10							
MESSAGE TIME HR 1/10	CARD NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T		SPECIFIC VOLUME ANOMALY- σ_t		$\Sigma \Delta \sigma_t$ DYN. M. $\times 10^3$	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P $\mu g \cdot ml^{-1}$	TOTAL-P $\mu g \cdot ml^{-1}$	NO ₃ -N $\mu g \cdot ml^{-1}$	NO ₂ -N $\mu g \cdot ml^{-1}$	SiO ₄ -Si $\mu g \cdot ml^{-1}$	pH	S C C	
		STD	0000	0301	3234	2579		0022154		0000	14590	904								
	092	OBS	0000	0301	32344	2579					14590	904	044		000	001				
	092	OBS	0005	0295	32343	2579					14589	896	048		000	000				
		STD	0010	0121	3235	2592		0020885		0022	14513	897								
	092	OBS	0010	0121	32345	2592					14513	897	065		003	001				
	092	OBS	0015	0086	32382	2597					14498	858	086		004	001				
		STD	0020	0083	3240	2599		0020257		0042	14498	842								
	092	OBS	0020	0083	32399	2599					14498	842	094		005	001				
	092	OBS	0025	0084	32404	2599					14499	841	092		004	000				
		STD	0030	0085	3241	2599		0020211		0062	14500	840								
	092	OBS	0030		32406						840				002	001				
	092	OBS	0035	0085	32407	2599					14501	838	094		004	001				
	092	OBS	0040	0084	32410	2600					14502	836	100		007	000				
	092	OBS	0045	0085	32408	2600					14503	831	095		002	001				

REFERENCE		SHIP CODE	LATITUDE 1/10	LONGITUDE 1/10	DEPTH METER	MARSDEN SQUARE		STATION TIME (GMT)		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLING	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES	NODC STATION NUMBER
CRUISE NO.	IO. NO.					10"	1"	MO	DAY		HR.	1/10			CRUISE NO.	STATION NUMBER	DIR			
311524	NW	65361N	16856 W	233	58	06	20	104	1969	BS3	059	0053	2	00	0	X	X4	6	8	0059
						WATER		WIND		BARO- METER		AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS				
						COLOR CODE	TRANS. M	DIR.	SPEED OR FORCE	IMBBS	DRY BULB	WET BULB								
								21	510	084	036	035	3	10						
MESSAGE TIME HR 1/10	CARD NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- σ_t		$\Sigma \Delta \sigma_t$ DYN. M. $\times 10^3$	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P $\mu g \cdot ml^{-1}$	TOTAL-P $\mu g \cdot ml^{-1}$	NO ₃ -N $\mu g \cdot ml^{-1}$	NO ₂ -N $\mu g \cdot ml^{-1}$	SiO ₄ -Si $\mu g \cdot ml^{-1}$	pH	S C C		
		STD	0000	0265	3234	2582	0021869		0000	14575	952									
	106	OBS	0000	0265	32344	2582				14575	952	040		000	000					
	106	OBS	0005	0265	32340	2582				14576	957	038		000	000					
		STD	0010	0157	3235	2590	0021075		0021	14529	991									
	106	OBS	0010	0157	32349	2590				14529	991	038		001	000					
	106	OBS	0015	0123	32387	2596				14515	904	042		003	000					
		STD	0020	-0058	3258	2620	0018214		0041	14436	810									
	106	OBS	0020	-0058	32583	2620				14436	810	135		003	059					
	106	OBS	0025	-0066	32592	2621				14433	794	138		011	068					
		STD	0030	-0068	3259	2622	0018097		0059	14433	786									
	106	OBS	0030	-0068	32593	2622				14433	786	131		009	084					
	106	OBS	0035	-0069	32592	2621				14433	785	151		012	092					
	106	OBS	0040	-0072	32592	2622				14433	778			013	084					
	106	OBS	0045	-0071	32596	2622				14434	776	136		013	066					

REFERENCE		SHIP CODE	LATITUDE ° 1/10	LONGITUDE ° 1/10	DEPTH METER	MARSDEN SQUARE		STATION TIME (GMT)		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLING		WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES	NODC STATION NUMBER	
CRUISE NO.	ID. NO.					10"	1"	MO	DAY		HR 1/10	CRUISE NO.		STATION NUMBER	DIR	HGT	PER	SEA				1/8
311524	NW	65275N	169076W		233	59	06	20	129	1969	BS3	060	0056	2	00	0	X		X4	X 9		0060
						WATER		WIND		BARO- METER		AIR TEMP. °C		VIS. CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS						
						COLOR CODE	TRANS. M	DIR.	SPEED OR FORCE	IMBBS	DRY BULB	WET BULB										
									19	512	087	045	045	0	11							
MESSAGE TIME HR 1/10	CARD NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY- σ_t	$\Sigma \Delta \sigma_t$ DYN. M. $\times 10^3$	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P $\mu g \cdot l^{-1}$	TOTAL-P $\mu g \cdot l^{-1}$	NO ₃ -N $\mu g \cdot l^{-1}$	NO ₂ -N $\mu g \cdot l^{-1}$	SiO ₄ -Si $\mu g \cdot l^{-1}$	pH	S C C					
		STD	0000	0276	3217	2567	0023257	0000	14577	1085												
	131	OBS	0000	0276	32172	2567			14577	1085	043		005	002								
	131	OBS	0005	0219	32278	2580			14555	046			005	011								
		STD	0010	0054	3235	2597	0020451	0022	14483	999												
	131	OBS	0010	0054	32354	2597			14483	11750	104		006	020								
	131	OBS	0015	0033	32387	2601			14474	946			004	040								
		STD	0020	-0040	3247	2611	0019131	0042	14443	887												
	131	OBS	0020	-0040	32472	2611			14443	887	117		008	080								
	131	OBS	0025	-0115	32612	2625			14410	838	156		014	111								
		STD	0030	-0112	3266	2628	0017435	0060	14413	800												
	131	OBS	0030	-0112	32661	2628			14413	800	147		011	095								
	131	OBS	0035	-0112	32670	2629			14414	799	188		013	150								
	131	OBS	0040	-0113	32666	2629			14415	182			011	104								
	131	OBS	0045	-0111	32672	2629			14416	800	188		016	138								
		STD	0050	-0111	3267	2629	0017386	0095	14417	799												
	131	OBS	0050	-0111	32666	2629			14417	799	158		012	078								

REFERENCE		SHIP CODE	LATITUDE " 1/10	LONGITUDE " 1/10	TIME HOUR	MARSden SQUARE	STATION TIME GMT-1			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX DEPTH OF SAMPLING		WAVE OBSERVATIONS		WEA- THER CODE	CLOUD CODES	MODE STATION NUMBER	
CRUISE CODE	ID. NO.					10"	1"	MO	DAY	HR./10		CRUISE NO.	STATION NUMBER		10'	5'	1'	SEA			
311524	NW	65305N	16928 W	233	59	06	20	147	1969	853	062	0051	2	12	0	2		X4	X 9	0062	
						WATER		WIND		BARO- METER		AIR TEMP. °C		VIS CODE		NO. OBS. DEPTHS		SPECIAL OBSERVATIONS			
						COLOR CODE		TRANS. (m)		DIR.		SPEED OR FORCE		DRY BULB		WET BULB					
								19		505		090		032		032		2		10	
MESSAGE TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-20°		$\Sigma \Delta$ DYN. M $\times 10^3$	SOUND VELOCITY	D ₂ m/s	PO ₄ -P μg - 0.1	TOTAL-P μg - 0.1	NO ₃ -N μg - 0.1	NO ₃ -N μg - 0.1	S C ₄ -Si μg - 0.1	PH				
		STD	0000	0046	3276	2630	0017308		0000	14483	945										
148		OBS	0000	0046	32761	2630				14483	945	127		016	068						
148		OBS	0005	0073	32757	2628				14496	961	125		017	057						
		STD	0010	-0105	3279	2639	0016479		0017	14415	924										
148		OBS	0010	-0105	32790	2639				14415	924	176		017	156						
148		OBS	0015	-0112	32798	2640				14413	790	199		013	164						
		STD	0020	-0119	3280	2640	0016386		0033	14410	795										
148		OBS	0020	-0119	32796	2640				14410	795	200		013	165						
148		OBS	0025	-0116	32800	2640				14413	795	198		014	164						
		STD	0030	-0116	3280	2640	0016388		0050	14413	794										
148		OBS	0030	-0116	32796	2640				14413	794	198		016	170						
148		OBS	0035	-0118	32797	2640				14413	792	200		013	170						
148		OBS	10040	-0119	32795	2640				14414	794	200		014	170						
148		OBS	0045	-0118	32799	2640				14415	199			015	170						

REFERENCE		SHIP CODE	LATITUDE " 1/10	LONGITUDE " 1/10	OUT IN IN OUT	MARS DEN SQUARE		STATION TIME IGMT				YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX DEPTH OF S.W.F.L.	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES	NCDC STATION NUMBER		
						10"	1"	MO	DAY	HR.	1/10		CRUISE NO.	STATION NUMBER			DIR	HGT	SEA				TYPE	AMT
311524	NW	65368N	16938 W		233	59	06	20	158	1969	853	063		0053	2	12	0	2		X4	X	9		0063
		WATER		WIND		BARO- METER (mb)	AIR TEMP. °C		VIS CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS													
							DRY BULB	WET BULB																
		COLOR CODE	TRANS. (m)	DIR. (m)	SPEED OF FORCE																			
				07	S04	090	028	026	2	10														
MESSAGE TIME HR 1/10	CAST NO.	CARD TYPE	DEPTH (m)	T °C	S ‰	SIGMA-T	SPECIFIC VOLUME ANOMALY-20°	$\Sigma \Delta D$ DTN. M. $\times 10^3$	SOUND VELOCITY	O ₂ ml/l	PO ₄ -P $\mu g \cdot dl^{-1}$	TOTAL-P $\mu g \cdot dl^{-1}$	NO ₂ -N $\mu g \cdot dl^{-1}$	NO ₃ -N $\mu g \cdot dl^{-1}$	SIC ₂ -Si $\mu g \cdot dl^{-1}$	PH								
		STD	0000	0077	3283	2634		0016928	0000		14498													
159		OBS	0000	0077	32832	2634					14498		150		018	072								
159		OBS	0005	-0016	32874	2642					14457	873	165		017	124								
		STD	0010	-0079	3286	2643		0016048	0016		14428	817												
159		OBS	0010	-0079	32857	2643					14428	817	202		012	165								
159		OBS	0015	-0084							810	200		013	126									
		STD	0020	-0090	3285	2643		0016029	0033		14425	806												
159		OBS	0020	-0090	32854	2643					14425	806	260		017	122								
159		OBS	0025	-0088	32856	2643					14427	811	206		014	138								
159		OBS	0029	-0091	32844	2643					14426	813	199		015	162								
		STD	0030	-0091	3284	2643		0016097	0049		14426	813												
159		OBS	0034	-0090	32843	2642					14427	812	205		014	171								
159		OBS	0039	-0091	32846	2643					14427	817	210		013	169								
159		OBS	0044	-0091	32851	2643					14428	803	190		012	164								

REFERENCE		SHIP CODE	LATITUDE °	LONGITUDE °	MARSDEN SQUARE	STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLING	WAVE OBSERVATIONS			WEA- THER CODE	CLOUD CODES	NODC STATION NUMBER		
CRUISE CODE	ID. NO.					1/10	1/10	10"		1"	MO DAY HR. 1/10			CRUISE NO.	STATION NUMBER	DR				HGT	PER
311524		NW	65385N	169431W	233	59	06 20 166	1969	BS3	064		0051	2	12	0	2		X4 X 9		0064	
				WATER		WIND		BARO- METER		AIR TEMP °C		VIS CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS							
				COLOR CODE	TRANS MM	DIR.	SPEED OR FORCE	(mbars)		DRY BULB	WET BULB										
							12	505	089	017	017	2	09								

MESSAGE 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 m	PO ₂ -P x 10 ⁻³	TOTAL-P x 10 ⁻³	NO ₃ -N x 10 ⁻³	NO ₃ -N x 10 ⁻³	S ₂ -S x 10 ⁻³	PH
		STD	0000	0060	3288	2639	0016442	0000	14491	913						
168	OBS	0000	0060	32884	2639				14491	913	105		015	101		
168	OBS	0005	0065	32888	2640				14485	922	142		017	112		
	STD	0010	0018	3289	2642	0016155	0016		14474	907						
168	OBS	0010	0018	32894	2642				14474	907	197		018	119		
168	OBS	0015	-0039	32909	2646				14448	862	168		017	094		
	STD	0020	-0047	3291	2646	0015775	0032		14445	851						
168	OBS	0020	-0047	32907	2646				14445	851	178		014	144		
168	OBS	0025	-0050	32916	2647				14445	851	125		011	096		
	STD	0030	-0051	3292	2647	0015648	0048		14445	855						
168	OBS	0030	-0051	32921	2647				14445	855	130		013	146		
168	OBS	0035	-0055	32917	2647				14444	851	140		015	140		
168	OBS	0040	-0056	32914	2647				14445	856	190		017	125		

REFERENCE		SHIP CODE	LATITUDE * 1/10	LONGITUDE * 1/10	MARS SQUARE	STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLING	WAVE OBSERVATIONS			CLOUD CODES		NODC STATION NUMBER				
CRUISE CODE	ID. NO.					10"	1"	MO		DAY	HR.1/10			CRUISE NO.	STATION NUMBER	DR	HGT	PER		SEA	WAVE CODE	CLD CODE	
311524	NW		65445N	16949 W	233	59	06	20	186	1969	BS3	065		0051	2	00	0	4		X4	X 9		0065
				WATER		WIND		BARO- METER		AIR TEMP °C		VIS CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS									
				COLOR CODE	TRANS. MM	DIR.	SPEED OF FORCE	(mbars)		DRY BULB	WET BULB												
						34		506	092	017	015	5	10										

MESSAGE 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 m	PO ₂ -P x 10 ⁻³	TOTAL-P x 10 ⁻³	NO ₃ -N x 10 ⁻³	NO ₃ -N x 10 ⁻³	S ₂ -S x 10 ⁻³	PH
		STD	0000	-0006	3293	2646	0015752	0000	14461	882						
188	OBS	0000	-0006	32933	2646				14461	882	140		014	123		
188	OBS	0005	00490	32941	26440				923	138			017	099		
	STD	0010	-0050	3295	2649	0015477	0016		14443	839						
188	OBS	0010	-0050	32945	2649				14443	839	178		015	141		
188	OBS	0015	-0069	32937	2649				14435	814	188		014	161		
	STD	0020	-0074	3295	2650	0015385	0031		14433	812						
188	OBS	0020	-0074	32945	2650				14433	812	172		014	166		
188	OBS	0025	-0073	32934	2649				14435	818	178		018	162		
	STD	0030	-0076	3294	2650	0015419	0046		14434	814						
188	OBS	0030	-0076	32939	2650				14434	814	178		015	158		
188	OBS	0035	-0075	32943	2650				14435	827	185		017	166		
188	OBS	0040	-0078	32944	2650				14435	830	194		011	169		
188	OBS	0045	-0076	32965	2652				14437	821	194		015	172		

REFERENCE		SHIP CODE	LATITUDE * 1/10	LONGITUDE * 1/10	MARS SQUARE	STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	MAX. DEPTH OF SAMPLING	WAVE OBSERVATIONS			WATER CODE	CLOUD CODES	NODC STATION NUMBER	
CRUISE CODE	ID. NO.					10"	1"	MO		DAY	HR.1/10			CRUISE NO.	STATION NUMBER	DR				HGT
311524	NW	6631 N	16936 W	233	69	06	21 061	1969	BS3	066	0056	2	00	0	X		X2	8 8	0066	
				WATER	WIND		BARO-		AIR TEMP °C		VIS CODE	NO. OBS. DEPTHS	SPECIAL OBSERVATIONS							
				COLOR CODE	TRANS MM	DIR.	SPEED OR FORCE	METER (mbars)		DRY BULB			WET BULB							
							04	505	080	035	029	7	10							

MESSAGE 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 m	PO ₂ -P x 10 ⁻³	TOTAL-P x 10 ⁻³	NO ₃ -N x 10 ⁻³	NO ₃ -N x 10 ⁻³	S ₂ -S x 10 ⁻³	PH
		STD	0000	-0025	3294	2648	0015610	0000	14453	925						
063	OBS	0000	-0025	32941	2648				14453	925	156		020	099		
063	OBS	0005	-0030	32953	2649				14452	909	164		013	113		
	STD	0010	-0030	3296	2650	0015425	0016		14452	902						
063	OBS	0010	-0030	32962	2650				14452	902	166		022	113		
063	OBS	0015	-0030	32960	2650				14453	902	160		019	118		
	STD	0020	-0034	3296	2650	0015436	0031		14452	900						
063	OBS	0020	-0034	32958	2650				14452	900	136		013	109		
	STD	0025	-0031	32942	2650				926							
	STD	0030	-0031	3296	2650	0015444	0046		14455	920						
063	OBS	0030	-0031	32958	2650				14455	920	168		018	115		
063	OBS	0035	-0032	32960	2650				14456	911			018	121		
063	OBS	0040	-0033	32949	26480				916	163			018	120		
063	OBS	0045	-0030	32969	2650				14458	905	151		018	106		

[illegible]

REFERENCE	SHIP ID NO.	LATITUDE 1/10	LONGITUDE 1/10	WARDEN SQUARE	STATION TIME (GMT)		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	WAVE DEPTH OF SPL'LS	WAVE OBSERVATIONS	WEA- THER CODE	CLOUD CODES	NODC STATION NUMBER
					CRUISE NO.	STATION NUMBER									
311524	NW	66352N	167545W	233	67	06 21	133	1969	BS3 070	0027	2	00 0 X	X4	7 8	0070

APPENDIX A

OCEANOGRAPHIC DATA

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

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

Depth to Bottom.....	Corrected or uncorrected sounding in meters.
Max. Depth of Samples.....	Depth of deepest sample to nearest multiple of one hundred meters.
Wave observations:	
DIR.....	Rounded to nearest multiple of ten degrees.
HGT.....	In increments of $\frac{1}{2}$ m. Sum of 5 meters plus increments of $\frac{1}{2}$ m if 50 is added to direction.
PER.....	If numerals 2 through 9 are entered, period in seconds is twice the numeric entry or $2 \times (\text{numeric entry}) + 1$. For other entries see WMO Code 3155.
SEA.....	Sea state according to WMO Code 3700.
Weather Code.....	If preceded by X, weather according to WMO Code 4501. If a two-digit entry, weather according to WMO Code 4677.
Cloud Code	
Type.....	Cloud type according to WMO Code 0500.
Amount.....	Cloud amount in eights. Entry of the numeral 9 indicates cloud amount could not be estimated.
Water	
Color Code.....	Color according to Forel-Ule scale.
Trans.....	Transparency in whole meters as determined by Secchi disc.
Wind	
Dir.....	Rounded to nearest multiple of ten degrees.
Speed or Force.....	If preceded by letter S, wind speed in knots, if preceded by letter F, wind force according to Beaufort scale.
Barometer.....	Barometric pressure given in tens, units and tenths of millibars.
Air Temp. °C.....	Air temperature to tenths of a degree centigrade.
Vis. Code.....	Visibility according to WMO Code 4300.
No obs. depths.....	Number of observed levels associated with the station.
Messenger time.....	Entered in hours and tenths of an hour GMT. For Nansen casts, indicates time of release of messenger applicable to the observational level. For STD casts, indicates the starting time of lowering the sensor.
Card type.....	OBS designates observed levels. STD indicates the values at this standard level were interpolated by a modified 3-point LaGrange formula.
Depth (m).....	Depth to nearest meter. A postscript T indicates depth was obtained thermometrically; S indicates uncorrected "wire out" depth. Postscript Q indicates value was marked doubtful by originator; P indicates value was considered doubtful by NODC. - Postscripts P and Q retain this meaning throughout the following entries.
T °C.....	Temperature to hundredths of a degree Centigrade.
S ‰.....	Salinity in parts-per-thousand.
SIGMA-T.....	Entered to hundredths.
Specific-volume.....	Multiply entry by 10^{-7} to obtain specific-volume anomaly in cubic centimeters per gram.
Anomaly $\times 10^7$	
$\Sigma \Delta$ Dyn. M $\times 10^3$	Multiply entry by 10^{-3} to obtain anomaly of dynamic height in dynamic meters referenced to the sea surface.
Sound Velocity.....	Sound velocity according to Wilson's formula entered to tenths of a meter per second.
O ₂ ml/l.....	Dissolved oxygen in milliliters per liter entered to hundredths.
PO ₄ -P $\mu\text{g-at/l}$	Inorganic phosphate in microgram-atoms per liter entered to hundredths.
Total-P $\mu\text{g-at/l}$	Total phosphorus in microgram-atoms per liter entered to hundredths.
NO ₂ -N $\mu\text{g-at/l}$	Nitrite-nitrogen in microgram-atoms per liter entered to hundredths.
NO ₃ -N $\mu\text{g-at/l}$	Nitrate-nitrogen in microgram-atoms per liter entered to tenths.
SiO ₄ -Si $\mu\text{g-at/l}$	Silicate-silicon in microgram-atoms per liter entered to whole units.
pH.....	Entered to hundredths.

532-AA

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