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HYDROGRAPHIC OBSERVATIONS
IN THE GEORGIA BIGHT
(DECEMBER 1976)

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Abstract

During a cruise in the Georgia Bight in December 1976 two onshore-offshore hydrographic sections were repeated three times over a four-day period. Temperature, salinity, dissolved oxygen, and nutrient (NO_3 , PO_4 , and SiO_2) data were collected.

The shelf waters were vertically well mixed with horizontal gradients typical of winter conditions. A Gulf Stream meander was observed near the shelf break with upwelling velocities as high as $2.8 \times 10^{-2} \text{ cm sec}^{-1}$ and an along stream propagation of 31 cm/sec (26.8 km/day).

Introduction

This report contains chemical and physical data obtained during Georgia Bight cruise CI-12-76 (9-15 December 1976) aboard the R/V COLUMBUS ISELIN. The investigation was part of a larger multi-institutional Department of Energy program to understand event scale, physical, chemical, and biological processes of the South Atlantic Bight, the continental shelf region from Cape Hatteras to Cape Canaveral. The study reported here is concentrated in the Georgia Bight near Savannah, Georgia. Specifically, the objective was to collect physical and chemical data such that 3-dimensional, quasi-synoptic measurements of the interactions of shelf and Gulf Stream waters could be made. In addition, the hydrographic data were used to compare with moored instruments deployed by the University of Miami (Dr. Tom Lee). The hydrographic data sets are available from the National Oceanographic Data Center (NODC).

Methods

Two onshore-offshore hydrographic sections were repeated three times (Figure 1) between 10 and 14 December. Between stations a thermosalinograph was operated to obtain a detailed map of surface temperatures and salinities.

A typical hydrographic section consisted of alternate CTD (conductivity/temperature/depth) Rosette casts and XBT (expendable bathythermograph) casts at approximately 10 kilometer intervals. The Brunswick section (14-15 December) consisted exclusively of XBT stations 10 kilometers apart.

At CTD stations, a General Oceanics Model 1015 Mark 5 Rosette multi-bottle array with 1.7 liter Niskin Bottles and a Plessey Model 9400 CTD sensor system were used for water sampling. Niskin sampling depths were determined from the temperature structure obtained from the CTD. Samples were taken near the surface, just above or below the thermocline, at the bottom, and occasionally at other depths. Samples were analyzed for salinity, nitrate, phosphate, silicate, and dissolved oxygen.

Chemical and Physical Procedures

Salinity samples were analyzed conductometrically using a Plessey Model 6230N salinometer. Values obtained were used to calibrate the Plessey Model 9400 CTD system. A separate section of this report details the CTD calibration procedure. Temperature was determined with deep sea reversing thermometers, XBT's, and the CTD system.

Dissolved oxygen analyses were performed within 24 hours of collection using a modified Winkler procedure (Strickland and Parsons, 1965).

Nutrient samples were immediately frozen in polyethylene bottles and stored in the dark until thawed and analyzed ashore. Colorimetric

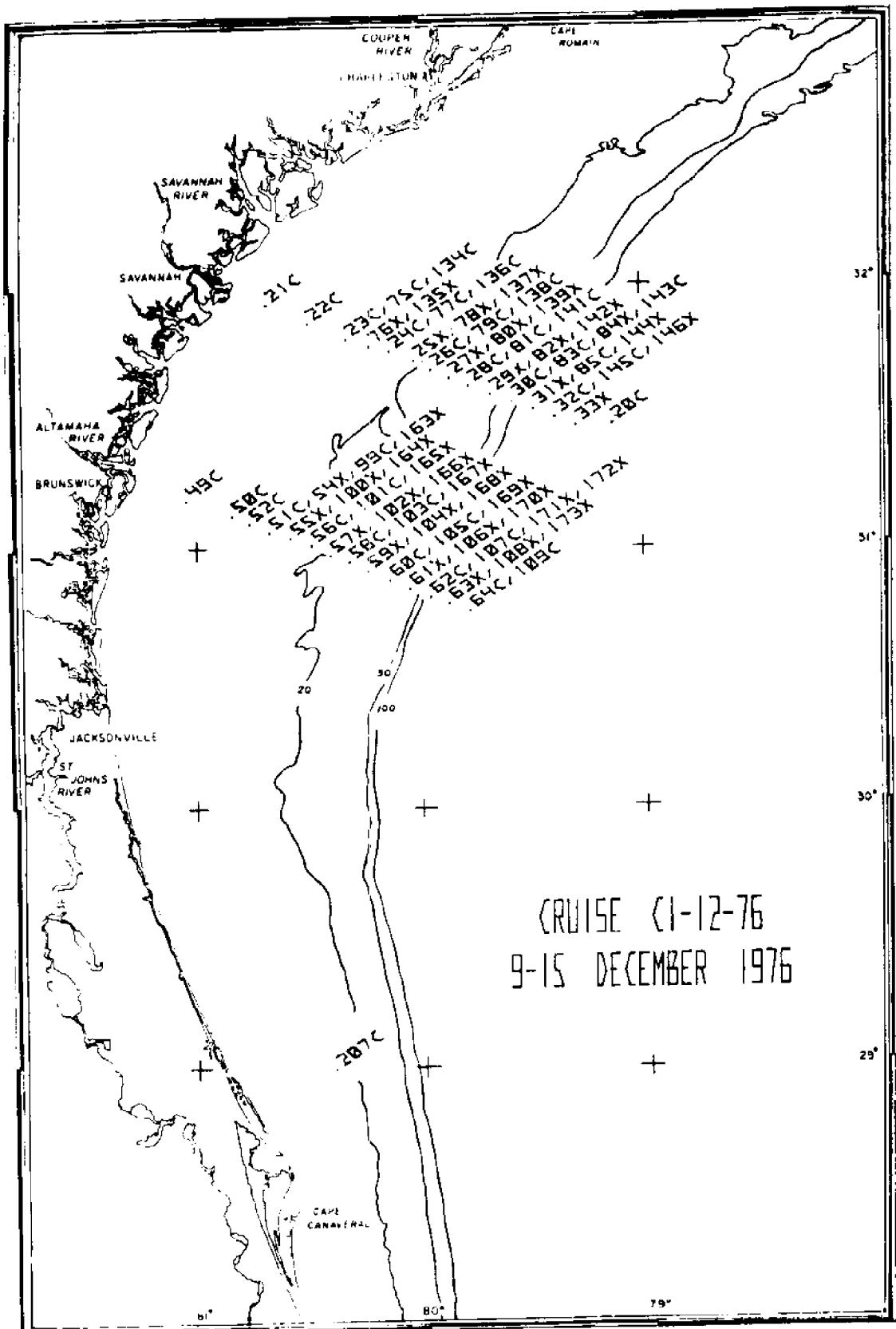


Figure 1. Location of Stations on Cruise CI-12-76.

determinations of nutrient concentrations were made utilizing a Bausch and Lomb Spectronic 88 spectrophotometer with a sample sipper. Silicate was determined by the method of Mullin and Riley (1955) as modified by Strickland and Parsons (1965), phosphate by the method of Murphy and Riley (1962), and nitrate by the cadmium column reduction technique as modified by Gardner, et al. (1976).

XBT Data Acquisition and Processing

A Sippican Model LM3A handheld launcher and an MK2A-1 recorder were used for XBT casts. The temperature/depth plots were manually digitized and these data were placed in NODC format and merged with processed CTD data. Depths at which temperature is a whole or half degree are reported as are depths at which a significant mixed layer begins or ends.

CTD Data Acquisition

The CTD unit consists of a Plessey Model 9400 CTD sensor system with a Model 8400 digital data logger and Kennedy Model 1600 incremental magnetic tape recorder for data acquisition and storage. A redundant XY' plot was made of all casts using a Hewlett-Packard Model 7046 X-Y-Y recorder which was calibrated with a precision 10VDC source.

Digitized data were collected as the CTD sensor unit was lowered at 15m/min on a two conductor cable. All three parameters (C, T, and D) were sampled once each 229 milliseconds or every 6 cm at the 15m/min lowering rate. For primary calibration of temperature and salinity, a Niskin bottle equipped with paired protected deep sea reversing thermometers was tripped after a four minute equilibration period at the maximum sample depth in mixed layers. Other water samples were collected during ascent at depths selected after examination of the downcast temperature structure. The average time for stations less than 100 meters in depth was 25 minutes; for those greater than 100 meters, average time was 48 minutes, with a maximum of 65 minutes at station 20C.

CTD Data Processing

CTD plots were logged and stored with their respective station sheets. All data recorded on magnetic tape were extracted and processed according to the flow scheme shown in Table 1. Computation and data manipulation were performed on a CDC Cyber 70/74 computer. All CTD data were acquired and processed according to the methods described by Chandler, et al. (1978).

CTD Calibration

The CTD system was calibrated only against bottle samples in mixed layers to insure that the sensors and the bottles were sampling

Table 1. CTD/Data Flow. Shipboard Acquisition to NODC Submission.

Data Source/Disposition	Program	Data File
Tape from Data Logger	MAGREAD (Converts binary coded data to decimal) CTDUNIT (Converts decimal units to engineering units)	BIRANG LAG
	LAGFILT (Course filters and temperature lag)	LAG
	DLATCH (Removes decreasing and repeated depths)	LATCH
		CTDATA
	CTDAVE5 (One meter average data less than 100 meters and 5 meter average data after 100 meters)	AVE
Primary Calibration from Bottle Casts	BROENK (Calculates salinity and sigma-t) NODCFO (Converts to NODC format)	SGSA NODC + HEAD
	NUTMERG (Merges NODC data with headers and chemical data)	FINAL (CTD)
	STAMERG (Merges CTD and XBT data)	
Submission to NODC	CEMLIST (Calculates specific volume anomaly, oxygen utilization, etc.)	CIO12 TECHNICAL REPORT

the same water. However, since a mixed layer was not always observed, comparisons could not be made at every station. The resulting mean offset, + 0.020‰ (Figure 2) was applied to all stations at which the maximum sampling depth was less than 50m. At depths greater than 50m, it was found that the effects of pressure could not be neglected. For these stations a regression analysis was performed (Figure 3) and an expression ($S = S_0 + 0.023 - 1.57 \times 10^{-4}D$ where S is the corrected salinity, S_0 is the calculated salinity without a calibration offset and D is the depth of the sample) was obtained. This expression was applied to generate corrected salinities at all CTD stations at which the maximum depth was greater than 50m.

After the entire data set was treated with the derived offset equation, + 0.10‰ was added to the salinities from casts 49C, 64C, and 99C. It is thought that powering up operations may be the cause of these higher offsets as 2 of the 3 problem casts (49C and 99C) were at the beginning of sections. The calibration data used to generate both the original offset and the subsequent expression for the depth effect are listed in Table 2. (Station numbers are discontinuous since thermosalinograph stations were established at intervals between hydrographic sections). Calibration data for stations 49C, 64C, and 99C were rejected in establishing the original offset equations.

No depth offset was necessary, and no temperature offset was applied since the CTD temperature sensor agreed with protected reversing thermometers within the range of accuracy ($\pm 0.02^\circ\text{C}$).

CTD Error Analysis

The Plessey Model 9400 CTD system has the following rated accuracy, resolution, and time constants (Table 3).

Table 3. Specifications for Plessey Model 9400 CTD System.

	Conductivity	Temperature	Depth
Accuracy	$\pm 0.03 \text{ mmho/cm}$	$\pm 0.02^\circ\text{C}$	$\pm 1.5 \text{ m}$
Resolution	0.0001 mmho/cm	0.0001°C	0.0012 m
Time Constant	0.1 sec	0.35 sec	0.1 sec

Since salinity is not measured directly, it must be calculated from the above parameters, resulting in the composite errors of the C, T, and D sensors and the salinity equation.

By varying "real" C, T, and D by the rated sensor accuracies in the salinity equation (Tables 4 and 5), the maximum error

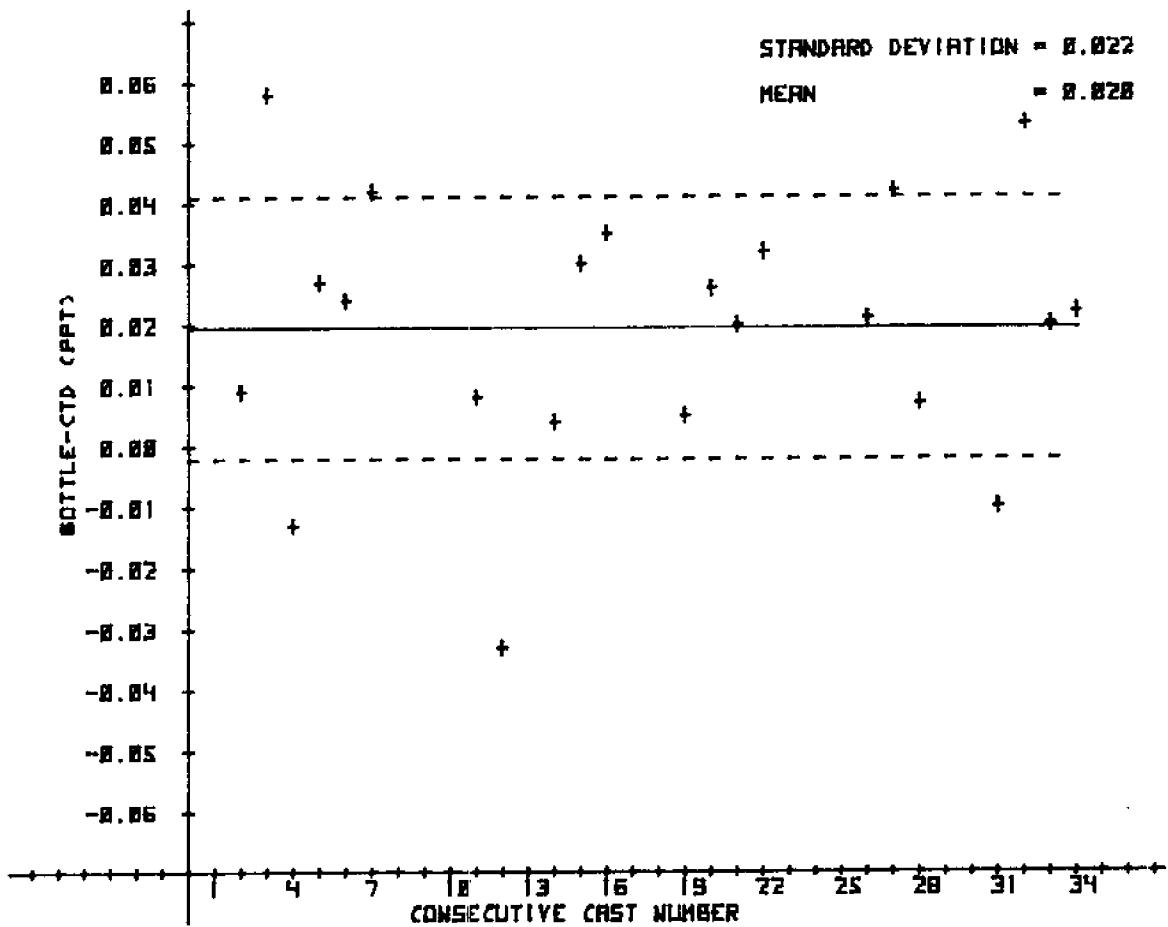


Figure 2. Mean offset for salinities at stations at which the maximum sampling depth was less than 50m (— mean offset; - - - standard deviation).

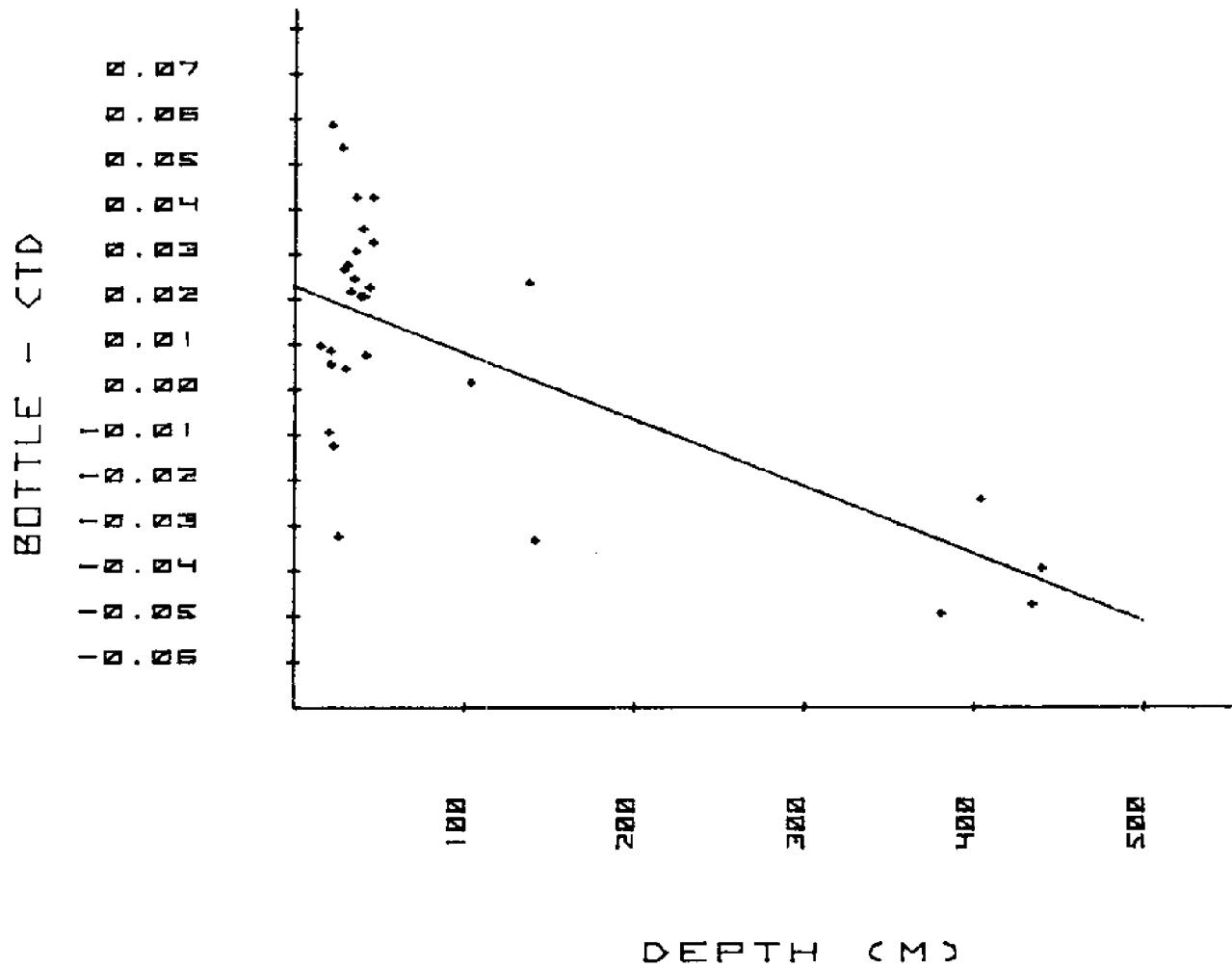


Figure 3. Regression analysis of salinity offset versus depth of sample.

Table 2. Cruise CI-12-76 Salinity Calibration Data.

Consecutive Cast No.	Station No.	Depth (m)	Bottle ‰	CTD ‰	Difference Bottle-CTD(‰)
1	20C	402	35.163	35.188	- .025
2	21C	13	33.878	33.869	+ .009
3	22C	20	35.020	34.962	+ .058
4	23C	21	35.894	35.907	- .013
5	24C	29	36.103	36.076	+ .027
6	26C	38	36.094	36.070	+ .024
7	28C	44	36.129	36.087	+ .042
8	30C	136	36.162	36.139	+ .023
9	32C	438	34.969	35.012	- .043
11	50C	19	35.585	35.577	+ .008
12	51C	24	35.878	35.911	- .033
14	56C	28	36.066	36.062	+ .004
15	58C	34	36.109	36.079	+ .030
16	60C	38	36.100	36.065	+ .035
19	75C	19	35.672	35.667	+ .005
20	77C	27	36.081	36.055	+ .026
21	79C	39	36.107	36.087	+ .020
22	81C	44	36.146	36.114	+ .032
23	83C	140	36.123	36.157	- .034
24	85C	379	34.997	35.047	- .050
26	101C	31	36.048	36.027	+ .021
27	103C	34	36.098	36.056	+ .042
28	105C	40	36.076	36.069	+ .007
30	109C	432	34.995	35.043	- .048
31	134C	18	35.675	35.685	- .010
32	136C	26	36.099	36.046	+ .053
33	138C	37	36.096	36.076	+ .020
34	141C	42	36.115	36.093	+ .022
35	143C	102	36.096	36.097	- .001

Table 4. Broenkow's Salinity Equations.

$$R_z = 1 + .01\{(1.551 - .0453T + 59 \times 10^{-5}T^2) + \frac{1}{8}(35-S)(.043 - .0017T + 23 \times 10^{-6}T^2)\}\{1.037 \times 10^{-3}Z - 32 \times 10^{-9}Z^2\}$$

$$A_T = (676547 + 20131.5T + 99.89T^2 - .1943T^3 - .00672T^4) \times 10^{-6}$$

$$R_T = \frac{C(S, T, Z)}{R_z A_T 42.896}$$

$$\Delta_{15} = R_T(R_T - 1)(T - 15) \{96.7 - 72R_T + 37.3R_T^2 - (.63 + .21R_T^2)(T - 15)\} \times 10^{-5}$$

$$R_{15} = R_T + \Delta_{15}$$

$$S^{0/oo} = .08996 + 28.2972R_{15} + 12.80832R_{15}^2 - 10.67869R_{15}^3 + 5.98624R_{15}^4 - 1.32311R_{15}^5$$

where: R = conductivity ratio

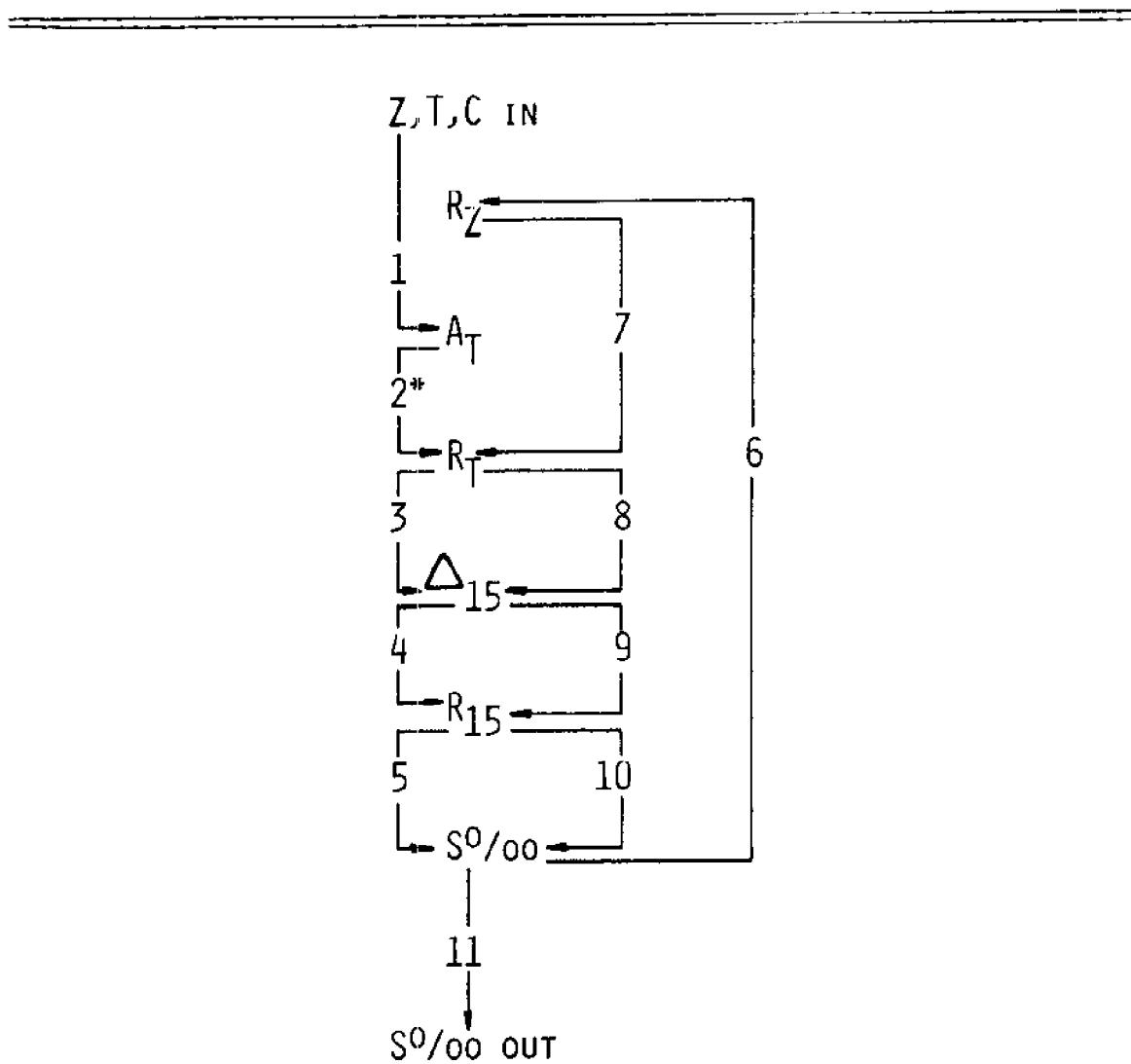
Z = depth (meters)

T = temperature ($^{\circ}$ C)

C = measured conductivity (mmhos/cm)

S = salinity ($^{\circ}$ /oo)

Table 5. Flow Using Broenkow's Salinity Equations.



*without the R_Z term

R_Z = pressure effect on conductivity

A_T = temperature effect

$R_T = R(S, t, p)$ conductivity ratio

$\Delta_{15} = t_{15}$ correction (International Oceanographic Tables, 1966)

$R_{15} = R(S, 15^\circ C, 0)$

attributable to each sensor can be determined. The composite maximum error is approximately $\pm 0.06^{\circ}/oo$ for "real" data sets. However, the standard deviation of all mixed layer samples taken for salinity calibration purposes implies greater accuracy, namely $\pm 0.02^{\circ}/oo$ after offset for this data set. We believe this value is a more realistic measure of the quality of the data set.

Meteorological Conditions

Wind data from Savannah, Georgia are presented in Figure 4. These data are derived from the monthly summary for December 1976 (U.S. Department of Commerce, December 1976) and are plotted in GMT at three-hour intervals.

Winds were generally northeasterly from 9-15 December with a southerly interruption on 11 and 12 December. The strongest winds were observed on 13 December averaging 9.0 knots.

Air temperature at the Savannah station ranged from 9°C to 22°C during the cruise period. Additional meteorological data, collected by the ship's personnel, are presented with the data.

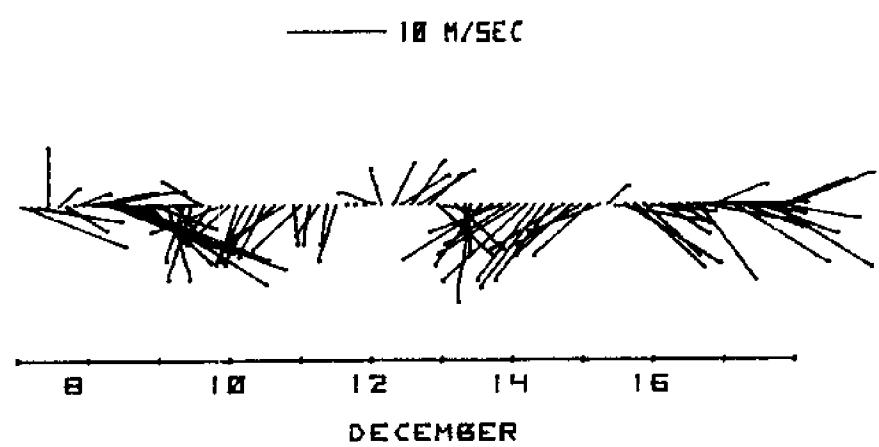


Figure 4. Wind speed and direction recorded at Savannah Airport.

Results and Discussion

The results of the synoptic mapping are shown in Figures 5-16 in both horizontal and vertical planes.

Surface Temperature Distributions

Included with the three surface temperature maps is the map obtained by the Coast Guard Airborne Radiation Thermometer flight on 9 December 1976 (Figure 5). Surface temperature over the time period increased towards the offshore with isotherms paralleling the coast. The Stream was, as determined by the 21-24°C isotherm, meandering with the maximum offshore position in the southern part of the area on 10-11 December, and, with time, migrating north until the 14th when the offshore meander was apparently north of the observation area. The ART flight data indicates that on 9 December the Stream was relatively far to the west. The strongest thermal gradients were observed on 12-13 December when the Stream was advancing again to the west.

Subsurface Distributions

Gulf Stream meandering has been related to upwelling at the shelf break with easterly movements of the stream related to lower temperatures at the shelf break (Atkinson, 1977). Thus the observed offshore meander should coincide with observed upwelling. The vertical sections (Figures 6-16) clearly show upwelling and downwelling associated with the meander. Following is a description of each section:

Savannah Section, 10-11 December 1976. (Figures 6-7) The shelf water was well mixed vertically with horizontal gradients. Offshore, upwelling can be seen in the isotherms positions as well as the distribution of nitrate and phosphate. Upwelling in this region is typical when the Gulf Stream is offshore of the shelf break.

Savannah Section, 12 December 1976. (Figures 8-9) The shelf waters were well mixed with horizontal gradients and once again upwelling can be seen in the temperature, nitrate and oxygen data. Elevated nutrient concentration at the shelf break indicate that upwelling reach the surface. The Gulf Stream was closer to shore than on 10-11 December.

Savannah Section, 14 December 1976. (Figures 10-11) The shelf waters were unstratified with high nitrate and phosphate waters at the shelf break indicative of recent upwelling. The Gulf Stream was further onshore (24°C isotherm).

Brunswick Section, 11-12 December 1976. (Figures 12-13) Typical winter conditions persisted on the shelf. The isotherms indicate some upwelling, but as the Savannah section on these dates, this feature is weak. Nitrate, phosphate, and silicate plots also indicate upwelling.

Brunswick Section, 13 December 1976. (Figures 14-15) Typical winter conditions persisted over the shelf. The Gulf Stream moved onshore a distance of approximately 12 km and downwelling occurred along the slope to a depth of ca. 175 m.

Brunswick Section, 14-15 December 1976. (Figure 16) There was little change from the profile made on 13 December. The Gulf Stream moved offshore (compare with 24°C isotherm for 13 December; Figure 14) and some upwelling was present as shown by the positions of the 20°C and 21°C isotherms. No salinity or nutrient data are available.

Onshore/Offshore Motions

The onshore-offshore velocities were determined from the distance the 21°C and 24°C isotherms moved during the three observation periods. The isotherm positions are summarized in Figure 17 and the calculations are as follows:

Table 6. Onshore/offshore velocities off Savannah and Brunswick (+ offshore, - onshore).

	Grid	21°C			24°C		
		1	2	3	1	2	3
Savannah	Distance (km)	-15	+11		+4	-17	
	Elapsed Time (h)	40	42		39	29	
	Velocity(cm sec ⁻¹)	-10.4	+7.3		+2.8	-16.3	
Brunswick	Distance (km)	+3	+3		-6	+7	
	Elapsed Time (h)	33	42		33	44	
	Velocity(cm sec ⁻¹)	+2.5	+2.0		-5.0	+4.4	

The 24°C isotherm appears to be a better indicator of the meander motion. Onshore velocities were first observed off Brunswick between the first two grids and then off Savannah between the second and third grids.

Vertical Motions

Vertical motions were determined from the variation in the minimum depth of the 19°C isotherm. The calculation and results are given in Table 7.

Table 7. Vertical velocities off Savannah and Brunswick (+ down).

Savannah	Grid	1	2	3
	Station	30C	83C	143C
	Time (d/h)	11/0.3	12/16.1	14/9.8
	Depth(19°C)(m)	170	130	150
	Δ time (h)	39.8	41.7	
	Δ depth (m)	-40	+20	
	\bar{w} (cm sec^{-1})	-2.8×10^{-2}	$+1.3 \times 10^{-2}$	
<hr/>				
Brunswick	Station	62C	107C	171X
	Time (d/h)	12/0.6	13/9.3	15/4.2
	Depth(19°C)(m)	130	152	126
	Δ time (h)	32.7	42.9	
	Δ depth (m)	+22	-16	
	\bar{w} (cm sec^{-1})	$+1.9 \times 10^{-2}$	-1.0×10^{-2}	

These velocities are typical of upwelling situations. Interestingly, the upwelling occurred first off Savannah leading the offshore motion.

Propagation Rate

The rate at which the meander moves downstream can be estimated from the surface isotherm positions. The amplitude of the meander was ca. 15 km and typical onshore/offshore velocities were 10 cm sec^{-1} thus the period is 3.4 days. The observed length is 93 km so the phase speed would be 31 cm sec^{-1} (0.6 knot). This rate is similar to the 39 cm sec^{-1} observed by Legeckis (1975).

T-S Relationship

The T-S plot for all data is in Figure 18. The group of points at ca. $20^{\circ}\text{C}/34^{\circ}/\text{oo}$ are from Station 207 which is considerably south of the existing hydrogrid (see Figure 1).

Figures 19-23 are T-S plots for each individual section. They show the transition from shelf to Gulf Stream water in each of the onshore-offshore sections. At some deep stations (i.e., 54-62) mixing of shelf waters with Gulf Stream water is apparently active.

Nitrate-Phosphate-Silicate-Temperature Relationships

Various relationships between nitrate, phosphate, silicate and temperature are useful to assess the quality of the data and to elucidate some of the chemical, biological, and physical processes.

For deeper waters the ratio of nitrate to phosphate is typically 16:1 and is derived from the decomposition of organic matter. All nitrate and phosphate data for this cruise appear in Figure 24 with a line representing the 16:1 N:P ratio. At low nutrient concentrations, an excess of phosphate over nitrate is observed. Stations with excess phosphate are generally in shallow areas where any free nitrogen is released more quickly than nitrate, leading to an apparent excess of phosphate.

Temperature-nutrient plots (Figures 25-27) show the inverse relationship between temperature and nutrient concentration. The scatter at low concentrations represents samples taken over the shelf with temperature decreasing towards shore.

A plot of silicate versus salinity is presented in Figure 28. Higher salinity and silicate concentrations are representative of Gulf Stream waters. Other values correspond to shelf waters.

Oxygen-Density Correlation

Figure 29 plots oxygen versus sigma-t. The curve is typical of normal Sargasso Sea water. Points above the curve are from surface Gulf Stream and shelf waters. Points below the curve with a sigma-t of 25 to 26 are a Caribbean component of the Gulf Stream (Richards and Redfield, 1955).

Summary

In summary, the following observations were made:

1. The shelf waters were well mixed with horizontal stratification, typical of winter conditions.
2. A meander was observed at the shelf break and passed through the area of this study.
3. The vertically induced component of velocity (upwelling) associated with this meander was as high as $2.8 \times 10^{-2} \text{ cm sec}^{-1}$.
4. The meander moved northward at a rate of 31 cm sec^{-1} , a velocity comparable to the 39 cm sec^{-1} reported by Legeckis (1975).

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FIGURES
(5 - 29)

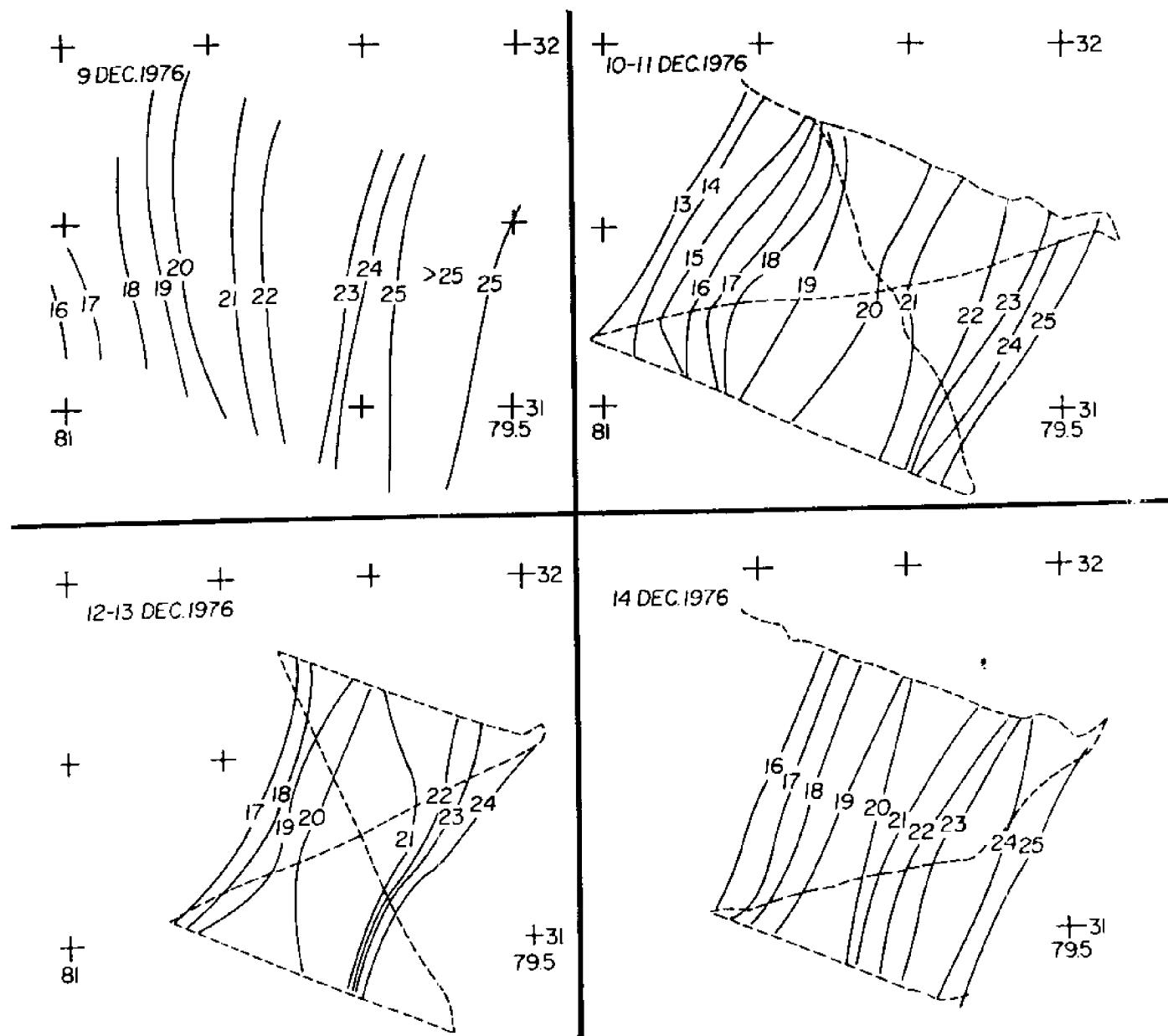


Figure 5. Surface temperature distribution. The 9 December data are from a Coast Guard Airborn Radiation Thermometer flight. Dashed line is cruise track.

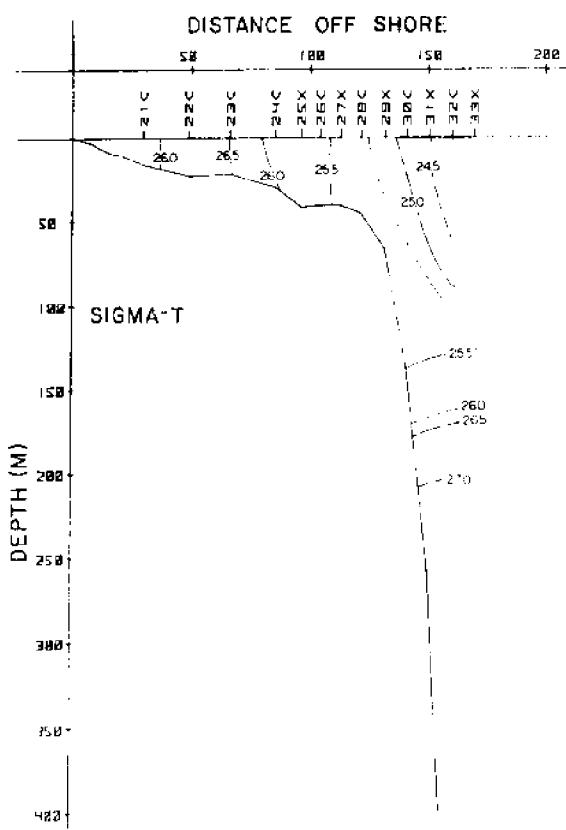
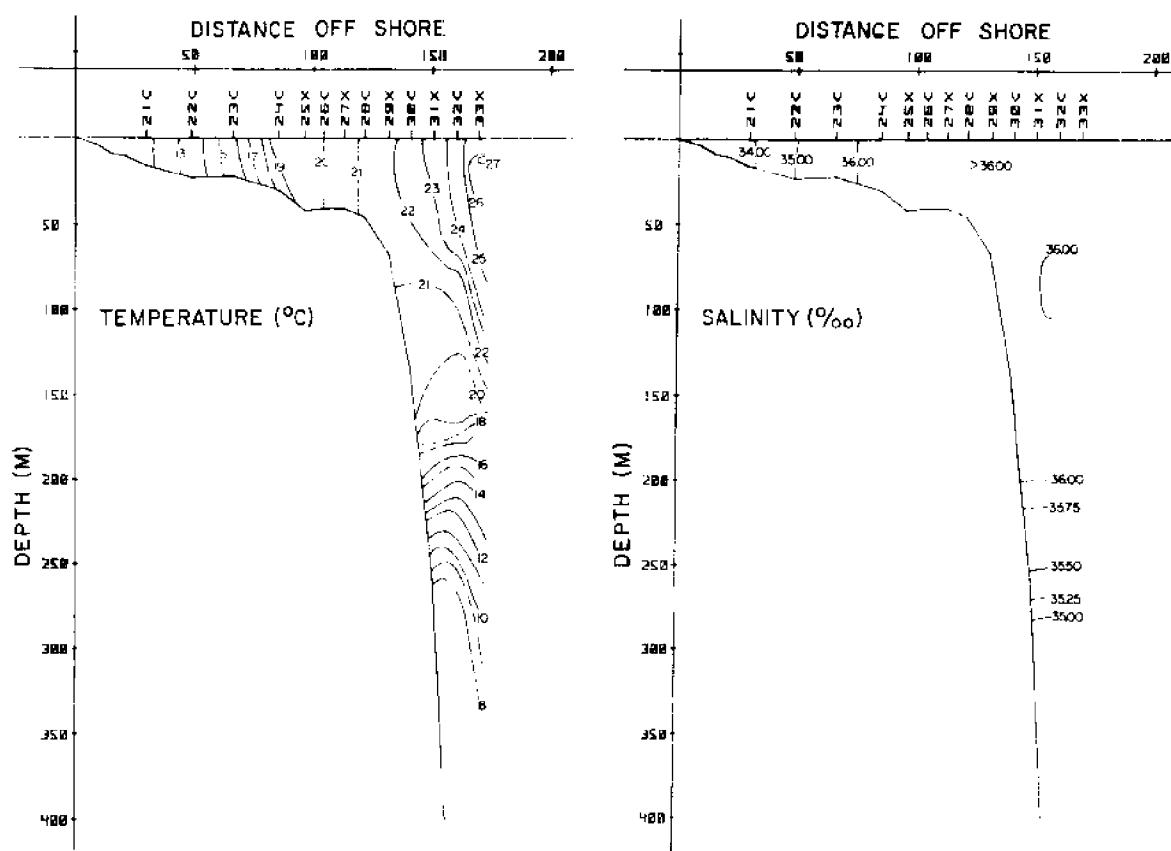


Figure 6. Savannah section temperature, salinity and sigma-t, 10-11 December.

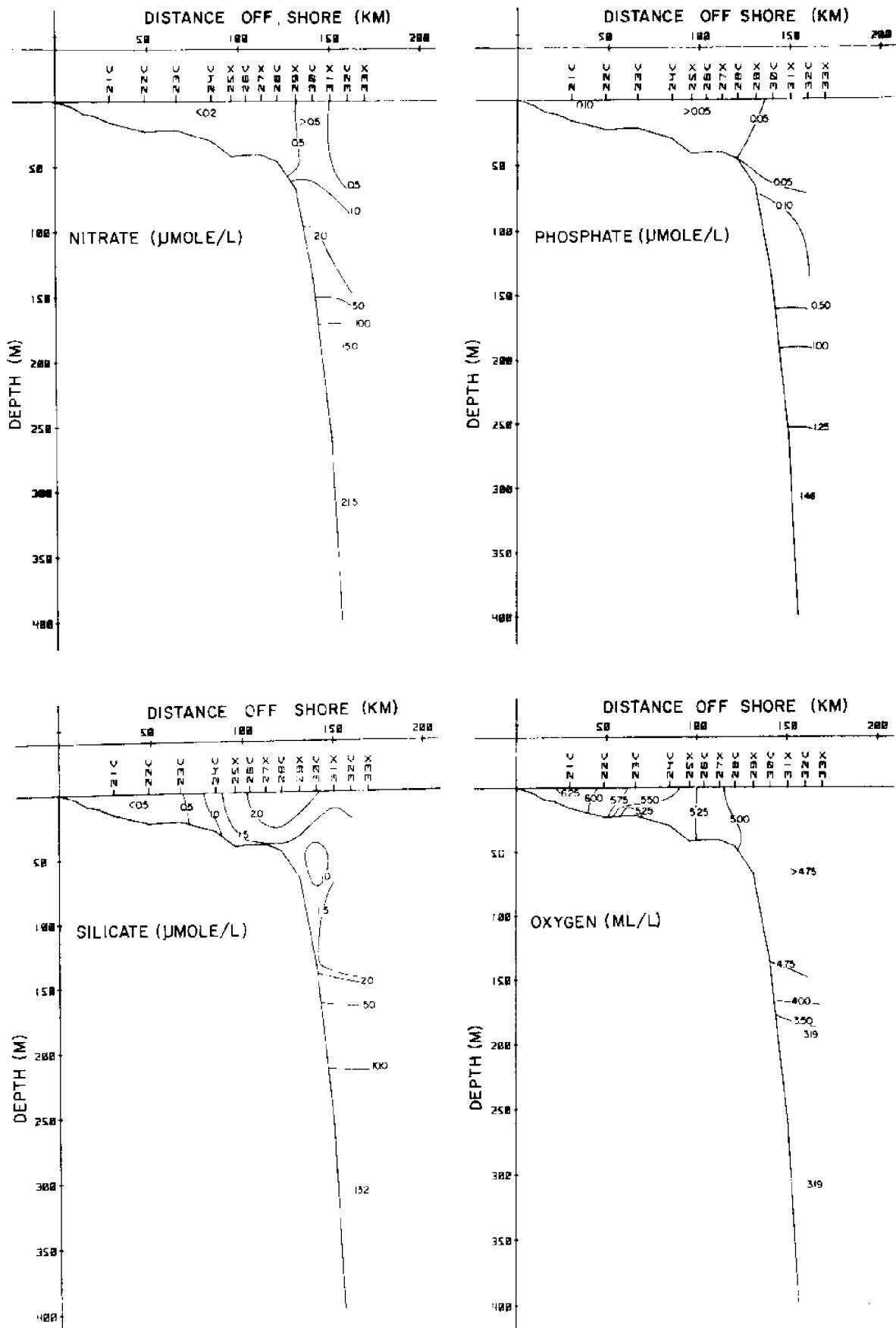


Figure 7. Savannah section nitrate, phosphate, silicate and dissolved oxygen, 10-11 December.

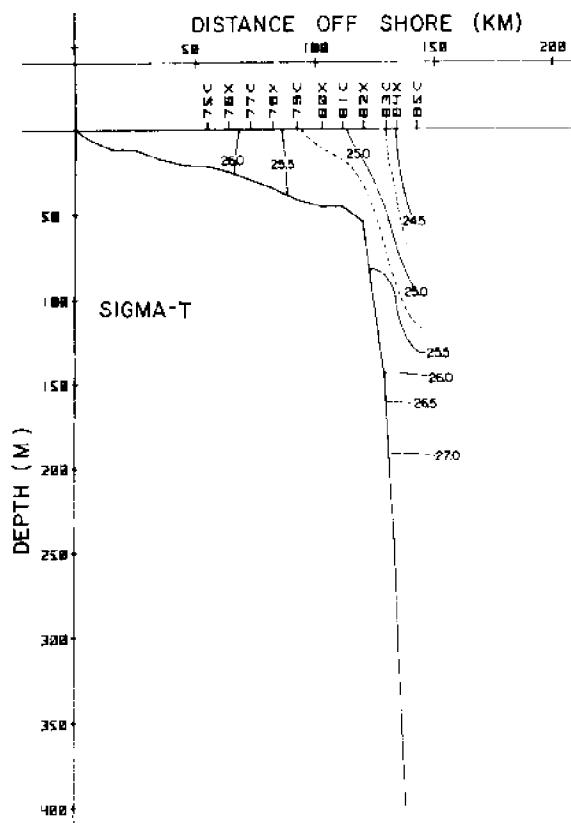
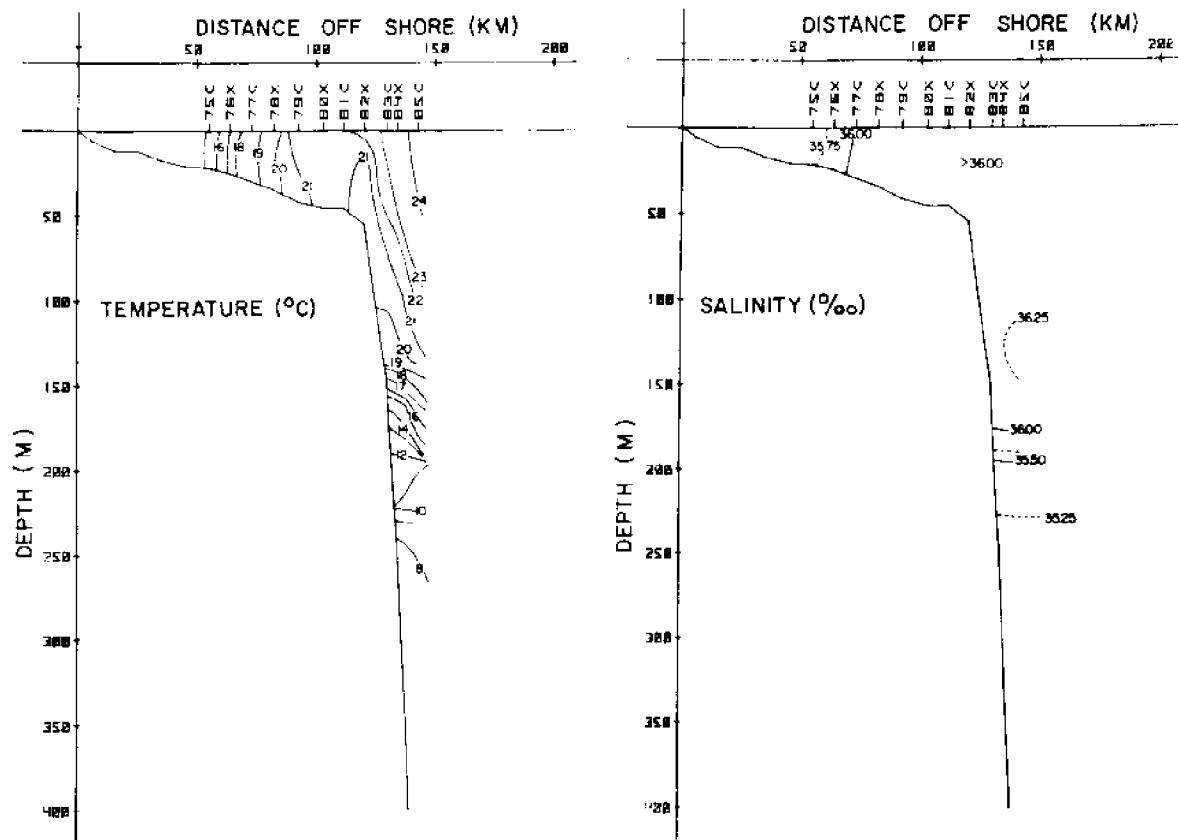


Figure 8. Savannah section temperature, salinity, and sigma-t, 12 December.

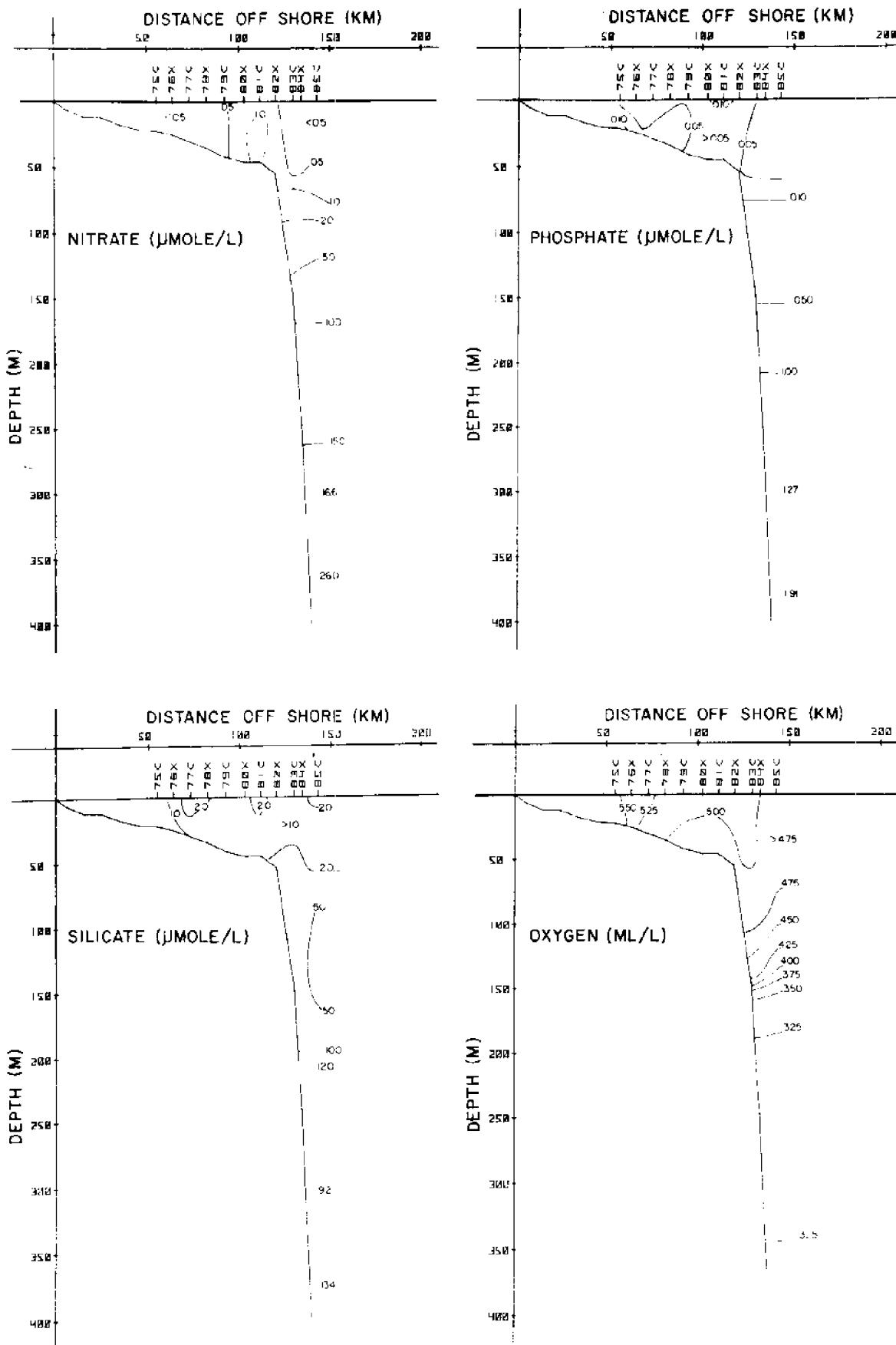


Figure 9. Savannah section nitrate, phosphate, silicate and dissolved oxygen, 12 December.

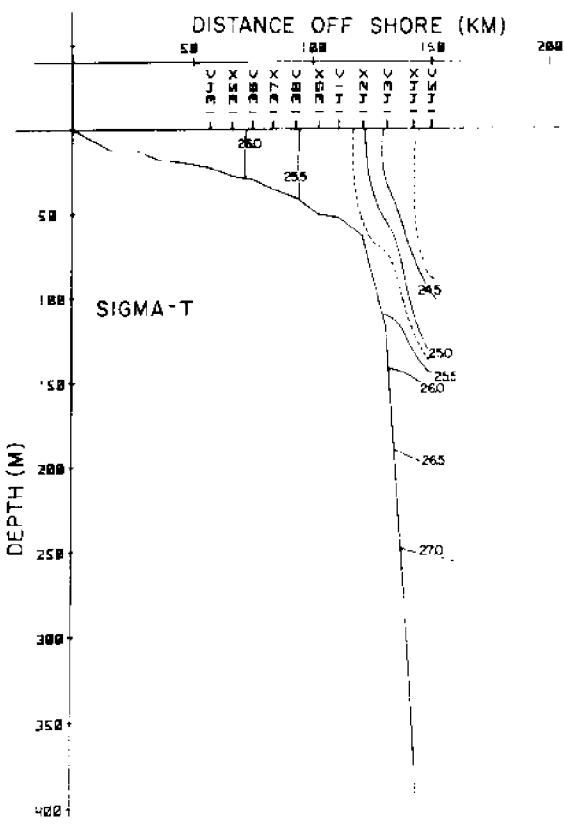
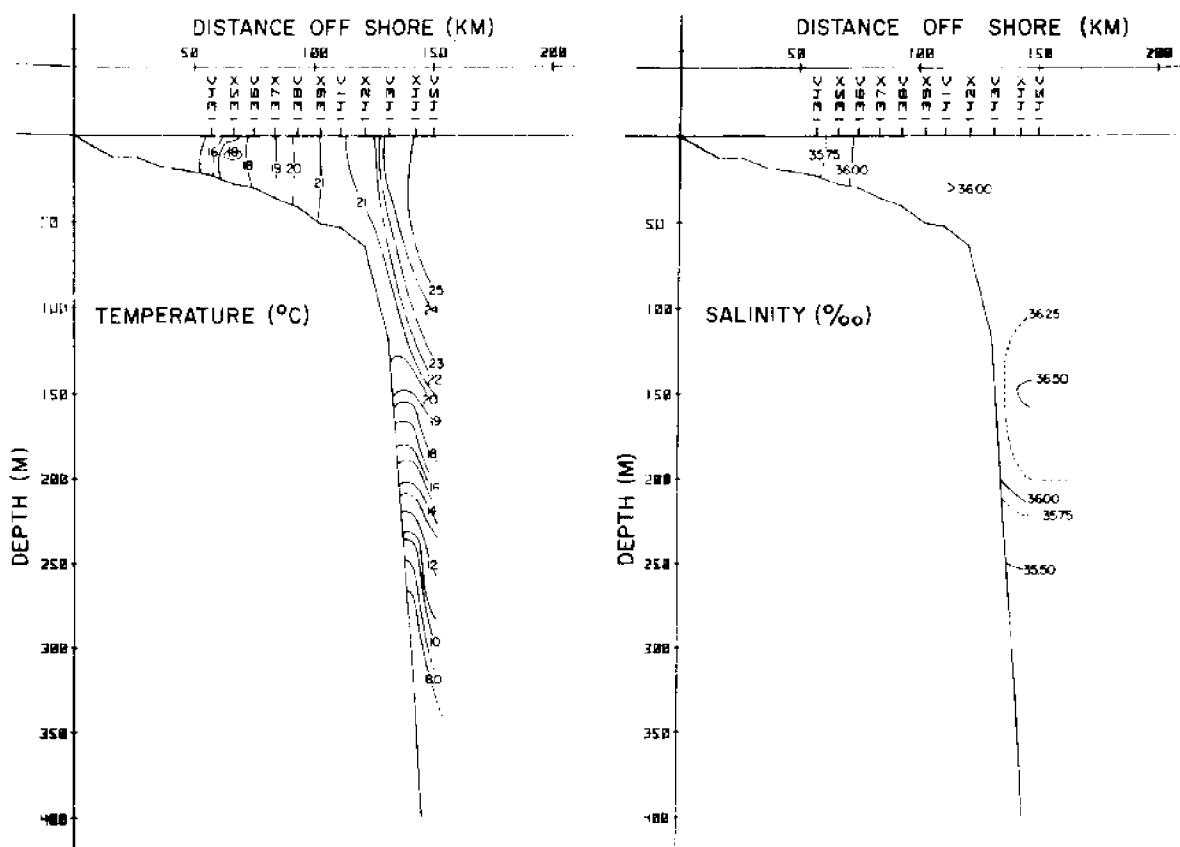


Figure 10. Savannah section temperature, salinity and sigma-t, 14 December.

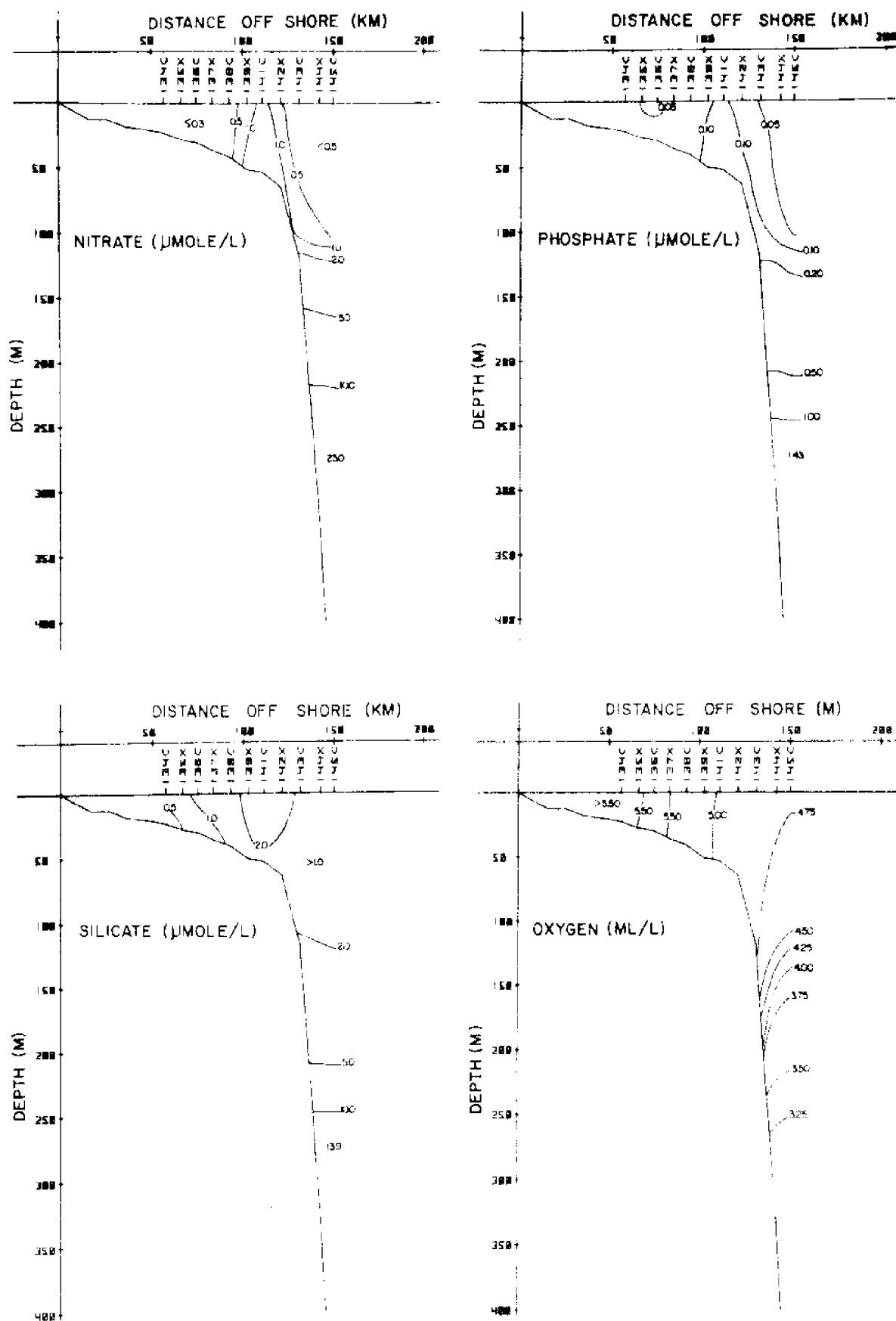


Figure 11. Savannah section nitrate, phosphate, silicate and dissolved oxygen, 14 December.

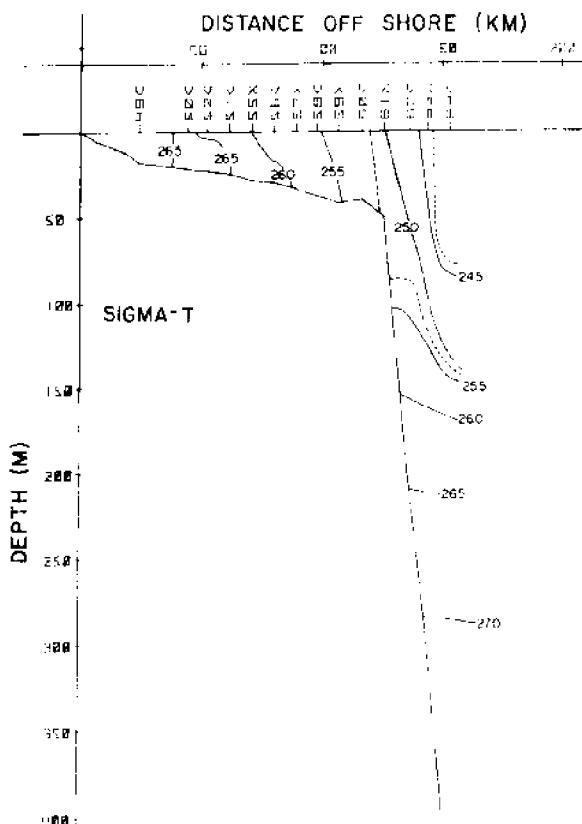
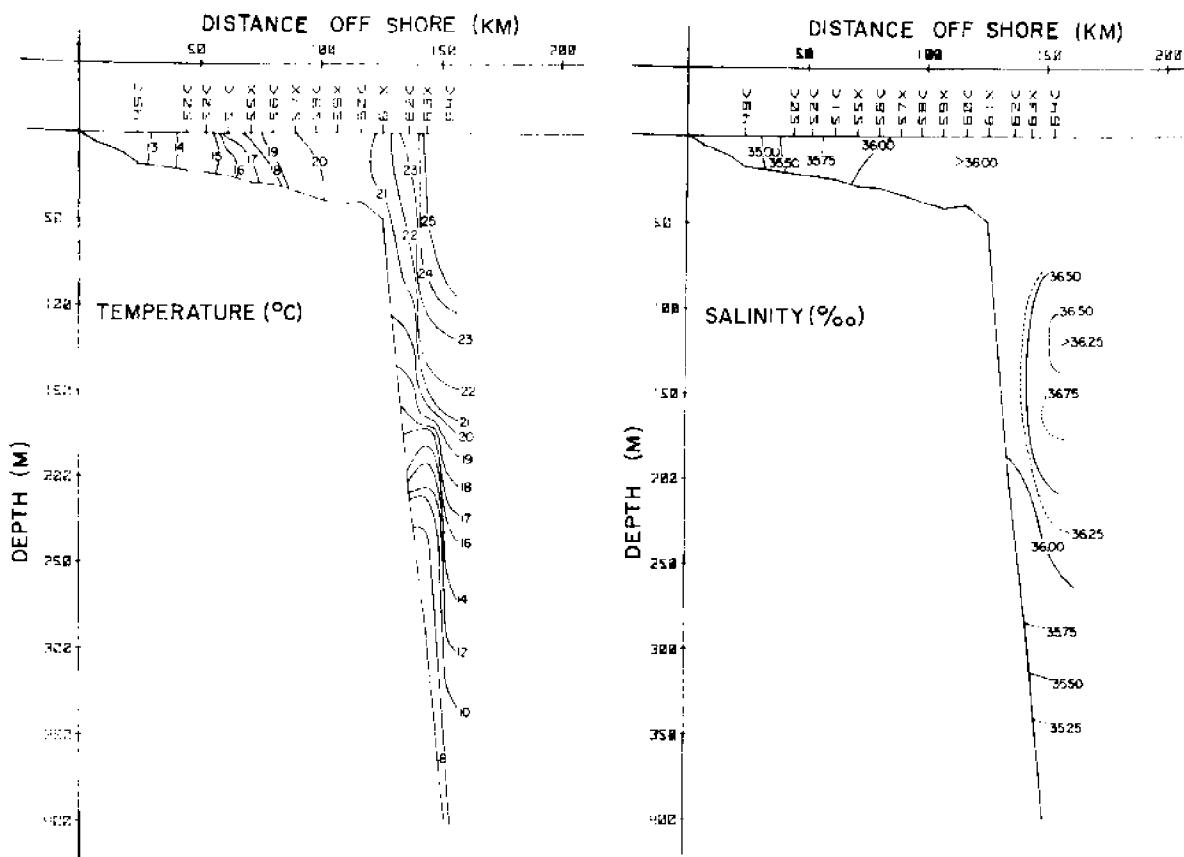


Figure 12. Brunswick section temperature, salinity and sigma-t, 11-12 December.

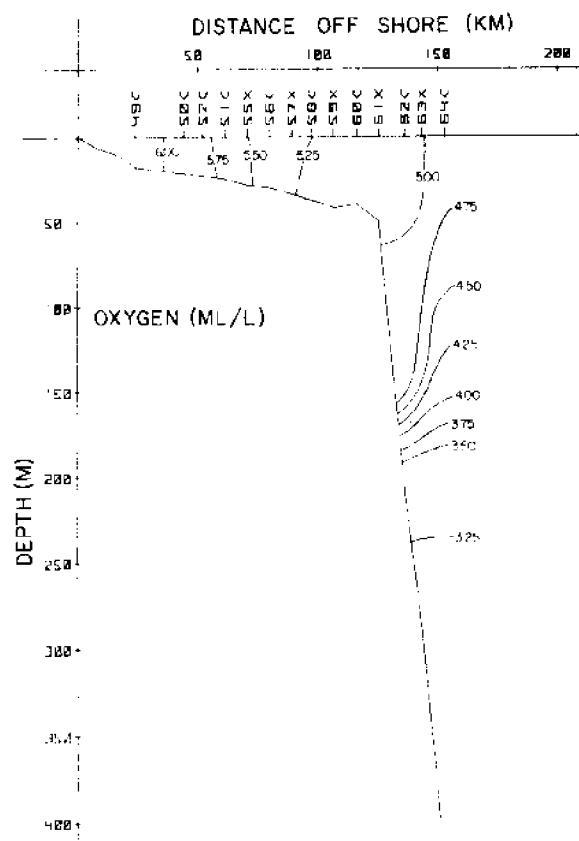
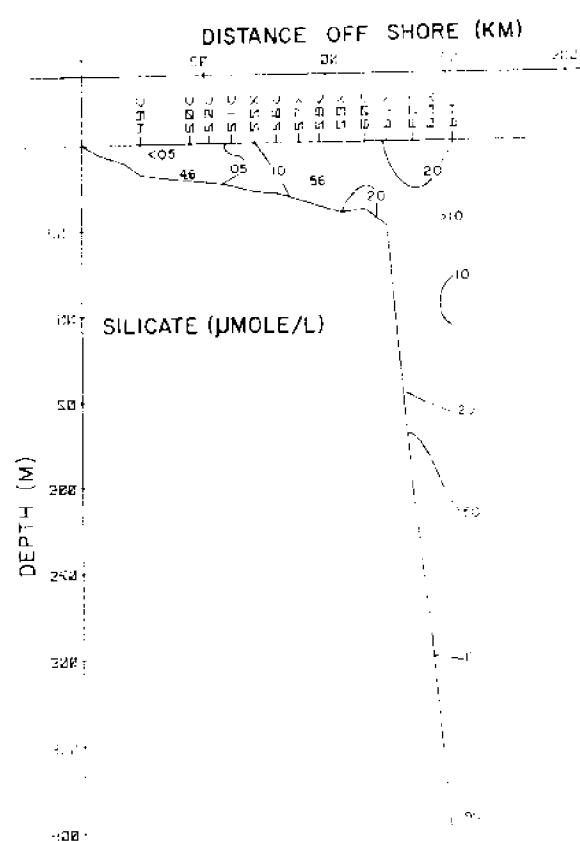
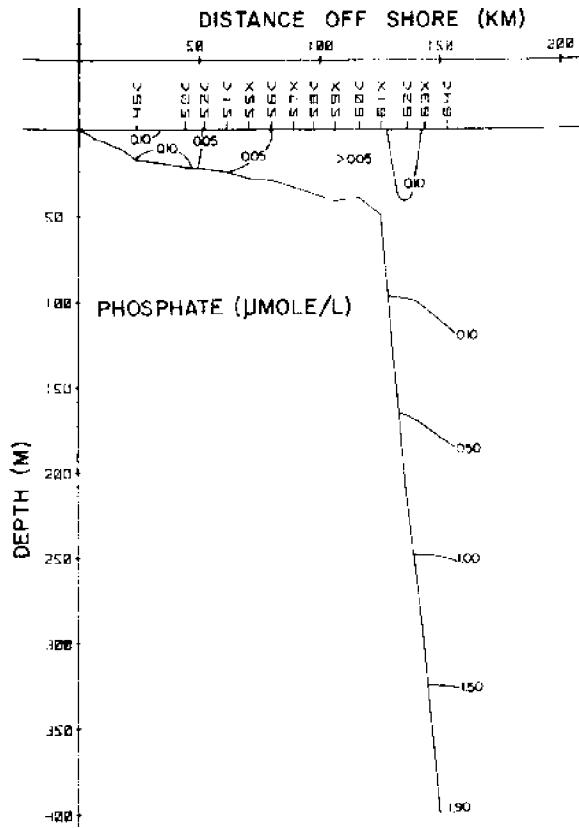
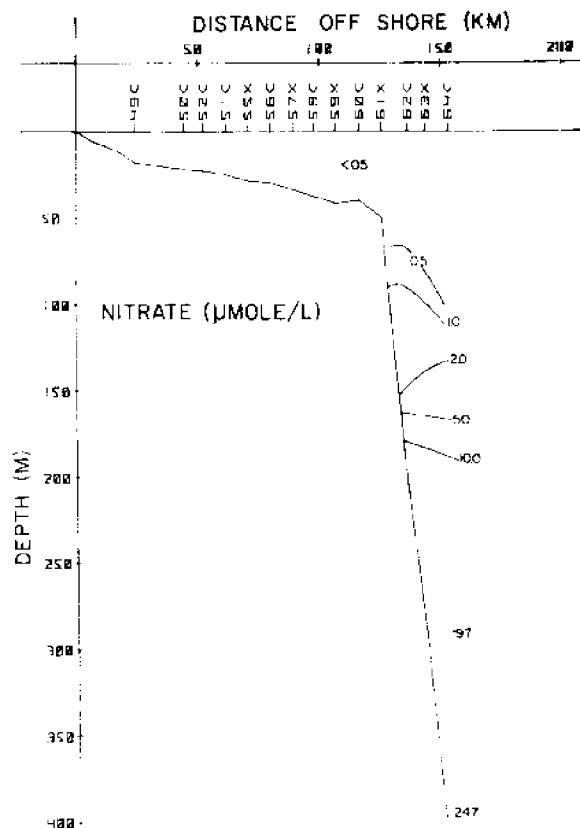


Figure 13. Brunswick section nitrate, phosphate, silicate and dissolved oxygen, 11-12 December.

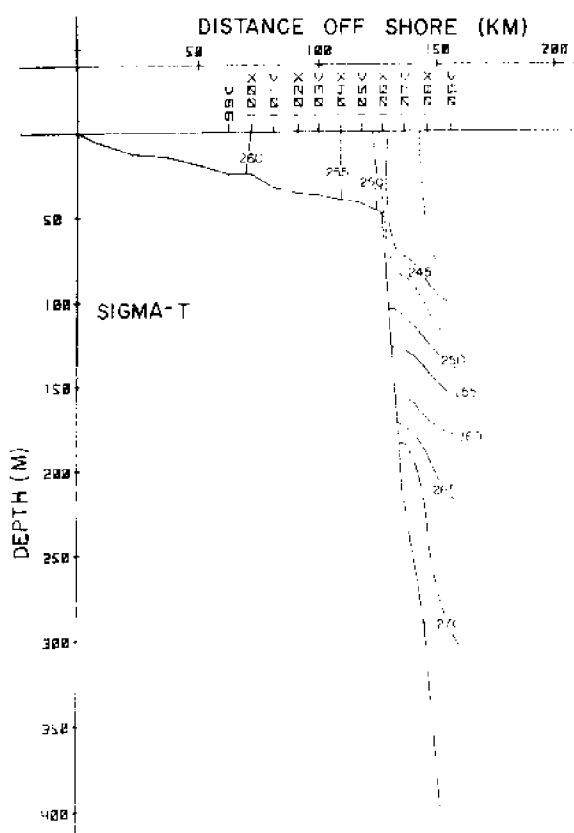
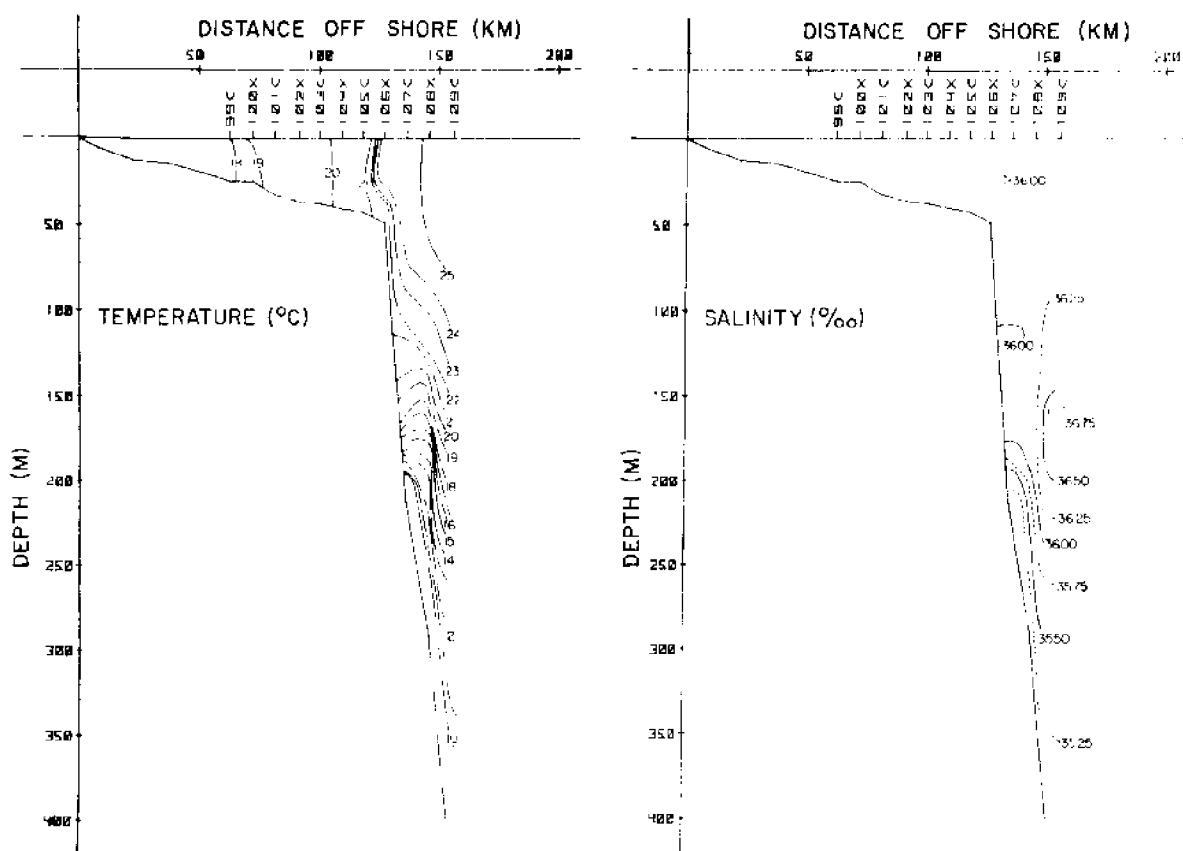


Figure 14. Brunswick section salinity and sigma-t, 13 December.

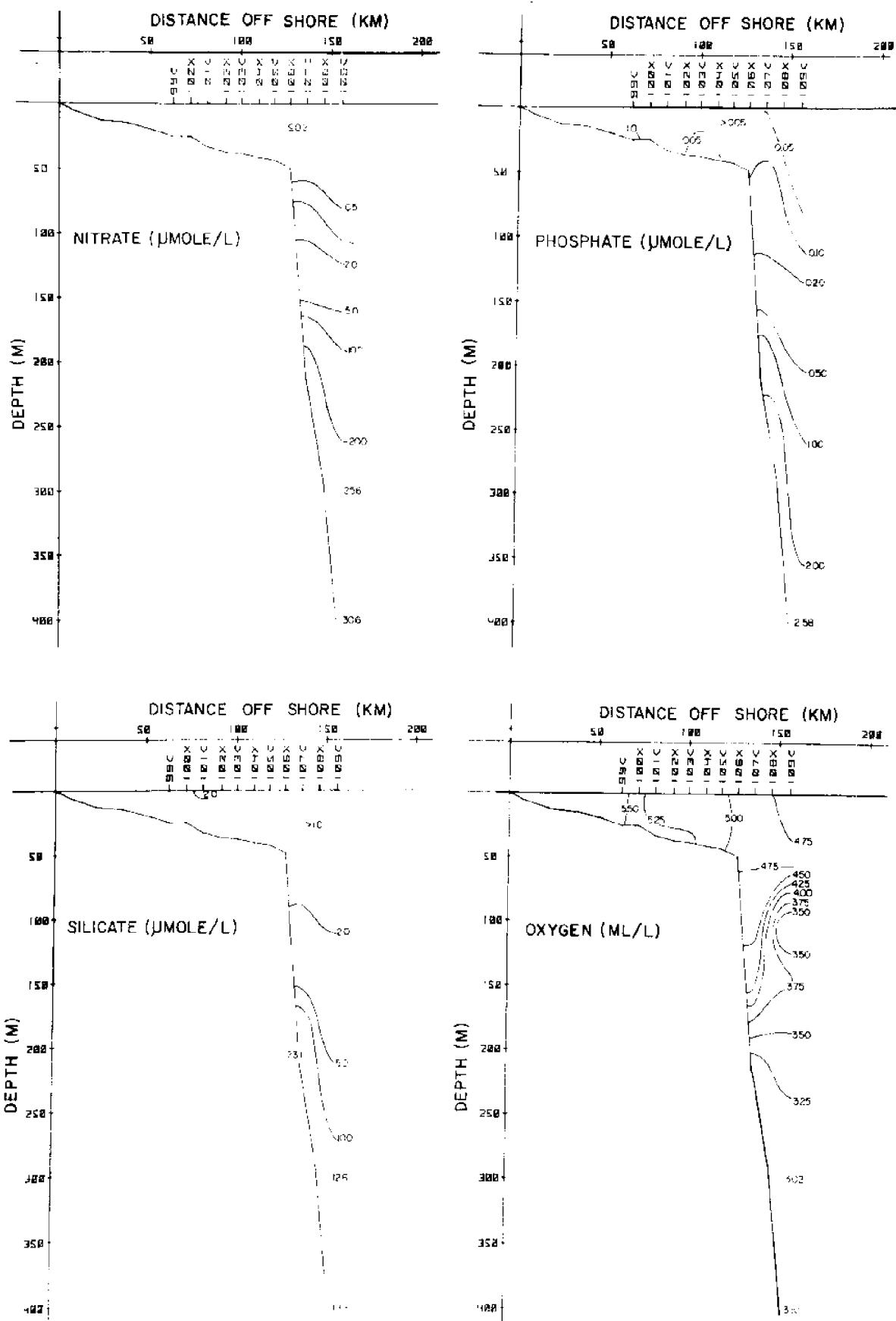


Figure 15. Brunswick section nitrate, phosphate, silicate and dissolved oxygen, 13 December.

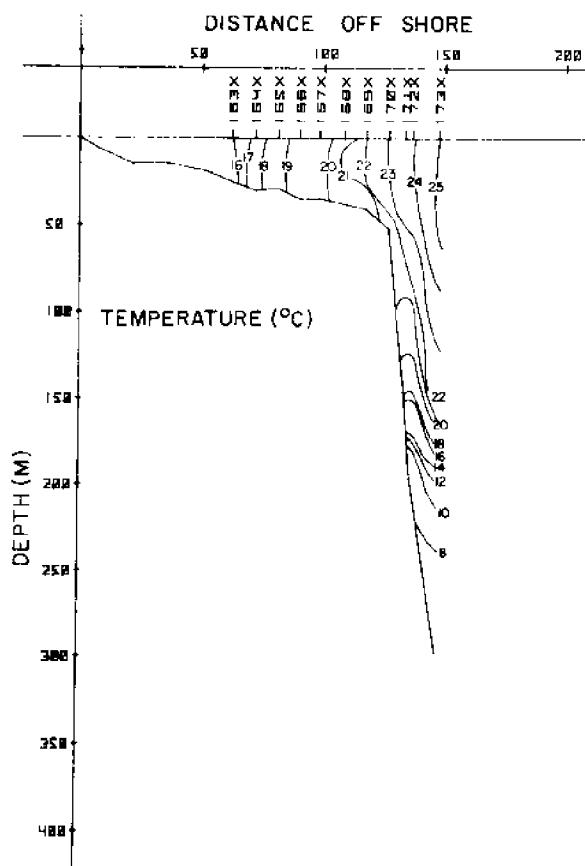


Figure 16. Brunswick section temperature, 14-15 December.

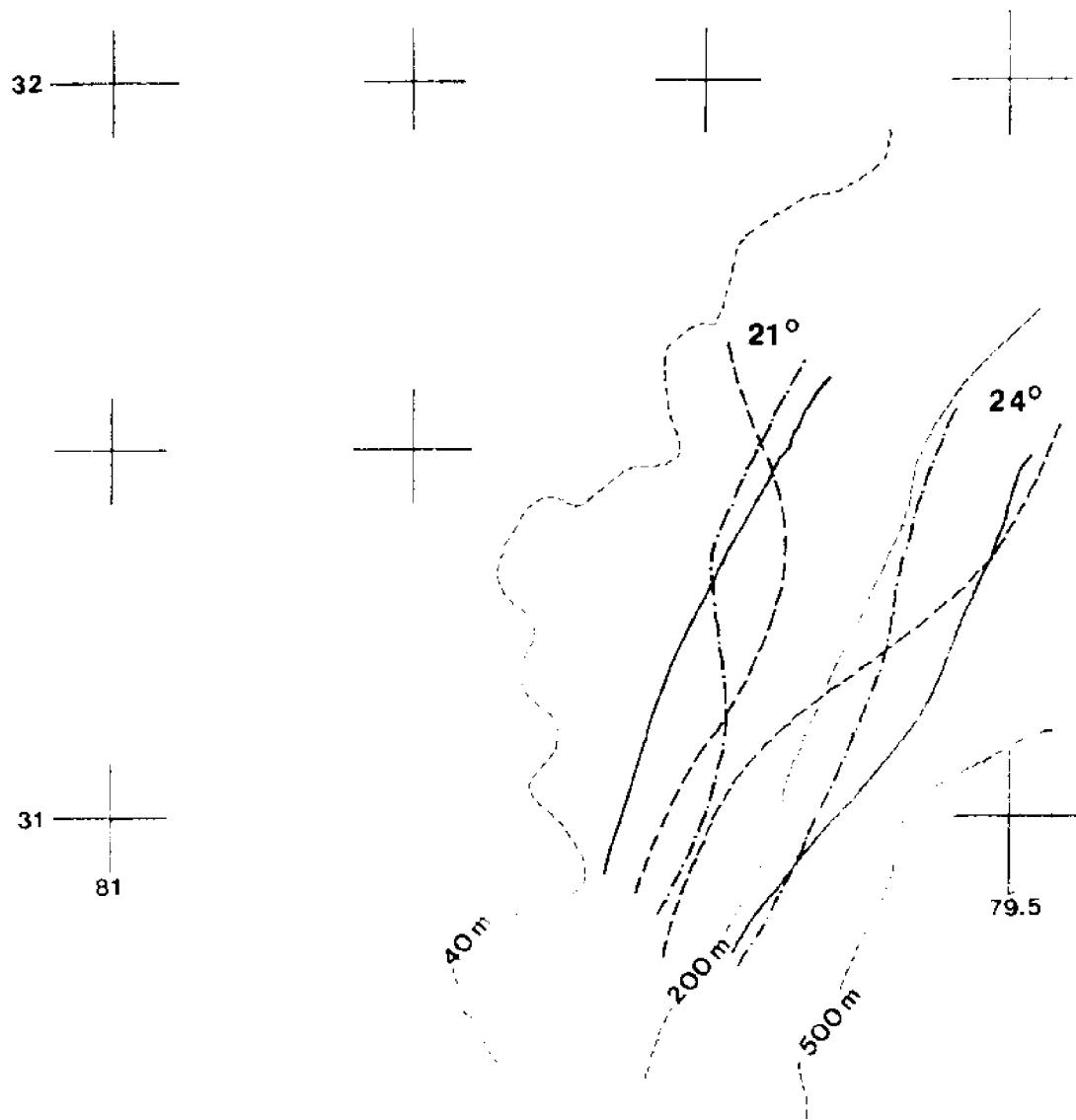


Figure 17. Time series of the 21°C and 24°C isotherms (— 10-12 December, -·- 12-13 December, -··- 14-15 December.

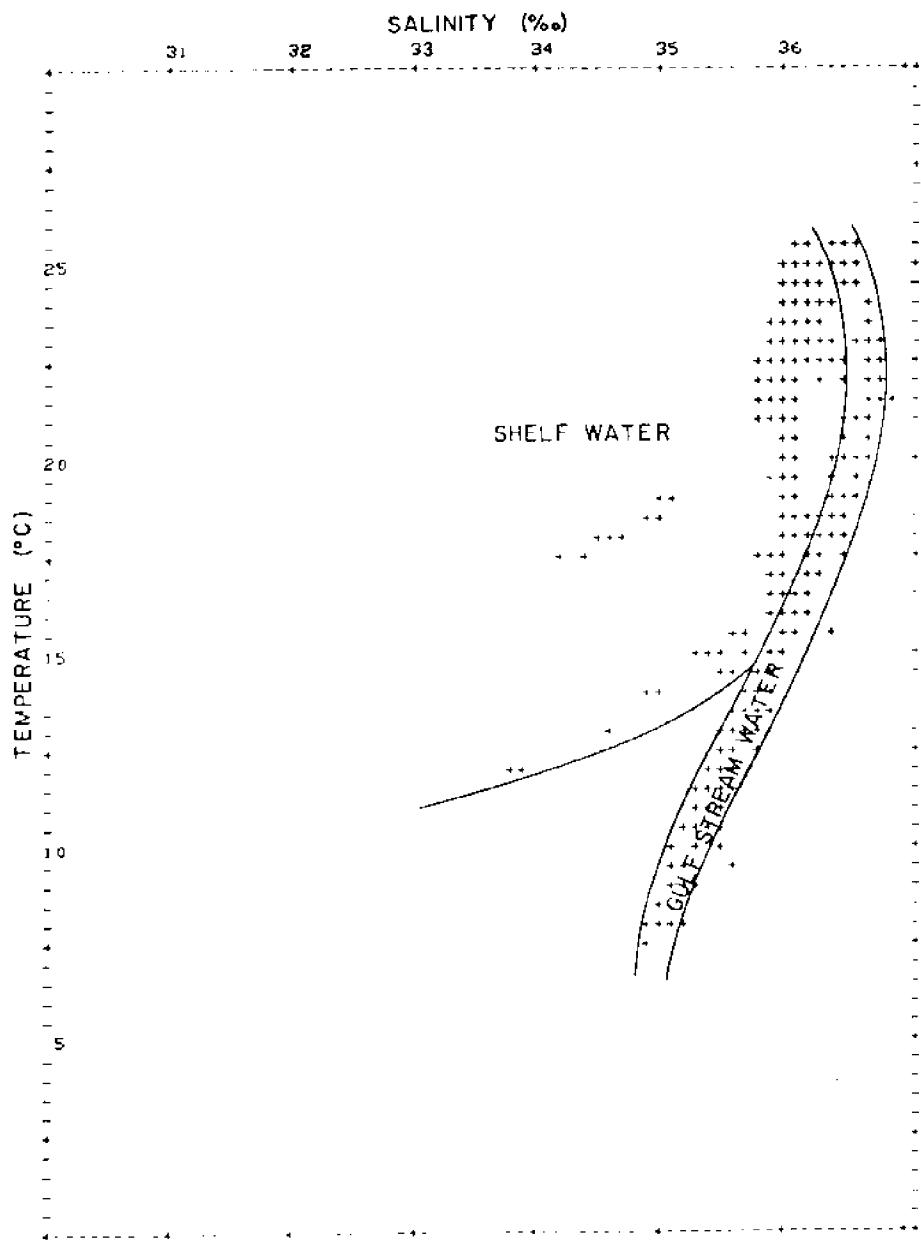


Figure 18 . Temperature-salinity diagram, Cruise CI-12-76, December 1976.

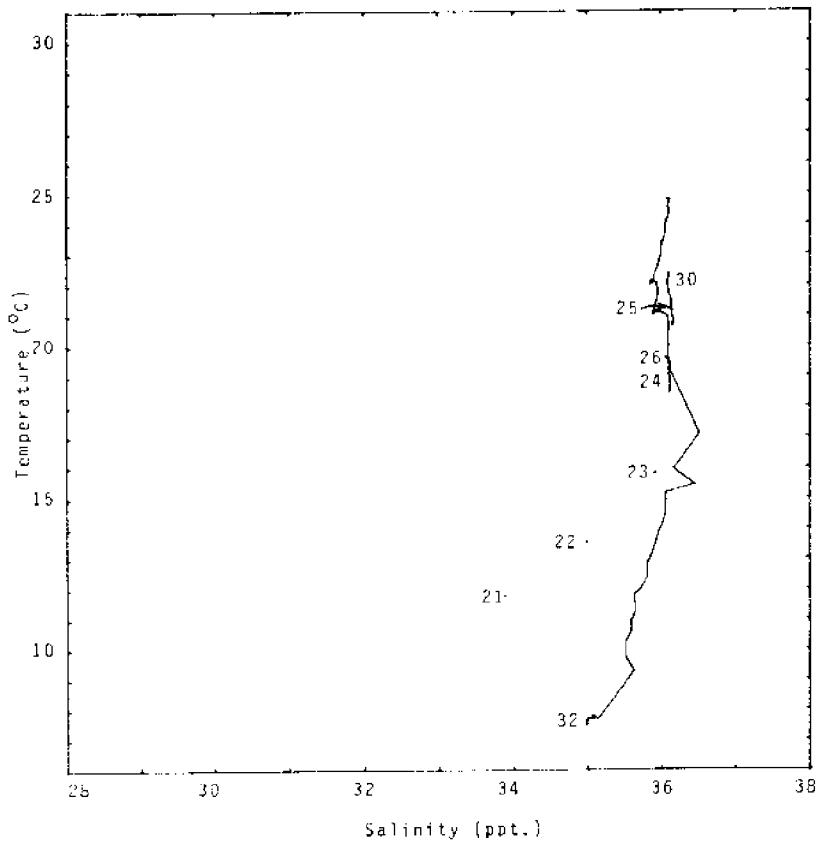


Figure 19. Savannah Section, 10-11 December.

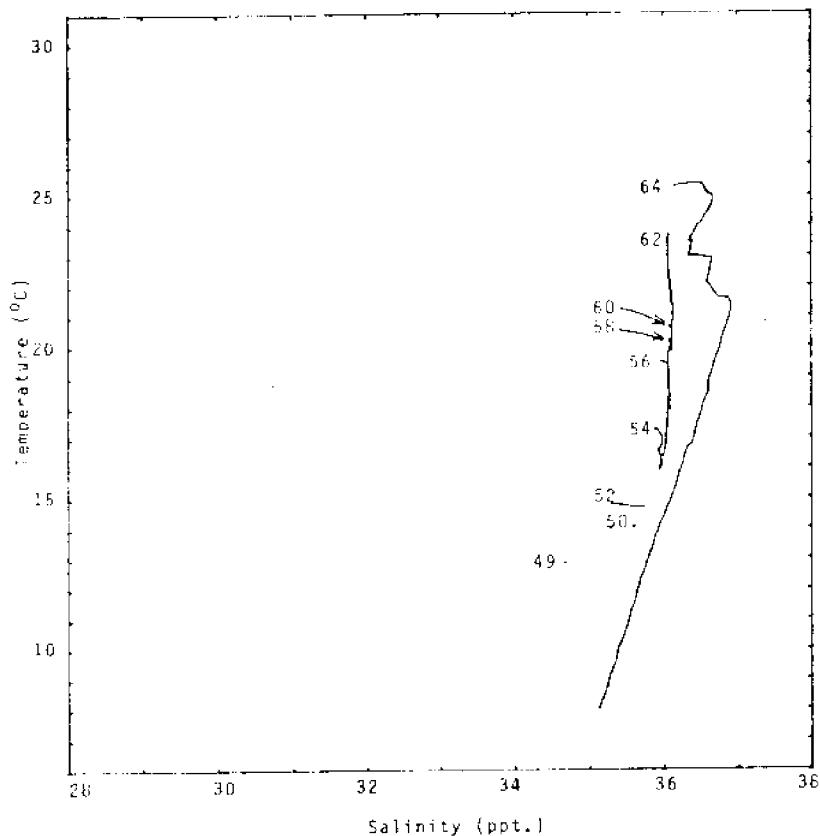


Figure 20. Brunswick Section, 10-11 December.

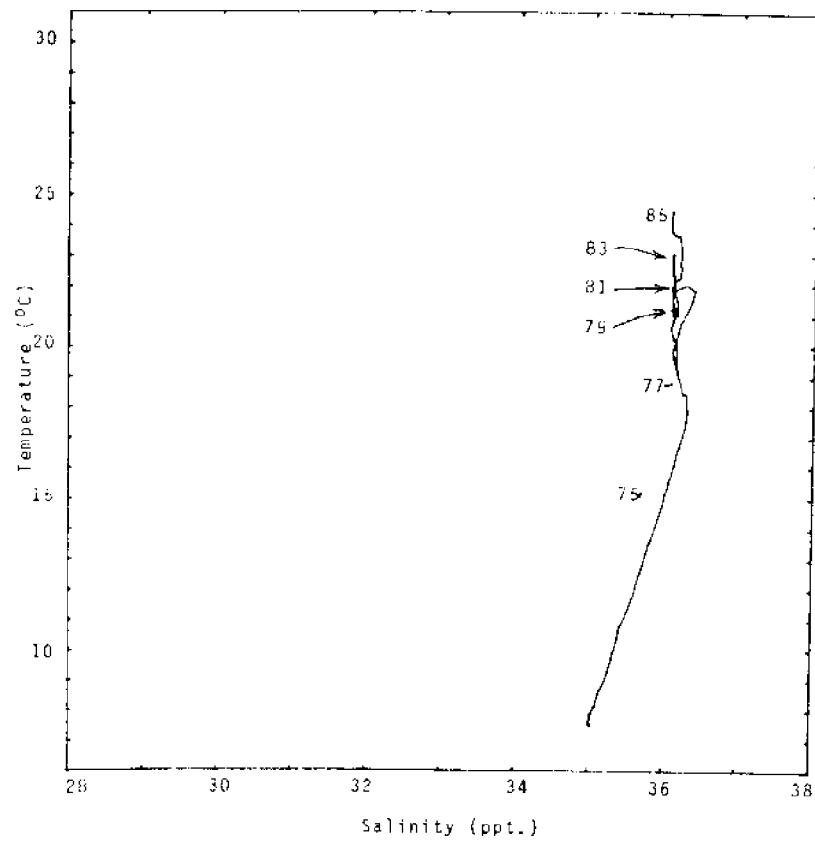


Figure 21. Savannah Section, 12 December.

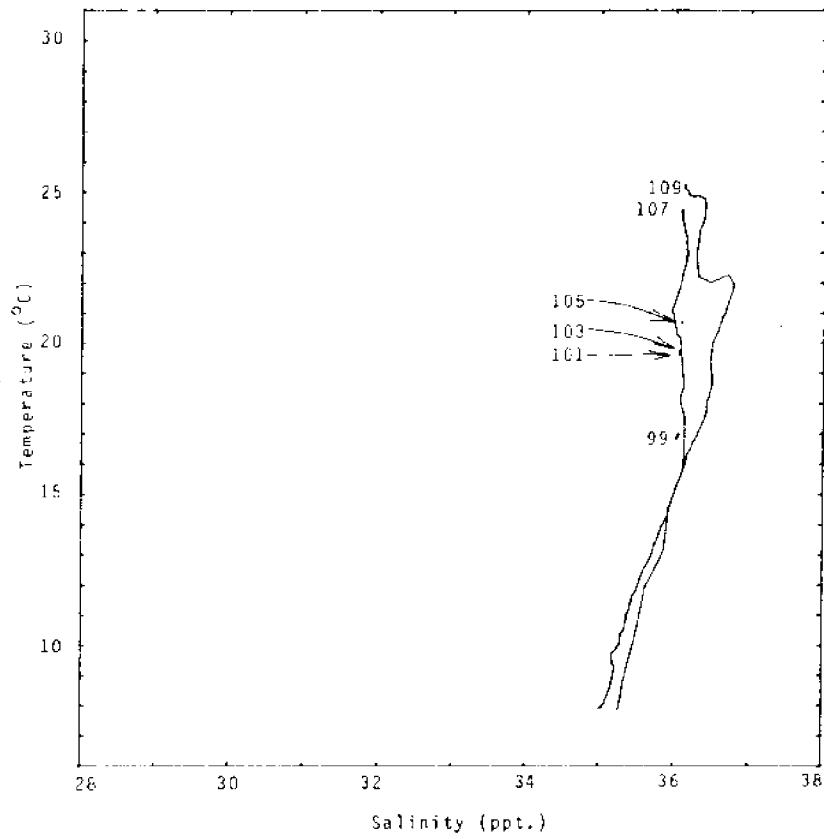


Figure 22. Brunswick Section, 13 December.

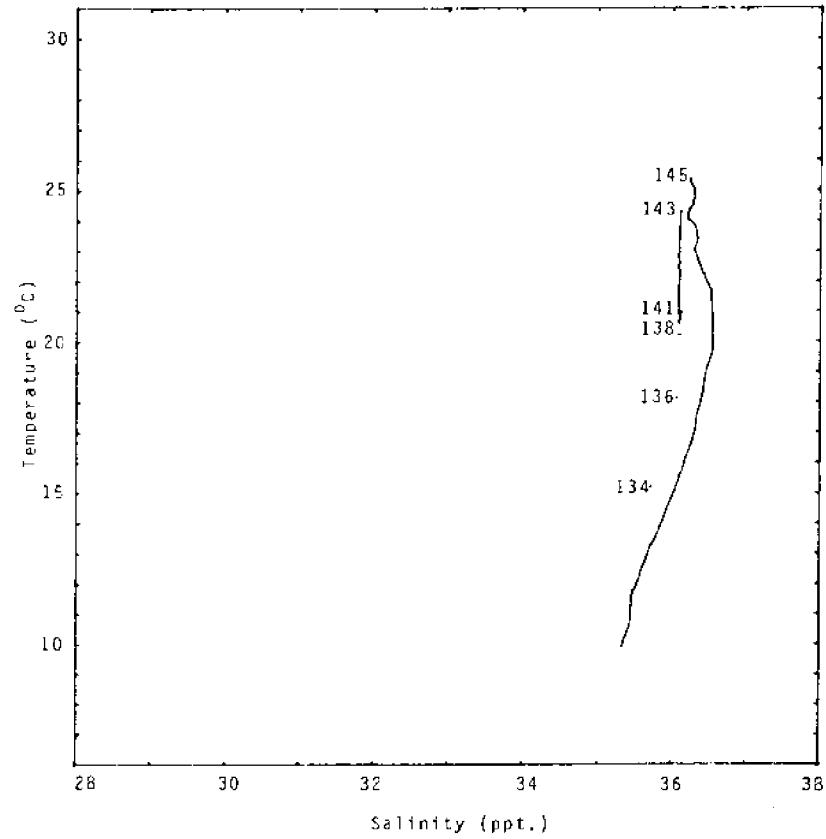


Figure 23. Savannah Section, 14 December.

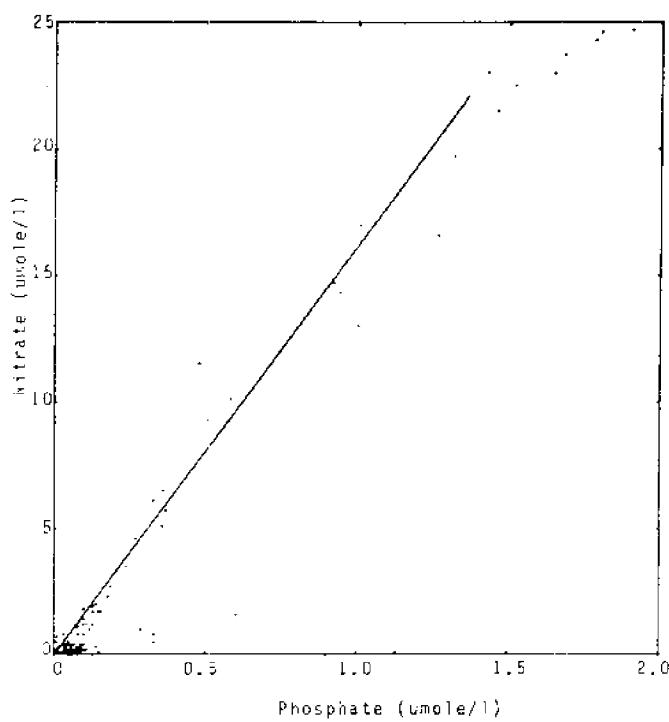


Figure 24. Nitrate vs. phosphate with line representing the 16:1 (N:P) ratio.

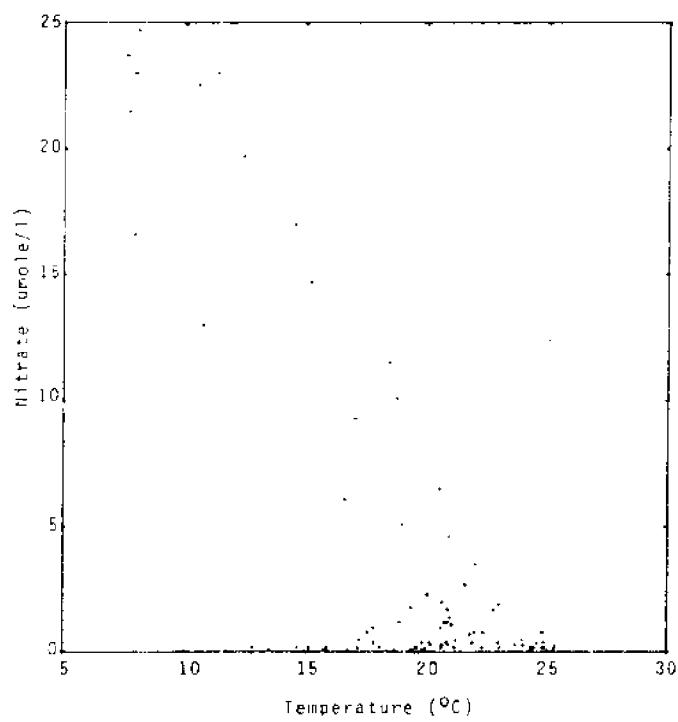


Figure 25. Nitrate vs. temperature.

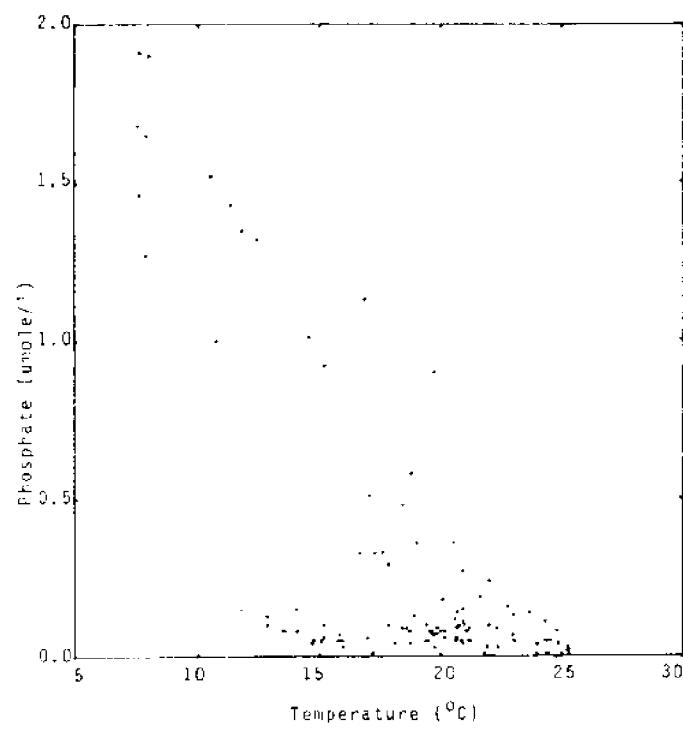


Figure 26. Phosphate vs. temperature.

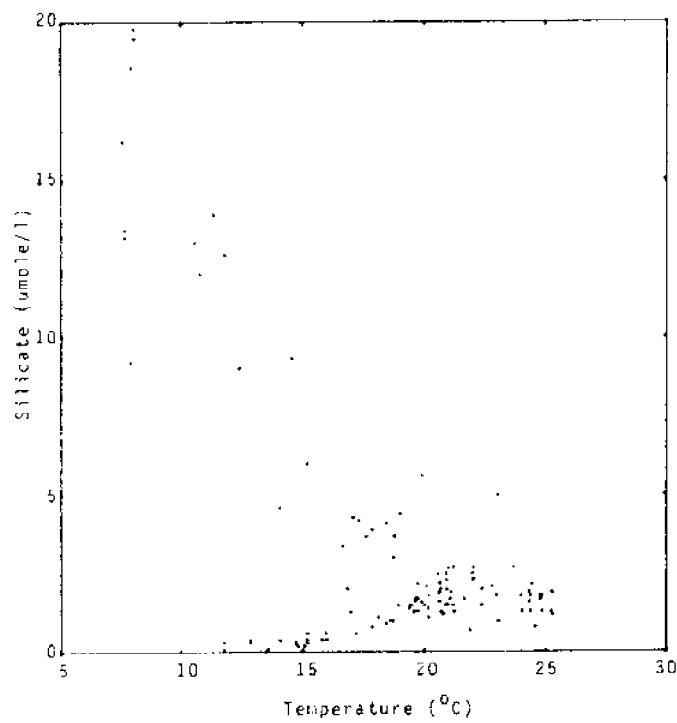


Figure 27. Silicate vs. temperature.

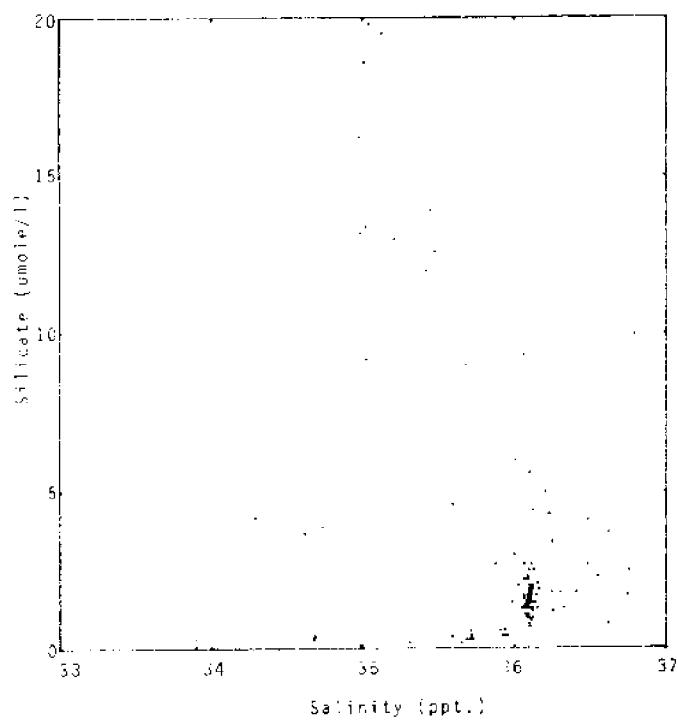


Figure 28. Silicate vs. salinity.

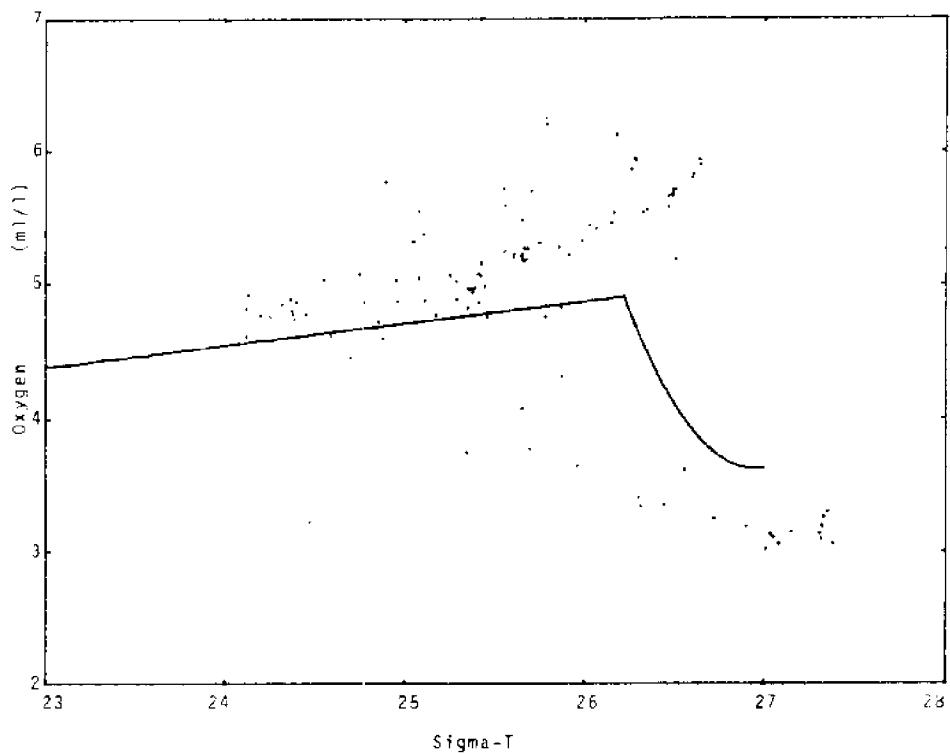


Figure 29. Oxygen versus sigma-t with line representing normal Sargasso Sea water.

DATA

Table 8. STATION SUMMARY FOR ISELIN CRUISE CI-12

CRUISE	STATION	LATITUDE	LONGITUDE	YR	MN	DY	HOUR	DEPTH	CONSEC	
									GMT	M	NUMBER
012	020C	31 28.1N	79 7.0W	76	12	9	4.0	500	20	
012	021C	31 56.4N	80 41.0W	76	12	10	14.7	16	21	
012	022C	31 52.0N	80 30.1W	76	12	10	15.7	23	22	
012	023C	31 48.2N	80 20.0W	76	12	10	17.3	22	23	
012	024C	31 45.2N	80 8.4W	76	12	10	18.7	30	24	
012	025X	31 43.0N	80 2.0W	76	12	10	20.0	42	25	
012	026C	31 40.9N	79 57.5W	76	12	10	20.5	41	26	
012	027X	31 39.0N	79 52.0W	76	12	10	21.2	41	27	
012	028C	31 37.1N	79 47.5W	76	12	10	22.0	46	28	
012	029X	31 35.0N	79 41.6W	76	12	10	23.5	67	29	
012	030C	31 33.5N	79 36.0W	76	12	11	.3	136	30	
012	031X	31 31.6N	79 30.3W	76	12	11	1.6	259	31	
012	032C	31 29.0N	79 24.6W	76	12	11	2.5	510	32	
012	033X	31 27.0N	79 19.1W	76	12	11	6.0	480	33	
012	049C	31 11.5N	81 2.5W	76	12	11	14.0	18	49	
012	050C	31 7.9N	80 50.5W	76	12	11	15.3	22	50	
012	051C	31 4.0N	80 40.6W	76	12	11	16.8	25	51	
012	052C	31 6.0N	80 46.0W	76	12	11	17.8	23	52	
012	054X	31 4.5N	80 42.0W	76	12	11	19.1	25	54	
012	055X	31 2.6N	80 35.0W	76	12	11	19.6	29	55	
012	056C	31 1.0N	80 29.5W	76	12	11	20.2	30	56	
012	057X	30 58.5N	80 24.5W	76	12	11	21.0	34	57	
012	058C	30 57.0N	80 19.5W	76	12	11	21.6	38	58	
012	059X	30 54.9N	80 14.5W	76	12	11	22.4	42	59	
012	060C	30 52.7N	80 8.8W	76	12	11	23.0	40	60	
012	061X	30 50.7N	80 3.5W	76	12	12	0.0	50	61	
012	062C	30 49.0N	79 57.0W	76	12	12	.6	206	62	
012	063X	30 47.2N	79 52.9W	76	12	12	2.6	291	63	
012	064C	30 45.4N	79 47.4W	76	12	12	3.2	429	64	
012	075C	31 48.2N	80 19.0W	76	12	12	9.9	22	75	
012	076X	31 46.5N	80 13.8W	76	12	12	11.0	25	76	
012	077C	31 45.0N	80 8.2W	76	12	12	11.5	30	77	
012	078X	31 43.0N	80 2.8W	76	12	12	12.4	35	78	
012	079C	31 41.1N	79 56.9W	76	12	12	13.2	42	79	
012	080X	31 39.1N	79 50.6W	76	12	12	14.2	46	80	
012	081C	31 37.5N	79 45.4W	76	12	12	14.8	46	81	
012	082X	31 35.8N	79 40.3W	76	12	12	15.6	55	82	
012	083C	31 34.3N	79 34.6W	76	12	12	16.1	146	83	
012	084X	31 33.0N	79 32.1W	76	12	12	17.0	247	84	
012	085C	31 32.0N	79 26.8W	76	12	12	17.5	507	85	
012	099C	31 4.1N	80 40.8W	76	12	13	3.7	25	99	

Table 8. ISELIN CRUISE CI-12

[CONTINUED]

CRUISE STATION	LATITUDE	LONGITUDE	YR MN	DY	HOUR	DEPTH	CONSEC	
							GMT	M
012	100X	31 2.0N	80 35.3W	76 12	13	4.6	25	100
012	101C	31 0.0N	80 30.0W	76 12	13	5.2	33	101
012	102X	30 58.0N	80 24.0W	76 12	13	6.0	37	102
012	103C	30 56.0N	80 19.2W	76 12	13	6.6	38	103
012	104X	30 54.4N	80 13.5W	76 12	13	7.5	41	104
012	105C	30 52.5N	80 8.5W	76 12	13	8.0	43	105
012	106X	30 50.5N	80 3.4W	76 12	13	8.8	49	106
012	107C	30 48.7N	79 58.0W	76 12	13	9.3	214	107
012	108X	30 46.6N	79 52.5W	76 12	13	10.7	292	108
012	109C	30 44.5N	79 46.6W	76 12	13	11.3	443	109
012	134C	31 48.2N	80 19.0W	76 12	14	1.6	23	134
012	135X	31 46.4N	80 13.5W	76 12	14	2.7	28	135
012	136C	31 44.9N	80 8.4W	76 12	14	3.2	30	136
012	137X	31 43.0N	80 3.4W	76 12	14	4.9	36	137
012	138C	31 41.4N	79 57.8W	76 12	14	5.9	41	138
012	139X	31 39.6N	79 52.0W	76 12	14	7.1	51	139
012	141C	31 38.0N	79 47.0W	76 12	14	8.1	53	141
012	142X	31 36.0N	79 41.0W	76 12	14	9.0	64	142
012	143C	31 34.0N	79 35.0W	76 12	14	9.8	118	143
012	144X	31 32.5N	79 28.2W	76 12	14	11.5	330	144
012	145C	31 30.5N	79 24.0W	76 12	14	12.2	520	145
012	146X	31 30.3N	79 23.8W	76 12	14	14.2	485	146
012	163X	31 4.5N	80 40.5W	76 12	14	22.2	25	163
012	164X	31 2.5N	80 35.0W	76 12	14	23.0	30	164
012	165X	31 -.5N	80 29.6W	76 12	14	23.6	29	165
012	166X	30 58.5N	80 24.5W	76 12	15	.3	35	166
012	167X	30 57.2N	80 19.6W	76 12	15	.9	35	167
012	168X	30 54.6N	80 13.9W	76 12	15	1.7	38	168
012	169X	30 52.9N	80 8.6W	76 12	15	2.6	41	169
012	170X	30 51.0N	80 3.1W	76 12	15	3.4	52	170
012	171X	30 50.0N	79 59.0W	76 12	15	4.2	142	171
012	172X	30 49.2N	79 57.4W	76 12	15	4.6	198	172
012	173X	30 49.5N	79 50.5W	76 12	15	5.6	300	173
012	207C	28 59.3N	80 24.6W	76 12	15	21.3	26	207

HYDROGRAPHIC DATA

Vertical profiles of salinity, temperature, sigma-t, DO, and nutrients

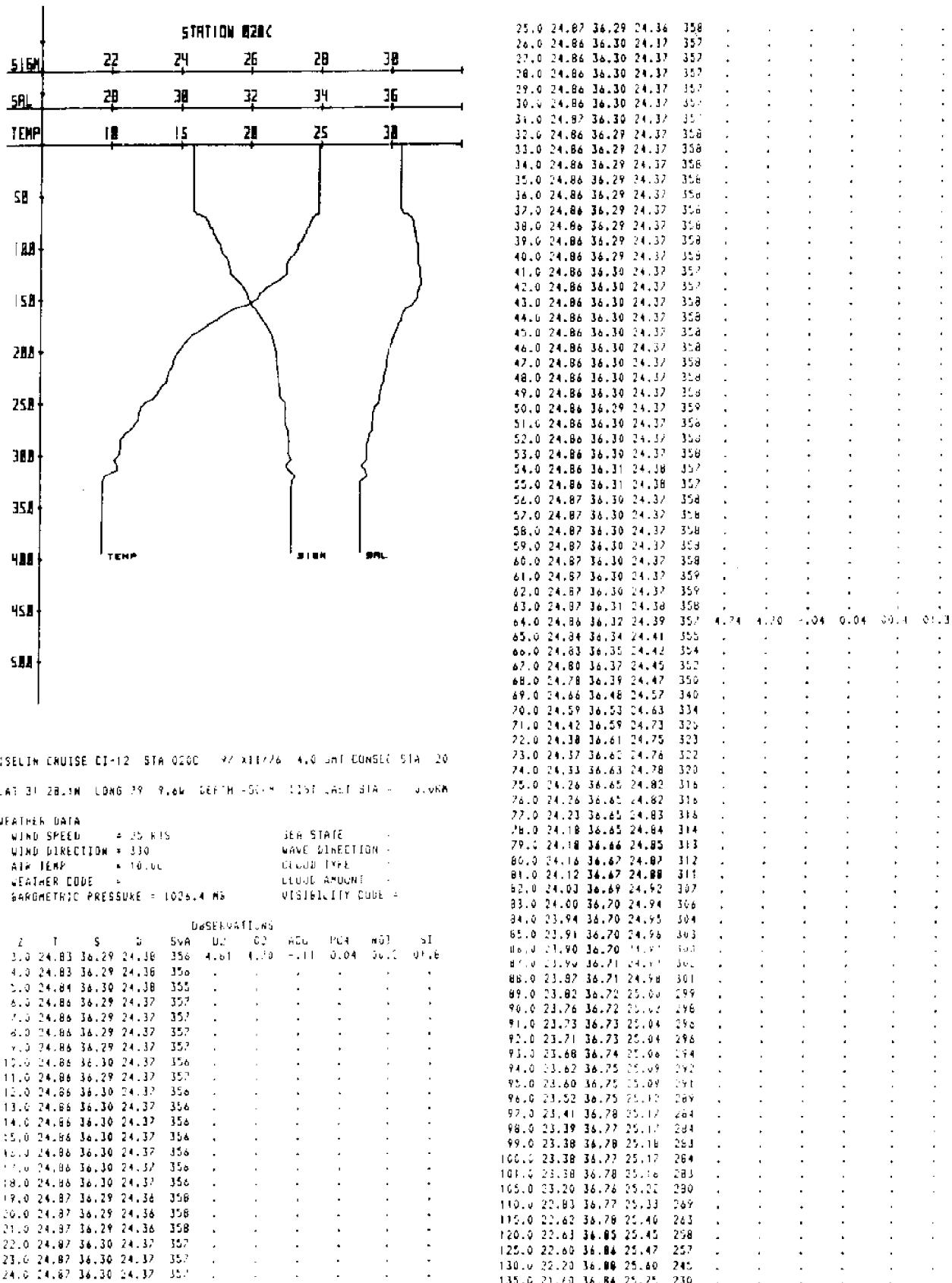
The symbols used in the following listings are defined as follows:

Header Data: Times are GMT (EST + 5)
 Latitude and Longitude are from Loran C

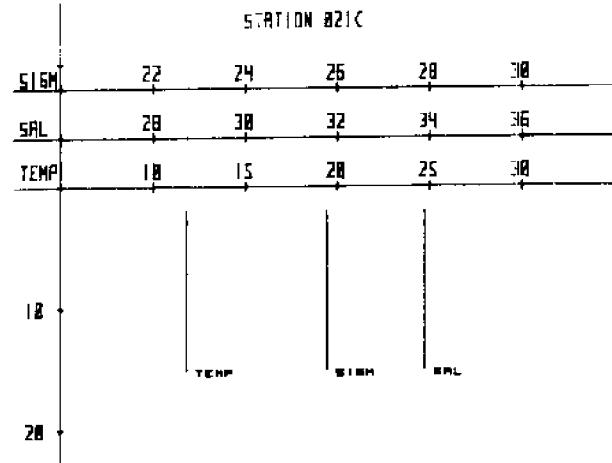
Weather Data: These data are taken from the ship's log.

Wind speed (knots)
Wind direction (degrees)
Air temperature ($^{\circ}$ C)
Weather (WMO code 4501)
Barometric pressure (mb)
Sea State (WMO code 3700)
Wave direction (degrees)
Cloud type (not given)
Cloud amount (not given)
Visibility code (not given)

Observations: Z = Depth in meters
 T = Temperature in $^{\circ}$ C
 S = Salinity in ‰
 D = Density in sigma-t units
 SVA = Specific volume anomaly X 10^5
 O₂ = Dissolved oxygen in ml/liter
 O₂' = Oxygen saturation in ml/liter
 AOU = Apparent oxygen utilization in ml/liter
 PO₄ = Phosphate concentration in μ mole/liter
 NO₃ = Nitrate concentration in μ mole/liter
 Si = Silicate concentration in μ mole/liter



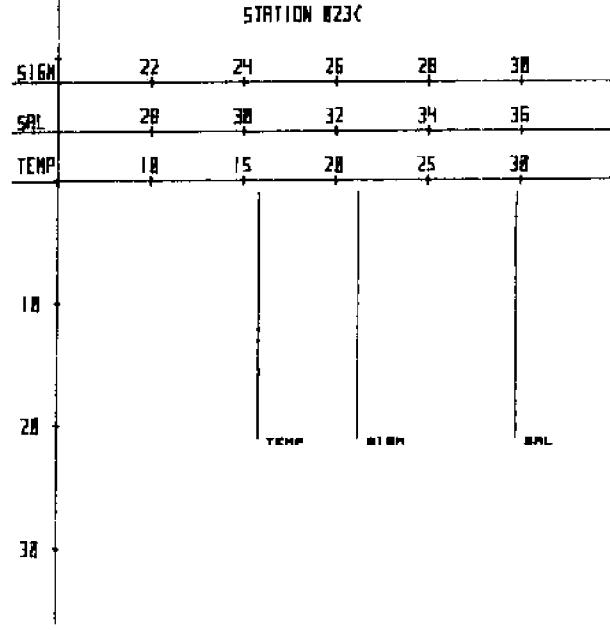
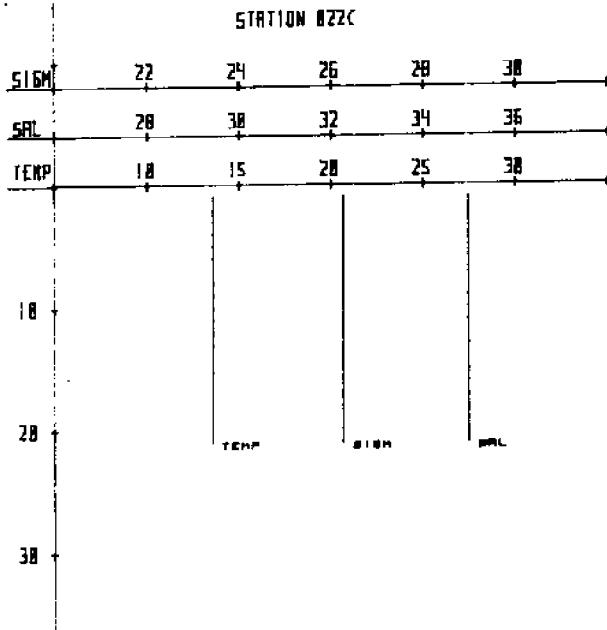
140.0	21.09	34.81	25.85	210	.	.	.	.	.	.	.
145.0	20.67	34.75	25.92	214	.	.	.	.	.	.	.
149.0	20.54	34.75	25.96	214	3.85	5.68	1.41	0.36	0.65	02.5	02.5
150.0	19.76	34.62	26.02	206	.	.	.	.	.	.	.
150.0	18.60	34.44	26.16	196	.	.	.	.	.	.	.
151.0	16.14	34.35	26.18	166	.	.	.	.	.	.	.
151.0	11.62	34.30	26.32	111	.	.	.	.	.	.	.
151.0	18.97	34.23	26.41	162	.	.	.	.	.	.	.
152.0	16.47	34.17	26.55	151	.	.	.	.	.	.	.
153.0	15.66	34.11	26.54	148	.	.	.	.	.	.	.
153.0	15.50	34.06	26.59	141	.	.	.	.	.	.	.
155.0	15.18	34.01	26.72	137	3.25	5.63	2.38	0.92	14.7	05.0	05.0
200.0	14.91	35.98	26.76	135	.	.	.	.	.	.	.
205.0	14.82	35.92	26.77	134	.	.	.	.	.	.	.
210.0	14.48	35.90	26.79	132	.	.	.	.	.	.	.
215.0	14.42	35.89	26.79	132	.	.	.	.	.	.	.
220.0	14.12	35.85	26.82	130	.	.	.	.	.	.	.
225.0	14.07	35.82	26.82	130	.	.	.	.	.	.	.
230.0	14.00	35.81	26.86	130	.	.	.	.	.	.	.
235.0	14.62	35.75	26.86	131	.	.	.	.	.	.	.
240.0	13.41	35.72	26.88	131	.	.	.	.	.	.	.
245.0	13.13	35.68	26.90	132	.	.	.	.	.	.	.
250.0	12.49	35.67	27.02	133	.	.	.	.	.	.	.
255.0	12.16	35.56	27.06	133	.	.	.	.	.	.	.
260.0	2.01	35.51	27.09	133	.	.	.	.	.	.	.
265.0	11.99	35.51	27.06	133	.	.	.	.	.	.	.
270.0	11.13	35.49	27.03	133	.	.	.	.	.	.	.
275.0	11.44	35.51	27.10	133	.	.	.	.	.	.	.
280.0	10.63	35.42	27.12	132	.	.	.	.	.	.	.
285.0	10.78	35.35	27.13	132	.	.	.	.	.	.	.
290.0	10.10	35.34	27.11	133	.	.	.	.	.	.	.
295.0	10.39	35.32	27.09	134	.	.	.	.	.	.	.
300.0	10.63	35.32	27.10	133	.	.	.	.	.	.	.
305.0	10.30	35.35	27.15	96	.	.	.	.	.	.	.
310.0	10.50	35.36	27.03	133	3.13	5.34	3.11	1.52	21.0	13.0	13.0
315.0	10.44	35.30	27.12	132	.	.	.	.	.	.	.
320.0	3.80	35.35	27.11	94	.	.	.	.	.	.	.
325.0	9.43	35.16	27.19	95	.	.	.	.	.	.	.
330.0	9.46	35.15	27.12	97	.	.	.	.	.	.	.
335.0	9.43	35.17	27.19	95	.	.	.	.	.	.	.
340.0	9.41	35.16	27.19	95	.	.	.	.	.	.	.
345.0	9.41	35.16	27.14	95	.	.	.	.	.	.	.
350.0	9.42	35.15	27.16	95	.	.	.	.	.	.	.
355.0	9.42	35.15	27.18	97	.	.	.	.	.	.	.
360.0	9.42	35.15	27.18	97	.	.	.	.	.	.	.
365.0	9.41	35.16	27.19	96	.	.	.	.	.	.	.
370.0	9.41	35.16	27.19	96	.	.	.	.	.	.	.
375.0	9.41	35.16	27.19	96	.	.	.	.	.	.	.
380.0	9.41	35.16	27.19	96	.	.	.	.	.	.	.
385.0	9.41	35.15	27.18	97	.	.	.	.	.	.	.
390.0	9.41	35.15	27.18	97	.	.	.	.	.	.	.
395.0	9.38	35.16	27.19	95	.	.	.	.	.	.	.
400.0	3.14	.	.	.	1.28	24.3	16.8	.	.	.	.



TIME IN COORDINATE LT-12 SIGHT WIND FOG ALTITUDE AND DEPTH DATA
LAT 31 56.4N LONG 80 41.0W DEPTH = 16M DIST LAST STA = 55.4KM

WEATHER DATA
WIND SPEED = 10 KTS SEA STATE =
WIND DIRECTION = 030 WAVE DIRECTION =
AIR TEMP = 10.0C CLOUD TYPE =
WEATHER CODE = CLOUD AMOUNT =
BAROMETRIC PRESSURE = 1012.9 MB VISIBILITY CODE =

OBSERVATIONS											
Z	T	S	D	SVA	av.	OC	ABD	END	WAD	SD	
2.0	11.78	33.89	25.78	222	6.35	1.71	11.8	0.11	70.1	30.1	
3.0	11.78	33.90	25.79	221	.	.	.	.	.	.
4.0	11.78	33.90	25.79	221	.	.	.	.	.	.
5.0	11.78	33.90	25.79	221	.	.	.	.	.	.
6.0	11.78	33.90	25.79	221	.	.	.	.	.	.
7.0	11.78	33.90	25.79	221	.	.	.	.	.	.
8.0	11.78	33.90	25.79	221	.	.	.	.	.	.
9.0	11.78	33.90	25.79	221	.	.	.	.	.	.
10.0	11.78	33.90	25.79	221	.	.	.	.	.	.
11.0	11.76	33.90	25.79	221	.	.	.	.	.	.
12.0	11.78	33.90	25.79	221	.	.	.	.	.	.
13.0	11.78	33.90	25.79	221	6.21	0.11	10.9	.	40.0	30.3	
14.0	11.78	33.90	25.79	221	.	.	.	.	.	.
15.0	11.78	33.90	25.79	221	.	.	.	.	.	.



ISELIN CRUISE CI-12 STA 022C 10-11-12 1000' DIST LAST STA = 10.0NM
LAT 31 52.0N LONG 80 30.0W BERLIN = 150 NM LAST STA = 19.0NM

WEATHER DATA

WIND SPEED = 18 KTS
WIND DIRECTION = 030°
AIR TEMP = 13.1°C
WEATHER CODE =
BAROMETRIC PRESSURE = 1032.9 hPa

SEA STATE =
WAVE DIRECTION =
WAVE TYPE =
CLOUD AMOUNT =
VISIBILITY (M) =

OBSERVATIONS:

Z	T	S	D	SWR	U1	U2	AOU	FDR	NDS	SI
1.0	13.57	34.99	26.28	175	5.95	5.82	-1.10	0.08	00.1	00.1
2.0	13.57	34.99	26.28	175	.	.	.	.	.	.
3.0	13.57	34.99	26.28	175	.	.	.	.	.	.
4.0	13.57	34.99	26.28	175	.	.	.	.	.	.
5.0	13.57	34.99	26.28	175	.	.	.	.	.	.
6.0	13.57	34.99	26.28	175	.	.	.	.	.	.
7.0	13.57	34.99	26.28	175	.	.	.	.	.	.
8.0	13.57	34.99	26.28	175	.	.	.	.	.	.
9.0	13.57	34.99	26.28	175	.	.	.	.	.	.
10.0	13.57	34.99	26.28	175	.	.	.	.	.	.
11.0	13.57	34.99	26.28	175	.	.	.	.	.	.
12.0	13.57	34.99	26.27	176	.	.	.	.	.	.
13.0	13.56	34.99	26.28	175	.	.	.	.	.	.
14.0	13.56	34.99	26.28	175	.	.	.	.	.	.
15.0	13.56	34.99	26.28	175	.	.	.	.	.	.
16.0	13.54	34.99	26.29	174	.	.	.	.	.	.
17.0	13.54	34.99	26.29	174	.	.	.	.	.	.
18.0	13.54	34.99	26.29	174	.	.	.	.	.	.
19.0	13.54	34.99	26.29	174	.	.	.	.	.	.
20.0	13.54	34.99	26.29	175	5.93	5.86	-1.07	0.08	00.1	00.0
21.0	13.54	35.00	26.29	174	.	.	.	.	.	.

ISELIN CRUISE CI-12 STA 023C 10-11-12 17.3 NM DIST LAST STA = 17.4NM
LAT 31 48.2N LONG 80 20.0W BERLIN = 220 NM DIST LAST STA = 17.4NM

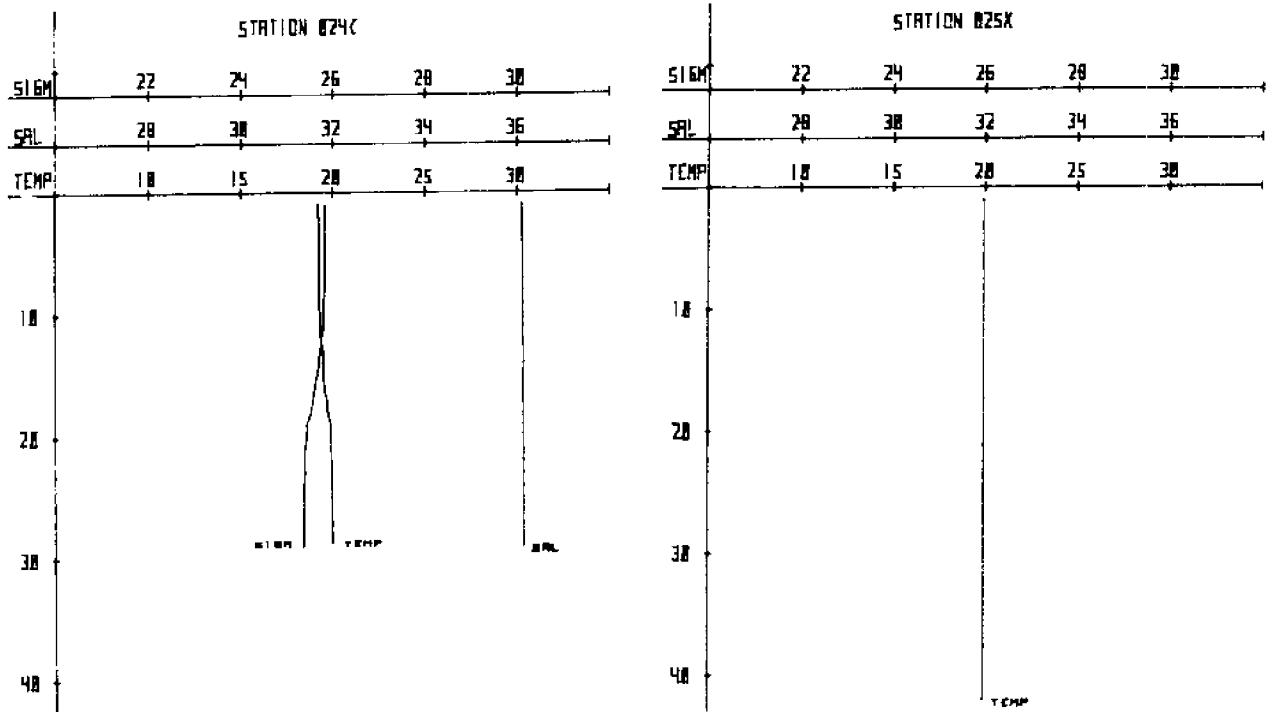
WEATHER DATA

WIND SPEED = 18 KTS
WIND DIRECTION = 030°
AIR TEMP = 13.9°C
WEATHER CODE =
BAROMETRIC PRESSURE = 1032.1 hPa

SEA STATE =
WAVE DIRECTION =
WAVE TYPE =
CLOUD AMOUNT =
VISIBILITY (M) =

OBSERVATIONS:

Z	T	S	D	SWR	U1	U2	AOU	FDR	NDS	SI
1.0	15.82	35.92	26.50	153	5.71	5.55	-1.15	0.07	00.1	00.4
2.0	15.81	35.91	26.50	154	.	.	.	.	.	.
3.0	15.81	35.92	26.51	153	.	.	.	.	.	.
4.0	15.81	35.92	26.51	153	.	.	.	.	.	.
5.0	15.81	35.91	26.50	154	.	.	.	.	.	.
6.0	15.80	35.92	26.51	153	.	.	.	.	.	.
7.0	15.78	35.91	26.51	151	.	.	.	.	.	.
8.0	15.80	35.92	26.51	153	.	.	.	.	.	.
9.0	15.78	35.92	26.51	153	.	.	.	.	.	.
10.0	15.80	35.92	26.51	153	.	.	.	.	.	.
11.0	15.80	35.92	26.51	153	.	.	.	.	.	.
12.0	15.80	35.91	26.51	153	.	.	.	.	.	.
13.0	15.80	35.92	26.51	153	.	.	.	.	.	.
14.0	15.80	35.91	26.51	153	.	.	.	.	.	.
15.0	15.80	35.91	26.51	153	.	.	.	.	.	.
16.0	15.80	35.92	26.51	153	.	.	.	.	.	.
17.0	15.80	35.92	26.51	153	.	.	.	.	.	.
18.0	15.80	35.92	26.51	153	.	.	.	.	.	.
19.0	15.80	35.93	26.52	153	.	.	.	.	.	.
20.0	15.80	35.93	26.52	153	.	.	.	.	.	.
21.0	15.81	35.93	26.51	153	5.19	5.56	-1.37	0.05	00.1	00.4



TULLIN CRUISE CI-12 STA 024C 107 XII/76 20.0 DEPT 516M - 28
LAT 31 45.2W LONG 60 31.4E DEPT 48M DEPT LAST STA = 14.1M

WEATHER DATA

WIND SPEED = 14 KTS
WIND DIRECTION = 110
AIR TEMP = 16.7C
WEATHER CODE =
BAROMETRIC PRESSURE = 1031.0 MB

SEA STATE =
WAVE DIRECTION =
CLOUD TYPE =
CLOUD AMOUNT =
VISIBILITY CODE =

OBSERVATIONS										
Z	T	S	D	SVA	OJ	O2	AOU	F04	N03	SI
1.0	19.58	36.08	25.70	239	5.70	5.17	-1.03	0.06	00.0	01.3
2.0	19.58	36.11	25.73	237	-	-	-	-	-	-
3.0	19.58	36.10	25.72	228	-	-	-	-	-	-
4.0	19.56	36.11	25.73	227	-	-	-	-	-	-
5.0	19.56	36.10	25.72	227	-	-	-	-	-	-
6.0	19.56	36.11	25.73	227	-	-	-	-	-	-
7.0	19.54	36.10	25.73	227	-	-	-	-	-	-
8.0	19.54	36.10	25.73	227	-	-	-	-	-	-
9.0	19.50	36.10	25.74	226	-	-	-	-	-	-
10.0	19.49	36.11	25.75	225	-	-	-	-	-	-
11.0	19.48	36.11	25.76	225	-	-	-	-	-	-
12.0	19.40	36.11	25.72	233	-	-	-	-	-	-
13.0	19.28	36.14	25.83	218	-	-	-	-	-	-
14.0	19.21	36.12	25.83	218	-	-	-	-	-	-
15.0	19.14	36.11	25.84	217	-	-	-	-	-	-
16.0	19.02	36.10	25.86	215	-	-	-	-	-	-
17.0	18.92	36.13	25.91	210	-	-	-	-	-	-
18.0	18.80	36.13	25.94	202	-	-	-	-	-	-
19.0	18.60	36.12	25.99	203	5.31	5.03	-1.07	0.09	00.0	01.0
20.0	18.56	36.12	26.00	203	-	-	-	-	-	-
21.0	18.49	36.12	26.01	200	-	-	-	-	-	-
22.0	18.46	36.12	26.02	200	-	-	-	-	-	-
23.0	18.47	36.11	26.01	201	-	-	-	-	-	-
24.0	18.42	36.11	26.02	200	-	-	-	-	-	-
25.0	18.42	36.11	26.02	200	-	-	-	-	-	-
26.0	18.40	36.11	26.03	199	-	-	-	-	-	-
27.0	18.40	36.11	26.03	199	-	-	-	-	-	-
28.0	18.40	36.11	26.03	199	-	-	-	-	-	-
29.0	18.40	36.11	26.03	199	5.44	5.28	-1.16	0.09	00.1	01.9

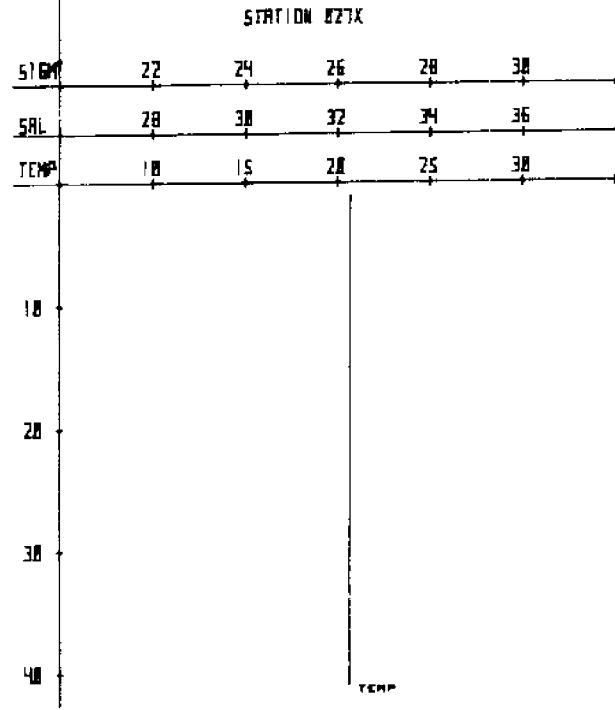
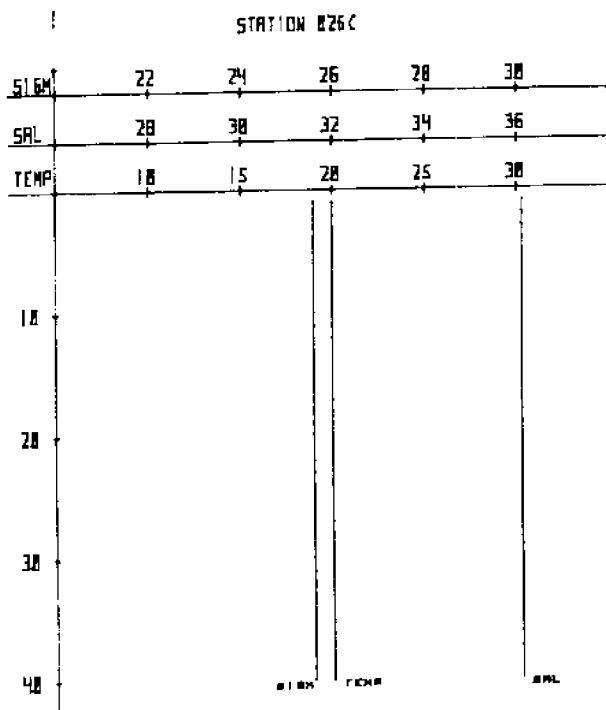
TULLIN CRUISE CI-12 STA 025X 107 XII/76 20.0 DEPT 516M - 28
LAT 31 43.0W LONG 60 21.0W DEPTH = 42M DEPT LAST STA = 10.5M

WEATHER DATA

WIND SPEED = 12 KTS
WIND DIRECTION = 120
AIR TEMP = 18.3C
WEATHER CODE =
BAROMETRIC PRESSURE = 1030.0 MB

SEA STATE =
WAVE DIRECTION =
CLOUD TYPE =
CLOUD AMOUNT =
VISIBILITY Code =

Z	I	S	D	SVA	OJ	O2	AOU	F04	N03	SI
1.0	19.90	-	-	-	-	-	-	-	-	-
42.0	19.90	-	-	-	-	-	-	-	-	-



ISELIN CRUISE CI-12 STA 026C 100 110 = 20.5 Gmt CONSEL STA 26
LAT 31 40.9N LONG 79 52.5W DEPTH = 417 DEP LAST STA = 6.1KM

WEATHER DATA

WIND SPEED = 12 KTS
WIND DIRECTION = 130
AIR TEMP = 18.7C
WEATHER CODE =
BAROMETRIC PRESSURE = 1030.0 MB

SEA STATE =
WAVE DIRECTION =
CLOUD TYPE =
CLOUD AMOUNT =
VISIBILITY CODE =

OBSERVATIONS

Z	T	S	D	SVA	01	02	A00	F04	A03	S.
1.0	19.99	36.10	25.61	238	5.13	5.13	-10	+	+	+
2.0	19.99	36.10	25.61	238			+	+	+	+
3.0	20.00	36.10	25.61	238			+	+	+	+
4.0	20.00	36.10	25.61	238			+	+	+	+
5.0	20.00	36.09	25.60	239			+	+	+	+
6.0	20.00	36.10	25.61	239			+	+	+	+
7.0	20.00	36.10	25.61	239			+	+	+	+
8.0	20.00	36.10	25.61	239			+	+	+	+
9.0	20.00	36.10	25.61	239			+	+	+	+
10.0	20.00	36.10	25.61	239			+	+	+	+
11.0	20.00	36.10	25.61	239			+	+	+	+
12.0	20.00	36.10	25.61	239			+	+	+	+
13.0	20.00	36.10	25.61	239			+	+	+	+
14.0	20.00	36.10	25.61	239			+	+	+	+
15.0	20.00	36.10	25.61	239			+	+	+	+
16.0	20.00	36.10	25.61	239			+	+	+	+
17.0	20.00	36.10	25.61	239			+	+	+	+
18.0	20.00	36.10	25.61	239			+	+	+	+
19.0	20.00	36.10	25.61	239			+	+	+	+
20.0	20.00	36.10	25.61	239			+	+	+	+
21.0	20.00	36.10	25.61	239			+	+	+	+
22.0	20.00	36.10	25.61	239			+	+	+	+
23.0	20.00	36.10	25.61	239			+	+	+	+
24.0	20.00	36.10	25.61	239			+	+	+	+
25.0	20.00	36.10	25.61	239			+	+	+	+
26.0	20.00	36.10	25.61	239			+	+	+	+
27.0	20.00	36.10	25.61	239			+	+	+	+
28.0	20.00	36.10	25.61	239			+	+	+	+
29.0	20.00	36.10	25.61	239			+	+	+	+
30.0	20.00	36.10	25.61	239			+	+	+	+
31.0	20.00	36.10	25.61	239			+	+	+	+
32.0	20.00	36.09	25.60	240			+	+	+	+
33.0	20.00	36.09	25.60	240			+	+	+	+
34.0	20.00	36.09	25.60	240			+	+	+	+
35.0	20.00	36.09	25.60	240			+	+	+	+
36.0	20.00	36.09	25.60	240			+	+	+	+
37.0	20.00	36.09	25.60	240			+	+	+	+
38.0	20.00	36.09	25.60	240	5.20	5.13	-0.07	0.06	0.01	-01.5
39.0	20.00	36.09	25.60	240			+	+	+	+
40.0	20.00	36.10	25.61	240			+	+	+	+

ISELIN CRUISE CI-12 STA 027X 100 110 = 20.5 Gmt CONSEL STA 26
LAT 31 39.0N LONG 79 52.5W DEPTH = 417 DEP LAST STA = 6.1KM

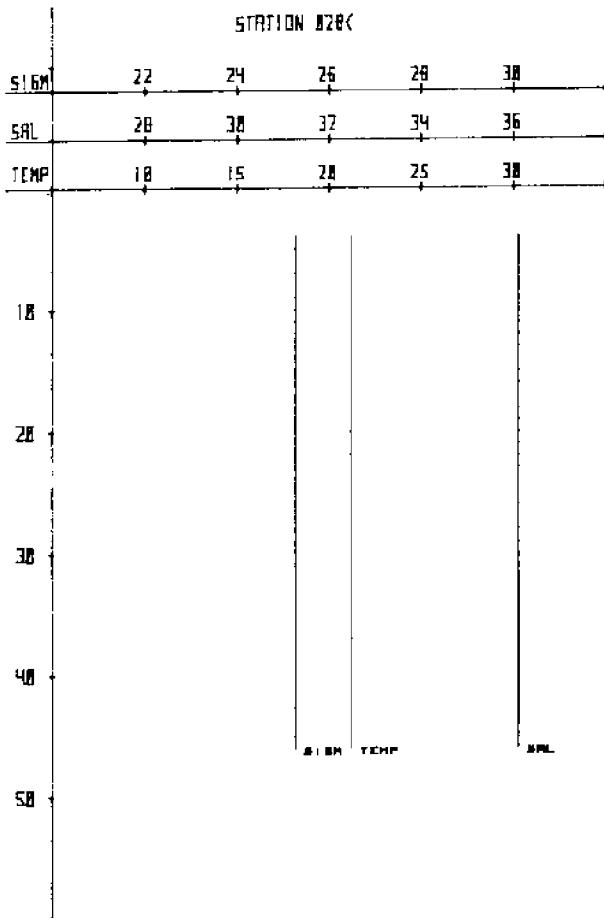
WEATHER DATA

WIND SPEED = 14 KTS
WIND DIRECTION = 130
AIR TEMP = 18.9C
WEATHER CODE =
BAROMETRIC PRESSURE = 1030.0 MB

SEA STATE =
WAVE DIRECTION =
CLOUD TYPE =
CLOUD AMOUNT =
VISIBILITY CODE =

OBSERVATIONS

Z	T	S	D	SVA	01	02	A00	F04	A03	S.
1.0	20.79						+	+	+	+
15.0	20.79						+	+	+	+
30.0	20.60						+	+	+	+
41.0	20.60						+	+	+	+



ISELM CRUISE C1-12 55W 038N 11-07-81 0000Z 0000Z 0000Z 0000Z

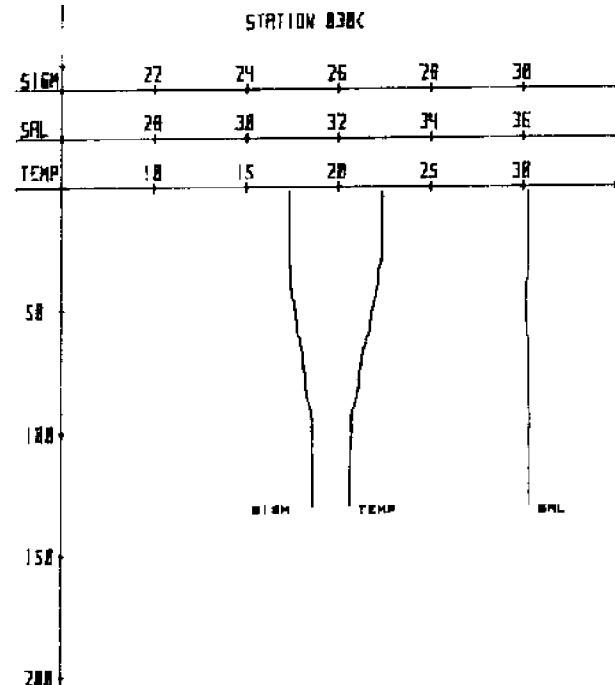
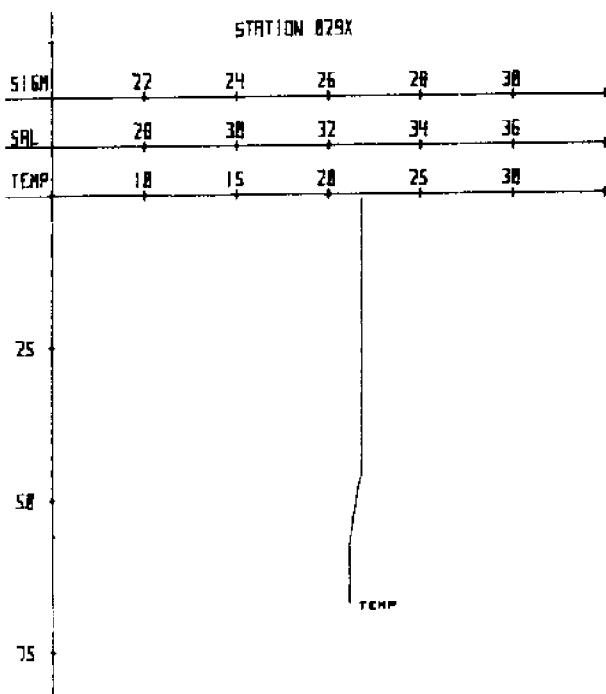
LAT 31 32.1N LONG 79 47.5W DEPTH 40M DIST LAST STA = 0.00E

WEATHER DATA

WIND SPEED = 14 KTS WIND DIRECTION = 130
 AIR TEMP = 29.6C WEATHER CODE =
 BAROMETRIC PRESSURE = 1029.0 mb

Sea State =
 Ave Dir. Wind =
 Cloud Cover =
 Cloud Amount =
 Wind Dir. Code

DEPTHE(M) TEMP											
1	5	10	15	20	25	30	35	40	45	50	55
4.0	21.20	36.11	25.24	26.8	4.8%	0.02	173	0.99	0.00	0.00	0.00
5.0	21.20	36.11	25.29	26.8	-	-	-	-	-	-	-
6.0	21.20	36.11	25.39	26.8	-	-	-	-	-	-	-
7.0	21.20	36.11	25.29	26.8	-	-	-	-	-	-	-
8.0	21.20	36.11	25.29	26.8	-	-	-	-	-	-	-
9.0	21.20	36.12	25.30	26.8	-	-	-	-	-	-	-
10.0	21.20	36.11	25.29	26.8	-	-	-	-	-	-	-
11.0	21.20	36.11	25.29	26.8	-	-	-	-	-	-	-
12.0	21.20	36.11	25.29	26.8	-	-	-	-	-	-	-
13.0	21.20	36.11	25.29	26.8	-	-	-	-	-	-	-
14.0	21.20	36.11	25.29	26.8	-	-	-	-	-	-	-
15.0	21.20	36.11	25.29	26.8	-	-	-	-	-	-	-
16.0	21.20	36.11	25.29	26.8	-	-	-	-	-	-	-
17.0	21.20	36.11	25.29	26.8	-	-	-	-	-	-	-
18.0	21.20	36.12	25.30	26.8	-	-	-	-	-	-	-
19.0	21.20	36.12	25.30	26.8	-	-	-	-	-	-	-
20.0	21.20	36.12	25.30	26.8	-	-	-	-	-	-	-
21.0	21.20	36.11	25.29	26.8	-	-	-	-	-	-	-
22.0	21.20	36.12	25.30	26.8	-	-	-	-	-	-	-
23.0	21.20	36.12	25.30	26.8	-	-	-	-	-	-	-
24.0	21.20	36.12	25.30	26.8	-	-	-	-	-	-	-
25.0	21.20	36.12	25.30	26.8	-	-	-	-	-	-	-
26.0	21.20	36.12	25.30	26.8	-	-	-	-	-	-	-
27.0	21.20	36.11	25.29	26.8	-	-	-	-	-	-	-
28.0	21.20	36.12	25.30	26.8	-	-	-	-	-	-	-
29.0	21.20	36.12	25.30	26.8	-	-	-	-	-	-	-
30.0	21.20	36.11	25.29	26.8	-	-	-	-	-	-	-
31.0	21.20	36.12	25.30	26.8	-	-	-	-	-	-	-
32.0	21.20	36.11	25.29	26.8	-	-	-	-	-	-	-
33.0	21.20	36.11	25.29	26.8	-	-	-	-	-	-	-
34.0	21.20	36.11	25.29	26.8	-	-	-	-	-	-	-
35.0	21.20	36.11	25.29	26.8	-	-	-	-	-	-	-
36.0	21.20	36.11	25.29	26.8	-	-	-	-	-	-	-
37.0	21.20	36.11	25.29	26.8	-	-	-	-	-	-	-
38.0	21.20	36.11	25.29	26.8	-	-	-	-	-	-	-
39.0	21.20	36.11	25.29	26.8	-	-	-	-	-	-	-
40.0	21.20	36.11	25.29	26.8	-	-	-	-	-	-	-
41.0	21.20	36.11	25.29	26.8	-	-	-	-	-	-	-
42.0	21.20	36.11	25.29	26.8	-	-	-	-	-	-	-
43.0	21.20	36.11	25.29	26.8	-	-	-	-	-	-	-
44.0	21.20	36.11	25.29	26.8	5.04	5.02	1.01	0.00	0.00	0.00	0.00
45.0	21.20	36.11	25.29	26.8	-	-	-	-	-	-	-
46.0	21.20	36.11	25.29	26.8	-	-	-	-	-	-	-



ISELIN CRUISE CL-12 STA 829X 1900Z 11-6 23.5 DAY CONSEC STA 29

LAT 31 35.0N LONG 79 45.0W DEPTH = 67M DIST LAST STA = 10.0NM

WEATHER DATA

WIND SPEED = 15 KTS
WIND DIRECTION = 120
AIR TEMP = 20.0C
WEATHER CODE =
BAROMETRIC PRESSURE = 1029.0 MB

SEA STATE =
WAVE DIRECTION =
CLOUD TYPE =
CLOUD AMOUNT =
VISIBILITY CODE =

OBSERVATIONS

Z	T	S	D	SVA	G2	32	400	704	1003	SI
1.0	21.80	.	.	.	.	.	.	.	.	.
4.0	21.80	.	.	.	.	.	.	.	.	.
49.0	21.50	.	.	.	.	.	.	.	.	.
58.0	21.10	.	.	.	.	.	.	.	.	.
67.0	21.10	.	.	.	.	.	.	.	.	.

ISELIN CRUISE CL-12 STA 830C 1900Z 11-6 23.5 DAY CONSEC STA 30

LAT 31 35.0N LONG 79 45.0W DEPTH = 67M DIST LAST STA = 10.0NM

WEATHER DATA

WIND SPEED = 14 KTS
WIND DIRECTION = 120
AIR TEMP = 20.8C
WEATHER CODE =
BAROMETRIC PRESSURE = 1028.8 MB

SEA STATE =
WAVE DIRECTION =
CLOUD TYPE =
CLOUD AMOUNT =
VISIBILITY CODE =

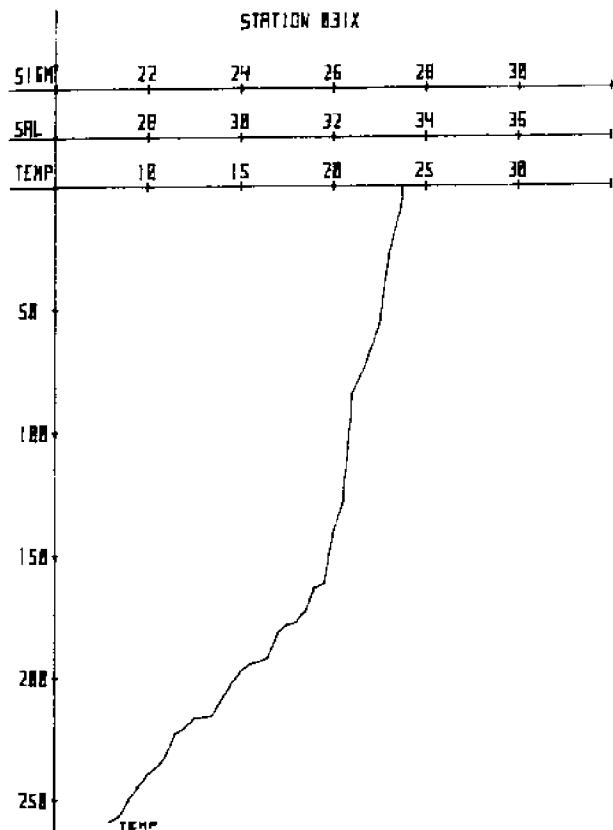
OBSERVATIONS

Z	T	S	D	SVA	G2	32	400	704	1003	SI
2.0	22.36	36.10	24.96	300	4.0d	4.7	.04	0.03	0.00	0.00
3.0	22.36	36.10	24.96	300						
4.0	22.36	36.10	24.96	300						
5.0	22.36	36.10	24.96	300						
6.0	22.36	36.10	24.96	300						
7.0	22.37	36.10	24.96	301						
8.0	22.37	36.10	24.96	301						
9.0	22.37	36.10	24.96	301						
10.0	22.37	36.10	24.96	301						
11.0	22.37	36.10	24.96	301						
12.0	22.37	36.10	24.96	301						
13.0	22.37	36.10	24.96	301						
14.0	22.37	36.10	24.96	301						
15.0	22.37	36.10	24.96	301						
16.0	22.37	36.10	24.96	301						
17.0	22.37	36.10	24.96	301						
18.0	22.37	36.10	24.96	301						
19.0	22.37	36.10	24.96	301						
20.0	22.37	36.10	24.96	301						



STATION 88IX

31.0 21.37 36.10 24.96 301
 31.0 21.37 36.10 24.96 301
 31.0 21.36 36.11 24.97 300
 34.0 21.36 36.10 24.95 301
 21.0 22.36 36.10 24.95 30
 36.0 22.36 36.10 24.95 301
 22.0 22.36 36.10 24.95 301
 28.0 22.36 36.10 24.95 301
 29.0 22.32 36.11 24.98 300
 30.0 22.29 36.11 24.99 299
 31.0 22.27 36.11 24.99 298
 32.0 22.20 36.10 25.00 297
 33.0 22.16 36.09 25.00 298
 34.0 22.14 36.10 25.00 295
 35.0 22.14 36.09 25.01 295
 36.0 22.14 36.09 25.01 295
 37.0 22.14 36.09 25.01 295
 38.0 22.14 36.09 25.01 295
 39.0 22.14 36.09 25.01 295
 40.0 22.13 36.08 25.01 295
 41.0 22.10 36.09 25.01 295
 42.0 22.08 36.09 25.04 294
 43.0 22.01 36.09 25.05 293
 44.0 ... 36.09 25.05 293
 45.0 22.00 36.10 25.05 292
 46.0 21.92 36.10 25.05 291
 47.0 21.89 36.10 25.05 290
 48.0 21.88 36.10 25.05 289
 50.0 21.83 36.10 25.01 287 4.86 4.49 0.08 0.01 00. 00.0
 51.0 21.76 36.11 25.01 286
 52.0 21.72 36.11 25.01 285
 53.0 21.72 36.10 25.01 286
 54.0 21.70 36.11 25.01 287
 55.0 21.73 36.12 25.05 284
 56.0 21.73 36.11 25.04 283
 57.0 21.73 36.11 25.04 282
 58.0 21.70 36.12 25.05 283
 59.0 21.68 36.12 25.07 283
 60.0 21.66 36.12 25.07 282
 61.0 21.63 36.12 25.06 281
 62.0 21.60 36.14 25.05 280
 63.0 21.49 36.14 25.04 279
 64.0 21.46 36.14 25.04 278
 65.0 21.46 36.14 25.04 278
 66.0 21.46 36.14 25.04 278
 67.0 21.35 36.15 25.05 278
 68.0 21.33 36.14 25.05 278
 69.0 21.35 36.14 25.05 278
 70.0 21.31 36.14 25.05 278
 71.0 21.26 36.15 25.05 278
 72.0 21.23 36.15 25.05 278
 73.0 21.20 36.14 25.05 278
 74.0 21.16 36.14 25.05 278
 75.0 21.12 36.15 25.05 278
 76.0 21.13 36.15 25.05 278
 77.0 21.12 36.14 25.04 278
 78.0 21.12 36.15 25.04 278
 79.0 21.11 36.15 25.04 278
 80.0 21.10 36.15 25.05 278
 81.0 21.10 36.15 25.05 278
 82.0 21.07 36.15 25.05 278
 83.0 21.04 36.15 25.05 278
 84.0 21.01 36.15 25.05 278
 85.0 21.00 36.15 25.05 278
 86.0 20.98 36.15 25.05 278
 87.0 20.91 36.15 25.05 278
 88.0 20.89 36.17 25.05 278
 89.0 20.85 36.18 25.05 278
 90.0 20.87 36.18 25.05 278
 91.0 20.71 36.18 25.05 278
 92.0 20.74 36.17 25.04 278
 93.0 20.74 36.16 25.04 278
 94.0 20.74 36.16 25.04 278
 95.0 20.74 36.16 25.04 278
 96.0 20.74 36.16 25.04 278
 97.0 20.71 36.15 25.04 278
 98.0 20.71 36.15 25.04 278 4.76 0.06 0.30 0.14 01.0 01.5
 99.0 20.71 36.14 25.04 278
 100.0 20.71 36.14 25.04 278
 101.0 20.70 36.15 25.04 278
 102.0 20.66 36.15 25.04 278
 103.0 20.63 36.15 25.04 278
 104.0 20.62 36.15 25.04 278
 105.0 20.62 36.15 25.04 278
 106.0 20.61 36.15 25.04 278
 107.0 20.61 36.15 25.04 278



SEXTHER CRUISE OF THE STANLEY FISH ALIVE AND UNCOOKED, 1958

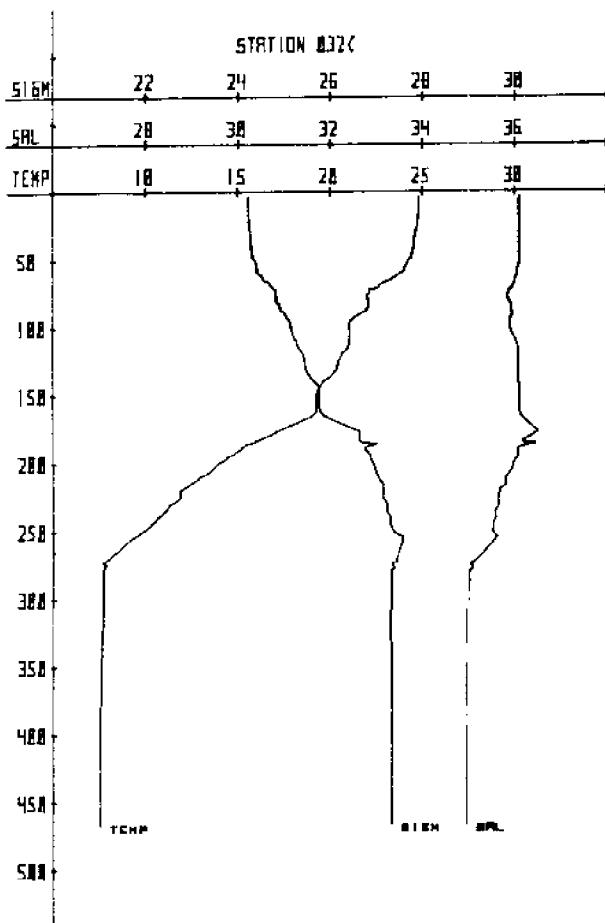
LAT 31 DEG LONG 79 JUN 28 1958 0000Z 0000Z 0000Z 0000Z

WEATHER DATA

WIND SPEED	18 KTS	SEA STATE
WIND DIRECTION	130	WAVE DIRECTION
AIR TEMP	20.60	CLOUD TYPE
WEATHER CODE	-	WIND ANGLE
BAROMETRIC PRESSURE = 1026.6 MB		VISIBILITY (M)

OBSERVATIONS

Z	T	S	D	SUR	02	06	09	104	110	111
1.0	23.70	.	.	.	.	.	.	.	.	.
12.0	23.50	.	.	.	.	.	.	.	.	.
28.0	23.06	.	.	.	.	.	.	.	.	.
55.0	22.50	.	.	.	.	.	.	.	.	.
67.0	22.00	.	.	.	.	.	.	.	.	.
77.0	21.50	.	.	.	.	.	.	.	.	.
85.0	21.00	.	.	.	.	.	.	.	.	.
128.0	20.50	.	.	.	.	.	.	.	.	.
141.0	20.00	.	.	.	.	.	.	.	.	.
162.0	19.50	.	.	.	.	.	.	.	.	.
164.0	19.00	.	.	.	.	.	.	.	.	.
173.0	19.50	.	.	.	.	.	.	.	.	.
178.0	18.00	.	.	.	.	.	.	.	.	.
179.0	17.50	.	.	.	.	.	.	.	.	.
182.0	17.00	.	.	.	.	.	.	.	.	.
192.0	16.50	.	.	.	.	.	.	.	.	.
194.0	16.00	.	.	.	.	.	.	.	.	.
195.0	15.50	.	.	.	.	.	.	.	.	.
198.0	15.00	.	.	.	.	.	.	.	.	.
203.0	14.50	.	.	.	.	.	.	.	.	.
209.0	14.00	.	.	.	.	.	.	.	.	.
216.0	13.50	.	.	.	.	.	.	.	.	.
216.5	13.00	.	.	.	.	.	.	.	.	.
217.0	12.50	.	.	.	.	.	.	.	.	.
211.0	12.00	.	.	.	.	.	.	.	.	.
223.0	11.50	.	.	.	.	.	.	.	.	.
232.0	11.00	.	.	.	.	.	.	.	.	.
237.0	10.50	.	.	.	.	.	.	.	.	.
240.0	10.00	.	.	.	.	.	.	.	.	.
245.0	9.50	.	.	.	.	.	.	.	.	.
250.0	9.00	.	.	.	.	.	.	.	.	.
257.0	8.50	.	.	.	.	.	.	.	.	.
259.0	8.00	.	.	.	.	.	.	.	.	.



ISBELL CRUISE C-12 STA 0320 11 NOV 1968 0000Z 1000 1000 1000 1000
LAT 31 29.8N LONG 74 24.6W DEPTH 0000M 0000M 0000M 0000M

WEATHER DATA

WIND SPEED = 10 KTS
WIND DIRECTION = 130
ATM TEMP = 21.1C
WEATHER CODE =
BAROMETRIC PRESSURE = 1007.5 MB

SEA STATE =

WAVE DIRECTION =

WAVE HTL =

WAVE PERIOD =

WAVE DIRECTION =

UNDERWATER

I	T	S	D	SWR	WT	CL	NOD	FDR	NOD	SI
4.0	24.79	36.11	24.25	168	4.76	4.01	-0.05	0.00	00.1	01.7
5.0	24.79	36.11	24.25	168	.	.	.	.	.	.
6.0	24.79	36.08	24.23	370	.	.	.	.	.	.
7.0	24.79	36.07	24.22	371	.	.	.	.	.	.
8.0	24.79	36.10	24.24	368	.	.	.	.	.	.
9.0	24.78	36.10	24.25	368	.	.	.	.	.	.
10.0	24.78	36.10	24.24	369	.	.	.	.	.	.
11.0	24.79	36.10	24.24	369	.	.	.	.	.	.
12.0	24.79	36.11	24.25	168	.	.	.	.	.	.
13.0	24.79	36.10	24.24	369	.	.	.	.	.	.
14.0	24.78	36.11	24.26	168	.	.	.	.	.	.
15.0	24.77	36.11	24.26	167	.	.	.	.	.	.
16.0	24.76	36.11	24.26	167	.	.	.	.	.	.
17.0	24.74	36.11	24.27	367	.	.	.	.	.	.
18.0	24.76	36.10	24.25	368	.	.	.	.	.	.
19.0	24.76	36.10	24.25	368	.	.	.	.	.	.
20.0	24.73	36.11	24.27	366	.	.	.	.	.	.
21.0	24.73	36.11	24.27	367	.	.	.	.	.	.
22.0	24.71	36.11	24.28	368	.	.	.	.	.	.

23.0	24.70	36.11	24.28	368	.	.	.	.	.	.
24.0	24.70	36.11	24.28	366	.	.	.	.	.	.
25.0	24.70	36.11	24.28	366	.	.	.	.	.	.
26.0	24.70	36.10	24.27	367	.	.	.	.	.	.
28.0	24.67	36.11	24.29	365	.	.	.	.	.	.
29.0	24.62	36.11	24.30	364	.	.	.	.	.	.
30.0	24.62	36.10	24.30	364	.	.	.	.	.	.
31.0	24.60	36.10	24.30	364	.	.	.	.	.	.
32.0	24.60	36.09	24.29	365	.	.	.	.	.	.
33.0	24.59	36.10	24.31	364	.	.	.	.	.	.
34.0	24.59	36.09	24.30	364	.	.	.	.	.	.
35.0	24.56	36.10	24.31	363	.	.	.	.	.	.
36.0	24.54	36.09	24.31	363	.	.	.	.	.	.
37.0	24.53	36.09	24.32	363	.	.	.	.	.	.
38.0	24.51	36.10	24.33	362	.	.	.	.	.	.
39.0	24.51	36.09	24.32	362	.	.	.	.	.	.
40.0	24.50	36.10	24.33	361	.	.	.	.	.	.
41.0	24.50	36.10	24.33	361	.	.	.	.	.	.
42.0	24.50	36.10	24.33	361	.	.	.	.	.	.
43.0	24.49	36.10	24.34	361	.	.	.	.	.	.
44.0	24.48	36.10	24.34	361	.	.	.	.	.	.
45.0	24.48	36.10	24.34	361	.	.	.	.	.	.
46.0	24.46	36.11	24.35	364	.	.	.	.	.	.
47.0	24.41	36.10	24.36	369	.	.	.	.	.	.
48.0	24.40	36.10	24.36	359	.	.	.	.	.	.
49.0	24.38	36.11	24.36	358	4.81	4.74	-0.02	0.01	0.02	0.03
50.0	24.38	36.11	24.38	358	.	.	.	.	.	.
51.0	24.38	36.12	24.39	358	.	.	.	.	.	.
52.0	24.22	36.09	24.41	355	.	.	.	.	.	.
53.0	24.18	36.09	24.42	353	.	.	.	.	.	.
54.0	24.12	36.07	24.42	353	.	.	.	.	.	.
55.0	24.08	36.06	24.43	353	.	.	.	.	.	.
56.0	24.02	36.02	24.45	359	.	.	.	.	.	.
57.0	24.00	36.05	24.44	351	.	.	.	.	.	.
58.0	24.00	36.05	24.44	351	.	.	.	.	.	.
59.0	23.98	36.05	24.46	350	.	.	.	.	.	.
60.0	23.90	36.05	24.47	349	.	.	.	.	.	.
61.0	23.80	36.04	24.50	347	.	.	.	.	.	.
62.0	23.63	36.04	24.55	342	.	.	.	.	.	.
63.0	23.58	36.04	24.56	340	.	.	.	.	.	.
64.0	23.41	36.01	24.59	338	.	.	.	.	.	.
65.0	23.38	36.00	24.59	336	.	.	.	.	.	.
66.0	23.30	35.99	24.61	334	.	.	.	.	.	.
67.0	23.01	36.01	24.70	327	.	.	.	.	.	.
68.0	22.80	35.92	24.74	314	.	.	.	.	.	.
69.0	22.71	35.96	24.75	321	.	.	.	.	.	.
70.0	22.64	35.95	24.77	321	.	.	.	.	.	.
71.0	22.59	35.95	24.78	320	.	.	.	.	.	.
72.0	22.47	35.93	24.80	318	.	.	.	.	.	.
73.0	22.36	35.90	24.81	317	.	.	.	.	.	.
74.0	22.12	35.88	24.86	312	.	.	.	.	.	.
75.0	22.12	35.86	24.85	314	.	.	.	.	.	.
76.0	22.09	35.85	24.85	314	.	.	.	.	.	.
77.0	21.90	35.83	24.87	311	.	.	.	.	.	.
78.0	21.70	35.84	24.88	312	.	.	.	.	.	.
79.0	21.63	35.85	24.85	312	.	.	.	.	.	.
80.0	22.02	35.88	24.88	311	.	.	.	.	.	.
81.0	22.09	35.90	24.88	310	.	.	.	.	.	.
82.0	22.06	35.92	24.89	309	.	.	.	.	.	.
83.0	22.04	35.94	24.93	308	.	.	.	.	.	.
85.0	22.02	35.95	24.94	305	.	.	.	.	.	.
86.0	22.00	35.95	24.95	304	.	.	.	.	.	.
87.0	22.00	35.95	24.95	304	.	.	.	.	.	.
88.0	21.94	35.95	24.96	303	.	.	.	.	.	.
89.0	21.84	35.97	25.01	297	.	.	.	.	.	.
90.0	21.67	35.95	25.04	296	.	.	.	.	.	.
91.0	21.56	35.95	25.07	293	.	.	.	.	.	.
92.0	21.49	35.95	25.09	291	.	.	.	.	.	.
93.0	21.39	35.92	25.10	291	.	.	.	.	.	.
94.0	21.39	35.90	25.11	289	.	.	.	.	.	.



95.0	21.16	35.90	25.14	286	.	.	.	.	.	.	.
96.0	21.13	35.88	25.14	287	.	.	.	.	.	.	.
97.0	21.00	35.89	25.17	288	.	.	.	.	.	.	.
98.0	21.00	35.89	25.18	289	.	.	.	.	.	.	.
99.0	21.00	35.88	25.18	290	4.77	5.04	1.27	0.10	01.4	01.5	.
100.0	21.00	35.91	25.19	292	.	.	.	.	.	.	.
101.0	21.10	35.92	25.18	293	.	.	.	.	.	.	.
102.0	21.09	35.92	25.12	294	.	.	.	.	.	.	.
103.0	21.02	34.04	25.10	295	.	.	.	.	.	.	.
104.0	20.92	34.10	25.16	296	.	.	.	.	.	.	.
105.0	20.81	34.11	25.15	298	.	.	.	.	.	.	.
106.0	20.41	34.09	25.14	299	.	.	.	.	.	.	.
107.0	20.30	34.10	25.13	302	.	.	.	.	.	.	.
108.0	20.08	34.10	25.19	305	.	.	.	.	.	.	.
109.0	19.62	34.10	25.11	304	.	.	.	.	.	.	.
110.0	19.41	34.13	25.19	307	4.79	5.18	1.42	0.10	01.6	01.5	.
111.0	19.23	34.10	25.81	309	.	.	.	.	.	.	.
112.0	19.24	34.10	25.81	305	.	.	.	.	.	.	.
113.0	19.20	34.11	25.81	303	.	.	.	.	.	.	.
114.0	18.97	34.17	25.93	314	.	.	.	.	.	.	.
115.0	17.11	34.52	26.26	344	.	.	.	.	.	.	.
116.0	15.79	34.12	26.03	345	.	.	.	.	.	.	.
117.0	15.69	34.20	26.70	340	.	.	.	.	.	.	.
118.0	15.44	34.46	27.01	331	.	.	.	.	.	.	.
119.0	15.13	34.07	26.77	334	.	.	.	.	.	.	.
120.0	14.50	34.05	26.93	322	3.19	5.21	1.52	1.01	17.0	09.3	.
121.0	14.98	34.97	26.15	316	.	.	.	.	.	.	.
122.0	13.48	35.91	24.01	311	.	.	.	.	.	.	.
123.0	12.68	35.81	24.05	302	.	.	.	.	.	.	.
124.0	12.41	35.81	24.14	97	.	.	.	.	.	.	.
125.0	11.68	35.67	27.14	98	.	.	.	.	.	.	.
126.0	11.81	35.43	27.19	109	.	.	.	.	.	.	.
127.0	11.31	35.66	27.04	89	.	.	.	.	.	.	.
128.0	10.98	35.59	27.10	68	.	.	.	.	.	.	.
129.0	10.61	35.46	27.31	61	.	.	.	.	.	.	.
130.0	10.31	35.52	27.32	62	.	.	.	.	.	.	.
131.0	9.78	35.51	27.40	74	.	.	.	.	.	.	.
132.0	9.10	35.63	27.02	57	.	.	.	.	.	.	.
133.0	7.72	35.13	27.43	79	.	.	.	.	.	.	.
134.0	7.84	35.05	27.35	78	.	.	.	.	.	.	.
135.0	7.80	35.07	27.37	78	.	.	.	.	.	.	.
136.0	7.71	35.09	27.40	73	.	.	.	.	.	.	.
137.0	7.24	35.01	27.33	79	.	.	.	.	.	.	.
138.0	7.47	35.02	27.35	79	.	.	.	.	.	.	.
139.0	7.70	34.99	27.33	80	.	.	.	.	.	.	.
140.0	7.49	34.99	27.33	84	.	.	.	.	.	.	.
141.0	7.67	34.99	27.13	68	.	.	.	.	.	.	.
142.0	7.66	34.99	27.13	68	.	.	.	.	.	.	.
143.0	7.67	34.98	27.12	61	3.19	6.05	3.45	1.46	21.5	13.2	.
144.0	7.66	34.98	27.12	61	.	.	.	.	.	.	.
145.0	7.66	34.98	27.12	61	.	.	.	.	.	.	.
146.0	7.63	34.98	27.13	61	.	.	.	.	.	.	.
147.0	7.62	34.98	27.13	61	.	.	.	.	.	.	.
148.0	7.60	35.00	27.05	79	.	.	.	.	.	.	.
149.0	7.40	34.98	27.13	61	.	.	.	.	.	.	.
150.0	7.57	34.99	27.14	85	.	.	.	.	.	.	.
151.0	7.57	34.98	27.12	61	.	.	.	.	.	.	.
152.0	7.57	34.97	27.13	61	.	.	.	.	.	.	.
153.0	7.56	34.98	27.13	61	.	.	.	.	.	.	.
154.0	7.56	34.97	27.13	61	.	.	.	.	.	.	.
155.0	7.56	34.97	27.33	61	.	.	.	.	.	.	.
156.0	7.57	34.97	27.33	61	.	.	.	.	.	.	.
157.0	7.57	34.97	27.33	61	.	.	.	.	.	.	.
158.0	7.57	34.97	27.33	61	.	.	.	.	.	.	.
159.0	7.56	34.98	27.33	79	.	.	.	.	.	.	.
160.0	7.56	34.98	27.34	61	.	.	.	.	.	.	.
161.0	7.55	34.98	27.34	61	.	.	.	.	.	.	.
162.0	7.55	34.98	27.34	61	.	.	.	.	.	.	.
163.0	7.55	34.98	27.34	61	.	.	.	.	.	.	.
164.0	7.55	34.98	27.34	61	.	.	.	.	.	.	.
165.0	7.55	34.98	27.34	61	.	.	.	.	.	.	.
166.0	7.55	34.98	27.34	61	.	.	.	.	.	.	.
167.0	7.55	34.98	27.34	61	.	.	.	.	.	.	.
168.0	7.55	34.98	27.34	61	.	.	.	.	.	.	.
169.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
170.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
171.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
172.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
173.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
174.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
175.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
176.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
177.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
178.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
179.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
180.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
181.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
182.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
183.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
184.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
185.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
186.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
187.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
188.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
189.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
190.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
191.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
192.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
193.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
194.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
195.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
196.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
197.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
198.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
199.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
200.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
201.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
202.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
203.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
204.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
205.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
206.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
207.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
208.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
209.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
210.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
211.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
212.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
213.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
214.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
215.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
216.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
217.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
218.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
219.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
220.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
221.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
222.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
223.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
224.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
225.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
226.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
227.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
228.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
229.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
230.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
231.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
232.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
233.0	7.55	34.97	27.34	61	.	.	.	.	.	.	.
234.0	7.55	34.97	27.34	61	.	.	.	.	.</

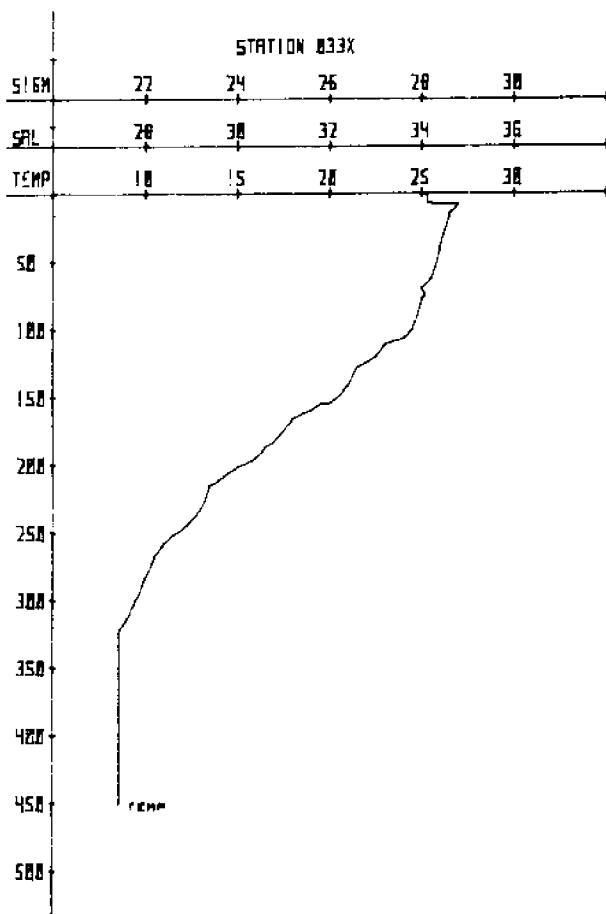
ISELIN CRUISE 01-12 STA 833X 01 0000Z 8.0 GMT CTDCTL STA 33

LAT 31 27.8N LONG 19 19.2W DEPTH -460M DIST LAST STA - 9.5NM

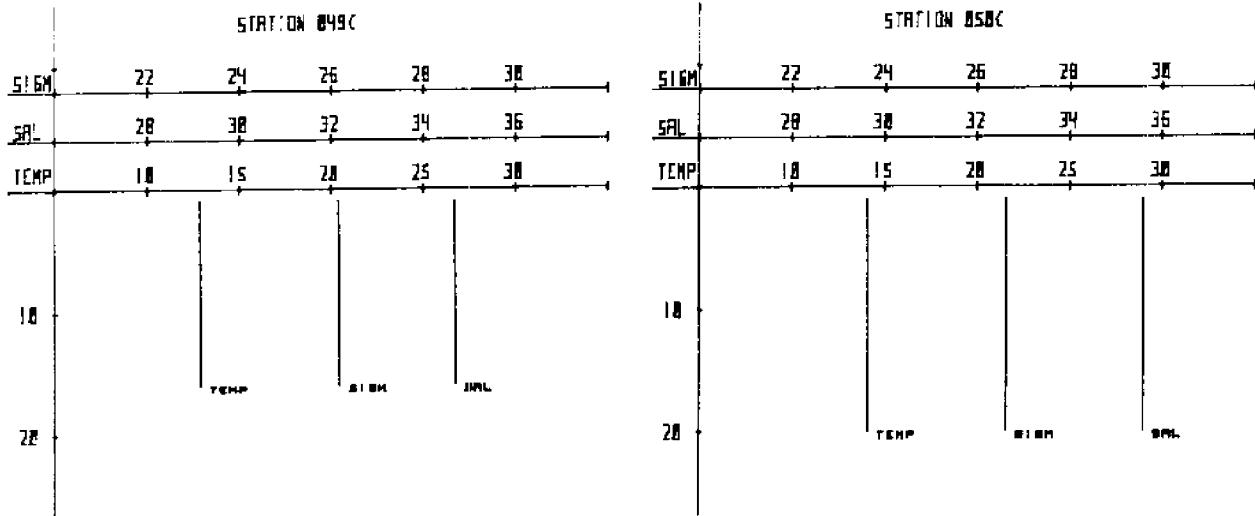
WEATHER DATA

WIND SPEED = 18 KTS
WIND DIRECTION = 140
AIR TEMP = 15.0
WEATHER CODE =
BAROMETRIC PRESSURE = 1026.0 mb

SEA STATE =
WAVE DIRECTION =
CLOUD TYPE =
CLOUD AMOUNT =
VISIBILITY CODE =



Z	T	S	D	SVA	02	03	AUD	FWD	MAX	CL
1.0	25.30	.	.	.	.	.	.	.	.	.
2.0	25.30	.	.	.	.	.	.	.	.	.
7.5	25.50	.	.	.	.	.	.	.	.	.
8.0	27.00	.	.	.	.	.	.	.	.	.
15.0	26.50	.	.	.	.	.	.	.	.	.
40.0	26.00	.	.	.	.	.	.	.	.	.
65.0	25.50	.	.	.	.	.	.	.	.	.
70.0	25.00	.	.	.	.	.	.	.	.	.
75.0	25.20	.	.	.	.	.	.	.	.	.
78.0	25.00	.	.	.	.	.	.	.	.	.
100.0	24.50	.	.	.	.	.	.	.	.	.
107.0	24.00	.	.	.	.	.	.	.	.	.
109.0	21.50	.	.	.	.	.	.	.	.	.
111.5	23.00	.	.	.	.	.	.	.	.	.
120.0	22.50	.	.	.	.	.	.	.	.	.
125.0	22.00	.	.	.	.	.	.	.	.	.
128.0	21.50	.	.	.	.	.	.	.	.	.
141.0	21.00	.	.	.	.	.	.	.	.	.
156.0	20.50	.	.	.	.	.	.	.	.	.
155.0	20.00	.	.	.	.	.	.	.	.	.
155.5	19.50	.	.	.	.	.	.	.	.	.
160.0	19.00	.	.	.	.	.	.	.	.	.
163.0	18.50	.	.	.	.	.	.	.	.	.
167.0	16.40	.	.	.	.	.	.	.	.	.
175.0	17.50	.	.	.	.	.	.	.	.	.
163.0	17.00	.	.	.	.	.	.	.	.	.
188.0	16.50	.	.	.	.	.	.	.	.	.
195.0	14.00	.	.	.	.	.	.	.	.	.
199.0	15.50	.	.	.	.	.	.	.	.	.
202.0	15.00	.	.	.	.	.	.	.	.	.
206.0	14.50	.	.	.	.	.	.	.	.	.
212.0	14.00	.	.	.	.	.	.	.	.	.
216.0	13.50	.	.	.	.	.	.	.	.	.
233.0	13.00	.	.	.	.	.	.	.	.	.
241.0	12.50	.	.	.	.	.	.	.	.	.
248.0	12.00	.	.	.	.	.	.	.	.	.
252.0	11.50	.	.	.	.	.	.	.	.	.
259.0	11.00	.	.	.	.	.	.	.	.	.
268.0	10.50	.	.	.	.	.	.	.	.	.
283.0	10.00	.	.	.	.	.	.	.	.	.
300.0	9.50	.	.	.	.	.	.	.	.	.
314.0	9.00	.	.	.	.	.	.	.	.	.
322.0	8.60	.	.	.	.	.	.	.	.	.
450.0	6.60	.	.	.	.	.	.	.	.	.



ISELIN CRUISE CJ-12 STA 049C 11/ X11,76 14.0 BMG LONGE 2 m - 49
LAT 31 11.5N LONG 81 2.5W DEPTH = 18M DIST EAST STA = 100.0KM

WEATHER DATA

WIND SPEED = 07 KTS SEA STATE =
WIND DIRECTION = 360 WAVE DIRECTION =
AIR TEMP = 15.00 CLOUD TYPE =
WEATHER CODE = CLOUD AMOUNT =
BAROMETRIC PRESSURE = 1025.6 mb VISIBILITY CODE =

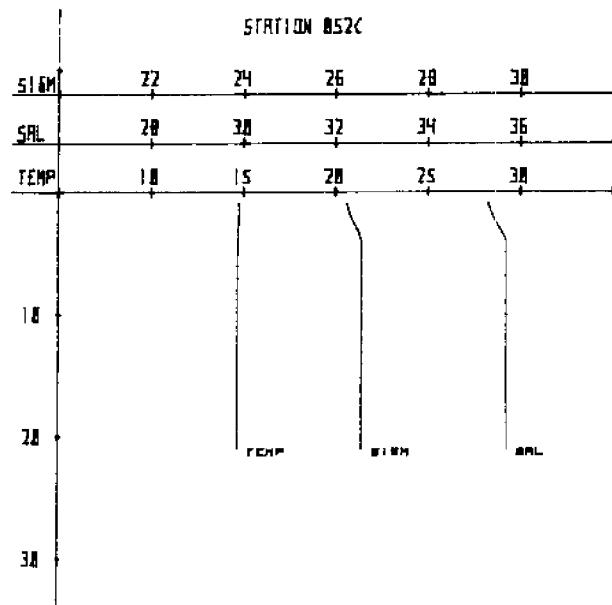
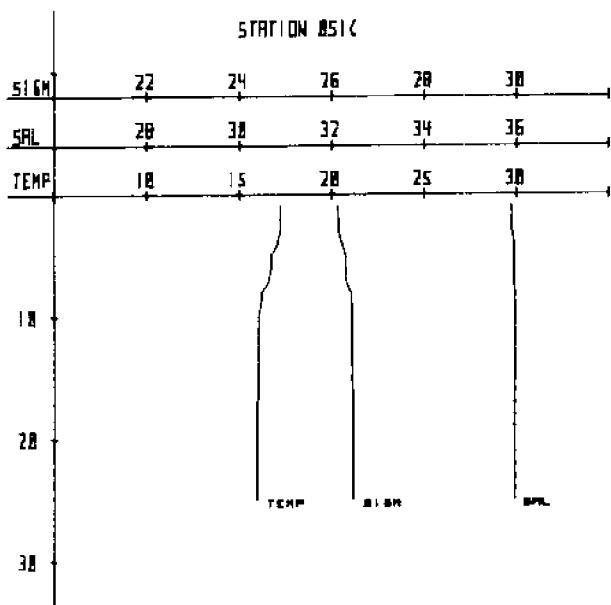
OBSERVATIONS										
Z	T	S	D	SVA	02	04	ADU	F04	N03	SI
1.0	12.87	34.67	26.17	185	6.13	5.95	-1.0	0.13	00.0	00.4
2.0	12.87	34.67	26.17	185	.	.	.	.	.	.
3.0	12.87	34.67	26.17	185	.	.	.	.	.	.
4.0	12.86	34.68	26.18	184	.	.	.	.	.	.
5.0	12.86	34.68	26.18	184	.	.	.	.	.	.
6.0	12.87	34.67	26.17	185	.	.	.	.	.	.
7.0	12.86	34.68	26.18	184	.	.	.	.	.	.
8.0	12.86	34.68	26.18	184	.	.	.	.	.	.
9.0	12.86	34.66	26.18	184	.	.	.	.	.	.
10.0	12.86	34.68	26.18	184	.	.	.	.	.	.
11.0	12.86	34.68	26.18	184	.	.	.	.	.	.
12.0	12.87	34.67	26.17	185	.	.	.	.	.	.
13.0	12.87	34.67	26.17	185	6.12	5.95	-1.7	0.10	00.0	00.3
14.0	12.87	34.68	26.18	184	.	.	.	.	.	.
15.0	12.87	34.68	26.18	184	.	.	.	.	.	.
16.0	12.87	34.68	26.18	184	.	.	.	.	.	.

ISELIN CRUISE CJ-12 STA 050C 11/ X11,76 14.0 BMG LONGE 2 m - 49
LAT 31 11.5N LONG 81 2.5W DEPTH = 18M DIST EAST STA = 20.0KM

WEATHER DATA

WIND SPEED = 05 KTS SEA STATE =
WIND DIRECTION = 020 WAVE DIRECTION =
AIR TEMP = 15.00 CLOUD TYPE =
WEATHER CODE = CLOUD AMOUNT =
BAROMETRIC PRESSURE = 1025.9 mb VISIBILITY CODE =

OBSERVATIONS										
Z	T	S	D	SVA	02	04	ADU	F04	N03	SI
1.0	14.06	35.59	26.64	140	.	.	.	.	.	.
2.0	14.06	35.59	26.64	140	5.74	5.71	-0.7	0.03	01.0	00.4
3.0	14.06	35.59	26.64	140	.	.	.	.	.	.
4.0	14.06	35.58	26.63	141	.	.	.	.	.	.
5.0	14.06	35.58	26.63	141	.	.	.	.	.	.
6.0	14.07	35.58	26.63	141	.	.	.	.	.	.
7.0	14.06	35.60	26.65	140	.	.	.	.	.	.
8.0	14.06	35.60	26.65	140	.	.	.	.	.	.
9.0	14.06	35.60	26.65	140	.	.	.	.	.	.
10.0	14.06	35.60	26.65	140	.	.	.	.	.	.
11.0	14.06	35.60	26.65	140	.	.	.	.	.	.
12.0	14.06	35.60	26.65	140	.	.	.	.	.	.
13.0	14.07	35.60	26.65	140	.	.	.	.	.	.
14.0	14.07	35.60	26.65	140	.	.	.	.	.	.
15.0	14.07	35.60	26.65	140	.	.	.	.	.	.
16.0	14.07	35.60	26.65	140	.	.	.	.	.	.
17.0	14.07	35.60	26.65	140	.	.	.	.	.	.
18.0	14.07	35.61	26.65	140	.	.	.	.	.	.
19.0	14.07	35.60	26.65	140	5.90	5.77	-0.5	0.03	01.0	00.5
20.0	14.07	35.61	26.65	140	.	.	.	.	.	.



ISELIN CRUISE CE-12 STA 851C 117 XII 19 1100 GM LOCAL STA 51
LAT 31 40.0N LONG 80 40.6W DEPTH 0.0M DIST EAST STA 1 10.3NM

WEATHER DATA

WIND SPEED = 00 KTS SEA STATE =
WIND DIRECTION = 260 WAVE DIRECTION =
AIR TEMP = 18.7C CLOUD TYPE =
WEATHER CODE = CLOUD AMOUNT =
BAROMETRIC PRESSURE = 1024.5 MB VISIBILITY = 10.0

OBSERVATIONS

Z	T	S	D	SLM	O2	02	AOU	P04	N03	SI
1.0	17.29	35.89	26.15	182	.	.	.	.	.	.
2.0	17.29	35.91	26.17	185	5.54	5.41	-1.15	0.01	0.02	00.0
3.0	17.29	35.91	26.19	183	.	.	.	.	.	.
4.0	17.02	35.92	26.24	176	.	.	.	.	.	.
5.0	16.73	35.98	26.34	169	.	.	.	.	.	.
6.0	16.70	35.98	26.33	170	.	.	.	.	.	.
7.0	16.58	35.93	26.34	167	.	.	.	.	.	.
8.0	16.27	35.97	26.45	159	.	.	.	.	.	.
9.0	16.12	35.97	26.47	156	.	.	.	.	.	.
10.0	16.02	35.98	26.49	155	.	.	.	.	.	.
11.0	16.00	35.95	26.49	155	.	.	.	.	.	.
12.0	16.00	35.95	26.49	155	.	.	.	.	.	.
13.0	16.00	35.95	26.49	155	5.67	5.54	-1.13	0.03	00.1	00.4
14.0	15.98	35.98	26.50	154	.	.	.	.	.	.
15.0	15.98	35.94	26.48	158	.	.	.	.	.	.
16.0	15.96	35.95	26.50	155	.	.	.	.	.	.
17.0	15.93	35.94	26.50	155	.	.	.	.	.	.
18.0	15.93	35.94	26.50	155	.	.	.	.	.	.
19.0	15.93	35.95	26.50	154	.	.	.	.	.	.
20.0	15.93	35.94	26.50	155	.	.	.	.	.	.
21.0	15.93	35.95	26.50	154	.	.	.	.	.	.
22.0	15.93	35.94	26.50	155	.	.	.	.	.	.
23.0	15.93	35.94	26.50	155	.	.	.	.	.	.
24.0	15.93	35.94	26.50	155	5.66	5.53	-1.11	0.03	00.2	00.6
25.0	15.93	35.94	26.50	155	.	.	.	.	.	.

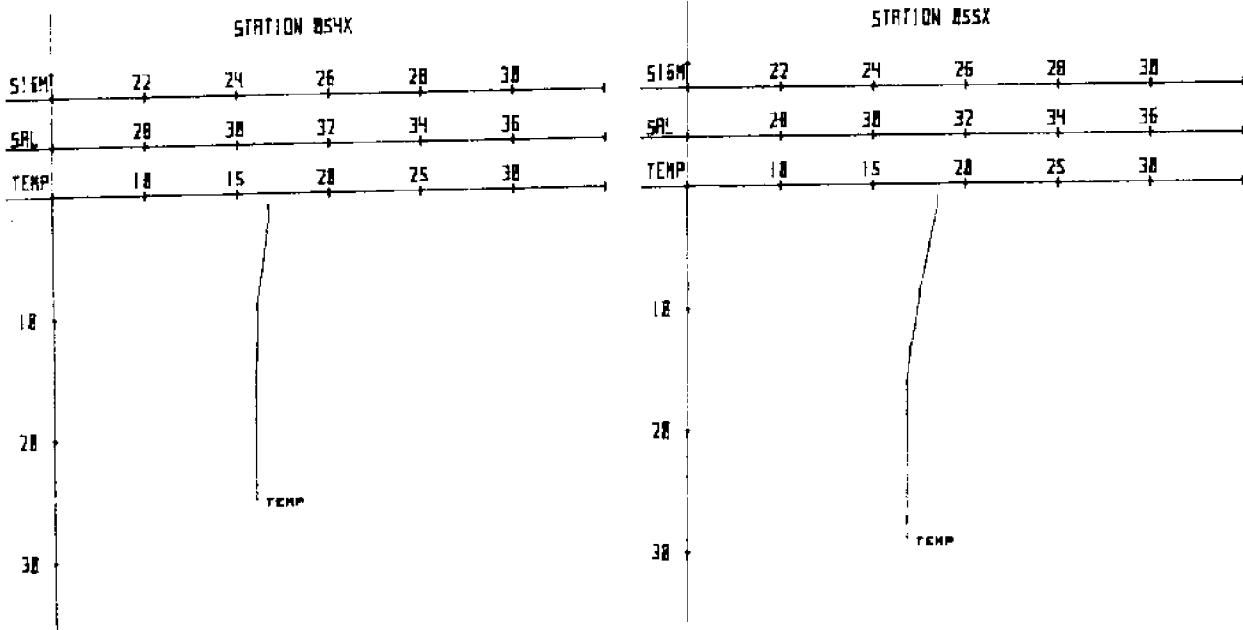
ISELIN CRUISE CE-12 STA 852C 117 XII 19 1100 GM LOCAL STA 52
LAT 31 40.0N LONG 80 40.6W DEPTH 0.0M DIST EAST STA 1 10.3NM

WEATHER DATA

WIND SPEED = 00 KTS SEA STATE =
WIND DIRECTION = VARIABLE WAVE DIRECTION =
AIR TEMP = 18.7C CLOUD TYPE =
WEATHER CODE = CLOUD AMOUNT =
BAROMETRIC PRESSURE = 1024.5 MB VISIBILITY = 10.0

OBSERVATIONS

Z	T	S	D	SLM	O2	02	AOU	P04	N03	SI
1.0	14.80	35.31	26.26	176	0.33	0.1	-1.12	0.03	00.0	00.2
2.0	14.76	35.42	26.36	167	.	.	.	.	.	.
3.0	14.70	35.59	26.50	154	.	.	.	.	.	.
4.0	14.68	35.71	26.60	144	.	.	.	.	.	.
5.0	14.68	35.72	26.61	144	.	.	.	.	.	.
6.0	14.69	35.71	26.60	145	5.86	5.76	-1.05	0.05	00.0	00.3
7.0	14.68	35.72	26.61	144	.	.	.	.	.	.
8.0	14.68	35.72	26.61	144	.	.	.	.	.	.
9.0	14.68	35.72	26.61	144	.	.	.	.	.	.
10.0	14.68	35.72	26.61	144	.	.	.	.	.	.
11.0	14.68	35.72	26.61	144	.	.	.	.	.	.
12.0	14.69	35.72	26.60	144	.	.	.	.	.	.
13.0	14.70	35.72	26.60	144	.	.	.	.	.	.
14.0	14.70	35.72	26.60	144	.	.	.	.	.	.
15.0	14.69	35.73	26.61	143	.	.	.	.	.	.
16.0	14.69	35.72	26.60	144	.	.	.	.	.	.
17.0	14.69	35.72	26.60	144	.	.	.	.	.	.
18.0	14.70	35.73	26.61	144	.	.	.	.	.	.
19.0	14.70	35.73	26.61	144	.	.	.	.	.	.
20.0	14.70	35.73	26.61	144	5.83	5.73	-1.14	0.03	00.1	00.3
21.0	14.70	35.73	26.61	144	.	.	.	.	.	.



ISELIN CRUISE CI-12 STA 054X 11. AUG 70 19.0 mi. NORTH CONDOR LINE 54
LAT 31 4.5N LONG 80 42.0W DEPTH = 1000 FATHOMS DEPTHS = 5.9NM

WEATHER DATA

WIND SPEED = 00 KTS
WIND DIRECTION = Variable
AIR TEMP = 16.7C
LEATHER CODE =
BAROMETRIC PRESSURE = 1024.5 MB

SEA STATE
WAVE DIRECTION =
CLOUD TYPE =
CLOUD AMOUNT =
VISIBILITY CODE =

ISELIN CRUISE CI-12 STA 055X 11. AUG 70 19.0 mi. NORTH CONDOR LINE 55
LAT 31 2.6N LONG 80 35.0W DEPTH = 29M WEST EAST STREETS = 0.0 NM

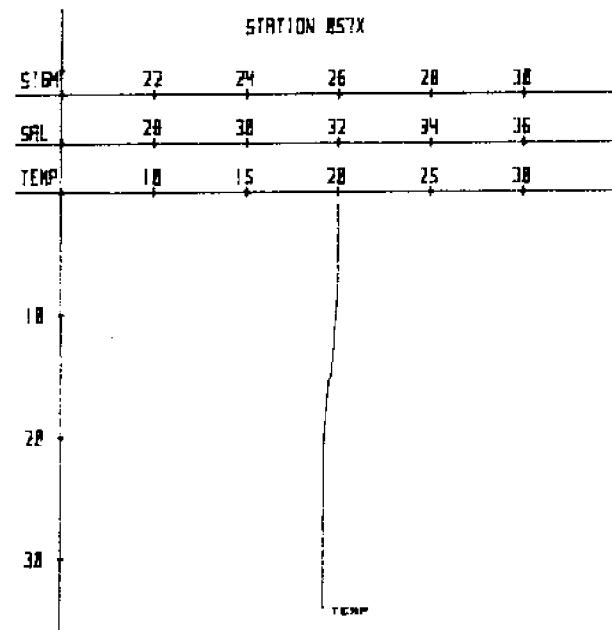
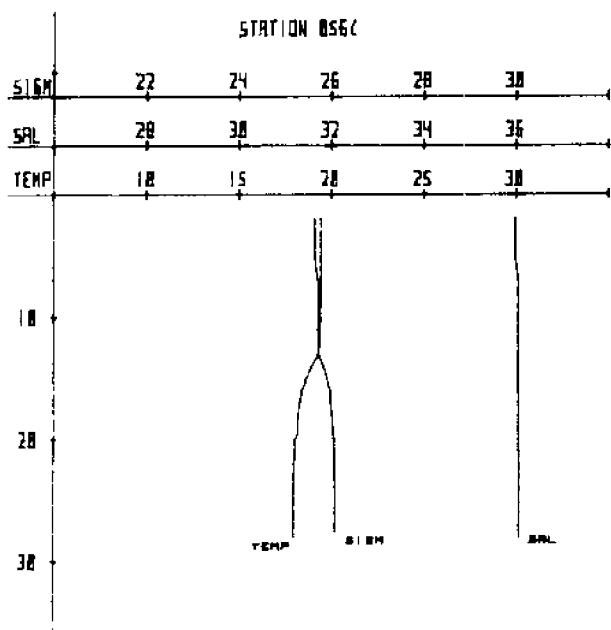
WEATHER DATA

WIND SPEED = 00 KTS
WIND DIRECTION = VARIABLE
AIR TEMP = 16.7C
WEATHER CODE =
BAROMETRIC PRESSURE = 1024.5 MB

SEA STATE
WAVE DIRECTION =
CLOUD TYPE =
CLOUD AMOUNT =
VISIBILITY CODE =

OBSERVATIONS										
Z	T	S	D	SWA	02	02	AOU	F04	NUS	SI
1.0	16.70	*	-	-	-	-	-	-	-	-
4.0	16.50	*	-	-	-	-	-	-	-	-
7.0	16.00	*	-	-	-	-	-	-	-	-
10.0	15.90	*	-	-	-	-	-	-	-	-
15.0	15.90	*	-	-	-	-	-	-	-	-

OBSERVATIONS										
Z	T	S	D	SWA	02	02	AOU	F04	NUS	SI
1.0	16.50	*	-	-	-	-	-	-	-	-
5.0	18.00	*	-	-	-	-	-	-	-	-
6.5	17.50	*	-	-	-	-	-	-	-	-
13.0	17.00	*	-	-	-	-	-	-	-	-
16.0	16.80	*	-	-	-	-	-	-	-	-
29.0	16.80	*	-	-	-	-	-	-	-	-



ISELIN CRUISE CL-12 STA 056C 11/11/76 21.0 MFT CUNIBR STA 05
LAT 31 40.0N LONG 80 27.5W DEPTH = 30M DIST LAST STA = 9.2KM

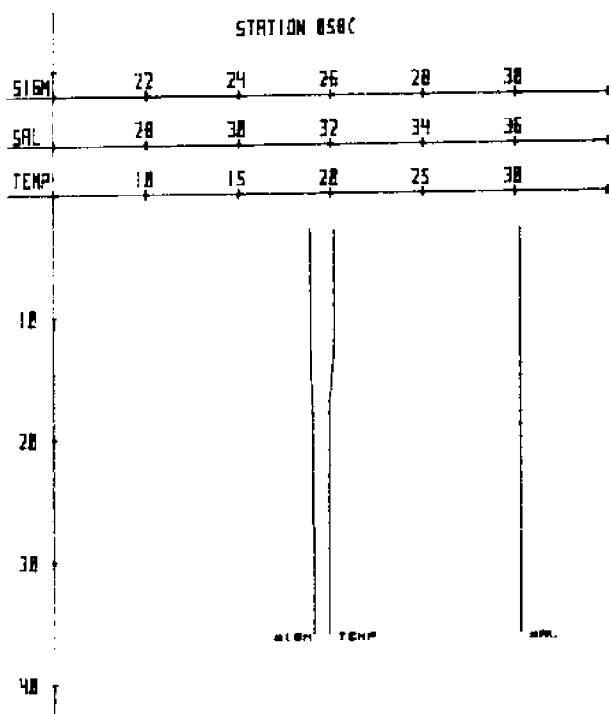
WEATHER DATA
WIND SPEED = 02 KTS SEA STATE =
WIND DIRECTION = VARIABLE WAVE DIRECTION =
AIR TEMP = 17.0C CLOUD TYPE =
WEATHER CODE = CLOUD AMOUNT =
BAROMETRIC PRESSURE = 1023.5 mb VISIBILITY CODE =

Z	T	S	L	SVA	U2	C2	A00	F04	M03	S1	Z	T	S	D	SVA	U2	C2	A00	F04	M03	S1
2.0	19.48	35.98	25.65	234	5.48	0.18	-1.39	0.05	02.1	01.0	1.0	20.00	.	.	.	.	.	.	.	.	.
3.0	19.48	35.98	25.65	234	.	.	.	.	.	.	9.0	19.90	.	.	.	.	.	.	.	.	.
4.0	19.48	35.98	25.65	234	.	.	.	.	.	.	15.0	19.60	.	.	.	.	.	.	.	.	.
5.0	19.42	36.01	25.68	232	.	.	.	.	.	.	15.5	19.50	.	.	.	.	.	.	.	.	.
6.0	19.44	36.04	25.71	229	.	.	.	.	.	.	20.0	19.20	.	.	.	.	.	.	.	.	.
7.0	19.36	36.07	25.75	225	.	.	.	.	.	.	34.0	19.20	.	.	.	.	.	.	.	.	.
8.0	19.38	36.07	25.75	225	.	.	.	.	.	.					
9.0	19.38	36.07	25.75	225	5.31	5.19	-1.12	0.05	02.1	01.4											
10.0	19.38	36.07	25.75	225	.	.	.	.	.	.					
11.0	19.37	36.07	25.75	225	.	.	.	.	.	.					
12.0	19.33	36.07	25.78	224	.	.	.	.	.	.					
13.0	19.22	36.08	25.78	222	.	.	.	.	.	.					
14.0	18.91	36.08	25.88	213	.	.	.	.	.	.					
15.0	18.62	36.07	25.74	202	.	.	.	.	.	.					
16.0	18.39	36.09	26.02	206	.	.	.	.	.	.					
17.0	18.26	36.08	26.04	198	.	.	.	.	.	.					
18.0	18.18	36.08	26.07	195	.	.	.	.	.	.					
19.0	18.12	36.08	26.08	194	.	.	.	.	.	.					
20.0	18.01	36.09	26.11	191	.	.	.	.	.	.					
21.0	17.96	36.09	26.13	190	.	.	.	.	.	.					
22.0	17.94	36.09	26.13	190	.	.	.	.	.	.					
23.0	17.91	36.09	26.14	189	.	.	.	.	.	.					
24.0	17.90	36.09	26.14	189	.	.	.	.	.	.					
25.0	17.90	36.09	26.14	189	.	.	.	.	.	.					
26.0	17.90	36.09	26.14	189	.	.	.	.	.	.					
27.0	17.89	36.09	26.14	189	.	.	.	.	.	.					
28.0	17.89	36.10	26.15	188	5.48	5.34	-1.12	0.10	02.4	01.9											

ISELIN CRUISE CL-12 STA 057X 11/11/76 21.0 MFT CUNIBR STA 05
LAT 30 50.5N LONG 80 24.5W DEPTH = 34M DIST LAST STA = 7.2KM

WEATHER DATA
WIND SPEED = 02 KTS SEA STATE =
WIND DIRECTION = VARIABLE WAVE DIRECTION =
AIR TEMP = 17.0C CLOUD TYPE =
WEATHER CODE = CLOUD AMOUNT =
BAROMETRIC PRESSURE = 1023.5 mb VISIBILITY CODE =

OBSERVATIONS																					
Z	T	S	L	SVA	U2	C2	A00	F04	M03	S1	Z	T	S	D	SVA	U2	C2	A00	F04	M03	S1
1.0	20.00	.	.	.	.	.	.	.	.	.	9.0	19.90	.	.	.	.	.	.	.	.	.
9.0	19.90	.	.	.	.	.	.	.	.	.	15.0	19.60	.	.	.	.	.	.	.	.	.
15.0	19.60	.	.	.	.	.	.	.	.	.	15.5	19.50	.	.	.	.	.	.	.	.	.
15.5	19.50	.	.	.	.	.	.	.	.	.	20.0	19.20	.	.	.	.	.	.	.	.	.
20.0	19.20	.	.	.	.	.	.	.	.	.	34.0	19.20	.	.	.	.	.	.	.	.	.
34.0	19.20	.	.	.	.	.	.	.	.	.		



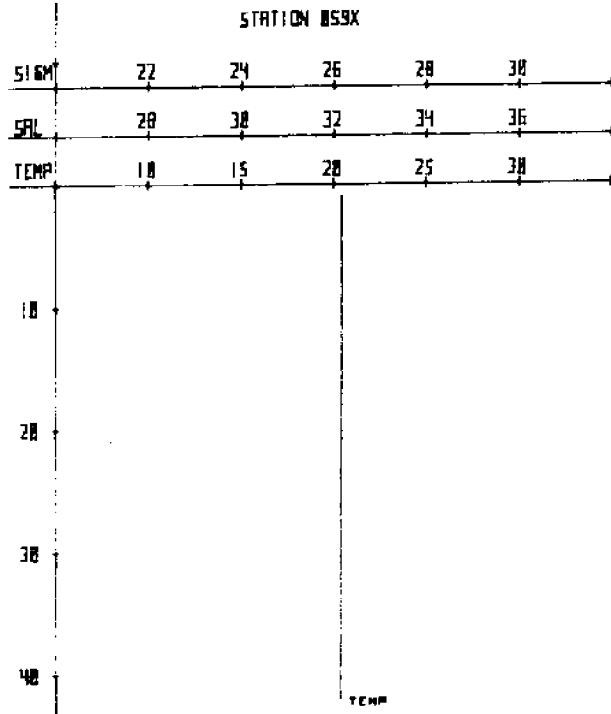
ISELIN CRUISE CI-12 STA 058C 11 A11/7a 22.4 mi N of CONGERS STA 058
LAT 30 52.0N LONG 80 14.5W DEPTH = 4 fm VISIT LAST STA = 8.4KM

WEATHER DATA

WIND SPEED = 02 KTS
WIND DIRECTION = VARIABLE
AIR TEMP = 18.9C
WEATHER CODE =
BAROMETRIC PRESSURE = 1023.0 MB

SEA STATE =
WAVE DIRECTION =
CLOUD TYPE =
CLOUD AMOUNT =
VISIBILITY CODE =

OBSERVATIONS										
Z	T	S	D	SVA	O2	O1	RDD	PDA	ROS	SI
3.0	20.14	36.09	25.56	243	5.23	5.11	-0.14	0.00	00.4	01.4
4.0	20.14	36.09	25.56	243	.	.	.	.	.	.
5.0	20.14	36.09	25.56	243	.	.	.	.	.	.
6.0	20.14	36.09	25.56	243	.	.	.	.	.	.
7.0	20.14	36.09	25.56	243	.	.	.	.	.	.
8.0	20.14	36.09	25.56	243	.	.	.	.	.	.
9.0	20.14	36.09	25.56	243	.	.	.	.	.	.
10.0	20.14	36.09	25.56	243	.	.	.	.	.	.
11.0	20.13	36.10	25.57	242	.	.	.	.	.	.
12.0	20.11	36.10	25.58	242	.	.	.	.	.	.
13.0	20.09	36.11	25.59	240	.	.	.	.	.	.
14.0	20.08	36.11	25.59	240	.	.	.	.	.	.
15.0	20.01	36.10	25.61	239	.	.	.	.	.	.
16.0	19.94	36.11	25.63	237	.	.	.	.	.	.
17.0	19.90	36.11	25.64	236	.	.	.	.	.	.
18.0	19.90	36.11	25.64	236	.	.	.	.	.	.
19.0	19.90	36.11	25.64	236	.	.	.	.	.	.
20.0	19.89	36.11	25.65	236	.	.	.	.	.	.
21.0	19.89	36.11	25.65	236	.	.	.	.	.	.
22.0	19.89	36.11	25.65	236	.	.	.	.	.	.
23.0	19.87	36.11	25.65	235	.	.	.	.	.	.
24.0	19.87	36.11	25.65	235	5.23	5.14	-0.09	0.09	00.4	01.5
25.0	19.87	36.10	25.64	236	.	.	.	.	.	.
26.0	19.86	36.11	25.65	235	.	.	.	.	.	.
27.0	19.86	36.11	25.65	235	.	.	.	.	.	.
28.0	19.86	36.11	25.65	235	.	.	.	.	.	.
29.0	19.84	36.11	25.66	235	.	.	.	.	.	.
30.0	19.84	36.11	25.66	235	.	.	.	.	.	.
31.0	19.84	36.11	25.66	235	.	.	.	.	.	.
32.0	19.84	36.10	25.65	235	.	.	.	.	.	.
33.0	19.84	36.10	25.65	235	.	.	.	.	.	.
34.0	19.84	36.10	25.65	236	5.21	5.14	-0.07	0.07	00.4	01.5
35.0	19.84	36.10	25.65	236	.	.	.	.	.	.
36.0	19.84	36.10	25.65	236	.	.	.	.	.	.



ISELIN CRUISE CI-12 STA 059X 11 A11/7a 22.4 mi N of CONGERS STA 059
LAT 30 54.9N LONG 80 14.5W DEPTH = 4 fm VISIT LAST STA = 8.4KM

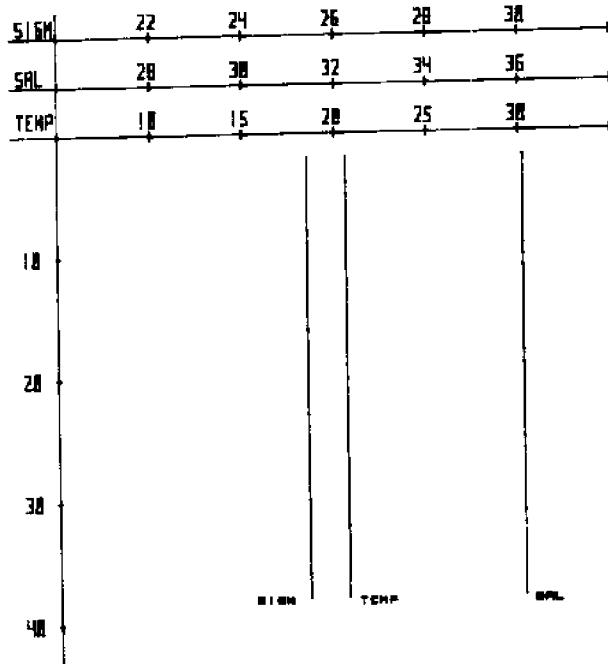
WEATHER DATA

WIND SPEED = 02 KTS
WIND DIRECTION = VARIABLE
AIR TEMP = 18.9C
WEATHER CODE =
BAROMETRIC PRESSURE = 1023.0 MB

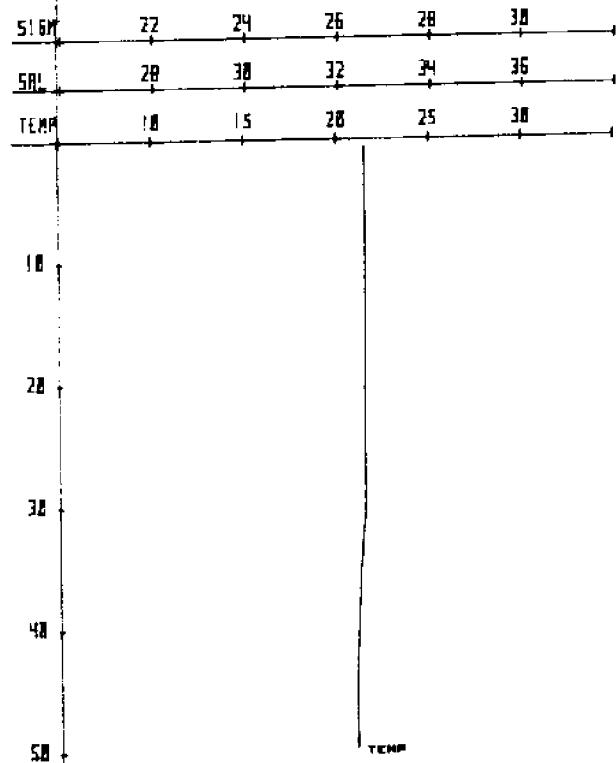
SEA STATE =
WAVE DIRECTION =
CLOUD TYPE =
CLOUD AMOUNT =
VISIBILITY CODE =

OBSERVATIONS										
Z	T	S	D	SVA	O2	O1	RDD	PDA	ROS	SI
1.0	20.40	.	.	.	.	.	.	.	.	.
42.0	20.30	.	.	.	.	.	.	.	.	.

STATION 860



STATION 861X



ISELIN CRUISE CI-12 STA 0602 11. XII/76 01.0 GMT CONSEC STA 60

LAT 30 52.2N LONG 60 8.5W DEPTH = 50M DIST LAST STA = 9.9KM

WEATHER DATA

WIND SPEED = 02 KTS
 WIND DIRECTION = VARIABLE
 AIR TEMP = 16.9C
 WEATHER CODE =
 BAROMETRIC PRESSURE = 1023.0 MB

SEA STATE

WAVE DIRECTION =
 CLOUD TYPE =
 CLOUD AMOUNT =
 VISIBILITY CODE =

OBSERVATIONS										
Z	T	S	D	SVA	O2	O3	AUD	FCA	HOB	SI
1.0	20.64	36.09	25.43	255	5.15	5.07	-1.00	0.05	00.2	01.0
3.0	20.64	36.09	25.43	255	.	.	.	.	.	.
4.0	20.64	36.09	25.43	255	.	.	.	.	.	.
5.0	20.66	36.09	25.42	256	.	.	.	.	.	.
6.0	20.66	36.09	25.42	256	.	.	.	.	.	.
7.0	20.67	36.08	25.41	257	.	.	.	.	.	.
8.0	20.67	36.09	25.42	256	.	.	.	.	.	.
9.0	20.67	36.09	25.42	256	.	.	.	.	.	.
10.0	20.66	36.09	25.42	256	.	.	.	.	.	.
11.0	20.66	36.09	25.42	256	.	.	.	.	.	.
12.0	20.66	36.09	25.42	256	.	.	.	.	.	.
13.0	20.66	36.09	25.42	256	.	.	.	.	.	.
14.0	20.66	36.09	25.42	256	.	.	.	.	.	.
15.0	20.66	36.09	25.42	256	.	.	.	.	.	.
16.0	20.66	36.09	25.42	256	.	.	.	.	.	.
17.0	20.66	36.10	25.43	256	.	.	.	.	.	.
18.0	20.66	36.10	25.42	256	.	.	.	.	.	.
19.0	20.66	36.10	25.43	256	.	.	.	.	.	.
20.0	20.66	36.10	25.43	256	.	.	.	.	.	.
21.0	20.66	36.10	25.43	256	.	.	.	.	.	.
22.0	20.66	36.10	25.43	256	.	.	.	.	.	.
23.0	20.66	36.10	25.43	256	.	.	.	.	.	.
24.0	20.66	36.10	25.43	256	.	.	.	.	.	.
25.0	20.66	36.10	25.43	256	.	.	.	.	.	.
26.0	20.66	36.10	25.43	256	.	.	.	.	.	.
27.0	20.66	36.10	25.43	256	.	.	.	.	.	.
28.0	20.66	36.10	25.43	256	.	.	.	.	.	.
29.0	20.66	36.10	25.43	256	.	.	.	.	.	.
30.0	20.66	36.10	25.43	256	.	.	.	.	.	.
31.0	20.66	36.10	25.43	256	.	.	.	.	.	.
32.0	20.66	36.09	25.42	257	.	.	.	.	.	.
33.0	20.66	36.09	25.42	257	.	.	.	.	.	.
34.0	20.66	36.09	25.42	257	.	.	.	.	.	.
35.0	20.66	36.09	25.42	257	.	.	.	.	.	.
36.0	20.66	36.09	25.42	257	.	.	.	.	.	.
37.0	20.66	36.09	25.42	257	.	.	.	.	.	.
38.0	20.66	36.09	25.42	257	5.12	5.07	-1.10	0.05	00.3	01.2

ISELIN CRUISE CI-12 STA 061X 12/ XII/76 01.0 GMT CONSEC STA 61

LAT 30 50.2N LONG 60 8.5W DEPTH = 50M DIST LAST STA = 9.9KM

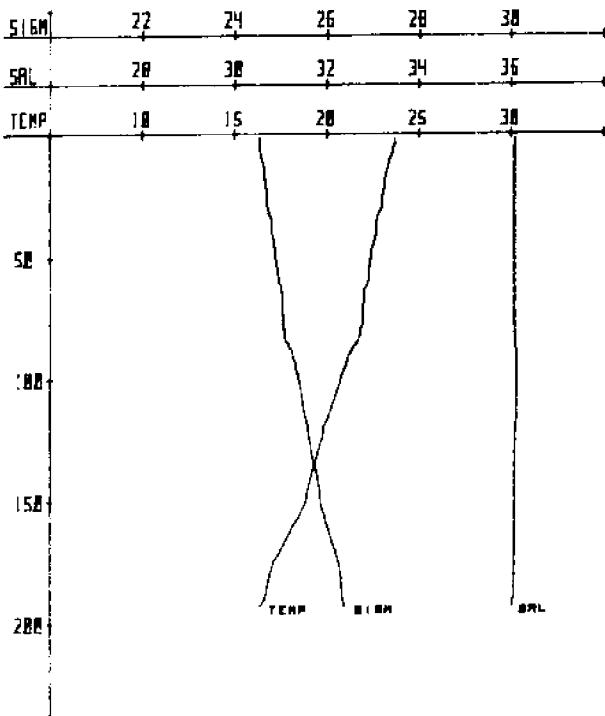
WEATHER DATA

WIND SPEED = 02 KTS
 WIND DIRECTION = VARIABLE
 AIR TEMP = 16.9C
 WEATHER CODE =
 BAROMETRIC PRESSURE = 1022.4 MB

OBSERVATIONS

Z	T	S	D	SVA	O2	O3	AUD	FCA	HOB	SI
1.0	21.40	.	.	.	.	.	.	.	.	.
30.5	21.30	.	.	.	.	.	.	.	.	.
37.0	21.00	.	.	.	.	.	.	.	.	.
45.0	20.80	.	.	.	.	.	.	.	.	.
50.0	20.80	.	.	.	.	.	.	.	.	.

STATION 862C



ISBELL CRUISE CI-12 STATION 862 DATE 12 APR 79 1500Z CONUS STA 82

LAT 30 49.0N LONG 29 52.0W DEPTH 100M WEST EAST STA - 10.8NM

WEATHER DATA

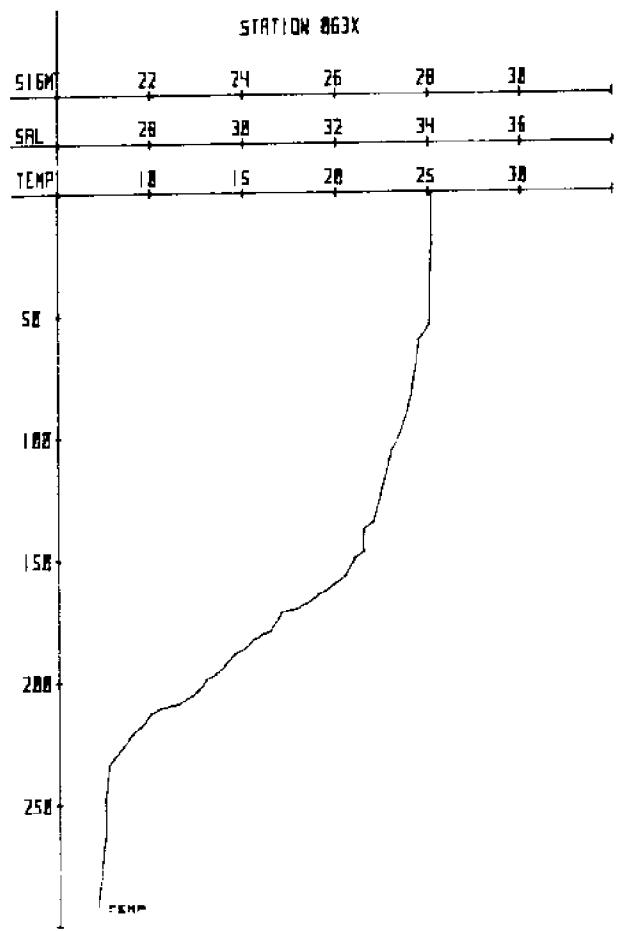
WIND SPEED = 10 KTS
WIND DIRECTION = 120
AIR TEMP = 18.9C
WEATHER CODE =
BAROMETRIC PRESSURE = 1022.6 MB

SEA STATE
WAVE DIRECTION =
CLOUD TYPE =
CLOUD HEIGHT =
VISIBILITY CODE =

DELEGATIONS

Z	I	S	B	SVN	02	06	AJD	FOR	AJD	SI
0.0	23.00	36.07	24.56	338	.	.	.	.	.	51
3.0	23.00	36.06	24.55	339	0.04	4.61	-0.23	0.14	00.3	512
4.0	23.03	36.07	24.52	337	.	.	.	.	.	513
5.0	23.03	36.06	24.57	337	.	.	.	.	.	514
6.0	23.54	36.05	24.58	338	.	.	.	.	.	515
7.0	23.52	36.06	24.59	335	.	.	.	.	.	516
8.0	23.50	36.06	24.60	335	.	.	.	.	.	517
9.0	23.42	36.06	24.61	334	.	.	.	.	.	518
10.0	23.42	36.06	24.62	332	.	.	.	.	.	519
11.0	23.38	36.07	24.64	331	.	.	.	.	.	520
12.0	23.33	36.07	24.66	329	.	.	.	.	.	521
13.0	23.29	36.06	24.66	329	.	.	.	.	.	522
14.0	23.27	36.07	24.67	328	.	.	.	.	.	523
15.0	23.20	36.07	24.70	328	.	.	.	.	.	524
16.0	23.18	36.06	24.69	326	.	.	.	.	.	525
17.0	23.16	36.06	24.70	325	.	.	.	.	.	526
18.0	23.13	36.07	24.72	324	.	.	.	.	.	527
19.0	23.12	36.06	24.71	324	.	.	.	.	.	528
20.0	23.10	36.07	24.72	323	.	.	.	.	.	529
21.0	23.08	36.06	24.72	323	.	.	.	.	.	530
22.0	23.10	36.06	24.72	324	.	.	.	.	.	531
23.0	23.03	36.06	24.74	322	.	.	.	.	.	532
24.0	23.01	36.06	24.74	321	.	.	.	.	.	533
25.0	23.00	36.06	24.75	321	.	.	.	.	.	534
26.0	23.00	36.07	24.75	321	.	.	.	.	.	535
27.0	23.00	36.06	24.75	321	.	.	.	.	.	536
28.0	23.00	36.07	24.75	321	.	.	.	.	.	537
29.0	23.00	36.07	24.75	321	.	.	.	.	.	538
30.0	22.94	36.07	24.72	319	.	.	.	.	.	539
31.0	22.88	36.07	24.79	318	.	.	.	.	.	540
32.0	22.80	36.06	24.80	316	.	.	.	.	.	541
33.0	22.77	36.06	24.81	315	.	.	.	.	.	542

34.0	22.70	36.07	24.84	313	.	.	.	.	.	.
35.0	22.68	36.07	24.85	312	.	.	.	.	.	.
36.0	22.63	36.07	24.86	311	.	.	.	.	.	.
37.0	22.63	36.07	24.85	311	.	.	.	.	.	.
38.0	22.62	36.07	24.86	311	.	.	.	.	.	.
39.0	22.62	36.07	24.86	311	.	.	.	.	.	.
40.0	22.61	36.07	24.87	311	.	.	.	.	.	.
41.0	22.59	36.07	24.87	310	.	.	.	.	.	.
42.0	22.56	36.07	24.88	309	.	.	.	.	.	.
43.0	22.52	36.08	24.90	307	.	.	.	.	.	.
44.0	22.50	36.08	24.90	307	.	.	.	.	.	.
45.0	22.49	36.07	24.90	307	.	.	.	.	.	.
46.0	22.42	36.08	24.93	305	.	.	.	.	.	.
47.0	22.40	36.08	24.93	304	.	.	.	.	.	.
48.0	22.40	36.07	24.93	303	.	.	.	.	.	.
49.0	22.39	36.08	24.94	304	.	.	.	.	.	.
50.0	22.38	36.08	24.94	304	.	.	.	.	.	.
51.0	22.34	36.08	24.91	303	5.03	4.92	1.11	0.09	0.02	0.15
52.0	22.30	36.08	24.96	302	.	.	.	.	.	.
53.0	22.29	36.08	24.96	302	.	.	.	.	.	.
54.0	22.27	36.08	24.97	301	.	.	.	.	.	.
55.0	22.26	36.08	24.97	301	.	.	.	.	.	.
56.0	22.24	36.08	24.98	300	.	.	.	.	.	.
57.0	22.23	36.09	24.99	299	.	.	.	.	.	.
58.0	22.22	36.09	24.99	299	.	.	.	.	.	.
59.0	22.20	36.09	25.00	299	.	.	.	.	.	.
60.0	22.18	36.09	25.00	298	.	.	.	.	.	.
61.0	22.13	36.09	25.02	297	.	.	.	.	.	.
62.0	22.06	36.10	25.04	294	.	.	.	.	.	.
63.0	22.00	36.09	25.05	293	.	.	.	.	.	.
64.0	21.99	36.10	25.06	292	.	.	.	.	.	.
65.0	21.98	36.09	25.06	293	.	.	.	.	.	.
66.0	21.96	36.10	25.07	292	.	.	.	.	.	.
67.0	21.96	36.09	25.07	293	.	.	.	.	.	.
68.0	21.96	36.09	25.07	293	.	.	.	.	.	.
69.0	21.96	36.09	25.07	293	.	.	.	.	.	.
70.0	21.91	36.10	25.09	291	.	.	.	.	.	.
71.0	21.90	36.10	25.09	290	.	.	.	.	.	.
72.0	21.90	36.10	25.09	290	.	.	.	.	.	.
73.0	21.89	36.09	25.08	291	.	.	.	.	.	.
74.0	21.88	36.10	25.10	290	.	.	.	.	.	.
75.0	21.88	36.10	25.10	290	.	.	.	.	.	.
76.0	21.88	36.09	25.09	291	.	.	.	.	.	.
77.0	21.88	36.10	25.10	290	.	.	.	.	.	.
78.0	21.88	36.09	25.09	291	.	.	.	.	.	.
79.0	21.83	36.11	25.12	288	.	.	.	.	.	.
80.0	21.82	36.10	25.11	289	.	.	.	.	.	.
81.0	21.79	36.10	25.12	288	.	.	.	.	.	.
82.0	21.78	36.10	25.12	286	.	.	.	.	.	.
83.0	21.73	36.11	25.14	286	.	.	.	.	.	.
84.0	21.70	36.11	25.15	285	.	.	.	.	.	.
85.0	21.62	36.11	25.18	283	.	.	.	.	.	.
86.0	21.52	36.11	25.20	283	.	.	.	.	.	.
87.0	21.44	36.11	25.23	284	.	.	.	.	.	.
88.0	21.36	36.13	25.24	274	.	.	.	.	.	.
89.0	21.26	36.13	25.29	272	.	.	.	.	.	.
90.0	21.20	36.12	25.30	271	.	.	.	.	.	.
91.0	21.11	36.12	25.32	269	.	.	.	.	.	.
92.0	21.08	36.12	25.33	268	.	.	.	.	.	.
93.0	21.04	36.13	25.35	268	.	.	.	.	.	.
94.0	21.00	36.13	25.36	265	.	.	.	.	.	.
95.0	20.98	36.13	25.37	265	.	.	.	.	.	.
96.0	20.91	36.12	25.38	264	.	.	.	.	.	.
97.0	20.86	36.12	25.39	262	.	.	.	.	.	.
98.0	20.80	36.12	25.41	261	.	.	.	.	.	.
99.0	20.78	36.12	25.41	260	4.87	5.06	1.19	0.10	0.12	01.2
100.0	20.76	36.11	25.41	261	.	.	.	.	.	.
101.0	20.70	36.12	25.44	258	.	.	.	.	.	.
104.0	20.56	36.12	25.47	255	.	.	.	.	.	.
110.0	20.32	36.11	25.53	250	.	.	.	.	.	.
115.0	20.09	36.09	25.58	246	.	.	.	.	.	.
120.0	19.80	36.06	25.63	241	.	.	.	.	.	.
125.0	19.70	36.06	25.66	236	.	.	.	.	.	.
130.0	19.50	36.06	25.71	233	.	.	.	.	.	.
135.0	19.30	36.07	25.77	228	.	.	.	.	.	.
140.0	19.10	36.08	25.83	222	.	.	.	.	.	.
145.0	18.94	36.08	25.87	219	4.83	5.23	1.40	0.13	0.12	01.3
151.0	18.80	36.08	25.91	215	.	.	.	.	.	.
156.0	18.50	36.08	25.98	208	.	.	.	.	.	.
160.0	18.18	36.05	26.04	203	.	.	.	.	.	.
165.0	17.80	36.04	26.13	195	.	.	.	.	.	.
170.0	17.44	36.04	26.21	187	.	.	.	.	.	.
175.0	17.08	36.02	26.29	180	.	.	.	.	.	.
180.0	16.88	36.02	26.33	175	.	.	.	.	.	.
185.0	16.72	36.01	26.36	173	.	.	.	.	.	.
190.0	16.62	36.00	26.38	171	.	.	.	.	.	.
193.0	16.37	35.98	26.42	167	.	.	.	.	.	.
197.0	16.18	35.98	26.48	168	3.48	.	.	.	0.94	14.3



ISELIN CRUISE C1-13 STA 863X 12 JULY 2.6 GMT CURSED STA 63

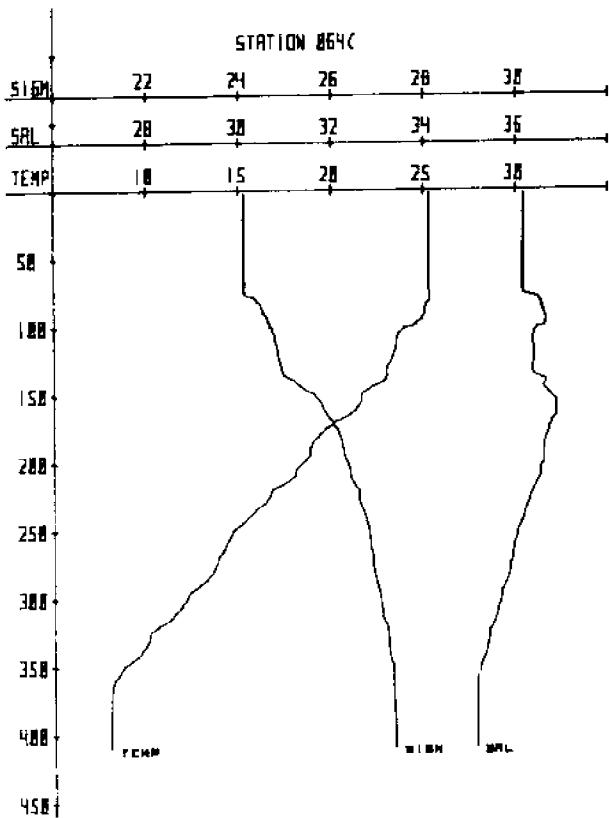
LAT 30 47.2N LONG 79 52.9W DEPTH -291M DIST LAST STA - 15.5NM

WEATHER DATA

WIND SPEED = 12 KTS
WIND DIRECTION = 150
AIR TEMP = 21.1C
WEATHER CODE =
BAROMETRIC PRESSURE = 1021.7 mb

SEA STATE =
WAVE DIRECTION =
CLOUD TYPE =
CLOUD AMOUNT =
VISIBILITY (M) =

Z	T	S	B	SWR	D2	U	Aud	F34	Nu3	SI
1.0	25.20	.	.	.	.	.	.	.	.	.
54.0	25.00	.	.	.	.	.	.	.	.	.
80.0	24.50	.	.	.	.	.	.	.	.	.
85.0	24.00	.	.	.	.	.	.	.	.	.
98.0	23.50	.	.	.	.	.	.	.	.	.
106.0	23.00	.	.	.	.	.	.	.	.	.
121.0	22.50	.	.	.	.	.	.	.	.	.
135.0	22.00	.	.	.	.	.	.	.	.	.
138.0	21.50	.	.	.	.	.	.	.	.	.
142.0	21.50	.	.	.	.	.	.	.	.	.
150.0	21.00	.	.	.	.	.	.	.	.	.
157.0	20.50	.	.	.	.	.	.	.	.	.
160.0	20.00	.	.	.	.	.	.	.	.	.
163.0	19.50	.	.	.	.	.	.	.	.	.
165.0	19.00	.	.	.	.	.	.	.	.	.
168.0	18.50	.	.	.	.	.	.	.	.	.
170.0	18.00	.	.	.	.	.	.	.	.	.
171.0	17.50	.	.	.	.	.	.	.	.	.
172.0	17.00	.	.	.	.	.	.	.	.	.
179.0	16.50	.	.	.	.	.	.	.	.	.
181.0	16.00	.	.	.	.	.	.	.	.	.
183.0	15.50	.	.	.	.	.	.	.	.	.
187.0	15.00	.	.	.	.	.	.	.	.	.
189.0	14.50	.	.	.	.	.	.	.	.	.
193.0	14.00	.	.	.	.	.	.	.	.	.
197.0	13.50	.	.	.	.	.	.	.	.	.
199.0	13.00	.	.	.	.	.	.	.	.	.
204.0	12.50	.	.	.	.	.	.	.	.	.
207.0	12.00	.	.	.	.	.	.	.	.	.
209.0	11.50	.	.	.	.	.	.	.	.	.
210.0	11.00	.	.	.	.	.	.	.	.	.
211.0	10.50	.	.	.	.	.	.	.	.	.
213.0	10.00	.	.	.	.	.	.	.	.	.
218.0	9.50	.	.	.	.	.	.	.	.	.
221.0	9.00	.	.	.	.	.	.	.	.	.
226.0	8.50	.	.	.	.	.	.	.	.	.
231.0	8.00	.	.	.	.	.	.	.	.	.
234.0	7.70	.	.	.	.	.	.	.	.	.
247.0	7.50	.	.	.	.	.	.	.	.	.
260.0	7.50	.	.	.	.	.	.	.	.	.
291.0	7.10	.	.	.	.	.	.	.	.	.



34.0 25.30 36.15 24.13 381
 35.0 25.30 36.15 24.13 381
 36.0 25.30 36.15 24.13 381
 37.0 25.30 36.15 24.13 381
 38.0 25.30 36.15 24.13 381
 39.0 25.30 36.15 24.13 381
 40.0 25.30 36.14 24.12 382
 41.0 25.30 36.15 24.13 381
 42.0 25.30 36.15 24.13 381
 43.0 25.30 36.15 24.13 381
 44.0 25.30 36.15 24.13 381
 45.0 25.30 36.15 24.13 381
 46.0 25.30 36.15 24.13 381
 47.0 25.30 36.15 24.13 381
 48.0 25.30 36.15 24.13 381
 49.0 25.30 36.15 24.13 381
 50.0 25.30 36.15 24.13 381
 51.0 25.30 36.15 24.13 381
 52.0 25.30 36.15 24.13 382
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 61.0 25.30 36.16 24.13 381
 62.0 25.30 36.16 24.13 381
 63.0 25.30 36.15 24.13 382
 64.0 25.30 36.16 24.13 381
 65.0 25.30 36.16 24.13 381
 66.0 25.30 36.16 24.13 381
 67.0 25.30 36.16 24.13 381
 68.0 25.30 36.16 24.13 381
 69.0 25.32 36.16 24.13 382
 70.0 25.32 36.16 24.13 382
 71.0 25.32 36.16 24.13 382
 72.0 25.32 36.16 24.13 382
 73.0 25.32 36.16 24.13 382
 74.0 25.32 36.17 24.14 382
 75.0 25.34 36.17 24.13 382
 76.0 25.33 36.19 24.15 381
 77.0 25.38 36.26 24.18 377
 78.0 25.41 36.41 24.29 367
 79.0 25.40 36.50 24.36 360
 80.0 25.32 36.53 24.41 358
 81.0 25.29 36.54 24.41 354
 82.0 25.24 36.54 24.45 352
 83.0 25.20 36.58 24.47 350
 84.0 25.12 36.58 24.51 347
 85.0 25.11 36.58 24.51 346
 86.0 25.10 36.59 24.52 345
 87.0 25.09 36.59 24.52 345
 88.0 25.04 36.60 24.55 343
 89.0 25.04 36.60 24.55 343
 90.0 25.02 36.63 24.57 340
 91.0 25.01 36.63 24.58 340
 92.0 24.99 36.63 24.60 339
 93.0 24.91 36.67 24.64 334
 94.0 24.90 36.64 24.63 335
 95.0 24.87 36.67 24.65 333
 96.0 24.82 36.67 24.67 332
 97.0 24.61 36.63 24.70 329
 98.0 24.56 36.61 24.70 319 4.46 4.71 1.6 0.05 00.4 00.8
 99.0 24.54 36.61 24.71 328
 100.0 24.46 36.60 24.72 327
 101.0 24.00 36.46 24.75 324
 105.0 23.62 36.38 24.79 320
 110.0 23.49 36.34 24.81 316
 115.0 23.48 36.39 24.86 315
 120.0 23.36 36.37 24.88 313
 125.0 23.20 36.35 24.91 310
 130.0 22.99 36.33 24.95 306
 136.0 23.00 36.40 25.00 301
 140.0 22.92 36.65 25.22 291
 145.0 22.14 36.58 25.39 285
 150.0 21.62 36.74 25.45 240 4.08 4.98 .88 0.19 02.7 01.7
 155.0 21.58 36.88 25.77 229
 160.0 21.39 36.91 25.85 222
 165.0 21.01 36.88 25.93 214
 170.0 20.24 36.77 26.05 202
 175.0 19.76 36.72 26.14 194
 180.0 19.37 36.66 26.20 187
 185.0 19.00 36.61 26.26 183
 190.0 18.82 36.59 26.29 180
 195.0 18.77 36.61 26.32 178 3.34 5.23 1.89 0.58 10.1 03.7
 200.0 18.48 36.59 26.38 172

STATION 875C

SIGM	22	24	26	28	30
SRL	28	30	32	34	36
TEMP	18	15	28	25	30
18					
28					
TEMP					
SIGM					
SRL					

205.0 18.10 34.52 26.42 169
 210.0 17.98 34.51 26.44 167
 215.0 17.54 34.45 26.50 161
 220.0 16.80 34.36 26.61 124
 225.0 16.64 34.31 26.61 154
 230.0 16.41 34.22 26.64 146
 235.0 15.98 34.20 26.71 141
 240.0 15.50 34.16 26.76 136
 245.0 15.19 34.11 26.79 133
 250.0 14.69 34.03 26.84 129
 255.0 14.49 34.00 26.86 127
 260.0 14.26 34.95 26.87 126
 265.0 14.11 34.93 26.89 124
 270.0 13.87 35.90 26.92 121
 275.0 13.74 35.87 26.92 121
 280.0 13.56 35.85 26.95 119
 285.0 13.31 35.82 26.97 117
 290.0 12.90 35.76 27.01 113
 295.0 12.39 35.68 27.05 109 3.11 0.77 2.66 1.82 19.7 39.0
 300.0 12.14 35.66 27.08 106
 305.0 11.93 35.61 27.10 104
 310.0 11.57 35.59 27.14 101
 315.0 11.33 35.55 27.15 99
 320.0 10.70 35.48 27.22 93
 325.0 10.19 35.40 27.24 93
 330.0 10.11 35.38 27.24 91
 335.0 9.94 35.36 27.26 89
 340.0 9.69 35.34 27.28 87
 346.0 9.18 35.26 27.31 84
 350.0 8.76 35.22 27.34 81
 355.0 8.49 35.18 27.35 80
 360.0 8.24 35.14 27.36 79
 365.0 8.10 35.12 27.37 78
 370.0 8.07 35.12 27.37 78
 375.0 8.07 35.12 27.37 78
 380.0 8.09 35.12 27.37 78
 385.0 8.02 35.12 27.38 77
 390.0 8.02 35.11 27.37 78
 395.0 8.02 35.12 27.38 77
 400.0 8.02 35.12 27.38 78 3.04 0.69 1.04 1.90 24.7 19.5
 405.0 8.02 35.11 27.37 76
 410.0 8.04 35.11 27.37 74

ISELIN CRUISE CI-12 STA 075C 12/ KII/76 9.9 GMT CONSEC STA 75

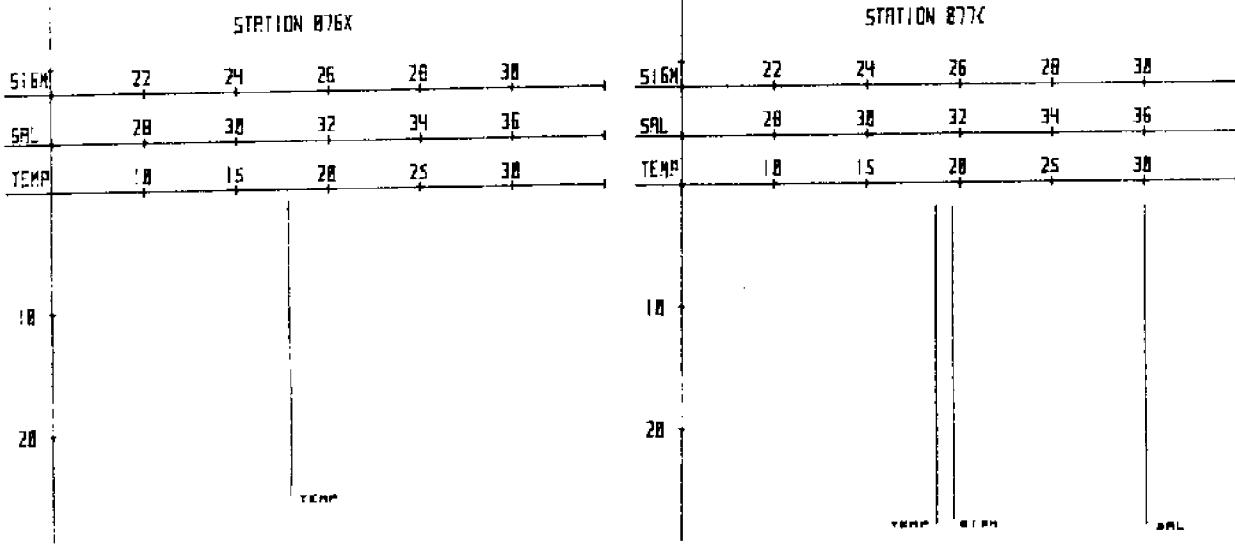
LAT 31 48.2N LONG 80 19.0W DEPTH = 23M DIST LAST STA = 126.7KM

WEATHER DATA

WIND SPEED	= 13 KTS	SEA STATE	=
WIND DIRECTION	= 230	WAVE DIRECTION	=
AIR TEMP	= 17.20	CLOUD TYPE	=
WEATHER CODE	=	CLOUD AMOUNT	=
BAROMETRIC PRESSURE	= 1018.3 MB	VISIBILITY CODE	=

OBSERVATIONS

Z	1	5	D	SVA	02	02	AOU	PG4	HOJ	SI
1.0	15.11	35.66	26.47	157	5.58	5.85	.02	0.05	00.0	00.0
2.0	15.11	35.66	26.47	157						
3.0	15.12	35.66	26.46	157						
4.0	15.12	35.66	26.46	157						
5.0	15.12	35.66	26.46	157						
6.0	15.12	35.66	26.46	157						
7.0	15.12	35.66	26.46	157						
8.0	15.12	35.66	26.46	157						
9.0	15.12	35.66	26.46	157						
10.0	15.13	35.66	26.46	158						
11.0	15.18	35.67	26.46	158						
12.0	15.18	35.67	26.46	158						
13.0	15.18	35.68	26.47	157						
14.0	15.18	35.68	26.47	157						
15.0	15.20	35.68	26.46	158						
16.0	15.19	35.69	26.47	157						
17.0	15.20	35.69	26.47	157						
18.0	15.22	35.69	26.46	158						
19.0	15.22	35.69	26.46	158	5.66	5.64	.02	0.10	00.2	00.3
20.0	15.22	35.70	26.47	157						
21.0	15.22	35.69	26.46	158						



ISELIN CRUISE CI-12 STA 876X 12 XII 76 11.0 MPH CONSED STA 877C
LAT 31 46.5N LONG 80 13.8W DEPTHS 4.0M DEPTHS 4.0M

WEATHER DATA
WIND SPEED = 13 KTS
WIND DIRECTION = 230
AIR TEMP = 17.2C
WEATHER CODE =
BAROMETRIC PRESSURE = 1018.3 MB

Observations

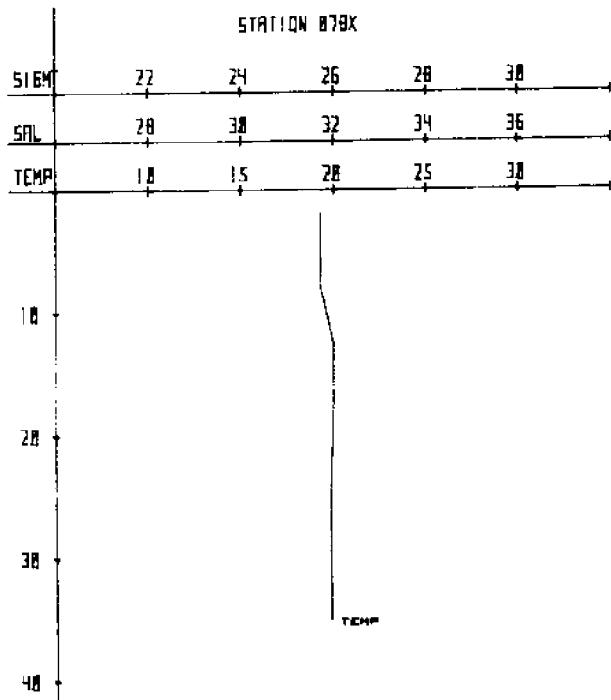
Z	T	S	D	RH4	RH8	RH3	SI
10.0	17.80	+	+	-	-	-	-
10.0	17.80	+	+	-	-	-	-
15.0	17.70	+	+	-	-	-	-
25.0	17.80	+	+	-	-	-	-

ISELIN CRUISE CI-12 STA 876X 12 XII 76 11.0 MPH CONSED STA 877C
LAT 31 45.0N LONG 80 8.0W DEPTHS 4.0M DEPTHS 4.0M

WEATHER DATA
WIND SPEED = 11 KTS
WIND DIRECTION = 230
AIR TEMP = 17.0C
WEATHER CODE =
BAROMETRIC PRESSURE = 1018.3 MB

Observations

Z	T	S	D	RH4	RH8	RH3	SI
2.0	18.74	36.00	25.86	214	5.08	5.25	1.01
3.0	18.74	36.00	25.86	215	-	-	-
4.0	18.73	36.01	25.87	214	-	-	-
5.0	18.73	36.01	25.86	214	-	-	-
6.0	18.74	36.00	25.86	215	-	-	-
7.0	18.74	36.00	25.86	215	-	-	-
8.0	18.74	36.00	25.86	215	-	-	-
9.0	18.74	36.01	25.87	214	-	-	-
10.0	18.76	36.01	25.86	215	-	-	-
11.0	18.76	36.01	25.86	213	-	-	-
12.0	18.76	36.01	25.89	212	-	-	-
13.0	18.76	36.04	25.89	212	-	-	-
14.0	18.78	36.04	25.88	213	-	-	-
15.0	18.78	36.04	25.90	212	-	-	-
16.0	18.79	36.06	25.89	212	-	-	-
17.0	18.79	36.07	25.90	211	-	-	-
18.0	18.80	36.07	25.90	211	-	-	-
19.0	18.80	36.07	25.90	211	-	-	-
20.0	18.80	36.08	25.91	211	-	-	-
21.0	18.80	36.08	25.91	211	-	-	-
22.0	18.80	36.09	25.91	210	-	-	-
23.0	18.80	36.09	25.91	210	-	-	-
24.0	18.80	36.09	25.91	210	-	-	-
25.0	18.80	36.09	25.91	210	-	-	-
26.0	18.80	36.09	25.91	210	-	-	-
27.0	18.80	36.09	25.91	210	5.22	5.25	1.03
28.0	18.80	36.09	25.91	210	-	-	-

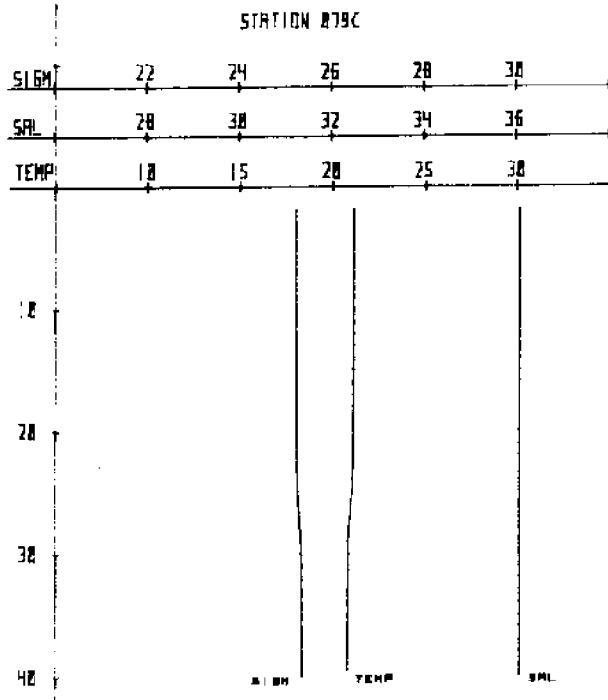


ISELIN CRUISE CI-12 STA 078X 12V XII 76 12.4 GHT COMSEC STA 78
LAT 31 43.0N LONG 80 2.8W DEPTH = 15M DIST LAST STA = 7.5NM

WEATHER DATA

WIND SPEED = 11 KTS SEA STATE =
WIND DIRECTION = 230 WAVE DIRECTION =
AIR TEMP = 17.8C CLOUD TYPE =
WEATHER CODE = CLOUD AMOUNT =
BAROMETRIC PRESSURE = 1010.3 MB VISIBILITY CODE =

OBSERVATIONS											
Z	T	S	P	SVA	02	02	AOU	F04	N05	SI	
2.0	19.30	.	.	.	.	.	.	.	.	.
8.0	19.30	.	.	.	.	.	.	.	.	.
9.0	19.50	.	.	.	.	.	.	.	.	.
12.0	20.00	.	.	.	.	.	.	.	.	.
21.0	19.80	.	.	.	.	.	.	.	.	.
35.0	19.80	.	.	.	.	.	.	.	.	.

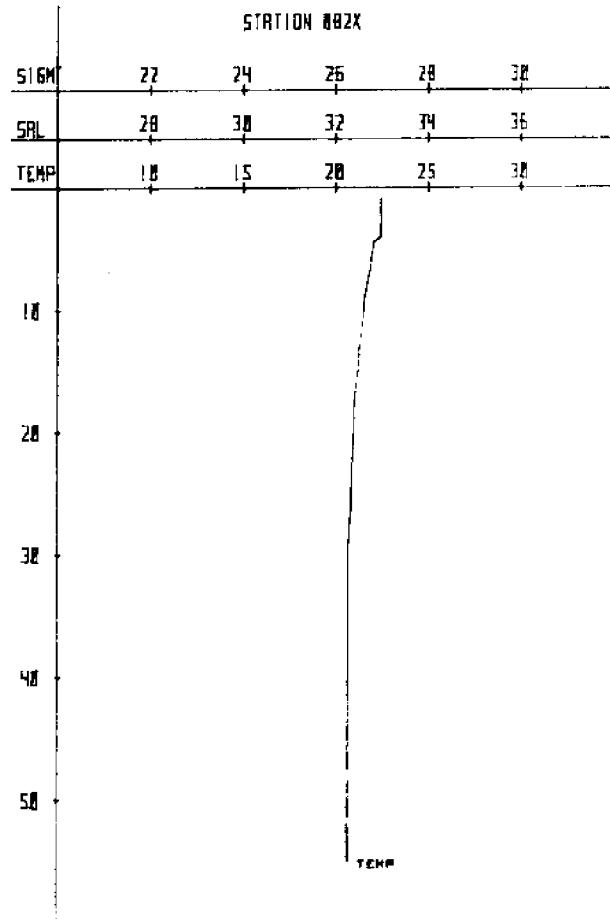
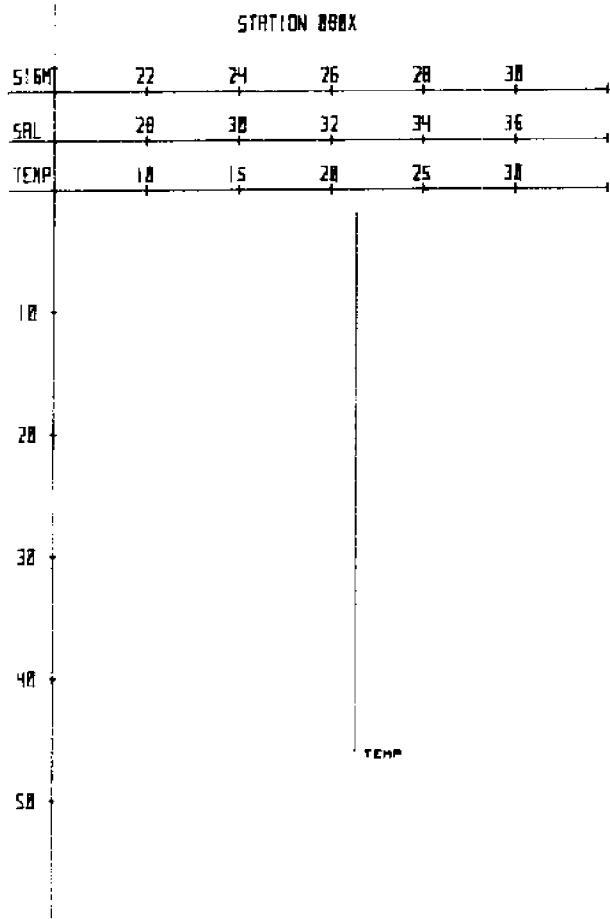


ISELIN CRUISE CI-12 STA 079C 12V XII 76 13.2 GHT COMSEC STA 78
LAT 31 41.1N LONG 79 56.9W DEPTH = 4M DIST LAST STA = 7.5NM

WEATHER DATA

WIND SPEED = 16 KTS SEA STATE =
WIND DIRECTION = 230 WAVE DIRECTION =
AIR TEMP = 18.9C CLOUD TYPE =
WEATHER CODE = CLOUD AMOUNT =
BAROMETRIC PRESSURE = 1010.9 MB VISIBILITY CODE =

OBSERVATIONS											
Z	T	S	D	SVA	02	02	AOU	F04	N05	SI	
2.0	21.22	36.07	25.26	272	5.07	5.02	-0.02	0.03	00.1	01.3	
3.0	21.22	36.07	25.26	272	.	.	.	.	.	.
4.0	21.22	36.07	25.26	272	.	.	.	.	.	.
5.0	21.22	36.07	25.26	272	.	.	.	.	.	.
6.0	21.22	36.07	25.26	272	.	.	.	.	.	.
7.0	21.22	36.07	25.26	272	.	.	.	.	.	.
8.0	21.22	36.07	25.26	272	.	.	.	.	.	.
9.0	21.22	36.07	25.26	272	.	.	.	.	.	.
10.0	21.21	36.07	25.26	272	.	.	.	.	.	.
11.0	21.22	36.07	25.26	272	.	.	.	.	.	.
12.0	21.21	36.08	25.27	271	.	.	.	.	.	.
13.0	21.21	36.08	25.27	271	.	.	.	.	.	.
14.0	21.22	36.07	25.26	272	.	.	.	.	.	.
15.0	21.22	36.07	25.26	272	.	.	.	.	.	.
16.0	21.21	36.08	25.27	271	.	.	.	.	.	.
17.0	21.21	36.07	25.26	272	.	.	.	.	.	.
18.0	21.21	36.07	25.26	272	.	.	.	.	.	.
19.0	21.20	36.08	25.27	271	.	.	.	.	.	.
20.0	21.20	36.08	25.27	271	.	.	.	.	.	.
21.0	21.20	36.08	25.27	271	.	.	.	.	.	.
22.0	21.18	36.09	25.28	270	.	.	.	.	.	.
23.0	21.16	36.10	25.30	269	.	.	.	.	.	.
24.0	21.13	36.10	25.30	268	.	.	.	.	.	.
25.0	21.12	36.09	25.30	269	.	.	.	.	.	.
26.0	21.03	36.11	25.34	265	.	.	.	.	.	.
27.0	21.00	36.11	25.35	264	.	.	.	.	.	.
28.0	20.74	36.11	25.36	263	4.92	5.04	.07	0.04	00.1	01.5	
29.0	20.91	36.11	25.37	262	.	.	.	.	.	.
30.0	20.90	36.11	25.37	262	.	.	.	.	.	.
31.0	20.90	36.10	25.37	262	.	.	.	.	.	.
32.0	20.89	36.10	25.37	262	.	.	.	.	.	.
33.0	20.88	36.10	25.37	262	.	.	.	.	.	.
34.0	20.88	36.10	25.37	262	.	.	.	.	.	.
35.0	20.88	36.10	25.37	262	.	.	.	.	.	.
36.0	20.67	36.10	25.37	262	.	.	.	.	.	.
37.0	20.87	36.10	25.37	262	.	.	.	.	.	.
38.0	20.84	36.10	25.38	261	.	.	.	.	.	.
39.0	20.83	36.10	25.39	261	4.92	5.05	.08	0.05	00.1	01.5	
40.0	20.83	36.10	25.39	261	.	.	.	.	.	.



ISELIN CRUISE CI-12 STA 080X 12/ XII/76 14.2 GMZ CONSEC STA 80
LAT 31 39.1N LONG 79 50.6W DEPTH = 46M DIST LAST STA = 10.6KM

WEATHER DATA

WIND SPEED = 17 KTS SEA STATE =
WIND DIRECTION = 230 WAVE DIRECTION =
AIR TEMP = 20.0C CLOUD TYPE =
WEATHER CODE = CLOUD AMOUNT =
BAROMETRIC PRESSURE = 1019.8 MB VISIBILITY CODE =

OBSERVATIONS

Z	T	S	D	SVA	O2	O21	AOU	P04	M03	S1
2.0	21.40	.	.	.	.	.	*	*	.	.
46.0	21.40	*	*	.	.	.	*	*	.	.

ISELIN CRUISE CI-12 STA 082X 12/ XII/76 15.0 GMZ CONSEC STA 82
LAT 31 35.8N LONG 79 40.3W DEPTH = 55M DIST LAST STA = 8.6KM

WEATHER DATA

WIND SPEED = 18 KTS SEA STATE =
WIND DIRECTION = 240 WAVE DIRECTION =
AIR TEMP = 20.0C CLOUD TYPE =
WEATHER CODE = CLOUD AMOUNT =
BAROMETRIC PRESSURE = 1019.8 MB VISIBILITY CODE =

OBSERVATIONS

Z	T	S	D	SVA	O2	O21	AOU	P04	M03	S1
1.0	22.40	.	*	*	*	*	*	*	*	*
4.0	22.40	*	*	*	*	*	*	*	*	*
4.5	22.00	*	*	*	*	*	*	*	*	*
9.5	21.50	*	*	*	*	*	*	*	*	*
17.5	21.00	*	*	*	*	*	*	*	*	*
29.0	20.70	*	*	*	*	*	*	*	*	*
55.0	20.70	*	*	*	*	*	*	*	*	*

ISELIN CRUISE C1-12 STA 081C 127 41.778 14.8 GMT LDNSEC STA 01

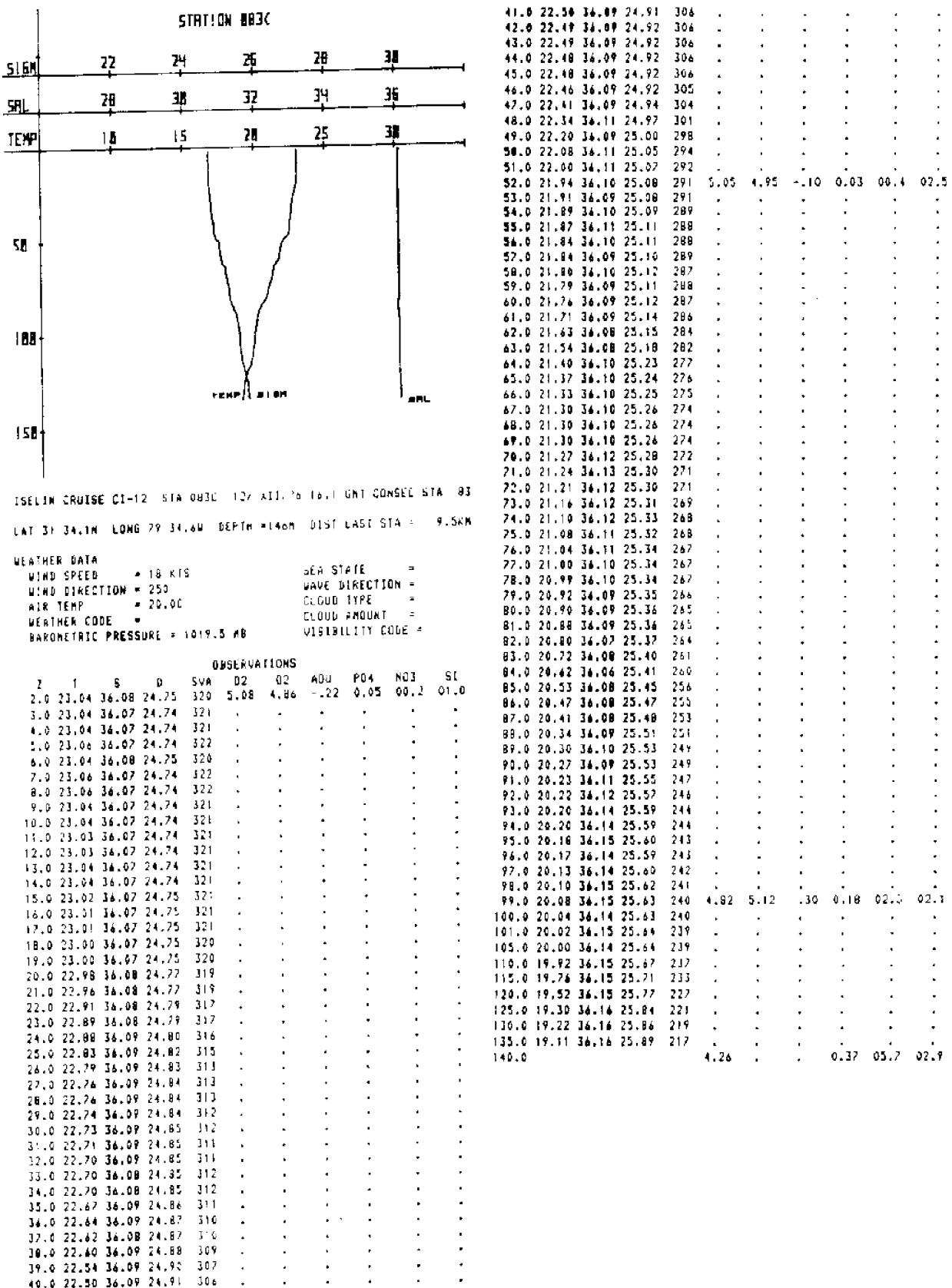
LAT 31 37.5N LONG 29 45.4W DEPTH - 45M DIST EAST STA 1 8.2KM

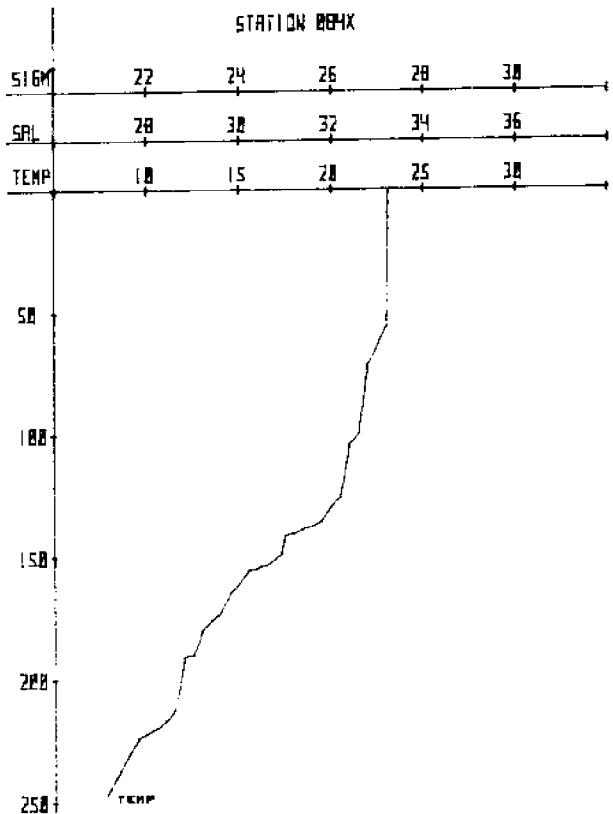
STATION 8810

516M	22	24	26	28	30
SPL	28	30	32	34	36
TEMP	18	15	28	25	30

WEATHER DATA			
WIND SPEED	= 10 KFS	SEA STATE	-
WIND DIRECTION	= 240	WAVE DIRECTION	=
AIR TEMP	= 20.0C	CLOUD TYPE	=
WEATHER CODE	=	CLOUD AMOUNT	=
BAROMETRIC PRESSURE = 1019.8 MB		VISIBILITY CODE	=

OBSERVATIONS							
GVA	02	02'	AQU	FEB	MAR	JUN	SU
292	5.32	4.95	.32	0.12	00.8	02.3	
292	
292	
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291	
291	
290	
289	
288	
280	
271	
270	
184	4.83	5.02	.19	0.08	01.1	01.9	
183	
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183	
183	4.92	5.03	.06	0.08	01.1	01.7	





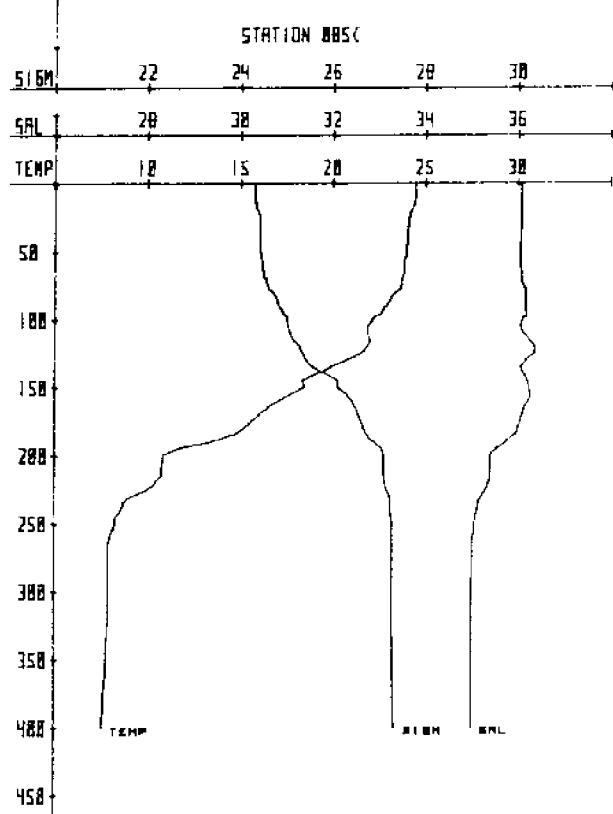
ISELIN CRUISE CI-12 STA 084A 12/11/70 11:00 GMT CUNSEZ STA 84
LAT 31 33.0N LONG 79 32.5W DEPTH -247M DIST LAST STA = 4.4NM

WEATHER DATA

WIND SPEED = 10 KTS SEA STATE =
WIND DIRECTION = 240 WAVE DIRECTION =
AIR TEMP = 10.0C CLOUD TYPE =
WEATHER CODE = CLOUD AMOUNT =
BAROMETRIC PRESSURE = 1019.5 MB VISIBILITY CODE =

OBSERVATIONS

Z	T	S	D	SVR	02	02	ADV	F04	N03	SI
1.0	23.10	.	.	.	.	.	.	.	.	.
56.0	23.00	.	.	.	.	.	.	.	.	.
65.0	22.50	.	.	.	.	.	.	.	.	.
72.0	22.00	.	.	.	.	.	.	.	.	.
100.0	21.50	.	.	.	.	.	.	.	.	.
105.0	21.00	.	.	.	.	.	.	.	.	.
126.0	20.50	.	.	.	.	.	.	.	.	.
133.0	20.00	.	.	.	.	.	.	.	.	.
136.0	19.50	.	.	.	.	.	.	.	.	.
136.0	19.00	.	.	.	.	.	.	.	.	.
139.0	18.50	.	.	.	.	.	.	.	.	.
141.0	16.00	.	.	.	.	.	.	.	.	.
142.0	17.50	.	.	.	.	.	.	.	.	.
149.0	17.30	.	.	.	.	.	.	.	.	.
151.0	17.00	.	.	.	.	.	.	.	.	.
154.0	16.50	.	.	.	.	.	.	.	.	.
155.0	16.00	.	.	.	.	.	.	.	.	.
158.0	15.50	.	.	.	.	.	.	.	.	.
161.0	15.00	.	.	.	.	.	.	.	.	.
165.0	14.50	.	.	.	.	.	.	.	.	.
173.0	14.00	.	.	.	.	.	.	.	.	.
176.0	13.50	.	.	.	.	.	.	.	.	.
180.0	13.00	.	.	.	.	.	.	.	.	.
190.0	12.50	.	.	.	.	.	.	.	.	.
191.0	12.00	.	.	.	.	.	.	.	.	.
212.0	11.50	.	.	.	.	.	.	.	.	.
217.0	11.00	.	.	.	.	.	.	.	.	.
220.0	10.50	.	.	.	.	.	.	.	.	.
222.0	10.00	.	.	.	.	.	.	.	.	.
224.0	9.50	.	.	.	.	.	.	.	.	.
230.0	9.00	.	.	.	.	.	.	.	.	.
237.0	8.50	.	.	.	.	.	.	.	.	.
244.0	8.00	.	.	.	.	.	.	.	.	.
247.0	7.80	.	.	.	.	.	.	.	.	.



ISELIN CRUISE CI-12 STA 085C 12/11/70 11:00 GMT CUNSEZ
LAT 31 32.0N LONG 79 26.8W DEPTH -500M DIST LAST STA = 4.4NM

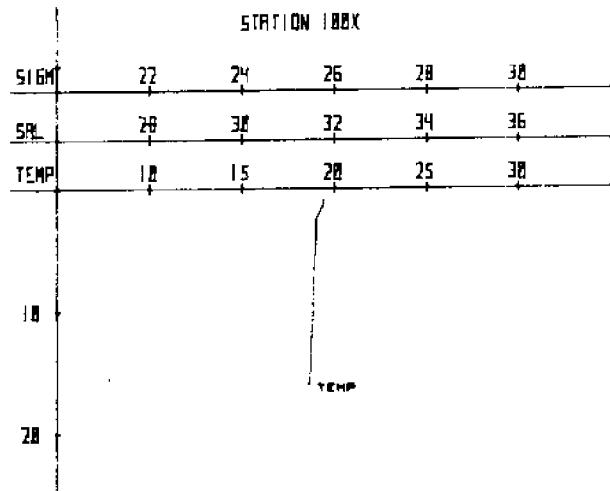
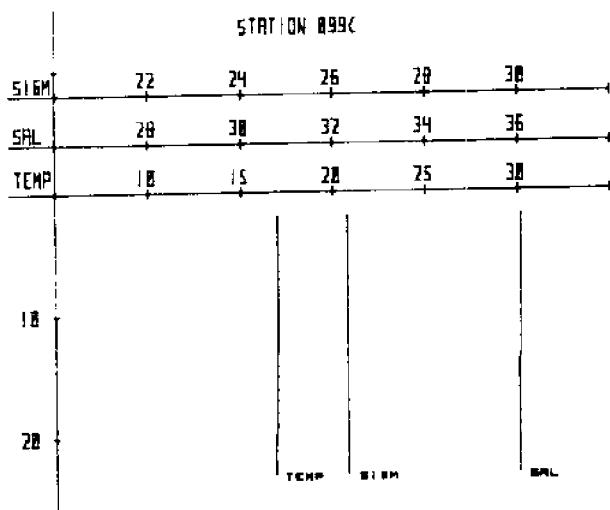
WEATHER DATA

WIND SPEED = 18 KTS SEA STATE =
WIND DIRECTION = 240 WAVE DIRECTION =
AIR TEMP = 20.0C CLOUD TYPE =
WEATHER CODE = CLOUD AMOUNT =
BAROMETRIC PRESSURE = 1018.0 MB VISIBILITY CODE =

OBSERVATIONS

Z	T	S	D	SVR	02	02	ADV	F04	N03	SI
2.0	24.44	36.06	24.32	361	4.60	4.74	1.12	6.01	32.2	0.1
3.0	24.44	36.06	24.32	361	-	-	-	-	-	-
4.0	24.46	36.06	24.31	362	-	-	-	-	-	-
5.0	24.46	36.06	24.31	362	-	-	-	-	-	-
6.0	24.47	36.06	24.31	362	-	-	-	-	-	-
7.0	24.46	36.06	24.31	362	-	-	-	-	-	-
8.0	24.46	36.06	24.31	362	-	-	-	-	-	-
9.0	24.46	36.05	24.31	363	-	-	-	-	-	-
10.0	24.46	36.06	24.31	362	-	-	-	-	-	-
11.0	24.46	36.06	24.31	362	-	-	-	-	-	-
12.0	24.41	36.06	24.33	361	-	-	-	-	-	-
13.0	24.41	36.06	24.33	361	-	-	-	-	-	-
14.0	24.36	36.06	24.34	359	-	-	-	-	-	-
15.0	24.38	36.05	24.33	361	-	-	-	-	-	-
16.0	24.32	36.06	24.36	358	-	-	-	-	-	-
17.0	24.28	36.05	24.36	358	-	-	-	-	-	-
18.0	24.23	36.06	24.38	356	-	-	-	-	-	-
19.0	24.21	36.05	24.38	356	-	-	-	-	-	-
20.0	24.17	36.06	24.40	354	-	-	-	-	-	-
21.0	24.11	36.06	24.42	352	-	-	-	-	-	-
22.0	24.10	36.06	24.42	352	-	-	-	-	-	-
23.0	24.09	36.06	24.43	352	-	-	-	-	-	-
24.0	24.08	36.06	24.43	352	-	-	-	-	-	-
25.0	24.06	36.06	24.43	351	-	-	-	-	-	-
26.0	24.04	36.06	24.44	351	-	-	-	-	-	-
27.0	24.03	36.06	24.44	350	-	-	-	-	-	-
28.0	24.03	36.06	24.44	350	-	-	-	-	-	-
29.0	24.03	36.05	24.44	351	-	-	-	-	-	-
30.0	24.01	36.06	24.45	350	-	-	-	-	-	-
31.0	24.01	36.06	24.45	350	-	-	-	-	-	-
32.0	24.01	36.05	24.44	351	-	-	-	-	-	-
33.0	24.01	36.05	24.44	351	-	-	-	-	-	-
34.0	24.01	36.04	24.43	351	-	-	-	-	-	-
35.0	24.00	36.05	24.44	350	-	-	-	-	-	-





ISELIN CRUISE CI-12 STA 099C 13/ XII/76 3.2 GMT CONSEC STA - 99
LAT 31 4.1W LONG 80 40.8W DEPTH = 25M DIST EAST STA = 128.1KM

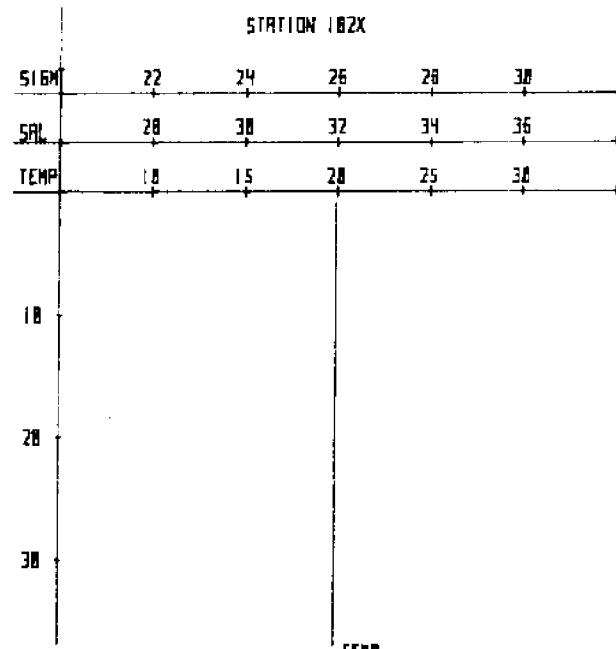
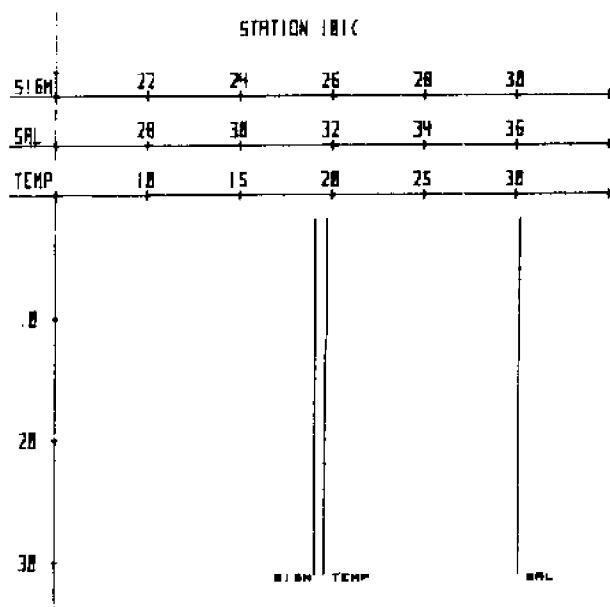
WEATHER DATA
 WIND SPEED = 16 KTS
 WIND DIRECTION = 200
 AIR TEMP = 18.3C
 WEATHER CODE =
 BAROMETRIC PRESSURE = 1016.0 MB

Z	T	S	D	SVA	02	D2	ADU	P04	W03	S1
2.0	17.00	36.05	26.33	170	5.54	5.43	-11	0.06	00.0	01.3
3.0	17.00	36.05	26.33	170	.	.	.	.	.	.
4.0	16.99	36.05	26.33	170	.	.	.	.	.	.
5.0	17.00	36.04	26.32	171	.	.	.	.	.	.
6.0	17.00	36.04	26.32	171	.	.	.	.	.	.
7.0	17.00	36.05	26.33	170	.	.	.	.	.	.
8.0	17.00	36.05	26.33	170	.	.	.	.	.	.
9.0	17.00	36.05	26.33	170	.	.	.	.	.	.
10.0	16.98	36.04	26.33	171	.	.	.	.	.	.
11.0	16.97	36.05	26.34	170	.	.	.	.	.	.
12.0	16.94	36.04	26.33	170	.	.	.	.	.	.
13.0	16.90	36.04	26.34	169	.	.	.	.	.	.
14.0	16.90	36.01	26.32	171	.	.	.	.	.	.
15.0	16.90	36.03	26.34	170	.	.	.	.	.	.
16.0	16.90	36.04	26.34	169	.	.	.	.	.	.
17.0	16.88	36.04	26.35	168	.	.	.	.	.	.
18.0	16.88	36.04	26.35	169	.	.	.	.	.	.
19.0	16.87	36.04	26.35	168	.	.	.	.	.	.
20.0	16.84	36.03	26.35	168	.	.	.	.	.	.
21.0	16.80	36.03	26.36	168	.	.	.	.	.	.
22.0	16.82	36.02	26.35	169	5.54	5.45	-11	1.13	00.1	01.0
23.0	16.80	36.03	26.36	169	.	.	.	.	.	.

ISELIN CRUISE CI-12 STA 100X 13/ XII/76 4.6 GMT CONSEC STA - 100
LAT 31 2.0W LONG 80 35.3W DEPTH = 25M DIST EAST STA = 128.1KM

WEATHER DATA
 WIND SPEED = 13 KTS
 WIND DIRECTION = 210
 AIR TEMP = 17.8C
 WEATHER CODE =
 BAROMETRIC PRESSURE = 1016.3 MB

Z	T	S	D	SVA	02	D2	ADU	P04	W03	S1
1.0	19.40	*	*	*	*	*	*	*	*	*
2.5	19.00	*	*	*	*	*	*	*	*	*
16.0	18.60	*	*	*	*	*	*	*	*	*



ISELIN CRUISE CI-12 STA 101C 13 XII 78 01.00 GM: CONSIST STA 101
LAT 31 0.0W LONG 80 30.0W DEPTH = 33M DIST LAST STA = 9.2KM

WEATHER DATA

WIND SPEED = 11 KTS SEA STATE =
WIND DIRECTION = 220 WAVE DIRECTION =
AIR TEMP = 18.9C CLOUD TYPE =
WEATHER CODE = CLOUD AMOUNT =
BAROMETRIC PRESSURE = 1016.5 MB VISIBILITY =

OBSERVATIONS

Z	T	S	D	SVA	Q2	Q2'	ABU	F04	M03	S1
2.0	19.73	36.07	25.66	234	5.19	5.16	-0.03	0.90	00.0	02.2
3.0	19.73	36.07	25.66	234	.	.	.	.	.	.
4.0	19.72	36.07	25.66	234	.	.	.	.	.	.
5.0	19.73	36.06	25.65	235	.	.	.	.	.	.
6.0	19.73	36.06	25.65	235	.	.	.	.	.	.
7.0	19.72	36.07	25.66	234	.	.	.	.	.	.
8.0	19.72	36.06	25.65	234	.	.	.	.	.	.
9.0	19.72	36.06	25.65	234	.	.	.	.	.	.
10.0	19.72	36.06	25.65	235	.	.	.	.	.	.
11.0	19.70	36.07	25.66	233	.	.	.	.	.	.
12.0	19.66	36.07	25.66	232	.	.	.	.	.	.
13.0	19.63	36.05	25.67	233	.	.	.	.	.	.
14.0	19.62	36.06	25.68	232	.	.	.	.	.	.
15.0	19.62	36.06	25.68	232	5.19	5.17	-0.02	0.87	00.2	01.2
16.0	19.63	36.06	25.68	232	.	.	.	.	.	.
17.0	19.62	36.06	25.68	232	.	.	.	.	.	.
18.0	19.62	36.06	25.68	232	.	.	.	.	.	.
19.0	19.62	36.06	25.68	232	.	.	.	.	.	.
20.0	19.62	36.06	25.68	232	.	.	.	.	.	.
21.0	19.62	36.06	25.68	232	.	.	.	.	.	.
22.0	19.60	36.06	25.68	232	.	.	.	.	.	.
23.0	19.60	36.06	25.68	232	.	.	.	.	.	.
24.0	19.60	36.06	25.68	232	.	.	.	.	.	.
25.0	19.59	36.06	25.69	232	.	.	.	.	.	.
26.0	19.59	36.06	25.69	232	.	.	.	.	.	.
27.0	19.59	36.06	25.69	232	.	.	.	.	.	.
28.0	19.59	36.06	25.69	232	.	.	.	.	.	.
29.0	19.58	36.06	25.69	232	.	.	.	.	.	.
30.0	19.59	36.05	25.68	233	.	.	.	.	.	.
31.0	19.56	36.06	25.69	232	5.20	5.17	-0.10	0.08	00.2	01.6

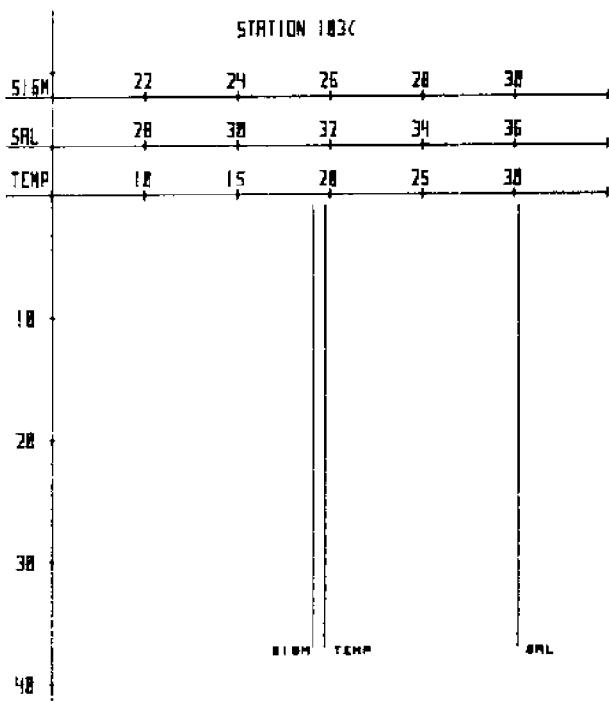
ISELIN CRUISE CI-12 STA 102X 13 XII 78 01.00 GM: CONSIST STA 102
LAT 30 58.0W LONG 80 24.0W DEPTH = 37M DIST LAST STA = 10.2KM

WEATHER DATA

WIND SPEED = 12 KTS SEA STATE =
WIND DIRECTION = 220 WAVE DIRECTION =
AIR TEMP = 18.9C CLOUD TYPE =
WEATHER CODE = CLOUD AMOUNT =
BAROMETRIC PRESSURE = 1014.5 MB VISIBILITY =

OBSERVATIONS

Z	T	S	D	SVA	Q2	Q2'	ABU	F04	M03	S1
32.0	19.90	.	.	.	.	.	.	.	.	.

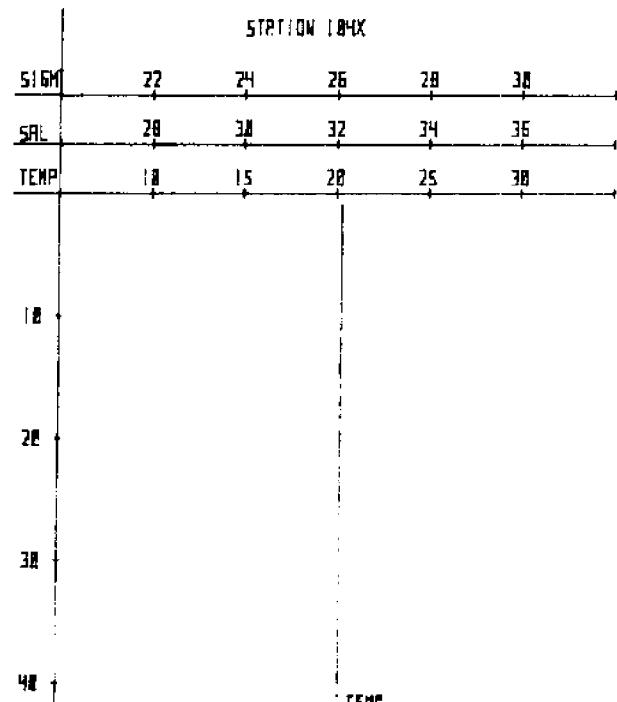


ISELIN CRUISE CI-12 STA 103C 13 JUL 76 6.6 GM CONSEC STA 103
LAT 30 58.0N LONG 80 19.3W DEPTH = 3dm DIST LAST STA = 8.5KM

WEATHER DATA

WIND SPEED = 10 KTS SEA STATE =
WIND DIRECTION = 210 WAVE DIRECTION =
AIR TEMP = 18.9C CLOUD TYPE =
WEATHER CODE = CLOUD AMOUNT =
BAROMETRIC PRESSURE = 1016.5 MB VISIBILITY CODE =

OBSERVATIONS										
Z	T	S	D	SVA	O2	O2'	AOU	P04	N03	S1
1.0	19.76	36.09	25.66	233	5.10	5.15	-0.03	0.07	00.0	01.7
2.0	19.76	36.08	25.66	234	.	.	.	.	.	.
3.0	19.76	36.08	25.66	234	.	.	.	.	.	.
4.0	19.76	36.09	25.66	233	.	.	.	.	.	.
5.0	19.76	36.09	25.66	233	.	.	.	.	.	.
6.0	19.76	36.09	25.66	233	.	.	.	.	.	.
7.0	19.76	36.09	25.66	233	.	.	.	.	.	.
8.0	19.76	36.09	25.66	233	.	.	.	.	.	.
9.0	19.76	36.09	25.66	233	.	.	.	.	.	.
10.0	19.76	36.09	25.66	233	.	.	.	.	.	.
11.0	19.76	36.09	25.66	233	.	.	.	.	.	.
12.0	19.76	36.09	25.66	233	.	.	.	.	.	.
13.0	19.76	36.09	25.66	233	.	.	.	.	.	.
14.0	19.76	36.09	25.66	233	.	.	.	.	.	.
15.0	19.76	36.09	25.66	234	.	.	.	.	.	.
16.0	19.76	36.09	25.66	234	.	.	.	.	.	.
17.0	19.76	36.09	25.66	234	.	.	.	.	.	.
18.0	19.76	36.09	25.66	234	.	.	.	.	.	.
19.0	19.76	36.09	25.66	234	.	.	.	.	.	.
20.0	19.76	36.09	25.66	234	.	.	.	.	.	.
21.0	19.76	36.09	25.66	234	.	.	.	.	.	.
22.0	19.76	36.09	25.66	234	.	.	.	.	.	.
23.0	19.76	36.09	25.66	234	.	.	.	.	.	.
24.0	19.76	36.09	25.66	234	.	.	.	.	.	.
25.0	19.76	36.09	25.66	234	.	.	.	.	.	.
26.0	19.76	36.09	25.66	234	.	.	.	.	.	.
27.0	19.76	36.09	25.66	234	.	.	.	.	.	.
28.0	19.76	36.09	25.66	234	.	.	.	.	.	.
29.0	19.76	36.09	25.66	234	.	.	.	.	.	.
30.0	19.76	36.09	25.66	234	.	.	.	.	.	.
31.0	19.76	36.09	25.66	234	.	.	.	.	.	.
32.0	19.76	36.08	25.66	235	.	.	.	.	.	.
33.0	19.76	36.08	25.66	235	.	.	.	.	.	.
34.0	19.76	36.08	25.66	235	5.22	5.15	-1.12	0.03	00.0	01.3
35.0	19.76	36.08	25.66	235	.	.	.	.	.	.
36.0	19.76	36.08	25.66	235	.	.	.	.	.	.
37.0	19.76	36.08	25.66	235	.	.	.	.	.	.

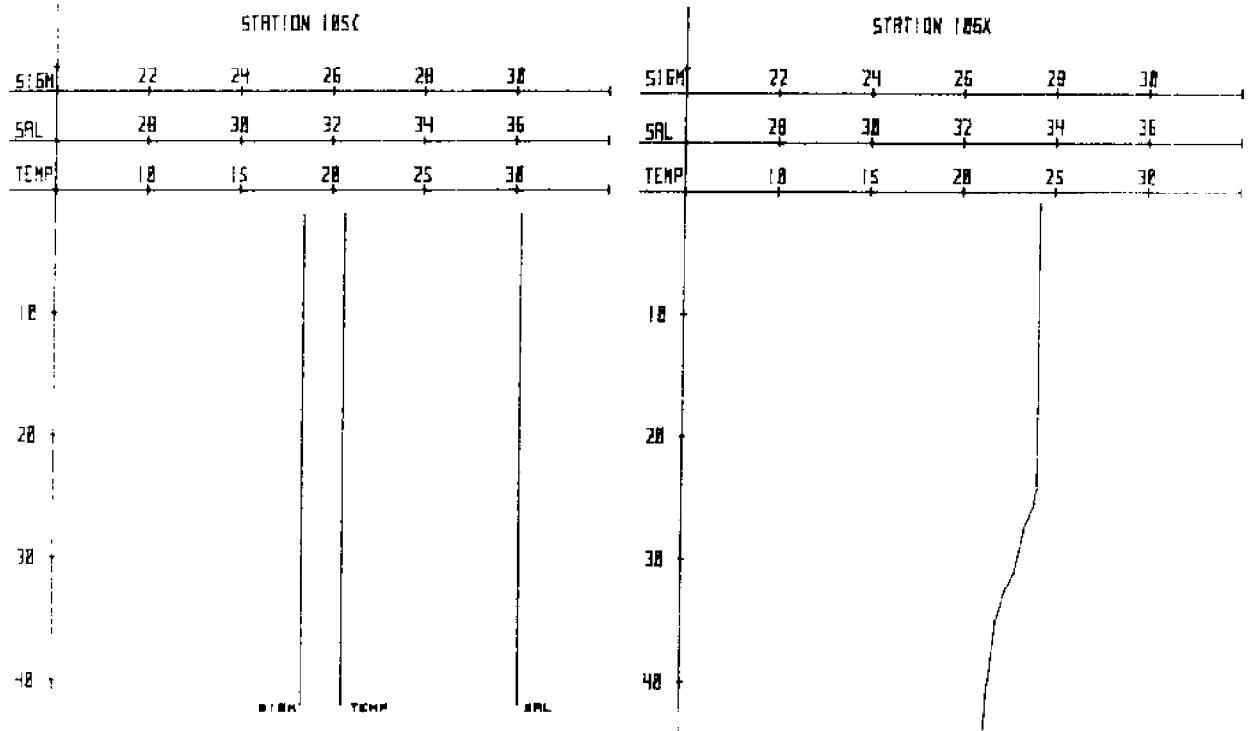


ISELIN CRUISE CI-12 STA 104X 13 JUL 76 7.5 GM CONSEC STA 104
LAT 30 54.4N LONG 80 13.5W DEPTH = 4m DIST LAST STA = 9.5km

WEATHER DATA

WIND SPEED = KTS SEA STATE =
WIND DIRECTION = WAVE DIRECTION =
AIR TEMP = 17.2C CLOUD TYPE =
WEATHER CODE = CLOUD AMOUNT =
BAROMETRIC PRESSURE = 1016.3 MB VISIBILITY CODE =

OBSERVATIONS										
Z	T	S	D	SVA	O2	O2'	AOU	P04	N03	S1
1.0	20.30	-	-	-	-	-	-	-	-	-
41.0	20.30	-	-	-	-	-	-	-	-	-



ISELIN CRUISE CI-12 SIA 105A 36 41.5N 8.8 0000Z 105A 105

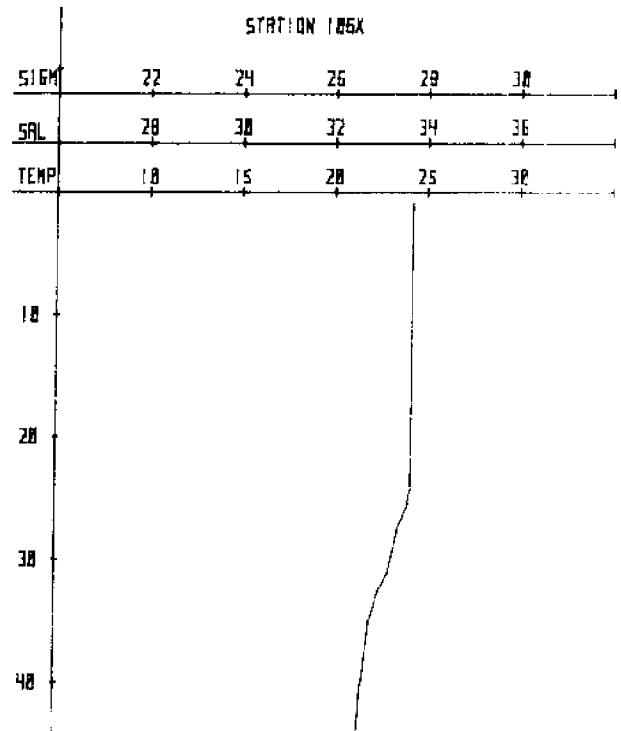
LAT 36 40.5N LONG 08 8.5W DEPTH = 40M BISF 185C STA = 8.5KM

WEATHER DATA

WIND SPEED = 18 KTS
WIND DIRECTION = 350
AIR TEMP = 17.8C
WEATHER CODE = F
BAROMETRIC PRESSURE = 1016.2 MB

SEA STATE =
WAVE DIRECTION =
CLOUD TYPE =
CLOUD AMOUNT =
VISIBILITY (KME) =

OBSERVATIONS										
Z	T	S	B	SVA	B2	B2	Add	For	For	SL
0.0	18.10	25.43	258	5.00	0.00	0.00	0.03	00.3	02.0	
1.0	18.10	25.42	258	.	.	.	.	.	.
2.0	18.10	25.43	258	.	.	.	.	.	.
3.0	18.10	25.43	258	.	.	.	.	.	.
4.0	18.10	25.43	258	.	.	.	.	.	.
5.0	18.10	25.43	258	.	.	.	.	.	.
6.0	18.10	25.43	258	.	.	.	.	.	.
7.0	18.10	25.43	258	.	.	.	.	.	.
8.0	18.10	25.43	258	.	.	.	.	.	.
9.0	18.10	25.43	258	.	.	.	.	.	.
10.0	18.10	25.43	258	.	.	.	.	.	.
11.0	18.10	25.43	258	.	.	.	.	.	.
12.0	18.10	25.43	258	.	.	.	.	.	.
13.0	18.10	25.43	258	.	.	.	.	.	.
14.0	18.10	25.43	258	.	.	.	.	.	.
15.0	18.10	25.43	258	.	.	.	.	.	.
16.0	18.10	25.43	258	.	.	.	.	.	.
17.0	18.10	25.43	258	.	.	.	.	.	.
18.0	18.10	25.43	258	.	.	.	.	.	.
19.0	18.10	25.43	258	.	.	.	.	.	.
20.0	18.10	25.43	258	.	.	.	.	.	.
21.0	18.10	25.43	258	.	.	.	.	.	.
22.0	18.10	25.43	258	.	.	.	.	.	.
23.0	18.10	25.43	258	.	.	.	.	.	.
24.0	18.10	25.43	258	.	.	.	.	.	.
25.0	18.10	25.43	258	.	.	.	.	.	.
26.0	18.10	25.43	258	.	.	.	.	.	.
27.0	18.10	25.43	258	.	.	.	.	.	.
28.0	18.10	25.43	258	.	.	.	.	.	.
29.0	18.10	25.43	258	.	.	.	.	.	.
30.0	18.10	25.43	258	.	.	.	.	.	.
31.0	18.10	25.43	258	.	.	.	.	.	.
32.0	18.10	25.43	258	.	.	.	.	.	.
33.0	18.10	25.43	258	.	.	.	.	.	.
34.0	18.10	25.43	258	.	.	.	.	.	.
35.0	18.10	25.43	258	.	.	.	.	.	.
36.0	18.10	25.43	258	.	.	.	.	.	.
37.0	18.10	25.43	258	.	.	.	.	.	.
38.0	18.10	25.43	258	.	.	.	.	.	.
39.0	18.10	25.43	258	.	.	.	.	.	.
40.0	18.10	25.43	258	.	.	.	.	.	.
41.0	18.10	25.43	258	.	.	.	.	.	.
42.0	18.10	25.43	258	.	.	.	.	.	.
43.0	18.10	25.43	258	.	.	.	.	.	.
44.0	18.10	25.43	258	.	.	.	.	.	.
45.0	18.10	25.43	258	.	.	.	.	.	.
46.0	18.10	25.43	258	.	.	.	.	.	.
47.0	18.10	25.43	258	.	.	.	.	.	.
48.0	18.10	25.43	258	.	.	.	.	.	.
49.0	18.10	25.43	258	.	.	.	.	.	.
50.0	18.10	25.43	258	.	.	.	.	.	.
51.0	18.10	25.43	258	.	.	.	.	.	.
52.0	18.10	25.43	258	.	.	.	.	.	.
53.0	18.10	25.43	258	.	.	.	.	.	.
54.0	18.10	25.43	258	.	.	.	.	.	.
55.0	18.10	25.43	258	.	.	.	.	.	.
56.0	18.10	25.43	258	.	.	.	.	.	.
57.0	18.10	25.43	258	.	.	.	.	.	.
58.0	18.10	25.43	258	.	.	.	.	.	.
59.0	18.10	25.43	258	.	.	.	.	.	.
60.0	18.10	25.43	258	.	.	.	.	.	.
61.0	18.10	25.43	258	.	.	.	.	.	.
62.0	18.10	25.43	258	.	.	.	.	.	.
63.0	18.10	25.43	258	.	.	.	.	.	.
64.0	18.10	25.43	258	.	.	.	.	.	.
65.0	18.10	25.43	258	.	.	.	.	.	.
66.0	18.10	25.43	258	.	.	.	.	.	.
67.0	18.10	25.43	258	.	.	.	.	.	.
68.0	18.10	25.43	258	.	.	.	.	.	.
69.0	18.10	25.43	258	.	.	.	.	.	.
70.0	18.10	25.43	258	.	.	.	.	.	.
71.0	18.10	25.43	258	.	.	.	.	.	.
72.0	18.10	25.43	258	.	.	.	.	.	.
73.0	18.10	25.43	258	.	.	.	.	.	.
74.0	18.10	25.43	258	.	.	.	.	.	.
75.0	18.10	25.43	258	.	.	.	.	.	.
76.0	18.10	25.43	258	.	.	.	.	.	.
77.0	18.10	25.43	258	.	.	.	.	.	.
78.0	18.10	25.43	258	.	.	.	.	.	.
79.0	18.10	25.43	258	.	.	.	.	.	.
80.0	18.10	25.43	258	.	.	.	.	.	.
81.0	18.10	25.43	258	.	.	.	.	.	.
82.0	18.10	25.43	258	.	.	.	.	.	.
83.0	18.10	25.43	258	.	.	.	.	.	.
84.0	18.10	25.43	258	.	.	.	.	.	.
85.0	18.10	25.43	258	.	.	.	.	.	.
86.0	18.10	25.43	258	.	.	.	.	.	.
87.0	18.10	25.43	258	.	.	.	.	.	.
88.0	18.10	25.43	258	.	.	.	.	.	.
89.0	18.10	25.43	258	.	.	.	.	.	.
90.0	18.10	25.43	258	.	.	.	.	.	.
91.0	18.10	25.43	258	.	.	.	.	.	.
92.0	18.10	25.43	258	.	.	.	.	.	.
93.0	18.10	25.43	258	.	.	.	.	.	.
94.0	18.10	25.43	258	.	.	.	.	.	.
95.0	18.10	25.43	258	.	.	.	.	.	.
96.0	18.10	25.43	258	.	.	.	.	.	.
97.0	18.10	25.43	258	.	.	.	.	.	.
98.0	18.10	25.43	258	.	.	.	.	.	.
99.0	18.10	25.43	258	.	.	.	.	.	.
100.0	18.10	25.43	258	.	.	.	.	.	.



ISELIN CRUISE CI-12 SIA 105A 36 41.5N 8.8 0000Z 105A 105

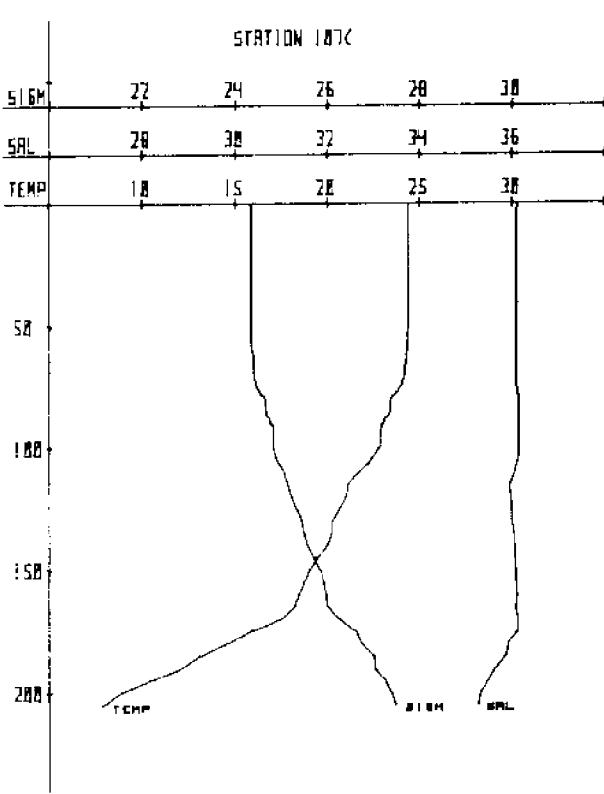
LAT 36 40.5N LONG 08 8.5W DEPTH = 40M BISF 185X STA = 8.5KM

WEATHER DATA

WIND SPEED = 18 KTS
WIND DIRECTION = 350
AIR TEMP = 17.8C
WEATHER CODE = F
BAROMETRIC PRESSURE = 1016.2 MB

SEA STATE =
WAVE DIRECTION =
CLOUD TYPE =
CLOUD AMOUNT =
VISIBILITY (KME) =

Z	T	S	B	SVA	B2	B2	Add	For	For	SL
0.0	18.10	25.43	258	5.00	0.00	0.00	0.03	00.3	02.0	
1.0	18.10	25.42	258	.	.	.	.	.	.
2.0	18.10	25.42	258	.	.	.	.	.	.
3.0	18.10	25.42	258	.	.	.	.	.	.
4.0	18.10	25.42	258	.	.	.	.	.	.
5.0	18.10	25.42	258	.	.	.	.	.	.
6.0	18.10	25.42	258	.	.	.	.	.	.
7.0	18.10	25.42	258	.	.	.	.	.	.
8.0	18.10	25.42	258	.	.	.	.	.	.
9.0	18.10	25.42	258	.	.	.	.	.	.
10.0	18.10	25.42	258	.	.	.	.	.	.
11.0	18.10	25.42	258	.	.	.	.	.	.
12.0	18.10	25.42	258	.	.	.	.	.	.
13.0	18.10	25.42	258	.						



1st IN CRUISE CI-12 STA 102C 132 X1176 9.3 miN DUNEDIN STA 107
LAT 30 48.2N LONG 29 58.0W DEPTH -214M DIST LAST STA = 9.2NM

WEATHER DATA

WIND SPEED = 22 HTS
WIND DIRECTION = 360
AIR TEMP = 18.9C
WEATHER CODE =
BAROMETRIC PRESSURE = 1010.5 MB

SEA STATE =
WAVE DIRECTION =
CLOUD TYPE =
CLOUD AMOUNT =
VISIBILITY CODE =

OBSERVATIONS

Z	T	S	D	LVA	DU	DI	HDO	PDA	NUS	SI	
1.0	24.38	36.10	24.32	356	4.89	4.74	-15	0.05	00.2	01.8	
2.0	24.38	36.10	24.32	356	.	.	.	.	.	.
3.0	24.38	36.09	24.31	357	.	.	.	.	.	.
4.0	24.38	36.09	24.34	357	.	.	.	.	.	.
5.0	24.38	36.09	24.36	357	.	.	.	.	.	.
6.0	24.38	36.09	24.36	357	.	.	.	.	.	.
7.0	24.38	36.09	24.36	357	.	.	.	.	.	.
8.0	24.38	36.10	24.32	357	.	.	.	.	.	.
9.0	24.38	36.09	24.36	357	.	.	.	.	.	.
10.0	24.38	36.09	24.36	357	.	.	.	.	.	.
11.0	24.38	36.10	24.32	357	.	.	.	.	.	.
12.0	24.38	36.10	24.32	357	.	.	.	.	.	.
13.0	24.38	36.10	24.32	357	.	.	.	.	.	.
14.0	24.38	36.09	24.34	356	.	.	.	.	.	.
15.0	24.38	36.10	24.32	357	.	.	.	.	.	.
16.0	24.38	36.09	24.36	358	.	.	.	.	.	.
17.0	24.38	36.09	24.36	358	.	.	.	.	.	.
18.0	24.38	36.09	24.36	358	.	.	.	.	.	.
19.0	24.38	36.09	24.36	358	.	.	.	.	.	.
20.0	24.38	36.09	24.36	358	.	.	.	.	.	.
21.0	24.38	36.09	24.36	358	.	.	.	.	.	.
22.0	24.38	36.09	24.36	358	.	.	.	.	.	.
23.0	24.38	36.09	24.36	358	.	.	.	.	.	.
24.0	24.38	36.09	24.36	358	.	.	.	.	.	.
25.0	24.38	36.09	24.36	358	.	.	.	.	.	.
26.0	24.38	36.10	24.33	357	.	.	.	.	.	.
27.0	24.38	36.09	24.34	356	.	.	.	.	.	.
28.0	24.38	36.10	24.32	357	.	.	.	.	.	.
29.0	24.38	36.10	24.32	357	.	.	.	.	.	.
30.0	24.38	36.10	24.32	358	.	.	.	.	.	.
31.0	24.38	36.10	24.37	358	.	.	.	.	.	.
32.0	24.38	36.09	24.36	359	.	.	.	.	.	.
33.0	24.38	36.08	24.35	359	.	.	.	.	.	.
34.0	24.38	36.09	24.36	358	.	.	.	.	.	.
35.0	24.38	36.08	24.35	359	.	.	.	.	.	.

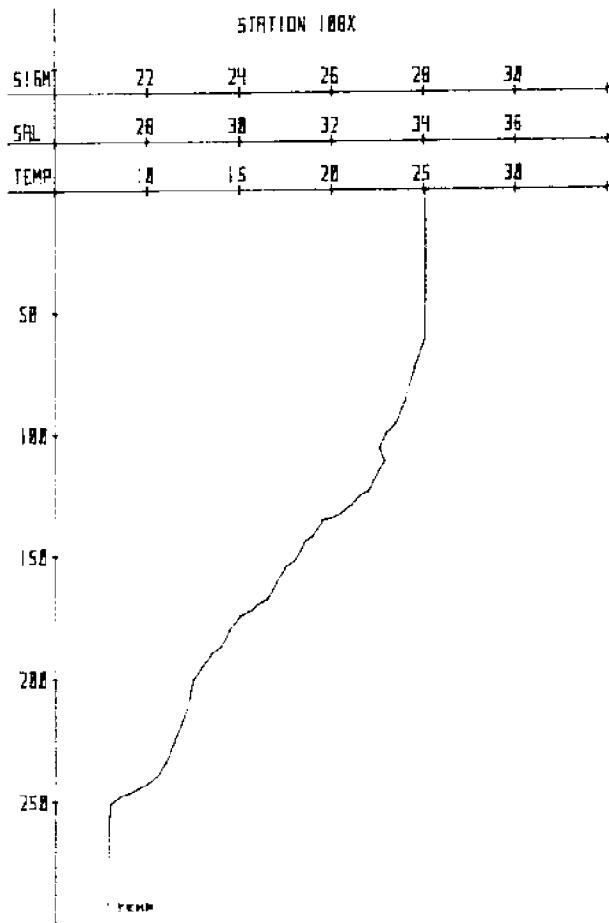
3.11 . . . 1.00 24.15 .3.11

ISELIN CRUISE CI-12 STA 108X 15 JULY 1976 10.7 GMT DUSK STA 108

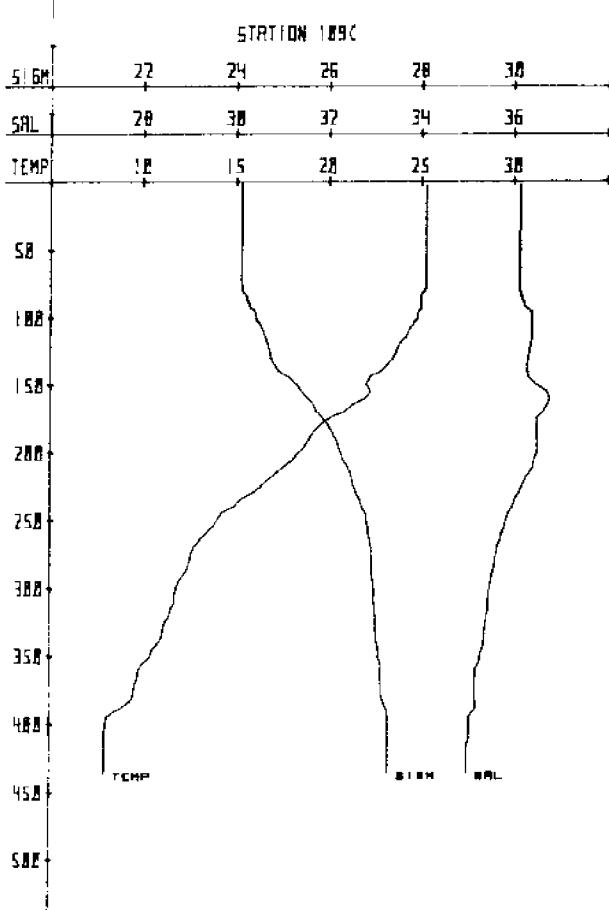
LAT 30 14.6N LONG 79 52.5W DEPTH -292M DIST LAST STA = 7.8NM

WEATHER DATA

WIND SPEED	= 22 KTS	SEA STATE	=
WIND DIRECTION	= 360	WAVE DIRECTION	=
AIR TEMP	= 18.9C	CLOUD TYPE	=
WEATHER CODE	=	CLOUD AMOUNT	=
BAROMETRIC PRESSURE = 1016.5 MB		VISIBILITY	= LOW



Z	I	S	B	OBSERVATIONS							
				SVA	02	03	ADU	F64	N03	S1	
100.0	25.10	.	.	.	.	.	.	.	.	.	.
125.0	25.00	.	.	.	.	.	.	.	.	.	.
150.0	24.50	.	.	.	.	.	.	.	.	.	.
175.0	24.00	.	.	.	.	.	.	.	.	.	.
200.0	23.50	.	.	.	.	.	.	.	.	.	.
225.0	23.00	.	.	.	.	.	.	.	.	.	.
250.0	22.60	.	.	.	.	.	.	.	.	.	.
275.0	22.90	.	.	.	.	.	.	.	.	.	.
300.0	22.50	.	.	.	.	.	.	.	.	.	.
325.0	22.00	.	.	.	.	.	.	.	.	.	.
350.0	21.50	.	.	.	.	.	.	.	.	.	.
375.0	21.00	.	.	.	.	.	.	.	.	.	.
400.0	20.50	.	.	.	.	.	.	.	.	.	.
425.0	20.00	.	.	.	.	.	.	.	.	.	.
450.0	19.50	.	.	.	.	.	.	.	.	.	.
475.0	19.00	.	.	.	.	.	.	.	.	.	.
500.0	18.50	.	.	.	.	.	.	.	.	.	.
525.0	18.00	.	.	.	.	.	.	.	.	.	.
550.0	17.50	.	.	.	.	.	.	.	.	.	.
575.0	17.00	.	.	.	.	.	.	.	.	.	.
600.0	16.50	.	.	.	.	.	.	.	.	.	.
625.0	16.00	.	.	.	.	.	.	.	.	.	.
650.0	15.50	.	.	.	.	.	.	.	.	.	.
675.0	15.00	.	.	.	.	.	.	.	.	.	.
700.0	14.50	.	.	.	.	.	.	.	.	.	.
725.0	14.00	.	.	.	.	.	.	.	.	.	.
750.0	13.50	.	.	.	.	.	.	.	.	.	.
775.0	13.00	.	.	.	.	.	.	.	.	.	.
800.0	12.50	.	.	.	.	.	.	.	.	.	.
825.0	12.00	.	.	.	.	.	.	.	.	.	.
850.0	11.50	.	.	.	.	.	.	.	.	.	.
875.0	11.00	.	.	.	.	.	.	.	.	.	.
900.0	10.50	.	.	.	.	.	.	.	.	.	.
925.0	10.00	.	.	.	.	.	.	.	.	.	.
950.0	9.50	.	.	.	.	.	.	.	.	.	.
975.0	9.00	.	.	.	.	.	.	.	.	.	.
1000.0	8.50	.	.	.	.	.	.	.	.	.	.
1025.0	8.00	.	.	.	.	.	.	.	.	.	.
1050.0	7.90	.	.	.	.	.	.	.	.	.	.
1075.0	7.80	.	.	.	.	.	.	.	.	.	.



DEATH CRUISE CI-92 STATION 189 CTD 1113 GMT CTDLOG STA 109

LAT 30 44.5N LONG 29 45.6W DEPTH 1443M EAST LATL STA = 109.EPM

WEATHER DATA

WIND SPEED	= 21 KTS	SEA STATE	
WIND DIRECTION	= 180	WAVE DIRECTION	
AIR TEMP	= 16.9	CLOUD TYPE	
WEATHER CODE	-	CLOUD AMOUNT	
BAROMETRIC PRESSURE	= 1016.5 mb	VISIBILITY CODE	

OCEANOGRAPHIC										
I	T	S	D	EVA	02	32	AUD	FIA	HOB	SI
3.0	25.23	36.12	24.13	380	4.0.	4.08	.05	9.32	00.1	01.3
4.0	25.23	36.13	24.13	379	.	.	.	.	.	.
5.0	25.23	36.13	24.13	379	.	.	.	.	.	.
6.0	25.23	36.12	24.13	360	.	.	.	.	.	.
7.0	25.23	36.12	24.13	360	.	.	.	.	.	.
8.0	25.23	36.12	24.13	360	.	.	.	.	.	.
9.0	25.23	36.13	24.13	379	.	.	.	.	.	.
10.0	25.24	36.12	24.12	380	.	.	.	.	.	.
11.0	25.24	36.12	24.12	380	.	.	.	.	.	.
12.0	25.24	36.12	24.12	380	.	.	.	.	.	.
13.0	25.24	36.12	24.12	380	.	.	.	.	.	.
14.0	25.24	36.12	24.12	380	.	.	.	.	.	.
15.0	25.24	36.12	24.12	380	.	.	.	.	.	.
16.0	25.24	36.12	24.12	380	.	.	.	.	.	.
17.0	25.24	36.12	24.12	380	.	.	.	.	.	.
18.0	25.24	36.12	24.12	380	.	.	.	.	.	.
19.0	25.24	36.12	24.12	380	.	.	.	.	.	.
20.0	25.23	36.12	24.13	380	.	.	.	.	.	.
21.0	25.24	36.12	24.12	380	.	.	.	.	.	.
22.0	25.24	36.12	24.12	380	.	.	.	.	.	.
23.0	25.23	36.12	24.13	380	.	.	.	.	.	.
24.0	25.23	36.12	24.13	380	.	.	.	.	.	.
25.0	25.23	36.13	24.13	380	.	.	.	.	.	.
26.0	25.24	36.12	24.12	380	.	.	.	.	.	.
27.0	25.24	36.12	24.12	380	.	.	.	.	.	.

28.0	25.24	36.12	24.12	380	.	.	.	.	.	.
29.0	25.24	36.12	24.12	380	.	.	.	.	.	.
30.0	25.23	36.13	24.13	380	.	.	.	.	.	.
31.0	25.24	36.12	24.12	380	.	.	.	.	.	.
32.0	25.24	36.11	24.11	380	.	.	.	.	.	.
33.0	25.24	36.11	24.11	380	.	.	.	.	.	.
34.0	25.23	36.12	24.13	380	.	.	.	.	.	.
35.0	25.23	36.12	24.13	380	.	.	.	.	.	.
36.0	25.24	36.11	24.11	380	.	.	.	.	.	.
37.0	25.24	36.11	24.11	380	.	.	.	.	.	.
38.0	25.24	36.11	24.11	380	.	.	.	.	.	.
39.0	25.24	36.11	24.11	380	.	.	.	.	.	.
40.0	25.24	36.12	24.12	380	.	.	.	.	.	.
41.0	25.24	36.12	24.12	380	.	.	.	.	.	.
42.0	25.24	36.12	24.12	380	.	.	.	.	.	.
43.0	25.24	36.12	24.12	380	.	.	.	.	.	.
44.0	25.24	36.11	24.11	380	.	.	.	.	.	.
45.0	25.24	36.12	24.12	380	.	.	.	.	.	.
46.0	25.24	36.12	24.12	380	.	.	.	.	.	.
47.0	25.24	36.12	24.12	380	.	.	.	.	.	.
48.0	25.26	36.12	24.11	380	.	.	.	.	.	.
49.0	25.26	36.11	24.11	380	.	.	.	.	.	.
50.0	25.26	36.11	24.11	380	.	.	.	.	.	.
51.0	25.26	36.12	24.12	380	4.02	4.67	1.15	0.61	0.11	0.19
52.0	25.26	36.12	24.12	380	.	.	.	.	.	.
53.0	25.26	36.12	24.12	380	.	.	.	.	.	.
54.0	25.26	36.12	24.12	380	.	.	.	.	.	.
55.0	25.26	36.12	24.12	380	.	.	.	.	.	.
56.0	25.26	36.12	24.12	380	.	.	.	.	.	.
57.0	25.26	36.12	24.12	380	.	.	.	.	.	.
58.0	25.26	36.12	24.12	380	.	.	.	.	.	.
59.0	25.26	36.12	24.12	380	.	.	.	.	.	.
60.0	25.24	36.12	24.12	380	.	.	.	.	.	.
61.0	25.24	36.12	24.12	380	.	.	.	.	.	.
62.0	25.24	36.12	24.12	380	.	.	.	.	.	.
63.0	25.24	36.12	24.12	380	.	.	.	.	.	.
64.0	25.24	36.12	24.12	380	.	.	.	.	.	.
65.0	25.24	36.12	24.12	380	.	.	.	.	.	.
66.0	25.24	36.12	24.12	380	.	.	.	.	.	.
67.0	25.24	36.12	24.12	380	.	.	.	.	.	.
68.0	25.24	36.11	24.11	380	.	.	.	.	.	.
69.0	25.24	36.12	24.12	380	.	.	.	.	.	.
70.0	25.24	36.12	24.12	380	.	.	.	.	.	.
71.0	25.26	36.12	24.12	380	.	.	.	.	.	.
72.0	25.26	36.12	24.12	380	.	.	.	.	.	.
73.0	25.26	36.12	24.12	380	.	.	.	.	.	.
74.0	25.26	36.12	24.12	380	.	.	.	.	.	.
75.0	25.26	36.12	24.12	380	.	.	.	.	.	.
76.0	25.26	36.12	24.12	380	.	.	.	.	.	.
77.0	25.20	36.14	24.15	380	.	.	.	.	.	.
78.0	25.17	36.13	24.15	380	.	.	.	.	.	.
79.0	25.17	36.13	24.15	380	.	.	.	.	.	.
80.0	25.16	36.13	24.15	380	.	.	.	.	.	.
81.0	25.16	36.14	24.16	380	.	.	.	.	.	.
82.0	25.04	36.16	24.21	380	.	.	.	.	.	.
83.0	25.00	36.17	24.21	380	.	.	.	.	.	.
84.0	24.94	36.18	24.26	380	.	.	.	.	.	.
85.0	24.90	36.19	24.28	380	.	.	.	.	.	.
86.0	24.90	36.19	24.28	380	.	.	.	.	.	.
87.0	24.90	36.19	24.28	380	.	.	.	.	.	.
88.0	24.89	36.20	24.19	380	.	.	.	.	.	.
89.0	24.87	36.23	24.37	380	.	.	.	.	.	.
90.0	24.87	36.23	24.37	380	.	.	.	.	.	.
91.0	24.87	36.23	24.37	380	.	.	.	.	.	.
92.0	24.86	36.24	24.33	380	304	.	.	.	.	.
93.0	24.86	36.25	24.34	380	303	.	.	.	.	.
94.0	24.87	36.26	24.36	380	302	.	.	.	.	.
95.0	24.86	36.38	24.42	380	301	.	.	.	.	.
96.0	24.80	36.36	24.44	380	300	.	.	.	.	.
97.0	24.79	36.38	24.46	380	299	.	.	.	.	.
98.0	24.78	36.39	24.47	380	298	.	.	.	.	.
99.0	24.78	36.39	24.47	380	297	.	.	.	.	.
100.0	24.78	36.40	24.47	380	296	3.23	4.70	1.47	0.08	0.18
101.0	24.77	36.40	24.48	380	295	.	.	.	.	.
104.0	24.59	36.40	24.53	380	294	.	.	.	.	.
110.0	24.29	36.39	24.61	380	293	.	.	.	.	.
115.0	24.13	36.39	24.66	380	292	.	.	.	.	.
120.0	23.79	36.33	24.72	380	291	.	.	.	.	.
125.0	23.61	36.31	24.76	380	290	.	.	.	.	.
130.0	23.48	36.30	24.79	380	289	.	.	.	.	.
135.0	23.16	36.28	24.82	380	288	.	.	.	.	.
140.0	22.87	36.29	24.96	380	287	.	.	.	.	.
145.0	22.29	36.32	25.17	380	286	.	.	.	.	.
150.0	22.02	36.48	25.34	380	285	3.75	4.93	1.16	0.24	0.15
155.0	22.26	36.71	25.45	380	284	.	.	.	.	.
160.0	21.92	36.79	25.59	380	283	.	.	.	.	.
165.0	21.39	36.72	25.71	380	282	.	.	.	.	.

STATION 134C

SALM	22	24	26	28	30
SAL	20	30	32	34	36
TEMP	18	15	20	25	30
10					
20	TEMP	SALM	SAL		

ISELM CRUISE CI-12 SIR 134C 14 40176 116.000000 51.000000 0.000000

LAT 31 48.2N LONG 80 19.0W DEPTH - 10M DIST EAST SIR - 118.7NM

WEATHER DATA

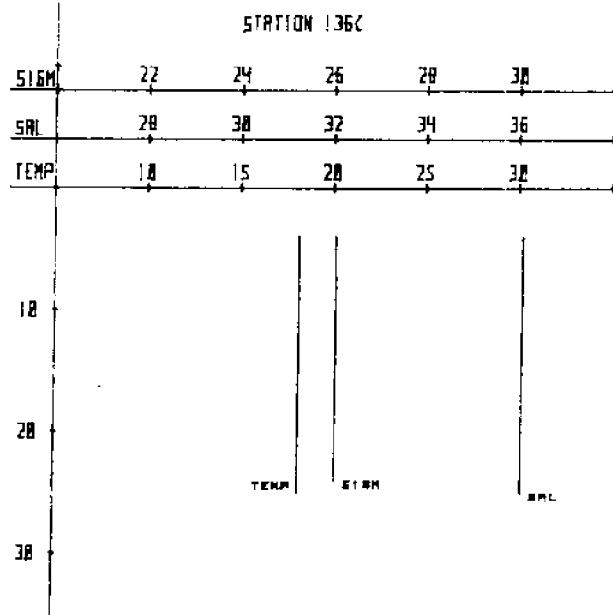
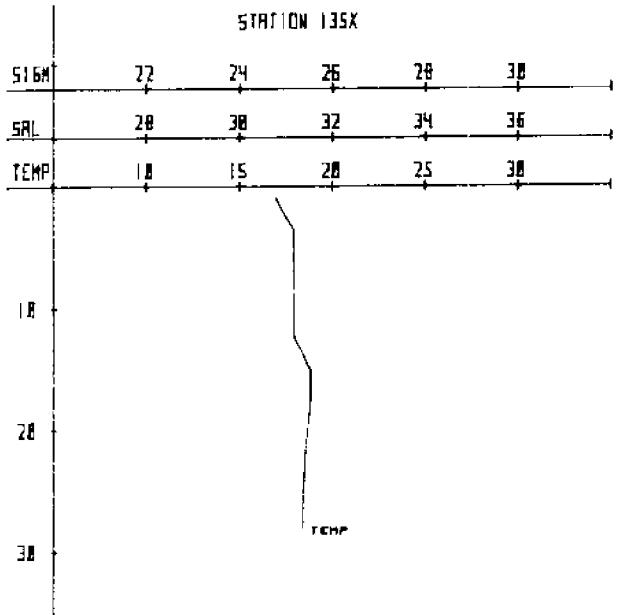
WIND SPEED = 25 KTS
 WIND DIRECTION = 045
 AIR TEMP = 11.0C
 WEATHER LOWE =
 BAROMETRIC PRESSURE = 1025.9 mb

SEA STATE =
 WAVE DIRECTION =
 CLOUD TYPE =
 CLOUD AMOUNT =
 VISIBILITY (NM) =

Observations

	Z	T	S	D	SVA	02	03	04	05	06	07	08
351.0	10.37	35.28	27.12	101								
352.0	10.34	35.26	27.16	99								
360.0	9.76	35.17	27.14	101								
365.0	9.68	35.18	27.16	99								
371.0	9.52	35.18	27.18	99								
375.0	9.51	35.18	27.19	99								
380.0	9.44	35.18	27.19	99								
384.0	9.28	35.21	27.25	90								
390.0	8.62	35.18	27.17	94								
395.0	8.06	35.05	27.32	63								
401.0	7.98	35.03	27.31	84	3.07	0.00	1.00	2.00	30.0	19.0		
405.0	7.93	35.02	27.31	84								
410.0	7.93	35.02	27.31	84								
415.0	7.93	35.00	27.30	85								
420.0	7.93	35.00	27.30	85								
425.0	7.90	35.01	27.31	84								
431.0	7.90	35.00	27.31	81	3.14	0.00	1.00	2.00	18.0	18.0		
432.0	7.90	35.00	27.30	81								

	Z	T	S	D	SVA	02	03	04	05	06	07	08
3.0	15.22	35.72	26.49	155	5.00	0.03	-0.05	0.05	0.01	0.00		
3.0	15.22	35.73	26.49	154								
4.0	15.22	35.73	26.49	154								
5.0	15.22	35.72	26.49	155								
6.0	15.22	35.72	26.49	155								
7.0	15.20	35.73	26.50	154								
8.0	15.20	35.72	26.49	155								
9.0	15.20	35.72	26.49	155								
10.0	15.20	35.72	26.49	155								
11.0	15.20	35.72	26.49	155								
12.0	15.20	35.72	26.49	155								
13.0	15.20	35.72	26.49	155								
14.0	15.19	35.73	26.50	154								
15.0	15.20	35.73	26.50	154								
16.0	15.20	35.72	26.49	155								
17.0	15.19	35.72	26.49	155								
18.0	15.19	35.72	26.49	155	5.21	0.04	-0.07	0.00	0.01	0.00		
19.0	15.19	35.71	26.49	156								
20.0	15.19	35.72	26.49	155								



ISELLIN CRUISE CI-12 STA 135X 14Z ALB/76 2.7 GRT CONSEL STA 135
LAT 31 48.4N LONG 80 13.5W DEPTH - 20M DIST LAST STA - 9.3NM

WEATHER DATA

WIND SPEED = 29 KTS SEA STATE =
WIND DIRECTION = 040 WAVE DIRECTION =
AIR TEMP = 12.2C CLOUD TYPE =
WEATHER CODE = CLOUD AMOUNT =
BAROMETRIC PRESSURE = 1025.8 MB VISIBILITY (NM) =

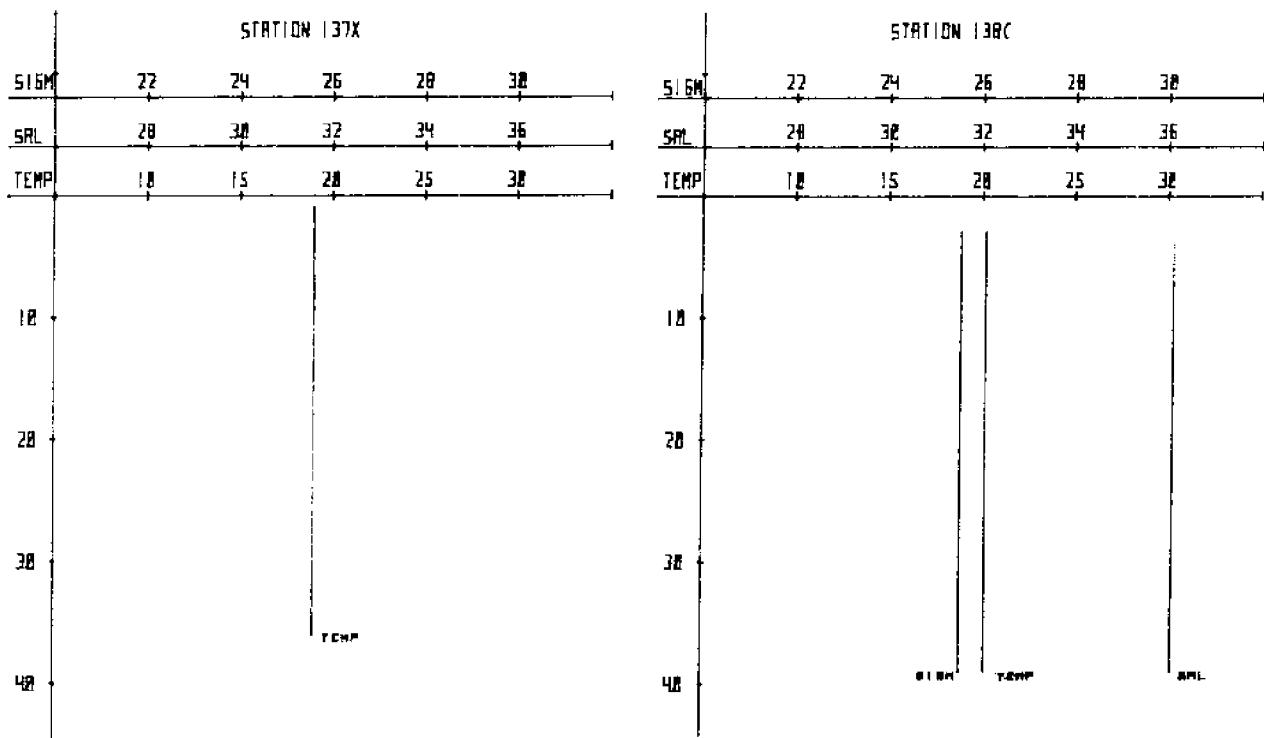
OBSERVATIONS										
Z	T	S	D	EVA	O2	32'	AOU	PLA	MUS	SI
1.0	17.00	*	*	*	*	*	*	*	*	*
2.0	17.50	*	*	*	*	*	*	*	*	*
3.0	17.50	*	*	*	*	*	*	*	*	*
12.0	17.50	*	*	*	*	*	*	*	*	*
12.5	18.00	*	*	*	*	*	*	*	*	*
14.0	18.50	*	*	*	*	*	*	*	*	*
15.0	18.80	*	*	*	*	*	*	*	*	*
22.0	18.50	*	*	*	*	*	*	*	*	*
28.0	18.30	*	*	*	*	*	*	*	*	*

ISELLIN CRUISE CI-12 STA 136C 14Z ALB/76 2.7 GRT CONSEL STA 136
LAT 31 44.9N LONG 80 8.4W DEPTH - 20M DIST LAST STA - 8.5NM

WEATHER DATA

WIND SPEED = 29 KTS SEA STATE =
WIND DIRECTION = 040 WAVE DIRECTION =
AIR TEMP = 12.2C CLOUD TYPE =
WEATHER CODE = CLOUD AMOUNT =
BAROMETRIC PRESSURE = 1025.8 MB VISIBILITY (NM) =

OBSERVATIONS										
Z	T	S	D	SVA	O2	32'	AOU	PLA	MUS	SI
4.0	18.13	36.07	26.07	195	5.142	5.31	-0.11	0.04	00.2	01.1
5.0	18.14	36.08	26.07	194	-	-	-	-	-	-
6.0	18.13	36.08	26.07	194	-	-	-	-	-	-
7.0	18.13	36.08	26.07	194	-	-	-	-	-	-
8.0	18.14	36.07	26.06	195	-	-	-	-	-	-
9.0	18.13	36.08	26.07	194	-	-	-	-	-	-
10.0	18.13	36.08	26.07	194	-	-	-	-	-	-
11.0	18.13	36.08	26.07	194	-	-	-	-	-	-
12.0	18.13	36.08	26.07	194	-	-	-	-	-	-
13.0	18.13	36.08	26.07	194	-	-	-	-	-	-
14.0	18.13	36.08	26.07	194	-	-	-	-	-	-
15.0	18.13	36.08	26.07	195	-	-	-	-	-	-
16.0	18.14	36.07	26.06	196	-	-	-	-	-	-
17.0	18.14	36.07	26.06	196	-	-	-	-	-	-
18.0	18.14	36.07	26.06	196	-	-	-	-	-	-
19.0	18.14	36.07	26.06	196	-	-	-	-	-	-
20.0	18.14	36.07	26.06	196	-	-	-	-	-	-
21.0	18.13	36.08	26.07	195	-	-	-	-	-	-
22.0	18.13	36.07	26.07	195	-	-	-	-	-	-
23.0	18.13	36.07	26.07	196	-	-	-	-	-	-
24.0	18.13	36.08	26.07	195	-	-	-	-	-	-
25.0	18.14	36.07	26.06	196	-	-	-	-	-	-
26.0				5.33	-	-	0.07	00.1	00.2	



ISELIN CRUISE CI-12 STA 137X 14/ XII/76 4.9 KM CONSEC STA 137
LAT 31 43.0W LONG 80 3.4W DEPTH = 36M DIST LAST STA = 8.6KM

WEATHER DATA

WIND SPEED = 30 KTS SEA STATE =
WIND DIRECTION = 040 WAVE DIRECTION =
AIR TEMP = 14.4C CLOUD TYPE =
WEATHER CODE = CLOUD AMOUNT =
BAROMETRIC PRESSURE = 1025.5 MB VISIBILITY CODE =

OBSERVATIONS

Z	T	S	N	SVA	O2	03	A00	P04	N03	SI
1.0	19.00	.	.	.	.	.	.	.	.	.
36.0	19.00	.	.	.	.	.	.	.	.	.

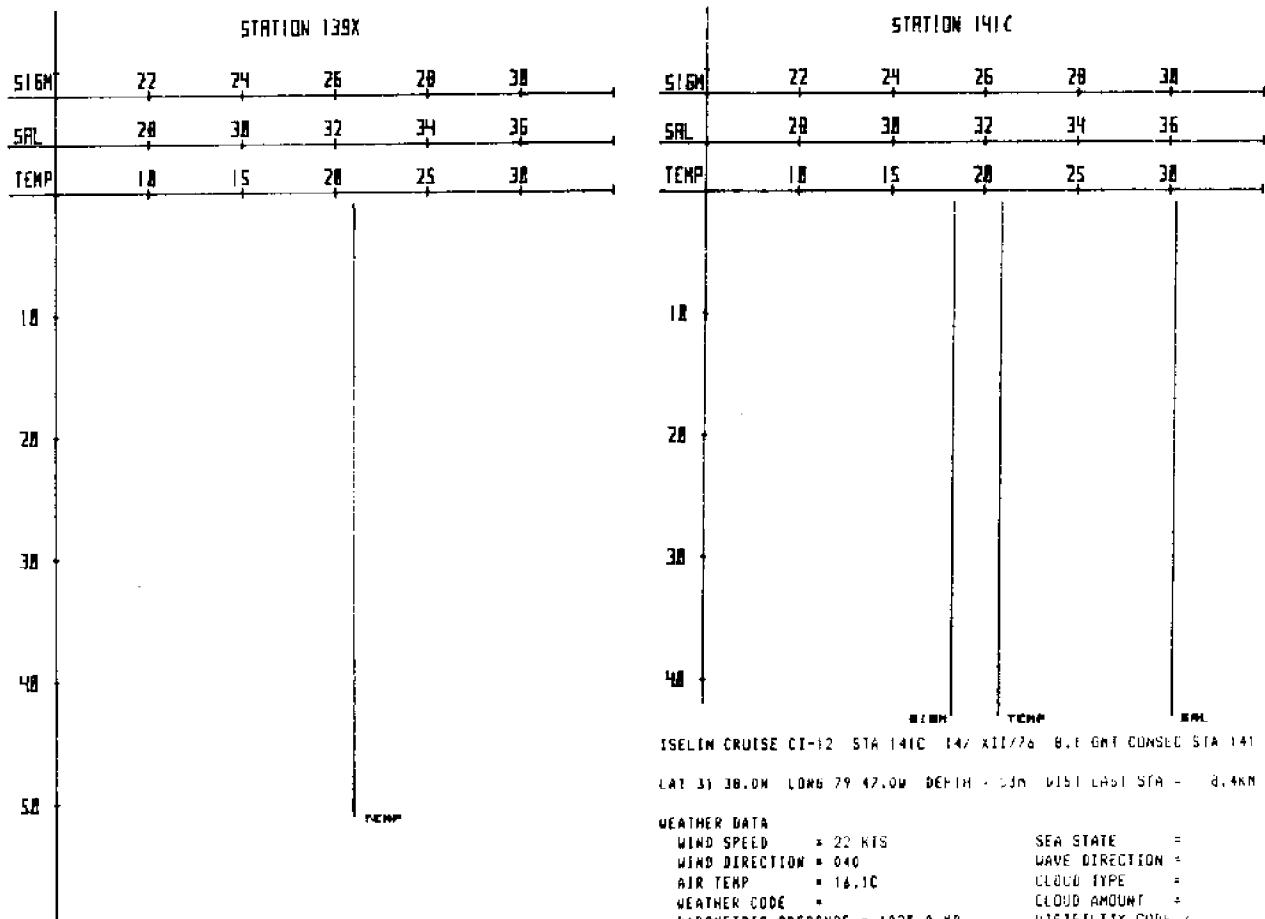
ISELIN CRUISE CI-12 STA 138C 14/ XII/76 5.9 KM CONSEC STA 138
LAT 31 41.4W LONG 79 57.8W DEPTH = 41M DIST LAST STA = 9.3KM

WEATHER DATA

WIND SPEED = 30 KTS SEA STATE =
WIND DIRECTION = 040 WAVE DIRECTION =
AIR TEMP = 15.6C CLOUD TYPE =
WEATHER CODE = CLOUD AMOUNT =
BAROMETRIC PRESSURE = 1025.2 MB VISIBILITY CODE =

OBSERVATIONS

Z	T	S	N	SVA	O2	03	A00	P04	N03	SI
3.0	20.20	36.11	25.56	243	5.59	5.11	-1.48	0.08	00.3	01.8
4.0	20.20	36.11	25.56	243	.	.	.	.	.	.
5.0	20.20	36.11	25.56	243	.	.	.	.	.	.
6.0	20.20	36.10	25.56	244	.	.	.	.	.	.
7.0	20.20	36.10	25.56	244	.	.	.	.	.	.
8.0	20.20	36.10	25.56	244	.	.	.	.	.	.
9.0	20.20	36.11	25.56	243	.	.	.	.	.	.
10.0	20.20	36.11	25.56	243	.	.	.	.	.	.
11.0	20.20	36.11	25.56	243	.	.	.	.	.	.
12.0	20.20	36.11	25.56	243	.	.	.	.	.	.
13.0	20.20	36.11	25.56	243	.	.	.	.	.	.
14.0	20.20	36.11	25.56	243	.	.	.	.	.	.
15.0	20.20	36.11	25.56	243	.	.	.	.	.	.
16.0	20.21	36.10	25.55	244	.	.	.	.	.	.
17.0	20.20	36.11	25.56	243	.	.	.	.	.	.
18.0	20.21	36.10	25.55	244	.	.	.	.	.	.
19.0	20.21	36.10	25.55	244	.	.	.	.	.	.
20.0	20.21	36.10	25.55	244	.	.	.	.	.	.
21.0	20.21	36.10	25.55	244	.	.	.	.	.	.
22.0	20.21	36.10	25.55	244	.	.	.	.	.	.
23.0	20.21	36.10	25.55	244	.	.	.	.	.	.
24.0	20.21	36.10	25.55	244	.	.	.	.	.	.
25.0	20.21	36.11	25.56	244	.	.	.	.	.	.
26.0	20.21	36.10	25.55	245	.	.	.	.	.	.
27.0	20.21	36.10	25.55	245	.	.	.	.	.	.
28.0	20.21	36.10	25.55	245	.	.	.	.	.	.
29.0	20.21	36.10	25.55	245	.	.	.	.	.	.
30.0	20.21	36.10	25.55	245	.	.	.	.	.	.
31.0	20.21	36.11	25.56	244	.	.	.	.	.	.
32.0	20.21	36.10	25.55	245	.	.	.	.	.	.
33.0	20.21	36.09	25.55	246	.	.	.	.	.	.
34.0	20.21	36.09	25.55	246	.	.	.	.	.	.
35.0	20.21	36.09	25.55	246	.	.	.	.	.	.
36.0	20.21	36.09	25.55	246	.	.	.	.	.	.
37.0	20.21	36.09	25.55	246	5.72	5.11	-1.61	0.08	00.3	01.1
38.0	20.20	36.10	25.56	245	.	.	.	.	.	.
39.0	20.20	36.10	25.56	245	.	.	.	.	.	.



ISELIN CRUISE CI-12 STA 141C 14/XII/76 8.1 GMT CONSEC STA 139

LAT 31 38.0N LONG 79 42.0W DEPTH = 5IN DIST LAST STA = 9.7KM

WEATHER DATA

WIND SPEED = 22 KTS
WIND DIRECTION = 040
AIR TEMP = 16.1C
WEATHER CODE =
BAROMETRIC PRESSURE = 1025.0 MB

SEA STATE =
WAVE DIRECTION =
CLOUD TYPE =
CLOUD AMOUNT =
VISIBILITY CODE =

ISELIN CRUISE CI-12 STA 139X 14/XII/76 7.1 GMT CONSEC STA 139

LAT 31 39.0N LONG 79 52.0W DEPTH = 5IN DIST LAST STA = 9.7KM

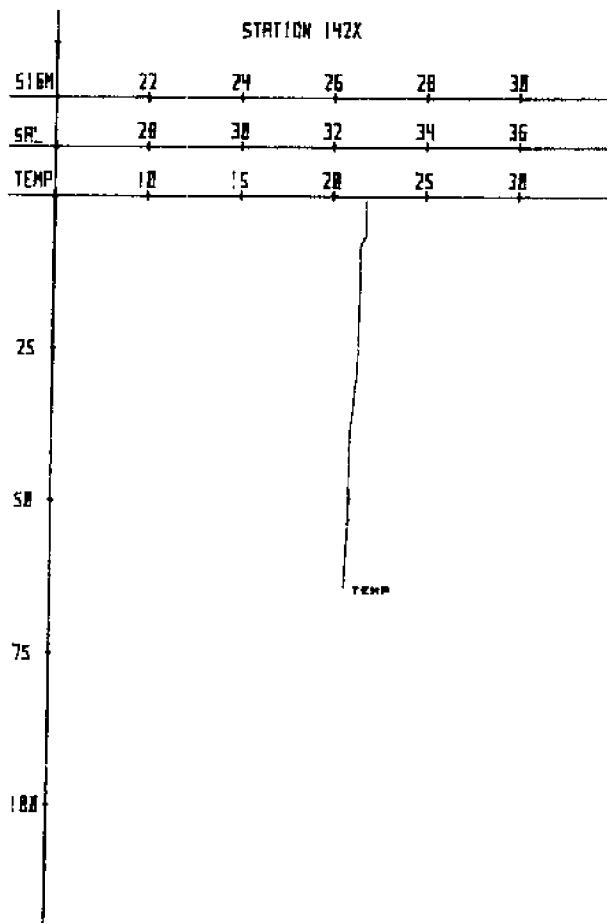
WEATHER DATA

WIND SPEED = 30 KTS
WIND DIRECTION = 040
AIR TEMP = 15.6C
WEATHER CODE =
BAROMETRIC PRESSURE = 1025.2 MB

SEA STATE =
WAVE DIRECTION =
CLOUD TYPE =
CLOUD AMOUNT =
VISIBILITY CODE =

OBSERVATIONS

Z	T	S	D	SVA	D2	D2	AOU	F04	N03	S1
1.0	20.94	36.12	25.37	261	.	.	.	.	.	.
1.0	20.92	36.13	25.38	260	4.98	5.04	1.06	0.11	01.2	02.5
3.0	20.94	36.12	25.37	261	.	.	.	.	.	.
4.0	20.94	36.12	25.37	261	.	.	.	.	.	.
5.0	20.94	36.12	25.37	261	.	.	.	.	.	.
6.0	20.94	36.12	25.37	261	.	.	.	.	.	.
7.0	20.92	36.13	25.38	260	.	.	.	.	.	.
8.0	20.96	36.11	25.36	262	.	.	.	.	.	.
9.0	20.94	36.12	25.37	261	.	.	.	.	.	.
10.0	20.94	36.12	25.37	261	.	.	.	.	.	.
11.0	20.94	36.12	25.37	261	.	.	.	.	.	.
12.0	20.94	36.13	25.38	261	.	.	.	.	.	.
13.0	20.94	36.13	25.38	261	.	.	.	.	.	.
14.0	20.94	36.12	25.37	262	.	.	.	.	.	.
15.0	20.96	36.12	25.37	262	.	.	.	.	.	.
16.0	20.96	36.12	25.37	262	.	.	.	.	.	.
17.0	20.94	36.12	25.37	262	.	.	.	.	.	.
18.0	20.94	36.13	25.38	261	.	.	.	.	.	.
19.0	20.94	36.12	25.37	262	.	.	.	.	.	.
20.0	20.94	36.12	25.37	262	.	.	.	.	.	.
21.0	20.94	36.13	25.38	261	.	.	.	.	.	.
22.0	20.94	36.12	25.37	262	.	.	.	.	.	.
23.0	20.94	36.13	25.38	261	.	.	.	.	.	.
24.0	20.96	36.12	25.37	262	.	.	.	.	.	.
25.0	20.94	36.13	25.38	261	.	.	.	.	.	.
26.0	20.94	36.12	25.37	262	.	.	.	.	.	.
27.0	20.94	36.13	25.38	261	.	.	.	.	.	.
28.0	20.94	36.12	25.37	262	.	.	.	.	.	.
29.0	20.94	36.11	25.36	263	.	.	.	.	.	.
30.0	20.94	36.11	25.36	263	.	.	.	.	.	.
31.0	20.94	36.12	25.37	262	.	.	.	.	.	.
32.0	20.94	36.12	25.37	262	.	.	.	.	.	.
33.0	20.94	36.12	25.37	262	.	.	.	.	.	.
34.0	20.94	36.12	25.37	262	.	.	.	.	.	.
35.0	20.94	36.12	25.37	262	.	.	.	.	.	.
36.0	20.94	36.12	25.37	262	.	.	.	.	.	.
37.0	20.94	36.12	25.37	262	.	.	.	.	.	.
38.0	20.94	36.12	25.37	262	.	.	.	.	.	.
39.0	20.94	36.12	25.37	262	.	.	.	.	.	.
40.0	20.94	36.12	25.37	262	.	.	.	.	.	.
41.0	20.94	36.12	25.37	262	.	.	.	.	.	.
42.0	20.94	36.12	25.37	262	4.94	5.04	1.10	0.15	01.7	02.0
43.0	20.94	36.12	25.37	263	.	.	.	.	.	.



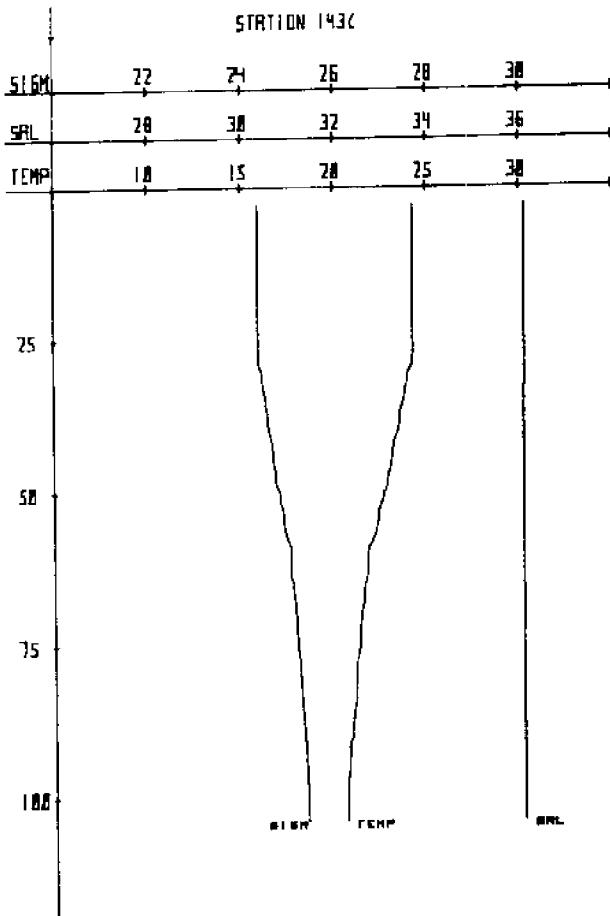
ISELIN CRUISE CI-12 STA 142X 142 KII/76 9.0 GMT CONSEC STA 142

LAT 31 18.0N LONG 79 41.0W DEPTH = 64M DIST LAST STA = 10.2NM

WEATHER DATA

WIND SPEED	= 23 KTS	SEA STATE	=
WIND DIRECTION	= 040	WAVE DIRECTION	=
AIR TEMP	= 16.1C	CLOUD TYPE	=
WEATHER CODE	=	CLOUD AMOUNT	=
BAROMETRIC PRESSURE	= 1024.6 MB	VISIBILITY CODE	=

Z	T	S	D	OBSERVATIONS							
				SVA	D2	D2	ADU	F04	N03	SI	
1.0	21.80	.	.	.	.	.	.	.	.	.	.
6.0	21.80	.	.	.	.	.	.	.	.	.	.
8.0	21.50	.	.	.	.	.	.	.	.	.	.
11.0	21.50	.	.	.	.	.	.	.	.	.	.
27.0	21.40	.	.	.	.	.	.	.	.	.	.
40.0	21.00	.	.	.	.	.	.	.	.	.	.
56.0	20.90	.	.	.	.	.	.	.	.	.	.
64.0	20.80	.	.	.	.	.	.	.	.	.	.



ISELIN CRUISE CI-12 STA 143C 147 3117/S 9.8 MFT LONSEE STA 143
LAT 31 34.0W LONG 79 35.0W DEPTH 0-100M DIST LAST STA - 10.2KM

WEATHER DATA

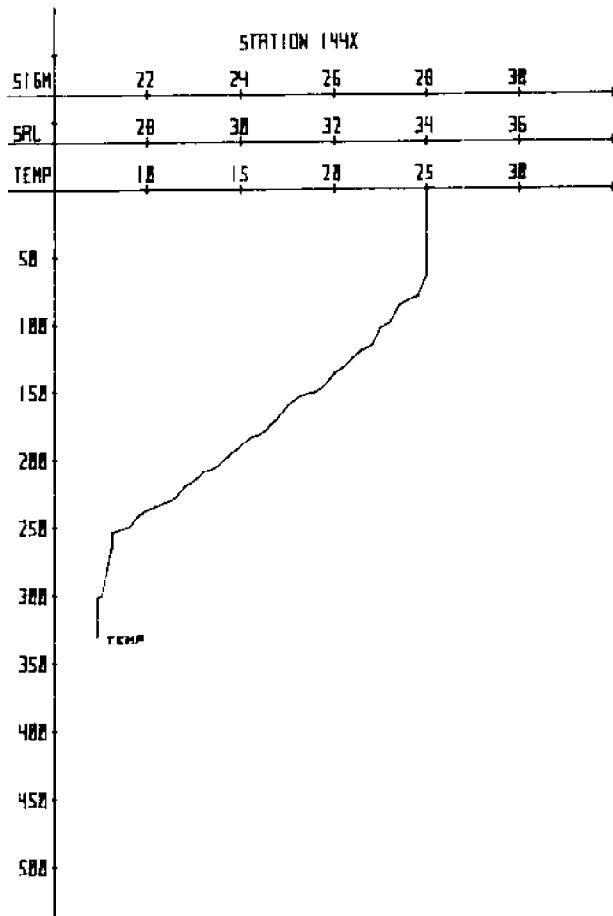
WIND SPEED = 25 KTS
WIND DIRECTION = 060
AIR TEMP = 17.2C
WEATHER CODE =
BAROMETRIC PRESSURE = 1024.0 MB

SEA STATE =
WAVE DIRECTION =
CLOUD TYPE =
CLOUD AMOUNT =
VISIBILITY CODE =

OBSERVATIONS

Z	T	S	D	SVA	D2	D2	ADU	P04	N03	SI
3.0	24.30	36.11	24.40	353	4.87	4.75	-112	0.05	09.1	01.9
4.0	24.30	36.11	24.40	353	.	.	.	.	.	.
5.0	24.30	36.11	24.40	354	.	.	.	.	.	.
6.0	24.30	36.11	24.40	354	.	.	.	.	.	.
7.0	24.32	36.11	24.39	354	.	.	.	.	.	.
8.0	24.32	36.10	24.39	355	.	.	.	.	.	.
9.0	24.30	36.11	24.40	354	.	.	.	.	.	.
10.0	24.32	36.11	24.39	354	.	.	.	.	.	.
11.0	24.30	36.11	24.40	354	.	.	.	.	.	.
12.0	24.30	36.11	24.40	354	.	.	.	.	.	.
13.0	24.32	36.11	24.39	354	.	.	.	.	.	.
14.0	24.33	36.10	24.38	355	.	.	.	.	.	.
15.0	24.33	36.11	24.39	355	.	.	.	.	.	.
16.0	24.33	36.11	24.39	355	.	.	.	.	.	.
17.0	24.33	36.11	24.39	355	.	.	.	.	.	.
18.0	24.33	36.11	24.39	355	.	.	.	.	.	.
19.0	24.33	36.11	24.39	355	.	.	.	.	.	.
20.0	24.33	36.11	24.39	355	.	.	.	.	.	.
21.0	24.33	36.11	24.39	355	.	.	.	.	.	.
22.0	24.33	36.11	24.39	355	.	.	.	.	.	.
23.0	24.32	36.11	24.39	355	.	.	.	.	.	.
24.0	24.32	36.11	24.39	355	.	.	.	.	.	.
25.0	24.30	36.10	24.39	355	.	.	.	.	.	.
26.0	24.28	36.11	24.41	354	.	.	.	.	.	.
27.0	24.22	36.10	24.42	353	.	.	.	.	.	.

28.0	24.20	36.11	24.43	352	.	.	.	.	.	.
29.0	24.17	36.10	24.43	351	.	.	.	.	.	.
30.0	24.03	36.10	24.47	348	.	.	.	.	.	.
31.0	23.91	36.11	24.52	343	.	.	.	.	.	.
32.0	23.84	36.10	24.52	343	.	.	.	.	.	.
33.0	23.80	36.09	24.53	342	.	.	.	.	.	.
34.0	23.74	36.10	24.56	339	.	.	.	.	.	.
35.0	23.68	36.11	24.58	337	.	.	.	.	.	.
36.0	23.60	36.09	24.59	336	.	.	.	.	.	.
37.0	23.53	36.09	24.61	334	.	.	.	.	.	.
38.0	23.50	36.09	24.62	334	.	.	.	.	.	.
39.0	23.46	36.09	24.63	333	.	.	.	.	.	.
40.0	23.40	36.09	24.65	331	.	.	.	.	.	.
41.0	23.30	36.08	24.67	329	.	.	.	.	.	.
42.0	23.20	36.10	24.72	325	.	.	.	.	.	.
43.0	23.16	36.09	24.72	324	.	.	.	.	.	.
44.0	23.10	36.09	24.74	323	.	.	.	.	.	.
45.0	23.04	36.09	24.75	322	.	.	.	.	.	.
46.0	22.97	36.09	24.77	320	4.87	4.86	-0.01	0.02	00.4	01.8
47.0	22.92	36.10	24.80	317	.	.	.	.	.	.
48.0	22.84	36.08	24.80	317	.	.	.	.	.	.
49.0	22.79	36.09	24.83	314	.	.	.	.	.	.
50.0	22.66	36.10	24.87	310	.	.	.	.	.	.
51.0	22.59	36.11	24.90	308	.	.	.	.	.	.
52.0	22.50	36.08	24.90	307	.	.	.	.	.	.
53.0	22.40	36.10	24.95	303	.	.	.	.	.	.
54.0	22.36	36.10	24.96	302	.	.	.	.	.	.
55.0	22.30	36.09	24.97	301	.	.	.	.	.	.
56.0	22.24	36.09	24.98	300	.	.	.	.	.	.
57.0	22.16	36.10	25.02	297	.	.	.	.	.	.
58.0	22.02	36.09	25.05	294	.	.	.	.	.	.
59.0	21.88	36.10	25.10	289	.	.	.	.	.	.
60.0	21.82	36.08	25.10	289	.	.	.	.	.	.
61.0	21.80	36.08	25.10	289	.	.	.	.	.	.
62.0	21.80	36.08	25.10	289	.	.	.	.	.	.
63.0	21.79	36.08	25.11	289	.	.	.	.	.	.
64.0	21.71	36.08	25.13	286	.	.	.	.	.	.
65.0	21.62	36.09	25.16	283	.	.	.	.	.	.
66.0	21.60	36.08	25.16	284	.	.	.	.	.	.
67.0	21.54	36.09	25.18	281	.	.	.	.	.	.
68.0	21.50	36.09	25.19	280	.	.	.	.	.	.
69.0	21.46	36.09	25.20	279	.	.	.	.	.	.
70.0	21.42	36.09	25.22	278	.	.	.	.	.	.
71.0	21.39	36.08	25.22	278	.	.	.	.	.	.
72.0	21.36	36.09	25.23	277	.	.	.	.	.	.
73.0	21.33	36.08	25.23	277	.	.	.	.	.	.
74.0	21.30	36.09	25.25	275	.	.	.	.	.	.
75.0	21.28	36.09	25.25	275	.	.	.	.	.	.
76.0	21.23	36.09	25.27	273	.	.	.	.	.	.
77.0	21.20	36.09	25.28	273	.	.	.	.	.	.
78.0	21.11	36.10	25.31	270	.	.	.	.	.	.
79.0	21.10	36.09	25.30	270	.	.	.	.	.	.
80.0	21.08	36.09	25.31	270	.	.	.	.	.	.
81.0	21.06	36.09	25.32	269	.	.	.	.	.	.
82.0	21.02	36.10	25.33	267	.	.	.	.	.	.
83.0	21.01	36.09	25.33	268	.	.	.	.	.	.
84.0	21.00	36.09	25.33	268	.	.	.	.	.	.
85.0	20.99	36.10	25.34	267	.	.	.	.	.	.
86.0	20.97	36.10	25.35	266	.	.	.	.	.	.
87.0	20.92	36.10	25.36	265	.	.	.	.	.	.
88.0	20.90	36.10	25.37	265	.	.	.	.	.	.
89.0	20.88	36.10	25.37	264	.	.	.	.	.	.
90.0	20.87	36.10	25.37	264	.	.	.	.	.	.
91.0	20.79	36.11	25.40	261	.	.	.	.	.	.
92.0	20.76	36.11	25.41	260	.	.	.	.	.	.
93.0	20.73	36.11	25.42	260	.	.	.	.	.	.
94.0	20.72	36.10	25.42	260	.	.	.	.	.	.
95.0	20.70	36.11	25.43	259	.	.	.	.	.	.
96.0	20.68	36.09	25.42	260	.	.	.	.	.	.
97.0	20.62	36.10	25.44	258	.	.	.	.	.	.
98.0	20.62	36.10	25.44	258	.	.	.	.	.	.
99.0	20.62	36.09	25.43	258	.	.	.	.	.	.
100.0	20.62	36.10	25.44	258	.	.	.	.	.	.
101.0	20.62	36.10	25.44	258	4.99	5.07	0.11	0.12	01.0	01.9
104.0	20.58	36.10	25.45	257	.	.	.	.	.	.



ISELM CRUISE CI-12 STA 144X 14 XII 75 11.5 GMT CONSEC STA 144

LAT 31 32.5N LONG 29 28.2W DEPTH = 330M DIST LAST STA = 11.1KM

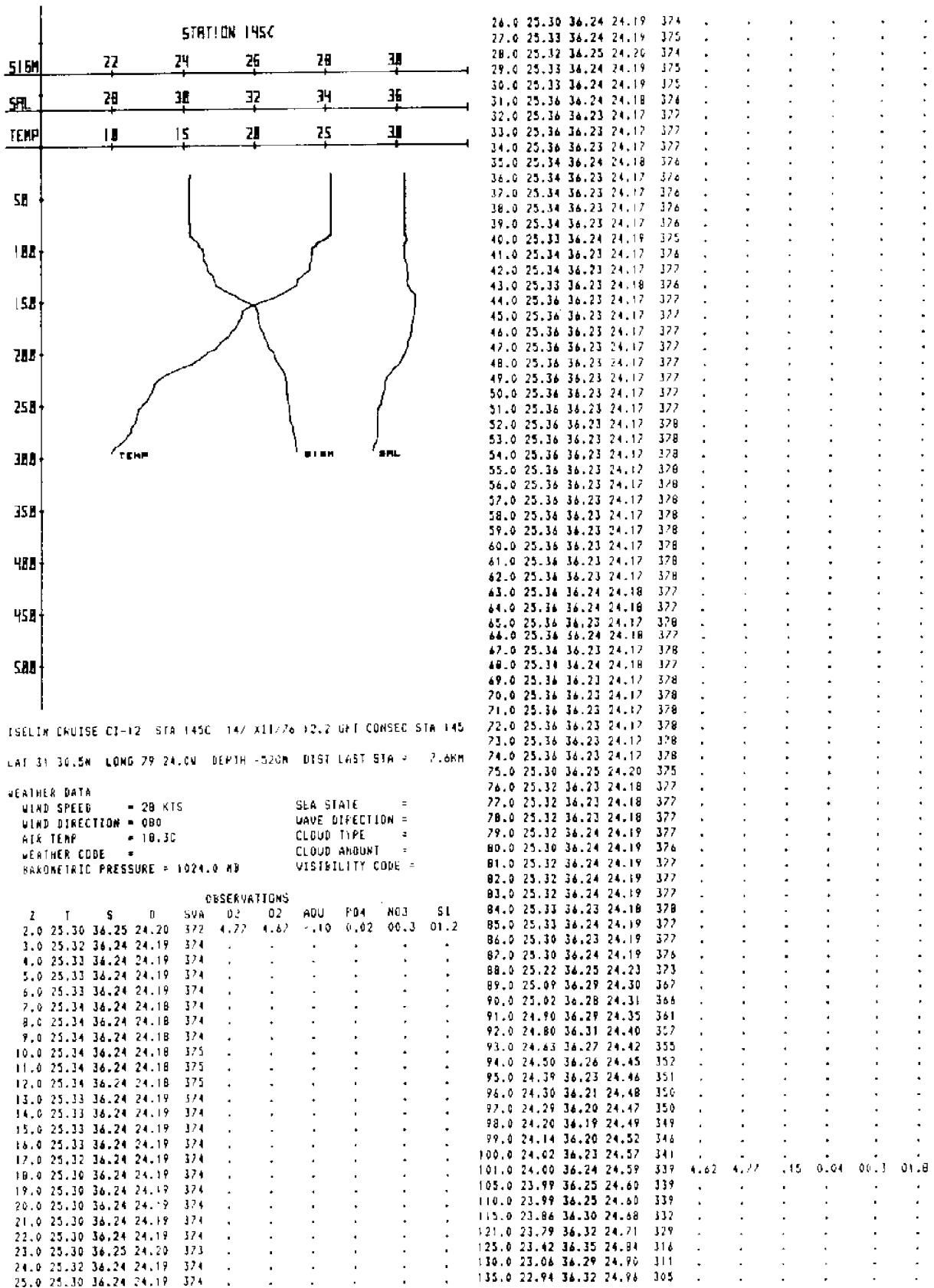
WEATHER DATA

WIND SPEED = KTS
WIND DIRECTION =
AIR TEMP = . C
WEATHER CODE =
BAROMETRIC PRESSURE = 1024.0 MB

SEA STATE =
WAVE DIRECTION =
CLOUD TYPE =
CLOUD AMOUNT =
VISIBILITY CODE =

OBSERVATIONS

Z	T	S	D	SVA	02	02	A08	P04	N03	SI
1.0	25.00	.	.	.	.	.	.	.	.	.
62.0	25.00	.	.	.	.	.	.	.	.	.
79.0	24.50	.	.	.	.	.	.	.	.	.
82.5	24.00	.	.	.	.	.	.	.	.	.
86.0	23.50	.	.	.	.	.	.	.	.	.
98.5	23.00	.	.	.	.	.	.	.	.	.
101.0	22.50	.	.	.	.	.	.	.	.	.
116.0	22.00	.	.	.	.	.	.	.	.	.
120.0	21.50	.	.	.	.	.	.	.	.	.
125.0	21.00	.	.	.	.	.	.	.	.	.
132.0	20.50	.	.	.	.	.	.	.	.	.
136.5	20.00	.	.	.	.	.	.	.	.	.
145.0	19.50	.	.	.	.	.	.	.	.	.
150.5	19.00	.	.	.	.	.	.	.	.	.
152.0	18.50	.	.	.	.	.	.	.	.	.
155.0	18.00	.	.	.	.	.	.	.	.	.
160.0	17.50	.	.	.	.	.	.	.	.	.
149.0	17.00	.	.	.	.	.	.	.	.	.
176.0	16.50	.	.	.	.	.	.	.	.	.
182.0	16.00	.	.	.	.	.	.	.	.	.
184.0	15.50	.	.	.	.	.	.	.	.	.
190.0	15.00	.	.	.	.	.	.	.	.	.
195.5	14.50	.	.	.	.	.	.	.	.	.
202.0	14.00	.	.	.	.	.	.	.	.	.
207.0	13.50	.	.	.	.	.	.	.	.	.
209.5	13.00	.	.	.	.	.	.	.	.	.
216.0	12.50	.	.	.	.	.	.	.	.	.
218.0	12.50	.	.	.	.	.	.	.	.	.
220.0	12.00	.	.	.	.	.	.	.	.	.
228.0	11.50	.	.	.	.	.	.	.	.	.
232.0	11.00	.	.	.	.	.	.	.	.	.
235.0	10.50	.	.	.	.	.	.	.	.	.
237.5	10.00	.	.	.	.	.	.	.	.	.
242.0	9.50	.	.	.	.	.	.	.	.	.
249.5	9.00	.	.	.	.	.	.	.	.	.
252.0	8.50	.	.	.	.	.	.	.	.	.
254.0	8.10	.	.	.	.	.	.	.	.	.
265.0	8.10	.	.	.	.	.	.	.	.	.
266.5	8.00	.	.	.	.	.	.	.	.	.
300.0	7.50	.	.	.	.	.	.	.	.	.
302.0	7.30	.	.	.	.	.	.	.	.	.
330.0	7.30	.	.	.	.	.	.	.	.	.



141.0	22.24	36.42	25.23	280	.	.	.	.	.	.	.
145.0	21.73	36.53	25.46	258	.	.	.	.	.	.	.
150.0	20.92	36.54	25.70	236	3.78	5.03	1.25	0.27	04.6	02.3	.
155.0	19.78	36.55	26.01	203	.	.	.	.	.	.	.
160.0	19.16	36.47	26.11	196	.	.	.	.	.	.	.
165.0	19.06	36.46	26.13	195	.	.	.	.	.	.	.
170.0	18.88	36.44	26.16	192	.	.	.	.	.	.	.
175.0	18.71	36.42	26.19	189	.	.	.	.	.	.	.
181.0	18.32	36.40	26.22	182	.	.	.	.	.	.	.
185.0	18.12	36.38	26.31	178	.	.	.	.	.	.	.
190.0	17.80	36.32	26.39	171	.	.	.	.	.	.	.
195.0	17.36	36.31	26.44	166	.	.	.	.	.	.	.
200.0	16.67	36.25	26.56	155	3.62	5.46	1.84	0.33	06.1	03.4	.
205.0	16.17	36.17	26.62	149	.	.	.	.	.	.	.
210.0	15.84	36.10	26.68	143	.	.	.	.	.	.	.
216.0	14.57	35.93	26.79	132	.	.	.	.	.	.	.
220.0	13.90	35.83	26.86	126	.	.	.	.	.	.	.
225.0	13.20	35.71	26.90	122	.	.	.	.	.	.	.
230.0	12.90	35.65	26.93	119	.	.	.	.	.	.	.
236.0	12.77	35.63	26.94	119	.	.	.	.	.	.	.
240.0	12.62	35.60	26.94	118	.	.	.	.	.	.	.
245.0	12.44	35.52	26.98	117	.	.	.	.	.	.	.
250.0	12.10	35.53	26.99	113	.	.	.	.	.	.	.
254.0	11.78	35.47	27.01	112	.	.	.	.	.	.	.
261.0	11.68	35.47	27.03	110	.	.	.	.	.	.	.
266.0	11.61	35.45	27.02	111	.	.	.	.	.	.	.
271.0	11.31	35.48	27.10	103	.	.	.	.	.	.	.
275.0	11.22	35.44	27.08	105	3.06	6.13	3.02	1.43	23.0	13.9	.
279.0	11.02	35.45	27.13	100	.	.	.	.	.	.	.
285.0	10.70	35.43	27.18	96	.	.	.	.	.	.	.
290.0	10.20	35.35	27.20	94	.	.	.	.	.	.	.
295.0	9.93	35.32	27.23	91	.	.	.	.	.	.	.

ISELIN CRUISE CJ-12 STA 146X 147 XII/26 14.2 GMT CONSEC STA 146

LAT 31 30.3N LONG 79 23.8W DEPTH 485M DIST LAST STA = .5MM

WEATHER DATA

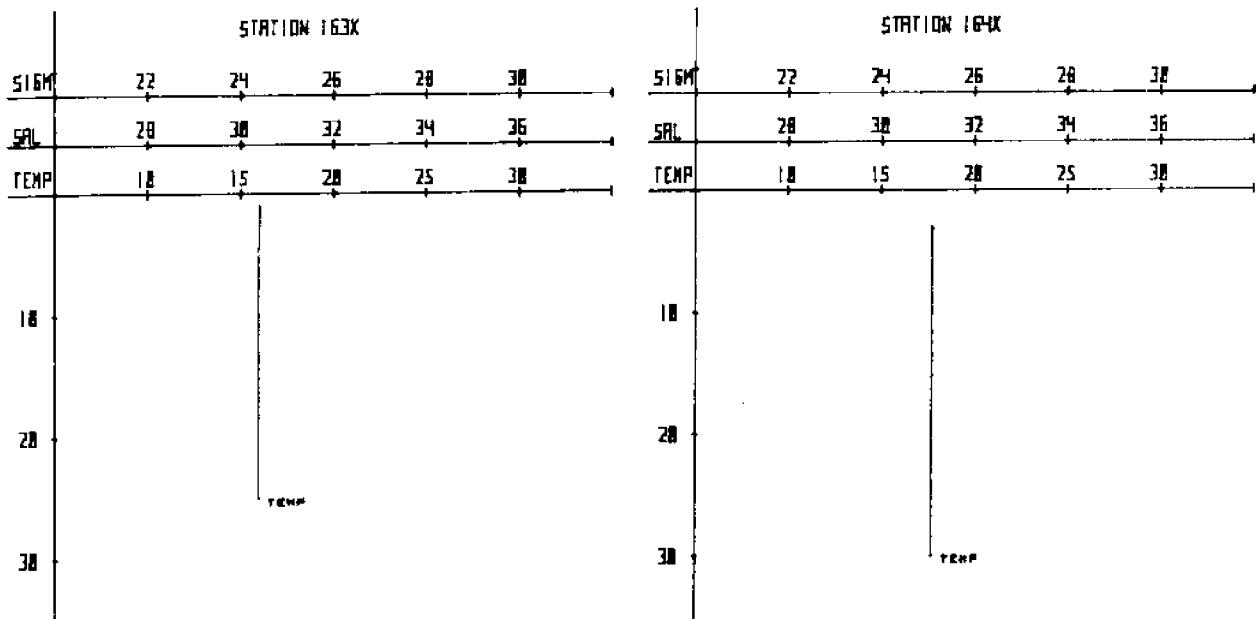
WIND SPEED	= 25 KTS	SEA STATE	=
WIND DIRECTION	= 090	JAVE DIRECTION	=
AIR TEMP	= 18.3C	CLOUD TYPE	=
WEATHER CODE	=	CLOUD AMOUNT	=
BAROMETRIC PRESSURE = 1025.9 MB		VISIBILITY CODE	=

STATION 146X

SLBM	22	24	26	28	30
SRL	28	30	32	34	36
TEMP	18	15	20	25	32
58					
108					
158					
208					
258					
308					
358					
408					
458					
508					

OBSERVATIONS

Z	T	S	D	SVA	D2	D2'	AOU	P04	N03	SI
1.0	25.20	.	.	.	.	.	.	.	.	.
90.0	25.10	.	.	.	.	.	.	.	.	.
92.0	25.00	.	.	.	.	.	.	.	.	.
95.0	24.50	.	.	.	.	.	.	.	.	.
101.0	24.00	.	.	.	.	.	.	.	.	.
111.0	24.00	.	.	.	.	.	.	.	.	.
113.0	23.50	.	.	.	.	.	.	.	.	.
119.0	23.00	.	.	.	.	.	.	.	.	.
134.0	22.50	.	.	.	.	.	.	.	.	.
139.0	22.00	.	.	.	.	.	.	.	.	.
142.0	21.50	.	.	.	.	.	.	.	.	.
147.0	21.00	.	.	.	.	.	.	.	.	.
152.0	20.50	.	.	.	.	.	.	.	.	.
159.0	20.00	.	.	.	.	.	.	.	.	.
161.0	19.50	.	.	.	.	.	.	.	.	.
163.0	19.00	.	.	.	.	.	.	.	.	.
166.0	18.50	.	.	.	.	.	.	.	.	.
171.0	18.00	.	.	.	.	.	.	.	.	.
175.0	17.50	.	.	.	.	.	.	.	.	.
180.0	17.00	.	.	.	.	.	.	.	.	.
184.0	16.50	.	.	.	.	.	.	.	.	.
189.0	16.00	.	.	.	.	.	.	.	.	.
191.0	15.50	.	.	.	.	.	.	.	.	.
203.0	15.00	.	.	.	.	.	.	.	.	.
211.0	14.00	.	.	.	.	.	.	.	.	.
212.0	14.00	.	.	.	.	.	.	.	.	.
223.0	13.50	.	.	.	.	.	.	.	.	.
229.0	13.00	.	.	.	.	.	.	.	.	.
239.5	12.50	.	.	.	.	.	.	.	.	.
246.0	12.00	.	.	.	.	.	.	.	.	.
257.0	11.50	.	.	.	.	.	.	.	.	.
276.0	11.00	.	.	.	.	.	.	.	.	.
294.0	10.50	.	.	.	.	.	.	.	.	.
301.0	10.00	.	.	.	.	.	.	.	.	.
315.0	9.50	.	.	.	.	.	.	.	.	.
322.5	9.00	.	.	.	.	.	.	.	.	.
325.0	8.70	.	.	.	.	.	.	.	.	.
340.0	8.70	.	.	.	.	.	.	.	.	.
450.0	8.50	.	.	.	.	.	.	.	.	.



ISELIN CRUISE CI-12 STA 163X 14/ XII/76 22.0 GMT CONSEC STA 163
LAT 31 4.5N LONG 80 40.5W DEPTH = 25M DIST LAST STA = 130.5KM

WEATHER DATA

WIND SPEED = 22 KTS SEA STATE =
WIND DIRECTION = 090 WAVE DIRECTION =
AIR TEMP = 18.3C CLOUD TYPE =
WEATHER CODE = CLOUD AMOUNT =
BAROMETRIC PRESSURE = 1020.5 MB VISIBILITY CODE =

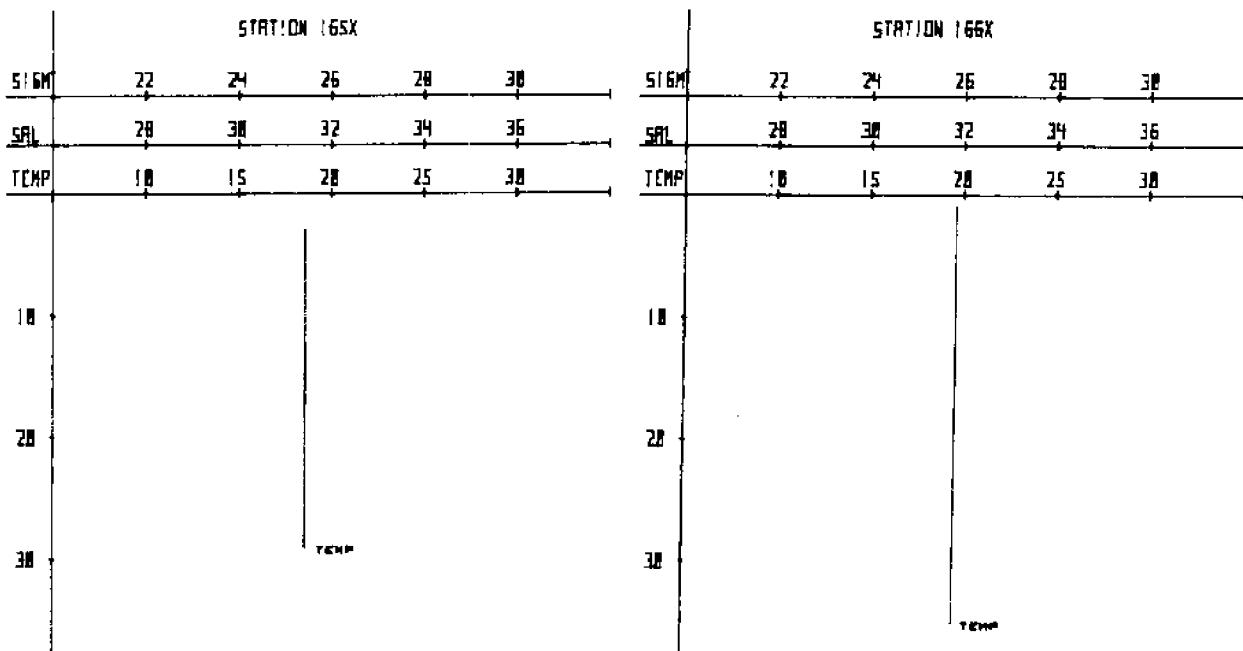
OBSERVATIONS										
Z	T	S	D	SVA	O2	O2'	AOU	P04	N03	SI
1.0	16.00	.	.	.	.	.	.	.	.	.
6.0	15.90	.	.	.	.	.	.	.	.	.
25.0	15.90	.	.	.	.	.	.	.	.	.

ISELIN CRUISE CI-12 STA 164X 14/ XII/76 23.0 GMT CONSEC STA 164
LAT 31 2.5N LONG 80 35.0W DEPTH = 30M DIST LAST STA = 9.5KM

WEATHER DATA

WIND SPEED = 24 KTS SEA STATE =
WIND DIRECTION = 090 WAVE DIRECTION =
AIR TEMP = 18.3C CLOUD TYPE =
WEATHER CODE = CLOUD AMOUNT =
BAROMETRIC PRESSURE = 1020.1 MB VISIBILITY CODE =

OBSERVATIONS										
Z	T	S	D	SVA	O2	O2'	AOU	P04	N03	SI
3.0	17.70	.	.	.	.	.	.	.	.	.
30.0	17.70	.	.	.	.	.	.	.	.	.



ISELIN CRUISE CI-12 STA 165X 147 XII/76 23.6 GMT CONSEC STA 165
LAT 31 .5N LONG 80 29.6W DEPTH = 2YM DIST LAST STA = 9.3NM

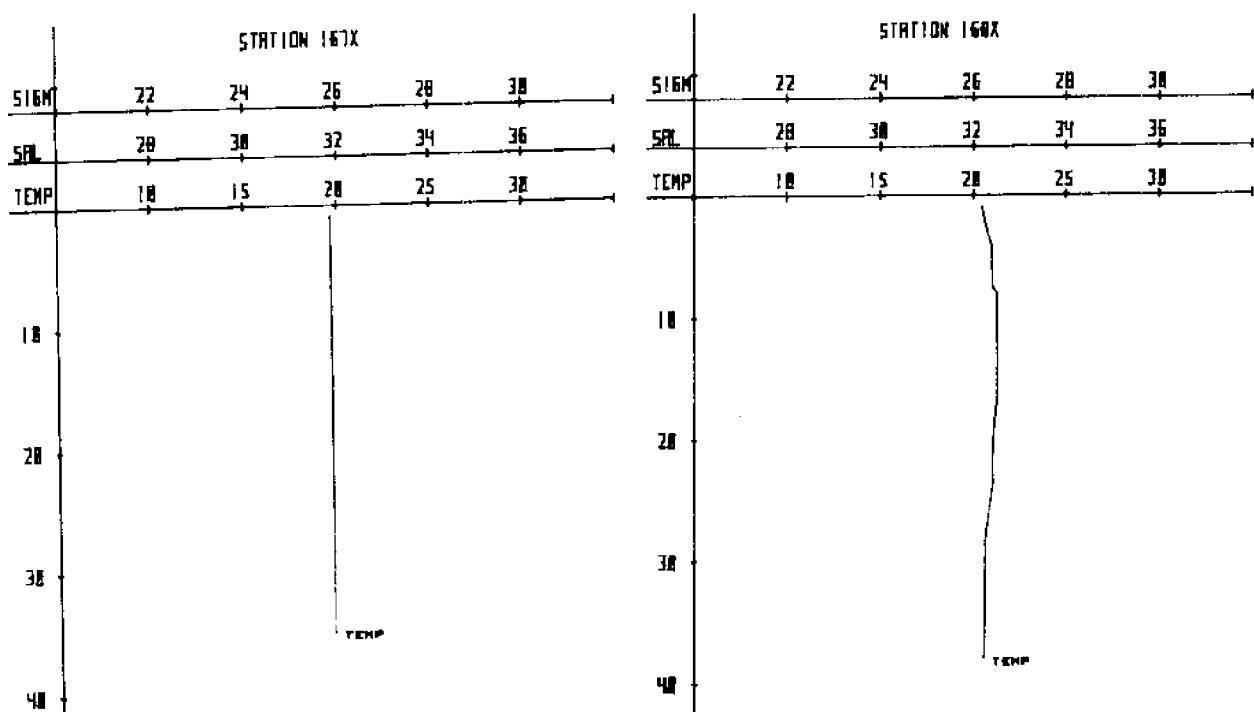
WEATHER DATA
WIND SPEED = 29 KTS SEA STATE =
WIND DIRECTION = 090 WAVE DIRECTION =
AIR TEMP = 16.7C CLOUD TYPE =
WEATHER CODE = CLOUD AMOUNT =
BAROMETRIC PRESSURE = 1019.8 MB VISIBILITY CODE =

OBSERVATIONS											
Z	T	S	D	SVA	02	02	AOU	PO4	M03	SI	
3.0	18.60	.	.	.	.	.	.	.	.	.	.
29.0	18.70	.	.	.	.	.	.	.	.	.	.

ISELIN CRUISE CI-12 STA 166X 157 XII/76 13 GMT CONSEC STA 166
LAT 30 50.5N LONG 80 24.5W DEPTH = 3YM DIST LAST STA = 8.9NM

WEATHER DATA
WIND SPEED = 35 KTS SEA STATE =
WIND DIRECTION = 100 WAVE DIRECTION =
AIR TEMP = 16.7C CLOUD TYPE =
WEATHER CODE = CLOUD AMOUNT =
BAROMETRIC PRESSURE = 1019.8 MB VISIBILITY CODE =

OBSERVATIONS											
Z	T	S	D	SVA	02	02	AOU	PO4	M03	SI	
1.0	19.60	.	.	.	.	.	.	.	.	.	.
35.0	19.60	.	.	.	.	.	.	.	.	.	.



ISELIM CRUISE CI-12 STA 167X 15/ XII/74 1.9 GMT CONSEC STA 167
LAT 30 57.2N LONG 80 19.6W DEPTH = 35M DIST LAST STA = 8.2KM

WEATHER DATA
WIND SPEED = 32 KTS
WIND DIRECTION = 100
AIR TEMP = 17.8C
WEATHER CODE =
BAROMETRIC PRESSURE = 1019.5 MB

SEA STATE =
WAVE DIRECTION =
CLOUD TYPE =
CLOUD AMOUNT =
VISIBILITY CODE =

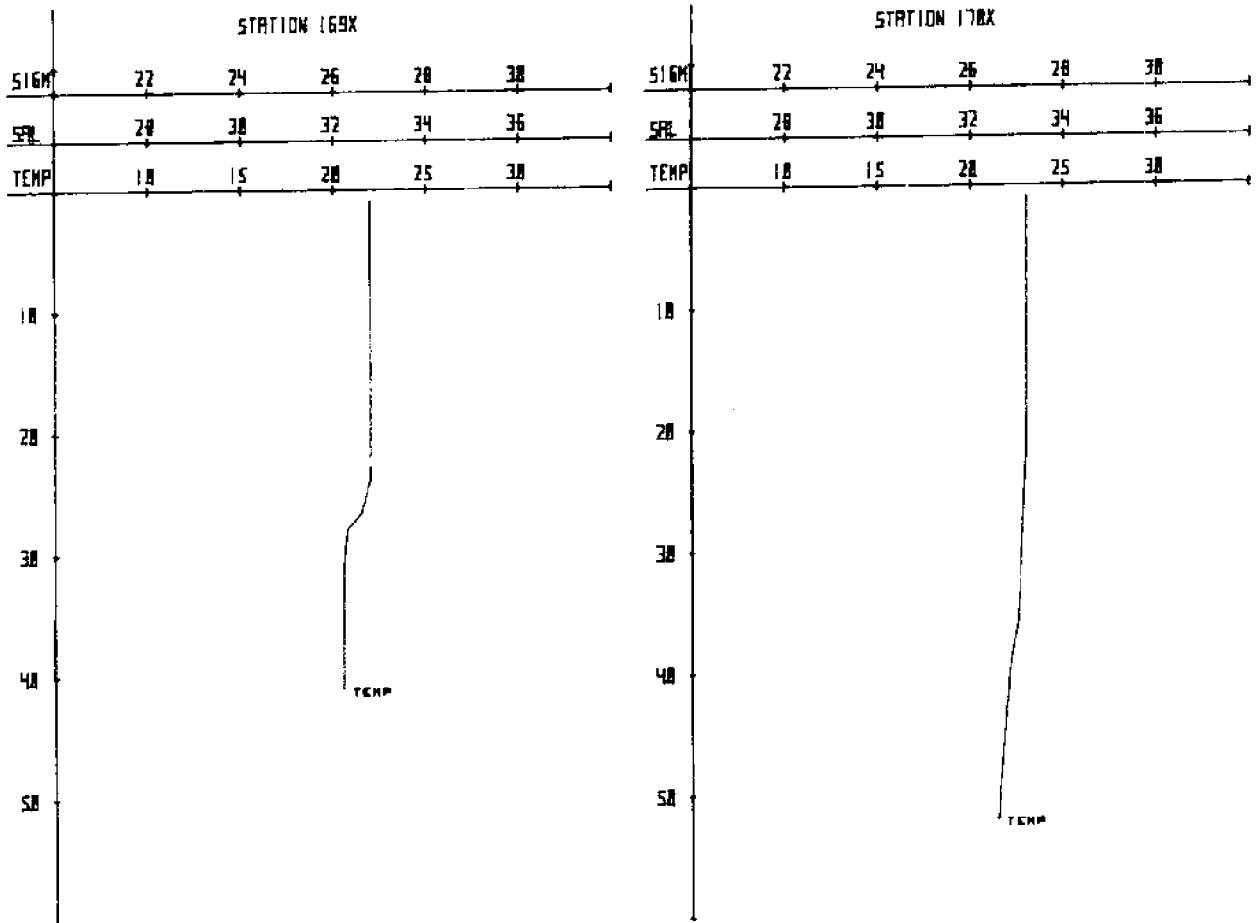
ISELIM CRUISE CI-12 STA 168X 15/ XII/74 1.7 GMT CONSEC STA 168
LAT 30 54.6N LONG 80 13.9W DEPTH = 36M DIST LAST STA = 10.1KM

WEATHER DATA
WIND SPEED = 31 KTS
WIND DIRECTION = 110
AIR TEMP = 18.9C
WEATHER CODE =
BAROMETRIC PRESSURE = 1018.9 MB

SEA STATE =
WAVE DIRECTION =
CLOUD TYPE =
CLOUD AMOUNT =
VISIBILITY CODE =

OBSERVATIONS										
Z	T	S	B	SVA	02	02'	AOU	PO4	M03	SI
1.0	19.70	-	-	-	-	-	-	-	-	-
35.0	19.70	-	-	-	-	-	-	-	-	-

OBSERVATIONS										
Z	T	S	D	SVA	02	02'	AOU	PO4	M03	SI
1.0	20.50	-	-	-	-	-	-	-	-	-
4.0	21.00	-	-	-	-	-	-	-	-	-
7.5	21.10	-	-	-	-	-	-	-	-	-
8.0	21.30	-	-	-	-	-	-	-	-	-
12.0	21.20	-	-	-	-	-	-	-	-	-
20.0	21.00	-	-	-	-	-	-	-	-	-
23.5	21.00	-	-	-	-	-	-	-	-	-
28.0	20.60	-	-	-	-	-	-	-	-	-
38.0	20.50	-	-	-	-	-	-	-	-	-



ISELIN CRUISE CI-12 STA 169X 15/ XII/76 2.6 GAT CONSEC STA 169
LAT 30 52.9N LONG 80 0.6W DEPTH = 41M DIST LAST STA = 9.0MM

WEATHER DATA

WIND SPEED = 31 KTS SEA STATE =
WIND DIRECTION = 110 WAVE DIRECTION =
AIR TEMP = 18.9C CLOUD TYPE =
WEATHER CODE = CLOUD AMOUNT =
BAROMETRIC PRESSURE = 1018.9 MB VISIBILITY CODE =

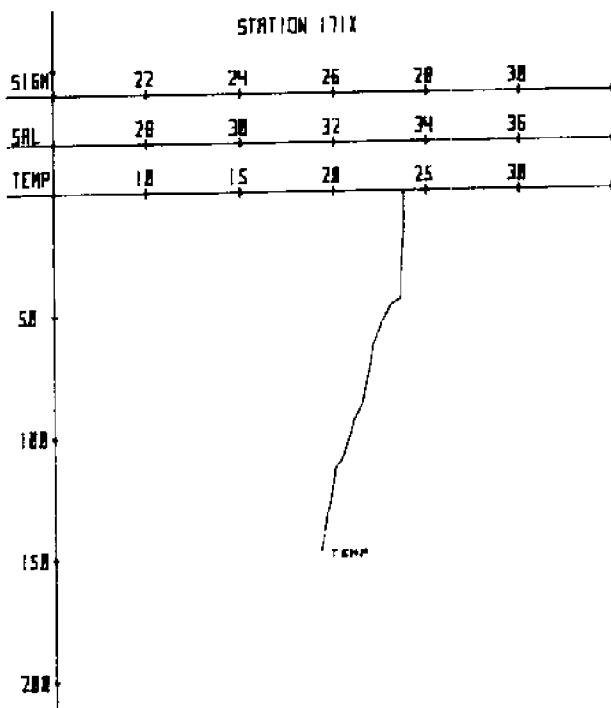
OBSERVATIONS										
Z	T	S	D	SVA	O2	O2'	A8U	F04	N03	SI
1.0	22.00	.	.	.	.	.	.	.	.	.
23.5	22.00	.	.	.	.	.	.	.	.	.
26.5	21.50	.	.	.	.	.	.	.	.	.
27.5	21.00	.	.	.	.	.	.	.	.	.
28.0	20.70	.	.	.	.	.	.	.	.	.
31.0	20.50	.	.	.	.	.	.	.	.	.
41.0	20.50	.	.	.	.	.	.	.	.	.

ISELIN CRUISE CI-12 STA 170X 15/ XII/76 3.4 GAT CONSEC STA 170
LAT 30 51.0N LONG 80 3.1W DEPTH = 52M DIST LAST STA = 9.4MM

WEATHER DATA

WIND SPEED = 33 KTS SEA STATE =
WIND DIRECTION = 110 WAVE DIRECTION =
AIR TEMP = 20.0C CLOUD TYPE =
WEATHER CODE = CLOUD AMOUNT =
BAROMETRIC PRESSURE = 1018.4 MB VISIBILITY CODE =

OBSERVATIONS										
Z	T	S	D	SVA	O2	O2'	A8U	F04	N03	SI
1.0	23.00	.	.	.	.	.	.	.	.	.
19.0	23.00	.	.	.	.	.	.	.	.	.
35.5	22.50	.	.	.	.	.	.	.	.	.
40.5	22.00	.	.	.	.	.	.	.	.	.
50.0	21.50	.	.	.	.	.	.	.	.	.
52.0	21.40	.	.	.	.	.	.	.	.	.



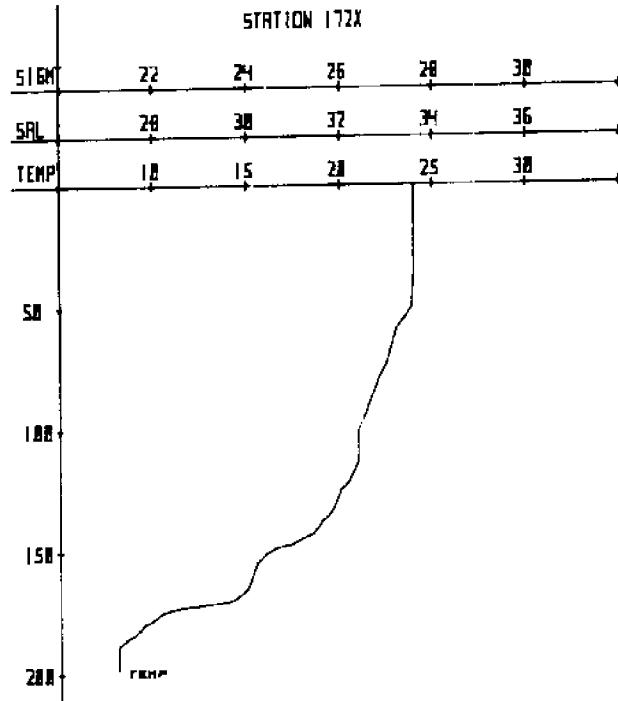
ISELIN CRUISE CI-12 STA 171X 15/ XII/76 4.2 GMT CONSEC STA 171
LAT 30 50.0W LONG 79 59.0W DEPTH = 142M DIST LAST STA = 6.8KM

WEATHER DATA

WIND SPEED = 31 KTS
WIND DIRECTION = 110
AIR TEMP = 20.0C
WEATHER CODE =
BAROMETRIC PRESSURE = 1018.1 MB

SEA STATE =
WAVE DIRECTION =
CLOUD TYPE =
CLOUD AMOUNT =
VISIBILITY CODE =

OBSERVATIONS										
Z	T	S	D	SVA	D2	D2'	AOU	PO4	NOS	SI
1.0	23.00	.	.	.	.	.	.	.	.	.
44.0	23.50	.	.	.	.	.	.	.	.	.
47.0	23.00	.	.	.	.	.	.	.	.	.
54.0	22.50	.	.	.	.	.	.	.	.	.
64.0	22.00	.	.	.	.	.	.	.	.	.
85.0	21.50	.	.	.	.	.	.	.	.	.
94.0	21.00	.	.	.	.	.	.	.	.	.
107.0	20.50	.	.	.	.	.	.	.	.	.
114.0	20.00	.	.	.	.	.	.	.	.	.
134.0	19.50	.	.	.	.	.	.	.	.	.
147.0	19.20	.	.	.	.	.	.	.	.	.



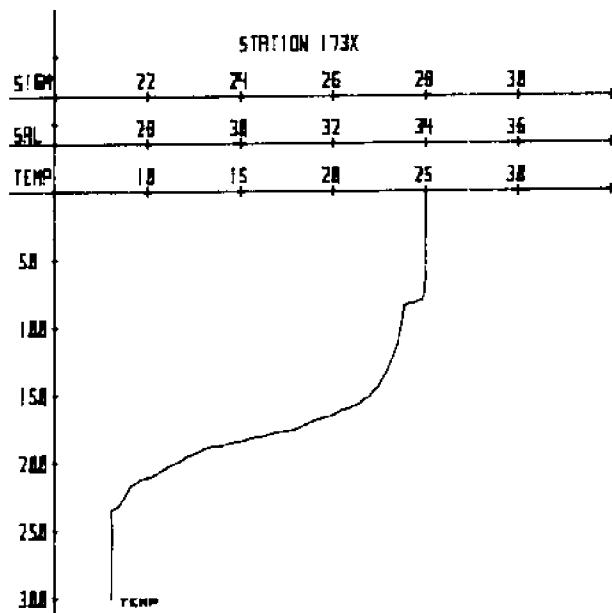
ISELIN CRUISE CI-12 STA 172X 15/ XII/76 4.6 GMT CONSEC STA 172
LAT 30 49.2W LONG 79 57.4W DEPTH = 198M DIST LAST STA = 2.9KM

WEATHER DATA

WIND SPEED = 31 KTS
WIND DIRECTION = 110
AIR TEMP = 20.0C
WEATHER CODE =
BAROMETRIC PRESSURE = 1018.1 MB

SEA STATE =
WAVE DIRECTION =
CLOUD TYPE =
CLOUD AMOUNT =
VISIBILITY CODE =

OBSERVATIONS										
Z	T	S	D	SVA	D2	D2'	AOU	PO4	NOS	SI
1.0	24.00	.	.	.	.	.	.	.	.	.
25.0	24.00	.	.	.	.	.	.	.	.	.
50.0	23.80	.	.	.	.	.	.	.	.	.
54.0	23.50	.	.	.	.	.	.	.	.	.
59.0	23.00	.	.	.	.	.	.	.	.	.
72.0	22.50	.	.	.	.	.	.	.	.	.
80.0	22.00	.	.	.	.	.	.	.	.	.
90.0	21.50	.	.	.	.	.	.	.	.	.
100.0	21.00	.	.	.	.	.	.	.	.	.
101.0	20.50	.	.	.	.	.	.	.	.	.
103.0	21.00	.	.	.	.	.	.	.	.	.
111.5	21.00	.	.	.	.	.	.	.	.	.
121.0	20.50	.	.	.	.	.	.	.	.	.
125.0	20.00	.	.	.	.	.	.	.	.	.
134.0	19.50	.	.	.	.	.	.	.	.	.
138.0	19.00	.	.	.	.	.	.	.	.	.
143.0	18.50	.	.	.	.	.	.	.	.	.
145.0	18.00	.	.	.	.	.	.	.	.	.
147.0	17.50	.	.	.	.	.	.	.	.	.
148.0	17.00	.	.	.	.	.	.	.	.	.
149.0	16.50	.	.	.	.	.	.	.	.	.
151.0	16.00	.	.	.	.	.	.	.	.	.
155.0	15.50	.	.	.	.	.	.	.	.	.
165.0	15.00	.	.	.	.	.	.	.	.	.
169.0	14.50	.	.	.	.	.	.	.	.	.
171.0	14.00	.	.	.	.	.	.	.	.	.
171.5	13.50	.	.	.	.	.	.	.	.	.
172.0	13.00	.	.	.	.	.	.	.	.	.
172.5	12.50	.	.	.	.	.	.	.	.	.
173.0	11.50	.	.	.	.	.	.	.	.	.
174.0	11.00	.	.	.	.	.	.	.	.	.
175.0	10.50	.	.	.	.	.	.	.	.	.
178.0	10.00	.	.	.	.	.	.	.	.	.
180.0	9.50	.	.	.	.	.	.	.	.	.
184.0	9.00	.	.	.	.	.	.	.	.	.
186.0	8.50	.	.	.	.	.	.	.	.	.
189.0	8.10	.	.	.	.	.	.	.	.	.
190.0	8.10	.	.	.	.	.	.	.	.	.

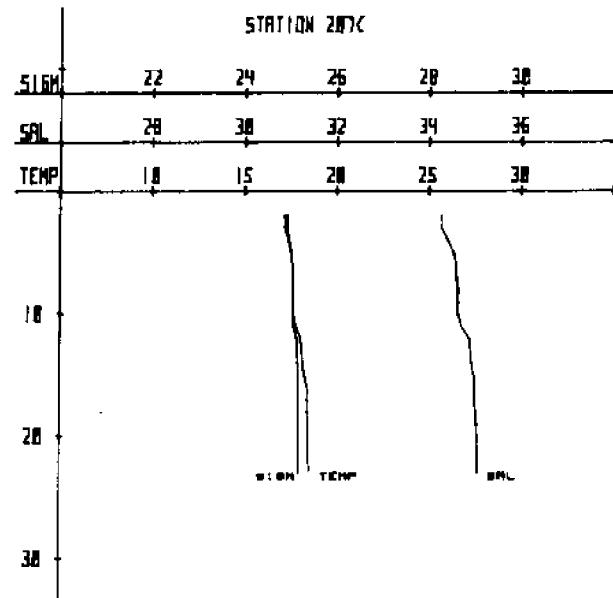


ISELIN CRUISE CI-12 STA 173X 15/ XII/76 5.6 GMT CONSEC STA 173
LAT 30 49.5W LONG 79 50.5W DEPTH = 300M DIST LAST STA = 11.0KM

WEATHER DATA

WIND SPEED = 31 KTS SEA STATE =
WIND DIRECTION = 130 WAVE DIRECTION =
AIR TEMP = 26.0C CLOUD TYPE =
WEATHER CODE = CLOUD AMOUNT =
BAROMETRIC PRESSURE = 1016.9 MB VISIBILITY CODE =

OBSERVATIONS										
Z	T	S	P	SVA	D2	O2'	AOU	PO4	N03	SI
1.0	25.00	.	.	.	.	.	.	.	.	.
60.0	25.00	.	.	.	.	.	.	.	.	.
80.0	24.80	.	.	.	.	.	.	.	.	.
82.0	24.50	.	.	.	.	.	.	.	.	.
84.0	24.00	.	.	.	.	.	.	.	.	.
85.0	23.80	.	.	.	.	.	.	.	.	.
111.0	23.50	.	.	.	.	.	.	.	.	.
129.0	23.00	.	.	.	.	.	.	.	.	.
143.0	22.50	.	.	.	.	.	.	.	.	.
151.0	22.00	.	.	.	.	.	.	.	.	.
156.0	21.50	.	.	.	.	.	.	.	.	.
160.0	21.00	.	.	.	.	.	.	.	.	.
162.0	20.50	.	.	.	.	.	.	.	.	.
164.0	20.00	.	.	.	.	.	.	.	.	.
168.0	19.50	.	.	.	.	.	.	.	.	.
170.0	19.00	.	.	.	.	.	.	.	.	.
171.0	18.50	.	.	.	.	.	.	.	.	.
174.0	18.00	.	.	.	.	.	.	.	.	.
177.0	17.50	.	.	.	.	.	.	.	.	.
178.0	17.00	.	.	.	.	.	.	.	.	.
180.0	16.50	.	.	.	.	.	.	.	.	.
182.0	16.00	.	.	.	.	.	.	.	.	.
183.0	15.50	.	.	.	.	.	.	.	.	.
185.0	15.00	.	.	.	.	.	.	.	.	.
186.0	14.50	.	.	.	.	.	.	.	.	.
188.0	14.00	.	.	.	.	.	.	.	.	.
189.0	13.50	.	.	.	.	.	.	.	.	.
191.0	13.00	.	.	.	.	.	.	.	.	.
194.0	12.50	.	.	.	.	.	.	.	.	.
197.0	12.00	.	.	.	.	.	.	.	.	.
201.0	11.50	.	.	.	.	.	.	.	.	.
204.0	11.00	.	.	.	.	.	.	.	.	.
207.0	10.50	.	.	.	.	.	.	.	.	.
212.0	10.00	.	.	.	.	.	.	.	.	.
214.0	9.50	.	.	.	.	.	.	.	.	.
219.0	9.00	.	.	.	.	.	.	.	.	.
231.0	8.50	.	.	.	.	.	.	.	.	.
236.0	8.00	.	.	.	.	.	.	.	.	.
249.0	8.10	.	.	.	.	.	.	.	.	.
300.0	8.00	.	.	.	.	.	.	.	.	.



ISELIN CRUISE CI-12 STA 207C 15/ XII/76 21.5 GMT CONSEC STA 207
LAT 28 59.3W LONG 80 24.6W DEPTH = 2m DIST LAST STA = 211.5KM

WEATHER DATA

WIND SPEED = 00 KTS SEA STATE =
WIND DIRECTION = VARIABLE WAVE DIRECTION =
AIR TEMP = 18.3C CLOUD TYPE =
WEATHER CODE = CLOUD AMOUNT =
BAROMETRIC PRESSURE = 1012.6 MB VISIBILITY CODE =

OBSERVATIONS										
Z	T	S	P	SVA	D2	O2'	AOU	PO4	N03	SI
2.0	12.33	34.28	24.89	304	5.77	5.45	-32	0.33	00.5	04.2
3.0	12.37	34.29	24.89	307	.	.	.	.	.	.
4.0	12.44	34.42	24.97	299	.	.	.	.	.	.
5.0	12.58	34.55	25.04	292	.	.	.	.	.	.
6.0	12.63	34.61	25.07	289	5.55	5.41	-14	0.33	00.8	03.7
7.0	12.70	34.44	25.08	289	.	.	.	.	.	.
8.0	12.72	34.66	25.09	288	.	.	.	.	.	.
9.0	12.72	34.66	25.09	288	.	.	.	.	.	.
10.0	12.73	34.66	25.09	288	.	.	.	.	.	.
11.0	12.87	34.73	25.11	286	5.38	5.38	00	0.29	01.0	03.9
12.0	18.12	34.90	25.18	280	.	.	.	.	.	.
13.0	18.21	34.94	25.18	279	.	.	.	.	.	.
14.0	18.24	34.97	25.20	278	.	.	.	.	.	.
15.0	18.33	35.02	25.21	276	.	.	.	.	.	.
16.0	18.46	35.05	25.21	277	.	.	.	.	.	.
17.0	18.49	35.06	25.21	277	.	.	.	.	.	.
18.0	18.50	35.07	25.21	277	.	.	.	.	.	.
19.0	18.54	35.08	25.21	277	.	.	.	.	.	.
20.0	18.54	35.09	25.21	277	.	.	.	.	.	.
21.0	18.58	35.09	25.21	277	.	.	.	.	.	.
22.0	18.62	35.11	25.21	277	.	.	.	.	.	.
23.0	18.66	35.12	25.21	277	.	.	.	.	.	.
24.0					4.42			0.60	01.6	04.1

