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The Intercalibration of the Gear and Methods used during NORWESTLANT 1-3

by

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During the planning of the NORWESTLANT surveys it was agreed that all possible measures should be taken to ensure that the observations made by the different participating ships would be comparable and therefore that standard gear and methods should be used as far as possible and that methods should be intercalibrated.

Salinometers

As various types of salinometer were to be used, ampoules of a standard low-salinity sea water were sent to the various participating laboratories and operators there were asked to determine its salinity and conductivity. This water was kindly provided by Mr. T.S. Austin, the International Co-ordinator of the International Co-operative Investigations of the Tropical Atlantic sponsored by the Intergovernmental Oceanographic Commission. The results of this intercalibration exercise are summarized in Table I. It can be seen that there is a difference of 0.01 – 0.02‰ between those obtained with the Auto-Lab Inductively Coupled Salinometer and those obtained with the N.I.O. Thermostat Salinity Meter. The reasons for this have been analysed by Dr. R.A. Cox of the National Institute of Oceanography, Wormley and Mr. A.R. Folkard of the Fisheries Laboratory, Lowestoft and their findings have been published (Cox and Folkard, 1965). They suggested various corrections which would allow the observations made with different salinometers during the NORWESTLANT Surveys to be regarded as comparable. These corrections were applied to the machine-generated data by the Canadian Oceanographic Data Centre.

Table 1: Results of the intercalibration exercise on samples of standard low-salinity sea-water (Equalant A')

		Salinity (‰)	
1. Cox	(N.I.O. Salinometer)	29.423	(Mean of 5)
2. Hermann	(Titration)	29.430	(1 Sample)
	(Auto-Lab Salinometer)	29.434	(Mean of 4)
3. Lowestoft	(M.A.F.F. Salinometer)	29.426	(Mean of 3)
	(Auto-Lab Salinometer)	29.447	(Mean of 4)
4. Aberdeen	(Auto-Lab Salinometer)	29.449	(Mean of 3)
5. U.S.S.R.	(Jayco Salinometer)	29.422-29.424	(8 Samples)
6. <i>Thalassa</i>	(N.I.O. Salinometer)	29.425	(Mean of 7)
7. Canada B.I.O.	(N.I.O. Salinometer)	29.425	(Mean of 5)
	(Auto-Lab Salinometer)	29.433	(Mean of 6)

Reference Stations

Furthermore, two reference stations were set up at which all vessels were to endeavour to carry out observations of temperature, salinity, dissolved oxygen and nutrient salts at standard depths to the bottom. These reference stations were:—

A: 58°30'N, 43°00'W

B: 61°00'N, 34°00'W.

Pairs of vessels were also asked to meet at convenient points where their survey areas adjoined each other, in order to carry out intercalibration of hydrographic methods. It was realised that variations in time and space would not allow observations in the upper layers to be used for

purposes of comparison, but it was hoped that the observations made in the deep layers could be so used. Observations were made at Reference Stations A and B as follows:—

<u>Vessel</u>	<u>Reference Station A</u>	<u>Reference Station B</u>
	<u>Date</u>	<u>Date</u>
<i>G.O. Sars</i>	9.4.63	
<i>Ernest Holt</i>	10.4.63	
<i>G.O. Sars</i>	7.5.63	
<i>Sackville</i>	29.5.63	
<i>Ernest Holt</i>		25-26.4.63
<i>Aegir</i>		7.5.63
<i>G.O. Sars</i>		9.5.63
<i>Anton Dohrn</i>		6.6.63
<i>Explorer</i>		14.7.63

The stations which were worked simultaneously in the NORWESTLANT area by two or more ships are for the sake of convenience called here Reference Stations C-E. They were as follows:—

<u>Reference Station</u>	<u>Position</u>	<u>Date</u>	<u>Vessels</u>
C	63°20'N, 26°50'W	24.4.63	<i>Ernest Holt</i> <i>Thalassa</i> <i>Academician Knipovich</i>
D	57°50½'N, 40°54'W	31.5.63	<i>Anton Dohrn</i> <i>Sackville</i>
E	62°47'N, 53°12'W	3.6.63	<i>Baffin</i> <i>Dana</i>

Temperature and Salinity

The various vertical profiles of temperature and salinity at Reference Stations A–E arising from these observations are given in Figures 1–5. Figure 1 shows that at Reference Station A there were considerable differences at depths less than 1000 m. Even at 1200 m depth the observed temperatures have a range of 0.2°C and the observed salinities a range of 0.03‰, and at 1500 m depth the range of salinities is reduced to 0.005‰ whilst the range of temperature is unaltered. A feature of the profiles down to 1500 m is the closeness between the *G.O. Sars* and *Ernest Holt* profiles obtained on 9 and 10 April respectively: at about 1500 m depth they are 0.1°C and 0.002‰ apart. However, there is a considerable difference between the *Ernest Holt* profiles obtained on 10 April on the one hand and the *G.O. Sars* profiles obtained on 7 May, and to some extent the *Sackville* profiles obtained on 29 May, on the other. These differences are marked even below 1500 m depth and, assuming that there are no serious errors in the data, it would appear that between 1800 and 2500 m depth there had been temperature increases of between 0.3 and 0.5°C and salinity increases of between 0.01 and 0.02‰ over the course of a month. Reference Station D is only 77 n.mi. distant and, again assuming no errors, the observations made there on 31 May by *Anton Dohrn* show further increases over the next three weeks of up to 0.6°C and 0.04‰ in the 1800–2500 m depth zone. Figure 4 shows that at Reference Station D even with two vessels sampling within 40 minutes of each other and 3.2 n.mi. apart there were marked differences in temperature down to 600 m, but that below that depth the observations of *Sackville* and *Anton Dohrn* differed by no more than 0.02°C. The differences in salinity were as great as 0.05‰ at depths less than 600 m, and below that depth the *Anton Dohrn* values were always the greater by 0.01–0.02‰. That rapid fluctuations can occur in the locality was shown by the bathysonde record collected by the *Anton Dohrn* at Reference Station D. This has been given by Holzkamm, Krause and Siedler (1964) and it is reproduced here as Figure 6. The process of lowering and hoisting the instrument took about 60 minutes and, although in the homothermal surface layers the UP and DOWN temperature records are identical but about 0.1°C apart, at

depths between 100 and 400 m they differ by up to 0.35°C. These differences are of the same size as that between the *Anton Dohrn* and *Sackville* observations. This record also shows that the vertical temperature profile is exceedingly complicated, with repeated reversals of the gradient down to 700 m depth. In Figure 7 the observations made at Reference Stations A and D are plotted as T-S diagrams. These show the tendency for the *Anton Dohrn* salinity values to be higher than those of the *Sackville*. They also show the tendency for the salinity minimum at 3.6–3.8°C and for the salinity maximum at 3°C apparently to become more marked over the months April–May.

Table 2: Temperature and salinity at Ocean Weather Station ALFA, 17–18 January 1963

62°00'N, 33°03'W			61°50'N, 33°00'W		
07 hours, 17 January			08 hours, 18 January		
Depth m	Temp. °C	Salinity ‰	Depth m	Temp. °C	Salinity ‰
0	5.94	35.058	0	5.40	34.946
10	5.93	35.044			
25	5.91	35.033			
50	5.91	35.040	50	5.21	34.965
75	5.91	35.048			
100	5.91	35.038			
150	5.82	35.026	145	4.95	34.941
200	5.68	35.021			
295	5.49		295	4.87	34.943
395	5.26	35.045			
495	4.66	35.000			
590	4.33	34.978	595	4.25	34.967
790	3.97	34.953			
990	3.67	34.926	985	3.62	34.918

Figure 2 shows that at Reference Station B the temperature differences at depths less than 1200 m were again considerable. At 1200 m they have a range of 0.2°C and at 1500 m one of 0.1°C. The salinity differences in the shallower layers are also large: at 1000 m the range is still 0.04‰ and at 1200 m it is 0.02‰. The *Anton Dohrn* made a bathysonde lowering at this station and this is given in Figure 8. At depths less than 400 m differences of 0.25°C occur between the UP and DOWN records. That rapid changes of temperature can take place in this region is also shown by the observations made at Ocean Weather Station ALFA, which is 69 n.mi. distant from Reference Station B. A Norwegian weather ship made observations at two points, 10 n.mi. apart, in the vicinity of this station on 17 and 18 January as shown in Table 2. At depths down to 500 m there were salinity differences amounting to 0.1‰ between the first day and the second and temperature differences as great as 0.9°C. These changes were due to east-west shifts of the boundary between the Northeast Atlantic Water and the Irminger Sea Water.

From Figure 2 it can be seen that a salinity minimum occurs at around 1000 m depth with the temperature 3.5–3.8°C and that the range of the observed salinities is 0.02‰. All the deep Norwegian and British weather ship observations at Ocean Weather Station ALFA during the Period January–July 1963 are plotted as T-S diagrams in Figure 9. The salinity minima observed by the Norwegian ships fall in the temperature range 3.5–3.6°C. They are consistent with those observed by the British ships, if one bears in mind that the British salinity observations were not so accurate as the Norwegian. The salinity minima observed at Reference Station B are on the whole consistent with those observed at Ocean Weather Station ALFA, except that in the case of *Anton Dohrn* the salinity is higher and the temperature lower, and that in the case of *Explorer* the

salinity is lower. Figure 2 shows that from 1500 m downwards the *Anton Dohrn* temperatures are always 0.1°C or more lower than those of the other-vessels and that her salinity values are up to 0.025‰ higher. These differences show up quite clearly in the T-S diagrams in Figure 10 at temperatures below 3.5°C, and it can also be seen that there are consistent differences between the curves for *Anton Dohrn*, *Explorer* and *G.O. Sars*. In Figure 9 the T-S curves for the Norwegian weather ships at temperatures below 3.5°C fall clearly into two groups, one for POLAR FRONT I and one for POLAR FRONT II, the range of salinity values at 3°C temperature being the same as that for the research vessel observations and that for the British weather ship observations. It is not clear whether these differences are due to a change over time of the water mass observed or to differences in instruments and techniques.

Reference Station C was worked simultaneously by *Ernest Holt*, *Thalassa* and *Academician Knipovich* in a circle of 3.0 n.mi. radius on 24 April. The temperature and salinity profiles obtained are given in Figure 3 and the T-S diagrams in Figure 11. The temperature observations at all depths were within a range of 0.3°C and the salinity observations within a range of 0.03‰. However, the T-S diagrams show close agreement between *Thalassa* and *Academician Knipovich* only: that for *Ernest Holt* seems to imply that her salinity values were about 0.02‰ higher at each temperature. The reason for this is not clear, especially as the salinity determinations of the samples collected by *Academician Knipovich* were made ashore at the Fisheries Laboratory, Lowestoft, England on the same Auto-Lab salinometer as was used at sea aboard *Ernest Holt* and as the salinity determinations aboard *Thalassa* were made at sea on the same laboratory's N.I.O. thermostat salinity meter by one of its Experimental Officers.

Baffin and *Dana* worked Reference Station E simultaneously and 1.4 n.mi. apart on 3 June. The temperature and salinity profiles are given in Figure 5 and the T-S diagrams in Figure 12. Bearing in mind that the *Dana's* salinity determinations were made by titration whilst those of *Baffin* were made on a Hytech salinometer it can be seen that the two ships' observations are in remarkably close agreement.

No clear conclusions can be drawn from the Reference Station observations. It was anticipated at the outset that those in the upper 200–300 m would not be useful for purposes of comparison, but in the event the material collected during the surveys themselves shows that down to as great a depth as 1000 m time fluctuations of temperature and salinity can occur which make the intercomparison of the research vessel observations difficult. Even below that depth it appears that long-term changes may still be taking place, the alternative explanation of the differences between the data collected by the different research vessels being the unlikely one that some of their observations are very imprecise indeed. There are indications, however, that some of these differences are due to differences in the instruments and techniques used by the various participants, but it is impossible to say which ships are right and which are wrong. The most that can be said is that the observations of temperature and salinity made by any one ship are no more than 0.1°C and 0.025‰ different from those of any other participating ship.

Nutrient salts

Reference Station A (Figure 13):

At this station observations on the nutrient content of the water were confined to the top 100 m. An increase in the phosphate content of the water appears to have occurred between the observations recorded by *G.O. Sars* on 9 April and those of the *Ernest Holt* on the following day. The differences between the two sets of observations varied from 0.05 to 0.12 µg at PO₄-P/l through the water column.

Except for the surface observation, the silicate values of the *G.O. Sars* recorded on 9 April are slightly lower than those reported by the *Ernest Holt* on the following day. Approximately four weeks later, further observations by the *G.O. Sars* showed that the silicate content of the water had fallen to values slightly below those recorded on 9 April.

As the temperature and salinity observations made by the *Ernest Holt* on 10 April agree closely with those of the *G.O. Sars* on 9 April the difference in the phosphate and silicate values observed must be largely due to differences in analytical techniques.

Reference Station B (Figure 14):

Most nutrient observations extended into deep water on this station. Below 100 m there is good agreement of phosphate values between the *Ernest Holt* (25–26 April) and the *Anton Dohrn* (6 June). Above 100 m the phosphate content of the water had fallen during the time between the two series of observations, the difference being approximately $0.2/\mu\text{g.at.PO}_4\text{P/l}$ from the surface to 50 m. The *Explorer* worked this station to a depth of 83 m on 14 July; below 40 m phosphate values were similar to those of the *Ernest Holt*. This represents an apparent increase in phosphate at depths between 40 and 83 m in the time since the observations made by the *Anton Dohrn*. However, above 40 m the phosphate content of the water had fallen still further since the *Anton Dohrn* occupied the station.

In the shallow water a progressive decrease in silicate concentration was shown by the observations of *Ernest Holt* (25 April), *G.O. Sars* (7 May), *Anton Dohrn* (6 June) and *Explorer* (14 July). This represents a removal of silicate over the sampling period and is comparable to the trend shown in the concentrations of phosphate reported by the *Ernest Holt*, *Anton Dohrn* and *Explorer* on this station.

Silicate values measured by the *Ernest Holt* and the *Anton Dohrn* may be compared down to approximately 1500 m. The *Ernest Holt* generally showed values higher than the *Anton Dohrn*, the magnitude of the difference varying rather erratically through the water column. From approximately 1600 m to 2400 m the *Anton Dohrn's* results may be compared with those of the *Explorer*. The latter show the higher silicate values and the nature of this discrepancy is rather similar to that shown between the *Anton Dohrn* and *Ernest Holt* for depths above 1500 m. It is interesting to note that *Anton Dohrn* used Grasshoff's method of silicate analysis whereas both *Explorer* and *Ernest Holt* followed Strickland's procedure. It is therefore possible that the discrepancies shown may be a result of the different methods of analysis used. The three silicate values measured below 1800 m by *G.O. Sars* (Strickland's method) varied in relation to the other two sets.

Considering the silicate values as a whole, it can be seen that the degree of scatter between the observations of the various vessels is similar throughout the water column. One might expect biological activity to produce large changes in the silicate concentration of the surface waters, whereas in the deep water less change is expected. With the present data it is, however, impossible to distinguish between true differences in the silicate content of the water and those attributable to the analytical methods.

Reference Station C (Figure 15):

Phosphate and silicate were sampled to 1200 m on this station. Phosphate samples analysed by the *Academician Knipovich* generally showed the lowest values of the three research vessels. Below 400 m the *Thalassa* reported phosphate concentrations higher than those of the other two vessels and the *Ernest Holt* recorded intermediate values. Above 400 m the nature of the discrepancies were complex and subject to variation.

The phosphate results as a whole show the largest discrepancies to have occurred in the deep water. It seems unlikely that the differences shown between the vessels represent true variations in the phosphate content of the water. It is probable that the discrepancies are at least partly a result of variations in the conditions of analysis.

The silicate content of the water at Reference Station C showed better agreement among the three vessels than in the case of phosphate, the closest agreement being found in the deep water. At most depths the *Thalassa* recorded slightly lower values than the other two vessels. Above 600 m the *Academician Knipovich* recorded values generally higher than those of the *Ernest Holt*, but below 600 m the situation was reversed.

Reference Station D (Figure 16):

This station was worked to 108 m. In the surface layers *Sackville* reported phosphate values approximately $0.1/\mu\text{g.at.PO}_4\text{P/l}$ below those recorded by the *Anton Dohrn*. Between approximately 20 and 100 m the nature of the discrepancy was reversed.

At all depths the *Sackville* recorded higher silicate values than the *Anton Dohrn*, with a maximum discrepancy of $2.9/\mu\text{g.at.SiO}_3\text{Si/l}$ at 10 m. The magnitude of the discrepancy did not, however, show any clear relationship with the depth of the sample.

Reference Station D was located in an area which appeared to be free from sharp boundaries between water masses. It is therefore most probable that the discrepancies observed are a result of differences in laboratory techniques.

Reference Station E (Figure 17):

Phosphate only was analysed on this station to 100 m. Between 10 and 50 m a large discrepancy was shown between the values of *Baffin* and *Dana*, but at the surface, at 75 m and at 100 m there was better agreement. Apart from the measurement at 75 m, the *Dana* phosphate values were always higher than those of the *Baffin*.

It is possible that the discrepancy on this station may be at least partly due to true differences in the phosphate content of the water, this station being located off the west coast of Greenland in an area where fairly sharp horizontal gradients in the phosphate content of the water occurred. It is difficult to explain the large discrepancy at 10 m entirely in terms of errors in the laboratory analysis, particularly since both vessels were using the same analytical method.

Discussion

Differences in the phosphate and silicate values reported by vessels working Reference Station B may to some extent be explained in terms of true fluctuations in the nutrient content of the water over the period of sampling. However, one might have expected a much closer agreement between the sets of analyses at Reference Stations A, C, D and E. In fact, it has been shown that some of the discrepancies reported at these stations were similar in magnitude to those at Station B. It is therefore difficult to distinguish between the discrepancies attributable to true differences in the phosphate and silicate content of the water and those resulting from variation in the analytical techniques. The discrepancies reported at Stations A, C, D and E must not all be necessarily placed in the latter category. The bathysonde lowering on Station B for example (Figure 8) shows that quite appreciable variation in water structures can occur over a short period of time at the same location.

Dissolved Oxygen

All dissolved oxygen values are quoted in terms of percentage saturation, computed according to the formula of Truesdale, Downing and Lowden (1955). Recently, Montgomery, Thom and Cockburn (1964) have shown a slight error in Truesdale's formula; Table 3 shows the magnitude of this error around the 90% and 100% saturation level over a range of temperatures and salinity values.

It has already been shown that the temperature and salinity values reported at the Reference Stations often varied between vessels. Since the oxygen % saturation value depends on the temperature and salinity of the sample, it follows that close agreement between different vessels is unlikely. The oxygen % saturation values at the Reference Stations are shown on Figures 13–17. A detailed comparison of the results is of little value in view of the variety of factors that may influence the figures, quite apart from possible differences in the laboratory techniques. An examination of the oxygen % saturation values on all the Reference Stations shows that there was rarely more than a 5% difference at each depth between vessels. Apart from the shallow-water observations on Station B (Figure 14) the magnitude of the discrepancies did not show a marked relationship to the depth of the sample.

Table 3: The differences between the oxygen % saturation values calculated according to the formulae of Truesdale et al. (1955) and Montgomery et al. (1964) over a range of temperatures and salinity values.

Salinity S‰	Temp. °C	Oxygen mg/l	Oxygen % saturation	
			Truesdale	Montgomery
30	0	11.64	100.0	98.1
"	"	10.48	90.0	88.3
30	2	11.03	100.0	97.9
"	"	9.93	90.0	88.1
32	4	10.32	100.0	97.7
"	"	9.29	90.0	88.0
34	0	11.30	100.0	98.4
"	"	10.17	90.0	88.6
34	4	10.17	100.0	97.8
"	"	9.15	90.0	88.0
35	10	8.75	100.0	97.3
"	"	7.88	90.0	87.6

FIGURE LEGENDS

- Figure 1:** Temperature and salinity profiles at Reference Station A.
- Figure 2:** Temperature and salinity profiles at Reference Station B.
- Figure 3:** Temperature and salinity profiles at Reference Station C.
- Figure 4:** Temperature and salinity profiles at Reference Station D.
- Figure 5:** Temperature and salinity profiles at Reference Station E.
- Figure 6:** Bathysonde record at Reference Station D: ANTON DOHRN, 31 May 1963.
- Figure 7:** T-S diagrams: Reference Stations A and D.
- Figure 8:** Bathysonde record at Reference Station B: ANTON DOHRN, 6 June 1963.
- Figure 9:** T-S diagrams: Ocean Weather Station ALFA.
- Figure 10:** T-S diagrams: Reference Station B.
- Figure 11:** T-S diagrams: Reference Station C.
- Figure 12:** T-S diagrams: Reference Station E.
- Figure 13:** Phosphate, silicate and oxygen profiles at Reference Station A.
- Figure 14:** Phosphate, silicate and oxygen profiles at Reference Station B.
- Figure 15:** Phosphate, silicate and oxygen profiles at Reference Station C.
- Figure 16:** Phosphate, silicate and oxygen profiles at Reference Station D.
- Figure 17:** Phosphate and oxygen profiles at Reference Station E.

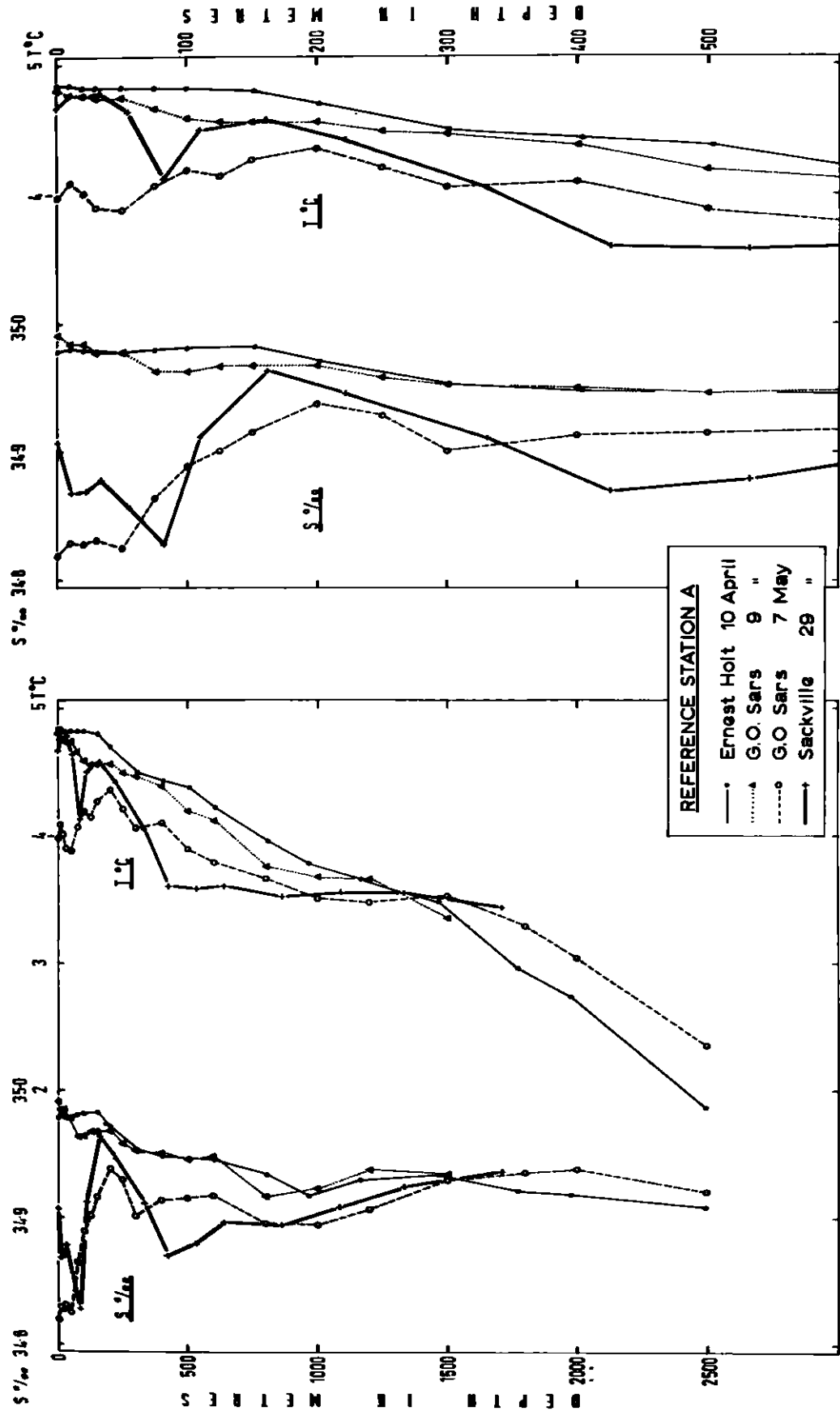


Figure 1: Temperature and salinity profiles at Reference Station A.

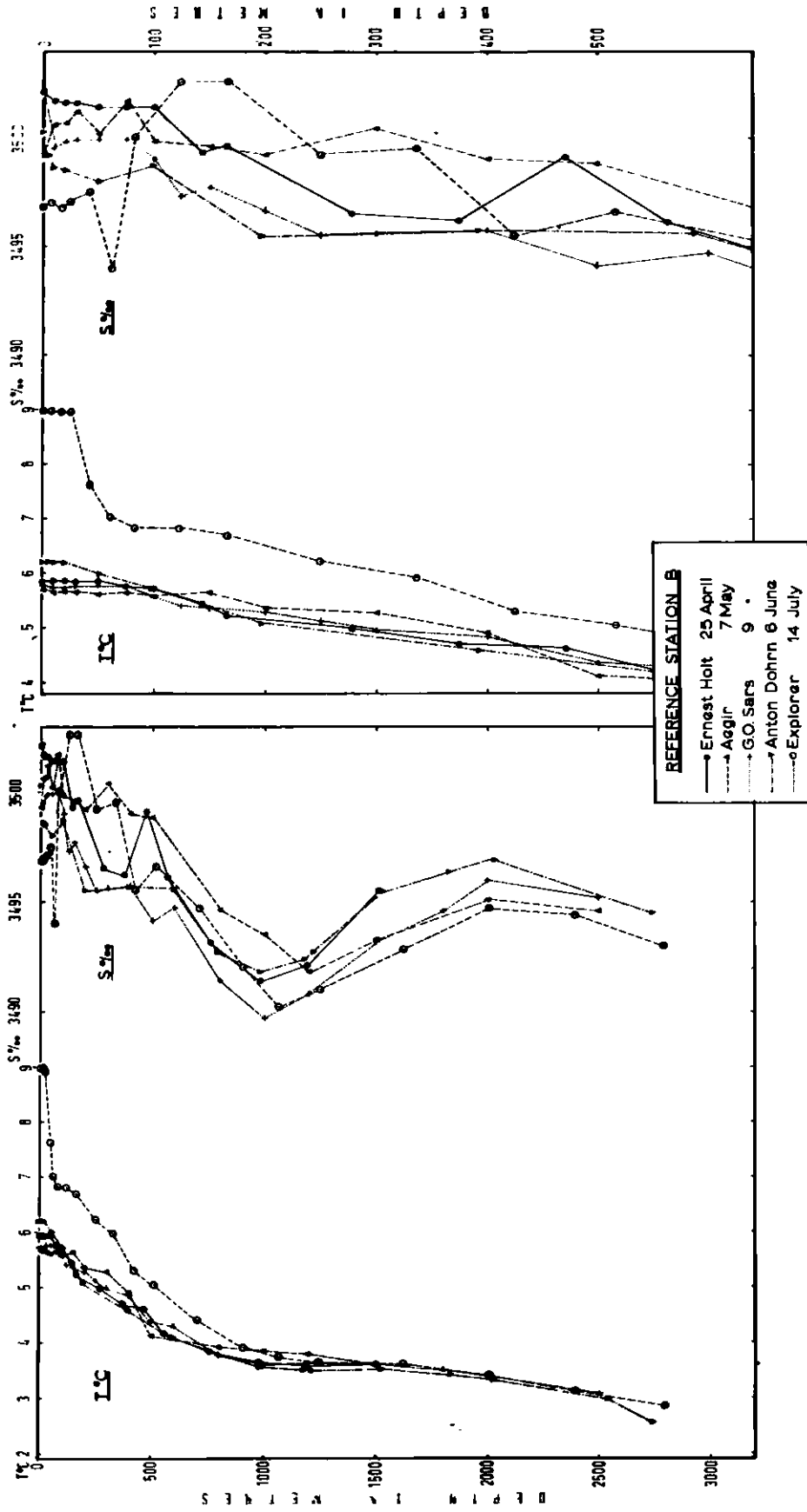


Figure 2: Temperature and salinity profiles at Reference Station B.

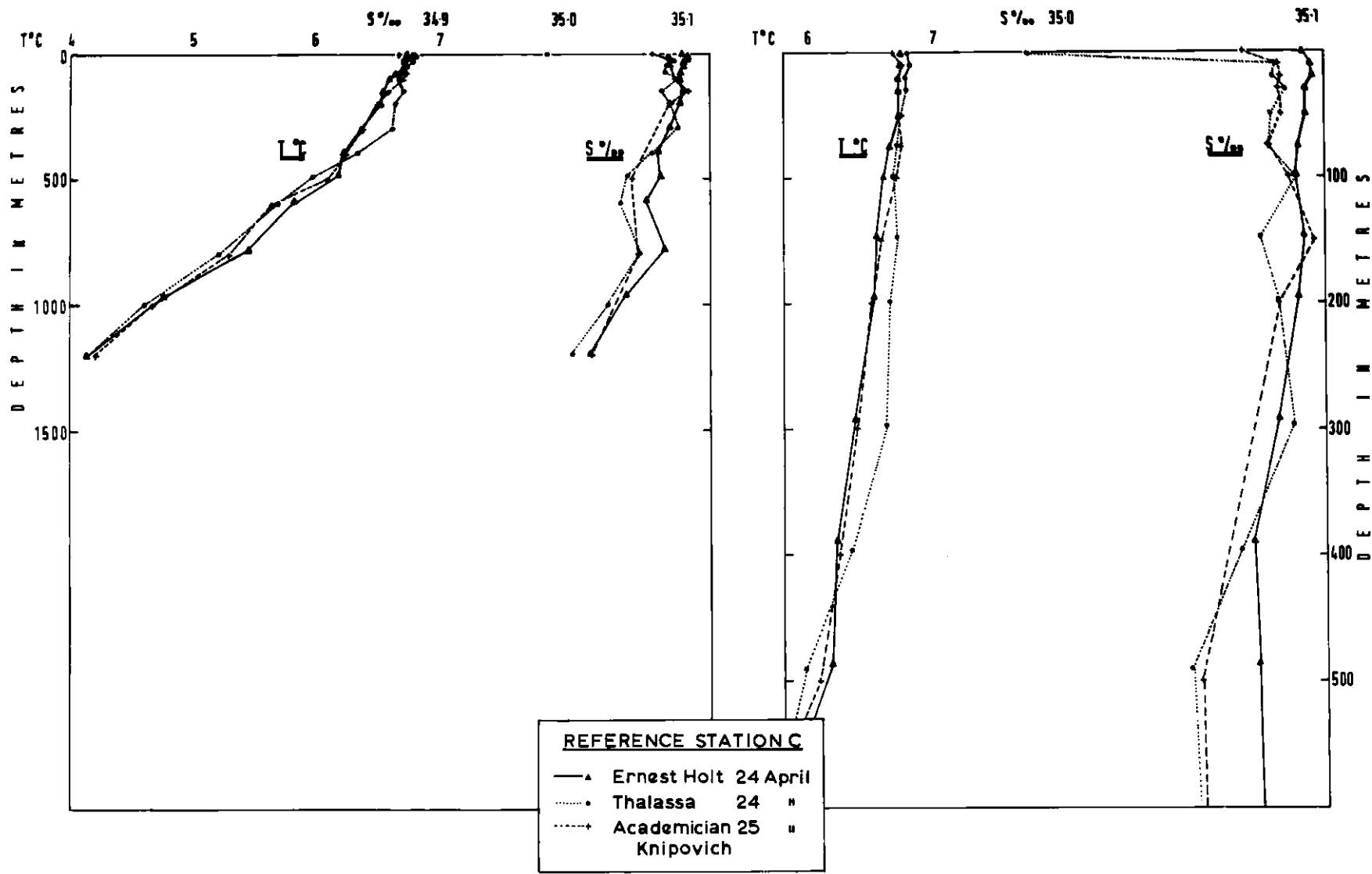


Figure 3: Temperature and salinity profiles at Reference Station C.

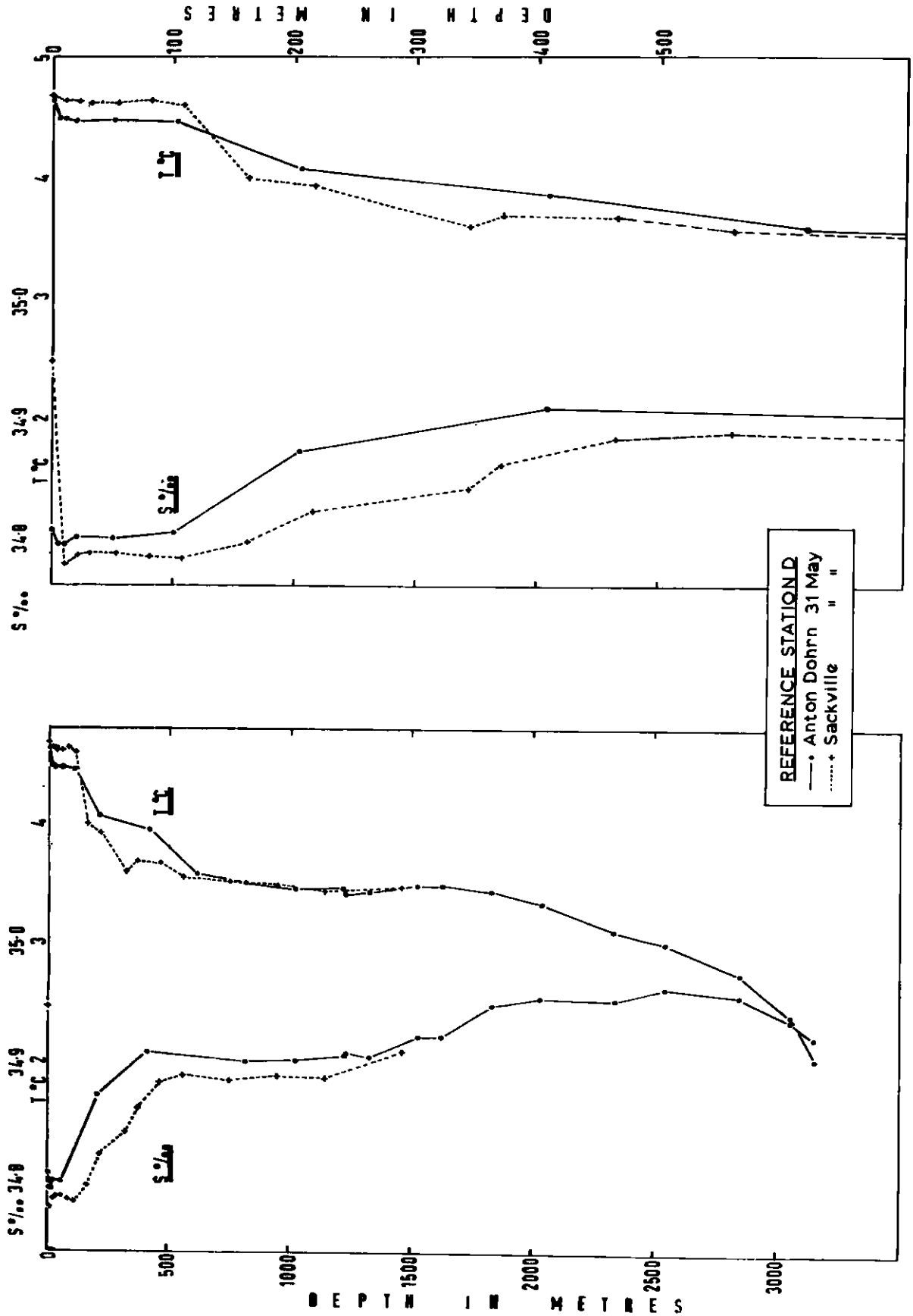


Figure 4: Temperature and salinity profiles at Reference Station D.

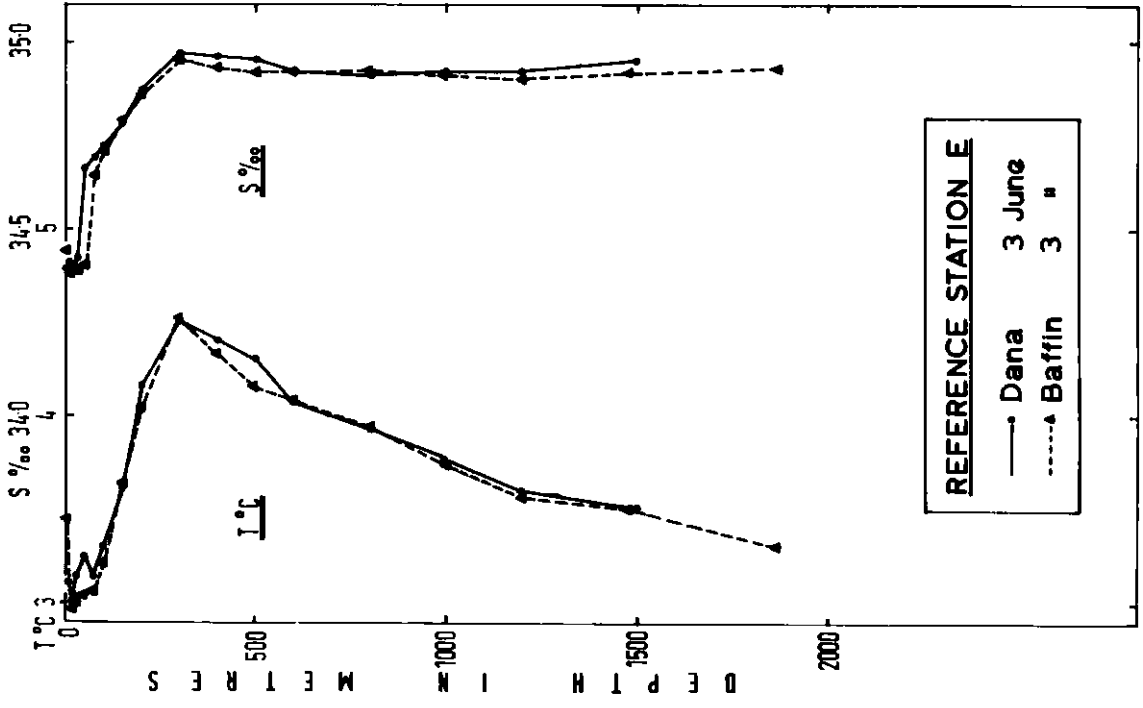
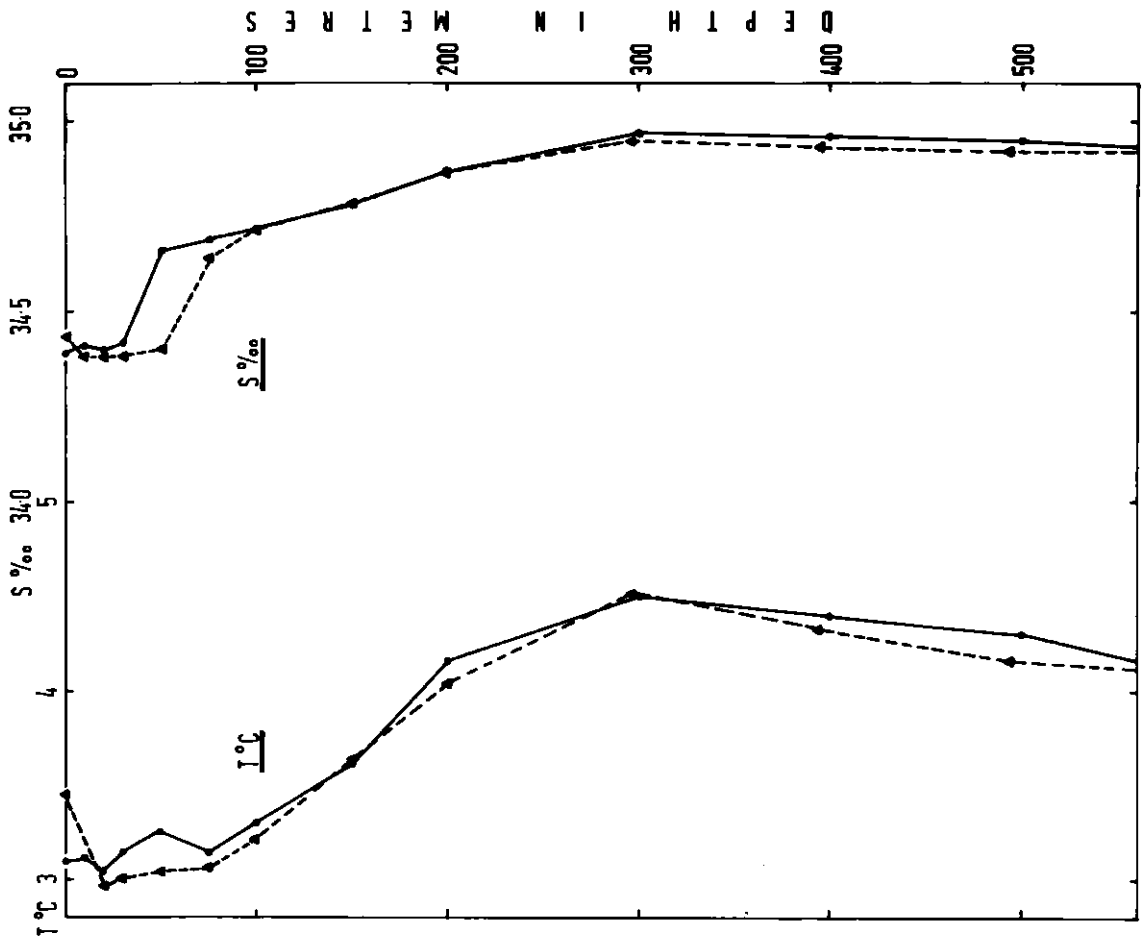


Figure 5: Temperature and salinity profiles at Reference Station E.

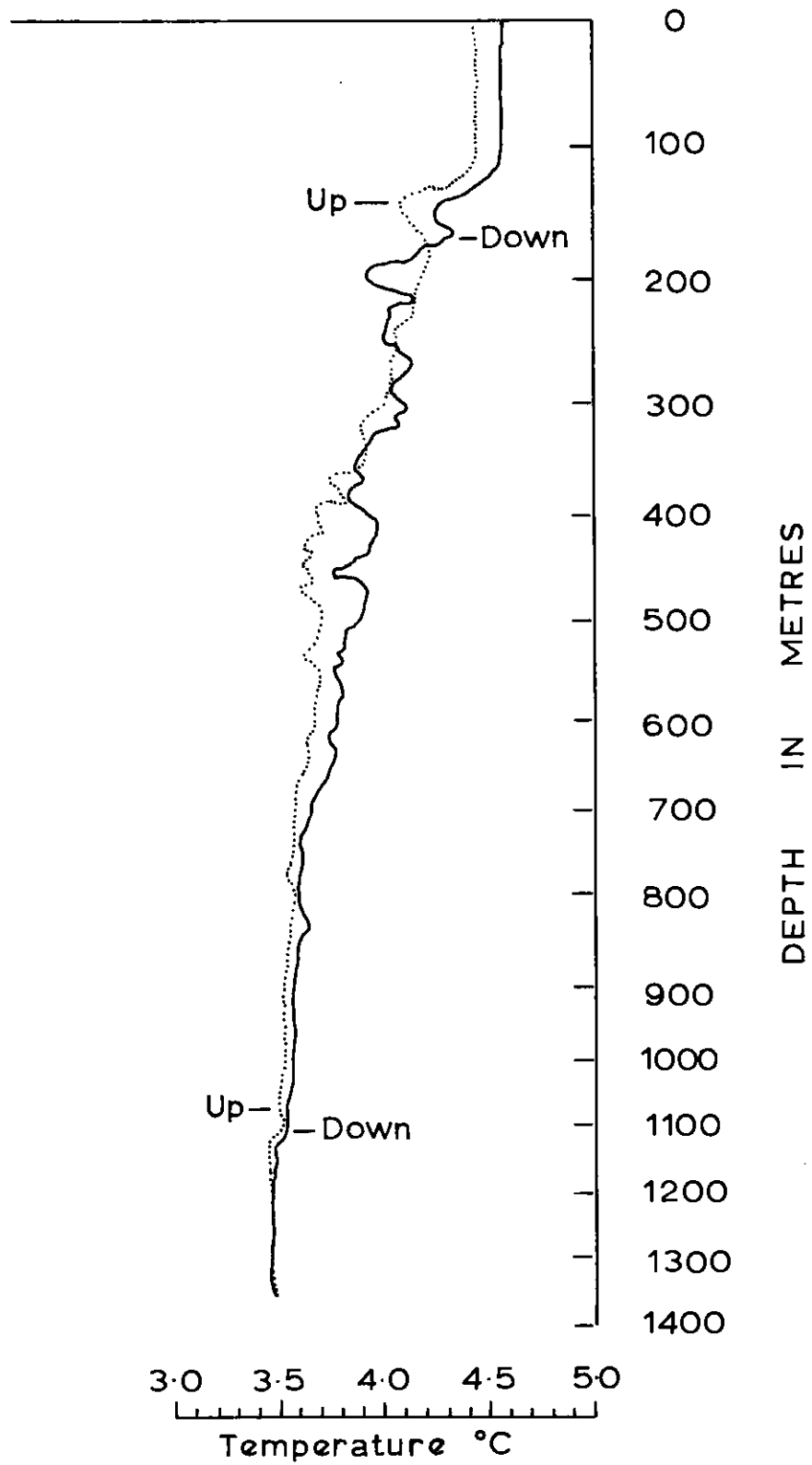


Figure 6: Bathysonde record at Reference Station D: Anton Dohrn, 31 May 1963.

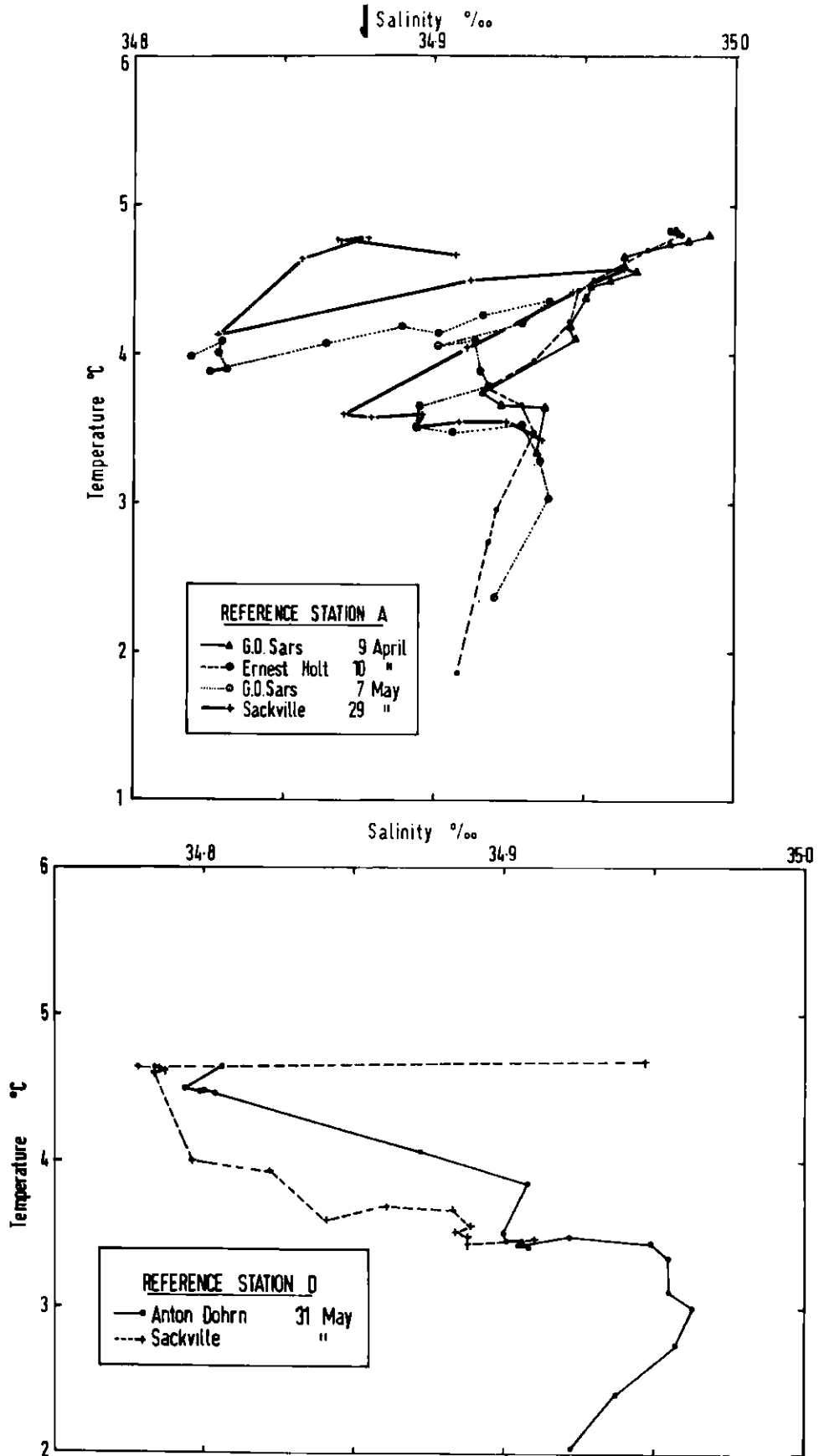


Figure 7: T-S diagrams: Reference Stations A and D.

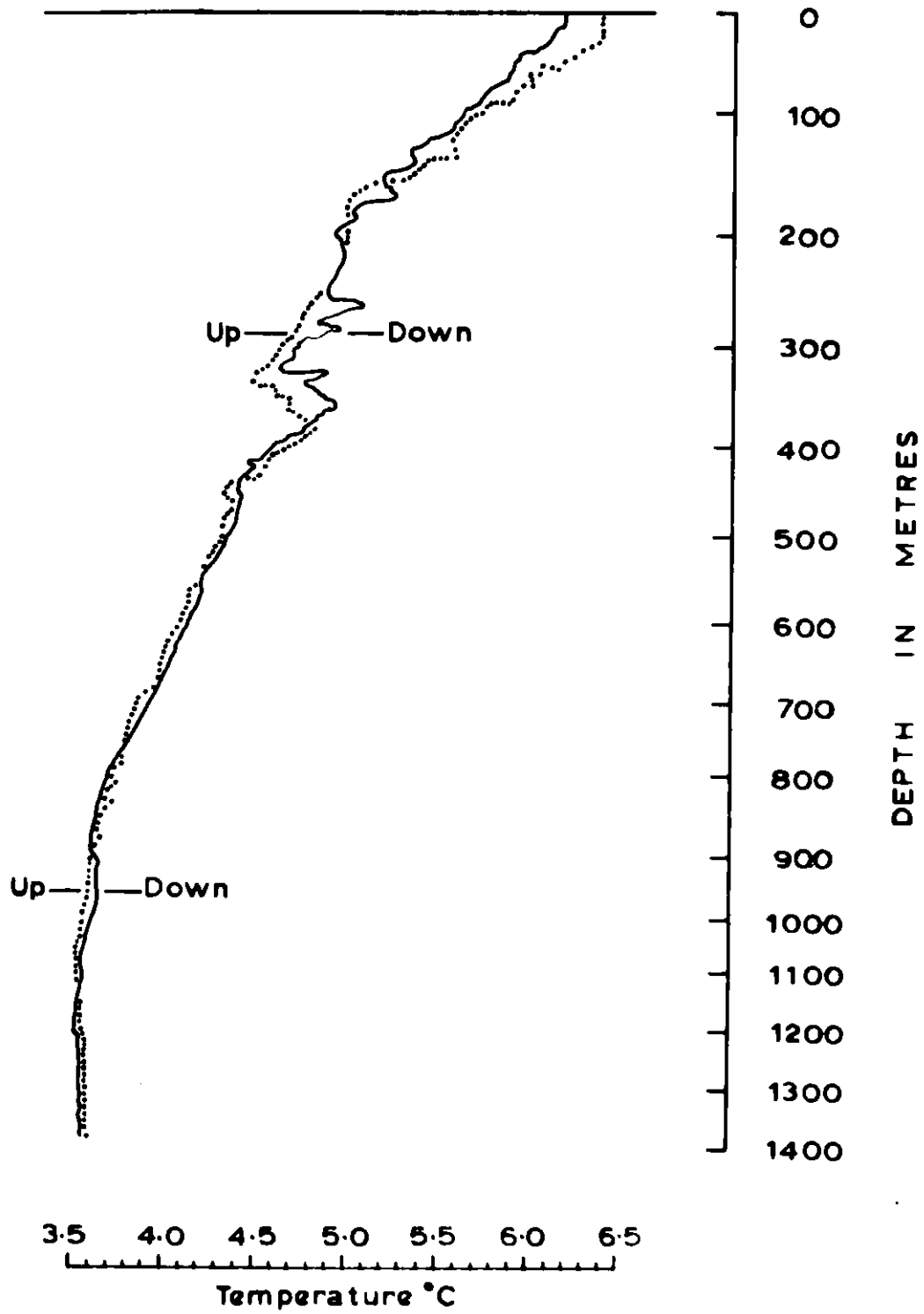


Figure 8: Bathysonde record at Reference Station B: Anton Dohrn, 6 June 1963.

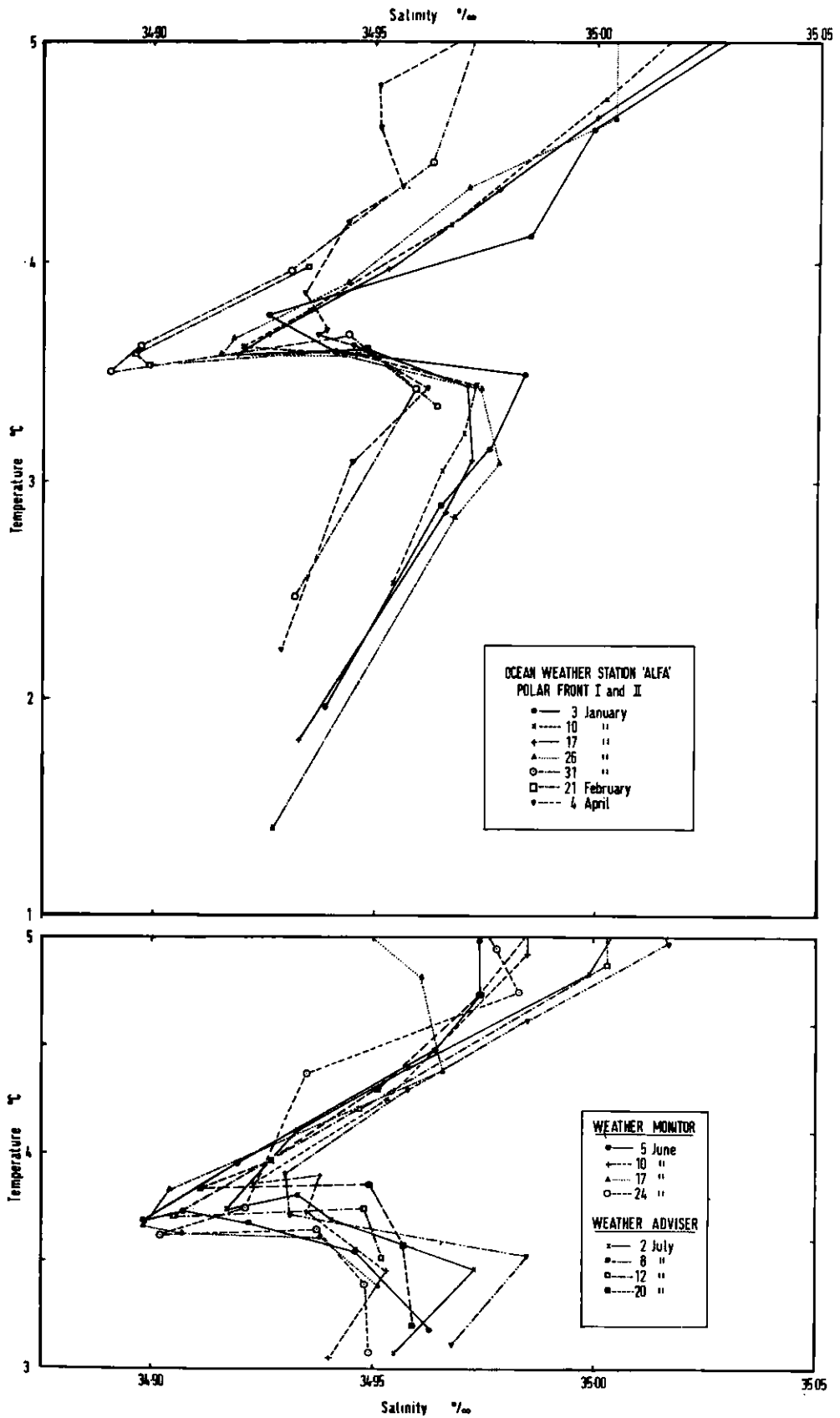


Figure 9: T-S diagrams: Ocean Weather Station ALFA

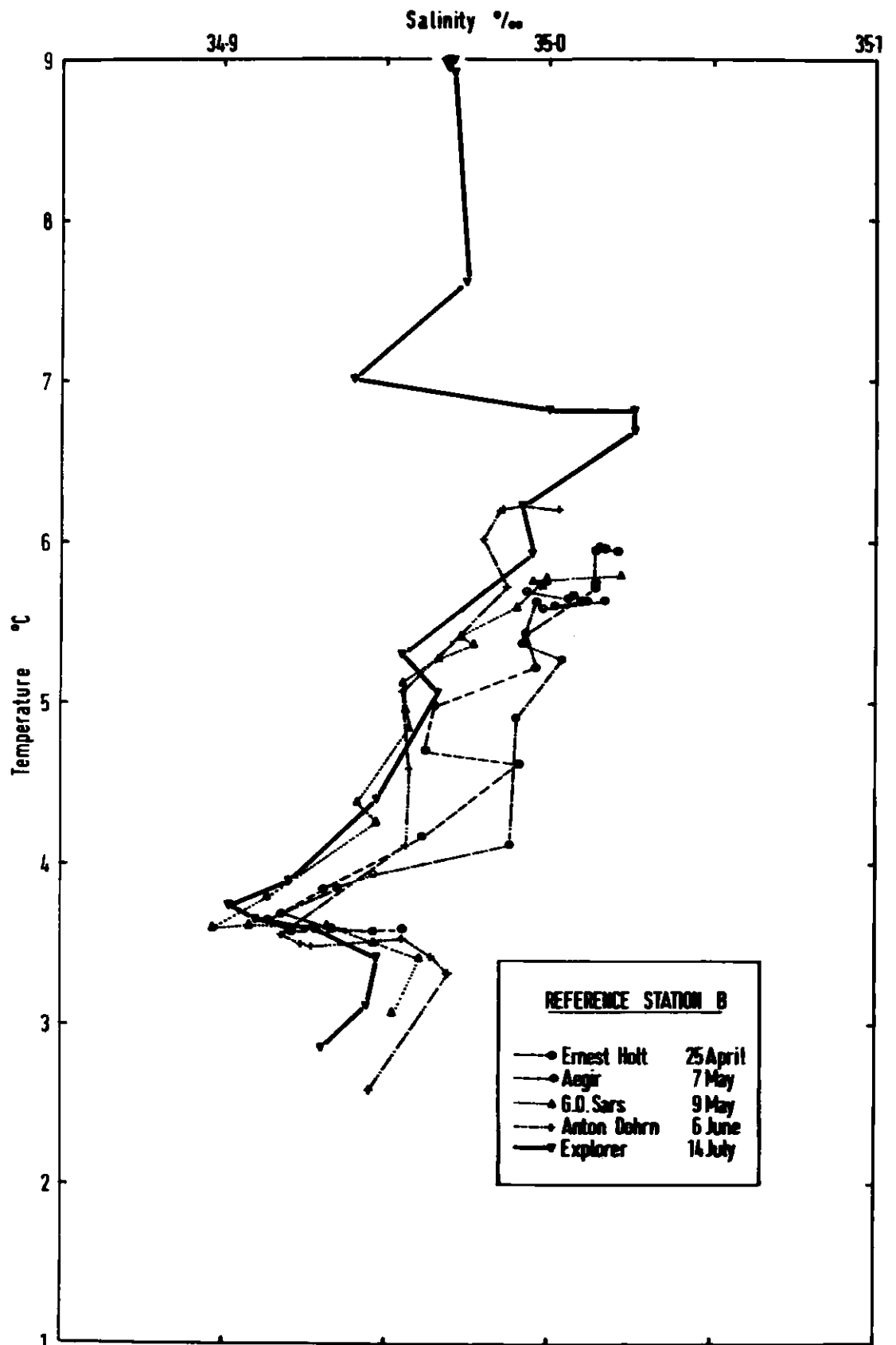


Figure 10: T-S diagrams: Reference Station B.

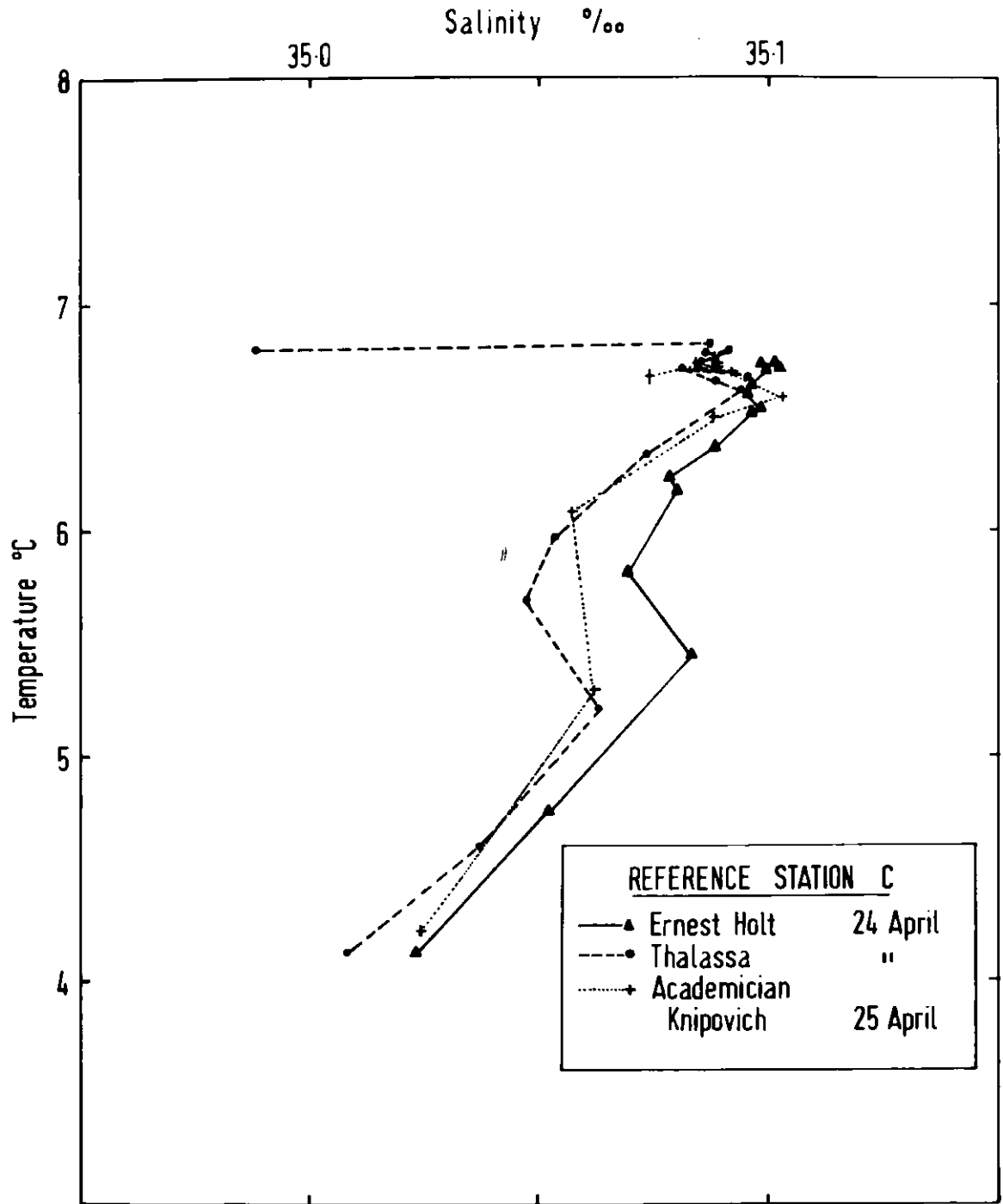


Figure 11: T-S diagrams: Reference Station C.

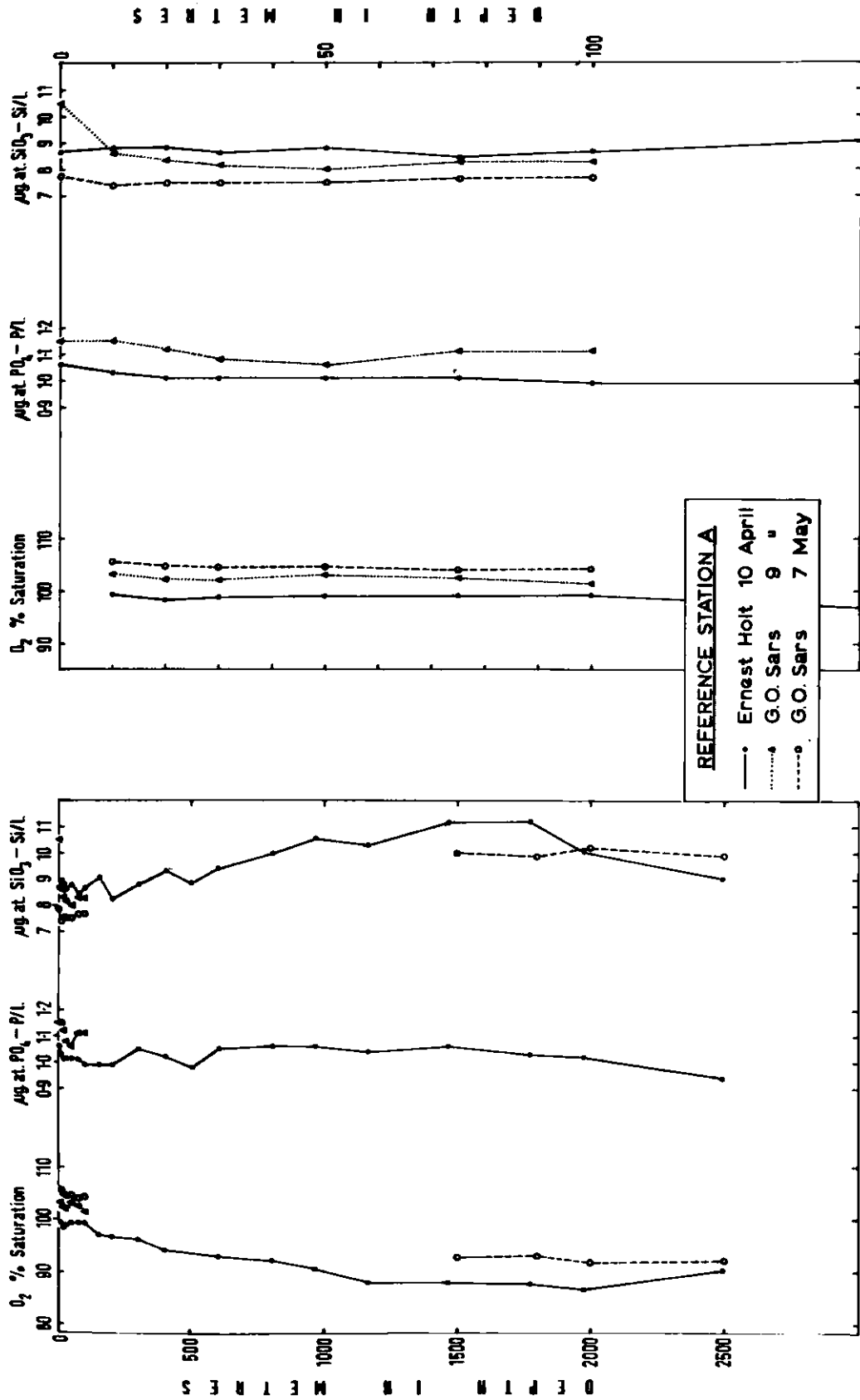


Figure 13: Phosphate, silicate and oxygen profiles at Reference Station A.

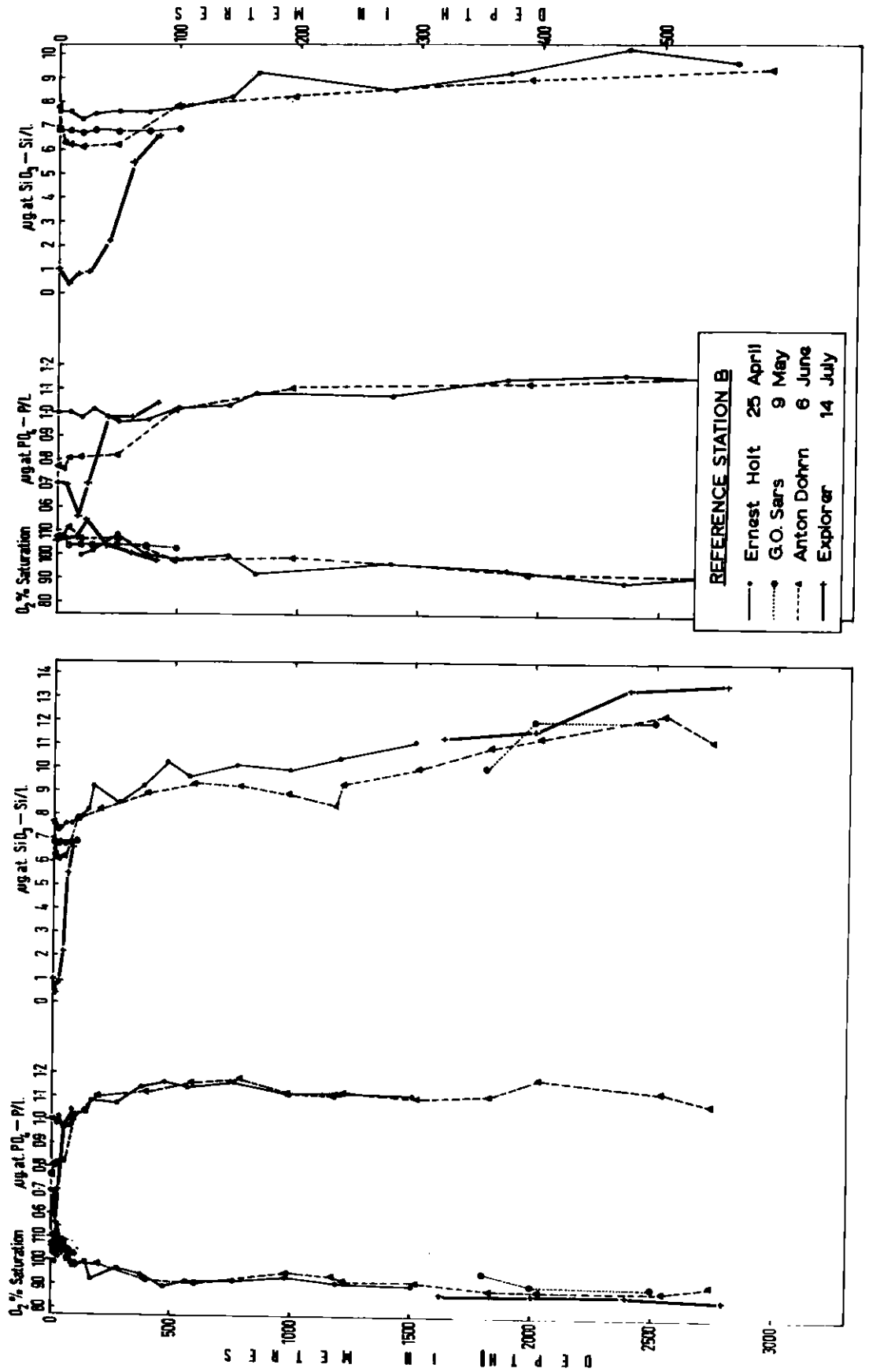


Figure 14: Phosphate, silicate and oxygen profiles at Reference Station B.

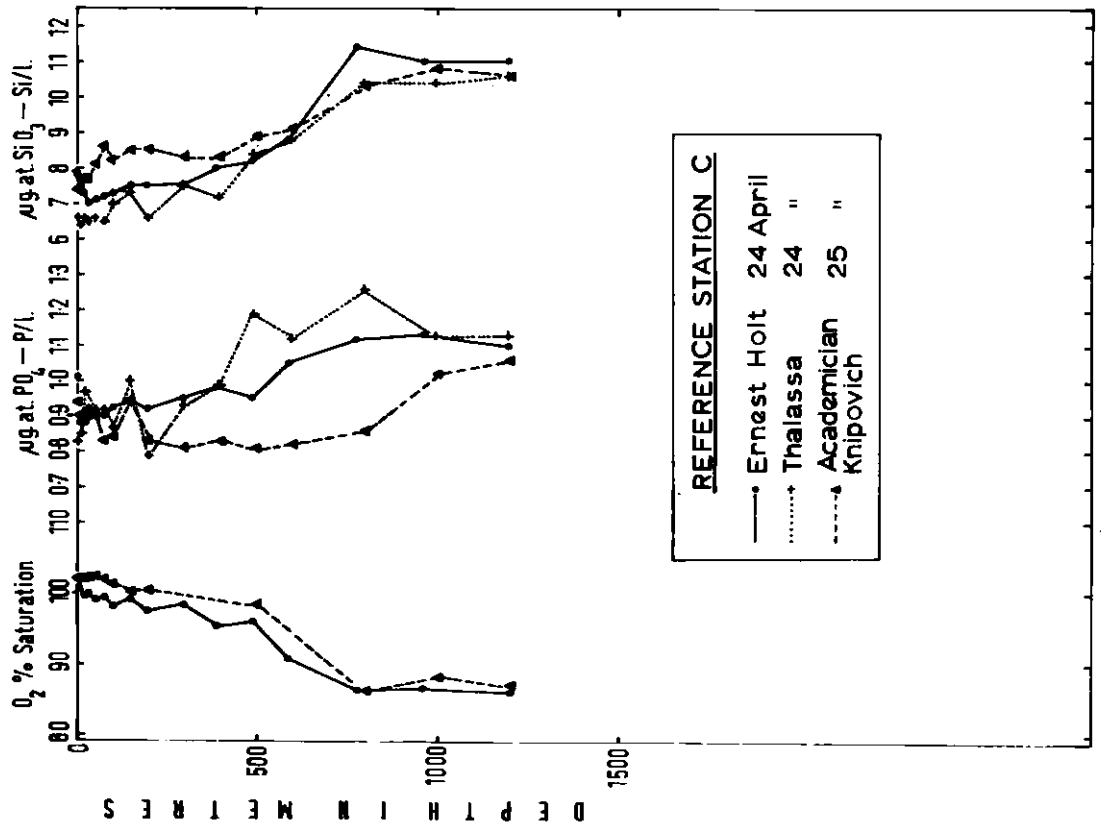
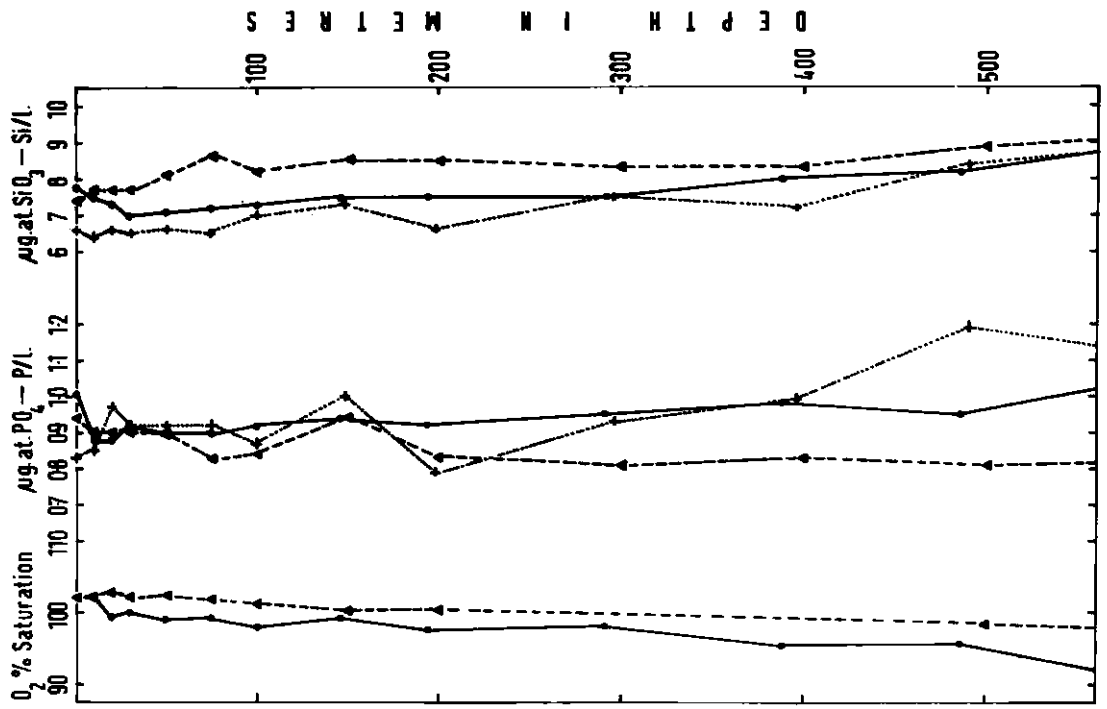


Figure 15: Phosphate, silicate and oxygen profiles at Reference Station C.

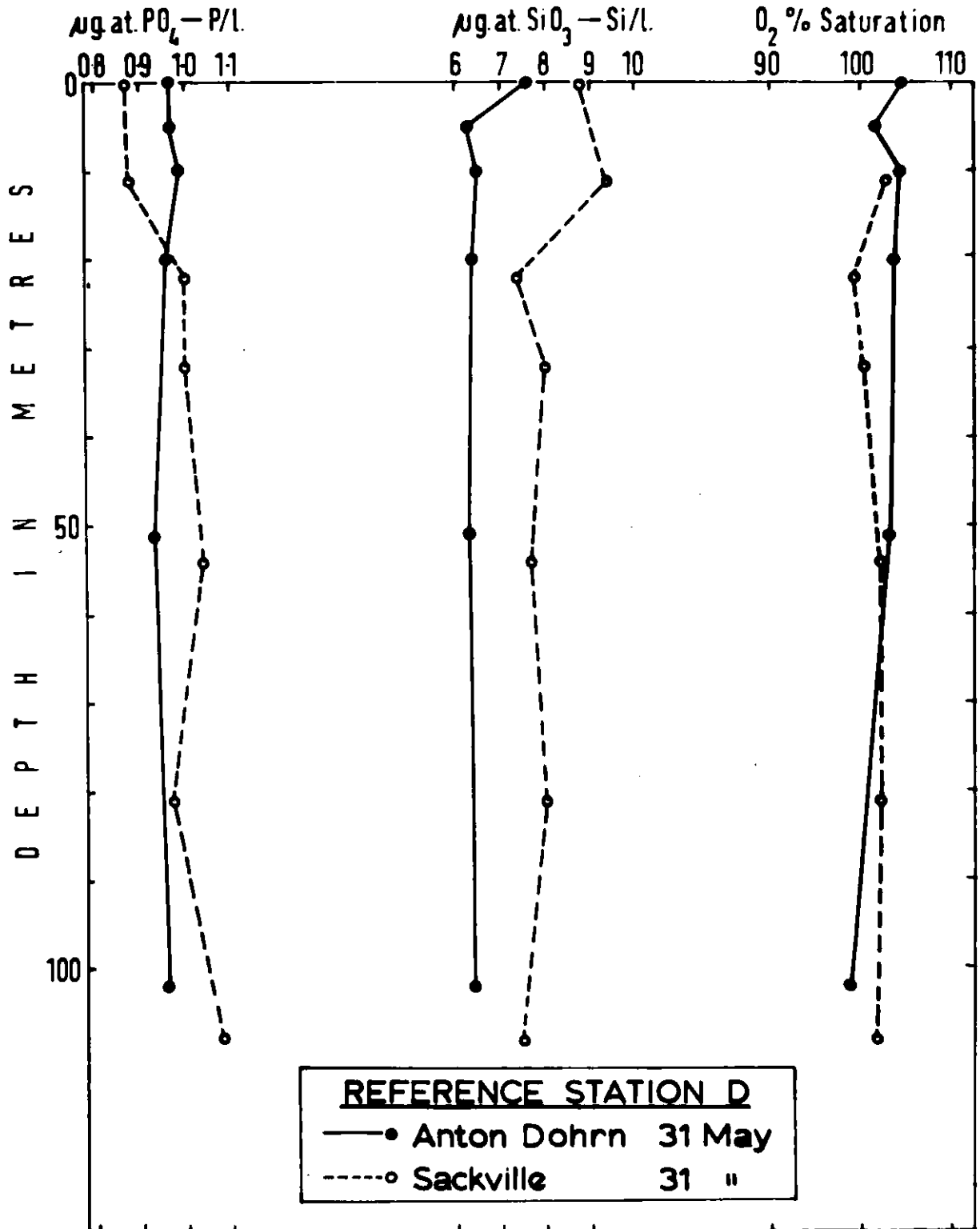


Figure 16: Phosphate, silicate and oxygen profiles at Reference Station D.

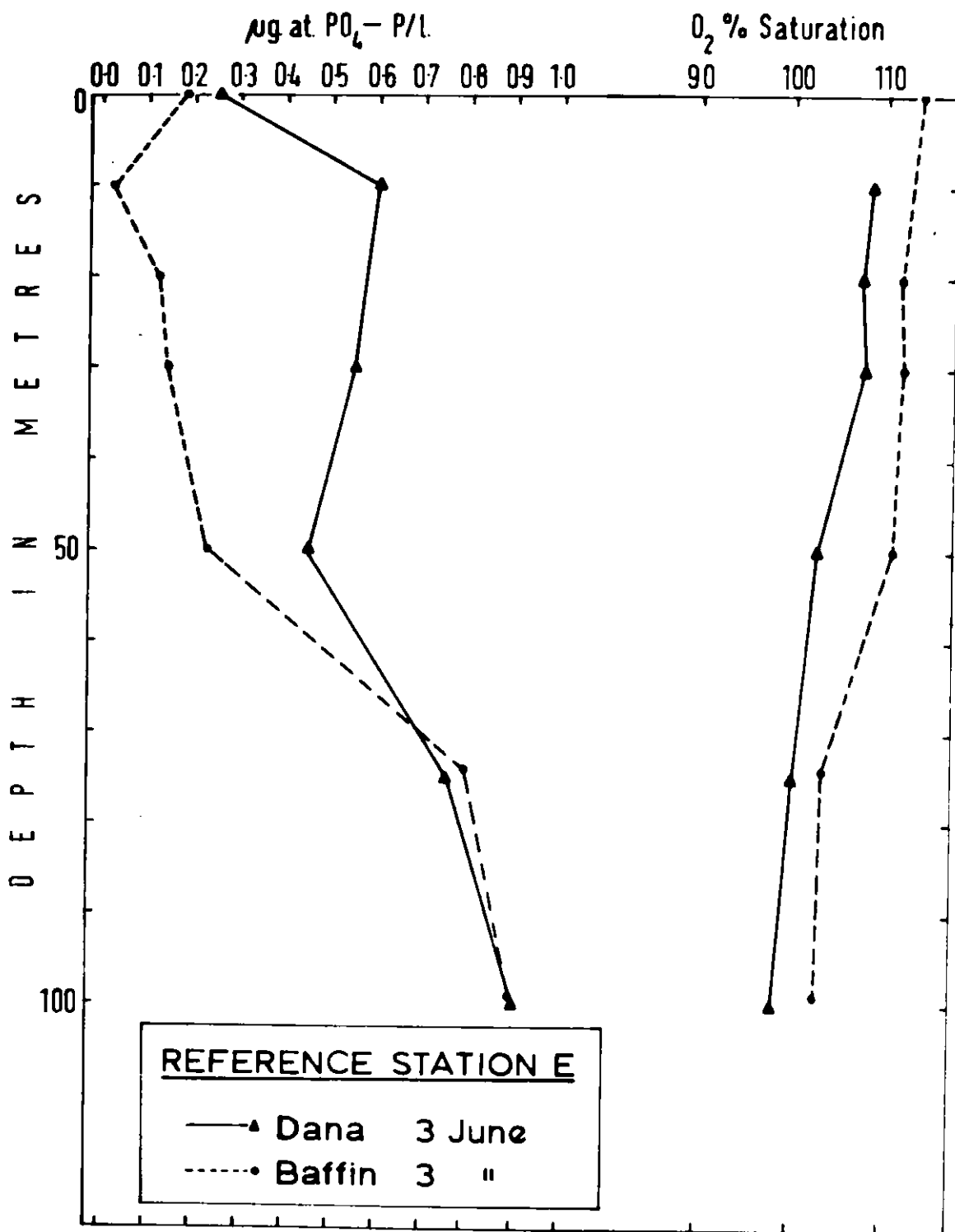


Figure 17: Phosphate and oxygen profiles at Reference Station E.

**DESCRIPTION OF THE MACHINE
GENERATED DATA RECORD**

INTRODUCTION

This section applies to the machine processing phase of the data reduction and computation.

The oceanographic data previously recorded on CODC data summary forms, a sample of which is shown on the next page, are transferred to punch-cards for subsequent electronic data processing on an IBM 1620 computer, using CODC's OCEANS II program. In addition to computing routine derived quantities, the program carries out unit and format conversions, range checks, plausibility tests, internal editing, and if required, interpolation at standard oceanographic depths. When interpolations are carried out, additional derived values are computed.

After the data have been processed, the data record is prepared using an IBM 1401 computer configuration with the OCEAN REPORT III program, which provides for pre-edited high speed print-out on continuous direct-image masters. These masters subsequently yield the required volume of copies for distribution.

Provision has been made to enter an "estimate of precision" for each observed variable selected for interpolation at standard oceanographic depths. The precision depends on the instrument and/or technique used to determine the variable. A standard precision stated as a **standard deviation** (σ) can be determined for each instrument or technique under routine field conditions by making duplicate determinations of the variables for a homogeneous sample of sea water. These standard deviations are given for each cruise under "GENERAL INFORMATION", which just precedes the serial oceanographic data.

The **measurement error estimate** of a specific observation in this data record, is stated as a multiple of the standard deviation derived as above, and entered in a column immediately to the right of the reported variable. In order to distinguish it from an additional decimal digit, the measurement error estimate is recorded alphabetically, (i.e., $1\sigma = A$, $2\sigma = B$, etc.; in this data record "A" is suppressed).

An option is provided with respect to the measurement of the salinity variable. If observed to three decimal digits, the last digit takes the place of the measurement error estimate.

In the past, a number of methods for both manual and machine interpolation have been developed. Studies and comparisons of the several methods have shown that no single method is universally acceptable. The manual methods are the most elaborate and flexible, but often require subjective decisions. In machine interpolation, all the present methods fail to yield acceptable results under some circumstances. Hence, it is considered necessary to qualify interpolated values by stating an "**interpolation error estimate**" derived from the particular interpolation formula used. There are two purposes in stating the error estimates; **first**, to give an indication of the quality of the interpolated data; **second**, to allow the oceanographer to redesign his observational procedures in order to reduce interpolation errors in future observations.

The interpolation scheme chosen for the OCEANS II program consists of a combination of two 3-point interpolations using the Lagrangian interpolation polynomial, as recommended by Rattray (1962). A parabola is fitted through three values of a given variable (T, S, O₂) considered as a function of depth. The two interpolation parabolas require a total of four points (observed depths). The middle points are common to both parabolas. The average of the two values obtained from the parabolas at standard depth is taken as the interpolated value, and a function of their difference as an estimate of the interpolation error.

This function combined with the "**measurement error estimate**" comprises the "**combined measurement and interpolation error estimate**". It is expressed as a multiple of the standard deviation of measurement (σ) under normal routine field conditions by:

CANADIAN OCEANOGRAPHIC DATA CENTRE

1 IDENT. CODE	2 LATITUDE (N=+)		3 LONGITUDE (W=+)		5 DATE		6 TIME	7 DEPTH	9 NO. DEPTHS OBS'D.	VESSEL												
	4 COUNTRY INST.	1 DEG. MIN. 10	1 DEG. MIN. 10	1 MIN. 10	19 YEAR	20 MONTH	21 DAY	1 HOURS G.M.T.	1 TO BOTTOM	34 35	ENTERED BY	CHECKED BY										
10 WATER	11 WAVES I	12 WAVES II	13 WIND	14 BAROMETER	15 AIR TEMP.	16 WET BULB	17 W.W. CODE	18 CLOUD	19 HOURS AFTER H.W.	21 UNASSIGNED	22 CRUISE REFERENCE NUMBER	23 CONSEC. NUMBER	24 OBS. NO.									
1 COLOUR TRANS.	Dw Dwp Pw Hw	Dw Dwp Hw	DIR.	10 SEPT. 62	1 TO	1 TO	1 TO	1 TO	61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 TO	1 TO	1 TO	1 TO									
36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	7 DEPTH OF SAMPLE		8 TEMPERATURE		9 SALINITY		10 OXYGEN		13 PO ₄ - P		14 TOTAL - P		15 NO ₂ - M		16 NO ₃ - M		17 SIO ₃ - 5I		18 P.H.			
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	6 TIME		6 HOURS G.M.T.		6 HOURS G.M.T.		6 HOURS G.M.T.		6 HOURS G.M.T.		6 HOURS G.M.T.		6 HOURS G.M.T.		6 HOURS G.M.T.		6 HOURS G.M.T.		6 HOURS G.M.T.		6 HOURS G.M.T.	
OBSERVER V.L.E.D. CARD																						

$$\frac{\sigma_i}{\sigma} = \left\{ \frac{(\Delta V_i)^2}{\sigma^2} + \sum_{n=j-2}^{j+i} (\gamma_n)^2 \left(\frac{\sigma_n}{\sigma} \right)^2 \right\}^{1/2}, \text{ where}$$

σ = Standard deviation of the combined error estimates at standard oceanographic depth,

ΔV_i = the interpolation error estimate of variable "V" at standard oceanographic depth = $\frac{1}{3} (V_{i_1} - V_{i_2})$

γ = Interpolation polynomial coefficient.

Z_j = Observed depth.

Z_i = Standard oceanographic depth, such that: $Z_{j-2} < Z_{j-i} < Z_i < Z_{j+i}$

The integral part of the fraction $\frac{\sigma_i}{\sigma}$, if ≥ 2 , is reported in this Data Record following the interpolated variable. It represents the **combined measurement and interpolation error estimate**. In order to distinguish it from an additional decimal digit, it is recorded alphabetically (e.g.: 2 as "B" as "C", etc.).

With respect to the interpolated value of the salinity variable if reported to three decimal digits, the **interpolation error estimate** is given only when $\frac{\sigma_i}{\sigma} \geq 2$ (the salinity is then recorded to two decimal places). If less than 2, the mean obtained from the two interpolation parabolas is reported to three decimal places.

EXPLANATION OF DATA RECORD HEADINGS

MASTER HEADINGS

(1) <i>C-REF-NO</i>	(6) <i>YR</i>	(10) <i>DEPTH</i>	(15) <i>WAVES 1</i>	(20) <i>AIR T</i>	(25) <i>VIS</i>
(2) <i>CONS. NO</i>	(7) <i>MONTH</i>	(11) <i>MXSAMPD</i>	(16) <i>WAVES 2</i>	(21) <i>WET B</i>	(26) <i>STN</i>
(3) <i>LAT</i>	(8) <i>DAY</i>	(12) <i>NO. DPTH</i>	(17) <i>WND-DIR</i>	(22) <i>ww-CODE</i>	
(4) <i>LON</i>	(9) <i>HR</i>	(13) <i>W-COLOR</i>	(18) <i>WND-FCE</i>	(23) <i>CLD-TPE</i>	
(5) <i>MARSD SQ</i>		(14) <i>W-TRNSP</i>	(19) <i>BARO</i>	(24) <i>CLD-AMT</i>	(27) <i>HW</i>

- (1) CRUISE REFERENCE NUMBER: Assigned by the Institute. Commences with 001 at the beginning of each year.
- (2) CONSECUTIVE NUMBER: Indicates the chronological order in which the stations were occupied.
- (3) LATITUDE:
(4) LONGITUDE: Indicate the position of the platform at the time of observation.
- (5) MARSDEN SQUARE: Designates the geographic area code of the observation (see Marsden square chart).
- (6) YEAR:
- (7) MONTH:
- (8) DAY:
- (9) HOUR: The time (Greenwich Mean Time) at which the surface environmental data were recorded. It is reported to tenths of hours (Table 1).
- (10) DEPTH: The sounding reported in metres. Charted depths are preceded by the letter "C".
- (11) MAXIMUM SAMPLING DEPTH: A code to indicate the deepest sampling depth (used for high speed sorting).
 00 m - 50 m = 00
 51 m - 150 m = 01
 151 m - 250 m = 02
 etc.
- (12) NUMBER OF DEPTHS: The number of levels observed (this is entered to initiate a computer safety check, guarding against the loss of punch-cards).
- (13) WATER COLOUR: A code based on the percentage of yellow. (See Table 2).
- (14) WATER TRANSPARENCY: The depth in metres at which a Secchi disc (white disc, 30 cm. in diameter) just disappears from view.

- (15) WAVES 1
(dwdwPWHW code): The direction, period and height of the **wind-propagated** wave system. (See Tables 3, 4 and 5). Ref: World Meteorological Organization Codes 0877, 3155, 1555.
- (16) WAVES 2
(dwdwPWHW code): The direction, period and height of the predominant **non-wind-propagated** wave system. (See Tables 3, 4 and 5). Ref: World Meteorological Organization Codes 0877, 3155, 1555.
- (17) WIND DIRECTION: The true direction to the nearest 10 degrees from which the wind is blowing (wind direction 990 means:—wind variable or direction unknown).
- (18) WIND FORCE
(WND-FCE): Beaufort notation (See Table 6).
- WIND SPEED
(WND-SPD): Anemometer reading reported in metres per second. Instrument height reported in "GENERAL INFORMATION".
- (19) BAROMETER: The barometric pressure reported in millibars: the type of instrument used will be given under "GENERAL INFORMATION".
- (20) AIR
TEMPERATURE: In degrees Celsius.
- (21) WET BULB: In degrees Celsius.
- (22) ww CODE: Present Weather Code (See Table 7). Ref: WMO Code 4677
- (23) CLOUD TYPE: The type of predominating clouds (See Table 8). Ref: WMO Code 0500.
- (24) CLOUD AMOUNT: The sky coverage in eighths (See Table 9) Ref: WMO Code 2700.
- (25) VISIBILITY: Visibility at the surface (See Table 10). Ref: WMO Code 4300.
- (26) STATION: A station reference number, assigned by the institute prior to, or during the survey.
- (27) HOURS AFTER
HIGH WATER: Indicates the state of the tide for nearshore observations.

OBSERVED DATA HEADINGS

(1) GMT	(2) DEPTH	(3) TEMP	(4) SAL	(5) OXYGEN	(6) SGMT
(7) SOUND	(8) PO4	(9) -P-	(10) NO2	(11) NO3	(12) SiO3
					(13) pH.

NOTE: Headings (1) to (7) will always be present. Headings (8) to (13) appear only when one or more additional chemical entries were made.

- (1) G.M.T.: The Greenwich Mean Time of (in-situ) thermometer inversion and sea water sample collection.
- When a multiple cast was initiated prior to and continued after midnight, the times indicated are uninterrupted by the change of day and appear beyond 24.0 hours. This will be accompanied by a statement: "MULTIPLE CAST CONTINUED NEXT DAY", which is printed following the last level of observed values.
- (2) DEPTH: The depth in metres at the reversal time of deepest cast.
- (3) TEMPERATURE: Temperatures from deepsea reversing thermometers, read to 0.01°C. Surface temperature measurement procedures are described either in "OBSERVATIONAL PROCEDURES" or under "GENERAL INFORMATION". An **alphabetical character** following the temperature value represents the measurement error estimate referred to in the INTRODUCTION to this section.
- (4) SALINITY: Salinity as defined by: $S = 0.03 + 1,805 C1\text{‰}$, reported in:
- 1/100 parts per 1000, or
 - 1/1000 parts per 1000.
- In case a:** an alphabetical character following the value is the measurement error estimate as referred to under (3).
- In case b:** no error estimate indication is provided for, but an additional decimal digit takes its place.
- (5) OXYGEN: The concentration of dissolved oxygen expressed in millilitres per litre to 2 decimal places.
- An alphabetical character following the value is the measurement error estimate as referred to under (3).
- (6) SIGMA-T: The specific gravity anomaly as defined by: $(\text{Specific gravity} - 1) \times 10^3$ (e.g., σ , reported as 2456, reads 24.56, and corresponds to a specific gravity of 1.02456).
- (7) SOUND: The sound velocity is reported in m/sec. to 1 decimal place (e.g., 1437.9 m/sec.). The computation is carried out using Wilson's formula (1960), expressed in terms of temperature, salinity and **total** pressure.
- (8) PO4: Phosphate-Phosphorus reported to hundredths of microgram-atoms per litre.
- (9) -P-: Total Phosphorus reported to hundredths of microgram-atoms per litre.
- (10) NO2: Nitrite-Nitrogen reported to hundredths of microgram-atoms per litre – No dissolved nitrogen included –
- (11) NO3: Nitrate-Nitrogen reported to tenths of microgram-atoms per litre.
- (12) SiO3: Silicate-Silicon reported to tenths of microgram-atoms per litre.
- (13) pH: The pH value.

NOTE: "TRC" (trace) is reported when a chemical entry has a value less than the standard deviation of measurement for that particular variable.

ADDITIONAL CHEMICAL HEADINGS

- (1) *DEPTH* (2) *ALK* (3) *NH3* (4) *-C-*
- (1) DEPTH: The depth in metres.
- (2) ALK: Alkalinity reported to hundredths of milli-equivalents per litre.
- (3) NH3: Ammonia nitrogen reported to hundredths of micrograms per litre.
- (4) -C-: Organic matter expressed as tenths of milligrams of carbon per litre.

INTERPOLATED DATA HEADINGS

- (1) *DEPTH* (2) *TEMP* (3) *SAL* (4) *OXYGEN* (5) *SGMT* (6) *SOUND*
 (7) *DELTA-D* (8) *POT-EN* (9) *SVA.*

- (1) DEPTH: Standard Oceanographic Depth in whole metres, as well as additional depths: 125, 175, 225, 3500, 4500, 5500, 6500, 7500, 8500, 9500.
- (2) TEMPERATURE: Interpolated value at standard depth, followed by the **combined measurement and interpolation error estimate** (see "INTRODUCTION").
- (3) SALINITY: **A.** The reported salinity values are measured to three decimal places.
 (i) the interpolation error estimate is less than twice the standard deviation of measurement.
 —the interpolated value is reported to three decimal places (e.g., 30.139).
 (ii) the interpolation error estimate is equal to or greater than twice the standard deviation of measurement.
 —the interpolated value is reported to two decimal places, and followed by the **interpolation error estimate** (e.g., 29.23 C).
B. The reported salinity values are measured to two decimal places and followed by the measurement error estimate.
 —the interpolated value is reported to two decimal places, and followed by the **combined measurement and interpolation error estimate** (e.g., 30.59 B).
- (4) OXYGEN: Interpolated value at standard depth, followed by the **combined measurement and interpolation error estimate** (see "INTRODUCTION").
- (5) SIGMA-T: Computed from temperature and salinity values at standard oceanographic depth.
- (6) SOUND
 VELOCITY: Computed from temperature, salinity and total pressure values at standard oceanographic depth, using Wilson's formula (1960).
- (7) DELTA-D: The geo-potential anomaly as defined by:

$$\Delta D = \int_0^p \delta dp$$

ΔD is expressed in dynamic metres (10^5 ergs/gram) and recorded to three decimal places (e.g., 2.345 dyn. metres).

(8) POTENTIAL
ENERGY
ANOMALY:

The Potential energy anomaly χ as defined by:

$$\chi = 1/g \int_0^p \rho \delta dp = \int_0^z \rho p \delta dz$$

χ is expressed in units of 10^8 ergs/cm² and recorded to two decimal places (e.g., 116.44).

(9) SPECIFIC
VOLUME
ANOMALY:

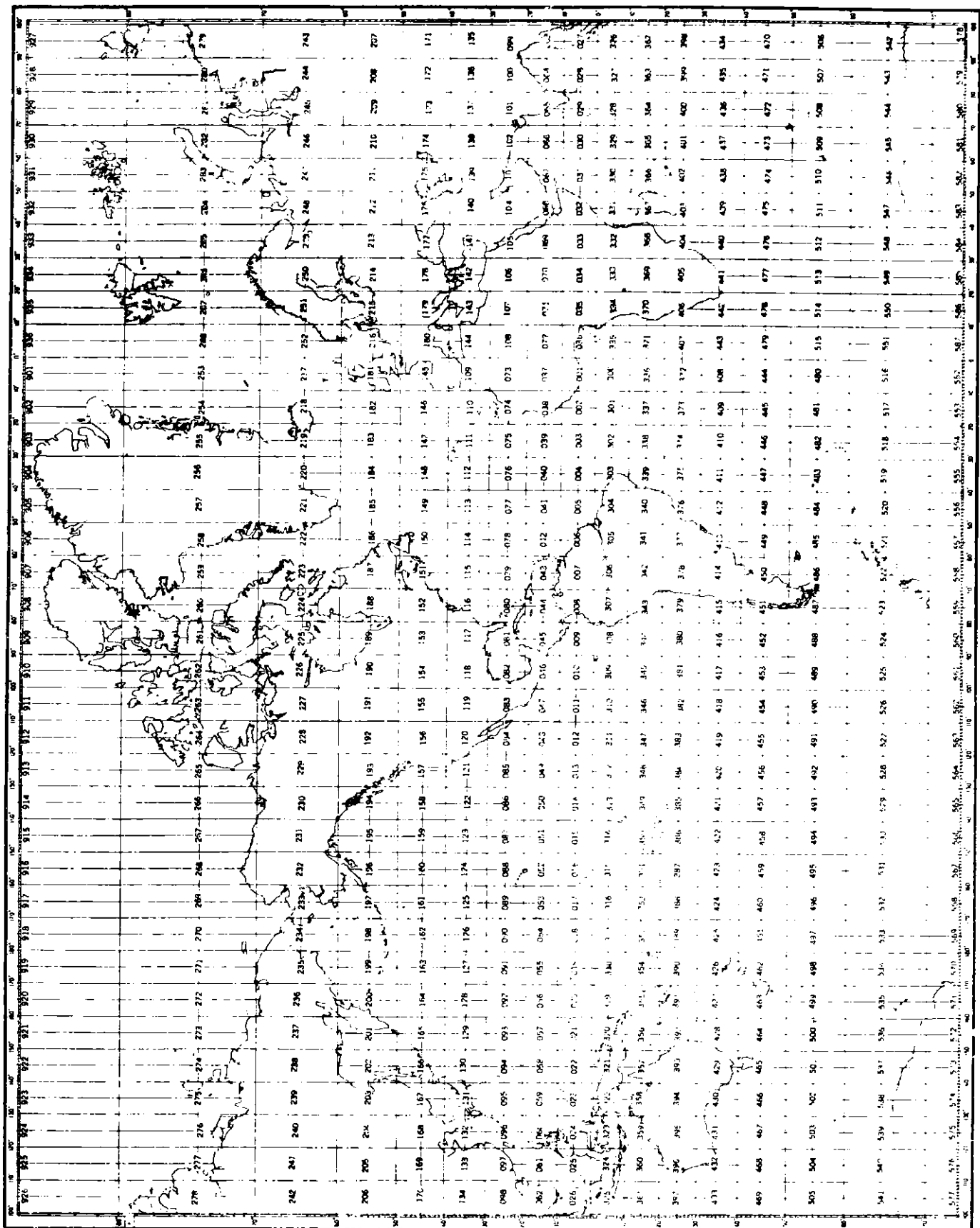
The specific volume anomaly as defined by:

$$\delta = \alpha - \alpha_{35,0,P}$$

δ is expressed in ml/gr, and conventionally reported as $10^5 \delta$, to one decimal place (i.e., δ reported as 1234, reads 123.4, and corresponds to a specific volume anomaly of 0.001234 ml/gr.).

SPECIAL CHARACTERS

- ‡ (Record mark): is used to indicate inconsistencies which are printed in an area below the "Observed Data". A Corresponding record mark at the extreme left hand side indicates the level at which the inconsistency occurs.
- * (Asterisk): this character may occur in the **interpolated** portion of the data record. It is printed at the extreme left hand side of the page, when three or more standard depth levels fall within any one **observed depth interval**. The **third**, and all consequent levels are preceded by the asterisk to indicate that more than **two** machine interpolations were carried out, utilizing the same set of interpolation parabolas. The asterisk will also appear when the last standard depth is an extrapolation and there are at least two interpolations between the last two observed depths.
- Q: appears occasionally in this data record, preceding an observed oxygen value. This "questionable" indicator infers that the value does not fit the usual pattern of oxygen distribution. "The questionable" value could be due to a sampling error and, generally, is not a result of an error in determination.



MARDEN SQUARE CHART

NO 1041

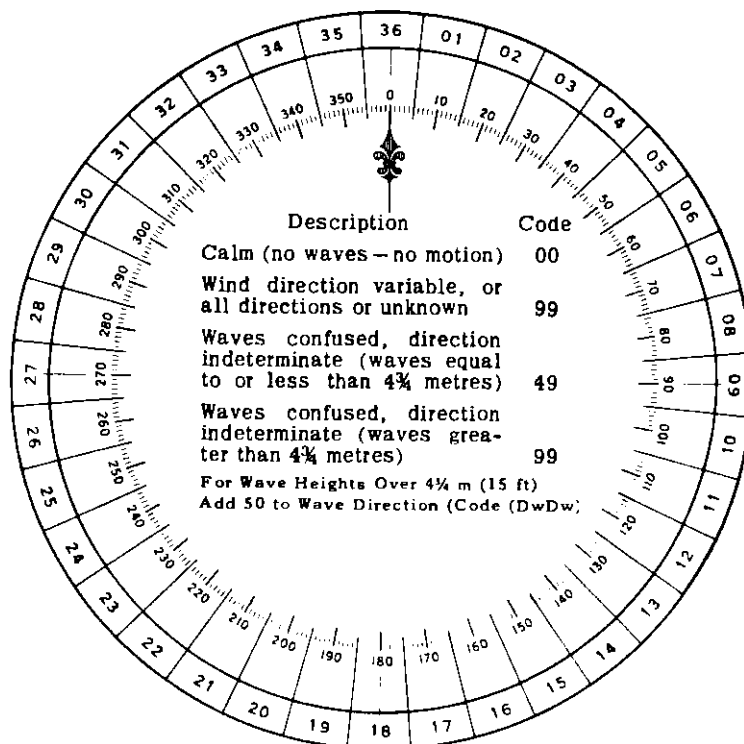
Table 1
CONVERSION
MINUTES TO $\frac{1}{10}$ HRS.

Minutes	Tenths Hrs.
00-03	0
04-08	1
09-15	2
16-20	3
21-27	4
28-32	5
33-39	6
40-44	7
45-51	8
52-56	9
57-59	0 (next HR.)

Table 2
WATER COLOR CODE
Based on Percentage Yellow

Code:	Description
00	Deep Blue
10	Blue
20	Greenish Blue
30	Bluish Green
40	Green
50	Light Green
60	Yellowish Green
70	Yellow Green
80	Green Yellow
90	Greenish Yellow
99	Yellow

Table 3. DIRECTION CODE (dd)



NOTE:

Always use the true direction from which the wind is blowing, or the direction from which Waves I (sea), or Waves II (swell) come.

Table 4. PERIOD OF THE WAVES (P_w)
(Measure to the Nearest Second)

Code:	Period in Seconds:	Code:	Period in Seconds:
2	5 sec. or less	8	16 or 17 sec.
3	6 or 7 sec.	9	18 or 19 sec.
4	8 or 9 sec.	0	20 or 21 sec.
5	10 or 11 sec.	1	Over 21 sec.
6	12 or 13 sec.	X	Calm, or period not determined
7	14 or 15 sec.		

Table 5. HEIGHT OF THE WAVES (H_w)

- The average value of the wave height (vertical distance between trough and crest) is reported, as obtained from the larger well formed waves of the wave system being observed.
- Each code figure provides for reporting a range of heights. For example: 1 = $\frac{1}{4}$ m (1 ft) to $\frac{3}{4}$ m ($2\frac{1}{2}$ ft); 5 = $2\frac{1}{4}$ m (7 ft) to $2\frac{3}{4}$ m (9 ft); 9 = $4\frac{1}{4}$ m ($13\frac{1}{2}$ ft) to $4\frac{3}{4}$ m (15 ft), etc.
- If a wave height comes exactly midway between the heights corresponding to two code figures, the lower code figure is reported; e.g. a height of $2\frac{3}{4}$ m is reported by code figure 5.

Code		Code	
0	Less than $\frac{1}{4}$ m (1 ft)	0	5 m (16 ft)
1	$\frac{1}{2}$ m ($1\frac{1}{2}$ ft)	1	$5\frac{1}{2}$ m ($17\frac{1}{2}$ ft)
2	1 m (3 ft)	2	6 m (19 ft)
3	$1\frac{1}{2}$ m (5 ft)	3	$6\frac{1}{2}$ m (21 ft)
4	2 m ($6\frac{1}{2}$ ft)	4	7 m ($22\frac{1}{2}$ ft)
5	$2\frac{1}{2}$ m (8 ft)	5	$7\frac{1}{2}$ m (24 ft)
6	3 m ($9\frac{1}{2}$ ft)	6	8 m ($25\frac{1}{2}$ ft)
7	$3\frac{1}{2}$ m (11 ft)	7	$8\frac{1}{2}$ m (27 ft)
8	4 m (13 ft)	8	9 m (29 ft)
9	$4\frac{1}{2}$ m (14 ft)	9	$9\frac{1}{2}$ m ($30\frac{1}{2}$ ft) or more
x	Height not determined		

Add
50
to
Dw Dw

Table 6. WIND FORCE CODE

The Beaufort force of the wind is estimated from the appearance of the sea surface, according to the table below. This table is only intended as a guide to show roughly what may be expected on the open sea, remote from land. Factors which must be taken into account are the "lag" effect between the wind increasing and the sea getting up; and the influence of "fetch", depth, swell, heavy rain and tide effect on the appearance of the sea. Estimation of the wind force by this method becomes unreliable in shallow water or when close inshore, owing to the tidal effect and the shelter provided by the land.

Code	Appearance of sea if fetch and duration of the blow have been sufficient to develop the sea fully	Description
00	Sea like a mirror	Calm
01	Ripples with the appearance of scales are formed, but without foam crests.	Light Air
02	Small wavelets; crests have a glassy appearance and do not break.	Light Breeze
03	Large wavelets; crests begin to break; foam of glassy appearance; perhaps scattered white horses.	Gentle Breeze
04	Small waves, becoming longer; fairly frequent white horses.	Moderate breeze
05	Moderate waves; many white horses are formed (chance of some spray)	Fresh Breeze
06	Large waves; white foam crests everywhere (probably some spray)	Strong Breeze
07	Sea heaps up and white foam from breaking waves begins to be blown in streaks along the direction of the wind.	Near Gale
08	Moderately high waves; edges of crests begin to break into the spindrift; foam is blown in well-marked streaks along the direction of the wind.	Gale
09	High waves; dense streaks of foam along wind; crests begin to topple, tumble and roll over; spray may affect visibility.	Strong Gale
10	Very high waves with long overhanging crests; foam in great patches blown in dense white streaks along wind; sea surface takes a white appearance; tumbling becomes heavy and shock-like; visibility affected.	Storm
11	Exceptionally high waves (medium sized ships may be lost to view behind waves); sea covered with long white patches of foam lying along the wind; everywhere edges of crests are blown into froth; visibility affected.	Violent Storm
12	Air is filled with foam and spray; sea completely white with driving spray; visibility seriously affected.	Hurricane

Table 7. PRESENT WEATHER
W.W. CODE

NO PRECIPITATION ON STATION AT TIME OF OBSERVATION

Code figure				
ww				
No meteors except photometeors	00	Cloud development not observed or not observable	} characteristic change of the state of sky during the past hour	
		01		Clouds generally dissolving or becoming less developed
		02		State of sky on the whole unchanged
Haze, dust, sand or smoke	03	Clouds generally forming or developing		
	04	Visibility reduced by smoke, e.g. veldt or forest fires, industrial smoke or volcanic ashes		
	05	Haze		
	06	Widespread dust in suspension in the air, not raised by wind at or near the station at the time of observation		
	07	Dust or sand raised by wind at or near the station at the time of observation, but no well developed dust whirl(s) or sand whirl(s), and no duststorm or sandstorm seen		
	08	Well developed dust whirl(s) or sand whirl(s) seen at or near the station during the preceding hour or at the time of observation, but no duststorm or sandstorm		
	09	Duststorm or sandstorm within sight at the time of observation, or at the station during the preceding hour		
	10	Mist		
	11	Patches of	} shallow fog or ice fog at the station, whether on land or sea, not deeper than about 2 metres on land or 10 metres at sea	
	12	More of less continuous		
	13	Lightning visible, no thunder heard		
	14	Precipitation within sight, not reaching the ground or the surface of the sea		
	15	Precipitation within sight, reaching the ground or the surface of the sea, but distant (i.e. estimated to be more than 5 km) from the station		
	16	Precipitation within sight, reaching the ground or the surface of the sea, near to, but not at the station		
	17	Thunderstorm, but no precipitation at the time of observation		
	18	Squalls	} at or within sight of the station during the preceding hour or at the time of observation	
	19	Funnel clouds		
<hr/>				
ww = 20 - 29		Precipitation, fog, ice fog or thunderstorm at the station during the preceding hour but not at the time of observation		
	20	Drizzle (not freezing) or snow grains	} not falling as shower(s)	
	21	Rain (not freezing)		
	22	Snow		
	23	Rain and snow or ice pellets, type (a)		
	24	Freezing drizzle or freezing rain		
	25	Shower (s) of rain		
	26	Shower (s) of snow, or of rain and snow		
	27	Shower (s) of hail, or of rain and hail		
	28	Fog or ice fog		
	29	Thunderstorm (with or without precipitation)		
ww = 30 - 39		Duststorm, sandstorm, drifting or blowing snow		
	30		} - has decreased during the preceding hour	
	31	Slight or moderate dust-storm or sand-storm		
	32		} - no appreciable change during the preceding hour	
	33			
	34	Severe dust-storm or sand-storm	} - has begun or has increased during the preceding hour	
	35			
	36	Slight or moderate blowing snow	} generally low (below eye level)	
	37	Heavy drifting snow		
	38	Slight or moderate blowing snow	} generally high (above eye level)	
	39	Heavy blowing snow		
<hr/>				
ww = 40 - 49		Fog or ice fog at the time of observation		
	40	Fog or ice fog at a distance at the time of observation, but not at the station during the preceding hour, the fog or ice fog extending to a level above that of the observer		
	41	Fog or ice fog in patches		
	42	Fog or ice fog, sky visible	} has become thinner during the preceding hour	
	43	Fog or ice fog, sky invisible		
	44	Fog or ice fog, sky visible	} no appreciable change during the preceding hour	
	45	Fog or ice fog, sky invisible		
	46	Fog or ice fog, sky visible	} has begun or has become thicker during the preceding hour	
	47	Fog or ice fog, sky invisible		
	48	Fog, depositing rime, sky visible		
	49	Fog, depositing rime, sky invisible		

NO PRECIPITATION ON STATION AT TIME OF OBSERVATION

PRECIPITATION ON STATION AT TIME OF OBSERVATION

ww = 50 - 59	Drizzle		ww = 80 - 99	Showery precipitation, or precipitation with current or recent thunderstorm	
50	Drizzle, not freezing, intermittent	} slight at time of observation	80	Rain shower(s), slight	
51	Drizzle, not freezing, continuous			81	Rain shower(s), moderate or heavy
52	Drizzle, not freezing, intermittent	} moderate at time of observation	82	Rain shower(s), violent	
53	Drizzle, not freezing, continuous			83	Showers of rain and snow mixed, slight
54	Drizzle, not freezing, intermittent	} heavy (dense) at time of observation	84	Showers of rain and snow mixed, moderate or heavy	
55	Drizzle, not freezing, continuous			85	Snow shower(s), slight
56	Drizzle, freezing, slight		86	Snow shower(s), moderate or heavy	
57	Drizzle, freezing, moderate or heavy (dense)		87	Showers of snow pellets or ice pellets, type (b), with or without rain	} - slight
58	Drizzle and rain, slight		88	or rain and snow mixed	
59	Drizzle and rain, moderate or heavy		89	Showers of hail, with or without rain or rain and snow mixed, not associated with thunder	} - slight
ww = 60 - 69	Rain		90	Slight rain at time of observation	
60	Rain, not freezing, intermittent	} slight at time of observation	91	Moderate or heavy rain at time of observation	} thunderstorm during the preceding hour but not at time of observation
61	Rain, not freezing, continuous			92	
62	Rain, not freezing, intermittent	} moderate at time of observation	93	Moderate or heavy snow, or rain and snow mixed or hail at time of observation	} thunderstorm at time of observation
63	Rain, not freezing, continuous			94	
64	Rain, not freezing, intermittent	} heavy at time of observation	95	Thunderstorm, slight or moderate, with hail at time of observation	
65	Rain, not freezing, continuous			96	Thunderstorm, heavy, without hail, but with rain and/or snow at time of observation
66	Rain, freezing, slight		97	Thunderstorm, combined with duststorm or sandstorm at time of observation	
67	Rain, freezing, moderate or heavy		98	Thunderstorm, heavy, with hail at time of observation	
68	Rain or drizzle and snow, slight		99		
69	Rain or drizzle and snow, moderate or heavy				
70 - 79	Solid precipitation not in showers				
ww					
70	Intermittent fall of snow flakes	} slight at time of observation			
71	Continuous fall of snow flakes				
72	Intermittent fall of snow flakes	} moderate at time of observation			
73	Continuous fall of snow flakes				
74	Intermittent fall of snow flakes	} heavy at time of observation			
75	Continuous fall of snow flakes				
76	Ice prisms (with or without fog)				
77	Snow grains (with or without fog)				
78	Isolated starlike snow crystals (with or without fog)				
79	Ice pellets, type (a)				

PRECIPITATION ON STATION AT TIME OF OBSERVATION

Table 8. CLOUD TYPE CODE

Code	Cloud Type	Code	Cloud Type
0	Cirrus Ci	5	Nimbostratus Ns
1	Cirrocumulus Cc	6	Stratocumulus Sc
2	Cirrostratus Cs	7	Stratus St
3	Alto cumulus Ac	8	Cumulus Cu
4	Altostratus As	9	Cumulonimbus Cb
x	Cloud not visible owing to darkness, fog, duststorm, sandstorm, or other analogous phenomena		

Table 9. CLOUD AMOUNT CODE

Code	Cloud Cover	Code	Cloud Cover
0	0	6	6 oktas
1	1 okta or less, but not zero	7	7 oktas or more, but not 8 oktas
2	2 oktas	8	8 oktas
3	3 oktas	9	Sky obscured, or cloud amount cannot be estimated
4	4 oktas		
5	5 oktas		

Note: 1 okta = $\frac{1}{8}$ of the sky covered

Table 10. VISIBILITY

Code	Estimate of hor. Visibility
0	Less than 50 metres (less than 55 yards)
1	50-200 metres (approx. 55-220 yards)
2	200-500 metres (approx. 220-550 yards)
3	500-1,000 metres (approx. 550 yards- $\frac{1}{2}$ n.m.)
4	1-2 km (approx. $\frac{1}{2}$ -1 n.m.)
5	2-4 km (approx. 1-2 n.m.)
6	4-10 km (approx. 2-6 n.m.)
7	10-20 km (approx. 6-12 n.m.)
8	20-50 km (approx. 12-30 n.m.)
9	50 km or more (30 n.m. or more)

Note: n.m. = nautical mile

FRANCE

**ICNAF
NORWESTLANT – 1 SURVEY
FRANCE**

STRAIT OF DENMARK – IRMINGER SEA

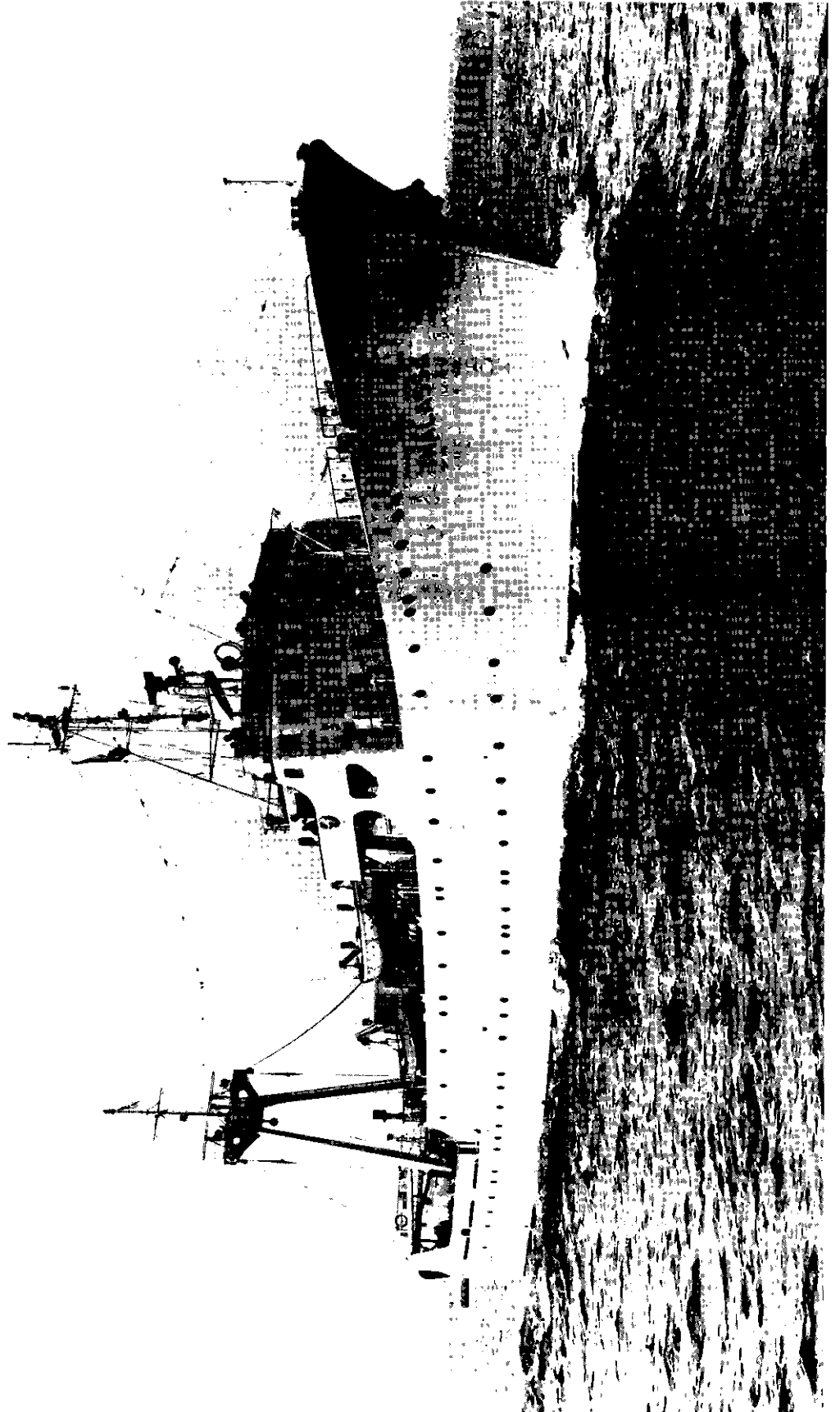
Ship:

Thalassa

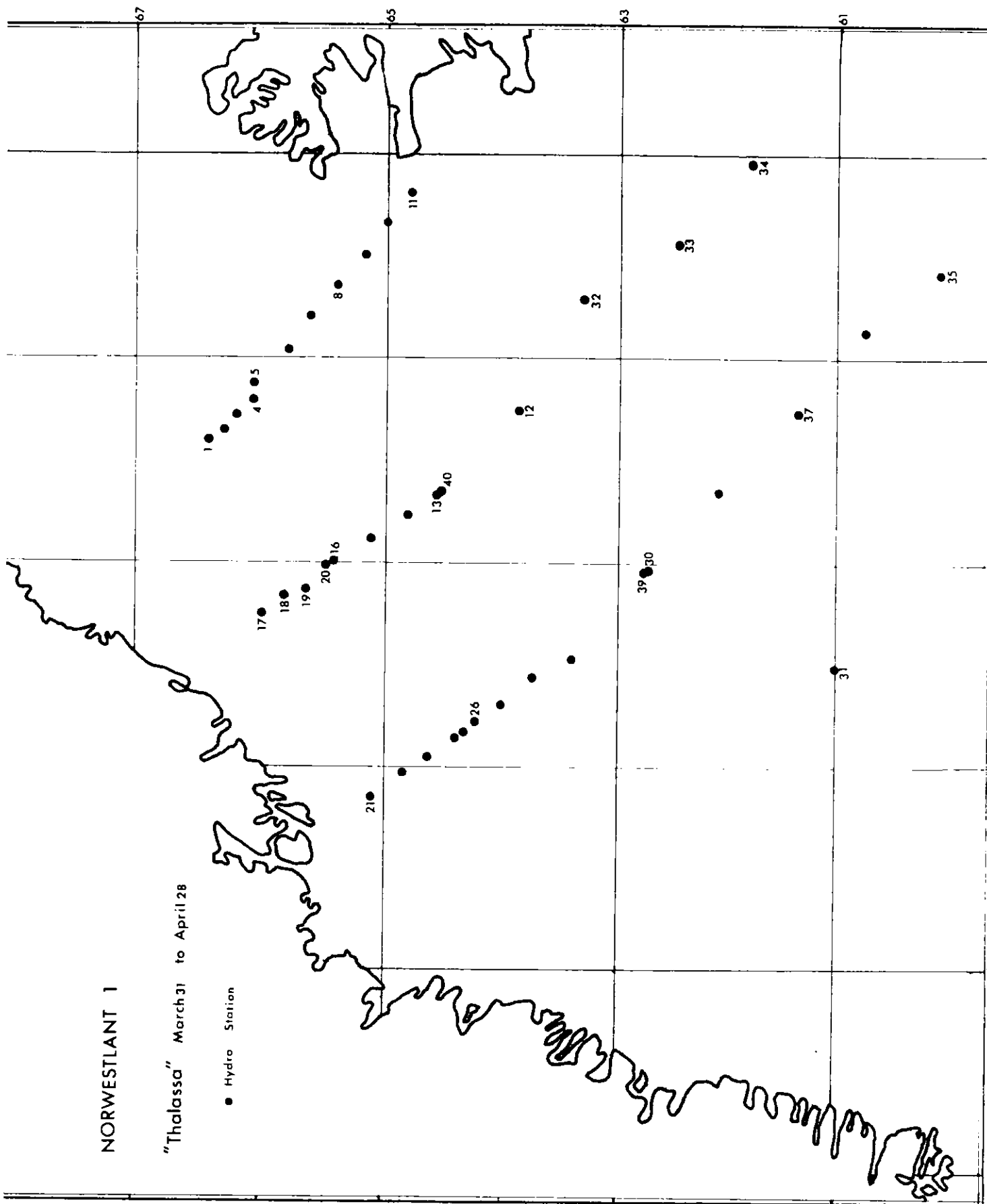
Cruise period:

March 20 – May 10, 1963

**Scientific and Technical Institute of Marine Fisheries,
Paris**



THALASSA



PERSONNEL

Observers at sea	J. Dardignac	ISTPM*	
	A. Vincent	”	
	C. Allain	”	
	P. Lamarque	”	
	J. Tailliez	”	
	M. Thomas	”	
	D. Ellett	Fisheries Laboratory, MAFF**	
Data analyses	Oceanographic Data	J. Dardignac	ISTPM
		A. Vincent	”
		C. Allain	”
	Salinity Data	D. Ellett	MAFF
	Chemical Data	P. Lamarque	ISTPM
	Biological Data (Plankton)	Miss J. Beaudouin	”

*Institut Scientifique et Technique des Pêches Maritimes (ISTPM)

**Ministry of Agriculture, Fisheries and Food (MAFF)

EXTRACT OF CRUISE LOG

- 20 March, 1963 – Sailed from Brest
- 22–23 March, 1963 – Called at Felixstowe. Mr. Ellett embarked. NIO Salinometer taken in charge. Visited the Lowestoft laboratory
- 28 March, 1963 – Arrived at Reykjavik.
- 29 March, 1963 – Visited the Research Institute of the Fishing Division at Reykjavik
- 30 March, 1963 – Dr. I. Halgrimsson embarked. Sailed from Reykjavik and commenced sampling programme
- 31 March—
- 2 April, 1963 – Completed first section of the hydrological programme in the Strait of Denmark
- 2 April, 1963 – Dr. Halgrimsson disembarked
- 3–7 April, 1963 – Completed sections 11 and 111 (stations west of Reykjavik shelf)
- 7 April, 1963 – Reference station B
- 9–16 April, 1963 – Plankton fishing

16–18 April, 1963 – Called at Faxafloi Bay because of bad weather

18–22 April, 1963 – Resumed plankton fishing

22–24 April, 1963 – Called at Reykjavik. Visited the *RV Ernest Holt* and compared methods and first data with the British group

24 April, 1963 – Occupied reference station with the *RV Ernest Holt* and the *Academician Knipovitch*

25–28 April, 1963 – Completed stations 11 and 111 east of Reykjavik shelf

28–29 April, 1963 – Sailed for plankton stations not yet completed. No success due to bad weather. End of research programme

1 May, 1963 – Arrived at Reykjavik

The *Thalassa* then proceeded to the south-east of Iceland to pursue a fishing campaign.

OBSERVATIONAL PROCEDURES

Biological Sampling

1. Phytoplankton sampling was carried out as follows: At every hydrological station, 250 cc. of water were collected at the 10 m depth and fixed by iodine. Additional samples were taken at standard depths to 600 m at stations located on each side of the polar front. These samples were sent to Dr. Gillbricht for analysis. At every hydrological station the contents of the 10 m reversing bottle were filtered for pigment analysis. At five selected stations a total of 15 samples were taken to measure primary productivity.
2. Collection of zooplankton, eggs and larvae samples were hampered by bad weather and ice movement. Of the 80 stations in the programme, 71 were sampled. At each plankton station two plankton collecting operations were carried out. One vertical haul was made with a Hensen net from 100 m to the surface at a speed of 1/3 m per second. One oblique haul was made with a 2-m Stramin net from 50 m depth.
The material was submitted to the Plankton Laboratory of the Fisheries Institute in Paris for analysis.

Physical and Chemical Observations

Temperature measurements and samples for salinity and dissolved oxygen were taken at 0, 10, 20, 30, 50, 75, 100, 200, 300, 400, 500, 600, 800, 1000, 1200, 1500 and 2000 m, and in most cases near the bottom. A surface sample was not collected for dissolved oxygen.

At two stations samples for phosphate and silicate were taken at 0, 10, 20, 30, 50, 75 and 100 m. Knudsen reversing bottles (9) and Mecabolier bottles (12) were used for water sampling. Surface samples were taken with a bucket.

Generally, samples for quantitative analysis of dissolved oxygen were drawn first into 125 ml glass bottles and immediately fixed. Next, double samples for salinity analysis and for quantitative analysis of nutritive salts were drawn; salinity samples into two cans of 250 ml each and the nutritive salts into two plastic bottles of 125 ml each.

A sample from a 10 m reversing bottle completed the operations at each station. The water collected was poured into a plastic bottle and filtered immediately to concentrate the phytoplankton pigments.

Sample bottles were equipped with Richter and Wiese and Negretti and Zambra reversing thermometers. Two protected thermometers and one unprotected thermometer were used on bottles below 100 m. Temperatures were read by the chief scientist and every anomaly was checked.

Weather observations at synoptic hours were made at every hydrological station.

LABORATORY PROCEDURES

Salinity analyses were done on board ship with an NIO salinometer borrowed from the Fisheries Laboratory at Lowestoft.

Dissolved oxygen analyses were done by the Winkler method (Strickland and Parson, 1960). The results are considered doubtful and are not reported here. Phosphate was determined by the Murphy and Riley method (1962). Silicate was determined by the method described by Strickland and Parsons (1960). A Lange photometer was used for quantitative analysis of nutritive salts.

Pigments concentrated on filters ("Membrane-Filter" COLI 5) were cold extracted (-3°) at the end of the campaign, each filter being dissolved in 10 cc of 90% strength acetone. For the reading a grating spectrophotometer SAFAS with red filter from 630 m was used.

Measurements of assimilated carbon were made by the Nielsen (1952) method which used C14 as a tracing agent. An incubator with sea water circulation and light source from incandescent lamps (about 5,770 lux) was used.

ADDITIONAL PROGRAMMES

1. 100 free floating bottles were released from 5 stations.
2. Current measurements were made with the GEK. Fifteen were made between the plankton stations and seven between the last hydrological stations.
3. Ice observations were plotted on maps intended for this purpose.
4. Locations of cetaceans observed during the cruise were indicated on a list prepared for the programme.
5. Two trawls were made. The first one, south east of Angmagsalik (380-400 m), gave 1.8 tons of seabastes and 8 cod. The second south of Jokull Grunn (180-190 m), gave 0.2 tons of seabastes and 24 cod. In both cases male cod were at full sexual maturity and females near maturity.

**REMARKS ON THE BEHAVIOUR OF THE
INSTRUMENTS AND ACCURACY OF THE
MEASUREMENT AND ANALYSIS**

1. Definite malfunctioning of the Mecabolier bottles was observed 8% of the time and it is believed that the actual percentage is probably higher. The location of the valves seems to be the main problem in these bottles. Knudsen bottles showed poor performance 1% of the time. Measurements considered to be very doubtful (10% of the total) were discarded.
2. Study of the distribution of the discrepancies between both protected thermometers for each bottle has led to the following estimated accuracy in the temperature measurement:

$$\sigma = \pm 0.04C^{\circ}$$

3. In the salinity analysis usually only one measurement was made for each sample. However, the operation was duplicated on a number of samples to evaluate the accuracy of the measurement. The accuracy is as follows:

$$\sigma = \pm 0.006 \text{ in } S_{\text{‰}}$$

4. Studies of the distribution sources of dissolved oxygen (ml/l) versus depth revealed many inconsistencies. Moreover, stations at which sampling operations were repeated yielded values with discrepancies of 0.5 ml/l for waters whose thermohaline characteristics had not changed. Not taking into account 5 or 6 stations including the reference station C(Cons. No. 32), the measurements present errors of about ± 0.25 ml/l. All the results were considered as doubtful and discarded.
5. In phosphate determination, the analysis of the distribution of discrepancies between the duplicates has led to the following value:

$$\sigma = \pm 0.03 \mu\text{g at/l}$$

It is estimated, on the other hand, that the mean relative error is 5% and the maximum relative error 15%.

6. In silicate determination analysis of the distribution of discrepancies between duplicate determinations has led to the following value:

$$\sigma = \pm 0.18 \mu\text{g at/l}$$

The estimated mean relative value is 6% and the maximum relative error is 14.5%.

METHODS TABLE

NORWESTLANT 1

THALASSA (FRANCE)

	SAMPLING BOTTLE	FILTER	STANDING TIME BEFORE ANALYSIS	METHOD	PHOTOMETER CELL LENGTH	AVERAGE BLANK	STANDARD
SALINITY	Mecabolier and Knudsen type bottles		2 to 5 days	Conductivity: NIO Salinometer			Copenhagen water
TEMPERATURE				Reversing thermometers			
O ₂			Preserved immediately: titrated after 1 to 4 days	Modified Winkler		0	Bi-iodate 0.015N
PO ₄		Membrane filter Coli 5	6 to 48 hours	Murphy and Riley	Lange Model J 10cm Red filter 620/640m cell	0.015	NORWESTLANT: Supplied by UK
SiO ₂		Membrane filter Coli 5	6 to 48 hours	Strickland's Manual	Lange Model J 10cm cell	0.020	NORWESTLANT: Supplied by UK
CHLOROPHYLL	Nansen	Membrane filter Coli 5	Filtered immediately cold extracted after 5 weeks	Classical acetonetic extraction	Grating spectro-photometer SAFAS		

SUMMARY OF OBSERVATIONS

THALASSA (FRANCE)										NORWESTLANT 1							
Time	Date	Latitude	Longitude	Depth	Consec No	Temperature	Salinity ‰	O ₂	PO ₄	SiO ₃	10m Phyto	10m Pigment	C14	100m Hensen	Stramin	GEK	Trawl
1430	31/3	6625	2933	0323	1	x	x	x	x	x	x	x	x				
1942	31/3	6618	2924	0306	2	x	x	x	x	x	x	x					
2124	31/3	6613	2908	0307	3	x	x	x	x	x	x	x					
0006	1/4	6607	2848	0423	4	x	x	x	x	x	x	x					
0236	1/4	6605	2827	0772	5	x	x	x	x	x	x	x					
1024	1/4	6550	2750	0749	6	x	x	x	x	x	x	x					
1448	1/4	6537	2712	0458	7	x	x	x	x	x	x	x	x				
1848	1/4	6525	2636	0192	8	x	x	x	x	x	x	x					
2106	1/4	6512	2558	0160	9	x	x	x	x	x	x	x					
0000	2/4	6500	2521	0144	10	x	x	x	x	x	x	x					
0236	2/4	6448	2444	0208	11	x	x	x	x	x	x	x					
1348	3/4	6353	2858	1710	12	x	x	x	x	x	x	x					
2054	3/4	6433	3038	2480	13	x	x	x	x	x	x	x					
0124	4/4	6451	3102	2290	14	x	x	x	x	x	x	x					
0600	4/4	6508	3132	1700	15	x	x	x	x	x	x	x					
0924	4/4	6524	3159	1060	16	x	x	x	x	x	x	x	x				
1624	4/4	6601	3259	0323	17	x	x	x	x	x	x	x	x				
1954	4/4	6550	3243	0313	18	x	x	x	x	x	x	x					
2248	4/4	6540	3229	0344	19	x	x	x	x	x	x	x					
0124	5/4	6531	3208	0607	20	x	x	x	x	x	x	x					
1248	5/4	6507	3634	0228	21	x	x	x	x		x	x	x				
1636	5/4	6452	3608	0380	22	x	x	x	x		x	x					
1900	5/4	6440	3548	0562	23	x	x	x	x	x	x	x					
2200	5/4	6426	3526	0388	24	x	x	x	x		x	x					
0048	6/4	6423	3521	0370	25	x	x	x			x	x					
0800	6/4	6418	3512	1500	26	x	x	x	x	x	x	x	x				
1230	6/4	6401	3445	2115	27	x	x	x	x		x	x					
1630	6/4	6344	3417	2440	28	x	x	x	x		x	x					
2118	6/4	6327	3351	2770	29	x	x	x	x	x	x	x					
0600	7/4	6246	3212	2400	30	x	x	x	x	x	x	x					
1930	7/4	6100	3402	3040	31	x	x	x	x	x	x	x					
2306	24/4	6320	2650	1280	32	x	x	x	x	x	x	x					
0800	25/4	6232	2547	0650	33	x	x	x	x	x	x	x					
1636	25/4	6152	2416	1600	34	x	x	x	x	x	x	x					
0548	26/4	6004	2620	2070	35	x	x	x	x	x	x	x					
1330	26/4	6044	2737	1440	36	x	x	x	x	x	x	x					
2136	26/4	6123	2904	1740	37	x	x	x	x	x	x	x					
0530	27/4	6205	3038	2120	38	x	x	x	x	x	x	x					
1600	27/4	6247	3212	2600	39	x	x	x	x	x	x	x					
0612	28/4	6433	3037	2440	40	x	x	x	x	x		x					

Specific Data Not Provided

Specific Data Not Provided

Specific Data Not Provided

Specific Data Not Provided

SERIAL OCEANOGRAPHIC DATA

GENERAL INFORMATION

Institute:	Scientific and Technical Institute of Marine Fisheries
Observation platform:	<i>Thalassa</i>
Vessel's cruising speed:	9 knots
Total number of stations occupied:	40
Anemometer height above sea level:	18 m
Barometer readings:	Aneroid – $\frac{1}{10}$ mb units
Air temperature:	Sling psychrometer – $\frac{1}{10}$ C° units
Wet bulb temperature:	Sling psychrometer – $\frac{1}{10}$ C° units
Surface sea water temperature:	Bucket sample, deck thermometer – $\frac{1}{10}$ C° units

The following Standard Deviations were used to express both measurement and interpolation error estimates:

Temperature	0.04
Salinity	0.006

C-REF-NO 001	YR 1963	DEPTH 323	WAVES 1 0221	AIR T 00.0	VIS 3
CONS. NO 001	MONTH 3	MXSAMPD 03	WAVES 2 00XX	WET B 02.0	STN 012
LAT 66-250N	DAY 31	NO.DPTH 10	WND-DIR 020	HW-CODE 42	
LON 29-330W	HR 14.5	W-COLOR 10	WND-SPD 15	CLD-TPE	
MARSD SQ 219		W-TRNSP 24	BARO 1006.8	CLD-AMT 0	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	STO	PH
145	0000	004	34244		2750	14501	078				051	
145	0009	0113	34362		2755	14537	076				062	
145	0018	0112	34425		2760	14539					064	
145	0027	0170	34515		2763	14567	090				061	
145	0044	0397 C	34847		2769	14673	080				067	
145	0066	0405	34871		2770	14680	086				070	
145	0089	0403	34863		2770	14683	093				095	
145	0133	0372 B	34832		2770	14676						
145	0182	0324	34807		2773	14664						
145	0290	0192	34797		2784	14624						

*DRY BULB LESS THAN WET BULB TEMPERATURE

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0040	34244		2750	14501	0000	00000	0597
0010	0113	34370		2755	14537	0006	00000	0544
0020	0120	34441		2760	14543	0011	00001	0495
0030	0211 B	3458 B		2764	14587	0016	00002	0457
0050	0416 D	3488 C		2769	14682	0025	00006	0414
0075	0405	34870		2770	14682	0035	00013	0412
0100	0397	34856		2770	14682	0045	00022	0417
0125	0379 B	34838		2770	14678	0056	00034	0415
0150	0357 B	34822		2771	14673	0066	00049	0407
0175	0332	34810		2773	14666	0076	00066	0394
0200	0307 B	34802		2774	14659	0086	00084	0378
0225	0278	34797		2776	14651	0095	00105	0358
*0250	0247	34794		2779	14642	0104	00126	0334
*0300	0177	34799		2785	14619	0120	00169	0275

C-REF-NO 001 YR 1963 DEPTH 306 WAVES 1 0221 AIR T 00.5 VIS 7
 CONS. NO 002 MONTH 3 MXSAMPD 03 WAVES 2 00XX WET 9 01.0 STN 013
 LAT 66-180N DAY 31 NO.DPTH 8 WND-DIR 020 WW-CODE 03
 LON 29-240W HR 19.7 W-COLOR 10 WND-SPD 14 CLD-TPE 5
 MARSID SQ 219 W-TRNSP 27 BARO 1005.5 CLD-AMT 7 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
197	0000	017	34158		2734	14558	074				050	
197	0010	-0130	34145		2749	14422	073				050	
197	0019	-0130	34143		2749	14424	075				050	
197	0028	-0015	34264		2754	14481	076				060	
197	0047	0333	34759		2768	14645	086				067	
197	0071	0381	34837		2770	14670	095				065	
197	0095	0346 B	34799		2770	14659	096				075	
197	0284	0148	34914		2796	14605						

*DRY BULB LESS THAN WET BULB TEMPERATURE

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0170	34158		2734	14558	0000	00000	0742
0010	-0130	34145		2749	14422	0007	00000	0601
0020	-0121	34152		2749	14428	0013	00001	0598
0030	0025 B	3432 B		2756	14500	0019	00003	0533
0050	0353 B	3479 B		2769	14654	0028	00007	0420
0075	0378	34834		2770	14669	0039	00013	0412
0100	0382 F	3486 F		2771	14676	0049	00022	0401
0125	0388 H	3489 H		2773	14682	0059	00034	0383
*0150	0381 I	3492 I		2776	14684	0068	00047	0360
*0175	0363 I	3493 I		2779	14681	0077	00062	0331
*0200	0333 H	3494 H		2783	14672	0085	00077	0297
*0225	0292 G	3494 G		2787	14659	0092	00092	0259
*0250	0239 E	3494 E		2791	14640	0098	00107	0219
*0300	0098 C	3490 C		2799	14585	0107	00132	0140

C-REF-NO 001 YR 1963 DEPTH 307 WAVES 1 0221 AIR T 00.5 VIS 7
 CONS. NO 003 MONTH 3 MXSAMPD 02 WAVES 2 00XX WET B 00.0 STN 014
 LAT 66-130N DAY 31 NO.DPTH 10 WND-DIR 020 W-CODE 02
 LON 29-080W HR 21.4 W-COLOR WND-SPD 19 CLD-TPE 6
 MARSD SQ 219 W-TRNSP BARO 1004.5 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
214	0000	012	34883		2796	14546	084				065	
214	0008	0393	33857		2691	14652	090				065	
214	0015	0440	34851		2765	14686	082				064	
214	0022	0440 B	34858		2765	14687	082				066	
214	0038	0448	34871		2765	14693	083				067	
214	0057	0493	34938		2766	14716	091				072	
214	0076	0465	34901		2766	14707	088				072	
214	0110	0391	34835		2769	14681						
214	0145	0353	34793		2769	14670						
214	0247	0171	34805		2786	14608						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0120	34883		2796	14546	0000	00000	0158
0010	0418	3410 I		2708	14666	0006	00001	0996
0020	0442 B	3491 F		2769	14688	0013	00001	0417
0030	0442 B	34862		2765	14689	0017	00003	0451
0050	0478	34916		2766	14708	0026	00006	0452
0075	0468	34904		2766	14708	0038	00014	0452
0100	0412	34853		2768	14688	0049	00024	0435
0125	0373	34814		2769	14675	0060	00036	0427
0150	0329 C	34788		2771	14660	0070	00051	0406
0175	0286 C	34774		2774	14646	0080	00068	0379
*0200	0245 B	34773		2777	14632	0089	00085	0345
*0225	0205	34785		2782	14619	0098	00103	0304
*0250	0166	34809		2787	14606	0105	00120	0257

C-REF-NO 001 YR 1963 DEPTH 423 WAVES 1 0221 AIR T 01.0 VIS 7
 CONS. NO 004 MONTH 4 MXSAMPD 04 WAVES 2 00XX WET B 01.0 STN 015
 LAT 66-075N DAY 01 NO.DPTH 13 WND-DIR 020 HW-CODE 02
 LON 28-480W HR 00.1 W-COLOR WND-SPD 19 CLD-TPE 4
 MARSD SQ 219 W-TRNSP BARO 1003.6 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
001	0000	016	34374		2752	14556	077				058	
001	0009	0001	34326		2758	14486	069				052	
001	0017	0018 B	34355		2760	14495	072				053	
001	0026	0068 B	34404		2761	14520	078				056	
001	0043	0070	34400		2760	14524	072				056	
001	0065	0172	34519		2763	14574	077				069	
001	0086	0325	34717		2766	14647	083				066	
001	0131	0410	34850		2768	14692						
001	0175	0427										
001	0263	0369	34884		2775	14697						
001	0282	0280	34913		2786	14663						
001	0318	0237										
001	0364	0207	34897		2791	14644						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0160	34374		2752	14556	0000	00000	0572
0010	-0002	34327		2759	14485	0005	00000	0512
0020	0035 B	34372		2760	14503	0011	00001	0496
0030	0071 B	34405		2761	14522	0016	00002	0492
0050	0093	34425		2761	14536	0025	00006	0490
0075	0246 B	34614		2765	14610	0037	00014	0459
0100	0373 C	3478 B		2766	14671	0049	00024	0448
0125	0410 B	34846		2767	14691	0060	00037	0441
0150	0423	34860		2767	14701	0071	00053	0446
0175	0427	34872		2768	14707	0082	00072	0443
0200	0446 D	3488 B		2766	14719	0094	00094	0460
0225	0437 E	3489 B		2768	14720	0105	00119	0447
*0250	0400 C	3490 B		2772	14708	0116	00145	0405
0300	0247 B	34901		2788	14651	0133	00191	0257

C-REF-NO 001	YR 1963	DEPTH 772	WAVES 1 0232	AIR T 03.2	VIS 7
CONS. NO 005	MONTH 4	MXSAMPD 07	WAVES 2 00XX	WET B 01.0	STN 016
LAT 66-050N	DAY 01	NO.DPTH 17	WND-DIR 020	WW-CODE 02	
LON 28-270W	HR 02.6	W-COLOR	WND-SPD 24	CLD-TPE X	
MARSD SQ 219		W-TRNSP	BARO 1002.5	CLD-AMT 9	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4 -P-	NO2	NO3	SIO	PH
026	0000	062	35151		2767	14761	093			068	
026	0008	0652 B	35103		2759	14774	087			067	
026	0015	0644 B	35099		2759	14772	089			068	
026	0022	0650 B	35104		2759	14776	092			068	
026	0036	0648 B	35107		2759	14777	094			069	
026	0052	0649	35103		2759	14780	094			069	
026	0068	0649 B	35104		2759	14783	093			078	
026	0100	0652 B	35103		2759	14789					
026	0132	0647	35100		2759	14793					
026	0204	0651 B	35099		2758	14806					
026	0277	0645 C	35100		2759	14816					
032	0306	0642	35092		2759	14819					
032	0379	0637 B	35092		2760	14829					
032	0466	0618	35089		2762	14836					
032	0510	0611	35086		2763	14840					
032	0555	0592	35077		2764	14840					
032	0660	0469	35023		2775	14807					

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0620	35151		2767	14761	0000	00000	0435
0010	0651 B	35100		2759	14774	0005	00000	0514
0020	0648 B	35102		2759	14775	0010	00001	0510
0030	0650 B	35107		2759	14777	0015	00002	0510
0050	0649	35104		2759	14780	0025	00007	0515
0075	0650 B	35104		2759	14784	0038	00015	0519
0100	0652 B	35103		2759	14789	0052	00027	0527
0125	0648	35101		2759	14792	0065	00042	0528
0150	0647	35099		2759	14796	0078	00061	0532
0175	0649	35099		2759	14800	0092	00084	0537
*0200	0651 B	35099		2758	14805	0105	00110	0544
0225	0650 B	35101		2759	14809	0119	00140	0545
0250	0648 C	35101		2759	14812	0133	00174	0546
0300	0643	35094		2759	14818	0161	00252	0552
0400	0633 B	35092		2760	14831	0217	00454	0556
0500	0613	35087		2763	14840	0272	00711	0548
0600	0550	35059		2768	14830	0325	01009	0499

C-REF-NO	001	YR	1963	DEPTH	749	WAVES 1	0333	AIR T	03.0	VIS	6
CONS. NO	006	MONTH	4	MXSAMP	07	WAVES 2	00XX	WET B	03.0	STN	017
LAT	65-497N	DAY	01	NO.DPTH	16	WND-DIR	030	W-CODE	22		
LON	27-500W	HR	10.4	W-COLOR	10	WND-SPD	16	CLD-TPE	5		
MARSD SQ	219			W-TRNSP	26	BARO	1004.1	CLD-AMT	8	HW	

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PD4	-P-	NO2	NO3	STO	PH
104	0000	059	35114		2768	14748	097				070	
104	0007	0637	35103		2761	14768	093				070	
104	0015	0637	35100		2760	14769	099				069	
106	0023	0637	35100		2760	14771	097				072	
106	0038	0636	35097		2760	14773	090				073	
106	0058	0637	35100		2760	14777	099				073	
106	0076	0639 B	35098		2760	14780	100				078	
106	0112	0640 B	35101		2760	14787						
106	0148	0638										
106	0156	0639	35098		2760	14793						
106	0230	0637	35099		2760	14805						
106	0310	0636	35100		2761	14818						
114	0415	0615	35101		2763	14826						
114	0509	0556	35068		2768	14818						
114	0624	0277	34867		2782	14717						
114	0672	0120	34863		2794	14657						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0590	35114		2768	14748	0000	00000	0426
0010	0640	35101		2760	14770	0005	00000	0499
0020	0637	35100		2760	14770	0010	00001	0498
0030	0637	35099		2760	14772	0015	00002	0499
0050	0636	35099		2760	14775	0025	00006	0502
0075	0639 B	35098		2760	14780	0038	00015	0510
0100	0640 B	35100		2760	14785	0050	00026	0514
0125	0639 B	35100		2760	14788	0063	00041	0516
0150	0638	35099		2760	14792	0077	00060	0520
0175	0638	35098		2760	14796	0090	00082	0524
0200	0637	35098		2760	14800	0103	00107	0527
*0225	0637	35099		2760	14804	0116	00136	0530
0250	0637	35099		2760	14808	0130	00169	0534
0300	0636	35100		2760	14816	0157	00246	0540
0400	0620	35102		2763	14826	0211	00440	0531
0500	0566	35074		2768	14820	0263	00679	0495
0600	0350	3491 B		2778	14745	0307	00926	0377

C-REF-NO 001 YR 1963 DEPTH 458 WAVES 1 0434 AIR T 05.0 VIS 6
 CONS. NO 007 MONTH 4 MXSAMPD 04 WAVES 2 00XX WET B 04.0 STN 018
 LAT 65-370N DAY 01 NO.DPTH 13 WND-DIR 040 WW-CCDF 18
 LON 27-120W HR 14.8 W-COLOR 10 WND-SPD 20 CLD-TPE 6
 MARSD SQ 219 W-TRNSP 20 BARO 1004.0 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	TEMP	SAL	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
148	0000	063	35111		2762	14764	100				068	
148	0008	0642	35081		2758	14770	091				066	
148	0017	0641	35099		2760	14771	097				067	
148	0025	0639	35098		2760	14772	106				067	
148	0040	0640	35100		2760	14775	104				069	
148	0059	0639	35101		2760	14777	099				069	
148	0080	0640	35107		2761	14781	103				072	
148	0120	0642	35094		2759	14789						
148	0160	0626	35105		2762	14789						
148	0245	0634	35101		2761	14806						
148	0332	0634 B	35101		2761	14820						
152	0366	0603	35094		2764	14813						
152	0415	0592	35107		2767	14817						

I N T E R P O L A T E D

DEPTH	TEMP	SAL	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0630	35111		2762	14764	0000	00000	0477
0010	0642	35084		2758	14771	0005	00000	0515
0020	0640	35099		2760	14772	0010	00001	0502
0030	0639	35098		2760	14773	0015	00002	0503
0050	0640	35100		2760	14776	0025	00007	0505
0075	0640	35106		2761	14780	0038	00015	0505
0100	0642	35101		2760	14785	0051	00026	0516
0125	0640	35095		2760	14789	0064	00041	0521
0150	0630	35102		2761	14789	0077	00060	0508
0175	0626	35106		2762	14791	0090	00081	0503
0200	0627	35105		2762	14796	0102	00106	0508
*0225	0630	35103		2762	14801	0115	00134	0517
0250	0636	35101		2761	14808	0129	00166	0530
0300	0641 B	35102		2760	14818	0156	00243	0544
0400	0599	35104		2766	14818	0209	00432	0502

C-REF-NO 001	YR 1963	DEPTH 192	WAVES 1 0333	AIR T 04.0	VIS 7
CONS. NO 008	MONTH 4	MXSAMPD 02	WAVES 2 00XX	WET B 03.5	STN 019
LAT 65-250N	DAY 01	NO.DPTH 9	WND-DIR 030	WW-CODE 01	
LON 26-360W	HR 18.8	W-CULOR 10	WND-SPD 16	CLD-TPE 5	
MARSD SQ 219		W-TRNSP 20	BARO 1004.9	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
188	0000	057	35151		2773	14741	085				072	
188	0010	0606	35121		2766	14757	086				069	
188	0019	0605	35126		2767	14758	088				069	
188	0028	0605 H	35124		2766	14759	089				069	
188	0046	0607 C	35121		2766	14763	093				070	
188	0070	0604	35129		2767	14766	087				069	
188	0092	0604	35117		2766	14769	081				082	
188	0138	0592 B	35124		2768	14772						
188	0165	0595	35129		2768	14778						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0570	35151		2773	14741	0000	00000	0374
0010	0606	35121		2766	14757	0004	00000	0442
0020	0605	35126		2767	14758	0009	00001	0438
0030	0605 B	35123		2766	14760	0013	00002	0442
0050	0607 C	35123		2766	14763	0022	00006	0447
0075	0604	35127		2767	14766	0033	00013	0445
0100	0602	35117		2766	14770	0045	00023	0453
0125	0595 B	35120		2767	14771	0056	00036	0446
0150	0595	35123		2768	14775	0067	00052	0448

C-REF-NO 001 YR 1963 DEPTH 160 WAVES 1 0433 AIR T 05.0 VIS 7
 CONS. NO 009 MONTH 4 MXSAMPD 01 WAVES 2 00XX WET B 04.0 STN 020
 LAT 65-120N DAY 01 NO.DPTH 8 WND-DIR 050 WW-CODE 02
 LON 25-580W HR 21.1 W-COLOR WND-SPD 16 CLD-TPE 5
 MARSD SQ 219 W-TRNSP BARO 1005.8 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIG	PH
211	0000	054	35078		2771	14728	089				075	
211	0010	0567 B	35063		2767	14740	090				075	
211	0020	0559	35067		2768	14739	091				075	
211	0029	0560	35070		2768	14740	093				075	
211	0048	0561	35071		2768	14744	094				074	
211	0072	0560	35066		2768	14747	095				076	
211	0096	0558	35067		2768	14751	080				086	
211	0145	0562 B	35064		2767	14760						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0540	35078		2771	14728	0000	00000	0394
0010	0567 B	35063		2767	14740	0004	00000	0436
0020	0559	35067		2768	14739	0009	00001	0427
0030	0560	35070		2768	14741	0013	00002	0427
0050	0561	35071		2768	14744	0022	00006	0431
0075	0560	35066		2768	14748	0032	00013	0436
0100	0559	35065		2768	14752	0043	00023	0439
0125	0560	35064		2767	14756	0055	00035	0445

C-REF-NO 001 YR 1963 DEPTH 144 WAVES 1 0532 AIR T 05.2 VIS 7
 CONS. NO 010 MONTH 4 MXSAMPD 01 WAVES 2 00XX WET B 04.4 STN 021
 LAT 65-000N DAY 02 NO.DPTH 8 WND-DIR 060 W-CODE 01
 LON 25-210W HR 00.0 W-COLOR WND-SPD 12 CLD-TPE 5
 MARSC SQ 219 W-TRNSP BARO 1006.4 CLD-AMT 4 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
000	0000	052	35085		2774	14720	091				076	
000	0010	0658 C	35052		2754	14776	090				075	
000	0020	0573	35058		2765	14744	091				076	
000	0030	0571 B	35059		2766	14745	087				075	
000	0049	0571 B	35060		2766	14748	092				075	
000	0074	0569	35056		2766	14751	090				077	
000	0098	0561	35049		2766	14752	091				080	
000	0133	0547 B	35041		2767	14752						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0520	35085		2774	14720	0000	00000	0366
0010	0658 C	35052		2754	14776	0005	00000	0558
0020	0573	35058		2765	14744	0010	00001	0450
0030	0571 B	35059		2766	14745	0014	00002	0448
0050	0571 B	35060		2766	14748	0023	00006	0451
0075	0569	35056		2766	14751	0035	00013	0454
0100	0561	35049		2766	14752	0046	00024	0454
0125	0551 B	35043		2767	14752	0058	00037	0449

C-REF-NO 001 YR 1963 DEPTH 208 WAVES 1 0522 AIR T 07.2 VIS 6
 CONS. NO 011 MONTH 4 MXSAMPD 02 WAVES 2 00XX WET B 05.0 STN 022
 LAT 64-485N DAY 02 NO.DPTH 9 WND-DIR 060 WW-CODE 03
 LON 24-440W HR 02.6 W-COLOR WND-SPD 24 CLD-TPE X
 MARSD SQ 219 W-TRNSP BARO 1006.6 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T F M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SI0	PH
026	0000	056	35039		2765	14735	087				071	
026	0007	0618	35012		2756	14759	087				072	
026	0015	0618	35018		2756	14761	091				071	
026	0023	0619 B	35013		2756	14762	088				071	
026	0038	0631	35067		2759	14770	098				079	
026	0057	0634	35079		2759	14775	095				077	
026	0077	0634	35086		2760	14778	084				092	
026	0118	0616 B	35073		2761	14778						
026	0168	0612 B	35045		2759	14784						

I N T E R P C L A T E D

DEPTH	T F M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0560	35039		2765	14735	0000	00000	0446
0010	0622	35013		2755	14762	0005	00000	0542
0020	0618	35014		2756	14762	0010	00001	0538
0030	0624 B	35036		2757	14766	0016	00003	0531
0050	0634	35079		2759	14774	0026	00007	0514
0075	0634	35086		2760	14778	0039	00015	0513
0100	0625	35082		2761	14778	0052	00027	0508
0125	0621 B	35075		2761	14781	0065	00042	0512
0150	0616 B	35060		2760	14783	0078	00060	0520

C-REF-NO 001 YR 1963 DEPTH 1710 WAVES 1 1456 AIR T 08.5 VIS 5
 CONS. NO 012 MONTH 4 MXSAMPD 15 WAVES 2 00XX WET B 08.0 STN 023
 LAT 63-533N DAY 03 NO.DPTH 17 WND-DIR 140 WW-CODE 53
 LON 28-580W HR 13.8 W-COLOR 10 WND-SPD 20 CLD-TPE 7
 MARSD SQ 219 W-TRNSP 20 BARO 1006.6 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
138	0000	070	35087		2751	14792	085				065	
138	0008	0679	35100		2755	14785	084				068	
138	0015	0683	35092		2754	14788	082				063	
138	0023	0683 H	35076		2752	14789	083				065	
138	0038	0680 B	35073		2752	14790	079				064	
138	0058	0679	35072		2753	14793	082				064	
138	0077	0680	35068		2752	14796	067				082	
138	0115	0680	35099		2754	14803						
138	0153	0679	35105		2755	14809						
146	0220	0690	35113		2754	14824						
146	0330	0691 B	35121		2755	14843						
146	0450	0681	35049		2750	14858						
146	0570	0617	35076		2761	14852						
146	0750	0529 B	35029		2768	14846						
146	1015	0431	34986		2776	14849						
146	1300	0422	35006		2779	14894						
146	1485	0404 B	34996		2780	14917						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0700	35087		2751	14792	0000	00000	0586
0010	0679	35099		2755	14785	0006	00000	0551
0020	0683	35082		2753	14788	0011	00001	0571
0030	0682 B	35072		2752	14789	0017	00003	0577
0050	0679	35072		2753	14791	0029	00007	0577
0075	0680	35068		2752	14796	0043	00017	0585
0100	0680	35085		2753	14800	0058	00030	0577
0125	0680	35102		2755	14804	0073	00047	0568
0150	0679	35105		2755	14808	0087	00067	0569
0175	0682	35108		2755	14814	0101	00091	0575
0200	0686	35111		2755	14819	0116	00119	0582
0225	0690	35114		2754	14825	0131	00152	0590
0250	0692	35119		2754	14830	0146	00188	0592
*0300	0692 B	35123		2755	14838	0176	00273	0598
0400	0689	35078		2752	14853	0238	00500	0643
0500	0657	35057		2754	14857	0303	00797	0630
0600	0601	35071		2763	14851	0363	01135	0558
0700	0552 B	35047		2767	14848	0417	01500	0524
0800	0506 B	35017		2770	14845	0469	01898	0498

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
1000	0435	34987		2776	14849	0565	02785	0452
1200	0421	34998		2778	14876	0656	03817	0447

C-REF-NO 001 YR 1963 DEPTH 2480 WAVES 1 2633 AIR T 04.6 VIS 8
 CONS. NO 013 MONTH 4 MXSAMPD 23 WAVES 2 2054 WET B 03.4 STN 024
 LAT 64-330N DAY 03 NO.DPTH 14 WND-DIR 260 WW-CODE 01
 LON 30-380W HR 20.9 W-COLOR WND-SPD 24 CLD-TPE 6
 MARSD SQ 220 W-TRNSP BARO 1014.0 CLD-AMT 7 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
209	0000	059	34836		2746	14745	088				070	
209	0010	0648	35059		2756	14772	087				069	
209	0019	0647	35057		2756	14774	092				069	
209	0028	0644	35058		2756	14774	089				069	
209	0047	0641 B	35060		2757	14776	093				071	
217	0372	0578	35053		2764	14804						
217	0463	0557 B	35030		2765	14810						
217	0556	0552	35032		2766	14823						
217	0742	0488	35035		2774	14828						
217	0927	0431	35041		2781	14835						
217	1405	0377	34919		2777	14891						
217	1733	0369	34939		2779	14943						
217	1928	0352	34947		2781	14969						
217	2320	0306	34953		2786	15017						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0590	34836		2746	14745	0000	00000	0634
0010	0648	35059		2756	14772	0006	00000	0540
0020	0647	35057		2756	14774	0011	00001	0542
0030	0644	35058		2756	14774	0017	00003	0539
0050	0639 B	3506 B		2757	14775	0028	00007	0534
0075	0632 D	3506 D		2758	14777	0041	00016	0528
*0100	0626 F	3506 E		2759	14779	0054	00027	0523
*0125	0620 G	3507 G		2760	14780	0067	00043	0518
*0150	0615 H	3507 G		2761	14782	0080	00061	0514
*0175	0609 H	3507 H		2761	14784	0093	00083	0511
*0200	0604 I	3507 H		2762	14786	0106	00107	0509
*0225	0600 H	3507 H		2763	14789	0119	00135	0507
*0250	0595 H	3507 G		2763	14791	0132	00167	0505
*0300	0587 F	3506 E		2764	14796	0157	00239	0505
0400	0571	35045		2765	14805	0208	00423	0510
0500	0555	35029		2765	14815	0260	00663	0515
0600	0540	35033		2767	14826	0312	00954	0506
0700	0505	35034		2772	14828	0361	01285	0473
0800	0469	35038		2776	14830	0407	01638	0435
1000	0417	3502 B		2781	14842	0492	02422	0403
1200	0389	3497 C		2780	14863	0576	03375	0425
1500	0375	34921		2777	14906	0712	05283	0471

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
2000	0347	34949		2782	14980	0947	09514	0454

C-REF-NO 001	YR 1963	DEPTH 2290	WAVES 1 49X2	AIR T 07.5	VIS 8
CONS. NO 014	MONTH 4	MXSAMPD 22	WAVES 2 2043	WET B 04.0	STN 025
LAT 64-507N	DAY 04	NO.DPTH 20	WND-DIR 300	WW-CODE 01	
LON 31-020W	HR 01.4	W-COLOR	WND-SPD 06	CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO 1017.8	CLD-AMT 0	HW

OBSERVED

GMT	DEPTH	TEMP	SAL	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
014	0000	059	35061		2763	14748	090				070	
014	0010	0620	35044		2758	14761	094				069	
014	0019	0619	35055		2759	14762	094				071	
014	0029	0622	35061		2759	14765	094				071	
014	0048	0620	35053		2759	14767	094				073	
014	0072	0616	35072		2761	14770	096				072	
014	0096	0605 B	35068		2762	14770	095				077	
014	0145	0604	35080		2763	14777						
014	0193	0601	35045		2761	14784						
014	0290	0605	35071		2762	14801						
014	0386	0586	35083		2766	14810						
020	0470	0555	35036		2766	14810						
020	0564	0525	35011		2768	14813						
020	0752	0468										
020	0942	0398	34928		2775	14823						
020	1130	0374	34907		2776	14844						
020	1415	0373	34910		2776	14891						
020	1703	0360	34932		2779	14934						
020	1896	0347	34948		2782	14962						
020	2178		34943									

INTERPOLATED

DEPTH	TEMP	SAL	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0590	35061		2763	14748	0000	00000	0465
0010	0620	35044		2758	14761	0005	00000	0516
0020	0619	35056		2759	14763	0010	00001	0508
0030	0622	35061		2759	14765	0015	00002	0510
0050	0620	35054		2759	14768	0026	00007	0514
0075	0615	35072		2761	14770	0038	00015	0499
0100	0604 B	35069		2762	14770	0051	00026	0491
0125	0603	35076		2763	14774	0063	00040	0488
0150	0604	35077		2763	14778	0076	00058	0492
0175	0602	35059		2762	14781	0088	00079	0507
0200	0601	35045		2761	14785	0101	00104	0520
0225	0603	35047		2761	14790	0114	00133	0524
*0250	0604	35053		2761	14794	0128	00165	0525
0300	0604	35074		2763	14803	0154	00239	0516
0400	0581	35076		2766	14810	0205	00423	0500
0500	0545	35026		2766	14811	0256	00658	0504

DEPTH	T E M P	S A L	OXYGEN	SGMT	SDUND	DELTA-D	POT.EN	SVA
0600	0514	35001		2768	14815	0306	00944	0497
0700	0484	34976		2770	14819	0356	01278	0489
0800	0449	34954		2772	14821	0405	01653	0473
1000	0387	34920		2776	14828	0498	02509	0443
1200	0372	34905		2776	14855	0589	03541	0454
1500	0370	34915		2777	14904	0729	05499	0469
2000		34946						

C-REF-NO 001	YR 1963	DEPTH 1700	WAVES 1 00X0	AIR T 04.5	VIS 8
CONS. NO 015	MONTH 4	MXSAMPD 17	WAVES 2 2743	WET B 02.5	STN 026
LAT 65-080N	DAY 04	NO.DPTH 19	WND-DIR CALM	WW-CODE 02	
LON 31-320W	HR 06.0	W-COLOR	WND-SPD 00	CLD-TPE 0	
MARSD SQ 220		W-TRNSP	BARO 1020.2	CLD-AMT 1	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
060	0000	053	35049		2770	14723	083				074	
060	0010	0590	35048		2762	14749	083				072	
060	0020	0587	35050		2763	14750	085				075	
060	0030	0588 R	35047		2763	14752	088				074	
060	0050	0587	35046		2763	14754	092				076	
060	0075	0583	35056		2764	14757	093				075	
060	0100	0577	35054		2765	14759	097				077	
060	0150	0570	35047		2765	14764						
060	0200	0584	35045		2763	14778						
060	0300	0569	35043		2765	14788						
060	0400	0553	35045		2767	14798						
066	0483	0507	35056		2773	14793						
066	0581	0474	34996		2772	14795						
066	0775	0423	34962		2775	14806						
066	0970	0388	34940		2777	14823						
066	1166	0386	34950		2778	14855						
066	1460	0386	34970		2780	14905						
066	1606	0324	34950		2784	14903						
066	1655	0252	34875		2785	14879						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0530	35049		2770	14723	0000	00000	0404
0010	0590	35048		2762	14749	0004	00000	0477
0020	0587	35050		2763	14750	0009	00001	0473
0030	0588 R	35047		2763	14752	0014	00002	0478
0050	0587	35046		2763	14754	0024	00006	0480
0075	0583	35056		2764	14757	0036	00014	0471
0100	0577	35054		2765	14759	0048	00025	0469
0125	0572	35050		2765	14761	0059	00038	0469
0150	0570	35047		2765	14764	0071	00055	0473
0175	0577	35046		2764	14771	0083	00075	0485
0200	0584	35045		2763	14778	0096	00099	0499
0225	0583	35044		2763	14782	0108	00127	0501
0250	0580	35044		2763	14785	0121	00158	0502
0300	0569	35043		2765	14788	0146	00229	0495
0400	0553	35045		2767	14798	0196	00407	0487
0500	0500	35047		2773	14793	0242	00621	0433
0600	0468	34990		2773	14796	0287	00873	0448

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0700	0441	34968		2774	14801	0332	01175	0443
0800	0417	34958		2776	14807	0376	01516	0432
1000	0387	34940		2777	14828	0463	02322	0427
1200	0390	34954		2778	14863	0551	03319	0440
1500	0382 B	3498 B		2781	14910	0684	05176	0437

C-REF-NO 001 YR 1963 DEPTH 1060 WAVES 1 0521 AIR T 04.8 VIS 8
 CONS. NO 016 MONTH 4 MXSAMPD 10 WAVES 2 1853 WET R 02.8 STN 027
 LAT 65-245N DAY 04 NO.DPTH 16 WND-DIR 050 W-CODE 02
 LON 31-590W HR 09.4 W-COLOR 10 WND-SPD 10 CLD-TPE 3
 MARSD SQ 220 W-TRNSP 32 BARO 1021.4 CLD-AMT 3 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
094	0000	063	35122		2763	14765	085				070	
094	0010	0641	35074		2758	14770	083				071	
094	0020	0638	35058		2757	14770	084				070	
094	0030	0639	35080		2759	14772	088				073	
094	0050	0638	35074		2758	14775	089				070	
094	0075	0638 B	35074		2758	14779	088				071	
094	0100	0638 B	35074		2758	14783					073	
094	0149	0632	35077		2759	14789						
094	0199	0620	35076		2761	14793						
094	0298	0615	35072		2761	14807						
094	0397	0601	35069		2763	14817						
099	0573	0525										
099	0670	0493										
099	0766	0448 B	35002		2776	14815						
099	0959	0341	34882		2777	14801						
099	1017	0342	34892		2778	14811						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0630	35122		2763	14765	0000	00000	0469
0010	0641	35074		2758	14770	0005	00000	0520
0020	0638	35058		2757	14770	0010	00001	0530
0030	0639	35080		2759	14772	0016	00002	0516
0050	0638	35074		2758	14775	0026	00007	0523
0075	0638 B	35074		2758	14779	0039	00015	0527
0100	0638 B	35074		2758	14783	0053	00027	0530
0125	0636	35076		2759	14787	0066	00043	0530
0150	0632	35077		2759	14789	0079	00062	0528
0175	0626	35077		2760	14791	0093	00084	0524
0200	0620	35076		2761	14793	0106	00109	0521
0225	0618	35075		2761	14796	0119	00138	0523
*0250	0616	35074		2761	14800	0132	00170	0525
0300	0615	35072		2761	14807	0159	00246	0532
0400	0600	35069		2763	14818	0212	00438	0529
0500	0559	35065		2768	14818	0264	00677	0493
0600	0516	35051		2772	14817	0312	00949	0463
0700	0480	35025		2774	14818	0358	01257	0448
0800	0424 B	34974		2776	14810	0403	01598	0428

C-REF-NO 001 YR 1963 DEPTH 323 WAVES 1 00XX AIR T 00.0 VIS 9
 CONS. NO 017 MONTH 4 MXSAMPD 01 WAVES 2 1543 WET B 00.6 STN 028
 LAT 66-012N DAY 04 NO.DPTH 0 WND-DIR 030 WW-CODE 03
 LON 32-590W HR 16.4 W-COLOR 10 WND-SPD 10 CLD-TPE 3
 MARSD SQ 220 W-TRNSP 31 BARO 1021.1 CLD-AMT 2 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
164	0000	-009	33146		2667	14426	072				061	
164	0010	-0107	33274		2678	14421	074				064	
164	0020	-0028	33669		2707	14465	072				059	
164	0030	-0051	33850		2722	14458	072				057	
164	0050	0116	34235		2744	14543	073				060	
164	0075	0151	34415		2756	14565	078				059	
164	0100	0267	34617		2763	14623	083				066	
164	0150	0336 C	34764		2768	14663						

*DRY BULB LESS THAN WET BULB TEMPERATURE

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	-0090	33146		2667	14426	0000	00000	1380
0010	-0107	33274		2678	14421	0013	00001	1276
0020	-0028	33669		2707	14465	0025	00002	1003
0030	-0051	33850		2722	14458	0034	00005	0854
0050	0116	34235		2744	14543	0049	00011	0649
0075	0151	34415		2756	14565	0064	00020	0537
0100	0267	34617		2763	14623	0077	00032	0475
0125	0286 D	3470 B		2768	14637	0089	00045	0431
0150	0336 C	34764		2768	14663	0099	00060	0431

C-REF-NO 001 YR 1963 DEPTH 313 WAVES 1 0320 AIR T 00.2 VIS 9
 CONS. NO 018 MONTH 4 MXSAMPD 02 WAVES 2 1343 WET B 00.6 STN 029
 LAT 65-500N DAY 04 NO.DPTH 12 WND-DIR 030 WW-CODE 20
 LON 32-430W HR 19.9 W-COLOR 10 WND-SPD 12 CLD-TPE 5
 MARSD SQ 220 W-TRNSP 30 BARO 1021.4 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
199	0000	-011	33613		2705	14423	074				054	
199	0010	-0137	33635		2708	14412	076				055	
199	0020	-0166	33732		2717	14401	072				051	
199	0029	-0117	33970		2734	14429	078				051	
199	0048	0143	34351		2752	14556	086				064	
199	0073	0358	34646		2757	14658	095				069	
199	0097	0497	34868		2760	14723	081				083	
199	0106	0507	34908		2762	14729						
199	0141	0527	34953		2763	14744						
199	0146	0461	34865		2763	14716						
199	0180	0537	34970		2763	14755						
199	0232	0326	34881		2779	14674						

*DRY BULB LESS THAN WET BULB TEMPERATURE

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	-0110	33613		2705	14423	0000	00000	1016
0010	-0137	33635		2708	14412	0010	00001	0990
0020	-0166	33732		2717	14401	0020	00002	0908
0030	-0105	33994		2736	14435	0028	00004	0724
0050	0164	34380		2752	14567	0041	00009	0572
0075	0374	34669		2757	14666	0055	00018	0532
0100	0502	34883		2760	14726	0068	00030	0508
0125	0493 D	3490 D		2763	14727	0081	00044	0489
0150	0497 F	3492 E		2763	14733	0093	00062	0486
0175	0528 B	3496 B		2763	14750	0105	00082	0492
0200	0321 I	3474 I		2768	14664	0117	00105	0435
0225	0318 I	3484 G		2776	14669	0127	00127	0365

C-REF-NO 001	YR 1963	DEPTH 344	WAVES 1 0521	AIR T 01.2	VIS
CONS. NO 019	MONTH 4	MXSAMPD 03	WAVES 2 13XX	WET B 00.6	STN 030
LAT 65-405N	DAY 04	NO.DPTH 12	WND-DIR 050	WW-CODE 02	
LON 32-290W	HR 22.8	W-COLOR	WND-SPD 19	CLD-TPE X	
MARSD SQ 220		W-TRNSP	BARO 1021.2	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4 -P-	NO2	NO3	SID	PH
228	0000		33959				075			058	
228	0010	-0062	33922		2729	14451	078			056	
228	0020	-0033	34079		2740	14468	075			052	
228	0030	0032 B	34177		2745	14501	077			056	
228	0050	0077	34302		2752	14527	077			057	
228	0074	0256	34582		2761	14614	088			065	
228	0099	0380	34772		2765	14673	080			078	
228	0148	0373	34808		2768	14679					
228	0198	0381	34847		2771	14691					
228	0247	0349	34873		2776	14686					
232	0290	0319 B									
232	0328	0287	34822		2778	14672					

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000		33959						
0010	-0062	33922		2729	14451	0008	00000	0795
0020	-0033	34079		2740	14468	0015	00002	0687
0030	0032 B	34177		2745	14501	0022	00003	0644
0050	0077	34302		2752	14527	0034	00008	0574
0075	0262	34592		2761	14617	0048	00017	0489
0100	0381	34775		2765	14674	0060	00027	0462
0125	0396 D	3482 C		2767	14685	0071	00041	0446
0150	0374	34810		2768	14680	0082	00056	0433
0175	0379	34830		2769	14686	0093	00074	0425
0200	0380	34849		2771	14691	0104	00095	0415
0225	0366	34865		2774	14689	0114	00117	0391
0250	0347	34866		2775	14686	0123	00140	0373
0300	0310	34847		2777	14678	0142	00192	0356

C-REF-NO 001	YR 1963	DEPTH 607	WAVES 1 0521	AIR T 04.2	VIS 3
CONS. NO 020	MONTH 4	MXSAMPD 06	WAVES 2 13XX	WET B 04.0	STN 031
LAT 65-312N	DAY 05	NO.DPTH 14	WND-DIR 050	HW-CODE 46	
LON 32-085W	HR 01.4	W-COLOR	WND-SPD 19	CLD-TPE X	
MARSD SQ 220		W-TRNSP	BARO 1020.5	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4 -P-	NO2	NO3	SID	PH
014	0000	057	35100		2769	14740	097			076	
014	0010	0635 C	35077		2759	14768	099			073	
014	0019	0627	35071		2759	14766	107			075	
014	0028	0626	35082		2760	14767	090			074	
014	0047	0626	35076		2760	14770	097			076	
014	0070	0626	35079		2760	14774	099			073	
014	0094	0626	35076		2760	14778	083			082	
014	0142	0618	35085		2762	14783					
014	0189	0602	35068		2762	14784					
014	0284	0570	35055		2766	14786					
014	0380	0526 B	35039		2770	14784					
016	0477	0497	35022		2772	14788					
016	0525	0466	34988		2773	14782					
016	0574	0350 B	34836		2773	14740					

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0570	35100		2769	14740	0000	00000	0412
0010	0635 C	35077		2759	14768	0005	00000	0511
0020	0627	35072		2760	14766	0010	00001	0505
0030	0626	35082		2760	14767	0015	00002	0498
0050	0626	35076		2760	14771	0025	00007	0506
0075	0626	35078		2760	14775	0038	00015	0508
0100	0626	35077		2760	14779	0051	00026	0512
0125	0622	35082		2761	14781	0063	00041	0508
0150	0616	35083		2762	14783	0076	00059	0503
0175	0607	35074		2762	14783	0089	00080	0502
0200	0599	35066		2763	14784	0102	00105	0501
0225	0591	35062		2763	14785	0114	00132	0498
*0250	0582	35058		2764	14786	0127	00163	0493
0300	0563	35052		2766	14786	0151	00232	0480
0400	0521 B	35038		2770	14785	0198	00401	0453
0500	0488	35014		2772	14788	0244	00610	0443

C-REF-NO 001	YR 1963	DEPTH 228	WAVES 1 0620	AIR T 01.7	VIS 1
CONS. NO 021	MONTH 4	MXSAMPD 02	WAVES 2 2043	WET B 01.5	STN 032
LAT 65-070N	DAY 05	NO.DPTH 10	WND-DIR 060	WW-CODE 10	
LON 36-345W	HR 12.8	W-COLOR 10	WND-SPD 08	CLD-TPE X	
MARSD SQ 220		W-TRNSP 26	BARO 1022.8	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4 -P-	NO2	NO3	SiO	PH
128	0000	-006	33692		2710	14447	069				
128	0010	-0079	33808		2720	14442	065				
128	0020	-0085	33803		2720	14440	066				
128	0029	-0084	33820		2721	14443	065				
128	0048	-0075	33960		2732	14452	065				
128	0073	0032	34172		2744	14508	072				
128	0096	0170	34402		2754	14577	063				
128	0144	0397	34788		2764	14688					
128	0192	0402	34829		2767	14699					
128	0230	0389	34829		2768	14700					

*DEPTH OF BOTTOM OBSERVATION GREATER THAN SOUNDING
 *TIME-DISTANCE CHECK FAILED

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	-0060	33692		2710	14447	0000	00000	0973
0010	-0079	33808		2720	14442	0009	00000	0876
0020	-0085	33803		2720	14440	0018	00002	0878
0030	-0084	33825		2722	14443	0027	00004	0860
0050	-0069	33976		2733	14455	0043	00011	0750
0075	0044	34192		2745	14514	0061	00022	0639
0100	0195	34443		2755	14589	0076	00035	0548
0100	0195	34443		2755	14589	0076	00035	0548
0125	0325 B	3466 B		2761	14653	0089	00050	0494
0150	0404	34804		2765	14692	0101	00067	0468
0175	0414 B	3484 B		2766	14701	0113	00087	0456
0200	0428 D	3487 D		2768	14712	0124	00109	0446
0225	0399	34842		2768	14703	0135	00133	0442

C-REF-NO 001	YR 1963	DEPTH 380	WAVES 1 00XX	AIR T 05.2	VIS 6
CCNS. NO 022	MONTH 4	MXSAMPD 04	WAVES 2 2043	WET B 04.4	STN 033
LAT 64-518N	DAY 05	NO.DPTH 12	WND-DIR 170	WW-CODE 50	
LOX 36-082W	HR 16.6	W-COLOR 10	WND-SPD 08	CLD-TPE 7	
MARSD SQ 220		W-TRNSP 25	BARO 1023.6	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4 -P-	NO2	NO3	SIO	PH
166	0000	058	35039		2763	14743	092				
166	0010	0575	35029		2763	14743	083				
166	0019	0573	35035		2764	14744	091				
166	0029	0574 H	35041		2764	14746	093				
166	0048	0574	35046		2764	14749	094				
166	0071	0574	35040		2764	14753	092				
166	0095	0566	35035		2764	14753	092				
166	0142	0511	34961		2765	14738					
166	0190	0454	34916		2768	14721					
166	0285	0406	34926		2774	14717					
166	0319	0404 B	34944		2776	14722					
166	0362	0403	35042		2784	14730					

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0580	35039		2763	14743	0000	00000	0470
0010	0575	35029		2763	14743	0005	00000	0473
0020	0573	35036		2764	14744	0009	00001	0467
0030	0574 H	35041		2764	14746	0014	00002	0465
0050	0574	35046		2764	14749	0024	00006	0465
0075	0573	35040		2764	14753	0035	00014	0472
0100	0561	35028		2764	14752	0047	00024	0469
0125	0534	34991		2765	14745	0059	00038	0468
0150	0501	34951		2766	14735	0071	00055	0463
0175	0471	34927		2767	14726	0082	00074	0450
0200	0445	34913		2769	14719	0093	00095	0436
0225	0428	34909		2771	14716	0104	00119	0422
*0250	0415	34911		2772	14715	0115	00144	0409
0300	0405	34930		2775	14719	0135	00201	0389

C-REF-NO 001	YR 1963	DEPTH 562	WAVES 1 00XX	AIR T 03.8	VIS 7
CONS. NO 023	MONTH 4	MXSAMPD 06	WAVES 2 1953	WET B 03.3	STN 034
LAT 64-400N	DAY 05	NO.DPTH 14	WND-DIR 320	WW-CODE 21	
LON 35-480W	HR 19.0	W-COLOR 10	WND-SPD 10	CLD-TPE 6	
MARSD SQ 220		W-TRNSP 21	BARO 1024.9	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SI0	PH
190	0000	049	34902		2763	14705	088				081	
190	0010	0492	34926		2765	14708	087				076	
190	0020	0490	34928		2765	14708	084				075	
190	0030	0490	34955		2767	14710	089				072	
190	0050	0492	34940		2766	14714	086				070	
190	0075	0499	34960		2767	14722	090				078	
190	0100	0498	34962		2767	14725	089				082	
194	0140	0484	34966		2769	14726						
194	0190	0460	34941		2770	14724						
194	0289	0402	34891		2772	14716						
194	0399	0367	34862		2773	14719						
194	0488	0363	34938		2780	14733						
194	0538	0353	34915		2779	14736						
194	0558	0353	34902		2778	14739						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0490	34902		2763	14705	0000	00000	0469
0010	0492	34926		2765	14708	0005	00000	0455
0020	0490	34928		2765	14708	0009	00001	0452
0030	0490	34955		2767	14710	0014	00002	0433
0050	0492	34940		2766	14714	0023	00006	0449
0075	0499	34960		2767	14722	0034	00013	0445
0100	0498	34962		2767	14725	0045	00023	0445
0125	0490	34966		2768	14726	0056	00036	0437
0150	0480	34962		2769	14726	0067	00051	0430
0175	0468	34950		2769	14725	0078	00070	0429
0200	0454	34935		2770	14723	0089	00090	0428
0225	0439	34922		2770	14721	0100	00114	0424
*0250	0424	34909		2771	14719	0110	00140	0420
0300	0397	34884		2772	14715	0131	00199	0415
0400	0367	34863		2773	14719	0173	00349	0409
0500	0360	34935		2780	14733	0212	00527	0356

C-REF-NO 001	YR 1963	DEPTH 388	WAVES 1 00XX	AIR T 07.0	VIS 7
CONS. NO 024	MONTH 4	MXSAMPD 01	WAVES 2 2053	WET B 06.0	STN 035
LAT 64-262N	DAY 05	NO.DPTH 8	WND-DIR 180	WW-CODE 02	
LON 35-260W	HR 22.0	W-COLOR	WND-SPD 10	CLD-TPE 7	
MARSD SQ 220		W-TRNSP	BARO 1027.0	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
220	0000	048	34925		2766	14701	093					
220	0009	0469	34899		2765	14698	093					
220	0019	0478	34912		2765	14703	099					
220	0028	0477	34912		2765	14704	097					
220	0048	0436	34863		2766	14690	095					
220	0071	0403	34829		2767	14679	097					
220	0096	0341	34763		2768	14656	082					
220	0143	0394	34869		2771	14688						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0480	34925		2766	14701	0000	00000	0441
0010	0470	34900		2765	14698	0004	00000	0450
0020	0478	34913		2765	14703	0009	00001	0451
0030	0474	34908		2765	14703	0014	00002	0451
0050	0433	34860		2766	14689	0023	00006	0446
0075	0392	34817		2767	14675	0034	00013	0439
0100	0361 D	3479 C		2768	14666	0045	00023	0430
0125	0370 B	3482 B		2770	14674	0055	00035	0418

C-REF-NO	001	YR	1963	DEPTH	370	WAVES 1	00XX	AIR T	07.0	VIS	7
CONS. NO	025	MONTH	4	MXSAMPD	01	WAVES 2	2043	WET B	06.4	STN	036
LAT	64-228N	DAY	06	NO.DPTH	7	WND-DIR	240	WW-CODE	02		
LON	35-210W	HR	00.8	W-COLOR		WND-SPD	14	CLD-TPE	6		
MARSD	SQ 220			W-TRNSP		BARO	1028.1	CLD-AMT	8	HW	

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SiO	PH
008	0000	058	35115		2769	14744						
008	0009	0609	35074		2762	14757						
008	0018	0610	35050		2760	14759						
008	0027	0608	35069		2762	14759						
008	0045	0574 B	35063		2766	14749						
008	0067	0590	35043		2762	14758						
008	0090	0579	35033		2763	14758						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0580	35115		2769	14744	0000	00000	0413
0010	0610	35070		2762	14757	0005	00000	0485
0020	0610	35053		2760	14759	0009	00001	0499
0030	0602	35070		2763	14758	0014	00002	0478
0050	0576 B	35059		2765	14750	0024	00006	0457
0075	0575 B	35042		2764	14754	0036	00014	0472

C-REF-NO 001	YR 1963	DEPTH 1500	WAVES 1 3021	AIR T 04.6	VIS 7
CONS. NO 026	MONTH 4	MXSAMPD 13	WAVES 2 2042	WET B 04.2	STN 037
LAT 64-178N	DAY 06	NO.DPTH 19	WND-DIR 300	WW-CODE 02	
LOX 35-120W	HR 08.0	W-COLOR 10	WND-SPD 13	CLD-TPE 8	
MARSD SQ 220		W-TRNSP 26	BARO 1031.5	CLD-AMT 5	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
080	0000	059	35092		2766	14748	086				071	
080	0009	0615	35070		2761	14759	086				068	
080	0018	0613	35066		2761	14760	091				070	
080	0027	0613 B	35068		2761	14761	096				069	
080	0046	0612	35067		2761	14764	096				068	
080	0070	0610	35016		2757	14767	093				069	
080	0093	0611	35073		2762	14772	084				076	
080	0140	0611 B	35066		2761	14779						
080	0186	0610	35070		2762	14786						
080	0280	0607	35053		2761	14800						
080	0374	0600	35043		2761	14813						
086	0384	0582 B	35021		2761	14807						
086	0465	0530 B	34992		2765	14799						
086	0543	0516 B	35010		2769	14806						
086	0620	0480	34984		2771	14804						
086	0700	0432	34978		2776	14797						
086	0776	0416	34978		2777	14803						
086	0917	0383	34940		2778	14812						
086	1315	0349	34938		2781	14864						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0590	35092		2766	14748	0000	00000	0442
0010	0615	35069		2761	14760	0005	00000	0492
0020	0613	35066		2761	14760	0010	00001	0493
0030	0613 B	35069		2761	14762	0015	00002	0492
0050	0612	35057		2760	14764	0025	00006	0503
0075	0610	35026		2758	14768	0038	00015	0527
0100	0611	35077		2762	14773	0051	00026	0494
0125	0611 P	35077		2762	14777	0063	00041	0498
0150	0611 B	35067		2761	14781	0076	00059	0509
0175	0610	35069		2761	14785	0089	00080	0510
0200	0610	35068		2761	14789	0102	00105	0514
0225	0609	35065		2761	14792	0115	00134	0519
*0250	0609	35060		2761	14796	0128	00166	0525
0300	0608	35051		2760	14804	0155	00242	0539
0400	0580	35024		2762	14809	0209	00437	0537
0500	0523 B	35000		2767	14802	0261	00678	0496
0600	0491	34992		2770	14805	0310	00955	0475

DEPTH	T E M P	S A L	CXYGEN	SGMT	SOUND	DELTA-D	PQT.EN	SVA
0700	0432	34978		2776	14797	0356	01258	0425
0800	0410	34973		2778	14805	0398	01585	0413
1000	0374 B	3495 C		2780	14823	0481	02351	0405
1200	0354	3494 B		2781	14847	0563	03280	0405

C-REF-NO 001 YR 1963 DEPTH 2115 WAVES 1 00XX AIR T 08.6 VIS 8
 CONS. NO 027 MONTH 4 MXSAMPD 21 WAVES 2 1942 WET B 07.4 STN 038
 LAT 64-010N DAY 06 NO.DPTH 20 WND-DIR 310 WW-CODE 01
 LON 34-450W HR 12.5 W-COLOR 10 WND-SPD 06 CLD-TPE 2
 MARSD SQ 220 W-TRNSP 31 BARO 1032.5 CLD-AMT 2 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
125	0000	061	35132		2766	14757	092					
125	0010	0602	35068		2762	14754	093					
125	0020	0600	35066		2763	14755	097					
125	0030	0601	35068		2763	14757	094					
125	0049	0600 B	35041		2761	14759	097					
125	0074	0600	35036		2760	14763	096					
125	0098	0599	35060		2762	14767	075					
125	0148	0589 B	35052		2763	14771						
125	0197	0585	35051		2763	14778						
133	0294	0583 B	35047		2763	14793						
133	0392	0578	35053		2764	14807						
133	0490	0565	35047		2766	14818						
133	0685	0517 B	35009		2768	14830						
133	0882	0463	34976		2772	14840						
133	1078	0414	34967		2777	14853						
133	1372	0365	34948		2780	14881						
133	1666	0223	34912		2790	14869						
133	1864	0147	34926		2797	14870						
133	2010		35050									
133	2070	0104	34997		2806	14887						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	PQT.EN	SVA
0000	0610	35132		2766	14757	0000	00000	0437
0010	0602	35068		2762	14754	0005	00000	0476
0020	0600	35066		2763	14755	0009	00001	0477
0030	0601	35068		2763	14757	0014	00002	0478
0050	0600 B	35040		2761	14760	0024	00006	0500
0075	0600	35037		2760	14764	0037	00014	0507
0100	0599	35060		2762	14768	0049	00026	0491
0125	0594	35060		2763	14770	0062	00040	0489
0150	0589 B	35052		2763	14772	0074	00058	0492
0175	0586	35051		2763	14775	0087	00078	0493
0200	0585	35051		2763	14778	0099	00102	0495
0225	0584	35049		2763	14782	0112	00130	0499
*0250	0584	35048		2763	14786	0124	00161	0503
0300	0583 B	35047		2763	14794	0150	00233	0509
0400	0577	35053		2764	14808	0201	00419	0512
0500	0563	35045		2766	14819	0253	00658	0513

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0600	0540	35027		2767	14826	0305	00951	0510
0700	0513 B	35006		2769	14831	0356	01293	0504
0800	0486	34988		2770	14836	0406	01683	0494
1000	0432	34969		2775	14847	0503	02576	0462
1200	0398 B	34961		2778	14866	0595	03616	0444
1500	0307 B	34929		2784	14878	0720	05344	0379
2000	0117	35046		2809	14882	0840	07322	0093

C-REF-NO 001 YR 1963 DEPTH 2440 WAVES 1 3021 AIR T 05.0 VIS 8
 CONS. NO 028 MONTH 4 MXSAMPD 24 WAVES 2 2042 WET B 04.5 STN 039
 LAT 63-445N DAY 06 NO.DPTH 20 WND-DIR 310 WW-CODE 02
 LON 34-175W HR 16.5 W-COLOR 10 WND-SPD 10 CLD-TPE 4
 MARSD SQ 220 W-TRNSP 32 BARO 1033.2 CLD-AMT 2 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SID	PH
165	0000	065	35120		2760	14772	084					
165	0010	0637	35087		2759	14768	083					
165	0020	0627 C	35084		2760	14766	087					
165	0030	0622	35082		2761	14766	091					
165	0050	0618	35084		2762	14767	092					
165	0075	0616	35082		2762	14771	085					
165	0100	0614	35087		2762	14774	086					
165	0150	0609 B	35073		2762	14780						
165	0200	0606	35084		2763	14787						
165	0300	0592	35072		2764	14798						
165	0400	0535	35010		2766	14790						
173	0500	0485	34999		2771	14786						
173	0600	0452	34975		2773	14789						
173	0800	0406	34947		2776	14803						
173	1000	0365	34905		2777	14818						
173	1200	0363	34931		2779	14851						
173	1500	0358 C	34956		2782	14900						
173	1800	0341 C	34961		2784	14943						
173	2000	0258	34945		2790	14942						
173	2400		34927									

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0650	35120		2760	14772	0000	00000	0496
0010	0637	35087		2759	14768	0005	00000	0506
0020	0627 C	35084		2760	14766	0010	00001	0497
0030	0622	35082		2761	14766	0015	00002	0494
0050	0618	35084		2762	14767	0025	00006	0490
0075	0616	35082		2762	14771	0037	00014	0493
0100	0614	35087		2762	14774	0050	00025	0490
0125	0611	35080		2762	14777	0062	00040	0496
0150	0609 B	35073		2762	14780	0075	00058	0502
0175	0608	35078		2763	14784	0087	00079	0500
0200	0606	35084		2763	14787	0100	00103	0497
0225	0605	35085		2763	14791	0113	00130	0498
0250	0602	35084		2764	14794	0125	00161	0500
0300	0592	35072		2764	14798	0150	00233	0503
0400	0535	35010		2766	14791	0201	00413	0491
0500	0485	34999		2771	14786	0248	00632	0450

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0600	0452	34975		2773	14789	0293	00886	0440
0700	0427	34960		2775	14795	0337	01181	0432
0800	0406	34947		2776	14803	0381	01516	0427
1000	0365	34905		2777	14818	0467	02319	0428
1200	0363	34931		2779	14851	0553	03295	0423
1500	0358 C	34956		2782	14900	0682	05089	0424
2000	0258	34945		2790	14942	0876	08529	0338

C-REF-NO 001 YR 1963 DEPTH 2770 WAVES 1 3021 AIR T 05.0 VIS 8
 CONS. NO 029 MONTH 4 MXSAMPD 25 WAVES 2 4942 WET B 04.0 STN 040
 LAT 63-275N DAY 06 NO.DPTH 20 WND-DIR 300 WW-CODE 02
 LON 33-510W HR 21.3 W-COLOR WND-SPD 08 CLD-TPE 4
 MARSC SQ 220 W-TRNSP BARO 1034.6 CLD-AMT 2 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
213	0000	056	35023		2764	14735	098				082	
213	0010	0608	35016		2758	14756	101				077	
213	0020	0593	35019		2760	14752	102				078	
213	0030	0579	35002		2760	14747	105				080	
213	0050	0562	35001		2762	14744	104				080	
213	0075	0554	34994		2763	14745	102				082	
213	0100	0557	35006		2763	14750	106				085	
213	0149	0536	34986		2764	14749						
213	0199	0532	34961		2763	14755						
213	0298	0535	34994		2765	14773						
213	0397	0515	35001		2768	14782						
220	0498	0466	34973		2771	14778						
220	0598	0445	34958		2773	14785						
220	0797	0405	34934		2775	14801						
220	0996	0365	34901		2776	14817						
220	1196	0360	34908		2778	14849						
220	1494	0362										
220	1793	0359	34951		2781	14949						
220	1992	0345	34957		2783	14977						
220	2490	0258	34941		2790	15025						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0560	35023		2764	14735	0000	00000	0458
0010	0608	35016		2758	14756	0005	00000	0523
0020	0593	35019		2760	14752	0010	00001	0503
0030	0579	35002		2760	14747	0015	00002	0501
0050	0562	35001		2762	14744	0025	00006	0484
0075	0554	34994		2763	14745	0037	00014	0483
0100	0557	35006		2763	14750	0049	00025	0481
0125	0547	35000		2764	14750	0062	00039	0478
0150	0536	34985		2764	14749	0074	00056	0478
0175	0533	34972		2764	14752	0086	00077	0488
0200	0532	34961		2763	14756	0098	00101	0498
0225	0533	34966		2763	14760	0111	00128	0499
*0250	0534	34973		2763	14765	0123	00159	0498
0300	0535	34994		2765	14774	0148	00229	0489
0400	0514	35000		2768	14782	0197	00403	0472
0500	0465	34973		2771	14778	0243	00617	0447

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0600	0445	34958		2773	14786	0288	00872	0444
0700	0424	34946		2774	14794	0333	01171	0440
0800	0404	34933		2775	14802	0377	01512	0435
1000	0365	34901		2777	14818	0465	02324	0430
1200	0360	34908		2778	14850	0553	03320	0436
1500	0362	34930		2779	14901	0687	05195	0448
2000	0343	34956		2783	14978	0914	09285	0444
2500	0256	34940		2790	15026	1120	14034	0367

C-REF-NO 001	YR 1963	DEPTH 2400	WAVES 1	AIR T	VIS
CONS. NO 030	MONTH 4	MXSAMPD 23	WAVES 2	WET B	STN 041
LAT 62-460N	DAY 07	NO. DPTH 20	WND-DIR	WW-CODE	
LON 32-120W	HR 06.0	W-COLOR	WND-SPD	CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO	CLD-AMT	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
060	0000	050	35056		2774	14711	090				075	
060	0010	0642	35043		2755	14770	087				071	
060	0020	0646 B	35041		2755	14773	095				072	
060	0030	0639 B	35038		2755	14772	089				071	
060	0049	0650	35042		2754	14779	094				069	
060	0074	0640	35045		2756	14780	094				072	
060	0098	0638 B	35049		2756	14783	078				079	
060	0148	0622	35031		2757	14784						
060	0197	0622	35034		2757	14792						
062	0290	0611	35032		2758	14803						
062	0387	0540 B	34972		2763	14790						
070	0507	0532	35012		2767	14807						
070	0556	0499	34961		2767	14801						
070	0654	0469	34986		2772	14805						
070	0748	0414	34948		2775	14814						
070	1043	0368	34912		2777	14827						
070	1238	0363	34915		2778	14857						
070	1530	0359 B	34936		2780	14905						
070	2020	0342	34960		2783	14981						
070	2314	0315	34955		2786	15020						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0500	35056		2774	14711	0000	00000	0365
0010	0642	35043		2755	14770	0005	00000	0545
0020	0646 B	35041		2755	14773	0010	00001	0553
0030	0639 B	35038		2755	14772	0016	00003	0548
0050	0650	35042		2754	14780	0027	00007	0562
0075	0640	35045		2756	14780	0041	00016	0550
0100	0637 B	35048		2756	14783	0055	00029	0549
0125	0629	35040		2757	14784	0069	00045	0548
0150	0622	35031		2757	14785	0082	00064	0549
0175	0621	35032		2757	14789	0096	00087	0552
0200	0622	35034		2757	14793	0110	00114	0555
0225	0622	35037		2757	14797	0124	00145	0557
*0250	0620	35037		2758	14800	0138	00179	0558
0300	0604	35025		2759	14802	0166	00258	0552
0400	0539 B	34979		2763	14792	0220	00452	0519
0500	0533	35011		2767	14806	0272	00690	0500
0600	0482	3496 B		2769	14801	0322	00972	0485

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0700	0455	34982		2773	14807	0369	01287	0450
0800	0427	34963		2775	14812	0414	01634	0440
1000	0376	34918		2777	14823	0502	02450	0431
1200	0362	34913		2778	14851	0590	03447	0436
1500	0359 B	34934		2780	14900	0724	05307	0442
2000	0343	34960		2783	14978	0948	09358	0441

C-REF-NO 001 YR 1963 DEPTH 3040 WAVES 1 0321 AIR T 05.6 VIS 8
 CONS. NO 031 MONTH 4 MXSAMPE 07 WAVES 2 00X0 WET B 04.4 STN 042
 LAT 61-000N DAY 07 NO.DPTH 14 WND-DIR 030 WW-CODE 02
 LON 34-025W HR 19.5 W-COLOR 10 WND-SPD 11 CLD-TPE 5
 MARSD SQ 220 W-TRNSP 22 BARO 1029.7 CLD-AMT 6 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	CXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
195	0000	060	34987		2756	14751	097				077	
195	0010	0600	34965		2755	14752	090				073	
195	0019	0597	34969		2755	14752	091				072	
195	0028	0591 B	34976		2757	14752	093				070	
195	0048	0584 B	34979		2758	14752	095				072	
195	0072	0574	34982		2759	14752	103				072	
195	0096	0556	34972		2761	14748	085				088	
195	0145	0534 B	34970		2763	14748						
195	0194	0501	34949		2765	14742						
195	0290	0482	34945		2767	14750						
195	0388	0458	34961		2771	14756						
201	0458	0452	34970		2773	14765						
201	0546	0426	34953		2774	14769						
201	0734	0384	34928		2777	14782						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	CXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0600	34987		2756	14751	0000	00000	0533
0010	0600	34965		2755	14752	0005	00000	0551
0020	0596	34970		2755	14752	0011	00001	0544
0030	0590 B	34977		2757	14752	0016	00003	0533
0050	0583 B	34980		2758	14752	0027	00007	0525
0075	0572	34981		2759	14752	0040	00015	0514
0100	0554	34972		2761	14748	0053	00027	0503
0125	0542	34970		2762	14748	0066	00041	0494
0150	0531 B	34968		2763	14747	0078	00059	0485
0175	0514	34958		2765	14744	0090	00079	0476
0200	0499	34948		2766	14742	0102	00102	0469
0225	0492	34944		2766	14743	0114	00128	0467
*0250	0487	34942		2767	14745	0126	00156	0465
0300	0479	34946		2768	14750	0149	00222	0460
0400	0457	34963		2772	14758	0194	00384	0433
0500	0441	34964		2774	14768	0237	00584	0424
0600	0420	34956		2775	14775	0280	00825	0417
0700	0394	34937		2776	14781	0322	01105	0411

C-REF-NO 001 YR 1963 DEPTH 1280 WAVES 1 49X0 AIR T 08.0 VIS 7
 CONS. NO 032 MONTH 4 MXSAMPD 12 WAVES 2 2131 WET B 08.0 STN 116
 LAT 63-200N DAY 24 NO.DPTH 16 WND-DIR 060 WW-CODE 60
 LON 26-500W HR 23.1 W-COLOR WND-SPD 12 CLD-TPE X
 MARSD SQ 219 W-TRNSP BARO 1008.2 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	CXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
231	0000	068	34988		2746	14783	083				066	
231	0010	0682	35087		2753	14786	085				064	
231	0020	0678	35086		2754	14786	097				066	
231	0030	0679	35091		2754	14788	092				065	
231	0050	0674	35085		2754	14790	092				066	
231	0074	0671	35084		2755	14792	092				065	
231	0099	0668	35095		2756	14795	087				070	
231	0148	0671	35081		2754	14804	100				073	
231	0198	0665	35088		2756	14810	079				066	
231	0297	0662	35094		2757	14826	093				075	
231	0396	0634	35073		2759	14831	099				072	
238	0490	0597 B	35053		2762	14831	119				084	
238	0598	0569	35047		2765	14837	112				088	
238	0797	0521	35063		2772	14851	126				104	
238	0996	0460	35037		2777	14859	113				104	
238	1196	0413	35008		2780	14872	113				106	

I N T E R P O L A T E D

DEPTH	T E M P	S A L	CXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0680	34988		2746	14783	0000	00000	0633
0010	0682	35087		2753	14786	0006	00000	0564
0020	0678	35086		2754	14786	0012	00001	0561
0030	0679	35091		2754	14788	0017	00003	0560
0050	0674	35085		2754	14790	0029	00007	0561
0075	0671	35084		2755	14793	0043	00016	0561
0100	0668	35095		2756	14796	0057	00029	0554
0125	0669	35089		2755	14800	0071	00045	0564
0150	0671	35081		2754	14805	0085	00066	0576
0175	0668	35084		2755	14808	0100	00090	0574
0200	0665	35088		2756	14811	0114	00118	0571
0225	0665	35091		2756	14815	0129	00149	0572
*0250	0664	35093		2756	14819	0143	00184	0574
0300	0661	35094		2757	14826	0172	00267	0578
0400	0632	35072		2759	14831	0230	00475	0570
0500	0594 B	35052		2762	14831	0287	00736	0549
0600	0569	35047		2765	14838	0341	01045	0532
0700	0545	35056		2769	14845	0394	01396	0508
0800	0520	35063		2772	14851	0444	01782	0483
1200	0412	35007		2780	14873	0627	03655	0428

C-REF-NO 001	YR 1963	DEPTH 650	WAVES 1 2621	AIR T 08.8	VIS 8
CONS. NO 033	MONTH 4	MXSAMPD 06	WAVES 2 00X0	WET B 08.0	STN 117
LAT 62-320N	DAY 25	NO. DPTH 14	WND-DIR 260	WW-CODE 02	
LOX 25-470W	HR 08.0	W-COLOR	WND-SPD 16	CLD-TPE 7	
MARSD SQ 219		W-TRNSP	BARO 1007.0	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
080	0000	075	35199		2752	14813	074				060	
080	0009	0752	35180		2751	14815	071				060	
080	0018	0748	35180		2751	14815	071				060	
080	0027	0750	35181		2751	14817	071				060	
080	0045	0749	35178		2751	14819	074				060	
080	0068	0747	35183		2752	14822	073				061	
080	0090	0740	35184		2753	14823	066				067	
080	0135	0739	35187		2753	14830						
080	0182	0731	35184		2754	14835						
080	0279	0728	35184		2754	14850						
080	0377	0716 B	35169		2755	14861						
082	0512	0696	35158		2757	14875						
082	0570	0692 B	35150		2757	14883						
082	0618	0656	35143		2761	14877						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0750	35199		2752	14813	0000	00000	0570
0010	0752	35180		2751	14815	0006	00000	0588
0020	0748	35180		2751	14815	0012	00001	0585
0030	0750	35181		2751	14817	0018	00003	0589
0050	0749	35179		2751	14820	0030	00008	0592
0075	0745	35184		2752	14823	0044	00017	0588
0100	0739	35185		2753	14825	0059	00030	0583
0125	0739	35187		2753	14829	0074	00047	0586
0150	0737	35186		2753	14832	0089	00068	0587
0175	0732	35185		2754	14834	0104	00093	0587
0200	0730	35184		2754	14838	0118	00122	0588
0225	0729	35184		2754	14841	0133	00154	0591
*0250	0728	35184		2754	14845	0148	00191	0594
0300	0726	35181		2755	14852	0178	00276	0602
0400	0712 B	35167		2755	14863	0240	00496	0610
0500	0698	35159		2757	14874	0301	00782	0611
0600	0668	35146		2760	14879	0362	01126	0594

C-REF-NO 001 YR 1963 DEPTH 1600 WAVES 1 11X0 AIR T 07.4 VIS 7
 CONS. NO 034 MONTH 4 MXSAMPD 14 WAVES 2 1632 WET B 07.2 STN 118
 LAT 61-525N DAY 25 NO.DPTH 18 WND-DIR 110 WW-CODE 61
 LON 24-160W HR 16.6 W-COLOR 10 WND-SPD 05 CLD-TPE 7
 MARSD SQ 219 W-TRNSP 16 BARO 1008.1 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SI0	PH
166	0000	084	35234		2742	14848	072				047	
166	0010	0842	35194		2738	14849	079				052	
166	0019	0832	35194		2740	14847	072				054	
166	0028	0827	35200		2741	14847	075				052	
166	0047	0818	35189		2741	14846	073				055	
166	0070	0811	35189		2743	14847	076				056	
166	0096	0807	35186		2743	14850	072				060	
166	0140	0781	35168		2745	14847						
166	0190	0782 B	35188		2747	14856						
166	0289	0776	35195		2748	14870						
166	0388	0758 B	35180		2750	14879						
171	0503	0741	35187		2753	14892						
171	0595	0727 B	35174		2754	14901						
171	0783	0619	35131		2765	14889						
171	0972	0485	35049		2775	14865						
171	1162	0412	34999		2779	14866						
171	1401	0370	35015		2785	14889						
171	1450	0359	35022		2787	14893						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0840	35234		2742	14848	0000	00000	0672
0010	0842	35194		2738	14849	0007	00000	0707
0020	0831	35195		2740	14847	0014	00001	0693
0030	0826	35199		2741	14847	0021	00003	0683
0050	0817	35189		2742	14846	0035	00009	0682
0075	0810	35189		2743	14848	0052	00020	0677
0100	0805	35184		2743	14850	0069	00035	0677
0125	0790	35173		2745	14848	0086	00055	0668
0150	0780	35171		2746	14848	0103	00078	0660
0175	0780	35180		2747	14853	0119	00106	0658
0200	0782 B	35190		2747	14858	0136	00138	0658
0225	0781 B	35194		2747	14862	0152	00174	0658
*0250	0780	35196		2748	14865	0169	00215	0659
0300	0774	35193		2748	14871	0202	00309	0662
0400	0756 B	35181		2750	14881	0269	00550	0663
0500	0741	35187		2753	14891	0336	00858	0654
0600	0725 B	35173		2754	14901	0402	01233	0657
0700	0675 B	35154		2760	14898	0466	01662	0614

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0800	0606	35124		2766	14887	0525	02116	0554
1000	0471	35039		2776	14864	0628	03058	0460
1200	0404	34998		2780	14869	0718	04072	0425

C-REF-NO 001 YR 1963 DEPTH 2070 WAVES 1 2121 AIR T 08.6 VIS 3
 CONS. NO 035 MONTH 4 MXSAMPD 20 WAVES 2 1632 WET B 08.0 STN 119
 LAT 60-045N DAY 26 NO.DPTH 20 WND-DIR 210 W-CODE 28
 LON 26-205W HR 05.8 W-COLOR WND-SPD 15 CLD-TPE 7
 MARSD SQ 219 W-TRNSP BARO 1000.6 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SI0	PH
058	0000	081	35117		2737	14835	068				053	
058	0010	0800	35117		2739	14832	061				051	
058	0020	0787	35111		2740	14829	069				053	
058	0029	0783	35113		2741	14829	067				052	
058	0048	0786	35123		2741	14833	073				053	
058	0073	0780	35131		2743	14835	076				055	
058	0097	0770 B	35131		2744	14835	079				058	
058	0146	0756	35143		2747	14838						
058	0194	0744	35135		2748	14841						
058	0292	0750	35192		2752	14860						
064	0386	0737	35186		2753	14871						
064	0483	0726 B	35173		2754	14882						
064	0677	0665	35136		2759	14890						
064	0871	0553	35064		2768	14876						
064	1065	0456	35013		2776	14868						
064	1356	0390	34984		2781	14889						
064	1647	0342	35001		2787	14918						
064	1840	0300	35004		2791	14933						
064	1938	0284	35006		2793	14943						
064	1978	0285	35004		2792	14950						

*TIME-DISTANCE CHECK FAILED

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0810	35117		2737	14835	0000	00000	0716
0010	0800	35117		2739	14832	0007	00000	0703
0020	0787	35111		2740	14829	0014	00001	0691
0030	0783	35113		2741	14829	0021	00003	0685
0050	0786	35124		2741	14834	0035	00009	0685
0075	0779	35131		2743	14835	0052	00020	0675
0100	0769 B	35132		2744	14836	0069	00035	0664
0125	0761	35138		2746	14837	0086	00054	0653
0150	0755	35142		2747	14838	0102	00077	0645
0175	0748	35138		2748	14840	0118	00105	0644
0200	0744	35138		2748	14842	0134	00136	0642
0225	0745	35151		2749	14847	0151	00171	0638
*0250	0746	35165		2750	14852	0167	00210	0634
0300	0749	35193		2752	14862	0198	00300	0627
0400	0736	35184		2753	14873	0262	00529	0631

DEPTH	T E M P	S A L	CXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0500	0723 B	35171		2754	14884	0326	00825	0639
0600	0695	35154		2757	14890	0390	01187	0628
0700	0653	35128		2760	14889	0452	01603	0602
0800	0596	35091		2765	14882	0511	02057	0564
1000	0485	35028		2774	14870	0618	03035	0487
1200	0418	34993		2778	14875	0712	04103	0447
1500	0366	34990		2783	14904	0842	05907	0409

C-REF-NO	001	YR	1963	DEPTH	1440	WAVES 1	1821	AIR T	09.5	VIS	2
CONS. NO	036	MONTH	4	MXSAMPD	14	WAVES 2	3642	WET B	09.0	STN	120
LAT	60-445N	DAY	26	NO.DPTH	18	WND-DIR	180	WW-CODE	10		
LON	27-375W	HR	13.5	W-COLOR		WND-SPD	12	CLD-TPE	X		
MARSD	SQ 219			W-TRNSP		BARO	1003.3	CLD-AMT	9	HW	

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SI0	PH
135	0000	085	35184		2736	14851	063				060	
135	0008	0788	35167		2744	14828	065				059	
135	0016	0779	35166		2746	14826	072				060	
135	0025	0780	35162		2745	14828	074				060	
135	0042	0777	35170		2746	14830	077				061	
135	0063	0774	35182		2748	14832	079				061	
135	0084	0775	35182		2747	14836	080				064	
135	0126	0773	35205		2750	14842						
135	0168	0765	35192		2750	14846						
135	0205	0765	35188		2749	14852						
135	0293	0760 B	35187		2750	14864						
141	0383	0744	35180		2752	14873						
141	0474	0734	35181		2753	14884						
141	0687	0670	35151		2760	14894						
141	0882	0558	35076		2769	14881						
141	1073	0460	35037		2777	14872						
141	1313	0405	35006		2781	14889						
141	1360	0397	35015		2782	14893						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0850	35184		2736	14851	0000	00000	0724
0010	0783	35166		2745	14827	0007	00000	0642
0020	0779	35164		2745	14827	0013	00001	0640
0030	0779	35163		2745	14828	0020	00003	0643
0050	0776	35175		2747	14830	0033	00008	0632
0075	0774	35182		2748	14834	0049	00018	0630
0100	0775	35191		2748	14839	0064	00033	0629
0125	0773	35204		2749	14842	0080	00051	0621
0150	0768	35199		2750	14844	0096	00073	0622
0175	0765	35191		2750	14847	0112	00099	0628
0200	0765	35188		2749	14851	0128	00130	0635
0225	0765	35188		2749	14855	0144	00165	0639
0250	0764	35187		2750	14859	0160	00205	0643
0300	0759 B	35186		2750	14865	0192	00297	0645
0400	0742	35180		2752	14875	0257	00531	0643
0500	0729	35180		2754	14887	0322	00831	0642
0600	0703	35169		2757	14893	0386	01194	0628
0700	0663	35146		2761	14893	0449	01609	0603

DEPTH	T E M P	S A L	OXYGEN	SGMT	SDUND	DELTA-D	POT.EN	SVA
0800	0607	35108		2765	14887	0508	02065	0567
1000	0494	35049		2774	14874	0614	03042	0483

C-REF-NO	001	YR	1963	DEPTH	1740	WAVES 1	0332	AIR T	08.8	VIS	6
CONS. NO	037	MONTH	4	MXSAMPD	05	WAVES 2	2074	WET B	08.4	STN	121
LAT	61-235N	DAY	26	NO.DPTH	13	WND-DIR	090	WW-CODE	60		
LON	29-040W	HR	21.6	W-COLOR		WND-SPD	19	CLD-TPE	5		
MARSD SQ	219			W-TRNSP		BARO	997.7	CLD-AMT	8	HW	

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4 -P-	NO2	NO3	SID	PH
216	0000	071	35101		2750	14796	071			060	
216	0009	0714	35061		2747	14798	065			059	
216	0018	0711	35075		2748	14799	072			061	
216	0027	0710	35059		2747	14800	073			059	
216	0046	0696	35068		2750	14797	082			062	
216	0069	0691	35048		2749	14799	076			061	
216	0091	0687 B	35047		2749	14801	080			064	
216	0138	0694 B	35069		2750	14812					
216	0183	0692	35071		2751	14818					
216	0278	0708	35125		2753	14841					
216	0374	0683	35125		2756	14847					
221	0403	0681	35123		2756	14851					
221	0533	0613 C	35070		2761	14845					

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0710	35101		2750	14796	0000	00000	0588
0010	0714	35062		2747	14798	0006	00000	0624
0020	0711	35072		2748	14799	0012	00001	0614
0030	0708	35059		2747	14799	0019	00003	0622
0050	0695	35065		2750	14798	0031	00008	0603
0075	0690	35046		2749	14799	0046	00018	0614
0100	0688 B	35051		2750	14803	0062	00032	0613
0125	0691 B	35062		2750	14809	0077	00050	0613
0150	0694 B	35070		2750	14814	0093	00071	0615
0175	0692	35071		2751	14817	0108	00097	0617
0200	0695	35080		2751	14823	0124	00127	0618
0225	0700	35094		2751	14829	0139	00161	0618
*0250	0704	35108		2752	14835	0155	00199	0617
0300	0703	35128		2754	14843	0186	00287	0609
0400	0681	35123		2756	14851	0247	00506	0599
0500	0632 B	35088		2760	14847	0306	00779	0573

C-REF-NO 001	YR 1963	DEPTH 2120	WAVES 1 1822	AIR T 07.4	VIS 4
CONS. NO 038	MONTH 4	MXSAMPD 19	WAVES 2 4943	WET B 07.4	STN 122
LAT 62-050N	DAY 27	NO.DPTH 20	WND-DIR 180	WW-CODE 53	
LON 30-380W	HR 05.5	W-COLOR	WND-SPD 18	CLD-TPE X	
MARSD SQ 220		W-TRNSP	BARO 992.4	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4 -P-	NO2	NO3	SIO	PH
055	0000	067	35056		2752	14780	074			064	
055	0008		35060				073			063	
055	0015	0658	35059		2754	14777	078			063	
055	0023	0659 B	35058		2754	14779	075			063	
055	0038	0658 B	35073		2755	14781	076			064	
055	0058	0658	35078		2756	14785	075			064	
055	0078	0658 B	35070		2755	14788	078			069	
055	0118	0645 B	35059		2756	14789					
055	0158	0641	35058		2757	14794					
055	0247	0629	35046		2757	14804					
055	0337	0592 B	35041		2762	14804					
064	0424	0591	35043		2762	14818					
064	0511	0540	35046		2769	14811					
064	0688	0481	34983		2771	14816					
064	0869	0419	34947		2775	14819					
064	1051	0386	34925		2776	14836					
064	1330	0385	34968		2780	14883					
064	1614	0373	34973		2781	14925					
064	1807	0358	34965		2782	14952					
064	1856	0348	34960		2783	14956					

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0670	35056		2752	14780	0000	00000	0569
0010	0662	35060		2754	14778	0006	00000	0558
0020	0658	35058		2754	14778	0011	00001	0556
0030	0659 B	35064		2755	14780	0017	00003	0553
0050	0658	35078		2756	14783	0028	00007	0545
0075	0658 B	35072		2755	14787	0042	00016	0554
0100	0651 B	35063		2756	14789	0056	00029	0556
0125	0644 B	35059		2756	14790	0070	00045	0554
0150	0641	35058		2756	14793	0084	00065	0555
0175	0640	35056		2757	14796	0098	00088	0558
0200	0637	35053		2757	14799	0112	00115	0560
*0225	0633	35049		2757	14802	0126	00146	0562
0250	0628	35046		2757	14804	0140	00181	0561
0300	0607 B	35042		2760	14803	0168	00259	0543
0400	0592	35042		2762	14814	0223	00456	0539
0500	0547	35046		2768	14813	0275	00696	0492

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0600	0507	35018		2770	14812	0324	00972	0474
0700	0476	34980		2771	14816	0372	01294	0477
0800	0441	34958		2773	14817	0419	01660	0461
1000	0392	34928		2776	14830	0511	02506	0443
1200	0382	34945		2778	14860	0600	03516	0437
1500	0379	34975		2781	14909	0733	05369	0438

C-REF-NO 001 YR 1963 DEPTH 2600 WAVES 1 1931 AIR T 08.0 VIS 2
 CONS. NO 039 MONTH 4 MXSAMPD 24 WAVES 2 0243 WET B 07.5 STN 123
 LAT 62-470N DAY 27 NO.DPTH 20 WND-DIR 190 WW-CODE 10
 LON 32-125W HR 16.0 W-COLOR 10 WND-SPD 19 CLD-TPE 7
 MARSD SQ 220 W-TRNSP 26 BARO 990.4 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4 -P-	NO2	NO3	SIO	PH
160	0000	066	35033		2752	14775	076			066	
160	0010	0646	35046		2755	14772	080			065	
160	0020	0643	35049		2756	14772	079			063	
160	0030	0643 B	35045		2755	14774	082			066	
160	0049	0641	35046		2756	14776	080			066	
160	0073	0642	35047		2756	14780	081			066	
160	0098	0642	35049		2756	14784	074			069	
160	0146	0640 B	35052		2756	14791					
160	0195	0637	35058		2757	14798					
160	0292	0612	35044		2759	14804					
160	0390	0580	35057		2764	14808					
168	0495	0540	35015		2766	14808					
168	0585	0520 B	35003		2768	14815					
168	0768	0438	35006		2777	14811					
168	1144	0373	34958		2780	14846					
168	1430	0363	34915		2778	14889					
168	1720	0361	34947		2781	14938					
168	1915	0353	34955		2782	14968					
168	2211	0327	34957		2785	15007					
168	2360	0316	34956		2786	15028					

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0660	35033		2752	14775	0000	00000	0574
0010	0646	35046		2755	14772	0006	00000	0548
0020	0643	35049		2756	14772	0011	00001	0543
0030	0643 B	35045		2755	14774	0017	00003	0548
0050	0641	35046		2756	14776	0028	00007	0547
0075	0642	35047		2756	14781	0042	00016	0552
0100	0642	35049		2756	14785	0055	00029	0554
0125	0641	35051		2756	14788	0069	00045	0556
0150	0640 B	35053		2756	14792	0084	00065	0556
0175	0639	35056		2757	14796	0098	00088	0556
0200	0636	35057		2757	14799	0112	00115	0556
0225	0631	35054		2758	14801	0126	00146	0555
*0250	0625	35051		2758	14803	0140	00180	0554
0300	0610	35045		2760	14805	0167	00258	0545
0400	0576	35054		2765	14808	0221	00449	0510
0500	0539	35014		2766	14809	0272	00686	0506

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0600	0514 B	35003		2768	14815	0322	00972	0495
0700	0470 B	35004		2773	14813	0370	01291	0451
0800	0429	35004		2778	14813	0414	01627	0412
1000	0386	34981		2781	14828	0496	02384	0397
1200	0369	34947		2780	14854	0578	03324	0419
1500	0363	34920		2778	14901	0712	05186	0456
2000	0346	34956		2783	14979	0941	09324	0447

C-REF-NO 001	YR 1963	DEPTH 2440	WAVES 1 2121	AIR T 06.8	VIS 6
CONS. NO 040	MONTH 4	MXSAMPD 24	WAVES 2 4942	WET B 06.8	STN 124
LAT 64-330N	DAY 28	NO.DPTH 20	WNO-DIR 210	WW-CODE 61	
LON 30-370W	HR 06.2	W-COLOR 10	WNO-SPD 11	CLD-TPE X	
MARSD SQ 220		W-TRNSP 25	BARO 991.9	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4 -P-	NO2	NO3	SI0	PH
062	0000	067	35071		2754	14780	072			065	
062	0010	0676	35079		2753	14784	074			062	
062	0020	0675	35102		2755	14785	074			061	
062	0030	0673	35100		2756	14786	076			063	
062	0050	0671	35100		2756	14789	081			062	
062	0075	0673	35101		2756	14794	082			061	
062	0100	0669 B	35102		2756	14796	079			066	
062	0149	0667 B	35101		2756	14803	078			062	
062	0198	0662	35099		2757	14809	080			062	
062	0298	0634	35071		2759	14814	081			069	
062	0397	0612 H	35080		2762	14822	084			070	
070	0484	0608	35064		2761	14835	085			069	
070	0581	0576	35047		2764	14837	092			072	
070	0777	0516	34998		2768	14845	094			085	
070	0974	0446	34976		2774	14849	097			096	
070	1170	0395	34933		2776	14859	096			099	
070	1465	0386	34959		2779	14906	097			105	
070	1761	0373	34966		2781	14950	096			114	
070	1960	0355	34955		2782	14976	100			118	
070	2360	0313	34954		2786	15027					

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0670	35071		2754	14780	0000	00000	0558
0010	0676	35079		2753	14784	0006	00000	0562
0020	0675	35102		2755	14785	0011	00001	0545
0030	0673	35100		2756	14786	0017	00003	0545
0050	0671	35100		2756	14789	0028	00007	0546
0075	0673	35101		2756	14794	0042	00016	0552
0100	0669 B	35102		2756	14796	0055	00028	0550
0125	0668 B	35102		2756	14800	0069	00045	0552
0150	0667 B	35101		2756	14804	0083	00064	0556
0175	0665	35100		2757	14807	0097	00088	0558
0200	0662	35098		2757	14810	0111	00115	0559
0225	0655	35091		2757	14811	0126	00146	0560
*0250	0649	35084		2758	14812	0140	00180	0560
0300	0633	35071		2759	14814	0168	00260	0557
0400	0612 B	35080		2762	14823	0223	00458	0537
0500	0604	35061		2762	14835	0278	00714	0554

DEPTH	TEMP	SAL	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0600	0570	35042		2764	14838	0333	01026	0538
0700	0540	35017		2766	14842	0387	01387	0530
0800	0508	34975		2768	14845	0440	01795	0517
1000	0438	34970		2774	14849	0540	02715	0469
1200	0392	34934		2776	14864	0634	03777	0458
1500	0385	34961		2779	14911	0773	05709	0455

NORWAY

DIRECTORATE OF FISHERIES

**ICNAF
NORWESTLANT – 1 SURVEY
NORWAY**

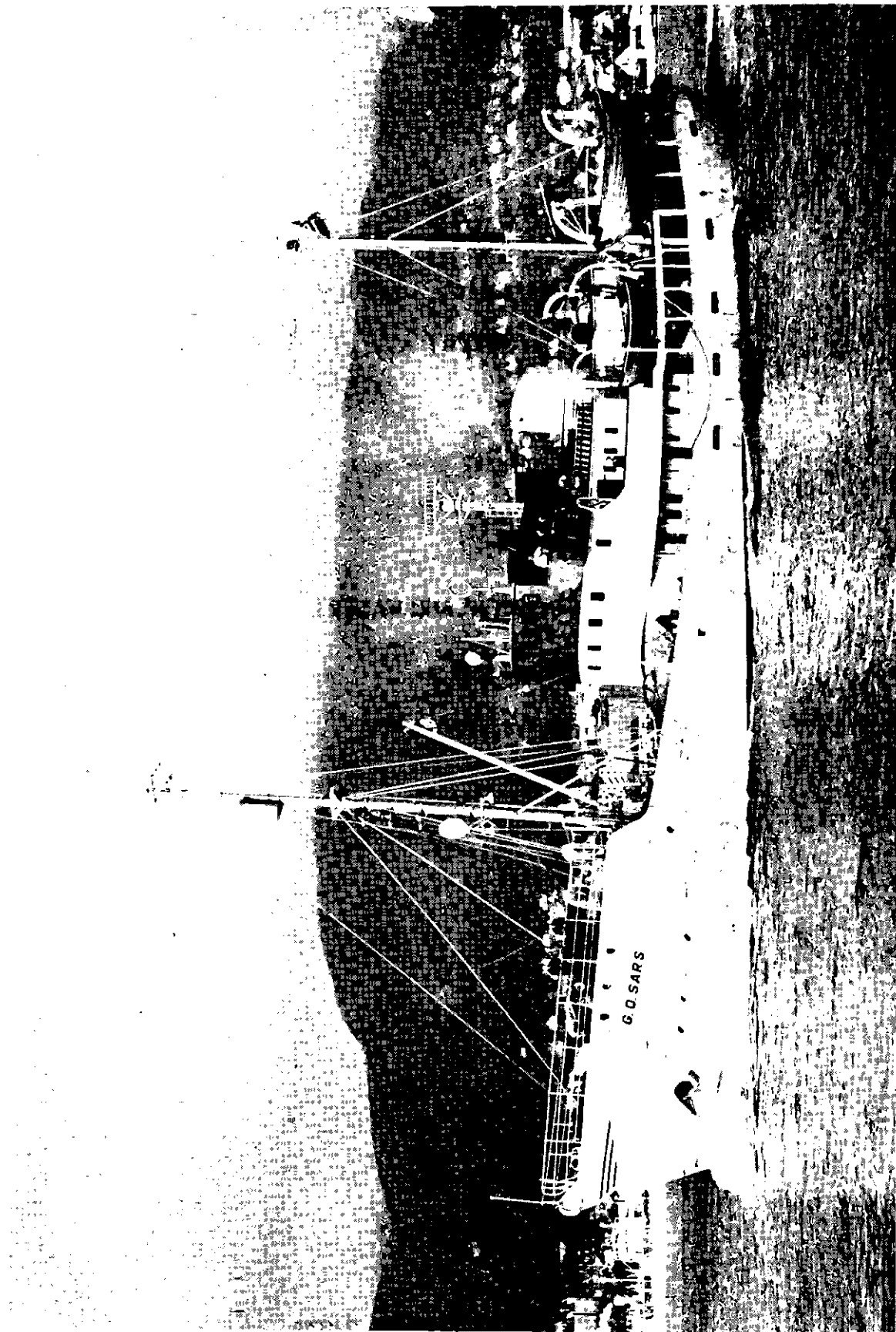
WEST-GREENLAND WATERS

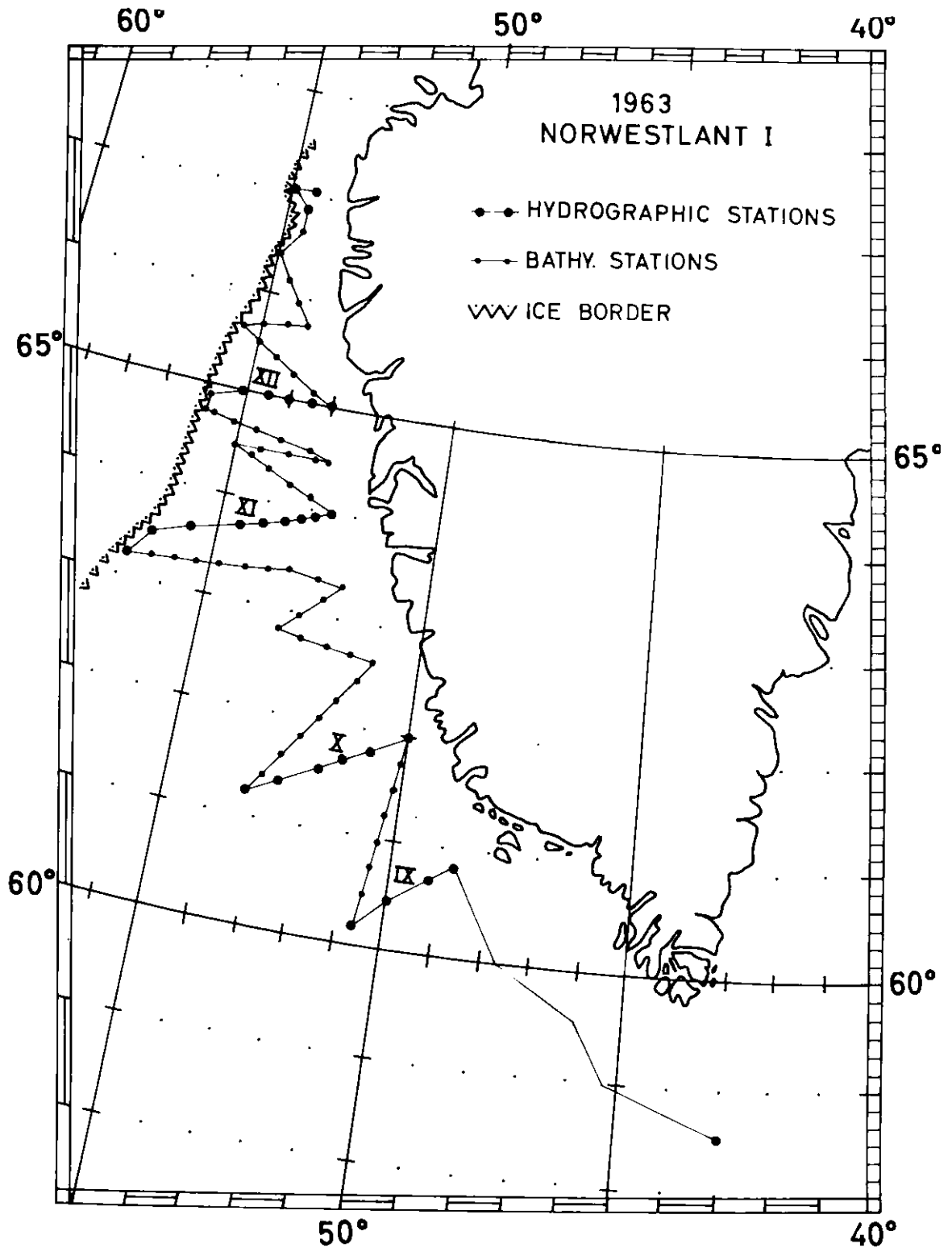
Ship:

RV G.O. Sars

Cruise period:

April 3 – May 14, 1963





PERSONNEL

Observers at sea	K.H. Palmork	
	J. Blindheim	
	A. Frøland	
	S. Lygren	
	B. Brynhildsen	
	I. Hoff	
	O. Bjerke	
	S. Haugland	
Data analyses	Oceanographic Data	J. Blindheim
	Salinity Data	S. Kristoffersen
	Chemical Data	K. H. Palmork
		S. Lygren
	Biological Data	E. Bratberg
		A. Haugsdal
		I. Steine

EXTRACT OF CRUISE LOG

- 3 April, 1963 – Departed Bergen
- 9 April, 1963 – Occupied first station
- 14 April, 1963 – Arrived Godthaab
- 16 April, 1963 – Departed Godthaab
- 22 April, 1963 – Work on the oceanographic programme completed
Started fishing
- 6 May, 1963 – Last fishing station completed
- 14 May, 1963 – Arrived Bergen

The weather was very good during the cruise. Many of the planned stations, however, had to be omitted because of the ice conditions.

OBSERVATIONAL PROCEDURES**Biological Sampling**

1. Phytoplankton samples were drawn from the 10 m bottle at each station. At 2 stations in every section, phytoplankton samples were taken from 0, 10, 20, 30, 50, 75, 100, 125, 150, 200, 250, 300, 400, 500 and 600 m. The samples were sent to Dr. M. Gillbricht, West Germany for analyses.

2. One vertical haul at each station was made with a standard Hensen net from 100 m to the surface at a speed of 1/3 m per second.
3. A simple oblique haul from 50 m with a single 2-m Stramin net was made at a number of stations.
4. Single vertical hauls were made at some stations with a 1-m egg net for comparison.

Physical and Chemical Observations

Serial observations of temperature and salinity were made at the standard depths of 0, 10, 20, 30, 50, 75, 100, 125, 150, 200, 250, 300, 400, 500, 600, 800, 1000, 1200, 1500, 1800, 2000, 2500 and 3000 m, depending on the depth of the station. Oxygen, phosphate and silicate observations were made at 10, 20, 30, 50, 75 and 100 m and the bottom four depths of a given station. Observations of phosphate and silicate were also made at the surface. Samples at depth were obtained with Nansen reversing water bottles. Each water bottle was equipped with 2 protected deep sea reversing thermometers.

An oxygen sample was first drawn from the reversing bottle into a calibrated 120 ml glass-stoppered flask.

A sample for salinity determination was drawn into a 100 ml patent-stoppered flask.

A phosphate sample was drawn into an aged 100 ml glass-stoppered flask. This water was then filtered. (Filter type: Whatman Glasspaper G.F/A).

A silicate sample was drawn into a 100 ml polyethylene flask. This water was also filtered (Filter type: Oxoid membrane 0.5 – 1.0 μ).

LABORATORY PROCEDURES

The salinity determinations were made on a conductive salinometer, Model N.I.O./477 NO.S. made by the National Institute of Oceanography, Surrey, England.

Dissolved oxygen was determined by the modified Winkler method of Strickland and Parsons (1960).

Phosphate was determined by the single solution method of Murphy and Riley (1962).

Silicate was determined by the method of Mullen and Riley.

Analysis of phosphate and silicate was completed aboard ship using a Unicam Sp 500 spectrophotometer.

CONTINUOUS RECORDS

Continuous measurements of the temperature at 4 m depth were made on a Negretti & Zambra, Sea Surface Temperature Recorder.

A transparency meter was used for continuous measurements of the light attenuation of the sea water at 4 m depth.

A total of 108 bathythermograph lowerings were made during the cruise.

METHODS TABLE

SARS (NORWAY)		NORWESTLANT 1						
	SAMPLING BOTTLE	FILTER	STANDING TIME BEFORE ANALYSIS	METHOD	PHOTOMETER CELL LENGTH	AVERAGE BLANK	STANDARD	
SALINITY	Nansen Type Bottles		Several months	Conductivity: NIO Salinometer			Copenhagen water	
TEMPERATURE				Reversing thermometers				
O ₂			Less than 2 days	Modified Winkler		0	Bi-iodate 0.02N	
PO ₄		Whatman Glass paper GF/A	Analysed during cruise	Murphy and Riley	Unicam SP 500 10cm cell	0.015	NORWESTLANT: Supplied by UK	
SiO ₃		Oxid membrane 0.5-1.0μ	Analysed during cruise	Strickland's Manual	Unicam SP 500 1 cm cell 10 cm cell	0.006 0.040	NORWESTLANT: Supplied by UK	

SUMMARY OF OBSERVATIONS

SARS (NORWAY)										NORWESTLANT I						
Time	Date	Latitude	Longitude	Depth	Consec No	BT	Temperature	Salinity ‰	O ₂	PO ₄	SiO ₃	10m Phyto	600m Phyto	100m Hensen	Stramin	FAK
1143	9/4	5830	4300	2203	1		x	x	x	x	x	x	x	x	x	x
0857	10/4	6045	4846	0107	2	151	x	x	x	x	x	x	x	x	x	x
1245	10/4	5043	4911	2777	3	152	x	x	x	x	x	x		x	x	
1741	10/4	6028	5000	2978	4	153	x	x	x	x	x	x		x	x	
2320	10/4	6015	5044	3136	5	154	x	x	x	x	x	x	x	x	x	
2320	11/4	6200	5000	0065	6	161	x	x	x	x	x	x	x	x	x	
0221	12/4	6150	5044	0772	7	162	x	x	x	x	x	x		x		
0531	12/4	6144	5113	2575	8	163	x	x	x	x	x	x		x		
1005	12/4	6135	5143	2880	9	164	x	x	x	x	x	x	x			
1804	12/4	6124	5235	2979	10	165	x	x	x	x	x	x		x		
2312	12/4	6115	5315	3039	11	166	x	x	x	x	x	x				
1916	17/4	6316	5654	1700	12	189	x	x	x	x	x	x		x	x	
2340	17/4	6332	5627	1330	13	196	x	x	x	x	x	x		x	x	
0350	18/4	6338	5535	1100	14	197	x	x	x	x	x	x		x	x	
0826	18/4	6345	5431	1041	15	198	x	x	x	x	x	x	x	x	x	
1134	18/4	6349	5400	1003	16	199	x	x	x	x	x	x		x	x	
1503	18/4	6352	5330	0686	17	200	x	x	x	x	x	x		x	x	
1719	18/4	6355	5315	0243	18	201	x	x	x	x	x	x		x	x	
1926	18/4	6357	5255	0060	19	202	x	x	x	x	x	x		x	x	
2136	18/4	6400	5230	0096	20	203	x	x	x	x	x	x	x	x	x	
1506	20/4	6500	5505	0587	21	226	x	x	x	x	x	x		x	x	
1835	20/4	6500	5430	0120	22	227	x	x	x	x	x	x		x	x	
2048	20/4	6500	5358	0075	23	228	x	x	x	x	x	x		x	x	
2303	20/4	6500	5330	0052	24	229	x	x	x	x	x	x	x	x		
0105	21/4	6500	5300	0344	25	230	x	x	x	x	x	x		x	x	
1147	22/4	6650	5415	0029	26	244	x	x	x	x	x	x		x	x	
1415	22/4	6704	5445	0058	27	245	x	x	x	x	x	x		x	x	
1610	22/4	6704	5417	0067	28	246	x	x	x	x	x	x		x	x	
1900	7/5	5830	4300	2555	29	Ref A	x	x	x		x	x	x	x	x	
0630	9/5	6100	3400	2778	30	Ref B	x	x	x		x	x	x		x	

Specific Data not Provided

SERIAL OCEANOGRAPHIC DATA

GENERAL INFORMATION

Institute:	Institute of Marine Research
Observation platform:	<i>RV G.O. Sars</i>
Vessel's cruising speed:	11 knots
Total number of stations occupied:	30
Barometer readings:	Aneroid - $\frac{1}{10}$ mb units
Air temperature:	Sling psychrometer - $\frac{1}{10}$ C° units
Wet bulb temperature:	Sling psychrometer - $\frac{1}{10}$ C° units
Surface sea water temperature:	Bucket sample, deck - $\frac{1}{10}$ C° units

The following Standard Deviations were used to express both measurement and interpolation error estimates:

Temperature	0.01
Salinity	0.003

C-REF-NO 001 YR 1963 DEPTH 2203 WAVES 1 2722 AIR T 03.3 VIS 6
 CONS. NO 001 MONTH 4 MXSAMPD 15 WAVES 2 2735 WET B 03.2 STN A
 LAT 58-30 N DAY 09 NO.DPTH 19 WND-DIR 270 WW-CODE 03
 LON 43-00 W HR 11.7 W-COLOR 10 WND-FCE 05 CLD-TPE 9
 MARSD SQ 185 W-TRNSP 23 BARO 1017.0 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	TEMP	SAL	OXYGEN	SGMT	SOUND	P04	-P-	NO2	NO3	SIO	PH
122	0000	0480	34991		2771	14702	115				105	
131	0010	0476	34984	716	2771	14702	115				085	
131	0020	0476 C	34984	709	2771	14703	112				083	
131	0030	0474	34978	708	2771	14704	108				082	
131	0050	0474	34978	715	2771	14707	106				080	
131	0075	0466	34963	712	2771	14708	111				082	
131	0100	0459	34963	706	2771	14709	111				082	
131	0125	0456	34967		2772	14712						
131	0150	0456 P	34967		2772	14716						
131	0200	0456 C	34967		2772	14724						
131	0250	0449	34958		2772	14730						
123	0300	0446	34952		2772	14737						
123	0400	0438	34950		2773	14750						
123	0500	0419 P	34945		2774	14758						
123	0600	0411	34947		2775	14771						
123	0800	0375 C	34916		2777	14789						
123	1000	0367	34922		2778	14819						
123	1200	0365 C	34937		2779	14852						
123	1500	0335 P	34934		2782	14890						

I N T E R P O L A T E D

DEPTH	TEMP	SAL	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0480	34991		2771	14702	0000	00000	0392
0010	0476	34984		2771	14702	0004	00000	0394
0020	0476 C	34984		2771	14703	0008	00001	0395
0030	0474	34978		2771	14704	0012	00002	0398
0050	0474	34978		2771	14707	0020	00005	0401
0075	0466	34963		2771	14708	0030	00012	0406
0100	0459	34963		2771	14709	0040	00021	0401
0125	0456	34967		2772	14712	0050	00033	0398
0150	0456 P	34967		2772	14716	0061	00047	0401
0175	0456 P	34968		2772	14721	0071	00064	0404
0200	0456 C	34967		2772	14724	0081	00083	0406
0225	0453 P	34963		2772	14727	0091	00106	0409
0250	0449	34958		2772	14730	0102	00131	0411
0300	0446	34952		2772	14737	0122	00190	0418
0400	0438	34950		2773	14750	0165	00343	0421
0500	0419 P	34945		2774	14758	0207	00538	0414
0600	0411	34947		2775	14772	0249	00774	0413

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0700	0393 C	34932		2776	14780	0290	01054	0413
0800	0375 C	34916		2777	14789	0332	01377	0414
1000	0367	34922		2778	14819	0416	02157	0418
1200	0365 C	34937		2779	14852	0501	03121	0421
1500	0335 D	34934		2782	14890	0628	04881	0411

C-REF-NO 001	YR 1963	DEPTH 107	WAVES 1 1845	AIR T 03.8	VIS 6
CONS. NO 002	MONTH 4	MXSAMPD 01	WAVES 2 1864	WET B 03.4	STN 151
LAT 60-45 N	DAY 10	NO.DPTH 7	WND-DIR 180	WW-CODE 02	
LON 48-46 W	HR 08.9	W-COLOR 10	WND-FCE 05	CLD-TPE 7	
MARSD SQ 221		W-TRNSP 18	BARO 1018.5	CLD-AMT 7	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
092	0000	0083 B	33828		2714	14514	088				061	
096	0010	0068 B	33803	806	2713	14509	077				063	
096	0020	0072 B	33805	807	2712	14512	081				068	
096	0030	0083 B	33861	793	2716	14520	082				061	
096	0050	0097	33943	789	2722	14531	086				058	
096	0075	0149	34106	770	2732	14560	090				062	
096	0100	0154	34120	773	2732	14567	084				063	

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0083 B	33828		2714	14514	0000	00000	0938
0010	0068 B	33803		2713	14509	0010	00000	0948
0020	0072 B	33805		2712	14512	0019	00002	0949
0030	0083 B	33861		2716	14520	0028	00004	0913
0050	0097	33943		2722	14531	0046	00012	0859
0075	0149	34106		2732	14560	0067	00025	0769
0100	0154	34120		2732	14567	0086	00042	0763

C-REF-NO 001 YR 1963 DEPTH 2777 WAVES 1 1323 AIR T 03.6 VIS 7
 CONS. NO 003 MONTH 4 MXSAMPD 27 WAVES 2 1735 WET B 03.1 ST 152
 LAT 60-43 N DAY 10 NO.DPTH 23 WND-DIR 130 WW-CODE 02
 LON 49-11 W HR 12.7 W-COLOR 10 WND-FCE 05 CLD-TPE 7
 MARSD SQ 221 W-TRNSP 18 BARO 1008.0 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	UXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
131	0000	0370	34765		2765	14653	098				085	
140	0010	0358	34760	736	2766	14649	098				079	
140	0020	0365	34765	733	2766	14654	098				079	
140	0030	0366 R	34771	728	2766	14656	102				070	
140	0050	0374 R	34818	728	2769	14663	102				076	
140	0075	0379	34831	725	2770	14670	102				077	
140	0100	0383	34862	722	2772	14676	107				078	
140	0125	0400	34897		2773	14688						
140	0150	0404 B	34915		2774	14694						
140	0200	0413 B	34931		2774	14706						
146	0250	0404 R	34936		2775	14711						
146	0300	0386 R	34922		2776	14711						
146	0400	0381	34914		2776	14725						
146	0500	0383	34908		2775	14743						
146	0600	0374	34910		2776	14755						
146	0800	0339	34879		2777	14773						
146	1000	0335 B	34881		2778	14805						
133	1200	0332 R	34883		2778	14837						
133	1500	0351	34931		2780	14896						
133	1800	0322 R	34936	648	2783	14935					107	
133	2000	0310	34924	658	2784	14963					110	
133	2500	0288 B	34924	670	2786	15040					115	
133	2700	0253 B	34922	656	2788	15061					112	

I N T E R P O L A T E D

DEPTH	T E M P	S A L	UXYGEN	SGMT	SOUND	DELTA-D	PUT.EN	SVA
0000	0370	34765		2765	14653	0000	00000	0449
0010	0358	34760		2766	14649	0004	00000	0442
0020	0365	34765		2766	14654	0009	00001	0446
0030	0366 R	34771		2766	14656	0013	00002	0444
0050	0374 R	34818		2769	14663	0022	00006	0418
0075	0379	34831		2770	14670	0033	00012	0415
0100	0383	34862		2772	14676	0043	00022	0398
0125	0400	34897		2773	14688	0053	00033	0391
0150	0404 R	34915		2774	14694	0063	00047	0385
0175	0410 R	34925		2774	14700	0072	00063	0385
0200	0413 R	34931		2774	14706	0082	00082	0387
0225	0410 R	34935		2775	14709	0092	00103	0383
0250	0404 R	34936		2775	14711	0101	00127	0379

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0300	0386 B	34922		2776	14711	0120	00180	0375
0400	0381	34914		2776	14725	0159	00319	0385
0500	0383	34908		2775	14743	0199	00503	0401
0600	0374	34910		2776	14755	0239	00732	0399
0700	0356 B	34895		2777	14764	0279	01002	0399
0800	0339	34879		2777	14773	0320	01315	0401
1000	0335 B	34881		2778	14805	0402	02077	0411
1200	0332 B	34883		2778	14837	0486	03033	0421
1500	0351	34931		2780	14897	0616	04846	0433
2000	0310	34924		2784	14964	0834	08761	0422
2500	0288 B	34924		2786	15040	1049	13772	0424

C-REF-NO 001 YR 1963 DEPTH 2978 WAVES 1 1321 AIR T 04.2 VIS 7
 CONS. NO 004 MONTH 4 MXSAMPD 29 WAVES 2 1344 WET P 03.4 STN 153
 LAT 60-28 N DAY 10 NO.DPTH 23 WND-DIR 130 WW-CODE 02
 LON 50-00 W HR 17.7 W-COLOR 10 WND-FCE 06 CLD-TPE 4
 MARSD SQ 222 W-TRNSP 19 BARO 1016.0 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
182	0000	0383	34795		2766	14659	107				072	
201	0010	0388 B	34783	727	2765	14662	106				072	
201	0020	0398 D	34796	729	2765	14668	104				077	
201	0030	0404	34823	723	2766	14673	102				074	
201	0050	0434 C	34893	706	2769	14690	101				076	
201	0075	0453	34951	696	2771	14702	106				088	
201	0100	0447	34957	701	2772	14704	109				082	
201	0125	0443 B	34956		2773	14707						
201	0150	0434 B	34950		2773	14707						
195	0200	0429 B	34946		2773	14713						
195	0250	0416	34942		2774	14716						
195	0300	0405 B	34920		2774	14719						
195	0400	0381	34911		2776	14725						
195	0500	0368 D	34909		2777	14736						
195	0600	0357	34898		2777	14748						
185	0800	0349 B	34895		2778	14778						
185	1000	0362 D	34916		2778	14817						
185	1200	0342	34901		2779	14842						
185	1500	0334 D	34882		2778	14888						
185	1800	0335	34878	712	2778	14940					084	
185	2000	0333	34879	704	2778	14973					082	
185	2500	0344	34929	662	2781	15063					102	
185	2900	0324 C	34936	654	2783	15124					108	

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.FN	SVA
0000	0383	34795		2766	14659	0000	00000	0439
0010	0388 B	34783		2765	14662	0005	00000	0454
0020	0398 D	34796		2765	14668	0009	00001	0455
0030	0404	34823		2766	14673	0014	00002	0442
0050	0434 C	34893		2769	14690	0022	00006	0422
0075	0453	34951		2771	14702	0033	00012	0401
0100	0447	34957		2772	14704	0043	00021	0393
0125	0443 B	34956		2773	14707	0053	00033	0392
0150	0434 B	34950		2773	14707	0062	00047	0390
0175	0431 B	34947		2773	14710	0072	00053	0391
0200	0429 B	34946		2773	14713	0082	00082	0393
0225	0423	34945		2774	14715	0092	00104	0390
0250	0416	34942		2774	14716	0102	00128	0367

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	PDT.EN	SVA
0300	0405 B	34920		2774	14719	0122	00184	0397
0400	0381	34911		2776	14725	0161	00326	0388
0500	0368 D	34909		2777	14736	0200	00507	0384
0600	0357	34898		2777	14748	0239	00728	0389
0700	0351	34893		2777	14762	0279	00993	0394
0800	0349 B	34895		2778	14778	0319	01304	0400
1000	0362 D	34916		2778	14817	0402	02071	0416
1200	0342	34901		2779	14842	0487	03032	0420
1500	0334 B	34882		2778	14889	0619	04875	0447
2000	0333	34879		2778	14973	0856	09182	0486
2500	0344	34929		2781	15064	1107	15038	0502

C-REF-NO 001 YR 1963 DEPTH 3136 WAVES 1 14XX AIR T 03.1 VIS 6
 CONS. NO 005 MONTH 4 MXSAMPD 30 WAVES 2 13XX WET B 02.7 STN 154
 LAT 60-15 N DAY 10 NO.DPTH 23 WND-DIR 140 WW-CODE 02
 LON 50-44 W HR 23.3 W-COLOR WND-FCE 03 CLD-TPE 7
 MARSQ SQ 222 W-TRNSP BARO 1014.8 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SI0	PH
*241	0000	0403	34818		2766	14667	094				075	
*252	0010	0401 B	34812	730	2766	14668	093				076	
*252	0020	0443	34930	708	2771	14689	094				079	
*252	0030	0449	34930	702	2770	14693	098				082	
*252	0050	0443	34945	705	2772	14694	095				082	
*252	0075	0441	34952	706	2773	14697	097				078	
*252	0100	0433	34945	704	2773	14698	102				084	
*252	0125	0434 B	34947		2773	14703						
*252	0150	0441	34956		2773	14710						
*252	0200	0419	34929		2773	14709						
*249	0250	0389 B	34906		2774	14704						
*249	0300	0377	34913		2776	14707						
*249	0400	0361	34902		2777	14717						
*249	0500	0352	34895		2777	14729						
*249	0600	0341 B	34888		2778	14741						
*249	0800	0335	34884		2778	14772						
*249	1000	0329	34866		2777	14802						
*240	1200	0328	34856		2777	14835						
*240	1500	0332 B	34870		2777	14887						
*240	1800	0334	34879	700	2778	14939					082	
*240	2000	0347	34926	659	2780	14979					100	
*240	2500	0299 B	34902	660	2783	15044					112	
*240	3000	0223	34936	681	2792	15098					116	

*MULTIPLE CAST CONTINUED NEXT DAY

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0403	34818		2766	14667	0000	00000	0441
0010	0401 B	34812		2766	14668	0004	00000	0445
0020	0443	34930		2771	14689	0009	00001	0400
0030	0449	34930		2770	14693	0013	00002	0408
0050	0443	34945		2772	14694	0021	00005	0392
0075	0441	34952		2773	14697	0031	00012	0388
0100	0433	34945		2773	14698	0040	00020	0387
0125	0434 B	34947		2773	14703	0050	00032	0389
0150	0441	34956		2773	14710	0060	00046	0393
0175	0434 B	34946		2773	14711	0070	00062	0395
0200	0419	34929		2773	14709	0080	00081	0395
0225	0403 B	34915		2774	14706	0090	00103	0391

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0250	0389 B	34906		2774	14704	0100	00127	0386
0300	0377	34913		2776	14707	0119	00181	0373
0400	0361	34902		2777	14717	0157	00317	0373
0500	0352	34895		2777	14729	0194	00492	0378
0600	0341 B	34888		2778	14741	0233	00709	0380
0700	0337 B	34886		2778	14756	0271	00968	0385
0800	0335	34884		2778	14772	0311	01272	0393
1000	0329	34866		2777	14802	0392	02032	0415
1200	0329	34856		2777	14835	0479	03012	0436
1500	0332 B	34870		2777	14888	0614	04901	0454
2000	0347	34926		2780	14979	0849	09154	0471
2500	0299 B	34902		2783	15044	1085	14628	0456
3000	0223	34936		2792	15098	1290	20401	0349

C-REF-NO 001 YR 1963 DEPTH 65 WAVES 1 13XX AIR T 01.2 VIS 8
 CONS. NO 006 MONTH 4 MXSAMPD 01 WAVES 2 13XX WFT B 00.2 STN 161
 LAT 62-00 N DAY 11 NO.DPTH 6 WND-DIR 130 WW-CODE 02
 LON 50-00 W HR 23.3 W-COLOR WND-FCE 04 CLD-TPE 7
 MARKD SQ 222 W-TRNSP BARO CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PD4	-P-	NO2	NO3	SI0	PH
236	0000	0004	33650		2704	14476	005				056	
237	0010	-0012	33586	825	2699	14469	018				052	
237	0020	-0008	33610	825	2701	14473	010				056	
237	0030	-0011 B	33610	824	2701	14474	022				064	
237	0050	-0009 C	33611	825	2701	14478	021				062	
237	0060	-0009 B	33611	820	2701	14479	010					

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0004	33650		2704	14476	0000	00000	1032
0010	-0012	33586		2699	14469	0011	00001	1073
0020	-0008	33610		2701	14473	0021	00002	1056
0030	-0011 B	33610		2701	14474	0032	00005	1055
0050	-0009 C	33611		2701	14478	0053	00014	1055

C-REF-NO 001 YR 1963 DEPTH 772 WAVES 1 13XX AIR T 00.6 VIS 3
 CONS. NO 007 MONTH 4 MXSAMPD 07 WAVES 2 13XX WET B 00.3 STN 162
 LAT 61-50 N DAY 12 NO.DPTH 16 WND-DIR 130 WW-CODE 68
 LON 50-44 W HR 02.4 W-COLOR WND-FCE 05 CLD-TPE 8
 MARSD SQ 222 W-TRNSP BARO 1004.0 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
027	0000	0062	33743		2708	14504	018					
037	0010	0051 C	33796	807	2713	14501	034					
037	0020	0061 C	33797	807	2712	14507	023					
037	0030	0094	33953	790	2723	14526	033					
037	0050	0122 D	34028	784	2727	14543	040					
037	0075	0125 B	34039	778	2728	14549	047				062	
037	0100	0132	34056	781	2729	14556	061					
037	0125	0137 B	34067		2729	14563						
037	0150	0139	34099		2732	14568						
030	0200	0158 D										
030	0250	0186 C	34202		2737	14607						
030	0300	0246	34395		2747	14644						
030	0400	0323	34614	734	2758	14697					078	
030	0500		34813	715							078	
030	0600	0419 C	34872	705	2769	14774					086	
030	0750	0427	34921	697	2772	14803					090	

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0062	33743		2708	14504	0000	00000	0990
0010	0051 C	33796		2713	14501	0010	00000	0944
0020	0061 C	33797		2712	14507	0019	00002	0949
0030	0094	33953		2723	14526	0028	00004	0849
0050	0122 D	34028		2727	14543	0045	00011	0810
0075	0125 B	34039		2728	14549	0065	00024	0804
0100	0132	34056		2729	14556	0086	00042	0796
0125	0137 B	34067		2729	14563	0106	00065	0792
0150	0139	34099		2732	14568	0125	00093	0770
0175	0147 B	3411 E		2732	14576	0145	00126	0768
0200	0158 D	3413 F		2733	14585	0164	00163	0762
0225	0169 C	3416 D		2734	14595	0183	00204	0747
0250	0186 C	34202		2737	14607	0202	00250	0730
0300	0246	34395		2747	14644	0236	00346	0636
0400	0323	34614		2758	14697	0296	00560	0550
0500	0382 B	34813		2768	14741	0348	00796	0471
0600	0419 C	34872		2769	14774	0395	01068	0478
0700	0429	3493 C		2772	14795	0443	01383	0456

C-REF-NO 001 YR 1963 DEPTH 2575 WAVES 1 1332 AIR T 01.2 VIS 3
 CONS. NO 008 MONTH 4 MXSAMPD 25 WAVES 2 1344 WET B 01.0 STN 163
 LAT 61-44 N DAY 12 NO.DPTH 22 WND-DIR 130 WW-CLDF 23
 LON 51-13 W HR 05.5 W-COLOR 20 WND-FCE 06 CLD-TPE X
 MARSD SQ 222 W-TRNSP BARU 1004.0 CLD-AMT 9 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	STO	PH
062	0000	0205	34232		2737	14574	036				065	
077	0010	0229	34330	765	2743	14588	060				072	
077	0020	0232 B	34333	795	2743	14591	054				070	
077	0030	0241	34376	756	2746	14597	075				068	
077	0050	0274	34485	745	2752	14616	054				074	
077	0075	0301 B	34564	747	2756	14633	060				076	
077	0100	0356 E	34702	733	2762	14662	035				070	
077	0125	0388	34773		2764	14681						
077	0150	0405 B	34836		2767	14693						
072	0200	0424 B	34879		2769	14710						
072	0250	0428	34903		2770	14720						
072	0300	0434 C	34918		2771	14731						
072	0400	0433 C	34935		2772	14747						
072	0500	0427 C	34929		2772	14761						
072	0600	0421	34923		2772	14775						
072	0800	0406	34934		2775	14802						
062	1000	0376 B	34918		2777	14823						
062	1200	0359	34900		2777	14849						
062	1500	0358	34908		2778	14899					102	
062	1800	0356	34928	657	2780	14949					102	
062	2000	0337 C	34928	660	2781	14975					116	
062	2500	0261	34919	667	2788	15028					121	

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0205	34232		2737	14574	0000	00000	0711
0010	0229	34330		2743	14588	0007	00000	0656
0020	0232 B	34333		2743	14591	0014	00001	0657
0030	0241	34376		2746	14597	0020	00003	0632
0050	0274	34485		2752	14616	0032	00008	0578
0075	0301 B	34564		2756	14633	0046	00017	0543
0100	0356 E	34702		2762	14662	0059	00029	0492
0125	0388	34773		2764	14681	0072	00043	0472
0150	0405 B	34836		2767	14693	0083	00059	0445
0175	0417 B	34879		2768	14703	0094	00078	0437
0200	0424 B	34879		2769	14710	0105	00099	0436
0225	0427	34893		2769	14715	0116	00123	0433
0250	0428	34903		2770	14720	0127	00149	0429
0300	0434 C	34918		2771	14731	0149	00211	0430

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0400	0433 C	34935		2772	14747	0192	00366	0427
0500	0427 C	34929		2772	14761	0236	00568	0435
0600	0421	34923		2772	14775	0280	00819	0442
0700	0415	34928		2774	14789	0325	01118	0441
0800	0406	34934		2775	14802	0369	01460	0436
1000	0376 B	34918		2777	14823	0457	02274	0431
1200	0359	34900		2777	14849	0545	03277	0441
1500	0358	34908		2778	14899	0682	05187	0459
2000	0337 C	34928		2781	14975	0914	09380	0456
2500	0261	34919		2788	15028	1130	14341	0390

C-REF-NO 001 YR 1963 DEPTH 2880 WAVES 1 1457 AIR T 01.7 VIS 7
 CONS. NO 009 MONTH 4 MXSAMPD 25 WAVES 2 1457 WET B 01.2 STN 164
 LAT 61-36 N DAY 12 NO.DPTH 22 WND-DIR 140 WW-CODE 00
 LON 51-43 W HR 10.1 W-COLOR 20 WND-FCE 07 CLD-TPF 6
 MARSID SQ 222 W-TRNSP BARO 1004.5 CLD-AMT 7 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PD4	-P-	NO2	NO3	SID	PH
102	0000	0306	34566		2756	14623	018				072	
122	0010	0284 D	34488	758	2751	14614	067				070	
122	0020	0291	34504	760	2752	14619	053				070	
122	0030	0328	34659	741	2761	14638	054				074	
122	0050	0358 B	34762	730	2766	14656	030				075	
122	0075	0381 B	34806	717	2767	14670	060				077	
122	0100	0394 B	34847	717	2769	14680	066				080	
122	0125	0411	34888		2771	14692						
118	0150	0418	34907		2771	14700						
118	0200	0428 P	34926		2772	14712						
118	0250	0429	34938		2773	14721						
118	0300	0423	34932		2773	14727						
118	0400	0407	34906		2773	14736						
118	0500	0393 B	34914		2774	14749						
118	0600	0391	34922		2776	14763						
107	0800	0371	34908		2776	14787						
107	1000	0361	34907		2777	14816						
107	1200	0353 C	34900		2778	14846						
107	1500	0355 B	34923	665	2779	14898					098	
107	1800	0337	34917	663	2781	14941					110	
107	2000	0320	34924	660	2783	14968					110	
107	2500	0275	34936	660	2788	15034					120	

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0306	34566		2756	14623	0000	00000	0541
0010	0284 D	34488		2751	14614	0006	00000	0581
0020	0291	34504		2752	14619	0011	00001	0576
0030	0328	34659		2761	14638	0017	00003	0492
0050	0358 B	34762		2766	14656	0026	00006	0444
0075	0381 P	34806		2767	14670	0037	00014	0436
0100	0394 B	34847		2769	14680	0048	00023	0420
0125	0411	34888		2771	14692	0059	00035	0410
0150	0418	34907		2771	14700	0069	00050	0405
0175	0424	34919		2772	14706	0079	00067	0405
0200	0428 B	34926		2772	14712	0089	00087	0407
0225	0430	34934		2772	14717	0100	00109	0405
0250	0429	34938		2773	14721	0110	00134	0404
0300	0423	34932		2773	14727	0130	00192	0407

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0400	0407	34906		2773	14736	0172	00342	0419
0500	0398 D	34914		2774	14749	0214	00537	0413
0600	0391	34922		2776	14763	0256	00772	0409
0700	0381	34917		2776	14775	0297	01050	0411
0800	0371	34908		2776	14787	0339	01372	0415
1000	0361	34907		2777	14817	0424	02158	0422
1200	0353 C	34900		2778	14847	0510	03142	0434
1500	0355 B	34923		2779	14898	0644	05004	0444
2000	0320	34924		2783	14968	0867	09033	0435
2500	0275	34936		2788	15034	1079	13936	0397

C-REF-NO 001 YR 1963 DEPTH 2979 WAVES 1 1332 AIR T 02.4 VIS 7
 CONS. NO 010 MONTH 4 MXSAMPD 29 WAVES 2 1345 WET H 01.5 STN 145
 LAT 61-24 N DAY 12 NO.DPTH 23 WND-DIR 130 WW-CODE 02
 LON 52-35 W HR 18.0 W-COLOR 20 WND-FCE 07 CLD-TPE 7
 MARSD SQ 222 W-TRNSP BARD 1006.0 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
180	0000	0235	34376		2747	14589	027				048	
180	0010	0225 D	34365	828	2747	14587	033				043	
180	0020	0229	34370	830	2747	14590	042				042	
180	0030	0227 C	34371	830	2747	14591	048				044	
180	0050	0281	34539	770	2756	14620	063				065	
180	0075	0302	34600	752	2759	14634	065				068	
180	0100	0344	34730	740	2765	14658	053				073	
180	0125	0372 C	34799		2768	14675						
180	0150	0373	34805		2768	14679						
180	0200	0369	34811		2769	14686						
199	0250	0442	34920		2770	14726						
199	0300	0442 C	34924		2770	14735						
199	0400	0445 C	34933		2771	14752						
199	0500	0423 B	34932		2773	14760						
199	0600	0417 B	34929		2773	14774						
199	0800	0408 B	34930		2774	14803						
199	1000	0388	34919		2776	14828						
187	1200	0364 B	34910		2777	14851						
187	1500	0360 C	34905		2777	14900						
187	1800	0358	34917	632	2778	14950					100	
187	2000	0345 H	34933	653	2781	14978					112	
187	2500	0303	34938	657	2785	15046					130	
187	2900	0247	34906	671	2788	15091					117	

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0235	34376		2747	14589	0000	00000	0625
0010	0225 D	34365		2747	14587	0006	00000	0626
0020	0229	34370		2747	14590	0013	00001	0626
0030	0227 C	34371		2747	14591	0019	00003	0624
0050	0281	34539		2756	14620	0031	00008	0543
0075	0302	34600		2759	14634	0044	00016	0517
0100	0344	34730		2765	14658	0056	00027	0460
0125	0372 C	34799		2768	14675	0068	00040	0437
0150	0373	34805		2768	14679	0079	00056	0436
0175	0367 D	3480 B		2768	14681	0090	00074	0434
0200	0369	34811		2769	14686	0101	00095	0432
0225	0405 F	3487 C		2770	14706	0111	00119	0430
0250	0442	34920		2770	14726	0122	00145	0432

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0300	0442 C	34924		2770	14735	0144	00207	0434
0400	0445 C	34933		2771	14752	0188	00367	0442
0500	0423 B	34932		2773	14760	0232	00570	0428
0600	0417 B	34929		2773	14774	0276	00816	0433
0700	0413 B	34930		2774	14789	0320	01111	0438
0800	0408 B	34930		2774	14803	0364	01455	0442
1000	0388	34919		2776	14828	0454	02287	0445
1200	0364 B	34910		2777	14851	0544	03303	0440
1500	0360 C	34905		2777	14900	0681	05222	0464
2000	0345 B	34933		2781	14979	0917	09472	0463
2500	0303	34938		2785	15046	1146	14773	0436

C-REF-NO 001 YR 1963 DEPTH 3039 WAVES 1 1345 AIR T 01.2 VIS 3
 CONS. NO 011 MONTH 4 MXSAMPD 30 WAVES 2 1355 WET B 00.9 STN 166
 LAT 61-15 N DAY 12 NO.DPTH 23 WND-DIR 130 WW-CODE 60
 LON 53-15 W HR 23.2 W-COLOR WND-FCE 06 CLD-TPE 3
 MARSO SQ 222 W-TRNSP BARO 1007.3 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
*242	0000	0240	34322		2742	14591	014				048	
*252	0010	0239 B	34348	813	2744	14592	026				056	
*252	0020	0243 B	34353	815	2744	14596	043				052	
*252	0030	0245 B	34534	811	2758	14601	045				054	
*252	0050	0272	34608	759	2762	14617	053				070	
*252	0075	0287	34717	745	2769	14629	070				072	
*252	0100	0339	34832	728	2774	14657	068				072	
*252	0125	0413	34873		2769	14693						
*252	0150	0432	34895		2769	14705						
*252	0200	0419	34918		2772	14708						
*247	0250	0426	34926		2772	14720						
*247	0300	0425	34930		2773	14728						
*247	0400	0419	34917		2772	14741						
*247	0500	0399 B	34893		2772	14749						
*247	0600	0399 B	34896		2773	14766						
*247	0800	0377	34907		2776	14790						
*247	1000	0368										
*241	1200	0354	34895		2777	14847						
*241	1500	0357 D	34910		2778	14899						
*241	1800	0344	34936	654	2781	14944					102	
*241	2000	0329	34906	654	2780	14971					105	
*241	2500	0295 B	34910	656	2784	15042					112	
*241	3000	0203	34908	686	2792	15089					115	

#MULTIPLE CAST CONTINUED NEXT DAY

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0240	34322		2742	14591	0000	00000	0670
0010	0239 B	34348		2744	14592	0007	00000	0650
0020	0243 B	34353		2744	14596	0013	00001	0650
0030	0245 B	34534		2758	14601	0019	00003	0515
0050	0272	34608		2762	14617	0029	00007	0463
0075	0287	34717		2769	14629	0040	00014	0416
0100	0339	34832		2774	14657	0050	00023	0378
0125	0413	34873		2769	14693	0061	00035	0423
0150	0432	34895		2769	14705	0071	00050	0429
0175	0429 D	34909		2771	14708	0082	00068	0417
0200	0419	34918		2772	14708	0092	00088	0403
0225	0422	34923		2772	14714	0103	00110	0405

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0250	0426	34926		2772	14720	0113	00135	0410
0300	0425	34930		2773	14728	0134	00194	0411
0400	0419	34917		2772	14741	0176	00346	0424
0500	0399 B	34893		2772	14749	0219	00546	0430
0600	0399 B	34896		2773	14766	0263	00794	0437
0700	0389 B	34902		2774	14778	0307	01088	0431
0800	0377	34907		2776	14790	0350	01421	0423
1000	0368	34902		2776	14819	0437	02226	0434
1200	0354	34895		2777	14847	0525	03229	0439
1500	0357 D	34910		2778	14899	0661	05128	0456
2000	0329	34906		2780	14972	0894	09337	0461
2500	0295 B	34910		2784	15043	1125	14683	0444
3000	0203	34908		2792	15089	1325	20308	0340

C-REF-NO 001 YR 1963 DEPTH 1700 WAVES 1 3621 AIR T -03.4 VIS 7
 CONS. NO 012 MONTH 4 MXSAMPD 17 WAVES 2 3631 WET B -03.8 STN 189
 LAT 63-16 N DAY 17 NO.DPTH 20 WND-DIR 360 WW-CODE 02
 LON 56-54 W HR 19.2 W-COLOR 20 WND-FCE 03 CLD-TPE 4
 MARSD SQ 222 W-TRNSP 11 BARU 1013.0 CLD-AMT 5 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SI0	PH
196	0000	0089	34162		2740	14522	029				034	
209	0010	0097	34237	860	2746	14528	030				042	
206	0020	0094 C	34213	860	2744	14528	034				038	
206	0030	0102 C	34226	844	2744	14533	038				040	
206	0050	0118 C	34384	815	2756	14546	055				050	
206	0075	0187	34515	774	2762	14583	073				065	
206	0100	0240	34598	752	2764	14611	073				072	
206	0125		34858									
206	0150	0384	34809		2767	14684						
206	0200	0417 C	34845		2767	14707						
206	0250	0425	34868		2768	14718						
206	0300	0440	34914		2770	14734						
197	0400	0450	34952		2772	14755						
197	0500	0426 B	34924		2772	14761						
197	0600	0417	34928		2773	14774						
197	0800	0404	34936		2775	14802						
197	1000	0382	34897	677	2774	14825					089	
197	1200	0365	34888	678	2775	14851					094	
197	1500	0357 C	34927	667	2779	14899					102	
197	1700	0335	34930	662	2782	14923					106	

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0089	34162		2740	14522	0000	00000	0687
0010	0097	34237		2746	14528	0007	00000	0635
0020	0094 C	34213		2744	14528	0013	00001	0651
0030	0102 C	34226		2744	14533	0020	00003	0647
0050	0118 C	34384		2756	14546	0032	00008	0537
0075	0187	34515		2762	14583	0045	00016	0487
0100	0240	34598		2764	14611	0057	00027	0467
0125	0316 G	34858		2778	14652	0067	00038	0339
0150	0384	34809		2767	14684	0077	00052	0444
0175	0409 D	3482 C		2765	14699	0088	00072	0466
0200	0417 C	34845		2767	14707	0100	00094	0456
0225	0422 B	34856		2767	14713	0111	00119	0456
0250	0425	34868		2768	14718	0123	00147	0452
0300	0440	34914		2770	14734	0145	00211	0439
0400	0450	34952		2772	14755	0189	00369	0433
0500	0426 B	34924		2772	14761	0233	00573	0437

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0600	0417	34928		2773	14774	0277	00822	0434
0700	0411	34935		2774	14788	0321	01115	0432
0800	0404	34936		2775	14802	0365	01452	0433
1000	0382	34897		2774	14825	0454	02286	0454
1200	0365	34888		2775	14851	0547	03333	0457
1500	0357 C	34927		2779	14899	0684	05238	0444

C-REF-NO 001 YR 1963 DEPTH 1330 WAVES 1 3621 AIR T -01.7 VIS
 CONS. NO 013 MONTH 4 MXSAMPD 13 WAVES 2 3622 WET B -02.3 STN 196
 LAT 63-32 N DAY 17 NO.DPTH 19 WND-DIR 360 WW-CODE 03
 LON 56-27 W HR 23.7 W-COLOR WND-FCE 04 CLD-TPE 4
 MARSID SQ 222 W-TRNSP BARO 1012.0 CLD-AMT 6 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
#241	0000	0020	33977		2729	14488	035				016	
#250	0010	0020 B	33948	899	2727	14489	028				016	
#250	0020	0016 C	33943	898	2727	14489	026				020	
#250	0030	0020	33930	898	2725	14492	022				018	
#250	0050	0105 B	34117	797	2735	14537	068				050	
#250	0075	0278 B	34502	734	2753	14622	092				066	
#250	0100	0349 C	34650	725	2758	14659	093				068	
#250	0125	0388 D	34735		2761	14681						
#250	0150	0401	34774		2763	14691						
#250	0200	0422 B	34816		2764	14708						
#250	0250	0428 B	34828		2764	14719						
#244	0300	0441	34910		2769	14734						
#244	0400											
#244	0500	0416	34896		2771	14756						
#244	0600	0434 B	34866		2766	14780						
#244	0800	0459	34951	712	2770	14825					080	
#244	1000	0433	34925	695	2771	14847					078	
#244	1200	0421 B	34920	693	2772	14875					080	
#244	1330	0416 B	34914	694	2772	14895					082	

#MULTIPLE CAST CONTINUED NEXT DAY

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0020	33977		2729	14488	0000	00000	0790
0010	0020 B	33948		2727	14489	0008	00000	0812
0020	0016 C	33943		2727	14489	0016	00002	0814
0030	0020	33930		2725	14492	0025	00004	0826
0050	0105 B	34117		2735	14537	0040	00010	0732
0075	0278 B	34502		2753	14622	0057	00020	0570
0100	0349 C	34650		2758	14659	0070	00033	0524
0125	0388 D	34735		2761	14681	0083	00048	0501
0150	0401	34774		2763	14691	0096	00065	0487
0175	0413	34800		2764	14700	0108	00086	0483
0200	0422 B	34816		2764	14708	0120	00109	0483
0225	0426 B	34828		2764	14714	0132	00136	0486
0250	0428 B	34828		2764	14719	0145	00166	0485
0300	0441	34910		2769	14734	0168	00232	0443
0400	0431 I	3494 G		2773	14747	0212	00388	0420
0500	0416	34896		2771	14756	0256	00591	0447

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0600	0434 B	34866		2766	14780	0303	00864	0500
0700	0451 B	3490 U		2768	14804	0354	01203	0502
0800	0459	34951		2770	14825	0404	01589	0488
1000	0433	34925		2771	14847	0504	02513	0496
1200	0421 B	34920		2772	14875	0605	03662	0504

C-REF-NO 001 YR 1963 DEPTH 1100 WAVES 1 3621 AIR T -01.4 VIS 7
 CONS. NO 014 MONTH 4 MXSAMPD 11 WAVES 2 3643 WET B -03.0 STN 197
 LAT 63-38 N DAY 18 NO.DPTH 18 WND-DIR 360 WW-CODE 02
 LON 55-35 W HR 03.8 W-COLOR WND-FCE 03 CLD-TPE 7
 MARSD SQ 222 W-TRNSP BARO 1012.2 CLD-AMT 7 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
040	0000	0090	34063		2732	14521	023				030	
051	0010	0080 D	34011	878	2729	14517	025				030	
051	0020	0085	34036	878	2730	14522	031				028	
051	0030	0120	34192	803	2740	14541	069				055	
051	0050	0156 C	34261	792	2743	14561	069				060	
051	0075	0181	34325	765	2747	14577	082				068	
051	0100	0248 B	34478	750	2754	14613	088				068	
051	0125	0343 C	34639		2758	14660						
051	0150	0346	34672		2760	14666						
051	0200	0414 D	34803		2764	14705						
051	0250	0433 C	34841		2765	14721						
042	0300	0411	34811		2765	14720						
042	0400	0434	34858		2766	14747						
042	0500	0451 B	34910		2768	14771						
042	0600	0443 C	34921	695	2770	14784					080	
042	0800	0446 H	34956	677	2772	14819					088	
042	1000	0414	34946	685	2775	14839					090	
042	1100	0398	34937	678	2776	14849					095	

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0090	34063		2732	14521	0000	00000	0763
0010	0080 D	34011		2729	14517	0008	00000	0797
0020	0085	34036		2730	14522	0016	00002	0781
0030	0120	34192		2740	14541	0023	00004	0684
0050	0156 C	34261		2743	14561	0037	00009	0656
0075	0181	34325		2747	14577	0053	00019	0626
0100	0248 B	34478		2754	14613	0068	00033	0564
0125	0343 C	34639		2758	14660	0082	00049	0529
0150	0346	34672		2760	14666	0095	00067	0509
0175	0378 F	3474 C		2762	14685	0107	00088	0493
0200	0414 D	34803		2764	14705	0120	00112	0484
0225	0429 C	34832		2764	14716	0132	00139	0481
0250	0433 C	34841		2765	14721	0144	00168	0481
0300	0411	34811		2765	14720	0168	00237	0485
0400	0434	34858		2766	14747	0217	00413	0485
0500	0451 B	34910		2768	14771	0266	00638	0476
0600	0443 C	34921		2770	14785	0314	00908	0470
0700	0445 C	34940		2771	14802	0361	01225	0468

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0800	0446 B	34956		2772	14819	0409	01591	0468
1000	0414	34946		2775	14839	0502	02458	0457

C-REF-NO 001 YR 1963 DEPTH 1041 WAVES 1 0232 AIR T -04.2 VIS 7
 CONS. NO 015 MONTH 4 MXSAMPD 10 WAVES 2 0232 WET B -04.8 STN 198
 LAT 63-45 N DAY 18 NO.DPTH 17 WND-DIR 020 WW-CODE 02
 LON 54-31 W HR 08.4 W-COLOR 20 WND-FCE 04 CLD-TPF 6
 MARSD SQ 222 W-TRNSP BARO 1013.3 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
087	0000	0134	34109		2733	14541	021				060	
096	0010	0126	34008	838	2725	14538	044				054	
096	0020	0160	34171	850	2736	14557	042					
096	0030	0159	34189	837	2738	14558	047					
096	0050	0179	34262	787	2742	14572	067				073	
096	0075			816			051				070	
096	0100	0191 B	34365	765	2749	14586	077				084	
096	0125	0230 H	34472		2755	14609						
096	0150	0263 C	34515		2755	14628						
088	0200	0314 H	34668		2763	14661						
088	0250	0401 F	34801		2765	14707						
088	0300	0415	34836		2766	14722						
088	0400	0434	34897		2769	14747						
088	0500	0432 B	34920	696	2771	14763					094	
088	0600	0438 B	34928	695	2771	14782					088	
088	0800	0426 B	34924	692	2772	14811					090	
088	1000	0407 B	34935	683	2775	14836					097	

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0134	34109		2733	14541	0000	00000	0755
0010	0126	34008		2725	14538	0008	00000	0827
0020	0160	34171		2736	14557	0016	00002	0726
0030	0159	34189		2738	14558	0023	00003	0712
0050	0179	34262		2742	14572	0037	00009	0672
0075	0183 F	3431 D		2746	14578	0054	00020	0638
0100	0191 H	34365		2749	14586	0069	00034	0605
0125	0230 B	34472		2755	14609	0084	00051	0555
0150	0263 C	34515		2755	14628	0098	00070	0552
0175	0288 C	3459 B		2759	14644	0111	00093	0521
0200	0314 B	34668		2763	14661	0124	00117	0486
0225	0360 E	34742		2764	14685	0136	00144	0477
0250	0401 E	34801		2765	14708	0148	00173	0477
0300	0415	34836		2766	14722	0172	00241	0470
0400	0434	34897		2769	14747	0219	00409	0456
0500	0432 B	34920		2771	14763	0264	00620	0447
0600	0438 B	34928		2771	14783	0310	00879	0458
0700	0434 B	34927		2771	14798	0357	01191	0466
0800	0426 B	34924		2772	14811	0404	01556	0468

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
1000	0407 H	34935		2775	14836	0498	02422	0456

C-REF-NO 001 YR 1963 DEPTH 1003 WAVES 1 3622 AIR T -02.6 VIS 7
 CONS. NO 016 MONTH 4 MXSAMPD 10 WAVES 2 3633 WET B -03.2 STN 199
 LAT 63-49 N DAY 18 NO.DPTH 17 WND-DIR 360 WW-CODE 02
 LON 54-00 W HR 11.6 W-COLOR 20 WND-FCE 04 CLD-TPE 7
 MARSD SQ 222 W-TRNSP 11 BARO 1013.0 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
117	0000	0080	33897		2719	14514	023				032	
129	0010	0068 B	33869	873	2718	14510	030				026	
129	0020	0067 B	33875	873	2718	14511	028				026	
129	0030	0069 B	33881	863	2719	14514	035				028	
129	0050	0093	33995	799	2726	14529	065				052	
129	0075	0132	34091	776	2732	14552	078				061	
129	0100	0155 B	34172	764	2736	14568	076				062	
129	0125	0182	34238		2740	14585						
129	0150	0201 D	34289		2742	14598						
129	0200	0228	34296		2741	14618						
121	0250	0255 C	34442		2750	14640						
121	0300	0274 C	34523		2755	14658						
121	0400	0339	34654		2759	14704						
121	0500	0414 C	34836	704	2766	14755					074	
121	0600	0440	34899	696	2768	14783					076	
121	0800	0447	34952	687	2772	14820					082	
121	1000	0427 B	34933	678	2773	14844					090	

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0080	33897		2719	14514	0000	00000	0883
0010	0068 B	33869		2718	14510	0009	00000	0898
0020	0067 B	33875		2718	14511	0018	00002	0893
0030	0069 B	33881		2719	14514	0027	00004	0889
0050	0093	33995		2726	14529	0044	00011	0817
0075	0132	34091		2732	14552	0064	00024	0769
0100	0155 B	34172		2736	14568	0083	00041	0724
0125	0182	34238		2740	14585	0101	00061	0695
0150	0201 D	34289		2742	14598	0118	00086	0672
0175	0215 C	3429 D		2741	14609	0135	00114	0682
0200	0228	34296		2741	14618	0152	00148	0690
0225	0242 B	3436 C		2745	14629	0169	00184	0652
0250	0255 C	34442		2750	14640	0185	00223	0606
0300	0274 C	34523		2755	14658	0215	00306	0565
0400	0339	34654		2759	14704	0270	00506	0536
0500	0414 C	34836		2766	14755	0322	00744	0489
0600	0440	34899		2768	14783	0371	01022	0482
0700	0449 B	34936		2770	14804	0420	01346	0476
0800	0447	34952		2772	14820	0468	01716	0472

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
1000	0427 H	34933		2773	14845	0564	02613	0482

C-REF-NO 001 YR 1963 DEPTH 686 WAVES 1 3623 AIR T 04.0 VIS 7
 CONS. NO 017 MONTH 4 MXSAMPD 06 WAVES 2 3633 WET B 03.2 STN 200
 LAT 63-52 N DAY 18 NO.DPTH 16 WND-DIR 360 WW-CODE 02
 LON 53-30 W HR 15.0 W-COLOR 10 WND-FCE 04 CLD-TPE 6
 MARSD SQ 222 W-TRNSP 13 BARO 1013.0 CLD-AMT 7 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
151	0000	0132	34012		2725	14539	028				044	
159	0010	0127 B	33981	844	2723	14538	045				044	
159	0020	0127 D	33998	846	2724	14540	042				041	
159	0030	0144	34083	850	2730	14550	041				038	
159	0050	0161 C	34159	800	2735	14562	048				052	
159	0075	0210 C	34384	766	2749	14591	073				064	
159	0100	0245	34440	750	2751	14611	082				066	
159	0125	0284	34539		2755	14633						
159	0150	0300	34581		2757	14645						
154	0200	0334	34676		2762	14669						
154	0250	0400	34827		2767	14707						
154	0300	0433 B	34893		2769	14730						
154	0400	0430	34910	696	2770	14746					078	
154	0500	0429 C	34908	694	2770	14762					079	
154	0600	0426	34910	693	2771	14777					079	
154	0650	0426 B	34916	702	2771	14786					080	

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0132	34012		2725	14539	0000	00000	0828
0010	0127 B	33981		2723	14538	0008	00000	0848
0020	0127 D	33998		2724	14540	0017	00002	0835
0030	0144	34083		2730	14550	0025	00004	0782
0050	0161 C	34159		2735	14562	0040	00010	0737
0075	0210 C	34384		2749	14591	0057	00021	0604
0100	0245	34440		2751	14611	0072	00034	0590
0125	0284	34539		2755	14634	0087	00051	0550
0150	0300	34581		2757	14645	0100	00070	0535
0175	0315 D	34624		2759	14656	0114	00092	0518
0200	0334	34676		2762	14669	0127	00117	0499
0225	0367 C	3475 B		2765	14688	0139	00144	0475
0250	0400	34827		2767	14707	0151	00172	0456
0300	0433 B	34893		2769	14730	0173	00237	0447
0400	0430	34910		2770	14746	0218	00398	0442
0500	0429 C	34908		2770	14762	0263	00608	0453
0600	0426	34910		2771	14777	0309	00868	0458

C-REF-NO	001	YR	1963	DEPTH	243	WAVES 1	3321	AIR T	-00.1	VIS	7
CONS. NO	018	MONTH	4	MXSAMPD	02	WAVES 2	3332	WET B	-01.2	STN	201
LAT	63-55 N	DAY	18	NO.DPTH	11	WND-DIR	330	WW-CODE	02		
LON	53-15 W	HR	17.3	W-COLOR	10	WND-FCE	04	CLD-TPE	8		
MARSD	SQ 222			W-TRNSP	08	BARO	1013.0	CLD-AMT	6	HW	

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SI(1)	PH
175	0000	0060	33728		2707	14503	005				008	
176	0010	0055 C	33728	948	2707	14502	006				006	
176	0020	0093	33954	794	2723	14524	057				056	
176	0030	0090	33977	795	2725	14525	051				055	
176	0050	0106 B	34009	785	2727	14536	063				060	
176	0075	0117	34057	772	2730	14545	051				060	
176	0100	0125 D	34107	774	2733	14554	053				060	
176	0125	0142	34147	765	2735	14566					060	
176	0150	0151	34360	763	2752	14577					061	
176	0200	0227	34440	752	2752	14620					064	
176	0240	0254 B		745							065	

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.FN	SVA
0000	0060	33728		2707	14503	0000	00000	1001
0010	0055 C	33728		2707	14502	0010	00001	0998
0020	0093	33954		2723	14524	0019	00002	0846
0030	0090	33977		2725	14525	0028	00004	0829
0050	0106 B	34009		2727	14536	0044	00011	0814
0075	0117	34057		2730	14545	0065	00024	0785
0100	0125 D	34107		2733	14554	0084	00041	0753
0125	0142	34147		2735	14566	0103	00063	0735
0150	0151	34360		2752	14577	0119	00086	0581
0175	0187 L	3437 I		2750	14597	0134	00111	0603
0200	0227	34440		2752	14620	0149	00140	0581
0225	0237 F							

C-REF-NO 001	YR 1963	DEPTH 60	WAVES 1 3622	AIR T	VIS 7
CONS. NO 019	MONTH 4	MXSAMPD 00	WAVES 2 3633	WET H	STN 202
LAT 63-57 N	DAY 18	NO.DPTH 5	WND-DIR 360	WW-CODE 02	
LON 52-55 W	HR 19.4	W-COLOR 20	WND-FCE 04	CLD-TPE 8	
MARSD SQ 222		W-TRNSP 11	BARO 1013.3	CLD-AMT 4	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4 -P-	NO2	NO3	STO	PH
196	0000	0000	33489		2691	14472	TRC			002	
197	0010	-0014	33489	1014	2692	14467	TRC			003	
197	0020	-0001	33570	957	2697	14476	TRC			005	
197	0030	0063	33817	853	2714	14510	005			030	
197	0050	0092 C	33962	788	2724	14529	044			052	

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0000	33489		2691	14472	0000	00000	1153
0010	-0014	33489		2692	14467	0012	00001	1146
0020	-0001	33570		2697	14476	0023	00002	1090
0030	0063	33817		2714	14510	0033	00005	0935
0050	0092 C	33962		2724	14529	0051	00012	0841

C-REF-NO 001 YR 1963 DEPTH 96 WAVES 1 3622 AIR T -00.2 VIS 6
 CONS. NO 020 MONTH 4 MXSAMPD 01 WAVES 2 3633 WET B -01.2 STN 203
 LAT 64-00 N DAY 18 NO.DPTH 6 WND-DIR 360 HW-CODE 03
 LON 52-30 W HR 21.6 W-COLOR 20 WND-FCE 05 CLD-TPE 4
 MARSD SQ 222 W-TRNSP 06 BARO 1013.3 CLD-AMT 5 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
217	0000	-0045	33462		2691	14451	TRC				006	
219	0010	-0052	33463	958	2691	14449	TRC				016	
219	0020	-0052	33463	963	2691	14451	003				007	
219	0030	-0048	33482	948	2692	14455	TRC				009	
219	0050	-0041 D	33531	883	2696	14462	005				018	
219	0075	0036	33750	840	2710	14504	034				033	

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	-0045	33462		2691	14451	0000	00000	1154
0010	-0052	33463		2691	14449	0012	00001	1150
0020	-0052	33463		2691	14451	0023	00002	1150
0030	-0048	33482		2692	14455	0035	00005	1137
0050	-0041 D	33531		2696	14462	0057	00015	1102
0075	0036	33750		2710	14504	0083	00031	0971

C-REF-NO 001 YR 1963 DEPTH 587 WAVES 1 3222 AIR T -05.7 VIS 8
 CONS. NO 021 MONTH 4 MXSAMPD 06 WAVES 2 3232 WET B -06.5 STN 226
 LAT 65-00 N DAY 20 NO.DPTH 15 WND-DIR 320 WW-CODE 01
 LON 55-05 W HR 15.1 W-COLOR 00 WND-FCE 04 CLD-TPE 2
 MARSD SQ 222 W-TRNSP 08 BARO 1022.0 CLD-AMT 2 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
152	0000	-0168	33591		2705	14395	031				018	
152	0010	-0165 B	33560	914	2703	14398	029				019	
152	0020	-0163	33556	913	2702	14400	024				018	
152	0030	-0164	33556	909	2702	14401	023				019	
152	0050	-0164 C	33655	909	2710	14406	027				019	
152	0075	-0105	33710	819	2713	14439	070				049	
152	0100	0135	34198	769	2740	14559	078				060	
152	0125		34454									
152	0150	0305	34512		2751	14646						
154	0200	0349	34652		2758	14675						
154	0250		34696									
154	0300	0419 B	34788	702	2762	14723					070	
154	0400	0464 E	34906	686	2766	14760					082	
154	0500	0458	34931	683	2769	14774					087	
154	0580	0460 B	34931	698	2769	14788					087	

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	-0168	33591		2705	14395	0000	00000	1017
0010	-0165 B	33560		2703	14398	0010	00001	1041
0020	-0163	33556		2702	14400	0021	00002	1044
0030	-0164	33556		2702	14401	0031	00005	1043
0050	-0164 C	33655		2710	14406	0052	00013	0965
0075	-0105	33710		2713	14439	0076	00028	0939
0100	0135	34198		2740	14559	0096	00047	0691
0125	0254 I	34454		2751	14619	0112	00065	0589
0150	0305	34512		2751	14646	0127	00086	0591
0175	0335 E	3459 B		2754	14664	0142	00110	0566
0200	0349	34652		2758	14675	0156	00137	0531
0225	0369	3468 B		2758	14688	0169	00166	0534
0250	0387	34696		2758	14700	0183	00199	0541
0300	0419 B	34788		2762	14723	0209	00274	0511
0400	0464 E	34906		2766	14760	0259	00454	0483
0500	0458	34931		2769	14774	0307	00676	0469

C-REF-NO 001	YR 1963	DEPTH 120	WAVES 1 3422	AIR T -04.2	VIS
CONS. NO 022	MONTH 4	MXSAMPD 01	WAVES 2 3443	WET B -05.4	STN 227
LAT 65-00 N	DAY 20	NO.DPTH 7	WND-DIR 340	WW-CODE 02	
LON 54-30 W	HR 18.6	W-COLOR 10	WND-FCE 05	CLD-TPE 3	
MARSI) SQ 222		W-TRNSP	BARO 1021.3	CLD-AMT 1	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
188	0000	-0075	33555		2699	14438	TRC				023	
189	0010	-0083	33531	925	2698	14436	015				023	
189	0020	-0081 C	33519	920	2697	14438	015				023	
189	0030	-0080	33521	925	2697	14440	005				024	
189	0050	-0088	33544	902	2699	14440	020				056	
189	0075	0082	33878	784	2718	14527	065				069	
189	0100	0216	34186	733	2733	14595	062				077	

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	-0075	33555		2699	14438	0000	00000	1072
0010	-0083	33531		2698	14436	0011	00001	1087
0020	-0081 C	33519		2697	14438	0022	00002	1096
0030	-0080	33521		2697	14440	0033	00005	1095
0050	-0088	33544		2699	14440	0055	00014	1073
0075	0082	33878		2718	14527	0080	00030	0899
0100	0216	34186		2733	14595	0101	00048	0759

C-REF-NO 001 YR 1963 DEPTH 75 WAVES 1 3422 AIR T -04.6 VIS 8
 CONS. NO 023 MONTH 4 MXSAMPD 01 WAVES 2 3443 WET B -05.6 STN 228
 LAT 65-00 N DAY 20 NO. DPTH 6 WND-DIR 340 WW-CODE 02
 LON 53-58 W HR 20.8 W-COLOR 10 WND-FCE 05 CLD-TPE 2
 MARSD SQ 222 W-TRNSP BARO 1022.0 CLD-AMT 2 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
211	0000	-0067	33555		2699	14442	TRC				018	
212	0010	-0073	33544	921	2698	14441	002				018	
212	0020	-0071 C	33529	923	2697	14443	013				018	
212	0030	-0071	33529	923	2697	14445	016				020	
212	0050	-0001 C	33717	805	2709	14483	047				051	
212	0070	0043 C	33804	775	2714	14508	068				060	

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	-0067	33555		2699	14442	0000	00000	1075
0010	-0073	33544		2698	14441	0011	00001	1081
0020	-0071 C	33529		2697	14443	0022	00002	1092
0030	-0071	33529		2697	14445	0033	00005	1092
0050	-0001 C	33717		2709	14483	0054	00014	0977

C-REF-NO 001	YR 1963	DEPTH 52	WAVES 1 3422	AIR T -04.0	VIS 7
CONS. NO 024	MONTH 4	MXSAMPD 00	WAVES 2 3433	WET B -05.8	STN 229
LAT 65-00 N	DAY 20	NO.DPTH 5	WND-DIR 340	WW-CODE 02	
LDN 53-30 W	HR 23.0	W-COLOR 10	WND-FCE 05	CLD-TPE 2	
MARSD SQ 222		W-TRNSP	BARO 1022.0	CLD-AMT 2	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SI.O	PH
232	0000	-0060	33494		2694	14444	TRC				010	
233	0010	-0059	33484	944	2693	14446	TRC				012	
233	0020	-0057 C	33473	940	2692	14449	TRC				012	
233	0030	-0056 H	33496	931	2694	14451	002				015	
233	0050	-0039	33644	839	2705	14464	049				044	

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	-0060	33494		2694	14444	0000	00000	1124
0010	-0059	33484		2693	14446	0011	00001	1132
0020	-0057 C	33473		2692	14449	0023	00002	1141
0030	-0056 H	33496		2694	14451	0034	00005	1123
0050	-0039	33644		2705	14464	0056	00014	1016

C-REF-NO 001 YR 1963 DEPTH 344 WAVES 1 3633 AIR T -03.9 VIS 8
 CONS. NO 025 MONTH 4 MXSAMPD 03 WAVES 2 3645 WET B -05.2 STN 230
 LAT 65-00 N DAY 21 NO.DPTH 12 WND-DIR 360 WW-CODE 01
 LON 53-00 W HR 01.1 W-COLOR WND-FCE 05 CLD-TPE 3
 MARSQ SQ 222 W-TRNSP BARO 1020.0 CLD-AMT 2 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
013	0000	-0045	33414		2687	14450	047				034	
017	0010	-0044	33366	875	2683	14452	045				036	
017	0020	-0044 D	33376	878	2684	14453	045				036	
017	0030	-0041 B	33382	877	2684	14457	051				038	
017	0050	-0055 C	33515	820	2695	14455	070				048	
017	0075	-0029 B	33568	823	2699	14472	068				046	
017	0100	-0029 B	33613	807	2702	14477	076				051	
017	0125	0043 B	33812		2715	14517						
017	0150	0150	34041		2726	14572						
017	0200	0280 B	34374		2743	14642						
017	0250	0330	34539		2751	14674						
017	0300	0255 B	34390		2746	14648						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	-0045	33414		2687	14450	0000	00000	1191
0010	-0044	33366		2683	14452	0012	00001	1228
0020	-0044 D	33376		2684	14453	0025	00003	1220
0030	-0041 B	33382		2684	14457	0037	00006	1216
0050	-0055 C	33515		2695	14455	0060	00015	1108
0075	-0029 B	33568		2699	14472	0088	00033	1078
0100	-0029 B	33613		2702	14477	0114	00057	1043
0125	0043 B	33812		2715	14517	0139	00085	0927
0150	0150	34041		2726	14572	0161	00116	0821
0175	0227 B	34228		2735	14613	0181	00149	0739
0200	0280 B	34374		2743	14642	0199	00183	0676
0225	0318 B	3449 B		2748	14664	0215	00219	0628
0250	0330	34539		2751	14674	0231	00257	0602
0300	0255 B	34390		2746	14648	0262	00346	0648

C-REF-NO	001	YR	1963	DEPTH	29	WAVES 1	3622	AIR T		VIS	7
CONS. NO	026	MONTH	4	MXSAMPD	00	WAVES 2	49XX	WET B		STN	244
LAT	66-50 N	DAY	22	NO.DPTH	4	WND-DIR	360	WW-CODE	02		
LON	54-15 W	HR	11.8	W-COLOR	10	WND-FCE	.04	CLD-TPE	4		
MARSD SQ	222			W-TRNSP	13	BARO	1017.0	CLD-AMT	3	HW	

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SI0	PH
119	0000	-0165	33699		2714	14398	082				054	
121	0010	-0170	33679	840	2712	14397	080				055	
121	0020	-0168	33680	843	2712	14400	080				055	
121	0025	-0168	33705	842	2715	14401	081				056	

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	-0165	33699		2714	14398	0000	00000	0935
0010	-0170	33679		2712	14397	0009	00000	0948
0020	-0168	33680		2712	14400	0019	00002	0947

C-REF-NO 001	YR 1963	DEPTH 58	WAVES 1 3620	AIR T	VIS 6
CONS. NO 027	MONTH 4	MXSAMPD 01	WAVES 2 00X0	WET B	STN 245
LAT 67-04 N	DAY 22	NO.DPTH 5	WND-DIR 360	WW-CODE 26	
LON 54-45 W	HR 14.2	W-COLOR 30	WND-FCE 03	CLD-TPE 8	
MARSD SQ 222		W-TRNSP 11	BARO 1016.0	CLD-AMT 4	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4 -P-	NO2	NO3	SIO	PH
144	0000	-0080 B	33771		2717	14439	073			054	
145	0010	-0084 B	33782	844	2718	14439	071			052	
145	0020	-0069 B	33792	850	2718	14448	070			052	
145	0030	-0059 B	33800	845	2719	14454	068			056	
145	0055	-0058 B	33800	843	2719	14459	070			052	

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	-0080 B	33771		2717	14439	0000	00000	0905
0010	-0084 B	33782		2718	14439	0009	00000	0894
0020	-0069 B	33792		2718	14448	0018	00002	0892
0030	-0059 B	33800		2719	14454	0027	00004	0889
0050	-0056 B	33802		2719	14459	0045	00012	0889

C-REF-NO 001 YR 1963 DEPTH 67 WAVES 1 3620 AIR T -06.1 VIS 6
 CONS. NO 028 MONTH 4 MXSAMPD 01 WAVES 2 00X0 WET B -07.8 STN 246
 LAT 67-04 N DAY 22 NO.DPTH 6 WND-DIR 360 WW-CODE 26
 LON 54-17 W HR 16.2 W-COLOR 30 WND-FCE 03 CLD-TPE 8
 MARSQ SQ 222 W-TRNSP 11 BARO 1016.0 CLD-AMT 4 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
163	0000	-0083 B	33828		2722	14438	044				063	
165	0010	-0052	33822	836	2720	14454	059				049	
165	0020	-0059 B	33787	835	2718	14452					049	
165	0030	-0054 B	33799	830	2718	14456	060				050	
165	0050	-0060	33803	828	2719	14457	057				051	
165	0060	-0065 C	33662	826	2708	14454	051				062	

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	PQT.EN	SVA
0000	-0083 B	33828		2722	14438	0000	00000	0860
0010	-0052	33822		2720	14454	0009	00000	0876
0020	-0059 B	33787		2718	14452	0018	00002	0900
0030	-0054 B	33799		2718	14456	0027	00004	0892
0050	-0060	33803		2719	14457	0045	00012	0886

C-REF-NO 001 YR 1963 DEPTH 2555 WAVES 1 0221 AIR T 04.2 VIS 8
 CONS. NO 029 MUNTH 5 MXSAMPD 25 WAVES 2 0434 WET B 03.7 STN A
 LAT 58-30 N DAY 07 NO.DPTH 22 WND-DIR 020 WW-CODE 02
 LON 43-00 W HR 19.0 W-COLOR 10 WND-FCE 03 CLD-TPE 1
 MARSD SQ 185 W-TRNSP 15 BARD 1001.5 CLD-AMT 3 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
192	0000	0398	34819		2767	14665					078	
211	0010	0409 C	34829	745	2766	14672					074	
211	0020	0401	34828	742	2767	14670					075	
211	0030	0390 D	34831	742	2768	14667					075	
211	0050	0388	34825	743	2768	14669					075	
211	0075	0407	34864	735	2769	14682					076	
217	0100	0419 B	34889	734	2770	14692					076	
211	0125	0415 B	34901		2771	14694						
211	0150	0427 B	34916		2771	14703						
211	0200	0436	34938		2772	14716						
205	0250	0421	34929		2773	14718						
205	0300	0406 C	34901		2772	14719						
205	0400	0410	34913		2773	14738						
205	0500	0389 B	34915		2775	14745						
205	0600	0379	34917		2776	14758						
205	0800	0366	34895		2776	14785						
198	1000	0351 C	34894		2777	14812						
198	1200	0348	34906		2779	14844						
217	1500	0353	34929	664	2780	14897					100	
198	1800	0329	34935	670	2783	14938					099	
198	2000	0304 B	34938	665	2785	14961					102	
217	2500	0235	34920	681	2790	15017					099	

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0398	34819		2767	14665	0000	00000	0436
0010	0409 C	34829		2766	14672	0004	00000	0440
0020	0401	34828		2767	14670	0009	00001	0434
0030	0390 D	34831		2768	14667	0013	00002	0422
0050	0388	34825		2768	14669	0022	00006	0426
0075	0407	34864		2769	14682	0032	00012	0418
0100	0419 B	34889		2770	14692	0043	00022	0415
0125	0415 B	34901		2771	14694	0053	00034	0404
0150	0427 B	34916		2771	14703	0063	00048	0408
0175	0434 B	34930		2772	14711	0074	00065	0408
0200	0436	34938		2772	14716	0084	00085	0406
0225	0430	34937		2773	14717	0094	00108	0404
0250	0421	34929		2773	14718	0104	00132	0402
0300	0406 C	34901		2772	14719	0125	00191	0412

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0400	0410	34913		2773	14738	0167	00341	0417
0500	0389 B	34915		2775	14745	0208	00533	0403
0600	0379	34917		2776	14758	0249	00762	0399
0700	0372	34907		2776	14771	0290	01036	0408
0800	0366	34895		2776	14785	0331	01359	0419
1000	0351 C	34894		2777	14812	0416	02146	0419
1200	0348	34906		2779	14844	0502	03115	0423
1500	0353	34929		2780	14897	0633	04940	0437
2000	0304 B	34938		2785	14961	0846	08776	0404
2500	0235	34920		2790	15017	1039	13223	0353

C-REF-NO 001 YR 1963 DEPTH 2778 WAVES 1 34XX AIR T 03.7 VIS 8
 CONS. NO 030 MONTH 5 MXSAMPD 25 WAVES 2 XX WET B 03.5 STN B
 LAT 61-00 N DAY 09 NO.DPTH 22 WND-DIR 340 HW-CODE 02
 LON 34-00 W HR 06.5 W-COLOR 10 WND-FCE 04 CLD-TPE 8
 MARSQ SQ 220 W-TRNSP 17 BARO 1001.5 CLD-AMT 6 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
068	0000	0579	35022		2762	14743					068	
086	0010	0576 C	34995	703	2760	14743					068	
086	0020	0573	34998	702	2761	14743					067	
086	0030	0576	34999	702	2760	14746					068	
086	0050	0576	34999	700	2760	14749					068	
086	0075	0577	34999	698	2760	14754					068	
086	0100	0559 B	34990	695	2762	14751					068	
086	0125	0541	34973		2763	14747						
086	0150	0536 B	34977		2764	14749						
086	0200	0527	34966		2764	14754						
079	0250	0512 D	34955		2765	14756						
079	0300	0498	34956		2766	14758						
079	0400	0484 C	34957		2768	14769						
079	0500	0438	34941		2772	14766						
079	0600	0426 B	34947		2774	14778						
079	0800	0379 B	34914		2776	14791						
079	1000	0360	34897		2777	14816						
070	1200	0362	34908		2777	14850						
070	1500	0361 B	34932		2779	14901						
070	1800	0351	34946	684	2781	14947					100	
070	2000	0341	34960	650	2784	14977					120	
070	2500	0307	34952	653	2786	15048					120	

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0579	35022		2762	14743	0000	00000	0481
0010	0576 C	34995		2760	14743	0005	00000	0499
0020	0573	34998		2761	14743	0010	00001	0495
0030	0576	34999		2760	14746	0015	00002	0499
0050	0576	34999		2760	14749	0025	00006	0502
0075	0577	34999		2760	14754	0038	00015	0507
0100	0559 B	34990		2762	14751	0050	00026	0495
0125	0541	34973		2763	14747	0063	00040	0490
0150	0536 B	34977		2764	14749	0075	00058	0484
0175	0532 B	34973		2764	14752	0087	00078	0486
0200	0527	34966		2764	14754	0100	00102	0488
0225	0520 B	34960		2764	14755	0112	00129	0488
0250	0512 D	34955		2765	14756	0124	00159	0485
0300	0498	34956		2766	14758	0148	00227	0474

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0400	0484 C	34957		2768	14769	0196	00398	0469
0500	0438	34941		2772	14766	0242	00610	0438
0600	0426 B	34947		2774	14778	0286	00858	0430
0700	0403 C	34933		2775	14784	0329	01146	0424
0800	0379 B	34914		2776	14791	0372	01476	0420
1000	0360	34897		2777	14816	0457	02272	0428
1200	0362	34908		2777	14850	0545	03269	0439
1500	0361 B	34932		2779	14901	0680	05142	0445
2000	0341	34960		2784	14977	0904	09189	0438
2500	0307	34952		2786	15048	1125	14329	0431

BATHYTHERMOGRAPHIC DATA

A tabulation showing the Time-Date, Position, and Consecutive Slide Number of each observation.

CTY	INS	CRN	TIME	DA	MN	YR	LAT	LONG	CON
58	01	001	12	9	04	63	58 30	043 00	001
58	01	001	10	10	04	63	60 45	048 46	002
58	01	001	13	10	04	63	60 43	049 11	003
58	01	001	20	10	04	63	60 28	050 00	004
58	01	001	23	10	04	63	60 15	050 44	005
58	01	001	01	11	04	63	60 30	050 37	006
58	01	001	03	11	04	63	60 46	050 30	007
58	01	001	08	11	04	63	61 00	050 25	008
58	01	001	10	11	04	63	61 15	050 19	009
58	01	001	13	11	04	63	61 30	050 12	010
58	01	001	22	11	04	63	61 45	050 05	011
58	01	001	23	11	04	63	62 00	050 00	012
58	01	001	02	12	04	63	61 50	050 44	013
58	01	001	07	12	04	63	61 44	051 13	014
58	01	001	10	12	04	63	61 36	051 43	015
58	01	001	21	12	04	63	61 24	052 35	016
58	01	001	23	12	04	63	61 15	053 15	017
58	01	001	03	13	04	63	61 26	052 56	018
58	01	001	05	13	04	63	61 40	052 35	019
58	01	001	07	13	04	63	61 52	052 20	020
58	01	001	10	13	04	63	62 04	051 58	021
58	01	001	12	13	04	63	62 16	051 40	022
58	01	001	15	13	04	63	62 29	051 20	023
58	01	001	16	13	04	63	62 40	051 00	024
58	01	001	18	13	04	63	62 43	051 32	025
58	01	001	21	13	04	63	62 45	052 04	026
58	01	001	23	13	04	63	62 47	052 36	027

CTY	INS	CRN	TIME	DA	MN	YR	LAT	LONG	CON
58	01	001	01	13	04	63	62 50	053 12	028
58	01	001	03	14	04	63	63 00	052 48	029
58	01	001	05	14	04	63	63 10	052 25	030
58	01	001	23	16	04	63	63 20	052 00	031
58	01	001	01	16	04	63	63 22	052 31	032
58	01	001	03	17	04	63	63 25	053 12	033
58	01	001	06	17	04	63	63 24	053 47	034
58	01	001	08	17	04	63	63 22	054 15	035
58	01	001	10	17	04	63	63 21	054 47	036
58	01	001	13	17	04	63	63 20	055 18	037
58	01	001	15	17	04	63	63 19	055 50	038
58	01	001	17	17	04	63	63 18	056 22	039
58	01	001	19	17	04	63	63 16	056 54	040
58	01	001	23	17	04	63	63 32	056 27	041
58	01	001	04	18	04	63	63 38	055 35	042
58	01	001	08	18	04	63	63 45	054 31	043
58	01	001	12	18	04	63	63 49	054 00	044
58	01	001	15	18	04	63	63 52	053 30	045
58	01	001	17	18	04	63	63 55	053 15	046
58	01	001	19	18	04	63	63 57	052 55	047
58	01	001	22	18	04	63	64 00	052 30	048
58	01	001	24	18	04	63	64 07	053 03	049
58	01	001	02	19	04	63	64 13	053 34	050
58	01	001	04	19	04	63	64 20	054 08	051
58	01	001	09	19	04	63	64 30	055 00	052
58	01	001	08	19	04	63	64 30	054 23	053
58	01	001	17	19	04	63	64 30	053 45	054

CTY	INS	CRN	TIME	DA	MN	YR	LAT	LONG	CON
58	01	001	20	19	04	63	64 30	053 10	055
58	01	001	21	19	04	63	64 30	052 50	056
58	01	001	23	19	04	63	64 34	053 24	057
58	01	001	04	20	04	63	64 40	054 35	058
58	01	001	08	20	04	63	64 42	055 10	059
58	01	001	10	20	04	63	64 45	055 45	060
58	01	001	11	20	04	63	64 47	055 58	061
58	01	001	13	20	04	63	64 55	055 53	062
58	01	001	15	20	04	63	65 00	055 05	063
58	01	001	21	20	04	63	65 00	053 58	064
58	01	001	23	20	04	63	65 00	053 30	065
58	01	001	01	21	04	63	65 00	053 00	066
58	01	001	08	21	04	63	65 08	053 30	067
58	01	001	10	21	04	63	65 15	054 00	068
58	01	001	12	21	04	63	65 23	054 30	069
58	01	001	15	21	04	63	65 30	054 58	070
58	01	001	17	21	04	63	65 38	055 24	071
58	01	001	19	21	04	63	65 42	054 58	072
58	01	001	21	21	04	63	65 44	054 20	073
58	01	001	22	21	04	63	65 45	053 55	074
58	01	001	01	22	04	63	65 57	054 15	075
58	01	001	03	22	04	63	66 10	054 34	076
58	01	001	06	22	04	63	66 24	054 54	077
58	01	001	08	22	04	63	66 30	055 03	078
58	01	001	10	22	04	63	66 39	054 23	079
58	01	001	12	22	04	63	66 50	054 15	080
58	01	001	14	22	04	63	67 04	054 45	081
58	01	001	16	22	04	63	67 04	054 17	082

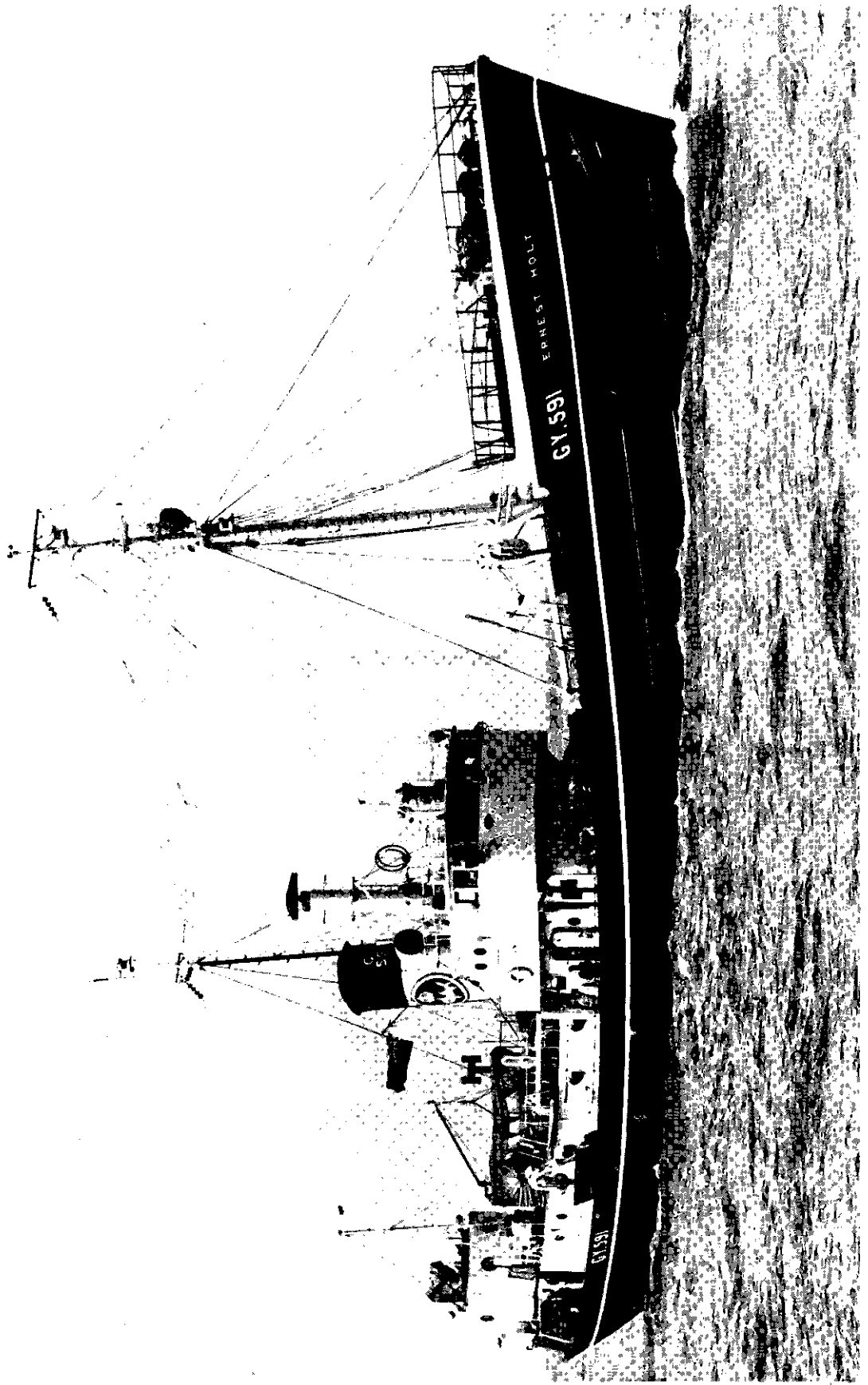
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MINISTRY OF AGRICULTURE, FISHERIES AND FOOD

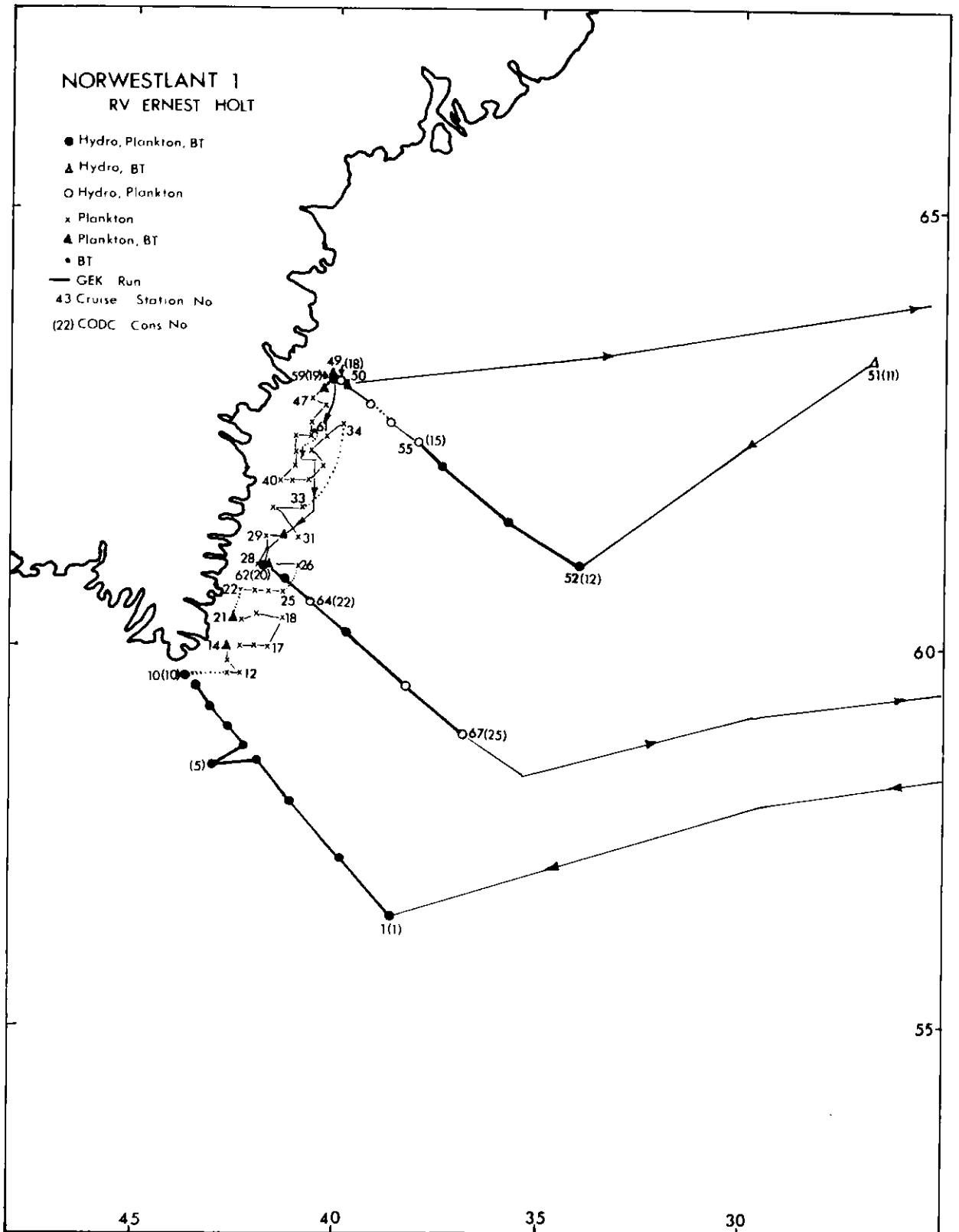
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UNITED KINGDOM

IRMINGER SEA

Ship: *RV Ernest Holt*
Cruise Period: April 3 – May 6, 1963



ERNEST HOLT



PERSONNEL

Observers at sea	J. Corlett J. W. Ramster A. R. Folkard G. P. Fox G. C. Baxter J. H. Nichols
Data analyses	Oceanographic Data A. J. Lee J. W. Ramster A. R. Folkard G. C. Baxter D. W. Cutler
	Salinity Data A. R. Folkard Miss G. M. Simons
	Chemical Data A. R. Folkard T. C. Doddington
	Biological Data J. Corlett J. H. Nichols Miss P. A. Self

All above listed personnel are members of the Ministry of Agriculture, Fisheries and Food.

EXTRACT OF CRUISE LOG

- 3 April, 1963 – Departed Grimsby
- 5 April, 1963 – Refuelled Stornaway
- 9 April, 1963 – Commenced work
- 10 April, 1963 – Worked Reference Station A
- 22 April, 1963 – Arrived Reykjavik
- 23 April, 1963 – Visit to *Thalassa* and
The University Research Institute,
Department of Fisheries, Reykjavik
- 24 April, 1963 – Departed Reykjavik. Worked
Reference Station with *Thalassa*
and *Academician Knipovich*
- 25 April, 1963 – Worked Reference Station B
- 1 May, 1963 – Completed final section
- 5 May, 1963 – Arrived Aberdeen
- 6 May, 1963 – Arrived Grimsby.

Frequent gales hampered the work during the entire survey. It was not possible to occupy all the proposed stations but 25 oceanographic stations were completed.

OBSERVATIONAL PROCEDURES

Biological Sampling

1. Phytoplankton samples were drawn from the 10 m bottle at each oceanographic station. These were sent to Dr. M. Gillbricht, Helgoland, Germany for examination.

2. One vertical haul was made at each station with a standard Hensen net from 100 m at a rate of 1/3 m/sec: 11.4.63-16.4.63.
One vertical haul was made at each station with a 1-metre silk net from 100 m at a rate of 1/3 m/sec: 19.4.63-20.4.63.
3. A Fine net haul from 50 m was made at most of the oceanographic stations.
4. At the deeper stations on sections IV and V comparative hauls were made with the Lowestoft 'Weather Ship' net and the Nansen net, which is used on the Norwegian weather ships.
5. 1250 ml of sea water from 20 metres at each oceanographic station were filtered for chlorophyll determinations. These samples were sent to Dr. J. H. Steele at the Marine Laboratory, Aberdeen, Scotland.
6. All material from the net hauls is held at the Fisheries Laboratory, Lowestoft. Details of counts will be sent to the Executive Secretary, ICNAF.

Physical and Chemical Observations

Serial observations of salinity and temperature were made at depths of 0, 10, 20, 30, 50, 75, 100, 150, 200, 300, 400, 500, 600, 800, 1000, 1200 and 1500 metres and at standard depths to the bottom at reference stations. Phosphate and silicate observations were made at 0m, and dissolved oxygen, phosphate, and silicate observations were made at 10, 20, 30, 50, 75 and 100 metres. Sea surface temperatures were recorded by means of a mercury-in-steel thermograph continuously throughout the survey.

Samples at depth were obtained with Nansen reversing bottles. When drawing water from the reversing bottles a dissolved oxygen sample was taken first. It was drawn into a 125 ml amber glass-stoppered bottle. Secondly, (at 10 m) a sediment phytoplankton sample was taken. Thirdly, a sample for salinity determination was run off into a 5 oz. swing-stoppered bottle. A reference salinity sample from each station was taken at a depth chosen at random and stored. The remainder of the water was drained into a 1.25 litre polyethylene bottle. This water was filtered through a Whatman glass fibre filter paper GF/C of 0.5 micron porosity and appropriate aliquots used for nutrient salt determinations.

Temperatures at depth were measured with the deep sea reversing thermometers of English (Negretti and Zambra) and German (Richter and Wiese) manufacture. Protected thermometers were paired at all depths and an unprotected thermometer was used at each depth from 200 m to the bottom. All temperatures were read by one person.

Meteorological observations on oceanographic stations were made by the scientific staff.

LABORATORY PROCEDURES

The salinity determinations were made on an inductive salinometer, Model 601 MK III manufactured by Auto-Lab Industries Pty. Ltd., Sydney, Australia (Brown and Hamon 1961). Some analyses were carried out at sea, but the main bulk of the samples were analysed at the Lowestoft Laboratory.

Dissolved oxygen was determined by a modified Winkler method (Graham, M. et al 1954) using 125 ml amber glass-stoppered bottles. Reagent concentrations were –

- a. manganous chloride 400 gm/litre;
- b. 75 gms potassium iodide 180 gms sodium hydroxide per 500 ml;
- c. concentrated hydrochloric acid.

The samples were titrated against 0.005 N sodium thiosulphate using 0.005 N potassium bi-iodate for standardization.

Phosphate was determined by the single solution method of Murphy and Riley (1962).

Silicate was determined by the method described by Strickland and Parsons (1960).

CONTINUOUS RECORDS

1. A total of 27 bathythermograms were taken during the cruise, and are now held by CODC.
2. The surface thermograph was run continuously. These data are held at the Fisheries Laboratory, Lowestoft.
3. GEK records were taken along the hydrographic sections. These data also are held at the Fisheries Laboratory, Lowestoft.
4. The NIO sea state meter was run four times daily throughout the cruise. These data are held at the Ship Division, National Physical Laboratory, Teddington, England.

ADDITIONAL PROGRAMMES

1. Two parachute drogues were tracked on Fylkir Bank on 29.4.63.
2. Several measurements of current speeds were made from the drift of the ship on station.
3. 480 surface drift bottles were released in batches of 40 at the ends and the middle of each section, on the Fylkir Bank, and at other places on or near the shelf.
4. Ice conditions were plotted on the charts supplied by the Danish Meteorological Institute.
5. Whale sightings were logged on the NIO record forms of observed Cetacea.

METHODS TABLE

ERNEST HOLT (UNITED KINGDOM)		NORWESTLANT 1						
	Sampling BOTTLE	FILTER	STANDING TIME BEFORE ANALYSIS	METHOD	PHOTOMETER CELL LENGTH	AVERAGE BLANK	STANDARD	
SALINITY	Nansen Type Bottles uncoloured		3 to 5 weeks	Conductivity: Auto-lab Salinometer			Copenhagen water	
TEMPERATURE				Reversing thermometers				
O ₂				Preserved immediately: titrated after 2 to 14 days	Modified Winkler		0	Bi-iodate 0.005N
FO ₂			Whatman GF C 1.1 μ	6 to 36 hours	Murphy and Riley	Unicam SP 500 10cm cell	0.017	NORWESTLANT: Supplied by UK
SiO ₂			Whatman GF C 1.1 μ	6 to 36 hours	Strickland's Manual	Unicam SP 500 10cm cell	0.026	NORWESTLANT: Supplied by UK
CHLOROPHYLL			Whatman GF A 1.1 μ	Filtered immediately after collection	Extracted in 90% acetone for 18 hours	Unicam SP600 2cm cell	0	E663 = 89 l/gm cm

SUMMARY OF OBSERVATIONS

ERNEST HOLT (U.K.)

NORWESTLANT 1

Time	Date	Latitude	Longitude	Depth	Station No	Consec No	BT	Temperature	Salinity ‰	O ₂	PO ₄	SiO ₃	10m Phyto	0-50m Phyto	Chlorophyll A	100m Hensen	1m Silk Vert.	Nansen Vert.	Weather Ship V.	Trawl	GEK
1615	9/4	5632	3840	2973	1	1	1	x	x	x	x	x	x	x	x	x					x
2317	9/4	5717	3952	3006	2	2	2	x	x	x	x	x	x	x	x	x					x
0658	10/4	5803	4105	3277	3	3	3	x	x	x	x	x	x	x	x	x					x
1222	10/4	5835	4153	2878	4	4	4	x	x	x	x	x	x	x	x	x					x
1715	10/4	5830	4300	2613	5	5	5	x	x	x	x	x	x	x	x	x					x
2312	10/4	5845	4214	2538	6	6	6	x	x	x	x	x	x	x	x	x					x
0605	11/4	5900	4238	1901	7	7	7	x	x	x	x	x	x	x	x	x					x
1005	11/4	5915	4302	1362	8	8	8	x	x	x	x	x	x	x	x	x					x
1325	11/4	5930	4327	0219	9	9	9	x	x	x	x	x	x	x	x	x					x
1450	11/4	5937	4341	0170	10	10	10	x	x	x	x	x	x	x	x	x					
1548	12/4	5938	4240	1084	11												x				
1720	12/4	5938	4221	1845	12												x				
1912	12/4	5948	4240	0223	13												x				
2045	12/4	6000	4240	0183	14		11										x				
2220	12/4	6000	4220	0320	15												x				
0000	13/4	6000	4200	1661	16												x				
0140	13/4	6000	4140	1959	17												x				
0420	13/4	6020	4120	1940	18												x				
0620	13/4	6024	4158	1143	19												x				
0750	13/4	6020	4220	0459	20												x				
0905	13/4	6020	4233	0459	21		12										x				
2230	13/4	6040	4220	0413	22												x				
0010	14/4	6040	4200	0554	23												x				
0145	14/4	6040	4140	1569	24												x				
0335	14/4	6040	4120	1904	25																
0800	15/4	6100	4058	1962	26												x				
1045	15/4	6100	4140	0234	27		13										x				
1150	15/4	6100	4155	0379	28												x				
1515	15/4	6120	4144	0207	29												x				
1655	15/4	6120	4120	0894	30		14										x				
1827	15/4	6120	4058	1756	31												x				
2200	15/4	6140	4135	0225	32												x				
0118	16/4	6140	4053	1180	33												x				
1130	19/4	6238	3955	1459	34													x			
1255	19/4	6230	4017	1608	35													x			
1520	19/4	6220	4040	0534	36													x			
1605	19/4	6210	4019	1300	37													x			
1740	19/4	6200	4042	1534	38													x			
1857	19/4	6200	4104	0203	39													x			
2000	19/4	6200	4124	0243	40													x			
2245	19/4	6210	4102	0516	41													x			

SUMMARY OF OBSERVATIONS (Cont'd)

ERNEST HOLT (U.K.)

NORWEST LANT 1

Time	Date	Latitude	Longitude	Depth	Station No	Consec No	BT	Temperature	Salinity ‰	O ₂	PO ₄	SiO ₃	10m Phyto	0-50m Phyto	Chlorophyll A	100m Hensen	1m Silk Vert.	Nansen Vert.	Weather Ship V.	Trawl	GEK	
0015	20/4	6220	4102	0669	42																	
0138	20/4	6230	4102	0543	43												x					
0305	20/4	6230	4040	0179	44												x					
0435	20/4	6240	4040	0761	45												x					
0650	20/4	6250	4019	1494	46												x					
0805	20/4	6255	4039	0633	47												x					
1000	20/4	6304	4023	0234	48		15										x					
1150	20/4	6312	4009	0452	49		16										x					
1305	20/4	6306	3950	1551	50		17										x					
2325	24/4	6323	2648	1278	51	11	18	x	x	x	x	x										
2335	25/4	6059	3400	3094	52	12	19	x	x	x	x	x	x	x	x			x	x			x
0745	26/4	6130	3550	2982	53	13	20	x	x	x	x	x	x	x	x			x	x			x
1430	26/4	6210	3727	2598	54	14	21	x	x	x	x	x	x	x	x			x	x			x
1845	26/4	6225	3802	2428	55	15		x	x	x	x	x	x	x	x			x	x			x
2205	26/4	6240	3841	2249	56	16		x	x	x	x	x	x	x	x			x	x			x
0710	28/4	6253	3913	1848	57	17		x	x	x	x	x	x	x	x			x	x			x
1040	28/4	6306	3956	1402	58	18		x	x	x	x	x	x	x	x			x	x			
1315	28/4	6311	4006	0387	59	19	22	x	x	x	x	x	x	x	x		x					
2010	28/4	6227	4040	0212	60A																	x
2040	28/4	6227	4042	0254	60																	x
0930	29/4	6234	4036	0210	61		23															x
0925	30/4	6100	4145	0241	62	20	24	x	x	x	x	x	x	x	x							x
1245	30/4	6049	4119	2006	63	21	25	x	x	x	x	x	x	x	x							x
1625	30/4	6035	4039	2424	64	22		x	x	x	x	x	x	x	x							x
2110	30/4	6011	3945	2651	65	23	26	x	x	x	x	x	x	x	x							x
0410	1/5	5931	3816	3211	66	24	27	x	x	x	x	x	x	x	x			x	x			x
1125	1/5	5855	3656	3226	67	25		x	x	x	x	x	x		x			x	x			x

SERIAL OCEANOGRAPHIC DATA

GENERAL INFORMATION

Institute:	Fisheries Laboratory, Lowestoft
Observation platform:	<i>RV Ernest Holt</i>
Vessel's cruising speed:	10 Knots
Total number of stations occupied:	025
Anemometer height above sea level:	18 metres
Barometer readings:	Aneroid - $\frac{1}{10}$ mb. units
Air temperature:	Fixed thermometer - $\frac{1}{10}$ C° units
Wet bulb temperature:	Fixed thermometer - $\frac{1}{10}$ C° units
Sea surface water temperature:	Reversing thermometer - $\frac{1}{100}$ C° units

The following **Standard Deviations** were used to express both measurement and interpolation error estimates:

Temperature	0.01
Salinity	0.002

C-REF-NO 003 YR 1963 DEPTH 2973 WAVES 1 3621 AIR T 03.8 VIS 9
 CONS. NO 001 MONTH 4 MXSAMPD 15 WAVES 2 3644 WET B 02.7 STN 001
 LAT 56-320N DAY 09 NO.DPTH 17 WND-DIR 360 W-CODE 02
 LON 38-400W HR 16.3 W-COLOR 10 WND-SPD 06 CLD-TPE 6
 MARSD SQ 184 W-TRNSP BARO 1018.0 CLD-AMT 7 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4 -P-	NO2	NO3	SIO	PH
164	0000	0586	34847		2747	14743	082			068	
164	0010	0578	34841	699	2748	14742	084			075	
164	0020	0572	34838	696	2748	14741	084			076	
164	0030	0568	34838	699	2749	14741	086			076	
164	0050	0564	34843	679	2750	14742	084			072	
164	0075	0553	34844	676	2751	14742	084			073	
164	0100	0551	34837	688	2751	14745	085			078	
168	0146	0550	34843		2751	14753					
168	0195	0551	34939		2759	14762					
168	0292	0540	34941		2760	14774					
168	0389	0498	34944		2765	14773					
168	0487	0446	34935		2771	14767					
168	0584	0408	34917		2773	14767					
168	0779	0374	34896		2775	14785					
172	0985	0364	34901		2777	14815					
172	1185	0363	34921		2778	14848					
172	1491	0351	34939		2781	14895					

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0586	34847		2747	14743	0000	00000	0621
0010	0578	34841		2748	14742	0006	00000	0617
0020	0572	34838		2748	14741	0012	00001	0613
0030	0568	34838		2749	14741	0019	00003	0610
0050	0564	34843		2750	14742	0031	00008	0604
0075	0553	34844		2751	14742	0046	00018	0594
0100	0551	34837		2751	14745	0061	00031	0600
0125	0550	34834		2750	14749	0076	00049	0605
0150	0550	34850		2752	14753	0091	00070	0596
0175	0551	3490 C		2756	14758	0106	00094	0564
0200	0551	34942		2759	14763	0120	00121	0535
0225	0550	3495 E		2760	14767	0133	00150	0529
*0250	0548	3496 E		2760	14770	0147	00183	0528
0300	0537	34941		2761	14774	0173	00259	0532
0400	0492	34944		2766	14772	0225	00443	0488
0500	0440	34933		2771	14767	0272	00660	0447
0600	0404	34914		2774	14768	0316	00910	0429
0700	0383 B	34902		2775	14776	0359	01199	0424
0800	0372	34896		2775	14788	0402	01531	0426

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
1000	0364	34902		2777	14818	0489	02333	0428
1200	0359 B	3492 B		2778	14849	0576	03317	0429
1500	0351	34940		2781	14897	0706	05128	0426

C-REF-NO 003 YR 1963 DEPTH 3006 WAVES 1 3221 AIR T 03.3 VIS 9
 CONS. NO 002 MONTH 4 MXSAMPD 15 WAVES 2 3244 WET B 02.6 STN 002
 LAT 57-170N DAY 09 NO.DPTH 17 WND-DIR 320 W-CODE 03
 LON 39-520W HR 23.4 W-COLOR WND-SPD 06 CLD-TPE X
 MARSD SQ 184 W-TRNSP BARO 1016.5 CLD-AMT 9 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	STO	PH
236	0000	0445	34812		2761	14685	090				086	
236	0010	0432	34808	707	2762	14681	095				086	
236	0020	0420	34803	710	2763	14678	095				084	
236	0030	0420	34803	710	2763	14679	095				086	
236	0050	0422	34806	752	2763	14683	095				085	
236	0075	0415	34807	707	2764	14685	096				069	
236	0100	0406	34804	704	2765	14685	103				076	
239	0146	0415	34826		2765	14697						
239	0194	0388	34796		2766	14693						
239	0291	0420	34897		2770	14724						
239	0388	0407	34922		2774	14734						
239	0485	0388	34908		2775	14742						
239	0582	0372	34900		2776	14751						
239	0776	0357	34881		2776	14777						
*244	0969	0356	34883		2776	14809						
*244	1168	0352	34894		2777	14841						
*244	1473	0350	34922		2780	14891						

*MULTIPLE CAST CONTINUED NEXT DAY

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0445	34812		2761	14685	0000	00000	0489
0010	0432	34808		2762	14681	0005	00000	0479
0020	0420	34803		2763	14678	0010	00001	0472
0030	0420	34803		2763	14679	0014	00002	0473
0050	0422	34806		2763	14683	0024	00006	0475
0075	0415	34807		2764	14685	0036	00014	0469
0100	0406	34804		2765	14685	0048	00024	0465
0125	0411 C	3482 B		2765	14691	0059	00038	0463
0150	0413	34824		2765	14696	0071	00054	0462
0175	0399 C	3481 B		2766	14694	0083	00074	0462
0200	0389 B	3480 B		2766	14694	0094	00096	0460
0225	0394 F	3482 E		2767	14701	0106	00121	0453
*0250	0402 G	3485 F		2768	14709	0117	00149	0444
0300	0420	34902		2771	14725	0139	00211	0426
0400	0405	34921		2774	14735	0181	00362	0406
0500	0385	34907		2775	14744	0222	00551	0405
0600	0370	34898		2776	14754	0263	00782	0404
0700	0361	34887		2776	14766	0304	01058	0410

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0800	0357	34880		2776	14781	0346	01382	0419
1000	0355	34884		2776	14814	0432	02182	0432
1200	0353	34896		2777	14846	0520	03180	0437
1500	0350	34925		2780	14896	0653	05028	0436

C-REF-NO 003 YR 1963 DEPTH 3277 WAVES 1 0334 AIR T 03.8 VIS 8
 CONS. NO 003 MONTH 4 MXSAMPD 19 WAVES 2 0334 WET B 03.3 STN 003
 LAT 58-030N DAY 10 NO.DPTH 17 WND-DIR 030 W-CODE 02
 LON 41-050W HR 07.1 W-COLOR WND-SPD 12 CLD-TPE 6
 MARSD SQ 185 W-TRNSP BARO 1018.6 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
073	0000	0402	34851		2769	14667	103				083	
073	0010	0402	34850	710	2769	14669	100				083	
073	0020	0402	34850	707	2769	14671	107				083	
073	0030	0401	34851	707	2769	14672	103				082	
073	0050	0403	34851	707	2769	14676	102				083	
073	0075	0394	34829	710	2768	14676	103				083	
073	0100	0388	34826	710	2768	14678	103				083	
076	0131	0384	34852		2771	14681						
076	0175	0384	34857		2771	14689						
076	0263	0371	34853		2772	14698						
076	0350	0390	34883		2773	14720						
076	0437	0392	34902		2774	14736						
076	0525	0390	34912		2775	14750						
076	0699	0378	34917		2776	14774						
082	1133	0350	34889		2777	14834						
082	1369	0352										
082	1866	0338	34934		2782	14953						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0402	34851		2769	14667	0000	00000	0416
0010	0402	34850		2769	14669	0004	00000	0417
0020	0402	34850		2769	14671	0008	00001	0418
0030	0401	34851		2769	14672	0013	00002	0418
0050	0403	34851		2769	14676	0021	00005	0422
0075	0394	34829		2768	14676	0032	00012	0432
0100	0388	34826		2768	14678	0043	00022	0430
0125	0384	34846		2770	14681	0053	00034	0414
0150	0384	34857		2771	14685	0064	00049	0408
0175	0384	34857		2771	14689	0074	00066	0410
0200	0380 B	34855		2771	14691	0084	00086	0409
0225	0376 B	34854		2772	14693	0095	00109	0409
*0250	0372	34853		2772	14696	0105	00134	0408
0300	0378 B	34864		2772	14707	0126	00192	0410
0400	0392	34895		2773	14730	0167	00342	0412
0500	0391	34910		2775	14746	0209	00534	0409
0600	0385	34916		2776	14760	0250	00767	0407
0700	0378	34917		2776	14774	0291	01042	0407
0800	0370 B	3491 B		2777	14787	0332	01362	0411

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
*1000	0356 B	3490 B		2777	14814	0417	02145	0422
1200	0350	3491 F		2779	14845	0503	03118	0424
1500	0343 C	3492 E		2780	14893	0633	04936	0434

C-REF-NO 003 YR 1963 DEPTH 2878 WAVES 1 0734 AIR T 02.8 VIS 9
 CONS. NO 004 MONTH 4 MXSAMPD 15 WAVES 2 0745 WET B 01.5 STN 004
 LAT 58-350N DAY 10 NO.DPTH 17 WND-DIR 070 WW-CODE 02
 LON 41-530W HR 12.7 W-COLOR 10 WND-SPD 09 CLD-TPE 6
 MARSD SQ 185 W-TRNSP BARO 1019.8 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SID	PH
128	0000	0423	34846		2766	14676	101				083	
128	0010	0422	34849	704	2766	14677	101				082	
128	0020	0422	34847	699	2766	14679	101				080	
128	0030	0421	34849	693	2767	14680	101				078	
128	0050	0420	34851	699	2767	14683	100				084	
128	0075	0409	34869	699	2769	14683	101				083	
128	0100	0409	34877	704	2770	14687	101				086	
133	0156	0402	34886		2771	14694						
133	0207	0410	34909		2772	14706						
133	0311	0420	34920		2772	14727						
133	0415	0404	34916		2774	14738						
133	0518	0384	34900		2774	14746						
133	0622	0366 B	34885		2775	14755						
133	0828	0356	34880		2776	14785						
138	0975	0351	34886		2777	14808						
138	1176	0350	34892		2777	14841						
138	1482	0348										

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0423	34846		2766	14676	0000	00000	0441
0010	0422	34849		2766	14677	0004	00000	0438
0020	0422	34847		2766	14679	0009	00001	0441
0030	0421	34849		2767	14680	0013	00002	0439
0050	0420	34851		2767	14683	0022	00006	0439
0075	0409	34869		2769	14683	0033	00013	0417
0100	0409	34877		2770	14687	0043	00022	0413
0125	0405	34881		2771	14690	0054	00034	0409
0150	0403	34885		2771	14693	0064	00048	0406
0175	0404	34894		2772	14698	0074	00066	0403
0200	0409	34906		2772	14704	0084	00085	0401
0225	0413	34913		2772	14710	0095	00107	0403
0250	0416	34917		2772	14715	0105	00132	0406
*0300	0420	34920		2772	14725	0125	00191	0412
0400	0407	34917		2773	14736	0167	00340	0411
0500	0388	34903		2774	14745	0208	00532	0410
0600	0369 B	34888		2775	14753	0250	00767	0411
0700	0360 B	34880		2775	14766	0292	01046	0415
0800	0356	34879		2776	14781	0334	01372	0420

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
1000	0351	34885		2777	14812	0419	02167	0426
1200	0348							
1500	0348							

C-REF-NO 003	YR 1963	DEPTH 2613	WAVES 1 0422	AIR T 04.9	VIS 9
CONS. NO 005	MONTH 4	MXSAMPD 25	WAVES 2 0446	WET B 03.8	STN 005
LAT 58-300N	DAY 10	NO.DPTH 20	WND-DIR 040	HW-CODE 02	
LON 43-000W	HR 17.5	W-COLOR 10	WND-SPD 05	CLD-TPE 6	
MARSD SQ 185		W-TRNSP	BARO 1018.6	CLD-AMT 7	HM

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4 -P-	NO2	NO3	SIO	PH
176	0000	0484	34978		2770	14703	106			086	
176	0010	0484	34980	688	2770	14705	103			088	
176	0020	0482	34979	682	2770	14706	101			088	
176	0030	0482	34979	685	2770	14707	101			086	
176	0050	0482	34978	688	2770	14711	101			088	
176	0075	0482	34980	688	2770	14715	101			084	
176	0100	0482	34981	688	2770	14719	099			086	
181	0152	0480	34982	673	2771	14727	099			090	
181	0202	0470	34971	671	2771	14731	099			082	
181	0302	0450	34953	673	2772	14739	105			088	
181	0404	0443	34948	659	2772	14752	102			093	
181	0504	0438		654			098			088	
181	0605	0422	34945	654	2774	14777	105			094	
181	0805	0396	34933	654	2778	14799	106			100	
191	0967	0378	34917	645	2776	14818	106			105	
191	1164	0366	34929	628	2779	14846	104			103	
191	1467	0348	34933	631	2781	14890	106			112	
191	1772	0296	34921	637	2785	14919	103			112	
191	1978	0274	34918	634	2786	14944	102			101	
191	2493	0186	34908	676	2793	14994	094			090	

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0484	34978		2770	14703	0000	00000	0406
0010	0484	34980		2770	14705	0004	00000	0405
0020	0482	34979		2770	14706	0008	00001	0405
0030	0482	34979		2770	14707	0012	00002	0406
0050	0482	34978		2770	14711	0020	00005	0410
0075	0482	34980		2770	14715	0031	00012	0411
0100	0482	34981		2770	14719	0041	00021	0413
0125	0482	34982		2770	14723	0052	00033	0415
0150	0480	34982		2771	14726	0062	00048	0416
0175	0476	34978		2771	14729	0073	00066	0418
0200	0470	34972		2771	14731	0083	00086	0419
0225	0465	34966		2771	14732	0094	00109	0420
0250	0460	34961		2771	14734	0104	00135	0420
*0300	0450	34953		2772	14738	0126	00195	0422
0400	0443	34948		2772	14752	0169	00350	0428
0500	0438	34947		2772	14766	0212	00552	0434

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0600	0423	34945		2774	14776	0256	00798	0428
0700	0409	34940		2775	14787	0299	01087	0425
0800	0397	34933		2776	14799	0342	01420	0426
1000	0376	34918		2777	14823	0429	02224	0431
1200	0365	34930		2779	14852	0515	03207	0426
1500	0343	34932		2781	14893	0644	05001	0422
2000	0265 D	34916		2787	14944	0845	08591	0368
2500	0185	34908		2793	14995	1014	12464	0294

C-REF-NO 003 YR 1963 DEPTH 2538 WAVES 1 0722 AIR T 02.7 VIS 8
 CONS. NO 006 MONTH 4 MXSAMPD 16 WAVES 2 0747 WET 8 01.6 STN 006
 LAT 58-450N DAY 10 NO.DPTH 17 WND-DIR 070 WW-CODE 02
 LON 42-140W HR 23.3 W-COLOR WND-SPD 05 CLD-TPE X
 MARSD SQ 185 W-TRNSP BARO 1017.4 CLD-AMT 9 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
235	0000	0426	34924		2772	14679	101				086	
235	0010	0428	34924	696	2772	14681	103				086	
235	0020	0428	34924	690	2772	14683	103				090	
235	0030	0426	34928	696	2772	14684	108				088	
235	0050	0425	34940	693	2773	14687	103				088	
235	0075	0424	34935	690	2773	14690	107				086	
235	0100	0424	34931	693	2773	14694	103				084	
239	0146	0420	34933		2773	14700						
239	0194	0423	34938		2773	14709						
239	0291	0422	34941		2774	14725						
239	0388	0424	34939		2773	14742						
239	0485	0420	34939		2774	14756						
239	0582	0398	34923		2775	14763						
239	0776	0370	34915		2777	14783						
*244	1048	0358	34909		2778	14823						
*244	1247	0360	34931		2779	14858						
*244	1551	0346	34945		2782	14903						

*MULTIPLE CAST CONTINUED NEXT DAY

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0426	34924		2772	14679	0000	00000	0385
0010	0428	34924		2772	14681	0004	00000	0388
0020	0428	34924		2772	14683	0008	00001	0389
0030	0426	34928		2772	14684	0012	00002	0385
0050	0425	34940		2773	14687	0019	00005	0377
0075	0424	34935		2773	14690	0029	00011	0383
0100	0424	34931		2773	14694	0039	00020	0388
0125	0422	34931		2773	14697	0048	00031	0388
0150	0420	34933		2773	14701	0058	00045	0388
0175	0422	34936		2773	14706	0068	00061	0390
0200	0423	34938		2773	14710	0078	00080	0392
0225	0423	34940		2774	14715	0088	00102	0394
*0250	0423	34941		2774	14719	0098	00126	0395
0300	0422	34941		2774	14727	0118	00183	0400
0400	0424	34939		2773	14744	0159	00331	0413
0500	0417	34937		2774	14757	0201	00526	0418
0600	0395	34922		2775	14764	0243	00763	0413
0700	0379	34916		2776	14774	0285	01041	0409

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. E ¹¹	SVA
0800	0368	34914		2777	14786	0326	01360	0408
1000	0358	34908		2778	14815	0409	02136	0417
1200	0360	34925		2779	14850	0495	03102	0423
1500	0348	34941		2781	14895	0623	04891	0422

C-REF-NO 003	YR 1963	DEPTH 1901	WAVES 1 1622	AIR T 02.8	VIS 8
CONS. NO 007	MONTH 4	MXSAMPD 15	WAVES 2 1634	WET B 01.7	STN 007
LAT 59-000N	DAY 11	NO.DPTH 17	WND-DIR 160	WW-CODE 02	
LON 42-380W	HR 06.2	W-COLOR	WND-SPD 06	CLD-TPE X	
MARSD SQ 185		W-TRNSP	BARO 1013.0	CLD-AMT 9	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4 -P-	NO2	NO3	SIO	PH
064	0000	0494	34998		2770	14708	102			086	
064	0010	0494	34996	685	2770	14709	102			084	
064	0020	0494	34994	679	2770	14711	107			083	
064	0030	0494	34999	685	2770	14713	099			086	
064	0050	0491	34997	679	2770	14715	107			088	
064	0075	0489	35000	674	2771	14718	101			086	
064	0100	0488	34993	676	2770	14722	106			081	
068	0147	0489	34994		2770	14730					
068	0195	0490	34996		2770	14738					
068	0293	0466	34974		2772	14744					
068	0391	0445	34954		2772	14751					
068	0489	0432	34943		2773	14762					
068	0586	0414	34942		2775	14770					
068	0782	0382	34921		2776	14789					
072	1002	0373	34923		2777	14822					
072	1202	0366	34991		2784	14853					
072	1505	0317	34941		2784	14883					

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0494	34998		2770	14708	0000	00000	0402
0010	0494	34996		2770	14709	0004	00000	0404
0020	0494	34994		2770	14711	0008	00001	0407
0030	0494	34999		2770	14713	0012	00002	0405
0050	0491	34997		2770	14715	0020	00005	0405
0075	0489	35000		2771	14718	0031	00012	0404
0100	0488	34993		2770	14722	0041	00021	0411
0125	0488	34992		2770	14726	0051	00033	0415
0150	0489	34994		2770	14730	0062	00048	0417
0175	0490	34996		2770	14735	0072	00066	0420
0200	0489	34995		2771	14739	0083	00086	0423
0225	0484 B	34991		2771	14741	0094	00109	0423
*0250	0478 B	34986		2771	14742	0104	00135	0423
0300	0464	34972		2772	14744	0126	00196	0423
0400	0444	34953		2772	14752	0169	00350	0426
0500	0430	34943		2773	14763	0212	00550	0428
0600	0411	34941		2775	14772	0254	00792	0418
0700	0394	34930		2776	14781	0297	01074	0416
0800	0381	34919		2776	14792	0339	01399	0418

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
1000	0373	34923		2777	14822	0424	02190	0424
1200	0366	34990		2783	14853	0506	03113	0383
1500	0318	34942		2784	14883	0623	04738	0384

C-REF-NO 003	YR 1963	DEPTH 1362	WAVES 1 180X	AIR T 03.0	VIS 9
CONS. NO 008	MDNTH 4	MXSAMPD 12	WAVES 2 1822	WET B 01.7	STN 008
LAT 59-150N	DAY 11	NO.DPTH 16	WND-DIR 180	HW-CODE 70	
LON 43-020W	HR 10.2	W-COLOR 10	WND-SPD 04	CLD-TPE 6	
MARSD SQ 185		W-TRNSP	BARO 1011.1	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4 -P-	NO2	NO3	SIO	PH
104	0000	0514	34982		2767	14716	095			082	
104	0010	0506	34974	682	2767	14714	098			079	
104	0020	0505	34975	679	2767	14715	099			078	
104	0030	0505	34976	679	2767	14717	099			080	
104	0050	0506	34980	679	2767	14721	095			080	
104	0075	0505	34979	697	2767	14724	098			081	
104	0100	0507	34979	679	2767	14729	098			082	
108	0146	0511	34994		2768	14739					
108	0195	0510	35000		2768	14746					
108	0292	0504	34999		2769	14760					
108	0390	0490	34982		2769	14770					
108	0488	0484	34976		2770	14784					
108	0585	0461	34950		2770	14790					
108	0780	0440	34947		2772	14813					
116	0970	0422	34947		2774	14838					
116	1219	0398 B	34935		2776	14869					

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0514	34982		2767	14716	0000	00000	0436
0010	0506	34974		2767	14714	0004	00000	0434
0020	0505	34975		2767	14715	0009	00001	0434
0030	0505	34976		2767	14717	0013	00002	0434
0050	0506	34980		2767	14721	0022	00006	0435
0075	0505	34979		2767	14724	0033	00013	0437
0100	0507	34979		2767	14729	0044	00023	0443
0125	0509	34987		2767	14734	0055	00036	0443
0150	0511	34995		2768	14739	0066	00051	0442
0175	0511	34998		2768	14743	0077	00070	0442
0200	0510	35000		2769	14747	0089	00092	0443
0225	0509	35001		2769	14751	0100	00116	0444
*0250	0507	35001		2769	14754	0111	00143	0445
0300	0503	34998		2769	14761	0134	00207	0449
0400	0490	34982		2769	14772	0179	00372	0457
0500	0481	34973		2770	14785	0226	00588	0465
0600	0459	34949		2770	14791	0273	00855	0468
0700	0446 B	3494 B		2771	14803	0320	01171	0467
0800	0438	34947		2772	14816	0367	01535	0465
1000	0419	34944		2774	14841	0462	02407	0464

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
1200	0400 B	34936		2776	14867	0556	03474	0465

C-REF-NO 003	YR 1963	DEPTH 219	WAVES 1 0523	AIR T -01.0	VIS 8
CONS. NO 009	MONTH 4	MXSAMPD 02	WAVES 2 0523	WET B -01.2	STN 009
LAT 59-300N	DAY 11	NO.DPTH 9	WND-DIR 050	WW-CODE 26	
LON 43-270W	HR 13.6	W-COLOR 10	WND-SPD 11	CLD-TPE 7	
MARSD SQ 185		W-TRNSP	BARO 1011.8	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	CXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
138	0000	0082	33863		2716	14514	082				071	
138	0010	0083	33862	742	2716	14517	079				069	
138	0020	0108	33943	720	2721	14531	082				068	
138	0030	0122	33989	728	2724	14539	079				072	
138	0050	0156	34075	723	2729	14559	081				069	
138	0075	0198	34216	734	2737	14583	087				073	
138	0100	0315	34576	717	2755	14643	092				074	
140	0139	0360	34691		2760	14670						
140	0187	0360	34701		2761	14678						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0082	33863		2716	14514	0000	00000	0910
0010	0083	33862		2716	14517	0009	00000	0912
0020	0108	33943		2721	14531	0018	00002	0865
0030	0122	33989		2724	14539	0027	00004	0839
0050	0156	34075		2729	14559	0043	00011	0797
0075	0198	34216		2737	14583	0062	00023	0721
0100	0315	34576		2755	14643	0078	00037	0549
0125	0356 E	3469 I		2760	14666	0092	00052	0506
0150	0389 I	3479 I		2765	14686	0104	00070	0463
0175	0379 F	3476 I		2764	14685	0116	00089	0479

C-REF-NO 003 YR 1963 DEPTH 170 WAVES 1 0534 AIR T -00.9 VIS 8
 CONS. NO 010 MONTH 4 MXSAMPD 01 WAVES 2 0524 WET B -01.3 STN 010
 LAT 59-370N DAY 11 NO.DPTH 8 WND-DIR 050 WW-CODE 26
 LON 43-410W HR 15.0 W-COLOR 10 WND-SPD 13 CLD-TPE 7
 MARSO SQ 185 W-TRNSP BARO 1011.0 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SI0	PH
152	0000	-0044	33327		2680	14449	078				076	
152	0008	-0040	33350	830	2682	14453	076				067	
152	0017	0028	33725	810	2708	14491	076				067	
152	0026	0033 B	33743	793	2710	14495	076				065	
152	0043	0074	33894	810	2719	14518	078				066	
152	0065	0171	34218	765	2739	14570	085				075	
152	0088	0336	34638	720	2758	14651	094				078	
152	0138	0358										

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	-0044	33327		2680	14449	0000	00000	1258
0010	-0025 D	3343 I		2688	14461	0012	00001	1185
0020	0033 C	3375 G		2710	14494	0023	00002	0971
0030	0039 B	33768		2711	14499	0033	00005	0959
0050	0099	3399 B		2725	14532	0051	00012	0828
0075	0245 G	3438 C		2746	14606	0069	00024	0634
0100	0327 I							
0125	0360 I							

C-REF-NO 003	YR 1963	DEPTH 278	WAVES 1	XX	AIR T	VIS
CONS. NO 011	MONTH 4	MXSAMPD 12	WAVES 2	XX	WET B	STN 051
LAT 63-230N	DAY 24	NO-DPTH 16	NO-DIR 990	HW-CODE		
LON 26-480W	HR 23.3	W-COLOR	WIND-SPD 05	CLD-TPE		
MARSD SQ 219		W-TRNSP	BARO	CLD-AMT		HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PG4	-P-	NO2	NO3	SIO	PH
235	0000	0674	35098		2755	14782	101				078	
235	0010	0674	35101	675	2755	14783	088				075	
235	0020	0672	35102	658	2756	14784	038				073	
235	0030	0672	35099	661	2756	14786	092				070	
235	0050	0672	35099	655	2756	14789	090				071	
235	0075	0665	35096	658	2756	14790	090				072	
235	0100	0660	35095	650	2757	14792	092				073	
239	0146	0654	35098	658	2758	14798	094				075	
239	0194	0652	35096	647	2758	14805	092				075	
239	0292	0637	35088	655	2759	14815	095				075	
239	0389	0622	35078	638	2761	14825	098				080	
239	0486	0613	35080	641	2761	14839	095				082	
239	0583	0582 B	35069	613	2765	14841	105				088	
239	0778	0545	35083	588	2771	14858	112				114	
*244	0960	0476	35052	602	2777	14860	113				110	
*244	1198	0413	35023	607	2781	14873	110				110	

*MULTIPLE CAST CONTINUED NEXT DAY

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0674	35098		2755	14782	0000	00000	0543
0010	0674	35101		2755	14783	0005	00000	0543
0020	0672	35102		2756	14784	0011	00001	0541
0030	0672	35099		2756	14786	0016	00003	0545
0050	0672	35099		2756	14789	0027	00007	0548
0075	0665	35096		2756	14790	0041	00016	0545
0100	0660	35095		2757	14792	0055	00028	0543
0125	0656	35097		2758	14795	0069	00044	0541
0150	0654	35098		2758	14798	0082	00063	0541
0175	0653	35097		2758	14802	0096	00086	0544
0200	0651	35096		2758	14805	0110	00113	0547
0225	0648	35094		2758	14808	0123	00143	0548
*0250	0644	35092		2759	14811	0137	00177	0548
0300	0636	35087		2760	14816	0165	00255	0548
0400	0622	35078		2761	14827	0221	00455	0552
0500	0613	35078		2762	14840	0276	00714	0555
0600	0579 B	35070		2766	14842	0331	01023	0528
0700	0559 D	3508 B		2769	14851	0384	01374	0511
0800	0537	35080		2772	14859	0434	01765	0492

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
1000	0475 F	3506 C		2777	14866	0530	02646	0451
1200	0412	35023		2781	14873	0618	03640	0418

C-REF-NO 003 YR 1963 DEPTH 3094 WAVES 1 0424 AIR T 05.2 VIS 9
 CONS. NO 012 MONTH 4 MXSAMPD 15 WAVES 2 0423 WET B 04.6 STN 052
 LAT 60-595N DAY 25 NO.DPTH 17 WND-DIR 040 WW-CODE 03
 LON 34-005W HR 23.7 W-COLOR WND-SPD 10 CLD-TPE X
 MARSD SQ 220 W-TRNSP BARD 1006.9 CLD-AMT 9 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
239	0000	0594	35021		2760	14749	100				076	
239	0010	0596	35017		2759	14751	100				076	
239	0020	0596	35016	672	2759	14753	098				073	
239	0030	0595	35016	683	2759	14754	101				075	
239	0050	0594	35014	732	2759	14757	096				076	
239	0075	0576	35014	677	2762	14754	097				077	
239	0100	0572	35014	663	2762	14756	102				078	
*243	0143	0543	34993	680	2764	14751	103				083	
*250	0165	0522	34996	631	2767	14746	108				092	
*243	0278	0498	34965	668	2767	14755	107				085	
*243	0374	0470	34962	654	2770	14759	114				092	
*243	0471	0462	34991	620	2773	14772	116				102	
*243	0564	0417 B	34961	643	2776	14768	114				097	
*243	0760	0384	34931	651	2777	14786	116				100	
*250	0982	0365	34914	666	2778	14815	112				099	
*250	1191	0358	34921	654	2779	14847	112				104	
*250	1508	0360	34955	643	2781	14902	111				111	

*TIME-DISTANCE CHECK FAILED
 *MULTIPLE CAST CONTINUED NEXT DAY

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0594	35021		2760	14749	0000	00000	0500
0010	0596	35017		2759	14751	0005	00000	0507
0020	0596	35016		2759	14753	0010	00001	0509
0030	0595	35016		2759	14754	0015	00002	0510
0050	0594	35014		2759	14757	0026	00007	0513
0075	0576	35014		2762	14754	0038	00015	0494
0100	0572	35014		2762	14756	0051	00026	0493
0125	0558	3500 B		2763	14754	0063	00040	0489
0150	0536	34994		2765	14750	0075	00057	0472
0175	0521 C	3499 B		2766	14748	0087	00077	0463
0200	0511 C	3498 B		2767	14747	0099	00099	0459
*0225	0503 C	3497 B		2767	14748	0110	00125	0458
*0250	0499 B	34969		2767	14751	0122	00153	0459
0300	0491	34962		2768	14755	0145	00219	0461
0400	0469 B	3497 B		2771	14763	0191	00382	0440
0500	0449 B	34984		2774	14771	0234	00582	0419
0600	0407 C	34953		2776	14770	0276	00817	0404

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0700	0389 C	34937		2777	14779	0316	01091	0405
0800	0379	34926		2777	14791	0358	01410	0411
1000	0364	34914		2778	14818	0442	02191	0420
1200	0357	34919		2779	14848	0528	03161	0425
1500	0360	34954		2781	14900	0657	04967	0428

C-REF-NO 003 YR 1963 DEPTH 2982 WAVES 1 0523 AIR T 04.1 VIS 9
 CONS. NO 013 MONTH 4 MXSAMPD 16 WAVES 2 0534 WET B 03.8 STN 053
 LAT 61-305N DAY 26 NO.DPTH 17 WND-DIR 050 WW-CODE 02
 LON 35-500W HR 07.6 W-COLOR 10 WND-SPD 12 CLD-TPE 6
 MARSU SQ 220 W-TRNSP BARO 1007.5 CLD-AMT 8 HW

U B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
080	0000	0475	34973		2770	14700	105				085	
080	0010	0476	34972	694	2770	14702	102				085	
080	0020	0476	34974	697	2770	14703	105				084	
080	0030	0476	34973	697	2770	14705	103				084	
080	0050	0476	34974	709	2770	14708	106				082	
080	0075	0476	34972	706	2770	14712	103				083	
080	0100	0475	34971	700	2770	14716	103				081	
082	0144	0476	34973		2770	14724						
082	0190	0479	34974		2770	14732						
082	0283	0474	34976		2771	14746						
082	0382	0456	34973		2773	14755						
082	0482	0442	34968		2774	14765						
082	0577	0424	34962		2775	14773						
082	0780	0390	34934		2777	14792						
087	1077	0360	34914		2778	14829						
087	1300	0362	34931		2779	14867						
087	1630	0358	34953		2781	14922						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0475	34973		2770	14700	0000	00000	0400
0010	0476	34972		2770	14702	0004	00000	0403
0020	0476	34974		2770	14703	0008	00001	0402
0030	0476	34973		2770	14705	0012	00002	0404
0050	0476	34974		2770	14708	0020	00005	0406
0075	0476	34972		2770	14712	0031	00012	0410
0100	0475	34971		2770	14716	0041	00021	0413
0125	0475	34972		2770	14720	0051	00033	0415
0150	0476	34973		2770	14725	0062	00048	0419
0175	0478	34974		2770	14730	0073	00066	0423
0200	0479	34974		2770	14734	0083	00087	0427
0225	0479	34975		2770	14738	0094	00110	0429
*0250	0477	34976		2770	14742	0105	00137	0430
0300	0471	34976		2771	14747	0127	00198	0428
0400	0454	34972		2773	14757	0170	00352	0422
0500	0439	34967		2774	14767	0212	00549	0420
0600	0420	34959		2775	14775	0254	00787	0414
0700	0402	34946		2776	14785	0296	01068	0414
0800	0387	34931		2777	14794	0338	01392	0416

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
1000	0365	34916		2778	14818	0423	02177	0420
1200	0360	34922		2779	14850	0508	03149	0426
1500	0355 B	34939		2780	14898	0639	04971	0433

C-REF-NO 003 YR 1963 DEPTH 2598 WAVES 1 0522 AIR T 04.8 VIS 8
 CONS. NO 014 MONTH 4 MXSAMPC 16 WAVES 2 0533 WET B 04.4 STN 054
 LAT 62-100N DAY 26 NO. DPTH 17 WND-DIR 050 WW-CODE 02
 LON 37-275W PR 14.5 W-COLOR 10 WND-SPD 11 CLD-TPE 6
 MARSD SQ 220 W-TRNSP BARD 1008.8 CLD-AMT 8 HW

OBSERVED

GMT	DEPTH	TEMP	SAL	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
147	0000	0520	34972		2765	14718	095				076	
147	0010	0520	34977	689	2765	14720	093				082	
147	0020	0518	34976	691	2766	14721	095				082	
147	0030	0514	34974		2766	14721	095				081	
147	0050	0509	34969	694	2766	14722	095				081	
147	0075	0503	34968	689	2767	14723	095				086	
147	0100	0472	34957	686	2769	14715	101				089	
151	0147	0481	34981		2770	14726						
151	0194	0448	34938		2771	14720						
151	0288	0446	34954		2772	14735						
151	0387	0440	34959		2773	14749						
151	0487	0422	34957		2775	14758						
151	0582	0401	34954		2777	14764						
151	0784	0365	34912		2777	14782						
155	1088	0354	34917		2779	14828						
155	1306	0357	34938		2780	14866						
155	1640	0346	34959		2783	14918						

INTERPOLATED

DEPTH	TEMP	SAL	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0520	34972		2765	14718	0000	00000	0450
0010	0520	34977		2765	14720	0005	00000	0448
0020	0518	34976		2766	14721	0009	00001	0447
0030	0514	34974		2766	14721	0014	00002	0446
0050	0509	34969		2766	14722	0023	00006	0446
0075	0503	34968		2767	14723	0034	00013	0443
0100	0472	34957		2769	14715	0045	00023	0420
0125	0474	L 3497 C		2770	14720	0055	00035	0415
0150	0479	34979		2770	14726	0066	00050	0418
0175	0463	C 3496 B		2771	14723	0076	00067	0418
0200	0447	34937		2771	14720	0087	00088	0419
0225	0443	C 3494 C		2771	14723	0097	00111	0418
*0250	0442	D 3494 C		2771	14726	0108	00136	0417
0300	0446	34955		2772	14737	0129	00196	0415
0400	0438	34959		2773	14750	0171	00347	0414
0500	0419	34957		2775	14759	0212	00538	0405
0600	0397	34951		2777	14766	0253	00766	0395
0700	0378	3493 B		2778	14774	0293	01034	0397
0800	0364	34911		2777	14784	0333	01348	0404

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
1000	0354	34910		2778	14813	0416	02114	0411
1200	0355	34927		2780	14848	0500	03065	0417
1500	0349 8	34947		2782	14896	0627	04835	0419

C-REF-NO 003 YR 1963 DEPTH 2428 WAVES 1 0722 AIR T 04.5 VIS 8
 CONS. NO 015 MONTH 4 MXSAMPD 16 WAVES 2 0734 WET B 04.3 STN 055
 LAT 62-255N DAY 26 NO.DPTH 17 WND-DIR 070 WW-CODE 02
 LON 38-020W HR 18.8 W-COLOR 10 WND-SPD 12 CLD-TPE 6
 MARSD SQ 220 W-TRNSP BARO 1006.6 CLD-AMT 7 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIU	PH
189	0000	0516	35020		2769	14717	101				088	
189	0010	0512	35017	677	2770	14717	103				091	
189	0020	0510	35021	677	2770	14718	102				086	
189	0030	0507	35020	674	2770	14718	103				086	
189	0050	0508	35022	683	2770	14722	103				085	
189	0075	0506	35021	619	2771	14725	103				092	
189	0100	0508	35019	662	2770	14730	106				092	
192	0139	0504	35015		2770	14735						
192	0183	0505										
192	0272	0501										
192	0367	0496	35018		2772	14769						
192	0463	0486	35006		2772	14781						
192	0556	0466	34996		2773	14788						
192	0756	0420	34967		2776	14801						
198	1031	0384	34945		2778	14832						
198	1246	0377	34968		2781	14865						
198	1575	0350	34988		2785	14909						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0516	35020		2769	14717	0000	00000	0410
0010	0512	35017		2770	14717	0004	00000	0409
0020	0510	35021		2770	14718	0008	00001	0405
0030	0507	35020		2770	14718	0012	00002	0403
0050	0508	35022		2770	14722	0020	00005	0406
0075	0506	35021		2771	14725	0031	00012	0407
0100	0508	35019		2770	14730	0041	00021	0414
0125	0506	35016		2770	14733	0052	00033	0416
0150	0504	3502 B		2770	14737	0062	00048	0419
0175	0505	3501 B		2770	14741	0073	00066	0423
0200	0505	3501 B		2770	14745	0083	00087	0427
0225	0504	3501 B		2770	14749	0094	00110	0429
*0250	0502	3501 B		2770	14752	0105	00137	0431
0300	0500	3501 B		2771	14760	0127	00198	0433
0400	0493	35014		2772	14774	0171	00357	0437
0500	0479	35002		2772	14784	0215	00562	0441
0600	0455	34990		2774	14791	0259	00812	0433
0700	0432	34975		2775	14797	0303	01103	0427
0800	0412	34961		2776	14805	0346	01435	0424

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
1000	0387	34946		2778	14828	0432	02230	0424
1200	0378	34962		2780	14858	0517	03197	0419
1500	0354 B	34979		2784	14898	0642	04932	0402

C-REF-NO 003 YR 1963 DEPTH 2249 WAVES 1 0523 AIR T 04.4 VIS 9
 CONS. NO 016 MONTH 4 MXSAMPD 07 WAVES 2 0535 WET B 04.1 STN 056
 LAT 62-405N DAY 26 NO. DPTH 14 WND-DIR 050 WW-CODE 02
 LON 38-410W HR 22.2 W-COLOR 10 WND-SPD 14 CLD-TPE 6
 MARSQ SQ 220 W-TRNSP BARO 1006.2 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
223	0000	0550	35065		2769	14732	097				083	
223	0010	0553	35063	678	2768	14734	097				080	
223	0020	0549	35074	662	2770	14735	102				084	
223	0030	0550	35078	659	2770	14737	102				082	
223	0050	0542	35067	639	2770	14737	098				083	
223	0075	0537 H	35077	656	2771	14739	102				078	
223	0100	0536	35050	659	2769	14742	100				086	
226	0133	0530	35045		2770	14745						
226	0175	0528	35061		2771	14751						
226	0260	0512	35031		2771	14758						
226	0351	0492	35013		2772	14765						
226	0445	0469	34990		2772	14771						
226	0538	0457	34986		2773	14781						
226	0740	0418	34970		2776	14798						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0550	35065		2769	14732	0000	00000	0415
0010	0553	35063		2768	14734	0004	00000	0421
0020	0549	35074		2770	14735	0008	00001	0410
0030	0550	35078		2770	14737	0013	00002	0409
0050	0542	35067		2770	14737	0021	00005	0411
0075	0537 H	35077		2771	14739	0031	00012	0401
0100	0536	35050		2769	14742	0041	00021	0423
0125	0532	35044		2769	14744	0052	00034	0426
0150	0529	35051		2770	14747	0063	00049	0421
0175	0528	35061		2771	14751	0073	00066	0415
0200	0524	3506 B		2771	14754	0084	00087	0418
0225	0520	3505 B		2771	14756	0094	00110	0422
*0250	0514	35036		2771	14758	0105	00136	0427
0300	0504	35022		2771	14761	0127	00197	0431
0400	0479	35000		2772	14768	0170	00354	0431
0500	0461	34987		2773	14777	0214	00556	0432
0600	0442 B	3498 B		2774	14785	0257	00802	0428
0700	0424	34970		2776	14794	0300	01089	0422

C-REF-NO 003 YR 1963 DEPTH 1848 WAVES 1 0223 AIR T 02.8 VIS 9
 CONS. NO 017 MONTH 4 MXSAMPD 16 WAVES 2 0257 WET B 02.2 STN 057
 LAT 62-530N DAY 28 NO.DPTH 17 WND-DIR 020 WW-CODE 03
 LON 39-135W HR 07.2 W-COLOR 10 WND-SPD 12 CLD-TPE 6
 MARSD SQ 220 W-TRNSP BARO 1001.8 CLD-AMT 7 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
074	0000	0532	35048		2770	14724	099				082	
074	0010	0530	35063	659	2771	14725	102				082	
074	0020	0529	35102	653	2774	14727	102				087	
074	0030	0529	35091	653	2773	14728	101				084	
074	0050	0529	35057	662	2771	14731	106				082	
074	0075	0528	35049	662	2770	14735	106				086	
074	0100	0529	35059	659	2771	14739	101				080	
078	0136	0528	35042		2770	14745						
078	0179	0530	35039		2769	14752						
078	0266	0522	35033		2770	14763						
078	0358	0516	35030		2770	14776						
078	0452	0486	34998		2771	14779						
078	0544	0466	34998		2773	14786						
078	0738	0397	34954		2777	14789						
084	1033	0371	34950		2780	14827						
084	1252	0350	34955		2782	14855						
084	1585	0269	34951		2790	14876						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0532	35048		2770	14724	0000	00000	0407
0010	0530	35063		2771	14725	0004	00000	0395
0020	0529	35102		2774	14727	0008	00001	0366
0030	0529	35091		2773	14728	0012	00002	0375
0050	0529	35057		2771	14731	0019	00005	0403
0075	0528	35049		2770	14735	0030	00012	0411
0100	0529	35059		2771	14739	0040	00021	0408
0125	0528	35048		2770	14743	0050	00033	0419
0150	0529	35040		2769	14747	0061	00048	0429
0175	0530	35039		2769	14752	0072	00066	0434
0200	0529	35037		2769	14755	0083	00087	0437
0225	0527	35036		2769	14759	0094	00112	0439
*0250	0524	35034		2769	14762	0105	00139	0440
0300	0521	35033		2770	14769	0128	00202	0444
0400	0503 B	3502 B		2770	14778	0173	00364	0448
0500	0475	34997		2772	14782	0217	00572	0441
0600	0446 C	3499 B		2775	14787	0261	00819	0424
0700	0410 B	34964		2777	14788	0303	01100	0410
0800	0388 C	34949		2778	14795	0344	01418	0404

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
1000	0372 B	34948		2780	14822	0426	02175	0404
1200	0356	34954		2782	14849	0507	03096	0398
1500	0291 B	34951		2788	14871	0620	04655	0344

C-REF-NO 003 YR 1963 DEPTH 1402 WAVES 1 0322 AIR T 02.0 VIS 9
 CONS. NO 018 MONTH 4 MXSAMPD 13 WAVES 2 0346 WET B 01.2 STN 058
 LAT 63-060N DAY 28 NO.DPTH 16 WND-DIR 030 WW-CODE 01
 LON 39-565W HR 10.7 W-COLOR 10 WND-SPD 08 CLD-TPE 3
 MARSQ SQ 220 W-TRNSP BARO 1005.2 CLD-AMT 5 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
110	0000	0562	35065		2767	14736	101				081	
110	0010	0562	35064	659	2767	14738	093				079	
110	0020	0559	35067	659	2768	14739	094				080	
110	0030	0559	35070	654	2768	14740	097				078	
110	0050	0560	35067	660	2768	14744	098				079	
110	0075	0562	35065	660	2767	14749	096				081	
110	0100	0560	35064	659	2767	14752	101				078	
114	0149	0560	35067		2768	14760						
114	0195	0558	35067		2768	14767						
114	0289	0542	35046		2768	14776						
114	0308	0516	35018		2769	14781						
114	0487	0490	34993		2770	14786						
114	0583	0462	34974		2772	14790						
114	0785	0434	34958		2774	14812						
119	0972	0410	34952		2776	14833						
119	1299	0364	34959		2781	14868						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0562	35065		2767	14736	0000	00000	0429
0010	0562	35064		2767	14738	0004	00000	0431
0020	0559	35067		2768	14739	0009	00001	0427
0030	0559	35070		2768	14740	0013	00002	0426
0050	0560	35067		2768	14744	0022	00006	0432
0075	0562	35065		2767	14749	0033	00013	0439
0100	0560	35064		2767	14752	0044	00023	0441
0125	0560	35065		2768	14756	0055	00036	0443
0150	0560	35067		2768	14760	0066	00051	0446
0175	0559	35068		2768	14764	0077	00070	0448
0200	0557	35066		2768	14767	0089	00092	0450
0225	0554	35062		2768	14770	0100	00117	0453
*0250	0550	35057		2768	14773	0111	00145	0455
0300	0539	35043		2768	14776	0135	00210	0459
0400	0513	35015		2769	14782	0181	00377	0460
0500	0486	34990		2770	14787	0227	00592	0458
0600	0459	34972		2772	14792	0273	00852	0450
0700	0443	34962		2773	14802	0319	01156	0450
0800	0432	34957		2774	14814	0364	01508	0450
1000	0405	34951		2776	14836	0455	02344	0442

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
1200	0378	34954		2779	14858	0542	03337	0424

C-REF-NO 003 YR 1963 DEPTH 387 WAVES 1 01X0 AIR T 00.1 VIS 9
 CONS. NO 019 MONTH 4 MXSAMPL 04 WAVES 2 0134 WET B -00.0 STN 059
 LAT 63-110N DAY 28 NO.DPTH 8 WND-DIR 010 WW-CODE 01
 LGN 40-060W HR 13.3 W-COLOR 00 WND-SPD 05 CLD-TPE 3
 MARKS SQ 221 W-TRNSP BARO 1006.9 CLD-AMT 2 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4 -P-	NO2	NO3	SIC	PH
135	0000	0152	33911		2716	14546	086			068	
135	0010	0238	34214	667	2733	14590	085			069	
135	0020	0280	34396	693	2744	14613	089			068	
135	0030	0292	34464	709	2749	14620	085			070	
135	0050	0356	34729	687	2764	14655	091			072	
135	0075	0364	34757	687	2765	14662	092			074	
135	0100	0370	34774	676	2766	14669	096			071	
144	0358	0436	34894		2768	14741					

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0152	33911		2716	14546	0000	00000	0918
0010	0238	34214		2733	14590	0008	00000	0751
0020	0280	34396		2744	14613	0015	00001	0648
0030	0292	34464		2749	14620	0022	00003	0608
0050	0356	34729		2764	14655	0033	00007	0467
0075	0364	34757		2765	14662	0044	00015	0456
0100	0370	34774		2766	14669	0056	00025	0451
0125	0378 B	3480 C		2767	14677	0067	00038	0442
0150	0385 B	3482 C		2768	14685	0078	00054	0437
*0175	0392 C	3484 D		2769	14692	0089	00072	0434
*0200	0398 C	3485 D		2769	14699	0100	00093	0432
*0225	0405 C	3486 D		2769	14706	0111	00117	0432
*0250	0411 C	3487 C		2770	14713	0122	00144	0433
*0300	0423 B	3489 B		2769	14726	0144	00206	0440

C-REF-NU 003 YR 1963 DEPTH 241 WAVES 1 00X0 AIR T -00.4 VIS 6
 CONS. NO 020 MONTH 4 MXSAMPD 02 WAVES 2 0422 WET B -00.8 STN 062
 LAT 61-000N DAY 30 NG.DPTH 9 WND-DIR 360 WW-CODE 73
 LON 41-450W HR 09.6 W-COLOR 10 WND-SPD 03 CLD-TPE 7
 MARSD SQ 221 W-TRNSP BARO 1017.6 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
097	0000	0189	34315		2745	14568	093				071	
097	0010	0192	34312	715	2745	14571	086				072	
097	0020	0202	34347	732	2747	14578	089				072	
097	0030	0246	34450		2752	14600	094				070	
097	0050	0270	34527	726	2756	14615	089				073	
097	0075	0288	34568	709	2757	14627	086				075	
097	0100	0328	34645	701	2760	14650	090				074	
100	0139	0332	34662		2761	14658						
100	0204	0376	34748		2763	14689						

*WAVES NOT COMPATIBLE WITH WIND

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0189	34315		2745	14568	0000	00000	0637
0010	0192	34312		2745	14571	0006	00000	0642
0020	0202	34347		2747	14578	0013	00001	0623
0030	0246	34450		2752	14600	0019	00003	0580
0050	0270	34527		2756	14615	0030	00007	0543
0075	0288	34568		2757	14627	0044	00016	0529
0100	0328	34645		2760	14650	0057	00028	0509
0125	0334 C	3466 C		2761	14657	0070	00043	0503
0150	0357 I	3471 I		2762	14671	0082	00060	0493
0175	0369 I	3473 G		2763	14681	0094	00081	0488
*0200	0375 H	3475 B		2763	14688	0107	00105	0486

C-REF-NU 003 YR 1963 DEPTH 2006 WAVES 1 1320 AIR T 02.3 VIS 6
 CONS. NO 021 MONTH 4 MXSAMPD 15 WAVES 2 0333 WET B 01.7 STN 063
 LAT 60-495N DAY 30 NO.DPTH 17 WND-DIR 130 WW-CODE 71
 LON 41-190W HR 12.9 W-COLOR 00 WND-SPD 05 CLD-TPE 7
 MARSID SQ 221 W-TRNSP BARD 1017.9 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	STO	PH
130	0000	0513	35022		2770	14716	102				090	
130	0010	0514	35030	676	2770	14718	099				082	
130	0020	0513	35028	670	2770	14719	105				086	
130	0030	0512	35031	676	2771	14721	102				086	
130	0050	0512	35029	678	2771	14724	105				084	
130	0075	0513	35029	670	2770	14728	096				089	
130	0100	0508	35027	673	2771	14730	099				082	
133	0146	0504	35023		2771	14736						
133	0195	0502	35018		2771	14743						
133	0293	0492	35003		2771	14755						
133	0391	0478	34983		2771	14765						
133	0488	0469	34984		2772	14778						
133	0586	0456	34980		2773	14788						
133	0781	0428	34952		2774	14809						
137	0969	0406	34963		2777	14831						
137	1166	0391	34955		2778	14857						
137	1462	0343	34953		2783	14887						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0513	35022		2770	14716	0000	00000	0405
0010	0514	35030		2770	14718	0004	00000	0401
0020	0513	35028		2770	14719	0008	00001	0403
0030	0512	35031		2771	14721	0012	00002	0401
0050	0512	35029		2771	14724	0020	00005	0405
0075	0513	35029		2770	14728	0031	00012	0409
0100	0508	35027		2771	14730	0041	00021	0408
0125	0505	35025		2771	14733	0051	00033	0410
0150	0504	35023		2771	14737	0062	00048	0413
0175	0503	35020		2771	14740	0072	00065	0417
0200	0502	35017		2771	14744	0083	00086	0420
0225	0500	35014		2771	14747	0093	00109	0424
*0250	0497	35010		2771	14750	0104	00135	0427
0300	0491	35001		2771	14756	0126	00196	0432
0400	0477	34983		2771	14766	0170	00355	0442
0500	0468	34984		2772	14779	0214	00562	0441
0600	0454	34978		2773	14790	0259	00814	0440
0700	0439	3496 B		2774	14800	0304	01113	0445
0800	0425	34953		2774	14811	0349	01461	0446

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
1000	0404	34962		2777	14835	0438	02284	0432
1200	0382 C	3496 B		2779	14860	0524	03267	0425

C-REF-NO 003 YR 1963 DEPTH 2424 WAVES 1 2022 AIR T 02.2 VIS 6
 CONS. NO 022 MONTH 4 MXSAMPD 16 WAVES 2 0344 WET B 02.1 STN 064
 LAT 60-350N DAY 30 NO.DPTH 17 WND-DIR 200 WW-CODE 68
 LON 40-390W HR 16.4 W-COLOR 10 WND-SPD 10 CLD-TPE 7
 MARSD SQ 221 W-TRNSP BARU 1018.6 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
166	0000	0446	34929		2770	14687	099				096	
166	0010	0446	34933	704	2770	14689	099				085	
166	0020	0446	34934	704	2771	14690	102				087	
166	0030	0444	34932	659	2771	14691	102				084	
166	0050	0444	34929	709	2770	14694	105				084	
166	0075	0436	34928	698	2771	14695	099				084	
166	0100	0436	34928	698	2771	14699	103				083	
169	0152	0435	34928		2771	14707						
169	0199	0436	34929		2771	14715						
169	0295	0453	34972		2773	14739						
169	0390	0456	34990		2774	14756						
169	0486	0438	34971		2774	14764						
169	0584	0424	34963		2775	14774						
169	0776	0399	34939		2776	14796						
174	1059	0372	34937		2779	14831						
174	1270	0365	34955		2781	14864						
174	1593	0331	34955		2784	14904						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0446	34929		2770	14687	0000	00000	0402
0010	0446	34933		2770	14689	0004	00000	0400
0020	0446	34934		2771	14690	0008	00001	0400
0030	0444	34932		2771	14691	0012	00002	0401
0050	0444	34929		2770	14694	0020	00005	0405
0075	0436	34928		2771	14695	0030	00012	0400
0100	0436	34928		2771	14699	0041	00021	0403
0125	0435	34928		2771	14703	0051	00033	0405
0150	0435	34928		2771	14707	0061	00047	0407
0175	0435	34928		2771	14711	0071	00064	0410
0200	0436	34929		2771	14716	0082	00084	0413
0225	0440	3494 B		2772	14722	0092	00107	0413
*0250	0445 H	3495 B		2772	14728	0103	00133	0412
0300	0454	34974		2773	14740	0123	00191	0410
0400	0455	34989		2774	14757	0165	00340	0411
0500	0436	34970		2775	14766	0206	00534	0415
0600	0422	34961		2775	14776	0248	00771	0415
0700	0408	34948		2776	14787	0291	01053	0419
0800	0396	34937		2776	14798	0333	01382	0422

DEPTH	F F M P	S A L	CXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
1000	0376	34935		2778	14823	0418	02171	0419
1200	0367	34949		2780	14853	0503	03130	0415
1500	0339 B	34953		2783	14892	0627	04859	0402

C-REF-NO 003 YR 1963 DEPTH 2651 WAVES 1 1922 AIR T 03.5 VIS 7
 CONS. NO 023 MONTH 4 MXSAMPD 15 WAVES 2 1933 WET B 02.9 STN 065
 LAT 60-110N DAY 30 NO.DPTH 17 WND-DIR 190 WW-CODE 01
 LON 39-450W HR 21.2 W-COLOR 10 WND-SPD 09 CLD-TPE 6
 MARSD SQ 220 W-TRNSP BARO 1020.2 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	STO	PH
214	0000	0480	34993		2771	14702	103				085	
214	0010	0473	34992	690	2772	14701	103				088	
214	0020	0472	35000	670	2773	14702	103				086	
214	0030	0474	34993	687	2772	14704	107				085	
214	0050	0474	34996	687	2772	14708	110				086	
214	0075	0474	34994	676	2772	14712	110				085	
227	0100	0470	34989	684	2772	14714	107				086	
218	0141	0474	34995		2772	14723						
218	0188	0476	34993		2772	14731						
218	0284	0471	34991		2772	14745						
218	0379	0466	34988		2773	14758						
218	0476	0446	34973		2774	14766						
218	0575	0428	34967		2775	14775						
218	0770	0392	34938		2777	14792						
222	1009	0366	34919		2778	14820						
222	1213	0362	34933		2779	14853						
222	1530	0355	34953		2782	14903						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0480	34993		2771	14702	0000	00000	0390
0010	0473	34992		2772	14701	0004	00000	0384
0020	0472	35000		2773	14702	0008	00001	0379
0030	0474	34993		2772	14704	0012	00002	0387
0050	0474	34996		2772	14708	0019	00005	0387
0075	0474	34994		2772	14712	0029	00011	0392
0100	0470	34989		2772	14714	0039	00020	0394
0125	0472	34992		2772	14719	0049	00032	0397
0150	0475	34995		2772	14724	0059	00046	0400
0175	0476	34994		2772	14729	0069	00063	0405
0200	0476	34993		2772	14733	0080	00083	0409
0225	0475	34992		2772	14737	0090	00105	0412
*0250	0473	34992		2772	14740	0100	00131	0413
0300	0471	34991		2772	14747	0121	00190	0416
0400	0462	34985		2773	14760	0164	00343	0423
0500	0442	34971		2774	14768	0206	00540	0420
0600	0423	34964		2775	14777	0248	00778	0415
0700	0404	34949		2776	14785	0290	01058	0414
0800	0388	34934		2777	14795	0332	01382	0415

DEPTH	T E M P	S A L	CXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
1000	0367	34919		2778	14819	0417	02165	0419
1200	0362	34932		2779	14851	0502	03131	0422
1500	0355	34949		2781	14898	0631	04923	0424

C-REF-NO 003 YR 1963 DEPTH 3211 WAVES 1 2124 AIR T 04.5 VIS 9
 CONS. NO 024 MONTH 5 MXSAMPD 11 WAVES 2 2145 WET B 04.4 STN 066
 LAT 59-310N DAY 01 NO. DPTH 15 WND-DIR 210 WW-CODE 00
 LON 38-160W HR 04.2 W-COLOR WND-SPD 13 CLD-TPE X
 MARSQ SQ 184 W-TRNSP BARO 1020.9 CLD-AMT 9 HW

O B S E R V E D

GMI	DEPTH	T E M P	S A L	CXYGFN	SGMT	SOUND	PO4	-P-	NO2	NO3	S(D)	PH
044	0000	0559	34922		2756	14733	092				076	
044	0010	0560	34920	670	2756	14735	092				073	
044	0020	0558	34921	673	2756	14736	098				074	
044	0030	0558	34922	687	2756	14738	097				073	
044	0050	0548	34916	693	2757	14737	095				074	
044	0075	0470	34886	721	2764	14709	101				082	
044	0100	0447	34886	678	2767	14703	101				078	
047	0133	0438	34895		2768	14705						
047	0178	0416	34892		2770	14703						
047	0267	0419	34922		2773	14719						
047	0356	0422	34943		2774	14736						
047	0447	0407	34939		2775	14744						
047	0544	0388	34926		2776	14752						
047	0734	0364	34923		2778	14774						
051	1131	0350	34914		2779	14834						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	CXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0559	34922		2756	14733	0000	00000	0533
0010	0560	34920		2756	14735	0005	00000	0537
0020	0558	34921		2756	14736	0011	00001	0535
0030	0558	34922		2756	14738	0016	00002	0535
0050	0548	34916		2757	14737	0027	00007	0531
0075	0470	34886		2764	14709	0040	00015	0468
0100	0447	34886		2767	14703	0051	00025	0446
0125	0439	34893		2768	14704	0062	00038	0436
0150	0429	34894		2769	14704	0073	00053	0427
0175	0417	34892		2770	14703	0084	00071	0418
0200	0414 B	34898		2771	14706	0094	00091	0413
0225	0414 C	34905		2772	14710	0105	00114	0410
*0250	0414 D	34915		2772	14715	0115	00139	0408
0300	0421	34932		2773	14726	0135	00197	0405
0400	0414	34943		2775	14741	0176	00344	0402
0500	0397	34932		2776	14749	0217	00531	0398
0600	0379	34924		2777	14758	0257	00758	0395
0700	0367	34922		2778	14769	0296	01024	0391
0800	0357 E	3491 C		2778	14781	0336	01331	0395
1000	0348	3491 B		2779	14811	0417	02080	0403

C-REF-NO 003 YR 1963 DEPTH 3226 WAVES 1 2223 AIR T 05.3 VIS 9
 CONS. NU 025 MONTH 5 MXSAMPD 05 WAVES 2 2248 WET B 05.2 STN 067
 LAT 58-550N DAY 01 NO.DPTH 11 WND-DIR 220 WW-CODE 01
 LON 36-560W HR 11.6 W-COLOR 10 WND-SPD 14 CLD-TPE 3
 MARKS SQ 184 W-TRNSP BARO 1021.0 CLD-AMT 3 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
118	0000	0512	34876		2758	14714	098				078	
118	0010	0512	34882	709	2759	14715	093				076	
118	0020	0512	34878		2759	14717	051				076	
118	0030	0511	34880	704	2759	14718	092				078	
118	0050	0510	34874	738	2758	14721	095				085	
118	0075	0494	34882	709	2761	14718	096				082	
118	0100	0478	34877	704	2762	14716	093				078	
121	0178	0462	34908		2767	14723						
121	0270	0440	34917		2770	14729						
121	0363	0425	34937		2773	14738						
121	0457	0411	34940		2775	14748						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0512	34876		2758	14714	0000	00000	0513
0010	0512	34882		2759	14715	0005	00000	0510
0020	0512	34878		2759	14717	0010	00001	0514
0030	0511	34880		2759	14718	0015	00002	0513
0050	0510	34874		2758	14721	0026	00007	0519
0075	0494	34882		2761	14719	0039	00015	0498
0100	0478	34877		2762	14716	0051	00026	0487
0125	0470 B	34888 B		2764	14717	0063	00040	0476
0150	0465 B	34898 B		2765	14719	0075	00057	0465
*0175	0462	34906		2767	14722	0087	00076	0456
0200	0457	34911		2768	14724	0098	00098	0449
0225	0451	34914		2768	14726	0109	00123	0443
*0250	0445	34916		2769	14727	0121	00150	0438
0300	0435	34924		2771	14732	0142	00211	0426
0400	0418	34936		2774	14741	0185	00363	0410

BATHYTHERMOGRAPHIC DATA

A tabulation showing the Time-Date, Position, and Consecutive Slide Number of each observation.

CTY	INS	CRN	TIME	DA	MN	YR	LAT	LONG	CON
74	01	003	17 34	9	04	63	56 32	038 40	001
74	01	003	00 39	10	04	63	57 17	039 52	002
74	01	003	08 37	10	04	63	58 03	041 05	003
74	01	003	14 07	10	04	63	58 35	041 53	004
74	01	003	18 29	10	04	63	58 30	043 00	005
74	01	003	00 37	11	04	63	58 45	042 14	006
74	01	003	07 34	11	04	63	59 00	042 38	007
74	01	003	11 07	11	04	63	59 15	043 02	008
74	01	003	13 53	11	04	63	59 30	043 27	009
74	01	003	15 00	11	04	63	59 37	043 41	010
74	01	003	20 56	12	04	63	60 00	042 40	011
74	01	003	09 07	13	04	63	60 20	042 34	012
74	01	003	10 52	15	04	63	61 00	041 40	013
74	01	003	16 57	15	04	63	61 20	041 20	014
74	01	003	10 00	20	04	63	63 04	040 24	015
74	01	003	11 49	20	04	63	63 12	040 10	016
74	01	003	13 09	20	04	63	63 06	039 50	017
74	01	003	00 36	25	04	63	63 23	026 48	018
74	01	003	01 22	26	04	63	60 60	034 01	019
74	01	003	09 03	26	04	63	61 31	035 50	020
74	01	003	15 49	26	04	63	62 10	037 28	021
74	01	003	13 57	28	04	63	63 11	040 06	022
74	01	003	11 15	29	04	63	62 33	040 39	023
74	01	003	22 35	30	04	63	60 11	039 45	026
74	01	003	10 02	30	04	63	61 00	041 45	024
74	01	003	14 03	30	04	63	60 50	041 19	025
74	01	003	05 20	1	05	63	59 31	038 16	027

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NORWESTLANT - 1 SURVEY
USSR

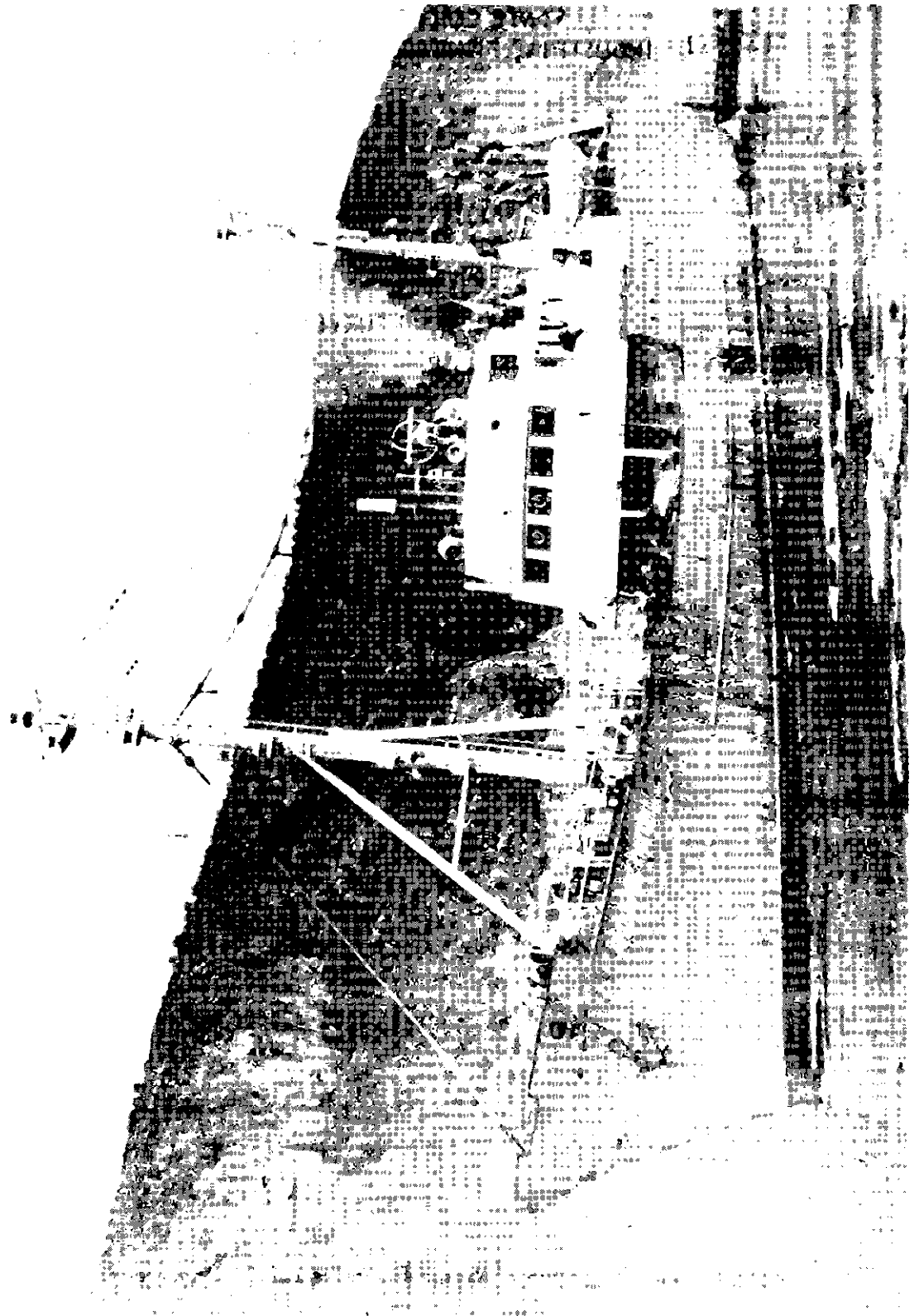
PART 1
ATLANTIC OCEAN AND DAVIS STRAIT

Ship:
Cruise period:

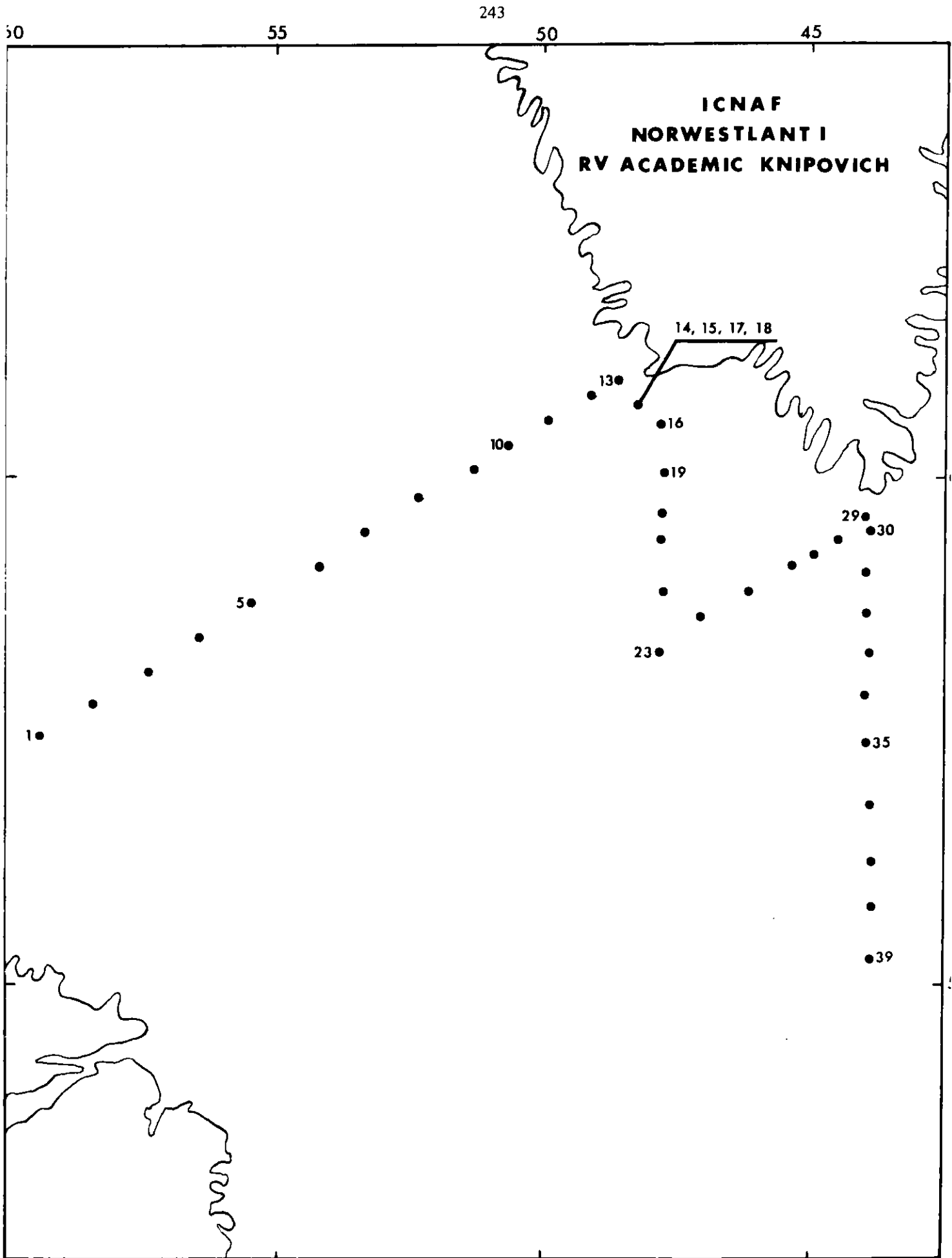
RV Academician Knipovich
March 17 - May 8, 1963

Polar Research Institute of Marine Fisheries and Oceanography,
Murmansk, USSR

All-Union Scientific Research Institute of Marine Fisheries and
Oceanography, Moscow, USSR



ACADEMICIAN KNIPOVICH



PERSONNEL

Observers at sea	V.V. Rossov	PINRO*
	A.G. Kisljakov	PINRO
	A.G. Klimenkov	PINRO
	K.E. Fedorov	PINRO
	I.A. Ushakov	PINRO
	M.A. Drovetskaja	PINRO
	E.A. Ermachenko	VNIRO**
	L.I. Alekseeva	VNIRO
Data analyses	Oceanographic Data	V.V. Rossov A.G. Kisljakov
	Salinity data	Treated in Lowestoft, England
	Chemical Data	L.S. Ponomarenko E.A. Ermachenko L.I. Alekseeva M.A. Istoshina
	Echosounder Data	V.D. Rvachev S.A. Bodnar
	Biological Data	K.E. Fedorov M.A. Drovetskaja V.P. Serebriakov M.M. Nevinsky

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EXTRACT OF CRUISE LOG

17 March, 1963	Departed Murmansk
24-26 March, 1963	Arrived Copenhagen. Received necessary scientific equipment
28-30 March, 1963	Docked at Lowestoft. Received scientific equipment. Obtained information from Mr. Lee concerning the volume of work and the procedure for exchanging the materials
4 April, 1963	Arrived Reykjavik
10 April, 1963	Occupied first station
13 April, 1963	Rendez-vous with <i>RV Topseda</i>
20 April, 1963	Completed final station

24 April, 1963	Control station. Participants: <i>E. Holt</i> , <i>Thalassa</i> and <i>Academician Knipovich</i>
25-27 April, 1963	Docked at Reykjavik. Samples of phytoplankton and salinity handed over.
8 May, 1963	Arrived Murmansk

OBSERVATIONAL PROCEDURES

Biological Sampling

1. Collections of samples of phytoplankton were made at all stations with a water bottle at 10-m depth, and at certain stations samples were taken at each standard depth from 0 to 500 m. All samples were submitted to Dr. Gillbricht for analysis.
2. Vertical hauls were made with a standard Hensen net from 100 m to the surface at a speed of about 1m/sec.
3. Oblique hauls were made with a stramin net (2 m in diameter) at a speed of 3 knots, from 50 m to the surface. Duration of hauling time was 20 minutes. Depths of the net were determined with Kelvin Depth Tubes.
4. Collections of plankton samples with an Icelandic High Speed Sampler were made at 50 m. Hauling time was 20 minutes, the average speed 4-5 knots.
5. In addition, the collection of plankton samples was made at some stations with a closing Juday net, 37 cm in diameter, at depths from 200 to 100 meters, from 100 to 50 metres, and from 50 metres to the surface.

Physical and Chemical observations

Series of temperature and salinity observations were made at depths 0, 10, 20, 30, 50, 75, 100, 150, 200, 300, 400, 500, 600, 800, 1000, 1500, and 1700 m; at additional stations observations were made at standard depths down to 200 m. Observations for the content of oxygen, phosphate and silicate were limited to the 0, 10, 20, 30, 50, 75, 100 m depths. Water samples were collected using Nansen bottles fitted with deep-sea reversing thermometers. At each deep water series the arrangement of the thermometers on the water bottles was as follows; 200, 300, 400, 500, 600, 800, 1000, 1200 and 1500 m, two protected deep-sea reversing thermometers and one depth thermo-gauge (unprotected thermometer) at each depth. No bathythermograph lowerings were made.

LABORATORY PROCEDURES

Determination of salinity was made with the Auto Lab Inductively Coupled Salinometer at the Lowestoft Laboratory (England).

Dissolved oxygen was determined by the Winkler method using as standard a solution of KIO_3 (0.02N). Phosphate was determined by the (blue modification). Standard solutions were supplied by Mr. A. Lee. Comparison of the intensity of colouring of the standard and the sample were made visually in a 100ml Henere cylinder.

CONTINUOUS RECORDS

The NEL-5 and GEL-2 echo sounders were used to obtain continuous records of the bottom configuration along the track of the vessel. The depth traces were checked every 10 minutes and plotted on a chart board, scale 1:1,000,000. All the corrections necessary for obtaining true values of depths were done and a special register of corrections was made at the coastal laboratory.

METHODS TABLE

KNIPOVICH (USSR)		NORWESTLANT 1					
	SAMPLING BOTTLE	FILTER	STANDING TIME BEFORE ANALYSIS	METHOD	PHOTOMETER CELL LENGTH	AVERAGE BLANK	STANDARD
SALINITY	Nansen Type Bottles		Several months	Conductivity: Auto-lab salinometer			Copenhagen
TEMPERATURE				Reversing thermometers			
O ₂			30 minutes	Modified Winkler			Bi-iodate 0.02N
PO ₄			1 hour	Deniges-Atkins (visually)			NORWESTLANT: Supplied by UK
SiO ₂			1 hour	Dienert and Wandenbulcke (visually)			NORWESTLANT: Supplied by UK

SUMMARY OF OBSERVATIONS

ACADEMICIAN KNIPOVICH (USSR)						NORWESTLANT 1										
Time	Date	Latitude	Longitude	Depth	Consec No	BT	Temperature	Salinity ‰	O ₂	SiO ₃	PO ₄	10 m Phyto	100 m Hensen	Stramin	Icelandic H.S.	Juday
1012	10/4	5730	5920	0235	1		x	x	x	x		x				
2106	10/4	5750	5820	2399	2		x		x			x				
0230	11/4	5810	5720		3		x	x	x	x		x				
0730	11/4	5830	5618		4		x	x	x			x				
1406	11/4	5850	5520	3330	5		x	x	x	x		x				
2000	11/4	5908	5420	3454	6		x	x	x			x				
0048	12/4	5925	5325	3360	7		x	x	x	x		x				
0600	12/4	5944	5228	3469	8		x	x	x			x				
1148	12/4	6002	5125	3457	9		x	x	x	x		x				
1824	12/4	6015	5045	3212	10		x	x	x	x		x				
2254	12/4	6028	5000	3027	11		x	x	x	x		x				
0330	13/4	6042	4912	0192	12		x	x	x	x		x				
0748	13/4	6050	4843	0124	13		x	x	x	x	x	x				
0135	14/4	6038	4821	0129	14		x	x	x	x	x	x				
0524	14/4	6038	4821	0118	15		x		x			x				
1035	14/4	6024	4750	0158	16		x	x	x	x	x	x				
1430	14/4	6038	4821	0123	17		x	x	x			x				
2254	14/4	6037	4821	0110	18		x	x	x			x				
1148	15/4	6000	4748	2927	19		x	x	x	x	x	x				
1724	15/4	5941	4751	3254	20		x	x	x	x	x	x				
2048	15/4	5927	4750	3305	21		x	x	x	x	x	x				
0148	16/4	5855	4752	3529	22		x	x	x	x	x	x				
0636	16/4	5820	4752	3489	23		x	x	x	x	x	x				
1536	16/4	5837	4704	3177	24		x	x	x	x	x	x				
0848	17/4	5853	4612	2678	25		x	x	x	x	x	x				
1448	17/4	5908	4538	2626	26		x	x	x	x	x	x				
2048	17/4	5917	4511	2011	27		x	x	x	x	x	x				
0048	18/4	5925	4440	0658	28		x	x	x	x	x	x				
1112	18/4	5937	4409	0158	29		x	x	x	x	x	x				
0106	19/4	5930	4400	0197	30		x	x	x	x	x	x				
1042	19/4	5908	4400	1877	31		x	x	x	x	x	x				
1612	19/4	5842	4400	1762	32		x	x	x	x		x				
2030	19/4	5820	4400	2536	33		x	x	x	x	x	x				
2354	19/4	5759	4400	3128	34		x	x	x		x	x				
0412	20/4	5725	4400	3376	35		x	x	x			x				
0954	20/4	5650	4400	3555	36		x	x	x	x	x	x				
1442	20/4	5622	4400	3675	37		x	x	x			x				
2048	20/4	5550	4400	3378	38		x	x	x	x	x	x				
0230	21/4	5518	4400	3479	39		x	x	x			x				
0048	25/4	6319	2658	1256	40		x	x	x	x	x	x				

Specific Data Not Provided

Specific Data Not Provided

Specific Data Not Provided

Specific Data Not Provided

SERIAL OCEANOGRAPHIC DATA

GENERAL INFORMATION

Institutes:	Polar Research Institute of Marine Fisheries and Oceanography, All-Union Research Institute of Marine Fisheries and Oceanography-
Observation platform:	<i>RV Academician Knipovich</i>
Vessel's cruising speed:	9 Knots
Total number of stations occupied:	40
Anemometer height above sea level:	10 metres
Barometer readings:	Aneroid - $\frac{1}{10}$ mb units
Air temperature:	Sling psychrometer - $\frac{1}{10}$ C° units
Wet bulb temperature:	Sling psychrometer - $\frac{1}{10}$ C° units
Sea surface water temperature:	Reversing thermometer - $\frac{1}{10}$ C° units

The following Standard Deviations were used to express both measurement and interpolation error estimates:

Temperature	0.02
Salinity	0.002

C-REF-NO 001	YR 1963	DEPTH 235	WAVES 1 31X1	AIR T -01.0	VIS 5
CONS. NO 001	MONTH 4	MXSAMPD 02	WAVES 2 3342	WET B	STN
LAT 57-30 N	DAY 10	NO.DPTH 10	WND-DIR 320	WW-CODE 70	
LON 59-20 W	HR 10.2	W-COLOR 20	WND-SPD 03	CLD-TPE 7	
MARSD SQ 186		W-TRNSP 20	BARO 1018.6	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
102	0000	-0150	32982	778	2655	14395					124	
102	0010	-0145	32945	768	2652	14398					139	
102	0020	-0140	33300	760	2681	14407					148	
102	0030	-0130	33616	767	2706	14418					128	
102	0050	-0139	33626	760	2707	14418					132	
102	0075	-0122	33665	757	2710	14430					131	
102	0100	-0114	33736	752	2715	14439					136	
102	0150	0106	34197		2742	14555						
102	0200	0218	34486		2757	14616						
102	0220	0217	34489		2757	14619						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	-0150	32982		2655	14395	0000	00000	1489
0010	-0145	32945		2652	14398	0015	00001	1518
0020	-0140	33300		2681	14407	0020	00003	1246
0030	-0130	33616		2706	14418	0040	00006	1006
0050	-0139	33626		2707	14418	0061	00014	0994
0075	-0122	33665		2710	14430	0085	00030	0968
0100	-0114	33736		2715	14439	0109	00051	0915
0125	-0014 M	3395 I		2729	14492	0131	00076	0791
0150	0106	34197		2742	14555	0149	00102	0673
0175	0179	3438 E		2751	14594	0165	00128	0589
0200	0218	34486		2757	14616	0179	00155	0539

C-REF-NO 001	YR 1963	DEPTH 2399	WAVES 1 36X2	AIR T 02.6	VIS 7
CONS. NO 002	MONTH 4	MXSAMP 02	WAVES 2 3632	WET B 01.6	STN
LAT 57-50 N	DAY 10	NO.DPTH 6	WND-DIR 360	HW-CODE 03	
LON 58-20 W	HR 21.1	W-COLOR 10	WND-SPD 06	CLD-TPE 6	
MARSD SQ 186		W-TRNSP 23	BARO 1016.0	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4 -P-	NO2	NO3	SIO	PH
211	0000	0368	34880	721	2775	14654					
211	0020	0364		708							
211	0050	0354	34894	699	2777	14656					
211	0100	0353		700							
211	0150	0350									
211	0200	0351	34895		2777	14679					

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0368	34880		2775	14654	0000	00000	0361
0010	0365							
0020	0364							
0030	0361							
0050	0354	34894		2777	14656	0018	00004	0341
0075	0352							
0100	0353							
0125	0351							
0150	0350							
0175	0351							
0200	0351	34895		2777	14679	0070	00072	0351

C-REF-NO 001	YR 1963	DEPTH	WAVES 1 3522	AIR T 02.0	VIS 5
CONS. NO 003	MONTH 4	MXSAMPD 14	WAVES 2 00X0	WET B 00.8	STN
LAT 58-10 N	DAY 11	NO.DPTH 17	WND-DIR 350	WW-CODE 51	
LON 57-20 W	HR 02.5	W-COLOR	WND-SPD 12	CLD-TPF 7	
MARSD SQ 186		W-TRNSP	BARO 1014.9	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	TEMP	SAL	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	STO	PH
025	0000	0354	34882	708	2776	14648					122	
025	0009	0360	34889	713	2776	14652					111	
025	0018	0354	34890	714	2777	14651					115	
025	0027	0348	34881	703	2777	14649					114	
025	0045	0340	34887	707	2778	14649					110	
025	0067	0348	34898	705	2778	14656					112	
025	0090	0350	34884	707	2777	14661					110	
025	0136	0348	34889		2777	14668						
025	0181	0348	34894		2778	14675						
025	0281	0348	34888		2777	14691						
025	0360	0348	34896		2778	14705						
025	0454	0348	34890		2777	14720						
025	0545	0347	34895		2778	14735						
025	0727	0350	34892		2777	14766						
025	0910	0350	34890		2777	14797						
025	1093	0352	34889		2777	14828						
025	1370	0344	34896		2778	14871						

I N T E R P O L A T E D

DEPTH	TEMP	SAL	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0354	34882		2776	14648	0000	00000	0346
0010	0360	34890		2776	14652	0003	00000	0346
0020	0353	34888		2777	14650	0007	00001	0342
0030	0346	34881		2777	14649	0010	00002	0342
0050	0341	34890		2778	14651	0017	00004	0332
0075	0349	34894		2778	14658	0026	00010	0339
0100	0350	34883		2777	14662	0034	00018	0350
0125	0349	34886		2777	14666	0043	00028	0349
0150	0348	34891		2777	14670	0052	00040	0347
0175	0348	34893		2778	14674	0061	00055	0347
0200	0348	34893		2778	14678	0069	00072	0349
0225	0348	34892		2777	14682	0078	00091	0353
*0250	0348	34890		2777	14686	0087	00113	0356
0300	0348	34890		2777	14695	0105	00164	0360
0400	0348	34894		2778	14711	0142	00296	0366
0500	0347	34892		2778	14727	0179	00470	0375
0600	0348	34895		2778	14744	0218	00687	0382
0700	0349	34893		2777	14761	0257	00949	0394
0800	0350	34891		2777	14778	0297	01261	0404

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
1000	0351	34889		2777	14812	0381	02039	0423
1200	0349	34891		2777	14845	0468	03026	0435

C-REF-NO 001	YR 1963	DEPTH	WAVES 1 3343	AIR T 01.6	VIS 5
CONS. NO 004	MONTH 4	MXSAMPD 02	WAVES 2 00X0	WET B 00.1	STN
LAT 58-30 N	DAY 11	NO.DPTH 6	WND-DIR 330	WW-CODE 22	
LON 56-18 W	HR 07.5	W-COLOR	WND-SPD 08	CLD-TPE X	
MARSD SQ 186		W-TRNSP	BARO 998.0	CLD-AMT 9	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4 -P-	NO2	NO3	SI.O	PH
075	0000	0357	34897	710	2777	14649					
075	0020	0358	34899		2777	14653					
075	0050	0348	34896	709	2778	14653					
075	0100	0348	34903	710	2778	14662					
075	0150	0342									
075	0200	0346	34906		2779	14677					

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0357	34897		2777	14649	0000	00000	0337
0010	0356	34897		2777	14650	0003	00000	0337
0020	0358	34899		2777	14653	0007	00001	0339
0030	0355	34898		2777	14653	0010	00002	0337
0050	0348	34896		2778	14653	0017	00004	0334
0075	0347	34899		2778	14657	0025	00010	0333
0100	0348	34903		2778	14662	0034	00017	0333
0125	0345	3490 B		2778	14664	0042	00027	0335
0150	0342	3490 B		2779	14667	0051	00039	0333
0175	0345	34903		2779	14673	0059	00053	0337
0200	0346	34906		2779	14677	0068	00069	0338

C-REF-NO 001 YR 1963 DEPTH 3330 WAVES 1 3343 AIR T 01.8 VIS 5
 CONS. NO 005 MONTH 4 MXSAMPD 25 WAVES 2 00X0 WET B 00.0 STN
 LAT 58-50 N DAY 11 NO.DPTH 19 WND-DIR 280 W-CODE 51
 LON 55-20 W HR 14.1 W-COLOR WND-SPD 10 CLD-TPE 6
 MARSD SQ 186 W-TRNSP BARO 1010.1 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SFO	PH
141	0000	0342		706								115
141	0010	0335	34884	713	2778	14641						116
141	0020	0336	34871	712	2777	14643						112
141	0030	0340	34883	710	2778	14647						116
141	0050	0333	34872	700	2777	14647						127
141	0075	0318	34886	695	2780	14645						
141	0100	0316		691								119
141	0150	0332	34890		2779	14663						
141	0200	0331	34883		2778	14671						
130	0280	0330	34883		2779	14683						
130	0374	0328	34887		2779	14698						
130	0475	0321	34880		2779	14712						
130	0571	0325	34876		2778	14729						
130	0772	0325	34879		2779	14763						
130	0971	0324	34881		2779	14796						
130	1168	0324	34871		2778	14828						
130	1465	0328	34873		2778	14880						
130	1968	0354	34923		2779	14977						
130	2457	0304	34937		2785	15039						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0342	3489 E		2778	14643	0000	00000	0327
0010	0335	34884		2778	14641	0003	00000	0328
0020	0336	34871		2777	14643	0007	00001	0339
0030	0340	34883		2778	14647	0010	00002	0335
0050	0333	34872		2777	14647	0017	00004	0338
0075	0318	34886		2780	14645	0025	00010	0316
0100	0316	34891		2781	14648	0033	00017	0312
0125	0323	34893		2780	14655	0041	00026	0320
0150	0332	34890		2779	14663	0049	00038	0332
0175	0333	34887		2779	14667	0058	00052	0337
0200	0331	34883		2778	14671	0066	00068	0340
0225	0331	34882		2778	14675	0075	00087	0343
0250	0330	34882		2778	14679	0083	00108	0345
0300	0330	34884		2779	14687	0101	00158	0347
0400	0326	34886		2779	14702	0136	00284	0350
0500	0322	34879		2779	14716	0172	00450	0359
0600	0325	34876		2778	14734	0209	00660	0372

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0700	0326	34877		2778	14751	0247	00914	0380
0800	0325	34880		2779	14767	0285	01213	0385
1000	0324	34880		2779	14800	0365	01950	0399
1200	0324	34870		2778	14834	0448	02894	0421
1500	0331	34876		2778	14887	0580	04741	0448
2000	0337 E	3491 E		2780	14975	0813	08959	0469
2500	0299	34940		2786	15045	1042	14248	0429

C-REF-NO 001 YR 1963 DEPTH 3454 WAVBS 1 34X2 AIR T 00.5 VIS 7
 CONS. NO 006 MONTH 4 MXSAMPD 02 WAVES 2 00X0 WET B -00.2 STN
 LAT 59-08 N DAY 11 NO.DPTH 6 WND-DIR 320 WW-CODE 26
 LON 54-20 W HR 20.0 W-COLOR WND-SPD 09 CLD-TPE 6
 MARSD SQ 186 W-TRNSP BARO 1007.4 CLD-AMT 7 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
200	0000	0332	34883	716	2778	14638						
200	0020	0335	34884	720	2778	14643						
200	0050	0329	34880	710	2778	14645						
200	0100	0324	34877	708	2779	14651						
200	0150	0324	34883		2779	14659						
200	0200	0323	34878		2779	14667						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0332	34883		2778	14638	0000	00000	0325
0010	0333	34883		2778	14640	0003	00000	0326
0020	0335	34884		2778	14643	0007	00001	0328
0030	0334	34883		2778	14644	0010	00002	0329
0050	0329	34880		2778	14645	0017	00004	0328
0075	0326	34878		2778	14648	0025	00010	0329
0100	0324	34877		2779	14651	0033	00017	0330
0125	0324	34880		2779	14655	0041	00027	0330
0150	0324	34883		2779	14660	0050	00038	0330
0175	0323	34879		2779	14663	0058	00052	0334
0200	0323	34878		2779	14667	0067	00069	0337

C-REF-NO 001 YR 1963 DEPTH 3360 WAVES 1 08X2 AIR T 01.0 VIS 6
 CONS. NO 007 MONTH 4 MXSAMPD 13 WAVES 2 00X0 WET B -00.1 STN
 LAT 59-25 N DAY 12 NO.DPTH 18 WND-DIR 350 WW-CODE 02
 LON 53-25 W HR 00.8 W-COLOR WND-SPD 08 CLD-TPE 6
 MARSD SQ 186 W-TRNSP BARO 1006.2 CLD-AMT 7 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
008	0000	0381	34869	713	2772	14659					085	
008	0009	0383	34867	716	2772	14661					107	
008	0017	0383	34867	720	2772	14662					107	
008	0026	0380	34878	718	2773	14663					112	
008	0044	0374	34925	700	2777	14664					115	
008	0066	0375	34892	698	2775	14667					118	
008	0087	0374	34902	694	2776	14671					123	
008	0132	0374	34900		2776	14678						
008	0175	0368	34900		2776	14683						
008	0262	0356	34897		2777	14692						
008	0350	0341	34884		2778	14700						
008	0433	0342	34885		2778	14714						
008	0525	0338	34891		2778	14727						
008	0706	0334	34887		2778	14756						
008	0836	0340	34884		2778	14780						
008	0970	0346	34893		2778	14805						
008	1174	0337										
008	1323	0332	34895		2779	14858						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0381	34869		2772	14659	0000	00000	0381
0010	0383	34867		2772	14661	0004	00000	0386
0020	0382	34870		2772	14663	0008	00001	0384
0030	0378	3489 8		2774	14663	0012	00002	0366
0050	0374	3492 C		2777	14665	0019	00005	0342
0075	0375	34894		2775	14669	0028	00010	0363
0100	0374	34903		2776	14673	0037	00019	0359
0125	0374	34901		2776	14677	0046	00029	0362
0150	0372	34900		2776	14680	0055	00042	0363
0175	0368	34900		2776	14683	0064	00057	0362
0200	0365	34900		2776	14685	0073	00075	0361
0225	0361	34899		2777	14688	0082	00095	0360
*0250	0358	34898		2777	14691	0091	00117	0360
0300	0349	34891		2777	14695	0110	00168	0360
0400	0341	34884		2777	14708	0146	00301	0366
0500	0339	34889		2778	14724	0183	00473	0369
0600	0335	34891		2779	14739	0221	00684	0372
0700	0334	34887		2778	14755	0259	00939	0381

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0800	0338	34884		2778	14773	0298	01243	0396
1000	0345	3489 B		2777	14810	0380	02008	0417
1200	0339	34892		2778	14841	0465	02973	0423

C-REF-NO 001 YR 1963 DEPTH 3469 WAVES 1 29X0 AIR T 01.0 VIS 4
 CONS. NO 008 MONTH 4 MXSAMPD 02 WAVES 2 2922 WET B -00.2 STN
 LAT 59-44 N DAY 12 NO.DPTH 6 WND-DIR 290 WW-CODE 02
 LON 52-28 W HR 06.0 W-COLOR WND-SPD 02 CLD-TPE X
 MARSD SQ 186 W-TRNSP BARO 1005.7 CLD-AMT 9 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
060	0000	0360	34730	739	2763	14648						
060	0020	0382	34803	730	2767	14662						
060	0050	0412	34917	702	2773	14681						
060	0100	0425	34944	695	2774	14695						
060	0150	0411	34937		2775	14697						
060	0200	0405	34938		2775	14703						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0360	34730		2763	14648	0000	00000	0466
0010	0373	3477 B		2766	14656	0005	00000	0446
0020	0382	34803		2767	14662	0009	00001	0434
0030	0393	3485 B		2769	14669	0013	00002	0414
0050	0412	34917		2773	14681	0021	00005	0381
0075	0423	3495 D		2774	14690	0031	00011	0374
0100	0425	34944		2774	14695	0040	00020	0380
0125	0419	34942		2774	14696	0050	00031	0377
0150	0411	34937		2775	14697	0059	00044	0375
0175	0412	3494 B		2775	14702	0069	00060	0375
0200	0405	34938		2775	14703	0078	00078	0373

C-REF-NO 001 YR 1963 DEPTH 3457 WAVES 1 6340 AIR T 03.0 VIS 6
 CONS. NO 009 MONTH 4 MXSAMP 17 WAVES 2 00X0 WET B 01.8 STN
 LAT 60-02 N DAY 12 NO.DPTH 18 WND-DIR 140 WW-CODE 01
 LON 51-25 W HR 11.8 W-COLOR WND-SPD 12 CLD-TPE 6
 MARSD SQ 222 W-TRNSP BARO 1005.1 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
118	0000	0248	34374	788	2745	14595					095	
118	0010	0240	34376	781	2746	14593					082	
118	0020	0262	34443	757	2750	14605					093	
118	0030	0276	34504	746	2753	14614					099	
118	0050	0300	34594	733	2758	14629					106	
118	0075	0353	34723	711	2764	14657					115	
118	0100	0426	34864	699	2767	14694					115	
118	0150	0451	34913		2768	14713						
118	0200	0454	34934		2770	14723						
106	0283	0453	34943		2771	14737						
106	0385	0432	34941		2773	14745						
106	0486	0384	34905		2775	14741						
106	0586	0385	34912		2775	14758						
106	0793	0374	34913		2777	14787						
106	0995	0368	34901		2776	14818						
106	1195	0366	34910		2777	14851						
106	1500	0361	34911		2778	14900						
106	1700	0354	34923		2779	14931						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0248	34374		2745	14595	0000	00000	0637
0010	0240	34376		2746	14593	0006	00000	0630
0020	0262	34443		2750	14605	0013	00001	0598
0030	0276	34504		2753	14614	0018	00003	0564
0050	0300	34594		2758	14629	0029	00007	0518
0075	0353	34723		2764	14657	0042	00015	0471
0100	0426	34864		2767	14694	0053	00025	0441
0125	0450 C	34913 F		2768	14709	0064	00038	0434
0150	0451	34913		2768	14713	0075	00054	0436
0175	0454	34926		2769	14719	0086	00072	0432
0200	0454	34934		2770	14723	0097	00093	0429
0225	0455	34939		2770	14728	0108	00117	0429
0250	0455	34942		2770	14732	0119	00143	0429
0300	0451	34944		2771	14739	0140	00204	0429
0400	0424	34935		2773	14744	0183	00358	0416
0500	0383	34905		2775	14743	0225	00549	0403
0600	0384	34913		2775	14760	0266	00781	0409
0700	0380	34915		2776	14775	0307	01059	0411

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0800	0374	34913		2777	14789	0349	01382	0415
1000	0368	34901		2776	14819	0435	02180	0434
1200	0366	34910		2777	14852	0524	03188	0442
1500	0361	34911		2778	14900	0661	05104	0460

C-REF-NO 001	YR 1963	DEPTH 3212	WAVES 1 1248	AIR T 03.6	VIS 7
CONS. NO 010	MONTH 4	MXSAMPD 15	WAVES 2 00X0	WET B 02.1	STN
LAT 60-15 N	DAY 12	NO.DPTH 8	WND-DIR 120	WW-CODE 03	
LDN 50-45 W	HR 18.4	W-COLOR	WND-SPD 13	CLD-TPE 6	
MARSD SQ 222		W-TRNSP	BARO 1007.1	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4 -P-	NO2	NO3	SIO	PH
184	0000	0404	34873	725	2770	14669				100	
184	0010	0406	34867	718	2770	14671				096	
184	0050	0389	34897	717	2774	14671				100	
184	0100	0385	34913	690	2775	14678				100	
184	0200	0372	34910		2777	14688					
184	0500	0350	34889		2777	14728					
184	1000	0328	34869		2778	14802					
184	1500	0330	34884		2779	14887					

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0404	34873		2770	14669	0000	00000	0401
0010	0406	34867		2770	14671	0004	00000	0409
0020	0403	3487 B		2770	14671	0008	00001	0404
0030	0399 B	3488 B		2771	14672	0012	00002	0396
0050	0389	34897		2774	14671	0020	00005	0373
0075	0386	34907		2775	14674	0029	00011	0365
0100	0385	34913		2775	14678	0038	00019	0362
0125	0382	34915		2776	14680	0048	00030	0360
0150	0379	34915		2776	14683	0057	00043	0359
*0175	0375	34913		2776	14686	0066	00058	0359
0200	0372	34910		2777	14689	0075	00075	0361
0225	0370	34908		2777	14692	0084	00095	0361
0250	0367	34907		2777	14695	0093	00117	0363
*0300	0363	34904		2777	14701	0111	00169	0365
*0400	0356	34897		2777	14714	0149	00304	0372
0500	0350	34889		2777	14728	0187	00480	0380
0600	0344	34883		2777	14742	0225	00699	0387
0700	0339	34878		2777	14757	0265	00963	0393
*0800	0334	34874		2777	14771	0305	01273	0399
1000	0328	34869		2778	14802	0387	02035	0411
1200	0327	34873		2778	14835	0471	02994	0422
1500	0330	34884		2779	14887	0603	04826	0441

C-REF-NO 001 YR 1963 DEPTH 3027 WAVES 1 1247 AIR T 03.0 VIS 7
 CONS. NO 011 MONTH 4 MXSAMPD 15 WAVES 2 00X0 WET B 01.9 STN
 LAT 60-28 N DAY 12 NO.DPTH 8 WND-DIR 120 WW-CODE 02
 LON 50-00 W HR 22.9 W-COLOR WND-SPD 13 CLD-TPE 6
 MARSU SQ 222 W-TRNSP BARO 1009.0 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4 -P-	NO2	NO3	SEC	PH
229	0000	0315	34577	742	2756	14627				096	
229	0010	0319	34588	747	2756	14630				102	
229	0050	0361	34756	729	2765	14657				105	
229	0100	0396	34863	701	2770	14682				102	
229	0200	0452	34969		2773	14723					
229	0500	0426	34947		2774	14761					
229	1000	0360	34910		2778	14816					
229	1500	0353	34925		2780	14897					

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0315	34577		2756	14627	0000	00000	0540
0010	0319	34588		2756	14630	0005	00000	0536
0020	0328	3462 D		2758	14636	0011	00001	0518
0030	0338 B	3466 F		2760	14643	0016	00002	0498
0050	0361	34756		2765	14657	0025	00006	0452
0075	0380	3482 B		2768	14670	0036	00013	0425
0100	0396	34863		2770	14682	0047	00023	0410
0125	0412	3490 B		2771	14693	0057	00035	0403
0150	0427	3493 B		2772	14704	0067	00049	0397
*0175	0440	3495 B		2773	14714	0077	00066	0398
0200	0452	34969		2773	14723	0088	00085	0401
0225	0456 B	3498 C		2773	14729	0098	00107	0401
0250	0458 C	3498 F		2773	14734	0108	00132	0402
*0300	0460 E	3499 I		2773	14743	0128	00190	0405
*0400	0451 E	3498 I		2774	14756	0169	00338	0412
0500	0426	34947		2774	14761	0211	00533	0420
0600	0412	34938		2775	14772	0254	00774	0421
0700	0398 B	34929		2775	14782	0296	01058	0421
*0800	0385 B	34922		2776	14793	0339	01387	0421
1000	0360	34910		2778	14816	0424	02174	0418
1200	0363 C	3492 B		2778	14851	0510	03153	0433
1500	0353	34925		2780	14897	0643	05003	0440

C-REF-NO	001	YR	1963	DEPTH	192	WAVES 1	09X2	AIR T	02.1	VIS	7
CONS. NO	012	MONTH	4	MXSAMPC	01	WAVES 2	00X0	WET B	00.3	STN	
LAT	60-42 N	DAY	13	NO.DPTH	8	WND-DIR	240	WW-CODE	02		
LON	49-12 W	HR	03.5	W-COLOR		WND-SPD	10	CLD-TPE	6		
MARSD	SQ 221			W-TRNSP		BARO	1008.9	CLD-AMT	8	HW	

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
035	0000	0068	33929	807	2723	14509					089	
035	0010	0082	33914	780	2721	14517					090	
035	0020	0081	33923	778	2721	14518					089	
035	0030	0086	33920	774	2721	14522					085	
035	0050	0089	33934	754	2722	14527					088	
035	0075	0098	33943	775	2722	14535					090	
035	0100	0098	33984	775	2725	14540					090	
035	0150	0164	34174		2736	14580						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0068	33929		2723	14509	0000	00000	0852
0010	0082	33914		2721	14517	0009	00000	0872
0020	0081	33923		2721	14518	0017	00002	0864
0030	0086	33920		2721	14522	0026	00004	0870
0050	0089	33934		2722	14527	0044	00011	0861
0075	0098	33943		2722	14535	0065	00025	0860
0100	0098	33984		2725	14540	0087	00044	0829
0125	0130	34062		2729	14559	0107	00068	0791
0150	0164	34174		2736	14580	0126	00095	0731

C-REF-NO 001 YR 1963 DEPTH 124 WAVES 1 1343 AIR T 02.8 VIS 7
 CONS. NO 013 MONTH 4 MXSAMPD 01 WAVES 2 00X0 WET B 01.0 STII
 LAT 60-50 N DAY 13 NO.DPTH 7 WND-DIR 130 WW-CODE 02
 LON 48-43 W HR 07.8 W-COLOR WND-SPD 11 CLD-TPE 6
 MARSD SQ 221 W-TRNSP BARO 1012.2 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
078	0000	0022	33634	835	2701	14484	061					077
078	0010	0024	33618	823	2700	14486	055					077
078	0020	0021	33615	823	2700	14487	061					072
078	0030	0022	33630	817	2701	14489	064					078
078	0050	0034	33712	808	2707	14499	061					081
078	0075	0054	33832	799	2716	14514	064					084
078	0100	0076	33940	789	2723	14529	069					084

I N T E R P C L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0022	33634		2701	14484	0000	00000	1053
0010	0024	33618		2700	14486	0011	00001	1066
0020	0021	33615		2700	14487	0021	00002	1066
0030	0022	33630		2701	14489	0032	00005	1055
0050	0034	33712		2707	14499	0053	00013	0999
0075	0054	33832		2716	14514	0077	00029	0918
0100	0076	33940		2723	14529	0099	00049	0849

C-REF-NO 001 YR 1963 DEPTH 129 WAVES 1 15X0 AIR T 00.4 VIS 7
 CONS. NU 014 MONTH 4 MXSAMPD 01 WAVES 2 00X0 WET B 00.0 STN
 LAT 60-38 N DAY 14 NO.DPTH 7 WND-DIR CALM WW-CODE 02
 LON 48-21 W HR 01.6 W-COLOR WND-SPD 00 CLD-TPE
 MARSD SQ 221 W-TRNSP BARO 1011.9 CLD-AMT 0 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
016	0000	-0010	33542	805	2696	14468	062				089	
016	0010	-0001	33554	805	2696	14474	056				094	
016	0020	0072	33786	780	2711	14512	058				099	
016	0030	0086	33846	773	2715	14521	057				099	
016	0050	0091	33893	768	2718	14527	062				105	
016	0075	0102	33931	769	2721	14537	062				106	
016	0100	0157	34126	755	2733	14568	066				106	

#WAVES NOT COMPATIBLE WITH WIND

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	-0010	33542		2696	14468	0000	00000	1108
0010	-0001	33554		2696	14474	0011	00001	1103
0020	0072	33786		2711	14512	0022	00002	0963
0030	0086	33846		2715	14521	0031	00005	0926
0050	0091	33893		2718	14527	0049	00012	0893
0075	0102	33931		2721	14537	0072	00026	0871
0100	0157	34126		2733	14568	0092	00045	0761

C-REF-NO 001 YR 1963 DEPTH 118 WAVES 1 00X0 AIR T 00.2 VIS 7
 CONS. NO 015 MONTH 4 MXSAMPD 01 WAVES 2 15X0 WET B -00.4 STN
 LAT 60-38 N DAY 14 NO.DPTH 7 WND-DIR CALM WW-CODE 02
 LON 48-21 W HR 05.4 W-COLOR WND-SPD 00 CLD-TPE
 MARSD SQ 221 W-TRNSP BARO 1011.9 CLD-AMT 0 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
054	0000	-0028		873								
054	0010	-0027		864								
054	0020	-0037		842								
054	0030	-0012		826								
054	0050	-0010		798								
054	0075	0045		788								
054	0100	0093		771								

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	-0028							
0010	-0027							
0020	-0037							
0030	-0012							
0050	-0010							
0075	0045							
0100	0093							

C-REF-NO 001 YR 1963 DEPTH 158 WAVES 1 03X0 AIR T 01.8 VIS 7
 CONS. NO 016 MONTH 4 MXSAMPD 01 WAVES 2 2151 WET B 00.0 STN
 LAT 60-24 N DAY 14 NO.DPTH 8 WND-DIR 090 WW-CODE 02
 LON 47-50 W HR 10.6 W-COLOR 10 WND-SPD 02 CLD-TPE
 MARSD SQ 221 W-TRNSP 40 BARO 1013.8 CLD-AMT 0 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
106	0000	-0001	33583	782	2699	14473	066				095	
106	0010	-0001	33579	784	2698	14474	070				101	
106	0020	0000	33621	780	2702	14477	070				111	
106	0030	0020	33681	776	2705	14489	070				120	
106	0050	0034	33770	774	2712	14500	072				120	
106	0075	0093	33933	767	2721	14533	072				120	
106	0100	0116	34043	761	2729	14549	073				120	
106	0150	0218	34296		2742	14606						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	-0001	33583		2699	14473	0000	00000	1081
0010	-0001	33579		2698	14474	0011	00001	1084
0020	0000	33621		2702	14477	0022	00002	1052
0030	0020	33681		2705	14489	0032	00005	1016
0050	0034	33770		2712	14500	0052	00013	0955
0075	0093	33933		2721	14533	0075	00028	0864
0100	0116	34043		2729	14549	0096	00046	0796
0125	0175 D	3418 D		2736	14581	0115	00068	0730
0150	0218	34296		2742	14606	0133	00093	0680

C-REF-NO	001	YR	1963	DEPTH	123	WAVES 1	00X0	AIR T	03.0	VIS	7
CONS. NO	017	MONTH	4	MXSAMPD	01	WAVES 2	00X0	WET B	01.1	STN	
LAT	60-38 N	DAY	14	NO.DPTH	8	WND-DIR	CALM	WW-CODE	02		
LON	48-21 W	HR	14.5	W-COLOR	40	WND-SPD	00	CLD-TPE			
MARSD SQ	221			W-TRNSP	19	BARO	1014.3	CLD-AMT	0	HW	

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
145	0000	-0001	33420	851	2685	14471						
145	0010	-0031	33416	858	2686	14458						
145	0020	-0042	33418	848	2687	14455						
145	0030	-0026	33462	824	2690	14465						
145	0050	-0014	33513	825	2693	14474						
145	0075	0013	33668	800	2705	14493						
145	0100	0014	33677	802	2705	14497						
145	0120	0012	33687		2706	14500						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	-0001	33420		2685	14471	0000	00000	1205
0010	-0031	33416		2686	14458	0012	00001	1195
0020	-0042	33418		2687	14455	0024	00002	1189
0030	-0026	33462		2690	14465	0036	00005	1161
0050	-0014	33513		2693	14474	0059	00015	1127
0075	0013	33668		2705	14493	0086	00032	1021
0100	0014	33677		2705	14497	0112	00055	1014

C-REF-NO 001 YR 1963 DEPTH 110 WAVES 1 00X0 AIR T 00.6 VIS 7
 CONS. NO 018 MONTH 4 MXSAMPD 01 WAVES 2 36X1 WET B 00.2 STN
 LAT 60-37 N DAY 14 NO.DPTH 7 WND-DIR CALM WW-CODE 02
 LON 48-21 W HR 22.9 W-COLOR 10 WND-SPD 00 CLD-TPE
 MARSD SQ 221 W-TRNSP 22 BARO 1015.0 CLD-AMT 0 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	STO	PH
229	0000	-0007	33476	805	2690	14469						
229	0010	0000	33552	800	2696	14474						
229	0020	0016	33678	794	2705	14485						
229	0030	0017	33693	798	2706	14488						
229	0050	0018	33720	794	2709	14492						
229	0075	0037	33791	789	2713	14505						
229	0100	0134	34092	761	2731	14557						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	-0007	33476		2690	14469	0000	00000	1160
0010	0000	33552		2696	14474	0011	00001	1105
0020	0016	33678		2705	14485	0022	00002	1016
0030	0017	33693		2706	14488	0032	00005	1005
0050	0018	33720		2709	14492	0052	00013	0984
0075	0037	33791		2713	14505	0077	00029	0940
0100	0134	34092		2731	14557	0098	00048	0770

C-REF-NO 001 YR 1963 DEPTH 2927 WAVES 1 26X0 AIR T 05.2 VIS 7
 CONS. NO 019 MONTH 4 MXSAMPD 15 WAVBS 2 1451 WET B 03.5 STN
 LAT 60-00 N DAY 15 NO.DPTH 11 WND-DIR 260 WW-CODE 02
 LON 47-48 W HR 11.8 W-COLOR 10 WND-SPD 05 CLD-TPE 2
 MARSQ SQ 221 W-TRNSP 40 BARO 1014.2 CLD-AMT 5 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
118	0000	0463	34953	701	2770	14694	095				125	
118	0010	0466	34976	699	2772	14698	098				132	
118	0020	0462	34979	704	2772	14698	098				136	
118	0030	0453	34976	697	2773	14695	102				142	
118	0050	0452	34974	693	2773	14698	102				149	
118	0075	0454	34972	698	2773	14703	106				154	
118	0100	0454	34963	699	2772	14707	104				168	
118	0200	0442	34971		2774	14719						
118	0500	0442										
118	1000	0380	34945		2778	14825						
118	1500	0350	35091		2793	14898						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0463	34953		2770	14694	0000	00000	0402
0010	0466	34976		2772	14698	0004	00000	0389
0020	0462	34979		2772	14698	0008	00001	0384
0030	0453	34976		2773	14695	0012	00002	0377
0050	0452	34974		2773	14698	0019	00005	0380
0075	0454	34972		2773	14703	0029	00011	0387
0100	0454	34963		2772	14707	0039	00020	0396
0125	0452	3496 B		2772	14710	0049	00032	0397
0150	0449	3496 B		2773	14713	0059	00046	0396
*0175	0446	34966		2773	14716	0069	00062	0393
0200	0442	34971		2774	14719	0079	00081	0388
0225	0442	3495 H		2772	14722	0089	00103	0408
0250	0441	3495 I		2772	14726	0099	00129	0412
*0300	0441 B	3494 I		2772	14734	0120	00188	0422
*0400	0441 B	3493 I		2771	14751	0164	00345	0439
0500	0442	3492 I		2770	14768	0209	00555	0456
0600	0431 B	3492 I		2771	14780	0255	00816	0456
0700	0420 B	3492 I		2772	14792	0301	01123	0452
*0800	0408 B	3493 I		2774	14803	0346	01473	0444
1000	0380	34945		2778	14825	0433	02277	0416
1200	0380 D	3503 I		2785	14860	0513	03181	0375
1500	0350	35091		2793	14898	0618	04626	0315

C-REF-NO 001 YR 1963 DEPTH 3254 WAVES 1 49XX AIR T 03.6 VIS 7
 CONS. NO 020 MONTH 4 MXSAMPD 25 WAVES 2 1247 WET B 01.9 STN
 LAT 59-41 N DAY 15 NO.DPTH 13 WND-DIR 350 WW-CODE 02
 LON 47-51 W HR 17.4 W-COLOR WND-SPD 04 CLD-TPE 6
 MARSQ SQ 185 W-TRNSP BARO 1012.0 CLD-AMT 5 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
174	0000	0434	34841	715	2765	14681	064				108	
174	0010	0425	34874		2768	14679	074				106	
174	0020	0432	34903	712	2770	14684	076				106	
174	0030	0430	34919	712	2771	14685	074				106	
174	0047	0437	34925	710	2771	14691	076				103	
174	0095	0444	34941	701	2771	14702	078				107	
174	0193	0443	34961		2773	14718						
174	0367	0418										
174	0470	0388	34928		2776	14740						
174	0929	0350	34894		2777	14800						
174	1479	0344	34892		2778	14889						
174	1983	0340	34894		2778	14973						
174	2490	0362	34922		2778	15069						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0434	34841		2765	14681	0000	00000	0456
0010	0425	34874		2768	14679	0004	00000	0423
0020	0432	34903		2770	14684	0009	00001	0409
0030	0430	34919		2771	14685	0013	00002	0396
0050	0438	34926		2771	14692	0021	00005	0401
0075	0443	34935		2771	14698	0031	00012	0402
0100	0444	34942		2771	14703	0041	00021	0401
0125	0445	34949		2772	14707	0051	00033	0400
*0150	0445	34954		2772	14712	0061	00047	0399
*0175	0444	34959		2773	14715	0071	00064	0397
0200	0443	34961		2773	14719	0081	00083	0396
0225	0441	3496 B		2773	14722	0091	00105	0397
*0250	0438	3496 B		2773	14725	0101	00129	0398
*0300	0431	3496 C		2774	14731	0121	00186	0399
0400	0409	3494 B		2775	14737	0161	00330	0394
0500	0383	34925		2777	14743	0201	00513	0388
0600	0368 B	34916		2777	14753	0240	00735	0388
*0700	0357 C	34908		2778	14765	0280	00999	0391
*0800	0351 B	34901		2778	14779	0320	01307	0398
1000	0348	34892		2778	14811	0402	02074	0417
1200	0344	34890		2778	14843	0488	03050	0431
1500	0344	34892		2778	14893	0622	04925	0452
2000	0345 B	34898		2778	14978	0861	09259	0487

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
2500	0362	34923		2778	15071	1121	15335	0534

C-REF-NO 001 YR 1963 DEPTH 3305 WAVES 1 32X1 AIR T 02.4 VIS 7
 CONS. NO 021 MONTH 4 MXSAMPD 17 WAVES 2 1233 WET B 01.0 STN
 LAT 59-27 N DAY 15 NO.DPTH 11 WND-DIR 320 HW-CODE 01
 LON 47-50 W HR 20.8 W-COLOR WND-SPD 05 CLD-TPE 6
 MARSD SQ 185 W-TRNSP BARO 1012.3 CLD-AMT 6 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SID	PH
208	0000	0422	34810	735	2763	14675	091				090	
208	0010	0408		739			073				106	
208	0020	0402		756			091				115	
208	0030	0399	34806	734	2765	14671	088				111	
208	0050	0397	34817	730	2767	14673	078				106	
208	0100	0414	34869	716	2769	14689	090				114	
208	0200	0452	34966		2772	14723						
208	0500	0407	34935		2775	14753						
208	1000	0369	34924		2778	14820						
208	1500	0358	34907		2778	14899						
208	1700	0362	34906		2777	14934						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0422	34810		2763	14675	0000	00000	0467
0010	0408	34807		2765	14671	0005	00000	0456
0020	0402	34806		2765	14670	0009	00001	0451
0030	0399	34806		2765	14671	0014	00002	0449
0050	0397	34817		2767	14673	0023	00006	0441
0075	0403	34841		2768	14680	0034	00013	0432
0100	0414	34869		2769	14689	0045	00023	0424
0125	0424	34896		2770	14698	0055	00035	0417
0150	0434	34921		2771	14707	0066	00050	0412
*0175	0443	34945		2772	14715	0076	00067	0407
0200	0452	34966		2772	14723	0086	00086	0403
0225	0452 B	3497 C		2773	14727	0096	00109	0401
0250	0452 C	3498 F		2773	14731	0106	00133	0400
*0300	0449 E	3498 I		2774	14738	0127	00190	0399
*0400	0434 E	3497 I		2775	14749	0167	00336	0401
0500	0407	34935		2775	14753	0208	00525	0408
0600	0396	34931		2776	14765	0249	00759	0409
0700	0387	34928		2776	14778	0290	01036	0410
*0800	0380	34926		2777	14791	0332	01357	0412
1000	0369	34924		2778	14820	0416	02137	0418
1200	0361	34916		2778	14850	0502	03115	0432
1500	0358	34907		2778	14899	0638	05009	0460

C-REF-NO 001 YR 1963 DEPTH 3529 WAVES 1 22X0 AIR T 01.6 VIS 7
 CONS. NO 022 MONTH 4 MXSAMPD 15 WAVES 2 25X2 WET B 00.0 STN
 LAT 58-55 N DAY 16 NO.DPTH 9 WND-DIR 220 WW-CODE 02
 LON 47-52 W HR 01.8 W-COLOR WND-SPD 02 CLD-TPE
 MARSD SQ 185 W-TRNSP BARO 1010.7 CLD-AMT 0 HW

O B S E R V E D

GMT	DEPTH	TEMP	SAL	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SFO	PH
018	0000	0334	34873	733	2777	14639	100				107	
018	0010	0354	34878	735	2776	14649	100				093	
018	0020	0344	34880	729	2777	14647	104				114	
018	0050	0345	34883	716	2777	14652	098				111	
018	0100	0348	34891	710	2777	14662	086				100	
018	0200	0362	34914		2778	14684						
018	0500	0336	34889		2778	14722						
018	1000	0330	34897		2780	14803						
018	1500	0329	34888		2779	14886						

I N T E R P O L A T E D

DEPTH	TEMP	SAL	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0334	34873		2777	14639	0000	00000	0334
0010	0354	34878		2776	14649	0003	00000	0350
0020	0344	34880		2777	14647	0007	00001	0340
0030	0342	34881		2777	14647	0010	00002	0338
0050	0345	34883		2777	14652	0017	00004	0341
0075	0346	34887		2777	14657	0026	00010	0342
0100	0348	34891		2777	14662	0034	00018	0342
0125	0352	34897		2778	14667	0043	00028	0343
0150	0355	34903		2778	14673	0052	00040	0345
*0175	0359	34909		2778	14679	0060	00055	0346
0200	0362	34914		2778	14684	0069	00071	0347
0225	0361	34914		2778	14688	0078	00091	0349
0250	0361 B	3491 B		2778	14692	0087	00112	0351
*0300	0358 B	3491 C		2778	14699	0105	00162	0354
*0400	0349 B	3490 C		2778	14712	0141	00292	0360
0500	0336	34889		2778	14723	0177	00462	0366
0600	0333	34889		2779	14738	0214	00673	0370
0700	0331	3489 B		2779	14753	0252	00925	0376
*0800	0329	3489 B		2779	14770	0290	01221	0381
1000	0330	34897		2780	14803	0369	01949	0393
1200	0323 B	3488 C		2779	14834	0450	02873	0410
1500	0329	34888		2779	14887	0579	04672	0437

C-REF-NO 001 YR 1963 DEPTH 3489 WAVES 1 25X0 AIR T 01.8 VIS
 CONS. NO 023 MONTH 4 MXSAMPD 15 WAVES 2 07X2 WET B 00.4 STN
 LAT 58-20 N DAY 16 NO.DPTH 17 WND-DIR 250 WW-CODE 02
 LON 47-54 W HR 06.6 W-COLOR WND-SPD 03 CLD-TPE
 MARSD SQ 185 W-TRNSP BARO 1009.3 CLD-AMT 0 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4 -P-	NO2	NO3	SIG	PH
066	0000	0366	34920	714	2778	14653	091			139	
066	0010	0373	34913	722	2777	14658	096			138	
066	0020	0370	34918	716	2777	14658	100			139	
066	0030	0368	34908	715	2777	14659	098			136	
066	0050	0366	34922	704	2778	14661	100			138	
066	0075	0370	34920	722	2777	14667	098			138	
066	0100	0369	34914	717	2777	14671	100			128	
066	0150	0366	34914		2777	14678					
066	0200	0364	34914		2778	14685					
066	0300	0362	34914		2778	14701					
066	0400	0354	34912		2778	14714					
066	0500	0354	34908		2778	14730					
066	0600	0342	34904		2779	14742					
066	0800	0342	34896		2778	14775					
066	1000	0342	34893		2778	14808					
066	1200	0343	34894		2778	14842					
066	1500	0338	34897		2779	14890					

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	PQT.EN	SVA
0000	0366	34920		2778	14653	0000	00000	0329
0010	0373	34913		2777	14658	0003	00000	0342
0020	0370	34918		2777	14658	0007	00001	0336
0030	0368	34908		2777	14659	0010	00002	0342
0050	0366	34922		2778	14661	0017	00004	0332
0075	0370	34920		2777	14667	0025	00010	0339
0100	0369	34914		2777	14671	0034	00018	0345
0125	0368	34913		2777	14674	0043	00028	0347
0150	0366	34914		2777	14678	0052	00040	0347
0175	0365	34914		2778	14681	0060	00055	0348
0200	0364	34914		2778	14685	0069	00072	0349
0225	0364	34914		2778	14689	0078	00091	0351
0250	0363	34914		2778	14693	0087	00113	0353
0300	0362	34914		2778	14701	0105	00163	0356
0400	0354	34912		2778	14714	0141	00293	0359
0500	0354	34908		2778	14730	0178	00464	0370
0600	0342	34904		2779	14742	0215	00676	0369
0700	0340	34900		2779	14758	0253	00929	0378
0800	0342	34896		2778	14775	0292	01230	0391

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
1000	0342	34893		2778	14808	0373	01983	0410
1200	0343	34894		2778	14842	0458	02945	0426
1500	0338	34897		2779	14891	0590	04787	0441

C-REF-NO	001	YR	1963	DEPTH	3177	WAVES 1	00XO	AIR T	02.0	VIS	6
CONS. NO	024	MONTH	4	MXSAMPD	15	WAVES 2	1543	WET B	01.8	STN	
LAT	58-37 N	DAY	16	NO.DPTH	17	WND-DIR	CALM	WW-CODE	03		
LON	47-04 W	HR	15.6	W-COLOR	10	WND-SPD	00	CLD-TPE	6		
MARSD SQ	185			W-TRNSP	33	BARO	1008.2	CLD-AMT	8	HW	

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
156	0000	0405	34906	725	2773	14669	096				114	
156	0010	0406	34904	724	2773	14672	101				115	
156	0020	0398	34914	723	2774	14670	106				103	
156	0030	0393	34908	723	2774	14669	100				108	
156	0050	0395	34905	723	2774	14673	102				116	
156	0075	0400	34910	720	2774	14680	106				127	
156	0100	0398	34908	725	2774	14683	106					
156	0150	0403	34922		2774	14694						
156	0200	0403	34925		2774	14702						
156	0300	0390	34932		2776	14713						
156	0400	0374	34927		2778	14723						
156	0500	0373	34925		2778	14739						
156	0600	0364	34923		2778	14751						
156	0800	0354	34911		2778	14780						
156	1000	0346	34901		2778	14810						
156	1200	0348	34902		2778	14844						
156	1500	0355	34934		2780	14898						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0405	34906		2773	14669	0000	00000	0377
0010	0406	34904		2773	14672	0004	00000	0381
0020	0398	34914		2774	14670	0008	00001	0366
0030	0393	34908		2774	14669	0011	00002	0367
0050	0395	34905		2774	14673	0019	00005	0373
0075	0400	34910		2774	14680	0028	00011	0377
0100	0398	34908		2774	14683	0038	00019	0379
0125	0400	34914		2774	14688	0047	00030	0379
0150	0403	34922		2774	14694	0057	00044	0378
0175	0404	34924		2774	14698	0066	00060	0380
0200	0403	34925		2774	14702	0076	00078	0381
0225	0401	34927		2775	14705	0086	00099	0379
0250	0398	34929		2775	14708	0095	00123	0377
0300	0390	34932		2776	14713	0114	00176	0372
0400	0374	34927		2778	14723	0151	00311	0368
0500	0373	34925		2778	14739	0189	00485	0378
0600	0364	34923		2778	14751	0227	00702	0378
0700	0358	34918		2778	14766	0266	00960	0385
0800	0354	34911		2778	14780	0305	01265	0394

DEPTH	T E M P	S A L	CXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
1000	0346	34901		2778	14810	0387	02019	0409
1200	0348	34902		2778	14844	0471	02980	0426
1500	0355	34934		2780	14898	0602	04808	0436

C-REF-NO 001 YR 1963 DEPTH 2678 WAVES 1 36X3 AIR T 01.0 VIS 7
 CONS. NO 025 MONTH 4 MXSAMPD 16 WAVES 2 0744 WET B -02.2 STN
 LAT 58-53 N DAY 17 NO.DPTH 15 WND-DIR 360 WW-CODE 02
 LON 46-12 W HR 08.8 W-COLOR WND-SPD 09 CLD-TPE 8
 MARSD SQ 185 W-TRNSP BARO 1010.9 CLD-AMT 2 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
088	0000	0394	34932	723	2776	14665	106				098	
088	0010	0397	34930	713	2776	14668	101				107	
088	0019	0396	34931	729	2776	14669						
088	0046	0403	34927	713	2775	14676	091					
088	0094	0410	34930	713	2774	14687					107	
088	0187	0403	34929		2775	14700						
088	0281	0398	34930		2775	14713						
080	0378	0396	34925		2775	14728						
080	0472	0378	34916		2776	14736						
080	0566	0373	34921		2777	14750						
080	0753	0389	34931		2776	14787						
080	0944	0387	34929		2776	14818						
080	1130	0382	34926		2777	14847						
080	1410	0363	34914		2778	14886						
080	1597	0352	34907		2778	14913						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0394	34932		2776	14665	0000	00000	0347
0010	0397	34930		2776	14668	0004	00000	0352
0020	0396	34931		2776	14669	0007	00001	0352
0030	0398	34930		2775	14672	0011	00002	0356
0050	0404	34927		2775	14678	0018	00005	0365
0075	0408	34928		2774	14683	0027	00011	0371
0100	0410	34930		2774	14688	0037	00019	0374
0125	0409	34930		2774	14692	0046	00030	0376
*0150	0407	34930		2774	14695	0056	00043	0377
*0175	0405	34929		2775	14698	0065	00059	0377
0200	0402	34929		2775	14701	0075	00078	0377
0225	0401	34930		2775	14705	0084	00098	0378
*0250	0399	34930		2775	14709	0094	00122	0379
0300	0398	34929		2775	14716	0113	00176	0382
0400	0392	34922		2775	14730	0152	00317	0391
0500	0375	34917		2777	14740	0191	00499	0387
0600	0375	34923		2777	14756	0230	00721	0391
0700	0384	34929		2777	14776	0271	00991	0405
0800	0390	34931		2776	14796	0312	01313	0419
1000	0386	34928		2777	14827	0399	02117	0436
1200	0378	34923		2777	14857	0488	03132	0447

DEPTH	T E M P	S A L	CXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
1500	0359	34911		2778	14900	0626	05050	0458

C-REF-NO 001 YR 1963 DEPTH 2626 WAVES 1 3546 AIR T 02.6 VIS 6
 CONS. NO 026 MONTH 4 MXSAMPD 16 WAVES 2 00X0 WET B -00.5 STN
 LAT 59-08 N DAY 17 NO.DPTH 18 WND-DIR 350 WW-CODE 02
 LON 45-38 W HR 14.8 W-COLOR WND-SPD 12 CLD-TPE 7
 MARKS SQ 185 W-TRNSP BARO 1009.1 CLD-AMT 6 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	CXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
153	0000	0418	34944	713	2774	14675	092				115	
148	0010	0417	34943	716	2774	14677	091				124	
148	0020	0424	34941	714	2774	14681	090				105	
148	0030	0416	34942	712	2774	14680	089				111	
148	0050	0412	34943	710	2775	14681	090				124	
148	0075	0412	34943	709	2775	14685	089				124	
148	0100	0411	34945	712	2775	14689	090				111	
148	0150	0409	34943		2775	14696						
148	0200	0416	34942		2774	14707						
148	0300	0406	34936		2775	14720						
148	0400	0384	34925		2776	14727						
135	0470	0378	34933		2778	14736						
135	0564	0374	34923		2777	14750						
135	0752	0356	34920		2779	14773						
135	0933	0360	34929		2779	14805						
135	1120	0350	34937		2781	14832						
135	1400	0338	34947		2783	14874						
135	1587	0328	34952		2784	14902						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	CXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0418	34944		2774	14675	0000	00000	0362
0010	0417	34943		2774	14677	0004	00000	0363
0020	0424	34941		2774	14681	0007	00001	0372
0030	0416	34942		2774	14680	0011	00002	0364
0050	0412	34943		2775	14681	0018	00005	0362
0075	0412	34943		2775	14685	0028	00011	0364
0100	0411	34945		2775	14689	0037	00019	0364
0125	0409	34944		2775	14692	0046	00030	0366
0150	0409	34943		2775	14696	0055	00043	0369
0175	0412	34943		2775	14702	0065	00058	0375
0200	0416	34942		2774	14707	0074	00077	0382
0225	0416	34941		2774	14711	0084	00098	0385
0250	0414	34940		2775	14715	0094	00122	0386
0300	0406	34936		2775	14720	0113	00177	0386
0400	0384	34925		2776	14727	0152	00316	0380
0500	0377	34931		2778	14740	0190	00493	0377
0600	0370	34921		2778	14754	0229	00712	0387
0700	0361	34919		2778	14767	0268	00973	0386

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0800	0357	34922		2779	14782	0307	01276	0389
1000	0357	34932		2780	14815	0387	02016	0399
1200	0347	34940		2781	14844	0467	02929	0397
1500	0332	34950		2784	14889	0588	04607	0396

C-REF-NO 001 YR 1963 DEPTH 2011 WAVES 1 35X1 AIR T 00.5 VIS 6
 CONS. NO 027 MONTH 4 MXSAMPD 16 WAVES 2 0742 WET B -00.8 STN
 LAT 59-17 N DAY 17 NO.DPTH 18 WND-DIR 350 WW-CODE 22
 LON 45-11 W HR 20.8 W-COLOR 10 WND-SPD 05 CLD-TPE 7
 MARSD SQ 185 W-TRNSP 25 BARO 1007.5 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	CXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
208	0000	0468	34961	698	2770	14697	106				093	
208	0010	0474	34960	699	2769	14701	106				108	
208	0020	0470	34958	700	2770	14701	098				108	
208	0030	0470	34964	698	2770	14702	100				110	
208	0050	0468	34964	695	2770	14705	100				116	
208	0075	0472	34965	696	2770	14711	101				125	
208	0100	0470	34967	693	2770	14714	098				102	
208	0150	0484	34988		2771	14728						
208	0200	0480	34984		2771	14735						
198	0300	0475	34974		2770	14749						
198	0400	0461	34968		2772	14760						
198	0500	0452	34964		2772	14772						
198	0600	0447	34969		2773	14787						
198	0800	0408	34957		2777	14804						
198	1000	0370	34922		2778	14820						
198	1200	0366	34943		2780	14852						
198	1500	0349	34947		2782	14896						
198	1600	0337	34947		2783	14907						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0468	34961		2770	14697	0000	00000	0401
0010	0474	34960		2769	14701	0004	00000	0410
0020	0470	34958		2770	14701	0008	00001	0408
0030	0470	34964		2770	14702	0012	00002	0405
0050	0468	34964		2770	14705	0020	00005	0405
0075	0472	34965		2770	14711	0031	00012	0411
0100	0470	34967		2770	14714	0041	00021	0410
0125	0477	34978		2771	14721	0051	00033	0413
0150	0484	34988		2771	14728	0062	00048	0416
0175	0483	34988		2771	14732	0072	00066	0418
0200	0480	34984		2771	14735	0083	00086	0421
0225	0479	34981		2771	14738	0094	00109	0424
0250	0478	34979		2771	14742	0104	00136	0428
0300	0475	34974		2770	14749	0126	00197	0434
0400	0461	34968		2772	14760	0170	00355	0434
0500	0452	34964		2772	14772	0214	00559	0437
0600	0447	34969		2773	14787	0258	00809	0439
0700	0430	34966		2775	14796	0302	01103	0431

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0800	0408	34957		2777	14804	0345	01436	0422
1000	0370	34922		2778	14821	0431	02227	0421
1200	0366	34943		2780	14853	0516	03190	0418
1500	0349	34947		2782	14896	0643	04963	0419

C-REF-NO 001 YR 1963 DEPTH 658 WAVES 1 27X6 AIR T 00.0 VIS 7
 CONS. NO 028 MONTH 4 MXSAMPD 02 WAVES 2 00X0 WET B -01.4 STN
 LAT 59-25 N DAY 18 NO.DPTH 10 WND-DIR 270 WW-CODE 02
 LON 44-40 W HR 00.8 W-COLOR WND-SPD 12 CLD-TPE X
 MARSD SQ 185 W-TRNSP BARO 1007.1 CLD-AMT 9 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
008	0000	0258	34497	744	2754	14601	089				093	
008	0010	0275	34535	741	2756	14611	084				095	
008	0020	0292	34581	738	2758	14620	080				085	
008	0030	0298	34590	741	2758	14625	089				082	
008	0050	0316	34644	732	2761	14636	074				103	
008	0075	0320	34662	734	2762	14642	089				107	
008	0100	0330	34680	730	2762	14651	088				091	
008	0150	0362	34738		2764	14674						
008	0200	0368	34755		2765	14685						
008	0250	0378	34765		2764	14697						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0258	34497		2754	14601	0000	00000	0552
0010	0275	34535		2756	14611	0005	00000	0538
0020	0292	34581		2758	14620	0011	00001	0519
0030	0298	34590		2758	14625	0016	00002	0518
0050	0316	34644		2761	14636	0026	00007	0494
0075	0320	34662		2762	14642	0039	00015	0486
0100	0330	34680		2762	14651	0051	00026	0484
0125	0347	3471 B		2763	14663	0063	00040	0479
0150	0362	34738		2764	14674	0075	00057	0475
0175	0366	34750		2764	14680	0087	00077	0473
0200	0368	34755		2765	14685	0099	00100	0473
0225	0377	34766		2765	14693	0111	00126	0476
0250	0378	34765		2764	14697	0123	00155	0480

C-REF-NO 001 YR 1963 DEPTH 150 WAVBS 1 00X0 AIR T 02.2 VIS 7
 CONS. NO 029 MONTH 4 MX\$AMPD 01 WAVES 2 00X0 WET B 00.2 STN
 LAT 59-37 N DAY 18 NO.DPTH 8 WND-DIR CALM WW-CODE 03
 LON 44-09 W HR 11.2 W-COLOR 10 WND-SPD 00 CLO-TPE 6
 MARSD SQ 185 W-TRNSP 33 BARO 1007.3 CLO-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	STD	PH
112	0000	0188	34307	757	2745	14568	079				090	
112	0010	0205		753			081				098	
112	0020	0230	34412	750	2750	14591	081				089	
112	0030	0252	34472	745	2753	14603	081				094	
112	0050	0276	34549	743	2757	14618	083				102	
112	0075	0284	34565	739	2757	14626	082				102	
112	0100	0285	34554	737	2756	14630	083				091	
112	0150	0287	34563		2757	14639						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-O	POT. EN	SVA
0000	0188	34307		2745	14568	0000	00000	0642
0010	0205	34365		2748	14578	0006	00000	0611
0020	0230	34412		2750	14591	0012	00001	0595
0030	0252	34472		2753	14603	0018	00003	0568
0050	0276	34549		2757	14618	0029	00007	0531
0075	0284	34565		2757	14626	0043	00016	0528
0100	0285	34554		2756	14630	0056	00029	0538
0125	0288	3457 B		2757	14636	0070	00044	0535
0150	0287	34563		2757	14639	0083	00063	0537

C-REF-NO 001	YR 1963	DEPTH 197	WAVES 1 0227	AIR T 01.3	VIS 7
CONS. NO 030	MUNTH 4	MXSAMPD 02	WAVES 2 00X0	WET B -01.8	STN
LAT 59-30 N	DAY 19	NO.DPTH 9	WND-DIR 320	W-CODE 03	
LON 44-00 W	HR 01.1	W-COLOR	WND-SPD 16	CLD-TPE X	
MARSD SQ 185		W-TRNSP	BARO 1011.8	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
011	0000	0236	34473	750	2754	14591	088					095
011	0010	0232	34475	755	2755	14591	090					101
011	0020	0233	34474	754	2755	14593	088					094
011	0030	0233	34480	755	2755	14595	088					093
011	0050	0234	34471	753	2754	14599	090					098
011	0075	0236	34474	751	2754	14604	088					098
011	0100	0236	34485	749	2755	14608	088					089
011	0150	0244	34487		2755	14620						
011	0175	0248	34486		2754	14625						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0236	34473		2754	14591	0000	00000	0553
0010	0232	34475		2755	14591	0006	00000	0549
0020	0233	34474		2755	14593	0011	00001	0551
0030	0233	34480		2755	14595	0017	00003	0547
0050	0234	34471		2754	14599	0028	00007	0555
0075	0236	34474		2754	14604	0042	00016	0556
0100	0236	34485		2755	14608	0056	00029	0549
0125	0239	34488		2755	14613	0070	00045	0551
0150	0244	34487		2755	14620	0084	00064	0557
0175	0248	34486		2754	14625	0098	00088	0562

C-REF-NO 001 YR 1963 DEPTH 1877 WAVES 1 0447 AIR T 01.6 VIS 7
 CONS. NO 031 MONTH 4 MXSAMPD 14 WAVES 2 00X0 WET B -00.6 STN
 LAT 59-08 N DAY 19 NO.DPTH 8 WND-DIR 040 HW-CODE 02
 LON 44-00 W HR 10.7 W-COLOR WND-SPD 15 CLD-TPE 4
 MARSD SQ 185 W-TRNSP BARO 1012.3 CLD-AMT 7 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
107	0000	0478	34994	702	2772	14701	109				091	
107	0010	0485	34998	706	2771	14706	098				095	
107	0050	0476	34996	704	2772	14708	102				095	
107	0100	0472	34996	705	2773	14715	102				105	
107	0200	0478	34995		2772	14734						
107	0490	0478	35031		2775	14782						
107	0963	0404	34948		2776	14829						
107	1429	0366	34943		2780	14891						

I N T E R P O L A T E D

DEPTH	T F M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0478	34994		2772	14701	0000	00000	0387
0010	0485	34998		2771	14706	0004	00000	0393
0020	0485 B	34999		2771	14707	0008	00001	0394
0030	0484 B	34999		2771	14709	0012	00002	0394
0050	0476	34996		2772	14709	0020	00005	0389
0075	0473	34996		2772	14711	0030	00011	0389
0100	0472	34996		2773	14715	0039	00020	0391
0125	0473	34995		2772	14719	0049	00032	0395
0150	0474	34995		2772	14724	0059	00046	0400
*0175	0476	34995		2772	14729	0070	00063	0405
0200	0478	34995		2772	14734	0080	00083	0410
0225	0479	34998		2772	14739	0090	00105	0412
0250	0480	3500 B		2772	14743	0101	00131	0414
*0300	0481	3501 C		2772	14752	0122	00190	0416
*0400	0481	3502 B		2773	14769	0164	00342	0418
0500	0477	35030		2775	14783	0206	00537	0418
0600	0463 B	3502 D		2775	14794	0248	00778	0423
*0700	0449 C	3500 E		2776	14805	0291	01066	0428
*0800	0433 C	3498 E		2776	14814	0335	01402	0433
1000	0420 F	3498 I		2777	14842	0423	02217	0435
1200	0397 D	3497 H		2779	14866	0511	03219	0437

C-REF-NO 001 YR 1963 DEPTH 1762 WAVES 1 0239 AIR T 01.0 VIS 6
 CONS. NO 032 MONTH 4 MXSAMPD 15 WAVES 2 00X0 WET B 00.0 STN
 LAT 58-42 N DAY 19 NO.DPTH 8 WND-DIR 020 WW-CODE 02
 LON 44-00 W HR 16.2 W-COLOR WND-SPD 12 CLD-TPE 6
 MARSD SQ 185 W-TRNSP BARO 1012.3 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4 -P-	NO2	NO3	SIO	PH
155	0000	0432	34962	720	2774	14682				I24	
155	0010	0426	34959	718	2775	14681				I18	
155	0050	0425	34961	706	2775	14687				I14	
155	0100	0427	34959	719	2775	14696				I14	
155	0200	0436	34957		2773	14716					
162	0500	0430	34961		2774	14763					
162	1000	0367	34947		2780	14819					
162	1500	0299	34940		2786	14874					

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0432	34962		2774	14682	0000	00000	0363
0010	0426	34959		2775	14681	0004	00000	0360
0020	0424	34959		2775	14681	0007	00001	0359
0030	0423	34959		2775	14683	0011	00002	0359
0050	0425	34961		2775	14687	0018	00005	0361
0075	0426	34960		2775	14691	0027	00011	0365
0100	0427	34959		2775	14696	0037	00019	0370
0125	0429	34958		2774	14701	0046	00030	0376
0150	0431	34958		2774	14706	0056	00043	0381
*0175	0434	34957		2774	14711	0065	00060	0387
0200	0436	34957		2773	14716	0075	00078	0392
0225	0437	34957		2773	14721	0085	00100	0396
0250	0438	34957		2773	14725	0095	00125	0399
*0300	0438	34958		2773	14733	0115	00182	0404
*0400	0436	34959		2774	14749	0157	00331	0412
0500	0430	34961		2774	14763	0198	00524	0414
0600	0420	34959		2775	14774	0240	00761	0415
0700	0409 B	34957		2776	14787	0282	01041	0414
*0800	0396	34954		2777	14799	0324	01363	0411
1000	0367	34947		2780	14820	0406	02122	0399
1200	0349 B	3495 B		2782	14846	0486	03032	0394
1500	0299	34940		2786	14875	0601	04625	0362

C-REF-NO 001 YR 1963 DEPTH 2536 WAVES 1 0249 AIR T 02.0 VIS 6
 CONS. NO 033 MONTH 4 MXSAMPD 15 WAVES 2 00X0 WET B 00.5 STN
 LAT 58-20 N DAY 19 NO.DPTH 8 WND-DIR 020 WW-CODE 01
 LON 44-00 W HR 20.5 W-COLOR WND-SPD 16 CLD-TPE 6
 MARSQ SQ 185 W-TRNSP BARO 1014.4 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4 -P-	NO2	NO3	SIO	PH
200	0000	0404	34890	727	2772	14669	095			118	
200	0010	0404	34892	718	2772	14671	096			118	
200	0050	0404	34890	719	2772	14677	096			111	
200	0100	0403	34882	722	2771	14685	096			108	
200	0200	0410	34898		2772	14704					
205	0500	0403	34925		2774	14751					
205	1000	0352									
205	1500	0354	34945		2781	14898					

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0404	34890		2772	14669	0000	00000	0388
0010	0404	34892		2772	14671	0004	00000	0388
0020	0404	34892		2772	14672	0008	00001	0389
0030	0404	34892		2772	14674	0012	00002	0390
0050	0404	34890		2772	14677	0020	00005	0393
0075	0403	34886		2771	14681	0030	00011	0398
0100	0403	34882		2771	14685	0040	00021	0403
0125	0404	34884		2771	14689	0050	00032	0406
0150	0406	34888		2771	14694	0060	00047	0407
*0175	0408	34892		2771	14699	0070	00064	0408
0200	0410	34898		2772	14704	0081	00084	0409
0225	0411	34901		2772	14709	0091	00106	0409
0250	0411	34904		2772	14713	0101	00132	0410
*0300	0411	34909		2772	14721	0122	00190	0411
*0400	0409	34918		2773	14737	0164	00340	0412
0500	0403	34925		2774	14751	0205	00532	0411
0600	0393 B	3494 C		2777	14764	0246	00764	0399
0700	0382 B	3495 C		2778	14776	0286	01031	0391
*0800	0372 B	3495 C		2780	14788	0325	01334	0385
1000	0352	3496 C		2782	14813	0402	02045	0374
1200	0361 D	3496 B		2781	14851	0481	02940	0402
1500	0354	34945		2781	14898	0607	04701	0427

C-REF-ND 001 YR 1963 DEPTH 3128 WAVES 1 0447 AIR T 01.8 VIS 6
 CONS. NO 034 MONTH 4 MXSAMPD 15 WAVES 2 00X0 WET B 00.6 STN
 LAT 57-59 N DAY 19 NO.DPTH 8 WND-DIR 040 WW-CODE 02
 LDN 44-00 W HR 23.9 W-COLOR WND-SPD 12 CLD-TPE X
 MARSD SQ 185 W-TRNSP BARO 1014.6 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
239	0000	0382	34899	720	2775	14660	092					
239	0010	0374	34899	718	2775	14658	086					
239	0050	0384	34885	716	2773	14669	086					
239	0100	0381	34893	724	2774	14676	086					
239	0200	0382	34897		2774	14693						
*248	0500	0380	34904		2775	14741						
*248	1000	0380	34942		2778	14825						
*248	1500	0363	34945		2780	14902						

*MULTIPLE CAST CONTINUED NEXT DAY

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	PDT.EN	SVA
0000	0382	34899		2775	14660	0000	00000	0360
0010	0374	34899		2775	14658	0004	00000	0353
0020	0374 B	34896		2775	14660	0007	00001	0356
0030	0375 B	34892		2775	14662	0011	00002	0361
0050	0384	34885		2773	14669	0018	00005	0377
0075	0383	34887		2774	14672	0028	00011	0377
0100	0381	34893		2774	14676	0037	00019	0373
0125	0381	34895		2774	14680	0047	00030	0374
0150	0381	34896		2774	14684	0056	00044	0375
*0175	0381	34897		2774	14688	0066	00059	0378
0200	0382	34897		2774	14693	0075	00078	0380
0225	0382	34898		2774	14697	0085	00099	0382
0250	0382	34898		2775	14701	0094	00123	0384
*0300	0382	34899		2775	14709	0114	00178	0388
*0400	0381	34901		2775	14725	0153	00320	0395
0500	0380	34904		2775	14741	0194	00506	0401
0600	0381	34912		2776	14758	0234	00737	0405
0700	0381	3492 B		2776	14775	0276	01013	0409
*0800	0381	3493 B		2777	14792	0317	01333	0412
1000	0380	34942		2778	14825	0401	02113	0418
1200	0372	3494 C		2779	14855	0487	03088	0430
1500	0363	34945		2780	14902	0619	04929	0438

C-REF-NO 001 YR 1963 DEPTH 3376 WAVES 1 04X7 AIR T 01.8 VIS 6
 CONS. NO 035 MONTH 4 MXSAMPD 02 WAVES 2 00X0 WET B 00.8 STN
 LAT 57-25 N DAY 20 NO.DPTH 7 WND-DIR 040 WW-CODE 02
 LON 44-00 W HR 04.2 W-COLOR WND-SPD 12 CLD-TPE X
 MARSD SQ 185 W-TRNSP BARO 1015.0 CLD-AMT 9 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
042	0000	0338	34794	738	2771	14640						
042	0010	0339	34796	743	2771	14642						
042	0020	0338	34788	739	2770	14643						
042	0050	0334	34788		2771	14646						
042	0100	0336	34791	737	2771	14655						
042	0150	0325	34802		2773	14659						
042	0200	0330	34824		2774	14669						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0338	34794		2771	14640	0000	00000	0397
0010	0339	34796		2771	14642	0004	00000	0398
0020	0338	34788		2770	14643	0008	00001	0404
0030	0337	34786		2770	14644	0012	00002	0405
0050	0334	34788		2771	14646	0020	00005	0402
0075	0335	34789		2771	14651	0030	00012	0405
0100	0336	34791		2771	14655	0041	00021	0406
0125	0330	34795		2771	14657	0051	00033	0400
0150	0325	34802		2773	14659	0061	00047	0392
0175	0330	34812		2773	14665	0071	00063	0390
0200	0330	34824		2774	14670	0080	00082	0384

C-REF-NO 001	YR 1963	DEPTH 3555	WAVES 1 0448	AIR T 02.2	VIS 6
CONS. NO 036	MONTH 4	MXSAMPD 15	WAVES 2 00X0	WET B 00.2	STM
LAT 56-50 N	DAY 20	NO-DPTH 8	WND-DIR 040	WW-CODE 01	
LON 44-00 W	HR 09.9	W-COLOR	WND-SPD 11	CLD-TPE 6	
MARSD SQ 185		W-TRNSP	BARO 1015.6	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4 -P-	NO2	NO3	SIO	PH
091	0000	0330	34776	739	2770	14636	082			107	
091	0010	0325	34776	740	2770	14635	091			105	
091	0050	0328	34773	737	2770	14643	088			096	
091	0100	0325	34778	740	2771	14650	091			105	
091	0200	0336	34780		2770	14671					
099	0500	0334	34873		2777	14721					
099	1000	0344	34891		2778	14809					
099	1500	0346	34901		2778	14894					

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0330	34776		2770	14636	0000	00000	0404
0010	0325	34776		2770	14635	0004	00000	0400
0020	0324	34775		2770	14637	0008	00001	0401
0030	0325	34774		2770	14639	0012	00002	0402
0050	0328	34773		2770	14643	0020	00005	0408
0075	0327	34775		2770	14647	0031	00012	0407
0100	0325	34778		2771	14650	0041	00021	0406
0125	0327	34778		2770	14655	0051	00033	0409
0150	0329	34779		2770	14660	0061	00048	0413
*0175	0332	34779		2770	14666	0072	00065	0418
0200	0336	34780		2770	14671	0083	00086	0423
0225	0337	3479 B		2770	14676	0093	00109	0421
0250	0337	3479 B		2771	14680	0104	00135	0418
*0300	0338 B	3481 D		2772	14689	0125	00194	0412
*0400	0337	3484 D		2774	14706	0166	00341	0397
0500	0334	34873		2777	14721	0205	00521	0375
0600	0336	3488 B		2778	14739	0243	00736	0377
0700	0337	3489 C		2778	14756	0281	00993	0382
*0800	0339	3490 C		2779	14774	0320	01294	0390
1000	0344	34891		2778	14809	0401	02051	0414
1200	0342	3492 F		2780	14842	0484	02992	0407
1500	0346	34901		2778	14894	0615	04814	0449

C-REF-NO 001 YR 1963 DEPTH 3675 WAVES 1 0246 AIR T 03.8 VIS 7
 CONS. NO 037 MONTH 4 MXSAMPD 02 WAVES 2 00X0 WET B 01.4 STN
 LAT 56-22 N DAY 20 NO.DPTH 7 WND-DIR 020 WW-CODE 01
 LON 44-00 W HR 14.7 W-COLOR WND-SPD 11 CLD-TPE
 MARSD SQ 185 W-TRNSP BARO 1015.8 CLD-AMT 0 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
147	0000	0333	34782	742	2770	14637						
147	0010	0332	34778	735	2770	14638						
147	0020	0333	34778	736	2770	14641						
147	0050	0336	34778	739	2770	14647						
147	0100	0326	34778	736	2771	14651						
147	0150	0319										
147	0200	0316	34804		2774	14663						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0333	34782		2770	14637	0000	00000	0402
0010	0332	34778		2770	14638	0004	00000	0405
0020	0333	34778		2770	14641	0008	00001	0407
0030	0334	34778		2770	14643	0012	00002	0409
0050	0336	34778		2770	14647	0021	00005	0412
0075	0332	34777		2770	14649	0031	00012	0410
0100	0326	34778		2771	14651	0041	00021	0407
0125	0322	34784		2771	14653	0051	00033	0401
0150	0319	34789		2772	14656	0061	00047	0396
0175	0317	34796		2773	14660	0071	00064	0391
0200	0316	34804		2774	14663	0081	00083	0386

C-REF-NO 001 YR 1963 DEPTH 3378 WAVES 1 3656 AIR T 03.3 VIS 6
 CONS. NO 038 MONTH 4 MXSAMPD 18 WAVES 2 00X0 WET B 01.0 STN
 LAT 55-50 N DAY 20 NO.DPTH 18 WND-DIR 360 WW-CODE 03
 LON 44-00 W HR 20.8 W-COLOR WND-SPD 10 CLD-TPE 6
 MARSD SQ 185 W-TRNSP BARO 1017.5 CLD-AMT 7 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	--P--	NO2	NO3	SIO	PH
208	0000	0366	34730	739	2763	14651	083				089	
208	0010	0385	34724	738	2760	14660	089				089	
208	0020	0388	34722	735	2760	14663	089				093	
208	0030	0377	34723	732	2761	14660	089				093	
208	0047	0381	34724	732	2761	14665	086				091	
208	0070	0381	34723	732	2761	14668	083				095	
208	0094	0374	34724	732	2762	14669	087				089	
208	0140	0360	34762		2766	14672						
208	0187	0330	34784		2771	14667						
208	0280	0326	34826		2774	14681						
222	0400	0362	34893		2776	14717						
222	0500	0357	34894		2777	14731						
222	0600	0351	34892		2777	14745						
222	0800	0348	34896		2778	14777						
222	1000	0339	34894		2779	14807						
222	1200	0338	34893		2779	14840						
222	1500	0342	34914		2780	14892						
222	1600	0346	34925		2780	14911						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0366	34730		2763	14651	0000	00000	0472
0010	0385	34724		2760	14660	0005	00000	0495
0020	0388	34722		2760	14663	0010	00001	0501
0030	0377	34723		2761	14660	0015	00002	0490
0050	0381	34724		2761	14665	0025	00006	0496
0075	0380	34723		2761	14669	0037	00014	0498
0100	0373	34728		2762	14670	0050	00026	0489
0125	0365	34748		2764	14671	0062	00040	0469
0150	0353	34767		2767	14671	0073	00056	0445
0175	0338	34779		2770	14668	0084	00074	0423
0200	0326	34790		2771	14667	0095	00094	0406
0225	0322	34801		2773	14670	0105	00116	0396
*0250	0322	34812		2774	14674	0115	00140	0389
0300	0332	34839		2775	14687	0134	00195	0382
0400	0362	34893		2776	14717	0173	00334	0381
0500	0357	34894		2777	14732	0211	00513	0384
0600	0351	34892		2777	14746	0250	00734	0387
0700	0349	34894		2777	14761	0290	00998	0393

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0800	0348	34896		2778	14778	0330	01307	0398
1000	0339	34894		2779	14807	0411	02062	0406
1200	0338	34893		2779	14840	0495	03013	0421
1500	0342	34914		2780	14892	0625	04827	0434

C-REF-NO 001	YR 1963	DEPTH 3479	WAVES 1 36X1	AIR T 02.3	VIS 5
CONS. NO 039	MONTH 4	MXSAMPD 02	WAVES 2 0334	WET B 01.4	STN
LAT 55-18 N	DAY 21	NO. DPTH 9	WND-DIR 360	W-CODE 02	
LON 44-00 W	HR 02.5	W-COLOR	WND-SPD 06	CLD-TPE X	
MARSD SQ 185		W-TRNSP	BARO 1015.9	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4 -P-	NO2	NO3	SIO	PH
025	0000	0396	34720	725	2759	14663					
025	0010	0390	34708	727	2759	14662					
025	0020	0390	34713	726	2759	14664					
025	0030	0390	34711	727	2759	14665					
025	0050	0394	34711	726	2758	14670					
025	0075	0386	34708	725	2759	14671					
025	0100	0376	34717	711	2761	14671					
025	0150	0349	34741		2765	14668					
025	0200	0343	34782		2769	14674					

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0396	34720		2759	14663	0000	00000	0508
0010	0390	34708		2759	14662	0005	00000	0512
0020	0390	34713		2759	14664	0010	00001	0510
0030	0390	34711		2759	14665	0015	00002	0512
0050	0394	34711		2758	14670	0026	00007	0518
0075	0386	34708		2759	14671	0039	00015	0515
0100	0376	34717		2761	14671	0052	00026	0500
0125	0362	34727		2763	14669	0064	00041	0481
0150	0349	34741		2765	14668	0076	00057	0460
0175	0347	34761		2767	14672	0087	00077	0446
0200	0343	34782		2769	14674	0098	00098	0428

C-REF-NO 001 YR 1963 DEPTH 1266 WAVES 1 00X0 AIR T 06.0 VIS 6
 CONS. NO 040 MONTH 4 MXSAMPD 12 WAVES 2 00X0 WET B 05.4 STN
 LAT 63-19 N DAY 25 NO.DPTH 16 WND-DIR CALM WW-CODE 61
 LON 26-58 W HR 00.8 W-COLOR WND-SPD 00 CLD-TPF 5
 MARSD SQ 219 W-TRNSP BARO 1008.1 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SID	PH
015	0000	0668	35074	675	2754	14779	094				074	
015	0010	0675	35088	677	2754	14784	090				077	
015	0020	0672	35089	678	2755	14784	090				077	
015	0030	0672	35088	674	2755	14786	090				077	
015	0050	0674	35089	676	2755	14790	090				081	
015	0075	0674	35084	672	2754	14794	083				086	
008	0100	0670	35092	669	2755	14796	084				082	
008	0150	0659	35103	664	2758	14800	094				085	
008	0200	0650	35088	666	2758	14805	083				085	
008	0300	0638		666			081				083	
008	0400	0624		658			083				083	
000	0500	0608	35057	661	2761	14837	081				089	
000	0600	0564		642			082				091	
000	0800	0529	35062	591	2771	14855	086				103	
000	1000	0467	35010	613	2774	14862	102				108	
000	1200	0421	35024	613	2780	14877	106				106	

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0668	35074		2754	14779	0000	00000	0553
0010	0675	35088		2754	14784	0006	00000	0554
0020	0672	35089		2755	14784	0011	00001	0551
0030	0672	35088		2755	14786	0017	00003	0553
0050	0674	35089		2755	14790	0028	00007	0558
0075	0674	35084		2754	14794	0042	00016	0566
0100	0670	35092		2755	14796	0056	00029	0559
0125	0665	35100		2757	14798	0070	00045	0550
0150	0659	35103		2758	14800	0084	00065	0544
0175	0654	35097		2758	14803	0098	00088	0546
0200	0650	35088		2758	14805	0112	00114	0551
0225	0647	3510 D		2759	14808	0125	00144	0543
0250	0644	3510 E		2759	14811	0139	00178	0543
0300	0638	3510 E		2760	14817	0167	00255	0545
0400	0624	3508 D		2761	14827	0222	00455	0552
0500	0608	35057		2761	14837	0278	00716	0563
0600	0564	3506 C		2767	14836	0333	01023	0515
0700	0544 B	3506 C		2769	14844	0384	01366	0501
0800	0529	35062		2771	14855	0434	01755	0495
1000	0467	35010		2774	14862	0533	02665	0476

304

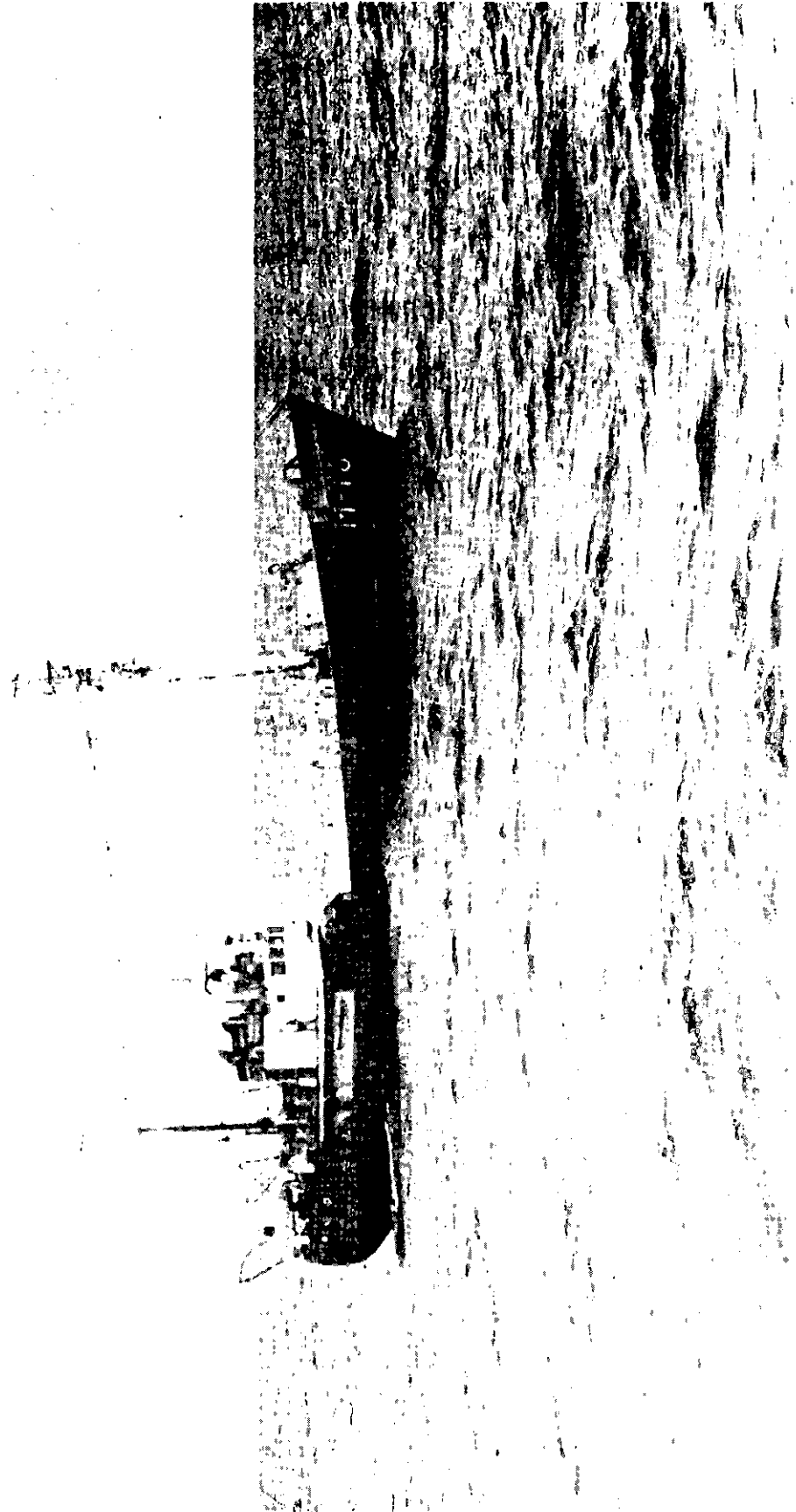
DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
1200	0421	35024		2780	14877	0624	03697	0428

**STATE COMMITTEE
OF INDUSTRIAL FISHERIES OF THE USSR**

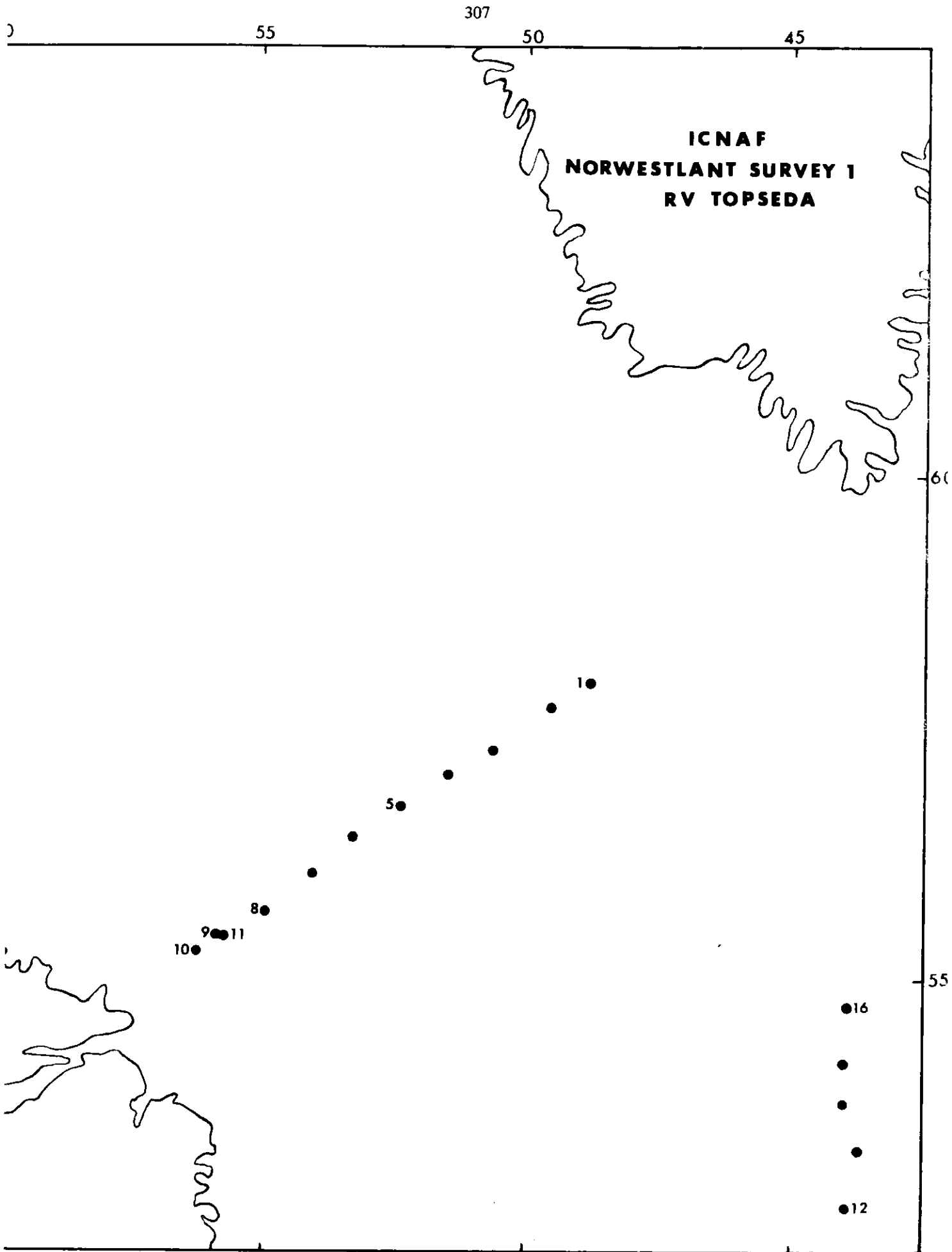
**ICNAF
NORWESTLANT – 1 SURVEY
USSR**

**PART 2
ATLANTIC OCEAN AND DAVIS STRAIT**

Ship: *RV Topseda*
Cruise period *April 3 – April 21, 1963*



TOPSEDA



PERSONNEL

Observers at sea	A.F. Samkov	PINRO*
	V.P. Orekhov	PINRO
	B.N. Lvov	PINRO
	V.G. Myshelevsky	PINRO
	R.N. Vorontsova	PINRO
	G.M. Vysotskaya	PINRO
	K.J. Alaukhov	PINRO
Data analyses	Oceanographic Data	A.F. Samkov V.V. Rossov A.G. Kisljakov
	Salinity data	Treated in Lowestoft, England
	Chemical Data	L.S. Ponomarenko M.A. Istoshina R.N. Vorontsova
	Biological Data	E.A. Pavshchik M.A. Drovetskaja K.E. Fedorov V.P. Serebryakov M.M. Nevinsky

*Polar Research Institute of Marine Fisheries and Oceanography (PINRO)

EXTRACT OF CRUISE LOG

3 April, 1963	Departed Murmansk
13 April, 1963	Rendez-vous with <i>RV Academician Knipovich</i> .
15 April, 1963	Occupied first station
21 April, 1963	Completed final station

OBSERVATIONAL PROCEDURES**Biological Sampling**

1. Collections of phytoplankton samples were made at all stations with a water bottle placed at the 10 m depth. At some stations samples were taken at each standard depth from 0 to 500 m. All the samples were submitted to Dr. M. Gillbricht for analysis.
2. Vertical hauls were made with a standard Hensen net from 100 m to the surface, at an average speed of about 1 m/sec.
3. Collections of plankton samples with an Icelandic High Speed Sampler were made at 50 m. Hauling time was 20 minutes at an average speed of 4-5 knots.

Physical and Chemical observations

Series of temperature and salinity observations were made at depths 0, 10, 20, 30, 50, 75, 100, 150, 200, 300, 400, 500, 600, 800, 1000, 1200, and 1500 m. At additional stations observations were made at standard depths down to 200 m and water samples for determining the salinity were taken at the 10 and 200 m depths. Observations for the content of oxygen, phosphate and silicate were limited to the 0, 10, 20, 30, 50, 75 and 100 m. depths. Water samples were collected using Nansen bottles fitted with deep-sea reversing thermometers. At depths of 200, 500, 1000, 1200 and 1500 m, two protected deep-sea reversing thermometers and one depth thermo-gauge (unprotected thermometer) were used. No bathythermograph lowerings were made.

LABORATORY PROCEDURES

Determination of salinity was made with the Auto Lab Inductively Coupled Salinometer at the Lowestoft Laboratory (England).

Dissolved oxygen was determined by the Winkler method using as standard a solution of KIO₃ (0.02). Phosphate was determined by the Deniges and Atkins method and silicate by the Diénert and Wandenbulcke (1923) method (blue modification). Standard solutions were supplied by Mr. A. Lee. Comparison of the intensity of colouring of the standard and the sample were made visually in a 100 ml Henere cylinder.

CONTINUOUS RECORDS

The NEL-5 and GEL-2 echo sounders were used to obtain continuous records of the bottom configuration along the track of the vessel. The depth traces were checked every 10 minutes and plotted on a chart board, scale 1:1,000,000. All the corrections necessary for obtaining true values of depths were done and a special register of corrections was made at the coastal laboratory.

METHODS TABLE

TOPSEDA (USSR)		NORWESTLANT 1						
	SAMPLING BOTTLE	FILTER	STANDING TIME BEFORE ANALYSIS	METHOD	PHOTOMETER CELL LENGTH	AVERAGE BLANK	STANDARD	
SALINITY	Nansen Type Bottles		Several months	Auto-lab salinometer			Copenhagen water	
TEMPERATURE				Reversing thermometers				
O ₂			30 minutes	Modified Winkler			Bi-iodate 0.02N	
PO ₄			1 hour	Deniges-Atkins (visually)			NORWESTLANT: Supplied by UK	
SiO ₂			1 hour	Dienert and Wandenbulcke (visually)			NORWESTLANT: Supplied by UK	

SUMMARY OF OBSERVATIONS

TOPSEDA (USSR)						NORWESTLANT 1							
Time	Date	Latitude	Longitude	Depth	Consec No	Temperature	Salinity ‰	O ₂	PO ₄	SiO ₃	10m Phyto	100m Hensen	Icelandic H.S.
1806	15/4	5800	4846		1	x	x				x		
2336	15/4	5740	4940		2	x	x	x	x	x	x		
0524	16/4	5720	5035		3	x	x				x		
1148	16/4	5701	5127		4	x	x	x	x	x	x		
1712	16/4	5645	5218		5	x	x				x		
2300	16/4	5624	5312		6	x	x	x	x	x	x		
0412	17/4	5605	5404		7	x	x	x	x	x	x		
0948	17/4	5545	5457		8	x	x	x	x	x	x		
1624	17/4	5525	5552	1200	9	x	x	x	x	x	x		
1854	17/4	5518	5608	0230	10	x	x	x	x	x	x		
2218	17/4	5529	5542	0950	11	x	x	x	x	x	x		
0905	20/4	5230	4400		12	x	x	x	x	x	x		
1530	20/4	5309	4347		13	x	x				x		
0054	21/4	5340	4400		14	x	x	x	x	x	x		
0624	21/4	5410	4400		15	x	x				x		
1736	21/4	5444	4400		16	x	x	x	x	x	x		

Specific Data not Provided

Specific Data not Provided

SERIAL OCEANOGRAPHIC DATA

GENERAL INFORMATION

Institute:	Polar Research Institute of Marine Fisheries and Oceanography
Observation platform:	<i>RV Torseda</i>
Vessel's cruising speed:	7 Knots
Total number of stations occupied:	16
Anemometer height above sea level:	8 metres
Barometer readings:	Aneroid – 1/10 mb units
Air temperature:	Fixed thermometer – 1/10 C° units
Sea surface water temperature:	Reversing thermometer – 1/100 C° units

The following Standard Deviations were used to express both measurement and interpolation error estimates:

Temperature	0.02
Salinity	0.002

C-REF-NO 002	YR 1963	DEPTH	WAVES 1 0936	AIR T 04.8	VIS 8
CONS. NO 001	MONTH 4	MXSAMPC 02	WAVES 2 00X0	WET B	STN
LAT 58-00 N	DAY 15	NO.DPTH 7	WND-DIR 090	WW-CCDE 03	
LON 48-46 W	HR 18.1	W-COLOR	WND-SPD 06	CLO-TPE 6	
MARSD SQ 185		W-TRNSP	BARO 1012.4	CLO-AMT 7	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SID	PH
181	0000	0432										
181	0010	0420	34937		2774	14678						
181	0020	0430										
181	0050	0432										
181	0100	0432										
181	0150	0424										
181	0200	0407	34937		2775	14704						

C-REF-NO 002	YR 1963	DEPTH		WAVES 1 0934	AIR T 03.0	VIS 7
CONS. NO 002	MONTH 4	MXSAMPD	15	WAVES 2 00X0	WET B	STN
LAT 57-40 N	DAY 15	NO. DPTH	17	WND-DIR 060	WW-CODE 03	
LON 49-40 W	HR 23.6	W-COLOR		WND-SPD 03	CLD-TPE 6	
MARSD SQ 185		W-TRNSP		BARO 1013.2	CLD-AMT 5	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	STO	PH
*243	0000	0325	34764	731	2770	14634	122				087	
*243	0010	0320	34758	730	2770	14633	122				089	
*243	0020	0320	34762	731	2770	14635	118				092	
236	0030	0322	34757	729	2769	14637	115				093	
236	0050	0317	34764	731	2770	14638	109				092	
236	0075	0320	34760	726	2770	14644	108				092	
236	0100	0318	34764	725	2770	14647	108				097	
236	0150	0320	34839		2776	14657						
236	0200	0328	34861		2777	14669						
236	0300	0321	34854		2777	14683						
236	0400	0324	34878		2779	14701						
236	0500	0331	34881		2778	14720						
236	0600	0337	34883		2778	14739						
236	0800	0328	34890		2779	14769						
236	1000	0331	34941		2783	14804						
236	1200	0328	34882		2779	14836						
236	1500	0331	34886		2779	14887						

*MULTIPLE CAST CONTINUED NEXT DAY

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0325	34764		2770	14634	0000	00000	0408
0010	0320	34758		2770	14633	0004	00000	0409
0020	0320	34762		2770	14635	0008	00001	0407
0030	0322	34757		2769	14637	0012	00002	0413
0050	0317	34764		2770	14638	0021	00005	0405
0075	0320	34760		2770	14644	0031	00012	0413
0100	0318	34764		2770	14647	0041	00021	0410
0125	0318	3480 C		2773	14652	0051	00033	0385
0150	0320	34839		2776	14657	0061	00046	0359
0175	0324	34854		2777	14663	0070	00061	0353
0200	0328	34861		2777	14669	0079	00078	0354
0225	0327	3486 R		2777	14673	0088	00098	0355
0250	0326	3486 B		2777	14676	0097	00120	0357
0300	0321	34854		2777	14683	0115	00171	0361
0400	0324	34878		2779	14701	0151	00301	0354
0500	0331	34881		2778	14720	0187	00469	0366
0600	0337	34883		2778	14739	0225	00683	0379
0700	0334	34884		2778	14755	0263	00941	0383

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0800	0328	34890		2779	14769	0302	01239	0380
1000	0331	34941		2783	14804	0377	01934	0362
1200	0328	34882		2779	14836	0456	02834	0417
1500	0331	34886		2779	14887	0587	04657	0441

C-REF-NO 002	YR 1963	DEPTH	WAVES 1 3221	AIR T 02.2	VIS 6
CONS. NO 003	MONTH 4	MXSAMPC 02	WAVES 2 00X0	WET B	STN
LAT 57-20 N	DAY 16	NO.DPTH 7	WND-DIR 340	WV-CODE 03	
LON 50-35 W	HR 05.4	W-COLOR	WND-SPD 05	CLD-TPE 9	
MARSI: SQ 186		W-TRNSP	BARO 1011.0	CLD-AMT 2	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	STO	PH
054	0000	0330										
054	0010	0330	34725		2766	14637						
054	0020	0324										
054	0050	0321										
054	0100	0310										
054	0150	0321										
054	0200	0341	34865		2776	14675						

C-REF-NO 002	YR 1963	DEPTH	WAVES 1 3422	AIR T 02.5	VIS 8
CONS. NO 004	MONTH 4	MXSAMPD 15	WAVES 2 00X0	WET B	STN
LAT 57-01 N	DAY 16	NO.DPTH 17	WND-DIR 340	WW-CODE 03	
LON 51-27 W	HR 11.8	W-COLOR	WND-SPD 06	CLO-TPE 5	
MARSD SQ 186		W-TRNSP	BARO 1011.0	CLO-AMT 7	FW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
118	0000	0320	34867	726	2778	14633	118				089	
118	0010	0318	34856	723	2777	14634	118				095	
118	0020	0322	34859	723	2777	14637	116				090	
118	0030	0320	34860	718	2778	14638	115				102	
103	0050	0316	34860	736	2778	14639	114				101	
103	0075	0322	34863	726	2778	14646	114				095	
103	0100	0316	34860	716	2778	14648	111				101	
103	0150	0323	34863		2778	14659						
103	0200	0324	34867		2778	14668						
103	0300	0318	34876		2779	14682						
103	0400	0323	34857		2777	14700						
103	0500	0320	34861		2778	14715						
103	0600	0321	34870		2778	14732						
103	0820	0320	34881		2779	14769						
103	1028	0326	34886		2779	14806						
103	1227	0320	34882		2779	14837						
103	1538	0328	34880		2778	14892						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0320	34867		2778	14633	0000	00000	0326
0010	0318	34856		2777	14634	0003	00000	0333
0020	0322	34859		2777	14637	0007	00001	0335
0030	0320	34860		2778	14638	0010	00002	0334
0050	0316	34860		2778	14639	0017	00004	0332
0075	0322	34863		2778	14646	0025	00010	0337
0100	0316	34860		2778	14648	0034	00017	0336
0125	0318	34861		2778	14653	0042	00027	0339
0150	0323	34863		2778	14659	0051	00039	0344
0175	0324	34865		2778	14663	0060	00054	0345
0200	0324	34867		2778	14668	0068	00071	0346
0225	0322	34871		2778	14671	0077	00090	0344
0250	0321	34873		2779	14675	0086	00111	0342
0300	0318	34876		2779	14682	0103	00160	0341
0400	0323	34857		2777	14700	0139	00289	0368
0500	0320	34861		2778	14715	0176	00462	0370
0600	0321	34870		2778	14732	0213	00674	0372
0700	0320	34876		2779	14749	0251	00927	0375
0800	0320	34880		2779	14765	0289	01222	0379

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
1000	0325	34886		2779	14801	0368	01951	0396
1200	0321	34883		2779	14833	0449	02876	0408
1500	0328	34881		2779	14886	0578	04680	0440

C-REF-NO 002	YR 1963	DEPTH		WAVES 1 3421	AIR T 03.4	VIS 7
CONS. NO 005	MUNTH 4	MXSAMPU	02	WAVES 2 00X0	WET B	STM
LAT 56-45 N	DAY 16	NO.DPTH	7	WND-DIR 340	WW-CODE 03	
LON 52-18 W	HR 17.2	W-COLOR		WND-SPD 08	CLD-TPE 6	
MARSD SQ 186		W-TRNSP		BARO 1011.0	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIC	PH
172	0000	0330										
172	0010	0321	34794		2772	14634						
172	0020	0326										
172	0050	0319										
172	0100	0316										
172	0150	0305										
172	0200	0303	34863		2779	14658						

C-REF-NO 002 YR 1963 DEPTH WAVES 1 3422 AIR T 03.3 VIS 7
 CONS. NO 006 MONTH 4 MXSAMPD 16 WAVES 2 00X0 WET B STN
 LAT 56-24 N DAY 16 NO.DPTH 17 WND-DIR 340 WW-CODE 02
 LON 53-12 W HR 23.0 W-COLOR WND-SPD 07 CLD-TPE 6
 MARSD SQ 186 W-TRNSP BARO 1013.5 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	TEMP	SAL	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
230	0000	0352	34693	735	2761	14644	112				093	
230	0010	0362	34690	726	2760	14650	109				100	
230	0020	0360	34687	743	2760	14651	107				092	
230	0030	0361	34690	723	2760	14653	108				093	
225	0050	0336	34701		2763	14646	108				096	
225	0075	0336	34794	697	2771	14651	115				105	
225	0100	0309		703			115				102	
225	0150	0312	34820		2775	14653						
225	0200	0310	34827		2776	14661						
225	0300	0310	34831		2776	14681						
225	0400	0318	34839		2776	14698						
225	0500	0320	34884		2780	14716						
225	0600	0318	34861		2778	14731						
225	0900	0331	34896		2779	14787						
225	1100	0336	34883		2778	14822						
225	1300	0328	34885		2779	14852						
225	1605	0332	34883		2778	14905						

I N T E R P O L A T E D

DEPTH	TEMP	SAL	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0352	34693		2761	14644	0000	00000	0486
0010	0362	34690		2760	14650	0005	00000	0499
0020	0360	34687		2760	14651	0010	00001	0500
0030	0361	34690		2760	14653	0015	00002	0500
0050	0336	34701		2763	14646	0025	00006	0470
0075	0336	34794		2771	14651	0036	00013	0402
0100	0309	3483 G		2776	14644	0045	00022	0356
0125	0306 B	3483 G		2777	14647	0054	00032	0348
0150	0312	34820		2775	14654	0063	00045	0366
0175	0311	34824		2776	14657	0072	00060	0364
0200	0310	34827		2776	14661	0082	00078	0363
0225	0312	34828		2776	14666	0091	00098	0365
0250	0314	34830		2776	14671	0100	00120	0368
0300	0318	34831		2776	14681	0119	00174	0375
0400	0318	34839		2776	14698	0157	00310	0377
0500	0320	34884		2780	14716	0194	00480	0353
0600	0318	34861		2778	14731	0230	00689	0376
0700	0321	3487 D		2778	14749	0269	00946	0382
0800	0325	3488 D		2779	14768	0308	01246	0386

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
1000	0334	34890		2779	14805	0387	01987	0403
1200	0332	34883		2778	14838	0471	02936	0421
1500	0332	34881		2778	14888	0603	04779	0446

C-REF-NO 002	YR 1963	DEPTH	WAVES 1 3422	AIR T 03.0	VIS
CONS. NO 007	MONTH 4	MXSAMPC 02	WAVES 2 00X0	WET B	STN
LAT 56-05 N	DAY 17	NO.DPTH 7	WND-DIR 350	WW-CODE 03	
LON 54-04 W	HR 04.2	W-COLOR	WND-SPD 09	CLD-TPE X	
MARSEC SQ 186		W-TRNSP	BARO 1014.3	CLD-AMT 6	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
042	0000	0296		738			107				098	
042	0010	0313	34831	729	2776	14631	107				098	
042	0020	0317		729			107				100	
042	0050	0318		726			107				097	
042	0100	0314		729			105				102	
042	0150	0314										
042	0200	0312	34850		2778	14662						

C-REF-NO 002	YR 1963	DEPTH	WAVES 1 3422	AIR T 02.3	VIS 4
CONS. NO 008	MONTH 4	MXSAMPC 15	WAVES 2 00X0	WET B	STN
LAT 55-45 N	DAY 17	NO.DPTH 17	WND-DIR 340	WW-CODE 02	
LON 54-57 W	HR 09.5	W-COLOR	WND-SPD 07	CLD-TPE 5	
MARSD SQ 186		W-TRNSP	BARO 1015.0	CLD-AMT 6	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SID	PH
101	0000	0302	34682	759	2765	14623	115				090	
101	0010	0302	34878	759	2781	14627	116				089	
101	0020	0308	34719	756	2768	14629	115				092	
101	0030	0322	34787	750	2772	14638	115				096	
101	0050	0317	34812	734	2774	14639	115				095	
095	0075	0324	34865	722	2778	14647	115					
095	0100	0325	34870	712	2778	14652	115				095	
095	0150	0322	34869		2778	14658						
095	0200	0320	34867		2778	14666						
095	0300	0322	34876		2779	14683						
095	0400	0320	34876		2779	14699						
095	0500	0318	34880		2779	14715						
095	0600	0317	34881		2780	14731						
095	0820	0322	34884		2779	14770						
095	1037	0330	34892		2779	14809						
095	1223	0340	34920		2780	14845						
095	1519	0336	34941		2783	14893						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0302	34682		2765	14623	0000	00000	0450
0010	0302	34878		2781	14627	0004	00000	0302
0020	0308	34719		2768	14629	0007	00001	0428
0030	0322	34787		2772	14638	0012	00002	0391
0050	0317	34812		2774	14639	0019	00005	0369
0075	0324	34865		2778	14647	0028	00011	0337
0100	0325	34870		2778	14652	0037	00018	0336
0125	0324	34870		2778	14655	0045	00028	0337
0150	0322	34869		2778	14658	0054	00040	0338
0175	0321	34868		2778	14662	0062	00054	0340
0200	0320	34867		2778	14666	0071	00071	0342
0225	0320	34869		2778	14670	0079	00090	0343
0250	0321	34871		2778	14674	0088	00111	0344
0300	0322	34876		2779	14683	0106	00160	0345
0400	0320	34876		2779	14699	0141	00287	0351
0500	0318	34880		2779	14715	0176	00452	0354
0600	0317	34881		2780	14731	0212	00656	0360
0700	0318	34882		2780	14748	0249	00903	0368
0800	0321	34884		2779	14766	0287	01194	0378

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
1000	0328	34890		2779	14802	0365	01923	0397
1200	0339	34916		2780	14841	0447	02845	0405
1500	0336	34939		2782	14890	0570	04569	0409

C-REF-NO 002 YR 1963 DEPTH 1200 WAVES 1 3433 AIR T 00.0 VIS 7
 CONS. NO 009 MONTH 4 MXSAMPD 05 WAVES 2 00X0 WET B STN
 LAT 55-25 N DAY 17 NO.DPTH 10 WND-DIR 300 WW-CODE 03
 LON 55-52 W HR 16.4 W-COLOR WND-SPD 07 CLD-TPE 6
 MARSQ SQ 186 W-TRNSP BARO 1015.5 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SiO	PH
164	0000	-0127	33027	828	2659	14406	110				100	
164	0010	-0131	33003	821	2657	14406	111				100	
164	0020	-0144	33007	819	2657	14401	113				095	
164	0050	-0126	33123	823	2666	14417	114				103	
164	0100	-0091	33637	773	2707	14448	114				105	
164	0150	-0124	33000		2656	14432						
164	0200	-0101	33238		2675	14455						
173	0300	0200	34394		2751	14624						
173	0400	0260	34587		2761	14669						
173	0500	0284	34688		2767	14697						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	-0127	33027		2659	14406	0000	00000	1460
0010	-0131	33003		2657	14406	0015	00001	1477
0020	-0144	33007		2657	14401	0030	00003	1470
0030	-0143 B	33029		2659	14404	0044	00007	1453
0050	-0126	33123		2666	14417	0073	00018	1384
0075	-0105 B	3343 I		2690	14435	0105	00039	1156
0100	-0091	33637		2707	14448	0132	00063	0999
0125	-0107 C	3334 I		2683	14441	0160	00095	1222
0150	-0124	33000		2656	14432	0194	00144	1472
0175	-0121	3305 I		2660	14438	0231	00205	1433
0200	-0101	33238		2675	14455	0265	00271	1295
0225	-0030 I	3353 I		2696	14496	0295	00336	1102
0250	0043 I	3382 I		2715	14538	0321	00398	0921
0300	0200	34394		2751	14624	0359	00505	0598
0400	0260	34587		2761	14669	0415	00704	0510
0500	0284	34688		2767	14697	0464	00930	0464

C-REF-NO 002 YR 1963 DEPTH 230 WAVES 1 3421 AIR T -00.8 VIS 7
 CONS. NO 010 MONTH 4 MXSAMP 02 WAVES 2 00X0 WET B STN
 LAT 55-18 N DAY 17 NO.DPTH 10 WND-DIR 310 WW-CODE 03
 LON 56-08 W HR 18.9 W-COLOR WND-SPD 05 CLD-TPE 6
 MARSD SQ 186 W-TRNSP BARO 1015.8 CLD-AMT 8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
189	0000	-0144	32880	830	2647	14396	113				095	
189	0010	-0144	32832	822	2643	14397	114				094	
189	0020	-0147	32833	831	2643	14398	113				089	
189	0030	-0154	32835	816	2644	14396	110				094	
189	0050	-0140	32847	818	2644	14406	111				094	
189	0075	-0130	33323	787	2683	14422	110				094	
189	0100	-0106	33556	767	2701	14440	111				093	
189	0150	-0098	33879		2726	14457						
189	0200	0110	34182		2740	14564						
189	0221	0121	34203		2741	14573						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	-0144	32880		2647	14396	0000	00000	1569
0010	-0144	32832		2643	14397	0016	00001	1605
0020	-0147	32833		2643	14398	0032	00003	1603
0030	-0154	32835		2644	14396	0048	00007	1599
0050	-0140	32847		2644	14406	0080	00021	1592
0075	-0130	33323		2683	14422	0116	00043	1228
0100	-0106	33556		2701	14440	0145	00068	1055
0125	-0111 E	3373 D		2715	14444	0170	00097	0919
0150	-0098	33879		2726	14457	0191	00127	0809
0175	0010 I	3405 G		2736	14513	0211	00160	0724
0200	0110	34182		2740	14564	0228	00194	0688

C-REF-NU 002	YR 1963	DEPTH 950	WAVES 1 3022	AIR T 00.0	VIS 7
CONS. NO 011	MONTH 4	MXSAMPD 04	WAVES 2 00X0	WET B	STN
LAT 55-29 N	DAY 17	NO.DPTH 11	WND-DIR 300	HW-CODE 02	
LON 55-42 W	HR 22.3	W-COLOR	WND-SPD 06	CLD-TPE 6	
MARSD SQ 186		W-TRNSP	BARO 1014.1	CLD-AMT 6	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4 -P-	NO2	NO3	SIO	PH
223	0000	0058		723			115			101	
223	0010	0060	33993	766	2728	14508	108			106	
223	0020	0071	33994	761	2728	14515	107			106	
223	0030	0116	33995	757	2725	14537	107			105	
213	0050	0204	34399	752	2751	14584	107			106	
213	0075	0210	34428	751	2753	14592	107			104	
213	0100	0222	34471	740	2755	14602	107			105	
213	0150	0254	34595		2762	14625					
213	0200	0315	34768		2771	14662					
213	0300	0321	34810		2774	14682					
213	0400	0342	34884		2777	14708					

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	PDT.EN	SVA
0000	0058	3410 I		2737	14507	0000	00000	0716
0010	0060	33993		2728	14508	0008	00000	0799
0020	0071	33994		2728	14515	0016	00002	0804
0030	0116	33995		2725	14537	0024	00004	0831
0050	0204	34399		2751	14584	0038	00009	0586
0075	0210	34428		2753	14592	0053	00019	0570
0100	0222	34471		2755	14602	0067	00031	0548
0125	0236	34527		2759	14612	0080	00047	0519
0150	0254	34595		2762	14625	0093	00065	0484
0175	0285 B	3469 C		2767	14644	0105	00084	0445
0200	0315	34768		2771	14662	0116	00105	0412
0225	0323 C	3480 G		2772	14670	0126	00127	0400
0250	0327 D	3481 I		2773	14676	0136	00152	0393
0300	0321	34810		2774	14682	0156	00208	0394
0400	0342	34884		2777	14708	0194	00346	0367

C-REF-NO 002 YR 1963 DEPTH WAVES 1 0235 AIR T 05.4 VIS 6
 CONS. NO 012 MONTH 4 MXSAMPD 15 WAVES 2 00X0 WET B STN
 LAT 52-30 N DAY 20 NO.DPTH 16 WND-DIR 020 W-CODE 53
 LON 44-00 W HR 09.1 W-COLOR WND-SPD 08 CLD-TPE 7
 MARSU SQ 185 W-TRNSP BARO 1010.2 CLD-AMT 8 HW

OBSERVED

GMT	DEPTH	TEMP	SAL	OXYGEN	SGMT	SOUND	PO4	-P-	NO2	NO3	SIO	PH
091	0000	0710	34798	678	2727	14792	076				084	
091	0010	0699	34803	681	2729	14789	077				080	
091	0020	0704	34799	690	2728	14793	078				088	
083	0030	0676	34764	689	2729	14783	078				088	
083	0050	0671	34751		2728	14784	078				092	
083	0075	0634	34736	693	2732	14773	078				093	
083	0100	0551	34701	680	2740	14743	086				100	
083	0150	0480	34656		2745	14722						
083	0200	0428	34642		2749	14708						
083	0300	0406	34802		2764	14718						
083	0500	0399	34935		2776	14750						
083	0628	0394	34943		2777	14769						
083	0800	0364	34923		2778	14785						
083	1000	0348	34908		2779	14811						
083	1167	0350	34912		2779	14840						
083	1487	0350	34924		2780	14894						

#TIME-DISTANCE CHECK FAILED

INTERPOLATED

DEPTH	TEMP	SAL	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0710	34798		2727	14792	0000	00000	0814
0010	0699	34803		2729	14789	0008	00000	0798
0020	0704	34799		2728	14793	0016	00002	0809
0030	0676	34764		2729	14783	0024	00004	0800
0050	0671	34751		2728	14784	0041	00010	0806
0075	0634	34736		2732	14773	0060	00023	0774
0100	0551	34701		2740	14743	0079	00040	0702
0125	0506	34674		2743	14729	0096	00060	0673
0150	0480	34656		2745	14722	0113	00083	0660
0175	0451	34643		2747	14714	0130	00111	0641
0200	0428	34642		2749	14708	0145	00141	0619
0225	0417	3467 E		2753	14708	0161	00175	0587
0250	0409	3471 G		2757	14710	0175	00210	0554
0300	0406	34802		2764	14718	0201	00283	0486
0400	0399	3489 B		2772	14733	0247	00446	0421
0500	0399	34935		2776	14750	0288	00637	0399
0600	0396	34945		2777	14765	0329	00865	0398
0700	0382	34936		2778	14776	0369	01134	0398
0800	0364	34923		2778	14785	0409	01444	0396

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.FN	SVA
1000	0348	34908		2779	14811	0490	02197	0406
1200	0346 B	34909		2779	14844	0574	03145	0418
1500	0351	34925		2780	14896	0704	04960	0437

C-REF-NO 002	YR 1963	DEPTH		WAVES 1 0345	AIR T 05.2	VIS 7
CONS. NO 013	MONTH 4	MXSAMPD	02	WAVES 2 00X0	WET B	STN
LAT 53-09 N	DAY 20	NO.DPTH	7	WND-DIR 010	WW-CODE 03	
LON 43-47 W	HR 16.5	W-COLOR		WND-SPD 09	CLD-TPE 6	
MARSD SQ 185		W-TRNSP		BARO 1013.5	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4 -P-	NO2	NO3	SIO	PH
165	0000	0726									
165	0010	0664	34837		2736	14776					
165	0020	0588									
165	0050	0580									
165	0100	0508									
165	0150	0445									
165	0200	0436	34774		2759	14714					

C-REF-NO 002	YR 1963	DEPTH		WAVES 1 0632	AIR T 05.0	VIS 7
CONS. NO 014	MONTH 4	MXSAMPD	10	WAVES 2 00X0	WET B	STN
LAT 53-40 N	DAY 21	NO.DPTH	15	WND-DIR 060	WW-CODE 03	
LON 44-00 W	HR 00.9	W-COLOR		WND-SPC 05	CLD-TPE 6	
MARSD SQ 185		W-TRNSP		BARO 1014.0	CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PD4	-P-	NO2	NO3	SIG	PH
009	0000	0632	34827	679	2740	14761	085				093	
009	0010	0636	34829	686	2739	14765	085				093	
005	0020	0634	34825	668	2739	14765	084				080	
005	0030	0636	34826	678	2739	14768	085				084	
005	0050	0631	34826	679	2740	14769	085				087	
005	0075	0631	34827	676	2740	14773	086				087	
005	0100	0624	34824	679	2740	14775	088				087	
005	0150	0624										
005	0200	0572	34783		2744	14770						
005	0300	0484	34741		2751	14749						
005	0400	0439	34780		2759	14748						
005	0485	0440	34905		2769	14764						
005	0594	0399	34895		2773	14765						
005	0800	0352	34895		2777	14779						
005	1000	0352	34914		2779	14813						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0632	34827		2740	14761	0000	00000	0692
0010	0636	34829		2739	14765	0007	00000	0697
0020	0634	34825		2739	14765	0014	00001	0699
0030	0636	34826		2739	14768	0021	00003	0702
0050	0631	34826		2740	14769	0035	00009	0699
0075	0631	34827		2740	14773	0053	00020	0702
0100	0624	34824		2740	14775	0071	00036	0699
0125	0625 B	34816		2739	14779	0088	00057	0711
0150	0624	34806		2739	14783	0106	00082	0719
0175	0601	34795		2741	14777	0124	00112	0702
0200	0572	34783		2744	14770	0142	00146	0679
0225	0547	3477 B		2746	14763	0159	00183	0663
0250	0524	3476 B		2748	14758	0175	00223	0647
0300	0484	34741		2751	14749	0207	00313	0618
0400	0439	34780		2759	14748	0266	00523	0549
0500	0435	3491 B		2770	14765	0317	00757	0459
0600	0397	34895		2773	14765	0362	01012	0436
0700	0369	34892		2775	14770	0405	01300	0416
0800	0352	34895		2777	14779	0447	01619	0403
1000	0352	34914		2779	14813	0529	02379	0406

C-REF-NO 002	YR 1963	DEPTH	WAVES 1 0233	AIR T 03.8	VIS 6
CONS. NO 015	MONTH 4	MXSAMPD 15	WAVES 2 00X0	WET B	STN
LAT 54-10 N	DAY 21	NO.DPTH 10	WND-DIR 020	WW-CODE 03	
LON 44-00 W	HR 06.4	W-COLOR	WND-SPD 04	CLD-TPE 5	
MARSD SQ 185		W-TRNSP	BARO 1013.4	CLD-AMT 8	HM

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	PO4 -P-	NO2	NO3	SIO	PH
064	0000	0573									
064	0010	0558	34790		2746	14733					
064	0020	0572									
064	0050	0552									
064	0100	0445									
064	0150	0411									
064	0208	0470	34859		2762	14730					
064	1000	0342	34897		2778	14808					
064	1277	0332	34903		2780	14850					
064	1463	0346	34924		2780	14888					

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0573	34787		2744	14737	0000	00000	0650
0010	0558	34790		2746	14733	0006	00000	0632
0020	0572	34793		2745	14740	0013	00001	0647
0030	0572 B	34796		2745	14742	0019	00003	0647
0050	0552	3480 B		2748	14737	0032	00008	0621
0075	0500 D	3481 B		2754	14720	0047	00018	0560
0100	0445	3481 C		2761	14701	0060	00030	0498
0125	0419	3482 D		2765	14695	0073	00044	0468
0150	0411	3483 E		2766	14696	0084	00060	0458
0175	0431 B	3483 E		2764	14708	0096	00080	0476
0200	0459	3484 F		2762	14724	0108	00104	0506
0225	0420 I	34862		2768	14712	0120	00130	0448
0250	0415 I	3487 B		2769	14714	0132	00157	0443
*0300	0406 I	3487 C		2770	14719	0154	00220	0432
*0400	0390 I	3489 E		2773	14729	0197	00373	0415
*0500	0376 I	3490 G		2775	14740	0238	00564	0402
*0600	0365 I	3490 G		2777	14752	0278	00792	0394
*0700	0356 I	3491 G		2778	14764	0318	01057	0390
*0800	0349 I	3491 F		2779	14778	0357	01362	0391
1000	0342	34897		2778	14808	0438	02112	0407
1200	0332	34900		2780	14838	0521	03049	0409

C-REF-NO 002 YR 1963 DEPTH WAVES 1 04X1 AIR T 06.0 VIS 7
 CONS. NO 016 MONTH 4 MXSAMPD 15 WAVES 2 0533 WET B STN
 LAT 54-44 N DAY 21 NO.DPTH 17 WND-DIR 050 WW-CODE 03
 LON 44-00 W HR 17.6 W-COLOR WND-SPD 06 CLD-TPE 6
 MARSD SQ 185 W-TRNSP BARO 1014.1 CLD-AMT 6 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	P04	-P-	NO2	NO3	STO	PH
181	0000	0457	34739	717	2754	14689	108				082	
181	0010	0456	34734	714	2754	14690	103				089	
181	0020	0450	34731	717	2754	14689	100				088	
181	0030	0443	34731	717	2755	14688	100				088	
181	0050	0450	34733	714	2754	14694	100				089	
181	0075	0436	34729	709	2755	14692	101				089	
181	0100	0431	34735	704	2756	14694	108				090	
181	0150	0400	34743		2760	14690						
181	0200	0406	34806		2765	14701						
181	0300	0398	34733		2760	14714						
181	0400	0386	34885		2773	14727						
181	0484	0368	34897		2776	14733						
181	0631	0362	34897		2776	14755						
181	0800	0349	34900		2778	14778						
181	1007	0344	34908		2779	14810						
181	1183	0334	34913		2781	14836						
181	1469	0343	34925		2781	14888						

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0457	34739		2754	14689	0000	00000	0556
0010	0456	34734		2754	14690	0006	00000	0560
0020	0450	34731		2754	14689	0011	00001	0557
0030	0443	34731		2755	14688	0017	00003	0551
0050	0450	34733		2754	14694	0028	00007	0559
0075	0436	34729		2755	14692	0042	00016	0550
0100	0431	34735		2756	14694	0056	00029	0543
0125	0415 B	3474 B		2758	14692	0069	00044	0528
0150	0400	34743		2760	14690	0082	00063	0509
0175	0401	3478 C		2763	14695	0095	00084	0489
0200	0406	34806		2765	14701	0107	00107	0473
0225	0405	3479 H		2763	14705	0119	00133	0487
0250	0404	3477 I		2762	14708	0132	00164	0501
0300	0398	34733		2760	14714	0158	00238	0529
0400	0386	34885		2773	14727	0205	00406	0412
0500	0367	34898		2776	14736	0246	00593	0391
0600	0362	34898		2777	14750	0286	00818	0395
0700	0357	34898		2777	14765	0326	01086	0398
0800	0349	34900		2778	14778	0366	01397	0396

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
1000	0344	34908		2779	14809	0447	02145	0401
1200	0338 B	34914		2780	14840	0528	03072	0405

GENERAL INFORMATION

Observation platform: *OWS Polar Front I and Polar Front II*

Total number of stations occupied: 55

Aerometer height above sea level: 15 metres

Sea surface water temperature: Reversing thermometer - $\frac{1}{100}$ C° units

The following Standard Deviations were used to express both measurement and interpolation error estimates:

Temperature	0.01
Salinity	0.003

C-REF-NO 002	YR 1963	DEPTH 3019	WAVES 1	XX	AIR T	VIS
CONS. NO 001	MONTH 1	MXSAMPD 10	WAVES 2	XX	WET B	STN 516
LAT 62-00 N	DAY 02	NO.DPTH 6	WND-DIR 160		W-CODE	
LOX 33-03 W	HR 08.0	W-COLOR	WND-SPD 02		CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO		CLD-AMT 6	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
085	0000	0552	35059		2768	14732
085	0050	0551 E	35061		2768	14740
085	0150	0557 B	35042		2766	14759
085	0300	0557 C	35053		2767	14784
085	0600	0529	35048		2770	14822
085	1000	0431	34982		2776	14847

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0552	35059		2768	14732	0000	00000	0422
0010	0552	35058		2768	14734	0004	00000	0424
0020	0552	35058		2768	14736	0009	00001	0426
*0030	0552 B	35057		2768	14737	0013	00002	0428
0050	0551 E	35061		2768	14740	0021	00006	0426
0075	0552 E	35057		2768	14745	0032	00013	0434
0100	0554 D	35052		2767	14749	0043	00022	0442
*0125	0555 C	35047		2767	14754	0055	00036	0451
0150	0557 B	35042		2766	14759	0066	00052	0461
0175	0558 B	35042		2766	14763	0078	00071	0465
0200	0558 B	35044		2766	14767	0090	00094	0468
*0225	0558 B	35045		2766	14772	0101	00120	0470
*0250	0558 B	35047		2766	14776	0113	00149	0472
0300	0557 C	35053		2767	14784	0137	00216	0473
0400	0552 C	35055		2768	14798	0185	00389	0478
0500	0543 B	35054		2769	14811	0234	00614	0481
0600	0529	35048		2770	14822	0282	00888	0481
0700	0511 C	35037		2771	14831	0331	01212	0477
0800	0488 B	35023		2773	14838	0379	01583	0472
1000	0431	34982		2776	14847	0472	02446	0451

C-REF-NO 002	YR 1963	DEPTH 3001	WAVES 1	XX	AIR T	VIS
CONS. NO 002	MONTH 1	MXSAMPD 29	WAVES 2	XX	WET B	STN 517
LAT 62-01 N	DAY 03	NO. DPTH 19	WND-DIR 300		HW-CODE	
LON 33-03 W	HR 07.0	W-COLOR	WND-SPD 06		CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO		CLD-AMT 3	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
084	0010	0549 C	35017	677	2765	14732
084	0025	0548	35008	677	2765	14734
084	0050	0548 B	35012	674	2765	14738
084	0075	0548	35010	672	2765	14742
084	0100	0552 B	35026	678	2765	14748
084	0145	0556 C	35028	675	2765	14757
084	0190	0556	35032	672	2765	14765
076	0300	0561	35056	670	2767	14785
076	0400	0561 B	35110	676	2771	14802
076	0500	0531 B	35056	657	2770	14806
076	0600	0507 B	35034	662	2772	14812
076	0800	0460 C	34999	675	2774	14826
076	1000	0412 D	34965	680	2777	14839
093	1200	0376	34926	663	2777	14856
093	1500	0359	34941	651	2780	14900
093	2000	0349 D	34984	638	2785	14981
093	2500	0315	34976	636	2787	15052
093	2700	0289	34965	642	2789	15075
093	2900	0196 B	34939	681	2795	15069

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0550 E	3502 B		2765	14731	0000	00000	0447
0010	0549 C	35017		2765	14732	0005	00000	0451
0020	0548 B	35013		2765	14734	0009	00001	0455
0030	0548	35008		2765	14735	0014	00002	0459
0050	0548 B	35012		2765	14738	0023	00006	0459
0075	0548	35010		2765	14742	0035	00013	0464
0100	0552 B	35026		2765	14748	0046	00024	0460
0125	0555 B	35029		2765	14754	0058	00037	0464
0150	0556 C	35028		2765	14758	0070	00054	0470
0175	0556	35030		2765	14762	0082	00074	0472
0200	0556	35033		2765	14767	0093	00097	0474
0225	0557	35037		2766	14771	0105	00123	0476
*0250	0559	35042		2766	14776	0117	00152	0477
0300	0561	35056		2767	14785	0142	00220	0476
0400	0561 H	35110		2771	14802	0188	00388	0449
0500	0531 B	35056		2770	14806	0234	00602	0464
0600	0507 B	35034		2772	14812	0281	00867	0463

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	PQT.EN	SVA
0700	0483 B	35016		2773	14819	0328	01179	0459
0800	0460 C	34999		2774	14826	0374	01535	0454
1000	0412 D	34965		2777	14839	0465	02373	0440
1200	0376	34926		2777	14857	0554	03387	0443
1500	0359	34941		2780	14900	0688	05247	0436
2000	0349 D	34984		2785	14981	0908	09223	0431
2500	0315	34976		2787	15052	1126	14293	0426

C-REF-NO 002	YR 1963	DEPTH 3001	WAVES 1	XX	AIR T	VIS
CONS. NO 003	MONTH 1	MXSAMPD 10	WAVES 2	XX	WET B	STN 518
LAT 62-01 N	DAY 04	NO.DPTH 6	WND-DIR 050	XX	WW-CODE	
LON 33-05 W	HR 08.0	W-COLOR	WND-SPD 08	XX	CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO		CLD-AMT 3	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
076	0000	0552	35061		2768	14732
076	0050	0551 B	35029		2766	14740
076	0145	0558 B	35049		2767	14758
076	0290	0575 B	35090		2768	14790
076	0585	0517 C	35041		2771	14814
076	0985	0414 B	34967		2777	14837

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0552	35061		2768	14732	0000	00000	0420
0010	0552	35056		2768	14734	0004	00000	0425
0020	0552	35051		2767	14735	0009	00001	0430
*0030	0552	3505 B		2767	14737	0013	00002	0435
0050	0551 B	35029		2766	14740	0022	00006	0450
0075	0552 B	35029		2766	14744	0033	00013	0455
0100	0554 B	3503 B		2766	14749	0045	00023	0457
*0125	0556 B	35040		2766	14754	0056	00037	0457
0150	0559 B	35051		2767	14760	0068	00053	0457
0175	0562 B	35059		2767	14765	0079	00072	0458
*0200	0566 B	35066		2767	14771	0091	00095	0460
*0225	0569 B	35073		2767	14776	0103	00120	0462
*0250	0571 B	35080		2767	14782	0114	00149	0464
0300	0574 B	35090		2768	14791	0138	00215	0467
0400	0562 E	3508 B		2769	14802	0185	00385	0470
*0500	0541 D	3506 B		2770	14810	0233	00605	0471
0600	0534 I	3507 G		2771	14824	0280	00874	0470
0700	0511 I	3505 F		2773	14831	0327	01191	0466
*0800	0483 I	3503 E		2774	14836	0374	01552	0459
*1000	0408 B	34961		2777	14837	0465	02391	0438

C-REF-NO 002	YR 1963	DEPTH 2999	WAVES 1	XX	AIR T	VIS
CONS. NO 004	MONTH 1	MXSAMPD 10	WAVES 2	XX	WET B	STN 519
LAT 62-01 N	DAY 05	NO.DPTH 6	WND-DIR 010		WV-CODE	
LON 33-25 W	HR 07.0	W-COLOR	WND-SPD 07		CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO		CLD-AMT 7	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
076	0000	0548	35044		2767	14730
076	0050	0543 B	35014		2766	14736
076	0150	0545	35017		2766	14753
076	0300	0569 D	35092		2769	14789
076	0600	0452	34991		2774	14789
076	1000	0371 C	34927		2778	14821

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0548	35044		2767	14730	0000	00000	0428
0010	0547	35038		2767	14732	0004	00000	0433
0020	0546	35032		2767	14733	0009	00001	0437
*0030	0545	35027		2766	14734	0013	00002	0441
0050	0543 B	35014		2766	14736	0022	00006	0452
0075	0542 B	35009		2765	14740	0034	00013	0458
0100	0542 B	35008		2765	14744	0045	00024	0462
*0125	0543	35011		2765	14749	0057	00037	0465
0150	0545	35017		2766	14754	0069	00054	0465
0175	0550 B	3503 B		2766	14760	0080	00073	0465
0200	0555 C	3504 B		2766	14766	0092	00096	0465
*0225	0559 D	3505 B		2767	14772	0104	00121	0464
*0250	0563 D	3507 B		2767	14778	0116	00150	0463
0300	0569 D	35092		2769	14789	0139	00216	0459
0400	0540 I	3507 E		2771	14793	0185	00380	0449
0500	0501 I	3504 E		2773	14793	0229	00587	0438
0600	0452	34991		2774	14789	0273	00835	0428
0700	0475 I	3504 I		2776	14816	0317	01126	0431
0800	0445 I	3501 I		2777	14820	0360	01460	0426
1000	0371 C	34927		2778	14821	0445	02252	0419

C-REF-NO 002	YR 1963	DEPTH 3012	WAVES 1	XX	AIR T	VIS
CONS. NO 005	MONTH 1	MXSAMP 01	WAVES 2	XX	WET B	STN 520
LAT 62-01 N	DAY 07	NO.DPTH 7	WND-DIR 260		W-CODE	
LON 33-03 W	HR 07.0	W-COLOR	WND-SPD 04		CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO		CLD-AMT 6	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
075	0000	0543	35044		2768	14728
075	0010	0543	35014		2766	14730
075	0025	0541 B	35010		2766	14731
075	0050	0542	35014		2766	14736
075	0075	0545	35014		2765	14741
075	0100	0542	35011		2765	14744
075	0150	0548 B	35024		2766	14755

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0543	35044		2768	14728	0000	00000	0423
0010	0543	35014		2766	14730	0004	00000	0446
0020	0542	35008		2765	14731	0009	00001	0450
0030	0541 B	35010		2766	14732	0013	00002	0449
0050	0542	35014		2766	14736	0023	00006	0451
0075	0545	35014		2765	14741	0034	00013	0457
0100	0542	35011		2765	14744	0046	00024	0459
0125	0546 B	35017		2765	14750	0057	00037	0463
0150	0548 B	35024		2766	14755	0069	00054	0463

C-REF-NO 002	YR 1963	DEPTH 3001	WAVES 1	XX	AIR T	VIS
CONS. NO 006	MONTH 1	MXSAMPD 10	WAVES 2	XX	WET B	STN 521
LAT 62-01 N	DAY 08	NO.DPTH 6	WND-DIR 030		W-CODE	
LON 33-08 W	HR 07.0	W-COLOR	WND-SPD 07		CLD-TPE	
MARSD SQ 220		W-TRNSP	8ARD		CLD-AMT 7	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
076	0000	0540	35044		2768	14727
076	0050	0540	35004		2765	14735
076	0150	0540	35003		2765	14751
076	0300	0539	35010		2766	14776
076	0600	0439 C	34984		2775	14784
076	1000	0371 C	34924		2778	14821

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0540	35044		2768	14727	0000	00000	0419
0010	0540	35037		2768	14729	0004	00000	0425
0020	0540	35031		2767	14730	0009	00001	0432
*0030	0540	3503 B		2767	14732	0013	00002	0437
0050	0540	35004		2765	14735	0022	00006	0456
0075	0540	34999		2765	14739	0034	00013	0463
0100	0540	3500 B		2765	14743	0045	00024	0468
*0125	0540	34998		2765	14747	0057	00037	0470
0150	0540	35003		2765	14751	0069	00054	0470
0175	0541	35004		2765	14756	0081	00074	0473
0200	0542	35006		2765	14760	0093	00097	0476
*0225	0542 B	35007		2765	14764	0105	00123	0479
*0250	0541	35008		2765	14768	0117	00153	0481
0300	0539	35010		2766	14776	0141	00222	0483
0400	0511 G	35005		2769	14780	0189	00393	0465
0500	0477 G	34997		2772	14783	0235	00605	0443
0600	0439 C	34984		2775	14784	0278	00851	0418
0700	0448 I	3498 B		2774	14804	0322	01143	0443
0800	0424 I	34964		2775	14811	0367	01486	0436
1000	0371 C	34924		2778	14821	0453	02289	0421

C-REF-NO 002	YR 1963	DEPTH 3014	WAVES 1	XX	AIR T	VIS
CONS. NO 007	MONTH 1	MXSAMPD 10	WAVES 2	XX	WET B	STN 522
LAT 62-00 N	DAY 09	NO.DPTH 6	WND-DIR	040	WW-CODE	
LON 32-57 W	HR 07.0	W-COLOR	WND-SPD	04	CLO-TPE	
MARSD SQ 220		W-TRNSP	BARO		CLO-AMT 5	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
076	0000	0541	35024		2767	14727
076	0050	0540 I	35002		2765	14735
076	0150	0538 B	35002		2765	14750
076	0295	0559 E	35044		2766	14783
076	0595	0451	34989		2774	14788
076	0990	0378 C	34935		2778	14822

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0541	35024		2767	14727	0000	00000	0435
0010	0540	35020		2766	14729	0004	00000	0439
0020	0540 B	35016		2766	14730	0009	00001	0443
*0030	0539 C	35012		2766	14731	0013	00002	0446
0050	0540 I	35002		2765	14735	0022	00006	0457
0075	0539 H	34998		2765	14738	0034	00013	0462
0100	0538 F	34997		2765	14742	0046	00024	0465
*0125	0538 D	34998		2765	14746	0057	00037	0467
0150	0538 B	35002		2765	14750	0069	00054	0468
0175	0542 C	35009		2765	14756	0081	00074	0471
0200	0546 D	35016		2765	14762	0093	00097	0474
*0225	0550 D	3502 B		2765	14768	0105	00123	0476
*0250	0554 E	35031		2766	14774	0117	00152	0479
0300	0558 E	35044		2766	14784	0141	00221	0481
0400	0530 I	3504 C		2769	14789	0189	00393	0466
*0500	0494 I	3502 C		2772	14790	0235	00606	0448
0600	0494 I	3502 H		2772	14807	0281	00864	0454
0700	0471 I	3501 G		2774	14814	0326	01169	0447
*0800	0443 I	3499 F		2775	14819	0371	01515	0439
*1000	0374 C	34931		2778	14822	0458	02318	0419

C-REF-NO 002	YR 1963	DEPTH 3005	WAVES 1	XX	AIR T	VIS
CONS. NO 008	MONTH 1	MXSAMPD 29	WAVES 2	XX	WET B	STN 523
LAT 62-02 N	DAY 10	NO.DPTH 19	WND-DIR	030	W-CODE	
LON 33-01 W	HR 07.0	W-COLOR	WND-SPD	05	CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO		CLD-AMT 7	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
082	0010	0534 B	35002	612	2766	14726
082	0025	0532 B	35002	661	2766	14727
082	0050	0534 D	35000	675	2766	14732
082	0075	0534 C	35002	675	2766	14736
082	0100	0536	35004	678	2766	14741
082	0150	0540	35016	677	2766	14751
082	0200	0540 B	35018	681	2766	14760
076	0300	0545 B	35025	669	2766	14778
076	0400	0557	35069	667	2768	14800
076	0495	0506 C	35020	636	2771	14794
076	0595	0474	35002	666	2773	14798
076	0795	0417 B	34967	682	2776	14807
076	0990	0378 C	34935	684	2778	14822
093	1195	0361 B	34920	658	2778	14849
093	1490	0358 B	34946	643	2781	14898
093	1985	0344	34973	634	2784	14976
093	2480	0322 I	34970	644	2786	15051
093	2675	0305	34965	645	2787	15077
093	2875	0253 C	34954	665	2791	15090

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0535 D	3500 B		2766	14725	0000	00000	0444
0010	0534 B	35002		2766	14726	0004	00000	0445
0020	0533 B	35001		2766	14727	0009	00001	0446
0030	0532 B	35002		2766	14728	0013	00002	0446
0050	0534 D	35000		2766	14732	0023	00006	0452
0075	0534 C	35002		2766	14737	0034	00013	0453
0100	0536	35004		2766	14741	0045	00023	0458
0125	0538	35010		2766	14747	0057	00037	0459
0150	0540	35016		2766	14751	0069	00053	0460
0175	0540	35018		2766	14756	0080	00073	0462
0200	0540 B	35018		2766	14760	0092	00095	0465
0225	0541 B	35018		2766	14764	0104	00121	0469
0250	0542 B	35019		2766	14769	0116	00150	0473
0300	0545 B	35025		2766	14778	0140	00218	0479
0400	0557	35069		2768	14800	0188	00391	0474
0500	0504 C	35019		2771	14795	0235	00609	0459
0600	0472	35001		2773	14798	0281	00867	0445

DEPTH	T E M P	S A L	CXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0700	0442	34983		2775	14802	0325	01164	0433
0800	0416 B	34966		2776	14807	0368	01499	0424
1000	0377 C	34934		2778	14824	0454	02291	0420
1200	0361 B	34920		2778	14850	0540	03267	0429
1500	0358 B	34947		2781	14900	0671	05086	0430
2000	0344	34973		2784	14979	0890	09042	0432
2500	0321 H	34970		2786	15054	1111	14202	0439

C-REF-NO 002	YR 1963	DEPTH 3001	WAVES 1	XX	AIR T	VIS
CONS. NO 009	MONTH 1	MXSAMPD 10	WAVES 2	XX	WET B	STN 524
LAT 61-59 N	DAY 11	NO.DPTH 6	WND-DIR 080		WW-CODE	
LON 33-01 W	HR 07.0	W-COLOR	WND-SPD 11		CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO		CLD-AMT 7	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
076	0000	0540	35025		2767	14727
076	0050	0534 B	34997		2765	14732
076	0145	0533 C	34998		2766	14748
076	0290	0517	34986		2767	14765
076	0580	0441 B	34982		2775	14781
076	0975	0366	34919		2778	14815

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0540	35025		2767	14727	0000	00000	0433
0010	0539	35021		2767	14728	0004	00000	0437
0020	0539	35017		2766	14730	0009	00001	0441
*0030	0538	35013		2766	14731	0013	00002	0444
0050	0534 B	34997		2765	14732	0022	00006	0454
0075	0533 B	34994		2765	14736	0034	00013	0459
0100	0533 B	34994		2765	14740	0045	00024	0462
*0125	0533 C	34995		2765	14744	0057	00037	0464
0150	0533 C	34998		2766	14748	0069	00054	0465
0175	0531 C	34996		2766	14752	0081	00073	0468
*0200	0529 B	34994		2766	14755	0092	00096	0470
*0225	0526 B	34992		2766	14758	0104	00122	0471
*0250	0523	34990		2766	14761	0116	00151	0472
0300	0515	34986		2767	14765	0140	00218	0472
0400	0491 C	34985		2770	14772	0187	00387	0456
*0500	0464 C	34984		2772	14778	0232	00595	0437
0600	0451 I	3497 C		2773	14788	0276	00847	0443
0700	0429 H	3496 B		2774	14796	0321	01144	0437
*0800	0407 F	3495 B		2776	14803	0365	01482	0430
*1000	0360 B	34915		2778	14816	0450	02273	0414

C-REF-NO 002	YR 1963	DEPTH 2983	WAVES 1	XX	AIR T	VIS
CONS. NO 010	MONTH 1	MXSAMPC 10	WAVES 2	XX	WET B	STN 525
LAT 62-05 N	DAY 12	NO.DPTH 6	WND-DIR	080	WW-CODE	
LGN 33-18 W	HR 07.0	W-COLOR	WND-SPD	11	CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO		CLD-AMT	7 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
076	0000	0540	35007		2765	14727
076	0050	0535 C	34992		2765	14733
076	0145	0533 B	34996		2765	14747
076	0295	0535 C	35001		2766	14773
076	0590	0441	34985		2775	14783
076	0985	0365 B	34916		2778	14816

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0540	35007		2765	14727	0000	00000	0447
0010	0539	35005		2765	14728	0005	00000	0449
0020	0538	35002		2765	14729	0009	00001	0451
*0030	0537	35000		2765	14730	0014	00002	0453
0050	0535 C	34992		2765	14733	0023	00006	0459
0075	0534 C	34991		2765	14736	0034	00013	0462
0100	0533 B	34991		2765	14740	0046	00024	0464
*0125	0533 B	34993		2765	14744	0058	00037	0465
0150	0533 B	34996		2765	14748	0070	00054	0467
0175	0534 B	34997		2765	14753	0081	00074	0471
*0200	0535 B	34998		2765	14758	0093	00097	0474
*0225	0536 C	34999		2765	14762	0105	00123	0477
*0250	0536 C	35000		2765	14766	0117	00152	0480
0300	0534 C	35001		2766	14773	0142	00221	0483
0400	0507 G	34999		2769	14779	0190	00393	0465
*0500	0475 F	34993		2772	14782	0235	00605	0442
0600	0468 I	34985		2772	14796	0281	00861	0452
0700	0445 I	34972		2774	14803	0326	01164	0445
*0800	0420 I	34956		2775	14809	0370	01508	0437
*1000	0360 C	34912		2778	14816	0457	02306	0417

C-REF-NO 002	YR 1963	DEPTH		WAVES 1	XX	AIR T	VIS
CONS. NO 011	MONTH 1	MXSAMPD	01	WAVES 2	XX	WET B	STN 526
LAT 62-03 N	DAY 14	ND.DPTH	7	WND-DIR	230	WW-CODE	
LON 32-56 W	HR 07.0	W-COLOR		WND-SPD	15	CLD-TPE	
MARSD SQ 220		W-TRNSP		BARO		CLD-AMT	7 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
076	0000	0540	35050		2769	14727
076	0010	0543	35030		2767	14730
076	0025	0543	35035		2767	14732
076	0045	0543	35033		2767	14736
076	0070	0543	35029		2767	14740
076	0090	0543 B	35030		2767	14743
076	0135	0543	35032		2767	14750

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0540	35050		2769	14727	0000	00000	0415
0010	0543	35030		2767	14730	0004	00000	0434
0020	0543	35031		2767	14732	0009	00001	0435
0030	0543	35035		2767	14733	0013	00002	0433
0050	0543	35032		2767	14736	0022	00006	0438
0075	0543	35029		2767	14741	0033	00013	0444
0100	0543	35029		2767	14745	0044	00023	0447
0125	0543	35031		2767	14749	0055	00036	0449

C-REF-NO 002	YR 1963	DEPTH 2815	WAVES 1	XX	AIR T	VIS
CONS. NO 012	MONTH 1	MXSAMPD 10	WAVES 2	XX	WET B	STN 527
LAT 62-04 N	DAY 15	NO. DPTH 6	WND-DIR 180	WW-CODE		
LON 32-55 W	HR 07.0	W-COLOR	WND-SPD 15	CLD-TPE		
MARSD SQ 220		W-TRNSP	BARO	CLD-AMT 8	HW	

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
076	0000	0551	35045		2767	14732
076	0050	0541 B	35033		2767	14736
076	0145	0542 B	35030		2767	14752
076	0290	0544	35057		2769	14777
076	0580	0489	35012		2772	14801
076	0960	0401	34950		2777	14827

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0551	35045		2767	14732	0000	00000	0431
0010	0549	35042		2767	14733	0004	00000	0433
0020	0548	35040		2767	14734	0009	00001	0434
*0030	0546 B	35038		2767	14735	0013	00002	0435
0050	0541 B	35033		2767	14736	0022	00006	0435
0075	0540 B	35030		2767	14739	0033	00013	0439
0100	0540 B	35029		2767	14743	0044	00023	0444
*0125	0541 B	35029		2767	14748	0055	00036	0448
0150	0542 B	35031		2767	14753	0067	00052	0451
0175	0543 B	35035		2767	14757	0078	00071	0453
*0200	0544 B	35040		2768	14762	0089	00093	0453
*0225	0544 B	35045		2768	14766	0101	00118	0454
*0250	0544	35049		2768	14770	0112	00146	0454
0300	0543	35057		2769	14778	0135	00210	0453
0400	0528 C	3505 B		2770	14788	0181	00375	0455
*0500	0509 B	3503 B		2771	14797	0227	00588	0455
0600	0497 H	3503 E		2773	14808	0273	00848	0452
0700	0476 G	3502 E		2774	14816	0318	01152	0449
*0800	0450 E	3500 C		2775	14822	0364	01501	0444

C-REF-NO 002	YR 1963	DEPTH 3010	WAVES 1	XX	AIR T	VIS
CONS. NO 013	MONTH 1	MXSAMPD 10	WAVES 2	XX	WET B	STN 528
LAT 62-00 N	DAY 16	NO.DPTH 6	WND-DIR 220		WW-CODE	
LON 32-59 W	HR 07.0	W-COLOR	WND-SPD 08		CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO		CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
077	0000	0548	35007		2764	14730
077	0045	0543 C	35002		2765	14735
077	0140	0543	35002		2765	14751
077	0280	0525	35002		2767	14767
077	0565	0429	34970		2775	14774
077	0960	0370 B	34931		2778	14814

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0548	35007		2764	14730	0000	00000	0456
0010	0547	35006		2764	14731	0005	00000	0457
0020	0547	35005		2764	14733	0009	00001	0459
*0030	0546 B	35004		2764	14734	0014	00002	0460
0050	0543 C	35002		2765	14736	0023	00006	0461
0075	0543 C	35001		2765	14740	0035	00013	0464
*0100	0543 B	35001		2765	14744	0047	00024	0468
*0125	0543	35002		2765	14748	0058	00038	0471
0150	0542	35002		2765	14752	0070	00055	0473
0175	0540	35002		2765	14756	0082	00074	0474
*0200	0538	35003		2765	14759	0094	00098	0474
*0225	0534	35003		2766	14761	0106	00124	0473
*0250	0531	35002		2766	14764	0118	00153	0472
0300	0519 B	35000		2767	14767	0142	00220	0466
0400	0487 E	34991		2770	14770	0188	00385	0447
*0500	0452 D	34979		2773	14773	0232	00589	0427
0600	0444 I	3498 B		2774	14786	0275	00834	0431
0700	0423 I	3497 B		2776	14793	0318	01123	0424
*0800	0403 I	34953		2777	14801	0361	01452	0418

C-REF-NO 002	YR 1963	DEPTH 3014	WAVES 1	XX	AIR T	VIS
CONS. NO 014	MONTH 1	MXSAMPD 29	WAVES 2	XX	WET B	STN 529
LAT 62-00 N	DAY 17	NO. DPTH 20	WND-DIR 260	WW-CODE		
LDN 33-03 W	HR 07.0	W-COLOR	WND-SPD 04	CLD-TPE		
MARSD SQ 220		W-TRNSP	BARO	CLD-AMT 8	HW	

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
085	0000	0594	35058		2763	14749
085	0010	0593 B	35044	669	2762	14750
085	0025	0591	35033	684	2761	14752
085	0050	0591 B	35040	684	2762	14756
085	0075	0591 B	35048	679	2762	14760
085	0100	0591	35038	672	2762	14764
085	0150	0582 C	35026	668	2762	14769
085	0200	0568	35021	675	2763	14771
076	0295	0549 C		672		
076	0395	0526	35045	620	2770	14786
076	0495	0466	35000	650	2774	14778
076	0590	0433	34978	670	2775	14779
076	0790	0397	34953	682	2777	14797
076	0990	0367 B	34926	680	2778	14818
093	1200	0358	34919	670	2779	14849
093	1500	0361	34948	663	2781	14901
093	2000	0344	34971	648	2784	14979
093	2500	0310	34972	652	2787	15050
093	2700	0286	34966	638	2789	15074
093	2900	0181 B	34933	687	2795	15063

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0594	35058		2763	14749	0000	00000	0473
0010	0593 B	35044		2762	14750	0005	00000	0483
0020	0592	35035		2761	14751	0010	00001	0489
0030	0591	35033		2761	14753	0015	00002	0492
0050	0591 B	35040		2762	14756	0025	00006	0490
0075	0591 H	35048		2762	14760	0037	00014	0487
0100	0591	35038		2762	14764	0049	00025	0498
0125	0588 B	35031		2761	14767	0062	00040	0503
0150	0582 C	35026		2762	14769	0075	00058	0503
0175	0575 B	35023		2762	14770	0087	00079	0501
0200	0568	35021		2763	14771	0100	00103	0497
0225	0563	3503 B		2764	14773	0112	00131	0490
0250	0558 B	3503 C		2765	14775	0125	00160	0483
0300	0548 C	3504 C		2767	14780	0149	00229	0473
0400	0523	35043		2770	14786	0195	00396	0452
0500	0464	34999		2774	14778	0240	00601	0426

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0600	0431	34976		2776	14780	0282	00840	0414
0700	0410 B	34963		2777	14788	0324	01119	0410
0800	0395	34951		2777	14798	0365	01440	0411
1000	0366 B	34925		2778	14819	0449	02215	0414
1200	0358	34919		2779	14849	0534	03181	0426
1500	0361	34948		2781	14901	0665	05003	0433
2000	0344	34971		2784	14979	0885	08983	0434
2500	0310	34972		2787	15050	1103	14037	0421

C-REF-NO 002	YR 1963	DEPTH 3010	WAVES 1	XX	AIR T	VIS
CONS. NO 015	MONTH 1	MXSAMPD 10	WAVES 2	XX	WET B	STN 530
LAT 61-50 N	DAY 18	NO.DPTH 6	WNO-DIR 160		WW-CODE	
LON 33-00 W	HR 08.0	W-COLOR	WNO-SPD 12		CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO		CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
080	0000	0540	34946		2761	14726
080	0050	0521 B	34965		2764	14727
080	0145	0495	34941		2766	14731
080	0295	0487	34943		2767	14753
080	0595	0425	34967		2775	14777
080	0985	0362	34918		2778	14814

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0540	34946		2761	14726	0000	00000	0493
0010	0536	34948		2761	14726	0005	00000	0488
0020	0532	34950		2762	14726	0010	00001	0483
*0030	0528	3495 B		2762	14726	0015	00002	0478
0050	0521 B	34965		2764	14727	0024	00006	0463
0075	0513 B	34962		2765	14727	0036	00014	0459
0100	0505	3496 B		2766	14728	0047	00024	0458
*0125	0499	34949		2766	14730	0059	00037	0460
0150	0495	34941		2766	14732	0071	00054	0463
0175	0492 B	34939		2766	14735	0082	00073	0465
*0200	0491 B	34939		2766	14738	0094	00096	0467
*0225	0489 B	34939		2766	14742	0106	00122	0468
*0250	0488 B	34939		2766	14746	0118	00151	0469
0300	0486	34944		2767	14753	0141	00218	0470
0400	0468 C	34953		2770	14762	0188	00385	0453
*0500	0447 C	34961		2773	14770	0233	00592	0434
0600	0437 I	3495 C		2773	14782	0277	00842	0439
0700	0420 H	3495 C		2775	14792	0321	01136	0433
*0800	0401 F	3494 B		2776	14800	0364	01472	0426
*1000	0359	34916		2778	14816	0449	02257	0412

C-REF-NO 002	YR 1963	DEPTH	WAVES 1	XX	AIR T	VIS
CONS. NO 016	MONTH 1	MXSAMPD 10	WAVES 2	XX	WET B	STN 531
LAT 62-11 N	DAY 19	NO.DPTH 6	WND-DIR 140	HW-CODE		
LON 33-12 W	HR 07.0	W-COLOR	WND-SPD 14	CLD-TPE		
MARSD SQ 220		W-TRNSP	BARO	CLD-AMT 8	HW	

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
077	0000	0542	35024		2767	14728
077	0050	0530	35002		2766	14731
077	0145	0533 B	35012		2767	14748
077	0390	0549 B	35043		2767	14795
077	0580	0491	35020		2772	14802
077	0975	0395	34943		2777	14827

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0542	35024		2767	14728	0000	00000	0436
0010	0540	35021		2766	14729	0004	00000	0438
0020	0538	35018		2766	14729	0009	00001	0440
*0030	0537 B	35015		2766	14730	0013	00002	0441
0050	0530	35002		2766	14731	0022	00006	0446
0075	0529	35001		2766	14734	0033	00013	0448
0100	0529 B	35003		2766	14739	0045	00023	0451
*0125	0531 B	35007		2767	14744	0056	00036	0453
0150	0534 B	35013		2767	14749	0068	00053	0455
0175	0537 C	35017		2767	14755	0079	00072	0459
*0200	0541 D	35022		2767	14760	0091	00094	0463
*0225	0543 E	35025		2766	14765	0103	00120	0467
*0250	0545 E	35029		2767	14770	0114	00149	0470
*0300	0548 E	35035		2767	14780	0138	00216	0476
0400	0547 B	35042		2767	14796	0187	00390	0481
0500	0519 C	35033		2770	14801	0234	00611	0466
0600	0506 I	3503 B		2771	14812	0282	00879	0468
0700	0484 I	3501 B		2772	14819	0329	01193	0463
*0800	0457 H	34993		2774	14824	0375	01551	0454
*1000	0385 B	34934		2777	14827	0464	02378	0430

C-REF-NO 002	YR 1963	DEPTH 3010	WAVES 1	XX	AIR T	VIS
CONS. NO 017	MONTH 1	MXSAMPD 01	WAVES 2	XX	WET B	STN 532
LAT 62-00 N	DAY 21	NO.DPTH 7	WND-DIR	050	WW-CODE	
LON 33-00 W	HR 07.0	W-COLOR	WND-SPD	07	CLD-TPF	
MARSD SQ 220		W-TRNSP	BARO		CLD-AMT	6 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
073	0000	0541	35009		2765	14727
073	0010	0539 B	34995		2765	14728
073	0025	0538	34987		2764	14730
073	0050	0536 C	34987		2764	14733
073	0070	0537 D	34985		2764	14737
073	0095	0530	34976		2764	14738
073	0145	0514	34958		2765	14739

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0541	35009		2765	14727	0000	00000	0446
0010	0539 B	34995		2765	14728	0005	00000	0456
0020	0538	34988		2764	14729	0009	00001	0461
0030	0537	34986		2764	14730	0014	00002	0463
0050	0536 C	34987		2764	14733	0023	00006	0464
0075	0536 D	34983		2764	14737	0035	00014	0470
0100	0531 D	34976		2764	14739	0047	00024	0472
0125	0523 C	34967		2764	14740	0059	00038	0473
*0150	0511	34955		2765	14739	0071	00055	0472

C-REF-NO 002	YR 1963	DEPTH 3001	WAVES 1 00X0	AIR T	VIS
CONS. NO 018	MONTH 1	MXSAMPD 10	WAVES 2 XX	WET B	STN 533
LAT 62-02 N	DAY 22	NO.DPTH 6	WND-DIR CALM	WW-CODE	
LON 33-08 W	HR 07.0	W-COLOR	WND-SPD 00	CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO	CLD-AMT 1	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
077	0000	0560	35030		2765	14735
077	0050	0553	35002		2763	14740
077	0150	0535 B	34986		2764	14749
077	0300	0506 C	34969		2766	14762
077	0600	0429	34969		2775	14779
077	1000	0367	34923		2778	14819

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0560	35030		2765	14735	0000	00000	0453
0010	0559	35025		2765	14736	0005	00000	0456
0020	0557	35020		2764	14737	0009	00001	0460
*0030	0556	35016		2764	14738	0014	00002	0463
0050	0553	35002		2763	14740	0023	00006	0472
0075	0549	34995		2763	14742	0035	00014	0476
0100	0544	34990		2764	14745	0047	00025	0478
*0125	0540 B	34987		2764	14747	0059	00038	0478
0150	0535 B	34986		2764	14749	0071	00055	0476
0175	0530 B	34982		2765	14751	0083	00076	0477
0200	0526 B	34979		2765	14753	0095	00099	0477
*0225	0521 B	34976		2765	14756	0107	00125	0477
*0250	0516 B	34974		2766	14758	0119	00154	0476
0300	0506 C	34969		2766	14762	0143	00222	0474
0400	0480 C	34968		2769	14768	0190	00391	0456
0500	0455 C	34968		2772	14773	0235	00599	0437
0600	0429	34969		2775	14779	0279	00843	0417
0700	0419 F	3495 C		2775	14791	0322	01131	0431
0800	0401 E	3494 B		2776	14800	0365	01465	0426
1000	0367	34923		2778	14819	0450	02255	0417

C-REF-NO 002	YR 1963	DEPTH		WAVES 1	XX	AIR T	VIS
CONS. NO 019	MONTH 1	MXSAMPD	10	WAVES 2	XX	WET B	STN 534
LAT 62-08 N	DAY 23	NO.DPTH	6	WND-DIR	220	WW-CODE	
LON 33-07 W	HR 07.0	W-COLOR		WND-SPD	15	CLD-TPE	
MARKSD SQ 220		W-TRNSP		BARO		CLD-AMT	8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
077	0000	0581	35068		2765	14744
077	0050	0586	35036		2762	14754
077	0145	0548 C	35027		2766	14754
077	0295	0524	35001		2767	14769
077	0590	0449 B	34991		2775	14786
077	0985	0372 C	34931		2778	14819

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0581	35068		2765	14744	0000	00000	0449
0010	0580 B	35063		2765	14745	0005	00000	0454
0020	0580 C	35058		2764	14747	0009	00001	0458
*0030	0579 D	35053		2764	14748	0014	00002	0463
0050	0586	35036		2762	14754	0023	00006	0486
0075	0578 C	35031		2763	14755	0036	00014	0485
0100	0569 D	35027		2763	14755	0048	00025	0479
*0125	0558 C	35026		2765	14755	0060	00039	0470
0150	0547 C	35026		2766	14754	0071	00055	0461
0175	0542 C	35022		2766	14756	0083	00075	0461
*0200	0537 C	35017		2767	14759	0095	00097	0462
*0225	0533 C	35013		2767	14761	0106	00123	0464
*0250	0529 B	35009		2767	14763	0118	00151	0466
0300	0523	35001		2767	14769	0142	00218	0470
0400	0499 B	34996		2770	14775	0189	00386	0457
*0500	0473 B	34993		2772	14781	0234	00596	0441
0600	0456 F	3498 C		2773	14791	0279	00849	0445
0700	0435 F	3496 C		2774	14798	0323	01148	0439
*0800	0413 E	3495 B		2776	14806	0367	01488	0432
*1000	0369 C	34929		2778	14820	0453	02279	0414

C-REF-NO 002	YR 1963	DEPTH 3012	WAVES 1	XX	AIR T	VIS
CONS. NO 020	MONTH 1	MXSAMPD 29	WAVES 2	XX	WET B	STN 535
LAT 61-59 N	DAY 26	NO.DPTH 20	WND-DIR 210	WW-CCDE		
LON 33-02 W	HR 07.0	W-COLOR	WND-SPD 07	CLD-TPE		
MARSD SQ 220		W-TRNSP	BARO	CLD-AMT 8	HW	

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
084	0000	0565	35028		2764	14737
084	0010	0554 B	35001	687	2763	14734
084	0025	0555 B	35002	682	2763	14737
084	0050	0554	35004	682	2763	14741
084	0075	0553 B	35001	686	2763	14744
084	0100	0554	35002	683	2763	14749
084	0150	0556	35001	683	2763	14758
084	0200	0554	34995	685	2763	14765
076	0295	0555 D	35021	639	2765	14781
076	0395	0507	35004	636	2769	14778
076	0495	0466 B	35004	642	2774	14778
076	0590	0434 B	34971	659	2775	14780
076	0790	0391 D	34944	685	2777	14795
076	0985	0365 B	34918	678	2778	14816
094	1200	0358 B	34915	660	2778	14849
094	1500	0358	34943	646	2781	14899
094	2000	0343	34974	653	2784	14978
094	2500	0309 C	34978	640	2788	15049
094	2700	0284 C	34968	649	2790	15073
094	2950	0140 B	34927	694	2798	15053

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	PDT.EN	SVA
0000	0565	35028		2764	14737	0000	00000	0460
0010	0554 B	35001		2763	14734	0005	00000	0469
0020	0554 B	34999		2763	14735	0009	00001	0471
0030	0555 B	35003		2763	14738	0014	00002	0472
0050	0554	35004		2763	14741	0024	00006	0472
0075	0553 B	35001		2763	14744	0036	00014	0477
0100	0554	35002		2763	14749	0048	00025	0480
0125	0555	35002		2763	14753	0060	00039	0485
0150	0556	35001		2763	14758	0072	00056	0490
0175	0555	34997		2763	14761	0085	00077	0495
0200	0554	34995		2763	14765	0097	00101	0499
0225	0556 B	35001		2763	14770	0110	00129	0500
0250	0557 C	3501 B		2763	14775	0122	00159	0499
0300	0553 D	35020		2765	14782	0147	00230	0492
0400	0505	35004		2769	14778	0195	00402	0458
0500	0464 B	35003		2774	14778	0240	00607	0423

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0600	0431 B	34969		2775	14780	0283	00848	0420
0700	0407 C	34953		2776	14787	0325	01130	0415
0800	0389 D	34942		2777	14796	0366	01453	0411
1000	0364 B	34917		2778	14818	0450	02231	0418
1200	0358 B	34915		2778	14849	0536	03204	0429
1500	0358	34943		2781	14900	0667	05031	0433
2000	0343	34974		2784	14978	0887	08992	0430
2500	0309 C	34978		2788	15049	1102	13989	0416

C-REF-NO 002	YR 1963	DEPTH 3010	WAVES 1	XX	AIR T	VIS
CONS. NO 021	MUNTH 1	MXSAMPD 01	WAVES 2	XX	WET B	STN 536
LAT 61-58 N	DAY 28	NO.DPTH 7	WND-DIR 270	WW-CODE		
LON 32-52 W	HR 07.0	W-COLOR	WND-SPD 09	CLD-TPE		
MARSD SQ 220		W-TRNSP	BARO	CLD-AMT		HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
075	0000	0568	35056		2766	14739
075	0010	0573 B	35020		2762	14742
075	0025	0571	35018		2762	14744
075	0050	0571 B	35018		2762	14748
075	0075	0571 B	35024		2763	14752
075	0100	0573	35024		2763	14757
075	0145	0574	35020		2762	14764

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0568	35056		2766	14739	0000	00000	0443
0010	0573 B	35020		2762	14742	0005	00000	0477
0020	0572	35015		2762	14743	0009	00001	0481
0030	0571	35018		2762	14744	0014	00002	0479
0050	0571 B	35018		2762	14748	0024	00006	0482
0075	0571 B	35024		2763	14752	0036	00014	0481
0100	0573	35024		2763	14757	0048	00025	0487
0125	0573	35024		2763	14761	0061	00039	0491

C-REF-NO 002	YR 1963	DEPTH 2962	WAVES 1	XX	AIR T	VIS
CONS. NO 022	MONTH 1	MXSAMPD 10	WAVES 2	XX	WET B	STN 676
LAT 62-03 N	DAY 30	NO.DPTH 6	WND-DIR 120	WW-CODE		
LON 33-03 W	HR 09.0	W-COLOR	WND-SPD 10	CLD-TPE		
MARSD SQ 220		W-TRNSP	BARO	CLD-AMT 8	HW	

O B S R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
091	0000	0590	35080		2765	14748
091	0045	0585 C	35037		2762	14753
091	0140	0587 B	35044		2762	14769
091	0280	0590	35035		2761	14793
091	0565	0447	34978		2774	14781
091	0960	0368 C	34911		2777	14813

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0590	35080		2765	14748	0000	00000	0451
0010	0589	35073		2765	14749	0005	00000	0457
0020	0588	3507 B		2764	14750	0009	00001	0463
*0030	0588	3506 B		2764	14752	0014	00002	0468
0050	0585 C	35036		2762	14753	0024	00006	0485
0075	0585 C	3503 B		2762	14757	0036	00014	0491
*0100	0585 B	3503 B		2762	14762	0048	00025	0494
*0125	0586 B	35039		2762	14766	0061	00040	0495
0150	0588 B	35044		2762	14771	0073	00057	0497
0175	0590 B	35043		2762	14776	0086	00078	0504
*0200	0591 B	35042		2762	14781	0099	00103	0510
*0225	0592 B	35041		2762	14785	0112	00131	0515
*0250	0591 B	35038		2761	14789	0125	00163	0520
0300	0582 C	35032		2762	14793	0151	00237	0520
0400	0538 I	35014		2766	14792	0202	00420	0491
*0500	0485 H	34993		2771	14786	0250	00641	0455
0600	0486 I	3498 C		2770	14803	0297	00908	0476
0700	0457 I	3497 B		2772	14807	0344	01225	0464
*0800	0425 I	3495 B		2774	14810	0391	01582	0450

C-REF-NO 002	YR 1963	DEPTH 2972	WAVES 1	XX	AIR T	VIS
CONS. NO 023	MONTH 1	MXSAMPD 29	WAVES 2	XX	WET R	STN 677
LAT 62-04 N	DAY 31	NO.DPTH 18	WND-DIR 150	WW-CGDE		
LON 33-04 W	HR 09.0	W-COLOR	WND-SPD 07	CLD-TPE		
MARSD SQ 220		W-TRNSP	BARO	CLD-AMT	8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
106	0000	0590	35059		2763	14748
106	0010		35002	656		
106	0025	0575 B	35001	670	2761	14745
106	0050	0574	35005	680	2761	14749
106	0075	0574	35001	674	2761	14753
106	0100	0572 B	35003	674	2761	14756
106	0160	0572	35000	675	2761	14766
103	0200	0579 E	35004	670	2760	14775
103	0300	0576	35009	675	2761	14791
103	0400	0528	34986	641	2765	14787
103	0500	0504	34973	611	2767	14794
103	0600	0445 C	34963	650	2773	14786
091	0800	0396 B	34931	664	2776	14798
091	1000	0362	34897	668	2776	14817
091	1200	0350	34890	664	2777	14845
091	1500	0367	34944	663	2780	14903
091	2000	0342	34959	640	2783	14978
091	2910	0247	34932	663	2790	15093

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0590	35059		2763	14748	0000	00000	0467
0010	0584	35002		2760	14746	0005	00000	0504
0020	0579 B	34996		2760	14746	0010	00001	0504
0030	0574 B	35002		2761	14745	0015	00002	0495
0050	0574	35005		2761	14749	0025	00006	0495
0075	0574	35001		2761	14753	0038	00015	0502
0100	0572 B	35003		2761	14756	0050	00026	0501
0125	0571 B	35002		2761	14760	0063	00041	0504
0150	0571	35001		2761	14764	0076	00059	0509
0175	0575 B	35001		2761	14769	0089	00080	0516
0200	0579 E	35004		2760	14775	0102	00105	0523
0225	0582 E	35007		2760	14781	0115	00134	0528
0250	0582 D	35009		2760	14785	0128	00167	0530
0300	0576	35009		2761	14791	0155	00243	0529
0400	0528	34986		2765	14787	0207	00429	0500
0500	0504	34973		2767	14794	0257	00661	0493
0600	0445 C	34963		2773	14786	0304	00926	0441
0700	0414 D	34948		2775	14789	0348	01219	0425

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0800	0396 B	34931		2776	14798	0391	01552	0427
1000	0362	34897		2776	14817	0478	02357	0430
1200	0350	34890		2777	14845	0566	03354	0438
1500	0367	34944		2780	14903	0700	05223	0444
2000	0342	34959		2783	14978	0925	09276	0440
2500	0309 E	3497 C		2787	15049	1144	14359	0421
3000	0230 B	34920		2790	15101	1346	20080	0372

C-REF-NO 002	YR 1963	DEPTH 2838	WAVES 1	XX	AIR T	VIS
CONS. NO 025	MONTH 2	MXSAMPD 10	WAVES 2	XX	WET B	STN 679
LAT 62-05 N	DAY 02	NO.DPTH 6	WND-DIR 250		WW-CODE	
LON 32-52 W	HR 08.0	W-COLOR	WND-SPD 06		CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO		CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
088	0000	0590	35096		2766	14748
088	0050	0584 E	35019		2761	14753
088	0150	0581	35019		2761	14768
088	0300	0572	35000		2761	14789
088	0600	0466	34974		2772	14795
088	0985	0364	34897		2776	14815

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0590	35096		2766	14748	0000	00000	0439
0010	0589	35084		2765	14749	0004	00000	0449
0020	0588	3507 B		2765	14750	0009	00001	0458
*0030	0587 B	3506 C		2764	14751	0014	00002	0466
0050	0584 E	35019		2761	14753	0023	00006	0497
0075	0583 E	3501 B		2760	14756	0036	00014	0506
0100	0582 D	3501 C		2760	14760	0049	00026	0510
*0125	0581 B	3501 B		2761	14764	0062	00041	0511
0150	0581	35019		2761	14768	0075	00059	0507
0175	0581	35016		2761	14772	0087	00080	0512
0200	0580	35014		2761	14776	0100	00105	0517
*0225	0579	35011		2761	14779	0113	00134	0521
*0250	0577	35007		2761	14783	0127	00166	0525
0300	0572	35000		2761	14789	0153	00242	0531
0400	0542 E	34992		2764	14793	0206	00431	0513
0500	0507 E	34983		2768	14795	0257	00664	0488
0600	0466	34974		2772	14795	0304	00934	0458
0700	0462 I	3495 B		2770	14809	0352	01252	0481
0800	0430 I	3493 B		2772	14813	0400	01621	0466
*1000	0358 B	34894		2777	14815	0490	02457	0428

C-REF-NO 002	YR 1963	DEPTH 2962	WAVES 1	XX	AIR T	VIS
CONS. NO 024	MONTH 2	MXSAMPD 10	WAVES 2	XX	WET B	STN 678
LAT 62-04 N	DAY 01	NO. DPTH 6	WND-DIR 210	HW-CODE		
LON 32-55 W	HR 08.0	W-COLOR	WND-SPD 12	CLD-TPE		
MARSD SQ 220		W-TRNSP	BARO	CLD-AMT 8	HW	

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
088	0000	0590	34992		2758	14747
088	0050	0575 B	35000		2761	14749
088	0140	0571	35000		2761	14762
088	0285	0562	34990		2761	14782
088	0575	0490 B	34923		2765	14800
088	0965	0372 B				

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0590	34992		2758	14747	0000	00000	0517
0010	0587	34994		2758	14747	0005	00000	0514
0020	0585	34995		2759	14748	0010	00001	0512
*0030	0583 B	34996		2759	14749	0016	00002	0509
0050	0575 B	35000		2761	14749	0026	00007	0500
0075	0572 B	35001		2761	14752	0038	00015	0500
0100	0571 B	35001		2761	14756	0051	00026	0501
*0125	0571	35001		2761	14760	0064	00041	0505
0150	0571	35000		2761	14764	0076	00059	0509
0175	0570	34999		2761	14767	0089	00080	0512
*0200	0569	34998		2761	14771	0102	00105	0515
*0225	0567	34996		2761	14774	0115	00134	0518
*0250	0565	34994		2761	14778	0128	00166	0520
0300	0559	34987		2761	14784	0155	00240	0525
0400	0539 C	34970		2763	14791	0208	00431	0525
*0500	0513 B	34946		2764	14797	0261	00676	0524
0600	0494 G							
0700	0466 F							
*0800	0434 E							
*1000	0357 C							

C-REF-NO 002	YR 1963	DEPTH 2962	WAVES 1	XX	AIR T	VIS
CONS. NO 026	MONTH 2	MXSAMPD 01	WAVES 2	XX	WET B	STN 680
LAT 62-04 N	DAY 04	NO. DPTH 7	WND-DIR 360		WW-CODE	
LON 33-10 W	HR 08.0	W-COLOR	WND-SPD 07		CLD-TPE	
MARKD SQ 220		W-TRNSP	BARO		CLD-AMT 1	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
088	0000	0540	35030		2767	14727
088	0010	0552	34980		2762	14733
088	0025	0538	34973		2763	14730
088	0050	0537	34972		2763	14733
088	0075	0537	34971		2763	14737
088	0100	0534	34965		2763	14740
088	0150	0523	34957		2764	14744

I N T E R P O L A T E D

DEPTH	T E M P	S A L	CXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0540	35030		2767	14727	0000	00000	0430
0010	0552	34980		2762	14733	0005	00000	0482
0020	0544 H	34971		2762	14731	0009	00001	0482
0030	0537	34972		2763	14730	0014	00002	0473
0050	0537	34972		2763	14733	0024	00006	0476
0075	0537	34971		2763	14737	0036	00014	0480
0100	0534	34965		2763	14740	0048	00025	0484
0125	0530	34962		2763	14742	0060	00039	0485
0150	0523	34957		2764	14744	0072	00056	0484

C-REF-NO 002	YR 1963	DEPTH 2982	WAVES 1	XX	AIR T	VIS
CONS. NO 027	MONTH 2	MXSAMPD 10	WAVES 2	XX	WET B	STN 881
LAT 61-53 N	DAY 05	NO.DPTH 6	WND-DIR 040	WW-CODE		
LON 33-08 W	HR 08.0	W-COLOR	WND-SPD 07	CLD-TPE		
MARSD SQ 220		W-TRNSP	BARO	CLD-AMT 6	HW	

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
088	0000	0540	35046		2769	14727
088	0045	0545 B	35008		2765	14736
088	0135	0545	35006		2765	14751
088	0275	0536	35000		2765	14770
088	0570	0430	34950		2774	14774
088	0965	0359 B	34895		2777	14810

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0540	35046		2769	14727	0000	00000	0418
0010	0541	35039		2768	14729	0004	00000	0425
0020	0542	35033		2767	14731	0009	00001	0433
*0030	0543	3503 B		2767	14733	0013	00002	0439
0050	0545 B	35007		2765	14737	0022	00006	0460
0075	0546 B	3500 B		2764	14741	0034	00013	0468
*0100	0546	3500 B		2764	14746	0046	00024	0472
*0125	0545	35004		2765	14749	0057	00038	0472
0150	0545	35006		2765	14753	0069	00055	0473
0175	0544	35005		2765	14757	0081	00075	0477
*0200	0543	35004		2765	14761	0093	00098	0479
*0225	0541	35003		2765	14764	0106	00124	0481
*0250	0539	35002		2765	14767	0118	00154	0483
0300	0528 B	34997		2766	14771	0142	00223	0480
0400	0496 G	34981		2769	14774	0190	00394	0464
*0500	0458 E	34964		2772	14775	0236	00606	0445
0600	0452 I	3496 C		2772	14789	0281	00863	0454
0700	0428 I	3494 B		2773	14795	0327	01168	0447
*0800	0403 I	3493 B		2774	14801	0371	01514	0440
*1000	0349 D	34888		2777	14811	0459	02321	0422

C-REF-NO 002	YR 1963	DEPTH 2982	WAVES 1	XX	AIR T	VIS
CONS. NO 028	MONTH 2	MXSAMPD 10	WAVES 2	XX	WET B	STN 682
LAT 61-55 N	DAY 06	NO. DPTH 6	WND-DIR 030		WW-CODE	
LON 33-05 W	HR 08.0	W-COLOR	WND-SPD 14		CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO		CLD-AMT 6	HW

O B S E R V E D

GMT	DEPTH	TEMP	SAL	OXYGEN	SGMT	SOUND
082	0000	0520	35041		2771	14719
082	0050	0525	34976		2765	14728
082	0150	0528	34980		2765	14746
082	0300	0513	34986		2767	14765
082	0600	0440	34969		2774	14784
082	1000	0364 B	34896		2776	14818

I N T E R P O L A T E D

DEPTH	TEMP	SAL	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0520	35041		2771	14719	0000	00000	0399
0010	0521	35031		2770	14721	0004	00000	0409
0020	0522	3502 B		2769	14723	0008	00001	0419
*0030	0523	3501 C		2768	14725	0013	00002	0428
0050	0525	34976		2765	14728	0021	00006	0459
0075	0527	3497 B		2764	14733	0033	00013	0470
0100	0528	3497 C		2764	14738	0045	00024	0476
*0125	0528	3497 B		2764	14742	0057	00038	0477
0150	0528	34980		2765	14746	0069	00055	0473
0175	0527	34981		2765	14750	0081	00075	0473
0200	0525	34983		2765	14753	0093	00098	0474
*0225	0523	34984		2766	14756	0105	00124	0473
*0250	0520	34985		2766	14759	0117	00153	0473
0300	0513	34986		2767	14765	0141	00220	0469
0400	0491 C	34984		2769	14772	0187	00388	0457
0500	0467 C	34979		2772	14779	0233	00598	0444
0600	0440	34969		2774	14784	0277	00848	0430
0700	0432 H	34957		2774	14797	0321	01143	0440
0800	0411 F	34941		2775	14805	0365	01486	0437
1000	0364 B	34896		2776	14818	0454	02302	0433

C-REF-NO 002	YR 1963	DEPTH 2982	WAVES 1	XX	AIR T	VIS
CONS. NO 029	MONTH 2	MXSAMPD 10	WAVES 2	XX	WET B	STN 683
LAT 61-55 N	DAY 09	NO.DPTH 6	WND-DIR	050	W-CODE	
LON 33-08 W	HR 08.0	W-COLOR	WND-SPD	11	CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO		CLD-AMT 6	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
089	0000	0560	35055		2767	14735
089	0050	0551 B	34989		2763	14739
089	0150	0548	34988		2763	14754
089	0300	0505	34963		2766	14761
089	0600	0414 B	34981		2778	14773
089	1000	0361	34901		2777	14816

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0560	35055		2767	14735	0000	00000	0434
0010	0559	35045		2766	14737	0004	00000	0442
0020	0558 B	3504 B		2765	14738	0009	00001	0450
*0030	0557 B	3503 C		2765	14739	0013	00002	0457
0050	0551 B	34989		2763	14739	0023	00006	0480
0075	0550 B	3498 B		2762	14743	0035	00014	0488
0100	0550 B	3498 C		2762	14747	0048	00025	0493
*0125	0549 B	3498 B		2762	14750	0060	00039	0493
0150	0548	34988		2763	14754	0072	00057	0490
0175	0542	34984		2763	14756	0085	00078	0490
0200	0536 B	34980		2764	14758	0097	00101	0489
*0225	0529 B	34976		2764	14759	0109	00128	0487
*0250	0522 B	34972		2765	14760	0122	00158	0485
0300	0505	34963		2766	14761	0146	00227	0477
0400	0473 B	3497 B		2770	14764	0193	00394	0447
0500	0442 B	3497 B		2774	14768	0236	00596	0419
0600	0414 B	34981		2778	14773	0277	00827	0391
0700	0403 F	3494 F		2776	14785	0318	01101	0417
0800	0386 D	3493 E		2777	14794	0360	01427	0417
1000	0361	34901		2777	14816	0446	02218	0426

C-REF-NO 002	YR 1963	DEPTH 2982	WAVES 1	XX	AIR T	VIS
CONS. NO 030	MONTH 2	MXSAMPD 01	WAVES 2	XX	WET B	STN 684
LAT 62-02 N	DAY 11	NO. DPTH 7	WND-DIR 090		WW-CCDE	
LDN 33-07 W	HR 08.0	W-COLOR	WND-SPD 11		CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO		CLD-AMT	8 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	CXYGEN	SGMT	SOUND
087	0000	0560	35039		2765	14735
087	0010	0545	34986		2763	14730
087	0025	0550 C	34938		2759	14734
087	0050	0549	34945		2759	14738
087	0075	0548	34992		2763	14742
087	0100	0548	34986		2763	14746
087	0150	0538	34979		2763	14750

I N T E R P O L A T E D

DEPTH	T E M P	S A L	CXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0560	35039		2765	14735	0000	00000	0446
0010	0545	34986		2763	14730	0005	00000	0470
0020	0547 B	34950		2760	14732	0010	00001	0500
0030	0550 C	34933		2758	14735	0015	00002	0516
0050	0549	34945		2759	14738	0025	00007	0510
0075	0548	34992		2763	14742	0037	00015	0477
0100	0548	34986		2763	14746	0050	00025	0485
0125	0543	3500 B		2764	14748	0062	00039	0473
0150	0538	34979		2763	14750	0074	00057	0485

C-REF-NO 002	YR 1963	DEPTH 2962	WAVES 1	XX	AIR T	VIS
CONS. NO 031	MONTH 2	MXSAMPD 10	WAVES 2	XX	WET B	STN 885
LAT 61-58 N	DAY 12	NO.DPTH 6	WND-DIR 300	HW-CODE		
LON 33-05 W	HR 08.0	W-COLOR	WND-SPD 09	CLD-TPE		
MARSD SQ 220		W-TRNSP	BARO	CLD-AMT 8	HW	

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
089	0000	0550				
089	0045	0566	35002		2762	14745
089	0140	0566	35005		2762	14760
089	0280	0557	35006		2763	14780
089	0585	0439	34966		2774	14781
089	0970	0379 I	34903		2775	14819

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0550	34998		2764	14731	0000	00000	0465
0010	0553							
0020	0556 B							
*0030	0558 B							
0050	0567	35002		2762	14746	0024	00006	0488
0075	0569 B	35004		2762	14751	0036	00014	0493
*0100	0569 B	35005		2762	14755	0049	00026	0496
*0125	0568	35006		2762	14758	0061	00040	0497
0150	0566	35005		2762	14762	0074	00058	0499
0175	0566	35006		2762	14766	0087	00079	0501
*0200	0565	35006		2762	14770	0099	00103	0503
*0225	0563	35007		2763	14773	0112	00131	0505
*0250	0561	35006		2763	14776	0125	00162	0505
0300	0550 B	35004		2764	14780	0150	00234	0501
0400	0515 H	34994		2767	14782	0200	00411	0478
*0500	0476 G	34980		2771	14782	0247	00628	0453
0600	0469 I	3497 B		2771	14796	0293	00890	0462
0700	0446 I	3496 B		2772	14803	0339	01201	0456
*0800	0422 I	3494 B		2774	14809	0385	01555	0451
*1000	0371 I	34896		2775	14821	0476	02392	0442

C-REF-NU	002	YR	1963	DEPTH	2982	WAVES 1	XX	AIR T	VIS
CONS. NO	032	MONTH	2	MXSAMPD	10	WAVES 2	XX	WET B	STN 386
LAT	62-03 N	DAY	13	NU.DPTH	6	WND-DIR	050	WW-CODE	
LON	33-05 W	HR	08.0	W-COLOR		WND-SPD	09	CLD-TPF	
MARSD SQ	220			W-TRNSP		BARO		CLD-AMT	5 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
088	0000	0540	35031		2767	14727
088	0050	0578 B	34997		2760	14750
088	0145	0564	35003		2762	14760
088	0290	0526	34988		2766	14768
088	0580	0428 I	34955		2774	14775
088	0970	0361	34903		2777	14811

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0540	35031		2767	14727	0000	00000	0429
0010	0546 B	35026		2766	14731	0004	00000	0441
0020	0552 D	35021		2765	14735	0009	00001	0453
*0030	0557 E	3502 B		2764	14739	0014	00002	0464
0050	0578 B	34997		2760	14750	0023	00006	0506
0075	0580 D	34995		2759	14755	0036	00014	0514
0100	0578 E	3500 B		2760	14758	0049	00026	0515
*0125	0572 C	34998		2761	14760	0062	00041	0508
0150	0563	35003		2762	14761	0075	00059	0497
0175	0557	35001		2763	14762	0087	00080	0495
*0200	0551	34999		2763	14764	0100	00104	0493
*0225	0545	34997		2764	14765	0112	00131	0490
*0250	0538	34994		2765	14767	0124	00161	0487
0300	0523	34987		2766	14769	0149	00230	0480
0400	0488 E	34976		2769	14771	0196	00400	0459
*0500	0454 G	34965		2772	14773	0242	00610	0440
0600	0436 I	34952		2773	14782	0286	00861	0438
0700	0413 H	34940		2775	14789	0330	01154	0431
*0800	0392 F	34927		2776	14797	0373	01489	0426
*1000	0356 B	34899		2777	14814	0459	02283	0422

C-REF-NO 002	YR 1963	DEPTH 2982	WAVES 1	XX	AIR T	VIS
CONS. NO 033	MONTH 2	MXSAMPD 10	WAVES 2	XX	WET B	STN 687
LAT 61-54 N	DAY 15	NO.DPTH 6	WND-DIR 030		WW-CODE	
LON 33-10 W	HR 08.0	W-COLOR	WNO-SPD 10		CLD-TPE	
MARSC SQ 220		W-TRNSP	BARO		CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
088	0000	0540	35036		2768	14727
088	0050	0543 D	34973		2762	14736
088	0145	0547 B	34961		2761	14753
088	0295	0480	34956		2768	14750
088	0590	0452 G	34937		2770	14787
088	0990	0358	34943		2781	14814

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0540	35036		2768	14727	0000	00000	0425
0010	0542	35025		2767	14729	0004	00000	0437
0020	0544 B	3502 B		2766	14732	0009	00001	0448
*0030	0545 R	3501 B		2765	14734	0013	00002	0458
0050	0543 D	34973		2762	14736	0023	00006	0482
0075	0546 D	3496 B		2761	14741	0035	00014	0497
0100	0547 C	3496 B		2761	14748	0048	00025	0506
*0125	0548 B	3496 B		2761	14750	0061	00040	0510
0150	0545 B	34961		2761	14753	0073	00058	0507
0175	0536 D	34959		2762	14753	0086	00080	0500
*0200	0526 E	34958		2763	14753	0099	00104	0492
*0225	0515 E	34957		2765	14753	0111	00130	0483
*0250	0503 E	34957		2766	14752	0123	00160	0473
0300	0479	34956		2769	14750	0146	00226	0452
0400	0464 G	34949		2770	14761	0192	00390	0452
*0500	0455 H	34942		2770	14773	0238	00603	0457
0600	0419 I	3494 B		2774	14775	0283	00854	0426
0700	0399 I	3494 B		2776	14783	0325	01138	0413
*0800	0382 I	34941		2778	14793	0366	01457	0403
*1000	0357	34943		2781	14815	0447	02200	0390

C-REF-NO 002	YR 1963	DEPTH 2962	WAVES 1	XX	AIR T	VIS
CONS. NO 034	MONTH 2	MXSAMPD 10	WAVES 2	XX	WET B	STN 688
LAT 62-04 N	DAY 16	NO.DPTH 6	WND-DIR 090	WW-CODE		
LON 33-10 W	HR 08.0	W-COLOR	WND-SPD 11	CLD-TPE		
MARSD SQ 220		W-TRNSP	BARO	CLD-AMT 8	HW	

OBSERVED

GMT	DEPTH	TEMP	SAL	OXYGEN	SGMT	SOUND
088	0000	0610	35067		2761	14756
088	0050	0605 I	34994		2756	14761
088	0145	0594 B	35010		2759	14772
088	0290		34970			
088	0585	0428	34942		2773	14776
088	0980	0362 B	34903		2777	14813

INTERPOLATED

DEPTH	TEMP	SAL	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0610	35067		2761	14756	0000	00000	0485
0010	0609	3506 B		2761	14757	0005	00000	0494
0020	0609 B	3505 C		2760	14758	0010	00001	0502
*0030	0608 C	3504 D		2759	14759	0015	00002	0509
0050	0605 I	34994		2756	14761	0026	00007	0541
0075	0603 H	3499 C		2756	14764	0039	00016	0545
0100	0600 F	3499 C		2757	14767	0053	00028	0544
*0125	0597 D	3500 B		2758	14770	0067	00044	0538
0150	0592 B	35009		2759	14773	0080	00063	0529
0175	0584 D	35004		2760	14773	0093	00085	0526
*0200	0576 F	3500 B		2760	14774	0107	00110	0523
*0225	0567 H	3499 B		2761	14775	0120	00139	0521
*0250	0559 I	34984		2761	14775	0133	00171	0519
0300	0541 I	34968		2762	14776	0159	00245	0516
0400	0503 I	34955		2766	14777	0210	00428	0493
*0500	0464 H	34946		2770	14777	0258	00651	0464
0600	0461 I	3493 C		2768	14792	0306	00923	0486
0700	0435 I	3492 C		2770	14798	0355	01247	0473
*0800	0409 I	3491 B		2773	14803	0402	01611	0458
*1000	0357 C	34903		2777	14815	0491	02430	0420

C-REF-NO 002	YR 1963	DEPTH 2962	WAVES 1	XX	AIR T	V16
CONS. NO 035	MONTH 2	MXSAMPD 01	WAVES 2	XX	WET B	STN 689
LAT 62-00 N	DAY 18	NO.DPTH 7	WND-DIR 140		W-CODE	
LON 33-20 W	HR 10.0	W-COLOR	WND-SPD 10		CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO		CLD-AMT 3	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
109	0000	0610	35056		2760	14756
109	0010	0609 I	34968		2754	14756
109	0025	0605	34967		2754	14757
109	0050	0602 B	34977		2755	14760
109	0075	0589	35001		2759	14759
109	0100	0587	35013		2760	14762
109	0150	0577 B	35011		2761	14766

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0610	35056		2760	14756	0000	00000	0494
0010	0609 I	34968		2754	14756	0005	00000	0560
0020	0606 D	3496 B		2753	14756	0011	00001	0565
0030	0605	34968		2754	14757	0017	00003	0557
0050	0602 B	34977		2755	14760	0028	00007	0550
0075	0589	35001		2759	14759	0041	00016	0520
0100	0587	35013		2760	14762	0054	00027	0512
0125	0579 B	35017		2761	14763	0067	00042	0502
0150	0577 B	35011		2761	14766	0080	00060	0508

C-REF-NO 002	YR 1963	DEPTH 2982	WAVES 1	XX	AIR T	VIS
CONS. NO 036	MONTH 2	MXSAMPD 09	WAVES 2	XX	WET B	STN 690
LAT 62-00 N	DAY 19	NO.DPTH 6	WND-DIR 100	HW-CODE		
LON 33-15 W	HR 08.0	W-COLOR	WND-SPD 11	CLO-TPE		
MARSC SQ 220		W-TRNSP	BARO	CLO-AMT	8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
089	0000	0550	34982		2762	14730
089	0045	0534 B	34972		2763	14731
089	0135	0520	34968		2765	14740
089	0275	0486 E	34949		2767	14749
089	0555	0409 B	34943		2775	14763
089	0925	0358 C	34906		2778	14803

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0550	34982		2762	14730	0000	00000	0477
0010	0547	34980		2762	14731	0005	00000	0476
0020	0544	34979		2763	14731	0010	00001	0475
*0030	0541 B	34977		2763	14732	0014	00002	0475
0050	0533 B	34972		2763	14732	0024	00006	0472
0075	0528 B	34970		2764	14734	0036	00014	0471
*0100	0524 B	34969		2764	14736	0048	00024	0471
*0125	0521	34968		2765	14739	0060	00038	0470
0150	0517	34966		2765	14741	0071	00055	0470
0175	0511 B	34963		2765	14743	0083	00075	0469
*0200	0505 B	34959		2766	14745	0095	00097	0468
*0225	0499 C	34956		2766	14746	0107	00123	0466
*0250	0493 D	34953		2767	14748	0119	00152	0465
0300	0479 E	34948		2768	14750	0142	00218	0458
0400	0450 D	34945		2771	14755	0187	00380	0439
*0500	0423 C	34943		2774	14760	0231	00580	0420
0600	0408 G	3493 C		2774	14770	0273	00822	0423
0700	0390 F	3492 B		2776	14779	0316	01106	0418
*0800	0375 D	3491 B		2777	14789	0358	01431	0415

C-REF-NO 002	YR 1963	DEPTH 2982	WAVES 1	XX	AIR T	VIS
CONS. NO 037	MONTH 2	MXSAMPD 10	WAVES 2	XX	WET B	STN 691
LAT 61-55 N	DAY 20	NO.DPTH 6	WND-DIR 210		WW-CODE	
LDN 33-20 W	HR 08.0	W-COLOR	WND-SPD 11		CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO		CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
089	0000	0510	35041		2772	14715
089	0050	0527	34967		2764	14729
089	0145	0511	34963		2765	14738
089	0295	0466	34968		2771	14744
089	0590		34942			
089	0990	0358 D	34909		2778	14813

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0510	35041		2772	14715	0000	00000	0387
0010	0513	35029		2770	14718	0004	00000	0401
0020	0515 B	3502 B		2769	14720	0008	00001	0414
*0030	0519 C	3501 C		2768	14722	0012	00002	0426
0050	0527	34967		2764	14729	0021	00006	0468
0075	0526 B	3496 B		2763	14733	0033	00013	0478
0100	0523 B	3495 C		2763	14736	0045	00024	0480
*0125	0517 B	3496 B		2764	14737	0057	00038	0475
0150	0510	34963		2766	14738	0069	00055	0464
0175	0503	34964		2766	14740	0081	00074	0458
*0200	0495 B	34965		2767	14741	0092	00096	0453
*0225	0488 B	34966		2768	14742	0104	00121	0446
*0250	0480	34966		2769	14743	0115	00149	0440
0300	0475 G	34968		2770	14749	0137	00211	0438
0400	0455 H	34961		2772	14757	0181	00369	0432
*0500	0437 I	34952		2773	14766	0224	00570	0428
0600	0419 H	3495 B		2775	14775	0267	00813	0420
0700	0402 H	3494 B		2776	14784	0310	01095	0416
*0800	0386 F	3493 B		2777	14794	0352	01420	0414
*1000	0357 D	34908		2778	14815	0436	02199	0416

C-REF-NO 002	YR 1963	DEPTH 2962	WAVES 1	XX	AIR T	VIS
CONS. NO 038	MONTH 2	MXSAMPD 28	WAVES 2	XX	WET B	STN 692
LAT 62-03 N	DAY 21	NO.DPTH 19	WND-DIR	110	WW-CODE	
LON 33-20 W	HR 09.0	W-COLOR	WND-SPD	10	CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO		CLD-AMT	4 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
111	0000	0510	35033		2771	14715
111	0010	0548 I	34986	731	2763	14731
111	0025	0515 B	34970	730	2766	14720
111	0050	0514 B	34967	729	2765	14724
111	0075	0514	34985	732	2767	14728
111	0100	0514	34967	730	2765	14732
111	0155	0514	34942	732	2763	14741
111	0200	0508	34975	721	2767	14746
111	0300	0480	34951	726	2768	14751
111	0400	0461	34951	676	2770	14759
105	0500	0434	34956	681	2774	14765
105	0600	0418	34944	694	2774	14774
105	0800	0386	34934	695	2777	14794
105	1000	0369 B	34939	693	2779	14820
105	1200	0367	34937	687	2779	14853
092	1470	0362	34945	679	2780	14896
092	1960	0343	34962	680	2784	14971
092	2450	0309 E	34945	679	2785	15040
092	2840	0222 B	34929	705	2792	15070

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0510	35033		2771	14715	0000	00000	0393
0010	0548 I	34986		2763	14731	0004	00000	0473
0020	0531 G	34971		2764	14726	0009	00001	0466
0030	0512 C	34967		2766	14720	0014	00002	0449
0050	0514 B	34967		2765	14724	0023	00006	0454
0075	0514	34985		2767	14728	0034	00013	0443
0100	0514	34967		2765	14732	0045	00023	0460
0125	0514	34950		2764	14736	0057	00037	0476
0150	0514	34942		2763	14740	0069	00054	0485
0175	0512	34955		2765	14743	0082	00074	0475
0200	0508	34975		2767	14746	0093	00097	0459
0225	0502	3497 B		2767	14747	0105	00122	0456
0250	0495 B	3497 B		2768	14749	0116	00150	0454
0300	0480	34951		2768	14751	0139	00215	0457
0400	0461	34951		2770	14759	0185	00379	0446
0500	0434	34956		2774	14765	0229	00582	0423
0600	0418	34944		2774	14774	0272	00824	0423

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0700	0401	34937		2776	14784	0314	01109	0419
0800	0386	34934		2777	14794	0356	01433	0413
1000	0369 B	34939		2779	14820	0439	02203	0407
1200	0367	34937		2779	14853	0524	03159	0424
1500	0361	34946		2780	14901	0654	04980	0435
2000	0342	34961		2784	14978	0876	08989	0438
2500	0291 F	34947		2787	15041	1092	14002	0412

C-REF-NO 002	YR 1963	DEPTH 2982	WAVES 1	XX	AIR T	VIS
CONS. NO 039	MONTH 2	MXSAMPD 10	WAVES 2	XX	WET B	STN 693
LAT 62-07 N	DAY 22	NO.DPTH 6	WND-DIR 040		W-CODE	
LON 33-40 W	HR 08.0	W-COLOR	WND-SPD 04		CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO		CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
088	0000	0570	34977		2759	14738
088	0050	0613 C	34937		2751	14763
088	0150	0555 B	34977		2761	14757
088	0300	0504	34966		2766	14761
088	0600	0423	34990		2778	14777
088	1000	0360 B	34909		2778	14816

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0570	34977		2759	14738	0000	00000	0504
0010	0575 D	34973		2758	14742	0005	00000	0515
0020	0580 G	3497 B		2757	14746	0010	00001	0525
*0030	0584 I	3497 C		2757	14749	0016	00002	0535
0050	0613 C	34937		2751	14763	0027	00007	0594
0075	0607 G	3494 B		2752	14765	0042	00017	0586
0100	0595 I	3495 C		2754	14765	0057	00030	0569
*0125	0578 G	3496 B		2757	14762	0071	00046	0543
0150	0555 B	34977		2761	14757	0084	00065	0507
0175	0545 B	34978		2763	14757	0096	00086	0498
0200	0535 B	3498 B		2764	14757	0109	00110	0490
*0225	0526 B	3498 B		2765	14758	0121	00137	0483
*0250	0518 B	34974		2765	14758	0133	00166	0479
0300	0504	34966		2766	14761	0157	00234	0474
0400	0474	3498 B		2771	14765	0204	00400	0444
0500	0447	3498 B		2774	14770	0247	00601	0417
0600	0423	34990		2778	14777	0288	00833	0395
0700	0403	3496 E		2777	14785	0329	01104	0406
0800	0385	3494 D		2778	14794	0370	01421	0405
1000	0360 B	34909		2778	14816	0453	02196	0419

C-REF-NO 002	YR 1963	DEPTH 2982	WAVES 1	XX	AIR T	VIS
CONS. NO 040	MONTH 2	MXSAMPD 10	WAVES 2	XX	WET B	STN 694
LAT 62-03 N	DAY 23	NO.DPTH 6	WND-DIR 060		WW-CODE	
LON 33-08 W	HR 08.0	W-COLOR	WND-SPD 11		CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO		CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
089	0000	0500	35033		2772	14711
089	0050		34961			
089	0150	0503	34961		2766	14736
089	0300	0454	34942		2770	14740
089	0600	0398	34930		2775	14766
089	1000	0356	34898		2777	14814

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0500	35033		2772	14711	0000	00000	0382
0010	0500	35022		2771	14712	0004	00000	0392
0020	0499 B	3501 B		2771	14713	0008	00001	0400
*0030	0499 B	3500 C		2770	14715	0012	00002	0409
0050	0498 C	34961		2767	14717	0021	00005	0440
0075	0497 E	3495 B		2766	14721	0032	00013	0448
0100	0495 F	3495 C		2766	14724	0043	00023	0451
*0125	0493 G	3495 B		2767	14727	0054	00036	0450
0150	0503	34961		2766	14736	0066	00052	0458
0175	0496 B	34958		2767	14737	0077	00071	0455
0200	0489 C	34955		2767	14738	0089	00093	0452
*0225	0481 C	34952		2768	14739	0100	00118	0448
*0250	0472 C	34949		2769	14739	0111	00146	0444
0300	0454	34942		2770	14740	0134	00208	0434
0400	0431 B	34937		2772	14747	0177	00364	0423
0500	0412 B	34933		2774	14755	0219	00560	0415
0600	0398	34930		2775	14766	0261	00796	0411
0700	0377 D	3492 B		2776	14774	0302	01073	0408
0800	0366 C	3491 B		2777	14786	0344	01392	0409
1000	0356	34898		2777	14814	0428	02174	0422

C-REF-NO 002	YR 1963	DEPTH 2985	WAVES 1	XX	AIR T	VIS
CONS. NO 041	MONTH 2	MXSAMPD 10	WAVES 2	XX	WET B	STN 537
LAT 62-03 N	DAY 26	NO.DPTH 6	WND-DIR 200	HW-CODE		
LON 33-01 W	HR 07.0	W-COLOR	WND-SPD 10	CLD-TPE		
MARSD SQ 220		W-TRNSP	BARO	CLD-AMT 5	HW	

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
077	0000	0518	34964		2765	14717
077	0050	0493	34949		2766	14715
077	0150	0476	34944		2768	14724
077	0300	0452	34939		2770	14739
077	0600	0408 U	34937		2775	14770
077	1000	0360	34910		2778	14816

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0518	34964		2765	14717	0000	00000	0454
0010	0514	34961		2765	14717	0005	00000	0452
0020	0509 B	34959		2765	14717	0009	00001	0450
*0030	0505 B	34957		2766	14717	0014	00002	0449
0050	0493	34949		2766	14715	0023	00006	0443
0075	0487 B	34946		2767	14716	0034	00013	0442
0100	0482 B	34944		2767	14718	0045	00023	0440
*0125	0478 B	34944		2768	14721	0056	00036	0440
0150	0476	34944		2768	14724	0067	00051	0440
0175	0472	34943		2768	14727	0078	00070	0439
0200	0468	34942		2769	14729	0089	00091	0438
*0225	0464	34941		2769	14731	0100	00115	0437
*0250	0460	34940		2770	14734	0111	00142	0436
0300	0452	34939		2770	14739	0133	00204	0434
0400	0437	34939		2772	14749	0177	00361	0428
0500	0422	34938		2773	14759	0220	00560	0422
0600	0408 B	34937		2775	14770	0262	00800	0417
0700	0395	34928		2776	14781	0304	01082	0419
0800	0383	34923		2776	14793	0347	01409	0418
1000	0360	34910		2778	14816	0431	02194	0418

C-REF-NO 002	YR 1963	DEPTH 2985	WAVES 1	XX	AIR T	VES
CONS. NO 042	MONTH 2	MXSAMPO 10	WAVES 2	XX	WET B	STN 538
LAT 62-00 N	DAY 27	NO.DPTH 6	WND-DIR 170	WW-CODE		
LON 33-18 W	HR 07.0	W-COLOR	WND-SPD 06	CLD-TPE		
MARSD SQ 220		W-TRNSP	BARO	CLD-AMT 5	HW	

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
076	0000	0490	34977		2769	14706
076	0050	0478	34954		2769	14709
076	0145	0473	34951		2769	14722
076	0295	0459	34966		2772	14741
076	0590	0402	34933		2775	14766
076	0980	0357 B	34902		2777	14811

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0490	34977		2769	14706	0000	00000	0413
0010	0488	34973		2769	14707	0004	00000	0415
0020	0486	34969		2769	14707	0008	00001	0417
*0030	0484	34965		2769	14708	0013	00002	0419
0050	0478	34954		2769	14709	0021	00005	0423
0075	0476	34950		2769	14712	0032	00012	0426
0100	0474	34948		2769	14715	0043	00022	0429
*0125	0473	34949		2769	14719	0053	00035	0430
0150	0473	34951		2769	14723	0064	00050	0431
0175	0471	34954		2769	14726	0075	00068	0430
*0200	0469	34956		2770	14730	0086	00089	0429
*0225	0467	34959		2770	14733	0097	00113	0427
*0250	0464	34961		2771	14736	0108	00139	0425
0300	0458	34966		2772	14742	0129	00199	0421
0400	0440 B	34959		2773	14751	0171	00351	0417
*0500	0420 B	34947		2774	14759	0213	00545	0414
0600	0411 G	3495 D		2776	14772	0255	00782	0412
0700	0397 F	3494 C		2776	14782	0297	01060	0412
*0800	0383 E	3493 C		2777	14793	0338	01383	0413
*1000	0354 B	34898		2777	14813	0423	02165	0420

C-REF-NO 002	YR 1963	DEPTH 2742	WAVES 1	XX	AIR T	VIS
CONS. NO 043	MONTH 3	MXSAMPC 10	WAVES 2	XX	WET B	STN 695
LAT 61-57 N	DAY 23	NO.DPTH 5	WND-DIR 170		WW-CODE	
LON 32-50 W	HR 08.0	W-COLOR	WND-SPD 11		CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO		CLD-AMT 8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
084	0000	0700	35107		2752	14792
084	0150	0661 B	35041		2753	14800
084	0295	0643	35065		2757	14817
084	0595	0472 B	35002		2773	14797
084	0985	0377	34914		2776	14821

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0700	35107		2752	14792	0000	00000	0571
0010	0699	35104		2752	14793	0006	00000	0573
0020	0698 B	35101		2752	14794	0012	00001	0575
*0030	0696 B	3510 B		2752	14795	0017	00003	0578
*0050	0693 C	3509 B		2752	14797	0029	00007	0581
*0075	0689 E	3508 C		2752	14800	0044	00017	0585
*0100	0684 F	3508 D		2752	14802	0059	00030	0588
*0125	0679 G	3507 E		2752	14804	0073	00047	0590
0150	0661 B	35041		2753	14800	0088	00069	0593
0175	0659 B	35043		2753	14804	0103	00093	0592
0200	0656 C	3505 B		2754	14807	0118	00122	0590
*0225	0653 C	3505 B		2754	14810	0133	00155	0587
*0250	0650 B	3506 B		2755	14813	0148	00191	0583
0300	0641	35065		2757	14817	0177	00273	0571
0400	0589 I	3505 B		2763	14813	0232	00471	0527
*0500	0531 I	3503 B		2768	14806	0283	00707	0484
0600	0516 I	3503 F		2770	14816	0332	00982	0480
0700	0481 I	3501 E		2772	14818	0380	01301	0464
*0800	0446 I	3498 D		2774	14820	0426	01658	0450
*1000	0371 B	34908		2776	14821	0516	02485	0433

C-REF-NO 002	YR 1963	DEPTH 2923	WAVES 1	XX	AIR T	VIS
CONS. NO 044	MONTH 3	MXSAMPD 01	WAVES 2	XX	WET B	STN 696
LAT 62-00 N	DAY 25	NO.DPTH 7	WND-DIR 250		HW-CODE	
LON 32-50 W	HR 10.0	W-COLOR	WND-SPD 11		CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO		CLD-AMT 6	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
101	0000	0660	35113		2758	14776
101	0010	0675	35033		2750	14783
101	0025	0673 B	35026		2750	14784
101	0050	0673	35021		2749	14788
101	0075	0673	35057		2752	14793
101	0100	0673	35026		2750	14797
101	0150	0614	34999		2755	14781

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0660	35113		2758	14776	0000	00000	0514
0010	0675	35033		2750	14783	0006	00000	0595
0020	0675 B	3502 B		2749	14784	0012	00001	0606
0030	0673 B	35023		2750	14785	0018	00003	0602
0050	0673	35021		2749	14788	0030	00008	0607
0075	0673	35057		2752	14793	0045	00017	0585
0100	0673	35026		2750	14797	0060	00031	0612
0125	0647 C	3503 C		2754	14791	0075	00048	0578
0150	0614	34999		2755	14781	0089	00069	0563

C-REF-NO 002	YR 1963	DEPTH 2560	WAVES 1	XX	AIR T	VIS
CONS. NO 045	MONTH 3	MXSAMPD 10	WAVES 2	XX	WET B	STN 697
LAT 62-06 N	DAY 26	NO.DPTH 6	WND-DIR 220		HW-CODE	
LON 32-40 W	HR 08.0	W-COLOR	WND-SPD 07		CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO		CLD-AMT 4	HM

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
089	0000	0650	35089		2758	14772
089	0050	0640 B	35029		2754	14775
089	0150	0632	35073		2759	14789
089	0300	0599	34995		2757	14800
089	0600	0482 B	34961		2769	14801
089	0995	0378 B	34911		2776	14823

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0650	35089		2758	14772	0000	00000	0519
0010	0649	3508 B		2757	14773	0005	00000	0524
0020	0647	3508 C		2757	14774	0011	00001	0528
*0030	0646	3507 D		2757	14775	0016	00002	0532
0050	0640 B	35029		2754	14775	0027	00007	0559
0075	0638 B	3503 C		2755	14779	0041	00016	0557
0100	0636 B	3504 D		2756	14782	0055	00029	0551
*0125	0634	3506 C		2757	14786	0069	00045	0543
0150	0632	35073		2759	14789	0082	00064	0531
0175	0628	3507 B		2759	14792	0096	00086	0536
0200	0623	3505 C		2759	14794	0109	00112	0541
*0225	0618	3504 C		2758	14796	0123	00142	0547
*0250	0612	3503 C		2758	14797	0137	00176	0554
0300	0599	34995		2757	14800	0165	00256	0569
0400	0562 D	3498 B		2760	14801	0222	00459	0551
0500	0523 D	3496 B		2764	14801	0276	00710	0523
0600	0482 B	34961		2769	14801	0327	00998	0487
0700	0469 I	3492 F		2767	14812	0378	01337	0515
0800	0439 I	3491 E		2769	14816	0429	01730	0494
*1000	0376 D	34911		2776	14823	0523	02597	0437

C-REF-NO 002	YR 1963	DEPTH 2890	WAVES 1	XX	AIR T	VIS
CONS. NO 046	MONTH 3	MXSAMPD 09	WAVES 2	XX	WET B	STN 698
LAT 61-55 N	DAY 29	NO.DPTH 6	WND-DIR	060	HW-CODE	
LON 33-10 W	HR 08.0	W-COLOR	WND-SPD	03	CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO		CLD-AMT 7	HW

OBSERVED

GMT	DEPTH	TEMP	SAL	OXYGEN	SGMT	SOUND
087	0000	0660				
087	0050	0649	35033		2754	14779
087	0145	0645	35039		2755	14793
087	0285	0538	35010		2766	14773
087	0570	0461	34973		2772	14788
087	0950	0379	34938		2778	14816

INTERPOLATED

DEPTH	TEMP	SAL	OXYGEN	SGMT	SOUND	DELTA-D	PQT.EN	SVA
0000	0660	3503 B		2752	14775	0000	00000	0574
0010	0660 B							
0020	0660 C							
*0030	0659 D							
0050	0649	35033		2754	14779	0029	00007	0567
0075	0650 C	35033		2753	14783	0043	00017	0572
0100	0649 C	35033		2754	14787	0058	00030	0575
*0125	0647 B	35032		2754	14791	0072	00046	0577
0150	0642	35038		2755	14793	0087	00067	0570
0175	0625 E	35034		2757	14790	0101	00090	0555
*0200	0607 G	35030		2759	14787	0115	00117	0539
*0225	0588 G	35025		2761	14784	0128	00146	0523
*0250	0568 F	35019		2763	14779	0141	00178	0505
0300	0531 B	35008		2767	14773	0166	00248	0475
0400	0495 G	34993		2770	14774	0213	00416	0455
*0500	0471 E	34980		2771	14780	0258	00627	0447
0600	0421 I	34966		2776	14776	0302	00871	0411
0700	0398 I	34955		2777	14783	0343	01146	0401
*0800	0383 I	34947		2778	14793	0383	01459	0400

C-REF-NO 002	YR 1963	DEPTH 2970	WAVES 1	XX	AIR T	VIS
CONS. NO 047	MONTH 3	MXSAMPD 09	WAVES 2	XX	WET B	STN 699
LAT 61-57 N	DAY 30	NO.DPTH 6	WND-DIR 090		HW-CODE	
LON 33-05 W	HR 07.0	W-COLOR	WND-SPD 07		CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO		CLD-AMT 5	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
080	0000	0670				
080	0045	0653	35031		2753	14780
080	0140	0624	35027		2756	14784
080	0280	0586	35043		2763	14792
080	0565	0464 B	34986		2773	14788
080	0940	0377 B	34916		2776	14813

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0670	3503 B		2750	14779	0000	00000	0591
0010	0666							
0020	0663							
*0030	0659							
0050	0651	35031		2753	14780	0029	00007	0572
0075	0643	35033		2754	14781	0044	00017	0564
*0100	0635	35034		2755	14782	0058	00029	0557
*0125	0628	3503 B		2756	14783	0072	00045	0551
0150	0621	35028		2757	14784	0086	00065	0551
0175	0615	35031		2758	14786	0099	00088	0544
*0200	0608	35034		2759	14787	0113	00114	0537
*0225	0601	35037		2760	14789	0127	00144	0530
*0250	0595	35040		2761	14790	0140	00176	0523
0300	0578 B	35041		2763	14792	0166	00250	0508
0400	0535 E	3503 B		2768	14791	0216	00428	0479
*0500	0492 D	35004		2771	14789	0263	00646	0455
0600	0472 I	3500 E		2773	14798	0308	00903	0444
0700	0443 I	3498 D		2775	14802	0353	01200	0434
*0800	0414 G	3496 C		2776	14806	0396	01537	0429

C-REF-NO 002	YR 1963	DEPTH 2980	WAVES 1	XX	AIR T	VIS
CONS. NO 048	MONTH 4	MXSAMPD 01	WAVES 2	XX	WET B	STN 700
LAT 61-57 N	DAY 01	NO.DPTH 7	WND-DIR	040	WW-CODE	
LON 33-15 W	HR 08.0	W-COLOR	WND-SPD	05	CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO		CLD-AMT	7 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
087	0000	0660	35099		2757	14776
087	0010	0654	35024		2752	14774
087	0025	0634	35021		2755	14769
087	0050	0626	35049		2758	14770
087	0075	0617	35008		2756	14770
087	0100	0603	35033		2760	14769
087	0145	0582	35017		2761	14768

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0660	35099		2757	14776	0000	00000	0524
0010	0654	35024		2752	14774	0006	00000	0574
0020	0641	3501 B		2753	14771	0011	00001	0567
0030	0631	35028		2755	14769	0017	00003	0546
0050	0626	35049		2758	14770	0028	00007	0526
0075	0617	35008		2756	14770	0041	00016	0549
0100	0603	35033		2760	14769	0055	00028	0517
0125	0592	3501 C		2759	14768	0068	00043	0524

C-REF-NO 002	YR 1963	DEPTH 2980	WAVES 1	XX	AIR T	VIS
CONS. NO 049	MONTH 4	MXSAMPD 10	WAVES 2	XX	WET B	STN 701
LAT 62-00 N	DAY 02	NO. DPTH 6	WND-DIR 120	HW-CODE		
LON 33-00 W	HR 08.0	W-COLOR	WND-SPD 08	CLD-TPE		
MARSD SQ 220		W-TRNSP	BARO	CLD-AMT 5	HW	

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
088	0000		35043			
088	0050	0567	34985		2760	14746
088	0145	0542	34971		2762	14751
088	0290	0524	35013		2768	14768
088	0580	0437	34968		2774	14779
088	0970	0367	34928		2778	14814

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0577 C	35043		2764	14742	0000	00000	0463
0010		35032						
0020		35022						
*0030		3501 B						
0050	0567	34985		2760	14746	0024	00006	0502
0075	0562	34974		2760	14748	0037	00015	0508
0100	0557 B	3497 B		2760	14749	0050	00026	0509
*0125	0552 C	34967		2761	14751	0063	00041	0507
0150	0541	34972		2763	14751	0075	00059	0494
0175	0538	34978		2763	14754	0088	00080	0489
*0200	0535 B	3499 B		2764	14757	0100	00103	0483
*0225	0532 B	3499 B		2765	14760	0112	00130	0478
*0250	0529 B	3500 B		2766	14763	0124	00159	0471
0300	0521	35013		2768	14768	0148	00225	0459
0400	0493 D	3501 C		2771	14773	0193	00389	0444
*0500	0463 C	3499 B		2773	14777	0237	00593	0432
0600	0450 I	3500 G		2775	14789	0280	00837	0420
0700	0428 I	3499 G		2777	14796	0323	01118	0413
*0800	0406 H	3497 E		2778	14803	0364	01439	0409
*1000	0360 B	3492 B		2778	14816	0447	02209	0412

C-REF-NO 002	YR 1963	DEPTH 2742	WAVES 1	XX	AIR T	VIS
CONS. NO 050	MONTH 4	MXSAMPD 10	WAVES 2	XX	WET B	STN 702
LAT 61-56 N	DAY 03	NO.DPTH 6	WND-DIR 220	WW-CODE		
LON 32-55 W	HR 08.0	W-COLOR	WND-SPD 05	CLD-TPE		
MARSD SQ 220		W-TRNSP	BARO	CLD-AMT		HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
087	0000	0630	35080		2760	14764
087	0050	0578	34998		2760	14750
087	0150	0519	34998		2767	14743
087	0300	0478	34988		2771	14750
087	0600	0421	34965		2776	14776
087	1000	0363	34928		2779	14818

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0630	35080		2760	14764	0000	00000	0501
0010	0620	35067		2760	14761	0005	00000	0499
0020	0610	3505 B		2760	14759	0010	00001	0497
*0030	0600 B	3504 C		2761	14756	0015	00002	0495
0050	0578	34998		2760	14750	0025	00006	0505
0075	0559	3499 C		2762	14747	0038	00015	0494
0100	0543 B	3499 C		2763	14744	0050	00026	0480
*0125	0530	3499 B		2765	14743	0062	00039	0466
0150	0519	34998		2767	14743	0073	00056	0449
0175	0510	34997		2768	14743	0085	00074	0442
0200	0502 B	34995		2769	14744	0096	00096	0437
*0225	0494 B	34994		2770	14745	0107	00120	0433
*0250	0488 B	34992		2770	14746	0118	00146	0430
0300	0478	34988		2771	14750	0139	00207	0427
0400	0457	34981		2773	14758	0182	00361	0419
0500	0438	34973		2775	14766	0224	00556	0414
0600	0421	34965		2776	14776	0266	00791	0411
0700	0400 C	34956		2777	14784	0307	01067	0404
0800	0386 B	34947		2778	14794	0348	01382	0403
1000	0363	34928		2779	14818	0430	02144	0408

C-REF-NO 002	YR 1963	DEPTH 2980	WAVES 1	XX	AIR T	VIS
CONS. NO 051	MONTH 4	MXSAMPD 20	WAVES 2	XX	WET B	STN 703
LAT 62-01 N	DAY 04	NO.DPTH 6	WND-DIR 070		WW-CODE	
LON 33-12 W	HR 08.0	W-COLOR	WND-SPD 10		CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO		CLD-AMT 8	HM

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
088	0000	0650	35078		2757	14772
088	0790	0398 C	34935	701	2776	14797
088	0990	0358	34896	705	2777	14813
088	1185	0353	34899	710	2778	14844
088	1485	0361	34946	694	2780	14898
088	1970	0335 B	34964	691	2784	14970

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	PQT.EN	SVA
0000	0650	35078		2757	14772	0000	00000	0527
0010	0645	35075		2757	14772	0005	00000	0525
0020	0640	35072		2758	14771	0011	00001	0522
*0030	0636	35069		2758	14771	0016	00002	0520
*0050	0626	35064		2759	14770	0026	00007	0516
*0075	0615 B	35057		2760	14770	0039	00015	0510
*0100	0603 B	35050		2761	14769	0052	00027	0505
*0125	0592 C	3504 B		2762	14769	0065	00041	0500
*0150	0581 C	3504 B		2763	14768	0077	00059	0495
*0175	0571 C	3503 B		2763	14768	0090	00080	0490
*0200	0560 D	3502 B		2764	14768	0102	00103	0485
*0225	0550 D	3502 B		2765	14768	0114	00130	0481
*0250	0541 D	3501 C		2766	14768	0126	00159	0477
*0300	0522 E	3500 C		2767	14768	0150	00227	0469
*0400	0487 F	3498 C		2770	14770	0197	00395	0456
*0500	0456 G	3496 D		2772	14774	0242	00605	0445
*0600	0429 G	3495 D		2773	14779	0287	00856	0436
*0700	0407 F	3493 D		2775	14786	0331	01149	0430
0800	0395 C	34933		2776	14798	0374	01483	0425
1000	0357	34895		2777	14815	0460	02282	0426
1200	0353	34901		2778	14847	0547	03269	0434
1500	0353 E	3493 D		2780	14897	0679	05111	0436
2000	0333 B	34966		2785	14974	0897	09042	0423

C-REF-NO 002	YR 1963	DEPTH 2980	WAVES 1 00X0	AIR T	VIS
CONS. NO 052	MONTH 4	MXSAMPC 01	WAVES 2 XX	WET B	STN 704
LAT 61-55 N	DAY 08	NO.DPTH 7	WND-DIR CALM	WW-CODE	
LON 33-10 W	HR 08.0	W-COLOR	WND-SPD 00	CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO	CLD-AMT 1	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
086	0000	0630	35079		2760	14764
086	0010	0696	35009		2745	14791
086	0025	0612 C	35011		2757	14760
086	0050	0573	35008		2761	14748
086	0075	0574	35007		2761	14753
086	0100	0578 B	35029		2762	14759
086	0150	0548 B	35034		2767	14755

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0630	35079		2760	14764	0000	00000	0501
0010	0696	35009		2745	14791	0006	00000	0640
0020	0650 I	3500 B		2751	14774	0012	00001	0586
0030	0598 D	35011		2759	14755	0017	00003	0517
0050	0573	35008		2761	14748	0028	00007	0492
0075	0574	35007		2761	14753	0040	00015	0497
0100	0578 B	35029		2762	14759	0053	00026	0489
0125	0564 B	3503 B		2764	14757	0065	00040	0478
0150	0548 B	35034		2767	14755	0077	00057	0456

C-REF-NO 002	YR 1963	DEPTH 2920	WAVES 1	XX	AIR T	VIS
CONS. NO 053	MONTH 4	MXSAMPD 01	WAVES 2	XX	WET B	STN 705
LAT 61-57 N	DAY 09	NO.DPTH 3	WND-DIR 240	WV-CODE		
LON 32-50 W	HR 08.0	W-COLOR	WND-SPD 08	CLD-TPE		
MARSD SQ 220		W-TRNSP	BARO	CLD-AMT	1	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
089	0000	0630	35145		2765	14765
089	0045	0580 B	34994		2759	14750
089	0140	0533	34998		2766	14747

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0630	35145		2765	14765	0000	00000	0452

C-REF-NO 002	YR 1963	DEPTH 2960	WAVES 1	XX	AIR T	VIS
CONS. NO 054	MONTH 4	MXSAMPD 01	WAVES 2	XX	WET B	STN 706
LAT 62-04 N	DAY 10	NO.DPTH 3	WND-DIR 030		WW-CODE	
LON 33-03 W	HR 08.0	W-COLOR	WND-SPD 10		CLD-TPE	
MARSC SQ 220		W-TRNSP	BARO		CLD-AMT 7	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
085	0000	0540	35092		2772	14728
085	0050	0577 C	34999		2760	14750
085	0150	0505	34992		2768	14737

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0540	35092		2772	14728	0000	00000	0383
0050	0577 C	34999		2760	14750	0022	00007	0503
0150	0505	34992		2768	14737	0070	00054	0437

C-REF-NO 002	YR 1963	DEPTH 2960	WAVES 1	XX	AIR T	VIS
CONS. NO 055	MONTH 4	MXSAMPC 01	WAVES 2	XX	WET B	STN 707
LAT 62-00 N	DAY 13	NO.DPTH 3	WND-DIR 020		WW-CODE	
LON 33-00 W	HR 08.0	W-COLOR	WND-SPD 09		CLD-TPE	
MARSD SQ 220		W-TRNSP	BARO		CLD-AMT 4	HW

OBSERVED

GMT	DEPTH	TEMP	SAL	OXYGEN	SGMT	SOUND
089	0000	0560	35083		2769	14736
089	0045	0600	35043		2761	14759
089	0140	0549 B	34984		2763	14753

INTERPOLATED

DEPTH	TEMP	SAL	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0560	35083		2769	14736	0000	00000	0413

GENERAL INFORMATION

Observation platform: *OWS France I*

Total number of stations occupied: 2

Air temperature: Fixed thermometer $-\frac{1}{10}$ C° units

Sea surface water temperature: Bucket sample, deck thermometer $-\frac{1}{10}$ C° units

The following Standard Deviations were used to express both measurement and interpolation error estimates:

Temperature	0.02
Salinity	0.002

C-REF-NO 001	YR 1963	DEPTH 3150	WAVES 1	XX	AIR T 03.4	VIS
CONS. NO 001	MONTH 4	MXSAMPD 19	WAVES 2	XX	WET B	STN 5/1
LAT 61-23 N	DAY 29	NO.DPTH 15	WND-DIR 320	WW-CODE		
LON 32-15 W	HR 15.5	W-COLOR	WND-SPD 06	CLD-TPE	X	
MARSO SQ 220		W-TRNSP	BARO	CLD-AMT	8	HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
198	0000	066	3505		2753	14775
198	0050	0654	3507		2756	14782
198	0075	0648	3503		2753	14783
198	0100	0654	3505		2754	14789
198	0150	0637	3499		2752	14790
198	0223	0609	3508		2763	14792
198	0290	0563	3503		2764	14784
198	0385	0536	3501		2766	14788
198	0480	0500	3501		2770	14789
198	0580	0464	3499		2773	14791
198	0782	0405	3499		2779	14800
198	0960	0383	3499		2782	14820
198	1160	0375	3497		2781	14850
198	1440	0366	3501		2785	14894
198	1920	0349	3499		2785	14967

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT. EN	SVA
0000	0660	3505		2753	14775	0000	00000	0561
0010	0657	3505		2754	14776	0006	00000	0560
0020	0655	3505		2754	14777	0011	00001	0559
*0030	0653	3505		2754	14777	0017	00003	0558
0050	0654	3507		2756	14782	0028	00007	0546
0075	0648	3503		2753	14783	0042	00016	0572
0100	0654	3505		2754	14789	0057	00029	0569
0125	0648	3502		2753	14791	0071	00046	0586
0150	0637	3499		2752	14790	0086	00067	0599
0175	0629	3502		2755	14791	0101	00092	0572
0200	0619	3505		2759	14792	0115	00119	0541
0225	0608	3508		2763	14792	0128	00148	0506
0250	0590	3507		2764	14789	0141	00179	0498
0300	0559	3503		2765	14784	0166	00249	0496
0400	0531	3501		2767	14789	0215	00428	0485
0500	0493	3501		2771	14790	0263	00646	0454
0600	0457	3499		2774	14791	0308	00900	0436
0700	0426	3499		2777	14795	0351	01186	0411
0800	0402	3499		2780	14801	0391	01498	0390
1000	0381	3499		2782	14826	0470	02227	0387
1200	0374	3497		2781	14856	0550	03138	0404

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
1500	0363	3499		2783	14902	0674	04862	0409

C-REF-NO 001 YR 1963 DEPTH 2950 WAVES 1 X3 AIR T 04.6 VIS
 CONS. NO 002 MONTH 5 MXSAMPD 22 WAVES 2 XX WET B STN 5/2
 LAT 61-43 N DAY 07 NO.DPTH 16 WND-DIR 360 WW-CODE
 LON 33-58 W HR 15.5 W-COLOR WND-SPD 07 CLD-TPE X
 MARSD SQ 220 W-TRNSP BARO CLD-AMT 7 HW

O B S E R V E D

GMT	DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND
188	0000	064	3501		2753	14767
188	0050	0600	3517		2771	14761
188	0075	0601	3532		2782	14768
188	0100	0584	3514		2770	14763
188	0150	0567	3514		2773	14764
188	0200	0554	3514		2774	14767
188	0270	0516	3507		2773	14762
188	0360	0514				
188	0450	0571	3507		2767	14814
188	0550	0553	3512		2773	14824
188	0730	0511	3525		2788	14838
188	0910	0384	3499		2782	14812
188	1090	0366	3499		2783	14835
188	1370	0357	3499		2784	14878
188	1820	0354	3505		2789	14953
188	2211	0331	3497		2785	15009

I N T E R P O L A T E D

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
0000	0640	3501		2753	14767	0000	00000	0565
0010	0633	3509		2760	14767	0005	00000	0497
0020	0626 B	3516 B		2766	14767	0010	00001	0441
*0030	0620 B	3521 C		2771	14767	0014	00002	0397
0050	0600	3517		2771	14761	0022	00005	0404
0075	0601	3532		2782	14768	0031	00011	0297
0100	0584	3514		2770	14763	0040	00019	0414
0125	0574	3511		2769	14762	0051	00031	0427
0150	0567	3514		2773	14764	0061	00046	0400
0175	0561	3514		2774	14766	0071	00063	0394
0200	0554	3514		2774	14767	0081	00082	0391
0225	0540	3512		2774	14765	0091	00104	0394
0250	0526	3509		2774	14763	0101	00128	0400
0300	0509	3506		2773	14764	0122	00186	0412
0400	0540 C	3505		2769	14793	0166	00347	0466
0500	0568 B	3509		2769	14821	0214	00570	0484
0600	0546 B	3517		2778	14830	0259	00824	0410
0700	0521	3524		2786	14838	0297	01076	0341
0800	0460 D	3516 B		2787	14828	0331	01341	0337
1000	0368 B	3497		2782	14820	0404	02019	0380

DEPTH	T E M P	S A L	OXYGEN	SGMT	SOUND	DELTA-D	POT.EN	SVA
1200	0361	3499		2784	14851	0481	02890	0378
1500	0357	3501		2786	14900	0596	04499	0381
2000	0341	3500		2787	14978	0797	08141	0409

BATHYTHERMOGRAPHIC DATA

A tabulation showing the Time-Date, Position, and Consecutive Slide Number of each observation.

USCGC YAKUTAT

CTY	INS	CRN	TIME	DA	MN	YR	LAT	LONG	CON
31	WB	003	06 00	17	02	63	50 30	051 00	001
31	WB	003	18 00	26	02	63	56 50	051 00	002
31	WB	003	14 30	27	02	63	56 50	051 00	003
31	WB	003	00 00	28	02	63	56 50	051 00	004
31	WB	003	06 00	28	02	63	56 50	051 00	005
31	WB	003	12 00	28	02	63	56 50	051 00	006
31	WB	003	18 00	28	02	63	56 50	051 00	007
31	WB	003	01 00	01	03	63	56 50	051 00	008
31	WB	003	06 00	01	03	63	56 50	051 00	009
31	WB	003	12 00	01	03	63	56 50	051 00	010
31	WB	003	18 00	01	03	63	56 50	051 00	011
31	WB	003	00 00	02	03	63	56 50	051 00	012
31	WB	003	06 00	02	03	63	56 50	051 00	013
31	WB	003	00 00	04	03	63	56 50	051 00	014
31	WB	003	00 00	05	03	63	56 50	051 00	015
31	WB	003	06 00	05	03	63	56 50	051 00	016
31	WB	003	18 00	05	03	63	56 50	051 00	017
31	WB	003	12 00	07	03	63	56 50	051 00	018
31	WB	003	00 00	08	03	63	56 50	051 00	019
31	WB	003	06 00	08	03	63	56 50	051 00	020
31	WB	003	12 00	08	03	63	56 50	051 00	021
31	WB	003	18 00	08	03	63	56 50	051 00	022
31	WB	003	00 00	09	03	63	56 50	051 00	023
31	WB	003	12 00	09	03	63	56 50	051 00	024
31	WB	003	18 00	09	03	63	56 50	051 00	025
31	WB	003	00 00	10	03	63	56 50	051 00	026
31	WB	003	06 00	10	03	63	56 50	051 00	027

CTY	INS	CRN	TIME	DA	MN	YR	LAT	LONG	CON
31	WB	003	12 00	10	03	63	56 50	051 00	028
31	WB	003	18 00	10	03	63	56 50	051 00	029
31	WB	003	12 00	11	03	63	56 50	051 00	030
31	WB	003	18 00	11	03	63	56 50	051 00	031
31	WB	003	00 00	12	03	63	56 50	051 00	032
31	WB	003	12 00	12	03	63	56 00	050 50	033
31	WB	003	18 00	13	03	63	48 30	047 10	034

USCGC SPENCER

CTY	INS	CRN	TIME	DA	MN	YR	LAT	LONG	CON
31	WB	006	11 00	12	03	63	56 50	051 00	001
31	WB	006	14 22	13	03	63	56 50	051 00	003
31	WB	006	17 10	13	03	63	56 50	051 00	004
31	WB	006	23 55	13	03	63	56 50	051 00	005
31	WB	006	17 15	17	03	63	56 50	051 00	018
31	WB	006	05 15	18	03	63	56 20	051 00	019
31	WB	006	22 50	19	03	63	55 10	053 40	020
31	WB	006	04 45	20	03	63	55 30	052 40	021
31	WB	006	11 00	20	03	63	55 50	052 10	022
31	WB	006	23 00	20	03	63	54 50	054 00	023
31	WB	006	05 00	21	03	63	54 50	050 20	024
31	WB	006	10 30	21	03	63	55 00	053 00	025
31	WB	006	04 45	22	03	63	56 10	051 10	026
31	WB	006	15 45	04	04	63	42 50	060 20	044

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