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NOAA TECHNICAL REPORT ERL 271-POL 19

STD Observations in the Northeast Pacific, September - October 1972

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**BOULDER, COLO.
May 1973**

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STD Observations in the Northeast Pacific,
September - October 1972

Ronald K. Reed and David Halpern

Summaries of STD measurements in the northeast Pacific during September and October 1972 are presented as computer-generated plots and as listings of temperature, salinity, sigma-t, and dynamic height anomaly. Distributions of physical properties and flow during October are presented and discussed. The variation of dynamic height anomaly at three time series stations is evaluated; results at all sites suggest the existence of semidiurnal internal tidal waves. Deviations at the same sites occupied a month apart were only slightly greater than those that occurred during a 12-hr period.

1. INTRODUCTION

During 16-19 September 1972 and 17-21 October 1972, vertical profiles of temperature and salinity from the surface to 1500 m were obtained in a region of the northeast Pacific (see figures 1 and 2) from the NOAA Ship OCEANOGRAPHER. Station positions were determined by satellite navigation and by LORAN A.

The measurements were made with a Plessey model 9006 salinity/temperature/depth (STD) system. The STD sensor was lowered at 15 m/min in the upper 200 m, and the speed was increased to 30 m/min below that depth. Data were recorded in analog format on an X₁-X₂-Y recorder (Leeds-Northrup) and were also recorded in digital format, at a rate of 0.2 sec/scan, on a Plessey model 8114A Digital Data Logger. Except for calibration purposes, data were recorded only during descent; when bottles were tripped on ascent, only the analog recorder was used.

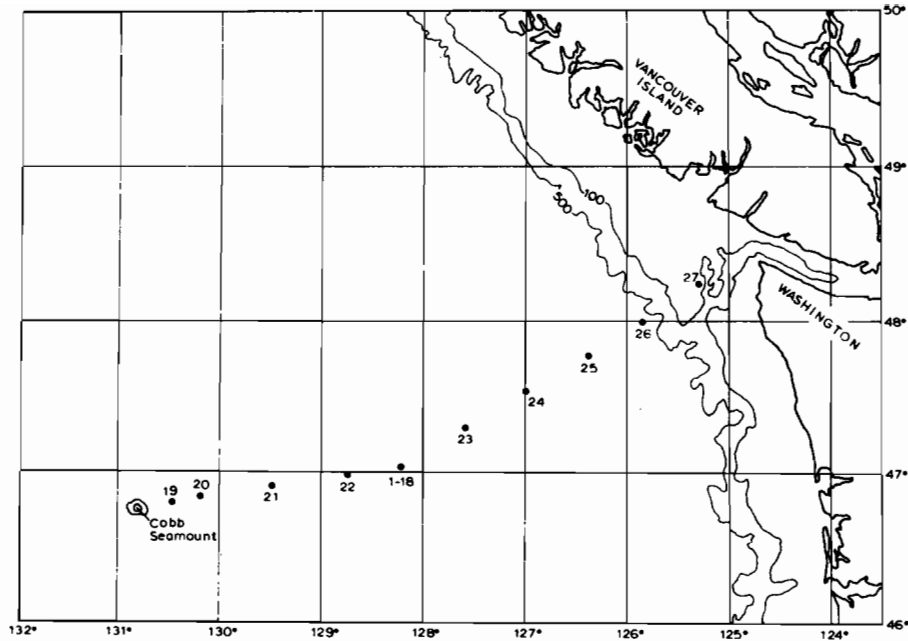


Figure 1. Location of STD stations, September 16-19, 1972. The 100 and 500 fathom (uncorrected; 1 fm = 1.829 m) depth contours are also shown. (Cobb Seamount rises to within 34 m of the surface)

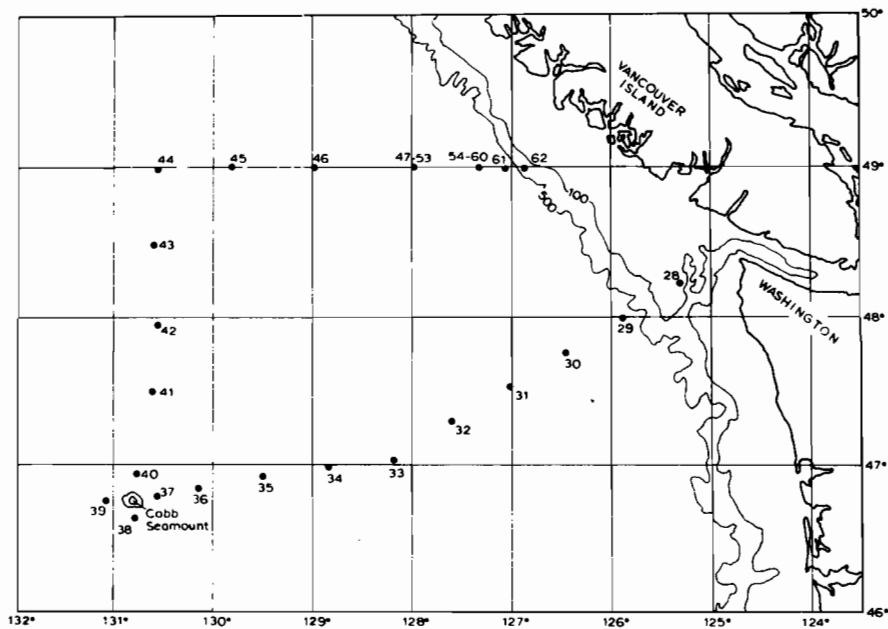


Figure 2. Location of STD stations, October 17-21, 1972.

2. CALIBRATION

On each cast a Nansen bottle was placed 4 m above the STD sensors, and the bottle was tripped at nominal depths of 1500 m, 1000 m, 500 m, or near the surface. At 1500 m, the bottle was tripped during descent; otherwise bottles were tripped during ascent while operating the analog recorder. The reversing thermometers used were calibrated by the National Oceanographic Instrumentation Center, and salinity was determined on a laboratory inductive salinometer. Temperature and salinity values obtained from the Nansen bottle were compared with values recorded in analog form at the time the bottle tripped. The temperature and salinity comparisons obtained in this manner (i.e., based on time) did not depend on thermometric depth, but the accuracy of the depth sensor was checked against the thermometric depths. (Deviations from the above procedure did occur for the September cruise; bottles were tripped only at the bottom of the casts, and the values obtained from the bottle were compared with those recorded digitally at the same depth as the thermometric depth.) Temperature and salinity corrections for the October cruise were applied during the initial processing of the digital data. Table 1 summarizes the temperature and salinity corrections obtained during the two cruises; corrections to depth were not necessary. Changes in corrections during a cruise were not detected.

3. DATA REDUCTION

Reduction of the digital data consisted of the following steps. First, an entire digitizer scan was removed from the data when its depth value was less than the preceding one. Second, temperature and salinity values

Table 1. Mean values of the temperature ($^{\circ}\text{C}$) and salinity ($^{\circ}/\text{oo}$) corrections applied to the STD data recorded during September and October 1972. (Standard deviations of the mean values = s.d.)

| Period | Temperature Correction | | | Salinity Correction | | |
|------------|------------------------|-------|-------|---------------------|-------|-------|
| | Depth (m) | Mean | s.d. | Depth (m) | Mean | s.d. |
| 16-19 Sept | All depths | +0.01 | 0.003 | All depths | -0.04 | 0.003 |
| 17-21 Oct | All depths | +0.02 | 0.018 | 0 | -0.02 | 0.019 |
| | | | | 500 | -0.04 | 0.010 |
| | | | | 1000 | -0.05 | 0.009 |
| | | | | 1500 | -0.06 | 0.006 |

recorded at the same depth were averaged together. Third, temperature and salinity were computed at 1-m intervals; e.g., the temperature at 90 m was equal to the arithmetic mean of the measurements between 89.5 and 90.5 m. Fourth, scans with anomalous temperature or salinity values were removed from the 1-m averaged data when the temperature or salinity gradient on both sides of the scan changed sign and exceeded a critical value. The critical gradients were $0.05^{\circ}\text{C}/\text{m}$ and $0.025^{\circ}/\text{oo}/\text{m}$ for depths between 0 and 200 m and $0.01^{\circ}\text{C}/\text{m}$ and $0.01^{\circ}/\text{oo}/\text{m}$ below 200 m.

4. DATA PRESENTATION

The reduced corrected data from each STD cast are summarized by a computer generated plot of the vertical profiles of temperature, salinity, and sigma-t and by a listing of selected values of temperature, salinity, sigma-t, and dynamic height anomaly. When the depth of the uppermost measurements was not equal to 0 m, surface values of temperature and salinity

were computed from a least squares fit of the data recorded above 7 m depth. Methods given by LaFond (1951) were used in computing sigma-t and specific volume anomaly at 1-m intervals. Using the trapezoidal method of integration, these latter values were used to determine the dynamic height anomaly.

Depth in meters was defined as equivalent to pressure in decibars. Tables 4-9 contain the abbreviations, units, and codes used with the STD data listings.

5. PRELIMINARY REMARKS

Data obtained during these cruises allow one to examine properties and flow and their areal and temporal variations.

5.1 Hydrography, October 1972

Representative vertical sections of temperature, salinity, and sigma-t in October are shown in figures 3-5. An interesting feature is the relatively steep temperature and salinity slopes which are frequently not correlated and do not result in significant horizontal gradients of sigma-t. At intermediate depths at stations 31-32, for example, the isolines of temperature slope downward toward shore whereas those of salinity slope upward; the resulting sigma-t isolines are essentially flat in agreement with the very weak geostrophic flow at these levels. A similar situation is present between stations 44 and 45. Thus over much of the area one cannot reliably infer flow from only the temperature or salinity gradients. During this cruise, however, the northerly geostrophic flow near the continental slope was accompanied by downward-sloping isolines (toward shore) of both temperature and salinity.

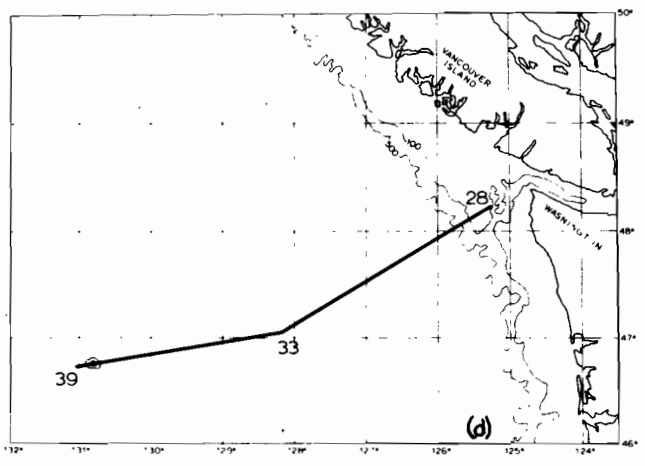
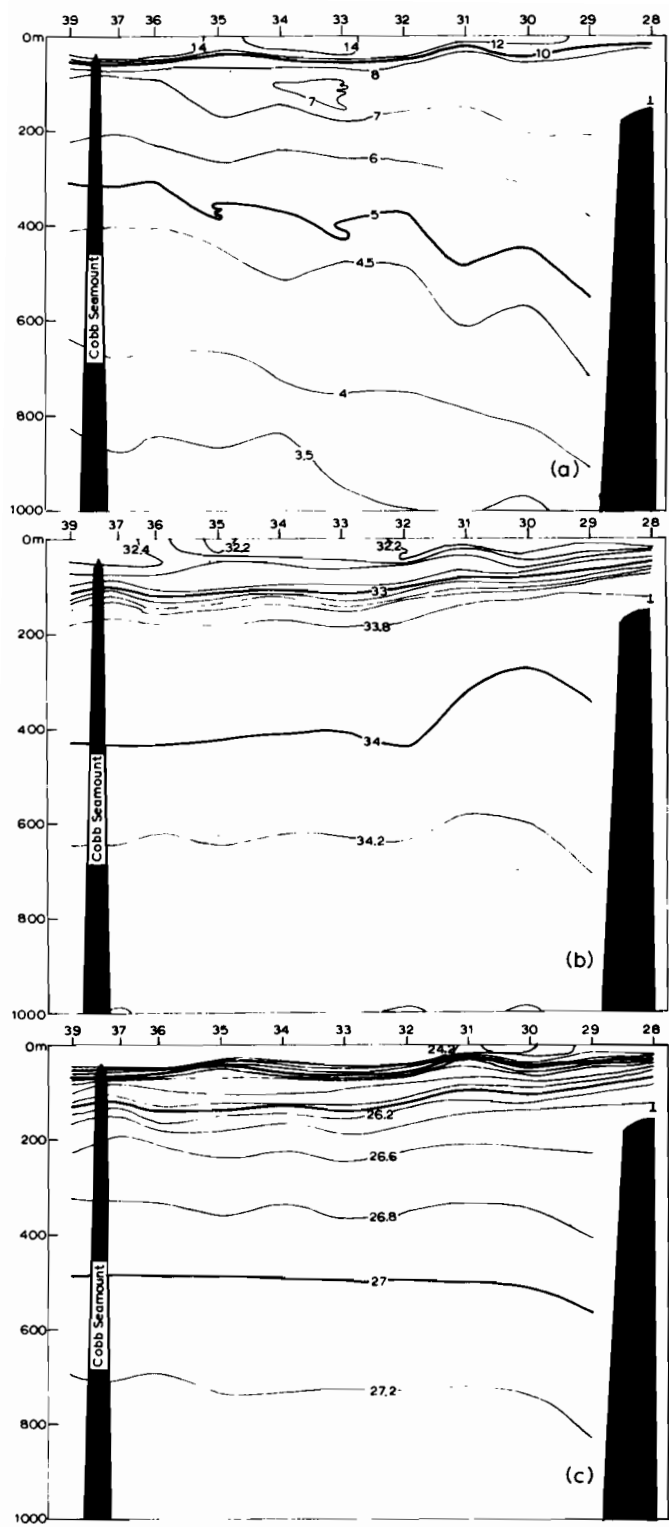


Figure 3. Vertical sections of (a) temperature ($^{\circ}\text{C}$), (b) salinity ($^{\circ}/\text{OO}$), and (c) sigma-t along the Strait of Juan de Fuca-Cobb Seamount Line, October 17-18, 1972.

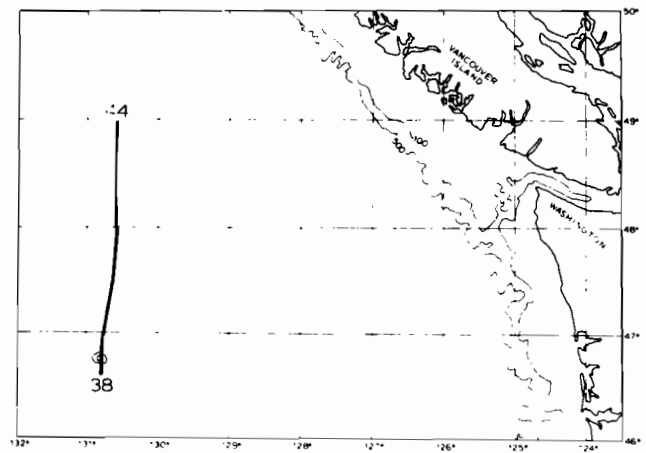
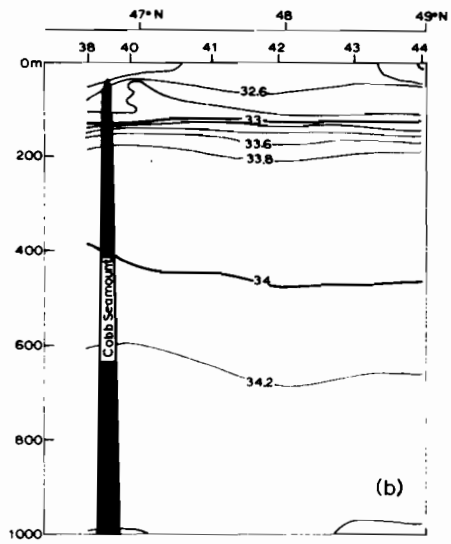
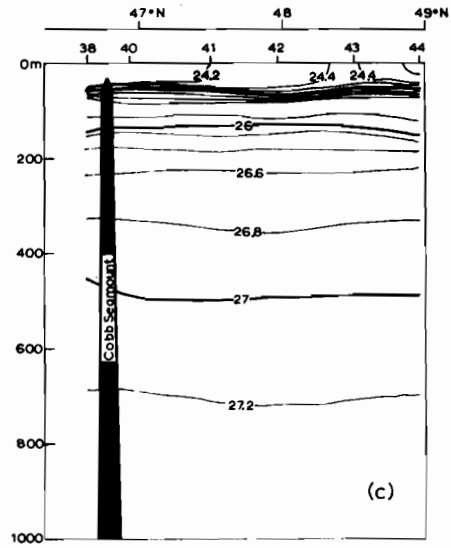
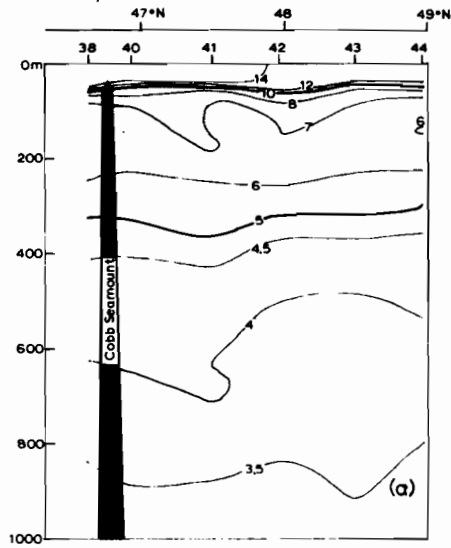


Figure 4. Vertical sections of (a) temperature ($^{\circ}\text{C}$), (b) salinity (‰), and (c) sigma-t along 130.7°W , October 18-19, 1972.

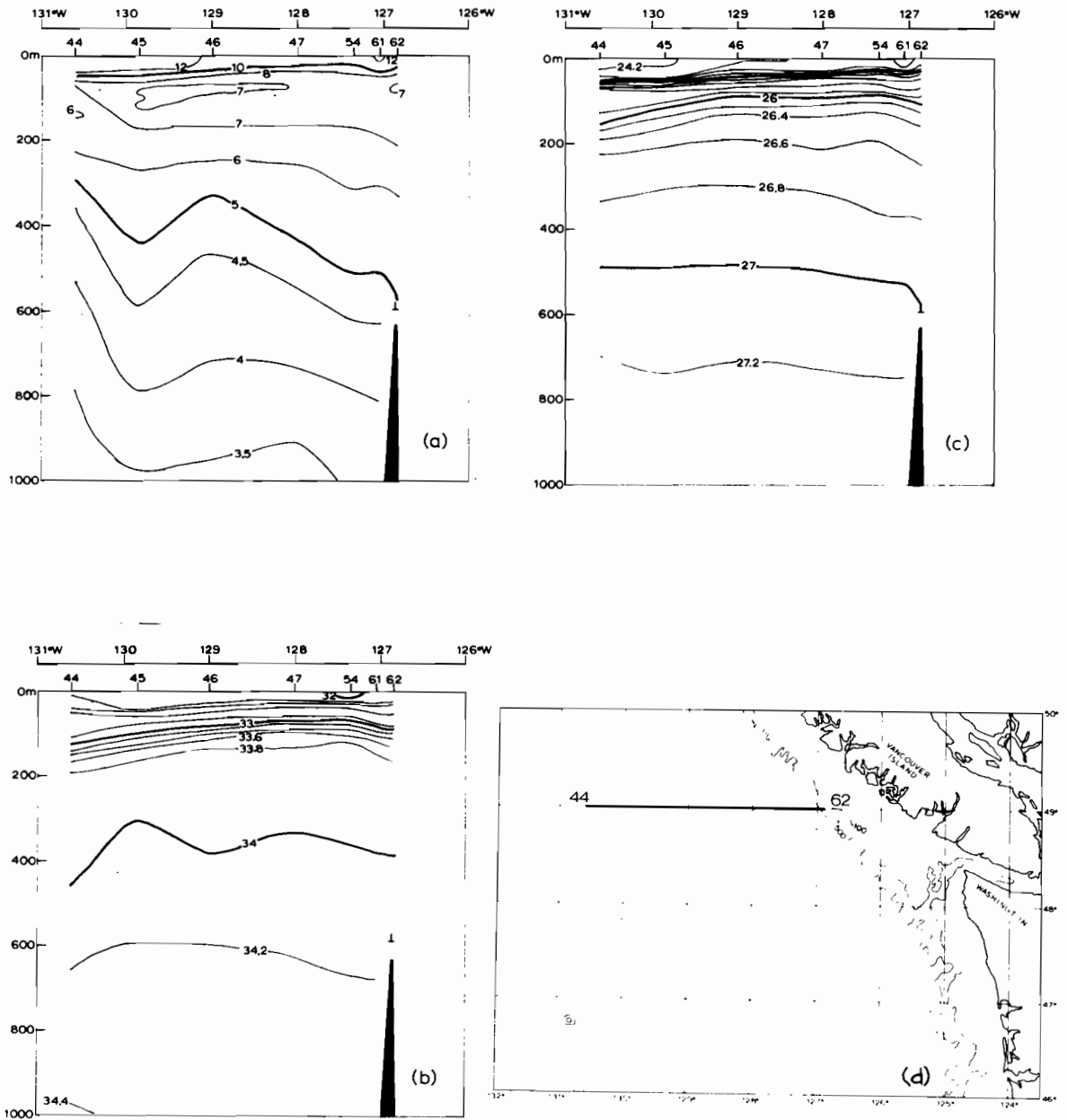


Figure 5. Vertical sections of (a) temperature ($^{\circ}\text{C}$), (b) salinity (‰), (c) sigma-t along 49°N , October 19-21, 1972.

The dynamic topography during 17-21 October 1972 is shown in figures 6-9. Although one cannot conclusively state that the 1000-db surface is level in this region, figure 6 shows that the relief, referred to 1500 db, is slight (1-2 dyn cm); in addition, direction of flow is similar to that in the upper layers. Since a number of casts failed to reach 1500 db, anomalies of the 0, 100, and 300-db surfaces were referred to 1000 db, and the topographies are presented in figures 7-9. At all three levels, a northerly flow is evident at the base of the continental slope. Total relief over this feature is 7 dyn cm at the surface, 8 dyn cm at 100 db, and 7 dyn cm at 300 db. At the surface, the most intense northerly flow is between stations 61 and 54-60, but at 100 and 300 db it is between stations 29 and 30. Between these latter two stations, flow at the surface is only about 5 cm/sec, increases to about 15 cm/sec at 100 db, and remains almost this strong at 300 db. (As will be discussed later, an even more extreme situation was present near stations 29 and 30 in September 1972 when the surface flow was southerly with a northerly flow beneath.) The only other well-developed flow in the area was a southerly flow at the surface in the central part of the area; at 100 m its magnitude was appreciably reduced, however.

5.2 STD Time Series, September and October 1972

As a part of this investigation, STD casts were repeated approximately every two hours at stations 1-18 in September and 47-53 and 54-60 in October 1972. The dynamic height anomaly at each of these sites was then examined for temporal variation. As a measure of the variation inherent in the results of a single cast, one may use the standard deviation from

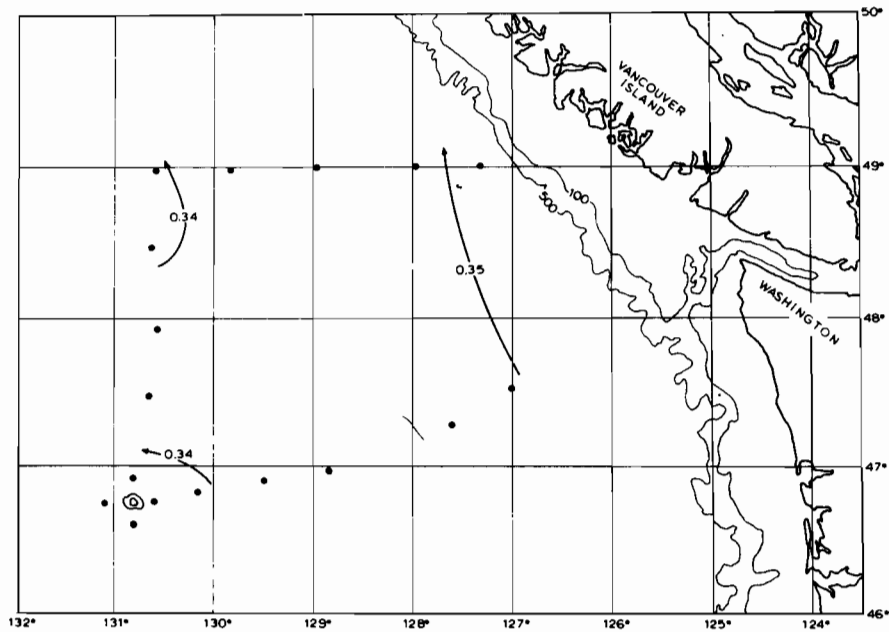


Figure 6. Dynamic topography (dyn m) of the 1000 db surface, referred to 1500 db, October 17-21, 1972.

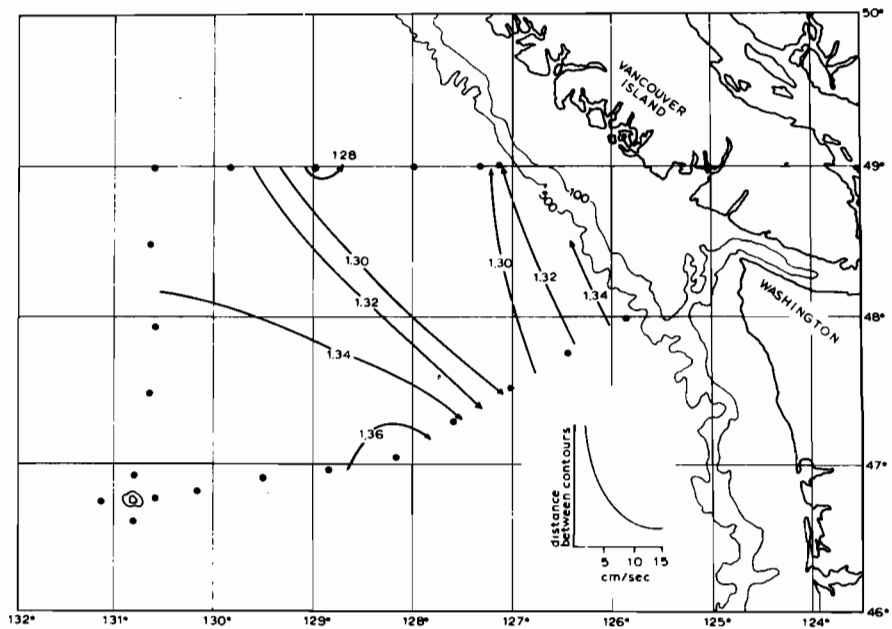


Figure 7. Dynamic topography (dyn m) of the sea surface, referred to 1000 db, October 17-21, 1972.

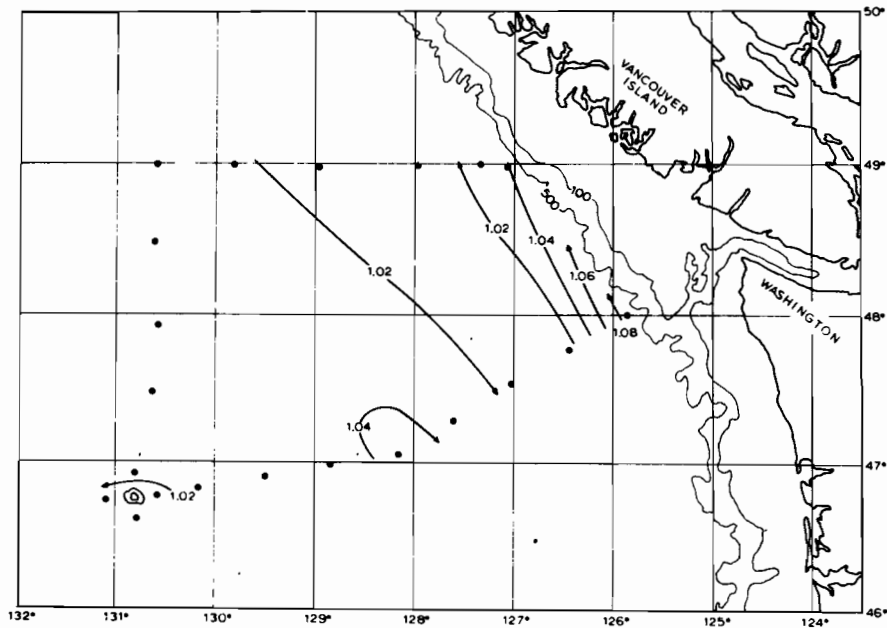


Figure 8. Dynamic topography (dyn m) of the 100 db surface, referred to 1000 db, October 17-21, 1972.

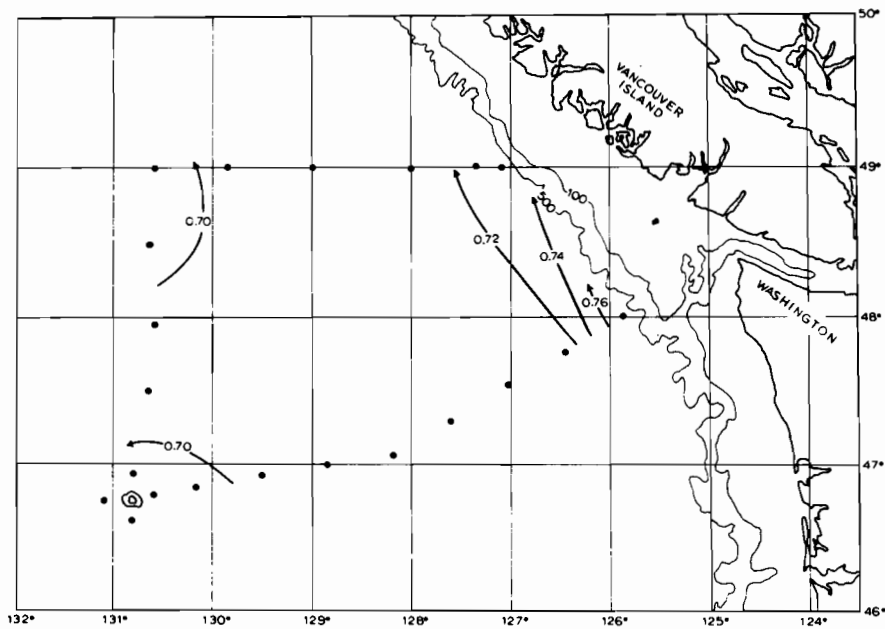


Figure 9. Dynamic topography (dyn m) of the 300 db surface, referred to 1000 db, October 17-21, 1972.

the mean anomaly. Results from the time series are summarized in Table 2. Although deviations at the various sites (and during the various periods) differ, certain features occur in each series. First, variations over a 12-hr period are relatively large. Second, variations in the 100/1000-db and 300/1000-db anomalies are appreciably less than those in the 0/1000-db or 0/1500-db anomalies. Finally, variations in the 1000/1500-db anomalies are small but are still present. It should be stressed that all these variations are greater than those due to random measurement error, which was estimated to be less than 0.001 dyn m by the method used by Wooster and Taft (1958).

The time series data allow us to conclude that in this region the 0/1000-db anomaly is reliable to about 0.016 dyn m (two standard deviations assuming a normal distribution) if obtained from a single cast without regard to time or location. The reliability of other anomalies may be approximated by twice the standard deviations shown in Table 2. From the estimate of reliability for the 0/1000-db anomaly, one may estimate the reliability of anomaly difference between two stations as $(0.016 \text{ dyn m})(2)/\sqrt{2}$ or 0.023 dyn m. Thus to be reliable indicators of even flow direction, differences between two stations should exceed this amount. During the October cruise, anomaly differences at eight station pairs were greater than 0.023 dyn m; especially over the southwest part of the area shown in figure 7, however, the gradients are too weak to provide useful information about flow. One may increase the reliability of flow estimates by using anomalies on deeper surfaces (such as 100/1000 db); as noted before, however, in some instances flow is well-developed at these deeper levels, but in others the gradients are quite weak.

Table 2. Summary of dynamic height anomalies (dyn m) computed at sites with repeated casts.

| Location | Period | Duration | Number | Mean s.d. 0/1500 db | Mean s.d. 0/1000 db | Mean s.d. 100/1000 db | Mean s.d. 300/1000 db | Mean s.d. 1000/1500 db |
|---------------------|------------------|----------|--------|------------------------|------------------------|--------------------------|--------------------------|---------------------------|
| 47°02'N 128°14'W | 16-17 Sept 72 | 43 hr | 18 | ----- | 1.371-0.007 | 1.039-0.004 | 0.707-0.003 | ----- |
| 49°00'N 128°00'W | 19-20 Oct 72 | 12 hr | 7 | 1.634-0.009 | 1.288-0.010 | 1.009-0.006 | 0.709-0.004 | 0.347-0.001 |
| 49°00'N 127°20'W | 20 Oct 72 | 12 hr | 7 | 1.645-0.009 | 1.290-0.007 | 1.030-0.004 | 0.732-0.003 | 0.355-0.002 |

The dynamic height anomalies at the three sites have been plotted as a function of time in figures 10 and 11. Although the data series are too short to yield conclusive results (Haurwitz, 1954), there appears to be qualitative evidence for the existence of semidiurnal internal waves. In the 0/1000-db and 0/1500-db anomalies, the high and low values are separated by about 6 hr; in the 100/1000-db and 300/1000-db anomalies, however, this pattern is much less clear. Estimates of the amplitudes of physical properties at various levels and the property gradients suggested that the maximum wave amplitudes occurred at about 50 m. Figure 12 shows the variation in depth of the 8-°C and 32.6-⁰/oo surfaces for the series shown in figure 11; the patterns are much like those evident in the 0/1000-db and 0/1500-db anomalies, and maximum amplitudes of about 8 m are indicated. If one considers a long internal wave influenced by the earth's rotation, propagating seaward from the continental shelf break (see, e.g., Defant, 1961) in a density medium approximated by two layers, then crests or troughs at the more seaward site (49°N, 128°W) should occur about 8 hr later than those at the inshore site (49°N, 127°20'W). The observed mean time difference was about 5 hr. Thus considering the many uncertainties and assumptions in such estimates, the generation of internal tide waves at the shelf break and their seaward propagation in this locality seems plausible.

5.3 Comparison of Anomalies and Flow - September and October 1972

Figure 13 presents a comparison of the observed dynamic height anomalies in September and in October 1972 at approximately the same sites along the Strait of Juan de Fuca - Cobb Seamount Line. Two main features are apparent.

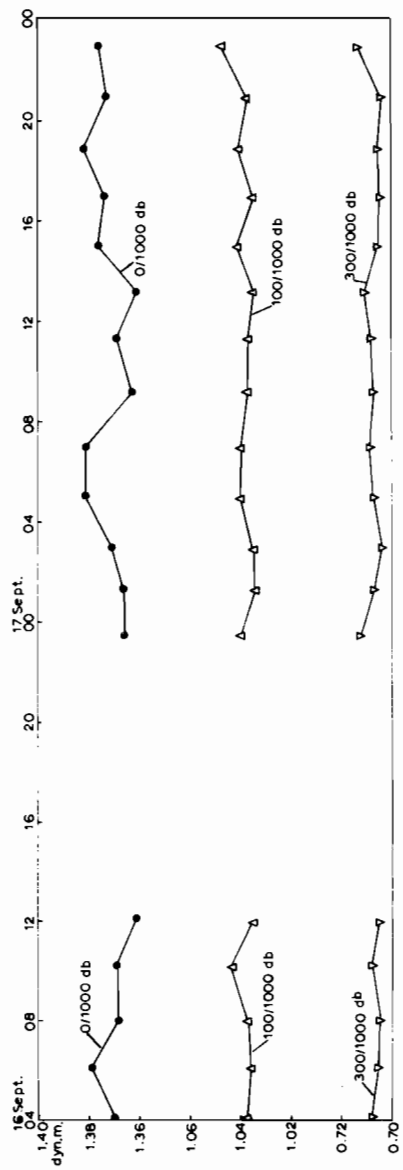


Figure 10. Dynamic height anomalies at 47°02'N, 128°14'W, September 16-17, 1972.

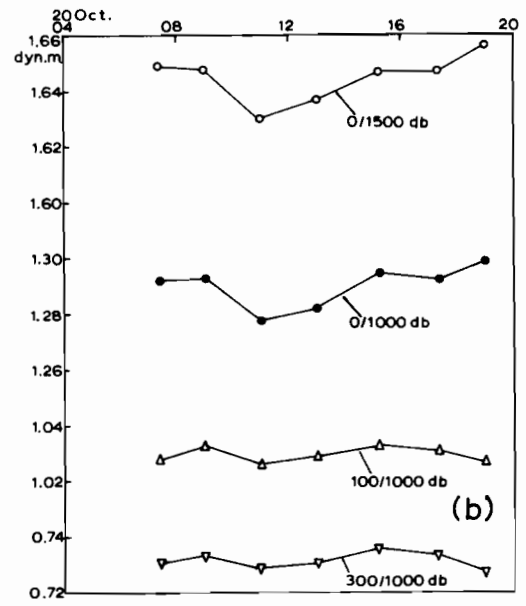
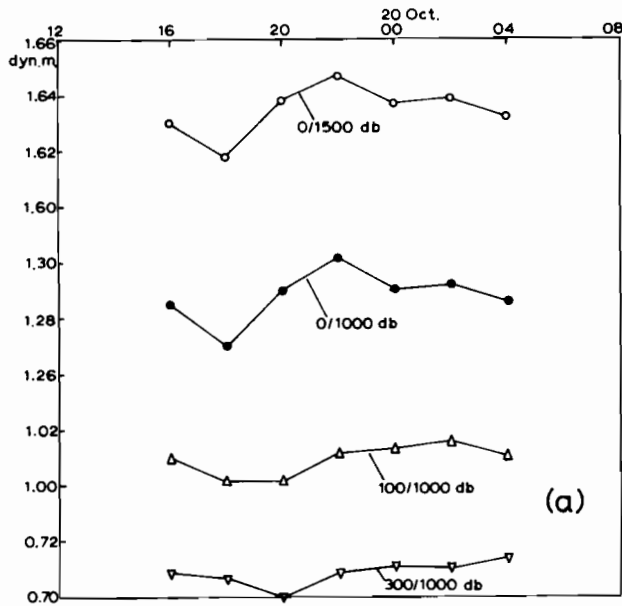


Figure 11. Dynamic height anomalies at (a) $49^{\circ}00'N$, $128^{\circ}00'W$, October 19-20, 1972, and at (b) $49^{\circ}00'N$, $127^{\circ}20'W$, October 20, 1972.

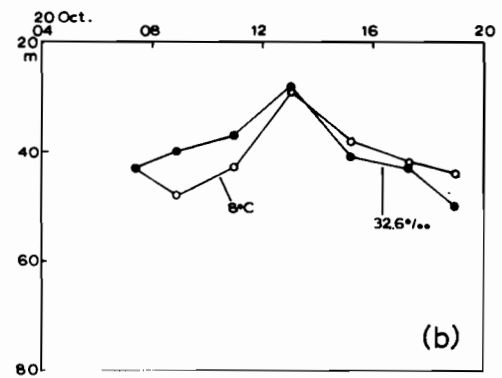
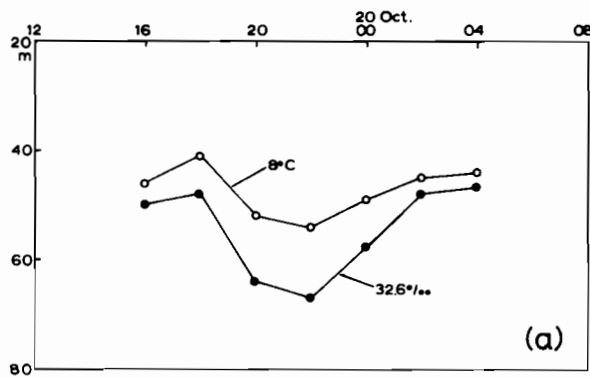


Figure 12. Depth of the $8^{\circ}C$ and $32.6^{\text{‰}}$ surfaces at (a) $49^{\circ}00'N$, $128^{\circ}00'W$, October 19-20, 1972, and at (b) $49^{\circ}00'N$, $127^{\circ}20'W$, October 20, 1972.

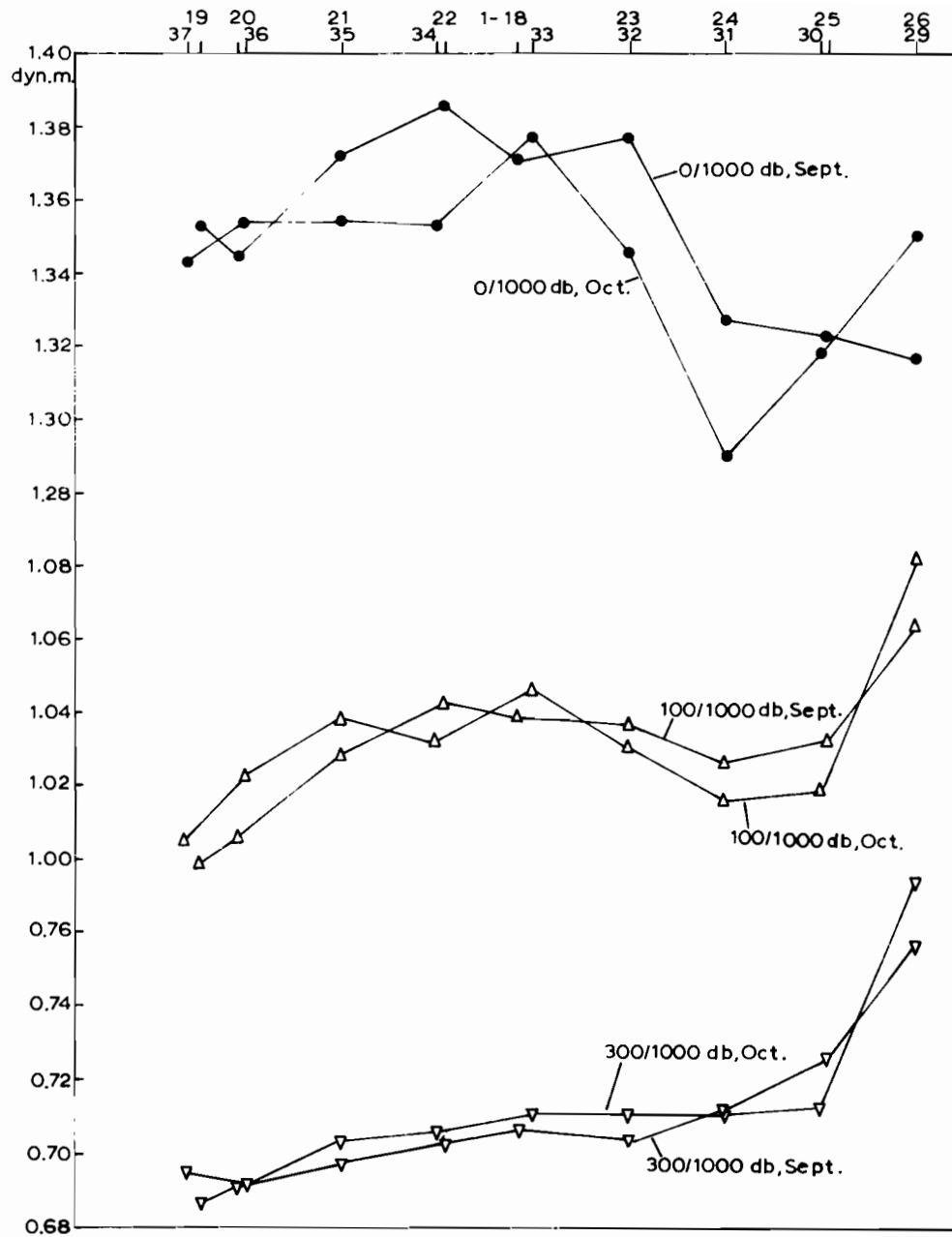


Figure 13. Dynamic height anomalies (dyn m) along the Strait of Juan de Fuca - Cobb Seamount Line, September 17-19, 1972, and October 17-18, 1972.

First, the slopes of anomaly (and thus flow) were generally similar during the two cruises at the 100/1000-db and 300/1000-db levels. On the other hand, they are quite dissimilar at the 0/1000-db level, and the differences in absolute anomaly values are relatively large. For example, the strong surface northerly flow near the continental slope in October was not present in September, but at subsurface depths flow here was northerly during both cruises. Many of the differences in slopes of the 0/1000-db anomalies during the two cruises cannot be considered reliable indicators of flow, however. During the October cruise, the slopes between stations 29 and 34 all exceed 0.023 dyn m, but in September this value is exceeded only between stations 23-34 and 20-21.

A comparison of the variability at the same sites over a month is of interest, and the deviations from the mean anomalies at approximately the same sites are presented in Table 3. If we compare these deviations with two standard deviations over periods as short as 12 hr (Table 2), we find that only two of the 0/1000-db deviations exceed the mean value of 0.016 dyn m, none of the 100/1000-db anomalies exceed the mean value of 0.009 dyn m, and one of the 300/1000-db values is greater than 0.007 dyn m. Thus we may conclude that most of the variations in dynamic height anomaly over this one-month period were no greater than the variations that could have been expected over a 12-hr period.

Table 3. Deviations (dyn m) of values from the mean dynamic height anomalies computed at approximately the same sites during 17-19 September and 17-18 October 1972.

| Station Pair | Dev. (0/1000 db) | Dev. (100/1000 db) | Dev. (300/1000 db) |
|--------------|------------------|--------------------|--------------------|
| 19-37 | 0.005 | 0.003 | 0.004 |
| 20-36 | 0.004 | 0.008 | 0 |
| 21-35 | 0.009 | 0.005 | 0.003 |
| 22-34 | 0.016 | 0.006 | 0.001 |
| (1-18)-33 | 0.003 | 0.004 | 0.002 |
| 23-32 | 0.016 | 0.003 | 0.004 |
| 24-31 | 0.018 | 0.006 | 0.001 |
| 25-30 | 0.002 | 0.007 | 0.006 |
| 26-29 | 0.017 | 0.009 | 0.008 |

6. STD STATION DATA SUMMARIES

Table 4. Abbreviations and units used to describe the STD measurements.

| | |
|--------------------|---|
| CAST ROAR 2-0C-001 | STD Station <u>1</u> made aboard the <u>OCEANO-GRAPHER</u> during <u>ROAR 2</u> |
| DATE | Day, month, year |
| TIME | Hours and minutes, Greenwich Mean Time (GMT) |
| LAT | Latitude, degrees, minutes, and tenths west |
| LONG | Longitude, degrees, minutes, and tenths west |
| WEATHER | Present weather conditions (see Table 5) |
| SEA STATE | Sea state conditions (see Table 6) |
| BAROMETER | Sea level atmospheric pressure, in millibars (mb) greater than 1000 mb |
| WIND DIR | Wind direction, degrees true from which the wind blows |
| SPD | Wind speed, knots |
| VISIBILITY | Visibility (see Table 7) |
| CLOUD | Cloud Type (see Table 8) |
| AMOUNT | Amount of cloud cover (see Table 9) |
| DRY | Dry bulb air temperature, °C |
| WET | Wet bulb air temperature, °C |
| DEPTH | Depth to the bottom, uncorrected meters |

Table 5. Weather condition code used to describe each set of STD measurements.

| <u>Code</u> | <u>Weather Condition</u> |
|-------------|---------------------------------------|
| 0 | Clear (no cloud) |
| 1 | Partly cloudy |
| 2 | Continuous layer(s) of cloud(s) |
| 3 | Sandstorm, duststorm, or blowing snow |
| 4 | Fog, thick dust, or haze |
| 5 | Drizzle |
| 6 | Rain |
| 7 | Snow, or rain and snow mixed |
| 8 | Shower(s) |
| 9 | Thunderstorms |

Table 6. Sea state code used to describe each set of STD measurements.

| <u>Code</u> | <u>Height (meters)</u> | <u>Description</u> |
|-------------|------------------------|--------------------|
| 0 | 0 | Calm-glassy |
| 1 | 0 - 0.1 | Calm-rippled |
| 2 | 0.1 - 0.5 | Smooth-wavelet |
| 3 | 0.5 - 1.25 | Slight |
| 4 | 1.25 - 2.5 | Moderate |
| 5 | 2.5 - 4 | Rough |
| 6 | 4 - 6 | Very Rough |
| 7 | 6 - 9 | High |
| 8 | 9 - 14 | Very High |
| 9 | >14 | Phenomenal |

Table 7. Visibility code used to describe each set of STD measurements.

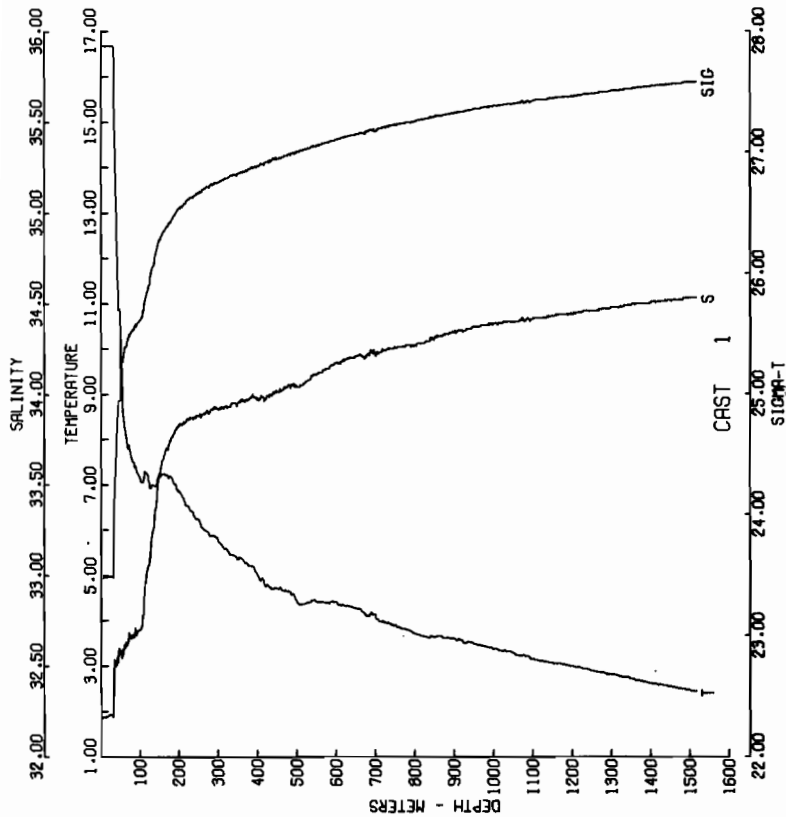
| <u>Code</u> | <u>Visibility</u> |
|-------------|-------------------|
| 0 | < 50 meters |
| 1 | 50 - 200 meters |
| 2 | 200 - 500 meters |
| 3 | 500 - 1000 meters |
| 4 | 1 - 2 km |
| 5 | 2 - 4 km |
| 6 | 4 - 10 km |
| 7 | 10 - 20 km |
| 8 | 20 - 50 km |
| 9 | 50 km or more |

Table 8. Cloud type code used to describe each set of STD measurements.

| <u>Code</u> | <u>Cloud Type</u> |
|-------------|--------------------|
| 0 | Cirrus |
| 1 | Cirrocumulus |
| 2 | Cirrostratus |
| 3 | Alto cumulus |
| 4 | Altostratus |
| 5 | Nimbostratus |
| 6 | Stratocumulus |
| 7 | Stratus |
| 8 | Cumulus |
| 9 | Cumulonimbus |
| X | Clouds not visible |

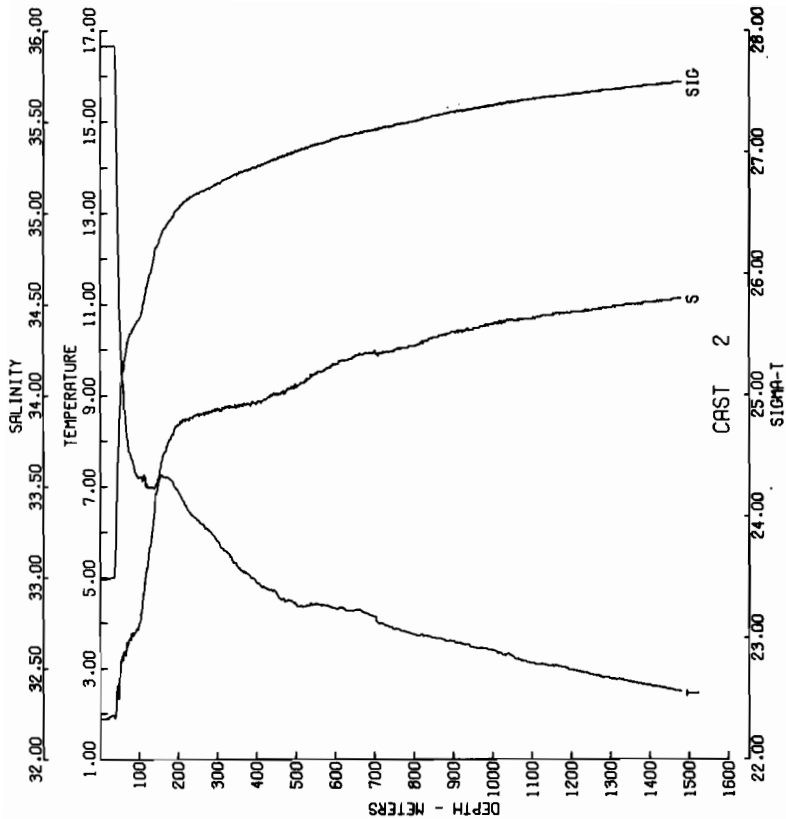
Table 9. Cloud amount code used to describe each set of STD measurements.

| <u>Code</u> | <u>Cloud Amount</u> |
|-------------|--------------------------------|
| 0 | 0 |
| 1 | 1/10 or less, but not zero |
| 2 | 2/10 - 3/10 |
| 3 | 4/10 |
| 4 | 5/10 |
| 5 | 6/10 |
| 6 | 7/10 - 8/10 |
| 7 | 9/10 or more, but not 10/10 |
| 8 | 10/10 |
| 9 | Sky obscured or not determined |



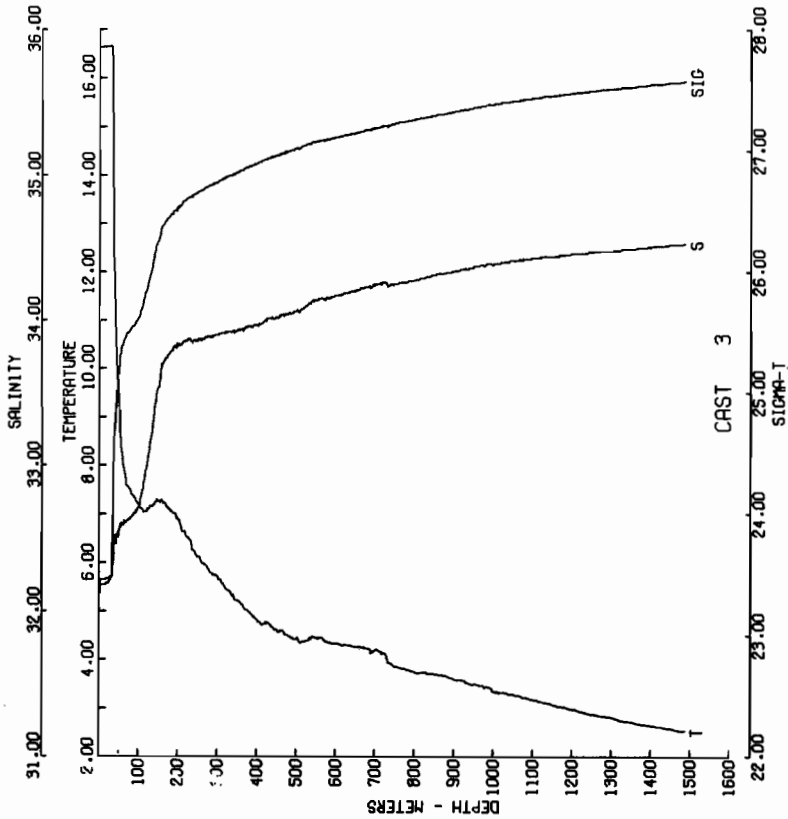
CAST 80A2-0C-001 DATE 16 SEP 72 TIME 0407 GMT
 LAT 47 04.9N LONG 128 12.4W DEPT 15.1 VISIBLTY 3
 BAROMETER 22 KNO 018 32.1 SPD 15.1 WIND DIR 15.1
 CLOUD X AMOUNT 9 DRY 16.1 WET 14.8 DEPTH 2787 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DYN M) | DELTA-O |
|-----------|-----------------|----------------|-----------------|---------|
| 0 | 16.68 | 32.21 | 23.21 | 0.000 |
| 10 | 16.68 | 32.21 | 23.21 | .022 |
| 20 | 16.68 | 32.21 | 23.21 | .066 |
| 30 | 16.67 | 32.22 | 23.22 | .088 |
| 40 | 16.66 | 32.22 | 23.22 | .139 |
| 50 | 16.66 | 32.22 | 23.22 | .190 |
| 60 | 16.66 | 32.22 | 23.22 | .241 |
| 70 | 16.66 | 32.22 | 23.22 | .292 |
| 80 | 16.66 | 32.22 | 23.22 | .343 |
| 90 | 16.66 | 32.22 | 23.22 | .394 |
| 100 | 16.66 | 32.22 | 23.22 | .445 |
| 110 | 16.66 | 32.22 | 23.22 | .496 |
| 120 | 16.66 | 32.22 | 23.22 | .547 |
| 130 | 16.66 | 32.22 | 23.22 | .598 |
| 140 | 16.66 | 32.22 | 23.22 | .649 |
| 150 | 16.66 | 32.22 | 23.22 | .700 |
| 160 | 16.66 | 32.22 | 23.22 | .751 |
| 170 | 16.66 | 32.22 | 23.22 | .802 |
| 180 | 16.66 | 32.22 | 23.22 | .853 |
| 190 | 16.66 | 32.22 | 23.22 | .904 |
| 200 | 16.66 | 32.22 | 23.22 | .955 |
| 210 | 16.66 | 32.22 | 23.22 | 1.006 |
| 220 | 16.66 | 32.22 | 23.22 | 1.057 |
| 230 | 16.66 | 32.22 | 23.22 | 1.108 |
| 240 | 16.66 | 32.22 | 23.22 | 1.159 |
| 250 | 16.66 | 32.22 | 23.22 | 1.210 |
| 260 | 16.66 | 32.22 | 23.22 | 1.261 |
| 270 | 16.66 | 32.22 | 23.22 | 1.312 |
| 280 | 16.66 | 32.22 | 23.22 | 1.363 |
| 290 | 16.66 | 32.22 | 23.22 | 1.414 |
| 300 | 16.66 | 32.22 | 23.22 | 1.465 |
| 310 | 16.66 | 32.22 | 23.22 | 1.516 |
| 320 | 16.66 | 32.22 | 23.22 | 1.567 |
| 330 | 16.66 | 32.22 | 23.22 | 1.618 |
| 340 | 16.66 | 32.22 | 23.22 | 1.669 |
| 350 | 16.66 | 32.22 | 23.22 | 1.720 |
| 360 | 16.66 | 32.22 | 23.22 | 1.771 |
| 370 | 16.66 | 32.22 | 23.22 | 1.822 |
| 380 | 16.66 | 32.22 | 23.22 | 1.873 |
| 390 | 16.66 | 32.22 | 23.22 | 1.924 |
| 400 | 16.66 | 32.22 | 23.22 | 1.975 |
| 410 | 16.66 | 32.22 | 23.22 | 2.026 |
| 420 | 16.66 | 32.22 | 23.22 | 2.077 |
| 430 | 16.66 | 32.22 | 23.22 | 2.128 |
| 440 | 16.66 | 32.22 | 23.22 | 2.179 |
| 450 | 16.66 | 32.22 | 23.22 | 2.230 |
| 460 | 16.66 | 32.22 | 23.22 | 2.281 |
| 470 | 16.66 | 32.22 | 23.22 | 2.332 |
| 480 | 16.66 | 32.22 | 23.22 | 2.383 |
| 490 | 16.66 | 32.22 | 23.22 | 2.434 |
| 500 | 16.66 | 32.22 | 23.22 | 2.485 |
| 510 | 16.66 | 32.22 | 23.22 | 2.536 |
| 520 | 16.66 | 32.22 | 23.22 | 2.587 |
| 530 | 16.66 | 32.22 | 23.22 | 2.638 |
| 540 | 16.66 | 32.22 | 23.22 | 2.689 |
| 550 | 16.66 | 32.22 | 23.22 | 2.740 |
| 560 | 16.66 | 32.22 | 23.22 | 2.791 |
| 570 | 16.66 | 32.22 | 23.22 | 2.842 |
| 580 | 16.66 | 32.22 | 23.22 | 2.893 |
| 590 | 16.66 | 32.22 | 23.22 | 2.944 |
| 600 | 16.66 | 32.22 | 23.22 | 2.995 |
| 610 | 16.66 | 32.22 | 23.22 | 3.046 |
| 620 | 16.66 | 32.22 | 23.22 | 3.097 |
| 630 | 16.66 | 32.22 | 23.22 | 3.148 |
| 640 | 16.66 | 32.22 | 23.22 | 3.199 |
| 650 | 16.66 | 32.22 | 23.22 | 3.250 |
| 660 | 16.66 | 32.22 | 23.22 | 3.301 |
| 670 | 16.66 | 32.22 | 23.22 | 3.352 |
| 680 | 16.66 | 32.22 | 23.22 | 3.403 |
| 690 | 16.66 | 32.22 | 23.22 | 3.454 |
| 700 | 16.66 | 32.22 | 23.22 | 3.505 |
| 710 | 16.66 | 32.22 | 23.22 | 3.556 |
| 720 | 16.66 | 32.22 | 23.22 | 3.607 |
| 730 | 16.66 | 32.22 | 23.22 | 3.658 |
| 740 | 16.66 | 32.22 | 23.22 | 3.709 |
| 750 | 16.66 | 32.22 | 23.22 | 3.760 |
| 760 | 16.66 | 32.22 | 23.22 | 3.811 |
| 770 | 16.66 | 32.22 | 23.22 | 3.862 |
| 780 | 16.66 | 32.22 | 23.22 | 3.913 |
| 790 | 16.66 | 32.22 | 23.22 | 3.964 |
| 800 | 16.66 | 32.22 | 23.22 | 4.015 |
| 810 | 16.66 | 32.22 | 23.22 | 4.066 |
| 820 | 16.66 | 32.22 | 23.22 | 4.117 |
| 830 | 16.66 | 32.22 | 23.22 | 4.168 |
| 840 | 16.66 | 32.22 | 23.22 | 4.219 |
| 850 | 16.66 | 32.22 | 23.22 | 4.270 |
| 860 | 16.66 | 32.22 | 23.22 | 4.321 |
| 870 | 16.66 | 32.22 | 23.22 | 4.372 |
| 880 | 16.66 | 32.22 | 23.22 | 4.423 |
| 890 | 16.66 | 32.22 | 23.22 | 4.474 |
| 900 | 16.66 | 32.22 | 23.22 | 4.525 |
| 910 | 16.66 | 32.22 | 23.22 | 4.576 |
| 920 | 16.66 | 32.22 | 23.22 | 4.627 |
| 930 | 16.66 | 32.22 | 23.22 | 4.678 |
| 940 | 16.66 | 32.22 | 23.22 | 4.729 |
| 950 | 16.66 | 32.22 | 23.22 | 4.780 |
| 960 | 16.66 | 32.22 | 23.22 | 4.831 |
| 970 | 16.66 | 32.22 | 23.22 | 4.882 |
| 980 | 16.66 | 32.22 | 23.22 | 4.933 |
| 990 | 16.66 | 32.22 | 23.22 | 4.984 |
| 1000 | 16.66 | 32.22 | 23.22 | 5.035 |
| 1010 | 16.66 | 32.22 | 23.22 | 5.086 |
| 1020 | 16.66 | 32.22 | 23.22 | 5.137 |
| 1030 | 16.66 | 32.22 | 23.22 | 5.188 |
| 1040 | 16.66 | 32.22 | 23.22 | 5.239 |
| 1050 | 16.66 | 32.22 | 23.22 | 5.290 |
| 1060 | 16.66 | 32.22 | 23.22 | 5.341 |
| 1070 | 16.66 | 32.22 | 23.22 | 5.392 |
| 1080 | 16.66 | 32.22 | 23.22 | 5.443 |
| 1090 | 16.66 | 32.22 | 23.22 | 5.494 |
| 1100 | 16.66 | 32.22 | 23.22 | 5.545 |
| 1110 | 16.66 | 32.22 | 23.22 | 5.596 |
| 1120 | 16.66 | 32.22 | 23.22 | 5.647 |
| 1130 | 16.66 | 32.22 | 23.22 | 5.698 |
| 1140 | 16.66 | 32.22 | 23.22 | 5.749 |
| 1150 | 16.66 | 32.22 | 23.22 | 5.800 |
| 1160 | 16.66 | 32.22 | 23.22 | 5.851 |
| 1170 | 16.66 | 32.22 | 23.22 | 5.902 |
| 1180 | 16.66 | 32.22 | 23.22 | 5.953 |
| 1190 | 16.66 | 32.22 | 23.22 | 6.004 |
| 1200 | 16.66 | 32.22 | 23.22 | 6.055 |
| 1210 | 16.66 | 32.22 | 23.22 | 6.106 |
| 1220 | 16.66 | 32.22 | 23.22 | 6.157 |
| 1230 | 16.66 | 32.22 | 23.22 | 6.208 |
| 1240 | 16.66 | 32.22 | 23.22 | 6.259 |
| 1250 | 16.66 | 32.22 | 23.22 | 6.310 |
| 1260 | 16.66 | 32.22 | 23.22 | 6.361 |
| 1270 | 16.66 | 32.22 | 23.22 | 6.412 |
| 1280 | 16.66 | 32.22 | 23.22 | 6.463 |
| 1290 | 16.66 | 32.22 | 23.22 | 6.514 |
| 1300 | 16.66 | 32.22 | 23.22 | 6.565 |
| 1310 | 16.66 | 32.22 | 23.22 | 6.616 |
| 1320 | 16.66 | 32.22 | 23.22 | 6.667 |
| 1330 | 16.66 | 32.22 | 23.22 | 6.718 |
| 1340 | 16.66 | 32.22 | 23.22 | 6.769 |
| 1350 | 16.66 | 32.22 | 23.22 | 6.820 |
| 1360 | 16.66 | 32.22 | 23.22 | 6.871 |
| 1370 | 16.66 | 32.22 | 23.22 | 6.922 |
| 1380 | 16.66 | 32.22 | 23.22 | 6.973 |
| 1390 | 16.66 | 32.22 | 23.22 | 7.024 |
| 1400 | 16.66 | 32.22 | 23.22 | 7.075 |
| 1410 | 16.66 | 32.22 | 23.22 | 7.126 |
| 1420 | 16.66 | 32.22 | 23.22 | 7.177 |
| 1430 | 16.66 | 32.22 | 23.22 | 7.228 |
| 1440 | 16.66 | 32.22 | 23.22 | 7.279 |
| 1450 | 16.66 | 32.22 | 23.22 | 7.330 |
| 1460 | 16.66 | 32.22 | 23.22 | 7.381 |
| 1470 | 16.66 | 32.22 | 23.22 | 7.432 |
| 1480 | 16.66 | 32.22 | 23.22 | 7.483 |
| 1490 | 16.66 | 32.22 | 23.22 | 7.534 |
| 1500 | 16.66 | 32.22 | 23.22 | 7.585 |
| 1510 | 16.66 | 32.22 | 23.22 | 7.636 |
| 1520 | 16.66 | 32.22 | 23.22 | 7.687 |
| 1530 | 16.66 | 32.22 | 23.22 | 7.738 |
| 1540 | 16.66 | 32.22 | 23.22 | 7.789 |
| 1550 | 16.66 | 32.22 | 23.22 | 7.840 |
| 1560 | 16.66 | 32.22 | 23.22 | 7.891 |
| 1570 | 16.66 | 32.22 | 23.22 | 7.942 |
| 1580 | 16.66 | 32.22 | 23.22 | 7.993 |
| 1590 | 16.66 | 32.22 | 23.22 | 8.044 |
| 1600 | 16.66 | 32.22 | 23.22 | 8.095 |



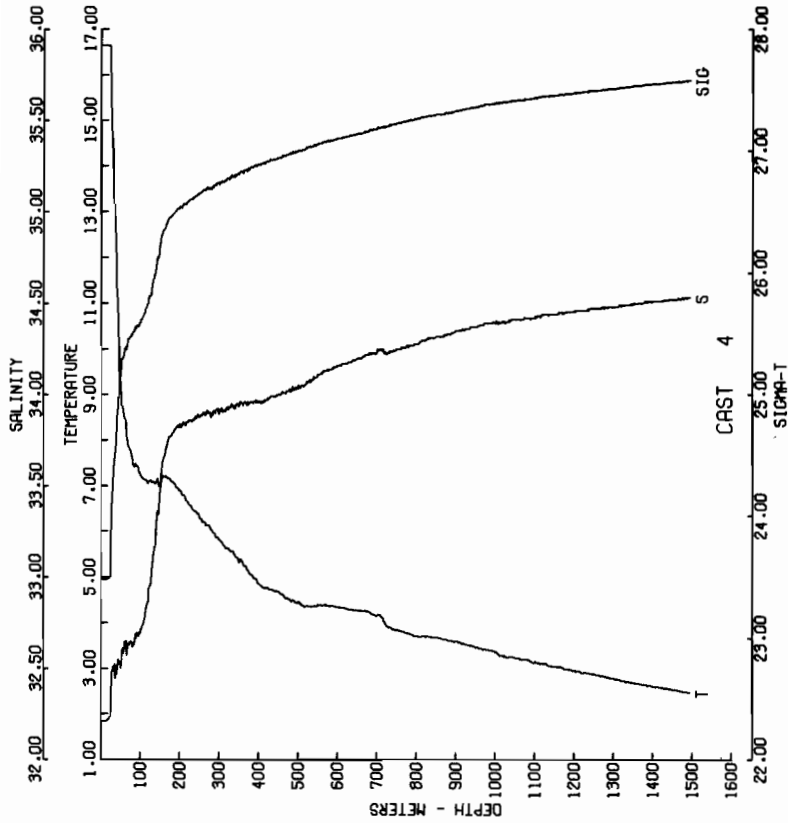
CAST 80A2-0C-002 DATE 16 SEP 72 TIME 0507 GMT
 LAT 47 04.9N LONG 128 12.4W DEPT 15.1 VISIBLTY 3
 BAROMETER 22 KNO 018 32.1 SPD 14.9 WIND DIR 14.9
 CLOUD X AMOUNT 9 DRY 16.0 WET 14.9 DEPTH

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DYN M) | DELTA-O |
|-----------|-----------------|----------------|-----------------|---------|
| 0 | 16.66 | 32.22 | 23.22 | 0.000 |
| 10 | 16.66 | 32.22 | 23.22 | .022 |
| 20 | 16.66 | 32.22 | 23.22 | .066 |
| 30 | 16.66 | 32.22 | 23.22 | .088 |
| 40 | 16.66 | 32.22 | 23.22 | .139 |
| 50 | 16.66 | 32.22 | 23.22 | .190 |
| 60 | 16.66 | 32.22 | 23.22 | .241 |
| 70 | 16.66 | 32.22 | 23.22 | .292 |
| 80 | 16.66 | 32.22 | 23.22 | .343 |
| 90 | 16.66 | 32.22 | 23.22 | .394 |
| 100 | 16.66 | 32.22 | 23.22 | .445 |
| 110 | 16.66 | 32.22 | 23.22 | .496 |
| 120 | 16.66 | 32.22 | 23.22 | .547 |
| 130 | 16.66 | 32.22 | 23.22 | .598 |
| 140 | 16.66 | 32.22 | 23.22 | .649 |
| 150 | 16.66 | 32.22 | 23.22 | .700 |
| 160 | 16.66 | 32.22 | 23.22 | .751 |
| 170 | 16.66 | 32.22 | 23.22 | .802 |
| 180 | 16.66 | 32.22 | 23.22 | .853 |
| 190 | 16.66 | 32.22 | 23.22 | .904 |
| 200 | 16.66 | 32.22 | 23.22 | .955 |
| 210 | 16.66 | 32.22 | 23.22 | 1.006 |
| 220 | 16.66 | 32.22 | 23.22 | 1.057 |
| 230 | 16.66 | 32.22 | 23.22 | 1.108 |
| 240 | 16.66 | 32.22 | 23.22 | 1.159 |
| 250 | 16.66 | 32.22 | 23.22 | 1.210 |
| 260 | 16.66 | 32.22 | 23.22 | 1.261 |
| 270 | 16.66 | 32.22 | 23.22 | 1.312 |
| 280 | 16.66 | 32.22 | 23.22 | 1.363 |
| 290 | 16.66 | 32.22 | 23.22 | 1.414 |
| 300 | 16.66 | 32.22 | 23.22 | 1.465 |
| 310 | 16.66 | 32.22 | 23.22 | 1.516 |
| 320 | 16.66 | 32.22 | 23.22 | 1.567 |
| 330 | 16.66 | 32.22 | 23.22 | 1.618 |
| 340 | 16.66 | 32.22 | 23.22 | 1.669 |
| 350 | 16.66 | 32.22 | 23.22 | 1.720 |
| 360 | 16.66 | 32.22 | 23.22 | 1.771 |
| 370 | 16.66 | 32.22 | 23.22 | 1.822 |
| 380 | 16.66 | 32.22 | 23.22 | 1.873 |
| 390 | 16.66 | 32.22 | 23.22 | 1.924 |
| 400 | 16.66 | 32.22 | 23.22 | 1.975 |
| 410 | 16.66 | 32.22 | 23.22 | 2.026 |
| 420 | 16.66 | 32.22 | 23.22 | 2.077 |
| 430 | 16.66 | 32.22 | 23.22 | 2.128 |
| 440 | 16.66 | 32.22 | 23.22 | 2.179 |
| 450 | 16.66 | 32.22 | 23.22 | 2.230 |
| 460 | 16.66 | 32.22 | 23.22 | 2.281 |
| 470 | 16.66 | 32.22 | 23.22 | 2.332 |
| 480 | 16.66 | 32.22 | 23.22 | 2.383 |
| 490 | 16.66 | 32.22 | 23.22 | 2.434 |
| 500 | 16.66 | 32.22 | 23.22 | 2.485 |
| 510 | 16.66 | 32.22 | 23.22 | 2.536 |
| 520 | 16.66 | 32.22 | 23.22 | 2.587 |
| 530 | 16.66 | 32.22 | 23.22 | 2.638 |
| 540 | 16.66 | 32.22 | 23.22 | 2.689 |
| 550 | 16.66 | 32.22 | 23.22 | 2.740 |
| 560 | 16.66 | 32.22 | 23.22 | 2.791 |
| 570 | 16.66 | | | |



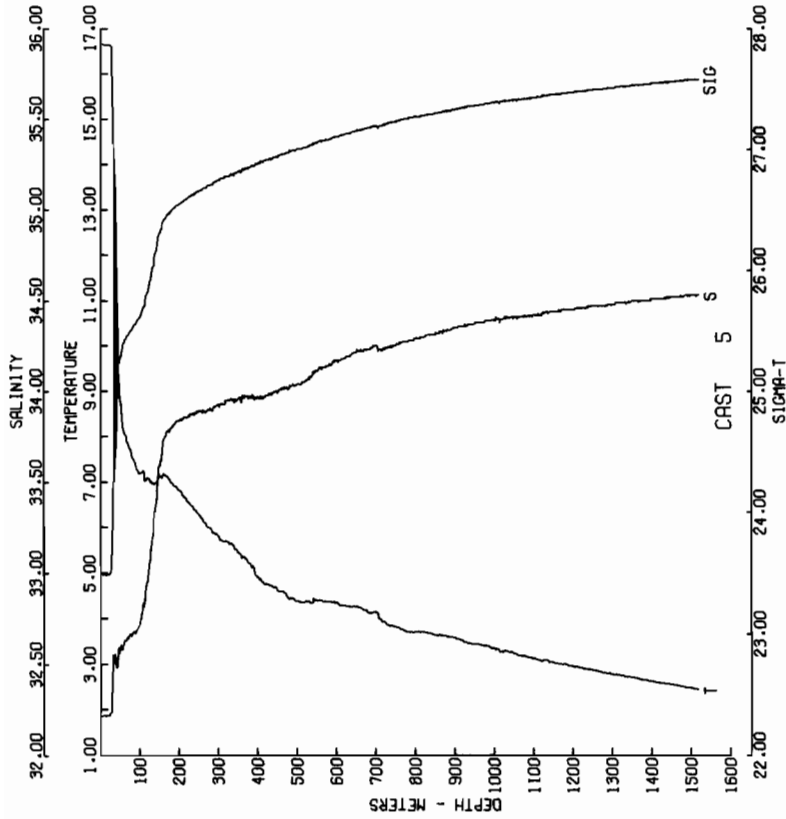
CAST 00A02-00-004 DATE 16 SEP 72 TIME 0801 GMT
 LAT 47 02.1 N LONG 128 16.3 W WEATHER 1
 BAROMETER 22 HIND DIR 120 T WIND DIR 10 KT VISIBILITY 3
 CLOUD X AMOUNT 9 DRY 16.2 MET 2732 M DEPTH 2732 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY | SIGMA-T (KG/CM ³) | DETAILED |
|-----------|-----------------|----------|-------------------------------|----------|
| 0 | 16.64 | 32.11 | 22.11 | 0.000 |
| 10 | 16.67 | 32.12 | 22.12 | 0.25 |
| 20 | 16.68 | 32.13 | 22.13 | 0.45 |
| 30 | 16.69 | 32.14 | 22.14 | 0.67 |
| 40 | 16.70 | 32.15 | 22.15 | 0.89 |
| 50 | 16.71 | 32.16 | 22.16 | 1.11 |
| 60 | 16.72 | 32.17 | 22.17 | 1.33 |
| 70 | 16.73 | 32.18 | 22.18 | 1.55 |
| 80 | 16.74 | 32.19 | 22.19 | 1.77 |
| 90 | 16.75 | 32.20 | 22.20 | 1.99 |
| 100 | 16.76 | 32.21 | 22.21 | 2.21 |
| 110 | 16.77 | 32.22 | 22.22 | 2.43 |
| 120 | 16.78 | 32.23 | 22.23 | 2.65 |
| 130 | 16.79 | 32.24 | 22.24 | 2.87 |
| 140 | 16.80 | 32.25 | 22.25 | 3.09 |
| 150 | 16.81 | 32.26 | 22.26 | 3.31 |
| 160 | 16.82 | 32.27 | 22.27 | 3.53 |
| 170 | 16.83 | 32.28 | 22.28 | 3.75 |
| 180 | 16.84 | 32.29 | 22.29 | 3.97 |
| 190 | 16.85 | 32.30 | 22.30 | 4.19 |
| 200 | 16.86 | 32.31 | 22.31 | 4.41 |
| 210 | 16.87 | 32.32 | 22.32 | 4.63 |
| 220 | 16.88 | 32.33 | 22.33 | 4.85 |
| 230 | 16.89 | 32.34 | 22.34 | 5.07 |
| 240 | 16.90 | 32.35 | 22.35 | 5.29 |
| 250 | 16.91 | 32.36 | 22.36 | 5.51 |
| 260 | 16.92 | 32.37 | 22.37 | 5.73 |
| 270 | 16.93 | 32.38 | 22.38 | 5.95 |
| 280 | 16.94 | 32.39 | 22.39 | 6.17 |
| 290 | 16.95 | 32.40 | 22.40 | 6.39 |
| 300 | 16.96 | 32.41 | 22.41 | 6.61 |
| 310 | 16.97 | 32.42 | 22.42 | 6.83 |
| 320 | 16.98 | 32.43 | 22.43 | 7.05 |
| 330 | 16.99 | 32.44 | 22.44 | 7.27 |
| 340 | 17.00 | 32.45 | 22.45 | 7.49 |
| 350 | 17.01 | 32.46 | 22.46 | 7.71 |
| 360 | 17.02 | 32.47 | 22.47 | 7.93 |
| 370 | 17.03 | 32.48 | 22.48 | 8.15 |
| 380 | 17.04 | 32.49 | 22.49 | 8.37 |
| 390 | 17.05 | 32.50 | 22.50 | 8.59 |
| 400 | 17.06 | 32.51 | 22.51 | 8.81 |
| 410 | 17.07 | 32.52 | 22.52 | 9.03 |
| 420 | 17.08 | 32.53 | 22.53 | 9.25 |
| 430 | 17.09 | 32.54 | 22.54 | 9.47 |
| 440 | 17.10 | 32.55 | 22.55 | 9.69 |
| 450 | 17.11 | 32.56 | 22.56 | 9.91 |
| 460 | 17.12 | 32.57 | 22.57 | 10.13 |
| 470 | 17.13 | 32.58 | 22.58 | 10.35 |
| 480 | 17.14 | 32.59 | 22.59 | 10.57 |
| 490 | 17.15 | 32.60 | 22.60 | 10.79 |
| 500 | 17.16 | 32.61 | 22.61 | 11.01 |
| 510 | 17.17 | 32.62 | 22.62 | 11.23 |
| 520 | 17.18 | 32.63 | 22.63 | 11.45 |
| 530 | 17.19 | 32.64 | 22.64 | 11.67 |
| 540 | 17.20 | 32.65 | 22.65 | 11.89 |
| 550 | 17.21 | 32.66 | 22.66 | 12.11 |
| 560 | 17.22 | 32.67 | 22.67 | 12.33 |
| 570 | 17.23 | 32.68 | 22.68 | 12.55 |
| 580 | 17.24 | 32.69 | 22.69 | 12.77 |
| 590 | 17.25 | 32.70 | 22.70 | 12.99 |
| 600 | 17.26 | 32.71 | 22.71 | 13.21 |
| 610 | 17.27 | 32.72 | 22.72 | 13.43 |
| 620 | 17.28 | 32.73 | 22.73 | 13.65 |
| 630 | 17.29 | 32.74 | 22.74 | 13.87 |
| 640 | 17.30 | 32.75 | 22.75 | 14.09 |
| 650 | 17.31 | 32.76 | 22.76 | 14.31 |
| 660 | 17.32 | 32.77 | 22.77 | 14.53 |
| 670 | 17.33 | 32.78 | 22.78 | 14.75 |
| 680 | 17.34 | 32.79 | 22.79 | 14.97 |
| 690 | 17.35 | 32.80 | 22.80 | 15.19 |
| 700 | 17.36 | 32.81 | 22.81 | 15.41 |
| 710 | 17.37 | 32.82 | 22.82 | 15.63 |
| 720 | 17.38 | 32.83 | 22.83 | 15.85 |
| 730 | 17.39 | 32.84 | 22.84 | 16.07 |
| 740 | 17.40 | 32.85 | 22.85 | 16.29 |
| 750 | 17.41 | 32.86 | 22.86 | 16.51 |
| 760 | 17.42 | 32.87 | 22.87 | 16.73 |
| 770 | 17.43 | 32.88 | 22.88 | 16.95 |
| 780 | 17.44 | 32.89 | 22.89 | 17.17 |
| 790 | 17.45 | 32.90 | 22.90 | 17.39 |
| 800 | 17.46 | 32.91 | 22.91 | 17.61 |
| 810 | 17.47 | 32.92 | 22.92 | 17.83 |
| 820 | 17.48 | 32.93 | 22.93 | 18.05 |
| 830 | 17.49 | 32.94 | 22.94 | 18.27 |
| 840 | 17.50 | 32.95 | 22.95 | 18.49 |
| 850 | 17.51 | 32.96 | 22.96 | 18.71 |
| 860 | 17.52 | 32.97 | 22.97 | 18.93 |
| 870 | 17.53 | 32.98 | 22.98 | 19.15 |
| 880 | 17.54 | 32.99 | 22.99 | 19.37 |
| 890 | 17.55 | 33.00 | 23.00 | 19.59 |
| 900 | 17.56 | 33.01 | 23.01 | 19.81 |
| 910 | 17.57 | 33.02 | 23.02 | 20.03 |
| 920 | 17.58 | 33.03 | 23.03 | 20.25 |
| 930 | 17.59 | 33.04 | 23.04 | 20.47 |
| 940 | 17.60 | 33.05 | 23.05 | 20.69 |
| 950 | 17.61 | 33.06 | 23.06 | 20.91 |
| 960 | 17.62 | 33.07 | 23.07 | 21.13 |
| 970 | 17.63 | 33.08 | 23.08 | 21.35 |
| 980 | 17.64 | 33.09 | 23.09 | 21.57 |
| 990 | 17.65 | 33.10 | 23.10 | 21.79 |
| 1000 | 17.66 | 33.11 | 23.11 | 22.01 |
| 1010 | 17.67 | 33.12 | 23.12 | 22.23 |
| 1020 | 17.68 | 33.13 | 23.13 | 22.45 |
| 1030 | 17.69 | 33.14 | 23.14 | 22.67 |
| 1040 | 17.70 | 33.15 | 23.15 | 22.89 |
| 1050 | 17.71 | 33.16 | 23.16 | 23.11 |
| 1060 | 17.72 | 33.17 | 23.17 | 23.33 |
| 1070 | 17.73 | 33.18 | 23.18 | 23.55 |
| 1080 | 17.74 | 33.19 | 23.19 | 23.77 |
| 1090 | 17.75 | 33.20 | 23.20 | 23.99 |
| 1100 | 17.76 | 33.21 | 23.21 | 24.21 |
| 1110 | 17.77 | 33.22 | 23.22 | 24.43 |
| 1120 | 17.78 | 33.23 | 23.23 | 24.65 |
| 1130 | 17.79 | 33.24 | 23.24 | 24.87 |
| 1140 | 17.80 | 33.25 | 23.25 | 25.09 |
| 1150 | 17.81 | 33.26 | 23.26 | 25.31 |
| 1160 | 17.82 | 33.27 | 23.27 | 25.53 |
| 1170 | 17.83 | 33.28 | 23.28 | 25.75 |
| 1180 | 17.84 | 33.29 | 23.29 | 25.97 |
| 1190 | 17.85 | 33.30 | 23.30 | 26.19 |
| 1200 | 17.86 | 33.31 | 23.31 | 26.41 |
| 1210 | 17.87 | 33.32 | 23.32 | 26.63 |
| 1220 | 17.88 | 33.33 | 23.33 | 26.85 |
| 1230 | 17.89 | 33.34 | 23.34 | 27.07 |
| 1240 | 17.90 | 33.35 | 23.35 | 27.29 |
| 1250 | 17.91 | 33.36 | 23.36 | 27.51 |
| 1260 | 17.92 | 33.37 | 23.37 | 27.73 |
| 1270 | 17.93 | 33.38 | 23.38 | 27.95 |
| 1280 | 17.94 | 33.39 | 23.39 | 28.17 |
| 1290 | 17.95 | 33.40 | 23.40 | 28.39 |
| 1300 | 17.96 | 33.41 | 23.41 | 28.61 |
| 1310 | 17.97 | 33.42 | 23.42 | 28.83 |
| 1320 | 17.98 | 33.43 | 23.43 | 29.05 |
| 1330 | 17.99 | 33.44 | 23.44 | 29.27 |
| 1340 | 18.00 | 33.45 | 23.45 | 29.49 |
| 1350 | 18.01 | 33.46 | 23.46 | 29.71 |
| 1360 | 18.02 | 33.47 | 23.47 | 29.93 |
| 1370 | 18.03 | 33.48 | 23.48 | 30.15 |
| 1380 | 18.04 | 33.49 | 23.49 | 30.37 |
| 1390 | 18.05 | 33.50 | 23.50 | 30.59 |
| 1400 | 18.06 | 33.51 | 23.51 | 30.81 |
| 1410 | 18.07 | 33.52 | 23.52 | 31.03 |
| 1420 | 18.08 | 33.53 | 23.53 | 31.25 |
| 1430 | 18.09 | 33.54 | 23.54 | 31.47 |
| 1440 | 18.10 | 33.55 | 23.55 | 31.69 |
| 1450 | 18.11 | 33.56 | 23.56 | 31.91 |
| 1460 | 18.12 | 33.57 | 23.57 | 32.13 |
| 1470 | 18.13 | 33.58 | 23.58 | 32.35 |
| 1480 | 18.14 | 33.59 | 23.59 | 32.57 |
| 1490 | 18.15 | 33.60 | 23.60 | 32.79 |
| 1500 | 18.16 | 33.61 | 23.61 | 33.01 |

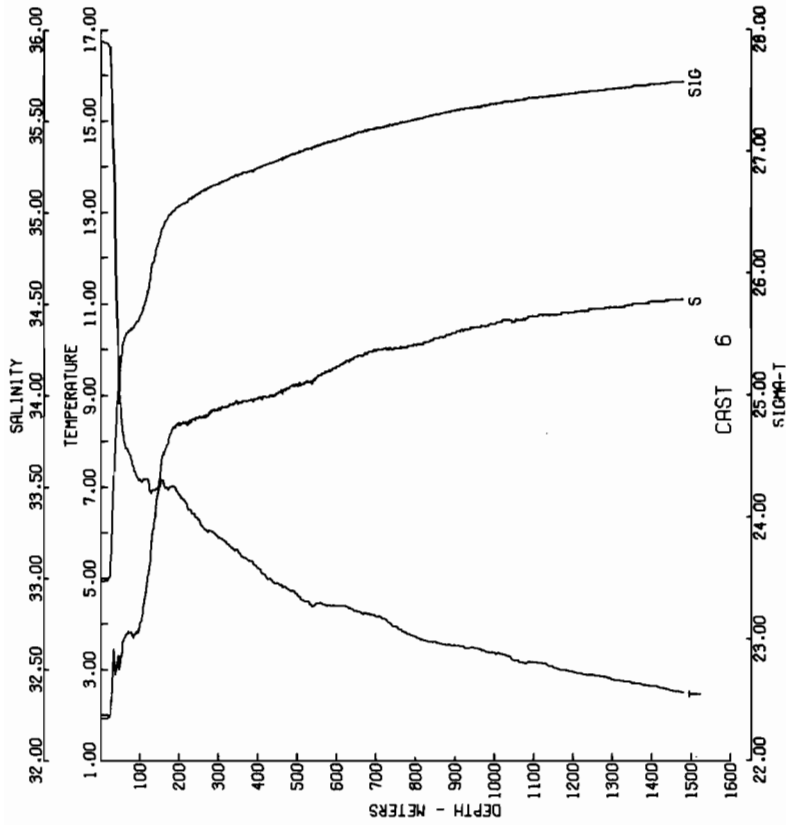


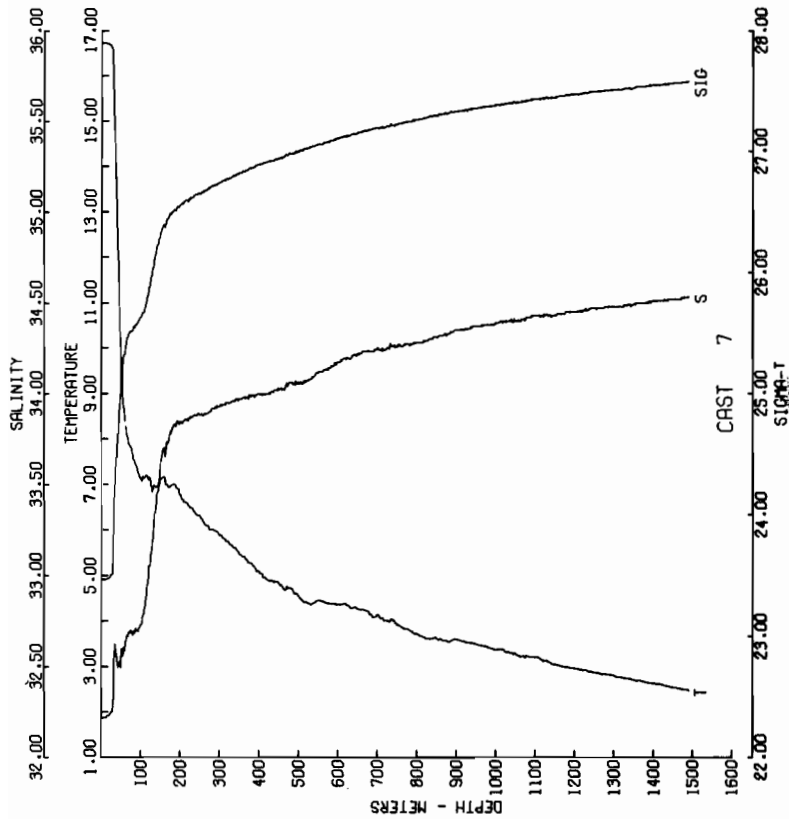
CAST 00A03-00-004 DATE 16 SEP 72 TIME 1011 GMT
 LAT 47 02.1 N LONG 128 16.3 W WEATHER 1
 BAROMETER 22 HIND DIR 120 T WIND DIR 10 KT VISIBILITY 3
 CLOUD X AMOUNT 9 DRY 16.8 MET 2756 M DEPTH 2756 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY | SIGMA-T (KG/CM ³) | DETAILED |
|-----------|-----------------|----------|-------------------------------|----------|
| 0 | 16.64 | 32.21 | 22.21 | 0.000 |
| 10 | 16.67 | 32.22 | 22.22 | 0.25 |
| 20 | 16.68 | 32.23 | 22.23 | 0.45 |
| 30 | 16.69 | 32.24 | 22.24 | 0.67 |
| 40 | 16.70 | 32.25 | 22.25 | 0.89 |
| 50 | 16.71 | 32.26 | 22.26 | 1.11 |
| 60 | 16.72 | 32.27 | 22.27 | 1.33 |
| 70 | 16.73 | 32.28 | 22.28 | 1.55 |
| 80 | 16.74 | 32.29 | 22.29 | 1.77 |
| 90 | 16.75 | 32.30 | 22.30 | 1.99 |
| 100 | 16.76 | 32.31 | 22.31 | 2.21 |
| 110 | 16.77 | 32.32 | 22.32 | 2.43 |
| 120 | 16.78 | 32.33 | 22.33 | 2.65 |
| 130 | 16.79 | 32.34 | 22.34 | 2.87 |
| 140 | 16.80 | 32.35 | 22.35 | 3.09 |
| 150 | 16.81 | 32.36 | 22.36 | 3.31 |
| 160 | 16.82 | 32.37 | 22.37 | 3.53 |
| 170 | 16.83 | 32.38 | 22.38 | 3.75 |
| 180 | 16.84 | 32.39 | 22.39 | 3.97 |
| 190 | 16.85 | 32.40 | 22.40 | 4.19 |
| 200 | 16.86 | 32.41 | 22.41 | 4.41 |
| 210 | 16.87 | 32.42 | 22.42 | 4.63 |
| 220 | 16.88 | 32.43 | 22.43 | 4.85 |
| 230 | 16.89 | 32.44 | 22.44 | 5.07 |
| 240 | 16.90 | 32.45 | 22.45 | 5.29 |
| 250 | 16.91 | 32.46 | 22.46 | 5.51 |
| 260 | 16.92 | 32.47 | 22.47 | 5.73 |
| 270 | 16.93 | 32.48 | 22.48 | 5.95 |
| 280 | 16.94 | 32.49 | 22.49 | 6.17 |
| 290 | 16.95 | 32.50 | 22.50 | 6.39 |
| 300 | 16.96 | 32.51 | 22.51 | 6.61 |
| 310 | 16.97 | 32.52 | 22.52 | 6.83 |
| 320 | 16.98 | 32.53 | 22.53 | 7.05 |
| 330 | 16.99 | 32.54 | 22.54 | 7.27 |
| 340 | 17.00 | 32.55 | 22.55 | 7.49 |
| 350 | 17.01 | 32.56 | 22.56 | 7.71 |
| 360 | 17.02 | 32.57 | 22.57 | 7.93 |
| 370 | 17.03 | 32.58 | 22.58 | 8.15 |
| 380 | 17.04 | 32.59 | 22.59 | 8.37 |
| 390 | 17.05 | 32.60 | 22.60 | 8.59 |
| 400 | 17.06 | 32.61 | 22.61 | 8.81 |
| 410 | 17.07 | 32.62 | 22.62 | 9.03 |
| 420 | 17.08 | 32.63 | 22.63 | 9.25 |
| 430 | 17.09 | 32.64 | 22.64 | 9.47 |
| 440 | 17.10 | 32.65 | 22.65 | 9.69 |
| 450 | 17.11 | 32.66 | 22.66 | 9.91 |
| 460 | 17.12 | 32.67 | 22.67 | 10.13 |
| 470 | 17.13 | 32.68 | 22.68 | 10.35 |
| 480 | 17.14 | 32.69 | 22.69 | 10.57 |
| 490 | 17.15 | 32.70 | 22.70 | 10.79 |
| 500 | 17.16 | 32.71 | 22.71 | 11.01 |
| 510 | 17.17 | 32.72 | 22.72 | 11.23 |
| 520 | 17.18 | 32.73 | 22.73 | 11.45 |
| 530 | 17.19 | 32.74 | 22.74 | 11.67 |
| 540 | 17.20 | 32.75 | 22.75 | 11.89 |
| 550 | 17.21 | 32.76 | 22.76 | 12.11 |
| 560 | 17.22 | 32.77 | 22.77 | 12.33 |
| 570 | 17.23 | 32.78 | 22.78 | 12.55 |
| 580 | 17.24 | 32.79 | 22.79 | 12.77 |
| 590 | 17.25 | 32.80 | 22.80 | 12.99 |
| 600 | 17.26 | 32.81 | 22.81 | 13.21 |
| 610 | 17.27 | 32.82 | 22.82 | 13.43 |
| 620 | 17.28 | 32.83 | 22.83 | 13.65 |
| 630 | 17.29 | 32.84 | 22.84 | 13.87 |
| 640 | 17.30 | 32.85 | 22.85 | 14.09 |
| 650 | 17.31 | 32.86 | 22.86 | 14.31 |
| 660 | 17.32 | 32.87 | 22.87 | 14.53 |
| 670 | 17.33 | 32.88 | 22.88 | 14.7 |



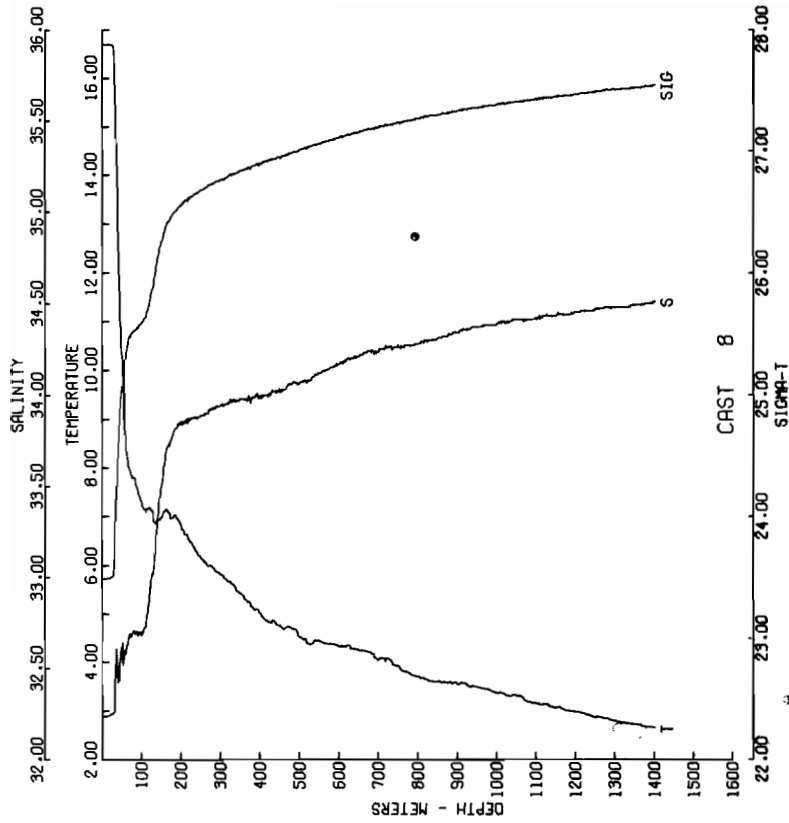
CAST 5
 DATE 16 SEP 72
 TIME 1205 GMT
 LAT 47.823 N
 LONG 15.15 W
 SURFACE WIND 10 KNOTS
 WAVE HEIGHT 1.5 METERS
 CLOUD AMOUNT 9
 DRY 16.8
 WET 16.0
 DEPTH 2791 M





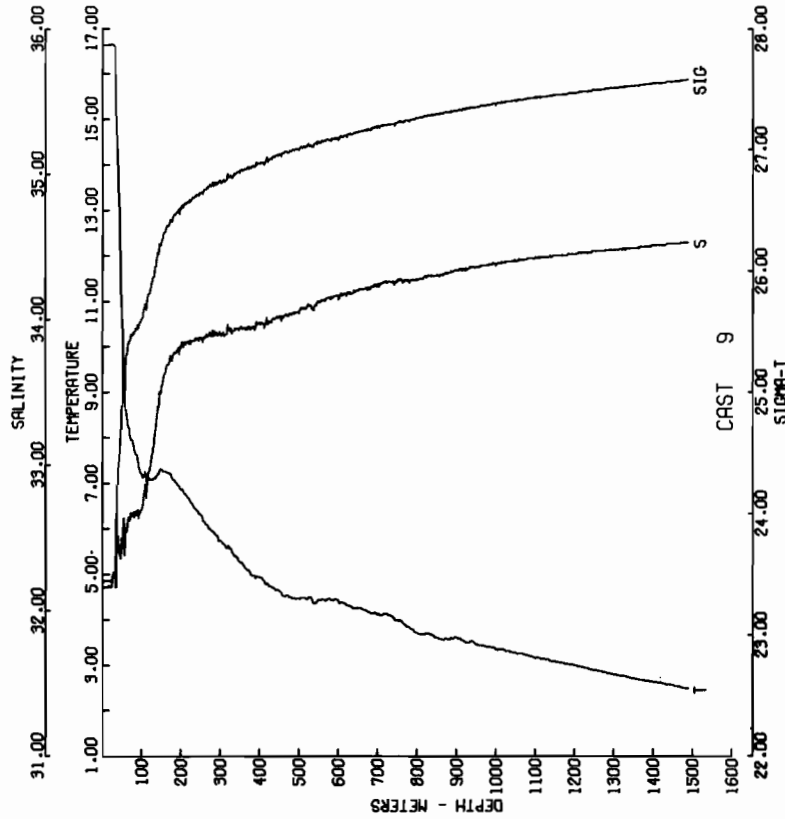
CAST 80482-0C-007 DATE 17 SEP 72 TIME 0121 GMT
 LAT 47 05.0 N LONG 128 15.9 W WEATHER 1 SEA STATE 3
 BAROMETER 30.0 HGT 33.7 MET VISIBILITY 6
 CLOUD 6 AMOUNT 3 DRY 16.4 MET 14.0 DEPTH 2739 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DM) | DELTA-D (DM) |
|-----------|-----------------|----------------|--------------|--------------|
| 0 | 16.73 | 32.22 | 23.47 | 0.000 |
| 5 | 16.73 | 32.22 | 23.46 | .022 |
| 10 | 16.73 | 32.22 | 23.47 | .066 |
| 15 | 16.73 | 32.22 | 23.47 | .089 |
| 20 | 16.73 | 32.22 | 23.47 | .133 |
| 25 | 16.69 | 32.22 | 23.47 | .157 |
| 30 | 16.60 | 32.22 | 23.46 | .171 |
| 35 | 16.50 | 32.22 | 23.46 | .186 |
| 40 | 16.40 | 32.22 | 23.46 | .200 |
| 45 | 16.30 | 32.22 | 23.46 | .214 |
| 50 | 16.20 | 32.22 | 23.46 | .228 |
| 100 | 15.00 | 32.22 | 23.46 | .336 |
| 200 | 13.00 | 32.22 | 23.46 | .516 |
| 300 | 11.00 | 32.22 | 23.46 | .650 |
| 400 | 9.00 | 32.22 | 23.46 | .758 |
| 500 | 7.00 | 32.22 | 23.46 | .848 |
| 1000 | 3.00 | 32.22 | 23.46 | 1.154 |
| 1450 | 2.46 | 32.22 | 23.46 | 1.548 |



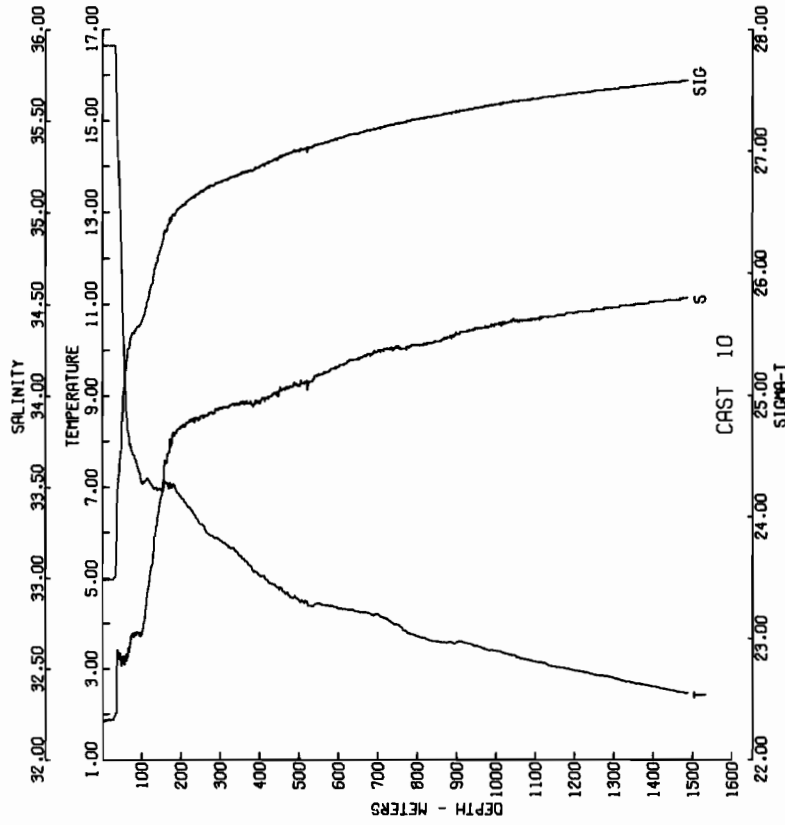
CAST 80482-0C-008 DATE 17 SEP 72 TIME 0303 GMT
 LAT 47 05.0 N LONG 128 15.9 W WEATHER 1 SEA STATE 3
 BAROMETER 30.0 HGT 33.7 MET VISIBILITY 6
 CLOUD 6 AMOUNT 3 DRY 15.2 MET 13.0 DEPTH 2739 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DM) | DELTA-D (DM) |
|-----------|-----------------|----------------|--------------|--------------|
| 0 | 16.99 | 32.22 | 23.49 | 0.000 |
| 5 | 16.99 | 32.22 | 23.48 | .022 |
| 10 | 16.99 | 32.22 | 23.49 | .066 |
| 15 | 16.99 | 32.22 | 23.49 | .088 |
| 20 | 16.99 | 32.22 | 23.49 | .132 |
| 25 | 16.99 | 32.22 | 23.49 | .154 |
| 30 | 16.99 | 32.22 | 23.49 | .172 |
| 35 | 16.99 | 32.22 | 23.49 | .190 |
| 40 | 16.99 | 32.22 | 23.49 | .208 |
| 45 | 16.99 | 32.22 | 23.49 | .226 |
| 50 | 16.99 | 32.22 | 23.49 | .244 |
| 100 | 15.00 | 32.22 | 23.49 | .352 |
| 200 | 13.00 | 32.22 | 23.49 | .532 |
| 300 | 11.00 | 32.22 | 23.49 | .666 |
| 400 | 9.00 | 32.22 | 23.49 | .756 |
| 500 | 7.00 | 32.22 | 23.49 | .846 |
| 1000 | 3.00 | 32.22 | 23.49 | 1.152 |
| 1450 | 2.46 | 32.22 | 23.49 | 1.546 |



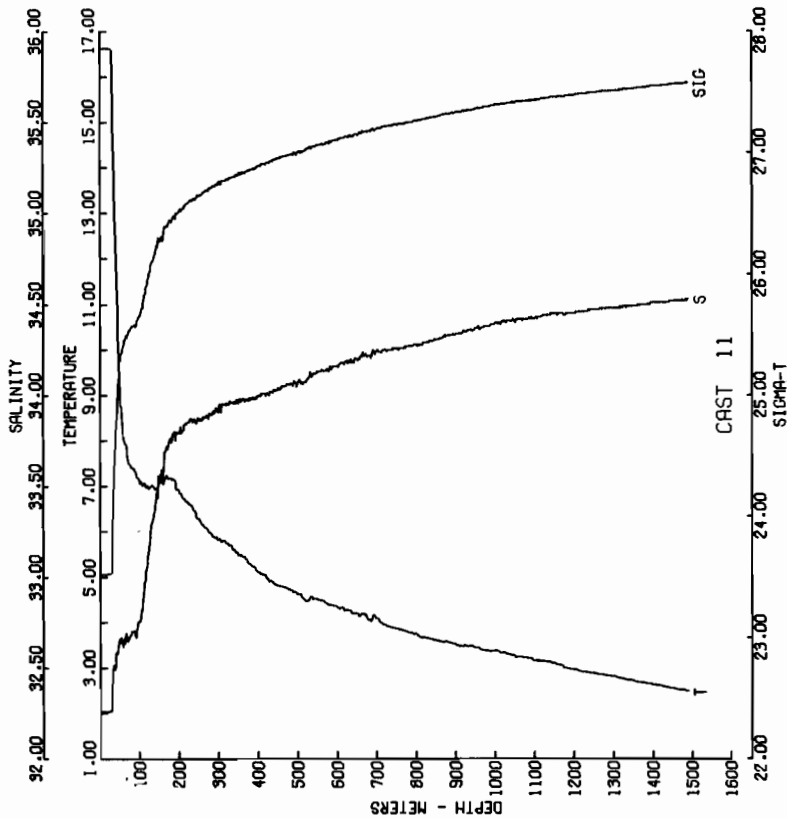
CAST ROAR2-0C-009 DATE 17 SEP 72 TIME 0502 GMT
 LAT 47.02 IN LONG 128 16.9 W WEATHER 1 SEA STATE 3
 BAROMETER 1016 WIND DIR 133 T SPD 13.0 KT VISIBILITY 5
 CLOUD X AMOUNT 9 DRY 13.2 REL 12.0 WET 27.38 H

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T | DELTA-0 (DYN M) |
|-----------|-----------------|----------------|---------|-----------------|
| 0 | 16.63 | 32.44 | 23.44 | 0.030 |
| 1 | 16.64 | 32.45 | 23.45 | 0.022 |
| 2 | 16.64 | 32.45 | 23.45 | 0.025 |
| 3 | 16.64 | 32.45 | 23.45 | 0.029 |
| 4 | 16.64 | 32.45 | 23.45 | 0.031 |
| 5 | 16.64 | 32.45 | 23.45 | 0.033 |
| 6 | 16.64 | 32.45 | 23.45 | 0.035 |
| 7 | 16.64 | 32.45 | 23.45 | 0.037 |
| 8 | 16.64 | 32.45 | 23.45 | 0.039 |
| 9 | 16.64 | 32.45 | 23.45 | 0.041 |
| 10 | 16.64 | 32.45 | 23.45 | 0.043 |
| 11 | 16.64 | 32.45 | 23.45 | 0.045 |
| 12 | 16.64 | 32.45 | 23.45 | 0.047 |
| 13 | 16.64 | 32.45 | 23.45 | 0.049 |
| 14 | 16.64 | 32.45 | 23.45 | 0.051 |
| 15 | 16.64 | 32.45 | 23.45 | 0.053 |
| 16 | 16.64 | 32.45 | 23.45 | 0.055 |
| 17 | 16.64 | 32.45 | 23.45 | 0.057 |
| 18 | 16.64 | 32.45 | 23.45 | 0.059 |
| 19 | 16.64 | 32.45 | 23.45 | 0.061 |
| 20 | 16.64 | 32.45 | 23.45 | 0.063 |
| 21 | 16.64 | 32.45 | 23.45 | 0.065 |
| 22 | 16.64 | 32.45 | 23.45 | 0.067 |
| 23 | 16.64 | 32.45 | 23.45 | 0.069 |
| 24 | 16.64 | 32.45 | 23.45 | 0.071 |
| 25 | 16.64 | 32.45 | 23.45 | 0.073 |
| 26 | 16.64 | 32.45 | 23.45 | 0.075 |
| 27 | 16.64 | 32.45 | 23.45 | 0.077 |
| 28 | 16.64 | 32.45 | 23.45 | 0.079 |
| 29 | 16.64 | 32.45 | 23.45 | 0.081 |
| 30 | 16.64 | 32.45 | 23.45 | 0.083 |
| 31 | 16.64 | 32.45 | 23.45 | 0.085 |
| 32 | 16.64 | 32.45 | 23.45 | 0.087 |
| 33 | 16.64 | 32.45 | 23.45 | 0.089 |
| 34 | 16.64 | 32.45 | 23.45 | 0.091 |
| 35 | 16.64 | 32.45 | 23.45 | 0.093 |
| 36 | 16.64 | 32.45 | 23.45 | 0.095 |
| 37 | 16.64 | 32.45 | 23.45 | 0.097 |
| 38 | 16.64 | 32.45 | 23.45 | 0.099 |
| 39 | 16.64 | 32.45 | 23.45 | 0.101 |
| 40 | 16.64 | 32.45 | 23.45 | 0.103 |
| 41 | 16.64 | 32.45 | 23.45 | 0.105 |
| 42 | 16.64 | 32.45 | 23.45 | 0.107 |
| 43 | 16.64 | 32.45 | 23.45 | 0.109 |
| 44 | 16.64 | 32.45 | 23.45 | 0.111 |
| 45 | 16.64 | 32.45 | 23.45 | 0.113 |
| 46 | 16.64 | 32.45 | 23.45 | 0.115 |
| 47 | 16.64 | 32.45 | 23.45 | 0.117 |
| 48 | 16.64 | 32.45 | 23.45 | 0.119 |
| 49 | 16.64 | 32.45 | 23.45 | 0.121 |
| 50 | 16.64 | 32.45 | 23.45 | 0.123 |
| 51 | 16.64 | 32.45 | 23.45 | 0.125 |
| 52 | 16.64 | 32.45 | 23.45 | 0.127 |
| 53 | 16.64 | 32.45 | 23.45 | 0.129 |
| 54 | 16.64 | 32.45 | 23.45 | 0.131 |
| 55 | 16.64 | 32.45 | 23.45 | 0.133 |
| 56 | 16.64 | 32.45 | 23.45 | 0.135 |
| 57 | 16.64 | 32.45 | 23.45 | 0.137 |
| 58 | 16.64 | 32.45 | 23.45 | 0.139 |
| 59 | 16.64 | 32.45 | 23.45 | 0.141 |
| 60 | 16.64 | 32.45 | 23.45 | 0.143 |
| 61 | 16.64 | 32.45 | 23.45 | 0.145 |
| 62 | 16.64 | 32.45 | 23.45 | 0.147 |
| 63 | 16.64 | 32.45 | 23.45 | 0.149 |
| 64 | 16.64 | 32.45 | 23.45 | 0.151 |
| 65 | 16.64 | 32.45 | 23.45 | 0.153 |
| 66 | 16.64 | 32.45 | 23.45 | 0.155 |
| 67 | 16.64 | 32.45 | 23.45 | 0.157 |
| 68 | 16.64 | 32.45 | 23.45 | 0.159 |
| 69 | 16.64 | 32.45 | 23.45 | 0.161 |
| 70 | 16.64 | 32.45 | 23.45 | 0.163 |
| 71 | 16.64 | 32.45 | 23.45 | 0.165 |
| 72 | 16.64 | 32.45 | 23.45 | 0.167 |
| 73 | 16.64 | 32.45 | 23.45 | 0.169 |
| 74 | 16.64 | 32.45 | 23.45 | 0.171 |
| 75 | 16.64 | 32.45 | 23.45 | 0.173 |
| 76 | 16.64 | 32.45 | 23.45 | 0.175 |
| 77 | 16.64 | 32.45 | 23.45 | 0.177 |
| 78 | 16.64 | 32.45 | 23.45 | 0.179 |
| 79 | 16.64 | 32.45 | 23.45 | 0.181 |
| 80 | 16.64 | 32.45 | 23.45 | 0.183 |
| 81 | 16.64 | 32.45 | 23.45 | 0.185 |
| 82 | 16.64 | 32.45 | 23.45 | 0.187 |
| 83 | 16.64 | 32.45 | 23.45 | 0.189 |
| 84 | 16.64 | 32.45 | 23.45 | 0.191 |
| 85 | 16.64 | 32.45 | 23.45 | 0.193 |
| 86 | 16.64 | 32.45 | 23.45 | 0.195 |
| 87 | 16.64 | 32.45 | 23.45 | 0.197 |
| 88 | 16.64 | 32.45 | 23.45 | 0.199 |
| 89 | 16.64 | 32.45 | 23.45 | 0.201 |
| 90 | 16.64 | 32.45 | 23.45 | 0.203 |
| 91 | 16.64 | 32.45 | 23.45 | 0.205 |
| 92 | 16.64 | 32.45 | 23.45 | 0.207 |
| 93 | 16.64 | 32.45 | 23.45 | 0.209 |
| 94 | 16.64 | 32.45 | 23.45 | 0.211 |
| 95 | 16.64 | 32.45 | 23.45 | 0.213 |
| 96 | 16.64 | 32.45 | 23.45 | 0.215 |
| 97 | 16.64 | 32.45 | 23.45 | 0.217 |
| 98 | 16.64 | 32.45 | 23.45 | 0.219 |
| 99 | 16.64 | 32.45 | 23.45 | 0.221 |
| 100 | 16.64 | 32.45 | 23.45 | 0.223 |



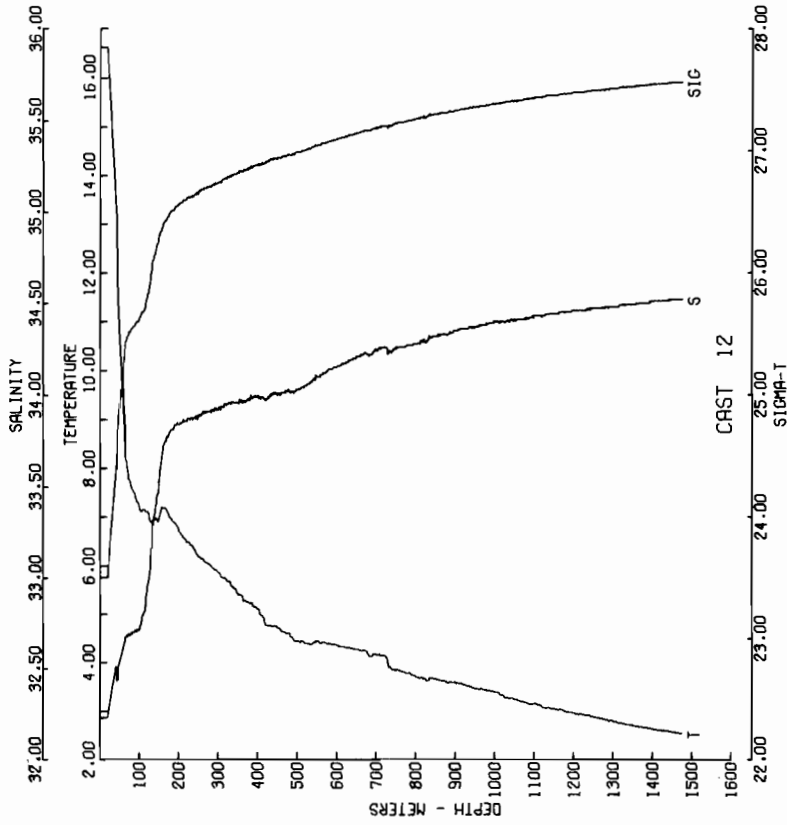
CAST ROAR2-0C-010 DATE 17 SEP 72 TIME 0703 GMT
 LAT 47.015N LONG 128 15.0 W WEATHER 1 SEA STATE 3
 BAROMETER 1016 WIND DIR 133 T SPD 13.0 KT VISIBILITY 5
 CLOUD X AMOUNT 9 DRY 13.9 REL 12.6 WET 27.38 H

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T | DELTA-0 (DYN M) |
|-----------|-----------------|----------------|---------|-----------------|
| 0 | 16.63 | 32.21 | 23.48 | 0.000 |
| 1 | 16.64 | 32.21 | 23.48 | 0.022 |
| 2 | 16.64 | 32.21 | 23.48 | 0.025 |
| 3 | 16.64 | 32.21 | 23.48 | 0.029 |
| 4 | 16.64 | 32.21 | 23.48 | 0.031 |
| 5 | 16.64 | 32.21 | 23.48 | 0.033 |
| 6 | 16.64 | 32.21 | 23.48 | 0.035 |
| 7 | 16.64 | 32.21 | 23.48 | 0.037 |
| 8 | 16.64 | 32.21 | 23.48 | 0.039 |
| 9 | 16.64 | 32.21 | 23.48 | 0.041 |
| 10 | 16.64 | 32.21 | 23.48 | 0.043 |
| 11 | 16.64 | 32.21 | 23.48 | 0.045 |
| 12 | 16.64 | 32.21 | 23.48 | 0.047 |
| 13 | 16.64 | 32.21 | 23.48 | 0.049 |
| 14 | 16.64 | 32.21 | 23.48 | 0.051 |
| 15 | 16.64 | 32.21 | 23.48 | 0.053 |
| 16 | 16.64 | 32.21 | 23.48 | 0.055 |
| 17 | 16.64 | 32.21 | 23.48 | 0.057 |
| 18 | 16.64 | 32.21 | 23.48 | 0.059 |
| 19 | 16.64 | 32.21 | 23.48 | 0.061 |
| 20 | 16.64 | 32.21 | 23.48 | 0.063 |
| 21 | 16.64 | 32.21 | 23.48 | 0.065 |
| 22 | 16.64 | 32.21 | 23.48 | 0.067 |
| 23 | 16.64 | 32.21 | 23.48 | 0.069 |
| 24 | 16.64 | 32.21 | 23.48 | 0.071 |
| 25 | 16.64 | 32.21 | 23.48 | 0.073 |
| 26 | 16.64 | 32.21 | 23.48 | 0.075 |
| 27 | 16.64 | 32.21 | 23.48 | 0.077 |
| 28 | 16.64 | 32.21 | 23.48 | 0.079 |
| 29 | 16.64 | 32.21 | 23.48 | 0.081 |
| 30 | 16.64 | 32.21 | 23.48 | 0.083 |
| 31 | 16.64 | 32.21 | 23.48 | 0.085 |
| 32 | 16.64 | 32.21 | 23.48 | 0.087 |
| 33 | 16.64 | 32.21 | 23.48 | 0.089 |
| 34 | 16.64 | 32.21 | 23.48 | 0.091 |
| 35 | 16.64 | 32.21 | 23.48 | 0.093 |
| 36 | 16.64 | 32.21 | 23.48 | 0.095 |
| 37 | 16.64 | 32.21 | 23.48 | 0.097 |
| 38 | 16.64 | 32.21 | 23.48 | 0.099 |
| 39 | 16.64 | 32.21 | 23.48 | 0.101 |
| 40 | 16.64 | 32.21 | 23.48 | 0.103 |
| 41 | 16.64 | 32.21 | 23.48 | 0.105 |
| 42 | 16.64 | 32.21 | 23.48 | 0.107 |
| 43 | 16.64 | 32.21 | 23.48 | 0.109 |
| 44 | 16.64 | 32.21 | 23.48 | 0.111 |
| 45 | 16.64 | 32.21 | 23.48 | 0.113 |
| 46 | 16.64 | 32.21 | 23.48 | 0.115 |
| 47 | 16.64 | 32.21 | 23.48 | 0.117 |
| 48 | 16.64 | 32.21 | 23.48 | 0.119 |
| 49 | 16.64 | 32.21 | 23.48 | 0.121 |
| 50 | 16.64 | 32.21 | 23.48 | 0.123 |
| 51 | 16.64 | 32.21 | 23.48 | 0.125 |
| 52 | 16.64 | 32.21 | 23.48 | 0.127 |
| 53 | 16.64 | 32.21 | 23.48 | 0.129 |
| 54 | 16.64 | 32.21 | 23.48 | 0.131 |
| 55 | 16.64 | 32.21 | 23.48 | 0.133 |
| 56 | 16.64 | 32.21 | 23.48 | 0.135 |
| 57 | 16.64 | 32.21 | 23.48 | 0.137 |
| 58 | 16.64 | 32.21 | 23.48 | 0.139 |
| 59 | 16.64 | 32.21 | 23.48 | 0.141 |
| 60 | 16.64 | 32.21 | 23.48 | 0.143 |
| 61 | 16.64 | 32.21 | 23.48 | 0.145 |
| 62 | 16.64 | 32.21 | 23.48 | 0.147 |
| 63 | 16.64 | 32.21 | 23.48 | 0.149 |
| 64 | 16.64 | 32.21 | 23.48 | 0.151 |
| 65 | 16.64 | 32.21 | 23.48 | 0.153 |
| 66 | 16.64 | 32.21 | 23.48 | 0.155 |
| 67 | 16.64 | 32.21 | 23.48 | 0.157 |
| 68 | 16.64 | 32.21 | 23.48 | 0.159 |
| 69 | 16.64 | 32.21 | 23.48 | 0.161 |
| 70 | 16.64 | 32.21 | 23.48 | 0.163 |
| 71 | 16.64 | 32.21 | 23.48 | 0.165 |
| 72 | 16.64 | 32.21 | 23.48 | 0.167 |
| 73 | 16.64 | 32.21 | 23.48 | 0.169 |
| 74 | 16.64 | 32.21 | 23.48 | 0.171 |
| 75 | 16.64 | 32.21 | 23.48 | 0.173 |
| 76 | 16.64 | 32.21 | 23.48 | 0.175 |
| 77 | 16.64 | 32.21 | 23.48 | 0.177 |
| 78 | 16.64 | 32.21 | 23.48 | 0.179 |
| 79 | 16.64 | 32.21 | 23.48 | 0.181 |
| 80 | 16.64 | 32.21 | 23.48 | 0.183 |
| 81 | 16.64 | 32.21 | 23.48 | 0.185 |
| 82 | 16.64 | 32.21 | 23.48 | 0.187 |
| 83 | 16.64 | 32.21 | 23.48 | 0.189 |
| 84 | 16.64 | 32.21 | 23.48 | 0.191 |
| 85 | 16.64 | 32.21 | 23.48 | 0.193 |
| 86 | 16.64 | 32.21 | 23.48 | 0.195 |
| 87 | 16.64 | 32.21 | 23.48 | 0.197 |
| 88 | 16.64 | 32.21 | 23.48 | 0.199 |
| 89 | 16.64 | 32.21 | 23.48 | 0.201 |
| 90 | 16.64 | 32.21 | 23.48 | 0.203 |
| 91 | 16.64 | 32.21 | 23.48 | 0.205 |
| 92 | 16.64 | 32.21 | 23.48 | 0.207 |
| 93 | 16.64 | 32.21 | 23.48 | 0.209 |
| 94 | 16.6 | | | |



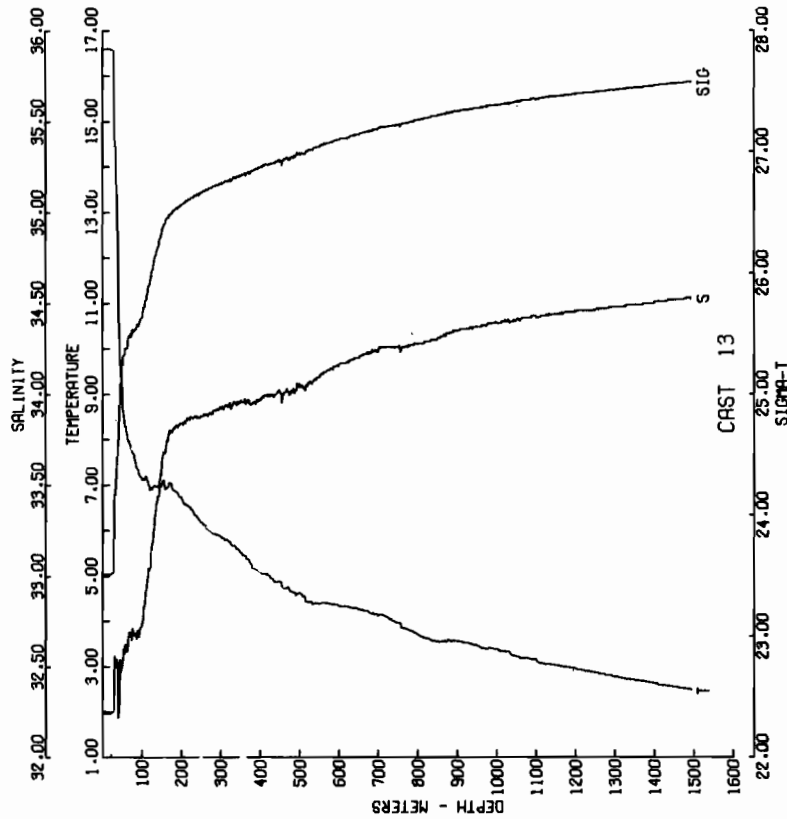
CAST 11
 DATE 17 SEP 72 TIME 0913 GMT
 LAT 47 08.2 N LONG 128 15.3 W
 BAROMETER 10.0 METERS 15.3 METERS 27.39 M
 CLOUD X AMOUNT 9 DRY 15.3 METERS 27.39 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DYN M) | DELTA-D |
|-----------|-----------------|----------------|-----------------|---------|
| 0 | 16.61 | 32.25 | 22.25 | 0.000 |
| 1 | 16.62 | 32.25 | 22.25 | .022 |
| 2 | 16.62 | 32.25 | 22.25 | .066 |
| 3 | 16.62 | 32.25 | 22.25 | .109 |
| 4 | 16.62 | 32.25 | 22.25 | .152 |
| 5 | 16.62 | 32.25 | 22.25 | .196 |
| 6 | 16.62 | 32.25 | 22.25 | .239 |
| 7 | 16.62 | 32.25 | 22.25 | .283 |
| 8 | 16.62 | 32.25 | 22.25 | .326 |
| 9 | 16.62 | 32.25 | 22.25 | .370 |
| 10 | 16.62 | 32.25 | 22.25 | .413 |
| 11 | 16.62 | 32.25 | 22.25 | .457 |
| 12 | 16.62 | 32.25 | 22.25 | .500 |
| 13 | 16.62 | 32.25 | 22.25 | .544 |
| 14 | 16.62 | 32.25 | 22.25 | .587 |
| 15 | 16.62 | 32.25 | 22.25 | .631 |
| 16 | 16.62 | 32.25 | 22.25 | .674 |
| 17 | 16.62 | 32.25 | 22.25 | .718 |
| 18 | 16.62 | 32.25 | 22.25 | .761 |
| 19 | 16.62 | 32.25 | 22.25 | .805 |
| 20 | 16.62 | 32.25 | 22.25 | .848 |
| 21 | 16.62 | 32.25 | 22.25 | .892 |
| 22 | 16.62 | 32.25 | 22.25 | .935 |
| 23 | 16.62 | 32.25 | 22.25 | .979 |
| 24 | 16.62 | 32.25 | 22.25 | 1.022 |
| 25 | 16.62 | 32.25 | 22.25 | 1.066 |
| 26 | 16.62 | 32.25 | 22.25 | 1.109 |
| 27 | 16.62 | 32.25 | 22.25 | 1.152 |
| 28 | 16.62 | 32.25 | 22.25 | 1.196 |



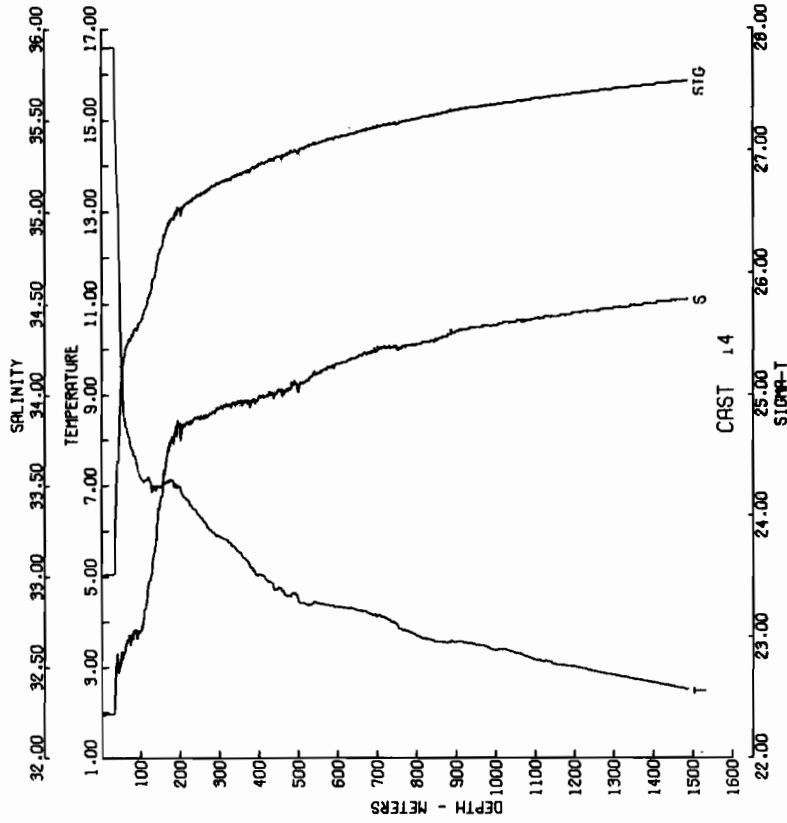
CAST 12
 DATE 17 SEP 72 TIME 1122 GMT
 LAT 47 08.2 N LONG 128 14.9 W
 BAROMETER 10.0 METERS 15.5 METERS 27.10 M
 CLOUD X AMOUNT 9 DRY 15.5 METERS 27.10 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DYN M) | DELTA-D |
|-----------|-----------------|----------------|-----------------|---------|
| 0 | 16.63 | 32.25 | 22.25 | 0.000 |
| 1 | 16.62 | 32.25 | 22.25 | .022 |
| 2 | 16.62 | 32.25 | 22.25 | .066 |
| 3 | 16.62 | 32.25 | 22.25 | .109 |
| 4 | 16.62 | 32.25 | 22.25 | .152 |
| 5 | 16.62 | 32.25 | 22.25 | .196 |
| 6 | 16.62 | 32.25 | 22.25 | .239 |
| 7 | 16.62 | 32.25 | 22.25 | .283 |
| 8 | 16.62 | 32.25 | 22.25 | .326 |
| 9 | 16.62 | 32.25 | 22.25 | .370 |
| 10 | 16.62 | 32.25 | 22.25 | .413 |
| 11 | 16.62 | 32.25 | 22.25 | .457 |
| 12 | 16.62 | 32.25 | 22.25 | .500 |
| 13 | 16.62 | 32.25 | 22.25 | .544 |
| 14 | 16.62 | 32.25 | 22.25 | .587 |
| 15 | 16.62 | 32.25 | 22.25 | .631 |
| 16 | 16.62 | 32.25 | 22.25 | .674 |
| 17 | 16.62 | 32.25 | 22.25 | .718 |
| 18 | 16.62 | 32.25 | 22.25 | .761 |
| 19 | 16.62 | 32.25 | 22.25 | .805 |
| 20 | 16.62 | 32.25 | 22.25 | .848 |
| 21 | 16.62 | 32.25 | 22.25 | .892 |
| 22 | 16.62 | 32.25 | 22.25 | .935 |
| 23 | 16.62 | 32.25 | 22.25 | .979 |
| 24 | 16.62 | 32.25 | 22.25 | 1.022 |
| 25 | 16.62 | 32.25 | 22.25 | 1.066 |
| 26 | 16.62 | 32.25 | 22.25 | 1.109 |
| 27 | 16.62 | 32.25 | 22.25 | 1.152 |
| 28 | 16.62 | 32.25 | 22.25 | 1.196 |



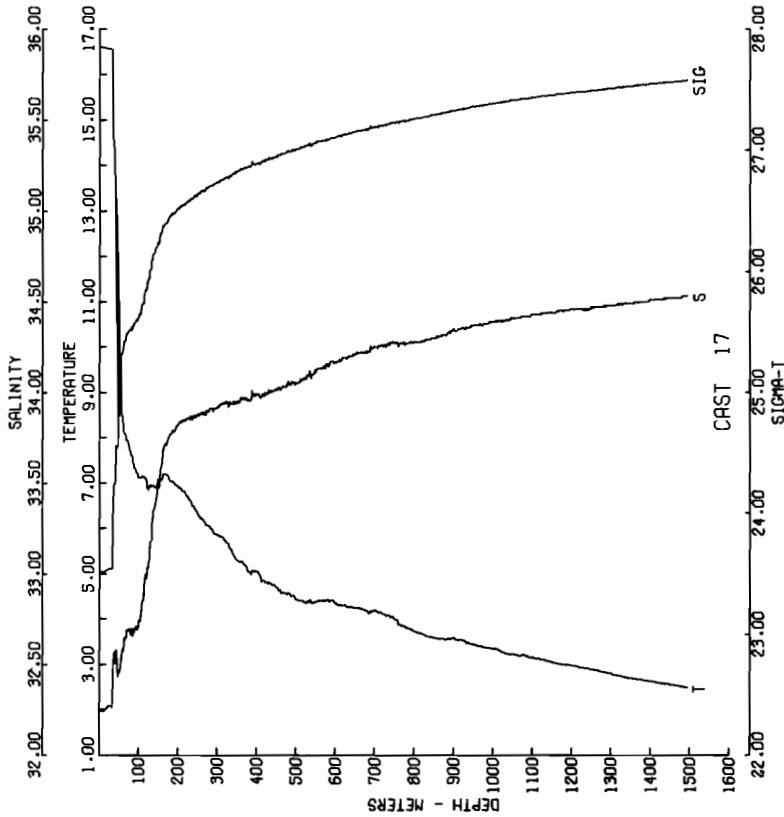
CAST 13092-00-013 DATE 17 SEP 72 TIME 1309 GMT
 BAROMETER AMOUNT 6 LONG 128 15.8 W WEATHER 1 SEA STATE 3
 CLOUD 0 AMOUNT 0 DRY 13.8 NET 10.5 ST WIND DIR 177 H
 DEPTH 272 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DBTN) | DELTA-T (DBTN) |
|-----------|-----------------|----------------|----------------|----------------|
| 0 | 16.55 | 32.24 | 23.52 | 0.00 |
| 2 | 16.50 | 32.24 | 23.52 | 0.22 |
| 4 | 16.50 | 32.24 | 23.52 | 0.66 |
| 6 | 16.50 | 32.24 | 23.52 | 0.88 |
| 8 | 16.50 | 32.24 | 23.52 | 1.10 |
| 10 | 16.50 | 32.24 | 23.52 | 1.31 |
| 12 | 16.50 | 32.24 | 23.52 | 1.50 |
| 14 | 16.50 | 32.24 | 23.52 | 1.69 |
| 16 | 16.50 | 32.24 | 23.52 | 1.87 |
| 18 | 16.50 | 32.24 | 23.52 | 2.05 |
| 20 | 16.50 | 32.24 | 23.52 | 2.23 |
| 22 | 16.50 | 32.24 | 23.52 | 2.41 |
| 24 | 16.50 | 32.24 | 23.52 | 2.59 |
| 26 | 16.50 | 32.24 | 23.52 | 2.77 |
| 28 | 16.50 | 32.24 | 23.52 | 2.95 |
| 30 | 16.50 | 32.24 | 23.52 | 3.13 |
| 32 | 16.50 | 32.24 | 23.52 | 3.31 |
| 34 | 16.50 | 32.24 | 23.52 | 3.49 |
| 36 | 16.50 | 32.24 | 23.52 | 3.67 |
| 38 | 16.50 | 32.24 | 23.52 | 3.85 |
| 40 | 16.50 | 32.24 | 23.52 | 4.03 |
| 42 | 16.50 | 32.24 | 23.52 | 4.21 |
| 44 | 16.50 | 32.24 | 23.52 | 4.39 |
| 46 | 16.50 | 32.24 | 23.52 | 4.57 |
| 48 | 16.50 | 32.24 | 23.52 | 4.75 |
| 50 | 16.50 | 32.24 | 23.52 | 4.93 |
| 52 | 16.50 | 32.24 | 23.52 | 5.11 |
| 54 | 16.50 | 32.24 | 23.52 | 5.29 |
| 56 | 16.50 | 32.24 | 23.52 | 5.47 |
| 58 | 16.50 | 32.24 | 23.52 | 5.65 |
| 60 | 16.50 | 32.24 | 23.52 | 5.83 |
| 62 | 16.50 | 32.24 | 23.52 | 6.01 |
| 64 | 16.50 | 32.24 | 23.52 | 6.19 |
| 66 | 16.50 | 32.24 | 23.52 | 6.37 |
| 68 | 16.50 | 32.24 | 23.52 | 6.55 |
| 70 | 16.50 | 32.24 | 23.52 | 6.73 |
| 72 | 16.50 | 32.24 | 23.52 | 6.91 |
| 74 | 16.50 | 32.24 | 23.52 | 7.09 |
| 76 | 16.50 | 32.24 | 23.52 | 7.27 |
| 78 | 16.50 | 32.24 | 23.52 | 7.45 |
| 80 | 16.50 | 32.24 | 23.52 | 7.63 |
| 82 | 16.50 | 32.24 | 23.52 | 7.81 |
| 84 | 16.50 | 32.24 | 23.52 | 7.99 |
| 86 | 16.50 | 32.24 | 23.52 | 8.17 |
| 88 | 16.50 | 32.24 | 23.52 | 8.35 |
| 90 | 16.50 | 32.24 | 23.52 | 8.53 |
| 92 | 16.50 | 32.24 | 23.52 | 8.71 |
| 94 | 16.50 | 32.24 | 23.52 | 8.89 |
| 96 | 16.50 | 32.24 | 23.52 | 9.07 |
| 98 | 16.50 | 32.24 | 23.52 | 9.25 |
| 100 | 16.50 | 32.24 | 23.52 | 9.43 |
| 102 | 16.50 | 32.24 | 23.52 | 9.61 |
| 104 | 16.50 | 32.24 | 23.52 | 9.79 |
| 106 | 16.50 | 32.24 | 23.52 | 9.97 |
| 108 | 16.50 | 32.24 | 23.52 | 10.15 |
| 110 | 16.50 | 32.24 | 23.52 | 10.33 |
| 112 | 16.50 | 32.24 | 23.52 | 10.51 |
| 114 | 16.50 | 32.24 | 23.52 | 10.69 |
| 116 | 16.50 | 32.24 | 23.52 | 10.87 |
| 118 | 16.50 | 32.24 | 23.52 | 11.05 |
| 120 | 16.50 | 32.24 | 23.52 | 11.23 |
| 122 | 16.50 | 32.24 | 23.52 | 11.41 |
| 124 | 16.50 | 32.24 | 23.52 | 11.59 |
| 126 | 16.50 | 32.24 | 23.52 | 11.77 |
| 128 | 16.50 | 32.24 | 23.52 | 11.95 |
| 130 | 16.50 | 32.24 | 23.52 | 12.13 |
| 132 | 16.50 | 32.24 | 23.52 | 12.31 |
| 134 | 16.50 | 32.24 | 23.52 | 12.49 |
| 136 | 16.50 | 32.24 | 23.52 | 12.67 |
| 138 | 16.50 | 32.24 | 23.52 | 12.85 |
| 140 | 16.50 | 32.24 | 23.52 | 13.03 |
| 142 | 16.50 | 32.24 | 23.52 | 13.21 |
| 144 | 16.50 | 32.24 | 23.52 | 13.39 |
| 146 | 16.50 | 32.24 | 23.52 | 13.57 |
| 148 | 16.50 | 32.24 | 23.52 | 13.75 |
| 150 | 16.50 | 32.24 | 23.52 | 13.93 |
| 152 | 16.50 | 32.24 | 23.52 | 14.11 |
| 154 | 16.50 | 32.24 | 23.52 | 14.29 |
| 156 | 16.50 | 32.24 | 23.52 | 14.47 |
| 158 | 16.50 | 32.24 | 23.52 | 14.65 |
| 160 | 16.50 | 32.24 | 23.52 | 14.83 |



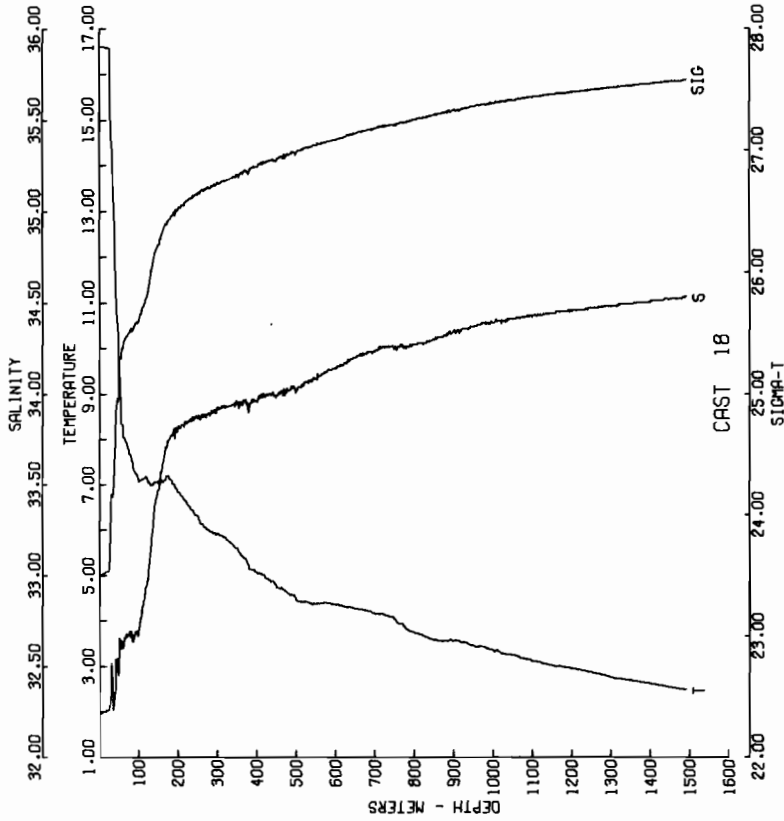
CAST 14092-00-014 DATE 17 SEP 72 TIME 1500 GMT
 BAROMETER AMOUNT 6 LONG 128 15.7 W WEATHER 2 SEA STATE 3
 CLOUD 0 AMOUNT 7 DRY 13.9 NET 12.5 ST WIND DIR 174 H
 DEPTH 2734 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DBTN) | DELTA-T (DBTN) |
|-----------|-----------------|----------------|----------------|----------------|
| 0 | 16.58 | 32.23 | 23.51 | 0.00 |
| 2 | 16.58 | 32.23 | 23.51 | 0.24 |
| 4 | 16.58 | 32.23 | 23.51 | 0.68 |
| 6 | 16.58 | 32.23 | 23.51 | 0.88 |
| 8 | 16.58 | 32.23 | 23.51 | 1.10 |
| 10 | 16.58 | 32.23 | 23.51 | 1.32 |
| 12 | 16.58 | 32.23 | 23.51 | 1.54 |
| 14 | 16.58 | 32.23 | 23.51 | 1.76 |
| 16 | 16.58 | 32.23 | 23.51 | 1.98 |
| 18 | 16.58 | 32.23 | 23.51 | 2.20 |
| 20 | 16.58 | 32.23 | 23.51 | 2.42 |
| 22 | 16.58 | 32.23 | 23.51 | 2.64 |
| 24 | 16.58 | 32.23 | 23.51 | 2.86 |
| 26 | 16.58 | 32.23 | 23.51 | 3.08 |
| 28 | 16.58 | 32.23 | 23.51 | 3.30 |
| 30 | 16.58 | 32.23 | 23.51 | 3.52 |
| 32 | 16.58 | 32.23 | 23.51 | 3.74 |
| 34 | 16.58 | 32.23 | 23.51 | 3.96 |
| 36 | 16.58 | 32.23 | 23.51 | 4.18 |
| 38 | 16.58 | 32.23 | 23.51 | 4.40 |
| 40 | 16.58 | 32.23 | 23.51 | 4.62 |
| 42 | 16.58 | 32.23 | 23.51 | 4.84 |
| 44 | 16.58 | 32.23 | 23.51 | 5.06 |
| 46 | 16.58 | 32.23 | 23.51 | 5.28 |
| 48 | 16.58 | 32.23 | 23.51 | 5.50 |
| 50 | 16.58 | 32.23 | 23.51 | 5.72 |
| 52 | 16.58 | 32.23 | 23.51 | 5.94 |
| 54 | 16.58 | 32.23 | 23.51 | 6.16 |
| 56 | 16.58 | 32.23 | 23.51 | 6.38 |
| 58 | 16.58 | 32.23 | 23.51 | 6.60 |
| 60 | 16.58 | 32.23 | 23.51 | 6.82 |
| 62 | 16.58 | 32.23 | 23.51 | 7.04 |
| 64 | 16.58 | 32.23 | 23.51 | 7.26 |
| 66 | 16.58 | 32.23 | 23.51 | 7.48 |
| 68 | 16.58 | 32.23 | 23.51 | 7.70 |
| 70 | 16.58 | 32.23 | 23.51 | 7.92 |
| 72 | 16.58 | 32.23 | 23.51 | 8.14 |
| 74 | 16.58 | 32.23 | 23.51 | 8.36 |
| 76 | 16.58 | 32.23 | 23.51 | 8.58 |
| 78 | 16.58 | 32.23 | 23.51 | 8.80 |
| 80 | 16.58 | 32.23 | 23.51 | 9.02 |
| 82 | 16.58 | 32.23 | 23.51 | 9.24 |
| 84 | 16.58 | 32.23 | 23.51 | 9.46 |
| 86 | 16.58 | 32.23 | 23.51 | 9.68 |
| 88 | 16.58 | 32.23 | 23.51 | 9.90 |
| 90 | 16.58 | 32.23 | 23.51 | 10.12 |
| 92 | 16.58 | 32.23 | 23.51 | 10.34 |
| 94 | 16.58 | 32.23 | 23.51 | 10.56 |
| 96 | 16.58 | 32.23 | 23.51 | 10.78 |
| 98 | 16.58 | 32.23 | 23.51 | 11.00 |
| 100 | 16.58 | 32.23 | 23.51 | 11.22 |
| 102 | 16.58 | 32.23 | 23.51 | 11.44 |
| 104 | 16.58 | 32.23 | 23.51 | 11.66 |
| 106 | 16.58 | 32.23 | 23.51 | 11.88 |
| 108 | 16.58 | 32.23 | 23.51 | 12.10 |
| 110 | 16.58 | 32.23 | 23.51 | 12.32 |
| 112 | 16.58 | 32.23 | 23.51 | 12.54 |
| 114 | 16.58 | 32.23 | 23.51 | 12.76 |
| 116 | 16.58 | 32.23 | 23.51 | 12.98 |
| 118 | 16.58 | 32.23 | 23.51 | 13.20 |
| 120 | 16.58 | 32.23 | 23.51 | 13.42 |
| 122 | 16.58 | 32.23 | 23.51 | 13.64 |
| 124 | 16.58 | 32.23 | 23.51 | 13.86 |
| 126 | 16.58 | 32.23 | 23.51 | 14.08 |
| 128 | 16.58 | 32.23 | 23.51 | 14.30 |
| 130 | 16.58 | 32.23 | 23.51 | 14.52 |
| 132 | 16.58 | 32.23 | 23.51 | 14.74 |
| 134 | 16.58 | 32.23 | 23.51 | 14.96 |
| 136 | 16.58 | 32.23 | 23.51 | 15.18 |
| 138 | 16.58 | 32.23 | 23.51 | 15.40 |
| 140 | 16.58 | 32.23 | 23.51 | 15.62 |
| 142 | 16.58 | 32.23 | 23.51 | 15.84 |
| 144 | 16.58 | 32.23 | 23.51 | 16.06 |
| 146 | 16.58 | 32.23 | 23.51 | 16.28 |
| 148 | 16.58 | 32.23 | 23.51 | 16.50 |
| 150 | 16.58 | 32.23 | 23.51 | 16.72 |
| 152 | 16.58 | 32.23 | 23.51 | 16.94 |
| 154 | 16.58 | 32.23 | 23.51 | 17.16 |
| 156 | 16.58 | 32.23 | 23.51 | 17.38 |
| 158 | 16.58 | 32.23 | 23.51 | 17.60 |
| 160 | 16.58 | 32.23 | 23.51 | 17.82 |



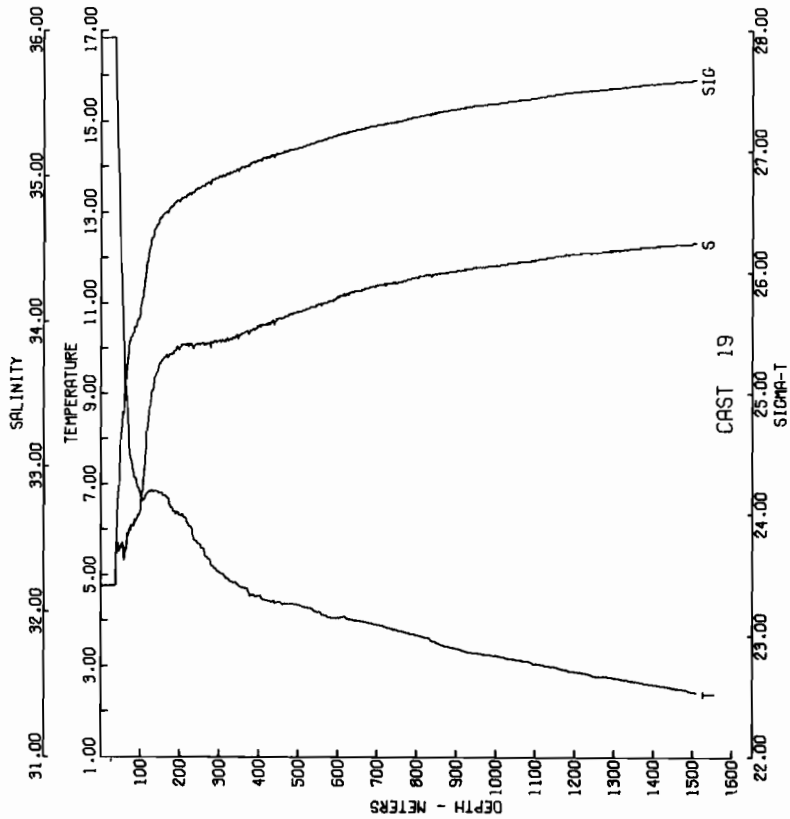
CAST ROAR2-0C-017 DATE 17 SEP 72 TIME 2356 GMT
 LAT 47.0144N LONG 128 15.9W WEATHER 2 SEA STATE 3
 WIND VELOCITY 17 KTS WIND DIR 08.4T WIND DIR 17.6
 CLOUD 6 AMOUNT 7 DRY 17.3 WET 12.4 DEPTH 2747 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T | DELTA-TU (DYN M) |
|-----------|-----------------|----------------|---------|------------------|
| 0 | 16.60 | 32.23 | 23.51 | 0.000 |
| 10 | 16.62 | 32.24 | 23.51 | 0.000 |
| 15 | 16.59 | 32.24 | 23.51 | 0.22 |
| 20 | 16.59 | 32.24 | 23.51 | 0.00 |
| 25 | 16.58 | 32.24 | 23.51 | 0.00 |
| 30 | 16.57 | 32.24 | 23.51 | 0.00 |
| 35 | 16.57 | 32.24 | 23.51 | 0.00 |
| 40 | 16.56 | 32.24 | 23.51 | 0.00 |
| 45 | 16.56 | 32.24 | 23.51 | 0.00 |
| 50 | 16.56 | 32.24 | 23.51 | 0.00 |
| 60 | 16.56 | 32.24 | 23.51 | 0.00 |
| 70 | 16.56 | 32.24 | 23.51 | 0.00 |
| 80 | 16.56 | 32.24 | 23.51 | 0.00 |
| 90 | 16.56 | 32.24 | 23.51 | 0.00 |
| 100 | 16.56 | 32.24 | 23.51 | 0.00 |
| 110 | 16.56 | 32.24 | 23.51 | 0.00 |
| 120 | 16.56 | 32.24 | 23.51 | 0.00 |
| 130 | 16.56 | 32.24 | 23.51 | 0.00 |
| 140 | 16.56 | 32.24 | 23.51 | 0.00 |
| 150 | 16.56 | 32.24 | 23.51 | 0.00 |
| 160 | 16.56 | 32.24 | 23.51 | 0.00 |
| 170 | 16.56 | 32.24 | 23.51 | 0.00 |
| 180 | 16.56 | 32.24 | 23.51 | 0.00 |
| 190 | 16.56 | 32.24 | 23.51 | 0.00 |
| 200 | 16.56 | 32.24 | 23.51 | 0.00 |
| 300 | 16.56 | 32.24 | 23.51 | 0.00 |
| 400 | 16.56 | 32.24 | 23.51 | 0.00 |
| 500 | 16.56 | 32.24 | 23.51 | 0.00 |
| 600 | 16.56 | 32.24 | 23.51 | 0.00 |
| 700 | 16.56 | 32.24 | 23.51 | 0.00 |
| 800 | 16.56 | 32.24 | 23.51 | 0.00 |
| 900 | 16.56 | 32.24 | 23.51 | 0.00 |
| 1000 | 16.56 | 32.24 | 23.51 | 0.00 |
| 1100 | 16.56 | 32.24 | 23.51 | 0.00 |
| 1200 | 16.56 | 32.24 | 23.51 | 0.00 |
| 1300 | 16.56 | 32.24 | 23.51 | 0.00 |
| 1400 | 16.56 | 32.24 | 23.51 | 0.00 |
| 1500 | 16.56 | 32.24 | 23.51 | 0.00 |
| 1600 | 16.56 | 32.24 | 23.51 | 0.00 |



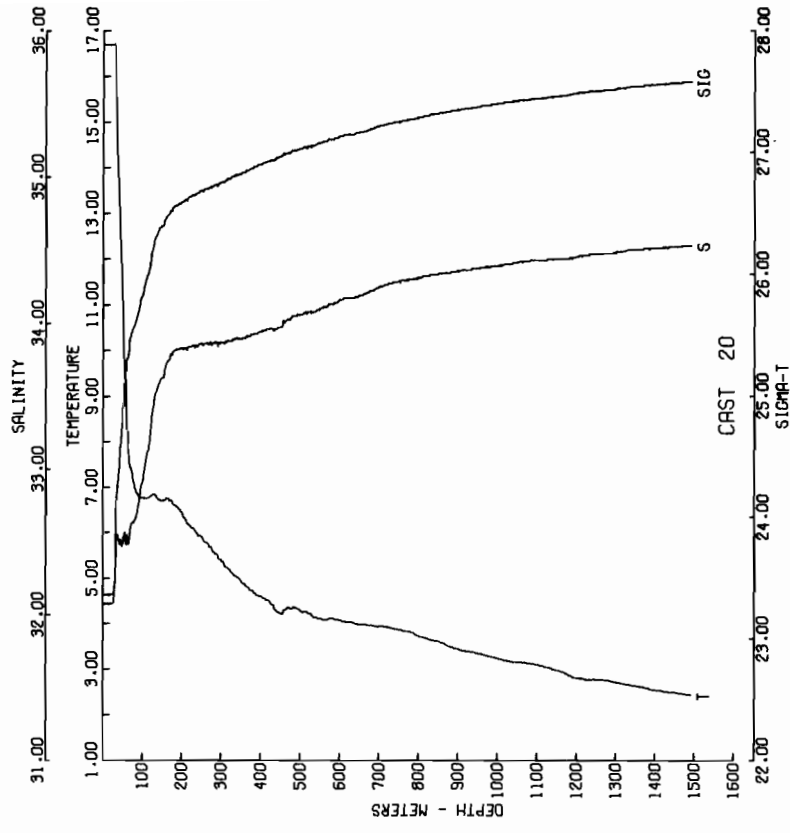
CAST ROAR2-0C-018 DATE 17 SEP 72 TIME 2303 GMT
 LAT 47.0148N LONG 128 13.8W WEATHER 1 SEA STATE 3
 WIND VELOCITY 16 KTS WIND DIR 06.4T WIND DIR 14.5 M
 CLOUD 6 AMOUNT 8 DRY 13.3 WET 11.7 DEPTH 2745 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T | DELTA-TU (DYN M) |
|-----------|-----------------|----------------|---------|------------------|
| 0 | 16.61 | 32.24 | 23.51 | 0.000 |
| 10 | 16.62 | 32.24 | 23.51 | 0.00 |
| 15 | 16.59 | 32.24 | 23.51 | 0.00 |
| 20 | 16.59 | 32.24 | 23.51 | 0.00 |
| 25 | 16.58 | 32.24 | 23.51 | 0.00 |
| 30 | 16.57 | 32.24 | 23.51 | 0.00 |
| 35 | 16.57 | 32.24 | 23.51 | 0.00 |
| 40 | 16.56 | 32.24 | 23.51 | 0.00 |
| 45 | 16.56 | 32.24 | 23.51 | 0.00 |
| 50 | 16.56 | 32.24 | 23.51 | 0.00 |
| 60 | 16.56 | 32.24 | 23.51 | 0.00 |
| 70 | 16.56 | 32.24 | 23.51 | 0.00 |
| 80 | 16.56 | 32.24 | 23.51 | 0.00 |
| 90 | 16.56 | 32.24 | 23.51 | 0.00 |
| 100 | 16.56 | 32.24 | 23.51 | 0.00 |
| 110 | 16.56 | 32.24 | 23.51 | 0.00 |
| 120 | 16.56 | 32.24 | 23.51 | 0.00 |
| 130 | 16.56 | 32.24 | 23.51 | 0.00 |
| 140 | 16.56 | 32.24 | 23.51 | 0.00 |
| 150 | 16.56 | 32.24 | 23.51 | 0.00 |
| 160 | 16.56 | 32.24 | 23.51 | 0.00 |
| 170 | 16.56 | 32.24 | 23.51 | 0.00 |
| 180 | 16.56 | 32.24 | 23.51 | 0.00 |
| 190 | 16.56 | 32.24 | 23.51 | 0.00 |
| 200 | 16.56 | 32.24 | 23.51 | 0.00 |
| 300 | 16.56 | 32.24 | 23.51 | 0.00 |
| 400 | 16.56 | 32.24 | 23.51 | 0.00 |
| 500 | 16.56 | 32.24 | 23.51 | 0.00 |
| 600 | 16.56 | 32.24 | 23.51 | 0.00 |
| 700 | 16.56 | 32.24 | 23.51 | 0.00 |
| 800 | 16.56 | 32.24 | 23.51 | 0.00 |
| 900 | 16.56 | 32.24 | 23.51 | 0.00 |
| 1000 | 16.56 | 32.24 | 23.51 | 0.00 |
| 1100 | 16.56 | 32.24 | 23.51 | 0.00 |
| 1200 | 16.56 | 32.24 | 23.51 | 0.00 |
| 1300 | 16.56 | 32.24 | 23.51 | 0.00 |
| 1400 | 16.56 | 32.24 | 23.51 | 0.00 |
| 1500 | 16.56 | 32.24 | 23.51 | 0.00 |
| 1600 | 16.56 | 32.24 | 23.51 | 0.00 |



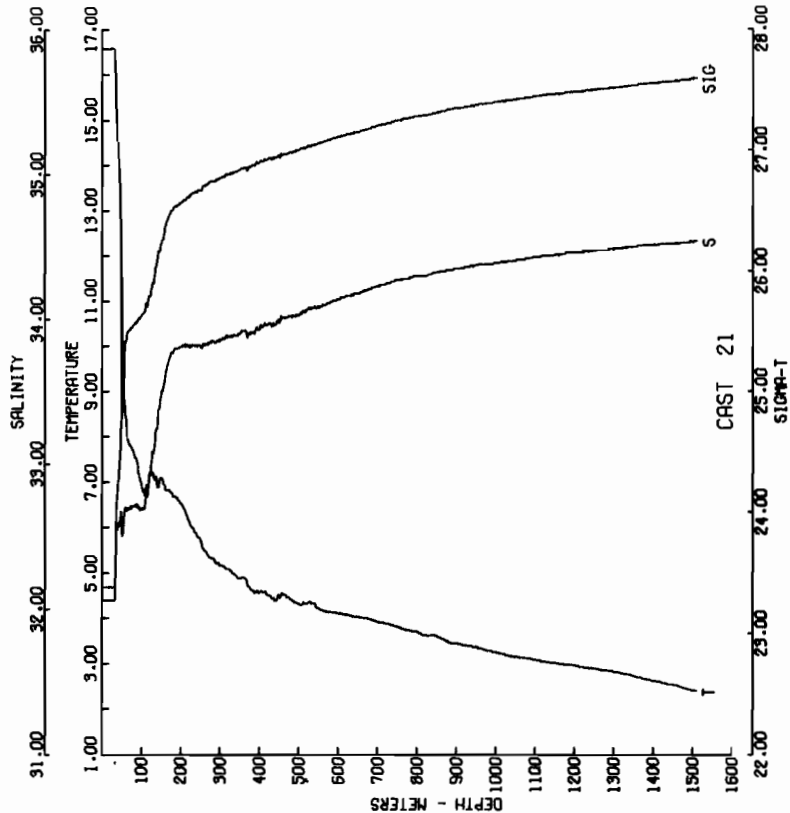
CAST 19042-00-019 DATE 18 SEP 72 TIME 0705 GMT
 LAT 46 47.5N LONG 130 31.4W WEATHER 1 SEA STATE 4
 BAROMETER 14 WIND DIR 20 KT VISIBILITY 8
 CLOUD 0 AMOUNT 1 OPR 1.6 MET 11.3 DEPTH 2775 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | DELTA-SIGMA-T (DYN M) |
|-----------|-----------------|----------------|-----------------------|
| 0 | 16.82 | 32.17 | 24.43 |
| 5 | 16.83 | 32.17 | 24.43 |
| 10 | 16.83 | 32.17 | 24.43 |
| 15 | 16.83 | 32.17 | 24.43 |
| 20 | 16.83 | 32.17 | 24.43 |
| 25 | 16.83 | 32.17 | 24.43 |
| 30 | 16.83 | 32.17 | 24.43 |
| 35 | 16.83 | 32.17 | 24.43 |
| 40 | 16.83 | 32.17 | 24.43 |
| 45 | 16.83 | 32.17 | 24.43 |
| 50 | 16.83 | 32.17 | 24.43 |
| 55 | 16.83 | 32.17 | 24.43 |
| 60 | 16.83 | 32.17 | 24.43 |
| 65 | 16.83 | 32.17 | 24.43 |
| 70 | 16.83 | 32.17 | 24.43 |
| 75 | 16.83 | 32.17 | 24.43 |
| 80 | 16.83 | 32.17 | 24.43 |
| 85 | 16.83 | 32.17 | 24.43 |
| 90 | 16.83 | 32.17 | 24.43 |
| 95 | 16.83 | 32.17 | 24.43 |
| 100 | 16.83 | 32.17 | 24.43 |
| 105 | 16.83 | 32.17 | 24.43 |
| 110 | 16.83 | 32.17 | 24.43 |
| 115 | 16.83 | 32.17 | 24.43 |
| 120 | 16.83 | 32.17 | 24.43 |
| 125 | 16.83 | 32.17 | 24.43 |
| 130 | 16.83 | 32.17 | 24.43 |
| 135 | 16.83 | 32.17 | 24.43 |
| 140 | 16.83 | 32.17 | 24.43 |
| 145 | 16.83 | 32.17 | 24.43 |
| 150 | 16.83 | 32.17 | 24.43 |
| 155 | 16.83 | 32.17 | 24.43 |
| 160 | 16.83 | 32.17 | 24.43 |



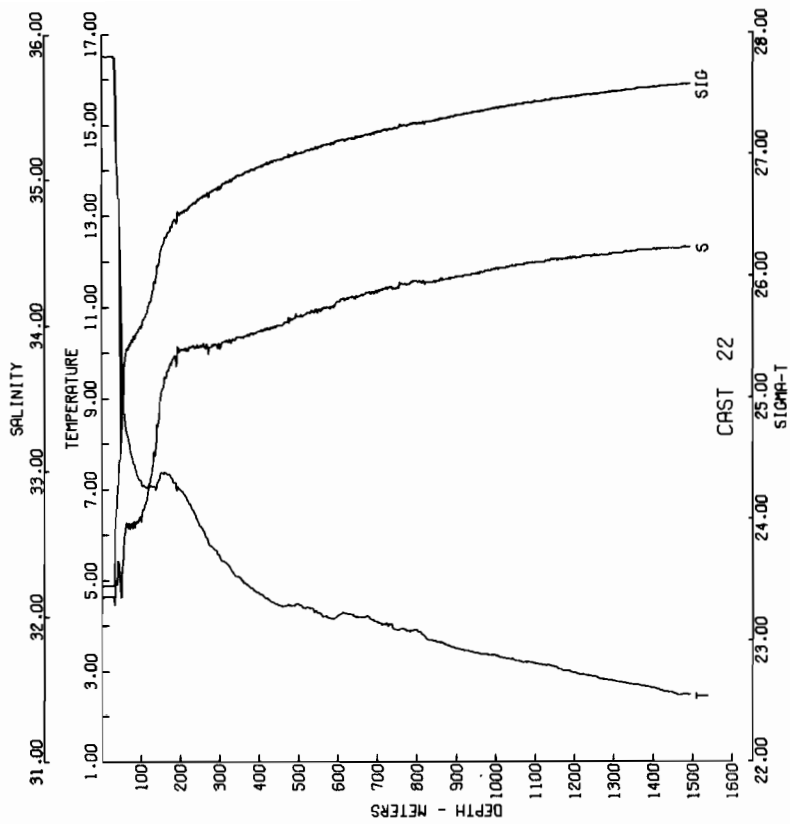
CAST 20042-00-020 DATE 18 SEP 72 TIME 1009 GMT
 LAT 46 51.1N LONG 130 17.3W WEATHER 1 SEA STATE 4
 BAROMETER 12 WIND DIR 27 KT VISIBILITY 6
 CLOUD 9 AMOUNT 5 OPR 15.3 MET 11.9 DEPTH 2745 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | DELTA-SIGMA-T (DYN M) |
|-----------|-----------------|----------------|-----------------------|
| 0 | 16.69 | 32.07 | 24.39 |
| 5 | 16.70 | 32.07 | 24.39 |
| 10 | 16.70 | 32.07 | 24.39 |
| 15 | 16.70 | 32.07 | 24.39 |
| 20 | 16.70 | 32.07 | 24.39 |
| 25 | 16.70 | 32.07 | 24.39 |
| 30 | 16.70 | 32.07 | 24.39 |
| 35 | 16.70 | 32.07 | 24.39 |
| 40 | 16.70 | 32.07 | 24.39 |
| 45 | 16.70 | 32.07 | 24.39 |
| 50 | 16.70 | 32.07 | 24.39 |
| 55 | 16.70 | 32.07 | 24.39 |
| 60 | 16.70 | 32.07 | 24.39 |
| 65 | 16.70 | 32.07 | 24.39 |
| 70 | 16.70 | 32.07 | 24.39 |
| 75 | 16.70 | 32.07 | 24.39 |
| 80 | 16.70 | 32.07 | 24.39 |
| 85 | 16.70 | 32.07 | 24.39 |
| 90 | 16.70 | 32.07 | 24.39 |
| 95 | 16.70 | 32.07 | 24.39 |
| 100 | 16.70 | 32.07 | 24.39 |
| 105 | 16.70 | 32.07 | 24.39 |
| 110 | 16.70 | 32.07 | 24.39 |
| 115 | 16.70 | 32.07 | 24.39 |
| 120 | 16.70 | 32.07 | 24.39 |
| 125 | 16.70 | 32.07 | 24.39 |
| 130 | 16.70 | 32.07 | 24.39 |
| 135 | 16.70 | 32.07 | 24.39 |
| 140 | 16.70 | 32.07 | 24.39 |
| 145 | 16.70 | 32.07 | 24.39 |
| 150 | 16.70 | 32.07 | 24.39 |
| 155 | 16.70 | 32.07 | 24.39 |
| 160 | 16.70 | 32.07 | 24.39 |



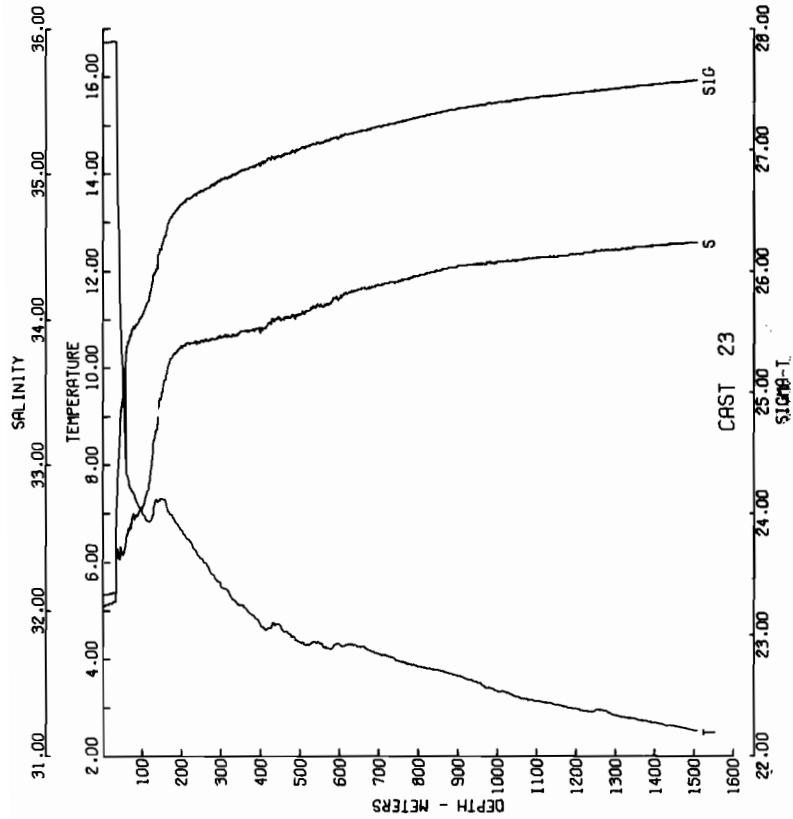
CAST 20R2-OC-022 DATE 18 SEP 72 TIME 13:17 GMT
 LAT 46.58-N LONG 128.47-W WEATHER 1 SEA STATE 3
 BAROMETER 30 WIND DIR 20 KT VISIBILITY 1
 CLOUD X AMOUNT 9 DRY 13.0 MET DEPTH 2780 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DYN M) | DELTA-D (DYN M) |
|-----------|-----------------|----------------|-----------------|-----------------|
| 0 | 16.59 | 32.06 | 22.98 | 0.000 |
| 1 | 16.58 | 32.06 | 22.98 | 0.000 |
| 2 | 16.57 | 32.06 | 22.98 | 0.000 |
| 3 | 16.56 | 32.06 | 22.98 | 0.000 |
| 4 | 16.55 | 32.06 | 22.98 | 0.000 |
| 5 | 16.54 | 32.06 | 22.98 | 0.000 |
| 6 | 16.53 | 32.06 | 22.98 | 0.000 |
| 7 | 16.52 | 32.06 | 22.98 | 0.000 |
| 8 | 16.51 | 32.06 | 22.98 | 0.000 |
| 9 | 16.50 | 32.06 | 22.98 | 0.000 |
| 10 | 16.49 | 32.06 | 22.98 | 0.000 |
| 11 | 16.48 | 32.06 | 22.98 | 0.000 |
| 12 | 16.47 | 32.06 | 22.98 | 0.000 |
| 13 | 16.46 | 32.06 | 22.98 | 0.000 |
| 14 | 16.45 | 32.06 | 22.98 | 0.000 |
| 15 | 16.44 | 32.06 | 22.98 | 0.000 |
| 16 | 16.43 | 32.06 | 22.98 | 0.000 |
| 17 | 16.42 | 32.06 | 22.98 | 0.000 |
| 18 | 16.41 | 32.06 | 22.98 | 0.000 |
| 19 | 16.40 | 32.06 | 22.98 | 0.000 |
| 20 | 16.39 | 32.06 | 22.98 | 0.000 |
| 21 | 16.38 | 32.06 | 22.98 | 0.000 |
| 22 | 16.37 | 32.06 | 22.98 | 0.000 |
| 23 | 16.36 | 32.06 | 22.98 | 0.000 |
| 24 | 16.35 | 32.06 | 22.98 | 0.000 |
| 25 | 16.34 | 32.06 | 22.98 | 0.000 |
| 26 | 16.33 | 32.06 | 22.98 | 0.000 |
| 27 | 16.32 | 32.06 | 22.98 | 0.000 |
| 28 | 16.31 | 32.06 | 22.98 | 0.000 |
| 29 | 16.30 | 32.06 | 22.98 | 0.000 |
| 30 | 16.29 | 32.06 | 22.98 | 0.000 |
| 31 | 16.28 | 32.06 | 22.98 | 0.000 |
| 32 | 16.27 | 32.06 | 22.98 | 0.000 |
| 33 | 16.26 | 32.06 | 22.98 | 0.000 |
| 34 | 16.25 | 32.06 | 22.98 | 0.000 |
| 35 | 16.24 | 32.06 | 22.98 | 0.000 |
| 36 | 16.23 | 32.06 | 22.98 | 0.000 |
| 37 | 16.22 | 32.06 | 22.98 | 0.000 |
| 38 | 16.21 | 32.06 | 22.98 | 0.000 |
| 39 | 16.20 | 32.06 | 22.98 | 0.000 |
| 40 | 16.19 | 32.06 | 22.98 | 0.000 |
| 41 | 16.18 | 32.06 | 22.98 | 0.000 |
| 42 | 16.17 | 32.06 | 22.98 | 0.000 |
| 43 | 16.16 | 32.06 | 22.98 | 0.000 |
| 44 | 16.15 | 32.06 | 22.98 | 0.000 |
| 45 | 16.14 | 32.06 | 22.98 | 0.000 |
| 46 | 16.13 | 32.06 | 22.98 | 0.000 |
| 47 | 16.12 | 32.06 | 22.98 | 0.000 |
| 48 | 16.11 | 32.06 | 22.98 | 0.000 |
| 49 | 16.10 | 32.06 | 22.98 | 0.000 |
| 50 | 16.09 | 32.06 | 22.98 | 0.000 |
| 51 | 16.08 | 32.06 | 22.98 | 0.000 |
| 52 | 16.07 | 32.06 | 22.98 | 0.000 |
| 53 | 16.06 | 32.06 | 22.98 | 0.000 |
| 54 | 16.05 | 32.06 | 22.98 | 0.000 |
| 55 | 16.04 | 32.06 | 22.98 | 0.000 |
| 56 | 16.03 | 32.06 | 22.98 | 0.000 |
| 57 | 16.02 | 32.06 | 22.98 | 0.000 |
| 58 | 16.01 | 32.06 | 22.98 | 0.000 |
| 59 | 16.00 | 32.06 | 22.98 | 0.000 |
| 60 | 15.99 | 32.06 | 22.98 | 0.000 |
| 61 | 15.98 | 32.06 | 22.98 | 0.000 |
| 62 | 15.97 | 32.06 | 22.98 | 0.000 |
| 63 | 15.96 | 32.06 | 22.98 | 0.000 |
| 64 | 15.95 | 32.06 | 22.98 | 0.000 |
| 65 | 15.94 | 32.06 | 22.98 | 0.000 |
| 66 | 15.93 | 32.06 | 22.98 | 0.000 |
| 67 | 15.92 | 32.06 | 22.98 | 0.000 |
| 68 | 15.91 | 32.06 | 22.98 | 0.000 |
| 69 | 15.90 | 32.06 | 22.98 | 0.000 |
| 70 | 15.89 | 32.06 | 22.98 | 0.000 |
| 71 | 15.88 | 32.06 | 22.98 | 0.000 |
| 72 | 15.87 | 32.06 | 22.98 | 0.000 |
| 73 | 15.86 | 32.06 | 22.98 | 0.000 |
| 74 | 15.85 | 32.06 | 22.98 | 0.000 |
| 75 | 15.84 | 32.06 | 22.98 | 0.000 |
| 76 | 15.83 | 32.06 | 22.98 | 0.000 |
| 77 | 15.82 | 32.06 | 22.98 | 0.000 |
| 78 | 15.81 | 32.06 | 22.98 | 0.000 |
| 79 | 15.80 | 32.06 | 22.98 | 0.000 |
| 80 | 15.79 | 32.06 | 22.98 | 0.000 |
| 81 | 15.78 | 32.06 | 22.98 | 0.000 |
| 82 | 15.77 | 32.06 | 22.98 | 0.000 |
| 83 | 15.76 | 32.06 | 22.98 | 0.000 |
| 84 | 15.75 | 32.06 | 22.98 | 0.000 |
| 85 | 15.74 | 32.06 | 22.98 | 0.000 |
| 86 | 15.73 | 32.06 | 22.98 | 0.000 |
| 87 | 15.72 | 32.06 | 22.98 | 0.000 |
| 88 | 15.71 | 32.06 | 22.98 | 0.000 |
| 89 | 15.70 | 32.06 | 22.98 | 0.000 |
| 90 | 15.69 | 32.06 | 22.98 | 0.000 |
| 91 | 15.68 | 32.06 | 22.98 | 0.000 |
| 92 | 15.67 | 32.06 | 22.98 | 0.000 |
| 93 | 15.66 | 32.06 | 22.98 | 0.000 |
| 94 | 15.65 | 32.06 | 22.98 | 0.000 |
| 95 | 15.64 | 32.06 | 22.98 | 0.000 |
| 96 | 15.63 | 32.06 | 22.98 | 0.000 |
| 97 | 15.62 | 32.06 | 22.98 | 0.000 |
| 98 | 15.61 | 32.06 | 22.98 | 0.000 |
| 99 | 15.60 | 32.06 | 22.98 | 0.000 |
| 100 | 15.59 | 32.06 | 22.98 | 0.000 |



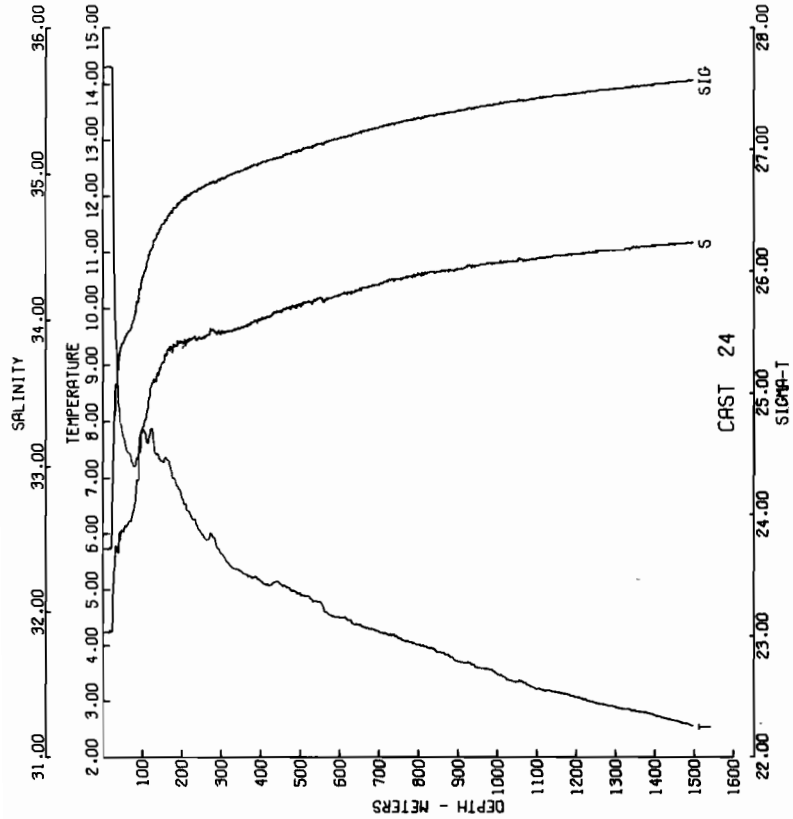
CAST 20R2-OC-022 DATE 18 SEP 72 TIME 17:22 GMT
 LAT 46.58-N LONG 128.47-W WEATHER 1 SEA STATE 3
 BAROMETER 30 WIND DIR 13 KT VISIBILITY 6
 CLOUD X AMOUNT 4 DRY 15.0 MET DEPTH 2745 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DYN M) | DELTA-D (DYN M) |
|-----------|-----------------|----------------|-----------------|-----------------|
| 0 | 16.51 | 32.11 | 22.99 | 0.000 |
| 1 | 16.51 | 32.11 | 22.99 | 0.000 |
| 2 | 16.51 | 32.11 | 22.99 | 0.000 |
| 3 | 16.51 | 32.11 | 22.99 | 0.000 |
| 4 | 16.51 | 32.11 | 22.99 | 0.000 |
| 5 | 16.51 | 32.11 | 22.99 | 0.000 |
| 6 | 16.51 | 32.11 | 22.99 | 0.000 |
| 7 | 16.51 | 32.11 | 22.99 | 0.000 |
| 8 | 16.51 | 32.11 | 22.99 | 0.000 |
| 9 | 16.51 | 32.11 | 22.99 | 0.000 |
| 10 | 16.51 | 32.11 | 22.99 | 0.000 |
| 11 | 16.51 | 32.11 | 22.99 | 0.000 |
| 12 | 16.51 | 32.11 | 22.99 | 0.000 |
| 13 | 16.51 | 32.11 | 22.99 | 0.000 |
| 14 | 16.51 | 32.11 | 22.99 | 0.000 |
| 15 | 16.51 | 32.11 | 22.99 | 0.000 |
| 16 | 16.51 | 32.11 | 22.99 | 0.000 |
| 17 | 16.51 | 32.11 | 22.99 | 0.000 |
| 18 | 16.51 | 32.11 | 22.99 | 0.000 |
| 19 | 16.51 | 32.11 | 22.99 | 0.000 |
| 20 | 16.51 | 32.11 | 22.99 | 0.000 |
| 21 | 16.51 | 32.11 | 22.99 | 0.000 |
| 22 | 16.51 | 32.11 | 22.99 | 0.000 |
| 23 | 16.51 | 32.11 | 22.99 | 0.000 |
| 24 | 16.51 | 32.11 | 22.99 | 0.000 |
| 25 | 16.51 | 32.11 | 22.99 | 0.000 |
| 26 | 16.51 | 32.11 | 22.99 | 0.000 |
| 27 | 16.51 | 32.11 | 22.99 | 0.000 |
| 28 | 16.51 | 32.11 | 22.99 | 0.000 |
| 29 | 16.51 | 32.11 | 22.99 | 0.000 |
| 30 | 16.51 | 32.11 | 22.99 | 0.000 |
| 31 | 16.51 | 32.11 | 22.99 | 0.000 |
| 32 | 16.51 | 32.11 | 22.99 | 0.000 |
| 33 | 16.51 | 32.11 | 22.99 | 0.000 |
| 34 | 16.51 | 32.11 | 22.99 | 0.000 |
| 35 | 16.51 | 32.11 | 22.99 | 0.000 |
| 36 | 16.51 | 32.11 | 22.99 | 0.000 |
| 37 | 16.51 | 32.11 | 22.99 | 0.000 |
| 38 | 16.51 | 32.11 | 22.99 | 0.000 |
| 39 | 16.51 | 32.11 | 22.99 | 0.000 |
| 40 | 16.51 | 32.11 | 22.99 | 0.000 |
| 41 | 16.51 | 32.11 | 22.99 | 0.000 |
| 42 | 16.51 | 32.11 | 22.99 | 0.000 |
| 43 | 16.51 | 32.11 | 22.99 | 0.000 |
| 44 | 16.51 | 32.11 | 22.99 | 0.000 |
| 45 | 16.51 | 32.11 | 22.99 | 0.000 |
| 46 | 16.51 | 32.11 | 22.99 | 0.000 |
| 47 | 16.51 | 32.11 | 22.99 | 0.000 |
| 48 | 16.51 | 32.11 | 22.99 | 0.000 |
| 49 | 16.51 | 32.11 | 22.99 | 0.000 |
| 50 | 16.51 | 32.11 | 22.99 | 0.000 |
| 51 | 16.51 | 32.11 | 22.99 | 0.000 |
| 52 | 16.51 | 32.11 | 22.99 | 0.000 |
| 53 | 16.51 | 32.11 | 22.99 | 0.000 |
| 54 | 16.51 | 32.11 | 22.99 | 0.000 |
| 55 | 16.51 | 32.11 | 22.99 | 0.000 |
| 56 | 16.51 | 32.11 | 22.99 | 0.000 |
| 57 | 16.51 | 32.11 | 22.99 | 0.000 |
| 58 | 16.51 | 32.11 | 22.99 | 0.000 |
| 59 | 16.51 | 32.11 | 22.99 | 0.000 |
| 60 | 16.51 | 32.11 | 22.99 | 0.000 |
| 61 | 16.51 | 32.11 | 22.99 | 0.000 |
| 62 | 16.51 | 32.11 | 22.99 | 0.000 |
| 63 | 16.51 | 32.11 | 22.99 | 0.000 |
| 64 | 16.51 | 32.11 | 22.99 | 0.000 |
| 65 | 16.51 | 32.11 | 22.99 | 0.000 |
| 66 | 16.51 | 32.11 | 22.99 | 0.000 |
| 67 | 16.51 | 32.11 | 22.99 | 0.000 |
| 68 | 16.51 | 32.11 | 22.99 | 0.000 |
| 69 | 16.51 | 32.11 | 22.99 | 0.000 |
| 70 | 16.51 | 32.11 | 22.99 | 0.000 |
| 71 | 16.51 | 32.11 | 22.99 | 0.000 |
| 72 | 16.51 | 32.11 | 22.99 | 0.000 |
| 73 | 16.51 | 32.11 | 22.99 | 0.000 |
| 74 | 16.51 | 32.11 | 22.99 | 0.000 |
| 75 | 16.51 | 32.11 | 22.99 | 0.000 |
| 76 | 16.51 | 32.11 | 22.99 | 0.000 |
| 77 | 16.51 | 32.11 | 22.99 | 0.000 |
| 78 | 16.51 | 32.11 | 22.99 | 0.000 |
| 79 | 16.51 | 32.11 | 22.99 | 0.000 |
| 80 | 16.51 | 32.11 | 22.99 | 0.000 |
| 81 | 16.51 | 32.11 | 22.99 | 0.000 |
| 82 | 16.51 | 32.11 | 22.99 | 0.000 |
| 83 | 16.51 | 32.11 | 22.99 | 0.000 |
| 84 | 16.51 | 32.11 | 22.99 | 0.000 |
| 85 | 16.51 | 32.11 | 22.99 | 0.000 |
| 86 | 16.51 | 32.11 | 22.99 | 0.000 |
| 87 | 16.51 | 32.11 | 22.99 | 0.000 |
| 88 | 16.51 | 32.11 | 22.99 | 0.000 |
| 89 | 16.51 | 32.11 | 22.99 | 0.000 |
| 90 | 16.51 | 32.11 | 22.99 | 0.000 |
| 91 | 16.51 | 32.11 | 22.99 | 0.000 |
| 92 | 16.51 | 32.11 | 22.99 | 0.000 |
| 93 | 16.51 | 32.11 | 22.99 | 0.000 |
| 94 | 16.51 | 32.11 | 22.99 | 0.000 |
| 95 | 16.51 | 32.11 | 22.99 | 0.000 |
| 96 | 16.51 | 32.11 | 22.99 | 0.000 |
| 97 | 16.51 | 32.11 | 22.99 | 0.000 |
| 98 | 16.51 | 32.11 | 22.99 | 0.000 |
| 99 | 16.51 | 32.11 | 22.99 | 0.000 |
| 100 | 16.51 | 32.11 | 22.99 | 0.000 |



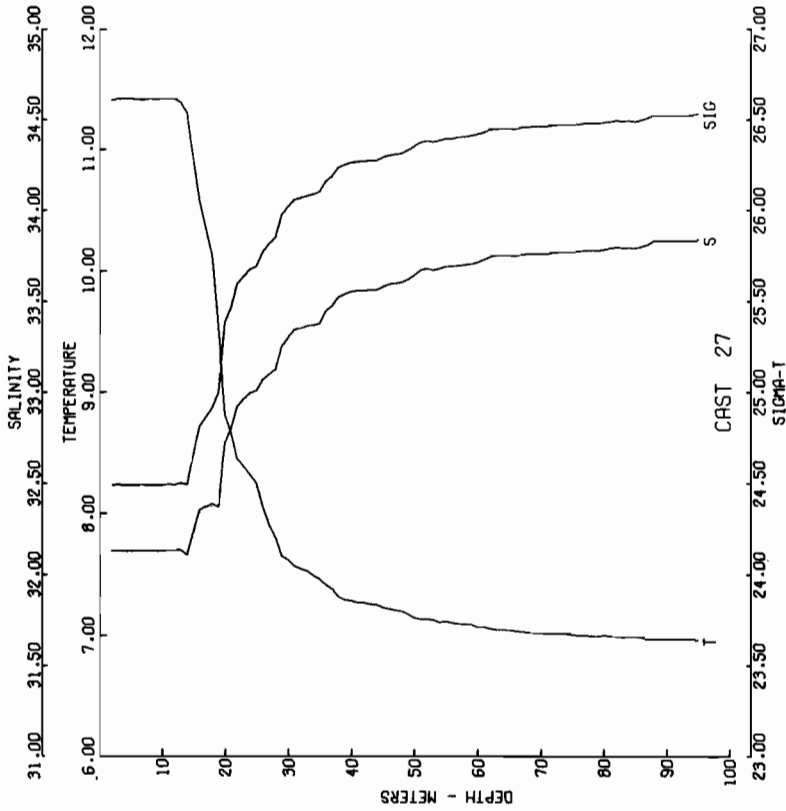
CAST 23042-00-223 DATE 18 SEP 72 TIME 2246 GMT
 CAB MET 25 N LONG 122 36.9 W WEATHER 1 SEA STATE 2
 BAROMETER 1015.0 WIND 15.7 MET 11.5 DEPT 21.2 H
 CLOUD 6 AMOUNT 4 DRY 12.5 DEPT 27.2 H

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DTN H) | DELTA-D |
|-----------|-----------------|----------------|-----------------|---------|
| 0 | 16.7 | 33.3 | 23.3 | 0.000 |
| 1 | 16.7 | 33.3 | 23.3 | 0.2 |
| 2 | 16.7 | 33.3 | 23.3 | 0.4 |
| 3 | 16.7 | 33.3 | 23.3 | 0.6 |
| 4 | 16.7 | 33.3 | 23.3 | 0.8 |
| 5 | 16.7 | 33.3 | 23.3 | 1.0 |
| 6 | 16.7 | 33.3 | 23.3 | 1.2 |
| 7 | 16.7 | 33.3 | 23.3 | 1.4 |
| 8 | 16.7 | 33.3 | 23.3 | 1.6 |
| 9 | 16.7 | 33.3 | 23.3 | 1.8 |
| 10 | 16.7 | 33.3 | 23.3 | 2.0 |
| 11 | 16.7 | 33.3 | 23.3 | 2.2 |
| 12 | 16.7 | 33.3 | 23.3 | 2.4 |
| 13 | 16.7 | 33.3 | 23.3 | 2.6 |
| 14 | 16.7 | 33.3 | 23.3 | 2.8 |
| 15 | 16.7 | 33.3 | 23.3 | 3.0 |
| 16 | 16.7 | 33.3 | 23.3 | 3.2 |
| 17 | 16.7 | 33.3 | 23.3 | 3.4 |
| 18 | 16.7 | 33.3 | 23.3 | 3.6 |
| 19 | 16.7 | 33.3 | 23.3 | 3.8 |
| 20 | 16.7 | 33.3 | 23.3 | 4.0 |
| 21 | 16.7 | 33.3 | 23.3 | 4.2 |
| 22 | 16.7 | 33.3 | 23.3 | 4.4 |
| 23 | 16.7 | 33.3 | 23.3 | 4.6 |
| 24 | 16.7 | 33.3 | 23.3 | 4.8 |
| 25 | 16.7 | 33.3 | 23.3 | 5.0 |
| 26 | 16.7 | 33.3 | 23.3 | 5.2 |
| 27 | 16.7 | 33.3 | 23.3 | 5.4 |
| 28 | 16.7 | 33.3 | 23.3 | 5.6 |
| 29 | 16.7 | 33.3 | 23.3 | 5.8 |
| 30 | 16.7 | 33.3 | 23.3 | 6.0 |
| 31 | 16.7 | 33.3 | 23.3 | 6.2 |
| 32 | 16.7 | 33.3 | 23.3 | 6.4 |
| 33 | 16.7 | 33.3 | 23.3 | 6.6 |
| 34 | 16.7 | 33.3 | 23.3 | 6.8 |
| 35 | 16.7 | 33.3 | 23.3 | 7.0 |
| 36 | 16.7 | 33.3 | 23.3 | 7.2 |
| 37 | 16.7 | 33.3 | 23.3 | 7.4 |
| 38 | 16.7 | 33.3 | 23.3 | 7.6 |
| 39 | 16.7 | 33.3 | 23.3 | 7.8 |
| 40 | 16.7 | 33.3 | 23.3 | 8.0 |
| 41 | 16.7 | 33.3 | 23.3 | 8.2 |
| 42 | 16.7 | 33.3 | 23.3 | 8.4 |
| 43 | 16.7 | 33.3 | 23.3 | 8.6 |
| 44 | 16.7 | 33.3 | 23.3 | 8.8 |
| 45 | 16.7 | 33.3 | 23.3 | 9.0 |
| 46 | 16.7 | 33.3 | 23.3 | 9.2 |
| 47 | 16.7 | 33.3 | 23.3 | 9.4 |
| 48 | 16.7 | 33.3 | 23.3 | 9.6 |
| 49 | 16.7 | 33.3 | 23.3 | 9.8 |
| 50 | 16.7 | 33.3 | 23.3 | 10.0 |
| 51 | 16.7 | 33.3 | 23.3 | 10.2 |
| 52 | 16.7 | 33.3 | 23.3 | 10.4 |
| 53 | 16.7 | 33.3 | 23.3 | 10.6 |
| 54 | 16.7 | 33.3 | 23.3 | 10.8 |
| 55 | 16.7 | 33.3 | 23.3 | 11.0 |
| 56 | 16.7 | 33.3 | 23.3 | 11.2 |
| 57 | 16.7 | 33.3 | 23.3 | 11.4 |
| 58 | 16.7 | 33.3 | 23.3 | 11.6 |
| 59 | 16.7 | 33.3 | 23.3 | 11.8 |
| 60 | 16.7 | 33.3 | 23.3 | 12.0 |
| 61 | 16.7 | 33.3 | 23.3 | 12.2 |
| 62 | 16.7 | 33.3 | 23.3 | 12.4 |
| 63 | 16.7 | 33.3 | 23.3 | 12.6 |
| 64 | 16.7 | 33.3 | 23.3 | 12.8 |
| 65 | 16.7 | 33.3 | 23.3 | 13.0 |
| 66 | 16.7 | 33.3 | 23.3 | 13.2 |
| 67 | 16.7 | 33.3 | 23.3 | 13.4 |
| 68 | 16.7 | 33.3 | 23.3 | 13.6 |
| 69 | 16.7 | 33.3 | 23.3 | 13.8 |
| 70 | 16.7 | 33.3 | 23.3 | 14.0 |
| 71 | 16.7 | 33.3 | 23.3 | 14.2 |
| 72 | 16.7 | 33.3 | 23.3 | 14.4 |
| 73 | 16.7 | 33.3 | 23.3 | 14.6 |
| 74 | 16.7 | 33.3 | 23.3 | 14.8 |
| 75 | 16.7 | 33.3 | 23.3 | 15.0 |
| 76 | 16.7 | 33.3 | 23.3 | 15.2 |
| 77 | 16.7 | 33.3 | 23.3 | 15.4 |
| 78 | 16.7 | 33.3 | 23.3 | 15.6 |
| 79 | 16.7 | 33.3 | 23.3 | 15.8 |
| 80 | 16.7 | 33.3 | 23.3 | 16.0 |
| 81 | 16.7 | 33.3 | 23.3 | 16.2 |
| 82 | 16.7 | 33.3 | 23.3 | 16.4 |
| 83 | 16.7 | 33.3 | 23.3 | 16.6 |
| 84 | 16.7 | 33.3 | 23.3 | 16.8 |
| 85 | 16.7 | 33.3 | 23.3 | 17.0 |
| 86 | 16.7 | 33.3 | 23.3 | 17.2 |
| 87 | 16.7 | 33.3 | 23.3 | 17.4 |
| 88 | 16.7 | 33.3 | 23.3 | 17.6 |
| 89 | 16.7 | 33.3 | 23.3 | 17.8 |
| 90 | 16.7 | 33.3 | 23.3 | 18.0 |
| 91 | 16.7 | 33.3 | 23.3 | 18.2 |
| 92 | 16.7 | 33.3 | 23.3 | 18.4 |
| 93 | 16.7 | 33.3 | 23.3 | 18.6 |
| 94 | 16.7 | 33.3 | 23.3 | 18.8 |
| 95 | 16.7 | 33.3 | 23.3 | 19.0 |
| 96 | 16.7 | 33.3 | 23.3 | 19.2 |
| 97 | 16.7 | 33.3 | 23.3 | 19.4 |
| 98 | 16.7 | 33.3 | 23.3 | 19.6 |
| 99 | 16.7 | 33.3 | 23.3 | 19.8 |
| 100 | 16.7 | 33.3 | 23.3 | 20.0 |



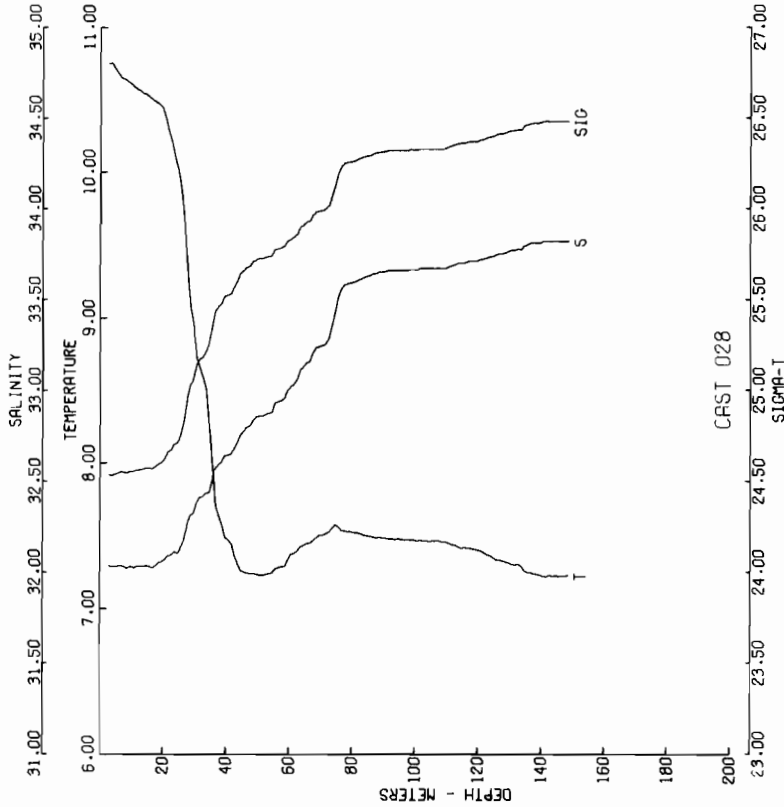
CAST 24042-00-244 DATE 19 SEP 72 TIME 0211 GMT
 CAB MET 25 N LONG 122 37.4 W WEATHER 1 SEA STATE 2
 BAROMETER 1015.0 WIND 15.7 MET 11.5 DEPT 21.2 H
 CLOUD 9 AMOUNT 4 DRY 12.8 DEPT 27.2 H

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DTN H) | DELTA-D |
|-----------|-----------------|----------------|-----------------|---------|
| 0 | 14.3 | 33.3 | 23.3 | 0.000 |
| 1 | 14.3 | 33.3 | 23.3 | 0.2 |
| 2 | 14.3 | 33.3 | 23.3 | 0.4 |
| 3 | 14.3 | 33.3 | 23.3 | 0.6 |
| 4 | 14.3 | 33.3 | 23.3 | 0.8 |
| 5 | 14.3 | 33.3 | 23.3 | 1.0 |
| 6 | 14.3 | 33.3 | 23.3 | 1.2 |
| 7 | 14.3 | 33.3 | 23.3 | 1.4 |
| 8 | 14.3 | 33.3 | 23.3 | 1.6 |
| 9 | 14.3 | 33.3 | 23.3 | 1.8 |
| 10 | 14.3 | 33.3 | 23.3 | 2.0 |
| 11 | 14.3 | 33.3 | 23.3 | 2.2 |
| 12 | 14.3 | 33.3 | 23.3 | 2.4 |
| 13 | 14.3 | 33.3 | 23.3 | 2.6 |
| 14 | 14.3 | 33.3 | 23.3 | 2.8 |
| 15 | 14.3 | 33.3 | 23.3 | 3.0 |
| 16 | 14.3 | 33.3 | 23.3 | 3.2 |
| 17 | 14.3 | 33.3 | 23.3 | 3.4 |
| 18 | 14.3 | 33.3 | 23.3 | 3.6 |
| 19 | 14.3 | 33.3 | 23.3 | 3.8 |
| 20 | 14.3 | 33.3 | 23.3 | 4.0 |
| 21 | 14.3 | 33.3 | 23.3 | 4.2 |
| 22 | 14.3 | 33.3 | 23.3 | 4.4 |
| 23 | 14.3 | 33.3 | 23.3 | 4.6 |
| 24 | 14.3 | 33.3 | 23.3 | 4.8 |
| 25 | 14.3 | 33.3 | 23.3 | 5.0 |
| 26 | 14.3 | 33.3 | 23.3 | 5.2 |
| 27 | 14.3 | 33.3 | 23.3 | 5.4 |
| 28 | 14.3 | 33.3 | 23.3 | 5.6 |
| 29 | 14.3 | 33.3 | 23.3 | 5.8 |
| 30 | 14.3 | 33.3 | 23.3 | 6.0 |
| 31 | 14.3 | 33.3 | 23.3 | 6.2 |
| 32 | 14.3 | 33.3 | 23.3 | 6.4 |
| 33 | 14.3 | 33.3 | 23.3 | 6.6 |
| 34 | 14.3 | 33.3 | 23.3 | 6.8 |
| 35 | 14.3 | 33.3 | 23.3 | 7.0 |
| 36 | 14.3 | 33.3 | 23.3 | 7.2 |
| 37 | 14.3 | 33.3 | 23.3 | 7.4 |
| 38 | 14.3 | 33.3 | 23.3 | 7.6 |
| 39 | 14.3 | 33.3 | 23.3 | 7.8 |
| 40 | 14.3 | 33.3 | 23.3 | 8.0 |
| 41 | 14.3 | 33.3 | 23.3 | 8.2 |
| 42 | 14.3 | 33.3 | 23.3 | 8.4 |
| 43 | 14.3 | 33.3 | 23.3 | 8.6 |
| 44 | 14.3 | 33.3 | 23.3 | 8.8 |
| 45 | 14.3 | 33.3 | 23.3 | 9.0 |
| 46 | 14.3 | 33.3 | 23.3 | 9.2 |
| 47 | 14.3 | 33.3 | 23.3 | 9.4 |
| 48 | 14.3 | 33.3 | 23.3 | 9.6 |
| 49 | 14.3 | 33.3 | 23.3 | 9.8 |
| 50 | 14.3 | 33.3 | 23.3 | 10.0 |
| 51 | 14.3 | 33.3 | 23.3 | 10.2 |
| 52 | 14.3 | 33.3 | 23.3 | 10.4 |
| 53 | 14.3 | 33.3 | 23.3 | 10.6 |
| 54 | 14.3 | 33.3 | 23.3 | 10.8 |
| 55 | 14.3 | 33.3 | 23.3 | 11.0 |
| 56 | 14.3 | 33.3 | 23.3 | 11.2 |
| 57 | 14.3 | 33.3 | 23.3 | 11.4 |
| 58 | 14.3 | 33.3 | 23.3 | 11.6 |
| 59 | 14.3 | 33.3 | 23.3 | 11.8 |
| 60 | 14.3 | 33.3 | 23.3 | 12.0 |
| 61 | 14.3 | 33.3 | 23.3 | 12.2 |
| 62 | 14.3 | 33.3 | 23.3 | 12.4 |
| 63 | 14.3 | 33.3 | 23.3 | 12.6 |
| 64 | 14.3 | 33.3 | 23.3 | 12.8 |
| 65 | 14.3 | 33.3 | 23.3 | 13.0 |
| 66 | 14.3 | 33.3 | 23.3 | 13.2 |
| 67 | 14.3 | 33.3 | 23.3 | 13.4 |
| 68 | 14.3 | 33.3 | 23.3 | 13.6 |
| 69 | 14.3 | 33.3 | 23.3 | 13.8 |
| 70 | 14.3 | 33.3 | 23.3 | 14.0 |
| 71 | 14.3 | 33.3 | 23.3 | 14.2 |
| 72 | 14.3 | 33.3 | 23.3 | 14.4 |
| 73 | 14.3 | 33.3 | 23.3 | 14.6 |
| 74 | 14.3 | 33.3 | 23.3 | 14.8 |
| 75 | 14.3 | 33.3 | 23.3 | 15.0 |
| 76 | 14.3 | 33.3 | 23.3 | 15.2 |
| 77 | 14.3 | 33.3 | 23.3 | 15.4 |
| 78 | 14.3 | 33.3 | 23.3 | 15.6 |
| 79 | 14.3 | 33.3 | 23.3 | 15.8 |
| 80 | 14.3 | 33.3 | 23.3 | 16.0 |
| 81 | 14.3 | 33.3 | 23.3 | 16.2 |
| 82 | 14.3 | 33.3 | 23.3 | 16.4 |
| 83 | 14.3 | 33.3 | 23.3 | 16.6 |
| 84 | 14.3 | 33.3 | 23.3 | 16.8 |
| 85 | 14.3 | 33.3 | 23.3 | 17.0 |
| 86 | 14.3 | 33.3 | 23.3 | 17.2 |
| 87 | 14.3 | 33.3 | 23.3 | 17.4 |
| 88 | 14.3 | 33.3 | 23.3 | 17.6 |
| 89 | 14.3 | 33.3 | 23.3 | 17.8 |
| 90 | 14.3 | 33.3 | 23.3 | 18.0 |
| 91 | 14.3 | 33.3 | 23.3 | 18.2 |
| 92 | 14.3 | 33.3 | 23.3 | 18.4 |
| 93 | 14.3 | 33.3 | 23.3 | 18.6 |
| 94 | 14.3 | 33.3 | 23.3 | 18.8 |
| 95 | 14.3 | 33.3 | 23.3 | 19.0 |
| 96 | 14.3 | 33.3 | 23.3 | 19.2 |
| 97 | 14.3 | 33.3 | 23.3 | 19.4 |
| 98 | 14.3 | 33.3 | 23.3 | 19.6 |
| 99 | 14.3 | 33.3 | 23.3 | 19.8 |
| 100 | 14.3 | 33.3 | 23.3 | 20.0 |



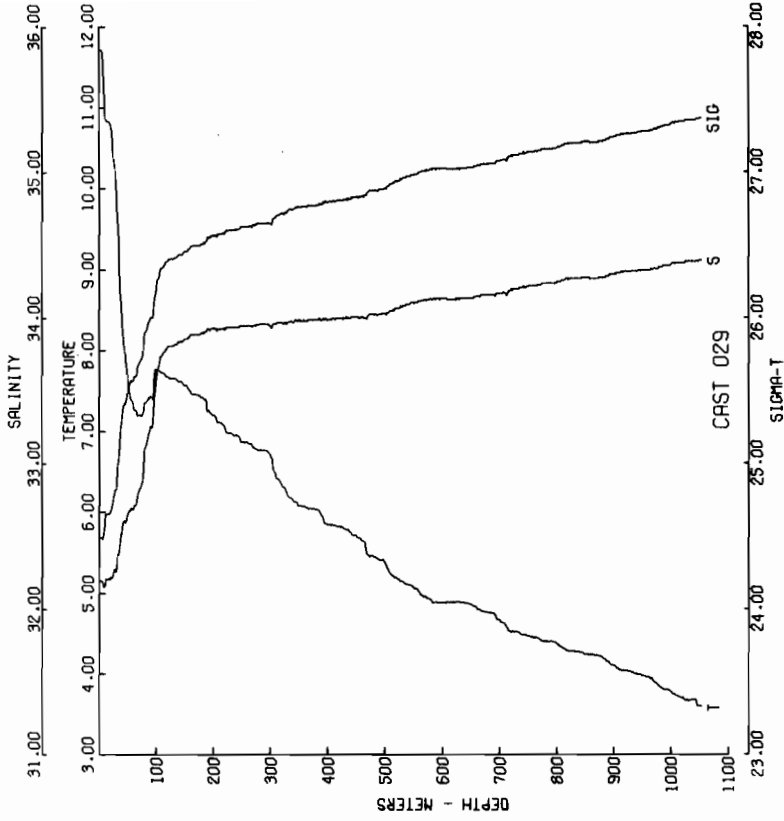
CAST BOARD-00-027 DATE 19 SEP 72 TIME 1225 GMT
 LAT 48 14.4 N LONG 125 15.4 W H-R 1 SEA STATE 2
 BAROMETER 13 WIND DIR 287 SPD 15 KT VISIBILITY 6
 CLOUD X AMOUNT 9 DRY 12.2 MET 10.1 DEPTH 101 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (EYN M) | DELTA-D (EYN M) |
|-----------|-----------------|----------------|-----------------|-----------------|
| 0 | 11.42 | 32.13 | 24.49 | 0.000 |
| 2 | 11.42 | 32.50 | 24.49 | 0.000 |
| 5 | 11.42 | 32.50 | 24.49 | 0.000 |
| 10 | 10.95 | 32.50 | 24.49 | 0.000 |
| 15 | 10.95 | 32.50 | 24.49 | 0.000 |
| 20 | 8.82 | 32.50 | 24.49 | 0.000 |
| 25 | 7.69 | 32.50 | 24.49 | 0.000 |
| 30 | 7.69 | 32.50 | 24.49 | 0.000 |
| 40 | 7.69 | 32.50 | 24.49 | 0.000 |
| 45 | 7.69 | 32.50 | 24.49 | 0.000 |
| 50 | 7.69 | 32.50 | 24.49 | 0.000 |
| 60 | 7.69 | 32.50 | 24.49 | 0.000 |
| 70 | 7.69 | 32.50 | 24.49 | 0.000 |
| 80 | 7.69 | 32.50 | 24.49 | 0.000 |
| 90 | 7.69 | 32.50 | 24.49 | 0.000 |
| 95 | 7.69 | 32.50 | 24.49 | 0.000 |



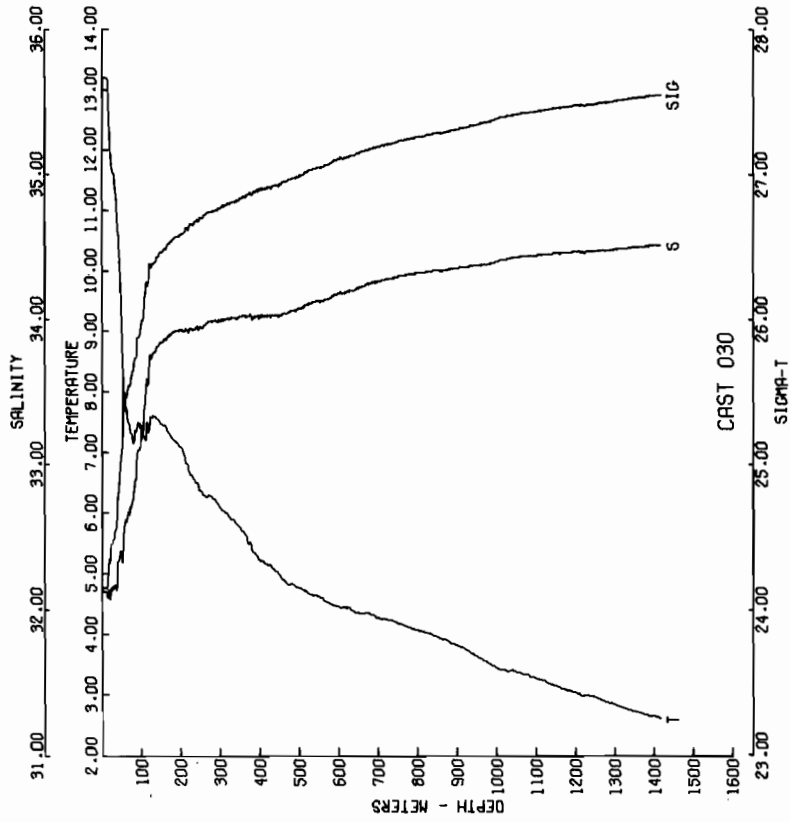
CAST ROAR2-OC-028 DATE 17 OCT 72 TIME 0313 GMT
 LAT 48.000 N LONG 125.517 W WEATHER 4
 BAROMETER 10.0 HGT 10.5 METERS 1
 CLOUD X AMOUNT 9 DRY 10.5 WET 155 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DTN H) | DELTA-D (DTN H) |
|-----------|-----------------|----------------|-----------------|-----------------|
| 0 | 10.95 | 32.52 | 24.52 | 0.000 |
| 1 | 10.95 | 32.52 | 24.52 | 0.17 |
| 2 | 10.95 | 32.52 | 24.52 | 0.34 |
| 3 | 10.95 | 32.52 | 24.52 | 0.51 |
| 4 | 10.95 | 32.52 | 24.52 | 0.68 |
| 5 | 10.95 | 32.52 | 24.52 | 0.84 |
| 6 | 10.95 | 32.52 | 24.52 | 1.00 |
| 7 | 10.95 | 32.52 | 24.52 | 1.17 |
| 8 | 10.95 | 32.52 | 24.52 | 1.34 |
| 9 | 10.95 | 32.52 | 24.52 | 1.50 |
| 10 | 10.95 | 32.52 | 24.52 | 1.67 |
| 11 | 10.95 | 32.52 | 24.52 | 1.84 |
| 12 | 10.95 | 32.52 | 24.52 | 2.00 |
| 13 | 10.95 | 32.52 | 24.52 | 2.17 |
| 14 | 10.95 | 32.52 | 24.52 | 2.34 |
| 15 | 10.95 | 32.52 | 24.52 | 2.50 |
| 16 | 10.95 | 32.52 | 24.52 | 2.67 |
| 17 | 10.95 | 32.52 | 24.52 | 2.84 |
| 18 | 10.95 | 32.52 | 24.52 | 3.00 |
| 19 | 10.95 | 32.52 | 24.52 | 3.17 |
| 20 | 10.95 | 32.52 | 24.52 | 3.34 |



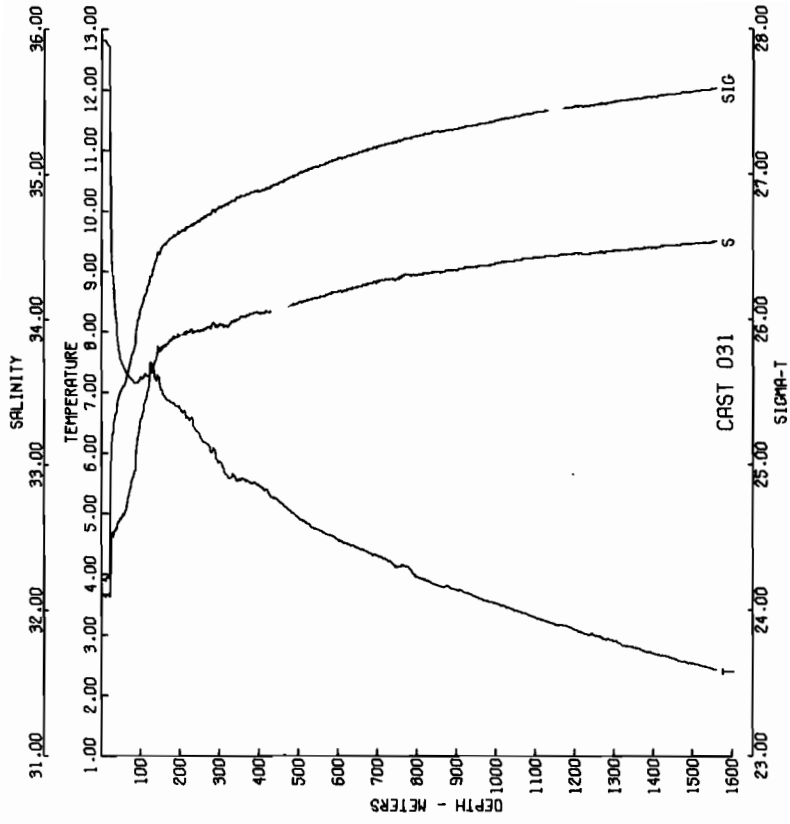
CAST ROAR2-OC-029 DATE 17 OCT 72 TIME 0555 GMT
 LAT 48.000 N LONG 125.517 W WEATHER 4
 BAROMETER 10.0 HGT 10.5 METERS 1
 CLOUD X AMOUNT 9 DRY 10.5 WET 1061 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DTN H) | DELTA-D (DTN H) |
|-----------|-----------------|----------------|-----------------|-----------------|
| 0 | 11.72 | 32.49 | 24.49 | 0.000 |
| 1 | 11.72 | 32.49 | 24.49 | 0.17 |
| 2 | 11.72 | 32.49 | 24.49 | 0.34 |
| 3 | 11.72 | 32.49 | 24.49 | 0.51 |
| 4 | 11.72 | 32.49 | 24.49 | 0.68 |
| 5 | 11.72 | 32.49 | 24.49 | 0.84 |
| 6 | 11.72 | 32.49 | 24.49 | 1.00 |
| 7 | 11.72 | 32.49 | 24.49 | 1.17 |
| 8 | 11.72 | 32.49 | 24.49 | 1.34 |
| 9 | 11.72 | 32.49 | 24.49 | 1.50 |
| 10 | 11.72 | 32.49 | 24.49 | 1.67 |
| 11 | 11.72 | 32.49 | 24.49 | 1.84 |
| 12 | 11.72 | 32.49 | 24.49 | 2.00 |
| 13 | 11.72 | 32.49 | 24.49 | 2.17 |
| 14 | 11.72 | 32.49 | 24.49 | 2.34 |
| 15 | 11.72 | 32.49 | 24.49 | 2.50 |
| 16 | 11.72 | 32.49 | 24.49 | 2.67 |
| 17 | 11.72 | 32.49 | 24.49 | 2.84 |
| 18 | 11.72 | 32.49 | 24.49 | 3.00 |
| 19 | 11.72 | 32.49 | 24.49 | 3.17 |
| 20 | 11.72 | 32.49 | 24.49 | 3.34 |



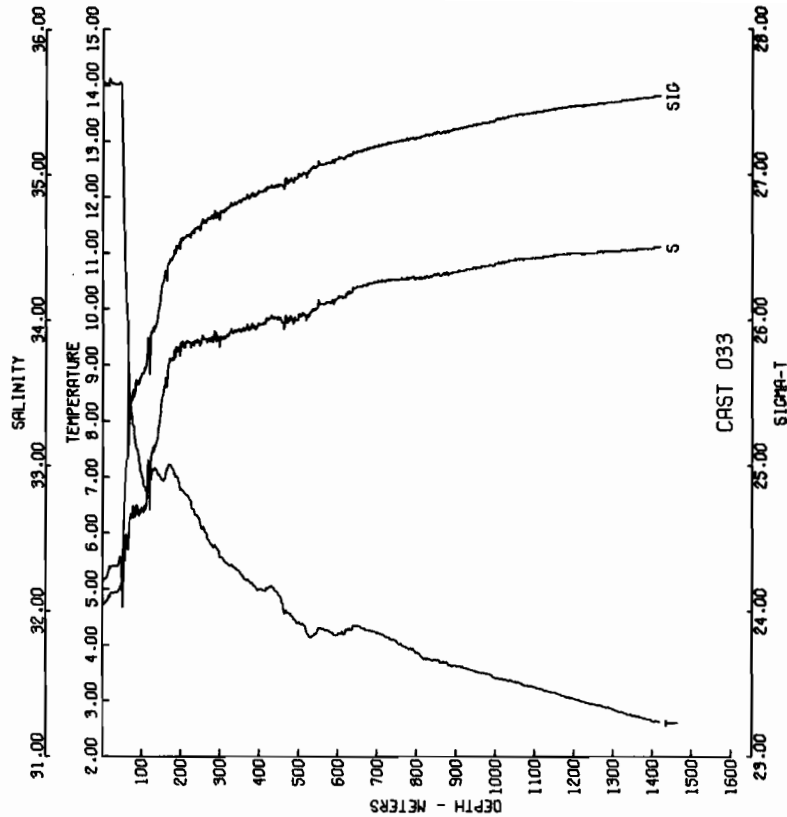
CAST ROAR2-OC-030 DATE 17 OCT 72 TIME 0855 GMT
 LAT 47 06.1N LONG 126 25.2W WEATHER 4 SEA STATE 1
 BAROMETER 19 MINU DIR 355 T SPO 0 KT VISIBILITY 2
 CLOUD X AMOUNT 9 URY 9.9 MET 9.0 DEPTH 2244 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T | DELTA-D (DYN M) |
|-----------|-----------------|----------------|---------|-----------------|
| 0 | 13.20 | 32.12 | 24.1 | 0.000 |
| 5 | 13.20 | 32.12 | 24.1 | 0.000 |
| 10 | 13.20 | 32.12 | 24.1 | 0.000 |
| 15 | 13.19 | 32.14 | 24.1 | 0.019 |
| 20 | 13.19 | 32.14 | 24.1 | 0.027 |
| 25 | 13.19 | 32.14 | 24.1 | 0.035 |
| 30 | 13.18 | 32.15 | 24.1 | 0.043 |
| 35 | 13.18 | 32.15 | 24.1 | 0.051 |
| 40 | 13.18 | 32.15 | 24.1 | 0.059 |
| 45 | 13.17 | 32.16 | 24.1 | 0.067 |
| 50 | 13.17 | 32.16 | 24.1 | 0.075 |
| 55 | 13.17 | 32.16 | 24.1 | 0.083 |
| 60 | 13.17 | 32.16 | 24.1 | 0.091 |
| 65 | 13.17 | 32.16 | 24.1 | 0.099 |
| 70 | 13.17 | 32.16 | 24.1 | 0.107 |
| 75 | 13.17 | 32.16 | 24.1 | 0.115 |
| 80 | 13.17 | 32.16 | 24.1 | 0.123 |
| 85 | 13.17 | 32.16 | 24.1 | 0.131 |
| 90 | 13.17 | 32.16 | 24.1 | 0.139 |
| 95 | 13.17 | 32.16 | 24.1 | 0.147 |
| 100 | 13.17 | 32.16 | 24.1 | 0.155 |
| 105 | 13.17 | 32.16 | 24.1 | 0.163 |
| 110 | 13.17 | 32.16 | 24.1 | 0.171 |
| 115 | 13.17 | 32.16 | 24.1 | 0.179 |
| 120 | 13.17 | 32.16 | 24.1 | 0.187 |
| 125 | 13.17 | 32.16 | 24.1 | 0.195 |
| 130 | 13.17 | 32.16 | 24.1 | 0.203 |
| 135 | 13.17 | 32.16 | 24.1 | 0.211 |
| 140 | 13.17 | 32.16 | 24.1 | 0.219 |
| 145 | 13.17 | 32.16 | 24.1 | 0.227 |
| 150 | 13.17 | 32.16 | 24.1 | 0.235 |
| 155 | 13.17 | 32.16 | 24.1 | 0.243 |
| 160 | 13.17 | 32.16 | 24.1 | 0.251 |



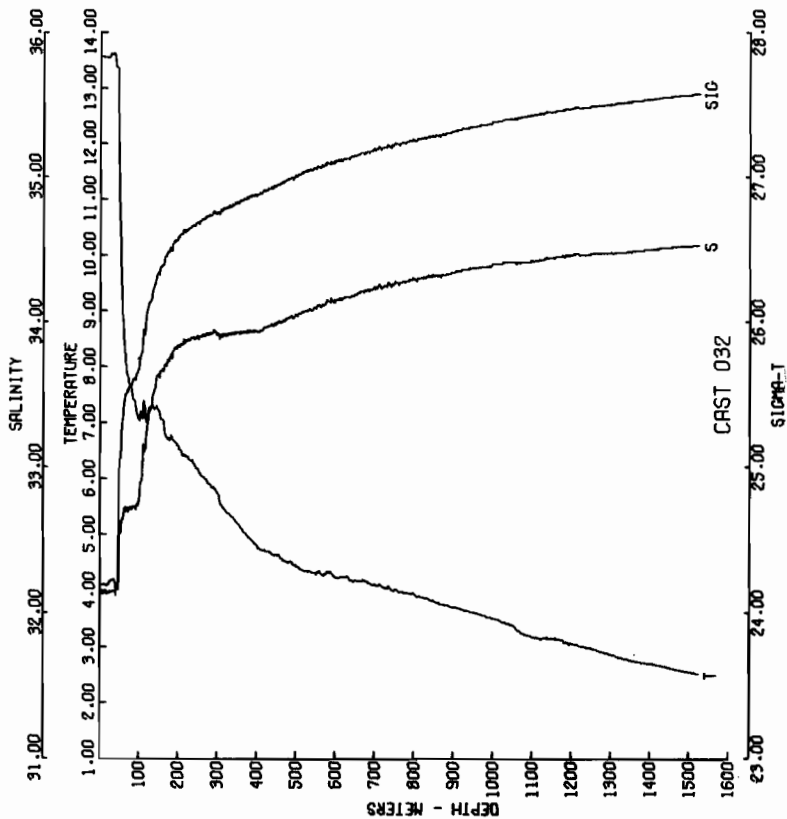
CAST ROAR2-OC-031 DATE 17 OCT 72 TIME 1221 GMT
 LAT 47 32.1N LONG 127 01.0W WEATHER 1 SEA STATE 1
 BAROMETER 20 MINU DIR 350 T SPO 04 KT VISIBILITY 6
 CLOUD X AMOUNT 9 DRY 12.3 MET 11.2 DEPTH 2515 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T | DELTA-D (DYN M) |
|-----------|-----------------|----------------|---------|-----------------|
| 0 | 12.81 | 32.10 | 24.21 | 0.000 |
| 5 | 12.81 | 32.10 | 24.21 | 0.000 |
| 10 | 12.81 | 32.10 | 24.21 | 0.000 |
| 15 | 12.81 | 32.10 | 24.21 | 0.019 |
| 20 | 12.81 | 32.10 | 24.21 | 0.037 |
| 25 | 12.81 | 32.10 | 24.21 | 0.056 |
| 30 | 12.81 | 32.10 | 24.21 | 0.074 |
| 35 | 12.81 | 32.10 | 24.21 | 0.092 |
| 40 | 12.81 | 32.10 | 24.21 | 0.110 |
| 45 | 12.81 | 32.10 | 24.21 | 0.128 |
| 50 | 12.81 | 32.10 | 24.21 | 0.146 |
| 55 | 12.81 | 32.10 | 24.21 | 0.164 |
| 60 | 12.81 | 32.10 | 24.21 | 0.182 |
| 65 | 12.81 | 32.10 | 24.21 | 0.200 |
| 70 | 12.81 | 32.10 | 24.21 | 0.218 |
| 75 | 12.81 | 32.10 | 24.21 | 0.236 |
| 80 | 12.81 | 32.10 | 24.21 | 0.254 |
| 85 | 12.81 | 32.10 | 24.21 | 0.272 |
| 90 | 12.81 | 32.10 | 24.21 | 0.290 |
| 95 | 12.81 | 32.10 | 24.21 | 0.308 |
| 100 | 12.81 | 32.10 | 24.21 | 0.326 |
| 105 | 12.81 | 32.10 | 24.21 | 0.344 |
| 110 | 12.81 | 32.10 | 24.21 | 0.362 |
| 115 | 12.81 | 32.10 | 24.21 | 0.380 |
| 120 | 12.81 | 32.10 | 24.21 | 0.398 |
| 125 | 12.81 | 32.10 | 24.21 | 0.416 |
| 130 | 12.81 | 32.10 | 24.21 | 0.434 |
| 135 | 12.81 | 32.10 | 24.21 | 0.452 |
| 140 | 12.81 | 32.10 | 24.21 | 0.470 |
| 145 | 12.81 | 32.10 | 24.21 | 0.488 |
| 150 | 12.81 | 32.10 | 24.21 | 0.506 |
| 155 | 12.81 | 32.10 | 24.21 | 0.524 |
| 160 | 12.81 | 32.10 | 24.21 | 0.542 |



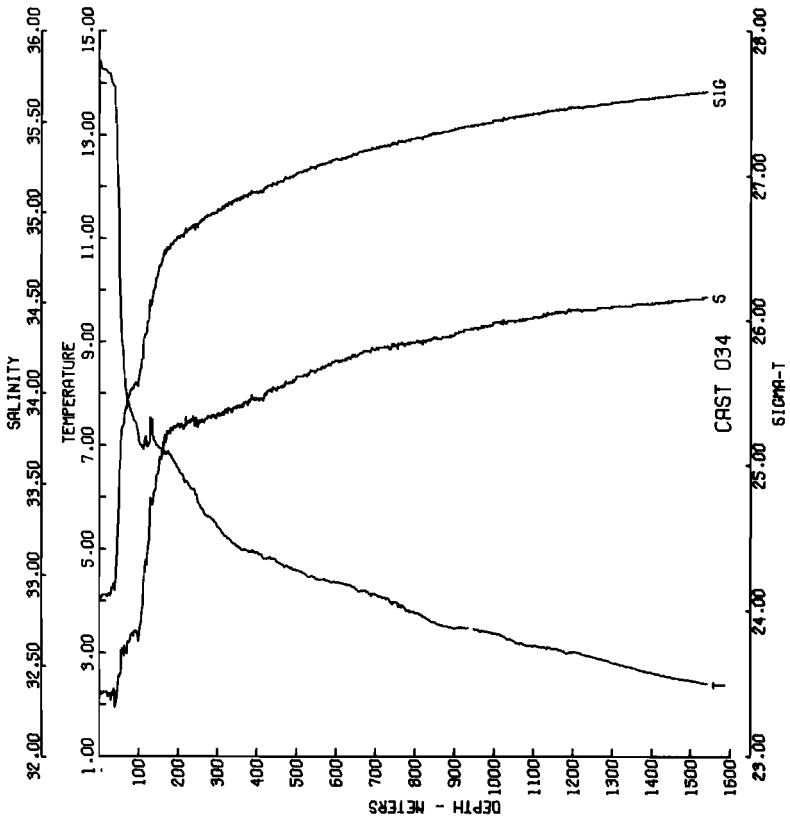
CAST ROAR2-0C-033 DATE 17 OCT 72 TIME 1559 GMT
 LAT 47 17.2N LONG 127 35.6W WEATHER 1 SEA STATE 1
 BAROMETER 21 WIND DIR 320 T SPD 7 KT VISIBILITY 6
 C-CLOUD 7 AMOUNT 8 DRY 11.4 MET 11.4 DEPTH 2649 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | DELTA-D (DYN M) | SIGMA-T | DELTA-D (DYN M) |
|-----------|-----------------|----------------|-----------------|---------|-----------------|
| 0 | 14.13 | 32.222 | 0.000 | 24.222 | 0.000 |
| 2 | 14.02 | 32.222 | 0.019 | 24.222 | 0.019 |
| 5 | 14.002 | 32.222 | 0.057 | 24.222 | 0.057 |
| 10 | 14.002 | 32.222 | 0.076 | 24.222 | 0.076 |
| 15 | 14.002 | 32.222 | 0.113 | 24.222 | 0.113 |
| 20 | 14.002 | 32.222 | 0.152 | 24.222 | 0.152 |
| 25 | 14.002 | 32.222 | 0.191 | 24.222 | 0.191 |
| 30 | 14.002 | 32.222 | 0.230 | 24.222 | 0.230 |
| 35 | 14.002 | 32.222 | 0.269 | 24.222 | 0.269 |
| 40 | 14.002 | 32.222 | 0.308 | 24.222 | 0.308 |
| 45 | 14.002 | 32.222 | 0.347 | 24.222 | 0.347 |
| 50 | 14.002 | 32.222 | 0.386 | 24.222 | 0.386 |
| 55 | 14.002 | 32.222 | 0.425 | 24.222 | 0.425 |
| 60 | 14.002 | 32.222 | 0.464 | 24.222 | 0.464 |
| 65 | 14.002 | 32.222 | 0.503 | 24.222 | 0.503 |
| 70 | 14.002 | 32.222 | 0.542 | 24.222 | 0.542 |
| 75 | 14.002 | 32.222 | 0.581 | 24.222 | 0.581 |
| 80 | 14.002 | 32.222 | 0.620 | 24.222 | 0.620 |
| 85 | 14.002 | 32.222 | 0.659 | 24.222 | 0.659 |
| 90 | 14.002 | 32.222 | 0.698 | 24.222 | 0.698 |
| 95 | 14.002 | 32.222 | 0.737 | 24.222 | 0.737 |
| 100 | 14.002 | 32.222 | 0.776 | 24.222 | 0.776 |
| 105 | 14.002 | 32.222 | 0.815 | 24.222 | 0.815 |
| 110 | 14.002 | 32.222 | 0.854 | 24.222 | 0.854 |
| 115 | 14.002 | 32.222 | 0.893 | 24.222 | 0.893 |
| 120 | 14.002 | 32.222 | 0.932 | 24.222 | 0.932 |
| 125 | 14.002 | 32.222 | 0.971 | 24.222 | 0.971 |
| 130 | 14.002 | 32.222 | 1.010 | 24.222 | 1.010 |
| 135 | 14.002 | 32.222 | 1.049 | 24.222 | 1.049 |
| 140 | 14.002 | 32.222 | 1.088 | 24.222 | 1.088 |
| 145 | 14.002 | 32.222 | 1.127 | 24.222 | 1.127 |
| 150 | 14.002 | 32.222 | 1.166 | 24.222 | 1.166 |
| 155 | 14.002 | 32.222 | 1.205 | 24.222 | 1.205 |
| 160 | 14.002 | 32.222 | 1.244 | 24.222 | 1.244 |



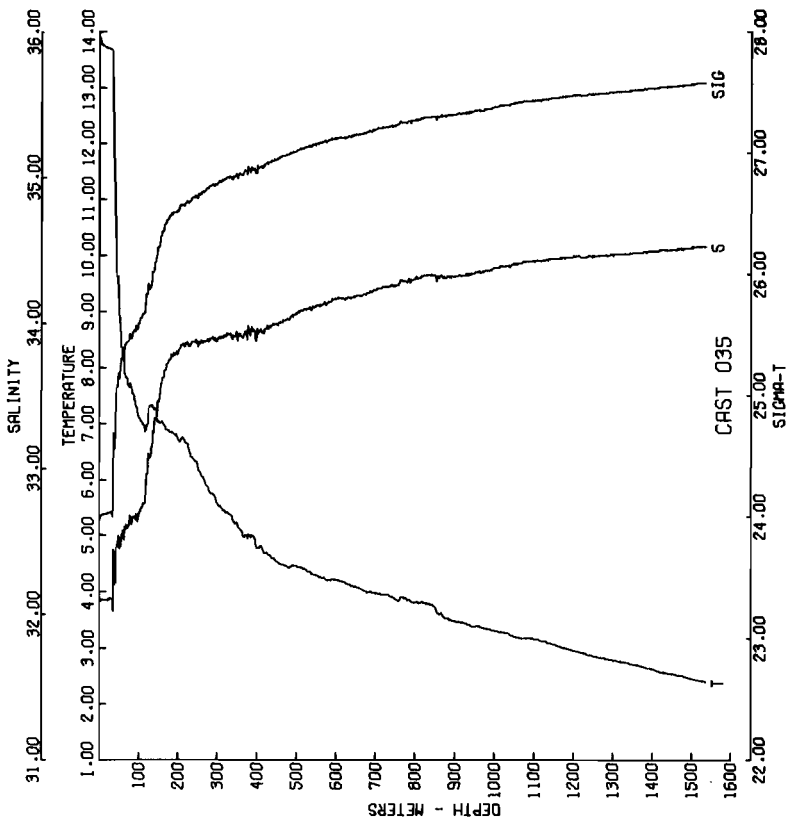
CAST ROAR2-0C-032 DATE 17 OCT 72 TIME 1559 GMT
 LAT 47 17.2N LONG 127 35.6W WEATHER 2 SEA STATE 1
 BAROMETER 21 WIND DIR 320 T SPD 7 KT VISIBILITY 6
 C-CLOUD 7 AMOUNT 8 DRY 11.4 MET 11.4 DEPTH 2649 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | DELTA-D (DYN M) | SIGMA-T | DELTA-D (DYN M) |
|-----------|-----------------|----------------|-----------------|---------|-----------------|
| 0 | 13.52 | 32.222 | 0.000 | 24.222 | 0.000 |
| 2 | 13.50 | 32.222 | 0.019 | 24.222 | 0.019 |
| 5 | 13.48 | 32.222 | 0.057 | 24.222 | 0.057 |
| 10 | 13.46 | 32.222 | 0.076 | 24.222 | 0.076 |
| 15 | 13.44 | 32.222 | 0.113 | 24.222 | 0.113 |
| 20 | 13.42 | 32.222 | 0.152 | 24.222 | 0.152 |
| 25 | 13.40 | 32.222 | 0.191 | 24.222 | 0.191 |
| 30 | 13.38 | 32.222 | 0.230 | 24.222 | 0.230 |
| 35 | 13.36 | 32.222 | 0.269 | 24.222 | 0.269 |
| 40 | 13.34 | 32.222 | 0.308 | 24.222 | 0.308 |
| 45 | 13.32 | 32.222 | 0.347 | 24.222 | 0.347 |
| 50 | 13.30 | 32.222 | 0.386 | 24.222 | 0.386 |
| 55 | 13.28 | 32.222 | 0.425 | 24.222 | 0.425 |
| 60 | 13.26 | 32.222 | 0.464 | 24.222 | 0.464 |
| 65 | 13.24 | 32.222 | 0.503 | 24.222 | 0.503 |
| 70 | 13.22 | 32.222 | 0.542 | 24.222 | 0.542 |
| 75 | 13.20 | 32.222 | 0.581 | 24.222 | 0.581 |
| 80 | 13.18 | 32.222 | 0.620 | 24.222 | 0.620 |
| 85 | 13.16 | 32.222 | 0.659 | 24.222 | 0.659 |
| 90 | 13.14 | 32.222 | 0.698 | 24.222 | 0.698 |
| 95 | 13.12 | 32.222 | 0.737 | 24.222 | 0.737 |
| 100 | 13.10 | 32.222 | 0.776 | 24.222 | 0.776 |
| 105 | 13.08 | 32.222 | 0.815 | 24.222 | 0.815 |
| 110 | 13.06 | 32.222 | 0.854 | 24.222 | 0.854 |
| 115 | 13.04 | 32.222 | 0.893 | 24.222 | 0.893 |
| 120 | 13.02 | 32.222 | 0.932 | 24.222 | 0.932 |
| 125 | 13.00 | 32.222 | 0.971 | 24.222 | 0.971 |
| 130 | 12.98 | 32.222 | 1.010 | 24.222 | 1.010 |
| 135 | 12.96 | 32.222 | 1.049 | 24.222 | 1.049 |
| 140 | 12.94 | 32.222 | 1.088 | 24.222 | 1.088 |
| 145 | 12.92 | 32.222 | 1.127 | 24.222 | 1.127 |
| 150 | 12.90 | 32.222 | 1.166 | 24.222 | 1.166 |
| 155 | 12.88 | 32.222 | 1.205 | 24.222 | 1.205 |
| 160 | 12.86 | 32.222 | 1.244 | 24.222 | 1.244 |



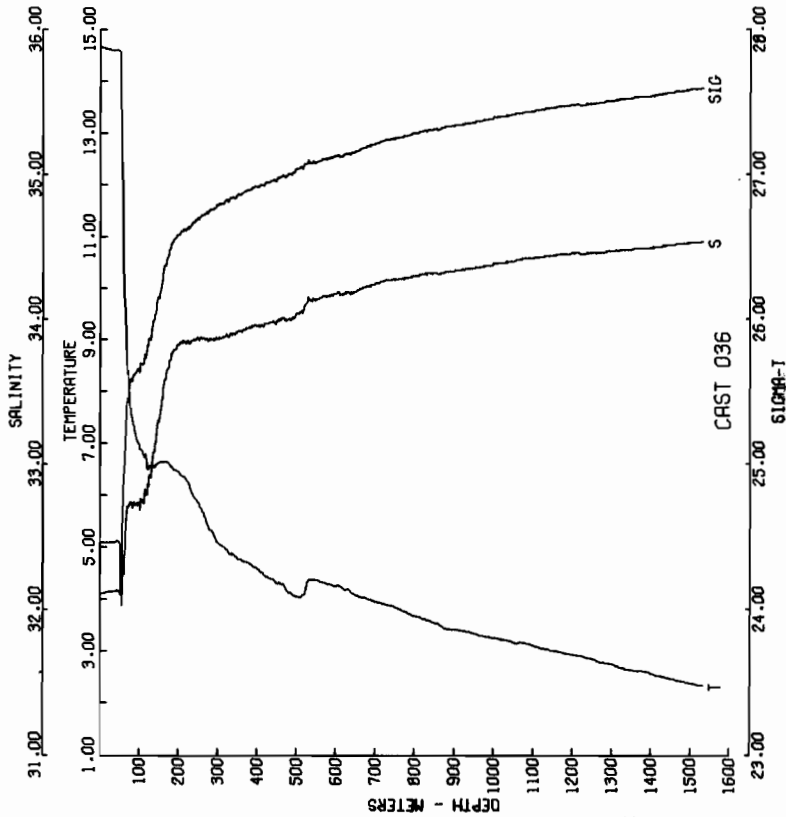
CAST ROAR2-0C-034 DATE 17 OCT 72 TIME 2210 GMT
 LAT 46.55 N LONG 128.30 W WEATHER 1 SEA STATE 1
 BAROMETER 30.1 WIND DIR 180 T SPD 5 KT VISIBILITY 6
 CLOUD 6 AMOUNT 5 DRY 19.1 NET 13.0 WPATH EAST M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DYN M) | DELTA-D (DYN M) |
|-----------|-----------------|----------------|-----------------|-----------------|
| 0 | 14.33 | 32.36 | 24.36 | 0.000 |
| 5 | 14.33 | 32.36 | 24.36 | 0.000 |
| 10 | 14.33 | 32.36 | 24.36 | 0.000 |
| 15 | 14.33 | 32.36 | 24.36 | 0.000 |
| 20 | 14.33 | 32.36 | 24.36 | 0.000 |
| 25 | 14.33 | 32.36 | 24.36 | 0.000 |
| 30 | 14.33 | 32.36 | 24.36 | 0.000 |
| 35 | 14.33 | 32.36 | 24.36 | 0.000 |
| 40 | 14.33 | 32.36 | 24.36 | 0.000 |
| 45 | 14.33 | 32.36 | 24.36 | 0.000 |
| 50 | 14.33 | 32.36 | 24.36 | 0.000 |
| 55 | 14.33 | 32.36 | 24.36 | 0.000 |
| 60 | 14.33 | 32.36 | 24.36 | 0.000 |
| 65 | 14.33 | 32.36 | 24.36 | 0.000 |
| 70 | 14.33 | 32.36 | 24.36 | 0.000 |
| 75 | 14.33 | 32.36 | 24.36 | 0.000 |
| 80 | 14.33 | 32.36 | 24.36 | 0.000 |
| 85 | 14.33 | 32.36 | 24.36 | 0.000 |
| 90 | 14.33 | 32.36 | 24.36 | 0.000 |
| 95 | 14.33 | 32.36 | 24.36 | 0.000 |
| 100 | 14.33 | 32.36 | 24.36 | 0.000 |
| 105 | 14.33 | 32.36 | 24.36 | 0.000 |
| 110 | 14.33 | 32.36 | 24.36 | 0.000 |
| 115 | 14.33 | 32.36 | 24.36 | 0.000 |
| 120 | 14.33 | 32.36 | 24.36 | 0.000 |
| 125 | 14.33 | 32.36 | 24.36 | 0.000 |
| 130 | 14.33 | 32.36 | 24.36 | 0.000 |
| 135 | 14.33 | 32.36 | 24.36 | 0.000 |
| 140 | 14.33 | 32.36 | 24.36 | 0.000 |
| 145 | 14.33 | 32.36 | 24.36 | 0.000 |
| 150 | 14.33 | 32.36 | 24.36 | 0.000 |
| 155 | 14.33 | 32.36 | 24.36 | 0.000 |
| 1600 | 14.33 | 32.36 | 24.36 | 0.000 |



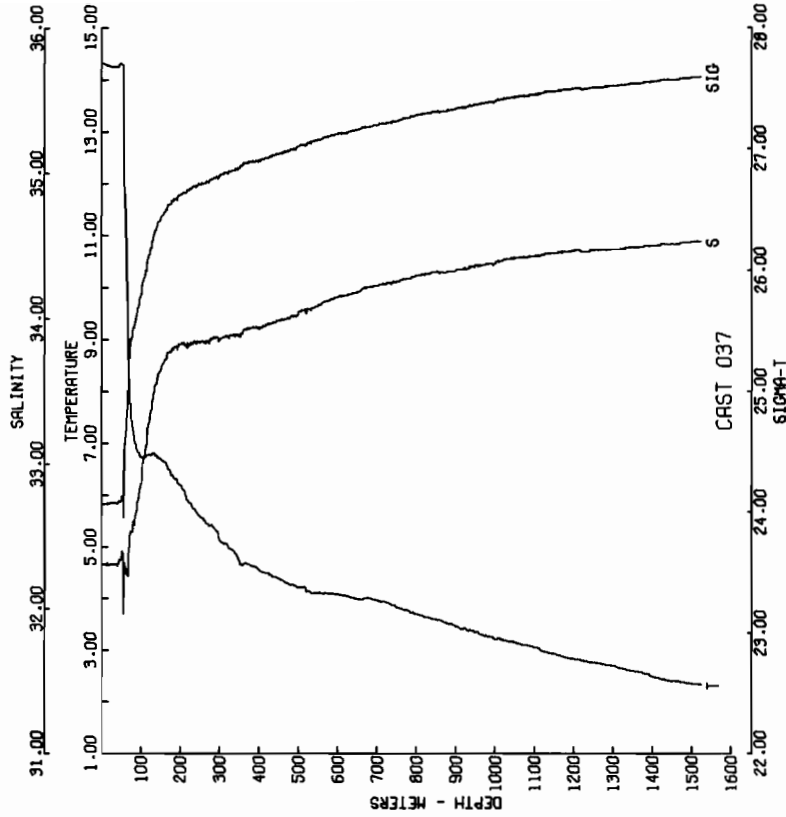
CAST ROAR2-0C-035 DATE 18 OCT 72 TIME 0109 GMT
 LAT 46.55 N LONG 129.27 W WEATHER 1 SEA STATE 1
 BAROMETER 23.1 WIND DIR 305 T SPD 5 KT VISIBILITY 6
 CLOUD 6 AMOUNT 5 DRY 15.8 NET 13.8 WPATH EAST M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DYN M) | DELTA-D (DYN M) |
|-----------|-----------------|----------------|-----------------|-----------------|
| 0 | 13.27 | 32.36 | 24.36 | 0.000 |
| 5 | 13.27 | 32.36 | 24.36 | 0.000 |
| 10 | 13.27 | 32.36 | 24.36 | 0.000 |
| 15 | 13.27 | 32.36 | 24.36 | 0.000 |
| 20 | 13.27 | 32.36 | 24.36 | 0.000 |
| 25 | 13.27 | 32.36 | 24.36 | 0.000 |
| 30 | 13.27 | 32.36 | 24.36 | 0.000 |
| 35 | 13.27 | 32.36 | 24.36 | 0.000 |
| 40 | 13.27 | 32.36 | 24.36 | 0.000 |
| 45 | 13.27 | 32.36 | 24.36 | 0.000 |
| 50 | 13.27 | 32.36 | 24.36 | 0.000 |
| 55 | 13.27 | 32.36 | 24.36 | 0.000 |
| 60 | 13.27 | 32.36 | 24.36 | 0.000 |
| 65 | 13.27 | 32.36 | 24.36 | 0.000 |
| 70 | 13.27 | 32.36 | 24.36 | 0.000 |
| 75 | 13.27 | 32.36 | 24.36 | 0.000 |
| 80 | 13.27 | 32.36 | 24.36 | 0.000 |
| 85 | 13.27 | 32.36 | 24.36 | 0.000 |
| 90 | 13.27 | 32.36 | 24.36 | 0.000 |
| 95 | 13.27 | 32.36 | 24.36 | 0.000 |
| 100 | 13.27 | 32.36 | 24.36 | 0.000 |
| 105 | 13.27 | 32.36 | 24.36 | 0.000 |
| 110 | 13.27 | 32.36 | 24.36 | 0.000 |
| 115 | 13.27 | 32.36 | 24.36 | 0.000 |
| 120 | 13.27 | 32.36 | 24.36 | 0.000 |
| 125 | 13.27 | 32.36 | 24.36 | 0.000 |
| 130 | 13.27 | 32.36 | 24.36 | 0.000 |
| 135 | 13.27 | 32.36 | 24.36 | 0.000 |
| 140 | 13.27 | 32.36 | 24.36 | 0.000 |
| 145 | 13.27 | 32.36 | 24.36 | 0.000 |
| 150 | 13.27 | 32.36 | 24.36 | 0.000 |
| 155 | 13.27 | 32.36 | 24.36 | 0.000 |
| 1600 | 13.27 | 32.36 | 24.36 | 0.000 |



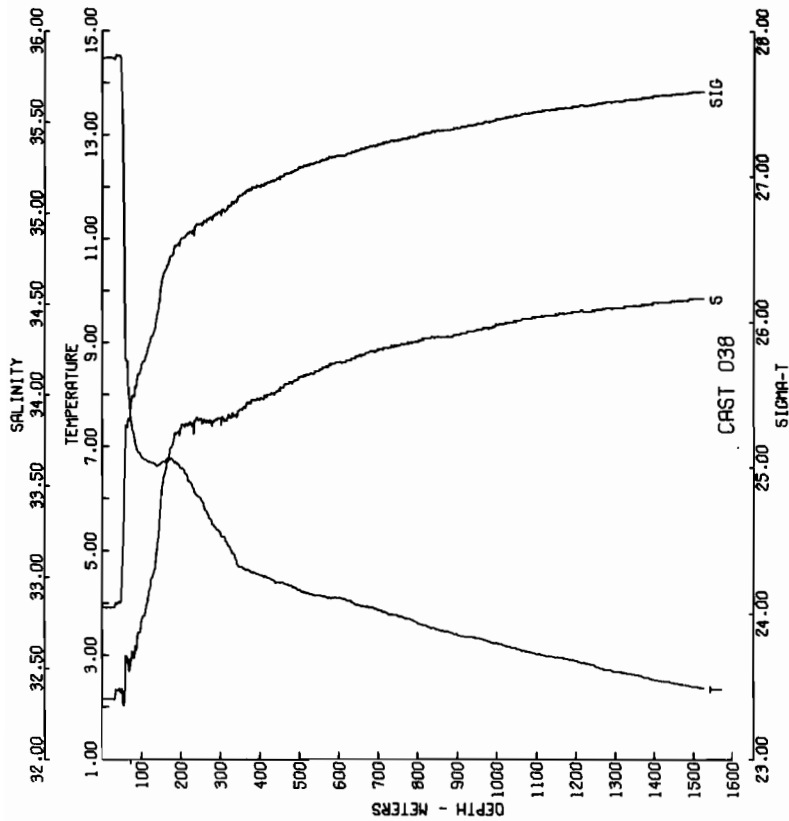
CST ROAR2-0C-036 DATE 18 OCT 72 TIME 0437 GMT
 LAT 46.58.2N LONG 130.09.4W WEATHER # SEA STATE 1
 BAROM 1012.0 HGT 295.1 MSL 181.5 MSL 6
 CLOUD 8 AMOUNT 1 DIR 147.7 NET 12.4 DEPTH 2379 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | DELTA-S (DYN M) |
|-----------|-----------------|----------------|-----------------|
| 0 | 14.67 | 32.46 | 24.11 |
| 1 | 14.66 | 32.44 | 24.11 |
| 5 | 14.65 | 32.44 | 24.11 |
| 10 | 14.65 | 32.44 | 24.11 |
| 15 | 14.65 | 32.44 | 24.11 |
| 20 | 14.65 | 32.44 | 24.11 |
| 25 | 14.65 | 32.44 | 24.11 |
| 30 | 14.65 | 32.44 | 24.11 |
| 35 | 14.65 | 32.44 | 24.11 |
| 40 | 14.65 | 32.44 | 24.11 |
| 45 | 14.65 | 32.44 | 24.11 |
| 50 | 14.65 | 32.44 | 24.11 |
| 55 | 14.65 | 32.44 | 24.11 |
| 60 | 14.65 | 32.44 | 24.11 |
| 65 | 14.65 | 32.44 | 24.11 |
| 70 | 14.65 | 32.44 | 24.11 |
| 75 | 14.65 | 32.44 | 24.11 |
| 80 | 14.65 | 32.44 | 24.11 |
| 85 | 14.65 | 32.44 | 24.11 |
| 90 | 14.65 | 32.44 | 24.11 |
| 95 | 14.65 | 32.44 | 24.11 |
| 100 | 14.65 | 32.44 | 24.11 |
| 105 | 14.65 | 32.44 | 24.11 |
| 110 | 14.65 | 32.44 | 24.11 |
| 115 | 14.65 | 32.44 | 24.11 |
| 120 | 14.65 | 32.44 | 24.11 |
| 125 | 14.65 | 32.44 | 24.11 |
| 130 | 14.65 | 32.44 | 24.11 |
| 135 | 14.65 | 32.44 | 24.11 |
| 140 | 14.65 | 32.44 | 24.11 |
| 145 | 14.65 | 32.44 | 24.11 |
| 150 | 14.65 | 32.44 | 24.11 |
| 155 | 14.65 | 32.44 | 24.11 |
| 160 | 14.65 | 32.44 | 24.11 |



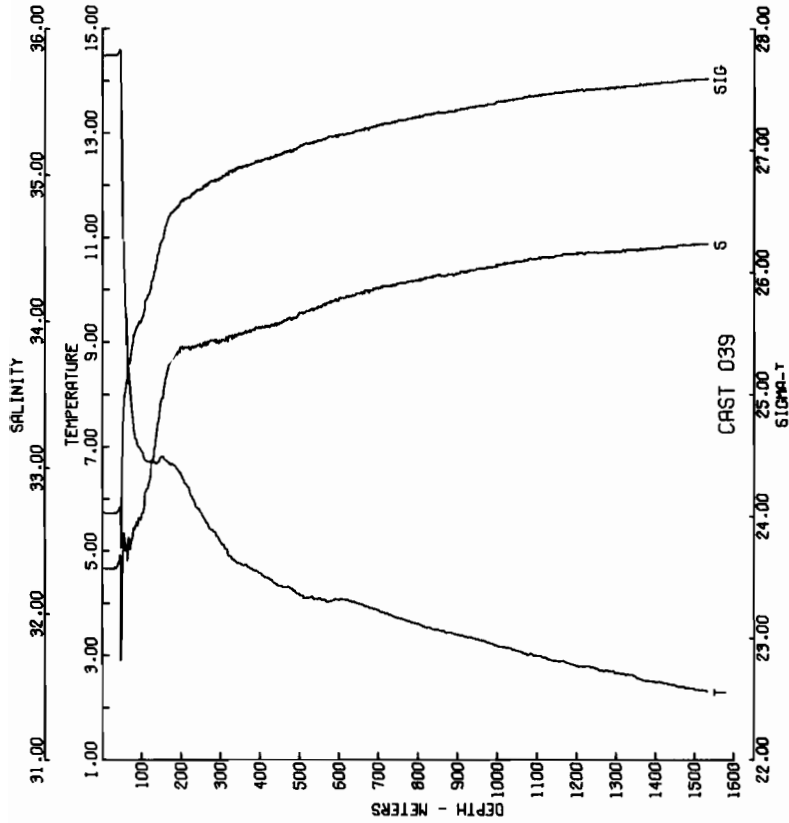
CST ROAR2-0C-037 DATE 18 OCT 72 TIME 0713 GMT
 LAT 46.47.0N LONG 130.33.8W WEATHER 1 SEA STATE 1
 BAROM 1012.0 HGT 295.1 MSL 181.5 MSL 6
 CLOUD 8 AMOUNT 9 DIR 130.6 NET 12.0 DEPTH 2379 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | DELTA-S (DYN M) |
|-----------|-----------------|----------------|-----------------|
| 0 | 14.72 | 32.31 | 24.07 |
| 1 | 14.71 | 32.31 | 24.07 |
| 5 | 14.70 | 32.31 | 24.07 |
| 10 | 14.70 | 32.31 | 24.07 |
| 15 | 14.70 | 32.31 | 24.07 |
| 20 | 14.70 | 32.31 | 24.07 |
| 25 | 14.70 | 32.31 | 24.07 |
| 30 | 14.70 | 32.31 | 24.07 |
| 35 | 14.70 | 32.31 | 24.07 |
| 40 | 14.70 | 32.31 | 24.07 |
| 45 | 14.70 | 32.31 | 24.07 |
| 50 | 14.70 | 32.31 | 24.07 |
| 55 | 14.70 | 32.31 | 24.07 |
| 60 | 14.70 | 32.31 | 24.07 |
| 65 | 14.70 | 32.31 | 24.07 |
| 70 | 14.70 | 32.31 | 24.07 |
| 75 | 14.70 | 32.31 | 24.07 |
| 80 | 14.70 | 32.31 | 24.07 |
| 85 | 14.70 | 32.31 | 24.07 |
| 90 | 14.70 | 32.31 | 24.07 |
| 95 | 14.70 | 32.31 | 24.07 |
| 100 | 14.70 | 32.31 | 24.07 |
| 105 | 14.70 | 32.31 | 24.07 |
| 110 | 14.70 | 32.31 | 24.07 |
| 115 | 14.70 | 32.31 | 24.07 |
| 120 | 14.70 | 32.31 | 24.07 |
| 125 | 14.70 | 32.31 | 24.07 |
| 130 | 14.70 | 32.31 | 24.07 |
| 135 | 14.70 | 32.31 | 24.07 |
| 140 | 14.70 | 32.31 | 24.07 |
| 145 | 14.70 | 32.31 | 24.07 |
| 150 | 14.70 | 32.31 | 24.07 |
| 155 | 14.70 | 32.31 | 24.07 |
| 160 | 14.70 | 32.31 | 24.07 |



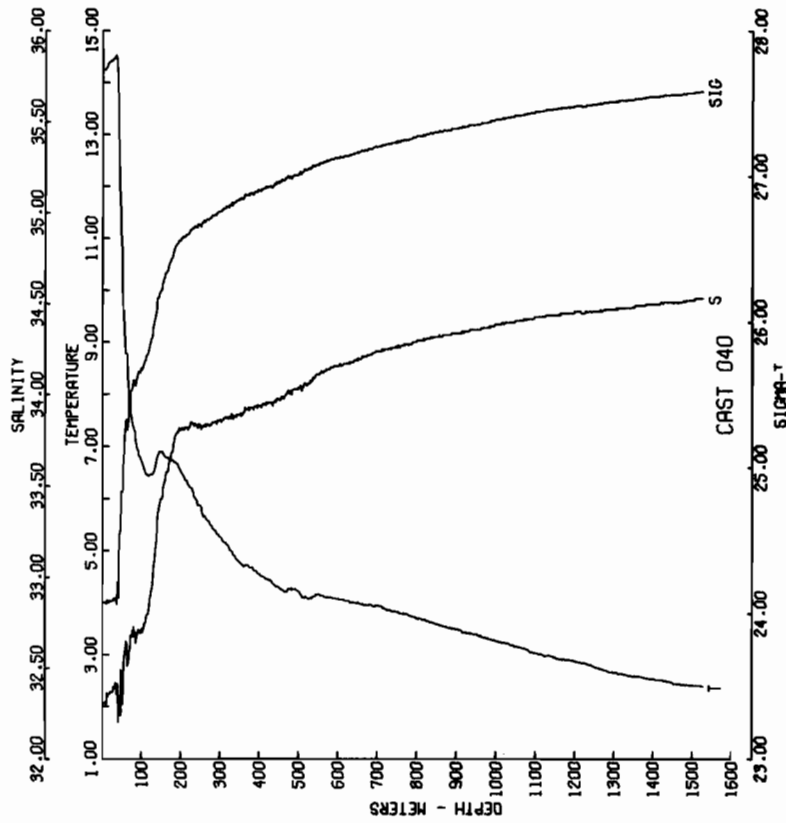
CAST 038
 DATE 18 OCT 72 TIME 0934 GMT
 LAT 46 28.0M LONG 130 49.4M WEATHER 1
 BAROMETER 24 WIND DIR 320 T SPD 15 KT
 VISIBILITY 6 CLOUD X AMOUNT 9 DRY 13.0 MET 2283 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | DELTA-S (GYN M) |
|-----------|-----------------|----------------|-----------------|
| 0 | 14.48 | 32.33 | 0.000 |
| 5 | 14.49 | 32.33 | .019 |
| 10 | 14.50 | 32.33 | .038 |
| 15 | 14.51 | 32.33 | .058 |
| 20 | 14.52 | 32.33 | .077 |
| 25 | 14.53 | 32.33 | .096 |
| 30 | 14.54 | 32.33 | .115 |
| 35 | 14.55 | 32.33 | .134 |
| 40 | 14.56 | 32.33 | .153 |
| 45 | 14.57 | 32.33 | .172 |
| 50 | 14.58 | 32.33 | .191 |
| 100 | 14.60 | 32.33 | .210 |
| 200 | 14.63 | 32.33 | .229 |
| 300 | 14.66 | 32.33 | .248 |
| 400 | 14.69 | 32.33 | .267 |
| 500 | 14.72 | 32.33 | .286 |
| 600 | 14.75 | 32.33 | .305 |
| 700 | 14.78 | 32.33 | .324 |
| 800 | 14.81 | 32.33 | .343 |
| 900 | 14.84 | 32.33 | .362 |
| 1000 | 14.87 | 32.33 | .381 |
| 1100 | 14.90 | 32.33 | .400 |
| 1200 | 14.93 | 32.33 | .419 |
| 1300 | 14.96 | 32.33 | .438 |
| 1400 | 14.99 | 32.33 | .457 |
| 1500 | 15.02 | 32.33 | .476 |
| 1600 | 15.05 | 32.33 | .495 |



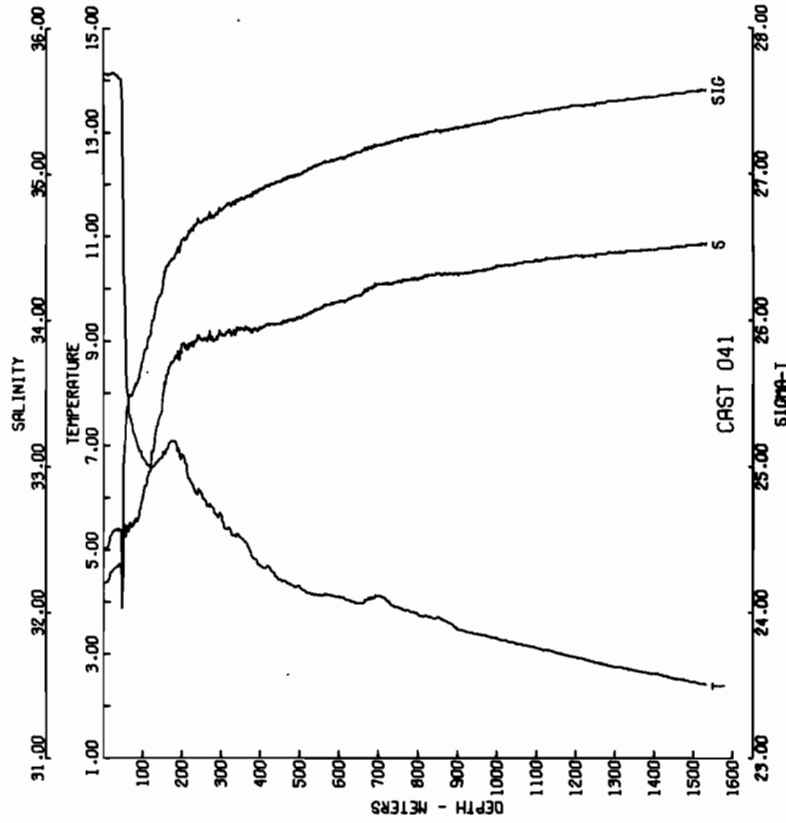
CAST 039
 DATE 18 OCT 72 TIME 1159 GMT
 LAT 46 28.0M LONG 131 07.0M WEATHER 1
 BAROMETER 24 WIND DIR 310 T SPD 8 KT
 VISIBILITY 6 CLOUD X AMOUNT 9 DRY 14.0 MET 2721 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | DELTA-S (GYN M) |
|-----------|-----------------|----------------|-----------------|
| 0 | 14.48 | 32.33 | 0.000 |
| 5 | 14.49 | 32.33 | .019 |
| 10 | 14.49 | 32.33 | .038 |
| 15 | 14.50 | 32.33 | .058 |
| 20 | 14.51 | 32.33 | .077 |
| 25 | 14.52 | 32.33 | .096 |
| 30 | 14.53 | 32.33 | .115 |
| 35 | 14.54 | 32.33 | .134 |
| 40 | 14.55 | 32.33 | .153 |
| 45 | 14.56 | 32.33 | .172 |
| 50 | 14.57 | 32.33 | .191 |
| 100 | 14.60 | 32.33 | .210 |
| 200 | 14.63 | 32.33 | .229 |
| 300 | 14.66 | 32.33 | .248 |
| 400 | 14.69 | 32.33 | .267 |
| 500 | 14.72 | 32.33 | .286 |
| 600 | 14.75 | 32.33 | .305 |
| 700 | 14.78 | 32.33 | .324 |
| 800 | 14.81 | 32.33 | .343 |
| 900 | 14.84 | 32.33 | .362 |
| 1000 | 14.87 | 32.33 | .381 |
| 1100 | 14.90 | 32.33 | .400 |
| 1200 | 14.93 | 32.33 | .419 |
| 1300 | 14.96 | 32.33 | .438 |
| 1400 | 14.99 | 32.33 | .457 |
| 1500 | 15.02 | 32.33 | .476 |
| 1600 | 15.05 | 32.33 | .495 |



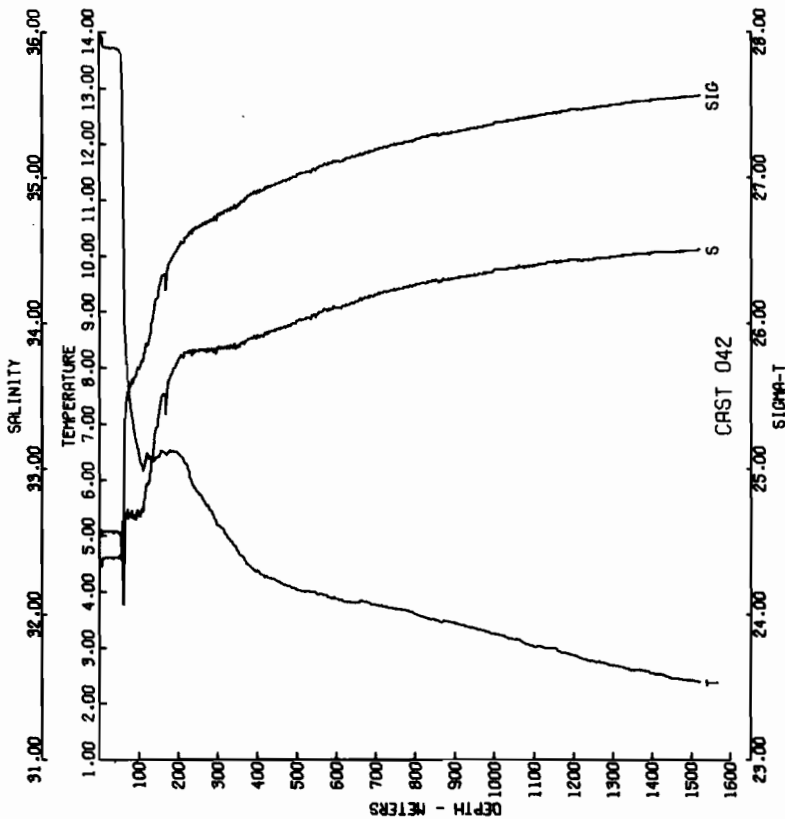
CAST R0402-0C-040 DATE 18 OCT 72 TIME 1454 GMT
 LAT 46 55.7N LONG 130 42.2W WEATHER 1
 BAROMETER 26 WIND DIR 350 T 32.0 WIND SPEED 15.7
 CLOUD 6 AMOUNT 4 DRY 13.4 NET 12.0 DEPTH 2375 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DYN M) | DELTA-D (DYN M) |
|-----------|-----------------|----------------|-----------------|-----------------|
| 0 | 14.17 | 32.45 | 24.21 | 0.000 |
| 1 | 14.14 | 32.45 | 24.21 | 0.019 |
| 2 | 14.13 | 32.45 | 24.21 | 0.037 |
| 3 | 14.12 | 32.45 | 24.21 | 0.056 |
| 4 | 14.11 | 32.45 | 24.21 | 0.074 |
| 5 | 14.11 | 32.45 | 24.21 | 0.093 |
| 6 | 14.11 | 32.45 | 24.21 | 0.111 |
| 7 | 14.11 | 32.45 | 24.21 | 0.129 |
| 8 | 14.11 | 32.45 | 24.21 | 0.148 |
| 9 | 14.11 | 32.45 | 24.21 | 0.166 |
| 10 | 14.11 | 32.45 | 24.21 | 0.185 |
| 11 | 14.11 | 32.45 | 24.21 | 0.203 |
| 12 | 14.11 | 32.45 | 24.21 | 0.222 |
| 13 | 14.11 | 32.45 | 24.21 | 0.240 |
| 14 | 14.11 | 32.45 | 24.21 | 0.259 |
| 15 | 14.11 | 32.45 | 24.21 | 0.277 |
| 16 | 14.11 | 32.45 | 24.21 | 0.296 |
| 17 | 14.11 | 32.45 | 24.21 | 0.314 |
| 18 | 14.11 | 32.45 | 24.21 | 0.333 |
| 19 | 14.11 | 32.45 | 24.21 | 0.351 |
| 20 | 14.11 | 32.45 | 24.21 | 0.370 |
| 21 | 14.11 | 32.45 | 24.21 | 0.388 |
| 22 | 14.11 | 32.45 | 24.21 | 0.407 |
| 23 | 14.11 | 32.45 | 24.21 | 0.425 |
| 24 | 14.11 | 32.45 | 24.21 | 0.444 |
| 25 | 14.11 | 32.45 | 24.21 | 0.462 |
| 26 | 14.11 | 32.45 | 24.21 | 0.481 |
| 27 | 14.11 | 32.45 | 24.21 | 0.500 |
| 28 | 14.11 | 32.45 | 24.21 | 0.518 |



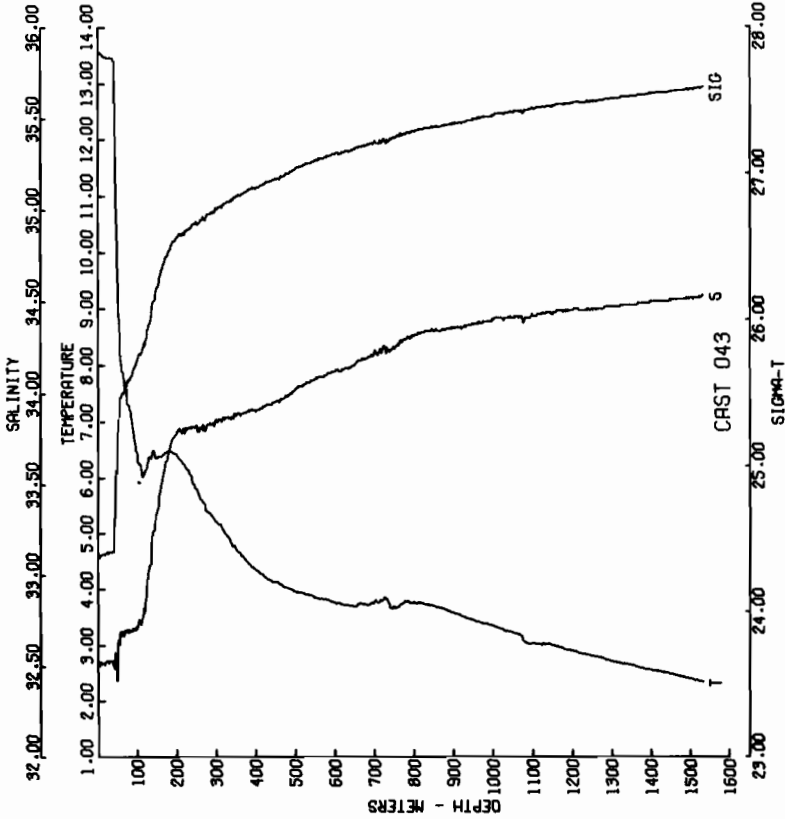
CAST R0402-0C-041 DATE 18 OCT 72 TIME 1841 GMT
 LAT 46 55.7N LONG 130 39.3W WEATHER 1
 BAROMETER 26 WIND DIR 350 T 32.0 WIND SPEED 15.7
 CLOUD 6 AMOUNT 4 DRY 13.2 NET 12.6 DEPTH 2330 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DYN M) | DELTA-D (DYN M) |
|-----------|-----------------|----------------|-----------------|-----------------|
| 0 | 14.17 | 32.45 | 24.21 | 0.000 |
| 1 | 14.14 | 32.45 | 24.21 | 0.019 |
| 2 | 14.13 | 32.45 | 24.21 | 0.037 |
| 3 | 14.12 | 32.45 | 24.21 | 0.056 |
| 4 | 14.11 | 32.45 | 24.21 | 0.074 |
| 5 | 14.11 | 32.45 | 24.21 | 0.093 |
| 6 | 14.11 | 32.45 | 24.21 | 0.111 |
| 7 | 14.11 | 32.45 | 24.21 | 0.129 |
| 8 | 14.11 | 32.45 | 24.21 | 0.148 |
| 9 | 14.11 | 32.45 | 24.21 | 0.166 |
| 10 | 14.11 | 32.45 | 24.21 | 0.185 |
| 11 | 14.11 | 32.45 | 24.21 | 0.203 |
| 12 | 14.11 | 32.45 | 24.21 | 0.222 |
| 13 | 14.11 | 32.45 | 24.21 | 0.240 |
| 14 | 14.11 | 32.45 | 24.21 | 0.259 |
| 15 | 14.11 | 32.45 | 24.21 | 0.277 |
| 16 | 14.11 | 32.45 | 24.21 | 0.296 |
| 17 | 14.11 | 32.45 | 24.21 | 0.314 |
| 18 | 14.11 | 32.45 | 24.21 | 0.333 |
| 19 | 14.11 | 32.45 | 24.21 | 0.351 |
| 20 | 14.11 | 32.45 | 24.21 | 0.370 |
| 21 | 14.11 | 32.45 | 24.21 | 0.388 |
| 22 | 14.11 | 32.45 | 24.21 | 0.407 |
| 23 | 14.11 | 32.45 | 24.21 | 0.425 |
| 24 | 14.11 | 32.45 | 24.21 | 0.444 |
| 25 | 14.11 | 32.45 | 24.21 | 0.462 |
| 26 | 14.11 | 32.45 | 24.21 | 0.481 |
| 27 | 14.11 | 32.45 | 24.21 | 0.500 |
| 28 | 14.11 | 32.45 | 24.21 | 0.518 |



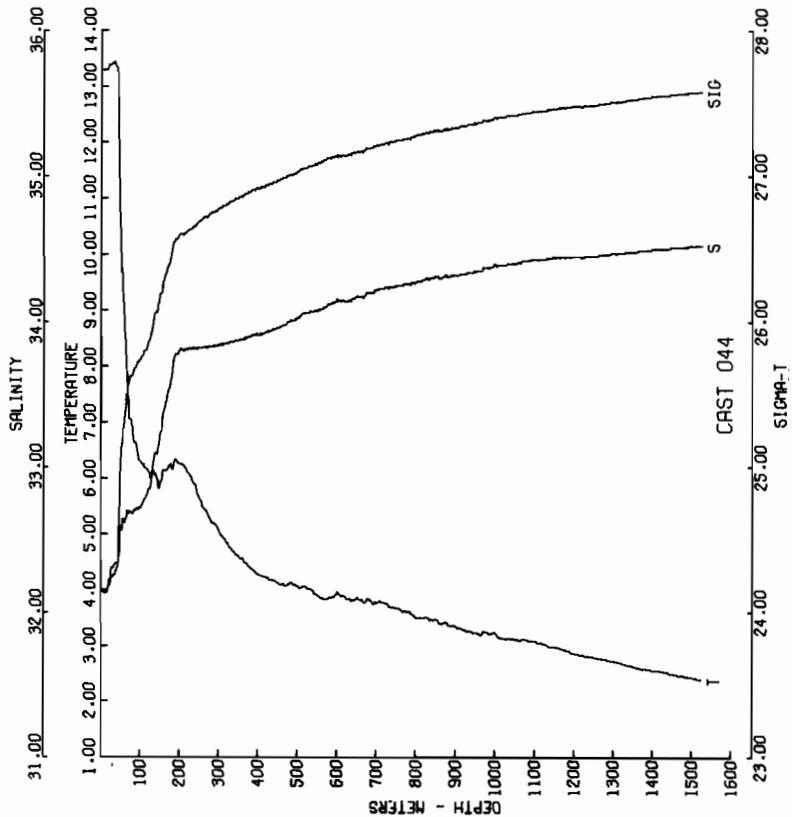
CAST 042
 DATE 18 OCT 72 TIME 2202 GMT
 LAT 47 57.3N LONG 130 34.2W WEATHER 1
 BAROMETER 24 WIND DIR 302 T SPD 5 KT VISIBILITY 7
 CLOUD 8 AMOUNT 4 DRY 15.1 MET 12.4 DEPTH 2889 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DYN M) | DELTA-D |
|-----------|-----------------|----------------|-----------------|---------|
| 0 | 13.37 | 32.58 | 27.52 | 0.000 |
| 5 | 13.37 | 32.58 | 27.52 | 0.018 |
| 10 | 13.37 | 32.58 | 27.52 | 0.054 |
| 15 | 13.37 | 32.58 | 27.52 | 0.071 |
| 20 | 13.37 | 32.58 | 27.52 | 0.087 |
| 25 | 13.37 | 32.58 | 27.52 | 0.105 |
| 30 | 13.37 | 32.58 | 27.52 | 0.125 |
| 35 | 13.37 | 32.58 | 27.52 | 0.140 |
| 40 | 13.37 | 32.58 | 27.52 | 0.158 |
| 45 | 13.37 | 32.58 | 27.52 | 0.172 |
| 50 | 13.37 | 32.58 | 27.52 | 0.188 |
| 55 | 13.37 | 32.58 | 27.52 | 0.201 |
| 60 | 13.37 | 32.58 | 27.52 | 0.212 |
| 65 | 13.37 | 32.58 | 27.52 | 0.222 |
| 70 | 13.37 | 32.58 | 27.52 | 0.232 |
| 75 | 13.37 | 32.58 | 27.52 | 0.240 |
| 80 | 13.37 | 32.58 | 27.52 | 0.247 |
| 85 | 13.37 | 32.58 | 27.52 | 0.254 |
| 90 | 13.37 | 32.58 | 27.52 | 0.261 |
| 95 | 13.37 | 32.58 | 27.52 | 0.267 |
| 100 | 13.37 | 32.58 | 27.52 | 0.273 |
| 105 | 13.37 | 32.58 | 27.52 | 0.278 |
| 110 | 13.37 | 32.58 | 27.52 | 0.283 |
| 115 | 13.37 | 32.58 | 27.52 | 0.288 |
| 120 | 13.37 | 32.58 | 27.52 | 0.293 |
| 125 | 13.37 | 32.58 | 27.52 | 0.298 |
| 130 | 13.37 | 32.58 | 27.52 | 0.303 |
| 135 | 13.37 | 32.58 | 27.52 | 0.308 |
| 140 | 13.37 | 32.58 | 27.52 | 0.313 |
| 145 | 13.37 | 32.58 | 27.52 | 0.318 |
| 150 | 13.37 | 32.58 | 27.52 | 0.323 |
| 155 | 13.37 | 32.58 | 27.52 | 0.328 |
| 160 | 13.37 | 32.58 | 27.52 | 0.333 |



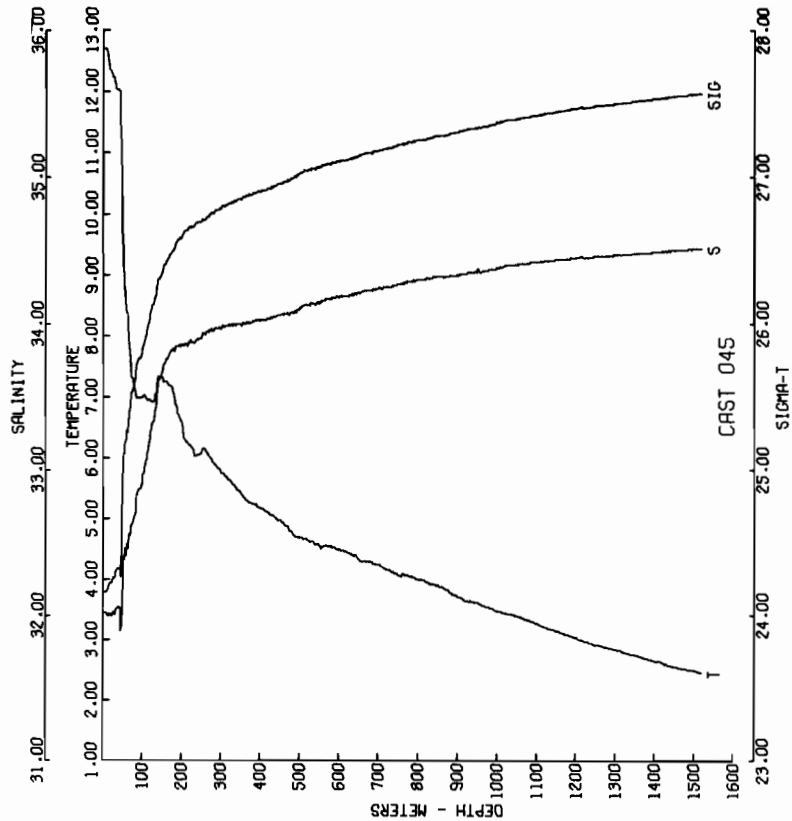
CAST 043
 DATE 19 OCT 72 TIME 0144 GMT
 LAT 48 29.4N LONG 130 36.7W WEATHER 1
 BAROMETER 24 WIND DIR 310 T SPD 7 KT VISIBILITY 6
 CLOUD 4 AMOUNT 4 DRY 14.5 MET 13.5 DEPTH 2889 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DYN M) | DELTA-D |
|-----------|-----------------|----------------|-----------------|---------|
| 0 | 13.56 | 32.55 | 27.55 | 0.000 |
| 5 | 13.56 | 32.55 | 27.55 | 0.019 |
| 10 | 13.56 | 32.55 | 27.55 | 0.054 |
| 15 | 13.56 | 32.55 | 27.55 | 0.071 |
| 20 | 13.56 | 32.55 | 27.55 | 0.086 |
| 25 | 13.56 | 32.55 | 27.55 | 0.106 |
| 30 | 13.56 | 32.55 | 27.55 | 0.124 |
| 35 | 13.56 | 32.55 | 27.55 | 0.141 |
| 40 | 13.56 | 32.55 | 27.55 | 0.157 |
| 45 | 13.56 | 32.55 | 27.55 | 0.173 |
| 50 | 13.56 | 32.55 | 27.55 | 0.189 |
| 55 | 13.56 | 32.55 | 27.55 | 0.204 |
| 60 | 13.56 | 32.55 | 27.55 | 0.219 |
| 65 | 13.56 | 32.55 | 27.55 | 0.234 |
| 70 | 13.56 | 32.55 | 27.55 | 0.248 |
| 75 | 13.56 | 32.55 | 27.55 | 0.262 |
| 80 | 13.56 | 32.55 | 27.55 | 0.276 |
| 85 | 13.56 | 32.55 | 27.55 | 0.289 |
| 90 | 13.56 | 32.55 | 27.55 | 0.302 |
| 95 | 13.56 | 32.55 | 27.55 | 0.315 |
| 100 | 13.56 | 32.55 | 27.55 | 0.328 |
| 105 | 13.56 | 32.55 | 27.55 | 0.341 |
| 110 | 13.56 | 32.55 | 27.55 | 0.354 |
| 115 | 13.56 | 32.55 | 27.55 | 0.367 |
| 120 | 13.56 | 32.55 | 27.55 | 0.380 |
| 125 | 13.56 | 32.55 | 27.55 | 0.393 |
| 130 | 13.56 | 32.55 | 27.55 | 0.406 |
| 135 | 13.56 | 32.55 | 27.55 | 0.419 |
| 140 | 13.56 | 32.55 | 27.55 | 0.432 |
| 145 | 13.56 | 32.55 | 27.55 | 0.445 |
| 150 | 13.56 | 32.55 | 27.55 | 0.458 |
| 155 | 13.56 | 32.55 | 27.55 | 0.471 |
| 160 | 13.56 | 32.55 | 27.55 | 0.484 |



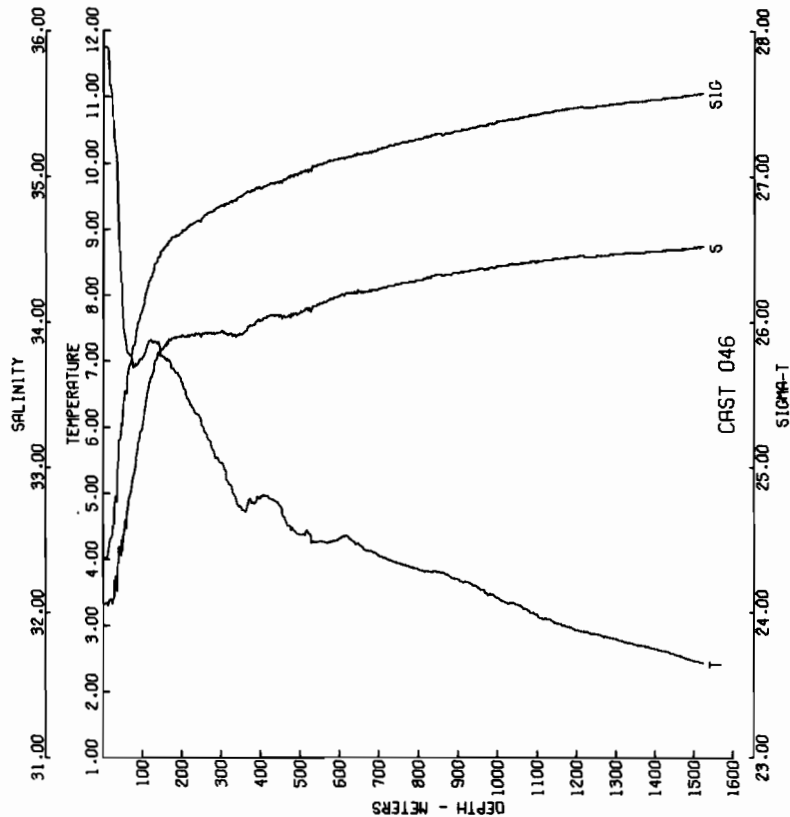
CAST NO: 044 DATE: 19 OCT 72 TIME: 0515 GMT
 LAT: 48.29 N LONG: 129.48 W WEATHER: 1 SEA STATE: 1
 SURF WIND: 10 KTS DIR: 115 SFC WIND: 11 KTS DIR: 115
 CLOUD X: AMOUNT: 9 DRY: 14.8 MET: 13.1 DEPTH: 2480 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T | DELTA-D (DYN M) |
|-----------|-----------------|----------------|---------|-----------------|
| 0 | 13.30 | 32.14 | 24.14 | 0.000 |
| 2 | 13.30 | 32.14 | 24.14 | .019 |
| 5 | 13.30 | 32.14 | 24.14 | .039 |
| 10 | 13.30 | 32.14 | 24.14 | .079 |
| 15 | 13.30 | 32.14 | 24.14 | .119 |
| 20 | 13.30 | 32.14 | 24.14 | .159 |
| 25 | 13.30 | 32.14 | 24.14 | .199 |
| 30 | 13.30 | 32.14 | 24.14 | .239 |
| 35 | 13.30 | 32.14 | 24.14 | .279 |
| 40 | 13.30 | 32.14 | 24.14 | .319 |
| 45 | 13.30 | 32.14 | 24.14 | .359 |
| 50 | 13.30 | 32.14 | 24.14 | .399 |
| 55 | 13.30 | 32.14 | 24.14 | .439 |
| 60 | 13.30 | 32.14 | 24.14 | .479 |
| 65 | 13.30 | 32.14 | 24.14 | .519 |
| 70 | 13.30 | 32.14 | 24.14 | .559 |
| 75 | 13.30 | 32.14 | 24.14 | .599 |
| 80 | 13.30 | 32.14 | 24.14 | .639 |
| 85 | 13.30 | 32.14 | 24.14 | .679 |
| 90 | 13.30 | 32.14 | 24.14 | .719 |
| 95 | 13.30 | 32.14 | 24.14 | .759 |
| 100 | 13.30 | 32.14 | 24.14 | .799 |
| 105 | 13.30 | 32.14 | 24.14 | .839 |
| 110 | 13.30 | 32.14 | 24.14 | .879 |
| 115 | 13.30 | 32.14 | 24.14 | .919 |
| 120 | 13.30 | 32.14 | 24.14 | .959 |
| 125 | 13.30 | 32.14 | 24.14 | .999 |
| 130 | 13.30 | 32.14 | 24.14 | 1.039 |
| 135 | 13.30 | 32.14 | 24.14 | 1.079 |
| 140 | 13.30 | 32.14 | 24.14 | 1.119 |
| 145 | 13.30 | 32.14 | 24.14 | 1.159 |
| 150 | 13.30 | 32.14 | 24.14 | 1.199 |
| 155 | 13.30 | 32.14 | 24.14 | 1.239 |
| 160 | 13.30 | 32.14 | 24.14 | 1.279 |

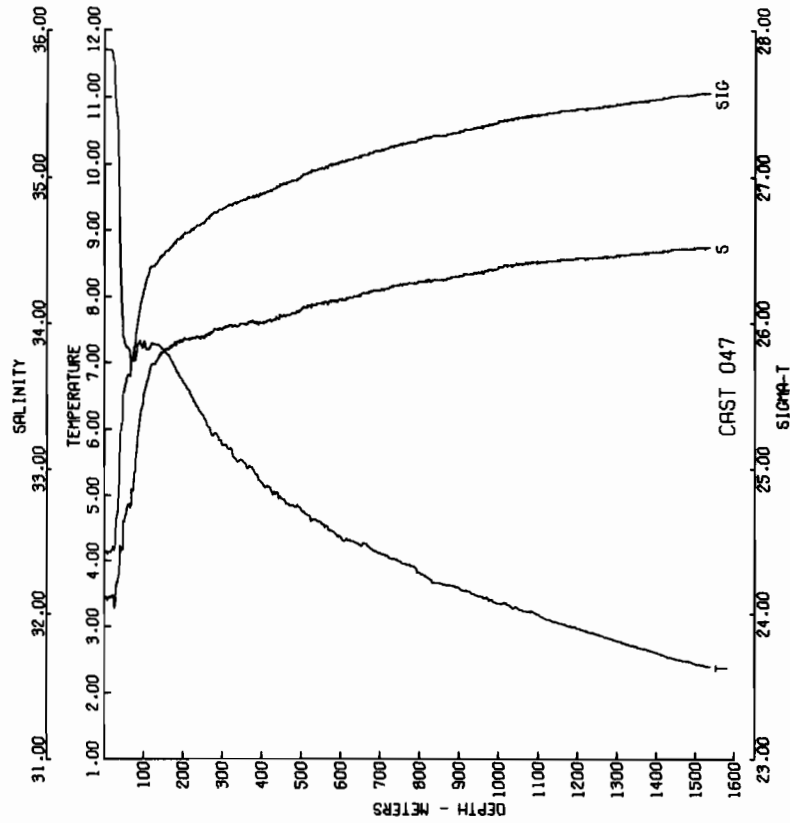


CAST NO: 045 DATE: 19 OCT 72 TIME: 0843 GMT
 LAT: 48.29 N LONG: 129.50 W WEATHER: 1 SEA STATE: 1
 SURF WIND: 10 KTS DIR: 115 SFC WIND: 11 KTS DIR: 115
 CLOUD X: AMOUNT: 9 DRY: 13.0 MET: 12.5 DEPTH: 2500 M

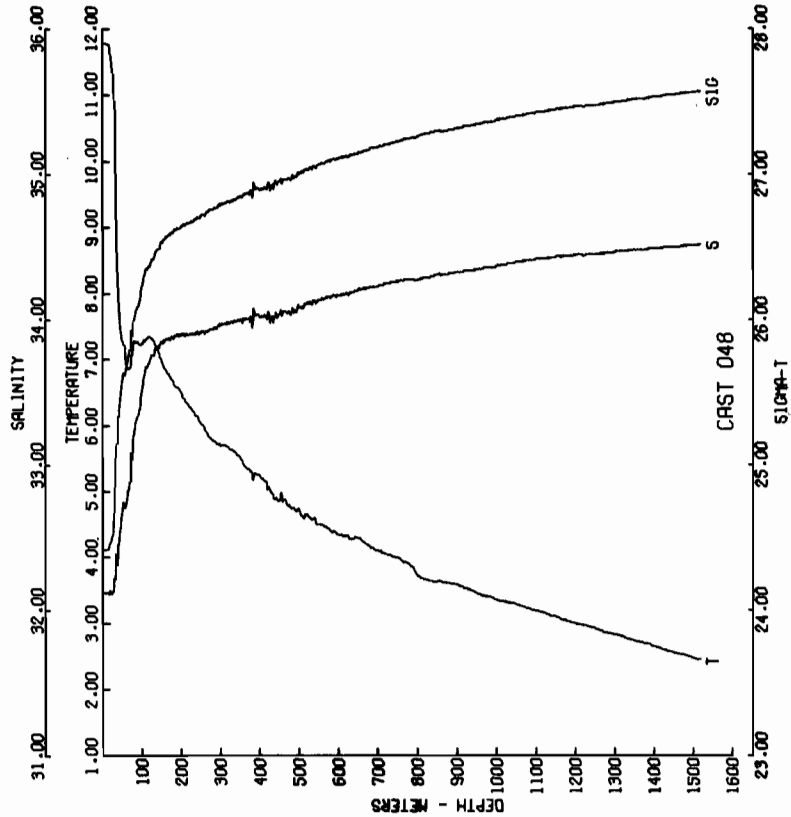
| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T | DELTA-D (DYN M) |
|-----------|-----------------|----------------|---------|-----------------|
| 0 | 12.70 | 32.01 | 24.16 | 0.000 |
| 2 | 12.70 | 32.01 | 24.16 | .016 |
| 5 | 12.70 | 32.01 | 24.16 | .032 |
| 10 | 12.70 | 32.01 | 24.16 | .064 |
| 15 | 12.70 | 32.01 | 24.16 | .096 |
| 20 | 12.70 | 32.01 | 24.16 | .128 |
| 25 | 12.70 | 32.01 | 24.16 | .160 |
| 30 | 12.70 | 32.01 | 24.16 | .192 |
| 35 | 12.70 | 32.01 | 24.16 | .224 |
| 40 | 12.70 | 32.01 | 24.16 | .256 |
| 45 | 12.70 | 32.01 | 24.16 | .288 |
| 50 | 12.70 | 32.01 | 24.16 | .320 |
| 55 | 12.70 | 32.01 | 24.16 | .352 |
| 60 | 12.70 | 32.01 | 24.16 | .384 |
| 65 | 12.70 | 32.01 | 24.16 | .416 |
| 70 | 12.70 | 32.01 | 24.16 | .448 |
| 75 | 12.70 | 32.01 | 24.16 | .480 |
| 80 | 12.70 | 32.01 | 24.16 | .512 |
| 85 | 12.70 | 32.01 | 24.16 | .544 |
| 90 | 12.70 | 32.01 | 24.16 | .576 |
| 95 | 12.70 | 32.01 | 24.16 | .608 |
| 100 | 12.70 | 32.01 | 24.16 | .640 |
| 105 | 12.70 | 32.01 | 24.16 | .672 |
| 110 | 12.70 | 32.01 | 24.16 | .704 |
| 115 | 12.70 | 32.01 | 24.16 | .736 |
| 120 | 12.70 | 32.01 | 24.16 | .768 |
| 125 | 12.70 | 32.01 | 24.16 | .800 |
| 130 | 12.70 | 32.01 | 24.16 | .832 |
| 135 | 12.70 | 32.01 | 24.16 | .864 |
| 140 | 12.70 | 32.01 | 24.16 | .896 |
| 145 | 12.70 | 32.01 | 24.16 | .928 |
| 150 | 12.70 | 32.01 | 24.16 | .960 |
| 155 | 12.70 | 32.01 | 24.16 | .992 |
| 160 | 12.70 | 32.01 | 24.16 | 1.024 |



CAST ROAR2-OC-046 DATE 19 OCT 72 TIME 1201 GMT
 LAT 49 00 2N LONG 128 59 0W WEATHER 1
 BAROMET 29.20 WIND 0 KT WAVEABILITY 6
 CLOUD 7 AMOUNT 8 DIR 13.0 REF 13.0 DEPTH 2501 M

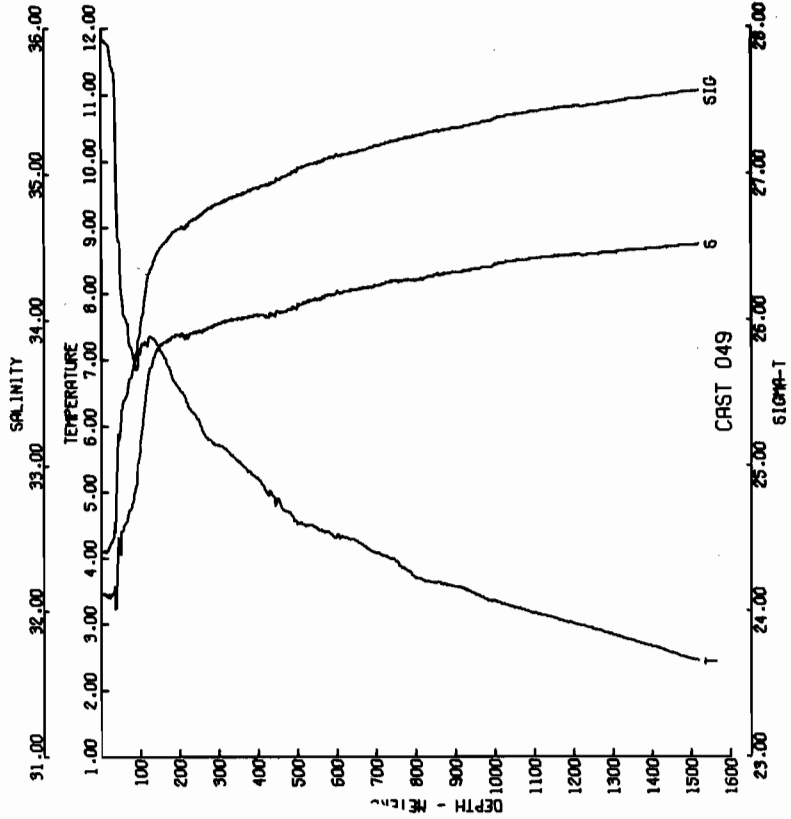


CAST ROAR2-OC-047 DATE 19 OCT 72 TIME 1507 GMT
 LAT 49 00 2N LONG 127 58 9W WEATHER 2
 BAROMET 29.20 WIND 0 KT WAVEABILITY 6
 CLOUD 7 AMOUNT 8 DIR 13.0 REF 12.1 DEPTH 2405 M



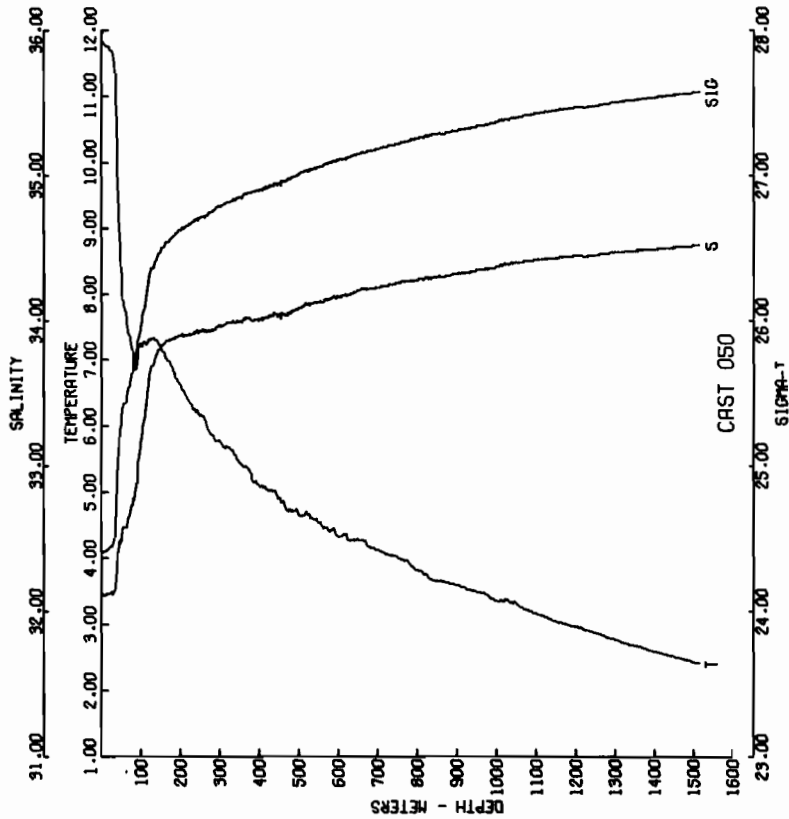
CAST ROAR2-00-048 DATE 19 OCT 72 TIME 1801 GMT
 LAT 48 22 N LONG 127 59.0 W STATE 1
 CLOUD 7 AMOUNT 8 DRY 19.2 WET 0.0 DEPTH 2485 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DTN M) | DELTA-D |
|-----------|-----------------|----------------|-----------------|---------|
| 0 | 11.79 | 32.22 | 22.42 | 0.000 |
| 5 | 11.79 | 32.22 | 22.42 | 0.018 |
| 10 | 11.79 | 32.22 | 22.42 | 0.035 |
| 15 | 11.79 | 32.22 | 22.42 | 0.052 |
| 20 | 11.79 | 32.22 | 22.42 | 0.069 |
| 25 | 11.79 | 32.22 | 22.42 | 0.086 |
| 30 | 11.79 | 32.22 | 22.42 | 0.103 |
| 35 | 11.79 | 32.22 | 22.42 | 0.120 |
| 40 | 11.79 | 32.22 | 22.42 | 0.137 |
| 45 | 11.79 | 32.22 | 22.42 | 0.154 |
| 50 | 11.79 | 32.22 | 22.42 | 0.171 |
| 55 | 11.79 | 32.22 | 22.42 | 0.188 |
| 60 | 11.79 | 32.22 | 22.42 | 0.205 |
| 65 | 11.79 | 32.22 | 22.42 | 0.222 |
| 70 | 11.79 | 32.22 | 22.42 | 0.239 |
| 75 | 11.79 | 32.22 | 22.42 | 0.256 |
| 80 | 11.79 | 32.22 | 22.42 | 0.273 |
| 85 | 11.79 | 32.22 | 22.42 | 0.290 |
| 90 | 11.79 | 32.22 | 22.42 | 0.307 |
| 95 | 11.79 | 32.22 | 22.42 | 0.324 |
| 100 | 11.79 | 32.22 | 22.42 | 0.341 |
| 105 | 11.79 | 32.22 | 22.42 | 0.358 |
| 110 | 11.79 | 32.22 | 22.42 | 0.375 |
| 115 | 11.79 | 32.22 | 22.42 | 0.392 |
| 120 | 11.79 | 32.22 | 22.42 | 0.409 |
| 125 | 11.79 | 32.22 | 22.42 | 0.426 |
| 130 | 11.79 | 32.22 | 22.42 | 0.443 |
| 135 | 11.79 | 32.22 | 22.42 | 0.460 |
| 140 | 11.79 | 32.22 | 22.42 | 0.477 |
| 145 | 11.79 | 32.22 | 22.42 | 0.494 |
| 150 | 11.79 | 32.22 | 22.42 | 0.511 |
| 155 | 11.79 | 32.22 | 22.42 | 0.528 |
| 160 | 11.79 | 32.22 | 22.42 | 0.545 |



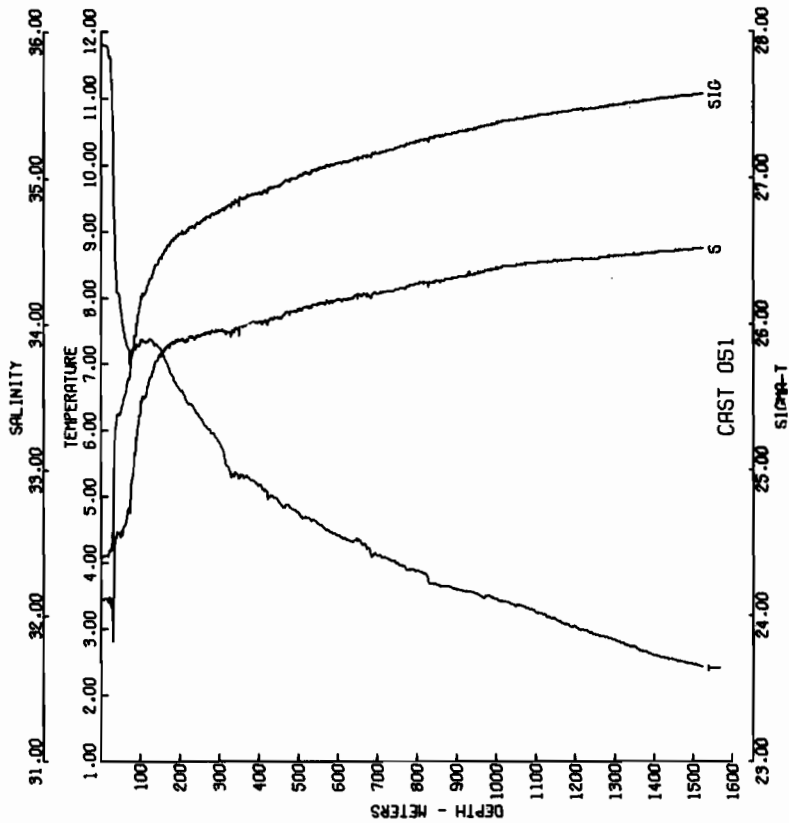
CAST ROAR2-00-049 DATE 19 OCT 72 TIME 2003 GMT
 LAT 48 22 N LONG 127 59.0 W STATE 1
 CLOUD 7 AMOUNT 8 DRY 13.1 WET 12.0 DEPTH 2488 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DTN M) | DELTA-D |
|-----------|-----------------|----------------|-----------------|---------|
| 0 | 11.82 | 32.22 | 22.44 | 0.000 |
| 5 | 11.82 | 32.22 | 22.44 | 0.018 |
| 10 | 11.82 | 32.22 | 22.44 | 0.035 |
| 15 | 11.82 | 32.22 | 22.44 | 0.052 |
| 20 | 11.82 | 32.22 | 22.44 | 0.069 |
| 25 | 11.82 | 32.22 | 22.44 | 0.086 |
| 30 | 11.82 | 32.22 | 22.44 | 0.103 |
| 35 | 11.82 | 32.22 | 22.44 | 0.120 |
| 40 | 11.82 | 32.22 | 22.44 | 0.137 |
| 45 | 11.82 | 32.22 | 22.44 | 0.154 |
| 50 | 11.82 | 32.22 | 22.44 | 0.171 |
| 55 | 11.82 | 32.22 | 22.44 | 0.188 |
| 60 | 11.82 | 32.22 | 22.44 | 0.205 |
| 65 | 11.82 | 32.22 | 22.44 | 0.222 |
| 70 | 11.82 | 32.22 | 22.44 | 0.239 |
| 75 | 11.82 | 32.22 | 22.44 | 0.256 |
| 80 | 11.82 | 32.22 | 22.44 | 0.273 |
| 85 | 11.82 | 32.22 | 22.44 | 0.290 |
| 90 | 11.82 | 32.22 | 22.44 | 0.307 |
| 95 | 11.82 | 32.22 | 22.44 | 0.324 |
| 100 | 11.82 | 32.22 | 22.44 | 0.341 |
| 105 | 11.82 | 32.22 | 22.44 | 0.358 |
| 110 | 11.82 | 32.22 | 22.44 | 0.375 |
| 115 | 11.82 | 32.22 | 22.44 | 0.392 |
| 120 | 11.82 | 32.22 | 22.44 | 0.409 |
| 125 | 11.82 | 32.22 | 22.44 | 0.426 |
| 130 | 11.82 | 32.22 | 22.44 | 0.443 |
| 135 | 11.82 | 32.22 | 22.44 | 0.460 |
| 140 | 11.82 | 32.22 | 22.44 | 0.477 |
| 145 | 11.82 | 32.22 | 22.44 | 0.494 |
| 150 | 11.82 | 32.22 | 22.44 | 0.511 |
| 155 | 11.82 | 32.22 | 22.44 | 0.528 |
| 160 | 11.82 | 32.22 | 22.44 | 0.545 |



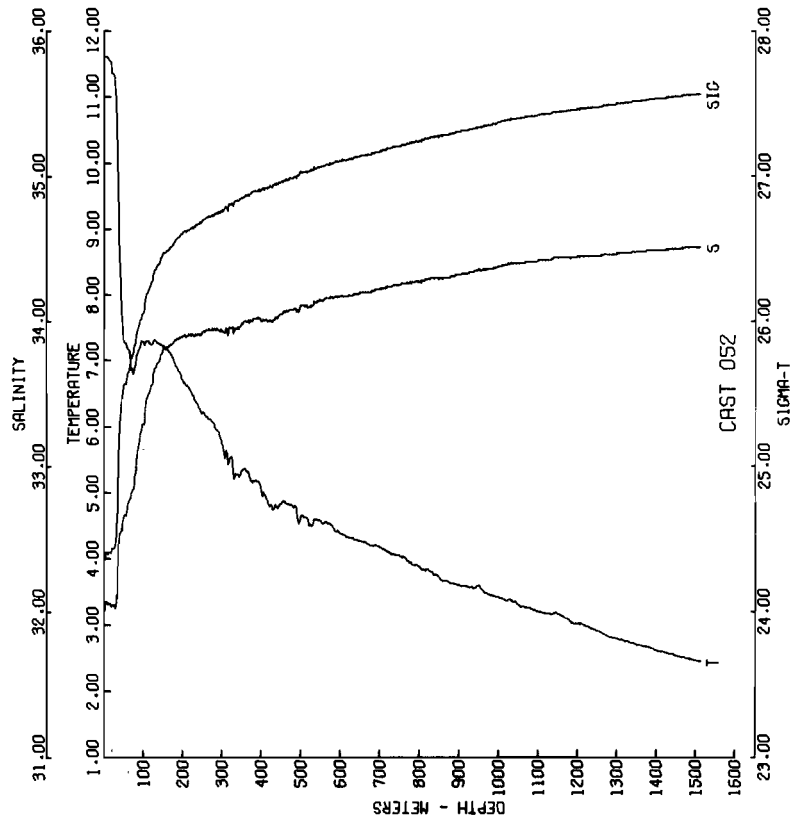
CAST 3082-00-050 DATE 19 OCT 72 TIME 2033 GMT
 SURFACE WIND DIR 205 WIND SPEED 11.1 KTS
 BAROMETER 1015.0 HGT 10.0 MET DEPTH 24.88 M
 CLOUD X AMOUNT 9 DRY 12.6 MET 12.1

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | DELTA-D (DN M) |
|-----------|-----------------|----------------|----------------|
| 0 | 11.80 | 32.12 | 24.41 |
| 1 | 11.76 | 32.12 | 24.41 |
| 2 | 11.75 | 32.12 | 24.41 |
| 3 | 11.69 | 32.12 | 24.41 |
| 4 | 11.69 | 32.12 | 24.41 |
| 5 | 11.69 | 32.12 | 24.41 |
| 6 | 11.69 | 32.12 | 24.41 |
| 7 | 11.69 | 32.12 | 24.41 |
| 8 | 11.69 | 32.12 | 24.41 |
| 9 | 11.69 | 32.12 | 24.41 |
| 10 | 11.69 | 32.12 | 24.41 |
| 11 | 11.69 | 32.12 | 24.41 |
| 12 | 11.69 | 32.12 | 24.41 |
| 13 | 11.69 | 32.12 | 24.41 |
| 14 | 11.69 | 32.12 | 24.41 |
| 15 | 11.69 | 32.12 | 24.41 |
| 16 | 11.69 | 32.12 | 24.41 |
| 17 | 11.69 | 32.12 | 24.41 |
| 18 | 11.69 | 32.12 | 24.41 |
| 19 | 11.69 | 32.12 | 24.41 |
| 20 | 11.69 | 32.12 | 24.41 |
| 21 | 11.69 | 32.12 | 24.41 |
| 22 | 11.69 | 32.12 | 24.41 |
| 23 | 11.69 | 32.12 | 24.41 |
| 24 | 11.69 | 32.12 | 24.41 |
| 25 | 11.69 | 32.12 | 24.41 |
| 26 | 11.69 | 32.12 | 24.41 |
| 27 | 11.69 | 32.12 | 24.41 |
| 28 | 11.69 | 32.12 | 24.41 |
| 29 | 11.69 | 32.12 | 24.41 |
| 30 | 11.69 | 32.12 | 24.41 |
| 31 | 11.69 | 32.12 | 24.41 |
| 32 | 11.69 | 32.12 | 24.41 |
| 33 | 11.69 | 32.12 | 24.41 |
| 34 | 11.69 | 32.12 | 24.41 |
| 35 | 11.69 | 32.12 | 24.41 |
| 36 | 11.69 | 32.12 | 24.41 |
| 37 | 11.69 | 32.12 | 24.41 |
| 38 | 11.69 | 32.12 | 24.41 |
| 39 | 11.69 | 32.12 | 24.41 |
| 40 | 11.69 | 32.12 | 24.41 |
| 41 | 11.69 | 32.12 | 24.41 |
| 42 | 11.69 | 32.12 | 24.41 |
| 43 | 11.69 | 32.12 | 24.41 |
| 44 | 11.69 | 32.12 | 24.41 |
| 45 | 11.69 | 32.12 | 24.41 |
| 46 | 11.69 | 32.12 | 24.41 |
| 47 | 11.69 | 32.12 | 24.41 |
| 48 | 11.69 | 32.12 | 24.41 |
| 49 | 11.69 | 32.12 | 24.41 |
| 50 | 11.69 | 32.12 | 24.41 |



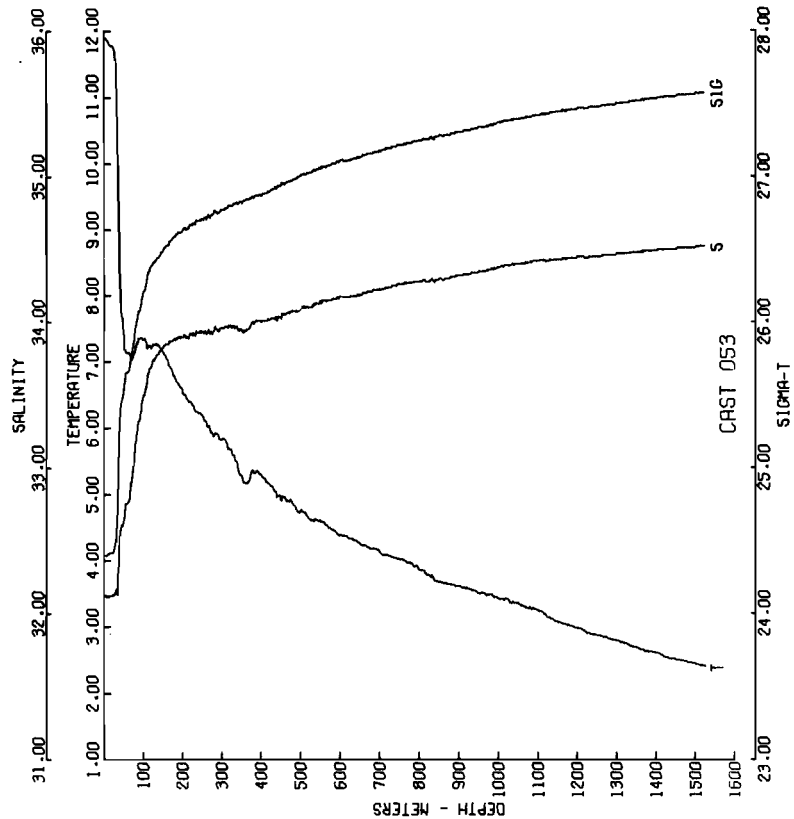
CAST 3082-00-051 DATE 19 OCT 72 TIME 0004 GMT
 SURFACE WIND DIR 210 WIND SPEED 11.1 KTS
 BAROMETER 1015.0 HGT 10.0 MET DEPTH 24.88 M
 CLOUD X AMOUNT 9 DRY 14.8 MET 13.6

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | DELTA-D (DN M) |
|-----------|-----------------|----------------|----------------|
| 0 | 11.81 | 32.00 | 24.40 |
| 1 | 11.79 | 32.00 | 24.40 |
| 2 | 11.79 | 32.00 | 24.40 |
| 3 | 11.79 | 32.00 | 24.40 |
| 4 | 11.79 | 32.00 | 24.40 |
| 5 | 11.79 | 32.00 | 24.40 |
| 6 | 11.79 | 32.00 | 24.40 |
| 7 | 11.79 | 32.00 | 24.40 |
| 8 | 11.79 | 32.00 | 24.40 |
| 9 | 11.79 | 32.00 | 24.40 |
| 10 | 11.79 | 32.00 | 24.40 |
| 11 | 11.79 | 32.00 | 24.40 |
| 12 | 11.79 | 32.00 | 24.40 |
| 13 | 11.79 | 32.00 | 24.40 |
| 14 | 11.79 | 32.00 | 24.40 |
| 15 | 11.79 | 32.00 | 24.40 |
| 16 | 11.79 | 32.00 | 24.40 |
| 17 | 11.79 | 32.00 | 24.40 |
| 18 | 11.79 | 32.00 | 24.40 |
| 19 | 11.79 | 32.00 | 24.40 |
| 20 | 11.79 | 32.00 | 24.40 |
| 21 | 11.79 | 32.00 | 24.40 |
| 22 | 11.79 | 32.00 | 24.40 |
| 23 | 11.79 | 32.00 | 24.40 |
| 24 | 11.79 | 32.00 | 24.40 |
| 25 | 11.79 | 32.00 | 24.40 |
| 26 | 11.79 | 32.00 | 24.40 |
| 27 | 11.79 | 32.00 | 24.40 |
| 28 | 11.79 | 32.00 | 24.40 |
| 29 | 11.79 | 32.00 | 24.40 |
| 30 | 11.79 | 32.00 | 24.40 |
| 31 | 11.79 | 32.00 | 24.40 |
| 32 | 11.79 | 32.00 | 24.40 |
| 33 | 11.79 | 32.00 | 24.40 |
| 34 | 11.79 | 32.00 | 24.40 |
| 35 | 11.79 | 32.00 | 24.40 |
| 36 | 11.79 | 32.00 | 24.40 |
| 37 | 11.79 | 32.00 | 24.40 |
| 38 | 11.79 | 32.00 | 24.40 |
| 39 | 11.79 | 32.00 | 24.40 |
| 40 | 11.79 | 32.00 | 24.40 |
| 41 | 11.79 | 32.00 | 24.40 |
| 42 | 11.79 | 32.00 | 24.40 |
| 43 | 11.79 | 32.00 | 24.40 |
| 44 | 11.79 | 32.00 | 24.40 |
| 45 | 11.79 | 32.00 | 24.40 |
| 46 | 11.79 | 32.00 | 24.40 |
| 47 | 11.79 | 32.00 | 24.40 |
| 48 | 11.79 | 32.00 | 24.40 |
| 49 | 11.79 | 32.00 | 24.40 |
| 50 | 11.79 | 32.00 | 24.40 |



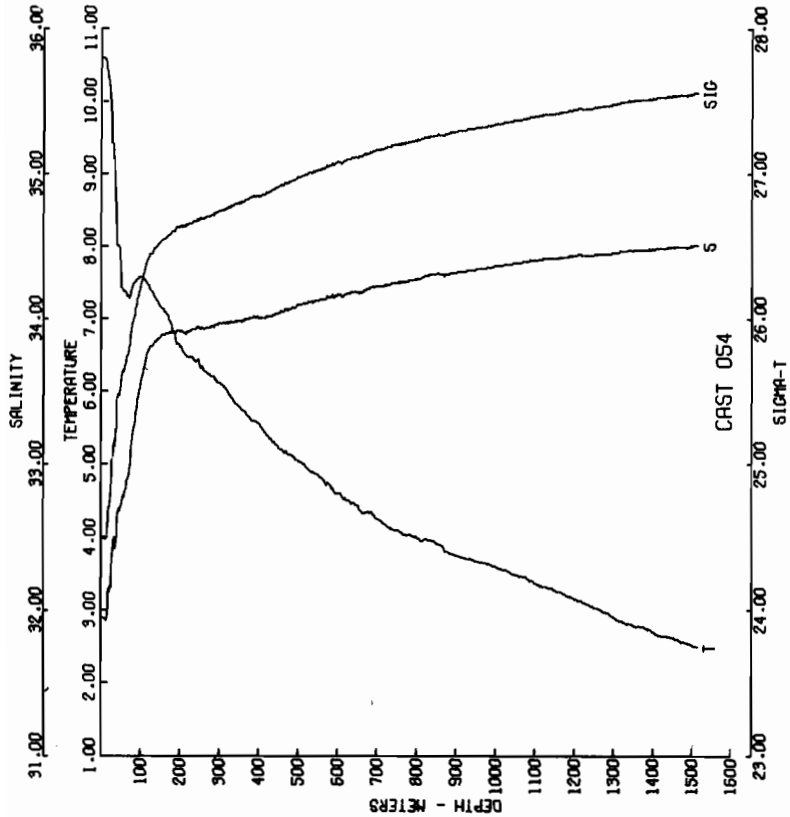
CAST 00AR2-00-052 DATE 20 OCT 72 TIME 0202 GMT
 LAT 49 01.5 N LONG 128 01.5 W WEATHER 1 SEA STATE 2
 BAROMETER 16.0 WIND DIR 021 SPD 11.5 VISIBILITY 10
 CLOUD X AMOUNT 9 DRY 12.5 WET 12.2 DEPTH 24.5 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DPN H) | DELTA-D |
|-----------|-----------------|----------------|-----------------|---------|
| 0 | 11.52 | 31.96 | 24.36 | 0.000 |
| 5 | 11.60 | 31.97 | 24.36 | 0.000 |
| 10 | 11.61 | 32.00 | 24.37 | 0.000 |
| 15 | 11.62 | 32.00 | 24.37 | 0.000 |
| 20 | 11.63 | 32.00 | 24.37 | 0.000 |
| 25 | 11.63 | 32.00 | 24.37 | 0.000 |
| 30 | 11.63 | 32.00 | 24.37 | 0.000 |
| 35 | 11.63 | 32.00 | 24.37 | 0.000 |
| 40 | 11.63 | 32.00 | 24.37 | 0.000 |
| 45 | 11.63 | 32.00 | 24.37 | 0.000 |
| 50 | 11.63 | 32.00 | 24.37 | 0.000 |
| 75 | 11.63 | 32.00 | 24.37 | 0.000 |
| 100 | 11.63 | 32.00 | 24.37 | 0.000 |
| 150 | 11.63 | 32.00 | 24.37 | 0.000 |
| 200 | 11.63 | 32.00 | 24.37 | 0.000 |
| 300 | 11.63 | 32.00 | 24.37 | 0.000 |
| 500 | 11.63 | 32.00 | 24.37 | 0.000 |
| 750 | 11.63 | 32.00 | 24.37 | 0.000 |
| 1000 | 11.63 | 32.00 | 24.37 | 0.000 |
| 1500 | 11.63 | 32.00 | 24.37 | 0.000 |
| 1550 | 11.63 | 32.00 | 24.37 | 0.000 |
| 1575 | 11.63 | 32.00 | 24.37 | 0.000 |



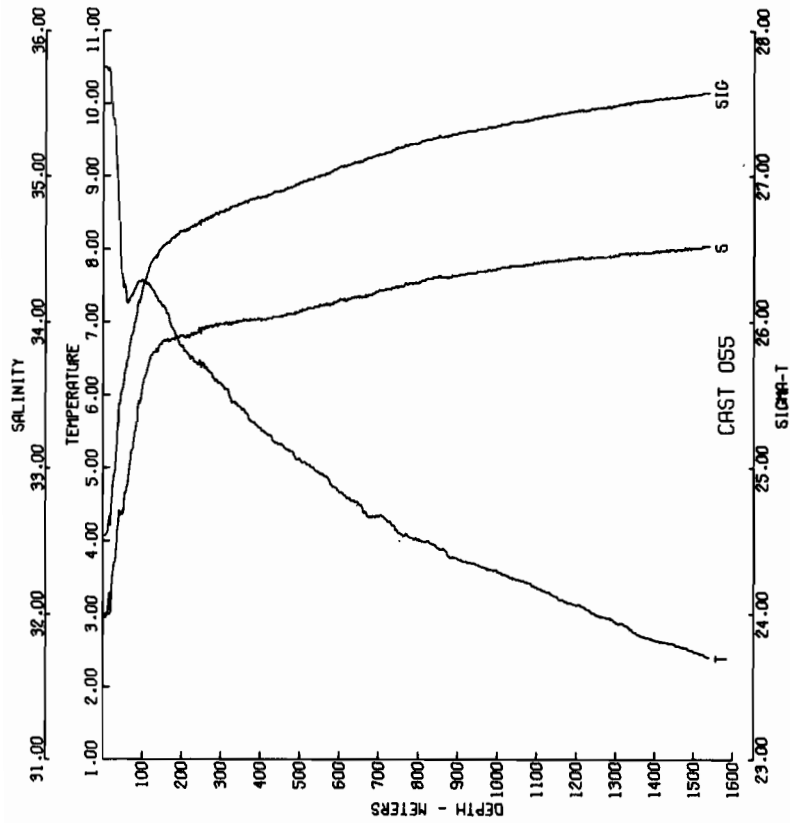
CAST 00AR2-00-053 DATE 20 OCT 72 TIME 0403 GMT
 LAT 49 06.3 N LONG 128 06.1 W WEATHER 1 SEA STATE 2
 BAROMETER 16.0 WIND DIR 021 SPD 8.0 VISIBILITY 10
 CLOUD X AMOUNT 9 DRY 13.7 WET 12.8 DEPTH 24.9 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DPN H) | DELTA-D |
|-----------|-----------------|----------------|-----------------|---------|
| 0 | 11.89 | 32.12 | 24.39 | 0.000 |
| 5 | 11.86 | 32.11 | 24.40 | 0.000 |
| 10 | 11.85 | 32.08 | 24.41 | 0.000 |
| 15 | 11.84 | 32.06 | 24.42 | 0.000 |
| 20 | 11.83 | 32.05 | 24.43 | 0.000 |
| 25 | 11.82 | 32.04 | 24.44 | 0.000 |
| 30 | 11.81 | 32.03 | 24.45 | 0.000 |
| 35 | 11.80 | 32.02 | 24.46 | 0.000 |
| 40 | 11.79 | 32.01 | 24.47 | 0.000 |
| 45 | 11.78 | 32.00 | 24.48 | 0.000 |
| 50 | 11.77 | 32.00 | 24.49 | 0.000 |
| 75 | 11.76 | 32.00 | 24.50 | 0.000 |
| 100 | 11.75 | 32.00 | 24.51 | 0.000 |
| 150 | 11.74 | 32.00 | 24.52 | 0.000 |
| 200 | 11.73 | 32.00 | 24.53 | 0.000 |
| 300 | 11.72 | 32.00 | 24.54 | 0.000 |
| 500 | 11.71 | 32.00 | 24.55 | 0.000 |
| 750 | 11.70 | 32.00 | 24.56 | 0.000 |
| 1000 | 11.69 | 32.00 | 24.57 | 0.000 |
| 1500 | 11.68 | 32.00 | 24.58 | 0.000 |
| 1550 | 11.68 | 32.00 | 24.58 | 0.000 |
| 1575 | 11.68 | 32.00 | 24.58 | 0.000 |



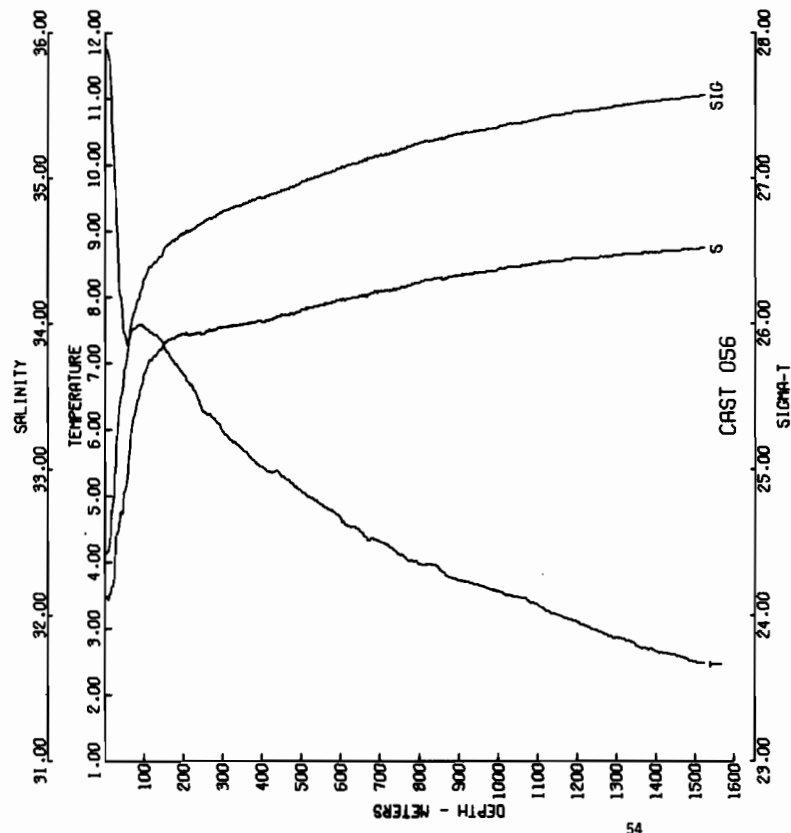
CAST 80482-0C-054 DATE 20 OCT 72 TIME 0721 GMT
 LAT 49 00.2N LONG 127 15.9W WEATHER 1 SEA STATE 2
 BAROMETER 14 WIND DIR 240 T SPD 10 KT VISIBILITY 4
 CLOUD X AMOUNT 9 DRY 12.1 MET 11.4 DEPTH 2044 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DTN M) | DELTA-D (DTN M) |
|-----------|-----------------|----------------|-----------------|-----------------|
| 0 | 10.90 | 31.95 | 24.50 | 0.000 |
| 5 | 10.60 | 31.95 | 24.50 | 0.000 |
| 10 | 10.60 | 31.95 | 24.50 | 0.034 |
| 15 | 10.56 | 32.193 | 24.50 | 0.052 |
| 20 | 10.34 | 32.22 | 24.50 | 0.069 |
| 25 | 9.72 | 32.22 | 24.50 | 0.115 |
| 30 | 8.54 | 32.22 | 24.50 | 0.129 |
| 35 | 8.03 | 32.22 | 24.50 | 0.135 |
| 40 | 7.58 | 32.22 | 24.50 | 0.142 |
| 45 | 7.18 | 32.22 | 24.50 | 0.147 |
| 50 | 6.65 | 32.22 | 24.50 | 0.152 |
| 100 | 5.12 | 32.22 | 24.50 | 0.161 |
| 150 | 3.30 | 32.22 | 24.50 | 0.169 |
| 200 | 2.09 | 32.22 | 24.50 | 0.172 |
| 300 | 1.61 | 32.22 | 24.50 | 0.177 |
| 400 | 1.43 | 32.22 | 24.50 | 0.182 |
| 500 | 1.43 | 32.22 | 24.50 | 0.185 |
| 1000 | 1.43 | 32.22 | 24.50 | 1.649 |
| 1500 | 1.43 | 32.22 | 24.50 | 1.649 |
| 1517 | 1.43 | 32.22 | 24.50 | 1.649 |



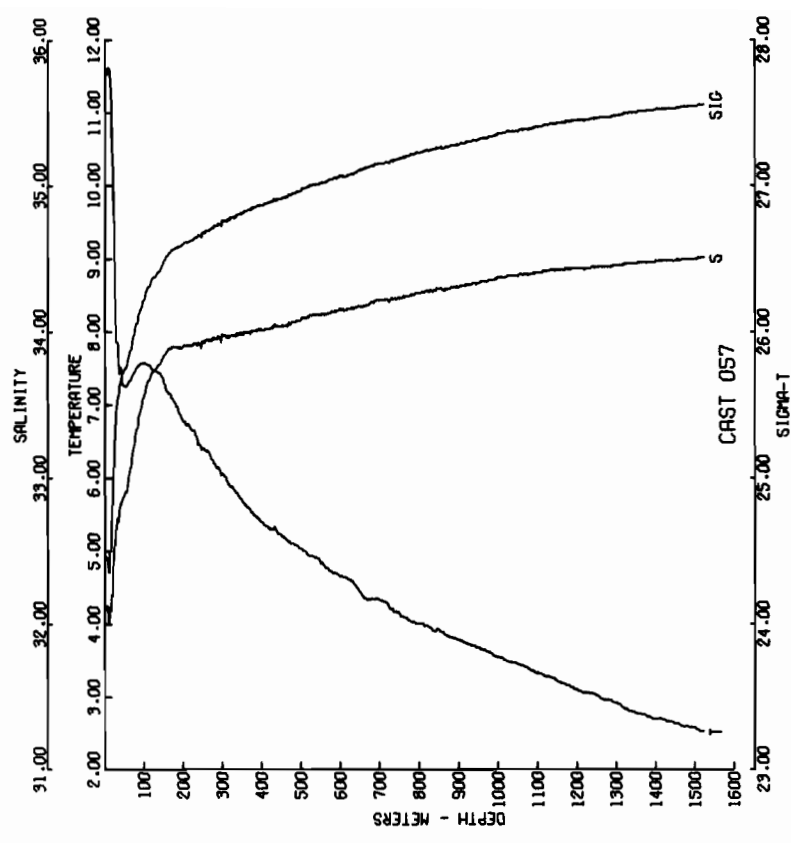
CAST 80482-0C-055 DATE 20 OCT 72 TIME 0903 GMT
 LAT 49 00.2N LONG 127 20.7W WEATHER 1 SEA STATE 2
 BAROMETER 14 WIND DIR 218 T SPD 10 KT VISIBILITY 4
 CLOUD X AMOUNT 9 DRY 12.1 MET 11.3 DEPTH 2044 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DTN M) | DELTA-D (DTN M) |
|-----------|-----------------|----------------|-----------------|-----------------|
| 0 | 10.90 | 31.95 | 24.50 | 0.000 |
| 5 | 10.60 | 31.95 | 24.50 | 0.000 |
| 10 | 10.60 | 31.95 | 24.50 | 0.034 |
| 15 | 10.56 | 32.00 | 24.50 | 0.051 |
| 20 | 10.34 | 32.00 | 24.50 | 0.068 |
| 25 | 9.72 | 32.00 | 24.50 | 0.084 |
| 30 | 8.54 | 32.00 | 24.50 | 0.114 |
| 35 | 8.03 | 32.00 | 24.50 | 0.128 |
| 40 | 7.58 | 32.00 | 24.50 | 0.134 |
| 45 | 7.18 | 32.00 | 24.50 | 0.140 |
| 50 | 6.65 | 32.00 | 24.50 | 0.144 |
| 100 | 5.12 | 32.00 | 24.50 | 0.149 |
| 150 | 3.30 | 32.00 | 24.50 | 0.159 |
| 200 | 2.09 | 32.00 | 24.50 | 0.163 |
| 300 | 1.61 | 32.00 | 24.50 | 1.003 |
| 400 | 1.43 | 32.00 | 24.50 | 1.003 |
| 500 | 1.43 | 32.00 | 24.50 | 1.048 |
| 1000 | 1.43 | 32.00 | 24.50 | 1.048 |
| 1500 | 1.43 | 32.00 | 24.50 | 1.048 |
| 1517 | 1.43 | 32.00 | 24.50 | 1.048 |



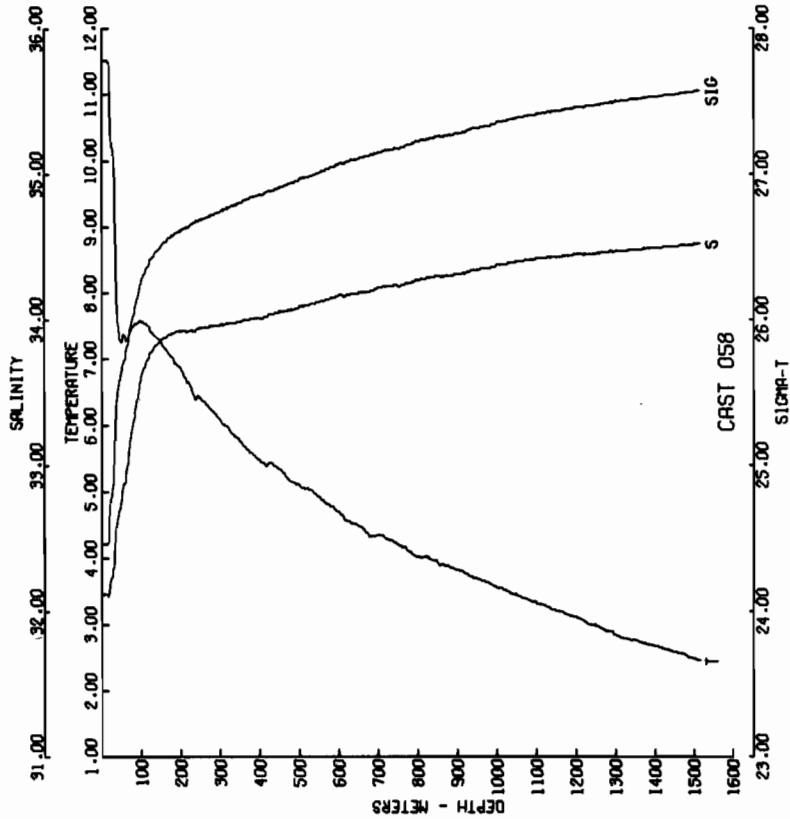
CAST ROAR2-00-956 DATE 20 OCT 72 TIME 1103 GMT
 LAT 49 00.8N LONG 127 19.1W WEATHER 1 SEA STATE 2
 BAROMETER 1013.0 WIND DIR 130 KT WIND VELOCITY 2
 CLOUD X AMOUNT 9 JRY 13.5 REL 13.5 DEPTH 2051 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DYN M) | DELTA-D |
|-----------|-----------------|----------------|-----------------|---------|
| 0 | 11.76 | 33.15 | 24.43 | 0.000 |
| 5 | 11.07 | 33.20 | 24.44 | 0.17 |
| 10 | 10.78 | 33.20 | 24.44 | 0.35 |
| 15 | 10.50 | 33.20 | 24.44 | 0.53 |
| 20 | 10.22 | 33.20 | 24.44 | 0.71 |
| 25 | 9.94 | 33.20 | 24.44 | 0.89 |
| 30 | 9.66 | 33.20 | 24.44 | 1.07 |
| 35 | 9.38 | 33.20 | 24.44 | 1.25 |
| 40 | 9.10 | 33.20 | 24.44 | 1.43 |
| 45 | 8.82 | 33.20 | 24.44 | 1.61 |
| 50 | 8.54 | 33.20 | 24.44 | 1.79 |
| 55 | 8.26 | 33.20 | 24.44 | 1.97 |
| 60 | 7.98 | 33.20 | 24.44 | 2.15 |
| 65 | 7.70 | 33.20 | 24.44 | 2.33 |
| 70 | 7.42 | 33.20 | 24.44 | 2.51 |
| 75 | 7.14 | 33.20 | 24.44 | 2.69 |
| 80 | 6.86 | 33.20 | 24.44 | 2.87 |
| 85 | 6.58 | 33.20 | 24.44 | 3.05 |
| 90 | 6.30 | 33.20 | 24.44 | 3.23 |
| 95 | 6.02 | 33.20 | 24.44 | 3.41 |
| 100 | 5.74 | 33.20 | 24.44 | 3.59 |
| 105 | 5.46 | 33.20 | 24.44 | 3.77 |
| 110 | 5.18 | 33.20 | 24.44 | 3.95 |
| 115 | 4.90 | 33.20 | 24.44 | 4.13 |
| 120 | 4.62 | 33.20 | 24.44 | 4.31 |
| 125 | 4.34 | 33.20 | 24.44 | 4.49 |
| 130 | 4.06 | 33.20 | 24.44 | 4.67 |
| 135 | 3.78 | 33.20 | 24.44 | 4.85 |
| 140 | 3.50 | 33.20 | 24.44 | 5.03 |
| 145 | 3.22 | 33.20 | 24.44 | 5.21 |
| 150 | 2.94 | 33.20 | 24.44 | 5.39 |
| 155 | 2.66 | 33.20 | 24.44 | 5.57 |
| 160 | 2.38 | 33.20 | 24.44 | 5.75 |



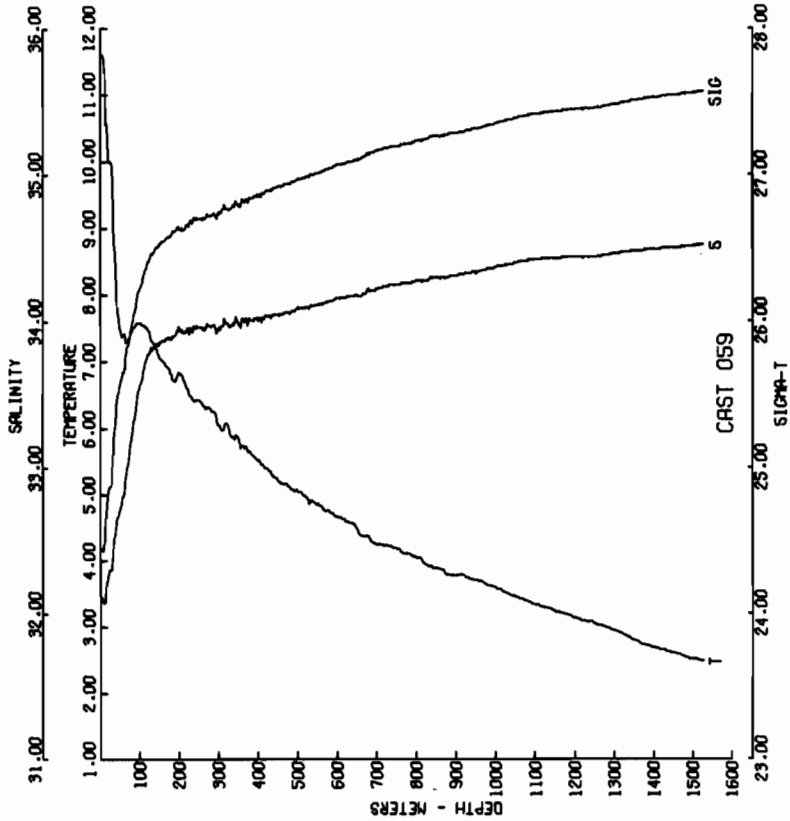
CAST ROAR2-00-057 DATE 20 OCT 72 TIME 1303 GMT
 LAT 49 01.2N LONG 127 20.5W WEATHER 1 SEA STATE 2
 BAROMETER 1013.0 WIND DIR 130 KT WIND VELOCITY 2
 CLOUD X AMOUNT 9 JRY 13.8 REL 13.0 DEPTH 2051 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DYN M) | DELTA-D |
|-----------|-----------------|----------------|-----------------|---------|
| 0 | 11.57 | 32.12 | 24.46 | 0.000 |
| 5 | 11.56 | 32.12 | 24.46 | 0.17 |
| 10 | 11.63 | 32.12 | 24.46 | 0.35 |
| 15 | 11.63 | 32.12 | 24.46 | 0.53 |
| 20 | 11.63 | 32.12 | 24.46 | 0.71 |
| 25 | 11.63 | 32.12 | 24.46 | 0.89 |
| 30 | 11.63 | 32.12 | 24.46 | 1.07 |
| 35 | 11.63 | 32.12 | 24.46 | 1.25 |
| 40 | 11.63 | 32.12 | 24.46 | 1.43 |
| 45 | 11.63 | 32.12 | 24.46 | 1.61 |
| 50 | 11.63 | 32.12 | 24.46 | 1.79 |
| 55 | 11.63 | 32.12 | 24.46 | 1.97 |
| 60 | 11.63 | 32.12 | 24.46 | 2.15 |
| 65 | 11.63 | 32.12 | 24.46 | 2.33 |
| 70 | 11.63 | 32.12 | 24.46 | 2.51 |
| 75 | 11.63 | 32.12 | 24.46 | 2.69 |
| 80 | 11.63 | 32.12 | 24.46 | 2.87 |
| 85 | 11.63 | 32.12 | 24.46 | 3.05 |
| 90 | 11.63 | 32.12 | 24.46 | 3.23 |
| 95 | 11.63 | 32.12 | 24.46 | 3.41 |
| 100 | 11.63 | 32.12 | 24.46 | 3.59 |
| 105 | 11.63 | 32.12 | 24.46 | 3.77 |
| 110 | 11.63 | 32.12 | 24.46 | 3.95 |
| 115 | 11.63 | 32.12 | 24.46 | 4.13 |
| 120 | 11.63 | 32.12 | 24.46 | 4.31 |
| 125 | 11.63 | 32.12 | 24.46 | 4.49 |
| 130 | 11.63 | 32.12 | 24.46 | 4.67 |
| 135 | 11.63 | 32.12 | 24.46 | 4.85 |
| 140 | 11.63 | 32.12 | 24.46 | 5.03 |
| 145 | 11.63 | 32.12 | 24.46 | 5.21 |
| 150 | 11.63 | 32.12 | 24.46 | 5.39 |
| 155 | 11.63 | 32.12 | 24.46 | 5.57 |
| 160 | 11.63 | 32.12 | 24.46 | 5.75 |



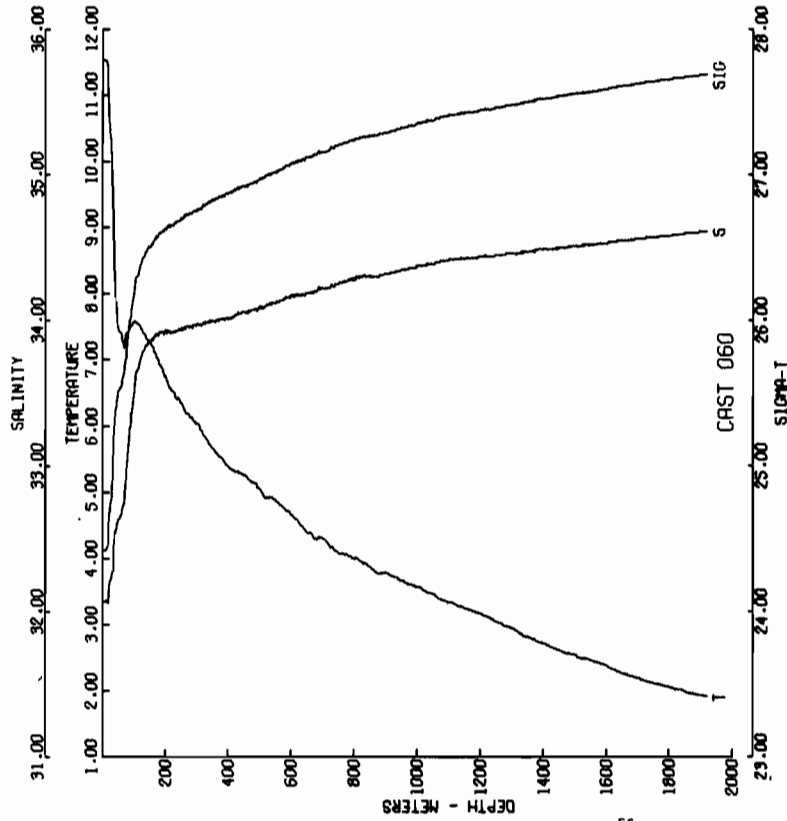
CAST BOARD 2-00-058 DATE 17 OCT 72 TIME 1510 GMT
 LAT 40 22 N LONG 127 17 W SUR 2 VISIBILITY 5
 BAROMETR 12 HING DR 13.6 MET 12.5 DEPTH 2024 M
 CLOUD 6 AMOUNT 8 DRY 13.6 MET

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DYN CM) | DELTA-S (DYN CM) |
|-----------|-----------------|----------------|------------------|------------------|
| 0 | 11.50 | 32.15 | 24.47 | 0.000 |
| 10 | 11.27 | 32.14 | 24.47 | 0.007 |
| 20 | 11.03 | 32.14 | 24.47 | 0.035 |
| 30 | 10.78 | 32.22 | 24.46 | 0.052 |
| 40 | 10.52 | 32.22 | 24.45 | 0.070 |
| 50 | 10.26 | 32.22 | 24.45 | 0.086 |
| 60 | 10.00 | 32.22 | 24.45 | 0.102 |
| 70 | 9.74 | 32.22 | 24.44 | 0.117 |
| 80 | 9.48 | 32.22 | 24.44 | 0.133 |
| 90 | 9.22 | 32.22 | 24.44 | 0.145 |
| 100 | 8.96 | 32.22 | 24.43 | 0.155 |
| 110 | 8.70 | 32.22 | 24.43 | 0.163 |
| 120 | 8.44 | 32.22 | 24.43 | 0.170 |
| 130 | 8.18 | 32.22 | 24.43 | 0.176 |
| 140 | 7.92 | 32.22 | 24.43 | 0.181 |
| 150 | 7.66 | 32.22 | 24.43 | 0.185 |
| 160 | 7.40 | 32.22 | 24.43 | 0.189 |
| 170 | 7.14 | 32.22 | 24.43 | 0.192 |
| 180 | 6.88 | 32.22 | 24.43 | 0.195 |
| 190 | 6.62 | 32.22 | 24.43 | 0.198 |
| 200 | 6.36 | 32.22 | 24.43 | 0.200 |
| 210 | 6.10 | 32.22 | 24.43 | 0.202 |
| 220 | 5.84 | 32.22 | 24.43 | 0.204 |
| 230 | 5.58 | 32.22 | 24.43 | 0.205 |
| 240 | 5.32 | 32.22 | 24.43 | 0.206 |
| 250 | 5.06 | 32.22 | 24.43 | 0.207 |
| 260 | 4.80 | 32.22 | 24.43 | 0.208 |
| 270 | 4.54 | 32.22 | 24.43 | 0.209 |
| 280 | 4.28 | 32.22 | 24.43 | 0.210 |
| 290 | 4.02 | 32.22 | 24.43 | 0.211 |
| 300 | 3.76 | 32.22 | 24.43 | 0.212 |
| 310 | 3.50 | 32.22 | 24.43 | 0.213 |
| 320 | 3.24 | 32.22 | 24.43 | 0.214 |
| 330 | 2.98 | 32.22 | 24.43 | 0.215 |
| 340 | 2.72 | 32.22 | 24.43 | 0.216 |
| 350 | 2.46 | 32.22 | 24.43 | 0.217 |

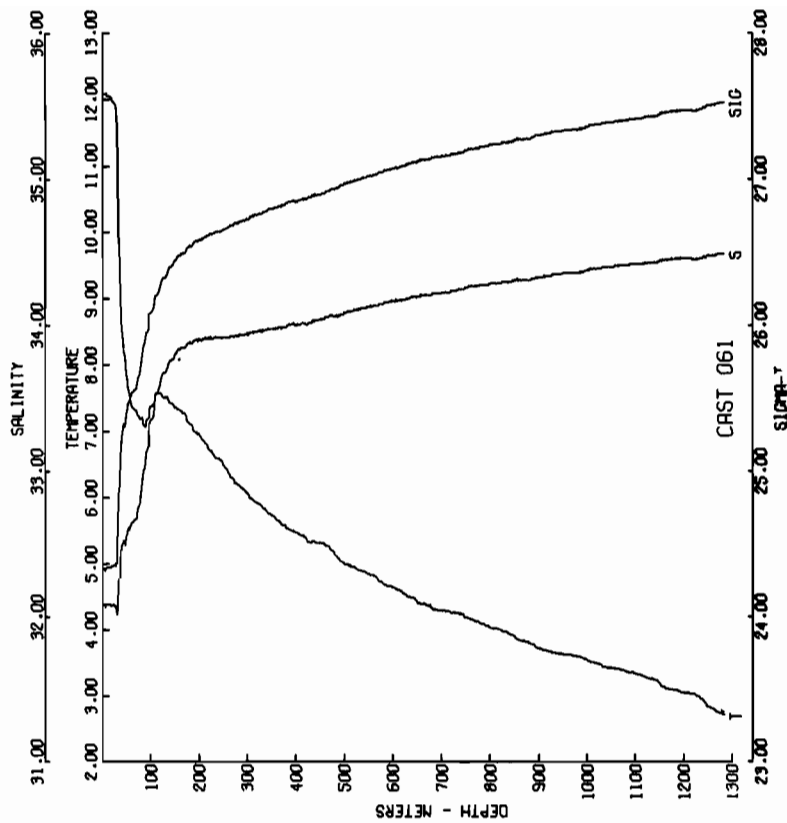


CAST BOARD 2-00-059 DATE 17 OCT 72 TIME 1720 GMT
 LAT 40 22 N LONG 127 15 W SUR 6 VISIBILITY 2
 BAROMETR 11 HING DR 13.3 MET 13.3 DEPTH 2124 M
 CLOUD 4 AMOUNT 8 DRY 13.3 MET

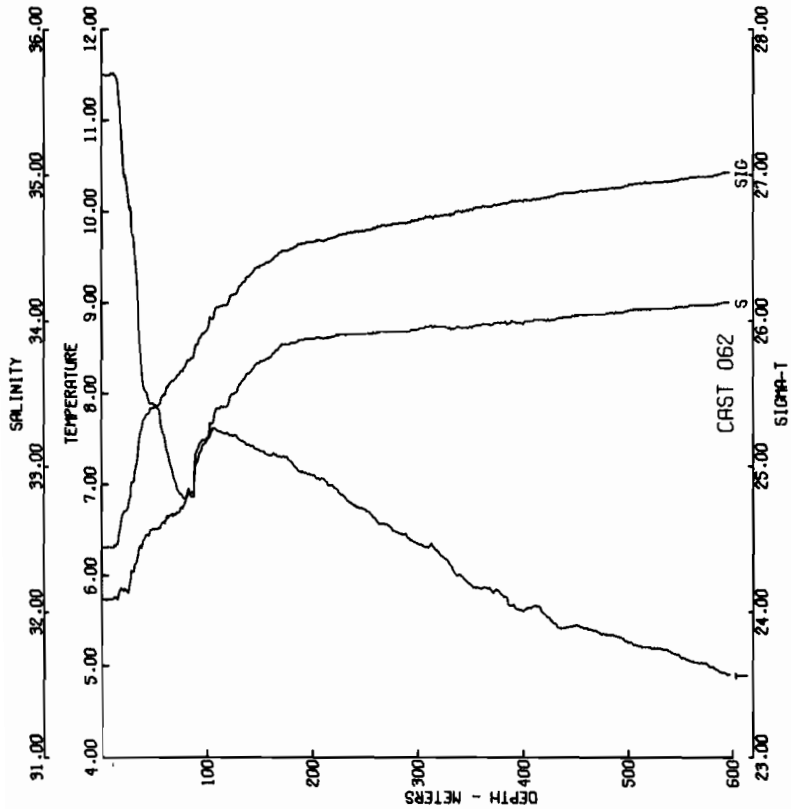
| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T (DYN CM) | DELTA-S (DYN CM) |
|-----------|-----------------|----------------|------------------|------------------|
| 0 | 11.52 | 32.11 | 24.46 | 0.000 |
| 10 | 11.29 | 32.11 | 24.46 | 0.005 |
| 20 | 11.05 | 32.11 | 24.46 | 0.010 |
| 30 | 10.81 | 32.22 | 24.46 | 0.015 |
| 40 | 10.57 | 32.22 | 24.46 | 0.020 |
| 50 | 10.33 | 32.22 | 24.46 | 0.025 |
| 60 | 10.09 | 32.22 | 24.46 | 0.030 |
| 70 | 9.85 | 32.22 | 24.46 | 0.035 |
| 80 | 9.61 | 32.22 | 24.46 | 0.040 |
| 90 | 9.37 | 32.22 | 24.46 | 0.045 |
| 100 | 9.13 | 32.22 | 24.46 | 0.050 |
| 110 | 8.89 | 32.22 | 24.46 | 0.055 |
| 120 | 8.65 | 32.22 | 24.46 | 0.060 |
| 130 | 8.41 | 32.22 | 24.46 | 0.065 |
| 140 | 8.17 | 32.22 | 24.46 | 0.070 |
| 150 | 7.93 | 32.22 | 24.46 | 0.075 |
| 160 | 7.69 | 32.22 | 24.46 | 0.080 |
| 170 | 7.45 | 32.22 | 24.46 | 0.085 |
| 180 | 7.21 | 32.22 | 24.46 | 0.090 |
| 190 | 6.97 | 32.22 | 24.46 | 0.095 |
| 200 | 6.73 | 32.22 | 24.46 | 0.100 |
| 210 | 6.49 | 32.22 | 24.46 | 0.105 |
| 220 | 6.25 | 32.22 | 24.46 | 0.110 |
| 230 | 6.01 | 32.22 | 24.46 | 0.115 |
| 240 | 5.77 | 32.22 | 24.46 | 0.120 |
| 250 | 5.53 | 32.22 | 24.46 | 0.125 |
| 260 | 5.29 | 32.22 | 24.46 | 0.130 |
| 270 | 5.05 | 32.22 | 24.46 | 0.135 |
| 280 | 4.81 | 32.22 | 24.46 | 0.140 |
| 290 | 4.57 | 32.22 | 24.46 | 0.145 |
| 300 | 4.33 | 32.22 | 24.46 | 0.150 |
| 310 | 4.09 | 32.22 | 24.46 | 0.155 |
| 320 | 3.85 | 32.22 | 24.46 | 0.160 |
| 330 | 3.61 | 32.22 | 24.46 | 0.165 |
| 340 | 3.37 | 32.22 | 24.46 | 0.170 |
| 350 | 3.13 | 32.22 | 24.46 | 0.175 |



CAST 0082-0C-060 DATE 20 OCT 72 TIME 1903 GMT
 LAT 48 00.0N LONG 127 20.0W WEATHER 6 VISA STATE 2
 BARONE TER 109 WIND DIR 165 T SPD 20 KT VISIBILITY 1
 CLOUD X AMOUNT 9 DRY 12.5 MET 12.1 DEPTH 2005 M



CAST 0082-0C-061 DATE 21 OCT 72 TIME 0224 GMT
 LAT 48 59.5N LONG 127 04.0W WEATHER 1 SEA STATE 3
 BARONE TER 109 WIND DIR 280 T SPD 10 KT VISIBILITY 4
 CLOUD X AMOUNT 9 DRY 13.8 MET 13.8 DEPTH 1291 M



CAST ROAR2-OC-062 DATE 21 OCT 72 TIME 0408 GMT
 LAT 49 00.0N LONG 120 55.5W WEATHER 1 SEA STATE 2
 BAROMET 13 WIND DIR 231 T SFC 06 KT WZSBILTY 4
 CLOUD X AROUND 9 DRY 12.5 MET 11.0 DEPTH 631 M

| DEPTH (M) | TEMPERATURE (C) | SALINITY (PPT) | SIGMA-T | DELTA-D (DYN M) |
|-----------|-----------------|----------------|---------|-----------------|
| 0 | 11.50 | 32.09 | 26.44 | 0.000 |
| 2 | 11.59 | 32.09 | 26.44 | .017 |
| 5 | 11.51 | 32.09 | 26.44 | .025 |
| 10 | 11.45 | 32.09 | 26.44 | .026 |
| 20 | 11.35 | 32.10 | 26.45 | .026 |
| 30 | 11.28 | 32.10 | 26.45 | .026 |
| 40 | 11.22 | 32.28 | 26.45 | .117 |
| 50 | 11.12 | 32.37 | 26.55 | .111 |
| 75 | 11.03 | 32.49 | 26.57 | .124 |
| 100 | 10.88 | 32.52 | 26.58 | .225 |
| 150 | 10.69 | 32.57 | 26.58 | .259 |
| 200 | 10.50 | 32.61 | 26.58 | .268 |
| 300 | 10.30 | 32.66 | 26.58 | .268 |
| 400 | 10.16 | 32.66 | 26.58 | .268 |
| 500 | 10.01 | 32.66 | 26.58 | .268 |
| 600 | 9.91 | 32.66 | 26.58 | .268 |

7. ACKNOWLEDGMENTS

We thank James R. Holbrook for preparing the programs for computer reduction and plotting of the data. The continuous and enthusiastic support of Captain Herbert R. Lippold and the officers and crew of the NOAA Ship OCEANOGRAPHER is gratefully acknowledged.

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