U.S. Coast Guard Oceanographic Report

UNITED STATES COAST GUARD
OCEANOGRAPHIC
REPORT No. 57

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August-September 1970

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UNITED STATES COAST GUARD
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UNITED STATES COAST GUARD OCEANOGRAPHIC UNIT

REPORT No. 57 CG 373-57

OCEANOGRAPHIC CONDITIONS IN NARES STRAIT

August-September 1970

Martin J. Moynihan

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WASHINGTON, D.C.

AUGUST 1972

USCGC WESTWIND (WAGB 281)

ABSTRACT

Oceanographic observations from the CGC WESTWIND in the Nares Strait region during August and September 1970 are presented. Observed temperature-salinity characteristics are discussed in relation to the interchange of water between the Arctic Ocean and Baffin Bay and the formation of Baffin Bay Deep Water. An average northward transport of $0.48 \times 10^6 \text{ m}^3/\text{sec}$. from Smith Sound into Kane Basin was computed and is compared with previous transport calculations. The relationship of tidal and wind conditions to the volume transport is also discussed.

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OCEANOGRAPHIC CONDITIONS IN NARES STRAIT

AUGUST–SEPTEMBER 1970

Martin J. Moynihan¹

INTRODUCTION

Nares Strait is the system of channels and basins between Ellesmere Island and Northwest Greenland, connecting Baffin Bay with the Lincoln Sea and Arctic Ocean (fig. 1). It includes (from south to north) Smith Sound, Kane Basin, Kennedy Channel, Hall Basin, and Robeson Channel. Since 1950, several Canadian oceanographers (Bailey, 1957; Collin, 1965; and Dunbar, 1951) have reported on cruises into Nares Strait to present their data and compare the results with the classical expeditions of the Danish GODTHAAB and CGC MARION in 1928.

Coast Guard vessels have also conducted several surveys into Northern Baffin Bay and Nares Strait to investigate the flow of Arctic Water through this channel. The results of surveys by CGC EVERGREEN and CGC EDISTO in 1963 and 1966 respectively have been reported by Franceschetti et al. (1964) and Palfrey and Day (1968). During August and September 1968, 1969, and 1970, the CGC WESTWIND conducted oceanographic surveys in northern Baffin Bay under the auspices of the Baffin Bay-North Water Project, coordinated

by the Arctic Institute of North America and including groups from the University of Washington, U.S. Coast Guard, McGill University and Dartmouth College (Muench, 1971b). CGC EASTWIND and CGC SOUTHWIND completed oceanographic surveys in Kane Basin in September 1968 and 1969 respectively with field parties from the Coast Guard Oceanographic Unit and Naval Oceanographic Office on board (Moynihan, in press).

During August and September 1970, CGC WESTWIND conducted an oceanographic survey from Inglefield Bay on the western coast of Greenland, through the Smith Sound-Kane Basin region and into Kennedy Channel, Hall Basin, and Robeson Channel (figs. 2 and 3). This survey was a combination of two projects at the Coast Guard Oceanographic Unit: first, a continuation of an investigation of the ice-berg producing glaciers on the western coast of Greenland and second, a continuation of the 1968 and 1969 surveys in the Nares Strait region to investigate the interchange of water between the Arctic Ocean and Baffin Bay.

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DATA ACQUISITION AND PROCESSING

Temperature data and water samples were collected by Nansen casts. The water samples were analyzed on board with inductive salinometers. The conductivity values obtained were converted to salinity by use of the *International Oceanographic Tables* published jointly by UNESCO and the National Institute of Oceanography of Great Britain (1966). Water sam-

ples were also collected and frozen for later determination of inorganic phosphate, nitrate, nitrite, and silicate at the Coast Guard Oceanographic Unit using the techniques described by Strickland and Parsons (1968).

The temperature data were processed at the Coast Guard Oceanographic Unit following the procedures specified in the U.S. Naval Ocean-

ographic Office Publication No. 607 (1968). Paired protected thermometers were used on each bottle with unprotected reversing thermometers added on the deeper bottles. Sampling depths were determined from L-Z curves based on thermometric depth and wire angle. All calculations were performed on a PDP-5 digital computer utilizing programs described by O'Hagan (1964). Volume transports were computed using the method of subdividing each oceanographic section into solenoids for computations as described by Kollmeyer (1967).

Data were also obtained on 10 stations using a Bissett-Berman Model 9060 self-contained salinity-temperature-depth (STD) recorder. The STD data were quality controlled by comparison with temperatures and salinities obtained from deep-sea reversing thermometers and water samples collected at the surface and just above the STD at the bottom of the cast. An average quality control correction for the STD stations was determined from the differences between the STD data and the associated quality control samples and was applied to the raw data from the recorder.

The data presented in the Tables of Ocean-

ographic Data (app. A) are reproduced from computer listings from the National Oceanographic Data Center (NODC Cruise Numbers 31-8184 and 31-1705). Anomalies of dynamic height in the listings were computed by NODC, but all discussion of dynamic heights in this text is based on computations made at the Coast Guard Oceanographic Unit. Dynamic heights in water shallower than the reference level were computed in a manner similar to that of Helland-Hansen (1934), as described in detail by Kollmeyer (1967).

The survey and glaciological data from 27 glaciers will be published in a separate Coast Guard publication after the analysis is completed. Glacier fronts were charted, and benchmarks were established at survey stations wherever possible for reference during future surveys. Records were kept on ice movement and calving and on iceberg distribution around the glaciers and in the fjords and bays. Photographic overflights of the major glacier fronts were conducted by a Coast Guard HC-130 aircraft equipped with a T-11 aerial camera. Ship's helicopters were used to obtain oblique and vertical photographs of all glacier fronts.

DISCUSSION

The interchange of water between the Arctic Ocean and Baffin Bay takes place through Nares Strait, Jones Sound, and Lancaster Sound (fig. 1), but this flow is restricted due to limiting sill depths of 250, 175, and 180 meters respectively (Bailey, 1956). Nares Strait is the deepest and most direct path for this interchange and is of major importance in determining the water and heat budgets of the Arctic Ocean and Baffin Bay. The general bathymetry of Nares Strait consists of a narrow, deep channel running along the western side of the strait with a sill at 250 meters in central Kane Basin (fig. 4).

Previous investigators of the eastern Arctic have noted that waters at about 250 meters have characteristics (-0.3°C. , 34.4‰) similar to deep water found in Baffin Bay and have hypothesized that this water flows over the sill in Kane Basin and sinks to the bottom in Baffin Bay. Bailey (1957) and Collin (1965) concluded that this is not a continuous process

but probably takes place as an intermittent pulsing. Muench (1971a) suggests that this method is less common than previously indicated, and he upholds the theory of Sverdrup, Johnson, and Fleming (1942) that Baffin Bay Deep Water is formed by a mixture of Labrador Sea Deep Water and Baffin Bay Surface Water whose salinity had been increased sufficiently by freezing to cause the water to sink.

Examination of the water characteristics observed in Nares Strait in 1970 (figs. 17 and 18) shows water with the proper temperature-salinity relationship ($<-0.3^{\circ}\text{C.}$, $>34.4\text{‰}$) at 200 meters at station 20 over the sill in Kane Basin and at 300 meters at station 19 just south of the sill. However, water of proper salinity for deep water formation was not present in the passage between Kane Basin and Smith Sound. The distribution of salinity and density through Nares Strait (figs. 18 and 19) suggests the presence of an isopycnal wave of denser water overflowing the sill in Kane

Basin. Collin (1965) and Palfrey and Day (1968) interpreted similar density distributions as supporting a pulsing flow of high salinity Arctic Water into Smith Sound.

High salinity water of Atlantic origin ($>0^{\circ}$ C., $>34.7\text{‰}$) was found below 300 meters in Hall Basin (figs. 17 and 18). This Arctic Intermediate Water is also effectively blocked from flowing southward into Baffin Bay by the shallow sill at 250 meters in Kane Basin.

Cold water of polar origin ($<0^{\circ}$ C., $<34.0\text{‰}$) was found in the upper 200 meters throughout Nares Strait (figs. 17 and 18). This water makes up the major drift southward into Baffin Bay. Water having a temperature less than -1.50° C. was present to a depth of 75 meters in Hall Basin and to between 25 and 50 meters further south in Kane Basin.

A section across the southern end of Nares Strait was occupied three times in rapid succession from 3–5 September 1970 in an attempt to monitor the volume transport between Kane Basin and Smith Sound (fig. 2). Each occupation consisted of 6 stations, and the three occupations were completed in approximately 38 hours. The reference level for geostrophic calculations was selected based upon the deepest usable set of observations on each occupation. The results of the volume transport calculations are presented in table I.

TABLE I. Volume Transport From Smith Sound into Kane Basin.

Stations	Date	Mean Temp. ($^{\circ}$ C.)	Net Transport ($\times 10^6 \text{m}^3/\text{sec.}$)
1 to 6 -----	3–4 Sep 1970	–0.73	10.574
7 to 12 -----	4 Sep 1970	–.93	² .319
13 to 18 -----	4–5 Sep 1970	–.76	.558
Average -----		–.81	.484

¹ Reference level 500 decibars.

² Reference level 300 decibars.

An average northeasterly transport of $0.48 \times 10^6 \text{m}^3/\text{sec.}$ between Smith Sound and Kane Basin was computed from the September 1970 observations. This average transport is biased due to the shallower sampling on the second occupation of the section that necessitated a shallower reference level for those calculations. Moynihan (in press) computed an average southward transport of $0.42 \times 10^6 \text{m}^3/\text{sec.}$ through this same section in July 1969.

These values agree with the results of the previous investigators in this region and

further substantiate the variability of the flow through Nares Strait. Collin (1965) cited Kiilerick's calculations of a $0.42 \times 10^6 \text{m}^3/\text{sec.}$ southward flow in August 1928 as the earliest estimate of the exchange through Kane Basin. Bailey (1956) found an average northward transport of $0.42 \times 10^6 \text{m}^3/\text{sec.}$ based on four sections in Smith Sound during August 1954 and Collin (1965) estimated an average southward transport of $0.24 \times 10^6 \text{m}^3/\text{sec.}$ based on five September sections from 1962, 1963, and 1964.

The variability of these geostrophic flow calculations indicates that the exchange of water between Kane Basin and Smith Sound is affected by frictional effects of the wind and bottom and the effect of tidal oscillations, as well as by uncertainties of the geostrophic method in shallow water.

To examine the tidal effect on flow from Kane Basin into Smith Sound, profiles of sea surface dynamic height from CGC WESTWIND stations 1 through 18 were compared with the times and heights of high and low water at the Port Foulke ($78^{\circ}18'N$, $72^{\circ}45'W$.) tide station (fig. 23). *The Oceanographic Atlas of the Polar Seas, Part II* (U.S. Naval hydrographic Office, 1958) shows cotidal lines progressing from Baffin Bay northward into Kane Basin indicating a northward tidal current on the rising tide. Although each occupation of the section between Kane Basin and Smith Sound occurred on a falling tide, a northeasterly geostrophic flow was calculated, suggesting either a lagging effect between the tidal phase and geostrophic flow or a reduced northeasterly flow due to the tidal current. Collin (1965) noted that ship drift records in 1962 indicated that in the center of the passage there was a southwesterly set of 0.5 to 2.0 knots during the falling tide and an equally strong northeasterly set with a rising tide.

Day (1968) reported that direct current measurements near $78^{\circ}27'N$. in Smith Sound in 1963 indicate a circulation dominated by semidiurnal tides with a net transport to the south. Muench (1971a) reported that current measurements from a fixed ice camp in Kane Basin indicate a general southward flow with occasional flow reversals coinciding with the diurnal tidal currents.

A progressive wind vector diagram (fig.

24), drawn from the surface wind observations of CGC WESTWIND at stations 1 through 18, was examined to study the effect of surface wind on the flow from Kane Basin into Smith Sound. A relatively steady wind (mean 10.0 kts. from 055° T.) with velocities varying from 4 to 15 knots was observed. This would induce a surface current transport to the southwest and would reduce the northeasterly flow into

Kane Basin. However, based on all information available, it is felt that permanent and tidal current effects would predominate, particularly when the winds were at such a low velocity.

The results of these observations indicate that year-round direct current, tidal and meteorological measurements are required to completely describe the total water circulation in this Nares Strait region.

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FIGURE 1. Geographic locations in the Nares Strait-Baffin Bay region.

FIGURE 2. Positions of CGC WESTWIND oceanographic stations in Nares Strait during August and September 1970.

FIGURE 3. Positions of CGC WESTWIND oceanographic stations in northeastern Baffin Bay-Inglefield Bay region during August 1970.

FIGURE 4. Bottom topography of Nares Strait.

FIGURE 5. Vertical distribution of temperature ($^{\circ}$ C.). CGC WESTWIND stations 1 through 6, 3-4 September 1970.

FIGURE 6. Vertical distribution of salinity (‰). CGC WESTWIND stations 1 through 6, 3-4 September 1970.

FIGURE 7. Vertical distribution of density (σ_t). CGC WESTWIND stations 1 through 6, 3-4 September 1970.

FIGURE 8. Vertical distribution of temperature ($^{\circ}$ C.). CGC WESTWIND stations 7 through 12, 4 September 1970.

FIGURE 9. Vertical distribution of salinity (‰). CGC WESTWIND stations 7 through 12, 4 September 1970.

FIGURE 10. Vertical distribution of density (σ_t). CGC WESTWIND stations 7 through 12, 4 September 1970.

FIGURE 11. Vertical distribution of temperature ($^{\circ}$ C.). CGC WESTWIND stations 13 through 18, 4-5 September 1970.

FIGURE 12. Vertical distribution of salinity (‰). CGC WESTWIND stations 13 through 18, 4-5 September 1970.

FIGURE 13. Vertical distribution of density (σ_t). CGC WESTWIND stations 13 through 18, 4-5 September 1970.

STATION NUMBER

DEPTH (METERS)

FIGURE 14. Vertical distribution of temperature ($^{\circ}$ C.). CGC WESTWIND stations 22 through 25, 5-6 September 1970.

FIGURE 15. Vertical distribution of salinity (‰). CGC WESTWIND stations 22 through 25, 5-6 September 1970.

FIGURE 16. Vertical distribution of density (σ_t). CGC WESTWIND stations 22 through 25, 5-6 September 1970.

FIGURE 17. Vertical distribution of temperature ($^{\circ}$ C.) along a longitudinal section through Nares Strait, CGC WESTWIND survey, 5-9 September 1970.

FIGURE 18. Vertical distribution of salinity (‰) along a longitudinal section through Nares Strait, CGC WESTWIND survey, 5-9 September 1970.

FIGURE 19. Vertical distribution of density (σ_t) along a longitudinal section through Nares Strait, CGC WESTWIND survey, 5-9 September 1970.

FIGURE 20. Vertical distribution of temperature ($^{\circ}$ C.). CGC WESTWIND stations 9 through 13, 19-20 August 1970.

FIGURE 21. Vertical distribution of salinity (‰). CGC WESTWIND stations 9 through 13, 19-20 August 1970.

FIGURE 22. Vertical distribution of density (σ_t) CGC WESTWIND stations 9 through 13, 19-20 August 1970.

FIGURE 23. Anomaly of sea-surface dynamic height of CGC WESTWIND stations 1 through 18 and the height of tide at Port Foulke, Greenland tide station, 3-5 September 1970.

FIGURE 24. Progressive vector diagram of surface wind velocity at CGC WESTWIND stations 1 through 18, 3-5 September 1970.

APPENDIX A

OCEANOGRAPHIC DATA

CRUISES LISTED

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CODES UTILIZED

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

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

Depth to Bottom -----	Corrected or uncorrected sounding in meters.
Max. Depth of Samples --- (if 2 digit code)	Depth of deepest sample in hundreds of meters to nearest hundred-meter interval.
or	
DNP (if 1 digit code)	For internal use only.
Wave observations:	
DIR -----	Rounded to nearest multiple of 10 degrees.
HGT -----	Increments of ½ m. Sum of 5 meters plus increments of ½ m if 50 is added to direction.
PER -----	If numerals 2 through 9 are entered, period in seconds is twice the numeric entry of 2X (numeric entry) +1. For other entries see WMO Code 3155.
SEA -----	Sea state according to WMO Code 3700.
Weather Code -----	If preceded by X, weather according to WMO Code 4501. If a two-digit entry, weather according to WMO Code 4677.
Cloud Code:	
Type -----	Cloud type according to WMO Code 0500.
Amount -----	Cloud amount in eighths. Entry of the numeral 9 indicates cloud amount could not be estimated.
Water:	
Color Code -----	Color according to Forel-Ule scale.
Trans. -----	Transparency in whole meters as determined by Secchi disc.
Wind:	
Dir. -----	Rounded to nearest multiple of 10 degrees.
Speed or Force -----	If preceded by letter S, wind speed in knots; if preceded by letter F, wind force according to Beaufort scale.
Barometer -----	Barometric pressure given in tens, units, and tenths of millibars.
Air Temp. ° C. -----	Air temperature to tenths of a degree Celsius.
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; Z 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 Celsius.
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.
$\Sigma\Delta$ Dyn. M. $\times 10^3$ -----	Multiply entry by 10^{-3} to obtain anomaly of dynamic depth in dynamic meters referenced to the sea surface.
Sound Velocity -----	Sound velocity according to Wilson's formula to tenths of a meter per second.
O ₂ ml./l. -----	Dissolved oxygen in milliliters per liter entered to hundredths.
PO ₄ -P μ g-at/l. -----	Inorganic phosphate in microgram-atoms per liter entered to hundredths.
Total-P μ g-at/l. -----	Total phosphorus in microgram-atoms per liter entered to hundredths.
NO ₂ -N μ g-at/l. -----	Nitrite-nitrogen in microgram-atoms per liter entered to hundredths.
NO ₃ -N μ g-at/l. -----	Nitrate-nitrogen in microgram-atoms per liter entered to tenths.
SiO ₄ -Si μ g-at/l. -----	Silicate-silicon in microgram-atoms per liter entered to whole units.
pH -----	Entered to hundredths.

TABLE I.—Observed and interpolated oceanographic data from stations occupied by USCGC WESTWIND, 16-24 August 1970, prepared from NODC Listing No. 31-8184.

[illegible]

SHIP CODE	LATITUDE 1° 10'	LONGITUDE 1° 10'	DATE 1970	HOURS SQUARED	STATION		TIME (GMT)	YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	SEA SAMPLE	WAVE OBSERVATIONS		WEATHER CODE	INSTR CLOUD		MOO STATION NUMBER		
					10'	1'			CRUISE NUMBER	STATION NUMBER			DIR	PER		SEA STATE	TYPE		AMT	
																				MONTH
318184	WE	7726 N	07522 W	259	95	06	16	039	1970	WGS	002	0210	2	00	0	X	X2	6 8	0002	
					*DT		S		AIR TEMPERATURE °C		VIS		SPECIAL							
					WIND		SPEED OR FORCE		BATHYMETRY		DRY BULB		WET BULB		CODE		OBS NUMBER		OBSERVATIONS	
					22		516		976		-003		-009		7		07			
CAST TIME DURATION IN HOURS 1° 10'		CAST NO	CARD TYPE	DEPTH (m)	°C	S	...	SIGMA T	SPECIFIC VOLUME ANOMALY - 10 ³	SEA D DEPTH - 10 ³	COMPUTED SOUND VELOCITY - SEC	O ₂ - 1	AMBIENT LIGHT Lux/cm ²				MEASURED SOUND VELOCITY - SEC			
					PO ₂ - P mg/dl	TOTAL P mg/dl	NO ₂ - N mg/dl	NO ₃ - N mg/dl	S ₂ - S mg/dl					pH						
039		STU	0750	-0005	2512	2099		0068037	0000	14307										
		UBS	0000	-0003	20121	2073				14367			074				000	013		
		STU	0010	-0113	3199	2574		0022610	0045	14400										
039		ORS	0010	-0113	31988	2574				14400			081				052	017		
		STU	0020	-0126	3243	2610		0019104	0066	14406										
039		URS	0025	-0121	32615	2625				14408			082				064	017		
		STU	0030	-0126	3275	2636		0016750	0084	14437										
		STU	0050	-0143	3314	2658		0013056	0114	14409										
039		UBS	0050	-0143	33136	2668				14409			084				068	015		
		STU	0075	-0135	3333	2683		0012210	0147	14418										
039		ORS	0075	-0135	3332	2683				14410			084				070	017		
		STU	0100	-0124	3350	2697		0010941	0170	14431										
039		URS	0100	-0124	33498	2697				14431			089				079	016		
		STU	0125	-0105	3360	2709		0009752	0201	14446										
		URS	0125	-0105	33603	2709				14440			065				083	043		

SHIP CODE		LATITUDE	LONGITUDE	DATE	TIME	YEAR	ORIGINATOR		DEPTH	WAVE	WEATHER	INSTR	NOOD	
SHIP CODE	CRUISE NUMBER	N S	E W	MO	DAY	HR MIN	CRUISE NUMBER	STATION NUMBER	TO BOTTOM	OBS	CODE	CLOUD TYPE	STATION NUMBER	
318184	WE	7932 N	06504 W	259	95	08 15	170	1970	WGS 003	0226	2	00 0 X	X2 6 8	0003

* DATA FROM THIS TABLE ARE OBTAINED ELECTRONICALLY FROM THE DATA OF THE
RESEARCH SHIP'S INSTRUMENTS. THESE DATA ARE NOT

WIND DIRECTION (DEG)	WIND SPEED (KNOTS)	BAROMETER (MM HG)	AIR TEMPERATURE (°C)	WET BULB TEMPERATURE (°C)	WET BULB WIND CORRECTION (°C)	SPECIAL OBSERVATIONS
19	S03	005	008	000	7	10

CAS NUMBER	TIME HR MIN	CARD TYPE	DEPTH (M)	TEMP (°C)	SIGMA-T	SPECIFIC VOLUME ANOMALY (10 ⁻³)	STD DEV (10 ⁻³)	COMPUTED SOUND VELOCITY (M/SEC)	O ₂ (10 ⁻³)	AMBIENT LIGHT (μm ²)	MEASURED SOUND VELOCITY (M/SEC)
176	0000	STO	0000	-0002	0466	0369	0236770	0000	14083		
	0000	Obs	0000	-0002	04661	0369			14083	016	000 001
	0010	STO	0010	-0127	3185	2563	0023676	0130	14392		
176	0010	Obs	0010	-0127	31846	2563			14392	032	037 013
	0020	STO	0020	-0119	3242	2609	0019283	0151	14405		
176	0025	Obs	0025	-0118	32646	2627			14409	050	038 018
	0030	STO	0030	-0126	3278	2638	0016506	0169	14408		
	0050	STO	0050	-0143	3317	2671	0013425	0199	14409		
176	0050	Obs	0050	-0143	33171	2671			14409	048	047 021
	0075	STO	0075	-0127	3337	2686	0011957	0231	14424		
176	0075	Obs	0075	-0127	33366	2686			14424	064	092 026
	0100	STO	0100	-0112	3357	2702	0010394	0259	14438		
176	0100	Obs	0100	-0112	33575	2702			14438	046	053 014
	0125	STO	0125	-0095	3370	2712	0009476	0284	14452		
	0150	STO	0150	-0081	3380	2719	0008776	0306	14464		
176	0150	Obs	0150	-0081	33798	2719			14464	065	095 029
	0200	STO	0200	-0065	3390	2727	0008063	0348	14481		
176	0200	Obs	0200	-0065	33898	2727			14481	072	122 034
176	0207	Obs	0207	-0064	33914	2728			14483	065	100 025
176	0209	Obs	0209	-0062							

SHIP CODE		LATITUDE	LONGITUDE	DATE	TIME	YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	WAVE OBSERVATIONS	WEATHER CODE	INSTR	NOOD STATION NUMBER		
SHIP CODE	CRUISE NUMBER	N S	E W	MO	DAY	HR	CRUISE NUMBER	STATION NUMBER		DIR	HT	PER	CLOUD TYPE	AMT	
318184	WE	7941 N	06508 W	259	95	08 16 210	1970	WGS 004	0293	2	00	0 X	X1	6 6	0004

* DATA FROM THIS TABLE ARE OBTAINED ELECTRONICALLY FROM THE DATA OF THE
RESEARCH SHIP'S INSTRUMENTS. THESE DATA ARE NOT

WIND DIRECTION (DEG)	WIND SPEED (KNOTS)	BAROMETER (MM HG)	AIR TEMPERATURE (°C)	WET BULB TEMPERATURE (°C)	WET BULB WIND CORRECTION (°C)	SPECIAL OBSERVATIONS
15	S02	010	006	000	7	09

CAS NUMBER	TIME HR MIN	CARD TYPE	DEPTH (M)	TEMP (°C)	SIGMA-T	SPECIFIC VOLUME ANOMALY (10 ⁻³)	STD DEV (10 ⁻³)	COMPUTED SOUND VELOCITY (M/SEC)	O ₂ (10 ⁻³)	AMBIENT LIGHT (μm ²)	MEASURED SOUND VELOCITY (M/SEC)
210	0000	STO	0000	0064	2072	1664	0107924	0000	14327		
	0000	Obs	0000	0064	20721	1664			14327	016	000 020
	0010	STO	0010	-0045	2703	2172	0060947	0085	14353		
	0020	STO	0020	-0120	3140	2527	0027085	0129	14390		
210	0024	Obs	0024	-0140	32613	2625			14398	058	056 026
	0030	STO	0030	-0441	3278	2639	0016475	0151	14401		
210	0049	Obs	0049	-0142	33172	2671			14410	056	064 029
	0050	STO	0050	-0142	3313	2671	0013344	0181	14410		
210	0074	Obs	0074	-0133	33402	2690			14421	047	058 040
	0075	STO	0075	-0132	3342	2690	0011557	0212	14422		
	0100	STO	0100	-0112	3359	2703	0010303	0239	14438		
210	0124	Obs	0124	-0058	33735	2712			14450	063	100 024
	0125	STO	0125	-0046	3371	2713	0009441	0264	14450		
	0150	STO	0150	-0040	3376	2716	0007052	0297	14459		
210	0174	Obs	0174	-0042	33812	2720			14467	049	065 040
	0200	STO	0200	-0072	3393	2726	0004122	0330	14478		
210	0224	Obs	0224	-0063	33933	2733			14486	046	069 018
	0250	STO	0250	-0050	3398	2733	0007459	0369	14495		
210	0264	Obs	0264	-0050	33990	2734			14500	060	106 020
210	0274	Obs	0274	-0043	33939	2743			14502	060	095 020

VESSEL NAME		SHIP CODE	LATITUDE 1-10	LONGITUDE 1-10	MAGNETIC STATION	WASDEN SQUARE 10°	STATION TIME (GMT)			YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	BATHY METER	WAVE OBSERVATIONS			WEATHER CODE	CLOUD TYPE	INST A/N	MOON STATION NUMBER	
TYPE	CRUISE NUMBER						CRUISE NUMBER	STATION NUMBER	MONTH		DAY	HOUR			MIN	SEC	CRUISE NUMBER					STATION NUMBER
31	18184	WE	8039 N	06712 W		907	07	08	18	130	1970	WGS	008	0356	2	00	0	X	X7	0	9	0008

[illegible]

SUN. TABLE FOR DRYING (THERMALLY DEPRIVE SOLID DATA SET) OF 1. DABED BY STATION. WHEN THEY APPEA										DT		S		WIND		AIR TEMPERATURE °C		VIS		NUMBER		SPECIAL	
WATER CONC		TRANS (m)		DIR		SPEED OF FORCE		BAROMETER (mm)		DRY BULB		WET BULB		CODE		DEVS		OBSERVATIONS					
DT		SO		27		SO2		088		000		-003		6		13							
CAST		TIME		CARD		DEPTH (m)		°C		S		SIGMA-T		SPECIFIC VOLUME		SAD		COMPUTED		AMBIENT LIGHT		MEASURED SOUND	
DURATION		IN		TYPE										ANOMALY - σ_t		DTM m		SOUND		lum/m ²		VELOCITY m/sec	
WIND		NO.		NO.												x 10 ³		VELOCITY		m/sec		m/sec	
130		085		ST0		0000		-0143		3122		2513		0028455		0000		14371				056	
				ST0		0010		-0148		3122		2513						14371					
				ST0		0020		-0176		3153		2538		0026013		0027		14364				025	
				ST0		0030		-0176		3153		2538						14364				018	
				ST0		0040		-0177		3155		2540		0025844		0053		14365					
301		085		ST0		0050		-0177		3155		2540						14365					
				ST0		0100		-0174		3166		2565		0023445		0077		14370					
				ST0		0110		-0179		3186		2565						14370					
				ST0		0120		-0161		3295		2653		0015076		0116		14338					
				ST0		0130		-0161		3295		2653						14338					
				ST0		0140		-0144		3317		2671		0013347		0151		14411					
				ST0		0150		-0144		3317		2671						14411					
				ST0		0200		-0142		3337		2687		0011874		0183		14421					
				ST0		0210		-0142		3337		2687						14421					
				ST0		0220		-0116		3376		2717		0006754		0209		14463					
				ST0		0230		-0116		3376		2717						14463					
				ST0		0240		-0046		3413		2746		0006225		0228		14466					
				ST0		0250		-0046		3413		2746						14466					
				ST0		0300		-0001		3430		2759		0005024		0256		14488					
				ST0		0310		-0001		3430		2759						14488					
				ST0		0320		-0029		3452		2775		0003487		0277		14514					
				ST0		0330		-0029		3452		2775						14514					
				ST0		0340		-0012		3460		2781		0002965		0294		14532					
				ST0		0350		-0012		3460		2781						14532					
				ST0		0400		-0008		3462		2762						14536		044		015 039	

VESSEL		SHIP CODE	LATITUDE	LONGITUDE	DEPTH TO BOTTOM	WATERS SQUARE 10' x 1'	STATION			TIME (GMT)	YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	RAI SAMPLE	WAVE OBSERVATIONS			WEATHER CODE	INSTR		MODC STATION NUMBER
NAME	TYPE						CRUIS NUMBER	STATION NUMBER	CRUIS NUMBER			STATION NUMBER	MONTH			DAY	HR	CRUIS NUMBER		STATION NUMBER	Dir	
318184	WE		8115 N	06233 W	907	12	08	19	188	1970	WGS	009	0420	2	00	0	X	X1	7	6	0009	

[illegible][illegible]

SHIP		LATITUDE	LONGITUDE	NO. OF TUBES	STATION NUMBER	STATION TIME (GMT)	YEAR	OBSERVATIONS		DEPTH TO BOTTOM	RAI SAMPLE NO.	WAVE OBSERVATIONS	WEATHER CODE	INSTR CLOUD	MODE STATION NUMBER
NAME	CODE							CIRCUIT NUMBER	STATION NUMBER						
31	184	WE	81186N	064110W	907	14	08 20 019	1970	WGS 012	0411	2	00 0 X	X2	0 9	0012

[illegible]

STATION NO.	CASE NO.	CARD TYPE	DEPTH (m)	TEMP °C	S	SIGMA T	SPECIFIC VOLUME cm³/gm	S.D. Depth m	CALCULATED SOLUBILITY = MIC	O₂ ml/l	ANALYTICAL DATA				MEASURED SOLUBILITY = MIC	
											NO₃ → mg/l	NO₂ → mg/l	NO → mg/l	S.O₄ → mg/l	pH	
019		STO	0000	-0144	3155	2539	0025924	0000	14378							
		08S	0000	-0144	3155	2539			14378							
		STO	0010	-0167	3161	2545	0025406	0025	14369		065				030	029
		08S	0010	-0167	3161	2545			14369							
001		STO	0020	-0176	3188	2567	0023302	0050	14370							
		08S	0020	-0176	3188	2567			14370							
		STO	0030	-0176	3195	2572	0022757	0073	14373							
		08S	0030	-0176	3195	2572			14373							
		STO	0050	-0171	3238	2607	0019434	0115	14385							
		08S	0050	-0171	3238	2607			14385							
		STO	0075	-0160	3292	2651	0015292	0158	14402							
		08S	0075	-0160	3292	2651			14402							
		STO	0100	-0138	3365	2709	0009736	0189	14427							
		08S	0100	-0138	3365	2709			14427							
		STO	0125	-0114	3387	2726	0008106	0212	14443							
		08S	0125	-0114	3387	2726			14443							
		STO	0150	-0110	3402	2738	0006971	0231	14453							
		08S	0150	-0110	3402	2738			14453							
		STO	0200	-0065	3440	2767	0004239	0259	14488							
		08S	0200	-0065	3440	2767			14488							
	STO	0250	-0022	3459	2781	0002999	0277	14519								
	08S	0250	-0022	3459	2781			14519								
	STO	0300	-0003	3467	2786	0002488	0290	14537								
	08S	0300	-0003	3467	2786			14537								
	08S	0350	-0009	3473	2791			14544								
	08S	0364	0010	34714	2789			14554		037				063	023	

SHIP		LATITUDE	LONGITUDE	DEPTH METER	WARDEN		STATION		TIME	YEAR	ORIGINATOR'S		DEPTH METER	RAI SAMPLE REF	WAVE OBSERVATIONS	WEATHER CODE	INSTR		MOOD STATION NUMBER		
NAME	CODE				10	10	10	1			MONTH	DAY					HR	MIN		CRUISE NUMBER	STATION NUMBER
318184	WE	81190N	064390W	907	14	08	20	034	1970	HGS	013		0430	2	00	0	X	X2	0	9	0013

[illegible]

CAST NO	C/PD TYPE	DEPTH (m)	T °C	S ..	SIGMA - T	SPECIFIC VOLUME ANOMALY x 10 ⁷	S&D DYN # x 10 ⁶	COMPUTED SOUND VELOCITY m/sec	O ₂ ml/l	AMBIENT (V/L) %					MEASURED SOUND VELOCITY m/sec				
										PO ₂ P mg wt/l	CASAL P mg wt/l	NO ₂ N mg wt/l	NH ₃ N mg wt/l	S-O ₂ S mg wt/l	pH				
034	STO	0000	-0165	3171	2553	0024654	0000	14370											
	OBS	0000	-0165	3171	2553			14370											
	STO	0010	-0169	3186	2565	0023475	0024	14372											
	OBS	0010	-0169	3186	2565			14372											
	STO	0020	-0173	3199	2576	0022459	0047	14373											
701	OBS	0020	-0173	3199	2576			14373											
	STO	0030	-0175	3217	2590	0021064	0068	14377											
	OBS	0030	-0175	3217	2590			14377											
	STO	0050	-0173	3256	2622	0013050	0107	14386											
	OBS	0050	-0173	3256	2622			14386											
	STO	0075	-0159	3296	2654	0014985	0149	14403											
	OBS	0075	-0159	3296	2654			14403											
	STO	0100	-0144	3355	2701	0010484	0181	14422											
	OBS	0100	-0144	3355	2701			14422											
	STO	0125	-0125	3377	2719	0008443	0205	14439											
	OBS	0125	-0125	3377	2719			14439											
	STO	0150	-0111	3406	2742	0006664	0224	14453											
	OBS	0150	-0111	3406	2742			14453											
	STO	0200	-0058	3436	2764	0004534	0252	14436											
	OBS	0200	-0058	3436	2764			14436											
STO	0250	-0045	3455	2778	0003232	0272	14512												
OBS	0250	-0045	3455	2778			14512												
STO	0300	-0038	3476	2786	0002537	0286	14534												
OBS	0300	-0038	3476	2786			14534												
STO	0350	-0005	3463	2787			14550												
OBS	0350	-0005	3463	2787			14550												
STO	0359	0005	34697	2787			14557												
OBS	0359	0005	34697	2787			14557												

SHIP NAME	SHIP CODE	LATITUDE 1 10	LONGITUDE 1 10	DATE 10	TIME 10	YEAR	ORIGINATOR'S CRUISE NUMBER	STATION NUMBER	DEPTH TO BOTTOM	BAT MFL	WAVE OBSERVATIONS	WEATHER CODE	INSTR CLOUD TYPE	MODE STATION NUMBER
318184	WE	81010N	066000W	907	16	08 20 075	1970	WGS 014	0365	2	00	0 X	X2 0 9	0014

* NOTE: THESE VALUES REPRESENT THE SHIP'S ELECTRONICALLY DERIVED SERIAL DATA (SD) AND
SHOULD BE USED BY THE USER FOR THE SHIP'S DATA.

DT	ST	WIND DIRECTION 10	WIND SPEED 10	BAROMETER PRESSURE 10	AIR TEMPERATURE 10	WET BULB 10	VIS 10	NUMBER OBS LEVELS	SPECIAL OBSERVATIONS
DT	ST	50	22	512	089	-011	-013	6	14

CARD TYPE	DEPTH (m)	T °C	S	SIGMA-T	SPECIFIC VOLUME ANOMALY σ_t	SEA DEPTH 10	COMPUTED SOUND VELOCITY = SEC	AMBIENT LIGHT 10	MEASURED SOUND VELOCITY = SEC	pH
075	ST0	0000	-0168	3159	2543	0025570	0000	14367		
	08S	0000	-0168	3159	2543			14367		
	ST0	0010	-0168	3160	2544	0025488	0025	14369		
	08S	0010	-0168	3160	2544			14369		
	ST0	0020	-0175	3161	2545	0025386	0051	14367		
001	08S	0020	-0175	3161	2545			14367		
	ST0	0030	-0177	3160	2549	0024980	0076	14369		
	08S	0030	-0177	3160	2549			14369		
	ST0	0050	-0179	3199	2576	0022420	0123	14376		
	08S	0050	-0179	3199	2576			14376		
	ST0	0075	-0165	3277	2639	0016430	0172	14397		
	08S	0075	-0165	3277	2639			14397		
	ST0	0100	-0149	3350	2697	0010852	0206	14419		
	08S	0100	-0149	3350	2697			14419		
	ST0	0125	-0107	3401	2737	0007074	0228	14450		
	08S	0125	-0107	3401	2737			14450		
	ST0	0150	-0070	3425	2755	0005376	0244	14475		
	08S	0150	-0070	3425	2755			14475		
	ST0	0200	-0052	3442	2768	0004148	0268	14494		
	08S	0200	-0052	3442	2768			14494		
	ST0	0250	-0015	3461	2782	0002877	0285	14522		
	08S	0250	-0015	3461	2782			14522		
	ST0	0300	-0010	3462	2783	0002632	0299	14533		
	08S	0300	-0010	3462	2783			14533		
	ST0	0334	-0007	3462	2782			14540		
	08S	0334	-0007	3462	2782			14542		

051

076 037

SHIP NAME	SHIP CODE	LATITUDE 1 10	LONGITUDE 1 10	DATE 10	TIME 10	YEAR	ORIGINATOR'S CRUISE NUMBER	STATION NUMBER	DEPTH TO BOTTOM	BAT MFL	WAVE OBSERVATIONS	WEATHER CODE	INSTR CLOUD TYPE	MODE STATION NUMBER
318184	WE	8039 N	05712 W	907	07	08 20 155	1970	WGS 015	0430	2	00	0 X	X1 0 9	0015

* NOTE: THESE VALUES REPRESENT THE SHIP'S ELECTRONICALLY DERIVED SERIAL DATA (SD) AND
SHOULD BE USED BY THE USER FOR THE SHIP'S DATA.

DT	ST	WIND DIRECTION 10	WIND SPEED 10	BAROMETER PRESSURE 10	AIR TEMPERATURE 10	WET BULB 10	VIS 10	NUMBER OBS LEVELS	SPECIAL OBSERVATIONS
DT	ST	50	25	510	112	008	-003	7	14

CARD TYPE	DEPTH (m)	T °C	S	SIGMA-T	SPECIFIC VOLUME ANOMALY σ_t	SEA DEPTH 10	COMPUTED SOUND VELOCITY = SEC	AMBIENT LIGHT 10	MEASURED SOUND VELOCITY = SEC	pH
165	ST0	0010	-0161	3148	2534	0026422		14370		
	08S	0010	-0161	3148	2534			14370		
	ST0	0020	-0170	3162	2546	0025314		14370		
	08S	0020	-0170	3162	2546			14370		
	ST0	0030	-0175	3211	2585	0021525		14376		
001	08S	0030	-0175	3211	2585			14376		
	ST0	0050	-0170	3265	2630	0017290		14399		
	08S	0050	-0170	3265	2630			14399		
	ST0	0075	-0149	3357	2703	0010350		14420		
	08S	0075	-0149	3357	2703			14420		
	ST0	0100	-0102	3400	2730	0007177		14448		
	08S	0100	-0102	3400	2730			14448		
	ST0	0105	-0058	3401	2737			14451		
	08S	0105	-0058	3401	2737			14451		
	ST0	0125	-0023	3421	2753			14492		
	08S	0125	-0023	3421	2753			14492		
	ST0	0150	-0007	3424	2755	0005450		14470		
	08S	0150	-0007	3424	2755			14470		
	ST0	0155	-0064	3427	2757	0005253		14478		
	08S	0155	-0064	3427	2757			14478		
	ST0	0200	-0049	3442	2768	0004158		14495		
	08S	0200	-0049	3442	2768			14495		
	ST0	0250	-0032	3453	2776	0003399		14513		
	08S	0250	-0032	3453	2776			14513		
	ST0	0300	-0017	3461	2782	0002992		14529		
	08S	0300	-0017	3461	2782			14529		
	ST0	0334	-0001	3467	2786			14552		

054

082 029

SHIP NAME	SHIP CODE	LATITUDE	LONGITUDE	DATE	TIME	YEAR	ORIGINATOR'S CRUISE NUMBER	STATION NUMBER	DEPTH TO BOTTOM	WAVE OBSERVATIONS	WEATHER CODE	INSR CLOUD	MOOD STATION NUMBER
318184	WE	80165N	068520W	07	08	20	1970	WGS 016	0330	2	00	0 X	0016
DT S WIND: DIR, SPEED OR FORCE, BAROMETER, AIR TEMPERATURE, VIS, NUMBER, SPECIAL WATER: COLOR, DIR, SPEED OR FORCE, DRY BULB, WET BULB, CODE, OBS, LEVELS, OBSERVATIONS													
DT 50 18 502 112 003 -003 7 13													

CASE NUMBER	CASE NO.	CARD TYPE	DEPTH (m)	T °C	S	SIGMA T	SPECIFIC VOLUME ANOMALY 10 ⁻³	STD DYN M 10 ⁻³	COMPUTED SOUND VELOCITY M SEC	O ₂ ml/l	AMBIENT LIGHT Sun, m ²	MEASURED SOUND VELOCITY M SEC
218		STD	0000	-0158	3149	2534	0026432	0000	14370			
		OBS	0000	-0156	3148	2534			14370		074	
		STD	0010	-0175	3155	2540	0025859	0026	14365			
		OBS	0010	-0175	3155	2540			14365			
		STD	0020	-0178	3168	2551	0024842	0051	14367			
		OBS	0020	-0173	3168	2551			14367			
002		STD	0030	-0175	3202	2578	0022214	0075	14375			
		OBS	0030	-0175	3202	2578			14375			
		STD	0050	-0153	3251	2617	0018478	0115	14395			
		OBS	0050	-0153	3251	2617			14395			
		STD	0075	-0134	3315	2669	0013599	0155	14417			
		OBS	0075	-0134	3315	2669			14417			
		STD	0100	-0123	3380	2721	0009631	0183	14436			
		OBS	0100	-0123	3380	2721			14436			
		STD	0125	-0101	3390	2728	0007932	0204	14452			
		OBS	0125	-0101	3390	2728			14452			
		STD	0150	-0073	3426	2757	0005265	0220	14472			
		OBS	0150	-0073	3426	2757			14472			
		STD	0200	-0045	3443	2769	0004107	0244	14497			
		OBS	0200	-0045	3443	2769			14497			
		STD	0250	-0027	3456	2779	0003201	0262	14516			
		OBS	0250	-0027	3456	2779			14516			
		STD	0278	-0014	3458	2779			14527			
		OBS	0278	-0014	3458	2779	0002977	0277	14534			
		STD	0300	-0007	3460	2781			14540			
		OBS	0325	-0004	34634	2783				046	062	035

SHIP NAME	SHIP CODE	LATITUDE	LONGITUDE	DATE	TIME	YEAR	ORIGINATOR'S CRUISE NUMBER	STATION NUMBER	DEPTH TO BOTTOM	WAVE OBSERVATIONS	WEATHER CODE	INSR CLOUD	MOOD STATION NUMBER
318184	WE	7751 N	07139 W	26	07	08	1970	WGS 017	0146	2	00	0 X	0017
DT S WIND: DIR, SPEED OR FORCE, BAROMETER, AIR TEMPERATURE, VIS, NUMBER, SPECIAL WATER: COLOR, DIR, SPEED OR FORCE, DRY BULB, WET BULB, CODE, OBS, LEVELS, OBSERVATIONS													
DT 19 512 150 052 032 7 08													

CASE NUMBER	CASE NO.	CARD TYPE	DEPTH (m)	T °C	S	SIGMA T	SPECIFIC VOLUME ANOMALY 10 ⁻³	STD DYN M 10 ⁻³	COMPUTED SOUND VELOCITY M SEC	O ₂ ml/l	AMBIENT LIGHT Sun, m ²	MEASURED SOUND VELOCITY M SEC
113		STD	0000	0239	3091	2470	0032541	0000	14544			
		OBS	0000	0239	30912	2470			14544		006	001 029
		STD	0010	0000	3173	2549	0024970	0028	14449			
113		OBS	0010	0000	31730	2549			14449		006	001 039
		STD	0020	0080	3260	2615	0018752	0050	14499			
113		OBS	0025	0097	32512	2639			14512		010	001 048
		STD	0030	0053	3302	2650	0015427	0067	14497			
		STD	0050	-0051	3330	2678	0012733	0095	14454			
113		OBS	0051	-0054	33311	2679			14453		040	029 039
		STD	0075	-0073	3336	2684	0012176	0127	14449			
113		OBS	0076	-0074	33363	2684			14449		044	036 019
		STD	0100	-0065	3339	2686	0011726	0157	14440			
113		OBS	0102	-0063	33390	2687			14440		049	042 046
		STD	0125	-0106	3345	2692	0011306	0186	14443			
113		OBS	0125	-0106	33449	2692			14443		049	050 031
113		OBS	0127	-0106								

SHIP CODE		LATITUDE		LONGITUDE		STATION TIME (GMT)		YEAR		ORIGINATOR'S CRUISE NUMBER		STATION NUMBER		DEPTH TO BOTTOM		RAE SAMP		WAVE OBSERVATIONS		WEATHER CODE		INSTR CLOUD		MODE STATION NUMBER	
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
318184	WE	77525N	07127 W	260	71	08 22 153	1970	WGS	018	0201	2	00	0 X	X6	5 8									0018	

NOTE: DATA FROM THIS REPORT FOR STATIONING ELECTRONICALLY DERIVED SERIAL DATA (SD) IS HEADLINE NUMBERED BY STATIONING NUMBER THAT APPEAR

DT		S		WIND		BAROMETER		AIR TEMPERATURE °C		VIS		NUMBER OBS LEVELS		SPECIAL OBSERVATIONS	
WATER COLOR	TRANS (m)	DIB	SPEED OR FORCE	(mb)	DRY BULB	WET BULB CODE									
14	S08	154	055	035	6	09									

CAST TIME DURATION	CARD TYPE	DEPTH (m)	T °C	S	SIGMA-T	SPECIFIC VOLUME ANOMALY - 10 ⁻³	STAD BYN - 10 ⁻³	COMPUTED SOUND VELOCITY - SEC	O ₂ - 1	AMBIENT LIGHT lum/cm ²				MEASURED SOUND VELOCITY - sec			
REMARKS	NO									PO ₂ - P	TOTAL P	NO ₂ - N	NO ₃ - N	S O ₂ - S	pH		
153	STD	0000	0255	3046	2433	0036057	0000	14545									
	OBS	0000	0255	30464	2433			14545		015				000	038		
	STD	0010	0209	3151	2519	0027820	0031	14540									
153	OBS	0010	0209	31507	2519			14540		002				000	020		
	STD	0020	0101	3260	2614	0019934	0055	14509									
153	OBS	0025	0758	32983	2647			14496		007				002	016		
	STD	0030	0031	3306	2655	0014946	0072	14485									
	STD	0050	-0044	3328	2676	0012950	0100	14457									
153	OBS	0050	-0044	33276	2676			14457		036				027	016		
	STD	0075	-0046	3333	2681	0012422	0131	14452									
153	OBS	0075	-0046	33333	2681			14452		035				026	057		
	STD	0100	-0042	3340	2686	0011771	0162	14445									
153	OBS	0100	-0042	33404	2688			14445		047				042	047		
	STD	0125	-0048	3344	2691	0011495	0191	14446									
	STD	0150	-0110	3347	2693	0011205	0219	14445									
153	OBS	T0150	-0110	33466	2693			14445		052				054	022		
153	OBS	T0164	-0136	33503	2697			14439		044				046	039		
153	OBS	0186	-0136														

SHIP CODE		CRUISE NUMBER	SHIP CODE	LATITUDE ° 10'	LONGITUDE ° 10'	DATE TIME	STATION TIME (GMT)	YEAR	ORIGINATOR'S CRUISE NUMBER STATION NUMBER		DEPTH TO BOTTOM	RAE SABP SEP	WAVE OBSERVATIONS DIR HGT PER PER AMT		WEATHER CODE	INSTR CLOUD TYPE AMT	MODE STATION NUMBER								
318184		WE		7754 N	07118 W	260	71 08 22 192	1970	WGS 019		0206	2	00	0 X	X1	7 7	0019								
NOTE: DATA FROM THIS REPORT FOR STATIONING ELECTRONICALLY DERIVED SERIAL DATA (SD) IS HEADLINE NUMBERED BY STATIONING NUMBER THAT APPEAR																									
DT		S		WIND		BAROMETER		AIR TEMPERATURE °C		VIS		NUMBER OBS LEVELS		SPECIAL OBSERVATIONS											
WATER COLOR		TRANS (m)		DIR SPEED OR FORCE		(mb)		DRY BULB		WET BULB CODE															
		34		S14		145		052		034		7		09											
CAST TIME DURATION REMARKS		CARD TYPE		DEPTH (m)		T °C		S		SIGMA-T		SPECIFIC VOLUME ANOMALY - 10 ⁻³		STD BYN - 10 ⁻³		COMPUTED SOUND VELOCITY - SEC		O ₂ - 1		AMBIENT LIGHT lum/cm ²		MEASURED SOUND VELOCITY - sec			
192		STD		0000		0260		2982		2380		0041159		0000		14547				008		005		030	
		OBS		0000		0280		29816		2380						14547									
		STD		0010		0220		3109		2485		0031088		0036		14540									
192		OBS		0010		0220		31086		2485						14540		001				004		048	
		STD		0020		0067		3252		2610		0019222		0061		14433									
192		OBS		0025		0013		33019		2652						14476		020				012		020	
		STD		0030		0003		3309		2658		0014690		0078		14472									
		STD		0050		-0039		3325		2673		0013187		0106		14459									
192		OBS		0050		-0039		33248		2673						14459		036				026		042	
		STD		0075		-0032		3333		2682		0012362		0138		14440									
192		OBS		0075		-0032		33329		2682						14440		049				044		034	
		STD		0100		-0050		3339		2687		0011689		0168		14445									
		OBS		0100		-0050		33390		2687						14445		051				046		034	
		STD		0125		-0101		3342		2689		0011629		0197		14445									
		STD		0150		-0112		3344		2692		0011359		0226		14444									
192		OBS		T0150		-0112		33445		2692						14444		054				051		019	
192		OBS		T0163		-0127		33484		2695						14443		054				057		036	
192		OBS		0185		-0128																			

SHIP NAME	SHIP CODE	LATITUDE	LONGITUDE	DATE	TIME	YEAR	ORIGINATOR'S	DEPTH TO BOTTOM	WAVE OBSERVATIONS	WEATHER CODE	INSTR	MOON STATION NUMBER
CRUISE NUMBER		° 10'	° 10'	MONTH	DAY	HR	CRUISE NUMBER	STATION NUMBER	DIR	PER	TYPE	
318184	WE	7732 N	06830 W	259	78	03 23 121	1970	WGS 022	0512	2	00 0 X	0022

* DT S WIND SPEED OR FORCE BAROMETER AIR TEMPERATURE °C VIS NUMBER SPECIAL OBS. LEVELS OBSERVATIONS

CAST TIME DURATION H. M. S.	CAST NO.	CARD TYPE	DEPTH (m)	°C	S	SIGMA-t	SPECIFIC VOLUME ANOMALY - σ_t	2 σ_t DYN M S ID	COMPUTED SOUND VELOCITY - M/S	O ₂ ml/l	AMBIENT LIGHT				MEASURED SOUND VELOCITY - M/S	
											PO ₂ - P mg/dl	TOTAL - P mg/dl	NO ₂ - N mg/dl	NO ₃ - N mg/dl	S. O ₂ - S mg/dl	pH
121		STD	0000	0172	2649	2121	0065869	0000	14454							
		OBS	0000	0172	26497	2121			14454		005			000	025	
		STD	0010	0052	2665	2139	0064148	0065	14403							
001		OBS	0010	0052												
		STD	0020	-0044	2631	2154	0062651	0128	14362							
		OBS	0020	-0044												
		STD	0030	-0044	2696	2157	0061394	0190	14304							
		OBS	0030	-0044												
		STD	0040	-0114	2728	2159	0053802	0310	14311							
		OBS	0040	-0114												
		STD	0075	-0131	2768	2226	0055661	0453	14342							
		OBS	0075	-0131												
		STD	0100	-0123	2808	2259	0052566	0589	14356							
		OBS	0100	-0123												
		STD	0125	-0118	2848	2291	0049463	0716	14368							
		OBS	0125	-0118												
		STD	0150	-0116	2868	2323	0046374	0836	14378							
		OBS	0150	-0116												
		STD	0200	-0045	2907	2330	0040283	1053	14413							
		OBS	0200	-0045												
	STD	0250	-0007	3047	2448	0034425	1239	14468								
	OBS	0250	-0007													
	STD	0300	0052	3127	2510	0028616	1397	14514								
	OBS	0300	0052													
	STD	0400	0085	3286	2636	0016723	1624	14568								
	OBS	0400	0085													
	OBS	0470	0099													
	OBS	0493	0091	34342	2754				14607		077		112	034		

SHIP NAME	SHIP CODE	LATITUDE	LONGITUDE	DATE	TIME	YEAR	ORIGINATOR'S	DEPTH TO BOTTOM	WAVE OBSERVATIONS	WEATHER CODE	INSTR	MOON STATION NUMBER
CRUISE NUMBER		° 10'	° 10'	MONTH	DAY	HR	CRUISE NUMBER	STATION NUMBER	DIR	PER	TYPE	
318184	WE	77382N	06838 W	259	78	03 23 150	1970	WGS 023	3293	2	00 0 X	0023

* DT S WIND SPEED OR FORCE BAROMETER AIR TEMPERATURE °C VIS NUMBER SPECIAL OBS. LEVELS OBSERVATIONS

STATION	TIME	DURATION m	CAST NO.	CARD TYPE	DEPTH (m)	TEMP °C	SALINITY	SIGMA-T	SPECIFIC VOLUME ANOMALY 10 ⁻⁶	RAD DTN 10 ⁻⁶	COMPUTED SOUND VELOCITY m/sec	O ₂ ml/l	AMBIENT LIGHT				MEASURED SOUND VELOCITY m/sec			
													TOTAL - P μg at 1	NO ₂ - N μg at 1	NO ₃ - N μg at 1	S O ₂ - S μg at 1	pH			
150				STD	0000	0207	2697	2158	0062366	0000	14476		003			000	032			
				OBS	0000	0207	26969	2158		14476										
				STD	0010	0025	3120	2505	0029167	0045	14453									
150				OBS	0015	-0040	32650	2625			14444	049			023	037				
				STD	0020	-0059	3283	2640	0016309	0065	14439									
				STD	0030	-0090	3313	2656	0013332	0083	14430									
150				OBS	0040	-0110	33334	2683			14425	053			075	035				
				STD	0050	-0114	3333	2687	0011830	0109	14426									
				OBS	0065	-0115	33453	2693			14429									
150				STD	0075	-0111	3347	2694	0011193	0138	14432	062			095	027				
				OBS	0090	-0107	33501	2696			14437									
				STD	0100	-0106	3351	2697	0010901	0165	14440									
150				STD	0125	-0104	3354	2700	0010636	0192	14445	074			117	032				
				OBS	0141	-0103	33570	2702			14449									
				STD	0150	-0099	3359	2703	0010337	0218	14452									
150				OBS	0192	-0071	33673	2709			14473	072			113	030				
				STD	0200	-0053	3368	2709	0007744	0269	14483									
				OBS	0243	-0011	33818	2718			14512									
150				STD	0250	-0013	3385	2721	0008649	0315	14512	076			114	045				
				OBS	0273	-0036	33984	2732			14507									
				OBS	0275	-0039														

SHIP CODE		LATITUDE	LONGITUDE	DATE	STATION		TIME	ORIGINATOR'S		DEPTH	SAL	WAVE				WEATHER	INSIDE	MODE
SHIP	CRUISE			YEAR	SQUARE	(GMT)	YEAR	CRUISE	STATION	TO	SAMPLE	OBSERVATIONS				CODE	CLOUD	STATION
NO.	NUMBER				10'	1'	MONTH DAY HR 1 TO	NUMBER	NUMBER	BOTTOM	PER	DIR	HGT	PER	SEA	TYPE	AMT	NUMBER
313184	WE	77415N	06940 W	259	78	08 23	174 1970	WGS 024		0201	2	00	0	X		X7	6 8	0024

NOTE: PREP. FORM TEMPLATE AND PLANNING ELECTRONICALLY DERIVED METRIC DATA (MT) ARE STANDARD BASED BY SYSTEMS. OTHER DATA APPEAR

CAST	TIME	DURATION	CARD	DEPTH (m)	T °C	S	SIGMA-T	SPECIFIC VOLUME	SAD	COMPUTED	O ₂ ml/l	AMBIENT LIGHT				MEASURED SOUND			
												PO ₂ - P	TOTAL P	NO ₂ - N	NO ₃ - N	S. O ₂ - S	VELOCITY	pH	
NO.	NO.	NO.	TYPE					ANOMALY $\delta 10^3$	DTN M	VELOCITY m/sec		mg wt/l	mg wt/l	mg wt/l	mg wt/l	mg wt/l	m/sec		
			STO	0000	-0126	2576	2071	0070672	0000	14306									
174			UBS	0000	-0126	25759	2071			14306		000			000	028			
			STO	0010	-0060	3246	2610	0019175	0044	14432									
174			UBS	0010	-0060	32458	2610			14432		031			022	048			
			STO	0020	-0089	3296	2652	0015212	0062	14427									
174			UBS	0020	-0089	33143	2607			14425		059			072	044			
			STO	0030	-0102	3313	2671	0013397	0076	14425									
			STO	0050	-0110	3335	2634	0012143	0102	14427									
174			UBS	0050	-0110	33346	2634			14427		056			083	031			
			STO	0075	-0111	3344	2631	0011446	0131	14432									
174			UBS	0075	-0111	33440	2631			14432		103			056	039			
			STO	0100	-0107	3348	2635	0011039	0159	14439									
174			UBS	0100	-0107	33485	2635			14439		092			091	036			
			STO	0125	-0105	3353	2638	0010771	0187	14445									
			STO	0150	-0102	3356	2701	0010537	0213	14451									
174			UBS	0150	-0102	33562	2701			14451		054			074	048			
174			UBS	0175	-0049	33593	2703			14457		067			103	050			
174			UBS	0180	-0079														

SHIP CODE	LATITUDE 1 TO	LONGITUDE 1 TO	MO 1 TO	HARSHEN SQUARE 10' 1'	STATION (GMT) MONTH DAY HR 1 TO	YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	SAL SAMPLE PER	WAVE OBSERVATIONS				WEATHER CODE	INSIDE CLOUD TYPE AMT	MODE STATION NUMBER
							CRUISE NUMBER	STATION NUMBER			DIR	HGT	PER	SEA			
318184	WE	77331N	06646 W	259	78 08 23 227	1970	WGS 025		0448	2	00	0	X		X2	7 8	0025

NOTE: PREP. FORM TEMPLATE AND PLANNING ELECTRONICALLY DERIVED METRIC DATA (MT) ARE
STANDARD BASED BY SYSTEMS. OTHER DATA APPEAR

CAST NO.	CARD TYPE	DEPTH (m)	T °C	S	SIGMA-T	SPECIFIC VOLUME ANOMALY $\delta 10^3$	SAD DTN M 1 TO 1	COMPUTED SOUND VELOCITY m/sec	O ₂ ml/l	AMBIENT LIGHT Lux m ²				MEASURED SOUND VELOCITY m/sec			
										PO ₂ - P mg wt/l	TOTAL P mg wt/l	NO ₂ - N mg wt/l	NO ₃ - N mg wt/l	S. O ₂ - S mg wt/l	pH		
	STO	0000	0196	3210	2567	0023256	0000	14541									
227	UBS	0000	0146	32096	2567			14541		002				002	028		
	STO	0010	0085	3211	2576	0022485	0022	14493									
227	UBS	0010		32109						000				003	041		
	STO	0020	0003	3271	2628	0017525	0042	14466									
227	UBS	0025	-0026	32930	2647			14456		011				016	031		
	STO	0030	-0074	3302	2655	0014540	0059	14455									
	STO	0050	-0061	3330	2673	0012678	0066	14449									
227	UBS	0050	-0041	33304	2679			14449		031				053	031		
	STO	0075	-0067	3344	2691	0011496	0116	14443									
227	UBS	0075	-0067	33444	2691			14443		030				059	033		
227	UBS	0099	-0086	33495	2695			14449		047				090	048		
	STO	0100	-0046	3350	2635	0011037	0145	14449									
	STO	0125	-0040	3354	2699	0010793	0172	14456									
227	UBS	0149	-0072	33537	2702			14465		043				068	037		
	STO	0156	-0072	3359	2732	0013412	0198	14465									
227	UBS	0159	-0045	33691	2709			14437		035				066	037		
	STO	0200	-0044	3369	2739	0009723	0249	14488									
227	UBS	0249	-0046	33823	2718			14515		065				105	036		
	STO	0250	-0002	3384	2717	0008828	0295	14517									
227	UBS	0298	0066	34106	2737			14500		039				075	037		
	STO	0300	0068	3411	2738	0007126	0335	14501									
227	UBS	0397	0068	34301	2751			14539		046				085	016		

SHIP NAME		SHIP CODE	LATITUDE	LONGITUDE	DATE	TIME	YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	WAVE OBSERVATIONS	WEATHER CODE	INST CLOUD TYPE	MODE STATION NUMBER		
CRUISE NUMBER			10	10	10	10	10	CRUISE NUMBER	STATION NUMBER		Dir	Dir	Dir			
318184	WE		77362N	066342W	259	76	08 24 004	1970	WGS 025	0512	2	00	0	X	7 8	0026

* BOTH WIND PLUGS TEMPERATURES FOR WINDING SECTION: ALL DEGREES METRIC DATA (WTS) ARE
UNOFFICIAL BASED BY SYSTEMS: OTHER DATA APPLY

CAST NUMBER	TIME DURATION	CAST TYPE	DEPTH (m)	T °C	S	SIGMA-T	SPECIFIC VOLUME ANOMALY $\times 10^3$	RAD DYN $\times 10^3$	COMPUTED SOUND VELOCITY m/sec	AMBIENT LIGHT lum/cm ²	PO ₄ -P mg/l	TOTAL P mg/l	NO ₃ -N mg/l	NO ₂ -N mg/l	S-O ₂ -S mg/l	MEASURED SOUND VELOCITY m/sec	pH
004	0000	STD	0000	0188	3186	2549	0024981	0000	14534								
004	0000	OBS	0000	0188	31862	2549			14534								
004	0010	STD	0010	0149	3199	2562	0023747	0024	14520								
004	0010	OBS	0010	0149	31991												
004	0020	STD	0020	0105	3247	2603	0019831	0046	14509								
004	0025	OBS	0025	0082	32669	2621			14502								
004	0030	STD	0030	0047	3281	2634	0016955	0054	14489								
004	0050	STD	0050	-0052	3322	2672	0013357	0094	14452								
004	0050	OBS	0050	-0052	33220	2672			14452								
004	0075	STD	0075	-0047	3341	2688	0011749	0126	14443								
004	0075	OBS	0075	-0067	33411	2686			14443								
004	0100	STD	0100	-0083	3346	2692	0011359	0155	14450								
004	0100	OBS	0100	-0083	33462	2692			14450								
004	0125	STD	0125	-0076	3354	2698	0010781	0182	14458								
004	0150	STD	0150	-0069	3360	2703	0010323	0209	14466								
004	0150	OBS	0150	-0069	33602	2703			14466								
004	0200	STD	0200	-0056	3368	2709	0009788	0259	14482								
004	0201	OBS	0201	-0055	33680	2709			14482								
004	0250	STD	0250	0005	3387	2721	0008644	0305	14521								
004	0257	OBS	0257	0014	33899	2723			14527								
004	0300	STD	0300	0071	3415	2740	0006913	0344	14563								
004	0303	OBS	0303	0074	34159	2741			14565								
004	0400	STD	0400	0088	3430	2752	0005834	0408	14589								
004	0406	OBS	0406	0088	34310	2752			14591								
004	0469	OBS	0469	0086	34346	2755			14601								
004	0471	OBS	0471	0087													

SHIP		LATITUDE	LONGITUDE	DEPTH	MUNSEN SQUARE	STATION		TIME	YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	WAVE OBSERVATIONS	WEATHER CODE	INST CLOUD	MODE STATION NUMBER			
NAME	CODE					CRUISE NUMBER	STATION NUMBER												
318184	WE	7742 N	06625 W	259	76	08	24	047	1970	WGS	027	0274	2	00	0	X	6	8	0027

* BOTH WIND PLUGS TEMPERATURES FOR WINDING SECTION: ALL DEGREES METRIC DATA (WTS) ARE
UNOFFICIAL BASED BY SYSTEMS: OTHER DATA APPLY

CAST NUMBER	TIME DURATION	CAST TYPE	DEPTH (m)	T °C	S	SIGMA-T	SPECIFIC VOLUME ANOMALY $\times 10^3$	RAD DYN $\times 10^3$	COMPUTED SOUND VELOCITY m/sec	AMBIENT LIGHT lum/cm ²	PO ₄ -P mg/l	TOTAL P mg/l	NO ₃ -N mg/l	NO ₂ -N mg/l	S-O ₂ -S mg/l	MEASURED SOUND VELOCITY m/sec	pH
047	0000	STD	0000	0000	3068	2465	0033013	0000	14433								
047	0000	OBS	0000	0000	30681	2465			14433								
047	0010	STD	0010	0127	3149	2523	0027446	0030	14504								
047	0010	OBS	0010	0127	31489	2523			14504								
047	0020	STD	0020	0047	3240	2601	0020063	0054	14482								
047	0025	OBS	0025	0015	32733	2629			14472								
047	0030	STD	0030	-0004	3284	2639	0016463	0072	14466								
047	0030	OBS	0030	-0060	3317	2668	0013681	0102	14448								
047	0050	STD	0050	-0060	33173	2668			14448								
047	0075	STD	0075	-0084	3336	2684	0012120	0134	14444								
047	0075	OBS	0075	-0084	33364	2684			14444								
047	0100	STD	0100	-0082	3348	2693	0011251	0163	14450								
047	0100	OBS	0100	-0082	33477	2693			14450								
047	0125	STD	0125	-0073	3350	2695	0011080	0191	14459								
047	0150	STD	0150	-0065	3354	2698	0010812	0219	14468								
047	0152	OBS	0152	-0064	33544	2698			14468								
047	0200	STD	0200	-0048	3366	2707	0009594	0271	14485								
047	0204	OBS	0204	-0046	33667	2707			14467								
047	0250	STD	0250	-0015	3378	2715	0009206	0318	14511								
047	0253	OBS	0253	-0012	33785	2715			14512								

TABLE II.—Observed and interpolated oceanographic data from stations occupied by USCGC WESTWIND, 3-9 September 1970, prepared from NODC Listing No. 31-1705.

SHIP		LATITUDE		LONGITUDE		STATION		TIME		ORIGINATOR'S		DEPTH		WAVE		WEATHER		INSIDE		MODE			
NO	NAME	CODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19		
311	705	NE	78262N	07309	W	260	03	03	126	1970	KBS	001	0284	1	00	0	X	X1	4	3	0001		
DT S WIND AIR TEMPERATURE °C																							
WATER TEMP °C		WIND DIR		SPEED OF FORCE		BAROMETER		DRY BUL		WET BUL		°C		HUMIDITY		OBS		SPECIAL		OBSERVATIONS			
07		507		128		-012		-021		7		09											
CAST NO		TIME OF DAY		CARD NO		DEPTH (m)		TEMP °C		S		SIGMA-T		SPECIFIC VOLUME ANOMALY δt		δD DTM δt		COMPUTED VELOCITY = SEC		O ₂ = 1		AMBIENT LIGHT	
DURATION		NO		TYPE																PO ₂ = P		TOTAL = P	
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[illegible]

SHIP CODE	CRUISE NUMBER	SHIP NAME	LAITUDE	LONGITUDE	DATE	TIME	YEAR	ORIGINATOR'S CRUISE NUMBER	STATION NUMBER	DEPTH TO BOTTOM	SEA SURF TEMP	WAVE OBSERVATIONS	WEATHER CODE	INSTR TYPE	MODE STATION NUMBER
311705	WE		7832 N	07422 W	09	03	1970	KBS	005	0310	1	00 0 X	X1	0 3	0005

NOTE: THIS FORM IS DESIGNED FOR STANDARD INTERNATIONAL DEEPER WIND DATA (S.D.) AND
WINDS ARE OBSERVED BY AIRCRAFT, WINDS ARE NOT OBSERVED

WIND DIRECTION	WIND SPEED	WIND FORCE	WIND TEMPERATURE	WIND DIRECTION	WIND SPEED	WIND FORCE	WIND TEMPERATURE
04	508	117	-019	-026	7	10	

CASE	CARD	DEPTH (m)	T °C	S	SIGMA-T	SPECIFIC VOLUME ANOMALY x 10 ⁻¹	S.D. DTM m x 10 ⁻¹	COMPUTED SOUND VELOCITY m/sec	AMBIENT LIGHT Turb. (m)	MEASURED SOUND VELOCITY (m/sec)
224	STO	0000	-0166	3165	2549	0025108	0000	14369		
	ORS	0000	-0166	3165	2548			14369		
	STO	0010	-0165	3165	2548	0025107	0025	14371		
	ORS	0010	-0165	3164	2548			14371		
	STO	0020	-0158	3160	2560	0023473	0049	14376		
	ORS	0020	-0158	3163	2567			14381		
	STO	0030	-0154	3210	2576	0022415	0072	14384		
	ORS	0050	-0148	3243	2611	0013055	0114	14396		
	STO	0075	-0138	3240	2649	0015595	0157	14412		
	ORS	0075	-0138	32500	2649			14412		
	STO	0100	-0130	3310	2665	0013963	0194	14423		
	ORS	0100	-0130	33102	2665			14423		
	STO	0125	-0119	3350	2696	0010937	0225	14437		
	ORS	0150	-0083	3379	2719	0005821	0250	14463		
	STO	0150	-0083	33792	2719			14463		
	ORS	0150	-0083	34065	2734			14542		
	STO	0200	-0060	3407	2734	0007423	0290	14540		
	ORS	0240	-0051	34198	2750			14500		
	STO	0250	-0051	3420	2751	0005817	0323	14500		
	ORS	0250	-0047	34222	2752			14510		

SHIP		LATITUDE	LONGITUDE	DATE	TIME	YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	SEA SURF TEMP	WAVE OBSERVATIONS			WEATHER CODE	INSTR TYPE	MODE STATION NUMBER
CODE	NUMBER						CRUISE NUMBER	STATION NUMBER			CRUISE NUMBER	STATION NUMBER	CRUISE NUMBER			
311705	WE	7833 N	074385 W	20	04	000	1970	KBS	006	0201	1	00	0 X	X1	0 3	0006

NOTE: THIS FORM IS DESIGNED FOR STANDARD INTERNATIONAL DEEPER WIND DATA (S.D.) AND
WINDS ARE OBSERVED BY AIRCRAFT, WINDS ARE NOT OBSERVED

WIND DIRECTION	WIND SPEED	WIND FORCE	WIND TEMPERATURE	WIND DIRECTION	WIND SPEED	WIND FORCE	WIND TEMPERATURE
03	504	125	-017	-028	7	08	

CASE	CARD	DEPTH (m)	T °C	S	SIGMA-T	SPECIFIC VOLUME ANOMALY x 10 ⁻¹	S.D. DTM m x 10 ⁻¹	COMPUTED SOUND VELOCITY m/sec	AMBIENT LIGHT Turb. (m)	MEASURED SOUND VELOCITY (m/sec)
000	STO	0000	-0165	3162	2545	0025371	0000	14369		
	ORS	0000	-0165	31616	2545			14369		
	STO	0010	-0163	3165	2548	0025080	0025	14372		
	ORS	0010	-0163	31653	2548			14372		
	STO	0020	-0157	3185	2564	0023557	0049	14379		
	ORS	0025	-0155	31753	2572			14382		
	STO	0030	-0153	3204	2583	0021745	0072	14386		
	ORS	0050	-0146	3248	2615	0018741	0112	14398		
	STO	0050	-0146	32478	2615			14398		
	ORS	0075	-0139	3264	2627	0017520	0158	14408		
	STO	0075	-0139	32636	2627			14408		
	ORS	0100	-0125	3314	2668	0013676	0197	14426		
	STO	0100	-0125	33141	2668			14426		
	ORS	0125	-0098	3359	2703	0010314	0227	14449		
	STO	0125	-0079	33984	2726			14466		
	ORS	0150	-0078	3389	2727	0008066	0250	14466		
	STO	0150	-0066	34060	2740			14479		

SHIP CODE		SHIP NAME	LATITUDE	LONGITUDE	DATE	STATION TIME	ORIGINATOR'S	DEPTH TO BOTTOM	WAVE OBSERVATIONS	WEATHER CODE	INSR CLOUD	MOOD STATION NUMBER	
CRUISE NUMBER	CRUISE NUMBER	CRUISE NUMBER	CRUISE NUMBER	CRUISE NUMBER	CRUISE NUMBER	CRUISE NUMBER	CRUISE NUMBER	CRUISE NUMBER	CRUISE NUMBER	CRUISE NUMBER	CRUISE NUMBER	CRUISE NUMBER	
311705	WE	7826 N	07304 W	260 83	09 04	035	1970	KBS 007	0274	1	00 0 X	X1 4 3	0007

NOTE: SPEED, PULS, TEMPERATURE, ELECTROMAGNETIC, DEPTH, METAL DATA (MDS) IS
RECORDED BY AUTOMATIC, SPEED NOT APPLICABLE

WIND DIRECTION	WIND SPEED	BAROMETER (mb)	AIR TEMPERATURE (°C)	WET BULB CODE	VIS LEVELS	SPECIAL OBSERVATIONS
07	512	119	-033	-039	7	09

CARD TYPE	DEPTH (m)	T °C	S ...	SIGMA-T	SPECIFIC VOLUME ANOMALY - 10 ³	2-0 DYN m E 10 ³	COMPUTED SOUND VELOCITY m/sec	AMBIENT LIGHT lum/cm ²	MEASURED SOUND VELOCITY - m/sec
STO	0000	-0154	3140	2528	0027040	0000	14371		
035	0000	-0154	31403	2528			14371		
STO	0010	-0156	3139	2527	0027084	0027	14371		
035	0010	-0156	31395	2527			14371		
STO	0020	-0134	3150	2535	0026323	0053	14385		
035	0025	-0125	31561	2540			14391		
STO	0030	-0121	3166	2547	0025136	0079	14395		
035	0035	-0107	31772	2573			14409		
STO	0050	-0106	3197	2573	0022721	0127	14410		
035	0073	-0086	32277	2597			14427		
STO	0075	-0085	3237	2604	0019757	0180	14429		
035	0097	-0084	33148	2667			14444		
STO	0100	-0086	3319	2670	0013434	0221	14445		
STO	0125	-0099	3348	2694	0011173	0252	14447		
035	0143	-0108	33611	2705			14447		
STO	0150	-0112	3362	2706	0010301	0279	14447		
035	0166	-0096	33688	2732			14549		
STO	0200		3374						
035	0224		33854						

SHIP CODE		SHIP NAME	LATITUDE	LONGITUDE	DATE MONTH DAY YEAR	STATION TIME (GMT)	ORIGINATOR'S CRUISE NUMBER	STATION NUMBER	DEPTH TO BOTTOM	WAVE OBSERVATIONS	WEATHER CODE	INST CLOUD	MOOD STATION NUMBER
311705	WE	78275N	07332 W	260 83	09 04	054	1970	KBS 008	0521	1	00 0 X	X1 4 5	0008

NOTE: SPEED, PULS, TEMPERATURE, ELECTROMAGNETIC, DEPTH, METAL DATA (MDS) IS
RECORDED BY AUTOMATIC, SPEED NOT APPLICABLE

WIND DIRECTION	WIND SPEED	BAROMETER (mb)	AIR TEMPERATURE (°C)	WET BULB CODE	VIS LEVELS	SPECIAL OBSERVATIONS
03	515	126	-034	-044	7	12

CARD TYPE	DEPTH (m)	T °C	S ...	SIGMA-T	SPECIFIC VOLUME ANOMALY - 10 ³	2-0 DYN m E 10 ³	COMPUTED SOUND VELOCITY m/sec	AMBIENT LIGHT lum/cm ²	MEASURED SOUND VELOCITY - m/sec
STO	0000	-0155	3144	2530	0026777	0000	14371		
054	0000	-0155	31436	2530			14371		
STO	0010	-0138	3144	2530	0026767	0026	14381		
054	0010	-0138	31441	2530			14381		
STO	0020	-0124	3150	2535	0026350	0053	14388		
054	0026	-0124	31538	2539			14391		
STO	0030	-0125	3158	2541	0025754	0079	14392		
STO	0050	-0129	3177	2557	0024233	0129	14396		
054	0052	-0129	31787	2558			14397		
STO	0075	-0095	3296	2652	0015171	0178	14433		
054	0074	-0094	33052	2660			14435		
STO	0100	-0107	3334	2683	0012218	0212	14437		
054	0104	-0109	33381	2687			14437		
STO	0125	-0107	3353	2698	0010761	0241	14444		
STO	0150	-0104	3367	2709	0009704	0267	14451		
054	0155	-0103	33637	2711			14453		
STO	0203	-0068	3381	2720	0009701	0313	14476		
054	0207	-0064	33832	2721			14481		
STO	0250	-0055	3394	2730	0007783	0354	14494		
054	0254	-0054	33355	2731			14495		
STO	0300	-0045	3401	2735	0007243	0391	14507		
054	0310	-0047	34227	2736			14509		
STO	0400	-0046	3413	2743	0005930	0458	14527		
054	0411	-0046	34137	2749			14524		
STO	0507	-0043	3422	2751	0005574	0516	14545		
054	0510	-0042	34215	2752			14547		

TIME	CRUISE NUMBER	SHIP CODE	LATITUDE 1 10	LONGITUDE 1 10	DATE	HARDEN SQUARE	STATION (GMT)	TIME	YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	SAL SAMPLE	WAVE OBSERVATIONS	WEATHER CODE	INSTR CLOUD	MODC STATION NUMBER
										CRUISE NUMBER	STATION NUMBER						

* DATA FROM THIS TABLE ARE REPORTED ELECTRONICALLY BY THE SHIP'S LOG
* DATA FROM THIS TABLE ARE REPORTED ELECTRONICALLY BY THE SHIP'S LOG

TIME	CRUISE NUMBER	SHIP CODE	LATITUDE 1 10	LONGITUDE 1 10	DATE	HARDEN SQUARE	STATION (GMT)	TIME	YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	SAL SAMPLE	WAVE OBSERVATIONS	WEATHER CODE	INSTR CLOUD	MODC STATION NUMBER
										CRUISE NUMBER	STATION NUMBER						

TIME	CRUISE NUMBER	SHIP CODE	LATITUDE 1 10	LONGITUDE 1 10	DATE	HARDEN SQUARE	STATION (GMT)	TIME	YEAR	ORIGINATOR'S	DEPTH TO BOTTOM	SAL SAMPLE	WAVE OBSERVATIONS	WEATHER CODE	INSTR CLOUD	MODC STATION NUMBER
311705	WE	78299N	073440W	260	83	09	04	075	1970	KBS 009	0475	1	00	0	X	0009

TIME	CRUISE NUMBER	SHIP CODE	LATITUDE 1 10	LONGITUDE 1 10	DATE	HARDEN SQUARE	STATION (GMT)	TIME	YEAR	ORIGINATOR'S	DEPTH TO BOTTOM	SAL SAMPLE	WAVE OBSERVATIONS	WEATHER CODE	INSTR CLOUD	MODC STATION NUMBER
311705	WE	78299N	073440W	260	83	09	04	075	1970	KBS 009	0475	1	00	0	X	0009

TIME	CRUISE NUMBER	SHIP CODE	LATITUDE 1 10	LONGITUDE 1 10	DATE	HARDEN SQUARE	STATION (GMT)	TIME	YEAR	ORIGINATOR'S	DEPTH TO BOTTOM	SAL SAMPLE	WAVE OBSERVATIONS	WEATHER CODE	INSTR CLOUD	MODC STATION NUMBER
311705	WE	78299N	073440W	260	83	09	04	075	1970	KBS 009	0475	1	00	0	X	0009

TIME	CRUISE NUMBER	SHIP CODE	LATITUDE 1 10	LONGITUDE 1 10	DATE	HARDEN SQUARE	STATION (GMT)	TIME	YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	SAL SAMPLE	WAVE OBSERVATIONS	WEATHER CODE	INSTR CLOUD	MODC STATION NUMBER
										CRUISE NUMBER	STATION NUMBER						

* DATA FROM THIS TABLE ARE REPORTED ELECTRONICALLY BY THE SHIP'S LOG
* DATA FROM THIS TABLE ARE REPORTED ELECTRONICALLY BY THE SHIP'S LOG

TIME	CRUISE NUMBER	SHIP CODE	LATITUDE 1 10	LONGITUDE 1 10	DATE	HARDEN SQUARE	STATION (GMT)	TIME	YEAR	ORIGINATOR'S	DEPTH TO BOTTOM	SAL SAMPLE	WAVE OBSERVATIONS	WEATHER CODE	INSTR CLOUD	MODC STATION NUMBER
311705	WE	78292N	07410 W	260	86	09	04	096	1970	KBS 010	0503	1	00	0	X	0010

TIME	CRUISE NUMBER	SHIP CODE	LATITUDE 1 10	LONGITUDE 1 10	DATE	HARDEN SQUARE	STATION (GMT)	TIME	YEAR	ORIGINATOR'S	DEPTH TO BOTTOM	SAL SAMPLE	WAVE OBSERVATIONS	WEATHER CODE	INSTR CLOUD	MODC STATION NUMBER
311705	WE	78292N	07410 W	260	86	09	04	096	1970	KBS 010	0503	1	00	0	X	0010

TIME	CRUISE NUMBER	SHIP CODE	LATITUDE 1 10	LONGITUDE 1 10	DATE	HARDEN SQUARE	STATION (GMT)	TIME	YEAR	ORIGINATOR'S	DEPTH TO BOTTOM	SAL SAMPLE	WAVE OBSERVATIONS	WEATHER CODE	INSTR CLOUD	MODC STATION NUMBER
311705	WE	78292N	07410 W	260	86	09	04	096	1970	KBS 010	0503	1	00	0	X	0010

SHIP NAME	SHIP CODE	LATITUDE 1 10	LONGITUDE 1 10	MOON PHASE	MARSDEN SQUARE	STATION TIME (GMT)	YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	BU SAMP REF	WAVE OBSERVATIONS			WEATHER CODE	INST CLOUD TYPE	MODC STATION NUMBER
								CRUISE NUMBER	STATION NUMBER			DIR	PER	SEA			
311705	WE	7832 N	07424 W	260	64	09 04 151 1970	KBS	011		0329	1	00	0	X	X1	0 5	0011

NOTE: OTHER SYMBOLS: FOR MARSDEN SQUARE SERIAL DATA (ST) BU
IS SYMBOLS: FOR WIND, WIND DIRECTION, WIND SPEED, WIND TYPE

CAST TIME DURATION 1 10	CARD TYPE	DEPTH (m)	T °C	S	SIGMA-T	SPECIFIC VOLUME ANOMALY - 10 ⁻³	S.D. DYN. M 10 ⁻³	COMPUTED SOUND VELOCITY - SEC	O ₂ ml/l	AMBIENT LIGHT			MEASURED SOUND VELOCITY - 10 ⁻³		
										PAR	TOTAL	PAR	PAR	PAR	PAR
151	STD	0000	-0163	3157	2541	0025733	0000	14369							
	OBS	0000	-0163	31570	2541			14369							
151	STD	0010	-0165	3156	2541	0025778	0025	14370							
	OBS	0010	-0165	31562	2541			14370							
151	STD	0020	-0165	3159	2543	0025550	0051	14372							
	OBS	0025	-0165	31605	2544			14373							
	STD	0030	-0159	3170	2566	0023194	0075	14381							
	STD	0050	-0139	3275	2636	0016680	0115	14405							
151	OBS	0050	-0139	32749	2636			14405							
	STD	0075	-0128	3310	2665	0013762	0154	14419							
151	OBS	0075	-0128	33104	2665			14419							

SHIP NAME	SHIP CODE	LATITUDE 1 10	LONGITUDE 1 10	MOON PHASE	MARSDEN SQUARE	STATION TIME (GMT)	YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	BU SAMP REF	WAVE OBSERVATIONS			WEATHER CODE	INST CLOUD TYPE	MODC STATION NUMBER
								CRUISE NUMBER	STATION NUMBER			DIR	PER	SEA			
311705	WE	7836 N	074415 W	260	64	09 04 164 1970	KBS	012		0210	1	00	0	X	X1	0 5	0012

NOTE: OTHER SYMBOLS: FOR MARSDEN SQUARE SERIAL DATA (ST) BU
IS SYMBOLS: FOR WIND, WIND DIRECTION, WIND SPEED, WIND TYPE

CAST TIME DURATION 1 10	CARD TYPE	DEPTH (m)	T °C	S	SIGMA-T	SPECIFIC VOLUME ANOMALY - 10 ⁻³	S.D. DYN. M 10 ⁻³	COMPUTED SOUND VELOCITY - SEC	O ₂ ml/l	AMBIENT LIGHT			MEASURED SOUND VELOCITY - 10 ⁻³		
										PAR	TOTAL	PAR	PAR	PAR	PAR
164	STD	0000	-0166	3153	2536	0026060	0000	14367							
	OBS	0000	-0166	31527	2538			14367							
164	STD	0010	-0166	3156	2541	0025787	0025	14369							
	OBS	0010	-0166	31561	2541			14369							
164	STD	0020	-0159	3172	2564	0024544	0051	14377							
	OBS	0025	-0155	31912	2561			14380							
	STD	0030	-0153	3193	2570	0022941	0074	14384							
	STD	0050	-0145	3234	2603	0019791	0117	14397							
164	OBS	0050	-0145	32341	2603			14397							
	STD	0075	-0136	3270	2632	0017069	0163	14410							
164	OBS	0075	-0136	32596	2632			14410							
	STD	0100	-0110	3355	2674	0012154	0200	14435							
164	OBS	0100	-0110	33346	2674			14435							
	STD	0125	-0047	3359	2703	0010332	0228	14449							
	STD	0150	-0067	3375	2716	0019098	0252	14460							
164	OBS	0150	-0067	33753	2716			14460							
164	OBS	0150	-0075	33953	2724			14474							

SHIP NAME	SHIP CODE	LATITUDE	LONGITUDE	DATE TIME	STATION TIME	YEAR	ORIGINATOR'S CRUISE NUMBER	STATION NUMBER	DEPTH TO BOTTOM	BAL SAMPLE SPP	WAVE OBSERVATIONS	WEATHER CODE	INSTR CLOUD TYPE	MODC STATION NUMBER
311705	WE	78293N	07346 W	260 83	09 04 22	1970	KBS	015	0530	1	00 0 X	X1	0 6	0015

* NOTE: WIND SPEEDS REPORTED FOR REMOTE ELECTRONICALLY OBSERVED WIND DATA (RWS) ARE
REPRODUCED BASED ON ESTIMATES. WIND DIRECTION UNRELIABLE.

WIND DIRECTION (DEG)	WIND SPEED (KTS)	BAROMETER (INCH)	AIR TEMPERATURE (°C)	VIS OBS LEVELS	SPECIAL OBSERVATIONS
02	512	146	-028 -034	7	12

CASE NUMBER	CASE TYPE	DEPTH (m)	T °C	S	SIGMA-T	SPECIFIC VOLUME ANOMALY δt	SAD DTN δt	COMPUTED SOUND VELOCITY m/sec	O ₂ ml/l	AMBIENT LIGHT Sun, m	PO ₂ - P mg wt/l	TOTAL P mg wt/l	NO ₂ - N mg wt/l	NO ₃ - N mg wt/l	NO ₃ - N mg wt/l	MEASURED SOUND VELOCITY m/sec	pH
229	STD	0000	-0148	3143	2530	0026849	0000	14374									
	OBS	0000	-0148	31429	2530			14374									
	STD	0010	-0146	3145	2531	0026703	0026	14377									
229	OBS	0010	-0146	31447	2531			14377									
	STD	0020	-0138	3145	2531	0026685	0053	14383									
229	OBS	0025	-0137	31472	2533			14384									
	STD	0030	-0151	3154	2536	0025985	0079	14379									
	STD	0050	-0165	3179	2550	0023953	0129	14379									
229	OBS	0050	-0165	31794	2550			14379									
	STD	0075	-0084	3293	2654	0014993	0178	14438									
229	OBS	0075	-0084	32988	2654			14438									
	STD	0100	-0102	3328	2678	0012689	0213	14438									
229	OBS	0100	-0102	33279	2678			14438									
	STD	0125	-0102	3350	2696	0010961	0242	14445									
	STD	0150	-0103	3367	2710	0009677	0268	14452									
229	OBS	0150	-0103	33669	2710			14452									
229	OBS	0159	-0088	33620	2721			14478									
	STD	0200	-0068	3392	2721	0008638	0314	14478									
229	OBS	0248	-0052	33905	2727			14495									
	STD	0250	-0052	3391	2727	0008001	0355	14495									
229	OBS	T0257	-0051	34050	2738			14505									
	STD	0300	-0051	3405	2739	0006908	0393	14506									
229	OBS	0353		34176													
	STD	0400	-0047	3418	2749	0005925	0457	14526									
229	OBS	T0448	-0045	34238	2753			14544									

SHIP NAME	SHIP CODE	LATITUDE	LONGITUDE	DATE TIME	STATION TIME	YEAR	ORIGINATOR'S CRUISE NUMBER	STATION NUMBER	DEPTH TO BOTTOM	BAL SAMPLE SPP	WAVE OBSERVATIONS	WEATHER CODE	INSTR CLOUD TYPE	MODC STATION NUMBER
311705	WE	78303N	07406 W	260 84	09 05 02	1970	KBS	016	0430	1	00 0 X	X1	0 5	0016

* NOTE: WIND SPEEDS REPORTED FOR REMOTE ELECTRONICALLY OBSERVED WIND DATA (RWS) ARE
REPRODUCED BASED ON ESTIMATES. WIND DIRECTION UNRELIABLE.

WIND DIRECTION (DEG)	WIND SPEED (KTS)	BAROMETER (INCH)	AIR TEMPERATURE (°C)	VIS OBS LEVELS	SPECIAL OBSERVATIONS
02	512	146	-028 -034	7	12

CASE NUMBER	CASE TYPE	DEPTH (m)	T °C	S	SIGMA-T	SPECIFIC VOLUME ANOMALY δt	SAD DTN δt	COMPUTED SOUND VELOCITY m/sec	O ₂ ml/l	AMBIENT LIGHT Sun, m	PO ₂ - P mg wt/l	TOTAL P mg wt/l	NO ₂ - N mg wt/l	NO ₃ - N mg wt/l	NO ₃ - N mg wt/l	MEASURED SOUND VELOCITY m/sec	pH
002	STD	0000	-0163	3154	2539	0025978	0000	14369									
	OBS	0000	-0163	31538	2539			14369									
	STD	0010	-0163	3153	2539	0025996	0026	14370									
002	OBS	0010	-0163	31535	2539			14370									
	STD	0020	-0160	3172	2544	0024535	0051	14376									
002	OBS	0025	-0158	31835	2533			14379									
	STD	0030	-0156	3200	2576	0022442	0074	14383									
	STD	0050	-0143	3255	2620	0018190	0115	14400									
002	OBS	0050	-0143	32551	2620			14400									
	STD	0075	-0113	3305	2660	0014903	0156	14420									
002	OBS	0075	-0113	33052	2660			14420									
	STD	0100	-0112	3314	2668	0013688	0191	14432									
002	OBS	0100	-0112	33145	2668			14432									
	STD	0125	-0110	3345	2672	0011346	0222	14441									
	STD	0150	-0104	3366	2703	0009704	0248	14451									
002	OBS	0150	-0104	33665	2703			14451									
	STD	0200	-0040	3342	2721	0008553	0294	14473									
002	OBS	0200	-0040	33425	2721			14473									
	STD	0250	-0016	3399	2733	0007415	0334	14490									
002	OBS	T0251	-0066	33983	2734			14490									
	STD	0300	-0059	3400	2740	0008912	0370	14503									
002	OBS	T0301	-0058	34004	2740			14503									
	OBS	0306	-0053	34117	2745			14515									
	STD	0400	-0050	3420	2750	0008787	0433	14525									
002	OBS	T0433	-0059	34204	2751			14526									

SHIP CODE	SHIP NAME	LATITUDE	LONGITUDE	DATE	TIME	YEAR	ORIGINATOR'S CRUISE NUMBER	STATION NUMBER	DEPTH TO BOTTOM	WAVE OBSERVATIONS	WEATHER CODE	INSTR CLOUD	MODE STATION NUMBER
311705	WE	7832 N	07423 W	26	04 05 01	1970	KBS	017	0347	1 00 0 X	X1	4 5	0017

* DT * S * WIND * BAROMETER * AIR TEMPERATURE * C * VIS * NUMBER * SPECIAL *
WATER TRANS DIR SPEED BAROMETER AIR TEMPERATURE C VIS NUMBER SPECIAL
COLOR CORRECTION (m) OF FORCE (mb) DRY BULB WET BULB CODE OBSERVATIONS

CASE	TIME	CARD	DEPTH (m)	T °C	S	SIGMA - t	SPECIFIC VOLUME	BAR	COMPUTED	AMBIENT LIGHT	MEASURED SOUND
NUMBER	DATE	TYPE					ANOMALY x 10 ³	OTM m x 10 ³	VELOCITY m/sec	PO ₂ - P	VELOCITY m/sec
		STO	0000	-0156	3134	2523	0027493	0000	14369		
016		Obs	0000	-0156	31343	2523			14369		
		STU	0010	-0156	3135	2523	0027447	0027	14371		
016		Obs	0010	-0156	31348	2523			14371		
		STU	0020	-0155	3144	2531	0026720	0054	14374		
316		Obs	0025	-0155	31514	2537			14376		
		STU	0030	-0151	3163	2546	0025275	0080	14380		
		STU	0050	-0137	3214	2587	0021365	0127	14397		
316		Obs	0055	-0137	32136	2587			14397		
		STU	0075	-0131	3288	2647	0015660	0173	14415		
016		Obs	0075	-0131	32882	2647			14415		
		STU	0100	-0117	3323	2675	0015010	0209	14431		
016		Obs	0100	-0117	33231	2675			14431		
		STU	0125	-0101	3355	2700	0010601	0238	14447		
		STU	0150	-0086	3376	2716	0008881	0263	14460		
016		Obs	0150	-0086	33781	2716			14460		
316		Obs	0155	-0070	33959	2733			14479		
		STU	0200	-0070	3397	2733	0007522	0304	14479		
		STU	0250	-0062	3401	2736	0007183	0340	14491		
016		Obs	0250	-0058	34099	2743			14503		
		STU	0300	-0058	3410	2743	0006515	0375	14503		
316		Obs	0310	-0056	34147	2747			14508		

SHIP CODE	SHIP NAME	LATITUDE	LONGITUDE	DATE	TIME	YEAR	ORIGINATOR'S CRUISE NUMBER	STATION NUMBER	DEPTH TO BOTTOM	WAVE OBSERVATIONS	WEATHER CODE	INSTR CLOUD	MODE STATION NUMBER
311705	WE	78332N	07435 W	26	04 05 02	1970	KBS	018	0276	1 00 0 X	X1	3 6	0018

* DT * S * WIND * BAROMETER * AIR TEMPERATURE * C * VIS * NUMBER * SPECIAL *
WATER TRANS DIR SPEED BAROMETER AIR TEMPERATURE C VIS NUMBER SPECIAL
COLOR CORRECTION (m) OF FORCE (mb) DRY BULB WET BULB CODE OBSERVATIONS

CASE	TIME	CARD	DEPTH (m)	T °C	S	SIGMA - t	SPECIFIC VOLUME	BAR	COMPUTED	AMBIENT LIGHT	MEASURED SOUND
NUMBER	DATE	TYPE					ANOMALY x 10 ³	OTM m x 10 ³	VELOCITY m/sec	PO ₂ - P	VELOCITY m/sec
327		STO	0000	-0168	3137	2525	0027257	0000	14364		
		Obs	0000	-0168	31371	2525			14364		
		STU	0010	-0165	3141	2529	0026921	0027	14367		
027		Obs	0010	-0165	31414	2529			14367		
		STU	0020	-0151	3182	2561	0023839	0052	14382		
027		Obs	0025	-0146	31799	2574			14387		
		STU	0030	-0146	3207	2581	0021927	0075	14389		
		STU	0050	-0147	3241	2607	0019260	0116	14397		
027		Obs	0050	-0147	32409	2607			14397		
		STU	0075	-0132	3284	2643	0015003	0160	14414		
327		Obs	0075	-0132	32837	2643			14414		
		STU	0100	-0123	3315	2668	0013604	0197	14427		
027		Obs	0100	-0123	33151	2668			14427		
		STU	0125	-0104	3341	2699	0011671	0229	14441		
		STU	0150	-0086	3362	2705	0010086	0256	14454		
027		Obs	0150	-0086	33620	2705			14454		
		STU	0200	-0072	3372	2724	0007888	0301	14478		
327		Obs	0200	-0072	33717	2724			14478		
		STU	0250	-0070	3375	2732	0007655	0340	14487		
027		Obs	0250	-0070	3375	2732			14487		

SHIP NAME	SHIP CODE	LATITUDE	LONGITUDE	DATE	TIME	YEAR	ORIGINATOR'S	DEPTH TO BOTTOM	RAI SAMPLE	WAVE OBSERVATIONS	WEATHER CODE	INSTR	MODEC STATION NUMBER
CRUISE NUMBER		1 10	1 10	10	10	10	CRUISE NUMBER STATION NUMBER		000	000	000	000	
311705	WE	7855 N	07310 W	260	09 05 070	1970	KBS 019	0320	1	00	0 X	X1 0 4	0019

* NOTE: WHEN USING TEMPERATURE FOR DENSITY, ELECTRONICALLY OBTAINED DATA (DT) OR
RECENTLY OBTAINED BY ATTEMPTED, OTHER THAN APPROX

DT	ST	WIND	BAROMETER	AIR TEMPERATURE °C	VIS	NUMBER	SPECIAL
WATER COLOR	TRANS (m)	DIB	SPEED OF FORCE	DRY BULB	WET BULB CODE	LEVELS	OBSERVATIONS
	04	S12	171	-045	-052	7	10

CASE	TIME	CARD	DEPTH (m)	°C	S	SIGMA-t	SPECIFIC VOLUME	RAI	COMPUTED	AMBIENT LIGHT	MEASURED SOUND
NUMBER	DURATION	TYPE					ANOMALY x 10 ⁻³	DTM x 10 ⁻³	VELOCITY = SEC	PO ₂ - P	VELOCITY = SEC
										PO ₂ - P	VELOCITY = SEC
070		STD	0000	-0157	3126	2517	0028092	0000	14368		
		OBS	0000	-0157	31265	2517			14368		
		STD	0010	-0157	3128	2517	0028000	0028	14369		
070		OBS	0010	-0157	31276	2517			14369		
		STD	0020	-0137	3139	2526	0027166	0055	14382		
070		OBS	0025	-0131	31480	2533			14387		
		STD	0030	-0133	3165	2549	0025117	0081	14389		
		STD	0050	-0137	3230	2600	0020118	0127	14400		
070		OBS	0050	-0137	32301	2600			14400		
		STD	0075	-0137	3300	2656	0014755	0170	14414		
070		OBS	0075	-0137	32938	2656			14414		
		STD	0100	-0136	3317	2671	0013383	0205	14421		
070		OBS	0100	-0136	33175	2671			14421		
		STD	0125	-0112	3345	2692	0011346	0236	14440		
		STD	0150	-0094	3365	2708	0009861	0263	14455		
070		OBS	0150	-0094	33650	2708			14455		
		STD	0200	-0074	3383	2722	0008505	0309	14474		
070		OBS	0201	-0075	33437	2722			14474		
		STD	0250	-0052	3411	2743	0005517	0346	14478		
070		OBS	0251	-0052	34113	2744			14478		
		STD	0300	-0031	3440	2765	0004394	0373	14520		
070		OBS	0302	-0030	34411	2767			14521		

SHIP NAME	SHIP CODE	LATITUDE	LONGITUDE	DATE	TIME	YEAR	ORIGINATOR'S	DEPTH TO BOTTOM	RAI SAMPLE	WAVE OBSERVATIONS	WEATHER CODE	INSTR	MODEC STATION NUMBER
CRUISE NUMBER		1 10	1 10	10	10	10	CRUISE NUMBER STATION NUMBER		000	000	000	000	
311705	WE	79192N	072238W	260	09 05 130	1970	KBS 020	0228	1	00	0 X	X1 0 3	0020

* NOTE: WHEN USING TEMPERATURE FOR DENSITY, ELECTRONICALLY OBTAINED DATA (DT) OR
RECENTLY OBTAINED BY ATTEMPTED, OTHER THAN APPROX

DT	ST	WIND	BAROMETER	AIR TEMPERATURE °C	VIS	NUMBER	SPECIAL
WATER COLOR	TRANS (m)	DIB	SPEED OF FORCE	DRY BULB	WET BULB CODE	LEVELS	OBSERVATIONS
	02	S10	176	-023	-034	7	08

CAST NUMBER	TIME DURATION hr. min.	CARD TYPE	DEPTH (m)	TEMP °C	S	SIGMA-t	SPECIFIC VOLUME ANOMALY x 10 ³	RAI DTM x 10 ³	COMPUTED SOUND VELOCITY = SEC	O ₂ = 1	AMBIENT LIGHT lum./cm ²					MEASURED SOUND VELOCITY = SEC		
											PO ₂ - P mg/l.	TOTAL - P mg/l.	NO ₂ - N mg/l.	NO ₃ - N mg/l.	S. O ₂ - S. mg/l.	pH		
138		STD	0000	-0150	3122	2513	0028419	0000	14370									
		OBS	0000	-0150	31224	2513			14370									
138		STD	0010	-0143	3140	2527	0027084	0027	14378									
		OBS	0010	-0143	31398	2527			14378									
138		STD	0020	-0140	3202	2576	0022271	0052	14390									
		OBS	0025	-0138	32272	2598			14395									
138		STD	0030	-0137	3241	2604	0019302	0073	14398									
		STD	0050	-0132	3285	2645	0015822	0108	14410									
138		OBS	0050	-0132	32863	2645			14410									
		STD	0075	-0127	3321	2673	0013140	0144	14421									
138		OBS	0075	-0127	33212	2673			14421									
		STD	0100	-0098	3365	2708	0009939	0173	14445									
138		OBS	0100	-0098	33654	2708			14445									
		STD	0125	-0083	3390	2720	0006768	0196	14459									
138		STD	0150	-0063	3400	2735	0007325	0216	14475									
		OBS	0150	-0063	33999	2735			14475									
138		STD	0200	-0048	3455	2778	0003300	0243	14516									
		OBS	0200	-0048	34560	2778			14516									

SHIP NAME	SHIP CODE	LATITUDE	LONGITUDE	MOON PHASE	HAUSDEN SQUARE	STATION (GMT)	TIME	YEAR	ORIGINATOR'S CRUISE NUMBER	STATION NUMBER	DEPTH TO BOTTOM	BAU SMBU	WAVE OBSERVATIONS	WEATHER CODE	INSTR CLOUD	MODE STATION NUMBER
311705	WE	79402N	071175W	260	91	09 05	175	1970	K85	021	0238	1	00	0	X	0021
DT S WIND D WIND SPEED BAROMETER AIR TEMPERATURE °C VIS NUMBER SPECIAL WATER TRANS DIR OR FORCE (mb) DRY BULB WET BULB CODE OBS LEVELS OBSERVATIONS 07 508 180 -033 -039 7 09																

CARD TYPE	DEPTH (m)	T °C	S	SIGMA-T	SPECIFIC VOLUME ANOMALY - 10 ⁻³	STAD DYN - 10 ⁻³	COMPUTED SOUND VELOCITY - SEC	PO ₂ - P mg/l	PO ₂ - F mg/l	TOTAL - P mg/l	NO ₃ - N mg/l	NO ₃ - N mg/l	S. O ₂ - S mg/l	pH
STO	0000	-0140	3113	2539	0028791	0000	14374							
175 OBS	0000	-0140	31178	2509			14374							
STO	0010	-0148	3122	2512	0028472	0028	14373							
175 OBS	0010	-0148	31216	2512			14373							
STO	0020	-0146	3187	2505	0023458	0054	14384							
175 OBS	0025	-0145	32129	2586			14389							
STO	0030	-0144	3227	2598	0020342	0076	14393							
STO	0050	-0138	3280	2641	0016273	0113	14406							
175 OBS	0050	-0138	32802	2641			14406							
STO	0075	-0122	3337	2636	0011949	0148	14426							
175 OBS	0075	-0122	33370	2636			14426							
STO	0100	-0101	3365	2708	0009820	0175	14444							
175 OBS	0100	-0101	33655	2708			14444							
STO	0125	-0077	3396	2732	0007590	0197	14464							
STO	0150	-0054	3421	2751	0005770	0214	14482							
175 OBS	0150	-0054	34207	2751			14482							
STO	0200	-0013	3454	2776	0003459	0237	14514							
175 OBS	0200	-0013	34536	2776			14514							
STO	0220	-0016	34534	2776			14516							

SHIP NAME	SHIP CODE	LATITUDE	LONGITUDE	MOON PHASE	HAUSDEN SQUARE	STATION (GMT)	TIME	YEAR	ORIGINATOR'S CRUISE NUMBER	STATION NUMBER	DEPTH TO BOTTOM	BAU SMBU	WAVE OBSERVATIONS	WEATHER CODE	INSTR CLOUD	MODE STATION NUMBER
311705	WE	8011 N	06942 W	907	09	09 05	215	1970	K85	022	0293	1	00	0	X	0022
DT S WIND D WIND SPEED BAROMETER AIR TEMPERATURE °C VIS NUMBER SPECIAL WATER TRANS DIR OR FORCE (mb) DRY BULB WET BULB CODE OBS LEVELS OBSERVATIONS 09 510 176 -043 -050 7 10																

CARD TYPE	DEPTH (m)	T °C	S	SIGMA-T	SPECIFIC VOLUME ANOMALY - 10 ⁻³	STAD DYN - 10 ⁻³	COMPUTED SOUND VELOCITY - SEC	PO ₂ - P mg/l	PO ₂ - F mg/l	TOTAL - P mg/l	NO ₃ - N mg/l	NO ₃ - N mg/l	S. O ₂ - S mg/l	pH
STO	0000	-0148	3180	2560	0023903	0000	14379							
215 OBS	0000	-0148	31801	2560			14379							
STO	0010	-0152	3173	2559	0024019	0024	14379							
215 OBS	0010	-0152	31794	2559			14379							
STO	0020	-0149	3222	2534	0023721	0046	14388							
215 OBS	0025	-0147	32433	2609			14392							
STO	0030	-0147	3252	2618	0013414	0065	14395							
STO	0050	-0143	3276	2653	0015052	0099	14408							
215 OBS	0050	-0140	32403	2653			14408							
STO	0075	-0123	3342	2670	0011543	0132	14428							
215 OBS	0075	-0123	33423	2670			14428							
STO	0100	-0093	3392	2721	0008662	0157	14450							
215 OBS	0100	-0093	33916	2721			14450							
STO	0125	-0078	3405	2739	0006704	0177	14475							
STO	0150	-0063	3423	2753	0005577	0192	14478							
215 OBS	0150	-0063	34228	2753			14478							
STO	0200	-0045	3444	2769	0004094	0217	14502							
215 OBS	0200	-0045	34435	2769			14502							
STO	0250	-0012	3457	2778	0003221	0235	14523							
215 OBS	0250	-0012	34568	2778			14523							
STO	0300	-0017	34576	2777			14528							

① 40071 77042 77104 77207 77310 77413 77516 77619 77722 77825 77928 78031 78134 78237 78340 78443 78546 78649 78752 78855 78958 79061 79164 79267 79370 79473 79576 79679 79782 79885 79988 80091 80194 80297 80300 80403 80506 80609 80712 80815 80918 81021 81124 81227 81330 81433 81536 81639 81742 81845 81948 82051 82154 82257 82360 82463 82566 82669 82772 82875 82978 83081 83184 83287 83390 83493 83596 83699 83702 83805 83908 84011 84114 84217 84320 84423 84526 84629 84732 84835 84938 85041 85144 85247 85350 85453 85556 85659 85762 85865 85968 86071 86174 86277 86380 86483 86586 86689 86792 86895 86998 87001 87104 87207 87310 87413 87516 87619 87722 87825 87928 88031 88134 88237 88340 88443 88546 88649 88752 88855 88958 89061 89164 89267 89370 89473 89576 89679 89782 89885 89988 90091 90194 90297 90300 90403 90506 90609 90712 90815 90918 91021 91124 91227 91330 91433 91536 91639 91742 91845 91948 92051 92154 92257 92360 92463 92566 92669 92772 92875 92978 93081 93184 93287 93390 93493 93596 93699 93702 93805 93908 94011 94114 94217 94320 94423 94526 94629 94732 94835 94938 95041 95144 95247 95350 95453 95556 95659 95762 95865 95968 96071 96174 96277 96380 96483 96586 96689 96792 96895 96998 97001 97104 97207 97310 97413 97516 97619 97722 97825 97928 98031 98134 98237 98340 98443 98546 98649 98752 98855 98958 99061 99164 99267 99370 99473 99576 99679 99782 99885 99988 100091 100194 100297 100300 100403 100506 100609 100712 100815 100918 101021 101124 101227 101330 101433 101536 101639 101742 101845 101948 102051 102154 102257 102360 102463 102566 102669 102772 102875 102978 103081 103184 103287 103390 103493 103596 103699 103702 103805 103908 104011 104114 104217 104320 104423 104526 104629 104732 104835 104938 105041 105144 105247 105350 105453 105556 105659 105762 105865 105968 106071 106174 106277 106380 106483 106586 106689 106792 106895 106998 107001 107104 107207 107310 107413 107516 107619 107722 107825 107928 108031 108134 108237 108340 108443 108546 108649 108752 108855 108958 109061 109164 109267 109370 109473 109576 109679 109782 109885 109988 110091 110194 110297 110300 110403 110506 110609 110712 110815 110918 111021 111124 111227 111330 111433 111536 111639 111742 111845 111948 112051 112154 112257 112360 112463 112566 112669 112772 112875 112978 113081 113184 113287 113390 113493 113596 113699 113702 113805 113908 114011 114114 114217 114320 114423 114526 114629 114732 114835 114938 115041 115144 115247 115350 115453 115556 115659 115762 115865 115968 116071 116174 116277 116380 116483 116586 116689 116792 116895 116998 117001 117104 117207 117310 117413 117516 117619 117722 117825 117928 118031 118134 118237 118340 118443 118546 118649 118752 118855 118958 119061 119164 119267 119370 119473 119576 119679 119782 119885 119988 120091 120194 120297 120300 120403 120506 120609 120712 120815 120918 121021 121124 121227 121330 121433 121536 121639 121742 121845 121948 122051 122154 122257 122360 122463 122566 122669 122772 122875 122978 123081 123184 123287 123390 123493 123596 123699 123702 123805 123908 124011 124114 124217 124320 124423 124526 124629 124732 124835 124938 125041 125144 125247 125350 125453 125556 125659 125762 125865 125968 126071 126174 126277 126380 126483 126586 126689 126792 126895 126998 127001 127104 127207 127310 127413 127516 127619 127722 127825 127928 128031 128134 128237 128340 128443 128546 128649 128752 128855 128958 129061 129164 129267 129370 129473 129576 129679 129782 129885 129988 130091 130194 130297 130300 130403 130506 130609 130712 130815 130918 131021 131124 131227 131330 131433 131536 131639 131742 131845 131948 132051 132154 132257 132360 132463 132566 132669 132772 132875 132978 133081 133184 133287 133390 133493 133596 133699 133702 133805 133908 134011 134114 134217 134320 134423 134526 134629 134732 134835 134938 135041 135144 135247 135350 135453 135556 135659 135762 135865 135968 136071 136174 136277 136380 136483 136586 136689 136792 136895 136998 137001 137104 137207 137310 137413 137516 137619 137722 137825 137928 138031 138134 138237 138340 138443 138546 138

SOUND
in life

NOTE: NUMBER OF PAGES TO BE PRINTED FOR EACH SUBJECT IS INDICATED BY THE NUMBER OF STARS.

* MEASURED SOUND
VELOCITY in mph

SHIP CODE	LATITUDE E TO	LONGITUDE E TO	MO TIME	HARSDEN SQUARE	STATION (GMT)	TIME YEAR	ORIGINATOR'S CRUISE NUMBER	STATION NUMBER	DEPTH TO BOTTOM	BAL SAMPL EFF	WAVE OBSERVATIONS	WEATHER CODE	INSTR CLOUD TYPE	NODC STATION NUMBER
311705	WE	8011 N	06759 W	907 07	09 06 017	1970	KBS	025	0128	1	00 0 X	X1	6 4	0025

NOTE: OVER PLUG SAMPLES FOR PLANKTON ELECTRONICALLY SUPPLIED SERIAL DATA (ST) OR
ANALOGS DURING BY ATTEMPT. OVER THE APPROX

CAST TIME DURATION REMARKS	CARD TYPE	DEPTH (m)	T °C	S	SIGMA-t	SPECIFIC VOLUME ANOMALY ± 10 ⁻³	S.D. DTW ± 10 ⁻³	COMPUTED SOUND VELOCITY = SEC	O ₂ ml/l	AMBIENT LIGHT				MEASURED SOUND VELOCITY = 100			
										PO ₄ - P	TOTAL - P	NO ₃ - N	NO ₂ - N	O ₂ - S	S	pH	
	STU	0000	-0158	3175	2556	0024337	0000	14374									
017	ORS	0000	-0158	31753	2556			14374									
	STU	0010	-0155	3176	2556	0024309	0024	14377									
017	ORS	0010	-0155	31756	2556			14377									
	STU	0020	-0144	3205	2580	0022089	0047	14388									
017	ORS	0025	-0140	32180	2590			14393									
	STU	0030	-0138	3229	2599	0020198	0068	14396									
	STU	0050	-0125	3274	2636	0016754	0105	14412									
017	ORS	0050	-0125	32744	2636			14412									
	STU	0075	-0095	3331	2680	0012506	0142	14437									
017	ORS	0075	-0096	33308	2680			14437									
	STU	0100	-0074	3354	2699	0010751	0171	14446									
017	ORS	0100	-0074	33536	2699			14446									

SHIP CODE	LATITUDE E TO	LONGITUDE E TO	MO TIME	HARSDEN SQUARE	STATION (GMT)	TIME YEAR	ORIGINATOR'S CRUISE NUMBER	STATION NUMBER	DEPTH TO BOTTOM	BAL SAMPL EFF	WAVE OBSERVATIONS	WEATHER CODE	INSTR CLOUD TYPE	NODC STATION NUMBER
311705	WE	8030 N	06815 W	907 08	09 06 034	1970	KBS	026	0384	1	00 0 X	X1	6 4	0026

NOTE: OVER PLUG SAMPLES FOR PLANKTON ELECTRONICALLY SUPPLIED SERIAL DATA (ST) OR
ANALOGS DURING BY ATTEMPT. OVER THE APPROX

CAST TIME DURATION REMARKS	CARD TYPE	DEPTH (m)	T °C	S	SIGMA-t	SPECIFIC VOLUME ANOMALY ± 10 ⁻³	S.D. DTW ± 10 ⁻³	COMPUTED SOUND VELOCITY = SEC	O ₂ ml/l	AMBIENT LIGHT				MEASURED SOUND VELOCITY = 100			
										PO ₄ - P	TOTAL - P	NO ₃ - N	NO ₂ - N	O ₂ - S	S	pH	
	STU	0000	-0162	3184	2567	0023285	0000	14374									
	ORS	0000	-0162	31898	2567			14374									
	STU	0010	-0157	3191	2569	0023076	0023	14378									
039	ORS	0010	-0157	31915	2569			14378									
	STU	0020	-0145	3205	2590	0022071	0045	14388									
039	ORS	0025	-0140	32128	2585			14392									
	STU	0030	-0137	3225	2597	0020424	0067	14396									
	STU	0050	-0127	3266	2629	0017360	0104	14410									
039	ORS	0050	-0127	32664	2629			14410									
	STU	0075	-0124	3264	2643	0016005	0140	14418									
039	ORS	0075	-0124	32647	2643			14418									
	STU	0100	-0093	3363	2706	0010075	0179	14447									
039	ORS	0100	-0093	33626	2706			14447									
	STU	0125	-0096	3400	2735	0005386	0216	14486									
039	ORS	0125	-0096	3400	2735			14486									
	STU	0200	-0073	3447	2771	0003415	0258	14523									
039	ORS	0200	-0073	34470	2771			14523									
	STU	0230	-0051	3460	2781	0003021	0274	14533									
039	ORS	0230	-0051	3460	2781			14533									
	STU	0300	-0030	3473	2783			14545									

SHIP NAME	SHIP CODE	LATITUDE	LONGITUDE	TIME	STATION	TIME	YEAR	ORIGINATOR'S	DEPTH	BAR	WAVE	WEATHER	INSIDE	MODE
NUMBER	CRUISE				SQUARE	(GMT)		CRUISE	TO	SAMPLE	OBSERVATIONS	CODE	CLOUD	STATION
	NUMBER							NUMBER	BOTTOM	REP	DIR	PER	TYPE	NUMBER
311705	WE	8100 N	06600 W	907	16	09 06 090	1970	KBS 027	3365	1	00	0	X	0027

NOTE: WHEN USING TEMPLATE FOR HANDING ELECTRONICALLY OBTAINED METADATA DATA (ST) USE HEADINGS SHOWN BY EXTENSION WHEN THEY APPEAR

WIND	BAROMETER	AIR TEMPERATURE	VIS	NUMBER	SPECIAL
DIR	DRY BULB	WET BULB	CODE	OBS	OBSERVATIONS
FORCE	(mm)			LEVELS	
22	518	186	-031	038	7 11

CARD	DEPTH (m)	T °C	S	SIGMA-T	SPECIFIC VOLUME	SEA DYN	COMPUTED	AMBIENT LIGHT	MEASURED SOUND
TYPE					ANOMALY - x 10 ⁻³	W x 10 ⁻³	VELOCITY - m/sec	PO ₂ - P	VELOCITY - m/sec
								ug wt/l	
STD	0000	-0168	3154	2539	0025951	0000	14366		
OBS	0000	-0168	3154	2539			14366		
STD	0010	-0167	3154	2539	0025941	0025	14368		
OBS	0010	-0167	3154	2539			14368		
STD	0020	-0163	3175	2556	0024363	0051	14375		
OBS	0025	-0161	31833	2563			14378		
STD	0030	-0160	3188	2566	0023348	0075	14380		
OBS	0050	-0157	3220	2592	0020839	0119	14389		
STD	0050	-0147	32201	2592			14389		
OBS	0075	-0142	3299	2655	0014865	0163	14421		
STD	0075	-0122	32936	2655			14421		
OBS	0100	-0102	3358	2703	0010373	0195	14443		
STD	0100	-0102	33581	2703			14443		
OBS	0125	-0081	3356	2732	0007561	0217	14462		
STD	0140	-0065	34212	2752			14477		
OBS	0150	-0065	3422	2752	0005658	0234	14477		
STD	0150	-0042	34399	2766			14498		
OBS	0200	-0041	3441	2767	0004307	0259	14499		
STD	0240	-0017	34540	2776			14520		
OBS	0250	-0016	3455	2777	0003353	0278	14521		
STD	0250	-0002	34629	2783			14536		
OBS	0300	-0001	3463	2783	0002767	0293	14537		
STD	0344	-0001	34650	2784			14545		

SHIP NAME	SHIP CODE	LATITUDE	LONGITUDE	TIME	STATION	TIME	YEAR	ORIGINATOR'S	DEPTH	BAR	WAVE	WEATHER	INSIDE	MODE
NUMBER	CRUISE				SQUARE	(GMT)		CRUISE	TO	SAMPLE	OBSERVATIONS	CODE	CLOUD	STATION
	NUMBER							NUMBER	BOTTOM	REP	DIR	PER	TYPE	NUMBER
311705	WE	81205N	06358 W	907	13	09 06 171	1970	KBS 028	0622	1	00	0	X	0028

NOTE: WHEN USING TEMPLATE FOR HANDING ELECTRONICALLY OBTAINED METADATA DATA (ST) USE HEADINGS SHOWN BY EXTENSION WHEN THEY APPEAR

WIND	BAROMETER	AIR TEMPERATURE	VIS	NUMBER	SPECIAL
DIR	DRY BULB	WET BULB	CODE	OBS	OBSERVATIONS
FORCE	(mm)			LEVELS	
25	514	179	-022	033	7 13

CARD	DEPTH (m)	T °C	S	SIGMA-T	SPECIFIC VOLUME	SEA DYN	COMPUTED	AMBIENT LIGHT	MEASURED SOUND
TYPE					ANOMALY - x 10 ⁻³	W x 10 ⁻³	VELOCITY - m/sec	PO ₂ - P	VELOCITY - m/sec
								ug wt/l	
STD	0000	-0161	3161	2544	0025443	0000	14370		
OBS	0000	-0161	31608	2544			14370		
STD	0010	-0167	3163	2546	0025243	0025	14370		
OBS	0010	-0167	31632	2546			14370		
STD	0020	-0164	3167	2549	0024943	0050	14373		
OBS	0025	-0162	31713	2553			14376		
STD	0030	-0161	3173	2559	0023991	0074	14378		
OBS	0050	-0154	3213	2590	0021020	0119	14390		
STD	0050	-0154	32178	2590			14390		
OBS	0075	-0143	3290	2641	0016218	0166	14408		
STD	0075	-0143	32905	2641			14408		
OBS	0100	-0117	3345	2693	0011304	0200	14434		
STD	0100	-0117	33454	2693			14434		
OBS	0125	-0095	3382	2721	0008601	0225	14453		
STD	0150	-0077	3404	2743	0006589	0244	14470		
OBS	0150	-0077	34087	2743			14470		
STD	0200	-0056	3436	2764	0004586	0272	14491		
OBS	0200	-0056	34360	2764			14491		
STD	0250	-0033	3451	2775	0003520	0293	14512		
OBS	0250	-0033	34513	2775			14512		
STD	0300	0000	34653	2785			14538		
OBS	0300	0000	3465	2785	0002625	0308	14538		
STD	0347	0011	34725	2793			14560		
OBS	0400	0016	34700	2794	0002148	0332	14561		
STD	0400	0016	3474	2790			14580		
OBS	0500	0018	34745	2791	0002099	0353	14580		

SHIP		LATITUDE		LONGITUDE		WATER DEPTH		STATION		TIME		ORIGINATOR'S		DEPTH TO BOTTOM		WAVE		WEATHER		INSIDE		NODE	
SHIP CODE	SHIP NAME	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
311705	WE	8129	N	06129	W	407	1	09	06	196	1970	KHS	029	0439	1	00	0	X	X1	0	6	0029	

^a 0976 8-00 27-06 75 207 472 +08 21 66 06 11(1)2000 41.7 2074 875 2 147 21 2-76 2 97% 05
10 66 06 1 0020 2 2 6172 2 75 207 472 +08 21 66 06

DURATION MIN - SEC	CARD TYPE	DEPTH (m)	T °C	S	SIGMA - T	SPECIFIC VOLUME ANOMALY $\times 10^3$	PBD DTM $\times 10^3$	COMPUTED SOUND VELOCITY = SEC	O ₂ = 1	AMBIENT LIGHT Sum 1m					MEASURED SOUND VELOCITY (M/SEC)	
										PO ₂ = P avg of 1	TOTAL = P avg of 1	NO ₂ = M avg of 1	NO ₃ = M avg of 1	S.O ₂ = S avg of 1	pH	
196	STS	0000	-0167	3094	2491	0030570	0000	14358								
	STS	0000	-0167	30942	2491			14358								
196	STS	0010	-0165	3094	2491	0030550	0030	14361								
	STS	0010	-0165	30943	2491			14361								
	STS	0020	-0163	3121	2512	0029507	0060	14367								
196	STS	0025	-0162	31333	2522			14370								
	STS	0030	-0162	3138	2526	0027145	0087	14372								
	STS	0030	-0161	3191	2536	0023113	0139	14388								
196	STS	0030	-0161	31977	2538			14388								
	STS	0075	-0116	3329	2680	0012555	0192	14428								
196	STS	0075	-0116	33293	2680			14426								
	STS	0100	-0094	3381	2720	0008685	0209	14451								
196	STS	0100	-0094	33803	2720			14451								
	STS	0125	-0079	3409	2742	0006597	0228	14464								
	STS	0150	-0067	3429	2756	0005137	0243	14477								
196	STS	0150	-0067	34237	2756			14477								
	STS	0200	-0042	3445	2771	0003910	0265	14499								
196	STS	0201	-0042	34460	2771			14499								
	STS	0250	-0023	3451	2774	0003562	0284	14517								
196	STS	0252	-0022													
	STS	0300	-0010	3457	2776	0003235	0301	14532								
196	STS	0302	-0010													
	STS	0400	-0005	3467	2767	0002443	0329	14552								
196	STS	0404	-0005	34678	2767			14553								

DATE DD MONTH YY	TIME HH MM SS	SHIP CODE	LATITUDE ° ' ID	LONGITUDE ° ' ID	ACFT TYPE	HEADING DEG SQUAD	STATION TIME		YEAR	ORIGINATOR'S		DEPTH TO BOTTOM	SEA SAMPLE NO	WAVE OBSERVATIONS			WEATHER CODE	INSTR		MOOD STATION NUMBER	
							GMT	LOCAL		CRUISE NUMBER	STATION NUMBER			DIR	HGT FT	PER SEC		TYPE	AUT		
1970	08	WE	81345N	06339 W	107	13	09	08	12	1970	KBS	030	0786	1	00	0	X	X1	6	5	0030

* 0015 0016 0104 1100 1101 1102 1103 1104 1105 1106 1107 1108 1109 1110 1111 1112 1113 1114 1115 1116 1117 1118 1119 1120 1121 1122 1123 1124 1125 1126 1127 1128 1129 1130 1131 1132 1133 1134 1135 1136 1137 1138 1139 1140 1141 1142 1143 1144 1145 1146 1147 1148 1149 1150 1151 1152 1153 1154 1155 1156 1157 1158 1159 1160 1161 1162 1163 1164 1165 1166 1167 1168 1169 1170 1171 1172 1173 1174 1175 1176 1177 1178 1179 1180 1181 1182 1183 1184 1185 1186 1187 1188 1189 1190 1191 1192 1193 1194 1195 1196 1197 1198 1199 1200 1201 1202 1203 1204 1205 1206 1207 1208 1209 1210 1211 1212 1213 1214 1215 1216 1217 1218 1219 1220 1221 1222 1223 1224 1225 1226 1227 1228 1229 1230 1231 1232 1233 1234 1235 1236 1237 1238 1239 1240 1241 1242 1243 1244 1245 1246 1247 1248 1249 1250 1251 1252 1253 1254 1255 1256 1257 1258 1259 1260 1261 1262 1263 1264 1265 1266 1267 1268 1269 1270 1271 1272 1273 1274 1275 1276 1277 1278 1279 1280 1281 1282 1283 1284 1285 1286 1287 1288 1289 1290 1291 1292 1293 1294 1295 1296 1297 1298 1299 1300 1301 1302 1303 1304 1305 1306 1307 1308 1309 1310 1311 1312 1313 1314 1315 1316 1317 1318 1319 1320 1321 1322 1323 1324 1325 1326 1327 1328 1329 1330 1331 1332 1333 1334 1335 1336 1337 1338 1339 1340 1341 1342 1343 1344 1345 1346 1347 1348 1349 1350 1351 1352 1353 1354 1355 1356 1357 1358 1359 1360 1361 1362 1363 1364 1365 1366 1367 1368 1369 1370 1371 1372 1373 1374 1375 1376 1377 1378 1379 1380 1381 1382 1383 1384 1385 1386 1387 1388 1389 1390 1391 1392 1393 1394 1395 1396 1397 1398 1399 1400 1401 1402 1403 1404 1405 1406 1407 1408 1409 1410 1411 1412 1413 1414 1415 1416 1417 1418 1419 1420 1421 1422 1423 1424 1425 1426 1427 1428 1429 1430 1431 1432 1433 1434 1435 1436 1437 1438 1439 1440 1441 1442 1443 1444 1445 1446 1447 1448 1449 1450 1451 1452 1453 1454 1455 1456 1457 1458 1459 1460 1461 1462 1463 1464 1465 1466 1467 1468 1469 1470 1471 1472 1473 1474 1475 1476 1477 1478 1479 1480 1481 1482 1483 1484 1485 1486 1487 1488 1489 1490 1491 1492 1493 1494 1495 1496 1497 1498 1499 1500 1501 1502 1503 1504 1505 1506 1507 1508 1509 1510 1511 1512 1513 1514 1515 1516 1517 1518 1519 1520 1521 1522 1523 1524 1525 1526 1527 1528 1529 1530 1531 1532 1533 1534 1535 1536 1537 1538 1539 1540 1541 1542 1543 1544 1545 1546 1547 1548 1549 1550 1551 1552 1553 1554 1555 1556 1557 1558 1559 1560 1561 1562 1563 1564 1565 1566 1567 1568 1569 1570 1571 1572 1573 1574 1575 1576 1577 1578 1579 1580 1581 1582 1583 1584 1585 1586 1587 1588 1589 1590 1591 1592 1593 1594 1595 1596 1597 1598 1599 1600 1601 1602 1603 1604 1605 1606 1607 1608 1609 1610 1611 1612 1613 1614 1615 1616 1617 1618 1619 1620 1621 1622 1623 1624 1625 1626 1627 1628 1629 1630 1631 1632 1633 1634 1635 1636 1637 1638 1639 1640 1641 1642 1643 1644 1645 1646 1647 1648 1649 1650 1651 1652 1653 1654 1655 1656 1657 1658 1659 1660 1661 1662 1663 1664 1665 1666 1667 1668 1669 1670 1671 1672 1673 1674 1675 1676 1677 1678 1679 1680 1681 1682 1683 1684 1685 1686 1687 1688 1689 1690 1691 1692 1693 1694 1695 1696 1697 1698 1699 1700 1701 1702 1703 1704 1705 1706 1707 1708 1709 1710 1711 1712 1713 1714 1715 1716 1717 1718 1719 1720 1721 1722 1723 1724 1725 1726 1727 1728 1729 1730 1731 1732 1733 1734 1735 1736 1737 1738 1739 1740 1741 1742 1743 1744 1745 1746 1747 1748 1749 1750 1751 1752 1753 1754 1755 1756 1757 1758 1759 1760 1761 1762 1763 1764 1765 1766 1767 1768 1769 1770 1771 1772 1773 1774 1775 1776 1777 1778 1779 1780 1781 1782 1783 1784 1785 1786 1787 1788 1789 1790 1791 1792 1793 1794 1795 1796 1797 1798 1799 1800 1801 1802 1803 1804 1805 1806 1807 1808 1809 1810 1811 1812 1813 1814 1815 1816 1817 1818 1819 1820 1821 1822 1823 1824 1825 1826 1827 1828 1829 1830 1831 1832 1833 1834 1835 1836 1837 1838 1839 1840 1841 1842 1843 1844 1845 1846 1847 1848 1849 1850 1851 1852 1853 1854 1855 1856 1857 1858 1859 1860 1861 1862 1863 1864 1865 1866 1867 1868 1869 1870 1871 1872 1873 1874 1875 1876 1877 1878 1879 1880 1881 1882 1883 1884 1885 1886 1887 1888 1889 1890 1891 1892 1893 1894 1895 1896 1897 1898 1899 1900 1901 1902 1903 1904 1905 1906 1907 1908 1909 1910 1911 1912 1913 1914 191

CAST NO.	TIME	CARD TYPE	DEPTH (m)	T °C	S	SIGMA-T	SPECIFIC VOLUME SOUND ANOMALY		S.D. DYN = $\times 10^3$	COMPUTED SOUND VELOCITY = SEC	O ₂ = %	AMBIENT LIGHT				MEASURED SOUND VELOCITY = SEC	
							10 ⁻³	10 ⁻⁴				PO ₂ - P mg wt %	TOTAL P mg wt %	NO ₂ - N mg wt %	NO ₃ - N mg wt %	S.O ₂ S mg wt %	pH
129		STD	0000	-0171	3137	2525	0027276	0000	14362								
		OBS	0000	-0171	31368	2525				14362			071				017
129		STD	0010	-0170	3133	2522	0027528	0027	14364								
		OBS	0010	-0170	31334	2522				14364			087				016
129		STD	0020	-0169	3134	2523	0027454	0054	14366								
		OBS	0020	-0169	31347	2523				14368			072				047
129		STD	0030	-0168	3140	2528	0027017	0082	14364								
		STD	0050	-0167	3160	2544	0025429	0134	14376								
129		OBS	0050	-0167	31602	2544			14376			085					023
		STD	0075	-0147	3263	2627	0017509	0188	14404								
129		OBS	0075	-0147	32635	2627			14404			115					024
		STD	0100	-0118	3344	2691	0011421	0224	14433								
129		OBS	0100	-0118	33438	2691			14433			104					024
		STD	0125	-0049	3387	2726	0008185	0248	14452								
129		STD	0150	-0074	3413	2750	0005873	0266	14470								
		OBS	0150	-0074	34179	2750			14470			075					024
129		STD	0200	-0047	3443	2769	0004100	0291	14499								
		OBS	0201	-0041	34437	2769			14500			085					018
129		STD	0250	-0013	3460	2781	0002950	0309	14523								
		OBS	0251	-0013	34604	2781			14523			083					019
129		STD	0300	-0002	3467	2787	0002461	0322	14537								
		OBS	0302	-0002	34677	2787			14538			085					017
129		STD	0400	-0016	3475	2793	0001813	0344	14549								
		OBS	0403	-0016	34750	2793			14549			082					016
129		STD	0500	-0020	3477	2795	0001629	0351	14564								
		STD	0600	-0022	3478	2796	0001527	0377	14580								
129		OBS	0607	-0022	34779	2796			14581			083					019
		STD	0700	-0022	3478	2796	0001518	0392	14596								
129		OBS	0759	-0022	34779	2796			14606			080					043

SHIP NAME	SHIP CODE	LATITUDE 10	LONGITUDE 10	DATE 10	TIME 10	YEAR	ORIGINATOR CRUISE NUMBER	STATION NUMBER	DEPTH TO BOTTOM	WAVE OBSERVATIONS	WEATHER CODE	INSTR CLOUD	MODE STATION NUMBER
311705	WE	8146 N	06403 W	907	14 09 08	1970	K85	031	0457	1	00	0 X	031

NOTE: WATER SAMPLES FOR ANALYSIS (ELECTRONICALLY OBTAINED SERIAL DATA (SD) OR
MANUALLY OBTAINED BY STRIPPER) WHEN THEY APPEAR

WIND DIRECTION SPEED OR FORCE	BAROMETER (mm)	AIR TEMPERATURE °C	WET BULB CODE	SPECIAL OBSERVATIONS
24	508	157	-025	-032

CASE NUMBER	TIME DURATION	CARD TYPE	DEPTH (m)	T °C	S	SIGMA-T	SPECIFIC VOLUME ANOMALY - 10 ⁻⁴	R.D. DYN. M 10 ⁻³	COMPUTED SOUND VELOCITY m/sec	O ₂ - 1	AMBIENT LIGHT lum/cm ²	MEASURED SOUND VELOCITY m/sec
171	0000	STO	0000	-0167	3183	2563	0023693	0000	14371		106	024
	0000	OBS	0000	-0167	31834	2563			14371			
	0010	STO	0010	-0167	3187	2566	0023402	0023	14373			
171	0010	OBS	0010	-0167	31870	2566			14373		107	023
	0020	STO	0020	-0164	3191	2569	0023076	0046	14376			
171	0025	OBS	0025	-0163	31952	2572			14378		102	022
	0030	STO	0030	-0163	3201	2577	0022306	0069	14380			
	0050	STO	0050	-0157	3233	2603	0019671	0111	14391			
171	0050	OBS	0050	-0157	32327	2603			14391		106	028
	0075	STO	0075	-0142	3283	2648	0015549	0155	14410			
171	0075	OBS	0075	-0142	32893	2648			14410		127	030
	0100	STO	0100	-0133	3324	2676	0012906	0191	14423			
171	0100	OBS	0100	-0132	33238	2676			14423		114	030
	0125	STO	0125	-0122	3354	2700	0010593	0220	14437			
	0150	STO	0150	-0107	3361	2722	0008549	0244	14452			
171	0150	OBS	0150	-0107	33915	2722			14452		118	028
	0200	STO	0200	-0061	3426	2756	0005330	0279	14438			
171	0200	OBS	0200	-0061	34259	2756			14438		097	023
	0250	STO	0250	-0043	3441	2768	0004214	0303	14506			
171	0250	OBS	0250	-0043	34415	2768			14506		091	025
	0300	STO	0300	-0029	3461	2781	0002940	0321	14533			
171	0300	OBS	0300	-0029	34609	2782			14533		082	021
	0400	STO	0400	-0311	3409	2788	0002311	0347	14550			
171	0400	OBS	0400	-0311	34711	2790			14550		072	023

SHIP NAME	SHIP CODE	LATITUDE 10	LONGITUDE 10	DATE 10	TIME 10	YEAR	ORIGINATOR CRUISE NUMBER	STATION NUMBER	DEPTH TO BOTTOM	WAVE OBSERVATIONS	WEATHER CODE	INSTR CLOUD	MODE STATION NUMBER
311705	WE	81537N	06304 W	907	13 09 09	1970	K85	032	0626	1	00	0 X	032

NOTE: WATER SAMPLES FOR ANALYSIS (ELECTRONICALLY OBTAINED SERIAL DATA (SD) OR
MANUALLY OBTAINED BY STRIPPER) WHEN THEY APPEAR

WIND DIRECTION SPEED OR FORCE	BAROMETER (mm)	AIR TEMPERATURE °C	WET BULB CODE	SPECIAL OBSERVATIONS
10	504	159	-047	-054

CASE NUMBER	TIME DURATION	CARD TYPE	DEPTH (m)	T °C	S	SIGMA-T	SPECIFIC VOLUME ANOMALY - 10 ⁻⁴	R.D. DYN. M 10 ⁻³	COMPUTED SOUND VELOCITY m/sec	O ₂ - 1	AMBIENT LIGHT lum/cm ²	MEASURED SOUND VELOCITY m/sec
009	0000	STO	0000	-0165	3191	2569	0023140	0000	14373			
	0000	OBS	0000	-0165	31906	2569			14373			
	0010	STO	0010	-0168	3190	2568	0023176	0023	14373			
009	0010	OBS	0010	-0168	31900	2568			14373			
	0020	STO	0020	-0163	3204	2579	0022134	0045	14379			
009	0025	OBS	0025	-0161	32037	2584			14381			
	0030	STO	0030	-0160	3214	2588	0021300	0067	14383			
	0050	STO	0050	-0157	3233	2602	0019689	0108	14391			
009	0050	OBS	0050	-0155	32417	2610			14395			
	0075	STO	0075	-0144	3280	2641	0016226	0153	14408			
009	0075	OBS	0075	-0144	32804	2641			14408			
	0100	STO	0100	-0133	3324	2676	0012697	0190	14423			
009	0100	OBS	0100	-0123	33239	2676			14423			
	0125	STO	0125	-0127	3360	2705	0010144	0219	14435			
	0150	STO	0150	-0113	3363	2726	0007951	0241	14450			
009	0150	OBS	0150	-0113	33991	2728			14450			
	0200	STO	0200	-0062	3423	2757	0005194	0274	14487			
009	0200	OBS	0200	-0062	34277	2757			14487			
	0250	STO	0250	-0028	3447	2772	0003657	0297	14514			
	0300	STO	0300	-0008	3451	2781	0002932	0314	14534			
009	0300	OBS	0300	-0008	34508	2781			14534			
	0400	STO	0400	-0013	3470	2789	0002219	0339	14549			
009	0400	OBS	0400	-0013	34637	2789			14549			
	0500	STO	0500	-0017	3473	2792	0001901	0360	14564			
009	0500	OBS	0500	-0017	34735	2792			14564			
	0600	STO	0600	-0019	3474	2793	0001835	0379	14580			
009	0600	OBS	0600	-0019	34740	2793			14580			

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