

UNIVERSITY OF CALIFORNIA    SCRIPPS INSTITUTION OF OCEANOGRAPHY

# data report

PHYSICAL, CHEMICAL AND BIOLOGICAL  
DATA REPORT

CRUISE SQ86  
15-22 March, 1986

SIO Reference 87-17  
31 July 1987

UNIVERSITY OF CALIFORNIA  
SCRIPPS INSTITUTION OF OCEANOGRAPHY

PHYSICAL, CHEMICAL AND BIOLOGICAL DATA

CRUISE SQ86  
15-22 March, 1986

T. L. Hayward, A. W. Mantyla, and P. P. Niiler

Sponsored by

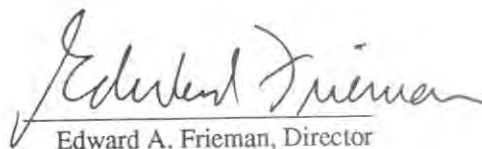
Marine Life Research Group,  
Scripps Institution of Oceanography

and

Office of Naval Research

SIO Reference 87-17  
31 July 1987

Approved for distribution:

  
Edward A. Frieman, Director

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## INTRODUCTION

The data in this report were collected from 15 to 22 March 1986 on the SQ86 Cruise aboard *RV New Horizon* of the Scripps Institution of Oceanography (SIO). The purpose of the cruise was to describe structure in the near-coastal area, the California Transition Zone (Brink and Hartwig, 1985), and to investigate its effects upon physical, chemical and biological patterns in the California Current System. The SQ86 cruise site was located along the central California coast between Point Arguello and Point Sur (Fig. 1). The data were collected and processed by personnel of the Marine Life Research Group (MLRG) and the Oceanographic Data Facility (ODF) at SIO. Support was provided by the Marine Life Research Group of the Scripps Institution of Oceanography and the Office of Naval Research.

## STANDARD PROCEDURES

### *Conductivity/Temperature/Depth (CTD) Data*

A Neil Brown Instrument Systems CTD was used successfully on 35 stations to a maximum sampling depth of 500 m, bottom depth permitting. The CTD malfunctioned during the first part of the cruise and scheduled CTD stations were replaced by 10-bottle, 200 m Nansen casts, except for Station G 3, where no data were recovered. Checks on the CTD temperature and computed salinity were made on most CTD casts by comparison with deep-sea reversing thermometers and salinity samples from Niskin rosette bottles tripped near the surface and at the maximum CTD depth. The CTD data were processed and calibrated by personnel at the ODF who provided MLRG with a computer tape of the corrected CTD temperature and salinity data at one-db intervals. Standard depth data listed in this report have been extracted from the one-db interval tapes using the Saunders (1981) pressure-to-depth conversion technique. Profiles of the one-db interval CTD data appear at the end of this report. The complete one-db interval tapes will be sent to NODC.

### *Hydrographic Cast Data*

Except for the CTD replacement Nansen casts, the hydrographic casts consisted of 20 epoxy-lined Nansen bottles lowered to a maximum sampling depth of 575 m, bottom depth permitting. Only temperature and salinity were determined on the CTD replacement casts. Temperature, salinity, dissolved oxygen, and nutrients from all depths, and usually chlorophyll-*a* and phaeopigments from the top 12 depths, were determined on the rest of the hydrographic stations.

Paired protected reversing thermometers were used to determine temperatures which were recorded to hundredths of a degree Celsius. Sampling bottles used below a depth of about 75 meters were equipped with unprotected thermometers for determination of the depth of sampling.

Salinity samples were analyzed at sea using inductive-type salinometers. Salinometers were standardized with substandard seawater. Periodic checks on the concentration of the substandard were made by comparison with Wormley Standard Seawater batch P-96. The salinity values are reported to three decimal places.

Dissolved oxygen was determined by the Winkler method as modified by Carpenter (1965), using the equipment and procedure outlined by Anderson (1971). Percent oxygen saturation was calculated from the equations of Weiss (1970).

Silicate, phosphate, nitrate and nitrite nutrients were determined at sea using an automated analyzer. The procedures used are similar to those described in Atlas *et al.* (1971).

Chlorophyll-*a* and phaeopigments were measured with a fluorometric technique (Yentsch and Menzel, 1963; Holm-Hansen *et al.*, 1965) from subsamples filtered onto GF/C filters. The pigments were extracted with a cold extraction technique in 90% acetone (Venrick and Hayward, 1984) and the fluorescence determined before and after acidification with a Turner design fluorometer.

The observed data have been evaluated using the methodology described by Klein (1973). This involves consideration of their variation as functions of density or depth and their relations to each other, and comparisons with adjacent observations.



### Satellite Tracked Data

TRISTAR-II drifters are tracked by ARGOS, with an average of seven receptions per day. The latitude and longitude fixes are interpolated to 0.2-day intervals by linear interpolation. These data are plotted on Figure 2. The interpolated data are available on magnetic tape from SIO. For details of drifter construction and water following capabilities, see Niiler *et al.* (1987).

### Primary Productivity Casts

Primary production was estimated from  $^{14}\text{C}$  uptake using a simulated *in situ* technique. Light penetration was estimated from the Secchi depth (assuming that the 1% light level is three times the Secchi depth). Six depths, corresponding to predetermined levels of light penetration, were sampled with 5 l Niskin bottles. Temperature, salinity, oxygen, nutrients, chlorophyll-*a*, and phaeopigments were determined for all depths sampled. Triplicate samples (two light and one dark control) were drawn from each depth into 250 ml polycarbonate incubation bottles which were inoculated with approximately 10  $\mu\text{Ci}$  of  $^{14}\text{C}$  as  $\text{NaHCO}_3$ . These were incubated from near local apparent noon to civil twilight in seawater-cooled incubators with neutral-density screens which simulate the *in situ* light levels. At the end of the incubation, the samples were filtered onto HA millipore filters and placed in scintillation vials. One-half ml of 10% HCl was added to each sample. The sample was then allowed to sit, without a cap, at room temperature for 12 hours (after Lean and Burnison, 1979). Following this, 10 ml of scintillation fluor were added to each sample and the samples were returned to SIO where the radioactivity was determined with a scintillation counter.

### Macrozooplankton Net Tows

Macrozooplankton was sampled with a 71 cm mouth diameter paired net (bongo net) equipped with 0.505 mm plankton mesh. Bottom depth permitting, the nets were towed obliquely from 210 m to the surface. The tow time for a standard tow was 21.5 minutes. Volumes filtered were determined from flowmeter readings and the mouth area of the net. Only one sample of each pair was retained and preserved. The biomass, as wet displacement volume, after removal of large (> 5 ml) organisms, was determined in the laboratory ashore. These procedures are summarized in greater detail in Kramer *et al.* (1972).

### Additional Data

Additional data collected but not tabulated in this report include continuous near-surface measurements of temperature, salinity, and "chlorophyll" fluorescence, and vertical profiles of photosynthetically active radiation (PAR) measured with a Biospherical Instruments quantum scalar irradiance meter.

## TABULATED DATA

### Hydrographic and CTD Cast Data

Hydrographic and CTD cast data are reported together in the order occupied during the cruise. The time reported is Greenwich Mean Time (GMT). For CTD lowerings it is the "start down" time; for wire casts it is the time of the messenger release. Bottom depths, determined acoustically, have been corrected using British Admiralty Tables (Carter, 1980) and are reported in meters. Weather conditions have been coded using WMO code 4501.

Observed and interpolated standard depth data from hydrographic casts have been interspersed and are presented together sequentially by depth. Interpolated or extrapolated standard level data are noted by the footnote "ISL" printed after the depth. Density-related parameters have been calculated from the International Equation of State of Seawater 1980 (EOS80, UNESCO, 1981). Computed values of potential temperature, sigma-theta, specific volume anomaly (SVA), dynamic height or geopotential anomaly, and pressure are included with both observed and interpolated standard depth levels.

Where appropriate, two CTD stations are printed side by side. CTD temperature and salinity are tabulated to closer "standard depth" intervals than the interpolated standard depth hydrographic cast data.

### *Primary Productivity Casts*

In addition to the normal hydrographic information, the tabulated data include: the light levels at which the samples were incubated, the uptake from each of the replicate light bottles (uptake 1 and uptake 2) which have been corrected for dark uptake by subtracting the dark value, the mean of the two uptake values, the dark uptake, chlorophyll-*a* and phaeopigments. The uptake values shown are the total for the incubation period. The times of local apparent noon (LAN), civil twilight, and the vertically integrated value of the mean uptake from the surface to the deepest sample depth (assuming that the shallowest measured value extends to the surface and that negative values are zero) are also shown for each experiment. The uptake data have been presented to two significant digits (values < 1.00) or one decimal (values > 1.00). The higher production values may not warrant all of the digits presented. Incubation time, LAN, and civil twilight are given in local Pacific Standard Time (PST); to convert to GMT, add eight hours to the PST time.

### *Secchi Disk Observations*

Secchi disk observations were made on most daylight stations. The times are given in local PST (+8) time. Weather codes and cloud observations are also presented.

### *Macrozooplankton Data*

Macrozooplankton biomass volumes are tabulated as total biomass volume ( $\text{cm}^3/1000 \text{ m}^3$  strained) and as the total volume minus the volume of larger organisms under the heading "Small."

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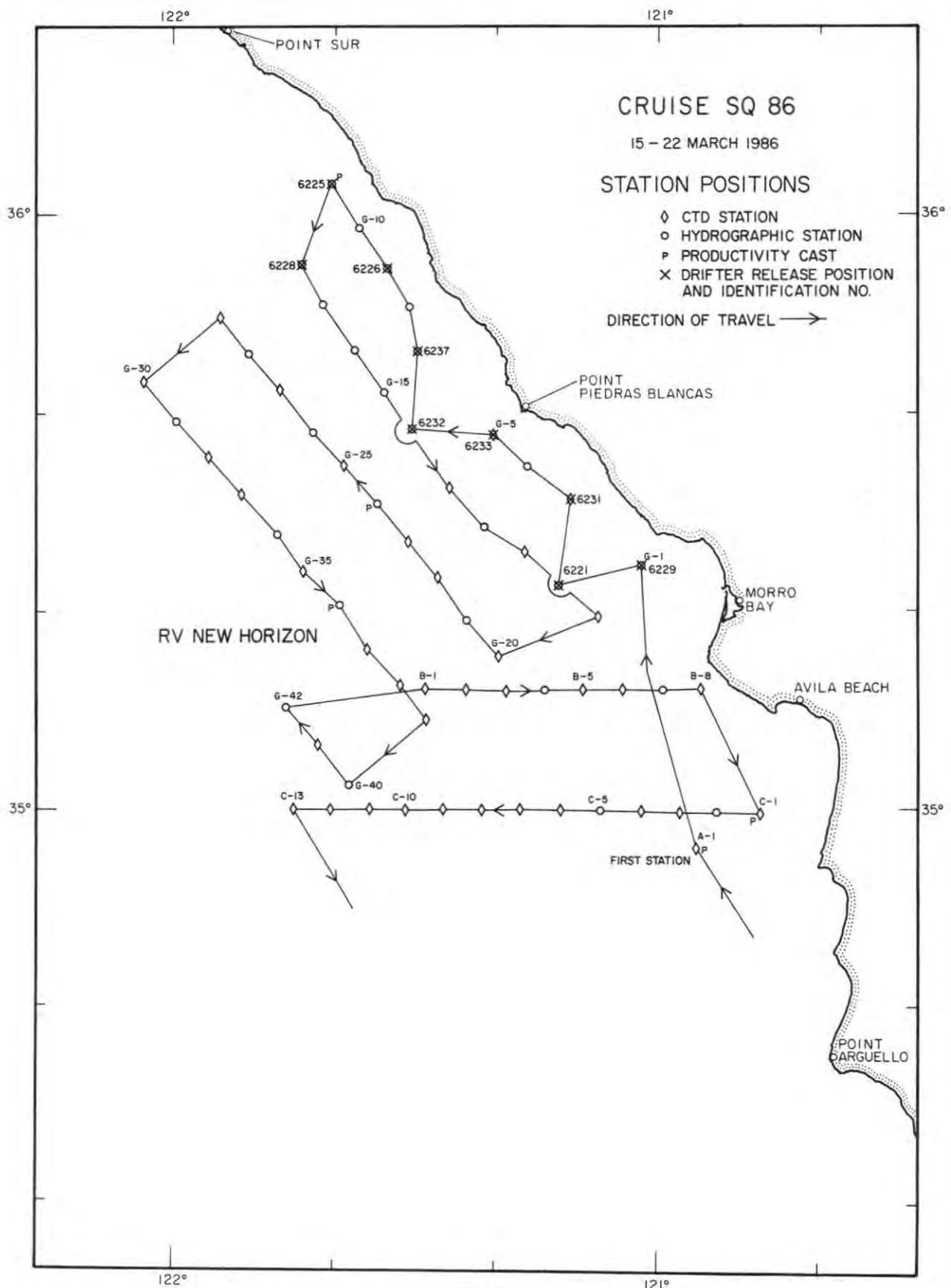


FIGURE 1



## FIGURES

### Cruise SQ86

1. SQ86 cruise track and station positions.
- 2a. Tracks of drifters released in study area. The star marks the deployment location.
- 2b. Individual tracks of drifters released in study area. The year date (YD) 76 is 17 March. Deployment location is marked by a star. A cross marks interpolated position at 00:00 (GMT) on consecutive days. The number (62\_\_) designates the drifter transmitter identification in ARGOS system.
3. Horizontal distribution of dynamic height anomaly (0 over 500 m). In areas shallower than 500 m, the dynamic heights were extrapolated on the basis of the offshore deeper steric heights as described in Reid and Mantyla (1976).
4. Horizontal distribution of sigma-theta at 10 meters.
5. Horizontal distribution of temperature at 10 meters.
6. Horizontal distribution of salinity at 10 meters.
7. Horizontal distribution of dynamic height (200 over 500 m). Shallow water extrapolations as in 3 above.
8. Horizontal distribution of sigma-theta at 200 meters.
9. Horizontal distribution of temperature at 200 meters.
10. Horizontal distribution of salinity at 200 meters.

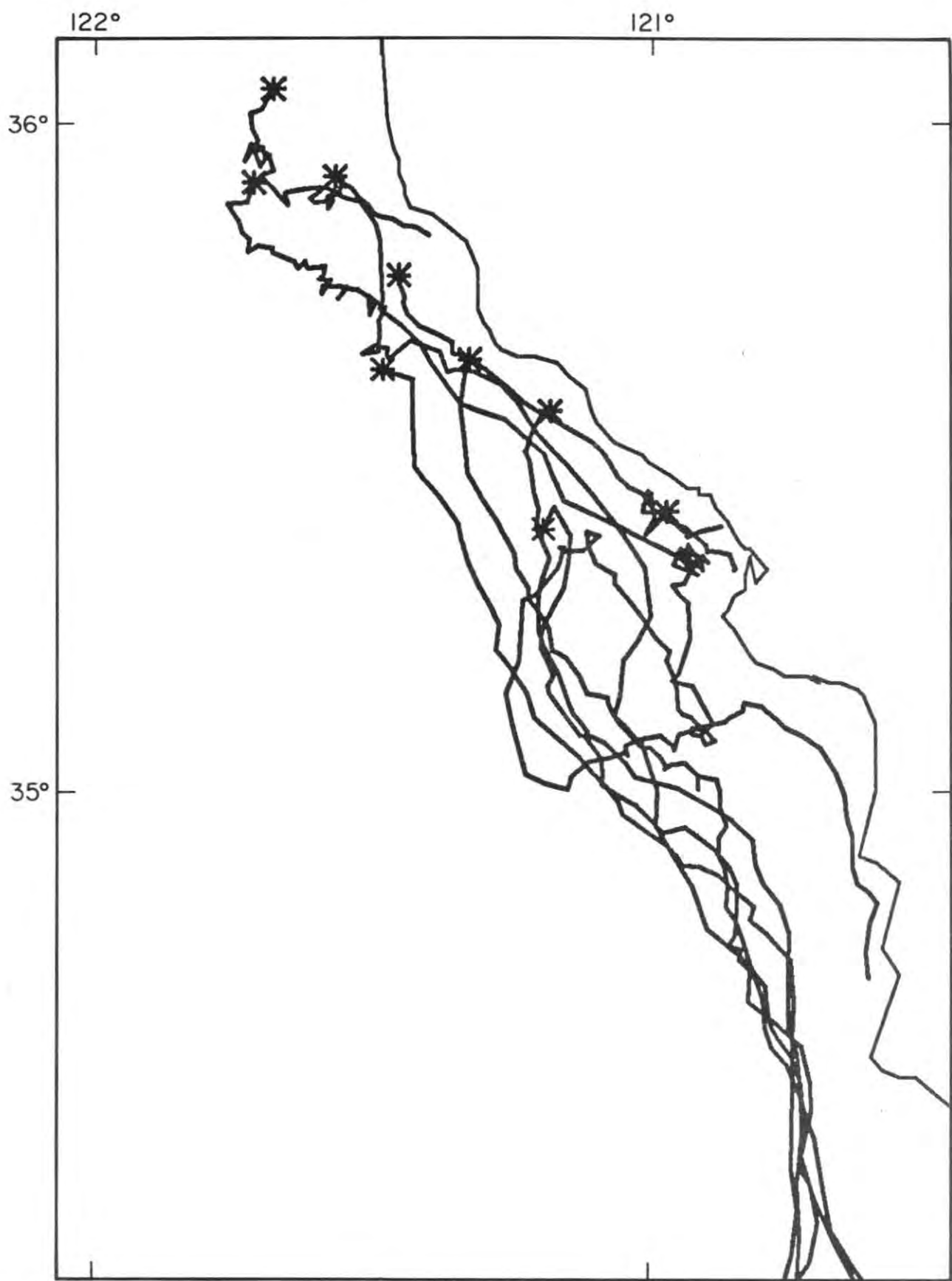


FIGURE 2a

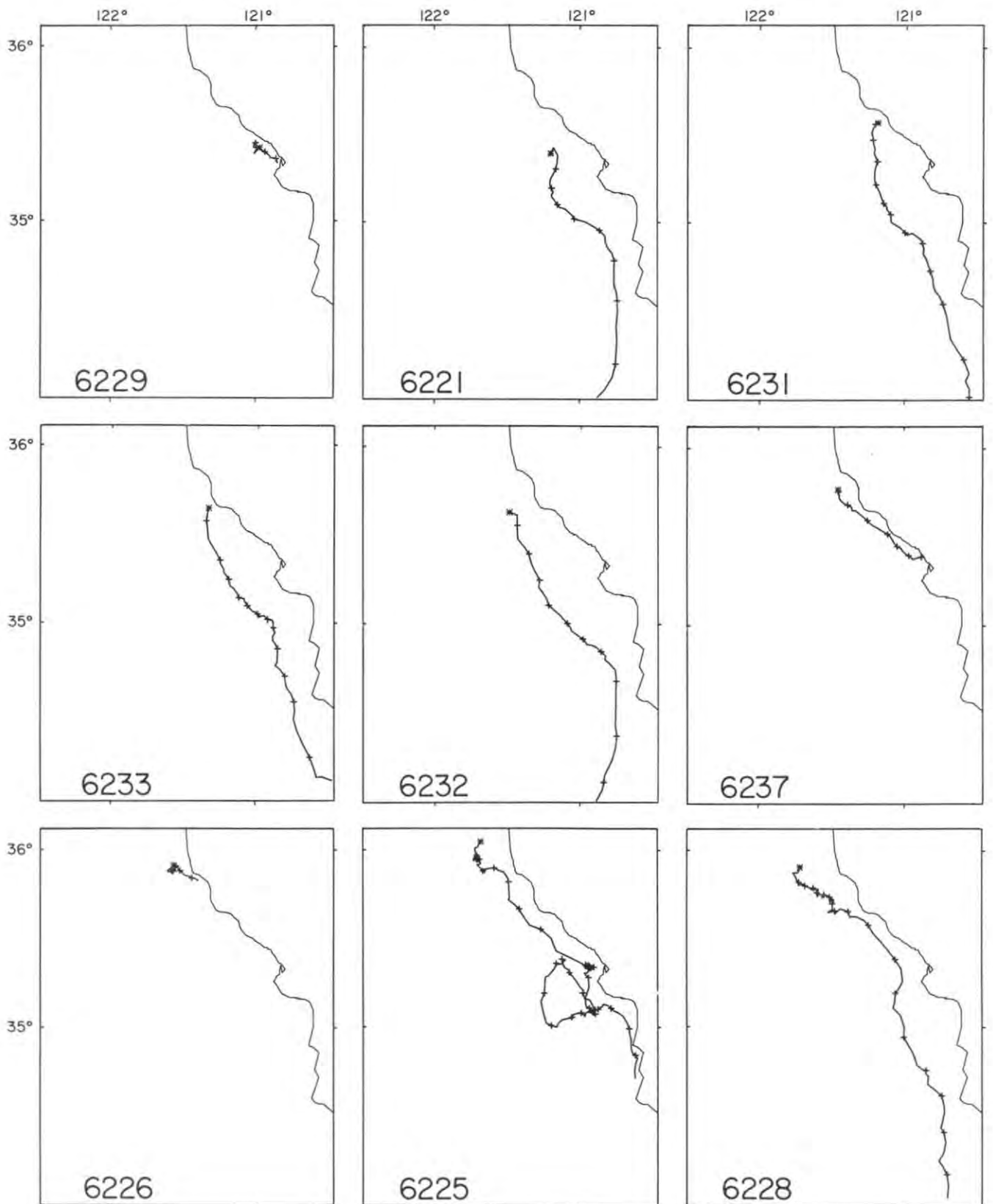


FIGURE 2b

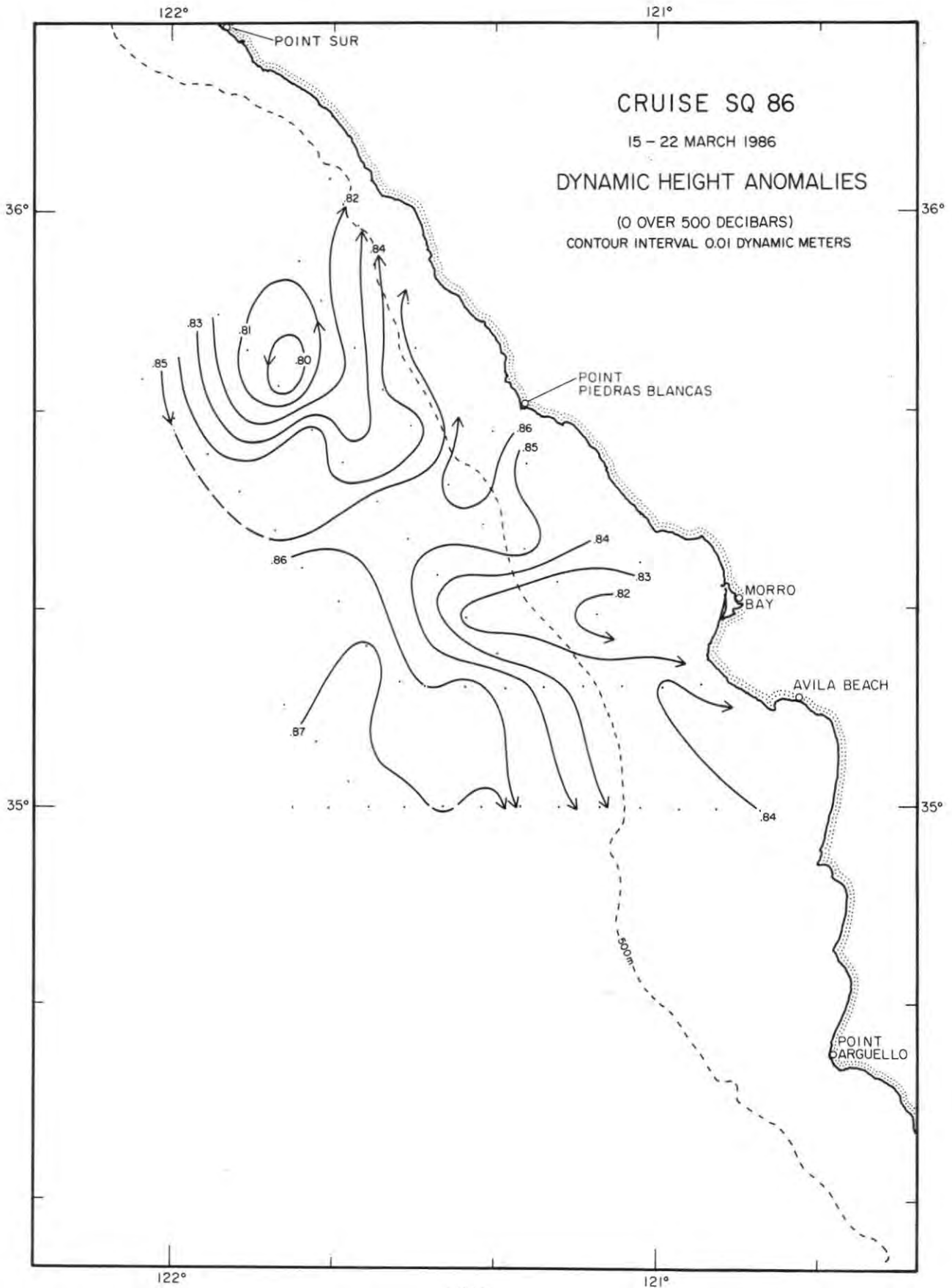


FIGURE 3

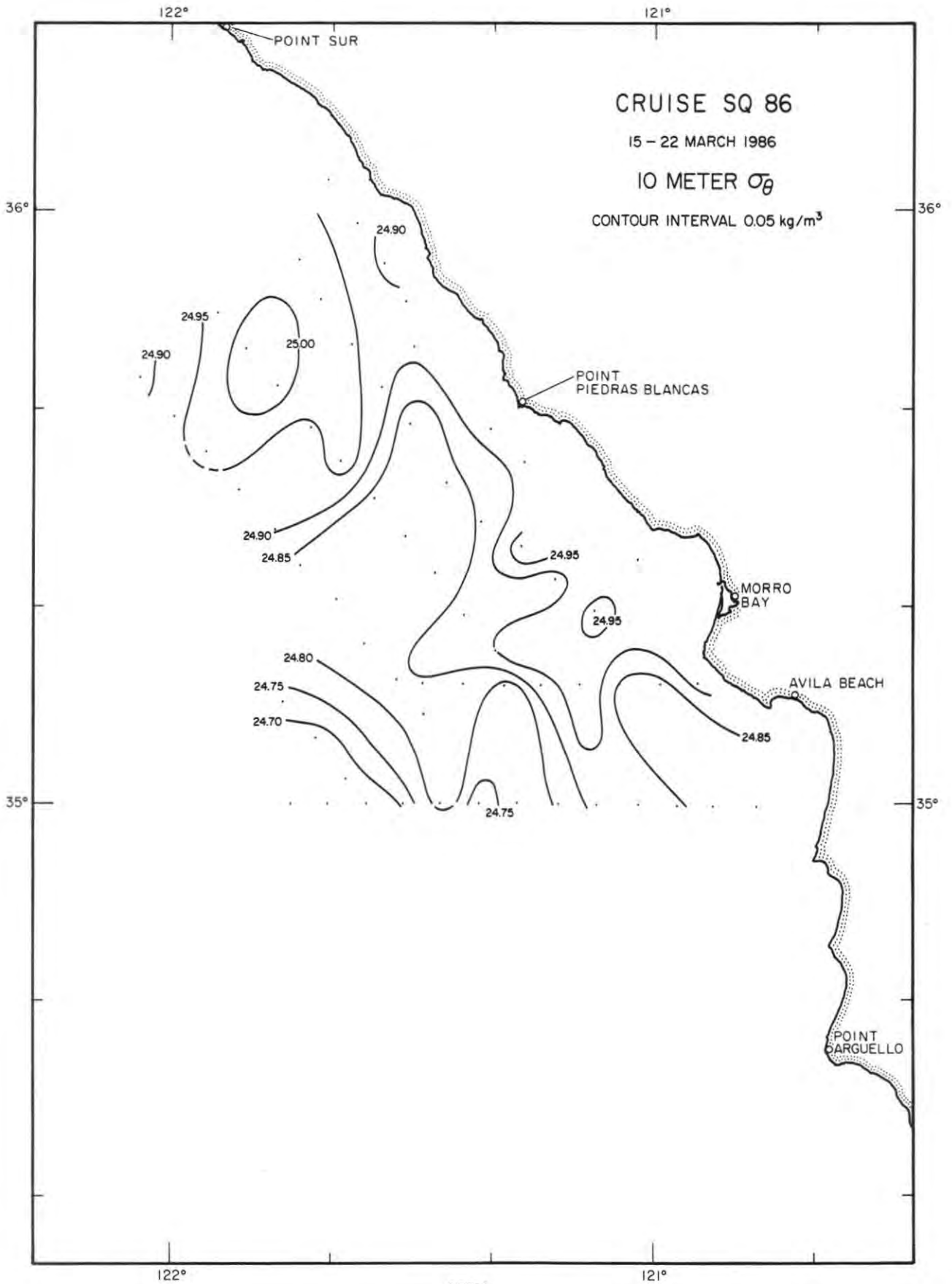


FIGURE 4



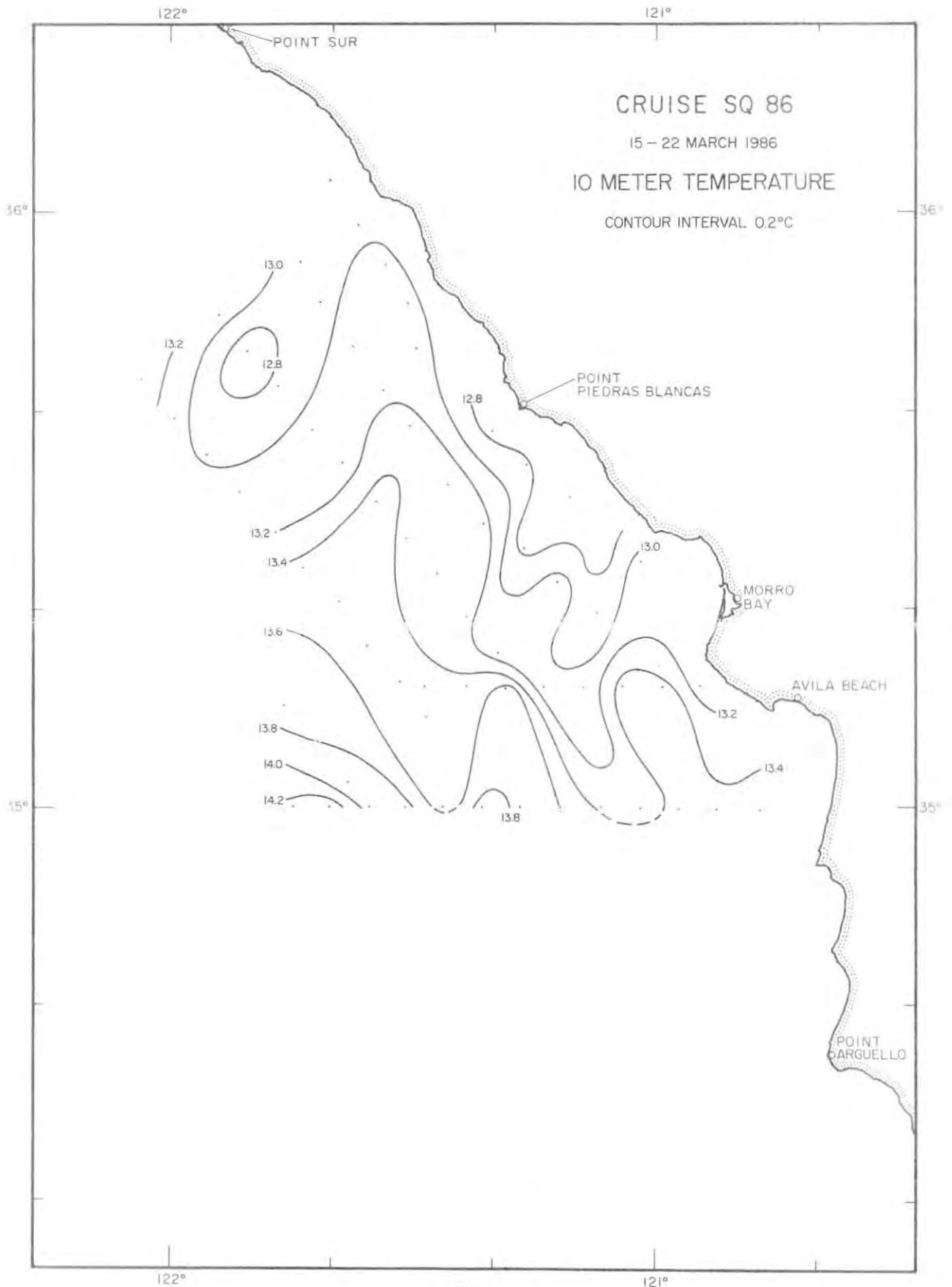


FIGURE 5



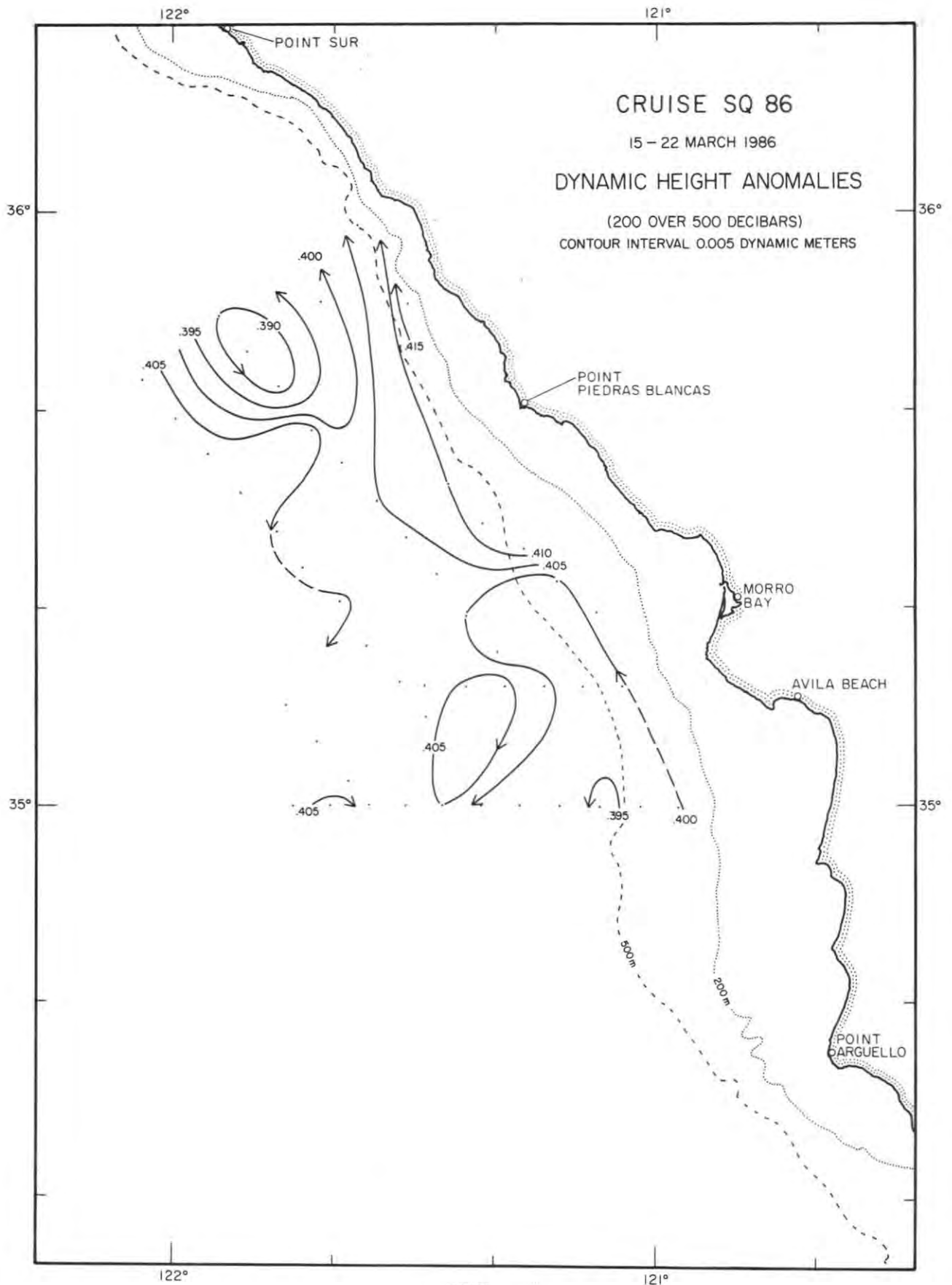


FIGURE 7







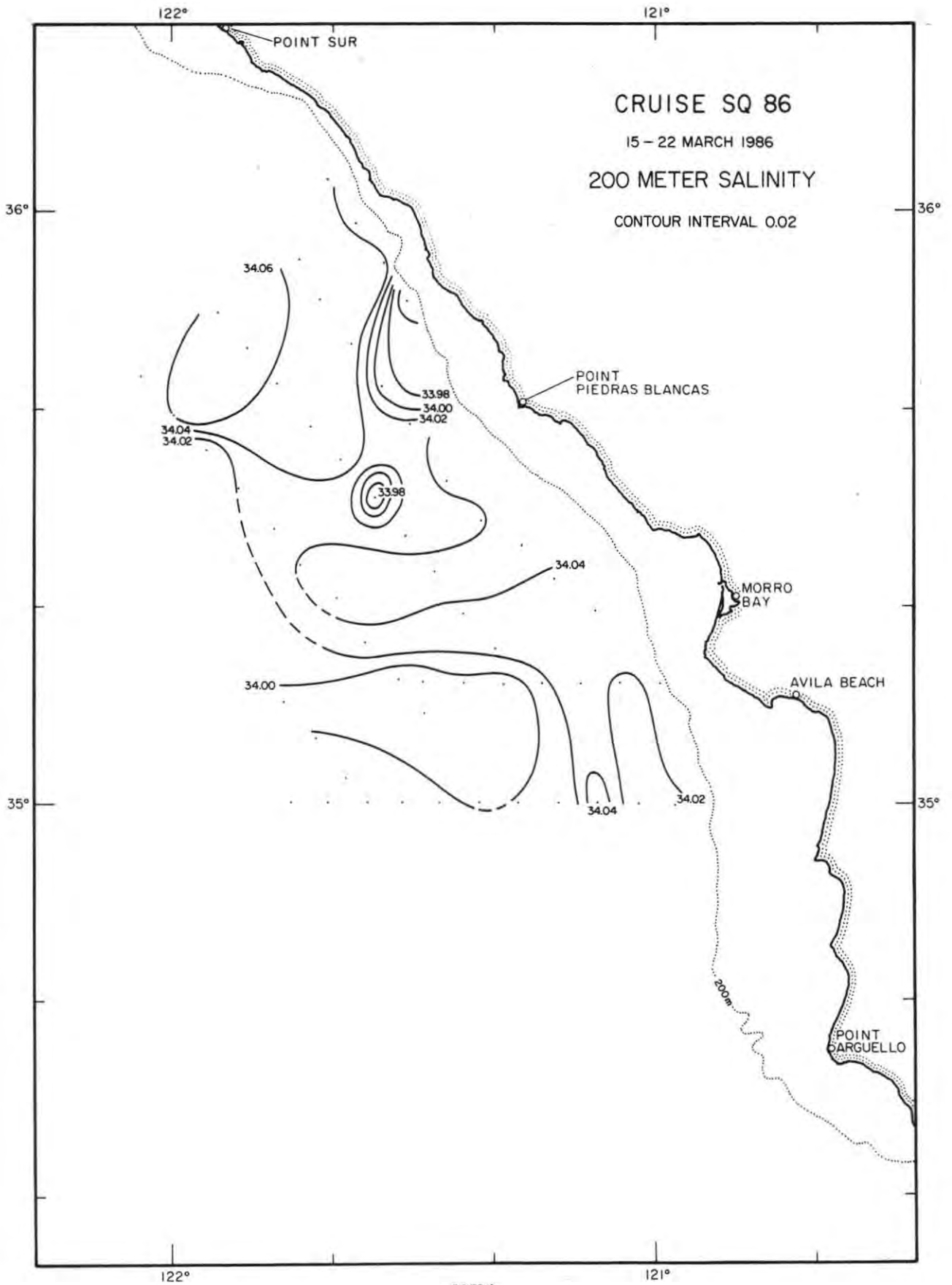


FIGURE 10

## PERSONNEL

### Cruise SQ86

#### SHIP'S CAPTAIN

Munsch, Phillip L., RV *New Horizon*

#### PERSONNEL PARTICIPATING IN THE COLLECTION OF DATA

|   |                                   |
|---|-----------------------------------|
| Hayward, Thomas L.<br>(Chief Scientist) | Asst. Research Oceanographer, SIO |
| Bryan, Walter R.                        | Marine Technician, SIO            |
| Cummings, Sherry L.                     | Staff Research Associate, SIO     |
| Hood, Raleigh R.                        | Graduate Student, SIO             |
| Masten, Douglas M.                      | Marine Technician, SIO            |
| Ohman, Mark D.                          | Asst. Research Oceanographer, SIO |
| Pillard, Eugene G.                      | Marine Technician, SIO            |
| Plummer, Kenneth M.                     | Staff Research Associate, SIO     |
| Schmitt, James A.                       | Electronics Technician, SIO       |
| Schmitt, Walter R.                      | Staff Research Associate, SIO     |
| Sweet, Paul R.                          | Staff Research Associate, SIO     |
| Wilkinson, James R.                     | Staff Research Associate, SIO     |











## RV NEW HORIZON

## CRUISE SQ86

## STATION G 14 HYDRO

| LATITUDE   | LONGITUDE  | DAY/MO/YR | MESSENGER | BOTTOM | WIND  | SPEED  | WAVES  | WEATHER | BAROMETER | DRY  | WET  | CLOUD | AMT   | TYPE  |       |
|------------|------------|-----------|-----------|--------|-------|--------|--------|---------|-----------|------|------|-------|-------|-------|-------|
| 35 46.4 N  | 121 37.6 W | 17/03/86  | 2327 GMT  |        |       |        |        |         |           |      |      |       |       |       |       |
| CAST DEPTH | TEMP       | POT TEMP  | SALINITY  | SIGMA  | SVA   | DYN HT | OXYGEN | OXY     | SiO3      | PO4  | NO3  | NO2   | CHL-A | PHAEO | PRESS |
| M          | DEG C      | DEG C     |           | THETA  |       |        | ML/L   | PCT     | UM/L      | UM/L | UM/L | UM/L  | UG/L  | UG/L  | D.BAR |
| 1 0        | 13.12      | 13.12     | 33.168    | 24.952 | 299.4 | .000   |        |         |           |      |      |       | .78   | .43   | 0     |
| 1 10       | 13.11      | 13.11     | 33.167    | 24.952 | 299.6 | .030   |        |         |           |      |      |       | .77   | .43   | 10    |
| 1 20 ISL   | 13.10      | 13.10     | 33.168    | 24.955 | 299.6 | .060   |        |         |           |      |      |       |       |       | 20    |
| 1 25       | 13.09      | 13.09     | 33.168    | 24.957 | 299.6 | .075   |        |         |           |      |      |       | .76   | .45   | 25    |
| 1 30 ISL   | 12.68      | 12.68     | 33.243    | 25.096 | 286.4 | .090   |        |         |           |      |      |       |       |       | 30    |
| 1 41       | 11.67      | 11.67     | 33.433    | 25.435 | 254.4 | .119   |        |         |           |      |      |       | .27   | .27   | 41    |
| 1 50 ISL   | 11.17      | 11.16     | 33.514    | 25.590 | 239.9 | .141   |        |         |           |      |      |       |       |       | 50    |
| 1 61       | 10.77      | 10.76     | 33.571    | 25.705 | 229.1 | .167   |        |         |           |      |      |       | .08   | .18   | 61    |
| 1 75 ISL   | 10.43      | 10.42     | 33.635    | 25.816 | 218.9 | .199   |        |         |           |      |      |       |       |       | 76    |
| 1 82       | 10.30      | 10.29     | 33.663    | 25.860 | 214.8 | .213   |        |         |           |      |      |       | .05   | .15   | 82    |
| 1 100 ISL  | 9.78       | 9.77      | 33.784    | 26.041 | 197.9 | .251   |        |         |           |      |      |       |       |       | 101   |
| 1 102      | 9.72       | 9.70      | 33.800    | 26.065 | 195.7 | .256   |        |         |           |      |      |       | .01   | .11   | 103   |
| 1 125 ISL  | 9.31       | 9.29      | 33.896    | 26.207 | 182.6 | .298   |        |         |           |      |      |       |       |       | 126   |
| 1 128      | 9.26       | 9.24      | 33.906    | 26.223 | 181.2 | .304   |        |         |           |      |      |       | .00   | .10   | 129   |
| 1 150 ISL  | 8.92       | 8.91      | 33.962    | 26.320 | 172.3 | .343   |        |         |           |      |      |       |       |       | 151   |
| 1 155      | 8.85       | 8.84      | 33.972    | 26.339 | 170.6 | .351   |        |         |           |      |      |       | .00   | .19   | 156   |
| 1 200 ISL  | 8.38       | 8.36      | 34.043    | 26.469 | 159.0 | .425   |        |         |           |      |      |       |       |       | 202   |
| 1 205      | 8.34       | 8.32      | 34.047    | 26.478 | 158.2 | .433   |        |         |           |      |      |       | .00   | .07   | 206   |

## RV NEW HORIZON

## CRUISE SQ86

## STATION G 15 HYDRO

| LATITUDE   | LONGITUDE  | DAY/MO/YR | MESSENGER | BOTTOM | WIND  | SPEED  | WAVES     | WEATHER | BAROMETER | DRY    | WET    | CLOUD | AMT   | TYPE  |       |
|------------|------------|-----------|-----------|--------|-------|--------|-----------|---------|-----------|--------|--------|-------|-------|-------|-------|
| 35 42.0 N  | 121 33.8 W | 18/03/86  | 0107 GMT  |        | 320   | 27 KT  | 320 12 09 | 1       | 1016.1 MB | 10.3 C | 10.2 C |       | 1/8   | ST    |       |
| CAST DEPTH | TEMP       | POT TEMP  | SALINITY  | SIGMA  | SVA   | DYN HT | OXYGEN    | OXY     | SiO3      | PO4    | NO3    | NO2   | CHL-A | PHAEO | PRESS |
| M          | DEG C      | DEG C     |           | THETA  |       |        | ML/L      | PCT     | UM/L      | UM/L   | UM/L   | UM/L  | UG/L  | UG/L  | D.BAR |
| 1 0 ISL    | 13.16      | 13.16     | 33.140    | 24.922 | 302.2 | .000   |           |         |           |        |        |       |       |       | 0     |
| 1 2        | 13.16      | 13.16     | 33.140    | 24.922 | 302.3 | .006   |           |         |           |        |        |       | 1.11  | .50   | 2     |
| 1 10 ISL   | 13.17      | 13.17     | 33.141    | 24.920 | 302.6 | .030   |           |         |           |        |        |       |       |       | 10    |
| 1 12       | 13.17      | 13.17     | 33.141    | 24.921 | 302.7 | .036   |           |         |           |        |        |       | 1.11  | .51   | 12    |
| 1 20 ISL   | 13.13      | 13.13     | 33.144    | 24.930 | 302.0 | .060   |           |         |           |        |        |       |       |       | 20    |
| 1 27       | 13.10      | 13.10     | 33.146    | 24.938 | 301.4 | .081   |           |         |           |        |        |       | .96   | .49   | 27    |
| 1 30 ISL   | 12.86      | 12.86     | 33.180    | 25.011 | 294.5 | .091   |           |         |           |        |        |       |       |       | 30    |
| 1 43       | 11.70      | 11.70     | 33.353    | 25.367 | 260.9 | .126   |           |         |           |        |        |       | .33   | .29   | 43    |
| 1 50 ISL   | 11.24      | 11.23     | 33.423    | 25.507 | 247.7 | .144   |           |         |           |        |        |       |       |       | 50    |
| 1 63       | 10.60      | 10.60     | 33.535    | 25.707 | 229.0 | .175   |           |         |           |        |        |       | .05   | .11   | 63    |
| 1 75 ISL   | 10.17      | 10.16     | 33.663    | 25.882 | 212.6 | .202   |           |         |           |        |        |       |       |       | 76    |
| 1 83       | 9.98       | 9.97      | 33.730    | 25.965 | 204.8 | .218   |           |         |           |        |        |       | .02   | .08   | 83    |
| 1 100 ISL  | 9.78       | 9.76      | 33.783    | 26.042 | 197.9 | .253   |           |         |           |        |        |       |       |       | 101   |
| 1 103      | 9.75       | 9.74      | 33.787    | 26.049 | 197.3 | .260   |           |         |           |        |        |       | .01   | .07   | 104   |
| 1 125 ISL  | 9.55       | 9.53      | 33.835    | 26.120 | 190.9 | .301   |           |         |           |        |        |       |       |       | 126   |
| 1 129      | 9.51       | 9.49      | 33.843    | 26.133 | 189.7 | .310   |           |         |           |        |        |       | .00   | .07   | 130   |
| 1 150 ISL  | 9.32       | 9.30      | 33.889    | 26.199 | 183.9 | .348   |           |         |           |        |        |       |       |       | 151   |
| 1 155      | 9.27       | 9.26      | 33.899    | 26.216 | 182.4 | .358   |           |         |           |        |        |       | .01   | .09   | 156   |
| 1 200 ISL  | 8.71       | 8.69      | 33.989    | 26.375 | 167.9 | .436   |           |         |           |        |        |       |       |       | 202   |
| 1 208      | 8.59       | 8.57      | 34.004    | 26.406 | 165.2 | .449   |           |         |           |        |        |       | .00   | .07   | 209   |

## STATION G 16 CTD

## RV NEW HORIZON

## CRUISE SQ86

LATITUDE 35 32.5 N LONGITUDE 121 25.7 W DAY/MO/YR 18/03/86 START TIME 0234 GMT BOTTOM 622 M

WIND SPEED WAVES WEA BAROMETER DRY WET CLOUDS

| DEPTH | TEMP   | POT TEMP | SALINITY | SIGMA  | SVA   | DYN HT | PRESS |
|-------|--------|----------|----------|--------|-------|--------|-------|
| M     | DEG C  | DEG C    |          | THETA  |       |        | D.BAR |
| 0     | 13.334 | 13.334   | 33.080   | 24.840 | 310.0 | 0.000  | 0     |
| 10    | 13.339 | 13.338   | 33.077   | 24.837 | 310.6 | 0.031  | 10    |
| 20    | 13.342 | 13.339   | 33.079   | 24.838 | 310.7 | 0.062  | 20    |
| 30    | 13.346 | 13.342   | 33.081   | 24.839 | 310.9 | 0.093  | 30    |
| 40    | 13.327 | 13.321   | 33.081   | 24.843 | 310.8 | 0.124  | 40    |
| 50    | 12.402 | 12.395   | 33.261   | 25.164 | 280.4 | 0.154  | 50    |
| 75    | 10.902 | 10.893   | 33.506   | 25.632 | 236.4 | 0.218  | 76    |
| 100   | 10.186 | 10.174   | 33.685   | 25.896 | 211.8 | 0.274  | 101   |
| 125   | 9.109  | 9.095    | 33.746   | 26.121 | 190.7 | 0.325  | 126   |
| 150   | 9.175  | 9.159    | 33.942   | 26.265 | 177.6 | 0.371  | 151   |
| 175   | 8.878  | 8.859    | 34.016   | 26.370 | 168.0 | 0.414  | 176   |
| 200   | 8.672  | 8.651    | 34.051   | 26.430 | 162.8 | 0.455  | 202   |
| 225   | 8.273  | 8.250    | 34.061   | 26.499 | 156.5 | 0.495  | 227   |
| 250   | 8.004  | 7.979    | 34.085   | 26.559 | 151.2 | 0.534  | 252   |
| 275   | 7.841  | 7.814    | 34.102   | 26.596 | 148.0 | 0.571  | 277   |
| 300   | 7.551  | 7.522    | 34.096   | 26.634 | 144.7 | 0.608  | 302   |
| 350   | 7.294  | 7.260    | 34.178   | 26.735 | 135.8 | 0.678  | 353   |
| 400   | 6.931  | 6.893    | 34.226   | 26.824 | 127.9 | 0.744  | 403   |
| 450   | 6.486  | 6.445    | 34.244   | 26.898 | 121.3 | 0.806  | 454   |
| 500   | 6.000  | 5.956    | 34.261   | 26.974 | 114.3 | 0.865  | 504   |
| 504   | 5.988  | 5.944    | 34.260   | 26.975 | 114.2 | 0.870  | 508   |





RV NEW HORIZON

CRUISE SQ86

STATION G 24 HYDRO

| LATITUDE  | LONGITUDE  | DAY/MO/YR | MESSENGER | BOTTOM   | WIND   | SPEED | WAVES     | WEATHER | BAROMETER | DRY    | WET    | CLOUD | AMT  | TYPE  |       |       |
|-----------|------------|-----------|-----------|----------|--------|-------|-----------|---------|-----------|--------|--------|-------|------|-------|-------|-------|
| 35 30.8 N | 121 34.7 W | 18/03/86  | 1833 GMT  | 883 M    | 340    | 10 KT | 330 05 07 | 1       | 1022.7 MB | 14.6 C | 12.5 C |       | 3/8  | CS    |       |       |
| CST       | DEPTH      | TEMP      | POT TEMP  | SALINITY | SIGMA  | SVA   | DYN HT    | OXYGEN  | OXY       | SI03   | PO4    | NO3   | NO2  | CHL-A | PHAEO | PRSS  |
|           | M          | DEG C     | DEG C     |          | THETA  |       |           | ML/L    | PCT       | UM/L   | UM/L   | UM/L  | UM/L | UG/L  | UG/L  | D.BAR |
|           | 0 ISL      | 13.46     | 13.46     | 33.087   | 24.821 | 312.1 | .000      | 6.07    | 102.2     |        |        |       |      |       |       | 0     |
| 1         | 2          | 13.46     | 13.46     | 33.087   | 24.821 | 311.9 | .006      | 6.07    | 102.2     | 3.5    | .42    | .5    | .02  | .58   | .24   | 2     |
|           | 10 ISL     | 13.42     | 13.41     | 33.085   | 24.828 | 311.4 | .031      | 6.09    | 102.4     |        |        |       |      |       |       | 10    |
| 1         | 12         | 13.41     | 13.41     | 33.085   | 24.829 | 311.4 | .037      | 6.09    | 102.4     | 3.6    | .42    | .5    | .02  | .60   | .25   | 12    |
|           | 20 ISL     | 13.40     | 13.40     | 33.083   | 24.830 | 311.5 | .062      | 6.08    | 102.3     |        |        |       |      |       |       | 20    |
| 1         | 28         | 13.39     | 13.39     | 33.083   | 24.831 | 311.6 | .087      | 6.08    | 102.2     | 3.6    | .41    | .5    | .01  | .61   | .30   | 28    |
|           | 30 ISL     | 13.30     | 13.30     | 33.098   | 24.862 | 308.7 | .093      | 6.03    | 101.1     |        |        |       |      |       |       | 30    |
| 1         | 43         | 12.53     | 12.53     | 33.228   | 25.113 | 285.1 | .131      | 5.57    | 92.1      | 5.8    | .68    | 4.8   | .07  | .47   | .30   | 43    |
|           | 50 ISL     | 12.02     | 12.02     | 33.303   | 25.269 | 270.5 | .151      | 5.28    | 86.3      |        |        |       |      |       |       | 50    |
| 1         | 59         | 11.46     | 11.45     | 33.390   | 25.441 | 254.3 | .174      | 4.91    | 79.4      | 10.2   | 1.04   | 10.6  | .04  | .15   | .19   | 59    |
| 1         | 69         | 11.09     | 11.08     | 33.474   | 25.574 | 241.8 | .199      | 4.52    | 72.5      | 12.5   | 1.20   | 13.4  | .03  | .08   | .12   | 69    |
|           | 75 ISL     | 10.93     | 10.93     | 33.495   | 25.618 | 237.8 | .214      | 4.41    | 70.6      |        |        |       |      |       |       | 76    |
| 1         | 80         | 10.83     | 10.82     | 33.510   | 25.647 | 235.1 | .225      | 4.34    | 69.3      | 14.3   | 1.29   | 14.9  | .02  | .06   | .10   | 80    |
| 1         | 95         | 10.34     | 10.33     | 33.631   | 25.827 | 218.3 | .259      | 3.81    | 60.2      | 18.5   | 1.51   | 18.4  | .01  | .03   | .07   | 95    |
|           | 100 ISL    | 10.16     | 10.15     | 33.685   | 25.900 | 211.4 | .271      | 3.58    | 56.4      |        |        |       |      |       |       | 101   |
| 1         | 110        | 9.85      | 9.84      | 33.776   | 26.024 | 199.8 | .292      | 3.21    | 50.2      | 24.3   | 1.76   | 22.1  | .01  | .02   | .07   | 111   |
| 1         | 125        | 9.58      | 9.57      | 33.831   | 26.112 | 191.7 | .321      | 3.02    | 47.0      | 26.6   | 1.85   | 23.6  | .01  | .01   | .06   | 126   |
|           | 150 ISL    | 9.01      | 8.99      | 33.898   | 26.257 | 178.3 | .367      | 2.94    | 45.2      |        |        |       |      |       |       | 151   |
| 1         | 151        | 8.98      | 8.96      | 33.901   | 26.263 | 177.7 | .369      | 2.94    | 45.2      | 29.9   | 1.95   | 25.4  | .01  | .01   | .05   | 152   |
| 1         | 172        | 8.52      | 8.50      | 33.952   | 26.375 | 167.4 | .405      | 2.94    | 44.7      | 32.7   | 2.00   | 26.5  | .01  | .01   | .05   | 173   |
| 1         | 193        | 8.19      | 8.17      | 33.972   | 26.442 | 161.3 | .439      | 3.13    | 47.2      | 34.3   | 1.97   | 26.4  | .01  |       |       | 194   |
|           | 200 ISL    | 8.10      | 8.08      | 33.979   | 26.460 | 159.7 | .451      | 3.10    | 46.8      |        |        |       |      |       |       | 202   |
| 1         | 213        | 7.99      | 7.97      | 33.993   | 26.489 | 157.2 | .471      | 3.06    | 46.0      | 36.7   | 2.01   | 27.1  | .01  |       |       | 214   |
| 1         | 245        | 7.83      | 7.81      | 34.048   | 26.554 | 151.4 | .520      | 2.44    | 36.5      | 41.9   | 2.26   | 29.4  | .01  |       |       | 246   |
|           | 250 ISL    | 7.81      | 7.78      | 34.058   | 26.566 | 150.4 | .528      | 2.34    | 35.0      |        |        |       |      |       |       | 252   |
| 1         | 285        | 7.61      | 7.59      | 34.118   | 26.642 | 143.7 | .580      | 1.74    | 25.9      | 48.9   | 2.48   | 31.9  | .01  |       |       | 287   |
|           | 300 ISL    | 7.53      | 7.50      | 34.139   | 26.671 | 141.2 | .601      | 1.55    | 23.0      |        |        |       |      |       |       | 302   |
| 1         | 347        | 7.23      | 7.20      | 34.191   | 26.754 | 133.9 | .665      | 1.09    | 16.1      | 58.4   | 2.75   | 34.4  | .01  |       |       | 349   |
|           | 400 ISL    | 6.80      | 6.76      | 34.219   | 26.836 | 126.7 | .735      | .78     | 11.5      |        |        |       |      |       |       | 403   |
| 1         | 423        | 6.60      | 6.56      | 34.226   | 26.869 | 123.8 | .764      | .70     | 10.2      | 68.9   | 2.95   | 37.2  | .00  |       |       | 426   |
| 1         | 499        | 5.97      | 5.92      | 34.239   | 26.961 | 115.5 | .855      | .49     | 7.0       | 79.4   | 3.08   | 39.0  | .00  |       |       | 503   |
|           | 500 ISL    | 5.96      | 5.92      | 34.239   | 26.962 | 115.4 | .856      | .49     | 7.0       |        |        |       |      |       |       | 504   |
| 1         | 575        | 5.58      | 5.53      | 34.281   | 27.043 | 108.3 | .939      | .36     | 5.1       | 88.0   | 3.17   | 40.3  | .00  |       |       | 579   |

STATION G 25 CTD

RV NEW HORIZON

CRUISE SQ86

| LATITUDE  | LONGITUDE  | DAY/MO/YR | START TIME | BOTTOM    |       |        |        |
|-----------|------------|-----------|------------|-----------|-------|--------|--------|
| 35 34.8 N | 121 38.8 W | 18/03/86  | 2035 GMT   | M         |       |        |        |
| WIND      | SPEED      | WAVES     | WEA        | BAROMETER | DRY   | WET    | CLOUDS |
| DEPTH     | TEMP       | POT TEMP  | SALINITY   | SIGMA     | SVA   | DYN HT | PRESS  |
| M         | DEG C      | DEG C     |            | THETA     |       |        | D.BAR  |
| 0         | 13.324     | 13.324    | 33.172     | 24.913    | 303.0 | 0.000  | 0      |
| 10        | 13.074     | 13.073    | 33.171     | 24.962    | 298.6 | 0.030  | 10     |
| 20        | 13.028     | 13.025    | 33.172     | 24.972    | 297.9 | 0.060  | 20     |
| 30        | 13.002     | 12.998    | 33.171     | 24.977    | 297.7 | 0.090  | 30     |
| 40        | 12.419     | 12.414    | 33.274     | 25.171    | 279.5 | 0.119  | 40     |
| 50        | 11.173     | 11.167    | 33.397     | 25.498    | 248.6 | 0.145  | 50     |
| 75        | 10.512     | 10.503    | 33.584     | 25.761    | 224.1 | 0.204  | 76     |
| 100       | 9.832      | 9.821     | 33.825     | 26.065    | 195.7 | 0.257  | 101    |
| 125       | 9.300      | 9.286     | 33.899     | 26.210    | 182.3 | 0.304  | 126    |
| 150       | 8.978      | 8.962     | 33.971     | 26.319    | 172.4 | 0.348  | 151    |
| 175       | 8.568      | 8.550     | 34.032     | 26.431    | 162.2 | 0.390  | 176    |
| 200       | 8.336      | 8.315     | 34.059     | 26.488    | 157.2 | 0.430  | 202    |
| 225       | 8.068      | 8.045     | 34.065     | 26.533    | 153.2 | 0.469  | 227    |
| 250       | 7.619      | 7.594     | 34.067     | 26.600    | 147.0 | 0.506  | 252    |
| 275       | 7.452      | 7.425     | 34.075     | 26.631    | 144.4 | 0.543  | 277    |
| 300       | 7.503      | 7.474     | 34.147     | 26.681    | 140.2 | 0.578  | 302    |
| 350       | 7.121      | 7.088     | 34.189     | 26.768    | 132.6 | 0.646  | 353    |
| 400       | 6.704      | 6.667     | 34.219     | 26.849    | 125.4 | 0.711  | 403    |
| 450       | 6.187      | 6.147     | 34.213     | 26.912    | 119.6 | 0.772  | 454    |
| 500       | 5.799      | 5.756     | 34.229     | 26.974    | 114.1 | 0.831  | 504    |
| 512       | 5.726      | 5.682     | 34.236     | 26.989    | 112.8 | 0.844  | 516    |



RV NEW HORIZON

CRUISE SQ86

STATION G 26 HYDRO

| LATITUDE  | LONGITUDE  | DAY/MO/YR | MESSENGER | BOTTOM   | WIND   | SPEED | WAVES     | WEATHER | BAROMETER | DRY    | WET    | CLOUD | AMT  | TYPE  |       |       |
|-----------|------------|-----------|-----------|----------|--------|-------|-----------|---------|-----------|--------|--------|-------|------|-------|-------|-------|
| 35 38.1 N | 121 42.6 W | 18/03/86  | 2248 GMT  | 880 M    | 340    | 06 KT | 280 06 09 | 1       | 1020.7 MB | 15.2 C | 13.0 C | 6/8   | CC   |       |       |       |
| CST       | DEPTH      | TEMP      | POT TEMP  | SALINITY | SIGMA  | SVA   | DYN HT    | OXYGEN  | OXY       | SIO3   | PO4    | NO3   | NO2  | CHL-A | PHAEO | PRESS |
|           | M          | DEG C     | DEG C     |          | THETA  |       |           | ML/L    | PCT       | UM/L   | UM/L   | UM/L  | UM/L | UG/L  | UG/L  | D.BAR |
| 1         | 0          | 13.39     | 13.39     | 33.163   | 24.894 | 304.9 | .000      | 6.17    | 103.8     | 3.2    | .44    | .8    | .05  | 1.11  | .41   | 0     |
| 1         | 10         | 13.15     | 13.15     | 33.159   | 24.939 | 300.9 | .030      | 6.19    | 103.6     | 3.3    | .45    | .9    | .05  | .86   | .44   | 10    |
|           | 20 ISL     | 13.07     | 13.07     | 33.160   | 24.955 | 299.6 | .060      | 6.14    | 102.5     |        |        |       |      |       |       | 20    |
| 1         | 21         | 13.07     | 13.06     | 33.160   | 24.956 | 299.6 | .063      | 6.13    | 102.4     | 3.4    | .46    | 1.0   | .07  | .96   | .56   | 21    |
|           | 30 ISL     | 13.05     | 13.05     | 33.162   | 24.961 | 299.3 | .090      | 6.09    | 101.6     |        |        |       |      |       |       | 30    |
| 1         | 31         | 13.05     | 13.04     | 33.162   | 24.961 | 299.3 | .093      | 6.08    | 101.5     | 3.4    | .46    | 1.2   | .07  | .88   | .50   | 31    |
| 1         | 42         | 12.88     | 12.87     | 33.201   | 25.025 | 293.5 | .125      | 5.90    | 98.2      | 4.4    | .54    | 2.3   | .11  | .73   | .50   | 42    |
|           | 50 ISL     | 11.92     | 11.91     | 33.416   | 25.377 | 260.2 | .148      | 4.91    | 80.2      |        |        |       |      |       |       | 50    |
| 1         | 52         | 11.69     | 11.69     | 33.465   | 25.456 | 252.7 | .152      | 4.69    | 76.3      | 12.1   | 1.08   | 11.2  | .07  | .21   | .28   | 52    |
| 1         | 63         | 11.13     | 11.12     | 33.545   | 25.622 | 237.1 | .179      | 4.27    | 68.6      | 15.1   | 1.28   | 14.4  | .03  | .11   | .20   | 63    |
| 1         | 73         | 10.57     | 10.56     | 33.631   | 25.788 | 221.5 | .202      | 3.84    | 61.0      | 18.9   | 1.49   | 17.7  | .02  | .06   | .16   | 73    |
|           | 75 ISL     | 10.43     | 10.42     | 33.631   | 25.812 | 219.2 | .207      | 3.84    | 60.9      |        |        |       |      |       |       | 75    |
| 1         | 89         | 9.82      | 9.81      | 33.632   | 25.916 | 209.6 | .236      | 3.87    | 60.5      | 20.7   | 1.58   | 19.6  | .01  | .03   | .13   | 89    |
|           | 100 ISL    | 9.71      | 9.70      | 33.734   | 26.015 | 200.4 | .260      | 3.45    | 53.7      |        |        |       |      |       |       | 101   |
| 1         | 104        | 9.70      | 9.68      | 33.779   | 26.052 | 197.0 | .269      | 3.26    | 50.8      | 24.8   | 1.79   | 22.5  | .00  | .02   | .06   | 105   |
| 1         | 124        | 9.34      | 9.32      | 33.866   | 26.179 | 185.3 | .307      | 2.96    | 45.8      | 28.6   | 1.91   | 24.5  | .00  | .01   | .09   | 125   |
|           | 125 ISL    | 9.33      | 9.31      | 33.868   | 26.182 | 185.0 | .308      | 2.95    | 45.7      |        |        |       |      |       |       | 126   |
| 1         | 150        | 8.99      | 8.97      | 33.939   | 26.292 | 174.9 | .353      | 2.74    | 42.1      | 31.7   | 2.01   | 26.0  | .00  | .01   | .08   | 151   |
| 1         | 181        | 8.67      | 8.66      | 34.021   | 26.406 | 164.7 | .405      | 2.38    | 36.3      | 36.4   | 2.18   | 27.9  | .00  |       |       | 182   |
|           | 200 ISL    | 8.54      | 8.52      | 34.057   | 26.455 | 160.3 | .436      | 2.21    | 33.7      |        |        |       |      |       |       | 202   |
| 1         | 212        | 8.46      | 8.44      | 34.074   | 26.481 | 158.1 | .455      | 2.13    | 32.4      | 39.9   | 2.27   | 28.9  | .00  |       |       | 213   |
| 1         | 243        | 8.21      | 8.18      | 34.104   | 26.543 | 152.6 | .503      | 1.97    | 29.8      | 43.3   | 2.35   | 30.2  | .00  |       |       | 244   |
|           | 250 ISL    | 8.12      | 8.10      | 34.109   | 26.560 | 151.2 | .514      | 1.93    | 29.1      |        |        |       |      |       |       | 252   |
| 1         | 283        | 7.74      | 7.72      | 34.126   | 26.629 | 145.0 | .563      | 1.74    | 26.0      | 48.4   | 2.48   | 31.8  | .00  |       |       | 285   |
|           | 300 ISL    | 7.61      | 7.59      | 34.139   | 26.658 | 142.4 | .588      | 1.61    | 24.0      |        |        |       |      |       |       | 302   |
| 1         | 345        | 7.29      | 7.26      | 34.173   | 26.731 | 136.1 | .650      | 1.25    | 18.5      | 57.2   | 2.69   | 34.1  | .00  |       |       | 347   |
|           | 400 ISL    | 6.73      | 6.69      | 34.208   | 26.838 | 126.5 | .722      | .85     | 12.5      |        |        |       |      |       |       | 403   |
| 1         | 421        | 6.50      | 6.46      | 34.219   | 26.876 | 122.9 | .749      | .73     | 10.6      | 70.4   | 2.95   | 37.6  | .00  |       |       | 424   |
| 1         | 498        | 5.84      | 5.80      | 34.240   | 26.978 | 113.8 | .840      | .49     | 7.0       | 81.3   | 3.08   | 39.7  | .00  |       |       | 502   |
|           | 500 ISL    | 5.83      | 5.79      | 34.241   | 26.979 | 113.6 | .842      | .49     | 7.0       |        |        |       |      |       |       | 504   |
| 1         | 576        | 5.49      | 5.45      | 34.273   | 27.047 | 107.8 | .926      | .39     | 5.5       | 89.6   | 3.16   | 40.7  | .00  |       |       | 580   |

STATION G 27 CTD

RV NEW HORIZON

CRUISE SQ86

| LATITUDE  | LONGITUDE  | DAY/MO/YR | START TIME | BOTTOM    |       |        |        |
|-----------|------------|-----------|------------|-----------|-------|--------|--------|
| 35 42.4 N | 121 46.7 W | 19/03/86  | 0050 GMT   | 976 M     |       |        |        |
| WIND      | SPEED      | WAVES     | WEA        | BAROMETER | DRY   | WET    | CLOUDS |
| DEPTH     | TEMP       | POT TEMP  | SALINITY   | SIGMA     | SVA   | DYN HT | PRESS  |
| M         | DEG C      | DEG C     |            | THETA     |       |        | D.BAR  |
| 0         | 12.862     | 12.862    | 33.168     | 25.001    | 294.6 | 0.000  | 0      |
| 10        | 12.821     | 12.820    | 33.168     | 25.010    | 294.1 | 0.029  | 10     |
| 20        | 12.769     | 12.766    | 33.166     | 25.019    | 293.5 | 0.059  | 20     |
| 30        | 12.248     | 12.244    | 33.301     | 25.224    | 274.2 | 0.087  | 30     |
| 40        | 11.751     | 11.746    | 33.384     | 25.382    | 259.4 | 0.114  | 40     |
| 50        | 11.141     | 11.135    | 33.496     | 25.581    | 240.7 | 0.139  | 50     |
| 75        | 10.398     | 10.389    | 33.681     | 25.856    | 215.0 | 0.196  | 76     |
| 100       | 9.277      | 9.266     | 33.899     | 26.214    | 181.5 | 0.245  | 101    |
| 125       | 8.975      | 8.962     | 33.975     | 26.322    | 171.6 | 0.290  | 126    |
| 150       | 8.653      | 8.637     | 34.045     | 26.427    | 162.0 | 0.331  | 151    |
| 175       | 8.444      | 8.426     | 34.065     | 26.476    | 157.9 | 0.371  | 176    |
| 200       | 7.970      | 7.950     | 34.051     | 26.536    | 152.4 | 0.410  | 202    |
| 225       | 7.912      | 7.889     | 34.128     | 26.605    | 146.3 | 0.447  | 227    |
| 250       | 7.697      | 7.672     | 34.161     | 26.663    | 141.1 | 0.483  | 252    |
| 275       | 7.419      | 7.392     | 34.160     | 26.702    | 137.7 | 0.518  | 277    |
| 300       | 7.153      | 7.124     | 34.185     | 26.760    | 132.6 | 0.552  | 302    |
| 350       | 6.961      | 6.928     | 34.224     | 26.817    | 127.8 | 0.617  | 353    |
| 400       | 6.508      | 6.472     | 34.234     | 26.887    | 121.6 | 0.679  | 403    |
| 450       | 6.221      | 6.181     | 34.246     | 26.934    | 117.6 | 0.739  | 454    |
| 500       | 5.873      | 5.830     | 34.271     | 26.998    | 111.9 | 0.797  | 504    |
| 507       | 5.848      | 5.804     | 34.277     | 27.006    | 111.2 | 0.804  | 511    |

| LATITUDE  | LONGITUDE  | DAY/MO/YR | MESSENGER | BOTTOM   | WIND   | SPEED | WAVES     | WEATHER | BAROMETER | DRY    | WET    | CLOUD | AMT  | TYPE  |       |       |
|-----------|------------|-----------|-----------|----------|--------|-------|-----------|---------|-----------|--------|--------|-------|------|-------|-------|-------|
| 35 46.0 N | 121 50.6 W | 19/03/86  | 0246 GMT  | 1072 M   | 330    | 06 KT | 300 05 09 | 1       | 1020.0 MB | 14.2 C | 12.0 C | 1/8   | CC   |       |       |       |
| CAST      | DEPTH      | TEMP      | POT TEMP  | SALINITY | SIGMA  | SVA   | DYN HT    | OXYGEN  | OXY       | SI03   | PO4    | NO3   | NO2  | CHL-A | PHAEO | PRESS |
|           | M          | DEG C     | DEG C     |          | THETA  |       |           | ML/L    | PCT       | UM/L   | UM/L   | UM/L  | UM/L | UG/L  | UG/L  | D.BAR |
| 1         | 0          | 13.09     | 13.09     | 33.164   | 24.953 | 299.3 | .000      | 6.49    | 108.5     | 3.5    | .42    | .4    | .04  | 3.62  | 1.07  | 0     |
| 1         | 10         | 12.75     | 12.75     | 33.157   | 25.015 | 293.6 | .030      | 6.24    | 103.6     | 4.2    | .50    | 1.4   | .06  | 5.04  | 1.02  | 10    |
|           | 20 ISL     | 12.58     | 12.58     | 33.172   | 25.060 | 289.6 | .059      | 5.93    | 98.1      |        |        |       |      |       |       | 20    |
| 1         | 21         | 12.57     | 12.57     | 33.175   | 25.065 | 289.2 | .061      | 5.90    | 97.6      | 7.0    | .64    | 4.0   | .14  | 1.04  | .51   | 21    |
|           | 30 ISL     | 12.41     | 12.40     | 33.234   | 25.141 | 282.1 | .087      | 5.61    | 92.4      |        |        |       |      |       |       | 30    |
| 1         | 31         | 12.39     | 12.39     | 33.241   | 25.151 | 281.3 | .090      | 5.58    | 91.9      | 8.0    | .73    | 5.6   | .18  | .46   | .39   | 31    |
| 1         | 42         | 12.05     | 12.04     | 33.335   | 25.289 | 268.3 | .120      | 5.18    | 84.8      | 9.7    | .90    | 8.1   | .21  | .27   | .31   | 42    |
|           | 50 ISL     | 11.18     | 11.17     | 33.435   | 25.526 | 245.9 | .141      | 4.68    | 75.2      |        |        |       |      |       |       | 50    |
| 1         | 52         | 11.00     | 10.99     | 33.458   | 25.576 | 241.2 | .145      | 4.57    | 73.2      | 14.2   | 1.20   | 13.2  | .05  | .15   | .19   | 52    |
| 1         | 62         | 10.77     | 10.77     | 33.537   | 25.678 | 231.7 | .169      | 4.25    | 67.8      | 16.5   | 1.34   | 15.6  | .05  | .11   | .16   | 62    |
| 1         | 73         | 10.53     | 10.52     | 33.613   | 25.781 | 222.2 | .194      | 3.91    | 62.0      | 18.5   | 1.48   | 17.7  | .02  | .09   | .13   | 73    |
|           | 75 ISL     | 10.47     | 10.46     | 33.629   | 25.804 | 220.0 | .199      | 3.84    | 60.8      |        |        |       |      |       |       | 76    |
| 1         | 88         | 10.14     | 10.13     | 33.701   | 25.917 | 209.6 | .226      | 3.52    | 55.4      | 22.0   | 1.66   | 20.2  | .01  | .03   | .11   | 88    |
|           | 100 ISL    | 9.84      | 9.82      | 33.744   | 26.001 | 201.7 | .251      | 3.38    | 52.8      |        |        |       |      |       |       | 101   |
| 1         | 103        | 9.76      | 9.75      | 33.756   | 26.024 | 199.7 | .258      | 3.34    | 52.2      | 24.4   | 1.75   | 22.1  | .01  | .02   | .10   | 104   |
| 1         | 124        | 9.33      | 9.32      | 33.890   | 26.198 | 183.5 | .298      | 2.80    | 43.3      | 29.8   | 1.97   | 25.0  | .01  | .02   | .09   | 125   |
|           | 125 ISL    | 9.31      | 9.30      | 33.894   | 26.204 | 182.9 | .300      | 2.78    | 43.1      |        |        |       |      |       |       | 126   |
| 1         | 150        | 8.68      | 8.67      | 34.026   | 26.408 | 163.9 | .343      | 2.35    | 35.9      | 37.3   | 2.18   | 28.0  | .01  | .01   | .07   | 151   |
| 1         | 181        | 8.33      | 8.31      | 34.061   | 26.490 | 156.6 | .392      | 2.19    | 33.2      | 40.8   | 2.27   | 29.4  | .01  |       |       | 182   |
|           | 200 ISL    | 8.02      | 8.00      | 34.079   | 26.551 | 151.1 | .422      | 2.05    | 30.8      |        |        |       |      |       |       | 202   |
| 1         | 212        | 7.85      | 7.82      | 34.092   | 26.587 | 147.8 | .439      | 1.94    | 29.1      | 46.2   | 2.41   | 31.0  | .00  |       |       | 213   |
| 1         | 243        | 7.60      | 7.58      | 34.133   | 26.655 | 141.7 | .484      | 1.59    | 23.7      | 51.4   | 2.57   | 32.5  | .00  |       |       | 244   |
|           | 250 ISL    | 7.54      | 7.52      | 34.138   | 26.667 | 140.7 | .494      | 1.54    | 22.9      |        |        |       |      |       |       | 252   |
| 1         | 284        | 7.29      | 7.26      | 34.151   | 26.714 | 136.7 | .542      | 1.34    | 19.8      | 56.3   | 2.70   | 34.0  | .00  |       |       | 286   |
|           | 300 ISL    | 7.17      | 7.14      | 34.164   | 26.741 | 134.3 | .563      | 1.22    | 18.0      |        |        |       |      |       |       | 302   |
| 1         | 346        | 6.83      | 6.80      | 34.203   | 26.819 | 127.5 | .623      | .88     | 12.9      | 64.9   | 2.89   | 36.4  | .00  |       |       | 348   |
|           | 400 ISL    | 6.47      | 6.43      | 34.225   | 26.885 | 121.8 | .691      | .67     | 9.8       |        |        |       |      |       |       | 403   |
| 1         | 422        | 6.31      | 6.28      | 34.229   | 26.908 | 119.7 | .717      | .62     | 9.0       | 73.4   | 3.03   | 38.1  | .00  |       |       | 425   |
| 1         | 499        | 5.57      | 5.52      | 34.240   | 27.011 | 110.3 | .806      | .47     | 6.7       | 86.2   | 3.17   | 40.5  | .00  |       |       | 503   |
|           | 500 ISL    | 5.56      | 5.52      | 34.240   | 27.012 | 110.2 | .807      | .47     | 6.7       |        |        |       |      |       |       | 504   |
| 1         | 576        | 5.22      | 5.18      | 34.303   | 27.102 | 102.2 | .887      | .33     | 4.7       | 95.3   | 3.25   | 41.5  | .00  |       |       | 580   |

| LATITUDE  | LONGITUDE  | DAY/MO/YR | START TIME | BOTTOM    | LATITUDE  | LONGITUDE | DAY/MO/YR | START TIME | BOTTOM |          |          |           |       |        |        |
|-----------|------------|-----------|------------|-----------|-----------|-----------|-----------|------------|--------|----------|----------|-----------|-------|--------|--------|
| 35 49.7 N | 121 54.2 W | 19/03/86  | 0445 GMT   | M         | 35 43.2 N | 122 3.7 W | 19/03/86  | 0639 GMT   | M      |          |          |           |       |        |        |
| WIND      | SPEED      | WAVES     | WEA        | BAROMETER | DRY       | WET       | CLOUDS    | WIND       | SPEED  | WAVES    | WEA      | BAROMETER | DRY   | WET    | CLOUDS |
| DEPTH     | TEMP       | POT TEMP  | SALINITY   | SIGMA     | SVA       | DYN HT    | PRESS     | DEPTH      | TEMP   | POT TEMP | SALINITY | SIGMA     | SVA   | DYN HT | PRESS  |
| M         | DEG C      | DEG C     |            | THETA     |           |           | D.BAR     | M          | DEG C  | DEG C    |          | THETA     |       |        | D.BAR  |
| 0         | 13.054     | 13.054    | 33.192     | 24.982    | 296.4     | 0.000     | 0         | 0          | 13.293 | 13.293   | 33.136   | 24.891    | 305.1 | 0.000  | 0      |
| 10        | 13.071     | 13.070    | 33.192     | 24.979    | 297.0     | 0.030     | 10        | 10         | 13.301 | 13.300   | 33.133   | 24.888    | 305.7 | 0.031  | 10     |
| 20        | 13.067     | 13.064    | 33.193     | 24.981    | 297.1     | 0.059     | 20        | 20         | 13.221 | 13.218   | 33.130   | 24.902    | 304.7 | 0.061  | 20     |
| 30        | 13.048     | 13.044    | 33.191     | 24.984    | 297.1     | 0.089     | 30        | 30         | 13.084 | 13.080   | 33.136   | 24.934    | 301.8 | 0.091  | 30     |
| 40        | 12.175     | 12.170    | 33.325     | 25.257    | 271.3     | 0.118     | 40        | 40         | 13.019 | 13.014   | 33.140   | 24.950    | 300.6 | 0.122  | 40     |
| 50        | 11.192     | 11.186    | 33.490     | 25.567    | 242.0     | 0.143     | 50        | 50         | 12.212 | 12.206   | 33.355   | 25.273    | 270.0 | 0.150  | 50     |
| 75        | 10.253     | 10.244    | 33.642     | 25.850    | 215.6     | 0.200     | 76        | 75         | 10.920 | 10.911   | 33.525   | 25.643    | 235.3 | 0.213  | 76     |
| 100       | 9.886      | 9.875     | 33.758     | 26.003    | 201.5     | 0.253     | 101       | 100        | 10.236 | 10.224   | 33.702   | 25.901    | 211.4 | 0.269  | 101    |
| 125       | 9.340      | 9.326     | 33.887     | 26.195    | 183.8     | 0.301     | 126       | 125        | 9.637  | 9.623    | 33.857   | 26.123    | 190.7 | 0.319  | 126    |
| 150       | 9.014      | 8.998     | 33.970     | 26.312    | 173.1     | 0.345     | 151       | 150        | 9.203  | 9.187    | 33.944   | 26.262    | 177.9 | 0.365  | 151    |
| 175       | 8.682      | 8.664     | 34.021     | 26.405    | 164.7     | 0.387     | 176       | 175        | 8.897  | 8.878    | 33.991   | 26.347    | 170.2 | 0.409  | 176    |
| 200       | 8.373      | 8.352     | 34.063     | 26.485    | 157.4     | 0.428     | 202       | 200        | 8.583  | 8.562    | 34.041   | 26.436    | 162.2 | 0.450  | 202    |
| 225       | 7.915      | 7.892     | 34.092     | 26.577    | 149.0     | 0.466     | 227       | 225        | 8.366  | 8.343    | 34.074   | 26.495    | 156.9 | 0.490  | 227    |
| 250       | 7.647      | 7.622     | 34.123     | 26.640    | 143.3     | 0.503     | 252       | 250        | 7.966  | 7.941    | 34.088   | 26.566    | 150.4 | 0.529  | 252    |
| 275       | 7.416      | 7.389     | 34.141     | 26.688    | 139.1     | 0.538     | 277       | 275        | 7.303  | 7.277    | 34.037   | 26.622    | 145.2 | 0.566  | 277    |
| 300       | 7.121      | 7.093     | 34.153     | 26.739    | 134.5     | 0.572     | 302       | 300        | 7.148  | 7.120    | 34.090   | 26.686    | 139.5 | 0.601  | 302    |
| 350       | 6.780      | 6.748     | 34.170     | 26.799    | 129.3     | 0.638     | 353       | 350        | 6.682  | 6.650    | 34.098   | 26.756    | 133.3 | 0.669  | 353    |
| 400       | 6.275      | 6.239     | 34.186     | 26.879    | 122.1     | 0.701     | 403       | 400        | 6.631  | 6.594    | 34.174   | 26.823    | 127.7 | 0.735  | 403    |
| 450       | 5.967      | 5.928     | 34.206     | 26.934    | 117.3     | 0.761     | 454       | 450        | 6.054  | 6.015    | 34.158   | 26.885    | 122.0 | 0.797  | 454    |
| 500       | 5.756      | 5.713     | 34.231     | 26.981    | 113.3     | 0.818     | 504       | 500        | 6.064  | 6.020    | 34.214   | 26.929    | 118.6 | 0.857  | 504    |
| 511       | 5.741      | 5.697     | 34.240     | 26.990    | 112.6     | 0.831     | 515       | 511        | 5.957  | 5.912    | 34.219   | 26.947    | 117.0 | 0.870  | 515    |



RV NEW HORIZON

CRUISE SQ86

STATION G 34 HYDRO

| LATITUDE  | LONGITUDE  | DAY/MO/YR | MESSENGER | BOTTOM   | WIND   | SPEED | WAVES  | WEATHER | BAROMETER | DRY    | WET    | CLOUD | AMT  | TYPE  |       |       |
|-----------|------------|-----------|-----------|----------|--------|-------|--------|---------|-----------|--------|--------|-------|------|-------|-------|-------|
| 35 27.8 N | 121 47.0 W | 19/03/86  | 1323 GMT  | 1146 M   | 220    | 01 KT |        |         | 1023.0 MB | 12.8 C | 12.4 C |       |      |       |       |       |
| CST       | DEPTH      | TEMP      | POT TEMP  | SALINITY | SIGMA  | SVA   | DYN HT | OXYGEN  | OXY       | SI03   | PO4    | NO3   | NO2  | CHL-A | PHARO | PRESS |
|           | M          | DEG C     | DEG C     |          | THETA  |       |        | ML/L    | PCT       | UM/L   | UM/L   | UM/L  | UM/L | UG/L  | UG/L  | D.BAR |
|           | 0 ISL      | 13.19     | 13.19     | 33.126   | 24.905 | 303.8 | .000   | 6.16    | 103.2     |        |        |       |      |       |       | 0     |
| 1         | 1          | 13.19     | 13.19     | 33.126   | 24.905 | 303.9 | .003   | 6.16    | 103.2     | 3.4    | .43    | .5    | .02  | .96   | .54   | 1     |
|           | 10 ISL     | 13.20     | 13.20     | 33.124   | 24.901 | 304.5 | .030   | 6.16    | 103.2     |        |        |       |      |       |       | 10    |
| 1         | 11         | 13.20     | 13.20     | 33.124   | 24.901 | 304.5 | .033   | 6.16    | 103.2     | 3.4    | .43    | .5    | .02  | .88   | .62   | 11    |
|           | 20 ISL     | 13.15     | 13.15     | 33.122   | 24.909 | 304.0 | .061   | 6.13    | 102.6     |        |        |       |      |       |       | 20    |
| 1         | 26         | 13.12     | 13.12     | 33.120   | 24.914 | 303.7 | .079   | 6.11    | 102.2     | 3.4    | .44    | .7    | .04  | .87   | .46   | 26    |
|           | 30 ISL     | 12.99     | 12.99     | 33.143   | 24.958 | 299.6 | .091   | 6.00    | 100.0     |        |        |       |      |       |       | 30    |
| 1         | 41         | 12.47     | 12.46     | 33.240   | 25.135 | 283.0 | .123   | 5.56    | 91.8      | 5.8    | .69    | 4.8   | .08  | .39   | .40   | 41    |
|           | 50 ISL     | 11.75     | 11.74     | 33.360   | 25.364 | 261.4 | .148   | 5.03    | 81.9      |        |        |       |      |       |       | 50    |
| 1         | 56         | 11.36     | 11.36     | 33.439   | 25.496 | 248.9 | .162   | 4.70    | 75.9      | 11.0   | 1.12   | 11.6  | .04  | .13   | .18   | 56    |
| 1         | 66         | 11.24     | 11.23     | 33.538   | 25.596 | 239.7 | .187   | 4.27    | 68.8      | 13.8   | 1.26   | 14.1  | .02  | .10   | .15   | 66    |
|           | 75 ISL     | 11.03     | 11.03     | 33.579   | 25.665 | 233.3 | .209   | 4.06    | 65.1      |        |        |       |      |       |       | 75    |
| 1         | 76         | 11.02     | 11.01     | 33.581   | 25.670 | 232.8 | .210   | 4.05    | 64.9      | 15.6   | 1.38   | 15.7  | .02  | .08   | .11   | 76    |
| 1         | 91         | 10.34     | 10.33     | 33.662   | 25.852 | 215.8 | .244   | 3.68    | 58.2      | 19.6   | 1.56   | 19.1  | .00  | .02   | .06   | 91    |
|           | 100 ISL    | 9.97      | 9.96      | 33.738   | 25.975 | 204.3 | .263   | 3.38    | 53.0      |        |        |       |      |       |       | 101   |
| 1         | 106        | 9.76      | 9.74      | 33.788   | 26.049 | 197.3 | .276   | 3.19    | 49.8      | 24.7   | 1.80   | 22.7  | .00  | .01   | .05   | 107   |
| 1         | 121        | 9.45      | 9.44      | 33.855   | 26.152 | 187.8 | .305   | 2.96    | 45.9      | 27.8   | 1.90   | 24.3  | .00  | .00   | .04   | 122   |
|           | 125 ISL    | 9.41      | 9.39      | 33.867   | 26.168 | 186.4 | .312   | 2.92    | 45.3      |        |        |       |      |       |       | 126   |
| 1         | 146        | 9.21      | 9.19      | 33.922   | 26.244 | 179.5 | .351   | 2.74    | 42.3      | 30.6   | 1.99   | 25.7  | .00  | .01   | .03   | 147   |
|           | 150 ISL    | 9.16      | 9.14      | 33.934   | 26.261 | 178.0 | .357   | 2.70    | 41.7      |        |        |       |      |       |       | 151   |
| 1         | 167        | 8.93      | 8.92      | 33.985   | 26.337 | 171.0 | .387   | 2.54    | 39.0      | 33.7   | 2.10   | 26.9  | .00  | .01   | .03   | 168   |
| 1         | 187        | 8.66      | 8.64      | 34.019   | 26.406 | 164.8 | .421   | 2.44    | 37.2      | 36.5   | 2.15   | 27.7  | .00  |       |       | 188   |
|           | 200 ISL    | 8.37      | 8.35      | 34.028   | 26.458 | 160.0 | .442   | 2.51    | 38.1      |        |        |       |      |       |       | 202   |
| 1         | 208        | 8.20      | 8.18      | 34.033   | 26.488 | 157.3 | .454   | 2.55    | 38.5      | 39.3   | 2.16   | 28.6  | .00  |       |       | 209   |
| 1         | 239        | 7.92      | 7.89      | 34.074   | 26.563 | 150.6 | .502   | 2.21    | 33.2      | 43.6   | 2.32   | 30.1  | .00  |       |       | 240   |
|           | 250 ISL    | 7.82      | 7.80      | 34.095   | 26.593 | 147.9 | .519   | 2.02    | 30.2      |        |        |       |      |       |       | 252   |
| 1         | 279        | 7.59      | 7.56      | 34.144   | 26.666 | 141.4 | .561   | 1.54    | 22.9      | 51.5   | 2.58   | 32.6  | .00  |       |       | 281   |
|           | 300 ISL    | 7.45      | 7.42      | 34.161   | 26.699 | 138.5 | .590   | 1.36    | 20.3      |        |        |       |      |       |       | 302   |
| 1         | 341        | 7.21      | 7.17      | 34.178   | 26.748 | 134.4 | .646   | 1.15    | 17.0      | 58.5   | 2.75   | 34.9  | .00  |       |       | 343   |
|           | 400 ISL    | 6.87      | 6.83      | 34.204   | 26.815 | 128.7 | .723   | .82     | 12.0      |        |        |       |      |       |       | 403   |
| 1         | 417        | 6.76      | 6.75      |          |        |       | .745   | .74     | 10.8      | 67.1   | 2.93   | 36.8  | .00  |       |       | 420   |
| 1         | 494        | 6.14      | 6.09      | 34.244   | 26.944 | 117.2 | .839   | .57     | 8.2       | 75.9   | 3.01   | 38.6  | .00  |       |       | 497   |
|           | 500 ISL    | 6.09      | 6.05      | 34.248   | 26.952 | 116.5 | .846   | .55     | 8.0       |        |        |       |      |       |       | 504   |
| 1         | 569        | 5.69      | 5.64      | 34.289   | 27.036 | 109.0 | .924   | .36     | 5.1       | 86.2   | 3.17   | 40.5  | .00  |       |       | 573   |

STATION G 35 CTD

RV NEW HORIZON

CRUISE SQ86

| LATITUDE  | LONGITUDE  | DAY/MO/YR | START TIME | BOTTOM    |        |        |        |
|-----------|------------|-----------|------------|-----------|--------|--------|--------|
| 35 24.1 N | 121 43.8 W | 19/03/86  | 1508 GMT   | 1165 M    |        |        |        |
| WIND      | SPEED      | WAVES     | WEA        | BAROMETER | DRY    | WET    | CLOUDS |
| 200       | 01 KT      |           | 0          | 1024.2 MB | 14.0 C | 13.2 C | 0/8    |
| DEPTH     | TEMP       | POT TEMP  | SALINITY   | SIGMA     | SVA    | DYN HT | PRESS  |
| M         | DEG C      | DEG C     |            | THETA     |        |        | D.BAR  |
| 0         | 13.506     | 13.506    | 33.088     | 24.812    | 312.7  | 0.000  | 0      |
| 10        | 13.512     | 13.511    | 33.087     | 24.810    | 313.2  | 0.031  | 10     |
| 20        | 13.457     | 13.454    | 33.090     | 24.823    | 312.1  | 0.063  | 20     |
| 30        | 13.382     | 13.378    | 33.089     | 24.838    | 311.0  | 0.094  | 30     |
| 40        | 13.382     | 13.376    | 33.087     | 24.837    | 311.4  | 0.125  | 40     |
| 50        | 13.293     | 13.286    | 33.104     | 24.868    | 308.7  | 0.156  | 50     |
| 75        | 10.877     | 10.868    | 33.493     | 25.626    | 237.0  | 0.224  | 76     |
| 100       | 10.339     | 10.327    | 33.655     | 25.846    | 216.5  | 0.281  | 101    |
| 125       | 9.354      | 9.340     | 33.747     | 26.083    | 194.4  | 0.332  | 126    |
| 150       | 9.046      | 9.030     | 33.951     | 26.292    | 175.0  | 0.378  | 151    |
| 175       | 8.902      | 8.883     | 34.002     | 26.355    | 169.4  | 0.421  | 176    |
| 200       | 8.538      | 8.517     | 34.047     | 26.448    | 161.1  | 0.463  | 202    |
| 225       | 8.136      | 8.113     | 34.073     | 26.529    | 153.6  | 0.502  | 227    |
| 250       | 7.866      | 7.841     | 34.095     | 26.587    | 148.5  | 0.540  | 252    |
| 275       | 7.653      | 7.626     | 34.115     | 26.634    | 144.3  | 0.576  | 277    |
| 300       | 7.432      | 7.403     | 34.120     | 26.669    | 141.2  | 0.612  | 302    |
| 350       | 7.154      | 7.121     | 34.198     | 26.770    | 132.3  | 0.680  | 353    |
| 400       | 6.693      | 6.656     | 34.212     | 26.845    | 125.7  | 0.745  | 403    |
| 450       | 6.459      | 6.418     | 34.253     | 26.908    | 120.2  | 0.806  | 454    |
| 500       | 6.170      | 6.125     | 34.264     | 26.955    | 116.3  | 0.866  | 504    |
| 531       | 5.926      | 5.880     | 34.281     | 27.000    | 112.2  | 0.901  | 535    |





STATION G 39 CTD

RV NEW HORIZON

CRUISE SQ86

LATITUDE 35 9.1 N LONGITUDE 121 28.5 W DAY/MO/YR 19/03/86 START TIME 2156 GMT BOTTOM M

WIND SPEED WAVES WEA BAROMETER DRY WET CLOUDS

| DEPTH M | TEMP DEG C | POT TEMP DEG C | SALINITY | SIGMA THETA | SVA   | DYN HT | PRESS D.BAR |
|---------|------------|----------------|----------|-------------|-------|--------|-------------|
| 0       | 14.595     | 14.595         | 33.086   | 24.584      | 334.4 | 0.000  | 0           |
| 10      | 13.437     | 13.436         | 33.077   | 24.817      | 312.5 | 0.032  | 10          |
| 20      | 13.315     | 13.312         | 33.075   | 24.840      | 310.5 | 0.063  | 20          |
| 30      | 13.303     | 13.299         | 33.080   | 24.847      | 310.1 | 0.095  | 30          |
| 40      | 13.239     | 13.234         | 33.109   | 24.882      | 307.0 | 0.125  | 40          |
| 50      | 12.385     | 12.378         | 33.271   | 25.175      | 279.4 | 0.155  | 50          |
| 75      | 10.872     | 10.863         | 33.544   | 25.667      | 233.1 | 0.219  | 76          |
| 100     | 10.119     | 10.107         | 33.669   | 25.895      | 211.9 | 0.274  | 101         |
| 125     | 9.591      | 9.577          | 33.799   | 26.085      | 194.2 | 0.325  | 126         |
| 150     | 8.861      | 8.845          | 33.861   | 26.251      | 178.8 | 0.372  | 151         |
| 175     | 8.550      | 8.532          | 33.921   | 26.346      | 170.1 | 0.415  | 176         |
| 200     | 8.249      | 8.229          | 33.988   | 26.445      | 161.2 | 0.457  | 202         |
| 225     | 7.886      | 7.864          | 34.003   | 26.511      | 155.2 | 0.496  | 227         |
| 250     | 7.607      | 7.583          | 34.019   | 26.564      | 150.4 | 0.535  | 252         |
| 275     | 7.432      | 7.405          | 34.059   | 26.621      | 145.4 | 0.572  | 277         |
| 300     | 7.408      | 7.379          | 34.112   | 26.667      | 141.5 | 0.607  | 302         |
| 350     | 7.112      | 7.079          | 34.172   | 26.756      | 133.7 | 0.676  | 353         |
| 400     | 6.751      | 6.714          | 34.224   | 26.846      | 125.6 | 0.741  | 403         |
| 450     | 6.387      | 6.346          | 34.250   | 26.916      | 119.5 | 0.802  | 454         |
| 483     | 6.244      | 6.201          | 34.258   | 26.941      | 117.4 | 0.841  | 487         |

RV NEW HORIZON

CRUISE SQ86

STATION G 40 HYDRO

LATITUDE 35 02.5 N LONGITUDE 121 38.2 W DAY/MO/YR 20/03/86 MESSENGER 0029 GMT BOTTOM 1331 M WIND SPEED 240 04 KT WAVES 290 04 08 WEATHER 0 BAROMETER 1022.3 MB DRY 16.2 C WET 13.5 C CLOUD AMT 0/8 TYPE

| CST DEPTH M | TEMP DEG C | POT TEMP DEG C | SALINITY | SIGMA THETA | SVA   | DYN HT | OXYGEN ML/L | OXY PCT | SI03 UM/L | PO4 UM/L | NO3 UM/L | NO2 UM/L | CHL-A UG/L | PHAE0 UG/L | PRESS D.BAR |
|-------------|------------|----------------|----------|-------------|-------|--------|-------------|---------|-----------|----------|----------|----------|------------|------------|-------------|
| 1 0         | 14.59      | 14.59          | 33.022   | 24.536      | 339.0 | .000   | 6.10        | 105.1   | 3.4       | .40      | .1       | .00      | .36        | .17        | 0           |
| 1 10        | 13.84      | 13.84          | 33.023   | 24.693      | 324.3 | .033   | 6.13        | 104.0   | 3.4       | .40      | .1       | .00      | .32        | .20        | 10          |
| 1 20        | 13.55      | 13.54          | 33.041   | 24.768      | 317.4 | .065   | 6.14        | 103.5   | 3.4       | .40      | .1       | .00      | .22        | .20        | 20          |
| 1 21        | 13.53      | 13.53          | 33.043   | 24.771      | 317.1 | .068   | 6.14        | 103.5   | 3.4       | .40      | .1       | .00      | .62        | .50        | 21          |
| 1 30        | 13.48      | 13.47          | 33.052   | 24.790      | 315.5 | .097   | 6.11        | 102.8   | 3.4       | .40      | .1       | .00      | .62        | .50        | 30          |
| 1 31        | 13.48      | 13.47          | 33.054   | 24.792      | 315.4 | .100   | 6.10        | 102.7   | 3.4       | .41      | .1       | .01      | .73        | .53        | 31          |
| 1 42        | 13.32      | 13.31          | 33.107   | 24.865      | 308.7 | .134   | 6.02        | 101.1   | 3.6       | .45      | .7       | .06      | .63        | .51        | 42          |
| 1 50        | 12.42      | 12.42          | 33.187   | 25.102      | 286.4 | .158   | 5.78        | 95.3    | 3.6       | .45      | .7       | .06      | .63        | .51        | 50          |
| 1 52        | 12.23      | 12.22          | 33.206   | 25.154      | 281.4 | .163   | 5.72        | 93.9    | 5.4       | .67      | 4.2      | .07      | .51        | .41        | 52          |
| 1 63        | 12.03      | 12.02          | 33.298   | 25.264      | 271.3 | .193   | 5.41        | 88.5    | 7.0       | .80      | 6.7      | .03      | .30        | .29        | 63          |
| 1 73        | 11.68      | 11.67          | 33.326   | 25.352      | 263.1 | .220   | 5.26        | 85.4    | 8.1       | .90      | 8.2      | .03      | .22        | .24        | 73          |
| 1 75        | 11.55      | 11.54          | 33.333   | 25.381      | 260.4 | .226   | 5.21        | 84.4    | 8.1       | .90      | 8.2      | .03      | .22        | .24        | 76          |
| 1 89        | 10.82      | 10.81          | 33.415   | 25.576      | 242.0 | .260   | 4.79        | 76.4    | 12.2      | 1.16     | 12.8     | .02      | .09        | .13        | 89          |
| 1 100       | 10.49      | 10.48          | 33.572   | 25.756      | 225.1 | .287   | 4.15        | 65.7    | 12.2      | 1.16     | 12.8     | .02      | .09        | .13        | 101         |
| 1 105       | 10.33      | 10.32          | 33.650   | 25.844      | 216.9 | .299   | 3.85        | 60.8    | 19.3      | 1.50     | 18.6     | .00      | .03        | .07        | 106         |
| 1 124       | 9.33       | 9.32           | 33.782   | 26.114      | 191.4 | .338   | 3.49        | 54.0    | 25.7      | 1.76     | 22.8     | .00      | .00        | .03        | 125         |
| 1 125       | 9.31       | 9.30           | 33.786   | 26.120      | 190.9 | .339   | 3.48        | 53.8    | 25.7      | 1.76     | 22.8     | .00      | .00        | .03        | 126         |
| 1 150       | 8.95       | 8.94           | 33.902   | 26.268      | 177.2 | .385   | 3.09        | 47.4    | 30.8      | 1.90     | 25.4     | .00      | .00        | .03        | 151         |
| 1 181       | 8.40       | 8.38           | 33.982   | 26.417      | 163.5 | .438   | 2.91        | 44.1    | 35.7      | 2.02     | 27.3     | .00      | .00        | .03        | 182         |
| 1 200       | 8.17       | 8.14           | 34.011   | 26.476      | 158.2 | .468   | 2.80        | 42.3    | 35.7      | 2.02     | 27.3     | .00      | .00        | .03        | 202         |
| 1 212       | 8.04       | 8.02           | 34.024   | 26.504      | 155.7 | .487   | 2.73        | 41.1    | 39.8      | 2.11     | 28.5     | .00      | .00        | .03        | 213         |
| 1 242       | 7.74       | 7.71           | 34.039   | 26.562      | 150.6 | .532   | 2.52        | 37.7    | 43.2      | 2.22     | 29.9     | .00      | .00        | .03        | 243         |
| 1 250       | 7.66       | 7.64           | 34.044   | 26.576      | 149.3 | .545   | 2.44        | 36.4    | 43.2      | 2.22     | 29.9     | .00      | .00        | .03        | 252         |
| 1 282       | 7.42       | 7.39           | 34.070   | 26.632      | 144.5 | .592   | 2.10        | 31.2    | 48.6      | 2.39     | 31.9     | .00      | .00        | .03        | 284         |
| 1 300       | 7.33       | 7.30           | 34.097   | 26.666      | 141.5 | .618   | 1.85        | 27.4    | 48.6      | 2.39     | 31.9     | .00      | .00        | .03        | 302         |
| 1 345       | 7.10       | 7.07           | 34.164   | 26.750      | 134.1 | .679   | 1.26        | 18.6    | 58.0      | 2.71     | 35.1     | .00      | .00        | .03        | 347         |
| 1 400       | 6.67       | 6.63           | 34.202   | 26.840      | 126.2 | .751   | .86         | 12.6    | 58.0      | 2.71     | 35.1     | .00      | .00        | .03        | 403         |
| 1 420       | 6.48       | 6.45           | 34.208   | 26.870      | 123.5 | .776   | .77         | 11.2    | 68.5      | 2.95     | 38.0     | .00      | .00        | .03        | 423         |
| 1 499       | 5.71       | 5.67           | 34.219   | 26.977      | 113.6 | .869   | .51         | 7.3     | 81.5      | 3.09     | 40.6     | .00      | .00        | .03        | 502         |
| 1 500       | 5.70       | 5.66           | 34.220   | 26.979      | 113.5 | .871   | .51         | 7.2     | 81.5      | 3.09     | 40.6     | .00      | .00        | .03        | 504         |
| 1 578       | 5.31       | 5.27           | 34.273   | 27.068      | 105.6 | .956   | .36         | 5.1     | 91.6      | 3.20     | 41.7     | .00      | .00        | .03        | 582         |

STATION G 41 CTD

RV NEW HORIZON

CRUISE SQ86

STATION G 42 CTD

LATITUDE 35 6.6 N LONGITUDE 121 41.9 W DAY/MO/YR 20/03/86 START TIME 0212 GMT BOTTOM M LATITUDE 35 10.3 N LONGITUDE 121 45.8 W DAY/MO/YR 20/03/86 START TIME 0320 GMT BOTTOM 1479 M

WIND SPEED WAVES WEA BAROMETER DRY WET CLOUDS WIND SPEED WAVES WEA BAROMETER DRY WET CLOUDS

| DEPTH M | TEMP DEG C | POT TEMP DEG C | SALINITY | SIGMA THETA | SVA   | DYN HT | PRESS D.BAR | DEPTH M | TEMP DEG C | POT TEMP DEG C | SALINITY | SIGMA THETA | SVA   | DYN HT | PRESS D.BAR |
|---------|------------|----------------|----------|-------------|-------|--------|-------------|---------|------------|----------------|----------|-------------|-------|--------|-------------|
| 0       | 13.898     | 13.898         | 32.998   | 24.662      | 326.9 | 0.000  | 0           | 0       | 13.898     | 13.898         | 32.992   | 24.657      | 327.4 | 0.000  | 0           |
| 10      | 13.801     | 13.800         | 32.997   | 24.681      | 325.4 | 0.033  | 10          | 10      | 13.718     | 13.717         | 33.036   | 24.729      | 320.9 | 0.032  | 10          |
| 20      | 13.758     | 13.755         | 33.000   | 24.693      | 324.6 | 0.065  | 20          | 20      | 13.552     | 13.549         | 33.095   | 24.808      | 313.6 | 0.064  | 20          |
| 30      | 13.734     | 13.730         | 33.001   | 24.699      | 324.3 | 0.098  | 30          | 30      | 13.412     | 13.408         | 33.099   | 24.840      | 310.8 | 0.095  | 30          |
| 40      | 13.645     | 13.639         | 33.011   | 24.725      | 322.1 | 0.130  | 40          | 40      | 13.273     | 13.268         | 33.125   | 24.888      | 306.5 | 0.126  | 40          |
| 50      | 13.409     | 13.402         | 33.106   | 24.846      | 310.7 | 0.162  | 50          | 50      | 12.375     | 12.368         | 33.245   | 25.157      | 281.1 | 0.156  | 50          |
| 75      | 11.254     | 11.245         | 33.440   | 25.517      | 247.3 | 0.231  | 76          | 75      | 11.000     | 10.991         | 33.307   | 25.459      | 252.8 | 0.222  | 76          |
| 100     | 10.454     | 10.442         | 33.561   | 25.753      | 225.4 | 0.290  | 101         | 100     | 10.285     | 10.273         | 33.552   | 25.775      | 223.3 | 0.282  | 101         |
| 125     | 9.473      | 9.459          | 33.797   | 26.103      | 192.5 | 0.343  | 126         | 125     | 9.557      | 9.543          | 33.780   | 26.076      | 195.1 | 0.334  | 126         |
| 150     | 8.978      | 8.962          | 33.899   | 26.262      | 177.8 | 0.389  | 151         | 150     | 8.776      | 8.760          | 33.855   | 26.260      | 178.0 | 0.381  | 151         |
| 175     | 8.561      | 8.543          | 33.963   | 26.378      | 167.2 | 0.432  | 176         | 175     | 8.311      | 8.293          | 33.941   | 26.399      | 165.1 | 0.424  | 176         |
| 200     | 8.247      | 8.227          | 34.009   | 26.462      | 159.6 | 0.473  | 202         | 200     | 8.018      | 7.998          | 33.989   | 26.480      | 157.7 | 0.464  | 202         |
| 225     | 7.910      | 7.887          | 34.054   | 26.548      | 151.7 | 0.512  | 227         | 225     | 7.830      | 7.808          | 34.003   | 26.519      | 154.4 | 0.503  | 227         |
| 250     | 7.548      | 7.524          | 34.040   | 26.589      | 148.0 | 0.549  | 252         | 250     | 7.593      | 7.569          | 34.008   | 26.558      | 151.1 | 0.541  | 252         |
| 275     | 7.525      | 7.498          | 34.093   | 26.635      | 144.2 | 0.586  | 277         | 275     | 7.247      | 7.221          | 34.024   | 26.619      | 145.4 | 0.578  | 277         |
| 300     | 7.349      | 7.320          | 34.107   | 26.671      | 141.1 | 0.621  | 302         | 300     | 7.049      | 7.021          | 34.041   | 26.661      | 141.8 | 0.614  | 302         |
| 350     | 6.777      | 6.745          | 34.104   | 26.748      | 134.2 | 0.690  | 353         | 350     | 6.654      | 6.622          | 34.104   | 26.764      | 132.5 | 0.683  | 353         |
| 400     | 6.355      | 6.319          | 34.146   | 26.837      | 126.1 | 0.755  | 403         | 400     | 6.423      | 6.387          | 34.183   | 26.857      | 124.3 | 0.747  | 403         |
| 450     | 5.758      | 5.720          | 34.145   | 26.912      | 119.1 | 0.817  | 454         | 450     | 6.298      | 6.258          | 34.248   | 26.926      | 118.5 | 0.808  | 454         |
| 500     | 5.484      | 5.442          | 34.176   | 26.970      | 114.0 | 0.875  | 504         | 500     | 5.776      | 5.733          | 34.245   | 26.989      | 112.5 | 0.865  | 504         |
| 511     | 5.385      | 5.343          | 34.182   | 26.987      | 112.5 | 0.887  | 515         | 511     | 5.623      | 5.580          | 34.232   | 26.998      | 111.7 | 0.878  | 515         |

| STATION B 1 CTD |        |            |          |           |       |            |       | RV NEW HORIZON |        |           |          | CRUISE SQ86 |       |           |       | STATION B 2 CTD |        |           |          |               |       |        |       |  |
|-----------------|--------|------------|----------|-----------|-------|------------|-------|----------------|--------|-----------|----------|-------------|-------|-----------|-------|-----------------|--------|-----------|----------|---------------|-------|--------|-------|--|
| LATITUDE        |        | LONGITUDE  |          | DAY/MO/YR |       | START TIME |       | BOTTOM         |        | LATITUDE  |          | LONGITUDE   |       | DAY/MO/YR |       | START TIME      |        | BOTTOM    |          |               |       |        |       |  |
| 35 12.1 N       |        | 121 28.7 W |          | 20/03/86  |       | 0700 GMT   |       | 622 M          |        | 35 12.0 N |          | 121 23.6 W  |       | 20/03/86  |       | 0814 GMT        |        | 706 M     |          |               |       |        |       |  |
| WIND SPEED      |        | WAVES      |          | WEA       |       | BAROMETER  |       | DRY WET        |        | CLOUDS    |          | WIND SPEED  |       | WAVES     |       | WEA             |        | BAROMETER |          | DRY WET       |       | CLOUDS |       |  |
| 270 02 KT       |        |            |          |           |       | 1025.4 MB  |       | 13.5 C 12.5 C  |        |           |          | 280 05 KT   |       |           |       |                 |        | 1025.8 MB |          | 13.0 C 12.7 C |       |        |       |  |
| DEPTH           | TEMP   | POT TEMP   | SALINITY | SIGMA     | SVA   | DYN HT     | PRESS | DEPTH          | TEMP   | POT TEMP  | SALINITY | SIGMA       | SVA   | DYN HT    | PRESS | DEPTH           | TEMP   | POT TEMP  | SALINITY | SIGMA         | SVA   | DYN HT | PRESS |  |
| M               | DEG C  | DEG C      |          | THETA     |       |            | D.BAR | M              | DEG C  | DEG C     |          | THETA       |       |           | D.BAR | M               | DEG C  | DEG C     |          | THETA         |       |        | D.BAR |  |
| 0               | 14.124 | 14.124     | 33.103   | 24.696    | 323.7 | 0.000      | 0     | 0              | 13.670 | 13.670    | 33.087   | 24.777      | 316.0 | 0.000     | 0     | 0               | 13.427 | 13.426    | 33.076   | 24.818        | 312.3 | 0.031  | 10    |  |
| 10              | 13.509 | 13.508     | 33.099   | 24.820    | 312.2 | 0.032      | 10    | 10             | 13.427 | 13.426    | 33.076   | 24.818      | 312.3 | 0.031     | 10    | 10              | 13.345 | 13.342    | 33.073   | 24.833        | 311.2 | 0.063  | 20    |  |
| 20              | 13.334 | 13.331     | 33.099   | 24.855    | 309.1 | 0.063      | 20    | 20             | 13.345 | 13.342    | 33.073   | 24.833      | 311.2 | 0.063     | 20    | 20              | 13.297 | 13.293    | 33.082   | 24.850        | 309.8 | 0.094  | 30    |  |
| 30              | 13.301 | 13.297     | 33.099   | 24.862    | 308.7 | 0.094      | 30    | 30             | 13.297 | 13.293    | 33.082   | 24.850      | 309.8 | 0.094     | 30    | 30              | 13.123 | 13.118    | 33.113   | 24.908        | 304.5 | 0.124  | 40    |  |
| 40              | 13.130 | 13.125     | 33.144   | 24.931    | 302.4 | 0.124      | 40    | 40             | 13.123 | 13.118    | 33.113   | 24.908      | 304.5 | 0.124     | 40    | 40              | 11.871 | 11.865    | 33.293   | 25.289        | 268.5 | 0.153  | 50    |  |
| 50              | 11.778 | 11.772     | 33.358   | 25.357    | 262.0 | 0.153      | 50    | 50             | 11.871 | 11.865    | 33.293   | 25.289      | 268.5 | 0.153     | 50    | 50              | 10.841 | 10.832    | 33.442   | 25.593        | 240.1 | 0.215  | 76    |  |
| 75              | 10.841 | 10.832     | 33.442   | 25.593    | 240.1 | 0.215      | 76    | 75             | 10.508 | 10.499    | 33.414   | 25.629      | 236.6 | 0.216     | 76    | 100             | 10.358 | 10.346    | 33.693   | 25.873        | 214.1 | 0.272  | 101   |  |
| 100             | 10.358 | 10.346     | 33.693   | 25.873    | 214.1 | 0.272      | 101   | 100            | 10.286 | 10.274    | 33.708   | 25.897      | 211.7 | 0.272     | 101   | 125             | 9.666  | 9.652     | 33.874   | 26.131        | 189.9 | 0.323  | 126   |  |
| 125             | 9.666  | 9.652      | 33.874   | 26.131    | 189.9 | 0.323      | 126   | 125            | 9.733  | 9.719     | 33.844   | 26.097      | 193.2 | 0.323     | 126   | 150             | 9.469  | 9.452     | 33.889   | 26.176        | 186.1 | 0.370  | 151   |  |
| 150             | 9.469  | 9.452      | 33.889   | 26.176    | 186.1 | 0.370      | 151   | 150            | 9.356  | 9.339     | 33.897   | 26.200      | 183.8 | 0.370     | 151   | 175             | 8.988  | 8.969     | 33.951   | 26.302        | 174.5 | 0.415  | 176   |  |
| 175             | 8.988  | 8.969      | 33.951   | 26.302    | 174.5 | 0.415      | 176   | 175            | 8.867  | 8.848     | 33.949   | 26.319      | 172.8 | 0.414     | 176   | 200             | 8.538  | 8.517     | 33.997   | 26.408        | 164.8 | 0.457  | 202   |  |
| 200             | 8.538  | 8.517      | 33.997   | 26.408    | 164.8 | 0.457      | 202   | 200            | 8.501  | 8.480     | 33.999   | 26.416      | 164.1 | 0.457     | 202   | 225             | 7.988  | 7.965     | 34.008   | 26.500        | 156.2 | 0.497  | 227   |  |
| 225             | 7.988  | 7.965      | 34.008   | 26.500    | 156.2 | 0.497      | 227   | 225            | 8.272  | 8.249     | 34.038   | 26.481      | 158.2 | 0.497     | 227   | 250             | 7.595  | 7.571     | 34.014   | 26.562        | 150.6 | 0.536  | 252   |  |
| 250             | 7.595  | 7.571      | 34.014   | 26.562    | 150.6 | 0.536      | 252   | 250            | 7.805  | 7.780     | 34.036   | 26.549      | 152.0 | 0.536     | 252   | 275             | 7.407  | 7.380     | 34.077   | 26.639        | 143.7 | 0.572  | 277   |  |
| 275             | 7.407  | 7.380      | 34.077   | 26.639    | 143.7 | 0.572      | 277   | 275            | 7.609  | 7.582     | 34.047   | 26.586      | 148.8 | 0.573     | 277   | 300             | 7.277  | 7.248     | 34.100   | 26.676        | 140.6 | 0.608  | 302   |  |
| 300             | 7.277  | 7.248      | 34.100   | 26.676    | 140.6 | 0.608      | 302   | 300            | 7.353  | 7.324     | 34.092   | 26.658      | 142.2 | 0.610     | 302   | 350             | 7.122  | 7.089     | 34.193   | 26.771        | 132.3 | 0.676  | 353   |  |
| 350             | 7.122  | 7.089      | 34.193   | 26.771    | 132.3 | 0.676      | 353   | 350            | 7.124  | 7.091     | 34.158   | 26.743      | 134.9 | 0.679     | 353   | 400             | 6.795  | 6.758     | 34.226   | 26.842        | 126.1 | 0.741  | 403   |  |
| 400             | 6.795  | 6.758      | 34.226   | 26.842    | 126.1 | 0.741      | 403   | 400            | 6.807  | 6.770     | 34.215   | 26.832      | 127.0 | 0.744     | 403   | 450             | 6.410  | 6.369     | 34.247   | 26.910        | 120.0 | 0.802  | 454   |  |
| 450             | 6.410  | 6.369      | 34.247   | 26.910    | 120.0 | 0.802      | 454   | 450            | 6.303  | 6.263     | 34.252   | 26.928      | 118.2 | 0.806     | 454   | 500             | 5.962  | 5.918     | 34.275   | 26.990        | 112.7 | 0.860  | 504   |  |
| 500             | 5.962  | 5.918      | 34.275   | 26.990    | 112.7 | 0.860      | 504   | 500            | 5.867  | 5.824     | 34.271   | 26.999      | 111.8 | 0.863     | 504   | 508             | 5.930  | 5.886     | 34.277   | 26.996        | 112.3 | 0.869  | 512   |  |
| 508             | 5.930  | 5.886      | 34.277   | 26.996    | 112.3 | 0.869      | 512   | 530            | 5.667  | 5.622     | 34.290   | 27.039      | 108.2 | 0.896     | 534   |                 |        |           |          |               |       |        |       |  |

| STATION B 3 CTD |        |            |          |           |       |            |       | RV NEW HORIZON |        |          |          | CRUISE SQ86 |       |           |       |            |        |           |          |         |       |        |       |  |
|-----------------|--------|------------|----------|-----------|-------|------------|-------|----------------|--------|----------|----------|-------------|-------|-----------|-------|------------|--------|-----------|----------|---------|-------|--------|-------|--|
| LATITUDE        |        | LONGITUDE  |          | DAY/MO/YR |       | START TIME |       | BOTTOM         |        | LATITUDE |          | LONGITUDE   |       | DAY/MO/YR |       | START TIME |        | BOTTOM    |          |         |       |        |       |  |
| 35 11.9 N       |        | 121 18.7 W |          | 20/03/86  |       | 0925 GMT   |       | 656 M          |        |          |          |             |       |           |       |            |        |           |          |         |       |        |       |  |
| WIND SPEED      |        | WAVES      |          | WEA       |       | BAROMETER  |       | DRY WET        |        | CLOUDS   |          | WIND SPEED  |       | WAVES     |       | WEA        |        | BAROMETER |          | DRY WET |       | CLOUDS |       |  |
| 330 04 KT       |        |            |          |           |       | 1025.8 MB  |       | 13.5 C 12.8 C  |        |          |          |             |       |           |       |            |        |           |          |         |       |        |       |  |
| DEPTH           | TEMP   | POT TEMP   | SALINITY | SIGMA     | SVA   | DYN HT     | PRESS | DEPTH          | TEMP   | POT TEMP | SALINITY | SIGMA       | SVA   | DYN HT    | PRESS | DEPTH      | TEMP   | POT TEMP  | SALINITY | SIGMA   | SVA   | DYN HT | PRESS |  |
| M               | DEG C  | DEG C      |          | THETA     |       |            | D.BAR | M              | DEG C  | DEG C    |          | THETA       |       |           | D.BAR | M          | DEG C  | DEG C     |          | THETA   |       |        | D.BAR |  |
| 0               | 14.021 | 14.021     | 33.091   | 24.708    | 322.5 | 0.000      | 0     | 0              | 13.638 | 13.637   | 33.086   | 24.783      | 315.6 | 0.032     | 10    | 0          | 13.364 | 13.361    | 33.083   | 24.837  | 310.9 | 0.063  | 20    |  |
| 10              | 13.638 | 13.637     | 33.086   | 24.783    | 315.6 | 0.032      | 10    | 10             | 13.364 | 13.361   | 33.083   | 24.837      | 310.9 | 0.063     | 20    | 10         | 13.289 | 13.285    | 33.091   | 24.858  | 309.1 | 0.094  | 30    |  |
| 20              | 13.364 | 13.361     | 33.083   | 24.837    | 310.9 | 0.063      | 20    | 20             | 13.289 | 13.285   | 33.091   | 24.858      | 309.1 | 0.094     | 30    | 20         | 12.694 | 12.689    | 33.214   | 25.071  | 289.1 | 0.124  | 40    |  |
| 30              | 13.289 | 13.285     | 33.091   | 24.858    | 309.1 | 0.094      | 30    | 30             | 12.694 | 12.689   | 33.214   | 25.071      | 289.1 | 0.124     | 40    | 30         | 11.948 | 11.942    | 33.359   | 25.326  | 265.0 | 0.152  | 50    |  |
| 40              | 12.694 | 12.689     | 33.214   | 25.071    | 289.1 | 0.124      | 40    | 40             | 11.948 | 11.942   | 33.359   | 25.326      | 265.0 | 0.152     | 50    | 40         | 10.507 | 10.498    | 33.497   | 25.694  | 230.5 | 0.214  | 76    |  |
| 50              | 11.948 | 11.942     | 33.359   | 25.326    | 265.0 | 0.152      | 50    | 50             | 10.507 | 10.498   | 33.497   | 25.694      | 230.5 | 0.214     | 76    | 50         | 10.022 | 10.011    | 33.683   | 25.922  | 209.3 | 0.269  | 101   |  |
| 75              | 10.507 | 10.498     | 33.497   | 25.694    | 230.5 | 0.214      | 76    | 75             | 9.230  | 9.216    | 33.780   | 26.129      | 190.0 | 0.319     | 126   | 75         | 8.893  | 8.877     | 33.856   | 26.242  | 179.7 | 0.365  | 151   |  |
| 100             | 10.022 | 10.011     | 33.683   | 25.922    | 209.3 | 0.269      | 101   | 100            | 8.893  | 8.877    | 33.856   | 26.242      | 179.7 | 0.365     | 151   | 100        | 8.506  | 8.488     | 33.921   | 26.353  | 169.5 | 0.408  | 176   |  |
| 125             | 9.230  | 9.216      | 33.780   | 26.129    | 190.0 | 0.319      | 126   | 125            | 8.506  | 8.488    | 33.921   | 26.353      | 169.5 | 0.408     | 176   | 125        | 8.245  | 8.225     | 33.991   | 26.448  | 160.9 | 0.450  | 202   |  |
| 150             | 8.893  | 8.877      | 33.856   | 26.242    | 179.7 | 0.365      | 151   | 150            | 8.245  | 8.225    | 33.991   | 26.448      | 160.9 | 0.450     | 202   | 150        | 7.838  | 7.816     | 34.006   | 26.521  | 154.3 | 0.489  | 227   |  |
| 175             | 8.506  | 8.488      | 33.921   | 26.353    | 169.5 | 0.408      | 176   | 175            | 7.838  | 7.816    | 34.006   | 26.521      | 154.3 | 0.489     | 227   | 175        | 7.590  | 7.566     | 34.018   | 26.566  | 150.2 | 0.527  | 252   |  |
| 200             | 8.245  | 8.225      | 33.991   | 26.448    | 160.9 | 0.450      | 202   | 200            | 7.590  | 7.566    | 34.018   | 26.566      | 150.2 | 0.527     | 252   | 200        | 7.389  | 7.362     | 34.048   | 26.618  | 145.6 | 0.564  | 277   |  |
| 225             | 7.838  | 7.816      | 34.006   | 26.521    | 154.3 | 0.489      | 227   | 225            | 7.389  | 7.362    | 34.048   | 26.618      | 145.6 | 0.564     | 277   | 225        | 7.304  | 7.275     | 34.083   | 26.658  | 142.2 | 0.600  | 302   |  |
| 250             | 7.590  | 7.566      | 34.018   | 26.566    | 150.2 | 0.527      | 252   | 250            | 7.304  | 7.275    | 34.083   | 26.658      | 142.2 | 0.600     | 302   | 250        | 7.107  | 7.074     | 34.174   | 26.758  | 133.5 | 0.669  | 353   |  |
| 275             | 7.389  | 7.362      | 34.048   | 26.618    | 145.6 | 0.564      | 277   | 275            | 7.107  | 7.074    | 34.174   | 26.758      | 133.5 | 0.669     | 353   | 275        | 6.832  | 6.795     | 34.215   | 26.829  | 127.4 | 0.734  | 403   |  |
| 300             | 7.304  | 7.275      | 34.083   | 26.658    | 142.2 | 0.600      | 302   | 300            | 6.832  | 6.795    | 34.215   | 26.829      | 127.4 | 0.734     | 403   | 300        | 6.551  | 6.510     | 34.243   | 26.889  | 122.2 | 0.797  | 454   |  |
| 350             | 7.107  | 7.074      | 34.174   | 26.758    | 133.5 | 0.669      | 353   | 350            | 6.551  | 6.510    | 34.243   | 26.889      | 122.2 | 0.797     | 454   | 350        | 6.107  | 6.063     | 34.264   | 26.963  | 115.4 | 0.856  | 504   |  |
| 400             | 6.832  | 6.795      | 34.215   | 26.829    | 127.4 | 0.734      | 403   | 400            | 6.107  | 6.063    | 34.264   | 26.963      | 115.4 | 0.856     | 504   | 400        | 5.850  | 5.804     | 34.282   | 27.010  | 111.2 | 0.891  | 535   |  |
| 450             | 6.551  | 6.510      | 34.243   | 26.889    | 122.2 | 0.797      | 454   | 450            | 5.850  | 5.804    | 34.282   | 27.010      | 111.2 | 0.891     | 535   |            |        |           |          |         |       |        |       |  |
| 500             | 6.107  | 6.063      | 34.264   | 26.963    | 115.4 | 0.856      | 504   | 530            |        |          |          |             |       |           |       |            |        |           |          |         |       |        |       |  |
| 530             | 5.850  | 5.804      | 34.282   | 27.010    | 111.2 | 0.891      | 535   |                |        |          |          |             |       |           |       |            |        |           |          |         |       |        |       |  |

RV NEW HORIZON

CRUISE SQ86

STATION B 4 HYDRO

| LATITUDE  | LONGITUDE  | DAY/MO/YR | MESSENGER | BOTTOM   | WIND   | SPEED | WAVES  | WEATHER | BAROMETER | DRY    | WET    | CLOUD | AMT  | TYPE  |       |       |
|-----------|------------|-----------|-----------|----------|--------|-------|--------|---------|-----------|--------|--------|-------|------|-------|-------|-------|
| 35 12.0 N | 121 14.0 W | 20/03/86  | 1055 GMT  | 581 M    | 020    | 05 KT |        |         | 1025.6 MB | 12.3 C | 12.3 C |       |      |       |       |       |
| CST       | DEPTH      | TEMP      | POT TEMP  | SALINITY | SIGMA  | SVA   | DYN HT | OXYGEN  | OXY       | SI03   | PO4    | NO3   | NO2  | CHL-A | PHAEO | PRESS |
|           | M          | DEG C     | DEG C     |          | THETA  |       |        | ML/L    | PCT       | UM/L   | UM/L   | UM/L  | UM/L | UG/L  | UG/L  | D.BAR |
| 1         | 0 ISL      | 13.31     | 13.31     | 33.050   | 24.821 | 312.4 | .000   | 5.99    | 100.5     |        |        |       |      |       |       | 0     |
| 1         | 1          | 13.31     | 13.31     | 33.050   | 24.821 | 311.9 | .003   | 5.99    | 100.5     | 7.1    | .60    | 2.4   | .11  | .44 A | .27 A | 1     |
| 1         | 10 ISL     | 13.03     | 13.02     | 33.036   | 24.868 | 307.7 | .031   | 6.05    | 100.9     |        |        |       |      |       |       | 10    |
| 1         | 11         | 13.00     | 13.00     | 33.035   | 24.872 | 307.3 | .034   | 6.05    | 100.9     | 7.3    | .62    | 2.8   | .13  | .64   | .40   | 11    |
| 1         | 20 ISL     | 12.83     | 12.83     | 33.034   | 24.905 | 304.7 | .062   | 6.02    | 100.0     |        |        |       |      |       |       | 20    |
| 1         | 22         | 12.80     | 12.80     | 33.034   | 24.910 | 303.9 | .067   | 6.01    | 99.8      | 7.4    | .64    | 3.0   | .13  | .93   | .50   | 22    |
| 1         | 30 ISL     | 12.63     | 12.63     | 33.122   | 25.012 | 294.4 | .092   | 5.81    | 96.2      |        |        |       |      |       |       | 30    |
| 1         | 43         | 12.26     | 12.26     | 33.299   | 25.220 | 274.9 | .128   | 5.37    | 88.3      | 8.0    | .81    | 6.1   | .12  | .35   | .31   | 43    |
| 1         | 50 ISL     | 11.95     | 11.94     | 33.367   | 25.332 | 264.5 | .147   | 5.08    | 83.0      |        |        |       |      |       |       | 50    |
| 1         | 58         | 11.59     | 11.59     | 33.418   | 25.438 | 254.5 | .168   | 4.82    | 78.2      | 11.2   | 1.04   | 10.5  | .04  | .19   | .25   | 58    |
| 1         | 69         | 11.14     | 11.14     | 33.437   | 25.535 | 245.5 | .195   | 4.70    | 75.5      | 12.6   | 1.14   | 12.2  | .04  | .15   | .20   | 69    |
| 1         | 75 ISL     | 10.97     | 10.96     | 33.487   | 25.606 | 238.9 | .210   | 4.50    | 72.0      |        |        |       |      |       |       | 75    |
| 1         | 84         | 10.75     | 10.74     | 33.567   | 25.706 | 229.6 | .230   | 4.18    | 66.6      | 16.2   | 1.35   | 15.8  | .01  | .07   | .12   | 84    |
| 1         | 99         | 10.22     | 10.21     | 33.664   | 25.874 | 213.9 | .266   | 3.73    | 58.8      | 21.1   | 1.56   | 19.4  | .00  | .04   | .12   | 100   |
| 1         | 100 ISL    | 10.20     | 10.19     | 33.667   | 25.879 | 213.4 | .267   | 3.72    | 58.7      |        |        |       |      |       |       | 101   |
| 1         | 114        | 9.57      | 9.56      | 33.724   | 26.030 | 199.3 | .296   | 3.57    | 55.5      | 23.5   | 1.69   | 22.0  | .00  | .02   | .06   | 115   |
| 1         | 125 ISL    | 9.22      | 9.20      | 33.785   | 26.135 | 189.5 | .317   | 3.40    | 52.5      |        |        |       |      |       |       | 126   |
| 1         | 140        | 8.82      | 8.81      | 33.871   | 26.264 | 177.3 | .345   | 3.16    | 48.4      | 29.8   | 1.90   | 25.6  | .00  | .01   | .05   | 141   |
| 1         | 150 ISL    | 8.61      | 8.60      | 33.911   | 26.329 | 171.4 | .362   | 3.06    | 46.6      |        |        |       |      |       |       | 151   |
| 1         | 161        | 8.42      | 8.40      | 33.947   | 26.387 | 166.0 | .381   | 2.97    | 45.1      | 34.3   | 2.00   | 27.5  | .00  | .00   | .04   | 162   |
| 1         | 193        | 8.09      | 8.07      | 34.006   | 26.484 | 157.3 | .432   | 2.80    | 42.2      | 38.4   | 2.10   | 28.6  | .00  | .01   | .04   | 194   |
| 1         | 200 ISL    | 8.00      | 7.98      | 34.013   | 26.501 | 155.7 | .443   | 2.76    | 41.5      |        |        |       |      |       |       | 202   |
| 1         | 223        | 7.77      | 7.75      | 34.034   | 26.552 | 151.2 | .478   | 2.58    | 38.6      | 42.7   | 2.20   | 30.1  | .00  |       |       | 224   |
| 1         | 250 ISL    | 7.65      | 7.62      | 34.079   | 26.606 | 146.5 | .519   | 2.12    | 31.6      |        |        |       |      |       |       | 252   |
| 1         | 253        | 7.64      | 7.61      | 34.084   | 26.612 | 146.1 | .524   | 2.06    | 30.7      | 47.3   | 2.38   | 32.0  | .00  |       |       | 255   |
| 1         | 294        | 7.35      | 7.32      | 34.079   | 26.649 | 143.0 | .583   | 1.94    | 28.7      | 50.5   | 2.46   | 33.0  | .00  |       |       | 296   |
| 1         | 300 ISL    | 7.30      | 7.27      | 34.084   | 26.660 | 142.1 | .591   | 1.89    | 27.9      |        |        |       |      |       |       | 302   |
| 1         | 356        | 6.88      | 6.85      | 34.143   | 26.765 | 132.8 | .667   | 1.28    | 18.8      | 60.3   | 2.72   | 35.9  | .00  |       |       | 358   |
| 1         | 400 ISL    | 6.74      | 6.70      | 34.203   | 26.832 | 127.0 | .725   | .87     | 12.7      |        |        |       |      |       |       | 403   |
| 1         | 412        | 6.69      | 6.66      | 34.218   | 26.850 | 125.5 | .740   | .77     | 11.2      | 67.9   | 2.92   | 37.4  | .00  |       |       | 415   |
| 1         | 474        | 6.17      | 6.13      | 34.262   | 26.953 | 116.1 | .815   | .49     | 7.1       | 78.7   | 3.08   | 39.0  | .00  |       |       | 477   |
| 1         | 500 ISL    | 5.96      | 5.92      | 34.279   | 26.993 | 112.5 | .845   | .41     | 5.9       |        |        |       |      |       |       | 504   |
| 1         | 535        | 5.70      | 5.66      | 34.298   | 27.041 | 108.1 | .884   | .34     | 4.8       | 88.5   | 3.18   | 40.3  | .00  |       |       | 539   |

A. SECOND FLOUROMETER READING NOT RECORDED, CHLOROPHYLL AND PHAEOPHYTIN CALCULATED WITH ASSUMED ACID RATIO INTERPOLATED FROM ADJACENT LEVELS.

STATION B 5 CTD

RV NEW HORIZON

CRUISE SQ86

STATION B 6 CTD

| LATITUDE  | LONGITUDE | DAY/MO/YR | START TIME | BOTTOM    | LATITUDE  | LONGITUDE | DAY/MO/YR | START TIME | BOTTOM |          |          |           |        |        |        |
|-----------|-----------|-----------|------------|-----------|-----------|-----------|-----------|------------|--------|----------|----------|-----------|--------|--------|--------|
| 35 12.0 N | 121 9.1 W | 20/03/86  | 1242 GMT   | M         | 35 12.0 N | 121 4.3 W | 20/03/86  | 1350 GMT   | 437 M  |          |          |           |        |        |        |
| WIND      | SPEED     | WAVES     | WEA        | BAROMETER | DRY       | WET       | CLOUDS    | WIND       | SPEED  | WAVES    | WEA      | BAROMETER | DRY    | WET    | CLOUDS |
|           |           |           |            |           |           |           |           | 020        | 03 KT  |          | 0        | 1025.6 MB | 12.5 C | 11.5 C | 0/8    |
| DEPTH     | TEMP      | POT TEMP  | SALINITY   | SIGMA     | SVA       | DYN HT    | PRESS     | DEPTH      | TEMP   | POT TEMP | SALINITY | SIGMA     | SVA    | DYN HT | PRESS  |
| M         | DEG C     | DEG C     |            | THETA     |           |           | D.BAR     | M          | DEG C  | DEG C    |          | THETA     |        |        | D.BAR  |
| 0         | 13.284    | 13.284    | 33.144     | 24.899    | 304.3     | 0.000     | 0         | 0          | 13.585 | 13.585   | 33.110   | 24.812    | 312.6  | 0.000  | 0      |
| 10        | 13.045    | 13.044    | 33.119     | 24.928    | 301.9     | 0.030     | 10        | 10         | 13.425 | 13.424   | 33.106   | 24.842    | 310.1  | 0.031  | 10     |
| 20        | 13.001    | 12.998    | 33.124     | 24.941    | 301.0     | 0.060     | 20        | 20         | 13.199 | 13.196   | 33.105   | 24.887    | 306.1  | 0.062  | 20     |
| 30        | 12.973    | 12.969    | 33.128     | 24.949    | 300.4     | 0.091     | 30        | 30         | 13.110 | 13.106   | 33.108   | 24.907    | 304.4  | 0.092  | 30     |
| 40        | 12.947    | 12.942    | 33.132     | 24.958    | 299.8     | 0.121     | 40        | 40         | 12.397 | 12.392   | 33.237   | 25.146    | 281.9  | 0.122  | 40     |
| 50        | 11.773    | 11.767    | 33.343     | 25.346    | 263.0     | 0.149     | 50        | 50         | 11.636 | 11.630   | 33.429   | 25.438    | 254.3  | 0.149  | 50     |
| 75        | 10.491    | 10.482    | 33.561     | 25.746    | 225.5     | 0.210     | 76        | 75         | 10.382 | 10.373   | 33.566   | 25.769    | 223.3  | 0.208  | 76     |
| 100       | 9.489     | 9.478     | 33.704     | 26.027    | 199.2     | 0.263     | 101       | 100        | 9.452  | 9.441    | 33.705   | 26.034    | 198.6  | 0.261  | 101    |
| 125       | 8.969     | 8.956     | 33.818     | 26.200    | 183.2     | 0.311     | 126       | 125        | 9.052  | 9.039    | 33.864   | 26.223    | 181.0  | 0.308  | 126    |
| 150       | 8.747     | 8.731     | 33.936     | 26.327    | 171.5     | 0.355     | 151       | 150        | 8.721  | 8.705    | 33.931   | 26.327    | 171.5  | 0.353  | 151    |
| 175       | 8.425     | 8.407     | 33.993     | 26.422    | 162.9     | 0.397     | 176       | 175        | 8.502  | 8.484    | 33.962   | 26.386    | 166.4  | 0.395  | 176    |
| 200       | 8.193     | 8.173     | 34.024     | 26.482    | 157.7     | 0.437     | 202       | 200        | 8.203  | 8.183    | 34.010   | 26.469    | 158.8  | 0.435  | 202    |
| 225       | 7.886     | 7.864     | 34.054     | 26.551    | 151.4     | 0.475     | 227       | 225        | 7.892  | 7.870    | 34.030   | 26.531    | 153.3  | 0.474  | 227    |
| 250       | 7.715     | 7.690     | 34.083     | 26.599    | 147.2     | 0.513     | 252       | 250        | 7.663  | 7.638    | 34.059   | 26.588    | 148.2  | 0.512  | 252    |
| 275       | 7.388     | 7.361     | 34.076     | 26.641    | 143.5     | 0.549     | 277       | 275        | 7.415  | 7.388    | 34.086   | 26.645    | 143.1  | 0.549  | 277    |
| 300       | 7.019     | 6.991     | 34.063     | 26.682    | 139.8     | 0.585     | 302       | 300        | 7.236  | 7.207    | 34.114   | 26.692    | 139.0  | 0.584  | 302    |
| 350       | 6.814     | 6.782     | 34.138     | 26.770    | 132.2     | 0.653     | 353       | 350        | 6.879  | 6.846    | 34.161   | 26.779    | 131.3  | 0.651  | 353    |
| 400       | 6.610     | 6.573     | 34.212     | 26.856    | 124.6     | 0.717     | 403       | 400        | 6.706  | 6.669    | 34.211   | 26.842    | 126.0  | 0.716  | 403    |
| 450       | 6.376     | 6.335     | 34.254     | 26.920    | 119.1     | 0.778     | 454       | 408        | 6.675  | 6.637    | 34.213   | 26.848    | 125.5  | 0.726  | 411    |
| 500       | 5.995     | 5.951     | 34.277     | 26.988    | 113.0     | 0.836     | 504       |            |        |          |          |           |        |        |        |
| 521       | 5.856     | 5.811     | 34.285     | 27.011    | 110.9     | 0.859     | 525       |            |        |          |          |           |        |        |        |



## RV NEW HORIZON

## CRUISE SQ86

## STATION B 7 HYDRO

| LATITUDE   | LONGITUDE  | DAY/MO/YR | MESSENGER | BOTTOM | WIND  | SPEED  | WAVES     | WEATHER | BAROMETER | DRY    | WET    | CLOUD | AMT   | TYPE  |       |
|------------|------------|-----------|-----------|--------|-------|--------|-----------|---------|-----------|--------|--------|-------|-------|-------|-------|
| 35 12.0 N  | 120 59.4 W | 20/03/86  | 1501 GMT  | 252 M  | 030   | 03 KT  | 320 02 09 | 0       | 1025.8 MB | 13.0 C | 10.6 C |       | 0/8   |       |       |
| CAST DEPTH | TEMP       | POT TEMP  | SALINITY  | SIGMA  | SVA   | DYN HT | OXYGRN    | OXY     | SI03      | PO4    | NO3    | NO2   | CHL-A | PHAEO | PRESS |
| M          | DEG C      | DEG C     |           | THETA  |       |        | ML/L      | PCT     | UM/L      | UM/L   | UM/L   | UM/L  | UG/L  | UG/L  | D.BAR |
| 0 ISL      | 13.50      | 13.50     | 33.097    | 24.821 | 311.9 | .000   | 6.31      | 106.3   |           |        |        |       |       |       | 0     |
| 1          | 13.50      | 13.50     |           |        |       | .003   | 6.31      | 106.3   | 3.9       | .39    | .0     | .01   | .66   | .41   | 1     |
| 10 ISL     | 13.47      | 13.47     | 33.096    | 24.826 | 311.5 | .031   | 6.29      | 106.0   |           |        |        |       |       |       | 10    |
| 11         | 13.46      | 13.46     | 33.097    | 24.828 | 311.5 | .034   | 6.29      | 105.9   | 3.7       | .39    | .0     | .01   | .63   | .35   | 11    |
| 20 ISL     | 13.32      | 13.32     | 33.105    | 24.862 | 308.4 | .062   | 6.21      | 104.2   |           |        |        |       |       |       | 20    |
| 30 ISL     | 13.17      | 13.16     | 33.114    | 24.901 | 305.1 | .093   | 6.12      | 102.4   |           |        |        |       |       |       | 30    |
| 1          | 13.14      | 13.13     | 33.116    | 24.907 | 304.4 | .098   | 6.10      | 102.0   | 4.6       | .48    | .9     | .04   | .95   | .53   | 32    |
| 1          | 12.03      | 12.02     | 33.334    | 25.292 | 268.2 | .144   | 5.19      | 84.9    | 9.3       | .89    | 7.8    | .10   | .30   | .32   | 48    |
| 1          | 11.91      | 11.90     | 33.347    | 25.325 | 265.1 | .150   | 5.13      | 83.6    |           |        |        |       |       |       | 50    |
| 1          | 11.52      | 11.52     | 33.390    | 25.429 | 255.4 | .170   | 4.92      | 79.7    | 11.3      | 1.04   | 10.3   | .06   | .25   | .23   | 58    |
| 1          | 10.74      | 10.73     | 33.554    | 25.698 | 230.1 | .209   | 4.23      | 67.4    | 16.9      | 1.36   | 15.7   | .03   | .09   | .14   | 74    |
| 1          | 10.65      | 10.64     | 33.566    | 25.723 | 227.8 | .212   | 4.18      | 66.5    |           |        |        |       |       |       | 76    |
| 1          | 9.87       | 9.86      | 33.667    | 25.935 | 207.8 | .241   | 3.77      | 59.0    | 21.5      | 1.61   | 20.2   | .02   | .02   | .09   | 89    |
| 1          | 9.73       | 9.72      | 33.736    | 26.012 | 200.7 | .265   | 3.58      | 55.9    |           |        |        |       |       |       | 101   |
| 1          | 9.61       | 9.60      | 33.759    | 26.050 | 197.3 | .284   | 3.46      | 53.9    | 24.6      | 1.75   | 22.3   | .01   | .01   | .05   | 110   |
| 1          | 9.37       | 9.36      | 33.842    | 26.155 | 187.6 | .313   | 3.10      | 48.1    |           |        |        |       |       |       | 126   |
| 1          | 9.24       | 9.23      | 33.884    | 26.208 | 182.6 | .331   | 2.90      | 44.8    | 30.9      | 1.97   | 25.0   | .04   | .01   | .09   | 135   |
| 1          | 9.16       | 9.14      | 33.917    | 26.248 | 179.2 | .359   | 2.71      | 41.9    |           |        |        |       |       |       | 151   |
| 1          | 9.14       | 9.12      | 33.925    | 26.257 | 178.4 | .368   | 2.67      | 41.2    | 33.9      | 2.08   | 26.0   | .04   | .01   | .11   | 156   |
| 1          | 8.87       | 8.85      | 33.986    | 26.348 | 170.3 | .420   | 2.42      | 37.1    | 37.6      | 2.19   | 27.5   | .06   | .00   | .12   | 186   |
| 1          | 8.56       | 8.54      | 34.030    | 26.431 | 162.6 | .445   | 2.24      | 34.1    |           |        |        |       |       |       | 202   |
| 1          | 8.30       | 8.27      | 34.063    | 26.497 | 156.4 | .460   | 2.10      | 31.8    | 44.3      | 2.35   | 29.8   | .06   | .01   | .09   | 211   |

## STATION B 8 CTD

## RV NEW HORIZON

## CRUISE SQ86

## STATION C 1 CTD

| LATITUDE  | LONGITUDE  | DAY/MO/YR | START TIME | BOTTOM    | LATITUDE  | LONGITUDE  | DAY/MO/YR | START TIME | BOTTOM |          |          |           |        |        |        |
|-----------|------------|-----------|------------|-----------|-----------|------------|-----------|------------|--------|----------|----------|-----------|--------|--------|--------|
| 35 12.1 N | 120 54.6 W | 20/03/86  | 1627 GMT   | 86 M      | 34 59.7 N | 120 47.1 W | 20/03/86  | 1808 GMT   | 86 M   |          |          |           |        |        |        |
| WIND      | SPEED      | WAVES     | WEA        | BAROMETER | DRY       | WET        | CLOUDS    | WIND       | SPEED  | WAVES    | WEA      | BAROMETER | DRY    | WET    | CLOUDS |
| 300       | 07 KT      |           | 1          | 1026.2 MB |           |            |           | 300        | 07 KT  |          | 1        | 1026.2 MB | 14.3 C | 12.4 C | 3/8 CI |
| DEPTH     | TEMP       | POT TEMP  | SALINITY   | SIGMA     | SVA       | DYN HT     | PRESS     | DEPTH      | TEMP   | POT TEMP | SALINITY | SIGMA     | SVA    | DYN HT | PRESS  |
| M         | DEG C      | DEG C     |            | THETA     |           |            | D.BAR     | M          | DEG C  | DEG C    |          | THETA     |        |        | D.BAR  |
| 0         | 13.181     | 13.181    | 33.126     | 24.906    | 303.7     | 0.000      | 0         | 0          | 13.702 | 13.702   | 33.090   | 24.773    | 316.3  | 0.000  | 0      |
| 10        | 13.131     | 13.130    | 33.124     | 24.915    | 303.2     | 0.030      | 10        | 10         | 13.545 | 13.544   | 33.086   | 24.802    | 313.9  | 0.032  | 10     |
| 20        | 12.956     | 12.953    | 33.142     | 24.963    | 298.8     | 0.060      | 20        | 20         | 13.495 | 13.492   | 33.089   | 24.815    | 312.9  | 0.063  | 20     |
| 30        | 12.324     | 12.320    | 33.218     | 25.145    | 281.7     | 0.089      | 30        | 30         | 13.369 | 13.365   | 33.092   | 24.843    | 310.5  | 0.094  | 30     |
| 40        | 11.188     | 11.183    | 33.484     | 25.563    | 242.2     | 0.116      | 40        | 40         | 12.340 | 12.335   | 33.308   | 25.212    | 275.6  | 0.123  | 40     |
| 50        | 10.857     | 10.851    | 33.557     | 25.679    | 231.3     | 0.139      | 50        | 50         | 11.065 | 11.059   | 33.494   | 25.593    | 239.6  | 0.149  | 50     |
| 75        | 9.956      | 9.947     | 33.718     | 25.960    | 205.1     | 0.194      | 76        | 75         | 10.125 | 10.116   | 33.663   | 25.889    | 211.9  | 0.206  | 76     |
| 78        | 9.946      | 9.937     | 33.718     | 25.962    | 205.0     | 0.200      | 79        | 80         | 10.093 | 10.084   | 33.677   | 25.905    | 210.4  | 0.216  | 81     |

## RV NEW HORIZON

## CRUISE SQ86

## STATION C 2 HYDRO

| LATITUDE   | LONGITUDE  | DAY/MO/YR | MESSENGER | BOTTOM | WIND  | SPEED  | WAVES     | WEATHER | BAROMETER | DRY    | WET    | CLOUD | AMT   | TYPE  |       |
|------------|------------|-----------|-----------|--------|-------|--------|-----------|---------|-----------|--------|--------|-------|-------|-------|-------|
| 34 59.8 N  | 120 52.6 W | 20/03/86  | 2002 GMT  | 166 M  | 320   | 11 KT  | 320 02 08 | 1       | 1026.3 MB | 15.0 C | 12.2 C |       | 3/8   | CS    |       |
| CAST DEPTH | TEMP       | POT TEMP  | SALINITY  | SIGMA  | SVA   | DYN HT | OXYGEN    | OXY     | SI03      | PO4    | NO3    | NO2   | CHL-A | PHAEO | PRESS |
| M          | DEG C      | DEG C     |           | THETA  |       |        | ML/L      | PCT     | UM/L      | UM/L   | UM/L   | UM/L  | UG/L  | UG/L  | D.BAR |
| 0 ISL      | 13.64      | 13.64     | 33.096    | 24.791 | 314.8 | .000   | 6.32      | 106.8   |           |        |        |       |       |       | 0     |
| 1          | 13.64      | 13.64     | 33.096    | 24.791 | 314.7 | .003   | 6.32      | 106.8   | 3.7       | .36    | .1     | .00   | .39   | .18   | 1     |
| 10 ISL     | 13.41      | 13.41     | 33.097    | 24.839 | 310.5 | .031   | 6.29      | 105.8   |           |        |        |       |       |       | 10    |
| 1          | 13.37      | 13.37     | 33.097    | 24.847 | 309.7 | .034   | 6.29      | 105.7   | 3.8       | .37    | .1     | .00   | .50   | .34   | 11    |
| 20 ISL     | 12.69      | 12.69     | 33.121    | 25.000 | 295.3 | .062   | 6.03      | 99.9    |           |        |        |       |       |       | 20    |
| 30 ISL     | 11.93      | 11.92     | 33.171    | 25.183 | 278.1 | .090   | 5.69      | 92.8    |           |        |        |       |       |       | 30    |
| 1          | 11.78      | 11.78     | 33.182    | 25.219 | 274.7 | .095   | 5.62      | 91.4    | 5.9       | .74    | 5.0    | .11   | .25   | .31   | 32    |
| 1          | 11.46      | 11.45     | 33.245    | 25.328 | 264.6 | .125   | 5.43      | 87.7    | 7.5       | .84    | 7.0    | .06   | .17   | .24   | 43    |
| 1          | 11.22      | 11.22     | 33.304    | 25.417 | 256.3 | .144   | 5.22      | 83.9    |           |        |        |       |       |       | 50    |
| 1          | 10.98      | 10.98     | 33.376    | 25.516 | 247.1 | .163   | 4.94      | 79.1    | 10.8      | 1.09   | 11.3   | .03   | .10   | .16   | 58    |
| 1          | 10.63      | 10.62     | 33.520    | 25.691 | 230.7 | .199   | 4.36      | 69.3    | 15.2      | 1.30   | 15.3   | .02   | .05   | .11   | 73    |
| 1          | 10.55      | 10.54     | 33.541    | 25.720 | 228.0 | .204   | 4.28      | 67.9    |           |        |        |       |       |       | 76    |
| 1          | 10.04      | 10.03     | 33.655    | 25.897 | 211.4 | .236   | 3.84      | 60.3    | 20.2      | 1.57   | 19.6   | .02   | .02   | .06   | 90    |
| 1          | 9.66       | 9.65      | 33.724    | 26.014 | 200.4 | .258   | 3.64      | 56.7    |           |        |        |       |       |       | 101   |
| 1          | 9.42       | 9.41      | 33.775    | 26.093 | 193.1 | .274   | 3.46      | 53.6    | 24.9      | 1.74   | 22.6   | .00   | .01   | .07   | 109   |
| 1          | 9.41       | 9.39      | 33.874    | 26.174 | 185.8 | .306   | 2.82      | 43.7    |           |        |        |       |       |       | 126   |
| 1          | 9.40       | 9.39      | 33.899    | 26.194 | 184.0 | .315   | 2.62      | 40.6    | 32.6      | 2.06   | 25.0   | .07   | .02   | .23   | 131   |
| 1          | 9.00       | 8.99      | 33.988    | 26.328 | 171.6 | .350   | 2.28      | 35.0    |           |        |        |       |       |       | 151   |
| 1          | 8.84       | 8.82      | 34.007    | 26.369 | 167.7 | .359   | 2.25      | 34.5    | 38.6      | 2.24   | 27.7   | .16   | .01   | .15   | 156   |

| STATION C 3 CTD |            |           |            |           | RV NEW HORIZON |           |           |            |        | CRUISE SQ86 |           |           |            |        | STATION C 4 CTD |  |  |  |  |
|-----------------|------------|-----------|------------|-----------|----------------|-----------|-----------|------------|--------|-------------|-----------|-----------|------------|--------|-----------------|--|--|--|--|
| LATITUDE        | LONGITUDE  | DAY/MO/YR | START TIME | BOTTOM    | LATITUDE       | LONGITUDE | DAY/MO/YR | START TIME | BOTTOM | LATITUDE    | LONGITUDE | DAY/MO/YR | START TIME | BOTTOM |                 |  |  |  |  |
| 34 59.8 N       | 120 57.2 W | 20/03/86  | 2114 GMT   | 325 M     | 34 59.9 N      | 121 2.0 W | 20/03/86  | 2227 GMT   | 459 M  |             |           |           |            |        |                 |  |  |  |  |
| WIND            | SPEED      | WAVES     | WEA        | BAROMETER | DRY            | WET       | CLOUDS    | WIND       | SPEED  | WAVES       | WEA       | BAROMETER | DRY        | WET    | CLOUDS          |  |  |  |  |
| DEPTH           | TEMP       | POT TEMP  | SALINITY   | SIGMA     | SVA            | DYN HT    | PRESS     | DEPTH      | TEMP   | POT TEMP    | SALINITY  | SIGMA     | SVA        | DYN HT | PRESS           |  |  |  |  |
| M               | DEG C      | DEG C     |            | THETA     |                |           | D.BAR     | M          | DEG C  | DEG C       |           | THETA     |            |        | D.BAR           |  |  |  |  |
| 0               | 13.730     | 13.730    | 33.149     | 24.813    | 312.5          | 0.000     | 0         | 0          | 13.980 | 13.980      | 33.126    | 24.744    | 319.1      | 0.000  | 0               |  |  |  |  |
| 10              | 13.467     | 13.466    | 33.130     | 24.852    | 309.1          | 0.031     | 10        | 10         | 13.250 | 13.249      | 33.112    | 24.882    | 306.3      | 0.031  | 10              |  |  |  |  |
| 20              | 13.102     | 13.099    | 33.118     | 24.916    | 303.3          | 0.062     | 20        | 20         | 13.142 | 13.139      | 33.119    | 24.909    | 304.0      | 0.062  | 20              |  |  |  |  |
| 30              | 13.007     | 13.003    | 33.127     | 24.942    | 301.1          | 0.092     | 30        | 30         | 13.027 | 13.023      | 33.130    | 24.940    | 301.2      | 0.092  | 30              |  |  |  |  |
| 40              | 12.644     | 12.639    | 33.215     | 25.082    | 288.1          | 0.121     | 40        | 40         | 12.696 | 12.691      | 33.196    | 25.057    | 290.4      | 0.122  | 40              |  |  |  |  |
| 50              | 11.362     | 11.356    | 33.248     | 25.348    | 262.9          | 0.149     | 50        | 50         | 11.661 | 11.655      | 33.223    | 25.274    | 269.9      | 0.150  | 50              |  |  |  |  |
| 75              | 10.565     | 10.556    | 33.560     | 25.733    | 226.8          | 0.210     | 76        | 75         | 10.482 | 10.473      | 33.557    | 25.745    | 225.6      | 0.212  | 76              |  |  |  |  |
| 100             | 9.490      | 9.479     | 33.757     | 26.068    | 195.3          | 0.263     | 101       | 100        | 9.692  | 9.681       | 33.673    | 25.969    | 204.8      | 0.265  | 101             |  |  |  |  |
| 125             | 8.984      | 8.971     | 33.891     | 26.255    | 178.0          | 0.310     | 126       | 125        | 9.244  | 9.230       | 33.823    | 26.160    | 187.0      | 0.314  | 126             |  |  |  |  |
| 150             | 8.722      | 8.706     | 33.935     | 26.331    | 171.2          | 0.353     | 151       | 150        | 8.709  | 8.693       | 33.939    | 26.336    | 170.7      | 0.359  | 151             |  |  |  |  |
| 175             | 8.638      | 8.620     | 34.022     | 26.412    | 164.0          | 0.395     | 176       | 175        | 8.332  | 8.314       | 33.979    | 26.425    | 162.6      | 0.401  | 176             |  |  |  |  |
| 200             | 7.981      | 7.961     | 34.018     | 26.509    | 155.0          | 0.435     | 202       | 200        | 7.970  | 7.950       | 34.005    | 26.500    | 155.8      | 0.441  | 202             |  |  |  |  |
| 225             | 7.802      | 7.780     | 34.035     | 26.548    | 151.6          | 0.473     | 227       | 225        | 7.807  | 7.785       | 34.034    | 26.547    | 151.7      | 0.479  | 227             |  |  |  |  |
| 250             | 7.605      | 7.581     | 34.068     | 26.603    | 146.8          | 0.511     | 252       | 250        | 7.454  | 7.430       | 34.053    | 26.613    | 145.8      | 0.516  | 252             |  |  |  |  |
| 275             | 7.431      | 7.404     | 34.115     | 26.665    | 141.2          | 0.547     | 277       | 275        | 7.420  | 7.393       | 34.093    | 26.650    | 142.7      | 0.552  | 277             |  |  |  |  |
| 300             | 7.124      | 7.096     | 34.133     | 26.723    | 136.0          | 0.581     | 302       | 300        | 7.156  | 7.128       | 34.105    | 26.696    | 138.6      | 0.587  | 302             |  |  |  |  |
| 304             | 7.087      | 7.058     | 34.139     | 26.733    | 135.1          | 0.587     | 306       | 350        | 6.943  | 6.910       | 34.157    | 26.767    | 132.5      | 0.655  | 353             |  |  |  |  |
|                 |            |           |            |           |                |           |           | 400        | 6.588  | 6.551       | 34.201    | 26.850    | 125.1      | 0.720  | 403             |  |  |  |  |
|                 |            |           |            |           |                |           |           | 420        | 6.523  | 6.485       | 34.210    | 26.866    | 123.9      | 0.744  | 423             |  |  |  |  |

| RV NEW HORIZON |            |           |           |          | CRUISE SQ86 |       |           |         |           | STATION C 5 HYDRO |        |       |      |       |       |       |
|----------------|------------|-----------|-----------|----------|-------------|-------|-----------|---------|-----------|-------------------|--------|-------|------|-------|-------|-------|
| LATITUDE       | LONGITUDE  | DAY/MO/YR | MESSANGER | BOTTOM   | WIND        | SPEED | WAVES     | WEATHER | BAROMETER | DRY               | WET    | CLOUD | AMT  | TYPE  |       |       |
| 35 00.0 N      | 121 07.0 W | 21/03/86  | 0025 GMT  | 536 M    | 320         | 14 KT | 320 02 07 | 1       | 1025.3 MB | 14.2 C            | 13.0 C | 5/8   |      | NS    |       |       |
| CST            | DEPTH      | TEMP      | POT TEMP  | SALINITY | SIGMA       | SVA   | DYN HT    | OXYGEN  | OXY       | SI03              | PO4    | NO3   | NO2  | CHL-A | PHABO | PRESS |
|                | M          | DEG C     | DEG C     |          | THETA       |       |           | ML/L    | PCT       | UM/L              | UM/L   | UM/L  | UM/L | UG/L  | UG/L  | D.BAR |
| 1              | 0          | 13.86     | 13.86     | 33.124   | 24.767      | 317.0 | .000      | 6.38    | 108.3     | 4.7               | .43    | .5    | .02  | 1.29  | .55   | 0     |
| 1              | 10         | 13.35     | 13.35     | 33.130   | 24.875      | 307.0 | .031      | 6.56    | 110.2     | 3.1               | .39    | .2    | .00  | 1.50  | .69   | 10    |
|                | 20         | 13.14     | 13.14     | 33.130   | 24.918      | 303.6 | .062      | 6.40    | 107.1     |                   |        |       |      |       |       | 20    |
|                | 30         | 13.02     | 13.02     | 33.131   | 24.943      | 301.1 | .092      | 6.24    | 104.2     |                   |        |       |      |       |       | 30    |
| 1              | 31         | 13.01     | 13.01     | 33.131   | 24.944      | 300.9 | .095      | 6.23    | 103.9     | 4.2               | .44    | .6    | .04  | 1.62  | .92   | 31    |
| 1              | 47         | 12.61     | 12.60     | 33.213   | 25.087      | 287.7 | .141      | 5.63    | 93.2      | 5.9               | .65    | 3.9   | .21  | .38   | .44   | 47    |
|                | 50         | 12.31     | 12.31     | 33.257   | 25.178      | 279.1 | .151      | 5.45    | 89.7      |                   |        |       |      |       |       | 50    |
| 1              | 57         | 11.67     | 11.66     | 33.357   | 25.377      | 260.3 | .169      | 5.06    | 82.2      | 9.3               | .96    | 9.0   | .09  | .19   | .29   | 57    |
| 1              | 73         | 10.89     | 10.88     | 33.525   | 25.649      | 234.7 | .208      | 4.31    | 68.9      | 14.4              | 1.30   | 14.8  | .06  | .07   | .13   | 73    |
| 1              | 75         | 10.81     | 10.80     | 33.535   | 25.671      | 232.8 | .214      | 4.26    | 68.0      |                   |        |       |      |       |       | 76    |
| 1              | 89         | 10.44     | 10.43     | 33.568   | 25.761      | 224.4 | .245      | 4.10    | 64.9      | 16.9              | 1.43   | 17.2  | .04  | .03   | .11   | 89    |
| 1              | 100        | 10.10     | 10.09     | 33.618   | 25.858      | 215.4 | .270      | 3.91    | 61.5      |                   |        |       |      |       |       | 101   |
| 1              | 103        | 9.99      | 9.98      | 33.636   | 25.891      | 212.3 | .277      | 3.85    | 60.4      | 19.9              | 1.56   | 19.7  | .02  | .02   | .11   | 104   |
| 1              | 125        | 9.16      | 9.14      | 33.780   | 26.140      | 188.9 | .320      | 3.40    | 52.4      |                   |        |       |      |       |       | 126   |
| 1              | 129        | 9.01      | 9.00      | 33.810   | 26.187      | 184.5 | .328      | 3.32    | 51.0      | 27.6              | 1.84   | 24.5  | .00  | .01   | .04   | 130   |
| 1              | 150        | 8.75      | 8.73      | 33.910   | 26.307      | 173.5 | .365      | 3.10    | 47.4      |                   |        |       |      |       |       | 151   |
| 1              | 151        | 8.74      | 8.73      | 33.915   | 26.312      | 173.0 | .367      | 3.09    | 47.2      | 30.9              | 1.95   | 25.8  | .00  | .01   | .03   | 152   |
| 1              | 181        | 8.26      | 8.24      | 34.000   | 26.453      | 160.0 | .417      | 2.85    | 43.1      | 36.3              | 2.08   | 27.7  | .00  | .00   | .03   | 182   |
| 1              | 200        | 8.07      | 8.05      | 34.043   | 26.516      | 154.3 | .447      | 2.55    | 38.4      |                   |        |       |      |       |       | 202   |
| 1              | 213        | 7.96      | 7.94      | 34.065   | 26.548      | 151.5 | .466      | 2.35    | 35.3      | 42.1              | 2.28   | 30.0  | .00  | .00   | .02   | 214   |
| 1              | 244        | 7.69      | 7.66      | 34.080   | 26.601      | 146.9 | .512      | 2.12    | 31.7      | 46.2              | 2.38   | 31.4  | .00  |       |       | 245   |
|                | 250        | 7.59      | 7.56      | 34.080   | 26.615      | 145.6 | .522      | 2.06    | 30.8      |                   |        |       |      |       |       | 252   |
| 1              | 284        | 7.02      | 6.99      | 34.080   | 26.695      | 138.3 | .570      | 1.78    | 26.2      | 54.0              | 2.55   | 34.0  | .00  |       |       | 286   |
| 1              | 300        | 6.77      | 6.74      | 34.079   | 26.728      | 135.8 | .592      | 1.69    | 24.7      |                   |        |       |      |       |       | 302   |
| 1              | 346        | 6.29      | 6.26      | 34.075   | 26.789      | 129.8 | .653      | 1.40    | 20.2      | 64.5              | 2.74   | 37.0  | .00  |       |       | 348   |
| 1              | 400        | 6.47      | 6.43      | 34.202   | 26.866      | 123.5 | .722      | .78     | 11.4      |                   |        |       |      |       |       | 403   |
| 1              | 402        | 6.48      | 6.45      | 34.208   | 26.870      | 123.2 | .724      | .76     | 11.0      | 69.6              | 2.94   | 37.9  | .00  |       |       | 405   |
| 1              | 464        | 6.33      | 6.29      | 34.246   | 26.921      | 119.2 | .798      | .59     | 8.5       | 74.5              | 3.03   | 38.6  | .00  |       |       | 467   |
|                | 500        | 6.08      | 6.04      | 34.268   | 26.970      | 114.8 | .841      | .48     | 6.8       |                   |        |       |      |       |       | 504   |
| 1              | 525        | 5.84      | 5.79      | 34.283   | 27.012      | 110.8 | .869      | .39     | 5.6       | 87.5              | 3.16   | 39.4  | .06  |       |       | 529   |

| STATION C 6 CTD |            |           |            |           | RV NEW HORIZON |            |           |            |        | CRUISE SQ86 |           |           |            |        | STATION C 7 CTD |  |  |  |  |
|-----------------|------------|-----------|------------|-----------|----------------|------------|-----------|------------|--------|-------------|-----------|-----------|------------|--------|-----------------|--|--|--|--|
| LATITUDE        | LONGITUDE  | DAY/MO/YR | START TIME | BOTTOM    | LATITUDE       | LONGITUDE  | DAY/MO/YR | START TIME | BOTTOM | LATITUDE    | LONGITUDE | DAY/MO/YR | START TIME | BOTTOM |                 |  |  |  |  |
| 35 0.0 N        | 121 11.9 W | 21/03/86  | 0158 GMT   | 570 M     | 35 0.0 N       | 121 16.9 W | 21/03/86  | 0314 GMT   | 592 M  |             |           |           |            |        |                 |  |  |  |  |
| WIND            | SPEED      | WAVES     | WEA        | BAROMETER | DRY            | WET        | CLOUDS    | WIND       | SPEED  | WAVES       | WEA       | BAROMETER | DRY        | WET    | CLOUDS          |  |  |  |  |
| DEPTH           | TEMP       | POT TEMP  | SALINITY   | SIGMA     | SVA            | DYN HT     | PRESS     | DEPTH      | TEMP   | POT TEMP    | SALINITY  | SIGMA     | SVA        | DYN HT | PRESS           |  |  |  |  |
| M               | DEG C      | DEG C     |            | THETA     |                |            | D.BAR     | M          | DEG C  | DEG C       |           | THETA     |            |        | D.BAR           |  |  |  |  |
| 0               | 13.584     | 13.584    | 33.108     | 24.811    | 312.7          | 0.000      | 0         | 0          | 13.762 | 13.762      | 33.106    | 24.773    | 316.3      | 0.000  | 0               |  |  |  |  |
| 10              | 13.604     | 13.603    | 33.113     | 24.811    | 313.0          | 0.031      | 10        | 10         | 13.761 | 13.760      | 33.105    | 24.773    | 316.6      | 0.032  | 10              |  |  |  |  |
| 20              | 13.229     | 13.226    | 33.099     | 24.876    | 307.1          | 0.062      | 20        | 20         | 13.495 | 13.492      | 33.111    | 24.832    | 311.3      | 0.063  | 20              |  |  |  |  |
| 30              | 13.229     | 13.225    | 33.101     | 24.878    | 307.2          | 0.093      | 30        | 30         | 13.134 | 13.130      | 33.112    | 24.905    | 304.6      | 0.094  | 30              |  |  |  |  |
| 40              | 13.237     | 13.232    | 33.116     | 24.888    | 306.5          | 0.124      | 40        | 40         | 13.045 | 13.040      | 33.134    | 24.940    | 301.5      | 0.124  | 40              |  |  |  |  |
| 50              | 12.901     | 12.894    | 33.179     | 25.004    | 295.7          | 0.154      | 50        | 50         | 12.521 | 12.514      | 33.241    | 25.126    | 284.1      | 0.153  | 50              |  |  |  |  |
| 75              | 11.168     | 11.159    | 33.479     | 25.563    | 242.9          | 0.221      | 76        | 75         | 11.134 | 11.125      | 33.472    | 25.564    | 242.9      | 0.219  | 76              |  |  |  |  |
| 100             | 10.191     | 10.179    | 33.632     | 25.854    | 215.8          | 0.278      | 101       | 100        | 10.286 | 10.274      | 33.638    | 25.842    | 216.9      | 0.277  | 101             |  |  |  |  |
| 125             | 9.234      | 9.220     | 33.778     | 26.126    | 190.2          | 0.329      | 126       | 125        | 9.245  | 9.231       | 33.790    | 26.134    | 189.5      | 0.328  | 126             |  |  |  |  |
| 150             | 8.695      | 8.679     | 33.874     | 26.287    | 175.3          | 0.375      | 151       | 150        | 8.691  | 8.675       | 33.912    | 26.317    | 172.4      | 0.373  | 151             |  |  |  |  |
| 175             | 8.224      | 8.206     | 33.986     | 26.447    | 160.5          | 0.417      | 176       | 175        | 8.359  | 8.341       | 33.964    | 26.409    | 164.1      | 0.415  | 176             |  |  |  |  |
| 200             | 7.950      | 7.930     | 34.001     | 26.500    | 155.9          | 0.456      | 202       | 200        | 8.164  | 8.14        |           |           |            |        |                 |  |  |  |  |

| STATION C 8 CTD |        |            |          |           |       |            |        | RV NEW HORIZON |        |          |          | CRUISE SQ86 |       |           |        | STATION C 9 CTD |        |          |          |           |       |        |        |
|-----------------|--------|------------|----------|-----------|-------|------------|--------|----------------|--------|----------|----------|-------------|-------|-----------|--------|-----------------|--------|----------|----------|-----------|-------|--------|--------|
| LATITUDE        |        | LONGITUDE  |          | DAY/MO/YR |       | START TIME |        | BOTTOM         |        | LATITUDE |          | LONGITUDE   |       | DAY/MO/YR |        | START TIME      |        | BOTTOM   |          |           |       |        |        |
| 35 0.0 N        |        | 121 21.6 W |          | 21/03/86  |       | 0422 GMT   |        | 439 M          |        | 35 0.1 N |          | 121 26.5 W  |       | 21/03/86  |        | 0524 GMT        |        | 463 M    |          |           |       |        |        |
| WIND            | SPEED  | WAVES      | WEA      | BAROMETER | DRY   | WET        | CLOUDS | WIND           | SPEED  | WAVES    | WEA      | BAROMETER   | DRY   | WET       | CLOUDS | WIND            | SPEED  | WAVES    | WEA      | BAROMETER | DRY   | WET    | CLOUDS |
| DEPTH           | TEMP   | POT TEMP   | SALINITY | SIGMA     | SVL   | DYN HT     | PRESS  | DEPTH          | TEMP   | POT TEMP | SALINITY | SIGMA       | SVL   | DYN HT    | PRESS  | DEPTH           | TEMP   | POT TEMP | SALINITY | SIGMA     | SVL   | DYN HT | PRESS  |
| M               | DEG C  | DEG C      |          | THETA     |       |            | D.BAR  | M              | DEG C  | DEG C    |          | THETA       |       |           | D.BAR  | M               | DEG C  | DEG C    |          | THETA     |       |        | D.BAR  |
| 0               | 13.949 | 13.949     | 33.093   | 24.725    | 320.9 | 0.000      | 0      | 0              | 13.878 | 13.878   | 33.088   | 24.736      | 319.9 | 0.000     | 0      | 0               | 13.878 | 13.878   | 33.088   | 24.736    | 319.9 | 0.000  | 0      |
| 10              | 13.886 | 13.885     | 33.090   | 24.736    | 320.2 | 0.032      | 10     | 10             | 13.568 | 13.567   | 33.095   | 24.804      | 313.7 | 0.032     | 10     | 10              | 13.568 | 13.567   | 33.095   | 24.804    | 313.7 | 0.032  | 10     |
| 20              | 13.369 | 13.366     | 33.092   | 24.843    | 310.3 | 0.064      | 20     | 20             | 13.332 | 13.329   | 33.081   | 24.842      | 310.4 | 0.063     | 20     | 20              | 13.332 | 13.329   | 33.081   | 24.842    | 310.4 | 0.063  | 20     |
| 30              | 13.290 | 13.286     | 33.090   | 24.857    | 309.1 | 0.095      | 30     | 30             | 13.307 | 13.303   | 33.091   | 24.855      | 309.4 | 0.094     | 30     | 30              | 13.307 | 13.303   | 33.091   | 24.855    | 309.4 | 0.094  | 30     |
| 40              | 13.191 | 13.186     | 33.087   | 24.875    | 307.8 | 0.125      | 40     | 40             | 12.665 | 12.660   | 33.195   | 25.062      | 289.9 | 0.124     | 40     | 40              | 12.665 | 12.660   | 33.195   | 25.062    | 289.9 | 0.124  | 40     |
| 50              | 13.153 | 13.146     | 33.098   | 24.891    | 306.5 | 0.156      | 50     | 50             | 11.864 | 11.858   | 33.204   | 25.221      | 274.9 | 0.152     | 50     | 50              | 11.864 | 11.858   | 33.204   | 25.221    | 274.9 | 0.152  | 50     |
| 75              | 11.377 | 11.368     | 33.262   | 25.356    | 262.6 | 0.227      | 76     | 75             | 11.495 | 11.486   | 33.372   | 25.421      | 256.6 | 0.219     | 76     | 75              | 11.495 | 11.486   | 33.372   | 25.421    | 256.6 | 0.219  | 76     |
| 100             | 10.848 | 10.836     | 33.464   | 25.609    | 239.2 | 0.290      | 101    | 100            | 10.484 | 10.472   | 33.556   | 25.744      | 226.3 | 0.279     | 101    | 100             | 10.484 | 10.472   | 33.556   | 25.744    | 226.3 | 0.279  | 101    |
| 125             | 9.984  | 9.970      | 33.655   | 25.907    | 211.2 | 0.346      | 126    | 125            | 9.696  | 9.682    | 33.715   | 26.002      | 202.1 | 0.332     | 126    | 125             | 9.696  | 9.682    | 33.715   | 26.002    | 202.1 | 0.332  | 126    |
| 150             | 9.024  | 9.008      | 33.846   | 26.213    | 182.4 | 0.395      | 151    | 150            | 8.906  | 8.890    | 33.870   | 26.251      | 178.8 | 0.380     | 151    | 150             | 8.906  | 8.890    | 33.870   | 26.251    | 178.8 | 0.380  | 151    |
| 175             | 8.594  | 8.576      | 33.950   | 26.363    | 168.6 | 0.439      | 176    | 175            | 8.523  | 8.505    | 33.968   | 26.387      | 166.2 | 0.423     | 176    | 175             | 8.523  | 8.505    | 33.968   | 26.387    | 166.2 | 0.423  | 176    |
| 200             | 8.183  | 8.163      | 33.982   | 26.450    | 160.6 | 0.481      | 202    | 200            | 8.244  | 8.224    | 34.010   | 26.463      | 159.5 | 0.464     | 202    | 200             | 8.244  | 8.224    | 34.010   | 26.463    | 159.5 | 0.464  | 202    |
| 225             | 7.948  | 7.925      | 34.043   | 26.533    | 153.1 | 0.520      | 227    | 225            | 7.862  | 7.840    | 34.033   | 26.538      | 152.6 | 0.503     | 227    | 225             | 7.862  | 7.840    | 34.033   | 26.538    | 152.6 | 0.503  | 227    |
| 250             | 7.547  | 7.523      | 34.072   | 26.615    | 145.6 | 0.557      | 252    | 250            | 7.735  | 7.710    | 34.063   | 26.581      | 149.0 | 0.541     | 252    | 250             | 7.735  | 7.710    | 34.063   | 26.581    | 149.0 | 0.541  | 252    |
| 275             | 7.459  | 7.432      | 34.115   | 26.661    | 141.6 | 0.593      | 277    | 275            | 7.543  | 7.516    | 34.102   | 26.639      | 143.7 | 0.577     | 277    | 275             | 7.543  | 7.516    | 34.102   | 26.639    | 143.7 | 0.577  | 277    |
| 300             | 7.080  | 7.052      | 34.113   | 26.713    | 136.9 | 0.628      | 302    | 300            | 7.499  | 7.470    | 34.109   | 26.651      | 143.0 | 0.613     | 302    | 300             | 7.499  | 7.470    | 34.109   | 26.651    | 143.0 | 0.613  | 302    |
| 350             | 6.810  | 6.778      | 34.145   | 26.776    | 131.6 | 0.695      | 353    | 350            | 7.120  | 7.087    | 34.138   | 26.728      | 136.3 | 0.683     | 353    | 350             | 7.120  | 7.087    | 34.138   | 26.728    | 136.3 | 0.683  | 353    |
| 400             | 6.308  | 6.272      | 34.198   | 26.884    | 121.6 | 0.758      | 403    | 400            | 6.514  | 6.478    | 34.187   | 26.849      | 125.2 | 0.748     | 403    | 400             | 6.514  | 6.478    | 34.187   | 26.849    | 125.2 | 0.748  | 403    |
| 408             | 6.247  | 6.211      | 34.200   | 26.894    | 120.8 | 0.768      | 411    | 430            | 6.432  | 6.393    | 34.193   | 26.865      | 124.1 | 0.786     | 433    |                 |        |          |          |           |       |        |        |

| STATION C 10 CTD |        |            |          |           |       |            |        | RV NEW HORIZON |        |          |          | CRUISE SQ86 |       |           |        | STATION C 11 CTD |        |          |          |           |       |        |        |
|------------------|--------|------------|----------|-----------|-------|------------|--------|----------------|--------|----------|----------|-------------|-------|-----------|--------|------------------|--------|----------|----------|-----------|-------|--------|--------|
| LATITUDE         |        | LONGITUDE  |          | DAY/MO/YR |       | START TIME |        | BOTTOM         |        | LATITUDE |          | LONGITUDE   |       | DAY/MO/YR |        | START TIME       |        | BOTTOM   |          |           |       |        |        |
| 35 0.1 N         |        | 121 31.1 W |          | 21/03/86  |       | 0626 GMT   |        | 708 M          |        | 35 0.1 N |          | 121 35.6 W  |       | 21/03/86  |        | 0728 GMT         |        | 1234 M   |          |           |       |        |        |
| WIND             | SPEED  | WAVES      | WEA      | BAROMETER | DRY   | WET        | CLOUDS | WIND           | SPEED  | WAVES    | WEA      | BAROMETER   | DRY   | WET       | CLOUDS | WIND             | SPEED  | WAVES    | WEA      | BAROMETER | DRY   | WET    | CLOUDS |
| DEPTH            | TEMP   | POT TEMP   | SALINITY | SIGMA     | SVL   | DYN HT     | PRESS  | DEPTH          | TEMP   | POT TEMP | SALINITY | SIGMA       | SVL   | DYN HT    | PRESS  | DEPTH            | TEMP   | POT TEMP | SALINITY | SIGMA     | SVL   | DYN HT | PRESS  |
| M                | DEG C  | DEG C      |          | THETA     |       |            | D.BAR  | M              | DEG C  | DEG C    |          | THETA       |       |           | D.BAR  | M                | DEG C  | DEG C    |          | THETA     |       |        | D.BAR  |
| 0                | 13.840 | 13.840     | 33.039   | 24.706    | 322.8 | 0.000      | 0      | 0              | 14.102 | 14.102   | 33.055   | 24.664      | 326.8 | 0.000     | 0      | 0                | 14.102 | 14.102   | 33.055   | 24.664    | 326.8 | 0.000  | 0      |
| 10               | 13.834 | 13.833     | 33.035   | 24.704    | 323.2 | 0.032      | 10     | 10             | 14.132 | 14.131   | 33.067   | 24.667      | 326.7 | 0.033     | 10     | 10               | 14.132 | 14.131   | 33.067   | 24.667    | 326.7 | 0.033  | 10     |
| 20               | 13.953 | 13.950     | 33.069   | 24.706    | 323.3 | 0.065      | 20     | 20             | 14.201 | 14.198   | 33.132   | 24.703      | 323.6 | 0.065     | 20     | 20               | 14.201 | 14.198   | 33.132   | 24.703    | 323.6 | 0.065  | 20     |
| 30               | 13.679 | 13.675     | 33.030   | 24.732    | 321.1 | 0.097      | 30     | 30             | 14.097 | 14.093   | 33.119   | 24.715      | 322.7 | 0.098     | 30     | 30               | 14.097 | 14.093   | 33.119   | 24.715    | 322.7 | 0.098  | 30     |
| 40               | 13.879 | 13.873     | 33.153   | 24.787    | 316.2 | 0.129      | 40     | 40             | 14.043 | 14.037   | 33.118   | 24.726      | 322.0 | 0.130     | 40     | 40               | 14.043 | 14.037   | 33.118   | 24.726    | 322.0 | 0.130  | 40     |
| 50               | 12.840 | 12.833     | 33.196   | 25.029    | 293.3 | 0.159      | 50     | 50             | 12.603 | 12.596   | 33.211   | 25.087      | 287.8 | 0.160     | 50     | 50               | 12.603 | 12.596   | 33.211   | 25.087    | 287.8 | 0.160  | 50     |
| 75               | 11.157 | 11.148     | 33.337   | 25.455    | 253.3 | 0.228      | 76     | 75             | 11.333 | 11.324   | 33.344   | 25.428      | 255.8 | 0.228     | 76     | 75               | 11.333 | 11.324   | 33.344   | 25.428    | 255.8 | 0.228  | 76     |
| 100              | 10.469 | 10.457     | 33.530   | 25.727    | 227.9 | 0.288      | 101    | 100            | 10.301 | 10.289   | 33.496   | 25.729      | 227.7 | 0.289     | 101    | 100              | 10.301 | 10.289   | 33.496   | 25.729    | 227.7 | 0.289  | 101    |
| 125              | 9.931  | 9.917      | 33.700   | 25.951    | 207.0 | 0.342      | 126    | 125            | 9.839  | 9.825    | 33.730   | 25.990      | 203.3 | 0.342     | 126    | 125              | 9.839  | 9.825    | 33.730   | 25.990    | 203.3 | 0.342  | 126    |
| 150              | 9.159  | 9.143      | 33.859   | 26.202    | 183.5 | 0.391      | 151    | 150            | 8.961  | 8.945    | 33.895   | 26.262      | 177.8 | 0.390     | 151    | 150              | 8.961  | 8.945    | 33.895   | 26.262    | 177.8 | 0.390  | 151    |
| 175              | 8.607  | 8.589      | 33.953   | 26.363    | 168.6 | 0.435      | 176    | 175            | 8.462  | 8.444    | 33.973   | 26.401      | 165.0 | 0.433     | 176    | 175              | 8.462  | 8.444    | 33.973   | 26.401    | 165.0 | 0.433  | 176    |
| 200              | 8.093  | 8.073      | 34.007   | 26.483    | 157.5 | 0.476      | 202    | 200            | 8.196  | 8.176    | 34.004   | 26.466      | 159.2 | 0.474     | 202    | 200              | 8.196  | 8.176    | 34.004   | 26.466    | 159.2 | 0.474  | 202    |
| 225              | 7.810  | 7.788      | 34.029   | 26.542    | 152.1 | 0.514      | 227    | 225            | 7.915  | 7.892    | 34.029   | 26.527      | 153.6 | 0.513     | 227    | 225              | 7.915  | 7.892    | 34.029   | 26.527    | 153.6 | 0.513  | 227    |
| 250              | 7.559  | 7.535      | 34.047   | 26.593    | 147.7 | 0.552      | 252    | 250            | 7.524  | 7.500    | 34.051   | 26.601      | 146.9 | 0.550     | 252    | 250              | 7.524  | 7.500    | 34.051   | 26.601    | 146.9 | 0.550  | 252    |
| 275              | 7.383  | 7.356      | 34.067   | 26.634    | 144.1 | 0.588      | 277    | 275            | 7.283  | 7.257    | 34.070   | 26.651      | 142.5 | 0.586     | 277    | 275              | 7.283  | 7.257    | 34.070   | 26.651    | 142.5 | 0.586  | 277    |
| 300              | 7.268  | 7.239      | 34.092   | 26.670    | 141.0 | 0.624      | 302    | 300            | 7.162  | 7.134    | 34.099   | 26.691      | 139.1 | 0.622     | 302    | 300              | 7.162  | 7.134    | 34.099   | 26.691    | 139.1 | 0.622  | 302    |
| 350              | 6.983  | 6.950      | 34.158   | 26.762    | 132.9 | 0.692      | 353    | 350            | 6.869  | 6.836    | 34.160   | 26.780      | 131.3 | 0.689     | 353    | 350              | 6.869  | 6.836    | 34.160   | 26.780    | 131.3 | 0.689  | 353    |
| 400              | 6.722  | 6.685      | 34.181   | 26.816    | 128.4 | 0.758      | 403    | 400            | 6.580  | 6.543    | 34.188   | 26.841      | 126.0 | 0.753     | 403    | 400              | 6.580  | 6.543    | 34.188   | 26.841    | 126.0 | 0.753  | 403    |
| 450              | 6.352  | 6.311      | 34.212   | 26.890    | 121.9 | 0.820      | 454    | 450            | 6.292  | 6.252    | 34.219   | 26.903      | 120.5 | 0.815     | 454    | 450              | 6.292  | 6.252    | 34.219   | 26.903    | 120.5 | 0.815  | 454    |
| 500              | 5.899  | 5.856      | 34.233   | 26.965    | 115.0 | 0.880      | 504    | 500            | 6.100  | 6.056    | 34.235   | 26.941      | 117.5 | 0.875     | 504    | 500              | 6.100  | 6.056    | 34.235   | 26.941    | 117.5 | 0.875  | 504    |
| 510              | 5.844  | 5.800      | 34.238   | 26.976    | 114.1 | 0.891      | 514    | 510            | 6.035  | 5.990    | 34.233   | 26.948      | 116.9 | 0.886     | 514    |                  |        |          |          |           |       |        |        |

| STATION C 12 CTD |       |            |          |           |     |            |        | RV NEW HORIZON |       |          |          | CRUISE SQ86 |     |           |        | STATION C 13 CTD |       |          |          |           |     |     |        |
|------------------|-------|------------|----------|-----------|-----|------------|--------|----------------|-------|----------|----------|-------------|-----|-----------|--------|------------------|-------|----------|----------|-----------|-----|-----|--------|
| LATITUDE         |       | LONGITUDE  |          | DAY/MO/YR |     | START TIME |        | BOTTOM         |       | LATITUDE |          | LONGITUDE   |     | DAY/MO/YR |        | START TIME       |       | BOTTOM   |          |           |     |     |        |
| 35 0.0 N         |       | 121 40.4 W |          | 21/03/86  |     | 0836 GMT   |        | 1593 M         |       | 35 0.0 N |          | 121 45.1 W  |     | 21/03/86  |        | 0944 GMT         |       | 1885 M   |          |           |     |     |        |
| WIND             | SPEED | WAVES      | WEA      | BAROMETER | DRY | WET        | CLOUDS | WIND           | SPEED | WAVES    | WEA      | BAROMETER   | DRY | WET       | CLOUDS | WIND             | SPEED | WAVES    | WEA      | BAROMETER | DRY | WET | CLOUDS |
| DEPTH            | TEMP  | POT TEMP   | SALINITY | SIGMA     | SVL | DYN HT     | PRESS  | DEPTH          | TEMP  | POT TEMP | SALINITY | SIGMA       | SVL | DYN HT    | PRESS  | DEPTH            | TEMP  | POT TEMP | SALINITY | SIGMA     |     |     |        |

## PRIMARY PRODUCTIVITY CASTS

RV NEW HORIZON

CRUISE SQ86

STATION A 1

| LATITUDE   | LONGITUDE     | MO/DAY/YR | MESSENGER      | SECCHI DEPTH    | INCUBATION TIME | LAN          | CIVIL TWILIGHT | INTEGRATED VALUE |             |             |               |              |      |                      |      |      |
|------------|---------------|-----------|----------------|-----------------|-----------------|--------------|----------------|------------------|-------------|-------------|---------------|--------------|------|----------------------|------|------|
| 34 56.1 N  | 120 55.2 W    | 03/16/86  | 1911 GMT       | 19 M            | 1215 - 1840 PST | 1213 PST     | 1838 PST       | 289.0 MG C/M2    |             |             |               |              |      |                      |      |      |
| DEPTH<br>M | TEMP<br>DEG C | SALINITY  | SIGMA<br>THETA | DISS O2<br>ML/L | OXY<br>PCT      | SI03<br>UM/L | PO4<br>UM/L    | NO3<br>UM/L      | NO2<br>UM/L | CHL<br>UG/L | PHAEO<br>UG/L | LIGHT<br>PCT | 1    | UPTAKE (MGC/M3)<br>2 | MEAN | DARK |
| 1          | 14.01         | 33.016    | 24.652         | 5.99            | 102.0           | 3.2          | 0.35           | 0.0              | 0.00        | 0.27        | 0.11          | 96           | 2.8  | 1.7                  | 2.3  | 0.15 |
| 13         | 13.98         | 33.028    | 24.669         | 5.99            | 101.9           | 3.4          | 0.35           | 0.0              | 0.00        | 0.31        | 0.12          | 34           | 6.4  | 6.0                  | 6.2  | 0.17 |
| 19         | 13.96         | 33.025    | 24.672         | 6.00            | 102.0           | 3.4          | 0.35           | 0.0              | 0.00        | 0.30        | 0.13          | 24           | 5.9  | 4.0                  | 4.9  | 0.15 |
| 28         | 13.90         | 33.017    | 24.677         | 6.01            | 102.1           | 3.5          | 0.35           | 0.0              | 0.00        | 0.35        | 0.13          | 12           | 5.7  | 4.6                  | 5.1  | 0.17 |
| 46         | 13.12         | 33.063    | 24.870         | 5.96            | 99.6            | 4.1          | 0.44           | 1.0              | 0.06        | 0.46        | 0.27          | 2.6          | 3.8  | 4.1                  | 3.9  | 0.15 |
| 85         | 10.62         | 33.550    | 25.717         | 4.29            | 68.2            | 15.2         | 1.27           | 15.7             | 0.01        | 0.05        | 0.07          | 0.13         | 0.01 | 0.04                 | 0.02 | 0.15 |

RV NEW HORIZON

CRUISE SQ86

STATION G 11

| LATITUDE   | LONGITUDE     | MO/DAY/YR | MESSENGER      | SECCHI DEPTH    | INCUBATION TIME | LAN          | CIVIL TWILIGHT | INTEGRATED VALUE |             |             |               |              |      |                      |      |      |
|------------|---------------|-----------|----------------|-----------------|-----------------|--------------|----------------|------------------|-------------|-------------|---------------|--------------|------|----------------------|------|------|
| 36 03.0 N  | 121 41.0 W    | 03/17/86  | 1803 GMT       | 8 M             | 1214 - 1843 PST | 1215 PST     | 1841 PST       | 964.5 MG C/M2    |             |             |               |              |      |                      |      |      |
| DEPTH<br>M | TEMP<br>DEG C | SALINITY  | SIGMA<br>THETA | DISS O2<br>ML/L | OXY<br>PCT      | SI03<br>UM/L | PO4<br>UM/L    | NO3<br>UM/L      | NO2<br>UM/L | CHL<br>UG/L | PHAEO<br>UG/L | LIGHT<br>PCT | 1    | UPTAKE (MGC/M3)<br>2 | MEAN | DARK |
| 1          | 12.95         | 33.106    | 24.936         | 6.24            | 104.0           | 3.0          | 0.42           | 0.8              | 0.06        | 2.67        | 0.44          | 96           | 21.4 | 12.2                 | 16.8 | 0.29 |
| 7          | 12.97         | 33.106    | 24.933         | 6.23            | 103.8           | 3.0          | 0.41           | 0.8              | 0.06        | 2.71        | 0.79          | 34           | 67.6 | 78.2                 | 72.9 | 0.30 |
| 8          | 12.94         | 33.104    | 24.938         | 6.23            | 103.8           | 3.0          | 0.42           | 0.8              | 0.06        | 2.61        | 0.81          | 24           | 50.5 | 54.3                 | 52.4 | 0.31 |
| 12         | 12.94         | 33.106    | 24.938         | 6.22            | 103.6           | 3.0          | 0.42           | 0.9              | 0.06        | 2.65        | 0.80          | 12           | 50.3 | 52.6                 | 51.4 | 0.32 |
| 21         | 12.86         | 33.149    | 24.988         | 6.03            | 100.3           | 3.8          | 0.50           | 1.8              | 0.10        | 2.09        | 0.67          | 2.6          | 13.5 | 13.9                 | 13.7 | 0.21 |
| 37         | 11.85         | 33.399    | 25.375         | 4.95            | 80.7            | 10.3         | 0.96           | 9.9              | 0.11        | 0.43        | 0.41          | 0.13         | 0.63 | 0.83                 | 0.73 | 0.14 |

RV NEW HORIZON

CRUISE SQ86

STATION G 24

| LATITUDE   | LONGITUDE     | MO/DAY/YR | MESSENGER      | SECCHI DEPTH    | INCUBATION TIME | LAN          | CIVIL TWILIGHT | INTEGRATED VALUE |             |             |               |              |      |                      |      |      |
|------------|---------------|-----------|----------------|-----------------|-----------------|--------------|----------------|------------------|-------------|-------------|---------------|--------------|------|----------------------|------|------|
| 35 30.8 N  | 121 34.8 W    | 03/18/86  | 1913 GMT       | 14 M            | 1214 - 1843 PST | 1214 PST     | 1842 PST       | 524.0 MG C/M2    |             |             |               |              |      |                      |      |      |
| DEPTH<br>M | TEMP<br>DEG C | SALINITY  | SIGMA<br>THETA | DISS O2<br>ML/L | OXY<br>PCT      | SI03<br>UM/L | PO4<br>UM/L    | NO3<br>UM/L      | NO2<br>UM/L | CHL<br>UG/L | PHAEO<br>UG/L | LIGHT<br>PCT | 1    | UPTAKE (MGC/M3)<br>2 | MEAN | DARK |
| 1          | 13.49         | 33.097    | 24.822         | 6.06            | 102.1           | 3.4          | 0.42           | 0.6              | 0.02        | 0.62        | 0.25          | 96           | 10.5 | 9.7                  | 10.1 | 0.24 |
| 11         | 13.43         | 33.093    | 24.832         | 6.07            | 102.1           | 3.5          | 0.42           | 0.6              | 0.02        | 0.65        | 0.26          | 34           | 16.3 | 17.9                 | 17.1 | 0.29 |
| 14         | 13.40         | 33.093    | 24.837         | 6.07            | 102.1           | 3.5          | 0.42           | 0.6              | 0.02        | 0.60        | 0.25          | 24           | 15.1 | 16.1                 | 15.6 | 0.29 |
| 21         | 13.38         | 33.092    | 24.840         | 6.06            | 101.9           | 3.5          | 0.42           | 0.6              | 0.02        | 0.60        | 0.27          | 12           | 13.7 | 13.5                 | 13.6 | 0.27 |
| 35         | 13.36         | 33.095    | 24.847         | 6.03            | 101.3           | 3.6          | 0.42           | 0.6              | 0.04        | 0.61        | 0.28          | 2.6          | 6.1  | 5.8                  | 6.0  | 0.18 |
| 64         | 11.14         | 33.469    | 25.560         | 4.57            | 73.4            | 12.3         | 1.17           | 13.0             | 0.03        | 0.09        | 0.13          | 0.13         | 0.17 | 0.16                 | 0.17 | 0.12 |

RV NEW HORIZON

CRUISE SQ86

STATION G 36

| LATITUDE   | LONGITUDE     | MO/DAY/YR | MESSENGER      | SECCHI DEPTH    | INCUBATION TIME | LAN          | CIVIL TWILIGHT | INTEGRATED VALUE |             |             |               |              |      |                      |      |      |
|------------|---------------|-----------|----------------|-----------------|-----------------|--------------|----------------|------------------|-------------|-------------|---------------|--------------|------|----------------------|------|------|
| 35 21.7 N  | 121 38.5 W    | 03/19/86  | 1826 GMT       | 14 M            | 1214 - 1842 PST | 1214 PST     | 1842 PST       | 643.4 MG C/M2    |             |             |               |              |      |                      |      |      |
| DEPTH<br>M | TEMP<br>DEG C | SALINITY  | SIGMA<br>THETA | DISS O2<br>ML/L | OXY<br>PCT      | SI03<br>UM/L | PO4<br>UM/L    | NO3<br>UM/L      | NO2<br>UM/L | CHL<br>UG/L | PHAEO<br>UG/L | LIGHT<br>PCT | 1    | UPTAKE (MGC/M3)<br>2 | MEAN | DARK |
| 0          | 13.66         | 33.088    | 24.780         | 6.16            | 104.2           | 3.5          | 0.38           | 0.1              | 0.01        | 0.52        | 0.22          | 96           | 9.9  | 10.9                 | 10.4 | 0.31 |
| 10         | 13.56         | 33.083    | 24.798         | 6.16            | 103.9           | 3.5          | 0.38           | 0.1              | 0.01        | 0.56        | 0.25          | 34           | 17.5 | 19.5                 | 18.5 | 0.36 |
| 13         | 13.51         | 33.080    | 24.805         | 6.14            | 103.5           | 3.5          | 0.38           | 0.1              | 0.01        | 0.57        | 0.26          | 24           | 15.9 | 14.7                 | 15.3 | 0.35 |
| 20         | 13.44         | 33.078    | 24.818         | 6.15            | 103.5           | 3.5          | 0.38           | 0.1              | 0.01        | 0.67        | 0.30          | 12           | 17.7 | 17.0                 | 17.3 | 0.36 |
| 34         | 13.42         | 33.080    | 24.823         | 6.09            | 102.4           | 3.6          | 0.39           | 0.1              | 0.01        | 0.78        | 0.39          | 2.6          | 10.5 | 9.1                  | 9.8  | 0.18 |
| 63         | 11.33         | 33.402    | 25.474         | 4.90            | 79.0            | 10.8         | 1.05           | 11.1             | 0.03        | 0.07        | 0.14          | 0.13         | 0.16 | 0.16                 | 0.16 | 0.12 |

RV NEW HORIZON

CRUISE SQ86

STATION C 1

| LATITUDE   | LONGITUDE     | MO/DAY/YR | MESSENGER      | SECCHI DEPTH    | INCUBATION TIME | LAN          | CIVIL TWILIGHT | INTEGRATED VALUE |             |             |               |              |      |                      |      |      |
|------------|---------------|-----------|----------------|-----------------|-----------------|--------------|----------------|------------------|-------------|-------------|---------------|--------------|------|----------------------|------|------|
| 34 59.5 N  | 120 46.5 W    | 03/20/86  | 1854 GMT       | 13 M            | 1210 - 1842 PST | 1211 PST     | 1842 PST       | 707.0 MG C/M2    |             |             |               |              |      |                      |      |      |
| DEPTH<br>M | TEMP<br>DEG C | SALINITY  | SIGMA<br>THETA | DISS O2<br>ML/L | OXY<br>PCT      | SI03<br>UM/L | PO4<br>UM/L    | NO3<br>UM/L      | NO2<br>UM/L | CHL<br>UG/L | PHAEO<br>UG/L | LIGHT<br>PCT | 1    | UPTAKE (MGC/M3)<br>2 | MEAN | DARK |
| 1          | 13.83         | 33.088    | 24.746         | 6.26            | 106.2           | 3.9          | 0.39           | 0.0              | 0.00        | 0.59        | 0.27          | 96           | 12.4 | 9.8                  | 11.1 | 0.32 |
| 10         | 13.54         | 33.084    | 24.801         | 6.29            | 106.1           | 3.9          | 0.39           | 0.0              | 0.00        | 0.68        | 0.33          | 34           | 22.3 | 23.2                 | 22.7 | 0.41 |
| 13         | 13.50         | 33.084    | 24.809         | 6.29            | 106.0           | 3.8          | 0.38           | 0.0              | 0.00        | 0.67        | 0.38          | 24           | 22.2 | 27.9                 | 25.1 | 0.39 |
| 20         | 13.48         | 33.083    | 24.814         | 6.29            | 105.9           | 3.8          | 0.38           | 0.0              | 0.00        | 0.72        | 0.35          | 12           | 22.1 | 21.16                | 21.6 | 0.39 |
| 33         | 12.88         | 33.189    | 25.015         | 5.75            | 95.7            | 5.8          | 0.60           | 2.8              | 0.13        | 0.67        | 0.36          | 2.6          | 9.8  | 7.3                  | 8.6  | 0.23 |
| 59         | 10.39         | 33.603    | 25.797         | 3.97            | 62.8            | 19.4         | 1.48           | 17.8             | 0.03        | 0.06        | 0.17          | 0.13         | 0*   | 0.07                 | 0.04 | 0.19 |

\* DARK UPTAKE EXCEEDED LIGHT UPTAKE.



Secchi Disk Observations

Cruise SQ86

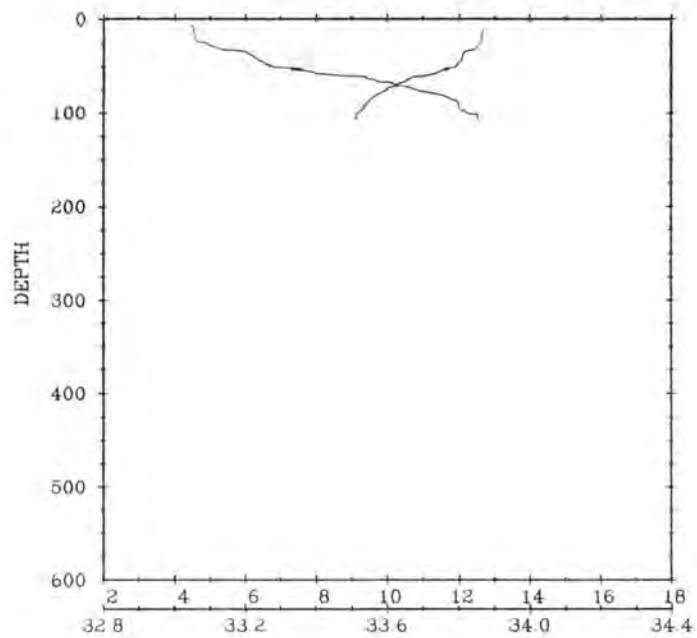
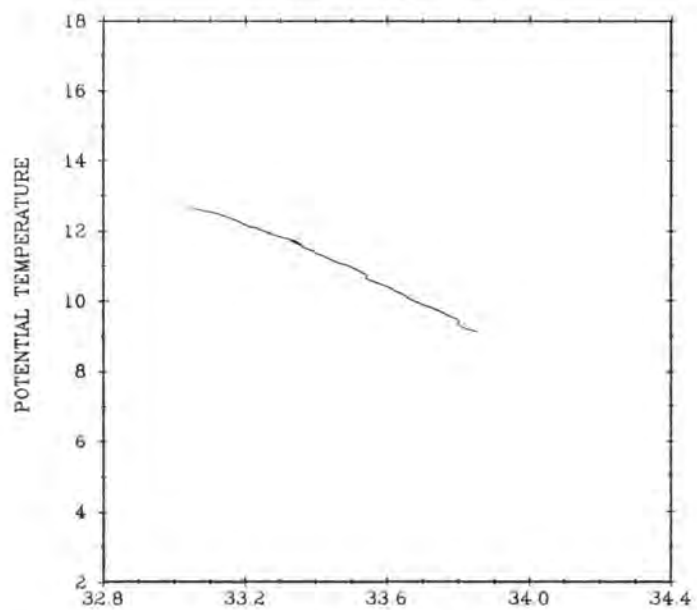
| Sta. | Day | Mo. | Local Time<br>(+8: PST) | Secchi Depth<br>(m) | Weather | Clouds<br>Type/Amt |
|------|-----|-----|-------------------------|---------------------|---------|--------------------|
| A 1  | 16  | 3   | 1100                    | 19                  | -       | -                  |
| G 1  | 16  | 3   | 1500                    | 13                  | 1       | SC 6/8             |
| G 11 | 17  | 3   | 0955                    | 8                   | 1       | ST 1/8             |
| G 24 | 18  | 3   | 1105                    | 14                  | 1       | CS 3/8             |
| G 26 | 18  | 3   | 1357                    | 11                  | 1       | CC 6/8             |
| G 36 | 19  | 3   | 1020                    | 14                  | 0       | - 0                |
| G 40 | 19  | 3   | 1602                    | 21                  | 0       | - 0                |
| C 1  | 20  | 3   | 1050                    | 13                  | 1       | CI 3/8             |
| C 2  | 20  | 3   | 1140                    | 12                  | 1       | CS 3/8             |
| C 3  | 20  | 3   | 1310                    | 9                   | -       | -                  |
| C 4  | 20  | 3   | 1421                    | 8                   | -       | -                  |
| C 5  | 20  | 3   | 1615                    | 8                   | 1       | NS 5/8             |

Cruise SQ86

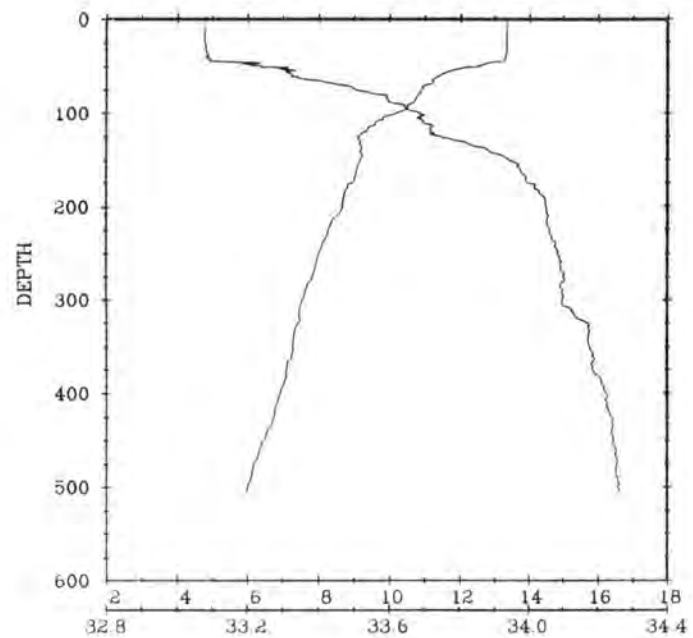
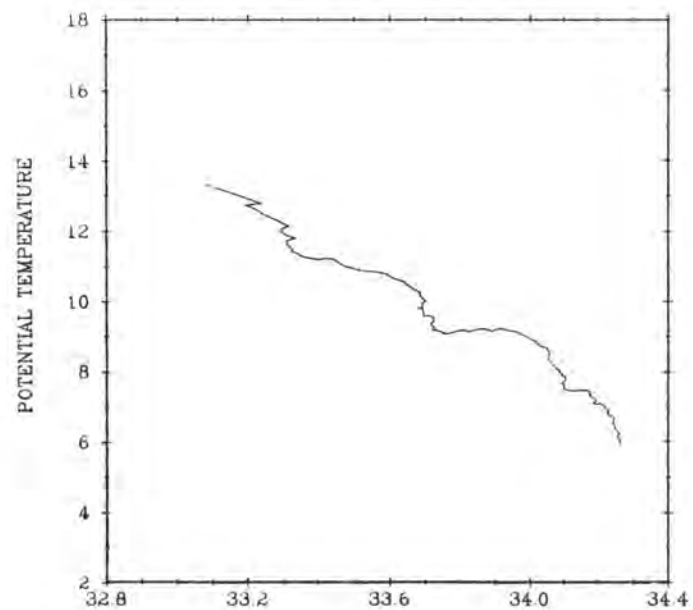
MACROZOOPLANKTON BIOMASS  
Net Mesh Size 0.505 mm

| Sta. | Position |           | Date<br>Mo/Day | Time (GMT) |      | Water Volume<br>Strained (m <sup>3</sup> ) | Max tow<br>Depth (m) | Volume per<br>1000 m <sup>3</sup> Strained |                          |
|------|----------|-----------|----------------|------------|------|--|----------------------|--|--------------------------|
|      |          |           |                | Start      | End  |  |                      | Total (cm <sup>3</sup> )                   | Small (cm <sup>3</sup> ) |
| G 8  | 35 50.8N | 121 31.1W | 3/17           | 1236       | 1258 | 450  | 212                  | 155  | 155                      |
| G 10 | 35 59.0N | 121 37.6W | 3/17           | 1605       | 1627 | 534  | 193                  | 70   | 70                       |
| G 17 | 35 28.5N | 121 21.8W | 3/18           | 0520       | 0542 | 472  | 201                  | 92   | 92                       |
| G 21 | 35 19.4N | 121 24.9W | 3/18           | 1412       | 1433 | 473  | 172                  | 56   | 56                       |
| G 24 | 35 30.9N | 121 35.1W | 3/18           | 1927       | 1949 | 462  | 208                  | 105  | 64                       |
| G 26 | 35 37.9N | 121 42.6W | 3/18           | 2337       | 2359 | 430  | 159                  | 93   | 93                       |
| G 28 | 35 45.9N | 121 50.8W | 3/19           | 0326       | 0348 | 442  | 172                  | 228  | 228                      |
| G 34 | 35 27.7N | 121 46.6W | 3/19           | 1404       | 1426 | 428  | 168                  | 136  | 100                      |
| G 36 | 35 20.8N | 121 39.2W | 3/19           | 1737       | 1758 | 453  | 176                  | 85   | 85                       |
| G 40 | 35 02.5N | 121 38.6W | 3/20           | 0106       | 0128 | 452  | 193                  | 46   | 46                       |
| G 42 | 35 10.4N | 121 46.3W | 3/20           | 0447       | 0510 | 457  | 216                  | 105  | 94                       |
| B 4  | 35 12.0N | 121 14.1W | 3/20           | 1131       | 1153 | 408  | 212                  | 175  | 175                      |
| B 7  | 35 12.0N | 120 59.5W | 3/20           | 1525       | 1547 | 407  | 180                  | 158  | 158                      |
| C 2  | 34 59.6N | 120 52.8W | 3/20           | 2024       | 2035 | 232  | 96                   | 62   | 62                       |
| C 5  | 35 00.0N | 121 07.1W | 3/21           | 0059       | 0120 | 455  | 212                  | 98   | 98                       |

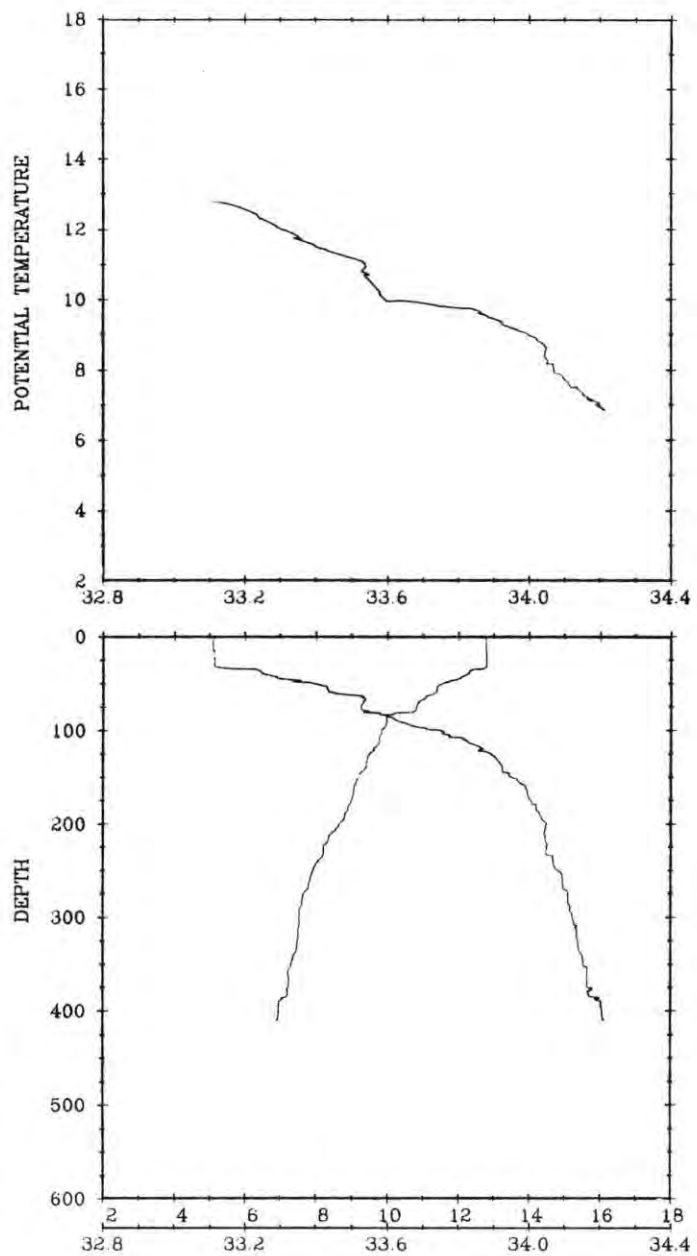
CRUISE SQ86 G 5



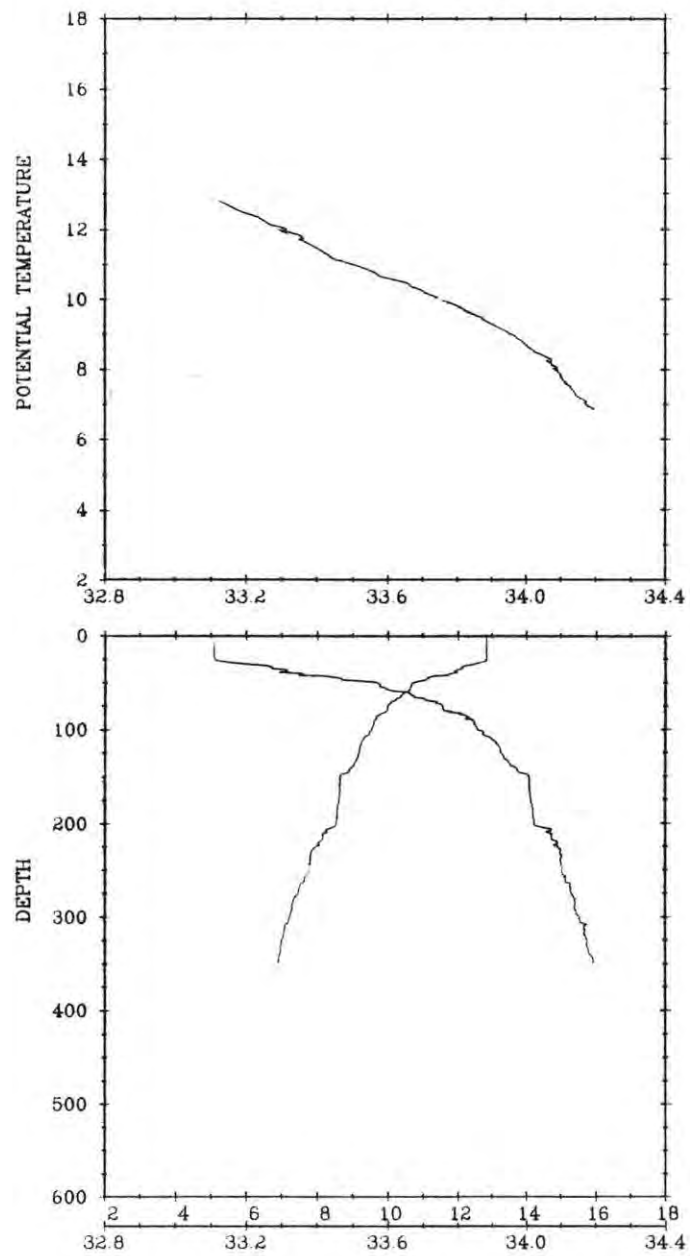
CRUISE SQ86 G 16



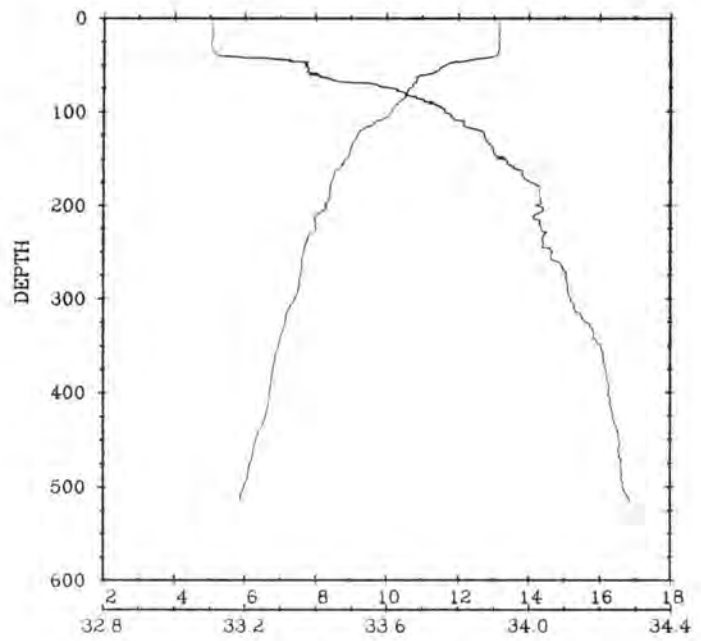
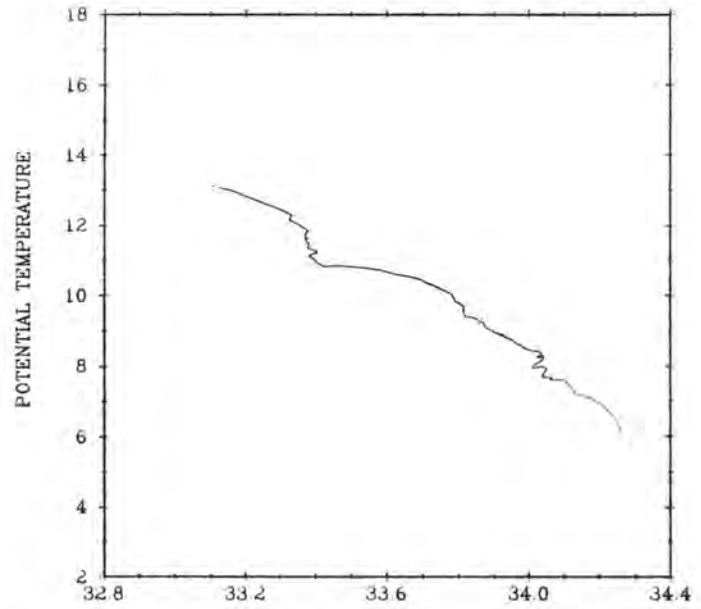
CRUISE SQ86 G 18



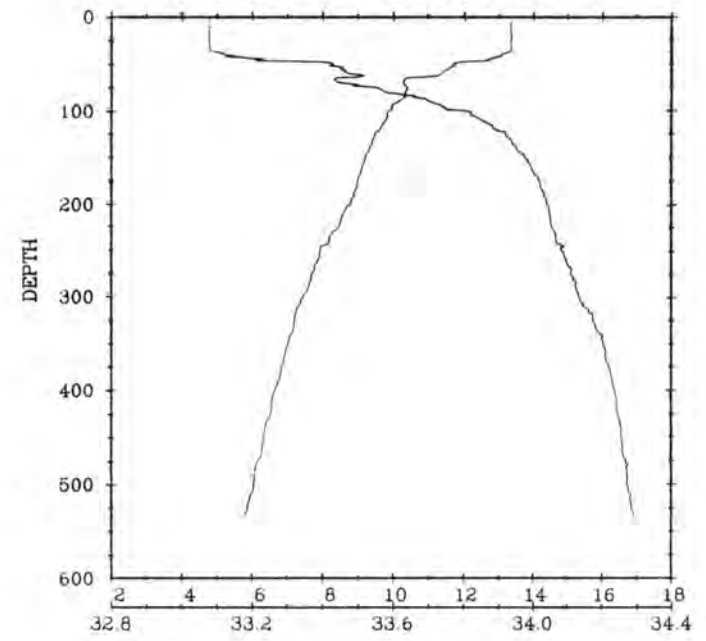
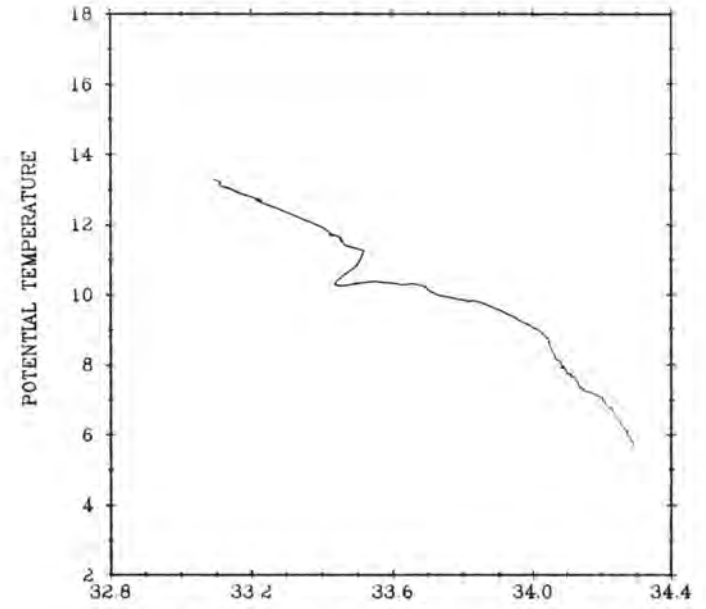
CRUISE SQ86 G 19



CRUISE SQ86 G 20

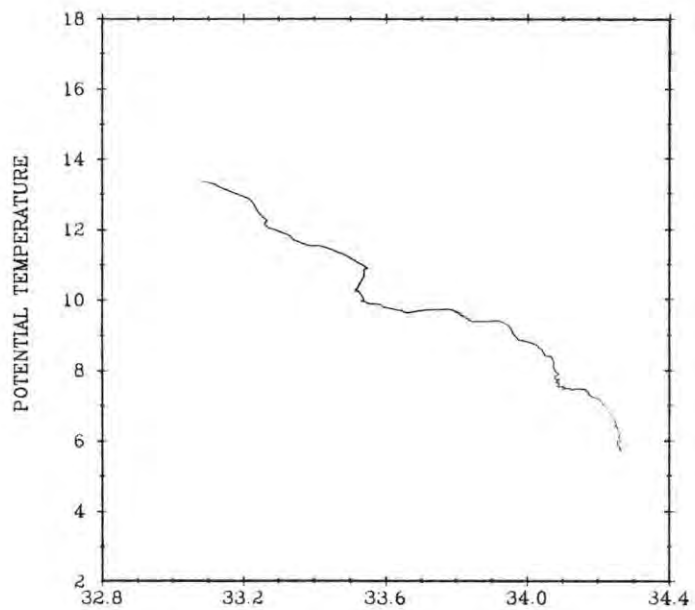


CRUISE SQ86 G 22

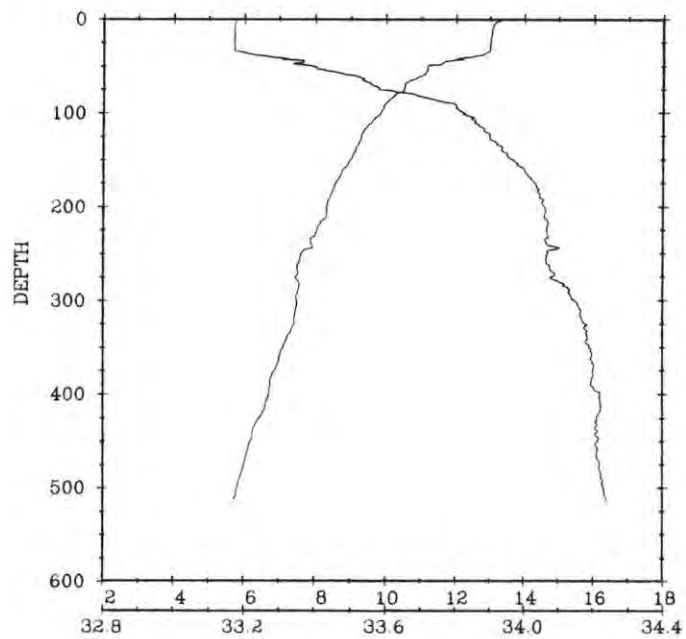
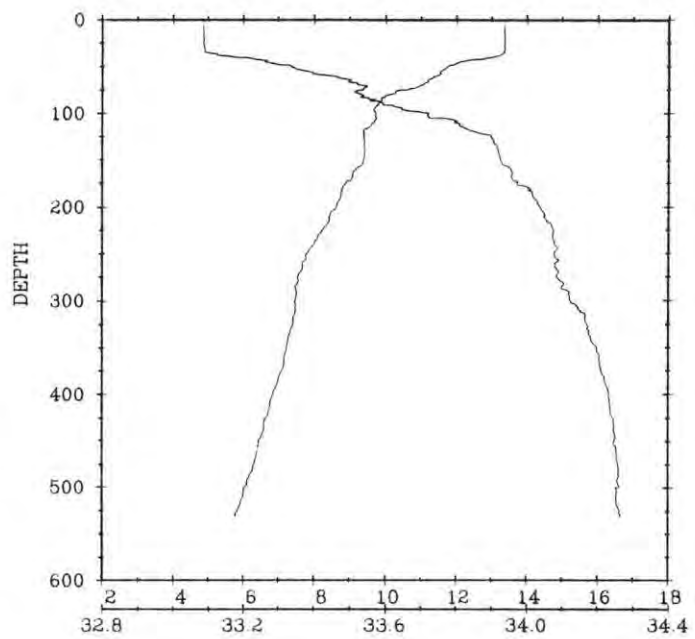
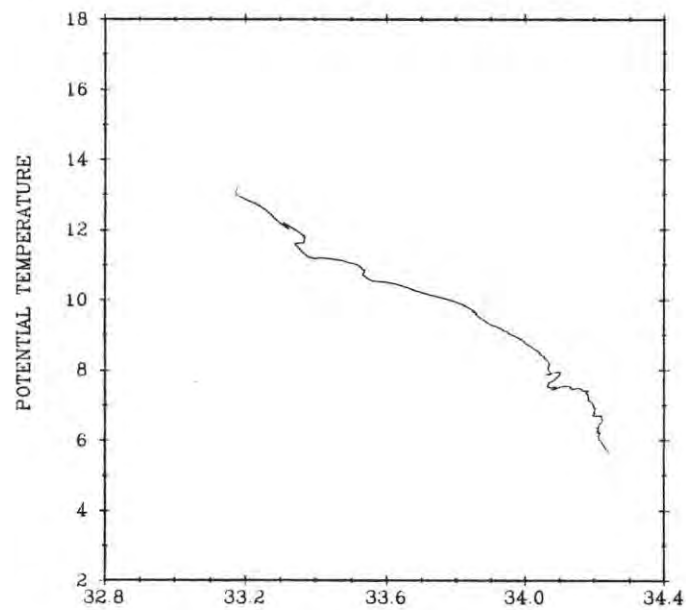




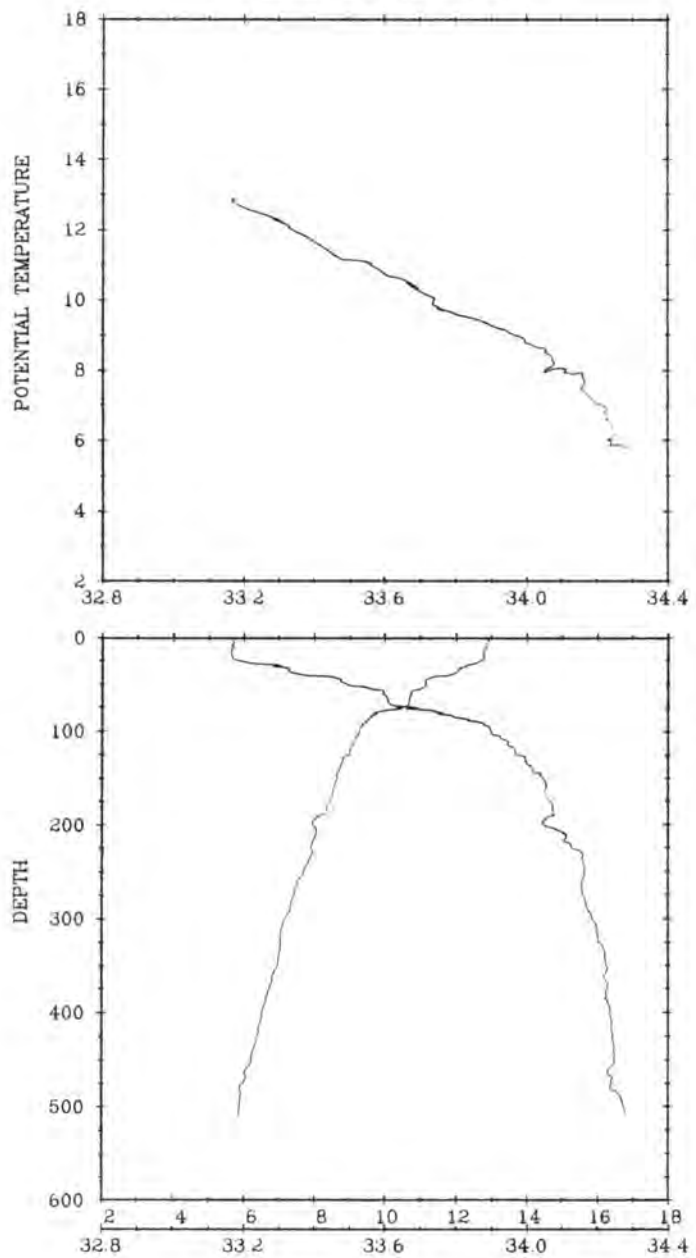
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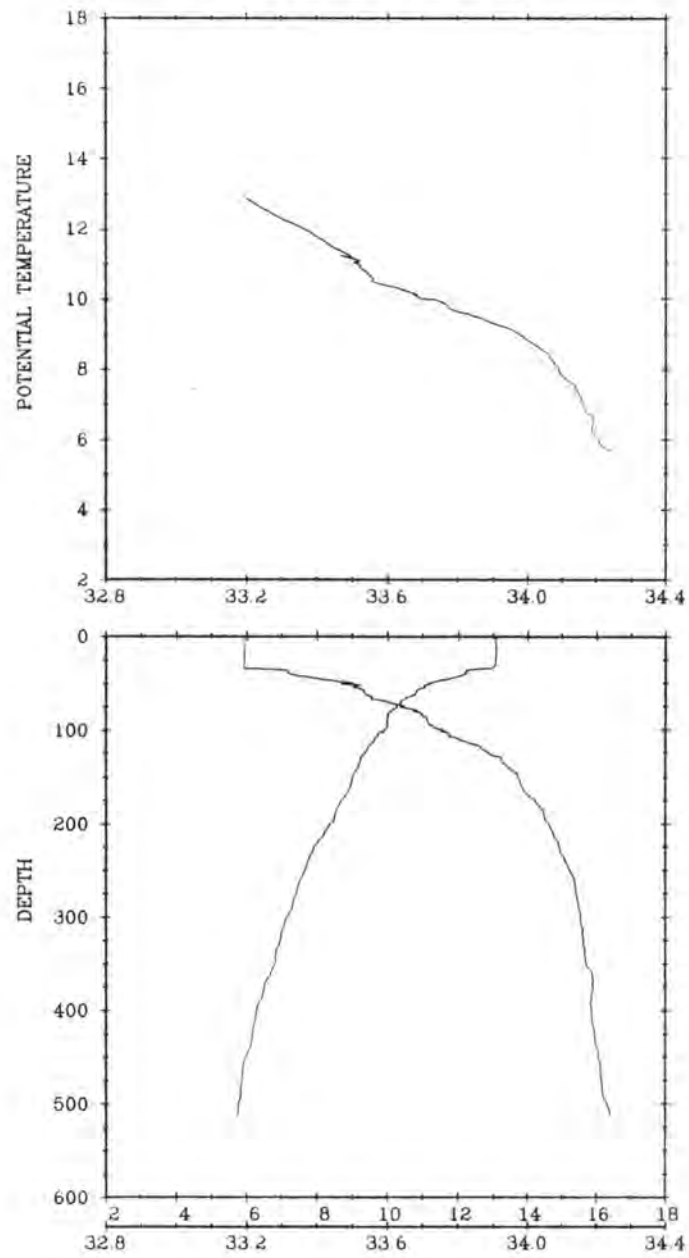
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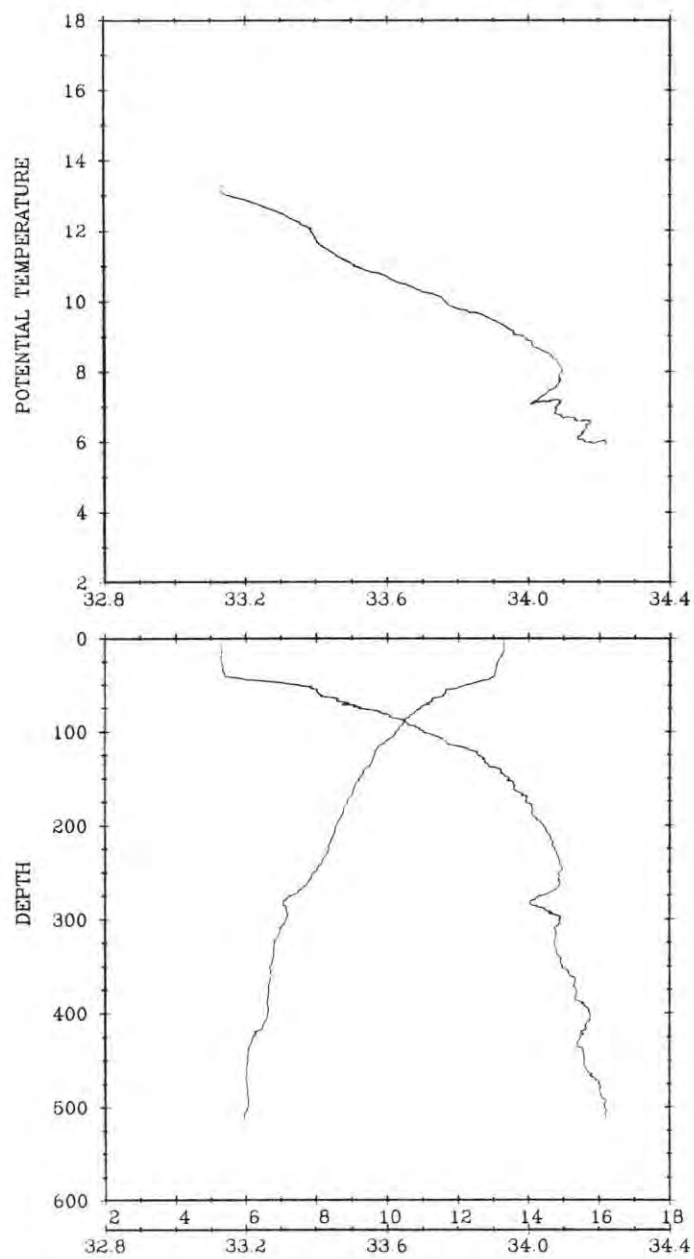
CRUISE SQ86 G 27



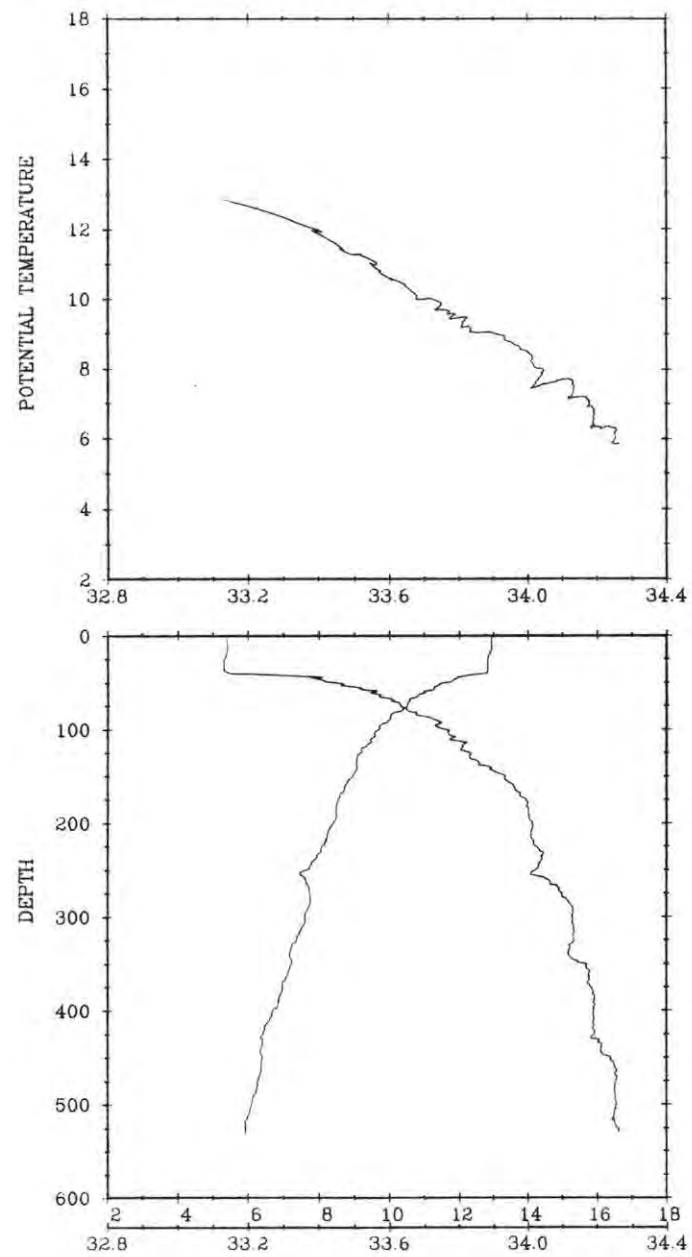
CRUISE SQ86 G 29



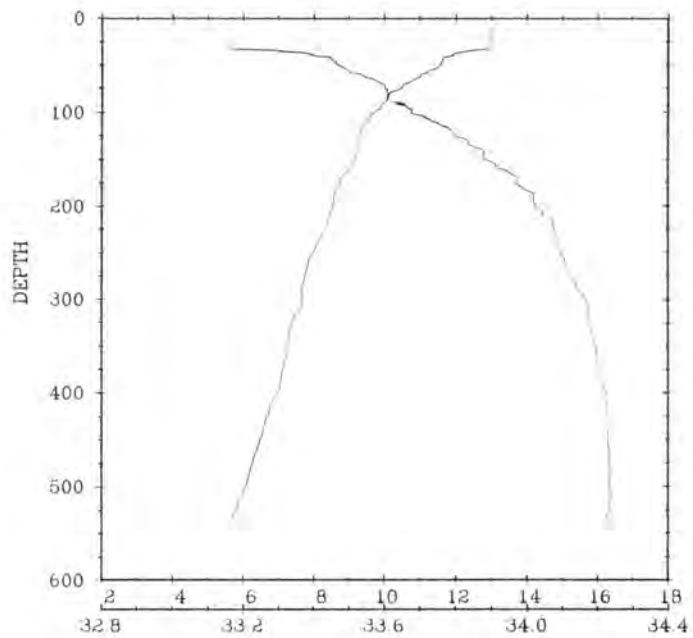
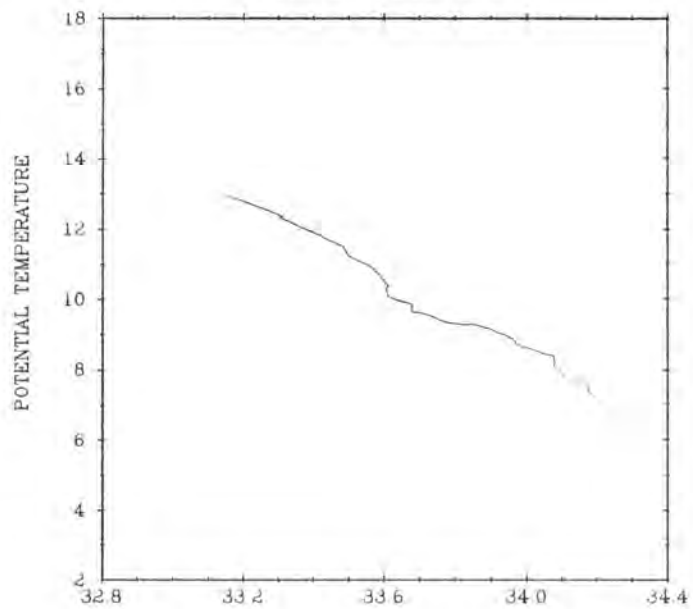
CRUISE SQ86 G 30



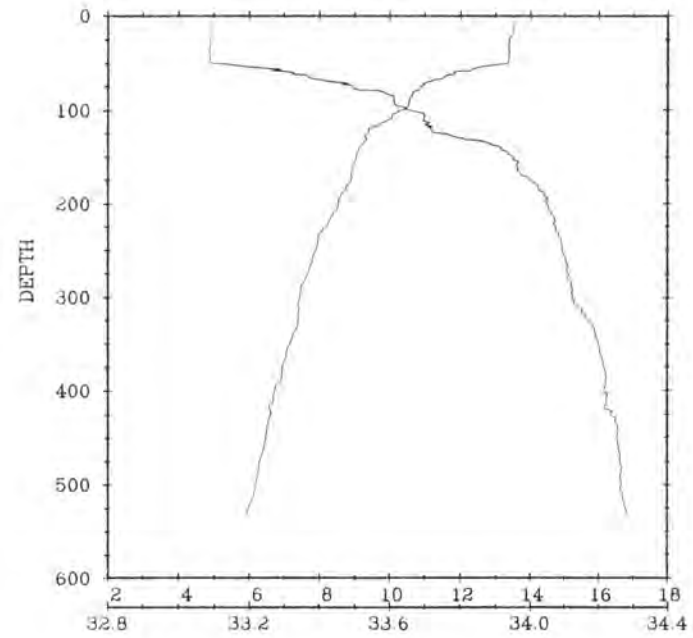
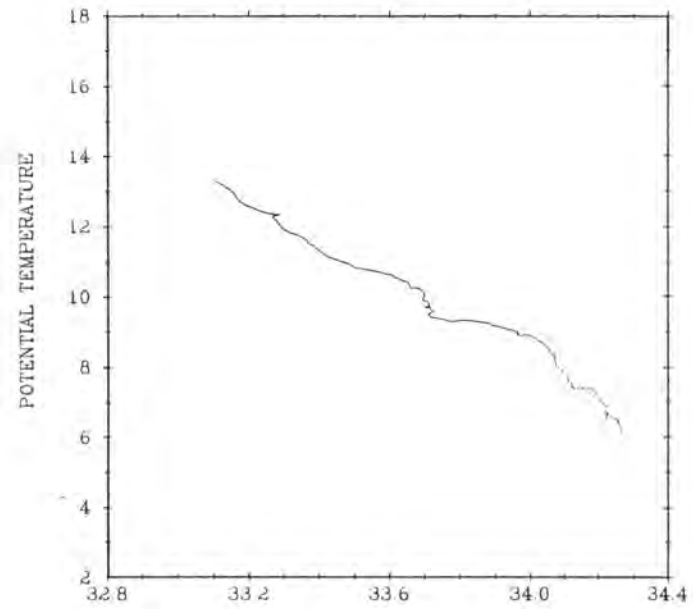
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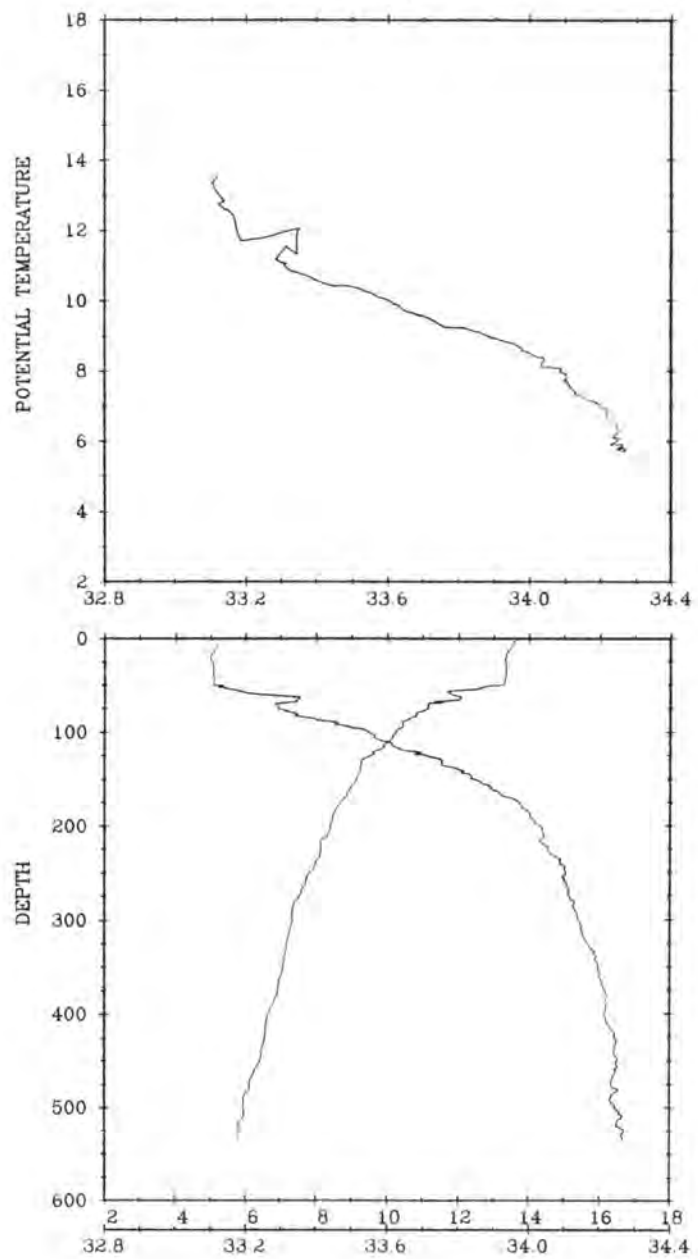
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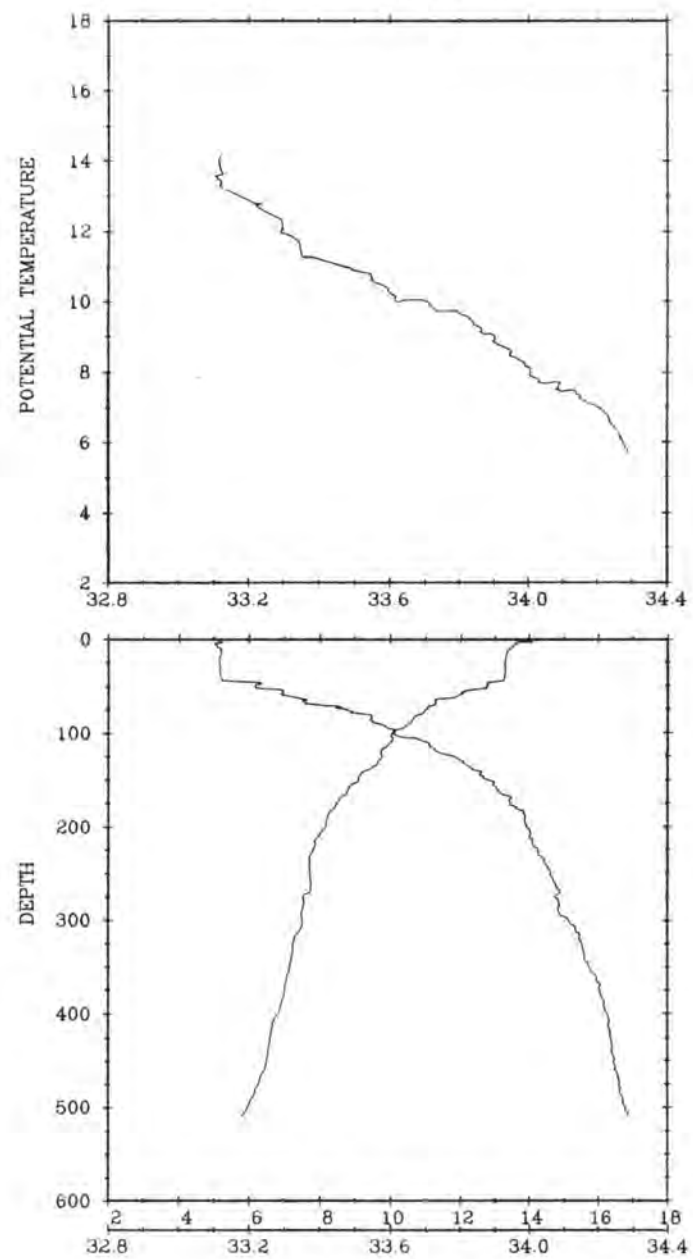
CRUISE SQ86 G 35



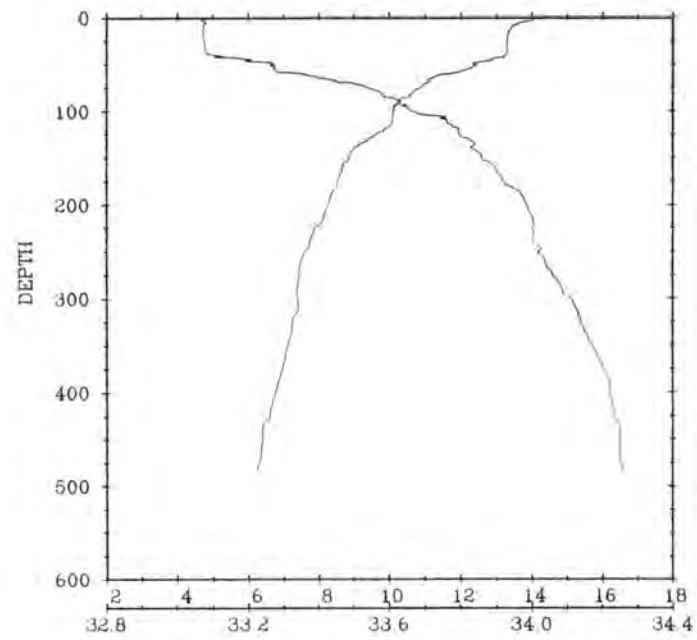
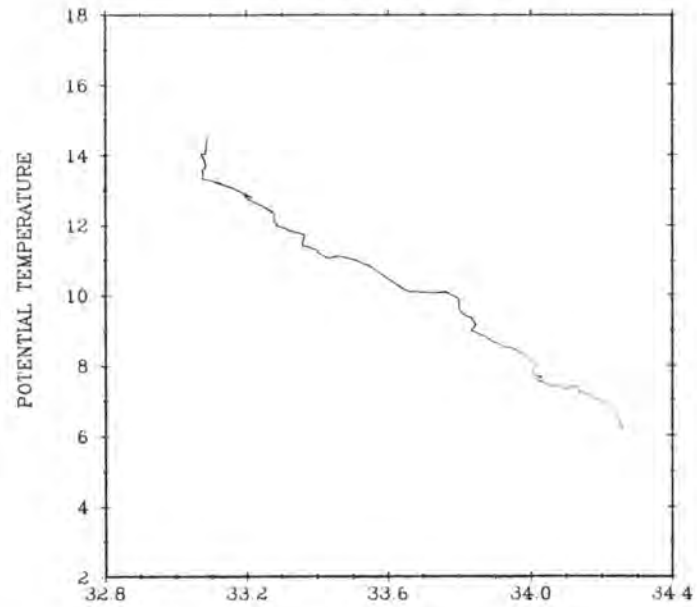
CRUISE SQ86 G 37



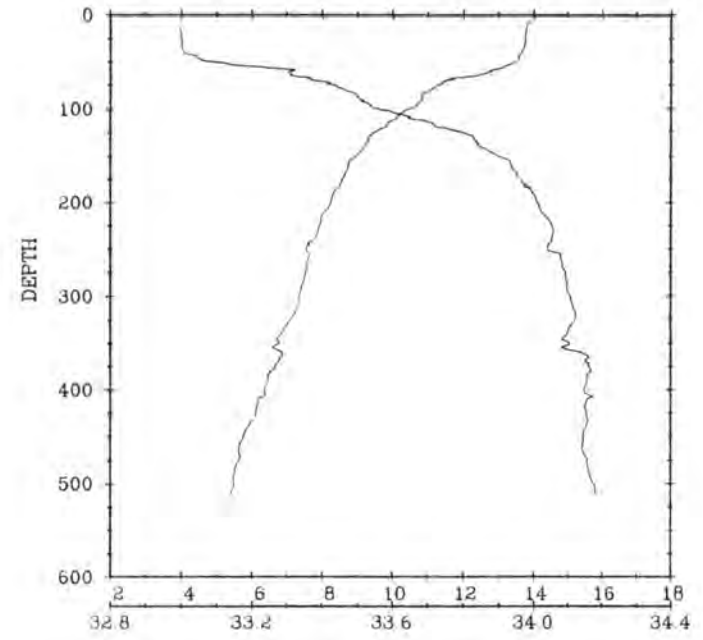
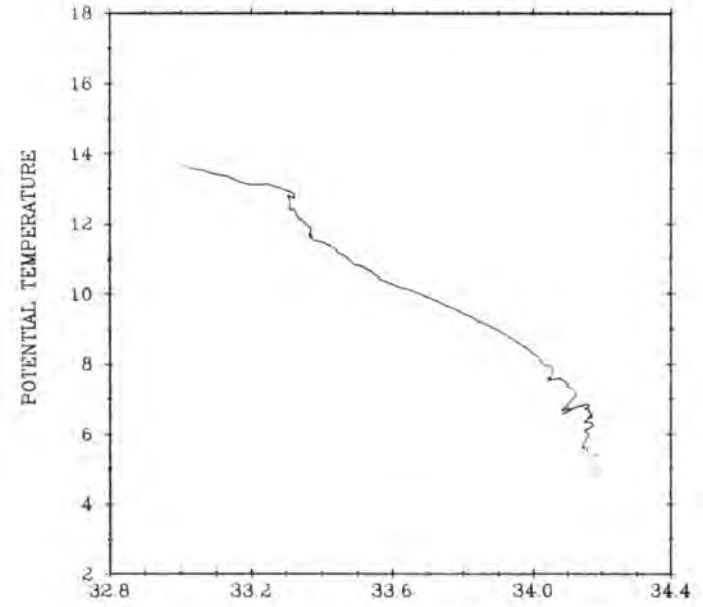
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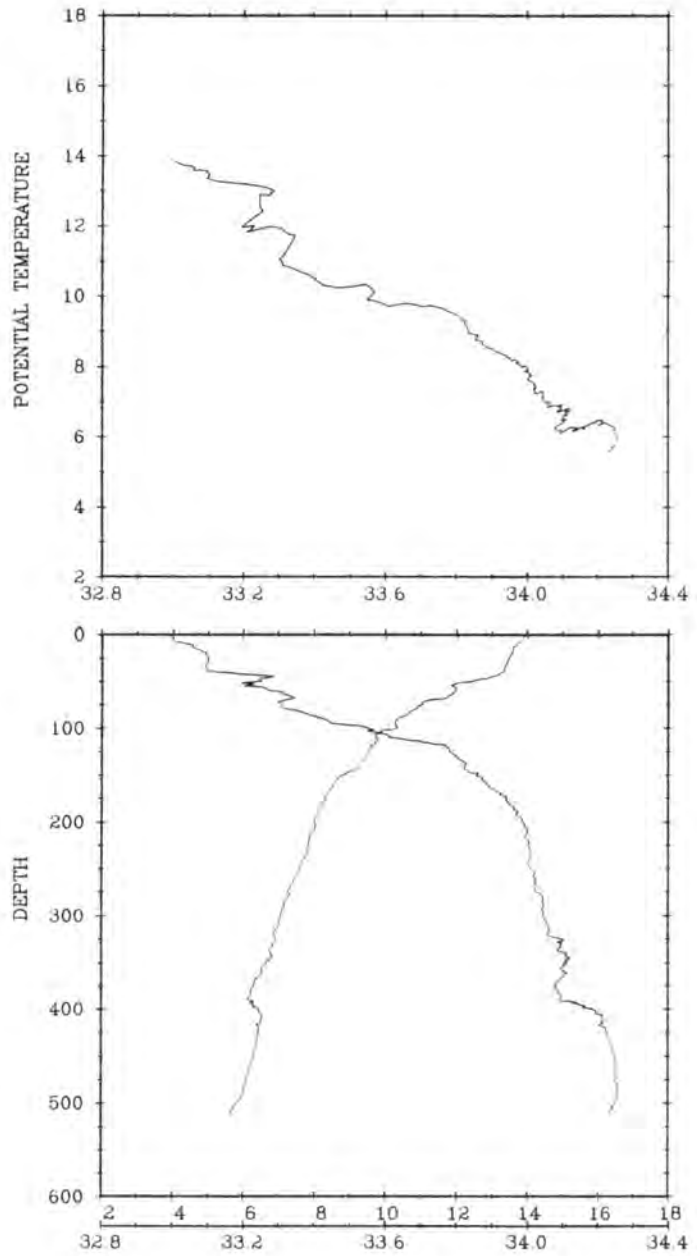
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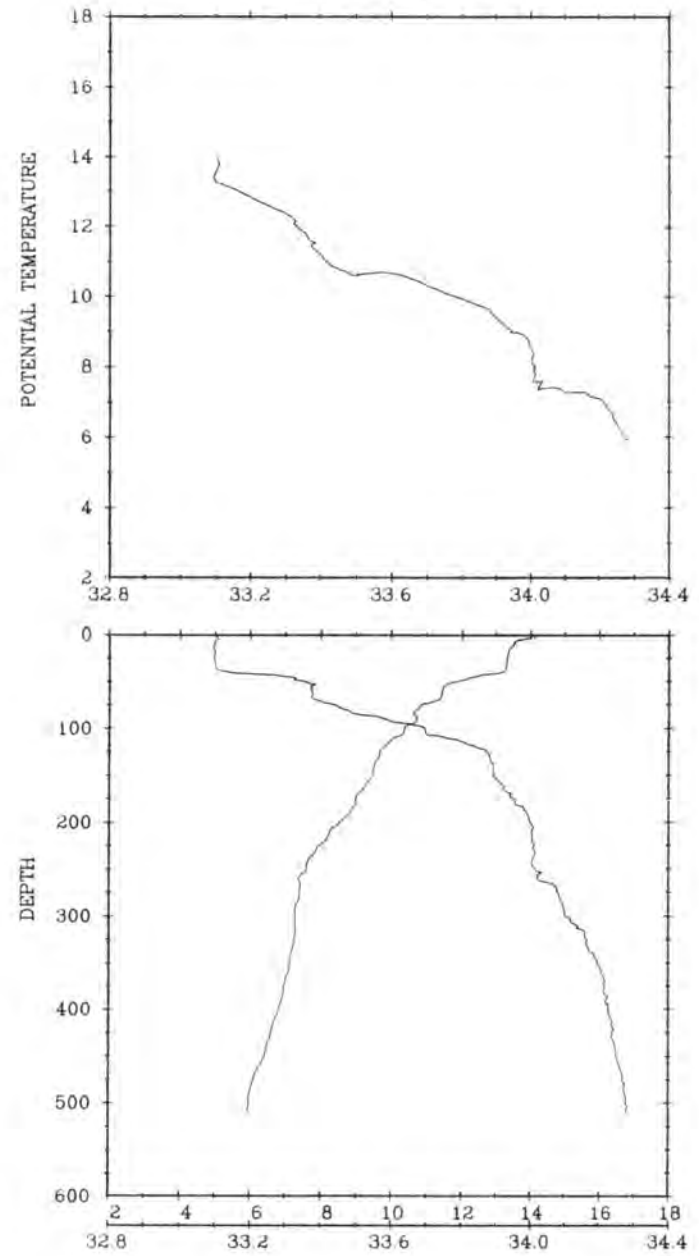
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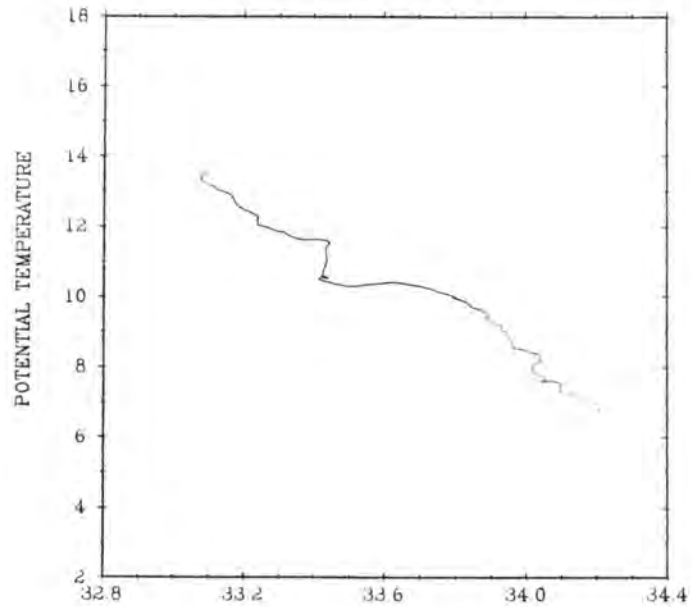
CRUISE SQ86 G 42



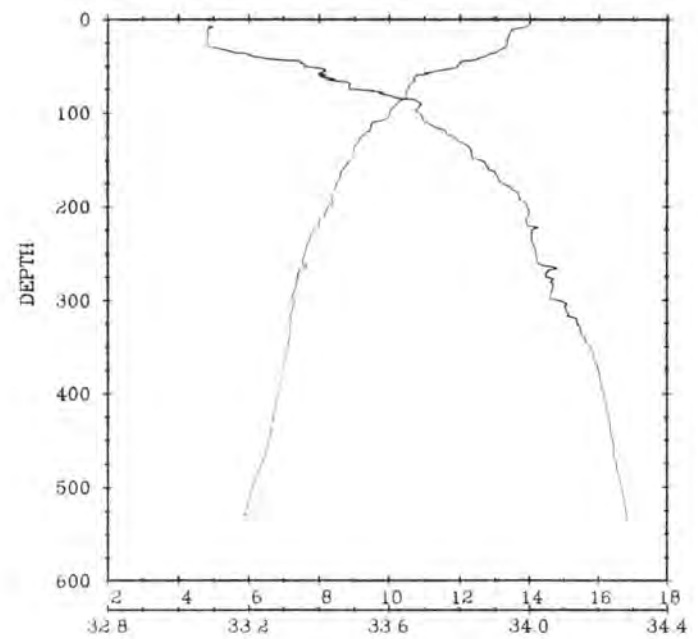
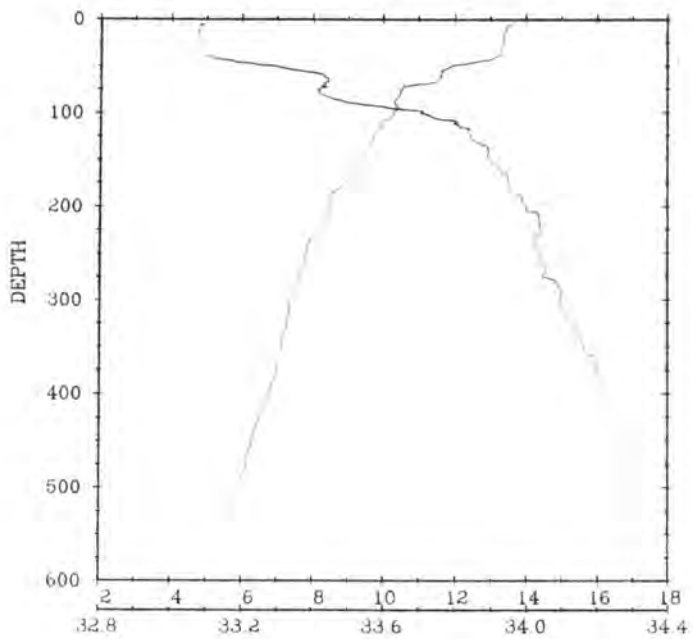
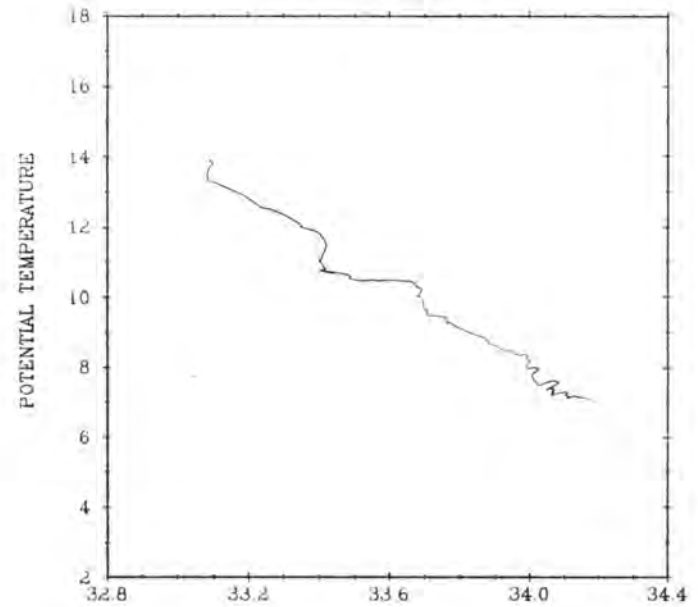
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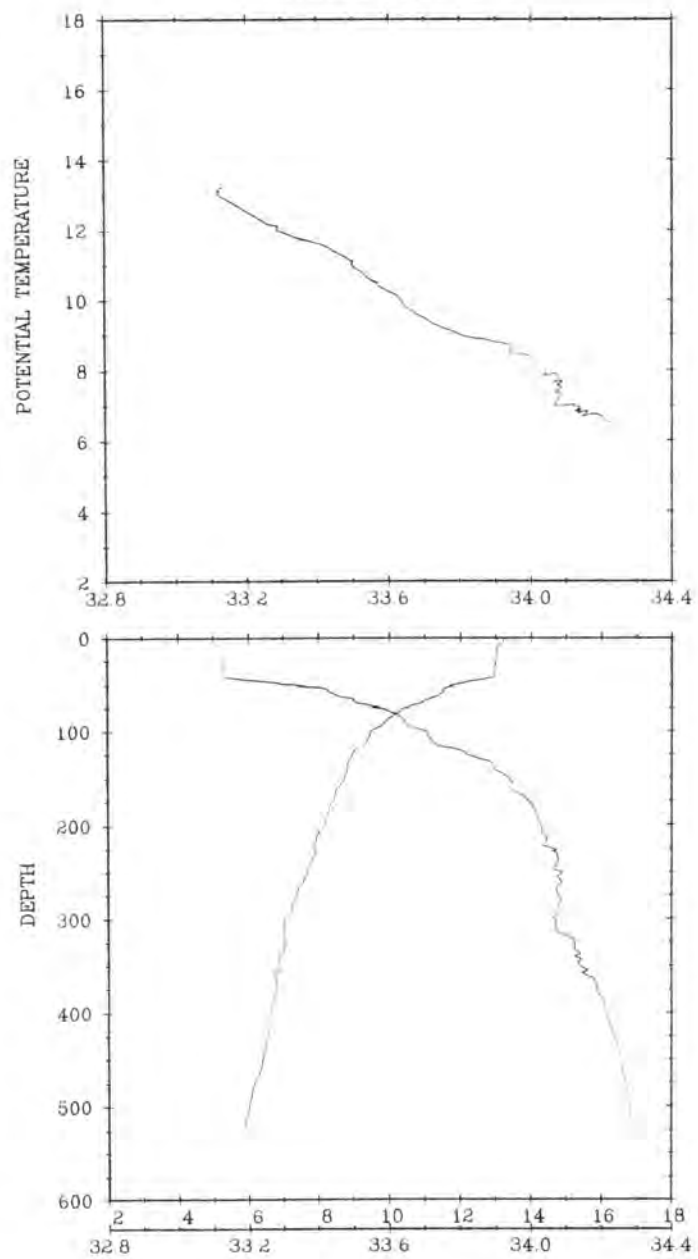


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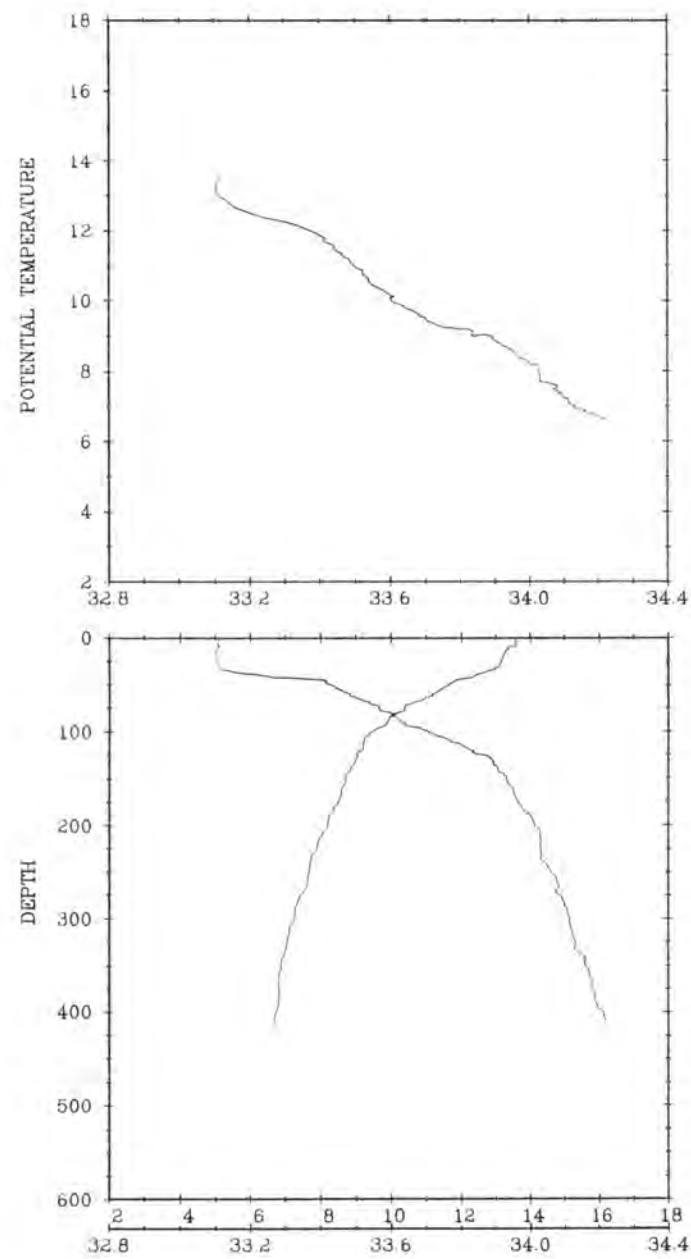




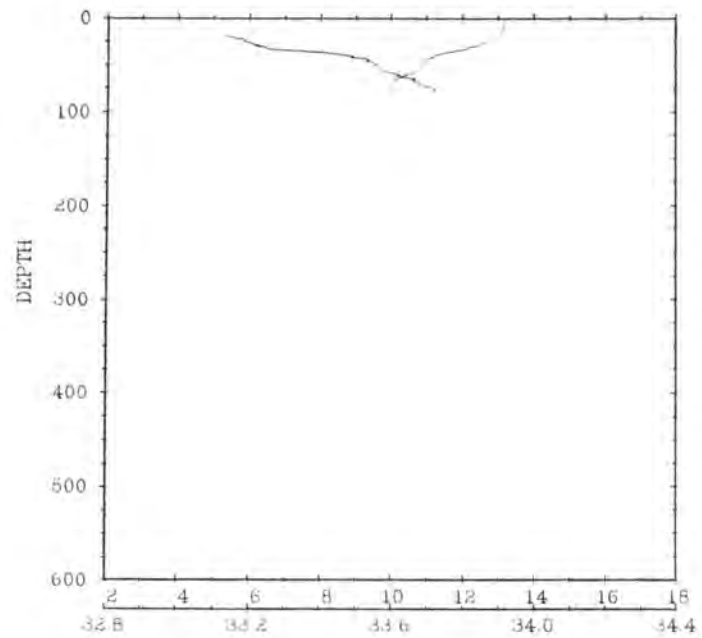
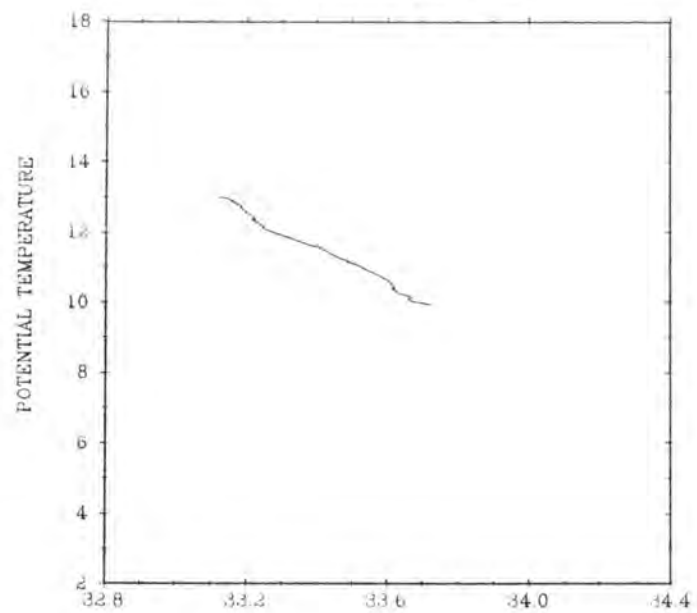
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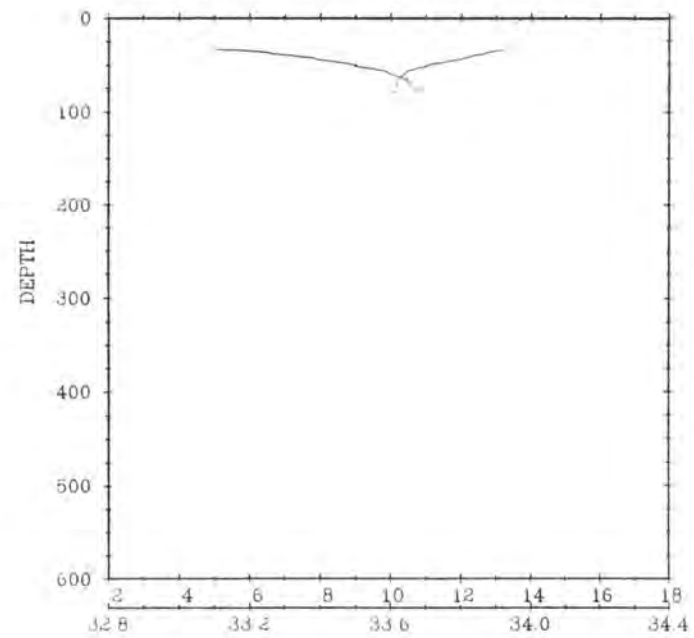
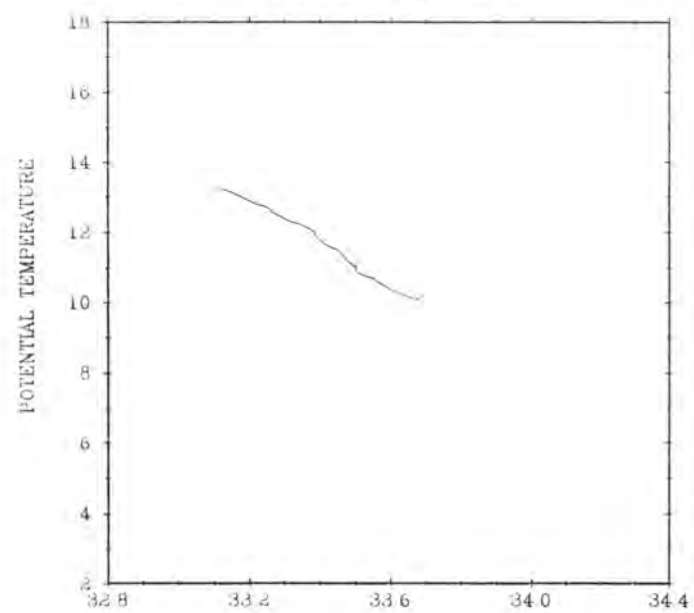
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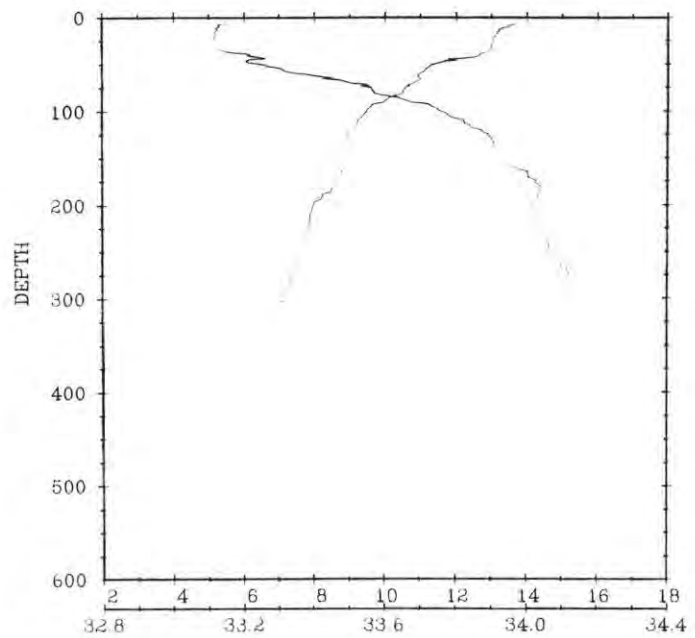
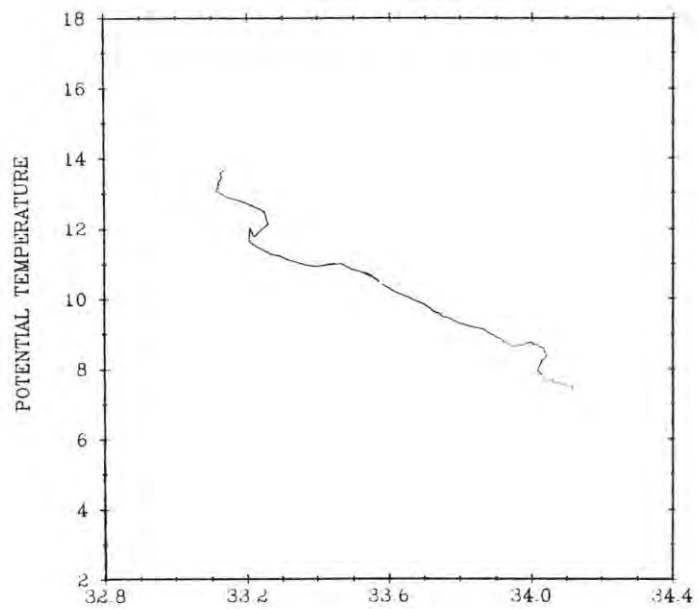
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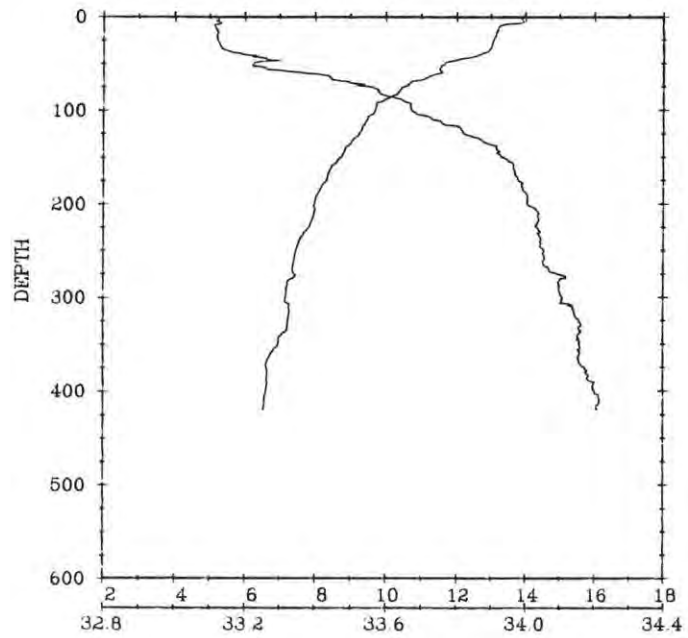
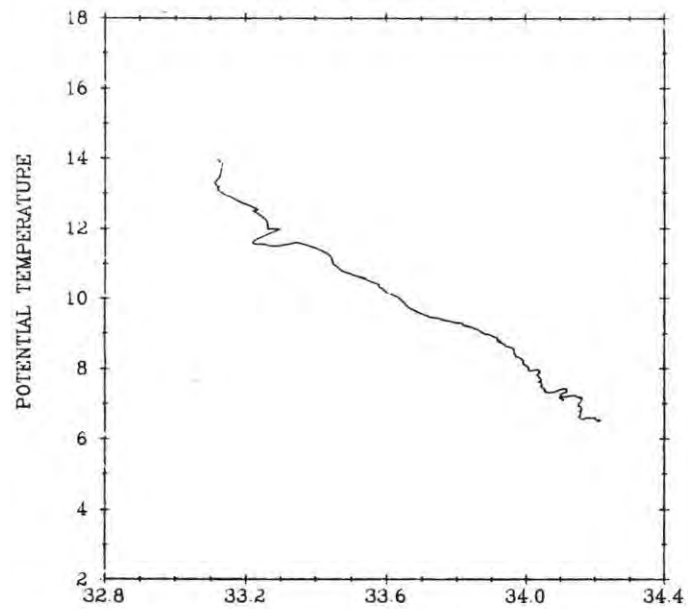
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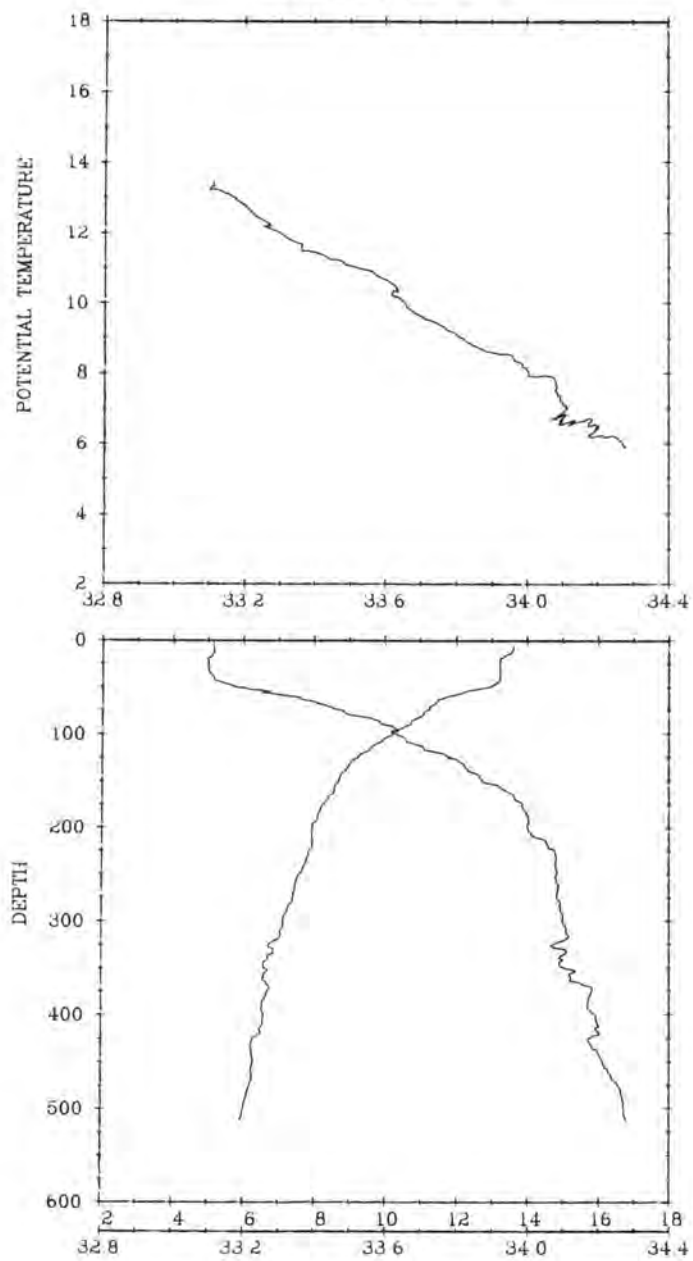
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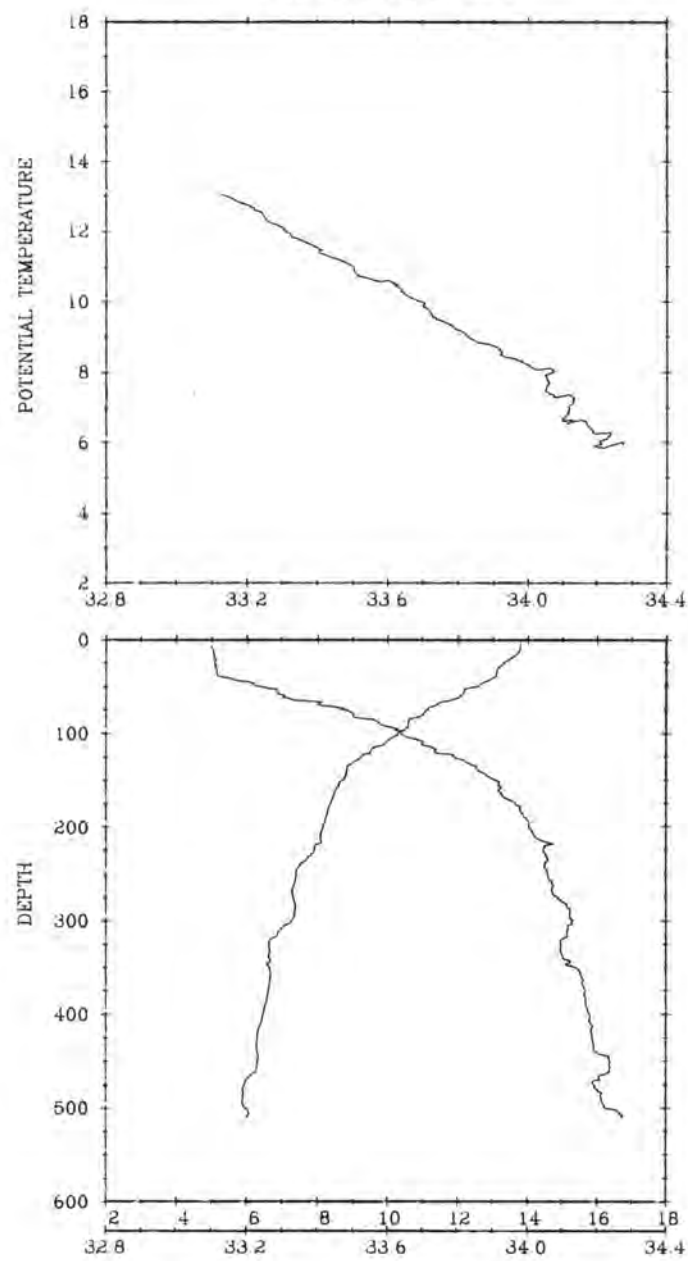
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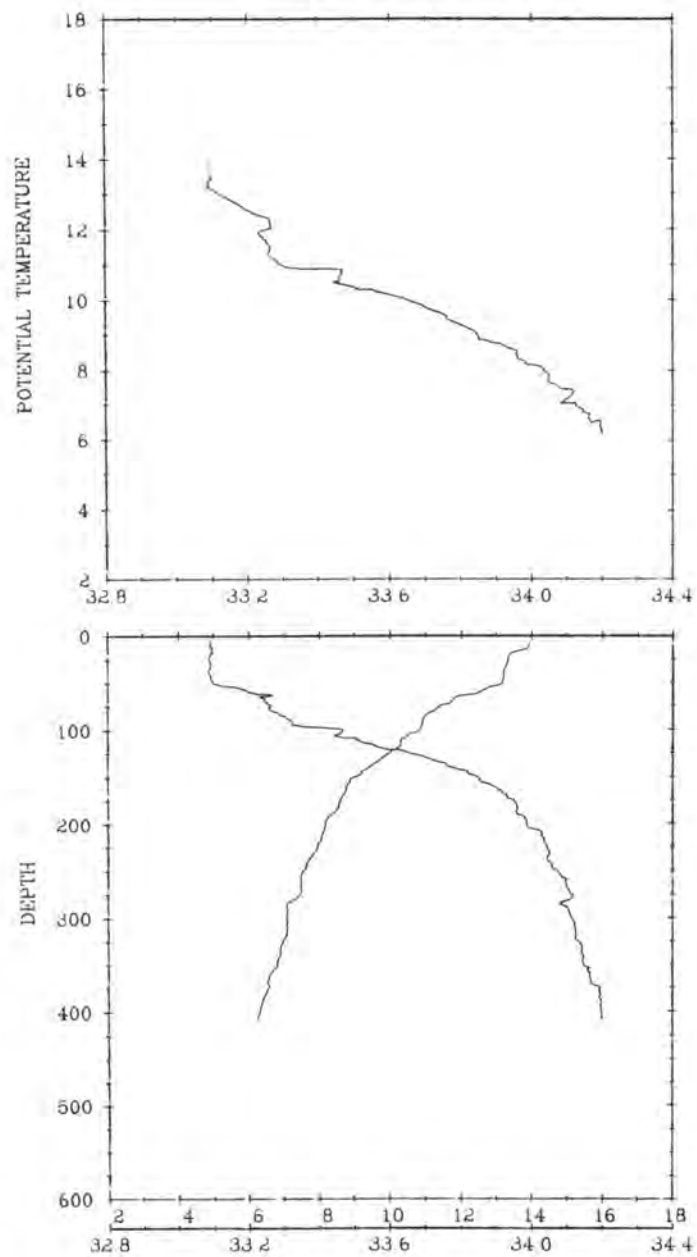
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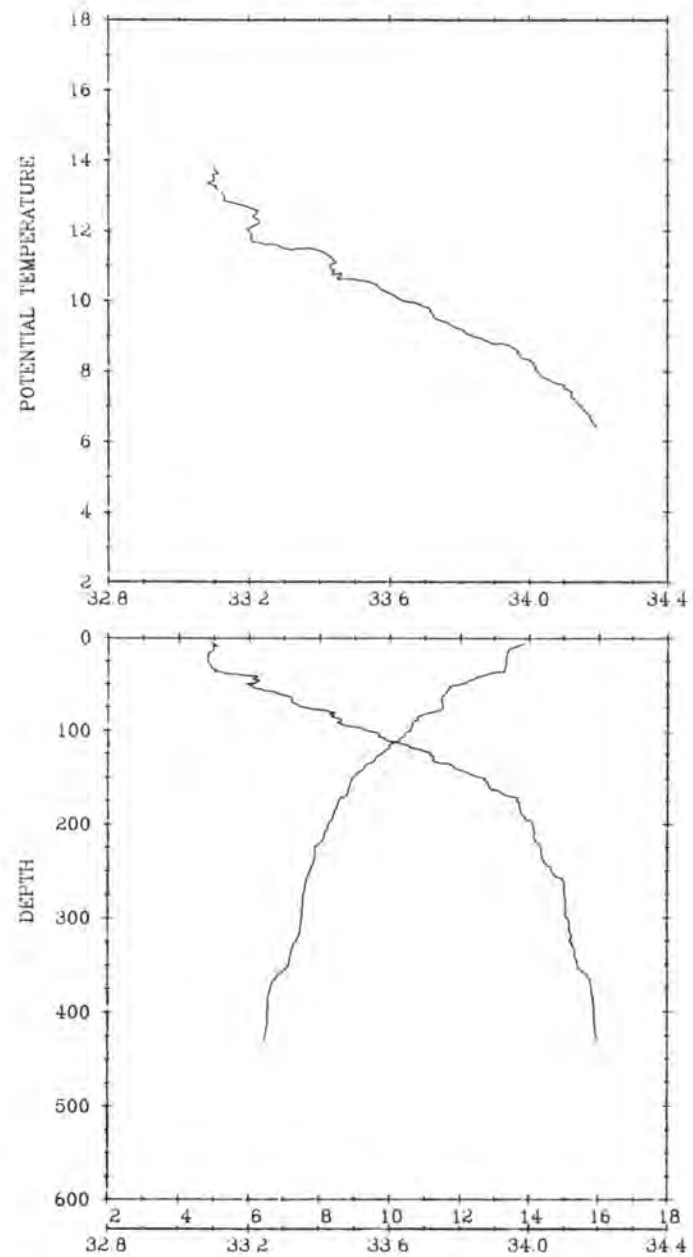
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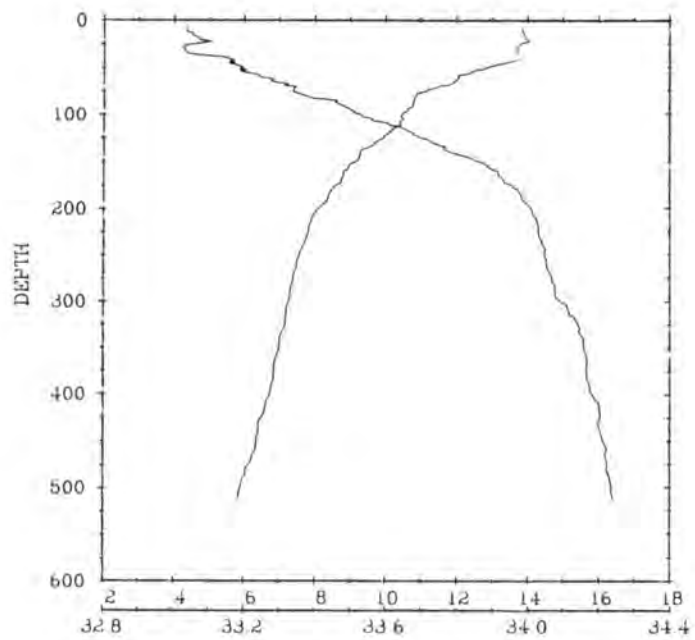
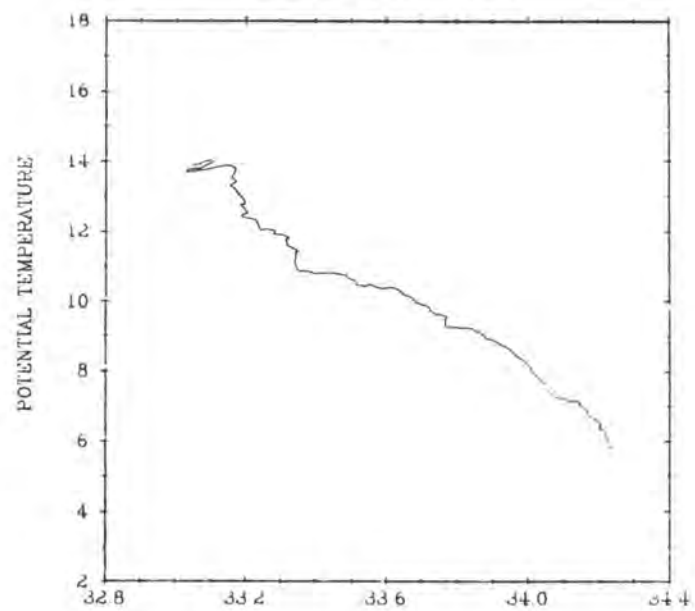
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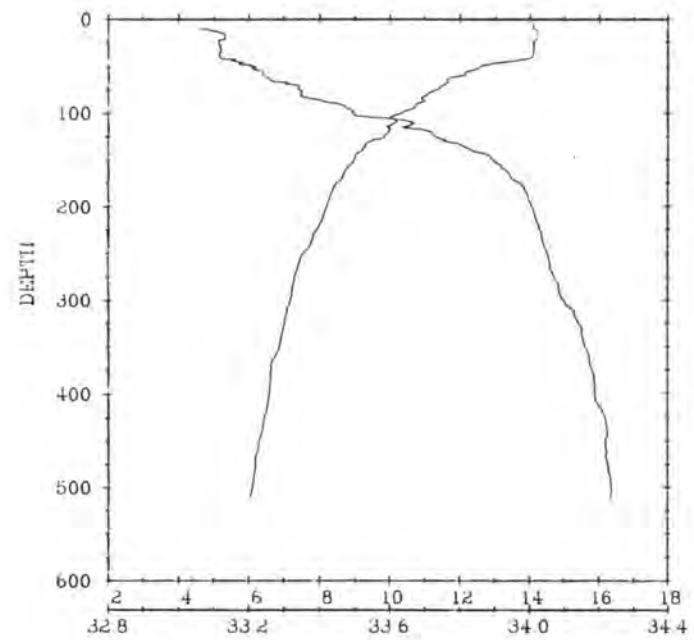
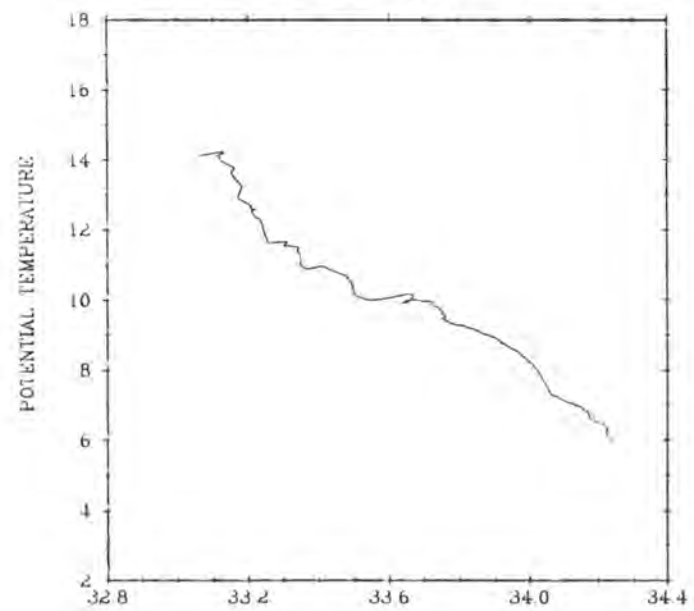
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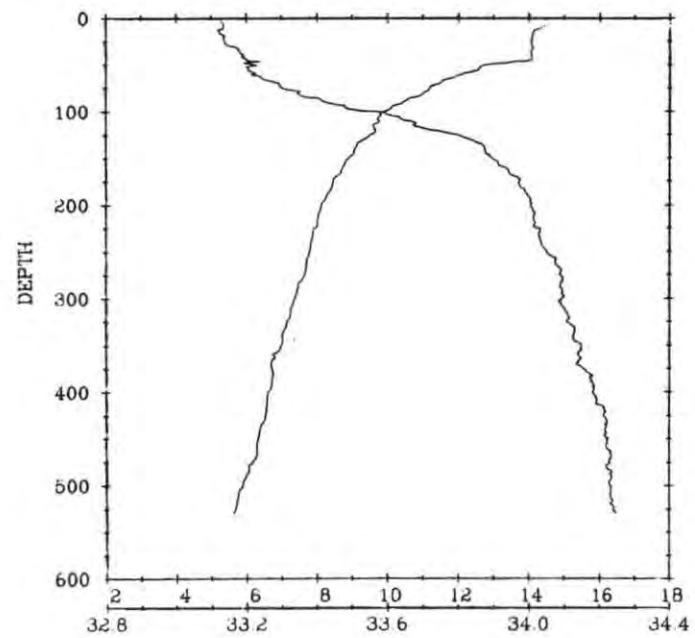
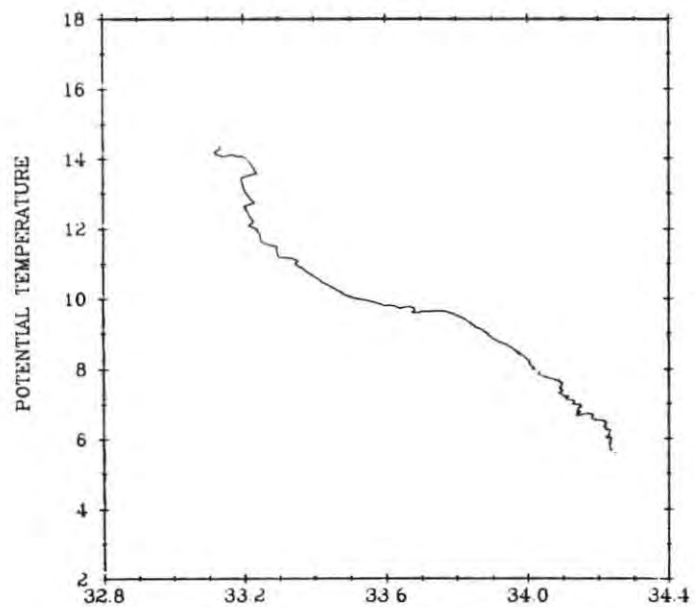
CRUISE SQ86 C 10



CRUISE SQ86 C 11



CRUISE SQ86 C 12



CRUISE SQ86 C 13

