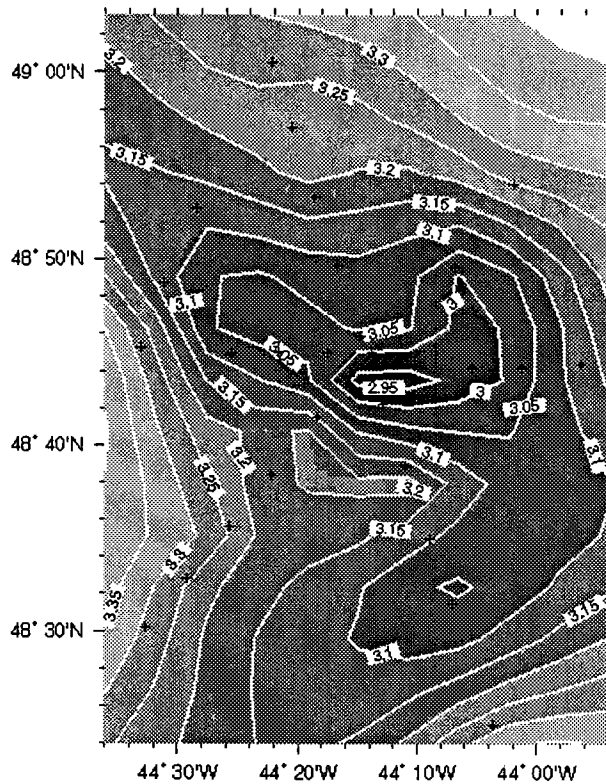


**Hydrographic Data from *Endeavor 223*:  
Formation and Spreading of the Shallow Component of the  
North Atlantic Deep Western Boundary Current**



by

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Palisades, New York 10964

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**WHOI-95-07**

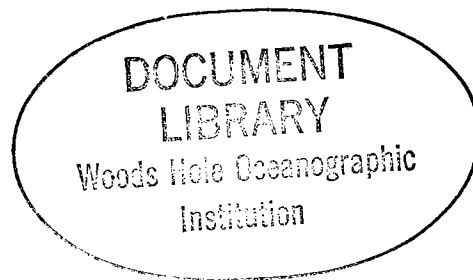
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**Technical Report**

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A handwritten signature in cursive script that reads "Philip L. Richardson".

**Philip L. Richardson, Chair  
Department of Physical Oceanography**





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Carol MacMurray	CTD Software Technician
Peter Landry	CTD Hardware Technician
Scott Birdwhistell	Tritium/Helium Technician
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Jim Costello	Nutrients Technician
Dave Muus	Oxygen & Salinity Technician

## Abstract

In March-April, 1991, a 34-day hydrographic cruise aboard R V *Endeavor* was undertaken to investigate the formation of the shallow component of the North Atlantic Deep Western Boundary Current (DWBC). Forty-seven stations were occupied, including 4 crossings of the DWBC. Five of the stations comprise a detailed CTD/XBT survey taken in the region of a lens of newly ventilated water. Two additional stations were occupied in the central part of the Labrador Sea. Dissolved Oxygen, Nitrate, Nitrite, Phosphate, Silicate, and Chlorofluorocarbons (CFC) F-11 and F-12 were measured at all stations. F-113 measurements were taken in the latter part of the cruise and Tritium and Helium were measured at selected stations. An acoustic transport float (POGO) was deployed at each station to measure average velocity directly over the upper 1000-1500 meters. The shipboard Acoustic Doppler Current Profiler (ADCP) measured upper layer currents throughout the cruise. Eighty-four XBTs were taken. This report presents vertical profiles and sections of the bottle and CTD data, a vector map of the average POGO currents, and listings of the bottle data. Tritium and Helium data are listed in an appendix.

## Introduction

In March-April 1991, a 34-day hydrographic cruise aboard R V *Endeavor* was undertaken to investigate the formation and subsequent spreading of the shallow component of the North Atlantic Deep Western Boundary Current (DWBC). West of the Grand Banks, this component of the DWBC is in the depth range 700 - 1200 m with potential temperatures of 4 - 6° C and potential density  $\sigma_\theta \sim 27.68 \text{ kg/m}^3$ . This water mass is characterized most readily by a core of high Chlorofluorocarbons (indicative of recently ventilated water) and anomalously fresh salinity relative to the interior water. The boundary-intensified CFC signal is present all the way to the equator where it splits into two cores, one progressing eastward along the equator and the other progressing farther southward along the western boundary. The precise origin of this water mass is still under question.

The purpose of this cruise was to determine the geographical area of formation, investigate the dynamics of formation, and quantify the downstream entrainment and spreading as the water mass progresses equatorward in the shallow DWBC. A further objective was to study the downstream evolution of the two deeper components of the DWBC, the Labrador Sea water and Norwegian--Greenland Sea overflow water.

The experiment was scheduled in late winter specifically to investigate water mass formation. Unfavorable weather conditions made completion of all planned sections impossible; however, 47 stations were successfully occupied. Five of the stations comprise a detailed CTD/XBT survey taken in the region of a lens of newly ventilated water. In all, 4 crossings of the DWBC were completed. Two additional stations were occupied in the central part of the Labrador Sea in order to compare "classical" Labrador Sea water with the shallow DWBC water.

## Data Collection

### CTD

Using satellite SST images collected just prior to the cruise, the approximate location of the Gulf Stream/North Atlantic Current was determined. Section 1, consisting of 10 stations, was started to the north of the Gulf Stream front. Sections 2 (11 stations) and 3 (14 stations) extended into the North Atlantic Current. Within Section 3, a detailed survey consisting of 5 CTD stations and 30 XBT casts was carried out around a lens of newly ventilated shallow DWBC water. The existence of this lens was recognized since its characteristics (high CFC, low salinity) matched those of a similar feature identified in data from Section 2. Section 4 is a short section (4 stations) across the DWBC south of Cape Farewell. Figures 1 and 3 show the station positions. They are listed in Table 1.

A Neil Brown CTD, mounted on a 24 place 10-liter bottle rosette, was used. The CTD was equipped with a Beckmann oxygen sensor. The sensor was replaced after station 35 when it became clear that the CTD oxygens were not agreeing sufficiently with the bottle sample oxygens. The new sensor performed reliably.

At-sea processing was done on *Endeavor's* shipboard workstation, a VAXSTATION 3600. Data were acquired using the MicroVAX CTD acquisition program WHOI AQU189 Version 1.0 (Allen, 1992).

With the exception of the small-scale survey, where measurements were taken to 1000 m, all CTD casts were occupied to the bottom. All casts produced complete down-cast traces. Forty-six of forty-seven produced complete up-cast traces. Due to an error in the processing program, station 1 had to be specially reprocessed after the cruise to salvage the data, but the uptrace was not salvageable.

## Water Samples

At each station, water samples were collected using Scripps-type 10-liter Niskin bottles. All bottles were equipped with plastic-coated springs and baked O-rings to reduce contamination of the CFCs. Typically, twenty-four samples were collected per station, though at shallow stations fewer samples were collected. Measurements of salinity, dissolved oxygen, nutrients, and CFCs F-11 and F-12 were routinely carried out. Measurements of CFC F-113 were made from station 25 through the end of the cruise. Dr. William Smethie of Lamont-Doherty Earth Observatory (LDEO) oversaw sampling and analysis of the CFCs. Tritium and Helium were collected at most stations, typically at 6-12 levels, in collaboration with Dr. William Jenkins of WHOI.

## Salinity

Salinity was measured using a standard AUTOSAL located in *Endeavor's* special-purpose laboratory, which has the best temperature control of any working location on the ship. This task was handled by the Scripps Institution of Oceanography (SIO) shipboard operations group, and upon completion of the cruise the data were in preliminary form.

## Oxygen

Oxygen was measured using a Winkler system operated by the SIO shipboard operations group. The concentrations were determined using the Winkler (1888) titration method and to the standards described by Culverson (1991).

## Chlorofluorocarbons (CFCs)

The chlorofluorocarbons, F-11, F-12, and F-113 were measured on air and water samples. Water samples were collected in syringes and stored in a sink continuously flushed with clean surface seawater until analysis, which was within 12 hours of collection. Air samples were collected by pumping air from the bow of the ship during transits between stations to insure a good headwind across the sample intake and thus avoid contamination with the ship's air. An aliquot of dried air was sampled with a calibrated loop and injected into the CFC analysis system.

Water and air samples were analyzed using a purge-and-trap technique to isolate the CFCs from water and air, followed by gas chromatographic analysis using a Shimadzu 8A gas chromatograph with an electron capture detector. Two CFC analysis systems and two different chromatographic methods were used on this cruise. At the beginning of the cruise, both CFC systems used the

same chromatographic method. CFCs from water or air samples were trapped on a unibeads 2s trap at  $-70^{\circ}$  C. The trap was then heated to  $100^{\circ}$ C and the contents backflushed into a gas chromatograph with a precolumn and main column packed with Porasil B and a post column packed with molecular sieve 5A. The molecular sieve 5A column separates nitrous oxide from F-12 and is valved out of the gas stream before F-11 elutes from the main column; the precolumn prevents long retention time compounds from entering the main column. Details of the procedure are described by Smethie et al. (1988). This method is good for F-11 and F-12, but it does not separate F-113 from methyl iodide, a naturally occurring halocarbon. A method was developed in the laboratory prior to this cruise to separate F-113 from both methyl iodide and methyl bromide, another naturally occurring halocarbon, as well as provide good analyses for F-11 and F-12. This was accomplished by replacing the main column of Porasil B with a column of 20% SP2100 on Supelcoport. Other than this change, both methods are essentially the same. A detailed description of the new method is given by Smethie (submitted). This new method was used on CFC analysis system 1 during the latter half of the cruise.

CFC calibrations were performed by analyzing different size loops of a gas with known CFC concentrations. The calibration points were fit with a polynomial equation and this equation was used to calculate the sample concentrations as described by Bullister and Weiss (1988). The average difference between the best fit equation and the calibration points for system 1 was 1.1% for F-11, 1.4% for F-12, and 2.0% for F-113. The average difference for system 2 was 1.8% for F-11 and 2.1% for F-12.

The F-11 and F-12 concentrations are on the SIO 1986 scale and the F-113 concentration is on the 1992 NOAA Climate Monitoring and Diagnostics Laboratory scale. Two standards were used for F-11 and F-12, #1173 and #8335. Standard #8335 was also used for F-113. Standard #8335 was prepared by Doug Wallace at Brookhaven National Laboratory. It was calibrated at Lamont for F-11 and F-12 relative to Standard #1173 which had previously been analyzed for F-11 and F-12 on the SIO 1986 scale by Ray Weiss's Laboratory at Scripps Institution of Oceanography. It was also calibrated at Lamont for F-113 relative to Standard #2415 which was analyzed and provided to us by the NOAA Climate Monitoring and Diagnostics Laboratory.

Blanks for all three CFCs were measured throughout the cruise and corrections made for these blanks. The stripper blank for F-11 and F-12 was generally less than 0.01 pmol/kg. There was a consistent F-113 blank that averaged 0.036 pmol/kg. It was not possible to determine the Niskin bottle sampling blank because there was no zero CFC water. At two stations, duplicate Niskin bottles were tripped at the same depths and one bottle sampled several hours after the first bottle. The differences between these bottles ranged from zero to barely greater than the analytical precision. F-11 and F-12 bottle blanks were assumed to be 0.005 pmol/kg based on historical data for 10-liter Niskin bottles and the F-113 blank was assumed to be zero.

The precision of the CFC measurements was determined by making duplicate measurements and was different for different methods and systems. The precision for the various stations is summarized in Table 2.

To compare the results between systems 1 and 2, 24 duplicate samples were taken from various stations and analyzed on both systems. The differences between the F-11 analyses averaged about 1% which is within the error of the measurement. However, there appeared to be a

systematic difference between the two systems for F-12 with system 2 being about 4% higher than system 1. The cause for this apparent systematic difference has not been determined and no correction for this has been made in the data presented in this report.

Air samples were analyzed in replicates of 4 to 6. The average standard deviation was 0.8% for F-12, 0.6% for F-11 and 1.6% for F-113. There appeared to be no difference between air samples measured with system 1 or system 2. Atmospheric concentrations are presented in Table 3.

## Nutrients

The measurement of nutrients was handled by the SIO shipboard operations group. Silicate, Phosphate, Nitrate, and Nitrite were measured on an auto-analyzer located in the special purpose lab.

## POGO

At the end of each CTD cast, POGO, an acoustic transport float (see Rossby et al., 1991), was deployed to measure the upper layer transport. The depth of the POGO float varied by station, typically 1000 - 1500 m. Data were processed on board using software written by T. Rossby's group at University of Rhode Island. Mean speed and bearing were computed (Table 4); the associated vectors are shown in figure 2.

## XBT

Eighty-four Sippican T-7 XBTs were deployed; eight were unsuccessful due to software failure and one due to probe failure. One test station was taken. Twelve XBTs were taken en route to CTD station 11 to locate the edge of the North Atlantic Current. Thirty-one XBTs were taken as part of the detailed survey (CTD stations 37 - 41), and 26 additional XBTs were taken en route to the Labrador Sea stations (42 - 43). Northeast of the detailed survey area, five XBTs were deployed to help identify the edge of the North Atlantic Current. The locations are listed in Table 5 and shown in figures 1 and 3. The cover figure shows a lateral map of temperature at 500 m from the detailed survey.

## At-Sea Data Processing

For each station, salinity, oxygen, F-11, silicate, and potential vorticity were plotted versus depth, potential temperature and potential density. Bottle salinity and oxygen were over-plotted with the corresponding CTD measurements. Using the bottle data, CTD calibration coefficients were updated as necessary during the cruise. After each transect was completed, vertical sections of potential temperature, salinity, potential density, dissolved oxygen, F-11 and silicate were prepared. Bottom depth was digitized from the line scan recorder.

Plotting entire transects was critical to locating regions of newly formed water. An example can be seen in Figure 25, which shows clearly, at station 15, an anomalously cold and fresh patch of newly formed shallow DWBC water, characterized by high CFC and oxygen concentration. This feature is not as evident when viewed as an isolated vertical profile.

Post-cruise processing of bottle salinity and oxygen data was performed at SIO. CFC data were processed at LDEO, and tritium/helium at Woods Hole Oceanographic Institution (WHOI).

### **CTD Calibration and Processing**

Laboratory calibrations of the CTD pressure, temperature and conductivity sensors were performed at the WHOI calibration facility. Bottle conductivity calibration was performed at WHOI by M. Cook using the WHOI CTD data processing system and the coefficients listed in Table 6.

The calibrated CTD profiles were interpolated to a regular pressure grid with an increment of 2 db. Preliminary editing was performed and WHOI's binary CTD format files were prepared for use in the final processing stage.

### **CTD Oxygen**

It was discovered that the oxygen sensor used through station 35 was not performing properly. The signs of failure were subtle, and it was hoped some of the data could be saved. This did not prove to be possible, and ultimately, it was necessary to discard all CTD oxygen data for stations 2-35 and use only the bottle oxygen data for those stations. The sensor was replaced and produced good quality oxygen traces for the rest of the stations.

### **Final Processing and Data Quality Control**

#### **CTD**

Final processing of CTD and water sample data was performed by T. McKee at WHOI. Data were plotted and reviewed for spikes. Several stations required a small amount of further editing. Final data were archived in the standard binary file format compatible with WHOI hydrographic data analysis software.

#### **Water Sample**

Final salinity, dissolved oxygen, and nutrient data, when received from SIO and LDEO, were merged with calibrated uptrace temperatures and pressures into WOCE format (Culverson, 1991). These were plotted and reviewed for spikes, which were removed from the data set. Each salinity profile was over-plotted with the corresponding 2 db CTD profile versus depth and potential temperature. During this process, it became evident that the uptrace CTD profiles were a more useful measure of the quality of the bottle data. This is because the strong variability in this part of the North Atlantic, in combination with the ship's drift, often caused the uptrace profile (whence the bottles were tripped) to be noticeably different from the down-trace in the upper part of the water column. Therefore, the CTD profiles presented in this report show the uptrace as well. The final edited water sample ascii data were also converted to standard binary file format for compatibility with WHOI hydrographic data analysis software.



## XBT

Using URI technical services processing software, raw XBT data were converted to depth and temperature profiles. Data were edited at WHOI by D. Torres, using an algorithm which eliminated data points where the vertical temperature gradient was greater than  $.5^{\circ}\text{C}$  per meter. After editing, the XBT profiles were interpolated onto a regular 5 meter grid, from 5 to 825 meters.

### Description of Plots

Part 1 contains individual vertical profiles of salinity, oxygen, and F-11. Salinity is plotted as a function of potential temperature. For each cast there are two plots, one showing the upper water column (0 - 1000 m) and the lower plot showing the deeper water (1000 m - bottom). Symbols denote the bottle measurements. The solid line is the CTD down-trace. The finely dashed line shows the CTD uptrace. Oxygen and F-11 from water samples are plotted as a function of pressure and are divided into two plots showing upper and deeper water. Since oxygen data from the CTD was only available for the last 12 stations, only bottle oxygens are shown. Plots are presented by section and are arranged in onshore to offshore order rather than in numerical order.

Part 2 contains vertical sections of potential temperature, salinity, and potential density from the CTD, and bottle oxygen, F-11, and silicate. Before being contoured, the CTD data were sub-sampled. All data were then regridded using spline-Laplacian interpolation to 50 m in the vertical and 10 km in the horizontal. The bathymetry is the digitized output from the ship's depth recorder. For the water sample properties, crosses denote the bottle locations. All sections are drawn to a scale of 1000 m = 100 km.

Part 3 contains individual station listings of the bottle data. These are a composite of uptrace CTD pressure, temperature and salinity along with bottle salinity, oxygen, nutrients, and CFCs. Calculations of depth, potential temperature ( $\theta$ ), and potential density ( $\sigma_0$ ,  $\sigma_{1.5}$ ,  $\sigma_{2.0}$ ,  $\sigma_{3.0}$ ,  $\sigma_{4.0}$ ) are included. The chemical data (silicate, phosphate, nitrite, and nitrate) have not been edited to the same degree as the plotted data. If tritium and helium were sampled at that station, it is noted in the header. Missing or edited data appear as blanks in the listing.

All plots were generated using PLOTPLUS software from PLOTPLUS Graphics, Sequim, Washington.

## Acknowledgements

We are most grateful to Captain Tom Tyler and the crew of the *Endeavor* for their efforts to make this a successful experiment. The POGO floats were built and tested by Jim Fontaine and Mike Mulronev of URI. Maggie Cook calibrated and processed the CTD and water sample data. This work was supported by the National Science Foundation under grant number 90-18409.

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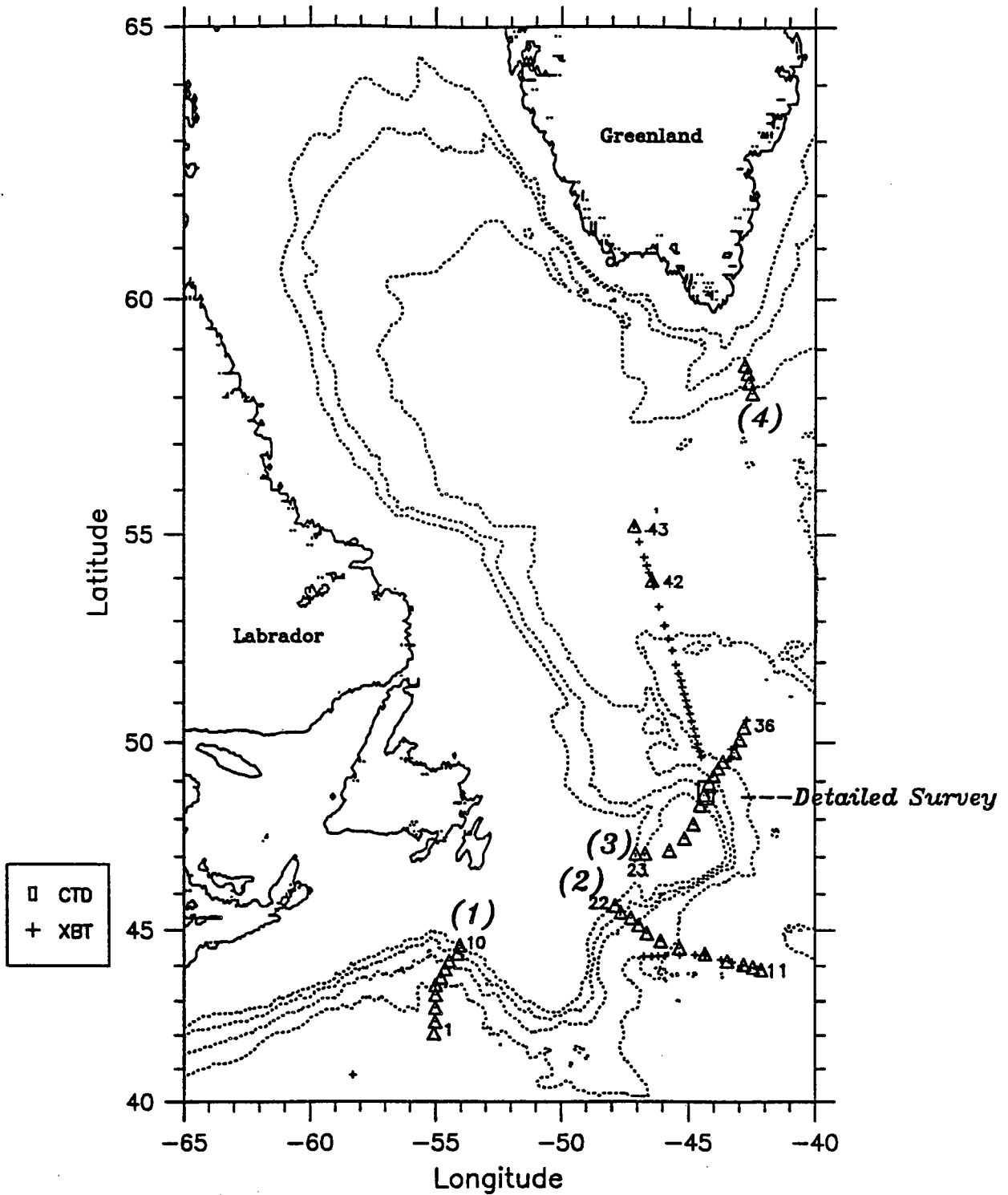


Figure 1. Location of CTD stations (Δ) and XBT drops (+). The large square indicates the region of a detailed XBT/CTD survey around a lens of newly ventilated water (see Fig. 3.)

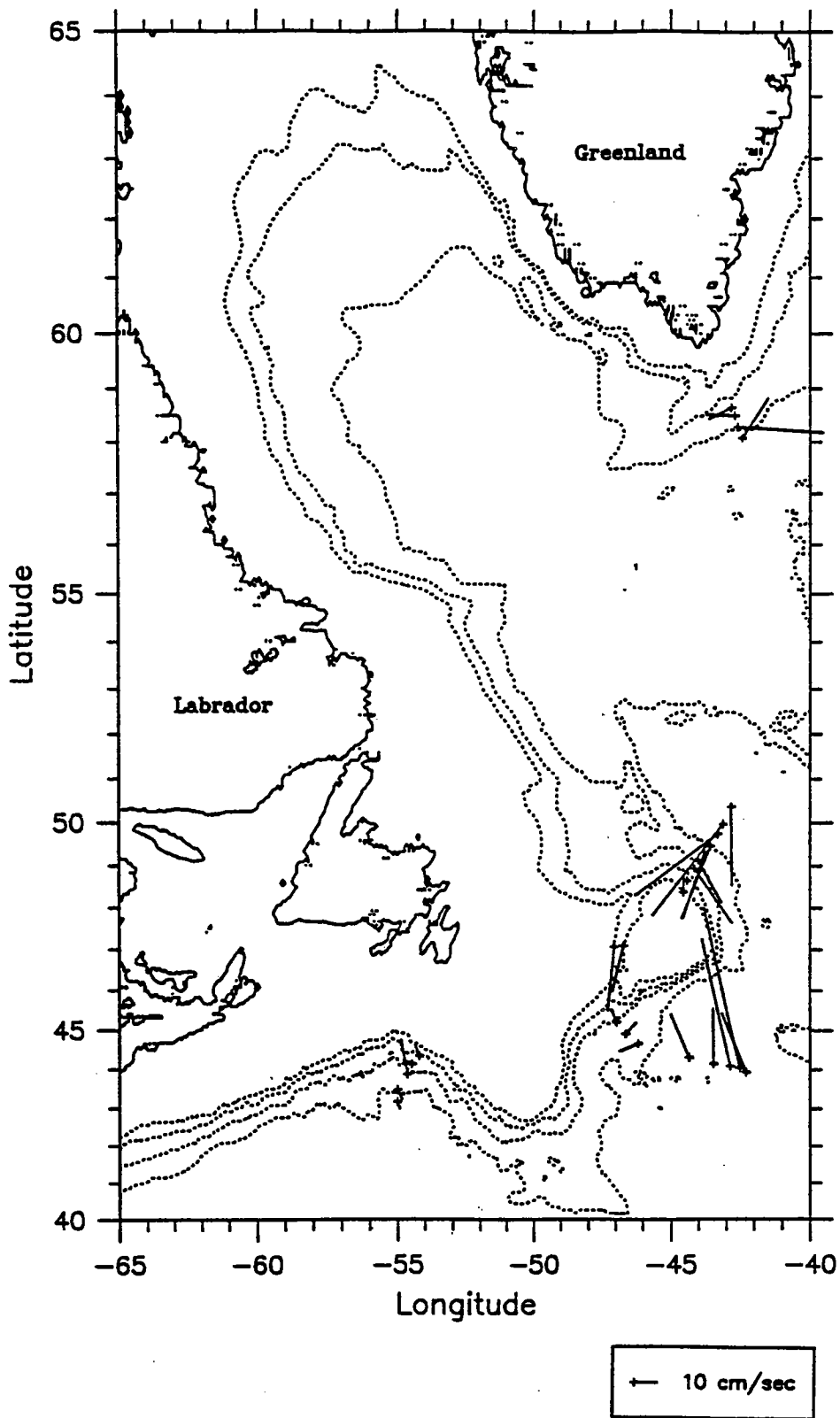
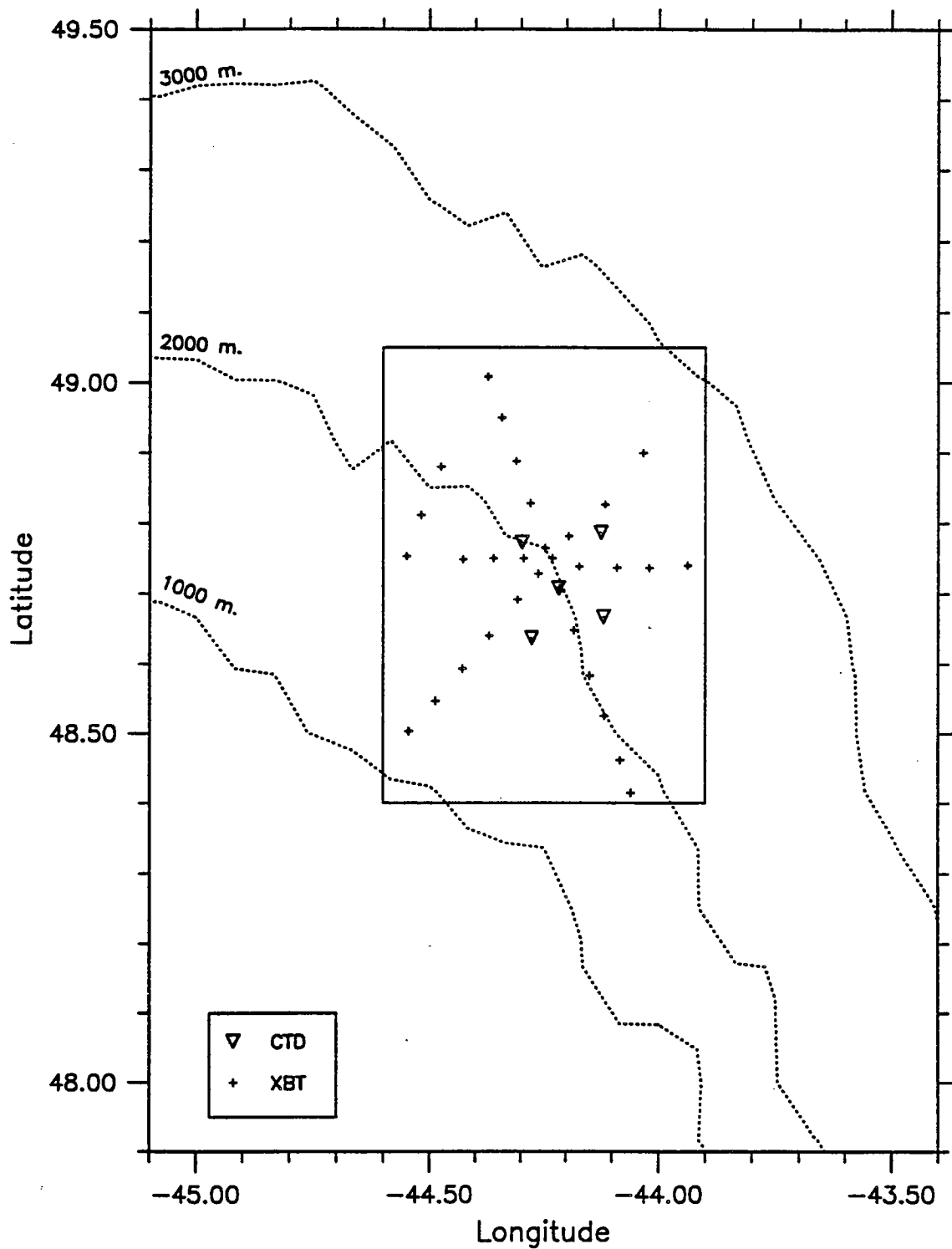


Figure 2. Mean velocities from POGO floats.



**Figure 3. Map showing locations of CTDs and XBTs taken as part of the detailed survey.**

Table 1. Dates, Positions, and Bottom depths for *Endeavor* 223 hydrographic stations.

Endeavor 223 Station Dates and Positions

Station Number	Date GMT	Time	Latitude °N	Longitude °W	Depth m
1	91/03/26	1955	42 02.58	55 04.08	4670
2	91/03/28	317	42 23.66	55 1.28	4482
3	91/03/28	1248	42 47.71	55 0.40	4406
4	91/03/28	2035	43 10.12	55 0.05	4258
5	91/03/29	242	43 27.10	54 59.90	3998
6	91/03/29	918	43 39.80	54 47.82	3723
7	91/03/29	1533	43 54.14	54 38.00	3362
8	91/03/29	2130	44 7.83	54 28.15	2673
9	91/03/30	303	44 20.65	54 8.00	2275
10	91/03/30	854	44 34.00	54 3.01	1430
11	91/04/01	1355	43 53.50	42 9.33	4774
12	91/04/01	2035	43 58.00	42 28.10	4778
13	91/04/02	233	44 2.40	42 50.00	4883
14	91/04/02	1008	44 8.04	43 28.02	4795
15	91/04/02	1854	44 20.17	44 21.05	4728
16	91/04/03	835	44 30.15	45 20.90	4146
17	91/04/03	1742	44 41.92	46 4.94	3733
18	91/04/04	120	44 54.96	46 36.82	3565
19	91/04/04	648	45 8.94	46 56.13	3398
20	91/04/04	1325	45 20.28	47 14.60	2857
21	91/04/04	2137	45 29.93	47 38.27	2011
22	91/04/05	342	45 40.60	47 51.86	1248
23	91/04/10	133	47 4.96	47 2.93	1118
24	91/04/10	518	47 5.20	46 40.50	984
25	91/04/10	1130	47 10.16	45 44.05	278
26	91/04/10	1518	47 29.06	45 9.04	233
27	91/04/10	1833	47 52.04	44 47.91	278
28	91/04/10	2218	48 22.05	44 32.17	905
29	91/04/11	218	48 38.20	44 23.27	1623
30	91/04/11	715	48 57.03	44 10.96	2395
31	91/04/11	1134	49 8.06	43 59.98	3220
32	91/04/11	1635	49 19.96	43 49.17	3899
33	91/04/12	23	49 30.45	43 37.65	4013
34	91/04/12	1157	49 44.95	43 10.25	4237
35	91/04/13	1413	50 4.08	42 58.44	4270
36	91/04/13	2313	50 22.89	42 48.09	4263
37	91/04/17	448	48 42.51	44 13.02	1837
38	91/04/17	800	48 47.21	44 7.45	1966
39	91/04/17	1059	48 46.41	44 17.83	1802
40	91/04/17	1330	48 38.19	44 16.55	1678
41	91/04/17	1625	48 40.00	44 7.14	1931
42	91/04/19	330	53 57.01	46 25.79	3616
43	91/04/19	1344	55 12.02	47 8.06	3591
44	91/04/20	1419	58 18.57	42 38.35	2897
45	91/04/20	1825	58 30.06	42 41.09	2621
46	91/04/20	2218	58 39.82	42 48.03	2330
47	91/04/21	433	58 4.94	42 29.87	3140

Table 2. Summary of CFC precision for *Endeavor* 223 stations.

System	Method	Stations	F-12	F-11	F-113
1	Porasil B	1 - 16	0.003 <i>pmollkg</i> or 0.6% (n=21)	0.005 <i>pmollkg</i> or 0.6% (n=21)	
1	SP2100	30, 32, 34 35, 37, 39 42 - 47	0.017 <i>pmollkg</i> or 2.2% (n=20)	1.0% (n=20)	0.019 <i>pmollkg</i> (n=18)
2	Porasil B	17 - 29, 31 33, 36, 38 39, 40, 41	2.4% (n=17)	1.9% (n=20)	

Table 3. Atmospheric concentrations of CFCs measured on *Endeavor* 223.

Date	Station Number	Latitude °N	Longitude °W	F-12 pptv	F-11 pptv	F-113 pptv	System
91/03/30	9-10	44 25'	53 35'	504.7 +1.8	272.1 ±3.6		1
91/03/31	10-11	44 19'	45 45'	500.6 +4.2	269.9 ±2.2		1
91/04/02	14-15	44 19'	44 18'	489.7 +1.7	272.7 ±1.4		1
91/04/04	20-21	45 27'	47 38'	491.5 +3.0	268.0 ±1.6		2
91/04/10	24-25	47 16'	45 30'	509.1 +3.1	270.5 ±0.8		2
91/04/13	35-36	50 09'	42 58'	488.5 +3.1	269.8 ±3.3	81.6 ±2.8	1
91/04/15	36-37	50 21'	42 18'	484.0 +4.2	266.2 ±0.5	82.1 ±2.5	1
91/04/16	36-37	48 27'	44 18'	492.9 +4.9	270.8 ±0.9	82.0 ±0.6	1
91/04/19	43-44	55 56'	46 16'	494.2 +4.9	271.1 ±1.0	83.9 ±0.3	1
91/04/21	after 47	59 58'	37 52'	495.4 +9.1	270.8 ±1.3	85.5 ±0.5	1

Table 4. Surface and Mean Current Data from POGO Floats.

*Endeavor 223 POGO Data*

CTD #	POGO #	Latitude °N		Longitude °W		Mean Speed cm/s	Mean Bearing °T	Surface Speed cm/s	Surface Bearing °T	Depth (m)
4	2	43	10.01	55	00.58	2.5	156	12.6	242	1049
5	3	43	28.61	55	01.21	3.8	144	39.0	029	1040
7	5	43	52.81	54	38.65	11.3	345	5.6	266	1058
8	6	44	08.52	54	28.76	4.1	283	21.2	313	1512
9	7	44	20.59	54	12.66	4.0	333	31.8	316	1521
11	8	43	56.40	42	17.02	21.6	330	83.8	315	1512
12	9	44	02.90	42	30.78	52.0	342	84.3	331	1521
13	10	44	05.15	42	51.12	41.7	342	104.1	348	1512
14	11	44	09.43	43	26.87	17.4	359	74.0	43	1521
15	12	44	18.78	44	21.02	16.0	329	27.7	105	1512
17	13	44	40.31	46	10.00	8.8	253	8.9	291	1503
18	14	44	54.72	46	37.02	5.9	52	2.4	301	1530
19	15	45	12.52	46	58.28	4.2	332	47.6	292	1485
23	16	47	03.31	47	03.09	19.5	188	93.5	183	533
24	17	47	05.23	46	42.55	14.7	200	24.4	148	533
28	18	48	22.65	44	33.35	4.3	004	12.3	295	542
29	19	48	39.21	44	24.63	1.4	274	8.4	266	1022
30	20	48	56.19	44	09.67	23.5	133	54.3	100	1485
31	21	49	07.80	44	00.43	16.0	140	3.5	153	1512
32	22	49	19.46	43	46.63	21.7	207	24.2	207	1467
33	23	49	27.34	43	33.51	25.0	212	95.8	348	1530
34	24	49	44.73	43	18.85	41.0	244	78.7	279	1547
35	25	49	58.10	43	06.91	41.4	230	75.4	233	1512
36	26	50	22.39	42	49.43	22.8	179	55.0	193	1512
37	27	48	41.26	44	13.02	18.7	137	53.5	131	1031
38	28	48	47.03	44	07.25	19.2	150	68.2	166	1004
39	29	48	46.40	44	17.65	24.4	133	44.0	216	1022
40	30	48	38.26	44	16.00	11.5	174	33.2	197	1040
41	31	48	40.14	44	06.45	18.8	157	90.1	104	1022
44	32	58	17.35	42	35.61	37.9	092	34.4	090	1521
45	33	58	30.07	42	40.84	13.0	271	24.0	195	1467
46	34	58	39.21	42	48.70	10.5	255	19.9	049	1512
47	35	58	04.59	42	25.33	14.7	051	36.3	078	1494



Table 5. Dates, Times and Positions for XBT Drops.

XBT	Date	Time GMT	Latitude °N	Longitude °W	Comment
001	26 Mar 91	----	40 48.9	58 18.3	Test cast
002	31 Mar 91	1956	44 16.1	46 44.1	En route to CTD station 11
003	31 Mar 91	2107	44 16.3	46 25.4	"
004	31 Mar 91	2207	44 16.9	46 10.0	"
005	31 Mar 91	2309	44 17.3	45 54.3	"
006	01 Apr 91	0125	44 18.6	45 20.6	"
007	01 Apr 91	0330	44 18.5	44 44.3	"
008	01 Apr 91	0515	44 18.5	44 20.3	"
009	01 Apr 91	0730	44 11.2	43 42.3	"
010	01 Apr 91	0900	44 06.1	43 17.0	"
011	01 Apr 91	1035	44 01.0	42 54.1	"
012	01 Apr 91	1200	43 57.8	42 32.6	"
013	01 Apr 91	1300	43 55.1	42 17.9	"
014	12 Apr 91	0800	49 31.1	43 26.2	En route to CTD station 34
015	12 Apr 91	0901	49 39.1	43 16.7	"
016	12 Apr 91	2054	49 50.2	43 18.3	En route to CTD station 35
017	12 Apr 91	2145	49 56.5	43 05.1	"
018	14 Apr 91	0610	50 34.2	42 42.6	En route to CTD station 36
019	16 Apr 91	1220	48 54.0	44 02.0	Detailed Survey
028	16 Apr 91	1324	48 49.6	44 06.9	"
029	16 Apr 91	1404	48 46.9	44 11.7	"
030	16 Apr 91	1427	48 43.7	44 15.7	"
031	16 Apr 91	1447	48 41.5	44 18.4	"
032	16 Apr 91	1505	48 38.4	44 22.2	"
033	16 Apr 91	1525	48 35.6	44 25.7	"
034	16 Apr 91	1545	48 32.8	44 29.2	"
035	16 Apr 91	1605	48 30.2	44 32.7	"
036	16 Apr 91	1815	48 24.9	44 03.6	"
037	16 Apr 91	1830	48 27.7	44 05.0	"
038	16 Apr 91	1854	48 31.5	44 07.0	"
039	16 Apr 91	1916	48 35.0	44 08.9	"
040	16 Apr 91	1937	48 38.9	44 11.0	"
041	16 Apr 91	2001	48 42.2	44 12.9	"
042	16 Apr 91	2022	48 45.9	44 14.8	"
043	16 Apr 91	2045	48 49.7	44 16.7	"
044	16 Apr 91	2106	48 53.3	44 18.6	"
045	16 Apr 91	2128	48 57.0	44 20.5	"
046	16 Apr 91	2150	49 00.5	44 22.3	"
047	16 Apr 91	2255	48 52.8	44 28.5	"
048	16 Apr 91	2321	48 48.7	44 31.1	"
049	16 Apr 91	2341	48 45.2	44 33.0	"
050	17 Apr 91	0010	48 44.9	44 25.6	"
051	17 Apr 91	0025	48 45.0	44 21.6	"
052	17 Apr 91	0040	48 45.0	44 17.6	"
053	17 Apr 91	0055	48 45.0	44 13.8	"
054	17 Apr 91	0109	48 44.3	44 10.3	"
056	17 Apr 91	0130	48 44.2	44 05.4	"
057	17 Apr 91	0145	48 44.2	44 01.2	"

058	17 Apr 91	0200	48 44.4	43 56.3	"
059	17 Apr 91	0418	48 42.5	44 12.9	Station 37
060	18 Apr 91	0016	49 38.1	44 29.5	En route to Labrador Sea
061	18 Apr 91	0125	49 46.5	44 32.5	"
062	18 Apr 91	0214	49 57.7	44 37.4	"
063	18 Apr 91	0313	50 09.5	44 42.5	"
064	18 Apr 91	0414	50 21.1	44 47.0	"
065	18 Apr 91	0516	50 32.5	44 51.9	"
066	18 Apr 91	0618	50 43.8	44 56.9	"
067	18 Apr 91	0716	50 54.1	45 01.6	"
068	18 Apr 91	0816	51 03.9	45 05.5	"
069	18 Apr 91	0916	51 13.3	45 09.9	"
070	18 Apr 91	1016	51 23.4	45 14.1	"
071	18 Apr 91	1115	51 33.3	45 18.4	"
072	18 Apr 91	1216	51 43.8	45 23.3	"
073	18 Apr 91	1346	51 56.7	45 30.1	"
074	18 Apr 91	1559	52 17.5	45 38.1	"
075	18 Apr 91	1757	52 35.0	45 47.2	"
076	18 Apr 91	2000	52 53.5	45 56.0	"
077	18 Apr 91	2307	53 20.1	46 09.5	"
078	19 Apr 91	0207	53 49.4	46 21.8	"
079	19 Apr 91	0245	53 55.4	46 24.9	Station 42
080	19 Apr 91	0735	54 08.0	46 33.1	En route to Station 43
081	19 Apr 91	0835	54 17.9	46 38.5	"
082	19 Apr 91	0936	54 28.8	46 44.3	"
083	19 Apr 91	1135	54 50.3	46 56.3	"
084	19 Apr 91	1340	55 11.9	47 08.0	Station 43

Table 6. CTD Calibration Coefficients.

	BIAS	SLOPE	ATTR 1	
PRE-CRUISE	-0.477829E0	.100306E+0	-.219531E-8	
POST-CRUISE	-0.614282E-2	.499557E-3	.785609E-11	TE time lag 0.25 seconds

## Figure Captions for Data Presentations

- Figure 4. Bottle and CTD Salinity vs. Potential Temperature Profiles for Section 1,  
a. Stations 10 - 7. b. Stations 6 - 3. c. Stations 2 - 1.
- Figure 5. Bottle and CTD Salinity vs. Potential Temperature Profiles for Section 2,  
a. Stations 22 - 19. b. Stations 18 - 15. c. Stations 14 - 11.
- Figure 6. Bottle and CTD Salinity vs. Potential Temperature Profiles for Section 3,  
a. Stations 23 - 26. b. Stations 27 - 30.  
c. Stations 31 - 34. d. Stations 35 - 36.
- Figure 7. Bottle and CTD Salinity vs. Potential Temperature Profiles for the Detailed Survey,  
Stations 37 - 41.
- Figure 8. Bottle and CTD Salinity vs. Potential Temperature Profiles for the Labrador Sea  
Stations 42 - 43.
- Figure 9. Bottle and CTD Salinity vs. Potential Temperature Profiles for Section 4,  
Stations 44 - 47.
- Figure 10. Bottle Oxygen vs. Pressure Profiles for Section 1,  
a. Stations 10 - 7. b. Stations 6 - 3. c. Stations 2 - 1.
- Figure 11. Bottle Oxygen vs. Pressure Profiles for Section 2,  
a. Stations 22 - 19. b. Stations 18 - 15. c. Stations 14 - 11.
- Figure 12. Bottle Oxygen vs. Pressure Profiles for Section 3,  
a. Stations 23 - 26. b. Stations 27 - 30.  
c. Stations 31 - 34. d. Stations 35 - 36.
- Figure 13. Bottle Oxygen vs. Pressure Profiles for the Detailed Survey,  
Stations 37 - 41.
- Figure 14. Bottle Oxygen vs. Pressure Profiles for the Labrador Sea Stations 42 - 43.
- Figure 15. Bottle Oxygen vs. Pressure Profiles for Section 4, Stations 44 - 47.
- Figure 16. Bottle F-11 vs. Pressure Profiles for Section 1,  
a. Stations 10 - 7. b. Stations 6 - 3. c. Stations 2 - 1.
- Figure 17. Bottle F-11 vs. Pressure Profiles for Section 2,  
a. Stations 22 - 19. b. Stations 18 - 15. c. Stations 14 - 11.

- Figure 18. Bottle F-11 vs. Pressure Profiles for Section 3,  
a. Stations 23 - 26. b. Stations 27 - 30.  
c. Stations 31 - 34. d. Stations 35 - 36.
- Figure 19. Bottle F-11 vs. Pressure Profiles for the Detailed Survey,  
Stations 37 - 41.
- Figure 20. Bottle F-11 vs. Pressure Profiles for the Labrador Sea Stations 42 - 43.
- Figure 21. Bottle F-11 vs. Pressure Profiles for Section 4, Stations 44 - 47.
- Figure 22. Vertical Sections of CTD Potential Temperature and Salinity  
for Section 1.
- Figure 23. Vertical Sections of CTD Sigma 0, 1.5, 3.0 and Bottle Oxygen  
for Section 1.
- Figure 24. Vertical Sections of Bottle Silicate and F-11 for Section 1.
- Figure 25. Vertical Sections of CTD Potential Temperature and Salinity  
for Section 2.
- Figure 26. Vertical Sections of CTD Sigma 0, 1.5, 3.0 and Bottle Oxygen  
for Section 2.
- Figure 27. Vertical Sections of Bottle Silicate and F-11 for Section 2.
- Figure 28. Vertical Sections of CTD Potential Temperature and Salinity  
for Section 3.
- Figure 29. Vertical Sections of CTD Sigma 0, 1.5, 3.0 and Bottle Oxygen  
for Section 3.
- Figure 30. Vertical Sections of Bottle Silicate and F-11 for Section 3.
- Figure 31. Vertical Sections of CTD Potential Temperature, Salinity and Sigma 0, 1.5, 3.0  
for Section 4.
- Figure 32. Vertical Sections of Bottle Oxygen, Silicate and F-11  
for Section 4.

**Data Presentations**

**Part 1. Property Plots**

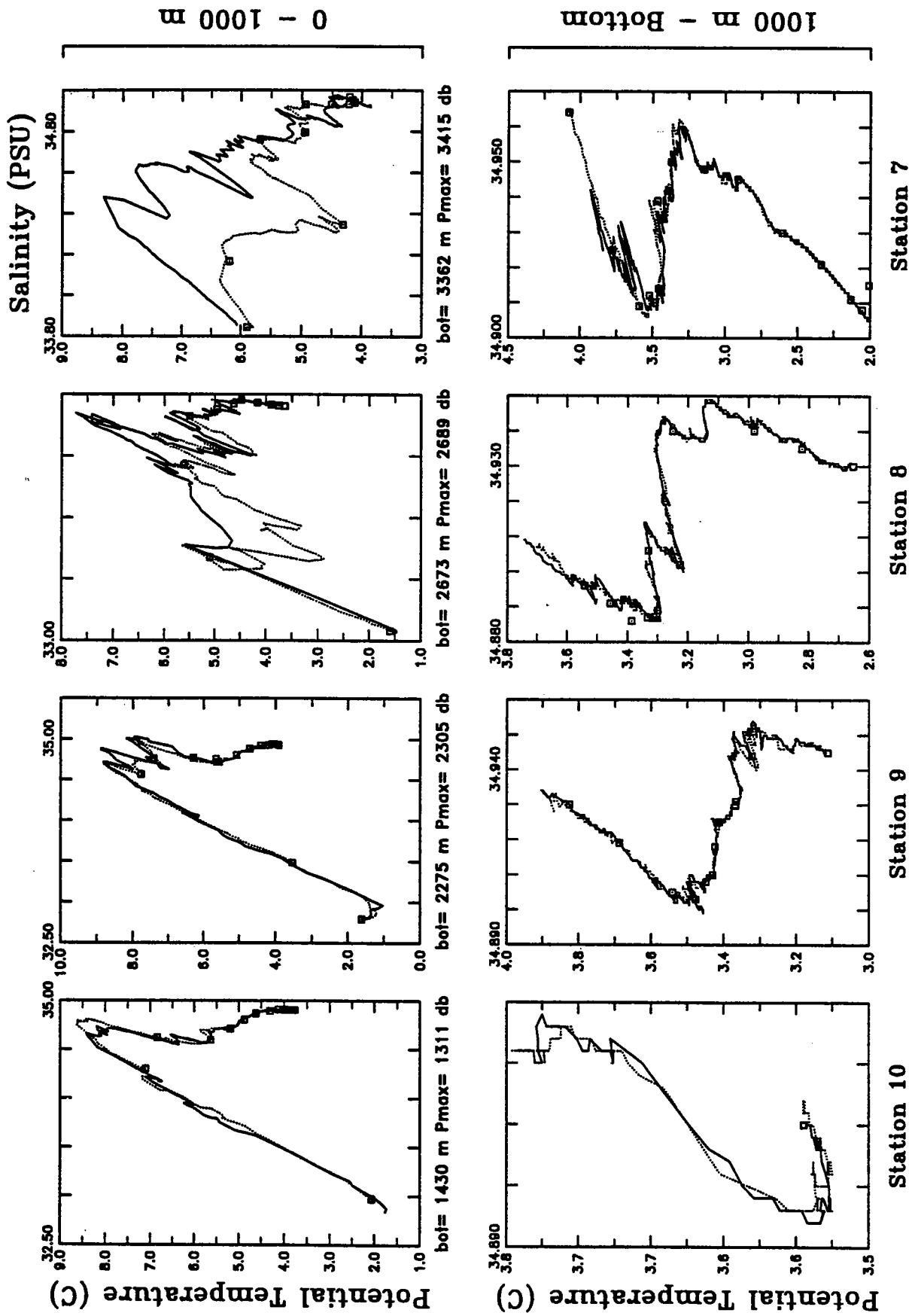


Figure 4a. Bottle and CTD Salinity vs. Potential Temperature Profiles for Section 1, Stations 10 - 7.

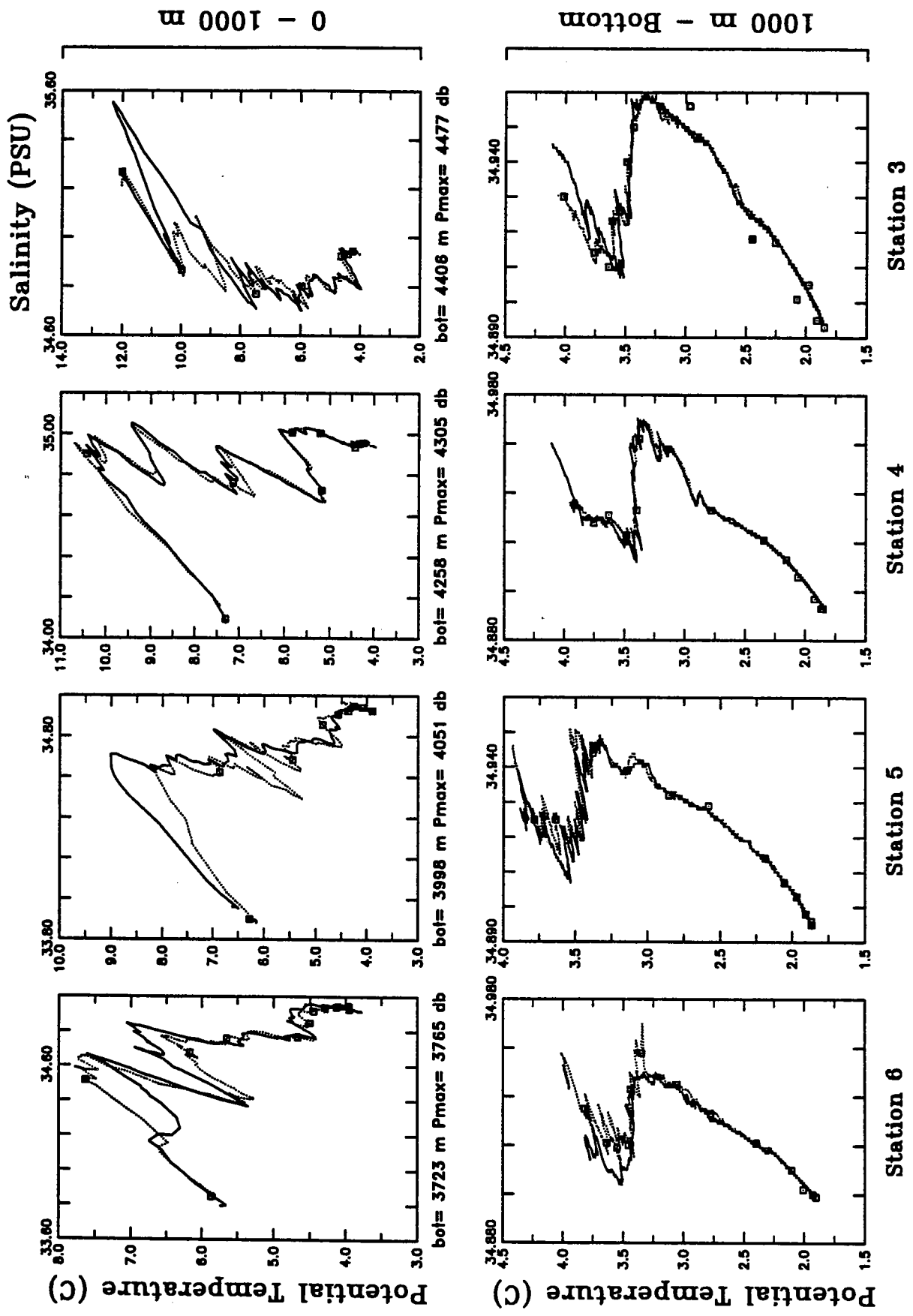


Figure 4b. Bottle and CTD Salinity vs. Potential Temperature Profiles for Section 1, Stations 6 - 3.



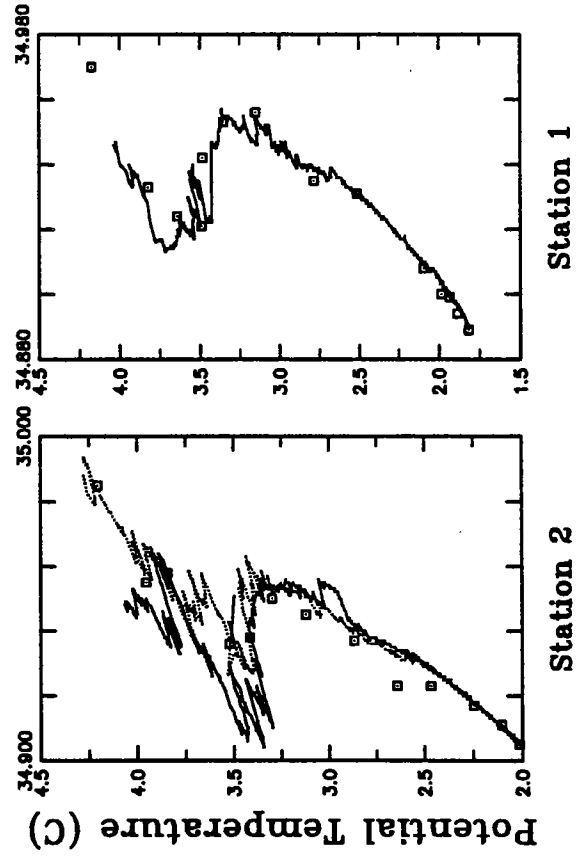
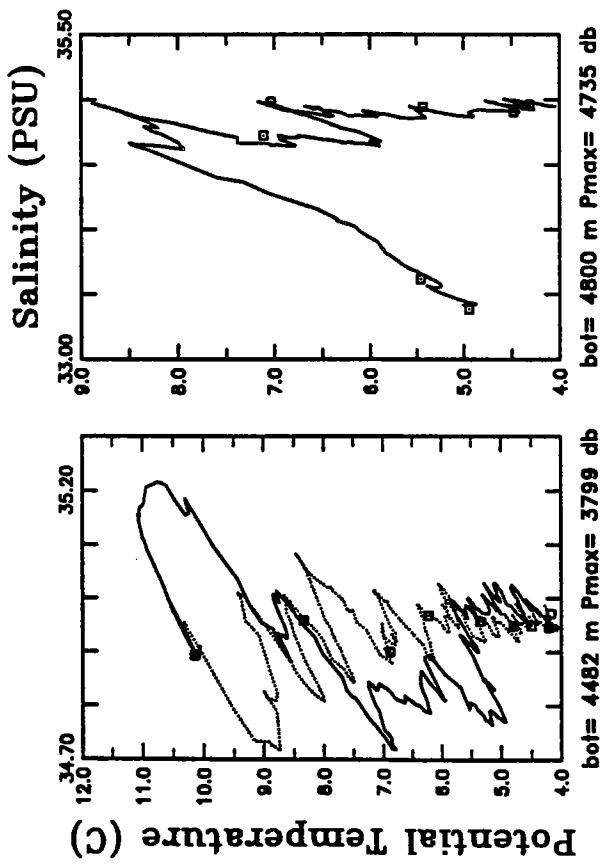


Figure 4c. Bottle and CTD Salinity vs. Potential Temperature Profiles for Section 1, Stations 2 - 1.

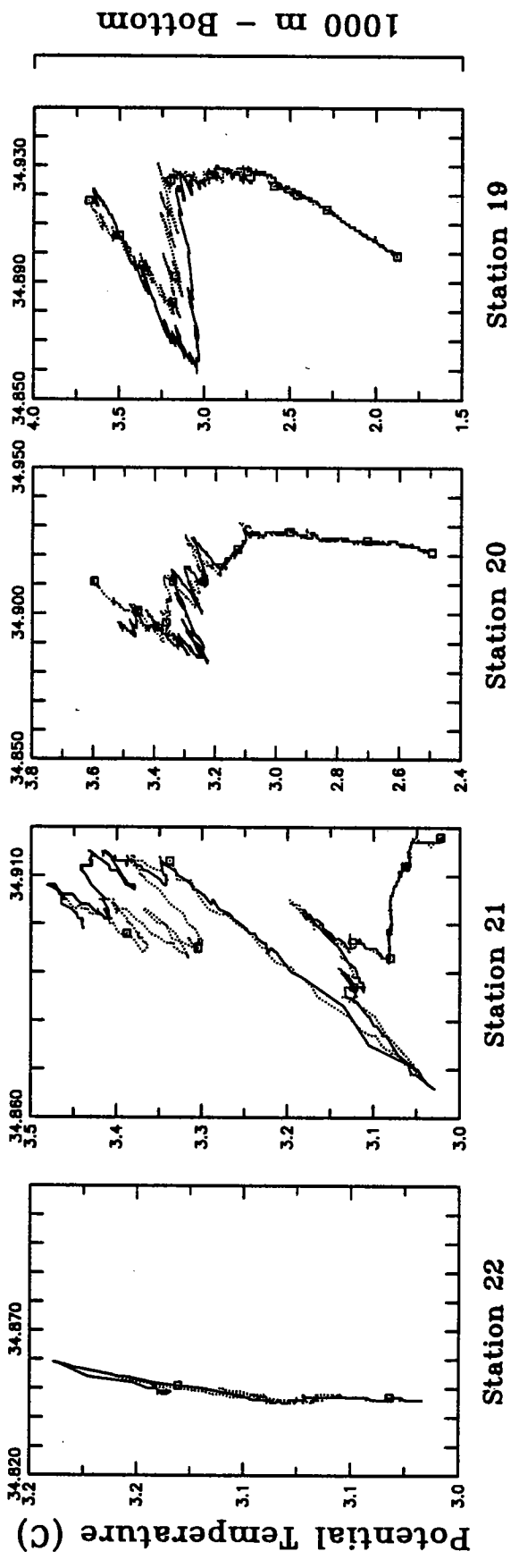
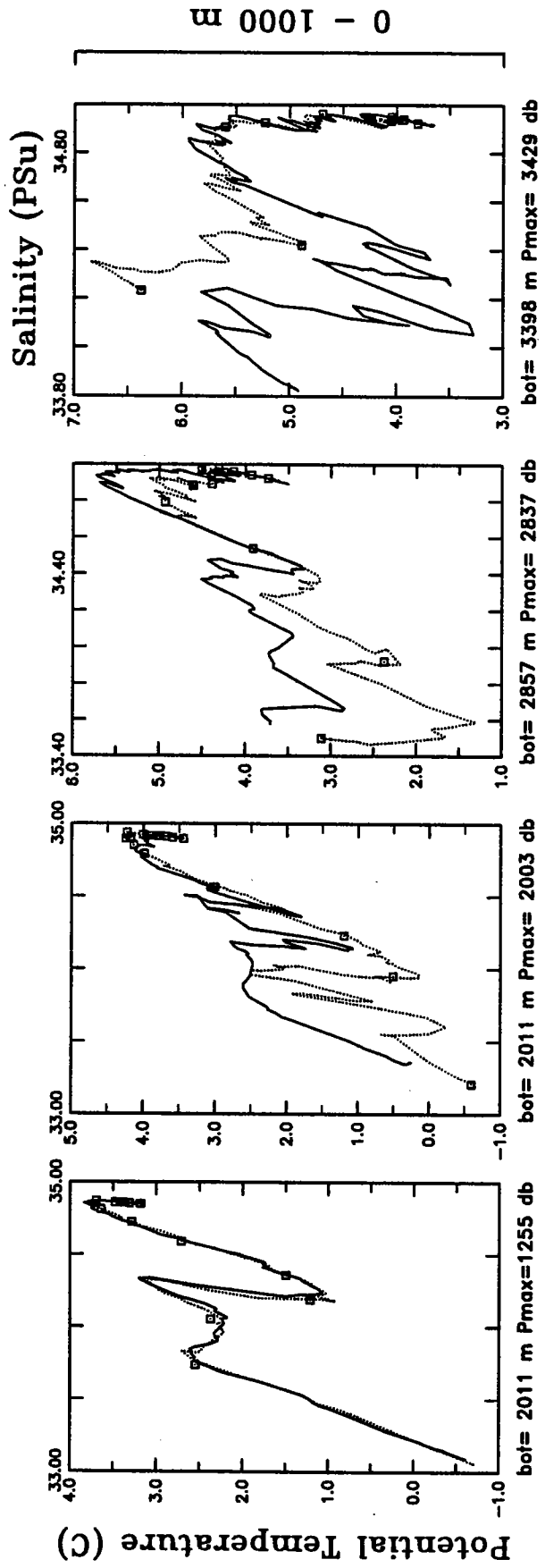


Figure 5a. Bottle and CTD Salinity vs. Potential Temperature Profiles for Section 2, Stations 22 - 19.

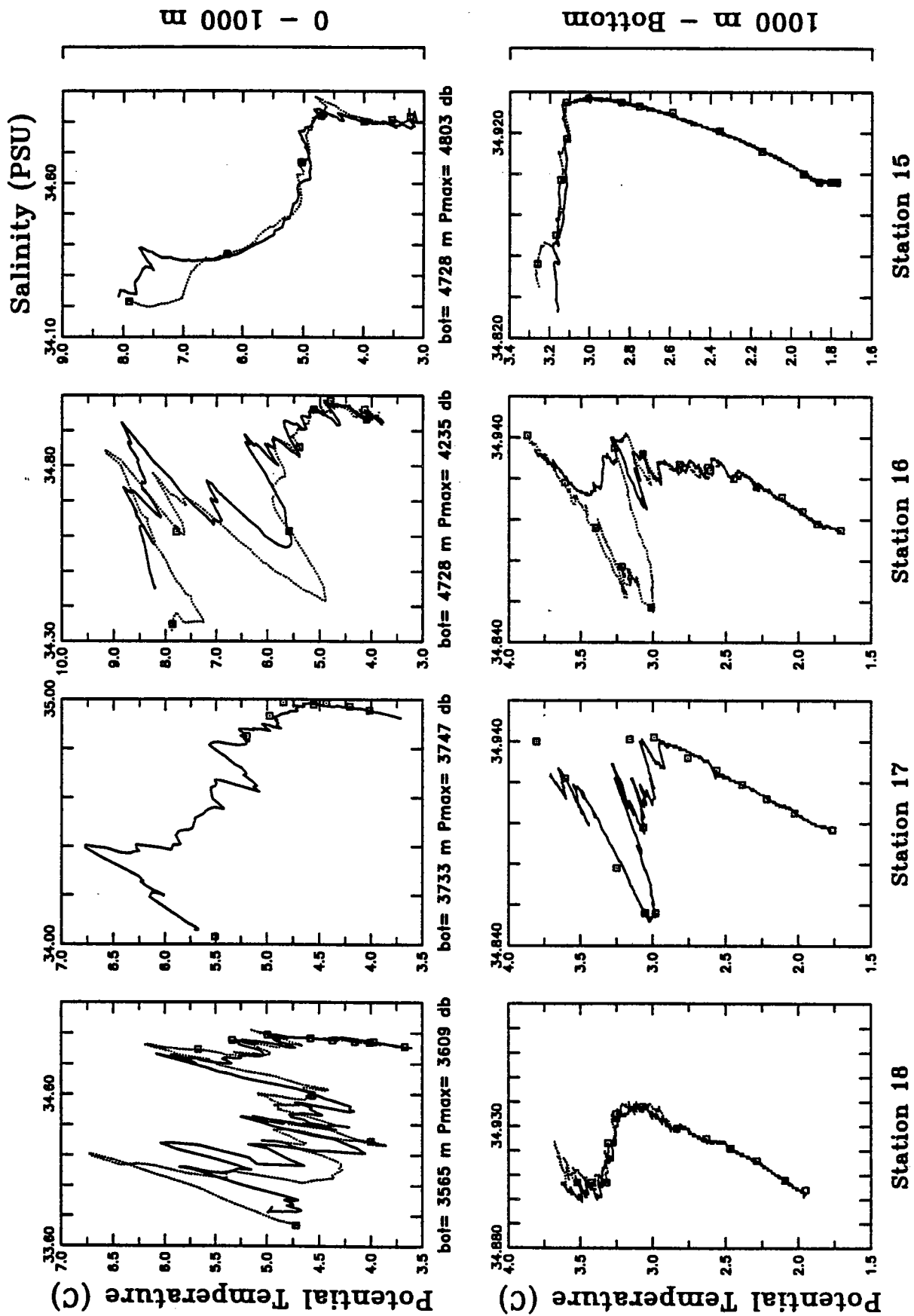


Figure 5b. Bottle and CTD Salinity vs. Potential Temperature Profiles for Section 2, Stations 18 - 15.

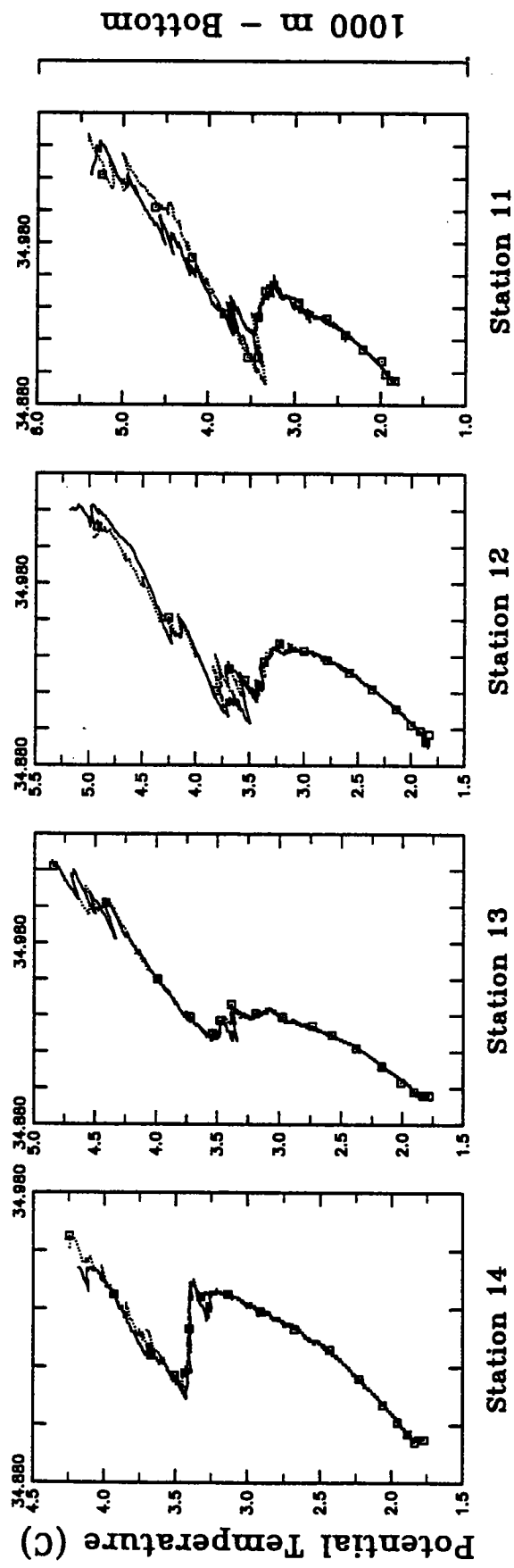
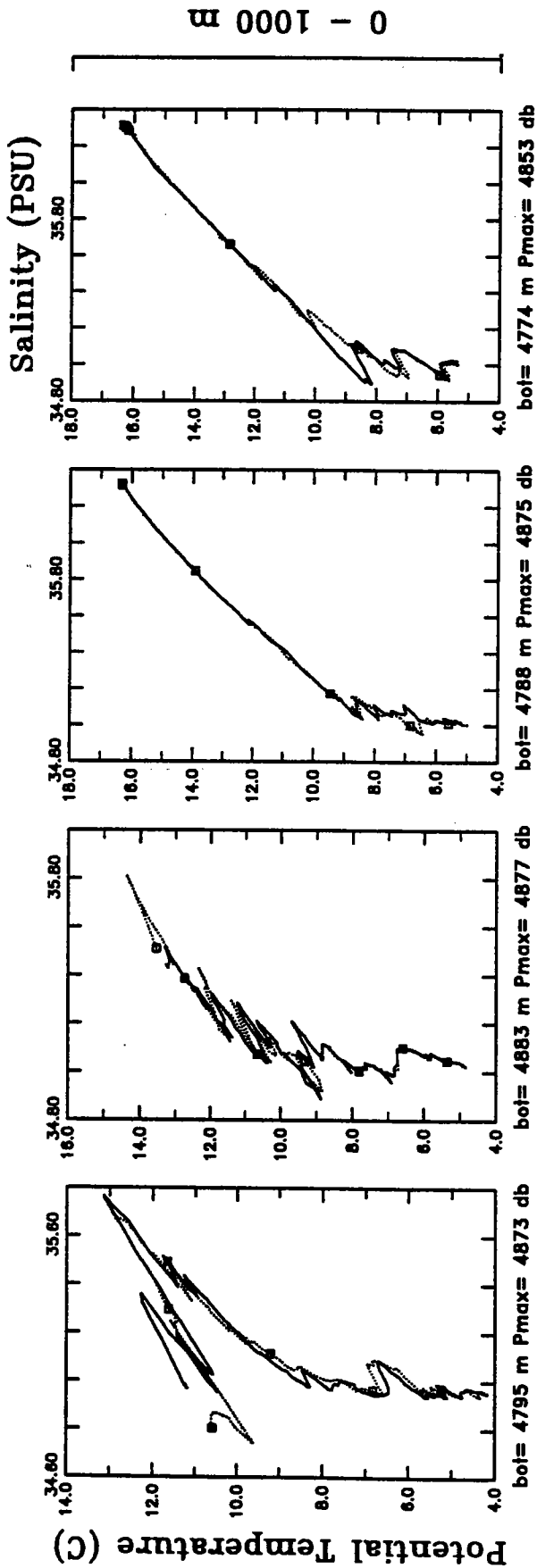


Figure 5c. Bottle and CTD Salinity vs. Potential Temperature Profiles for Section 2, Stations 14 - 11.

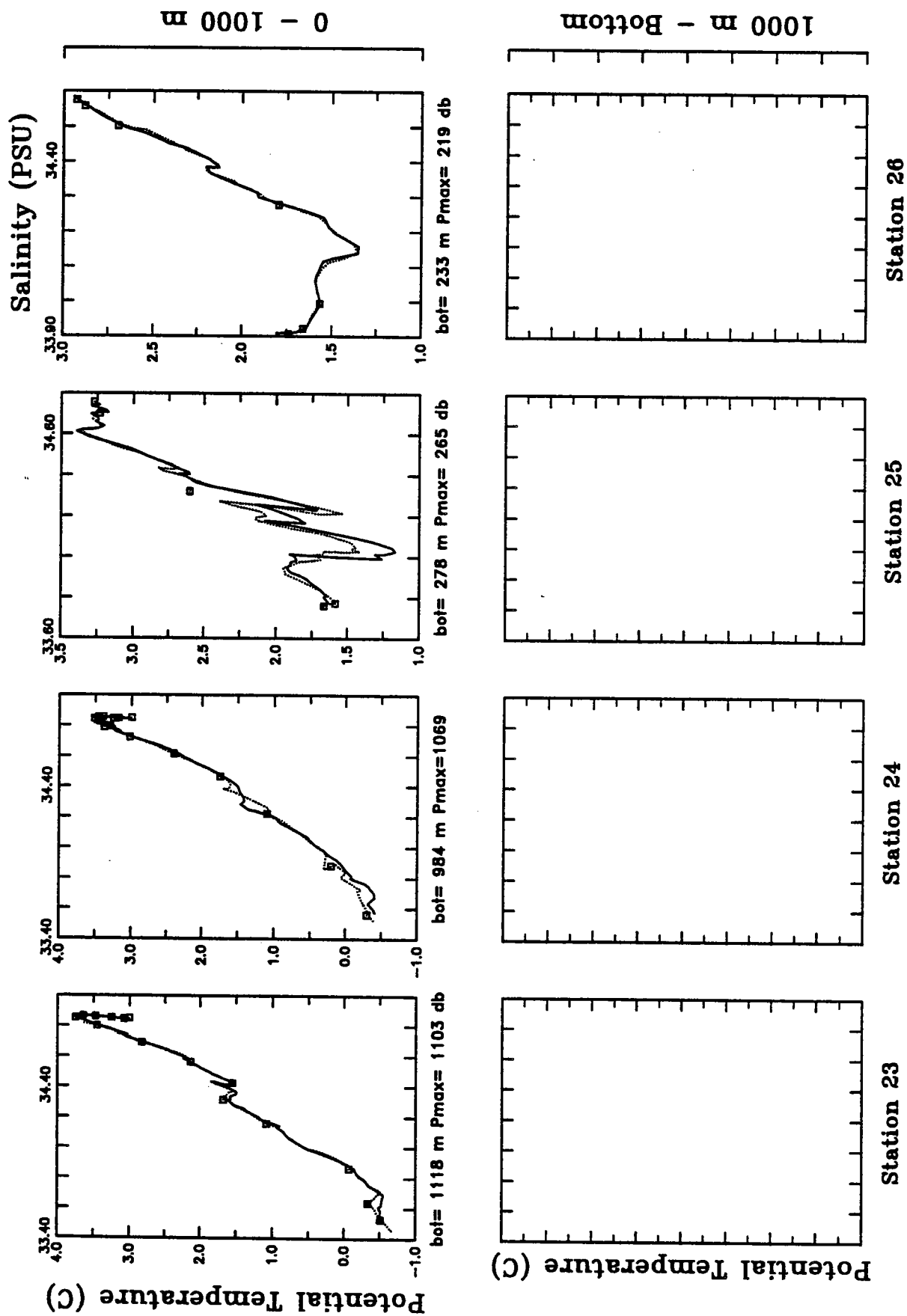


Figure 6a. Bottle and CTD Salinity vs. Potential Temperature Profiles for Section 3, Stations 23 - 26.

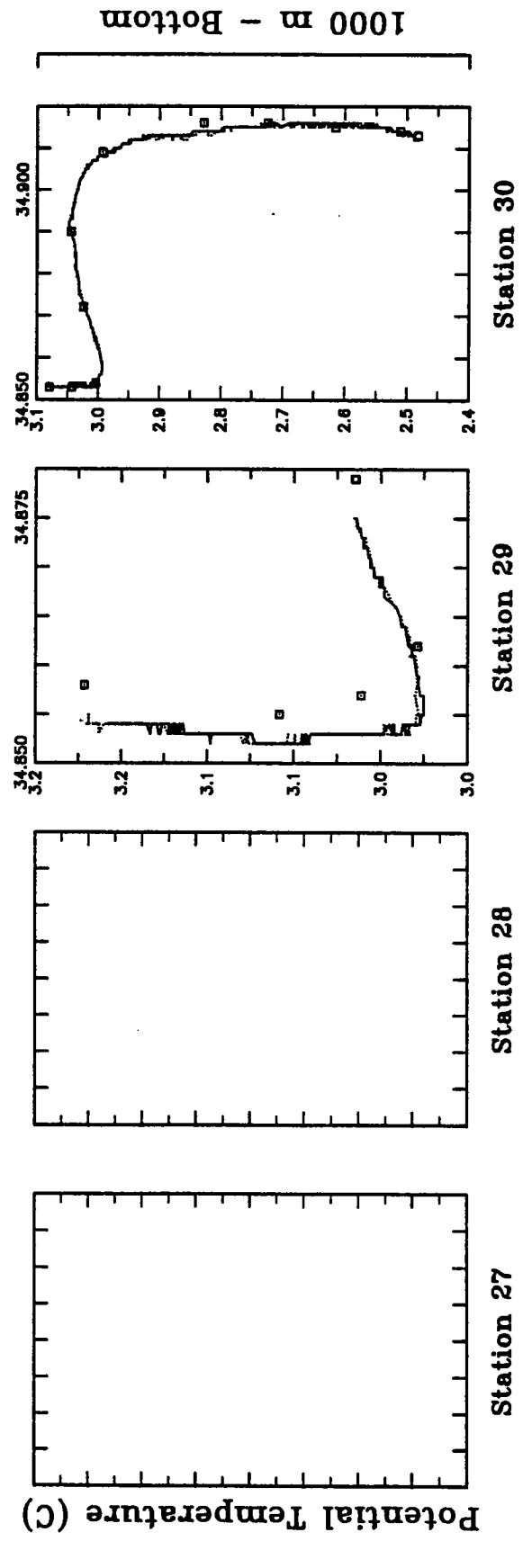
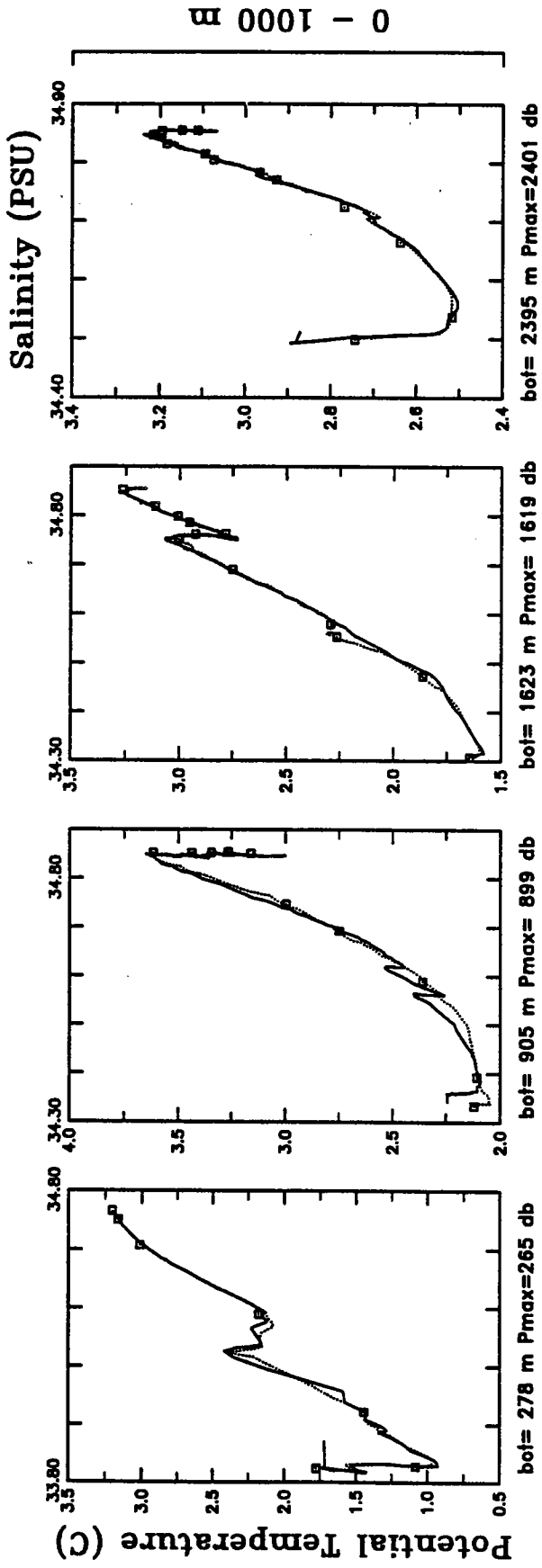


Figure 6b. Bottle and CTD Salinity vs. Potential Temperature Profiles for Section 3, Stations 27 - 30

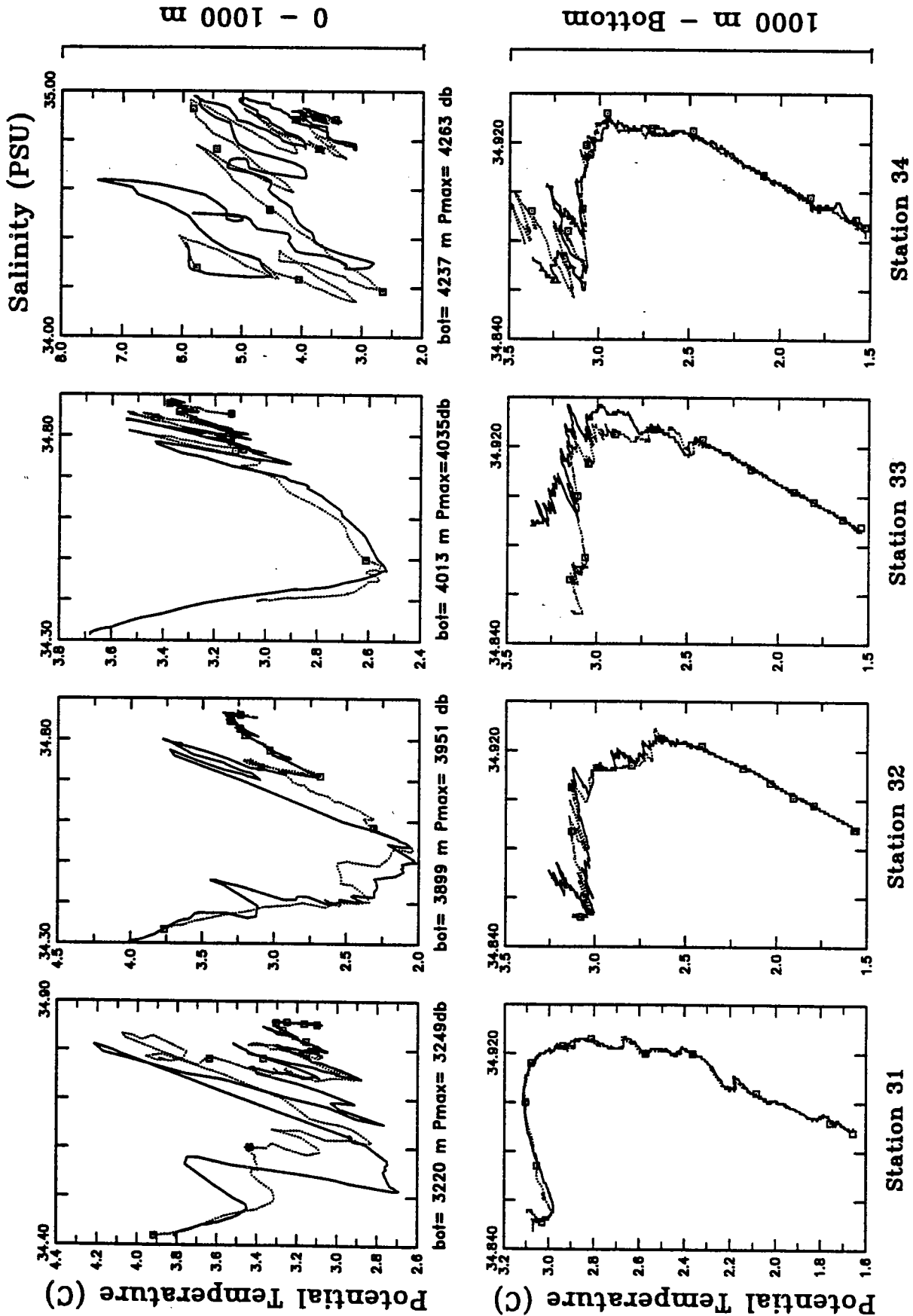


Figure 6c. Bottle and CTD Salinity vs. Potential Temperature Profiles for Section 3, Stations 31 - 34

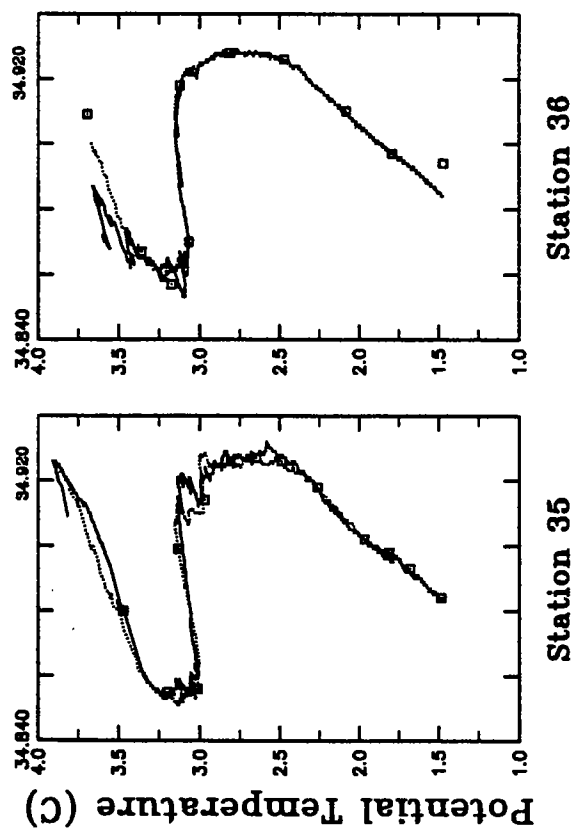
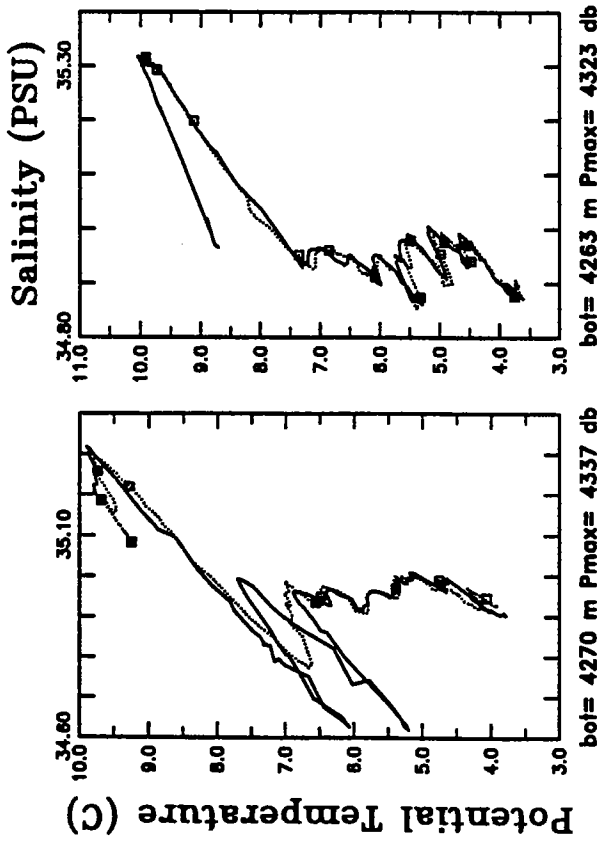


Figure 6d. Bottle and CTD Salinity vs. Potential Temperature Profiles for Section 3, Stations 35 - 36



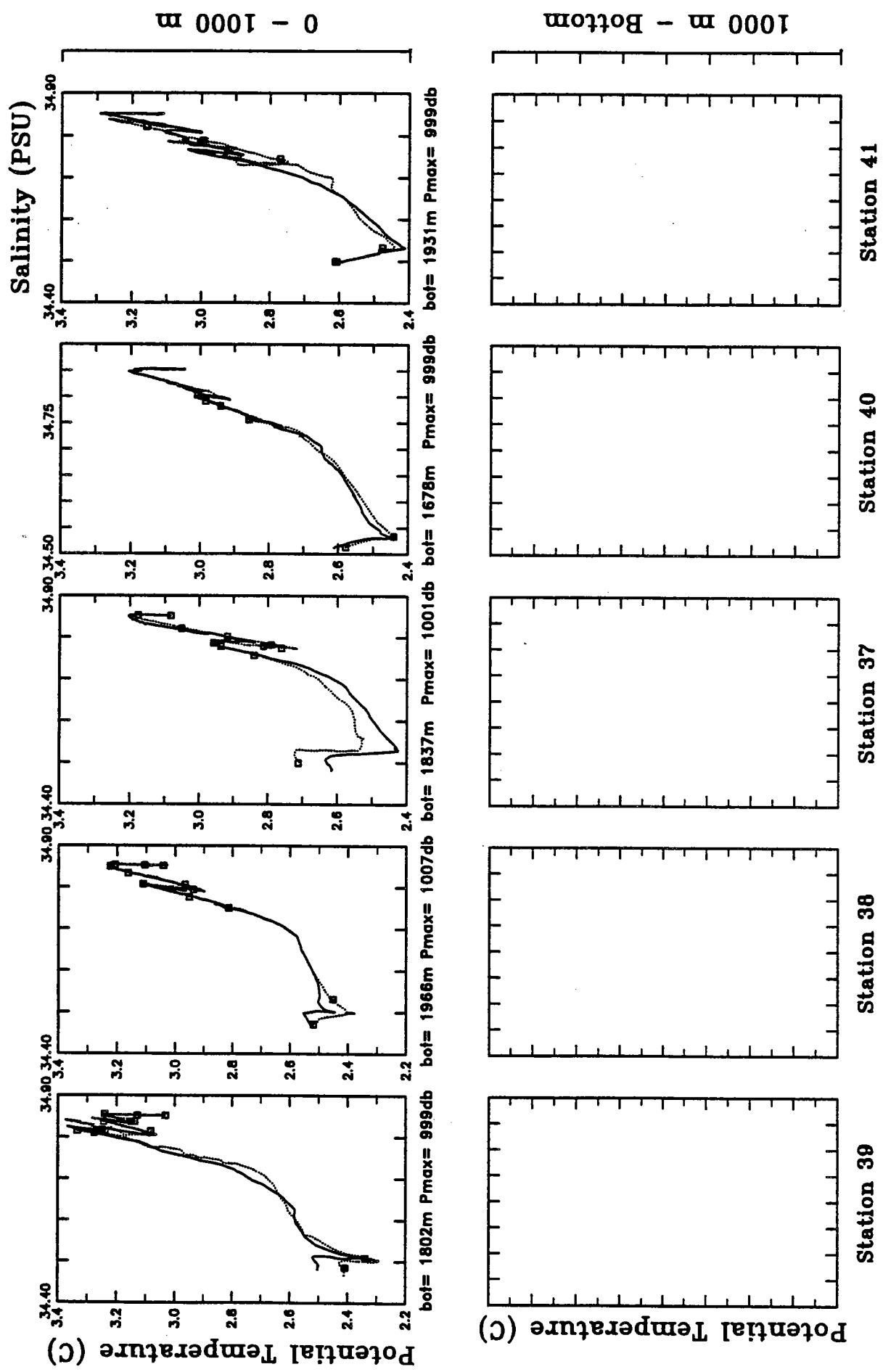
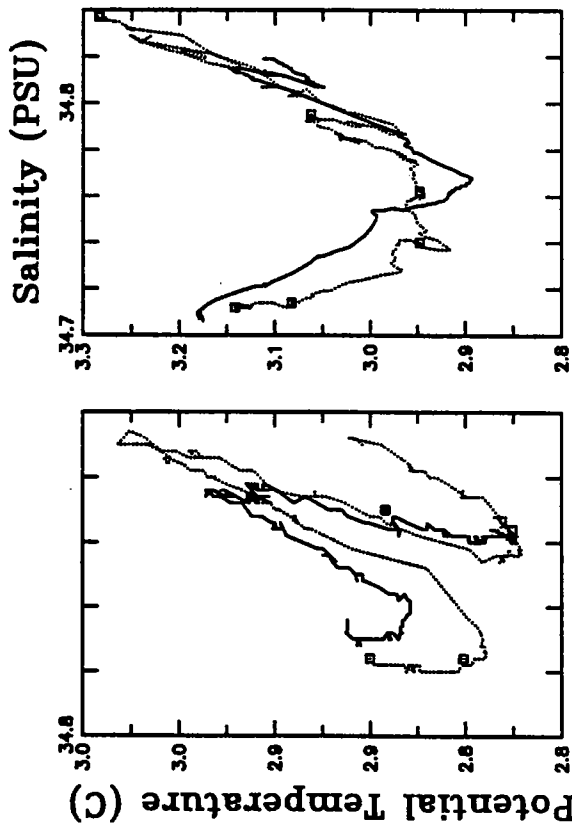
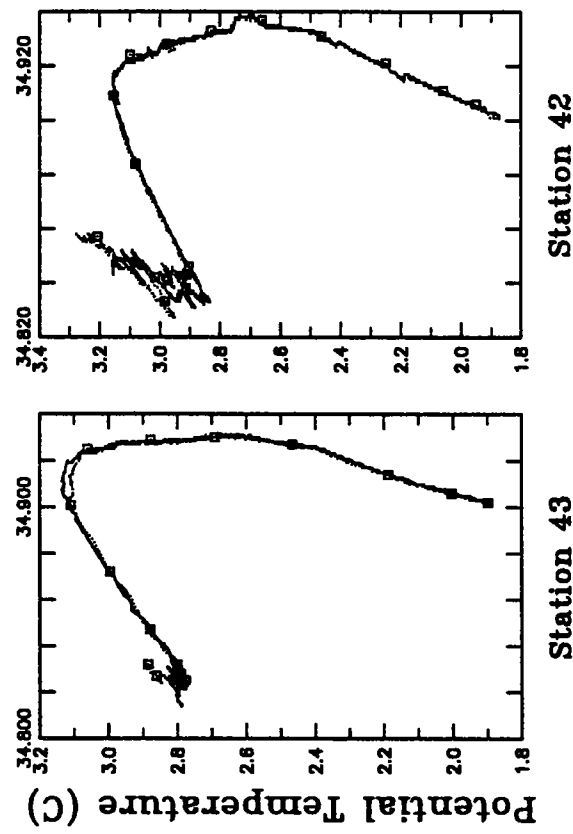


Figure 7. Bottle and CTD Salinity vs. Potential Temperature Profiles for the Detailed Survey, Stations 37 - 41



bot= 3591 m, Pmax= 3621 m, Pmax= 3616 m, Pmax= 3653 db



Station 42

Station 43

Figure 8. Bottle and CTD Salinity vs. Potential Temperature Profiles for the Labrador Sea, Stations 42 - 43

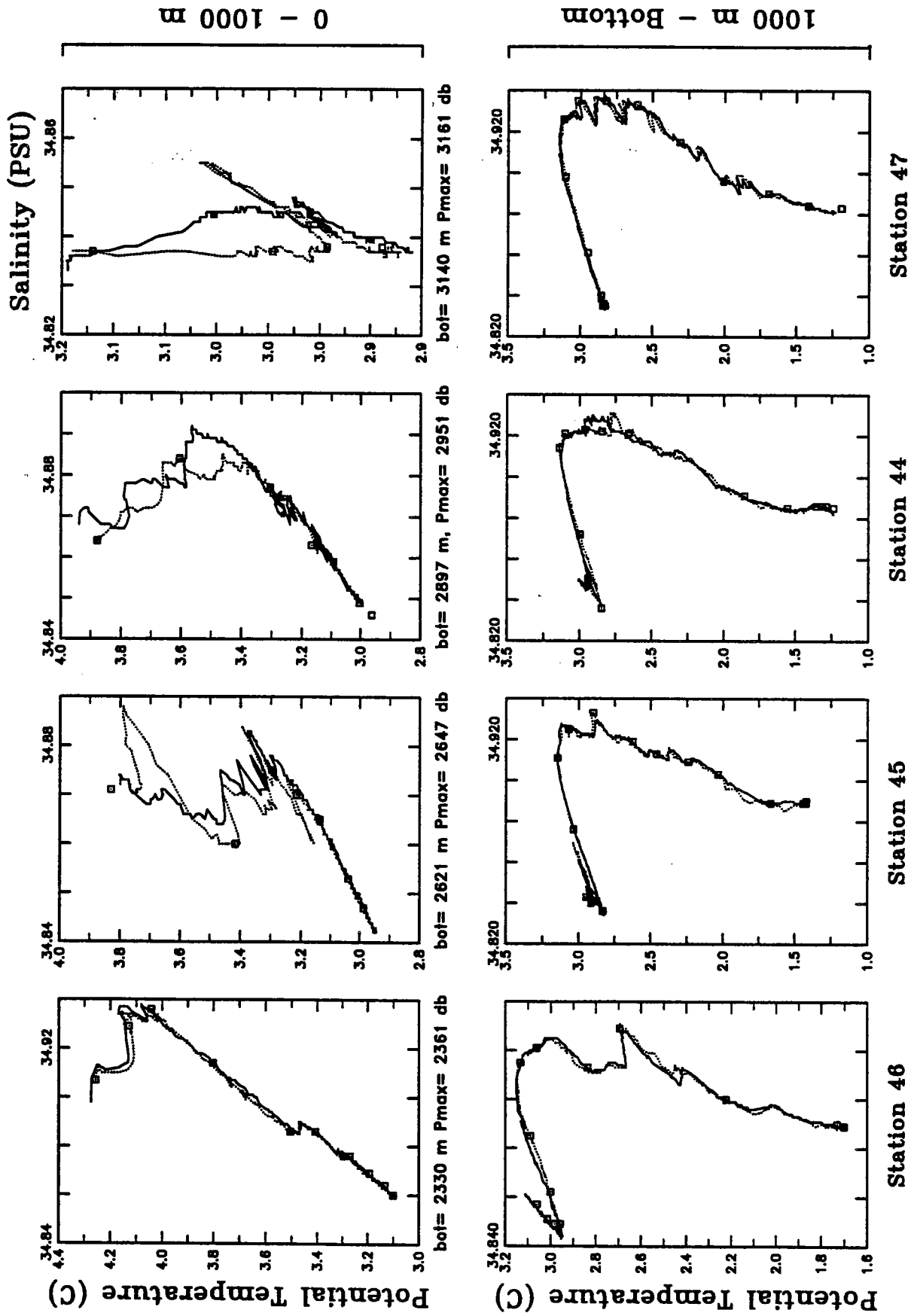


Figure 9. Bottle and CTD Salinity vs. Potential Temperature Profiles for Section 4, Stations 44 - 47

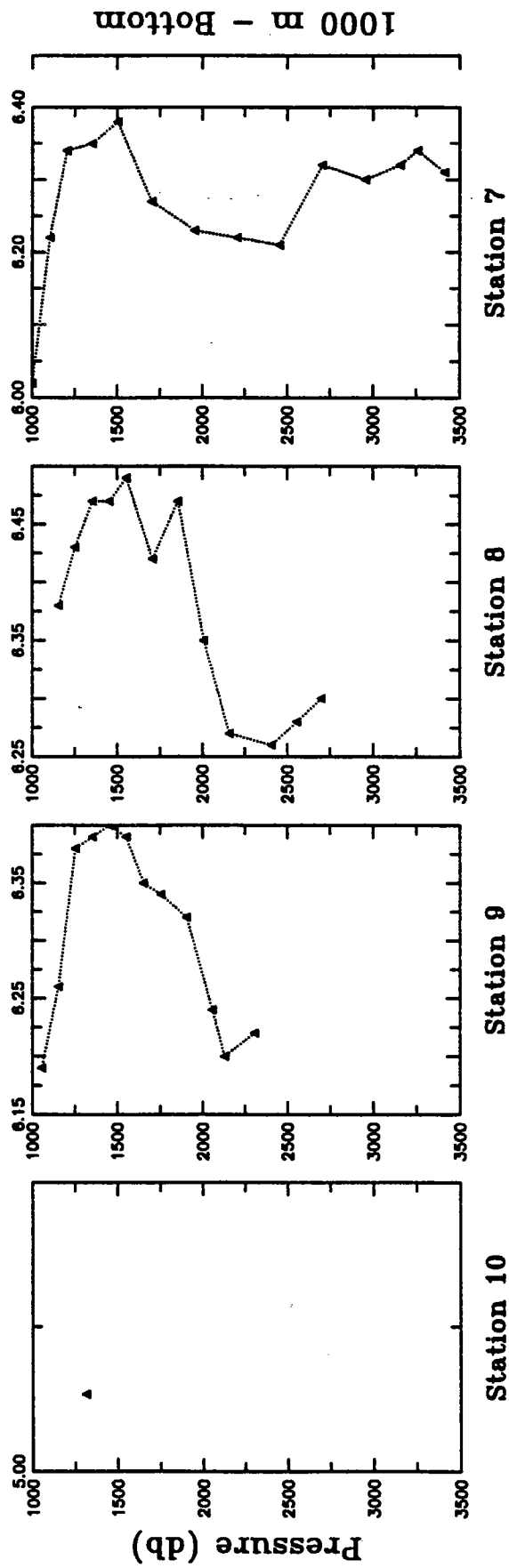
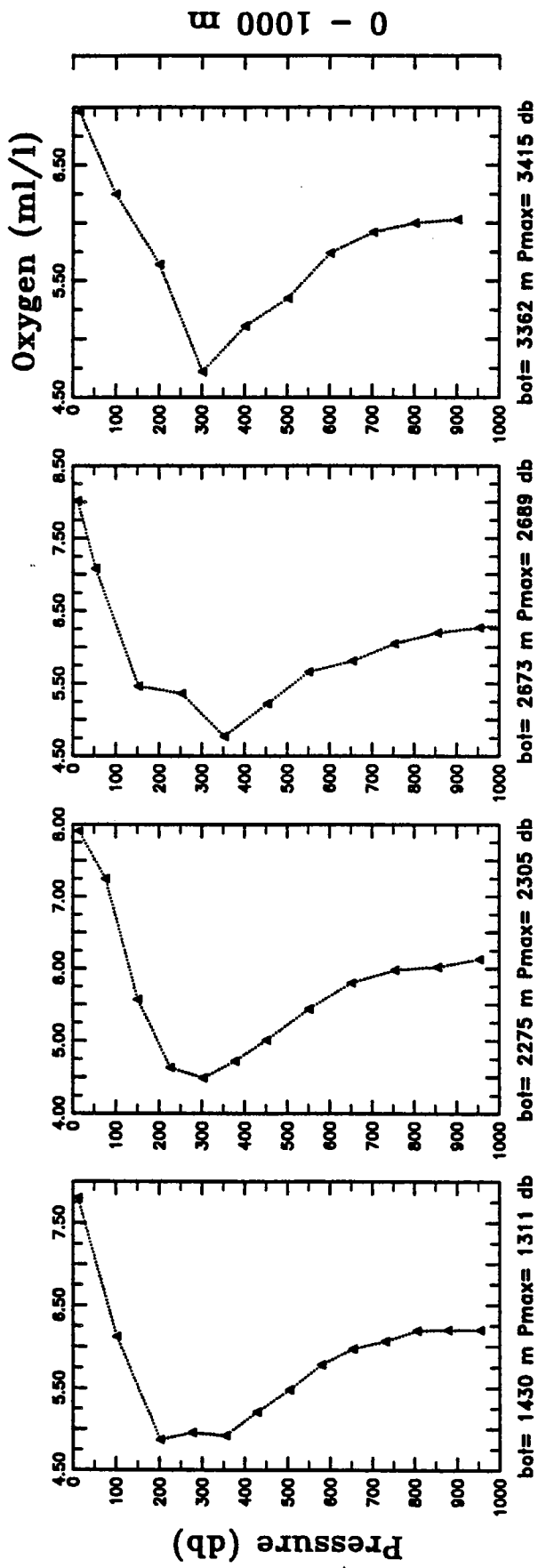


Figure 10a. Bottle Oxygen vs. Pressure Profiles for Section 1, Stations 10 - 7

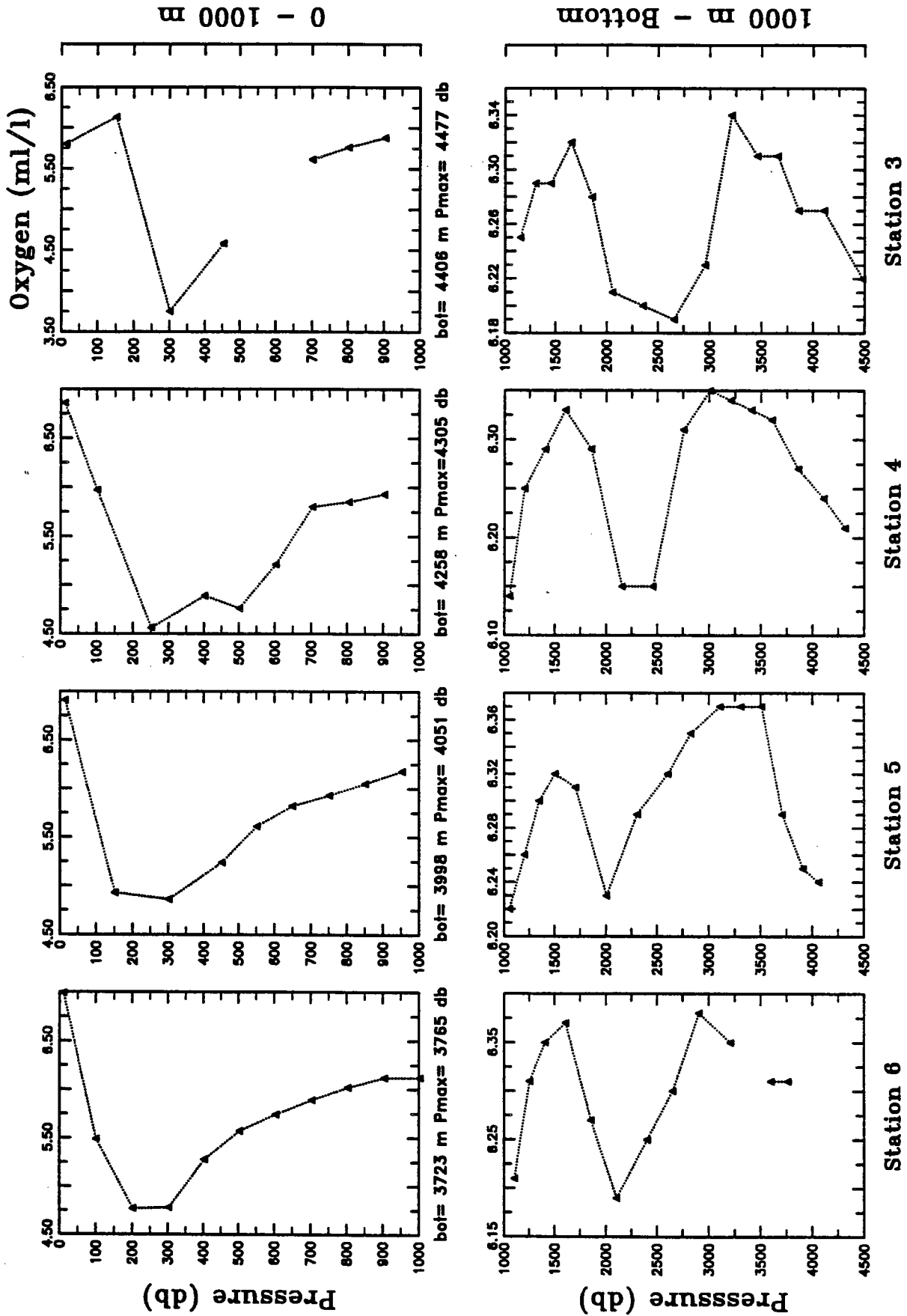


Figure 10b. Bottle Oxygen vs. Pressure Profiles for Section 1, Stations 6 - 3

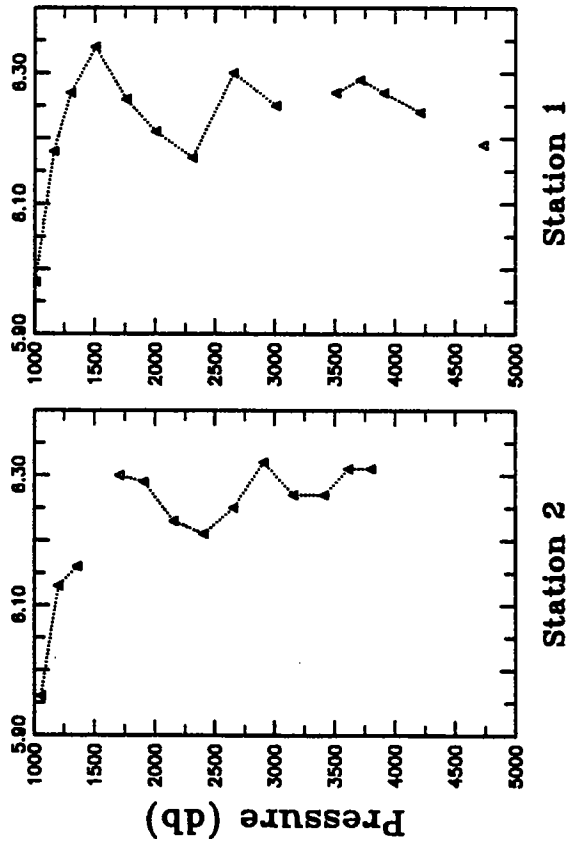
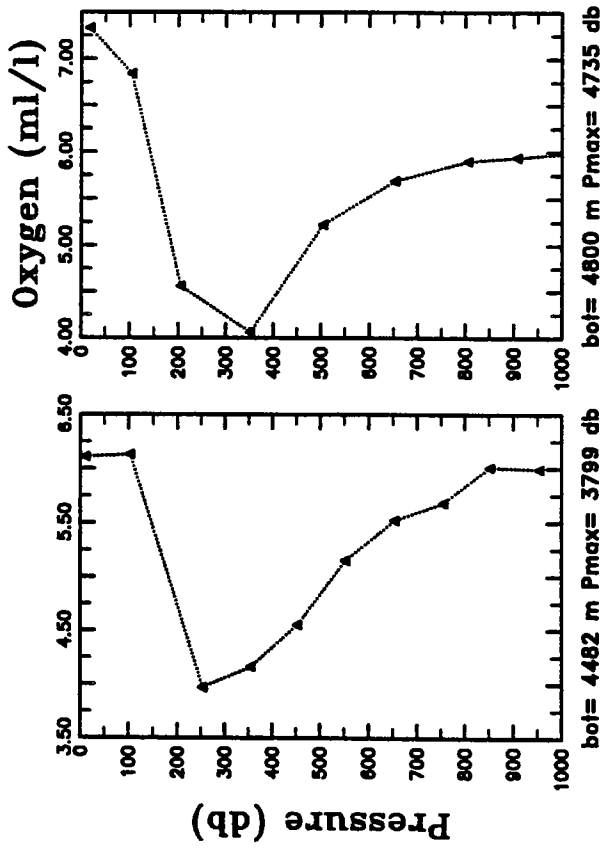


Figure 10c. Bottle Oxygen vs. Pressure Profiles for Section 1, Stations 2 - 1.

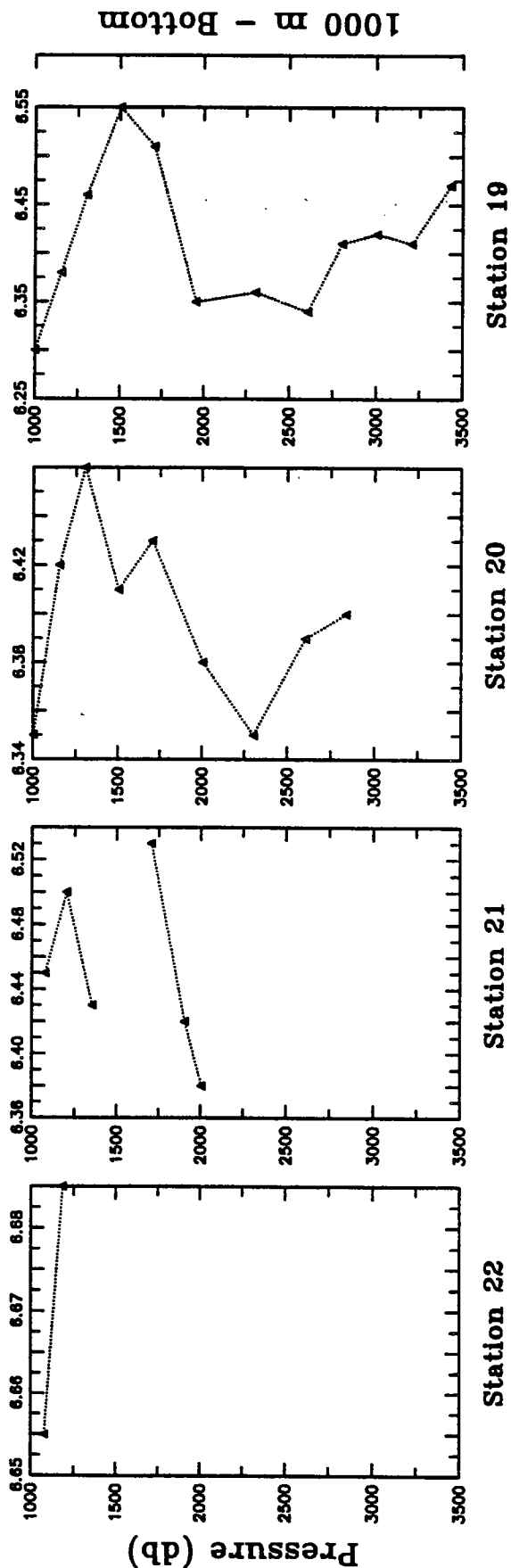
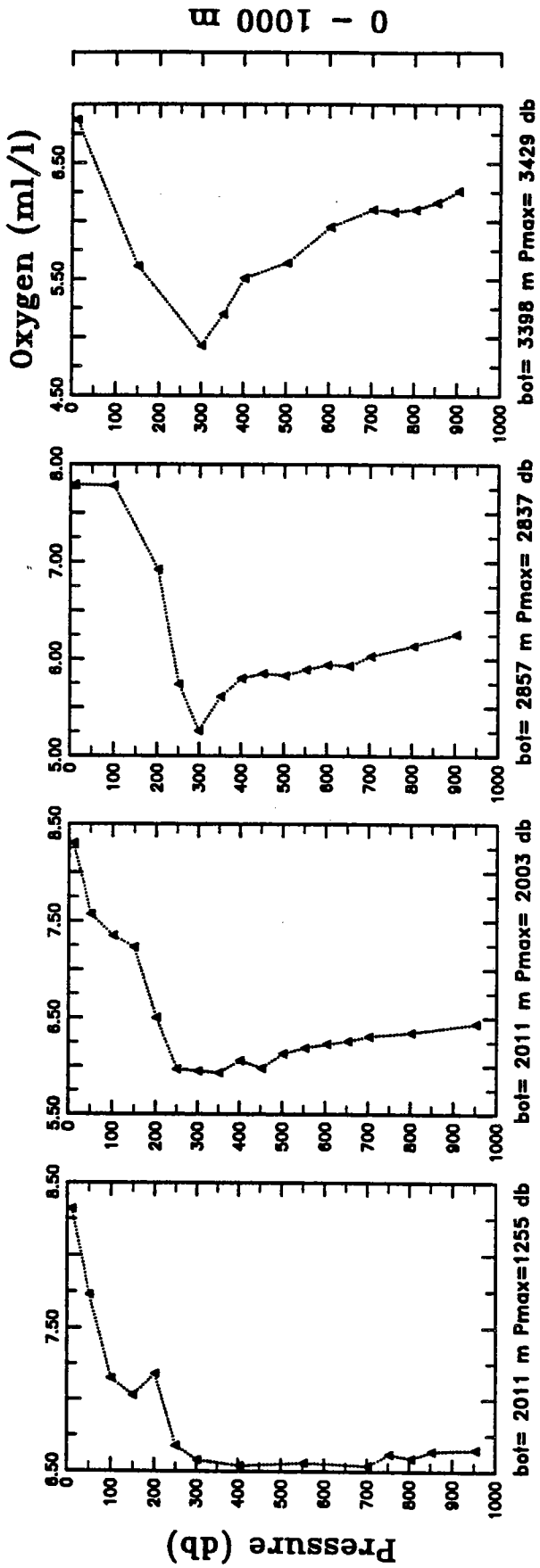


Figure 11a. Bottle Oxygen vs. Pressure Profiles for Section 2, Stations 22 - 19.

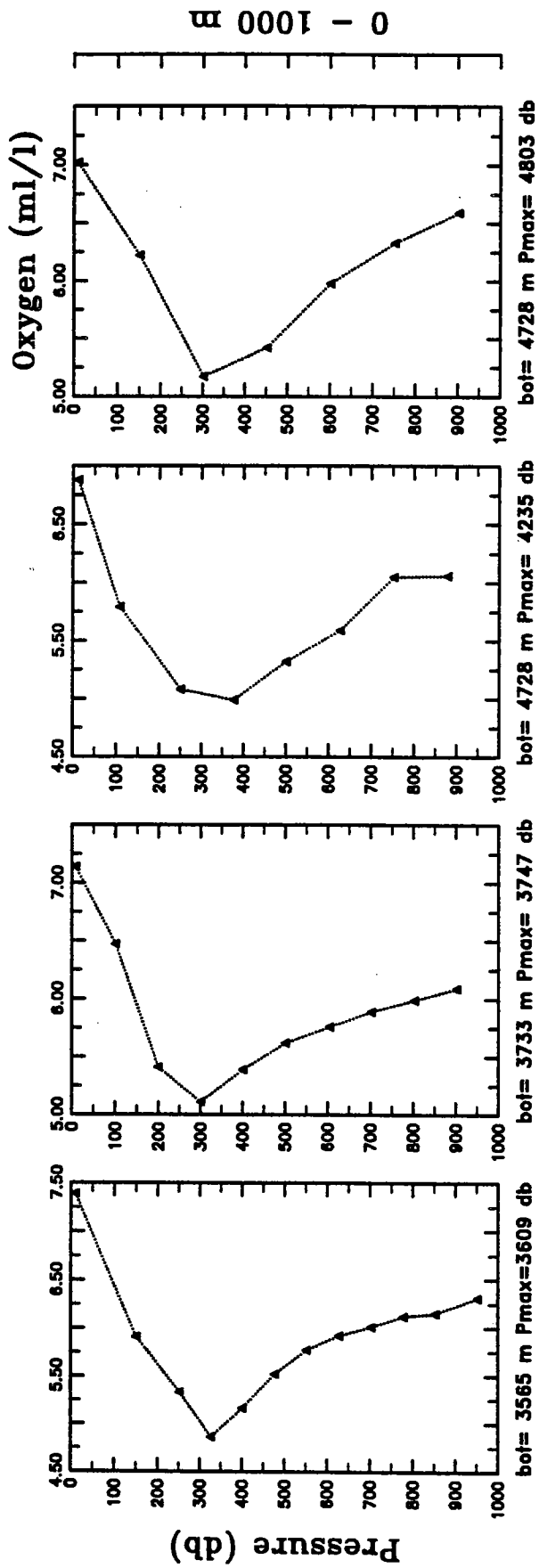


Figure 11b. Bottle Oxygen vs. Pressure Profiles for Section 2, Stations 18 - 15.



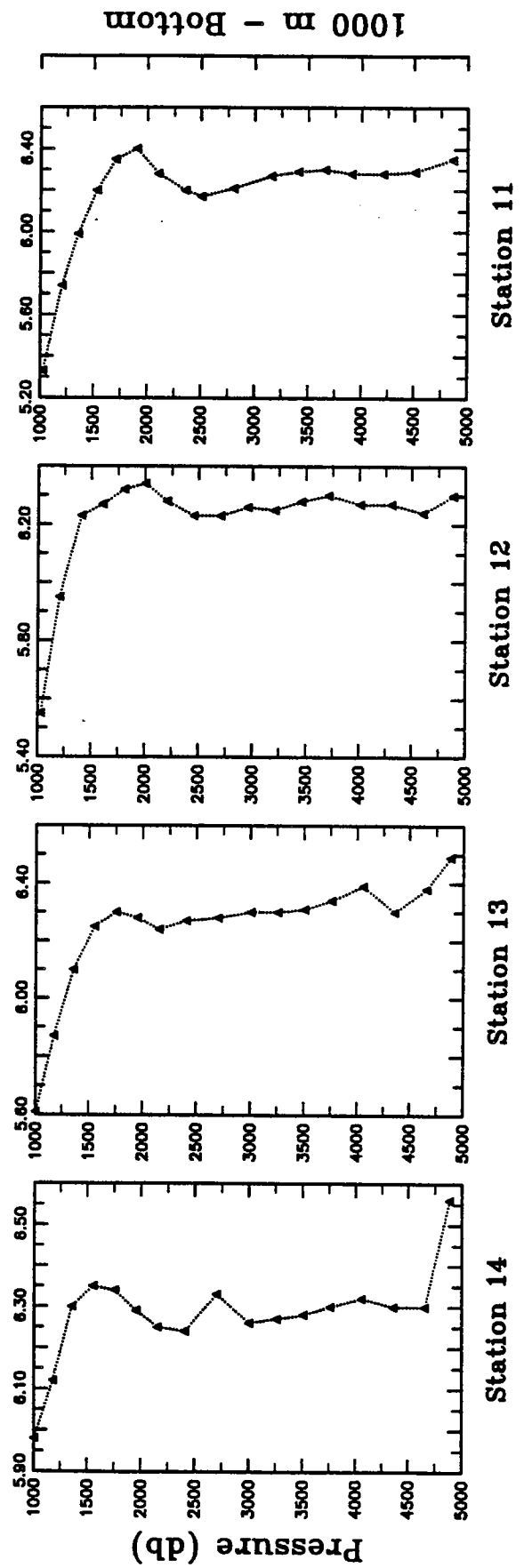
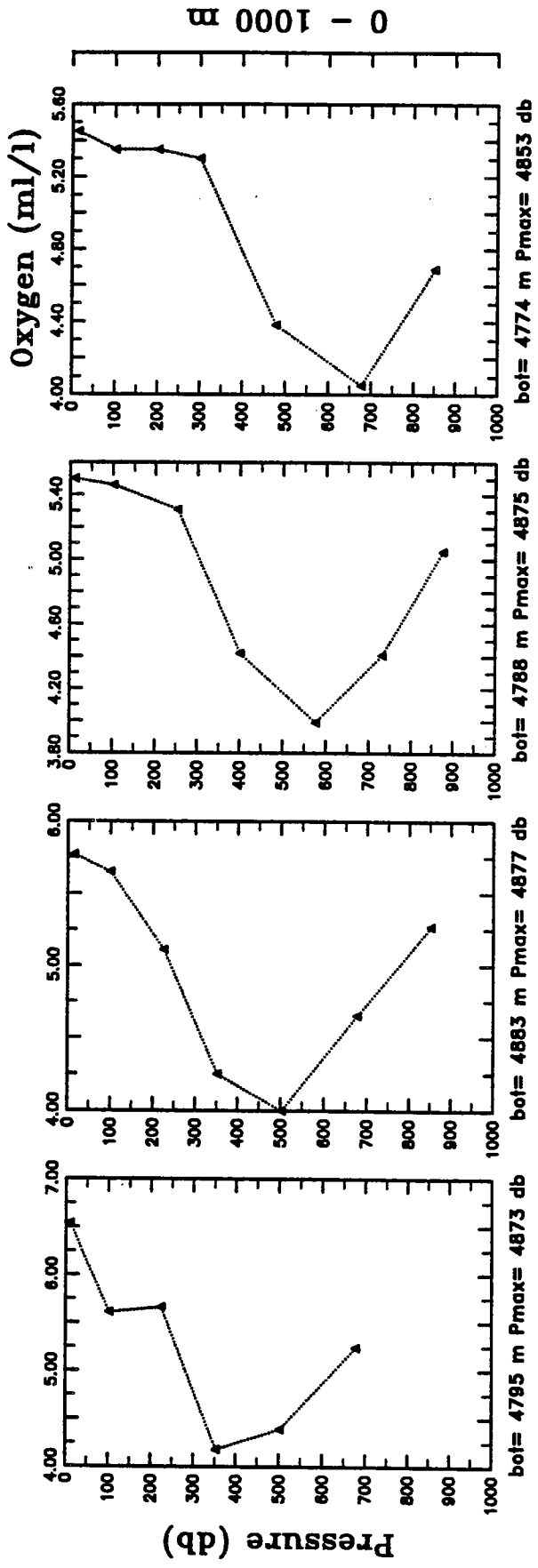
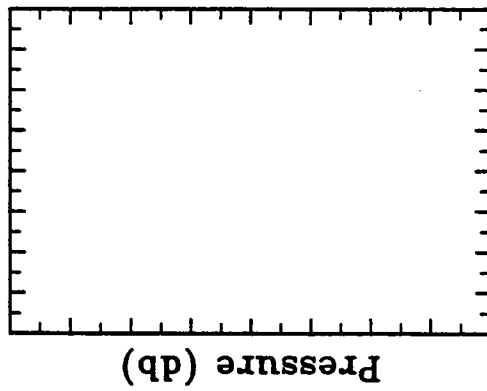
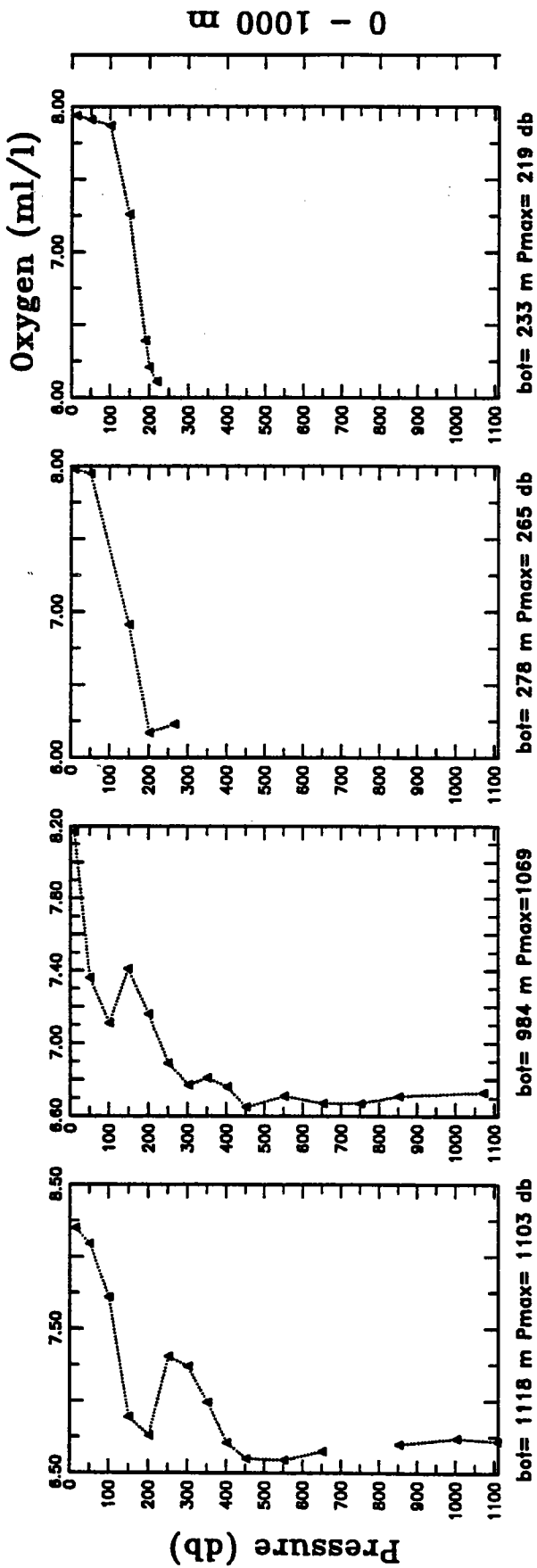
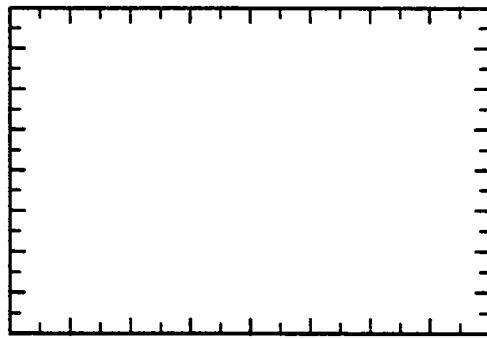
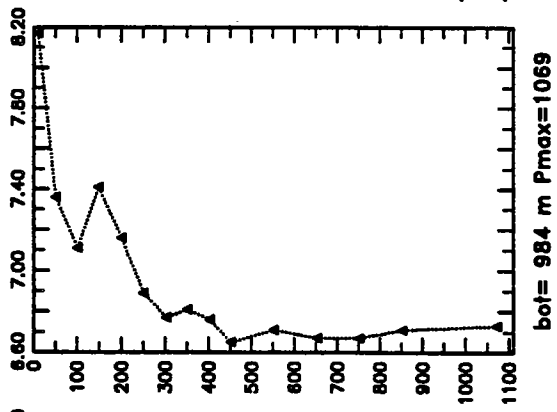


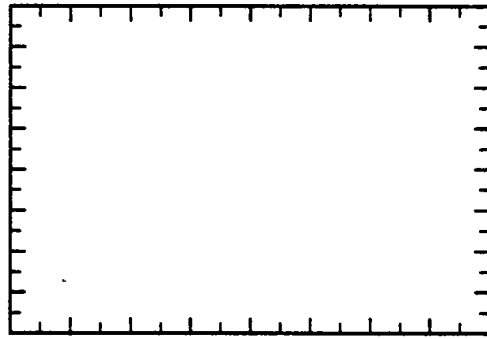
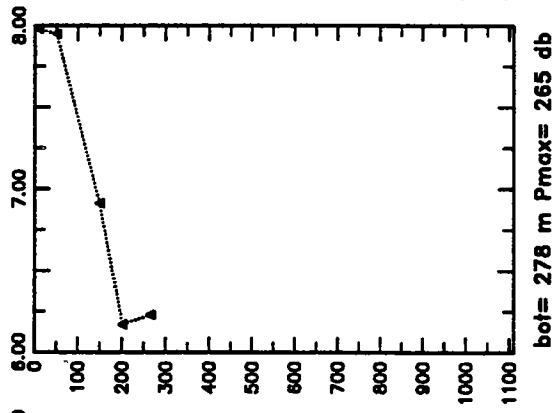
Figure 11c. Bottle Oxygen vs. Pressure Profiles for Section 2, Stations 14 - 11.



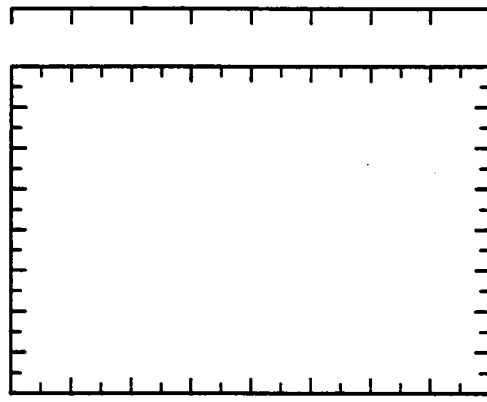
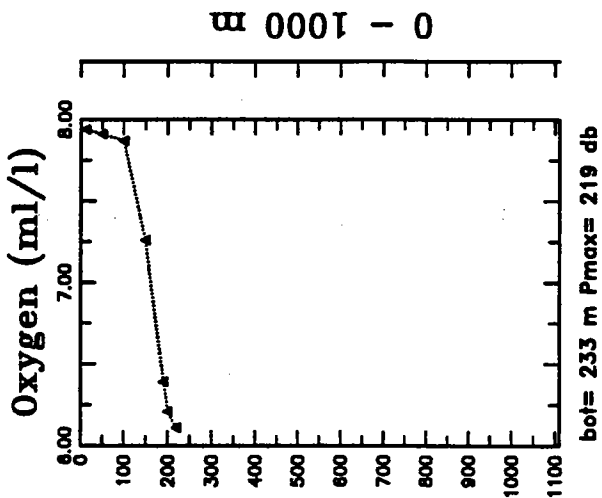
Station 23



Station 24



Station 25



Station 26

1000 m - Bottom

Figure 12a. Bottle Oxygen vs. Pressure Profiles for Section 3, Stations 23 - 26

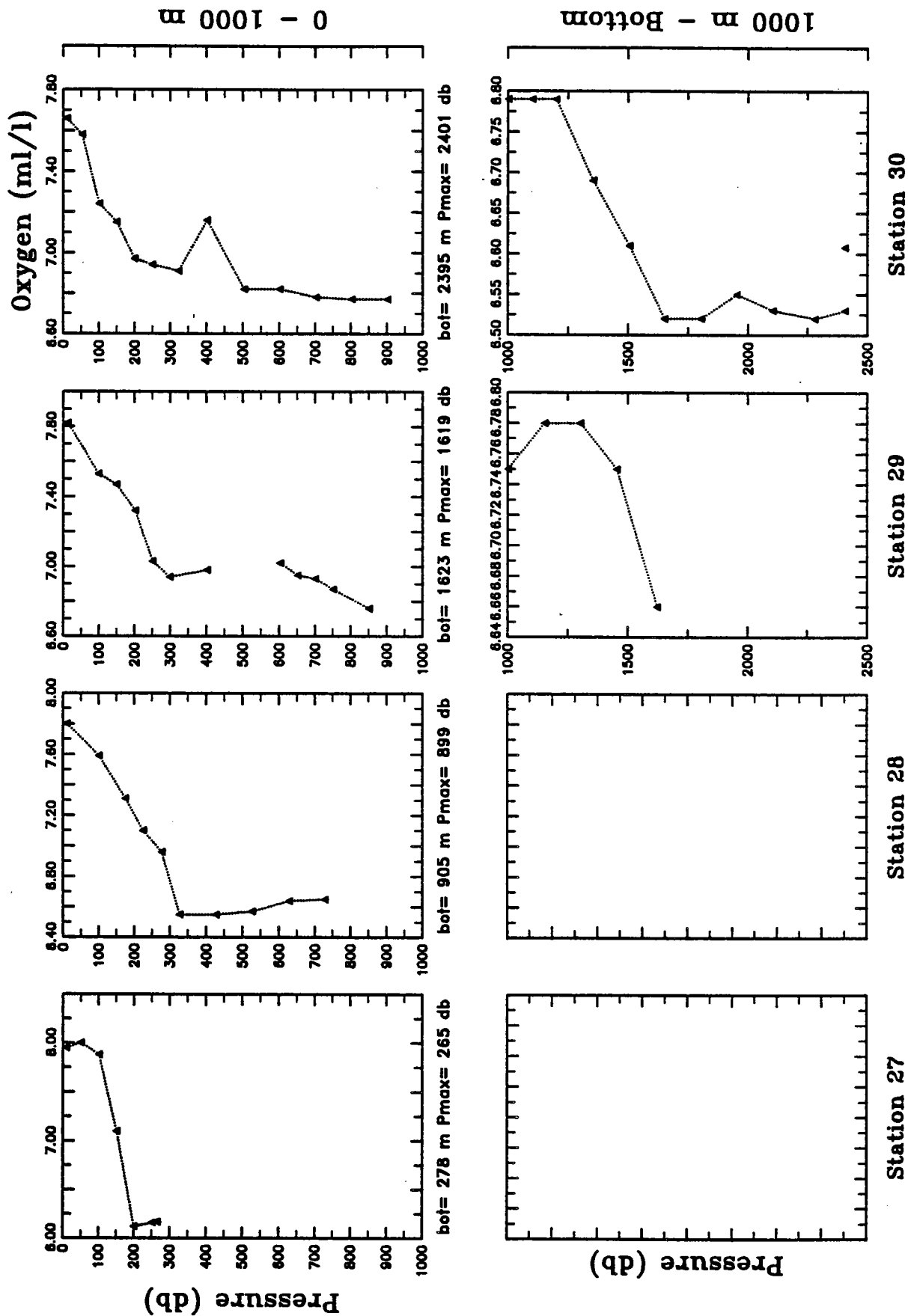


Figure 12b. Bottle Oxygen vs. Pressure Profiles for Section 3, Stations 27 - 30

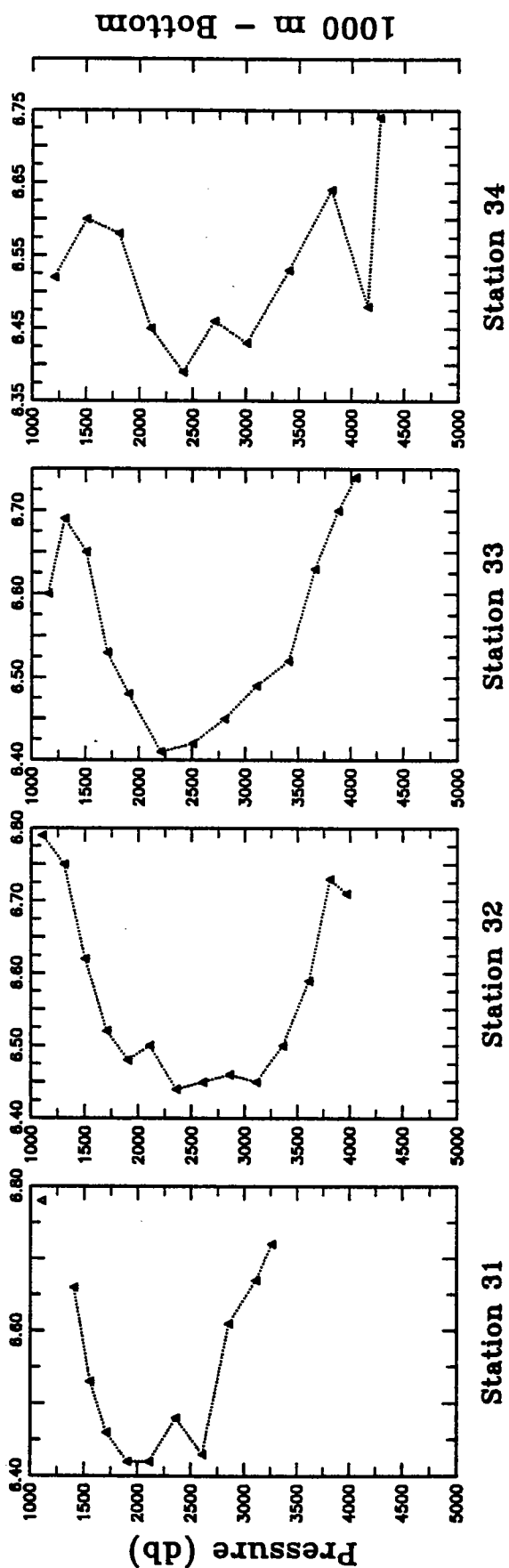
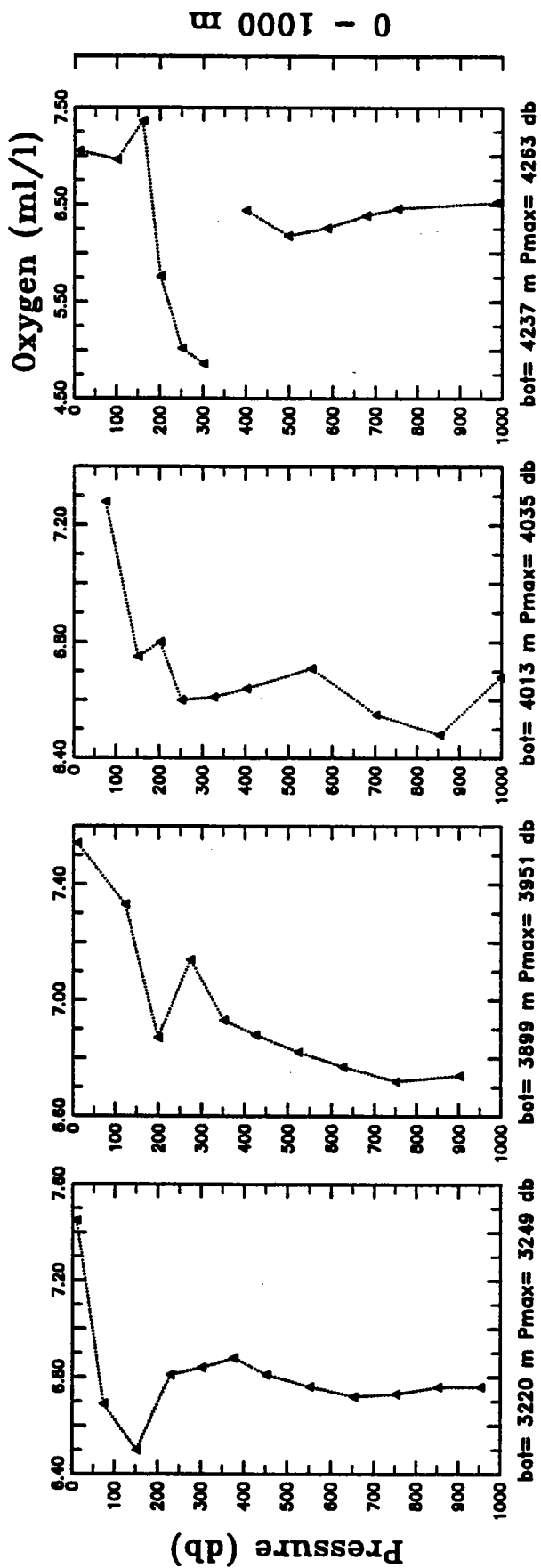


Figure 12c. Bottle Oxygen vs. Pressure Profiles for Section 3, Stations 31 - 34

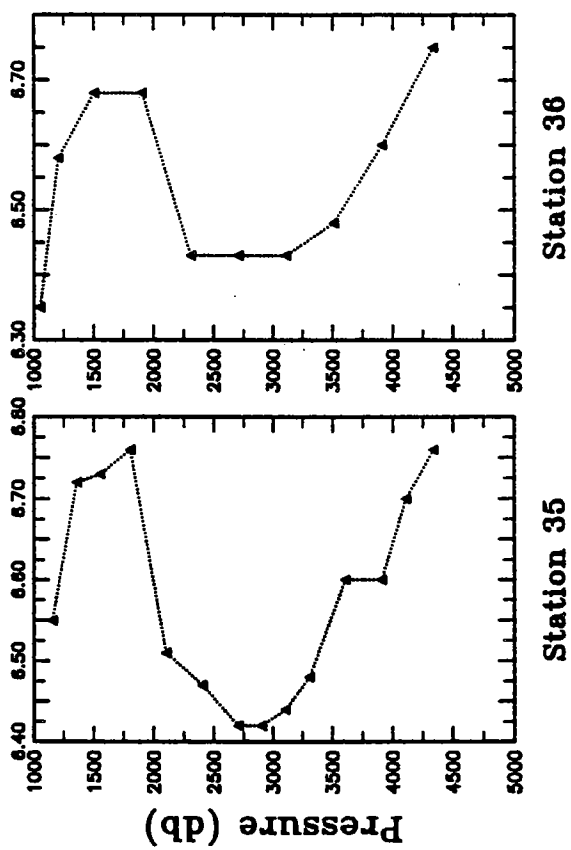
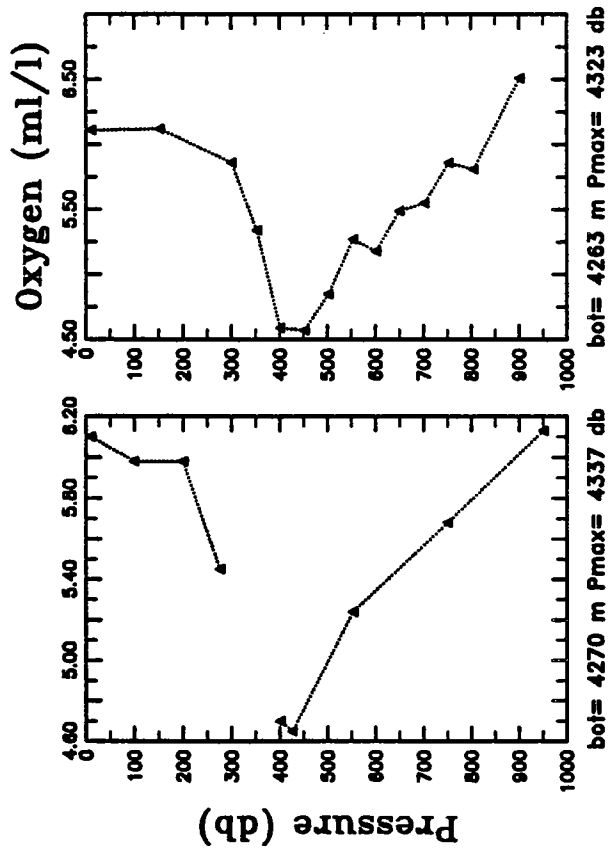


Figure 12d. Bottle Oxygen vs. Pressure Profiles for Section 3, Stations 35 - 36

0 - 1000 m

1000 m - Bottom

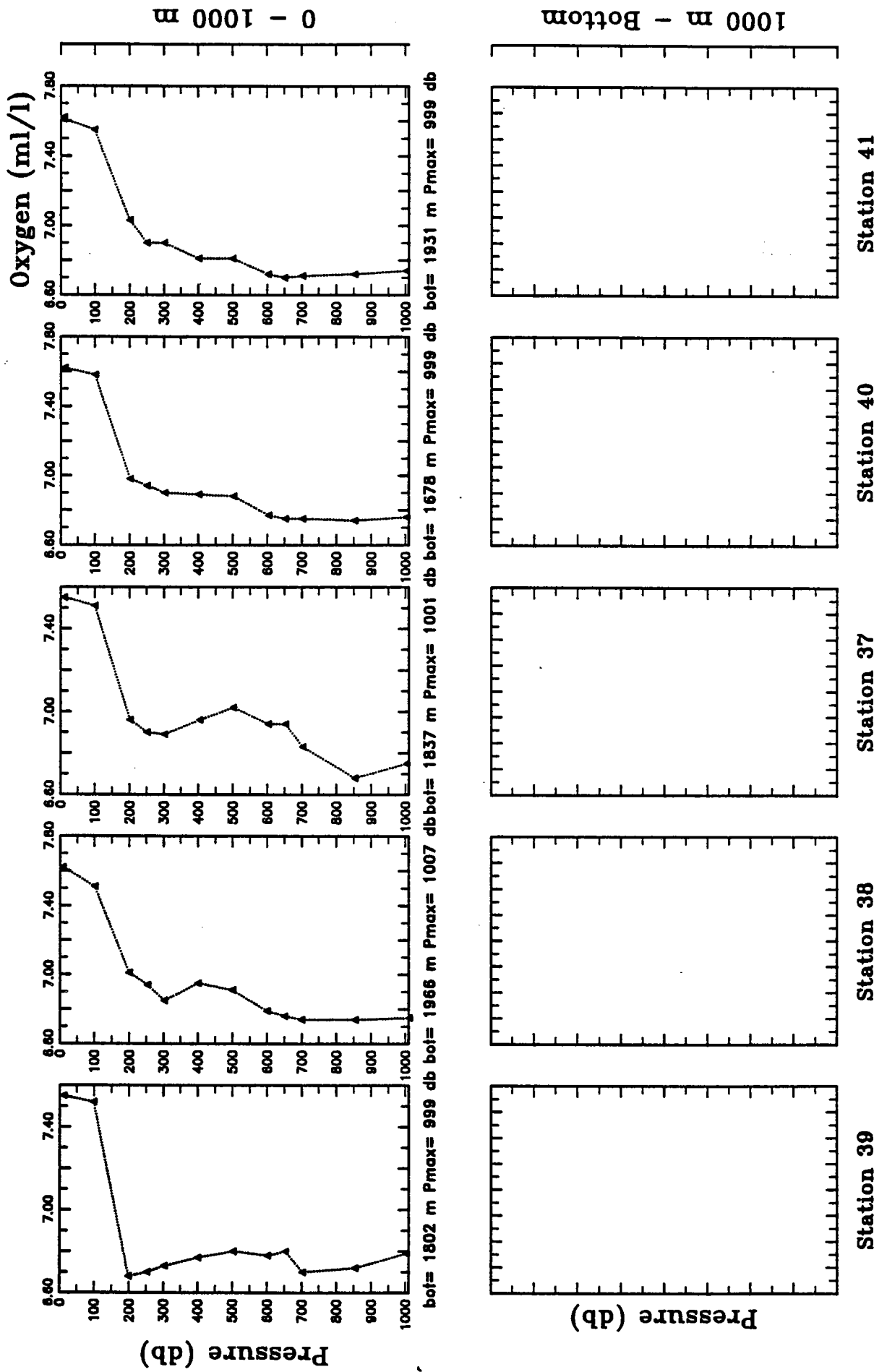


Figure 13. Bottle Oxygen vs. Pressure Profiles for the Detailed Survey, Stations 37 - 41

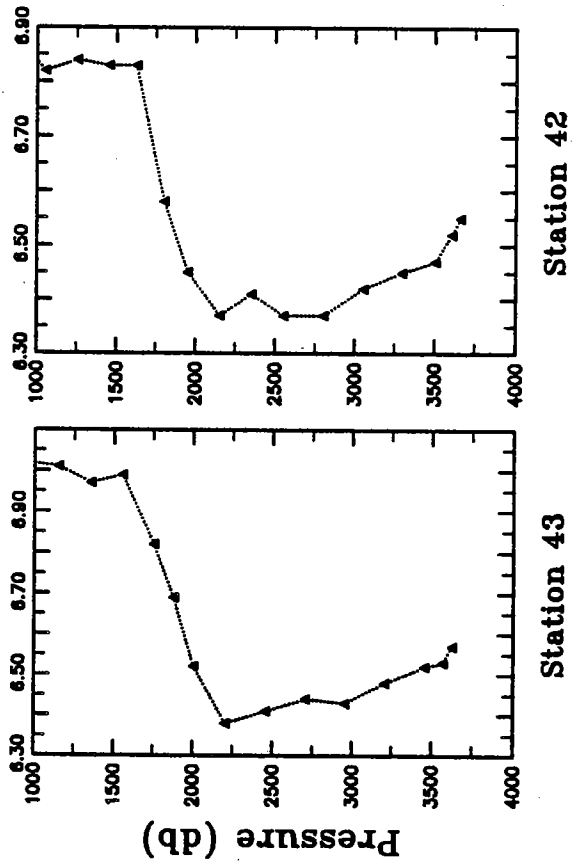
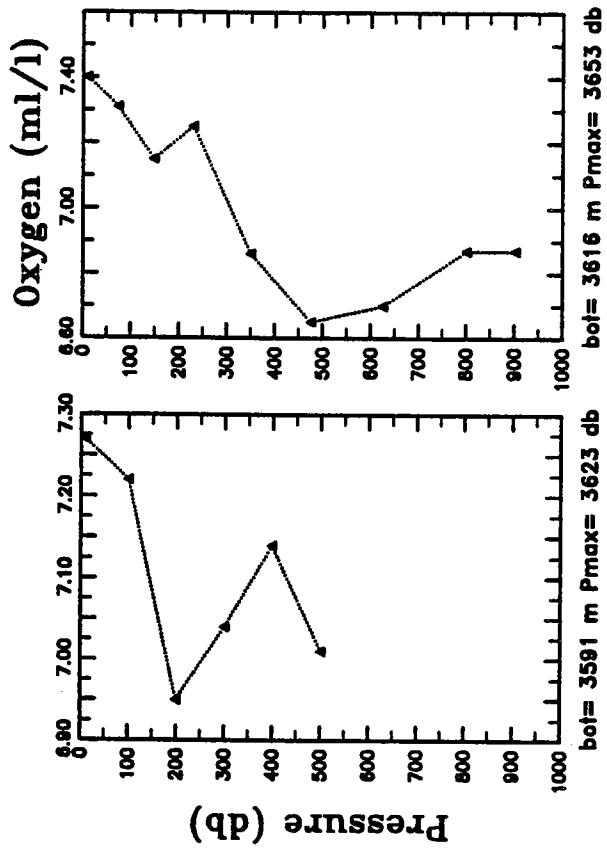


Figure 14. Bottle Oxygen vs. Pressure Profiles for the Labrador Sea Stations 42 - 43

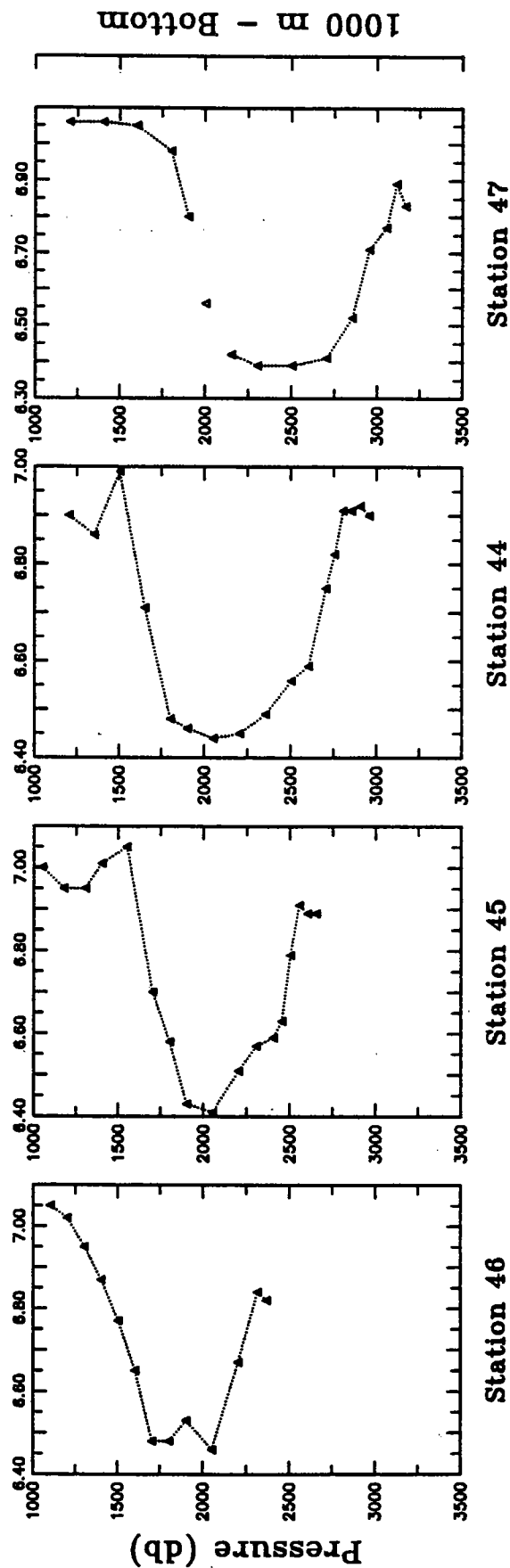
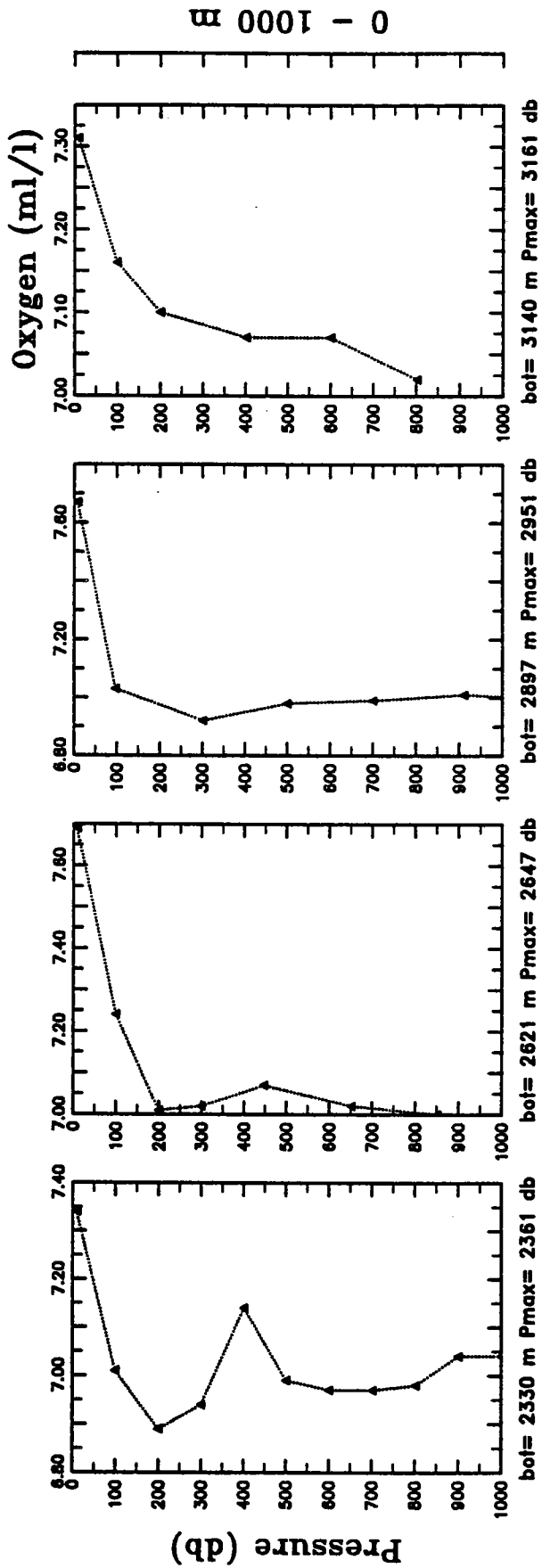


Figure 15. Bottle Oxygen vs. Pressure Profiles for Section 4, Stations 44 - 47



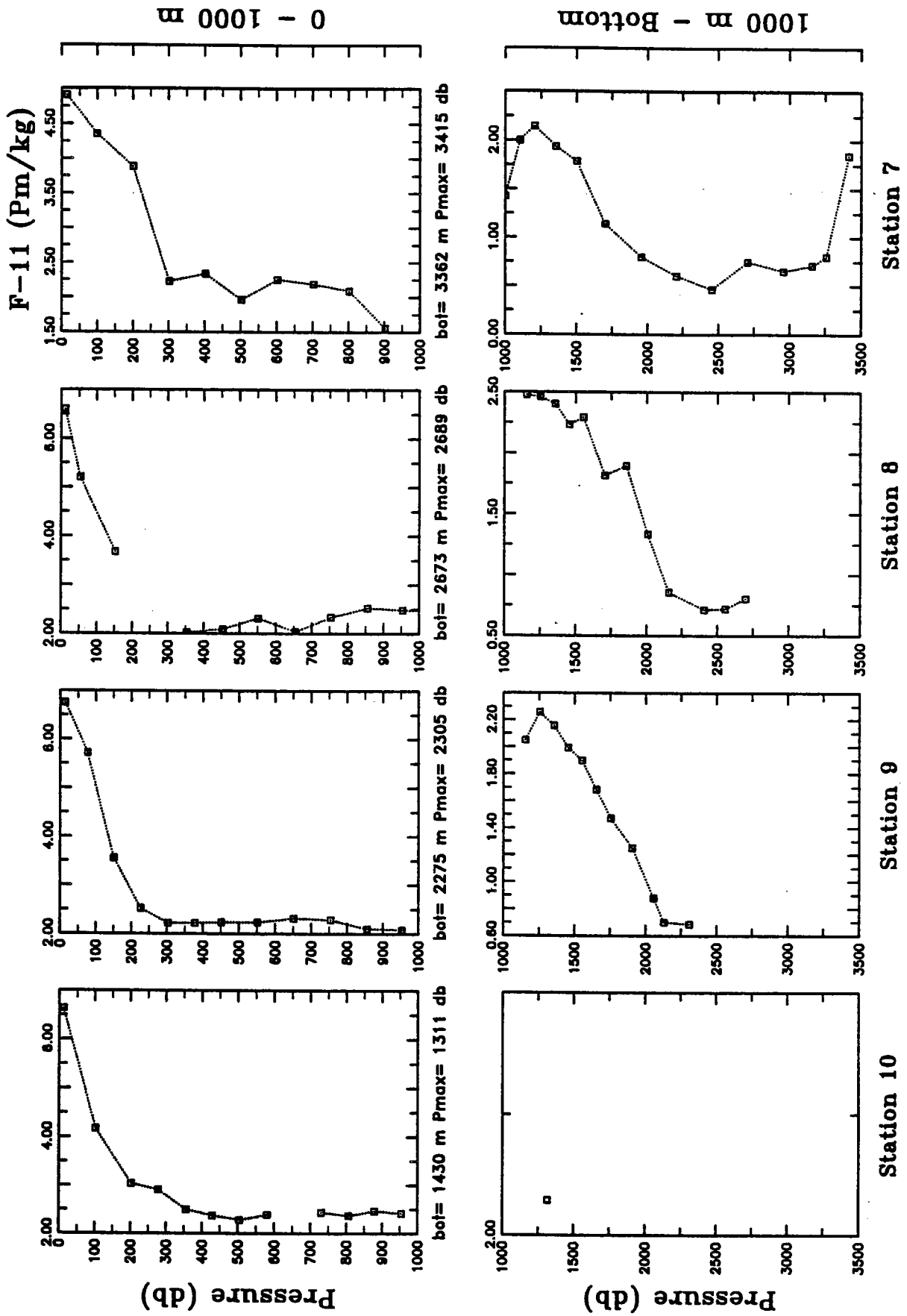


Figure 16a. Bottle F-11 vs. Pressure Profiles for Section 1, Stations 10 - 7

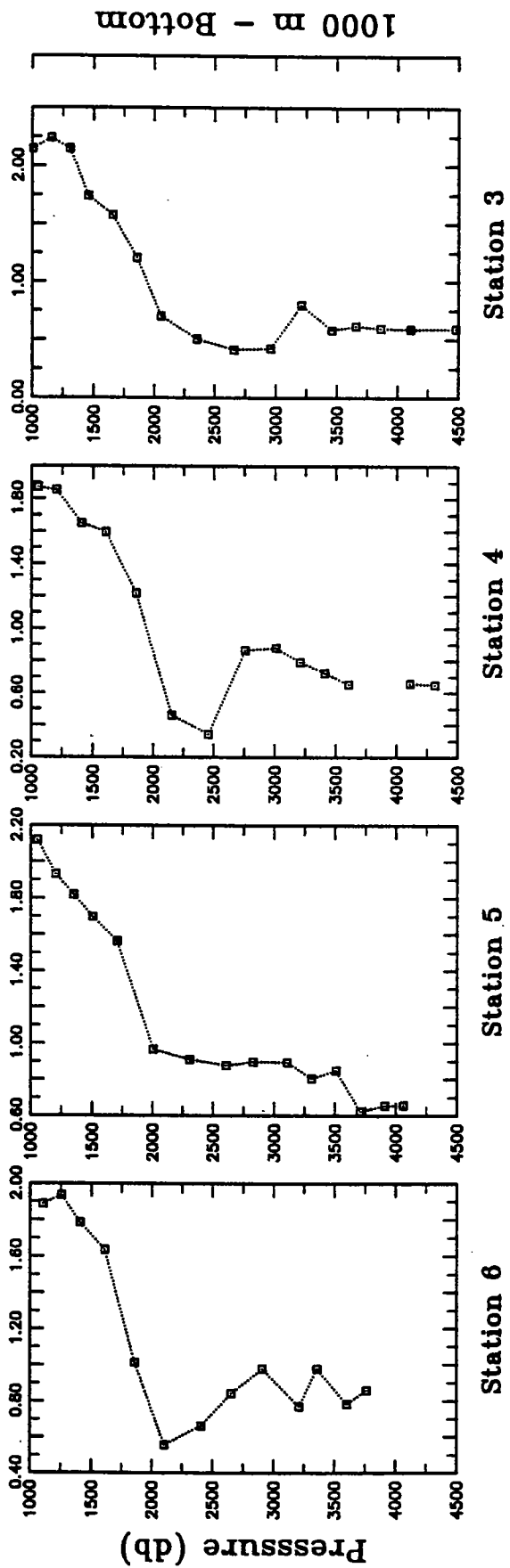
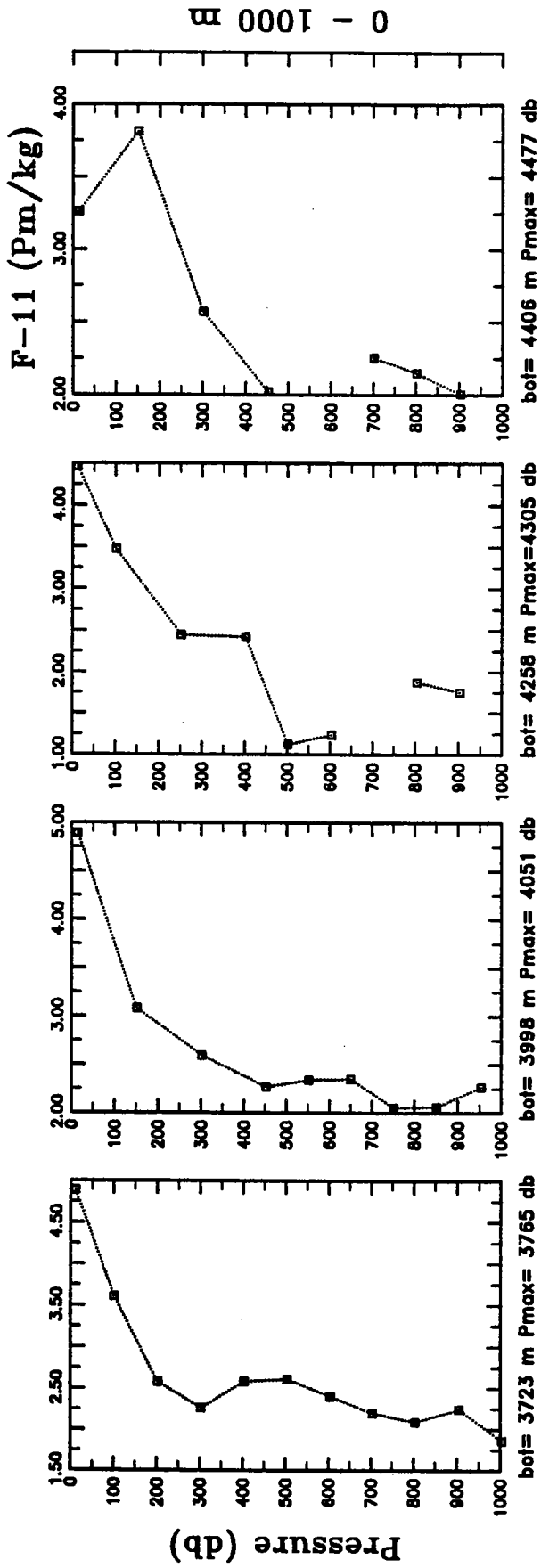
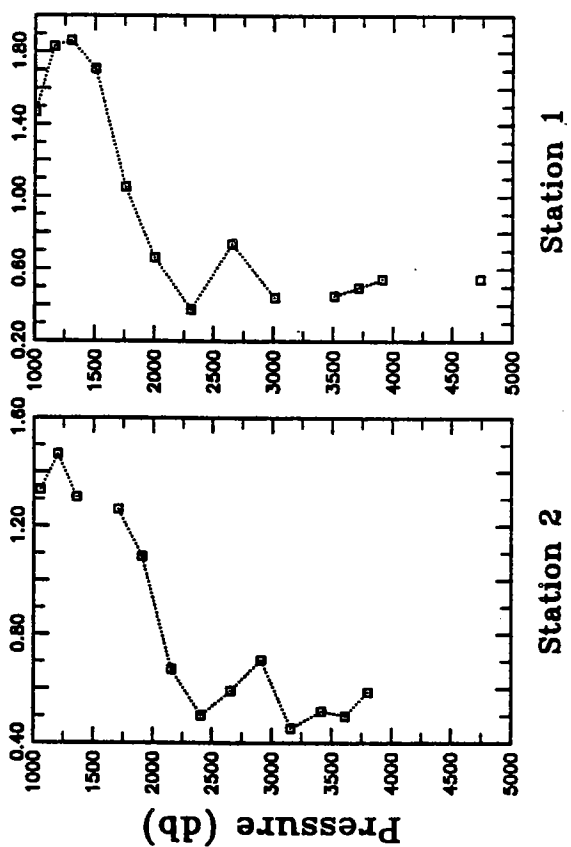
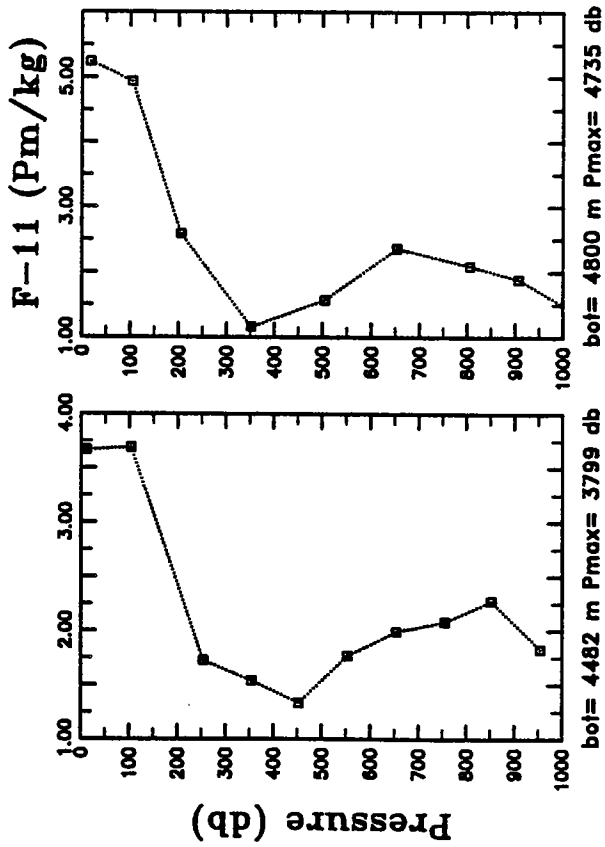


Figure 16b. Bottle F-11 vs. Pressure Profiles for Section 1, Stations 6 - 3



0 - 1000 m

1000 m - Bottom

Figure 16c. Bottle F-11 vs. Pressure Profiles for Section 1, Stations 2 - 1

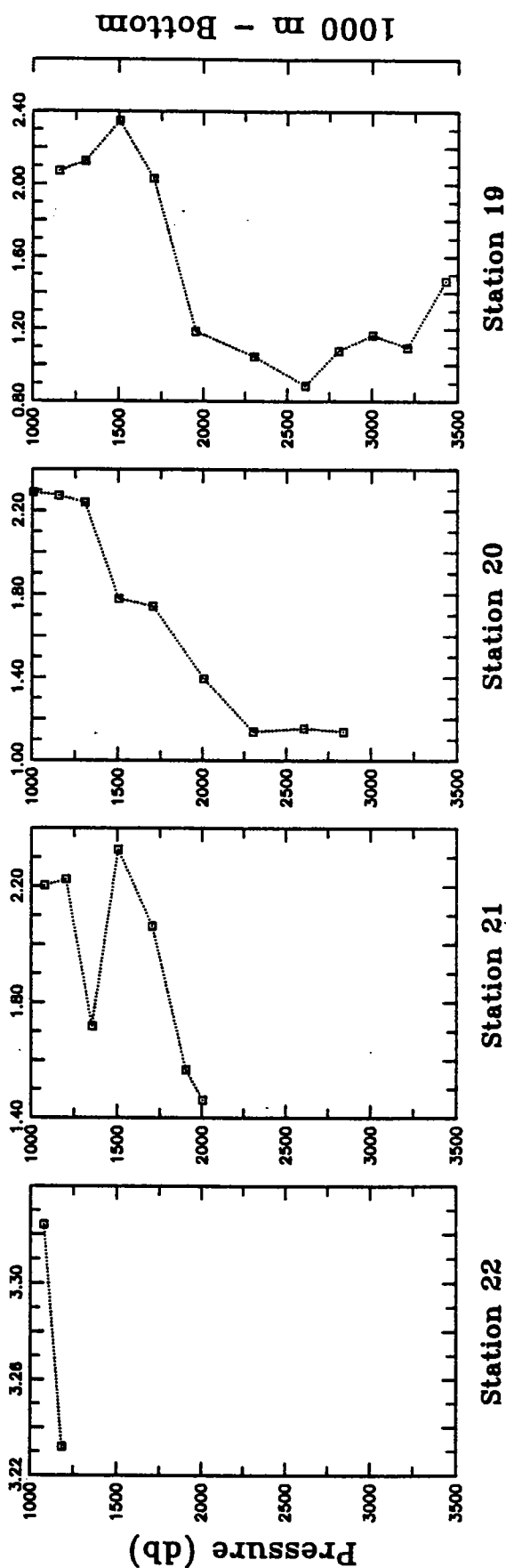
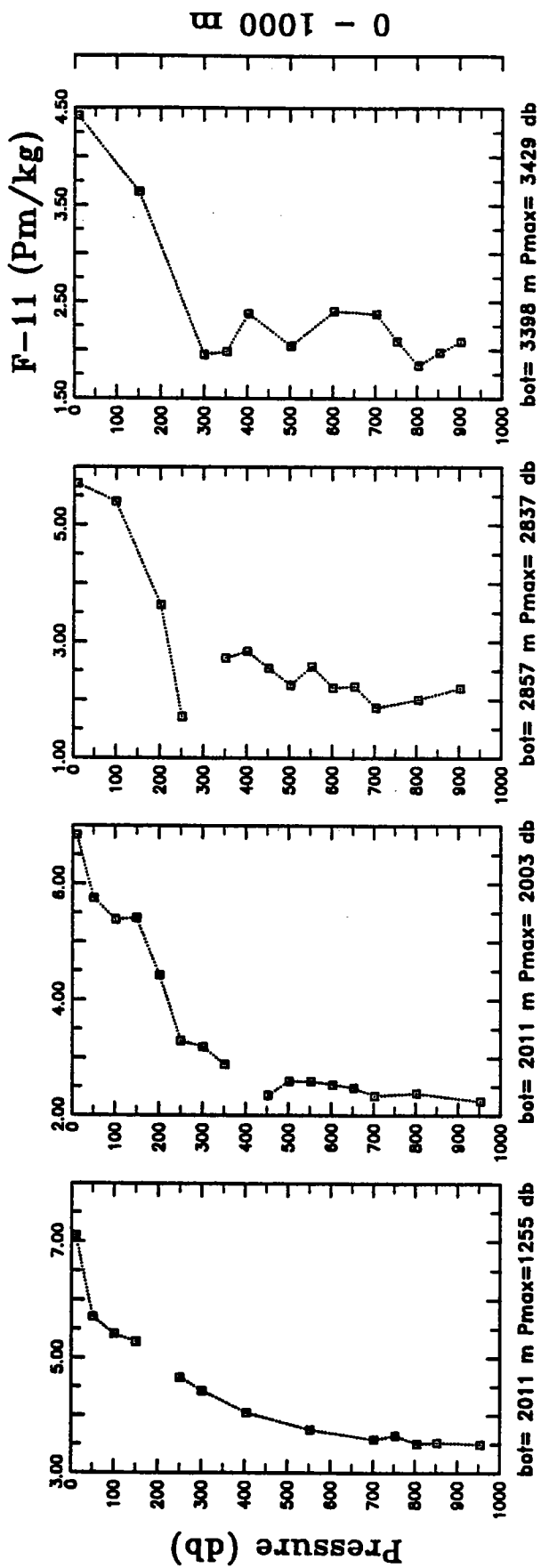


Figure 17a. Bottle F-11 vs. Pressure Profiles for Section 2, Stations 22 - 19

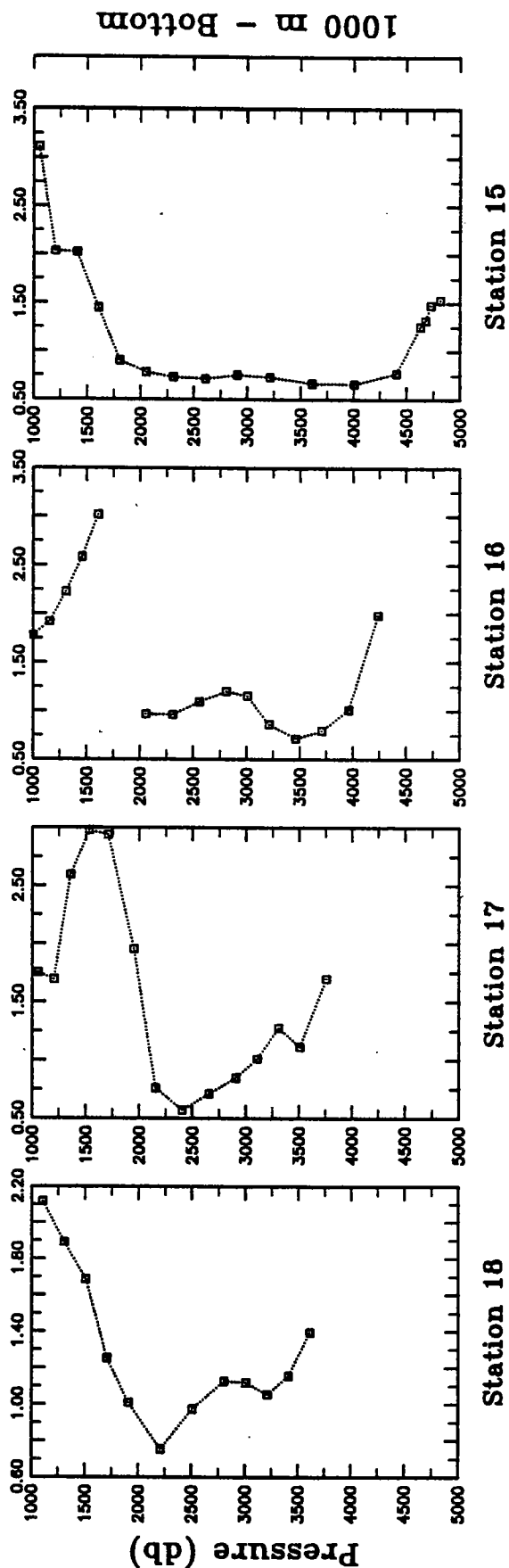
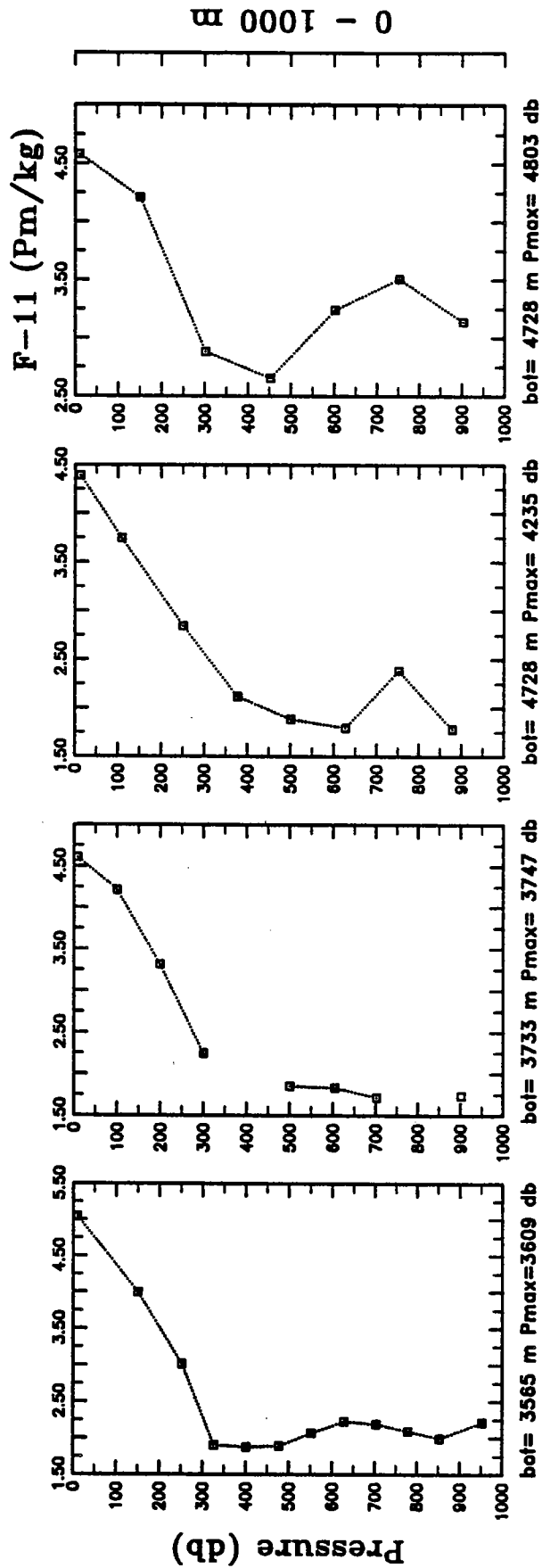


Figure 17b. Bottle F-11 vs. Pressure Profiles for Section 2, Stations 18 - 15

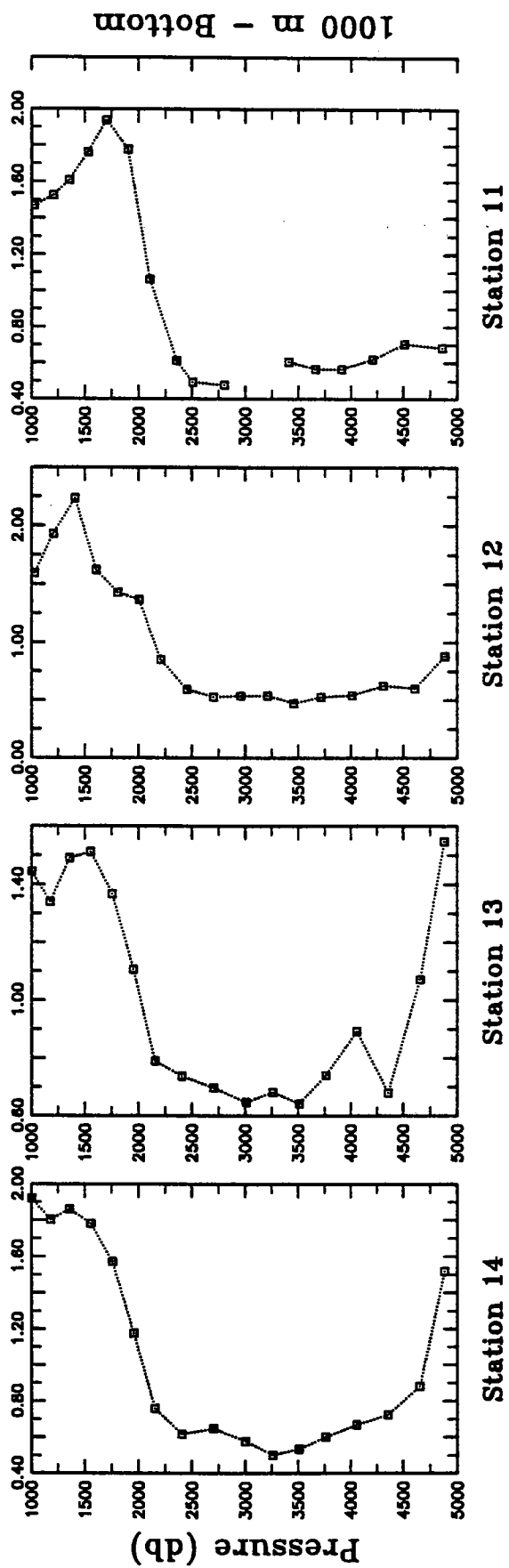
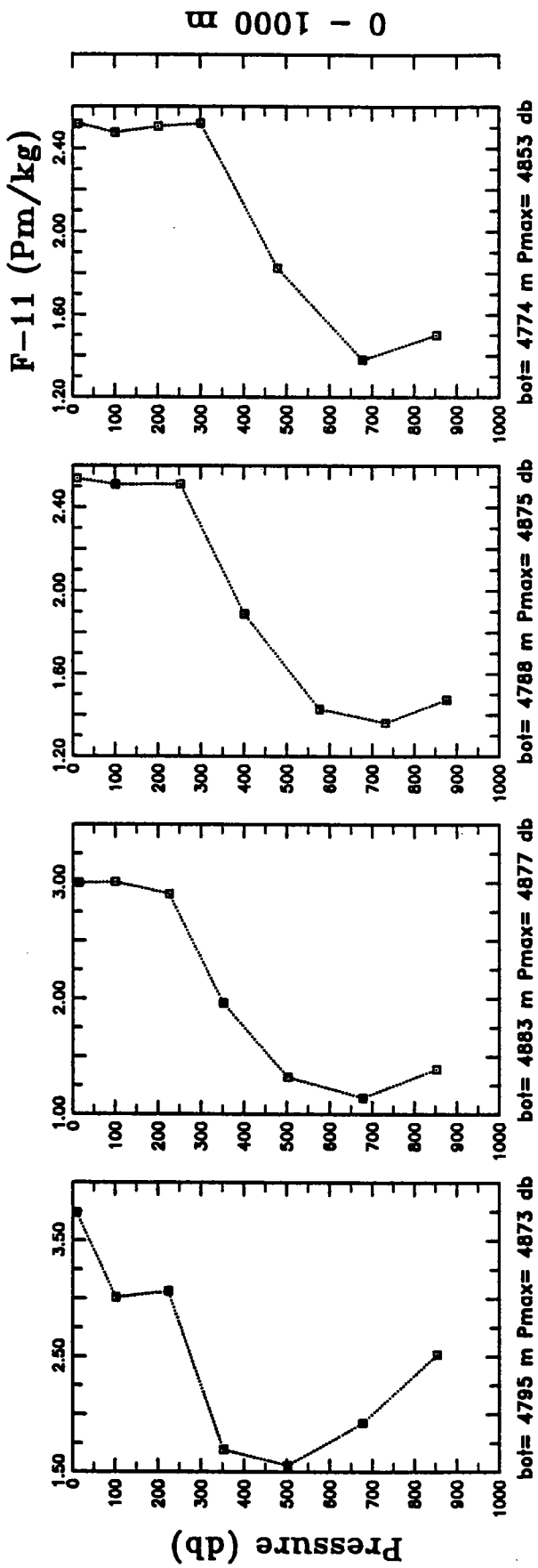
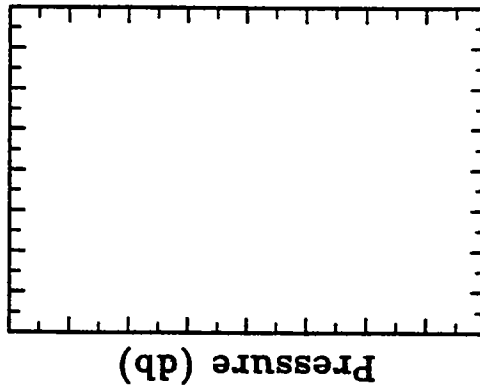
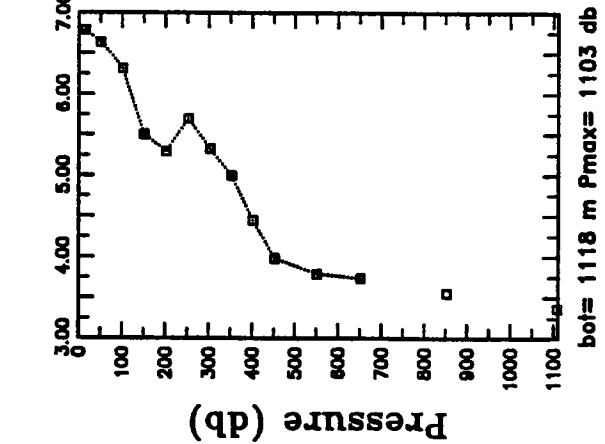
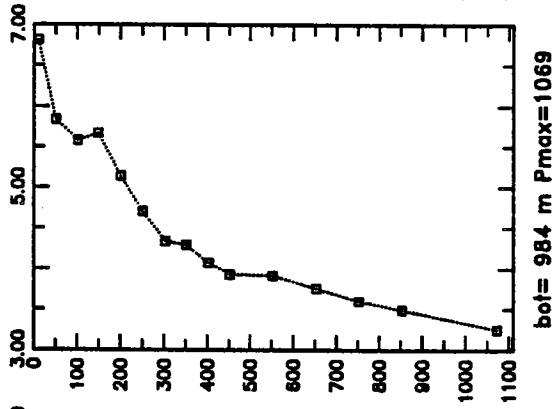
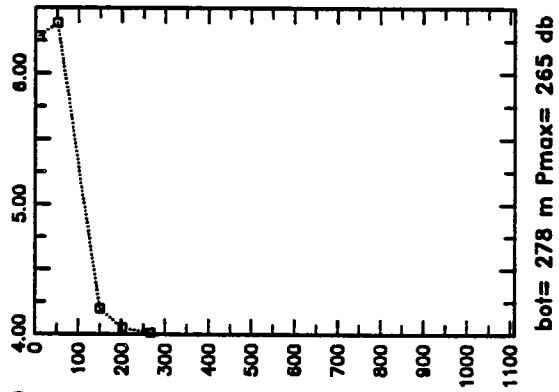
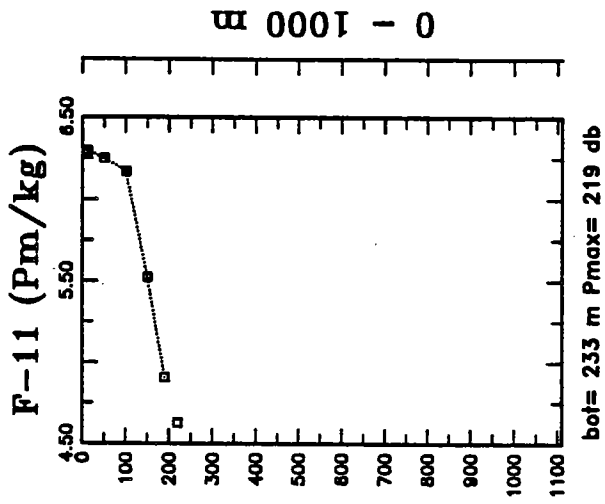
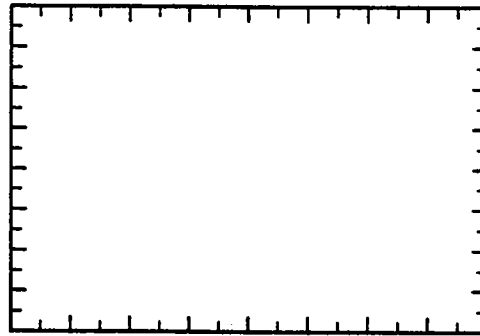


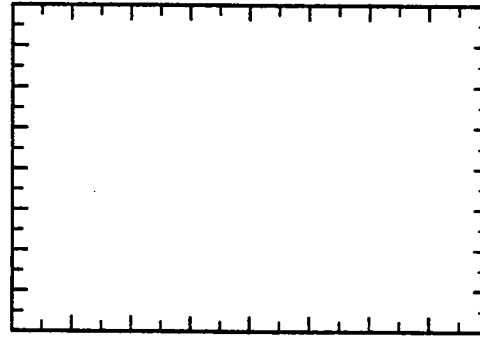
Figure 17c. Bottle F-11 vs. Pressure Profiles for Section 2, Stations 14 - 11



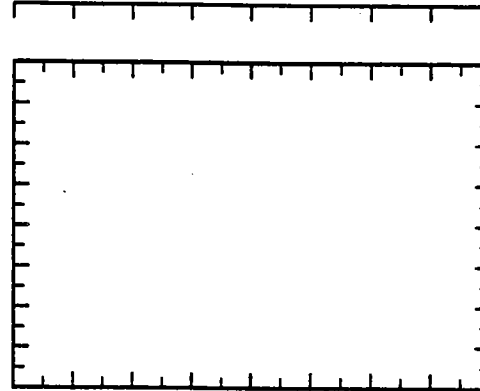
Station 23



Station 24



Station 25



Station 26

Figure 18a. Bottle F-11 vs. Pressure Profiles for Section 3, Stations 23 - 26

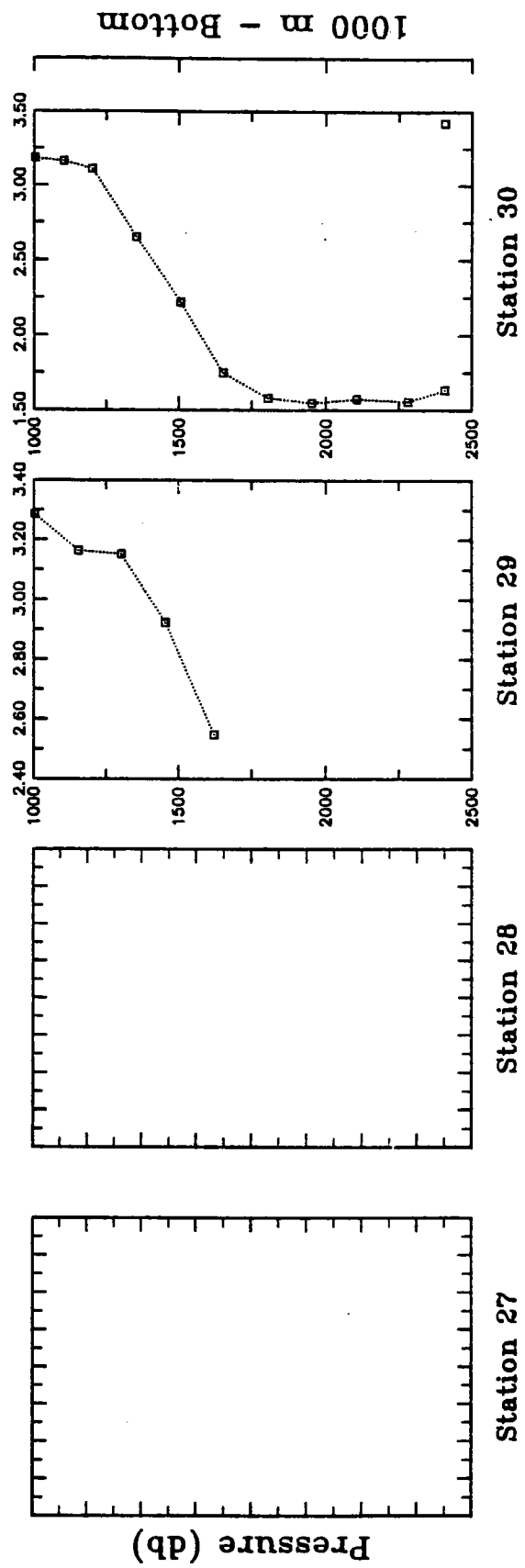
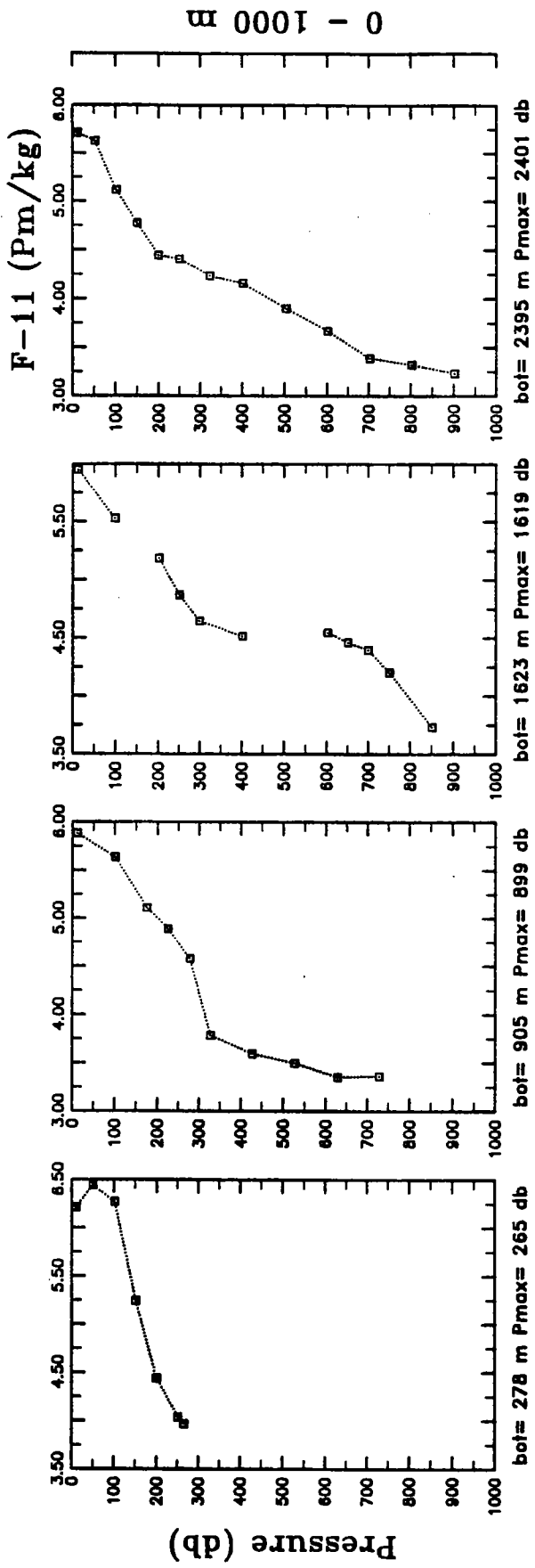


Figure 18b. Bottle F-11 vs. Pressure Profiles for Section 3, Stations 27 - 30



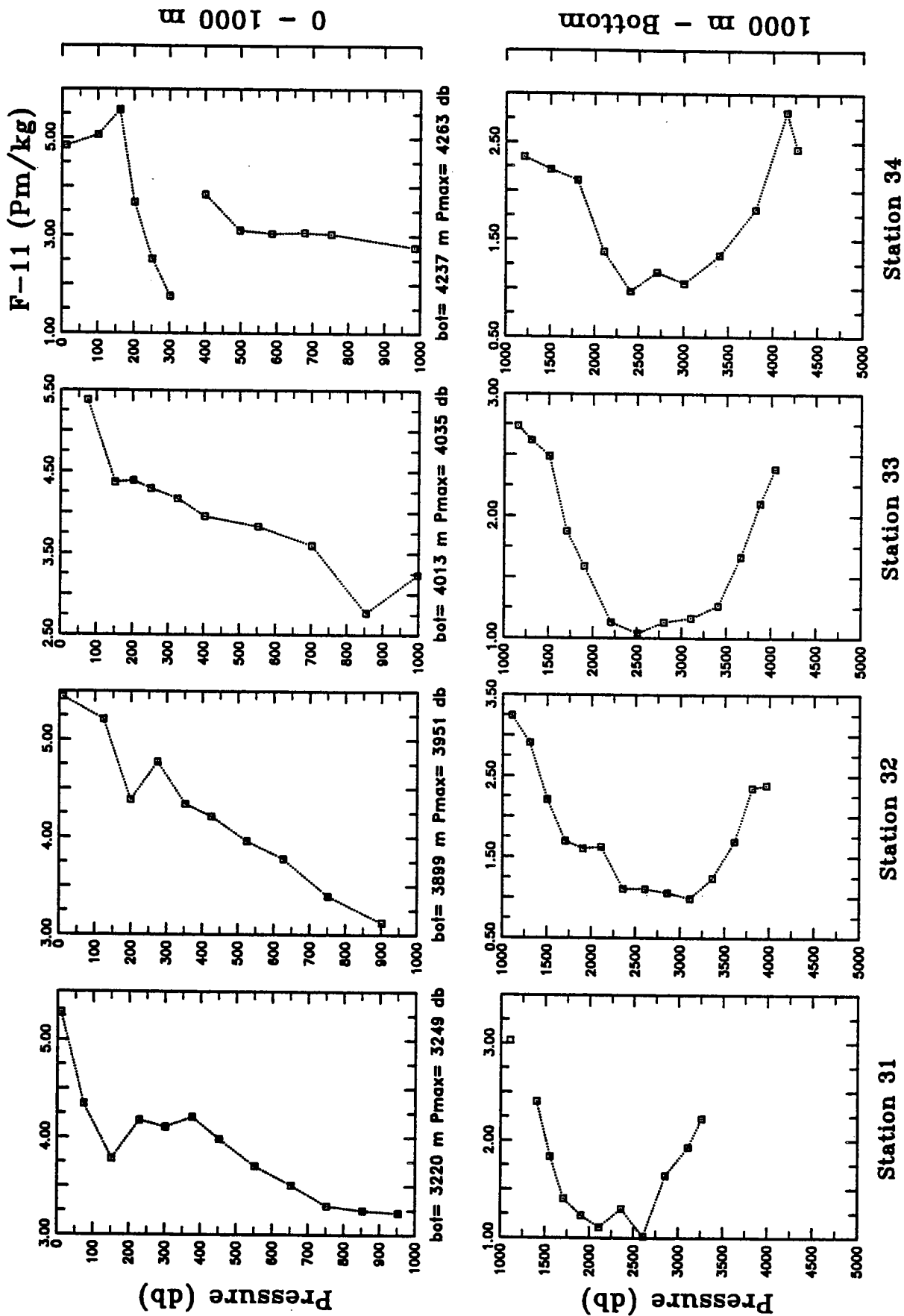


Figure 18c. Bottle F-11 vs. Pressure Profiles for Section 3, Stations 31 - 34

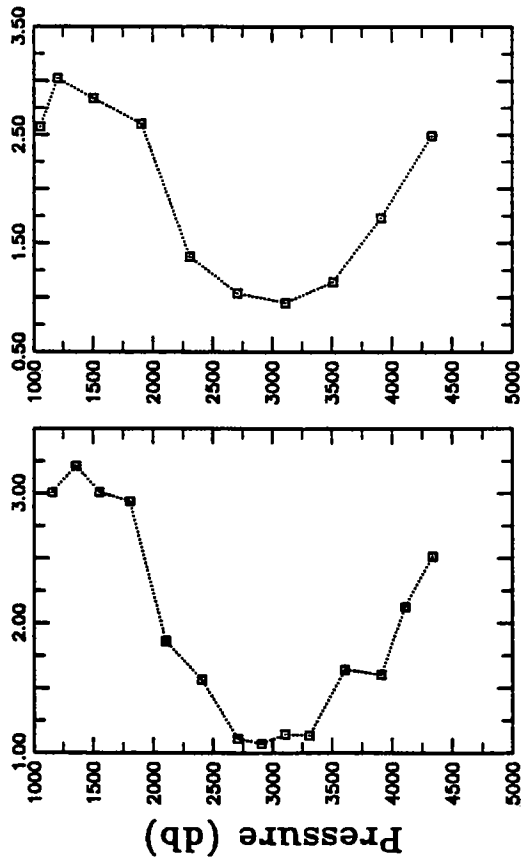
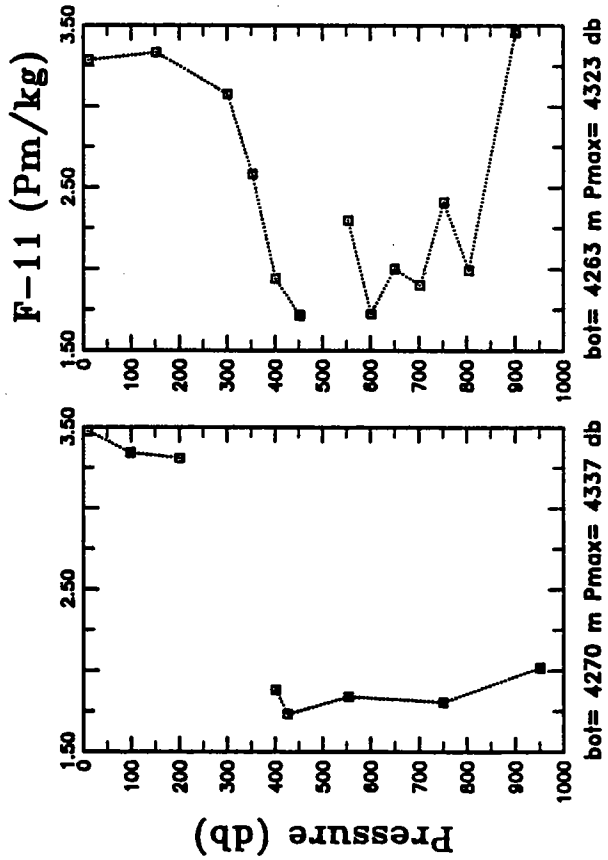


Figure 18d. Bottle F-11 vs. Pressure Profiles for Section 3, Stations 35 - 36.

0 - 1000 m

1000 m - Bottom

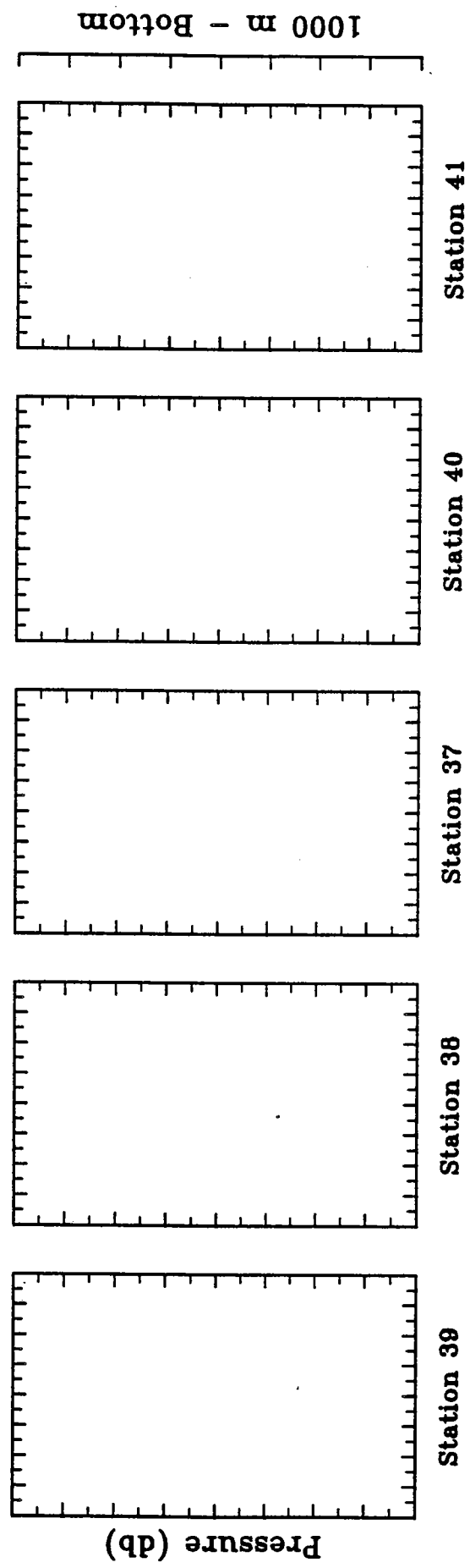
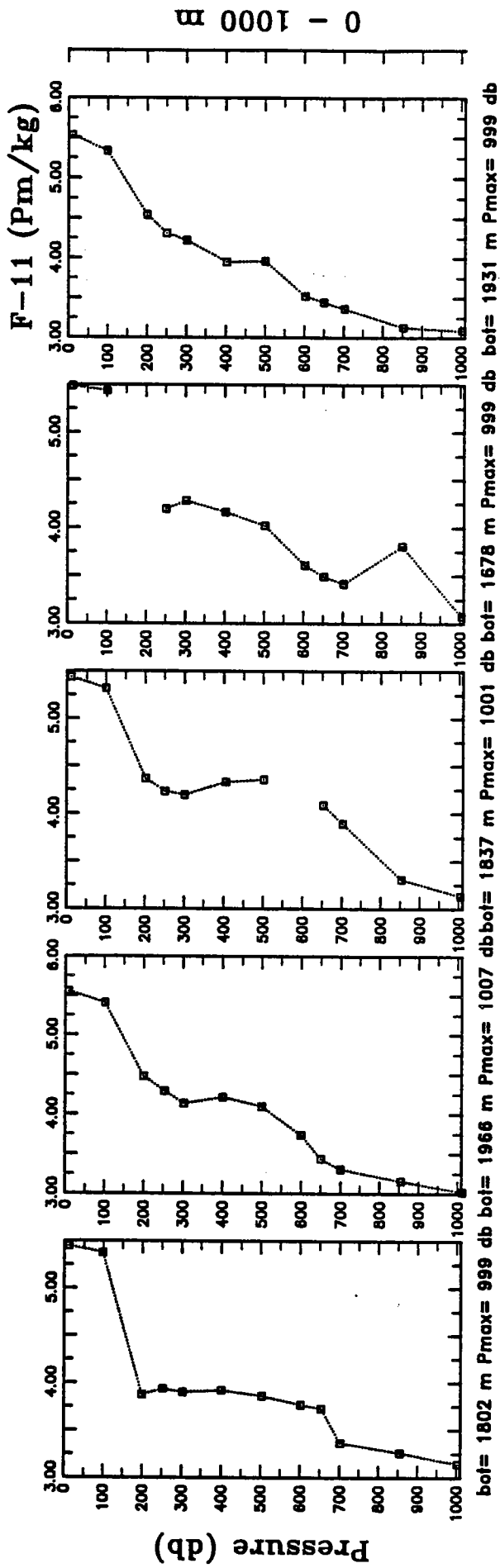


Figure 19. Bottle F-11 vs. Pressure Profiles for the Detailed Survey, Stations 37 - 41

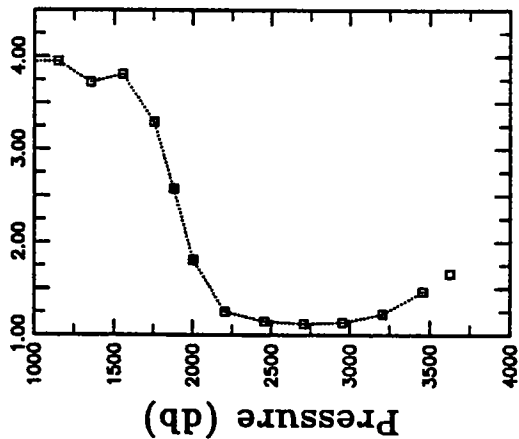
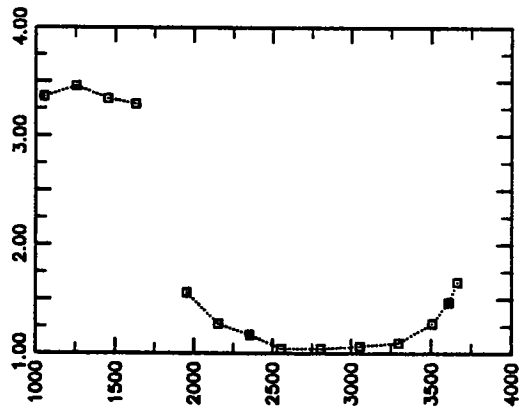
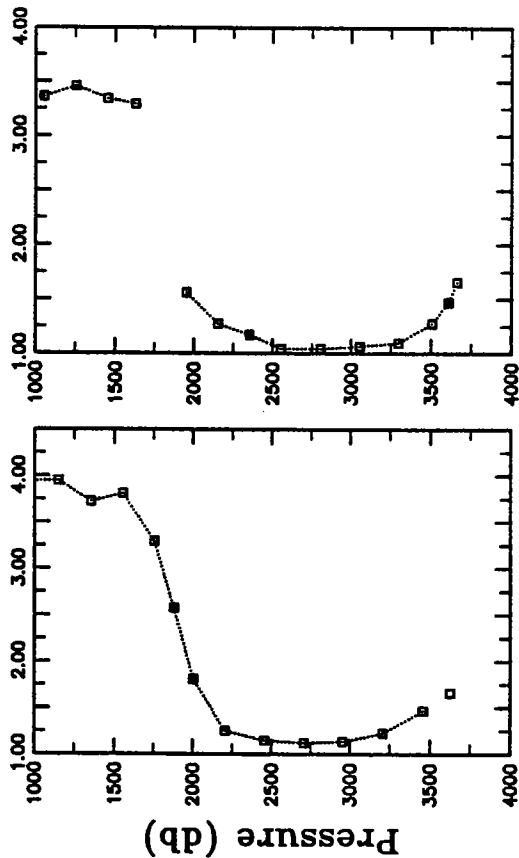
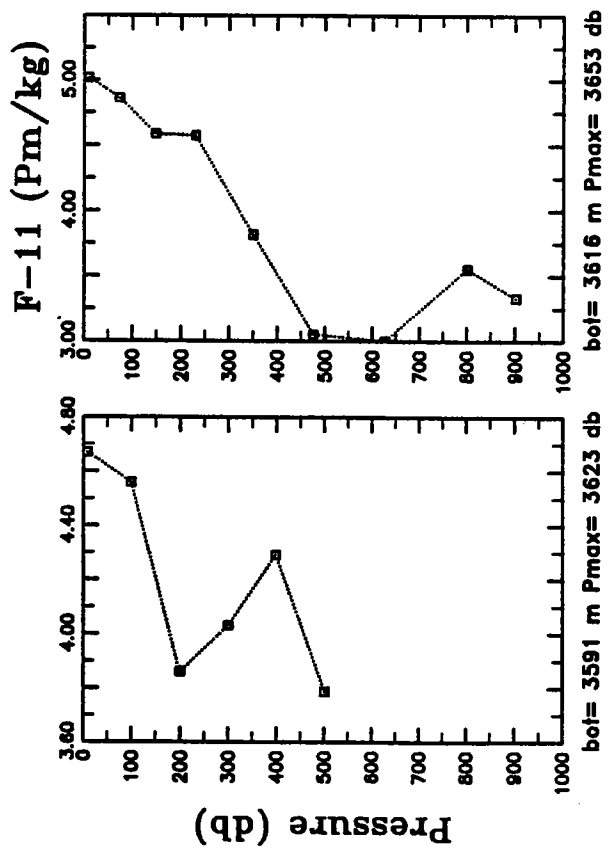


Figure 20. Bottle F-11 vs. Pressure Profiles for the Labrador Sea Stations 42 - 43

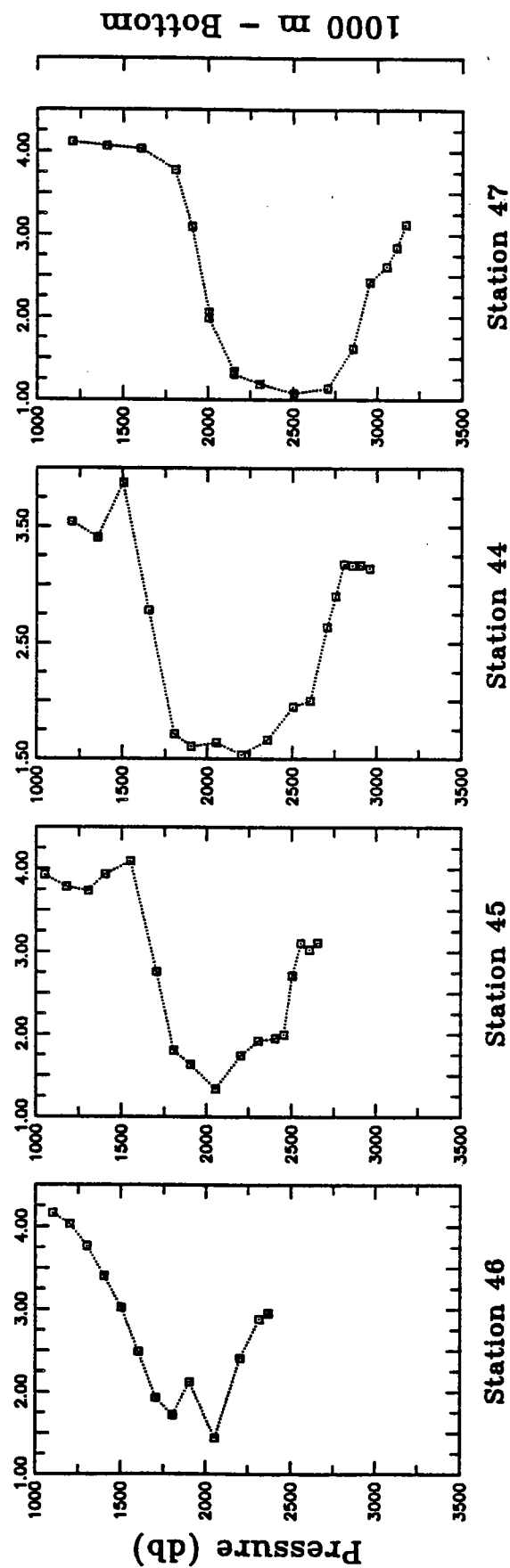
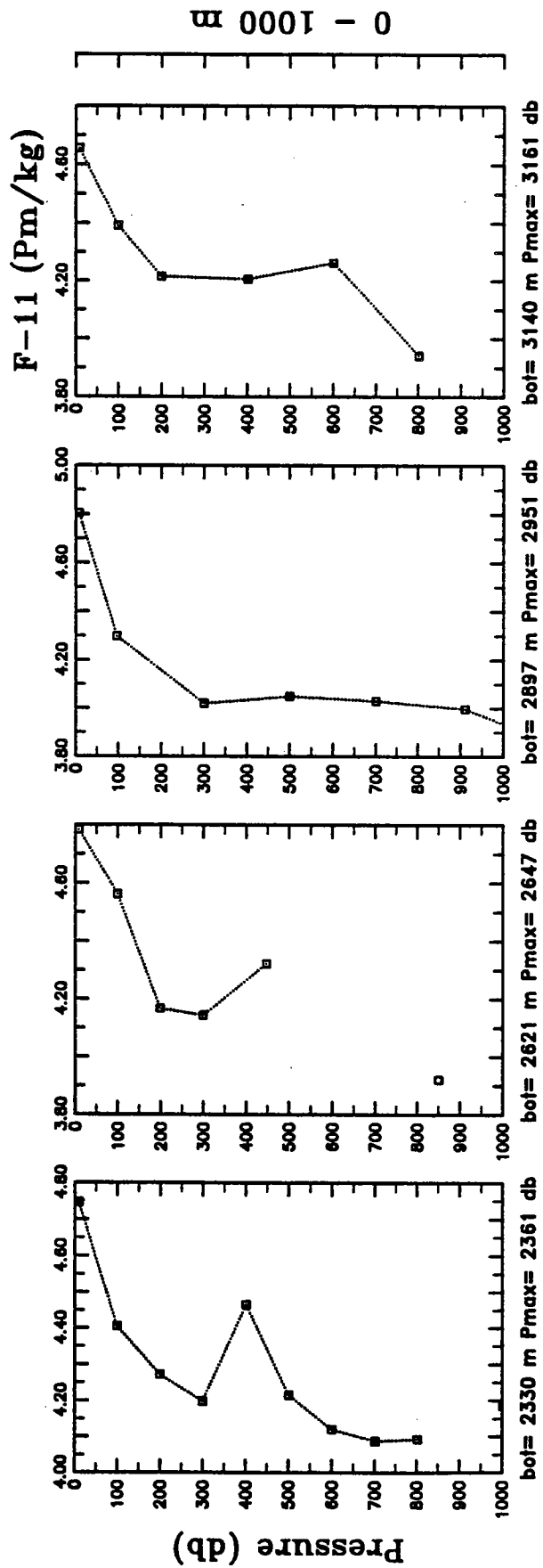


Figure 21. Bottle F-11 vs. Pressure Profiles for Section 4, Stations 44 - 47

## **Part 2. Vertical Sections**

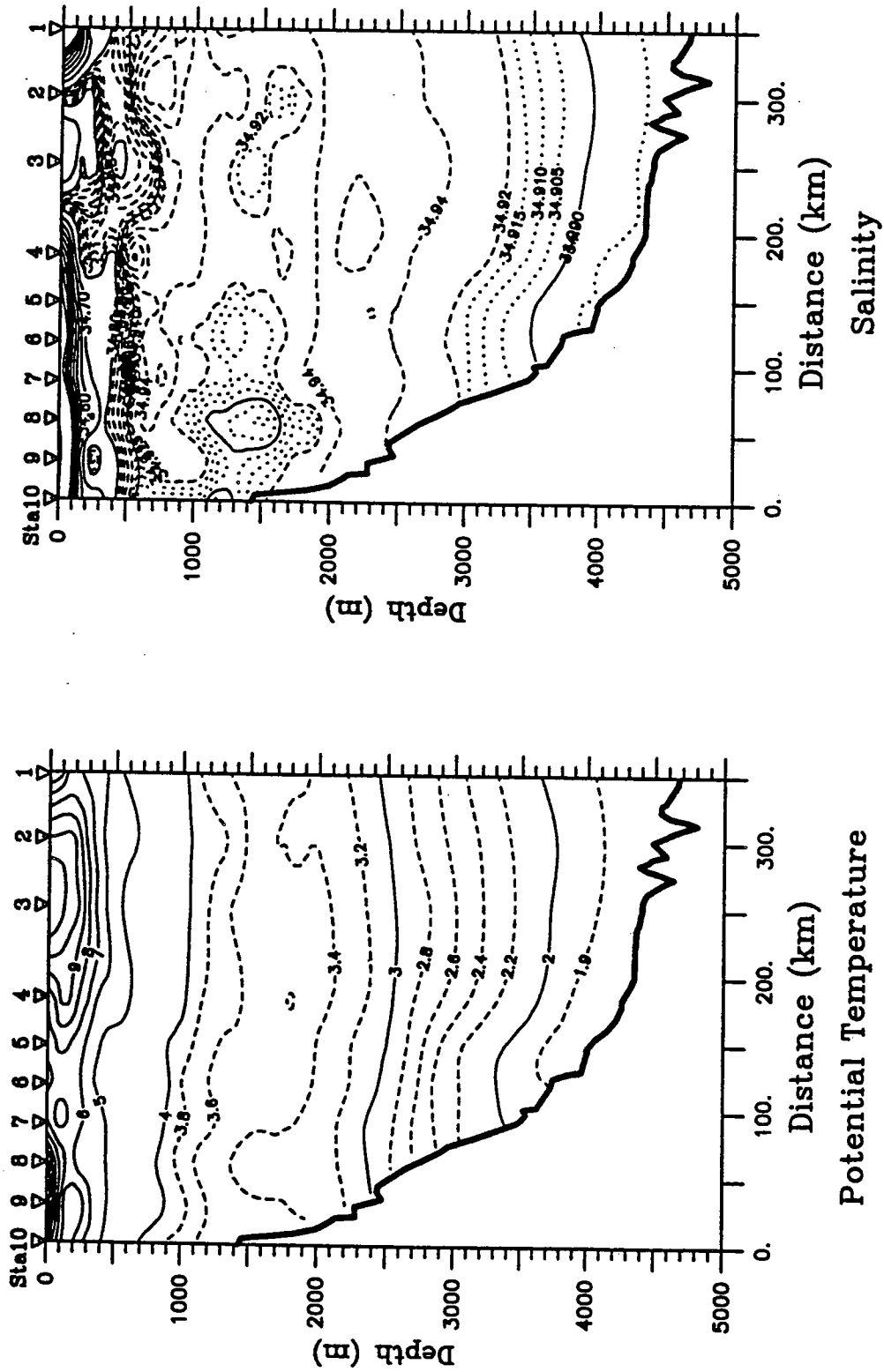


Figure 22. Vertical Sections of CTD Potential Temperature and Salinity for Section 1

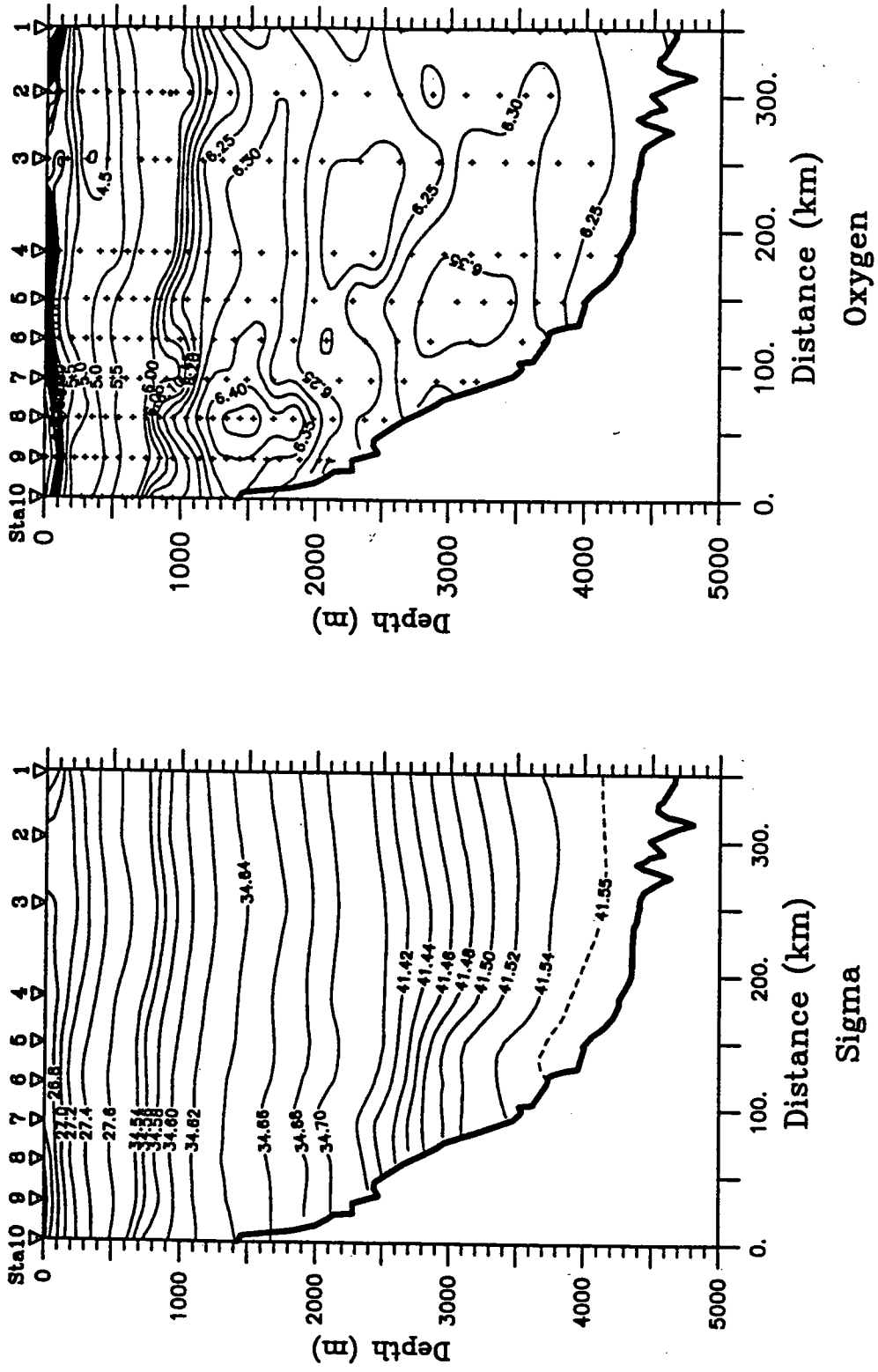


Figure 23. Vertical Sections of CTD Sigma 0, 1.5, and 3.0 and Bottle Oxygen for Section 1



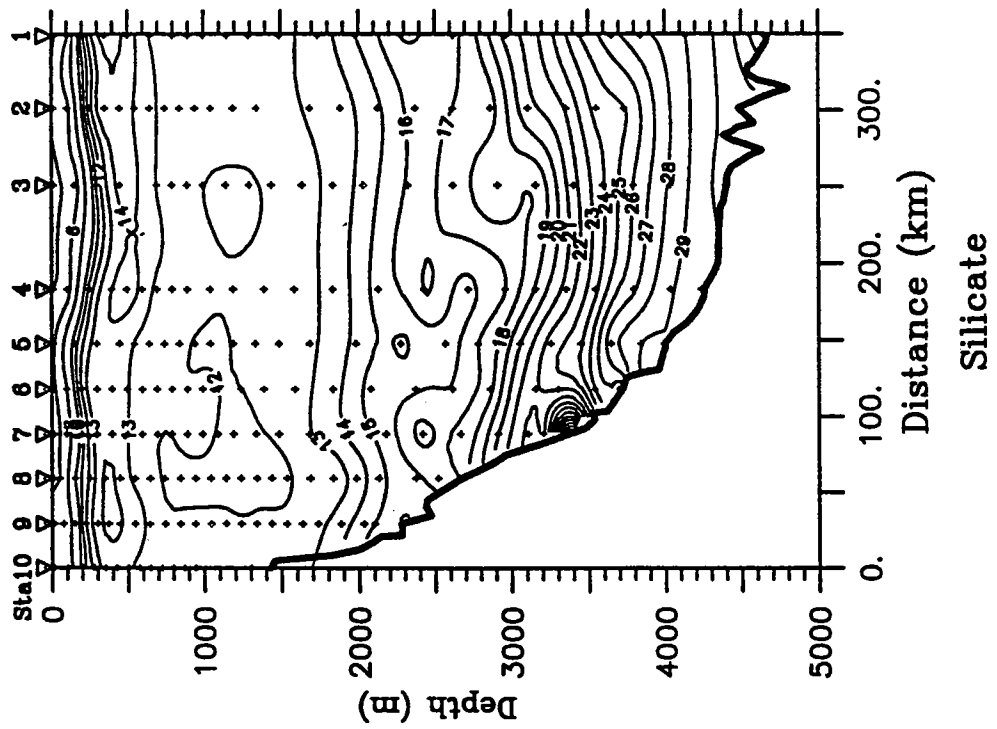
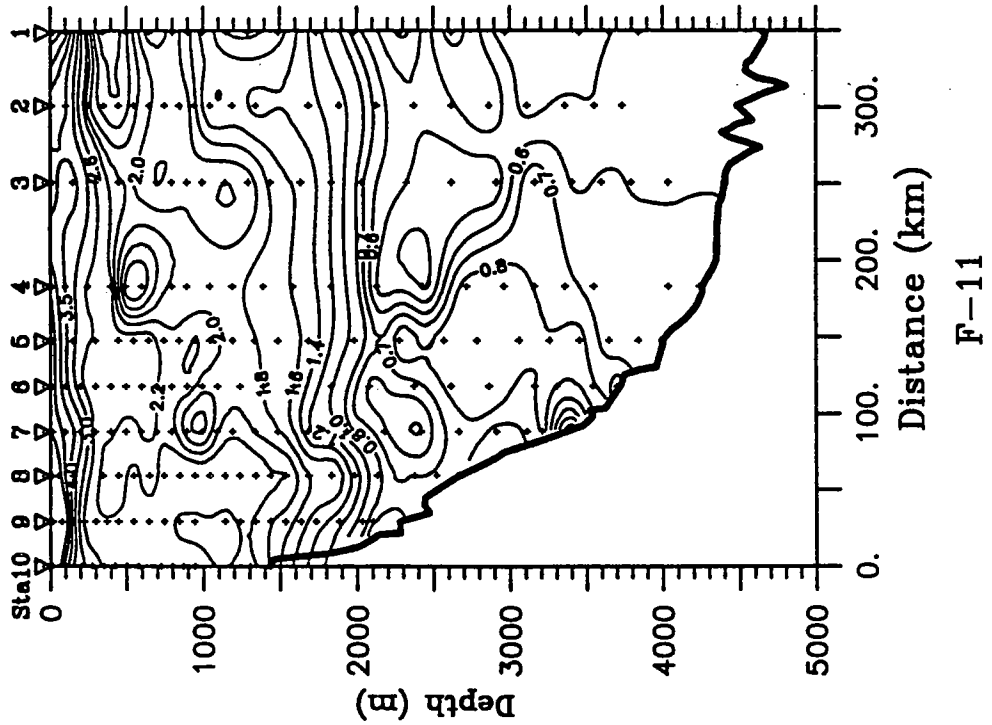


Figure 24. Vertical Sections of Bottle Silicate and F-11 for Section 1

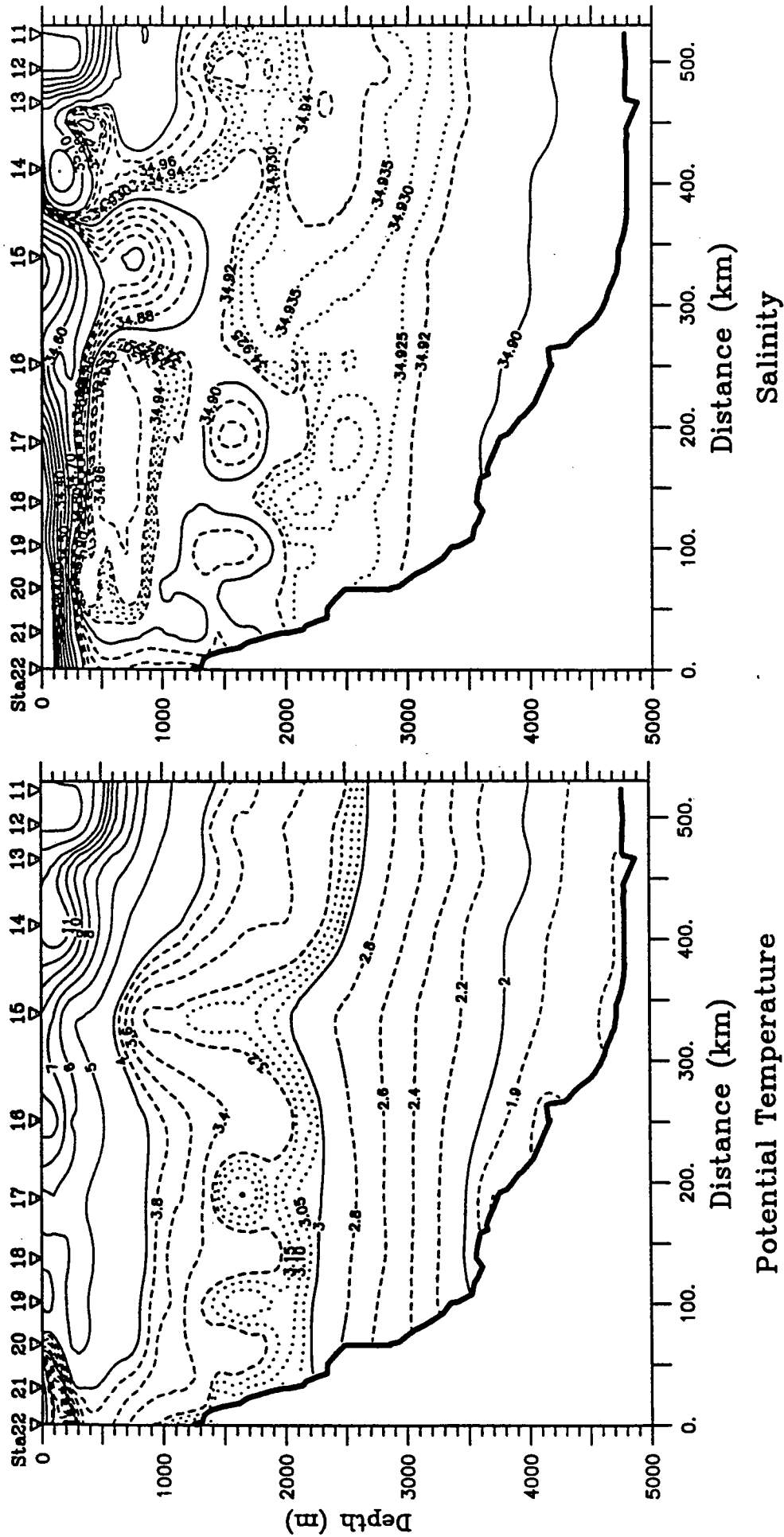


Figure 25. Vertical Sections of CTD Potential Temperature and Salinity for Section 2

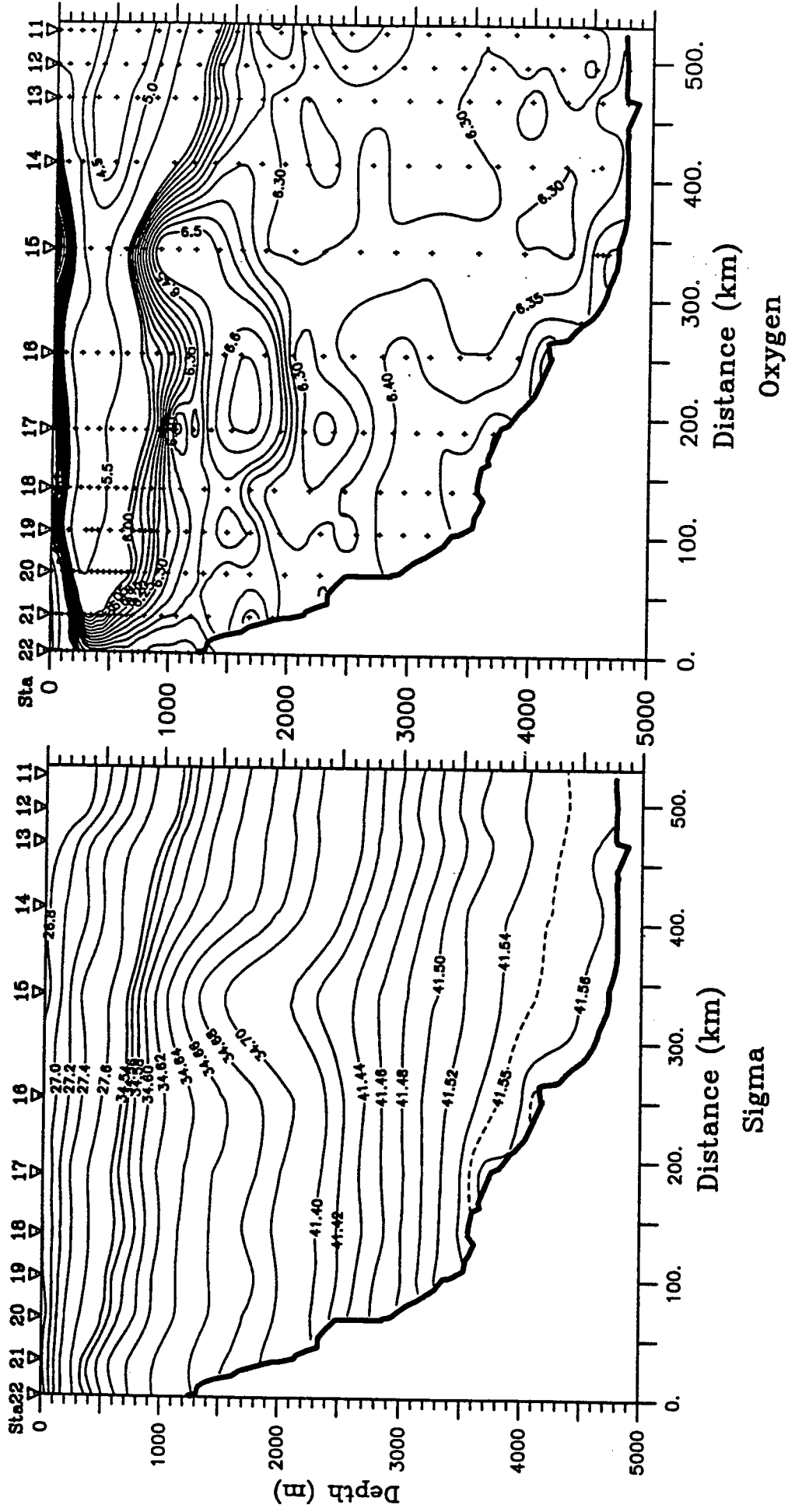


Figure 26. Vertical Sections of CTD Sigma 0, 1.5, and 3.0 and Bottle Oxygen for Section 2

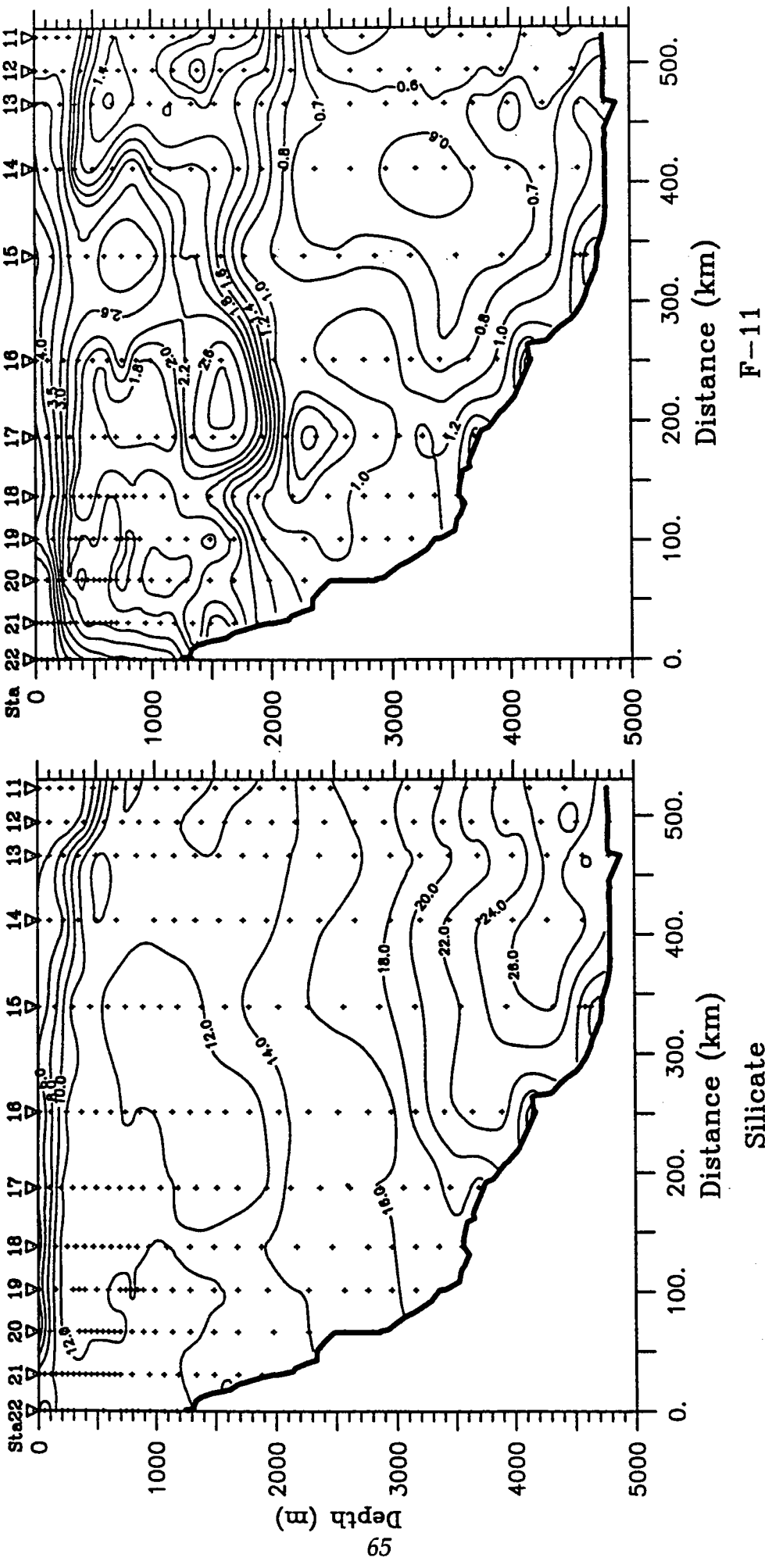


Figure 27. Vertical Sections of Bottle Silicate and F-11 for Section 2

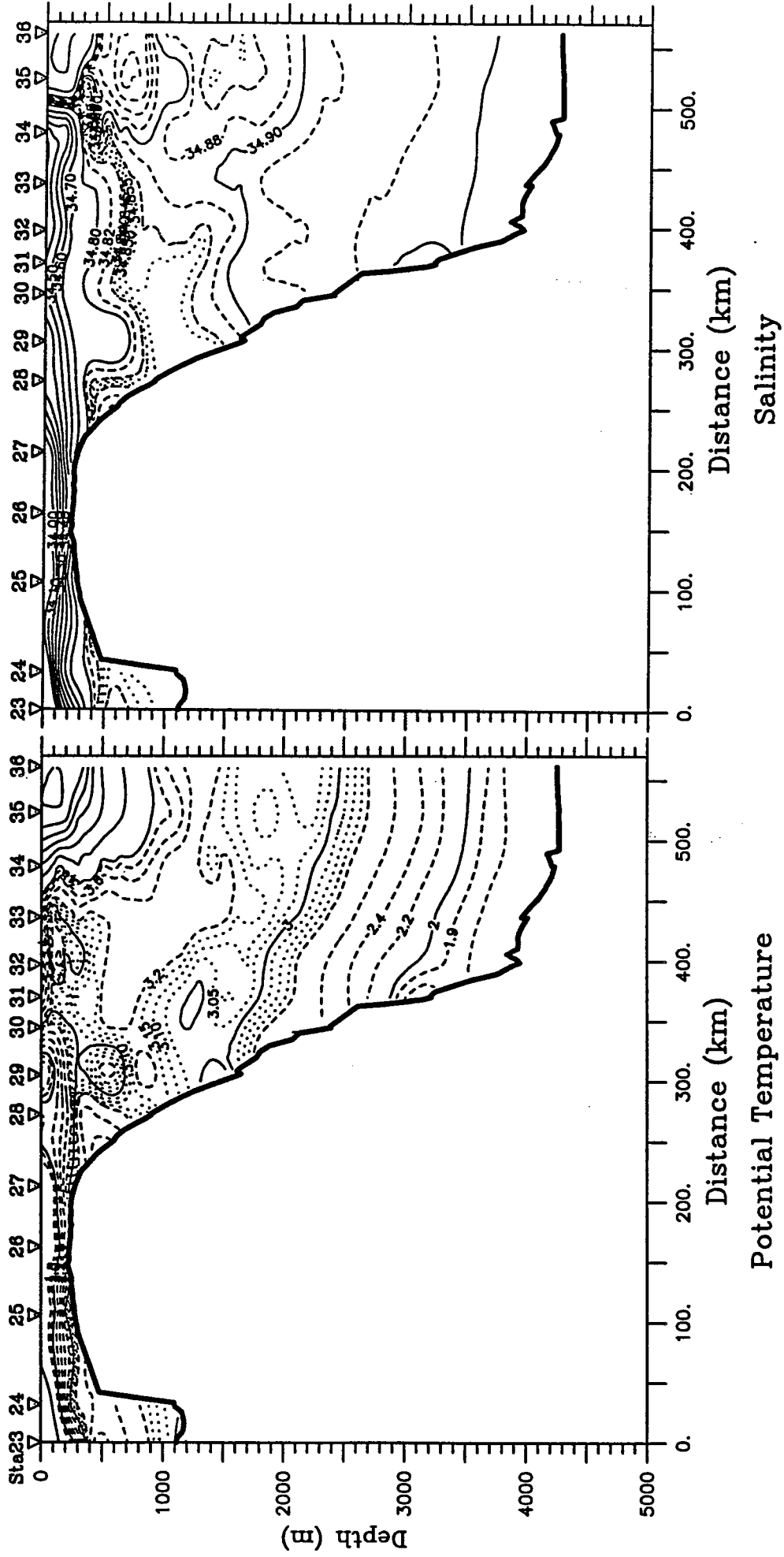


Figure 28. Vertical Sections of CTD Potential Temperature and Salinity for Section 3

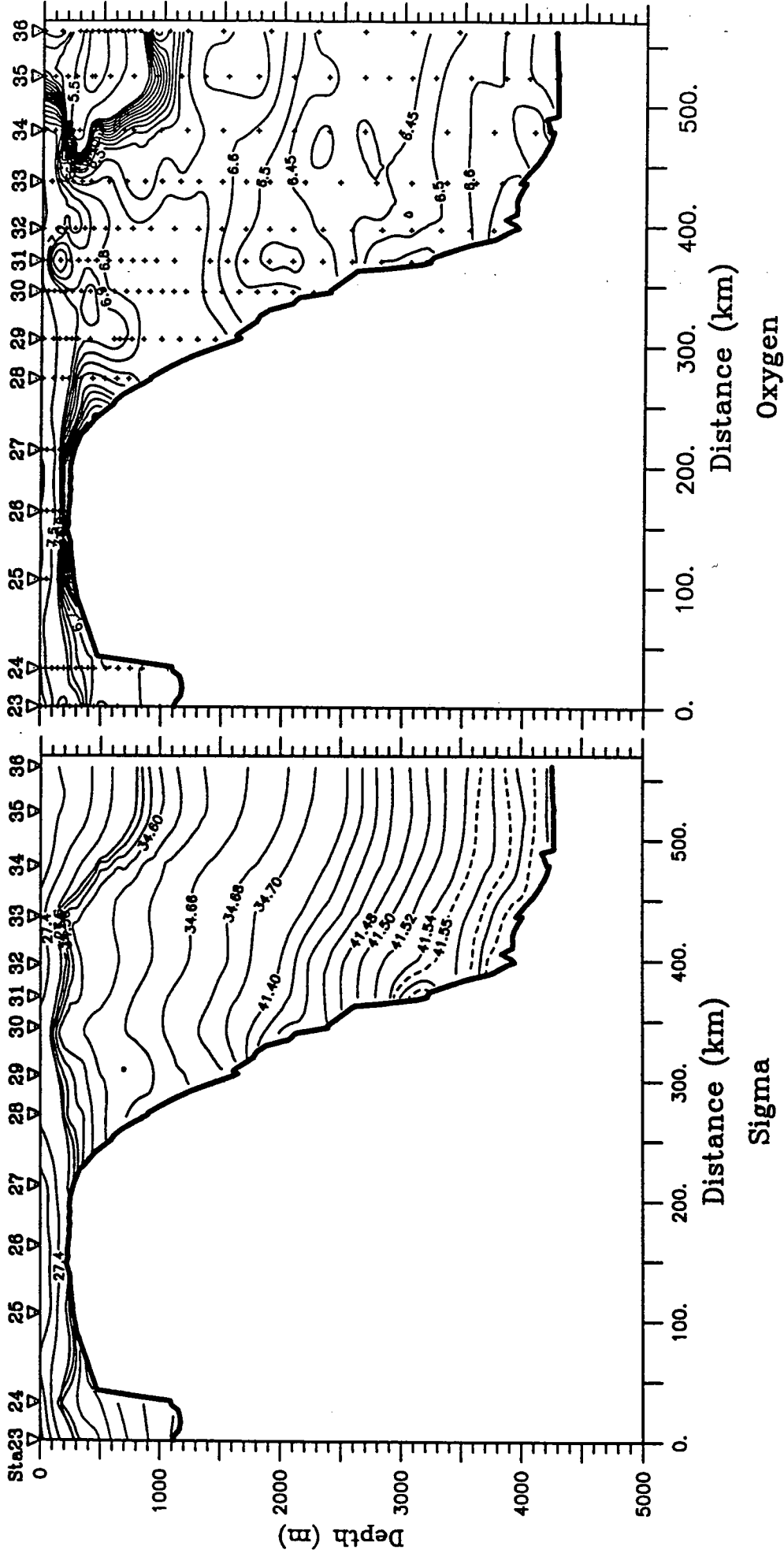


Figure 29. Vertical Sections of CTD Sigma 0, 1.5, and 3.0 and Bottle Oxygen for Section 3

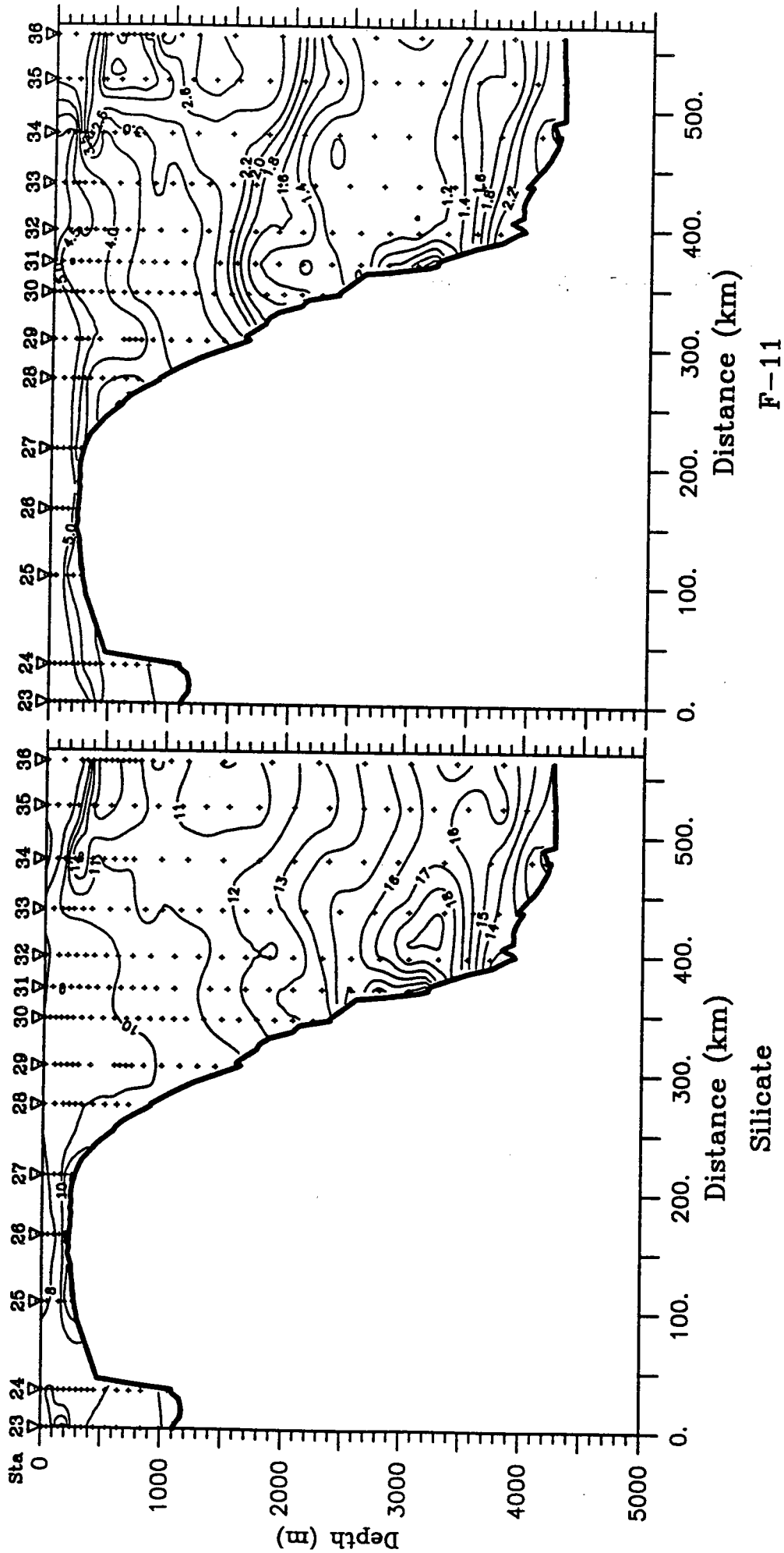


Figure 30. Vertical Sections of Bottle Silicate and F-11 for Section 3

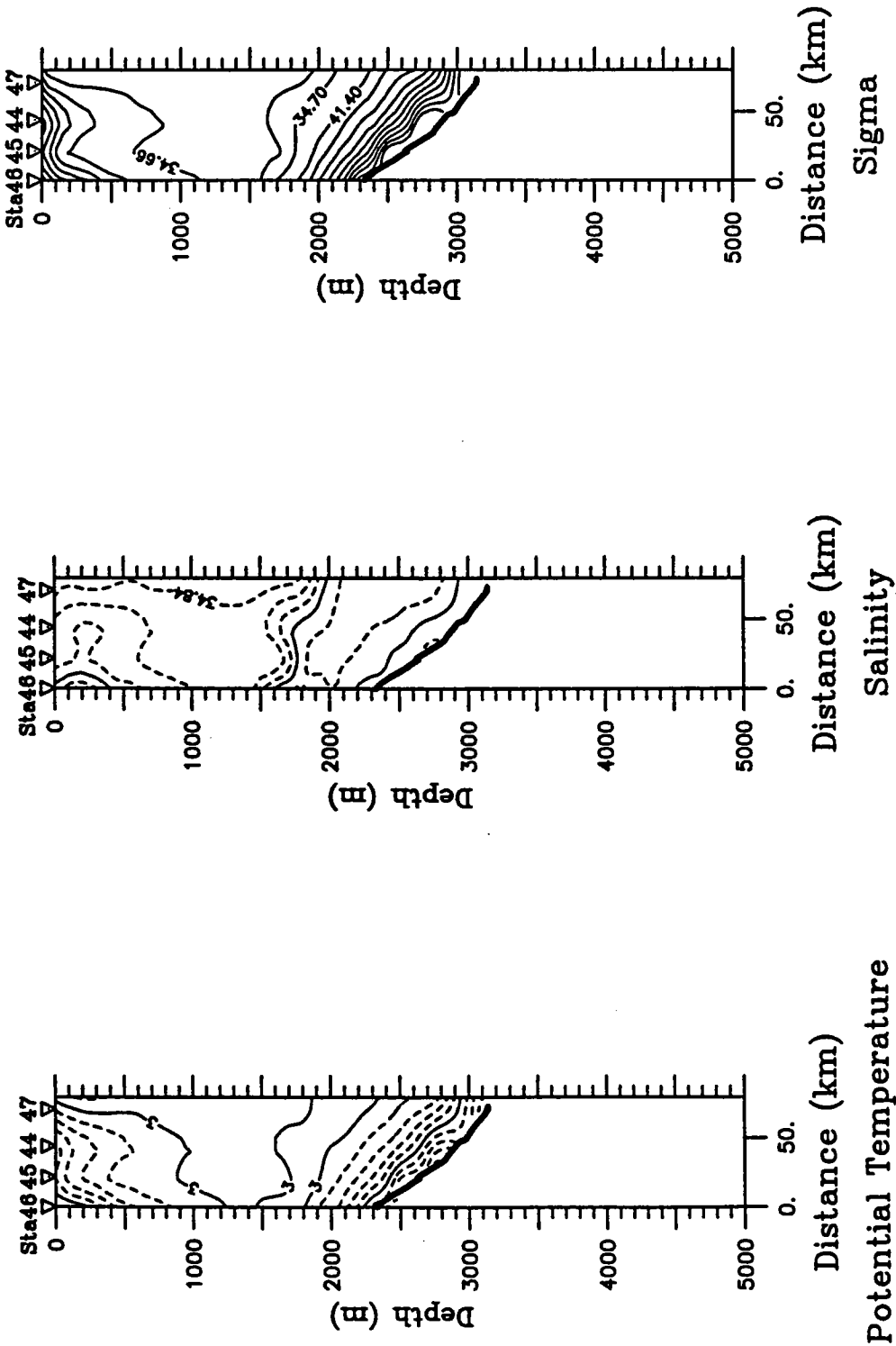


Figure 31. Vertical Sections of CTD Potential Temperature, Salinity and Sigma 0, 1.5, and 3.0 for Section 4



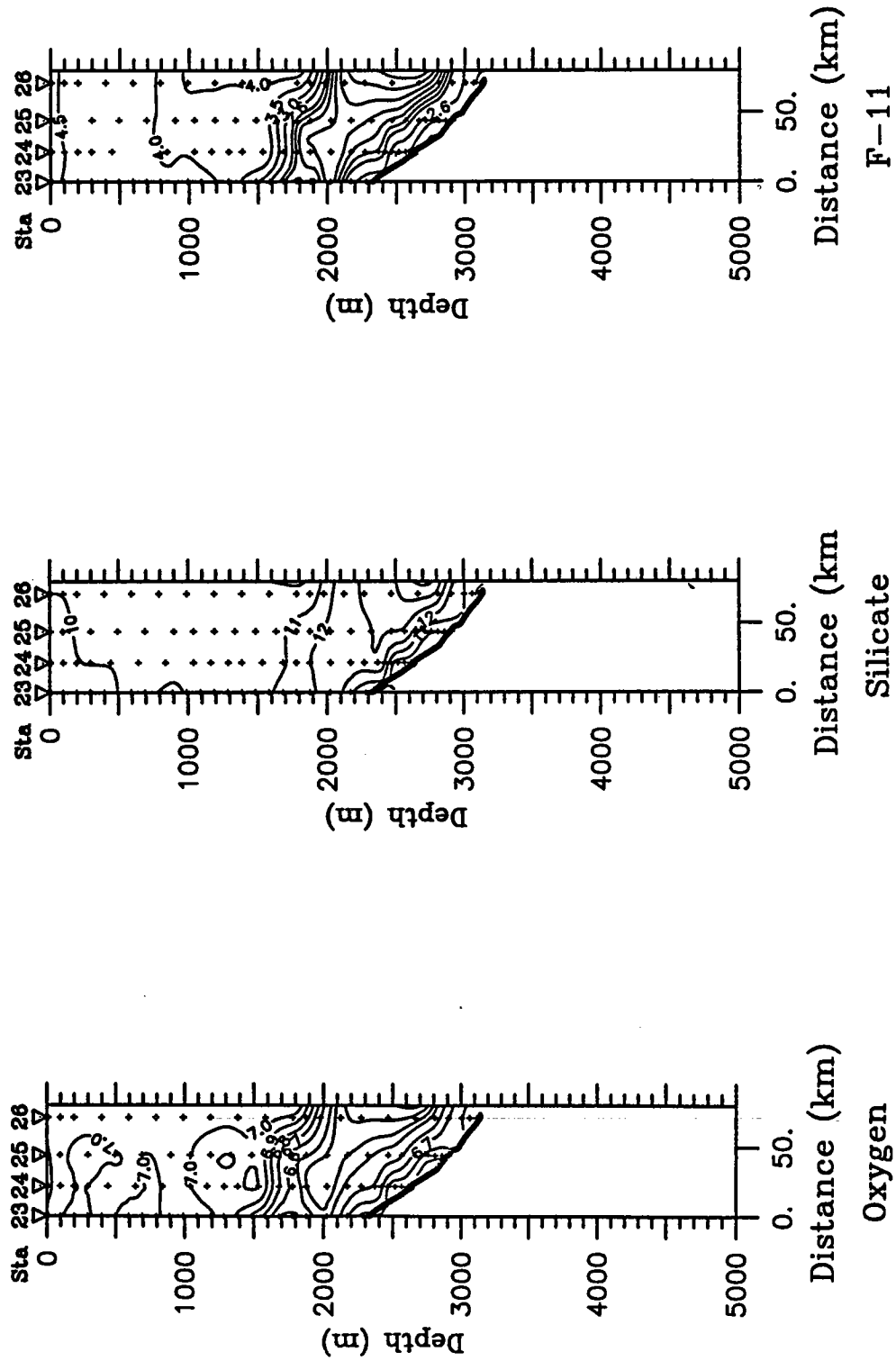


Figure 32. Vertical Sections of Bottle Oxygen, Silicate and F-11 for Section 4

### **Part 3. Bottle Data Listings**

ENDEAVOR 223 Station 1 91-3-26 Lat: 42.043 Lon: 55.067 Sonic Depth: 4670

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113	
dbars	meters	deg C	PSU	PSU	deg C	-----	-----kg/m**3	-----	-----	-----	ml/l	-----	-----umol/l	-----	-----	-----	-----	-----	-----
17.6	17.5	4.945	33.384	33.382	4.944	26.401	33.240	35.469	39.851	44.134	7.33	3.9	0.56	0.17	3.4	2.452	5.238		
104.6	103.8	5.465	33.615	33.630	5.457	26.524	33.342	35.563	39.932	44.202	6.84	5.4	0.66	0.20	5.7	2.348	4.935		
205.2	203.5	7.129	34.723	34.737	7.110	27.186	33.930	36.128	40.451	44.676	4.56	12.1	1.32	0.01	17.8	1.192	2.582		
351.8	348.7	7.067	34.983	34.987	7.033	27.401	34.146	36.344	40.665	44.891	4.06	15.7	1.58	0.01	22.0	0.557	1.158		
504.3	499.7	5.473	34.944	34.945	5.431	27.580	34.383	36.599	40.958	45.219	5.22	14.6	1.42	0.00	19.8	0.752	1.568		
653.1	647.0	4.529	34.908	34.909	4.478	27.662	34.501	36.729	41.111	45.394	5.69	12.9	1.30	0.01	18.1	1.095	2.361		
806.4	798.5	4.416	34.953	34.954	4.353	27.711	34.555	36.785	41.169	45.455	5.90	12.3	1.25	0.00	17.7	0.985	2.094		
907.5	898.4	4.382	34.960	34.971	4.311	27.721	34.566	36.797	41.182	45.469	5.94	12.6	1.26	0.00	17.6	0.896	1.889		
1006.2	995.9	4.253	34.970	34.973	4.174	27.744	34.594	36.826	41.215	45.505	5.98	12.9	1.26	0.00	17.6	0.706	1.468		
1159.8	1147.5	3.912	34.933	34.936	3.823	27.751	34.616	36.852	41.250	45.548	6.18	12.5	1.25	0.01	17.3	0.861	1.831		
1303.1	1288.8	3.740	34.924	34.922	3.640	27.763	34.634	36.873	41.275	45.578	6.27	12.3	1.21	0.00	17.0	0.873	1.862		
1505.8	1488.6	3.608	34.921	34.919	3.492	27.775	34.653	36.893	41.299	45.606	6.34	12.7	1.20	0.00	16.9	0.798	1.707		
1757.7	1736.6	3.625	34.942	34.942	3.486	27.792	34.670	36.911	41.317	45.623	6.26	13.5	1.23	0.00	17.1	0.505	1.053		
2004.8	1979.6	3.516	34.953	34.952	3.355	27.814	34.696	36.939	41.348	45.657	6.21	15.0	1.19	0.01	17.2	0.325	0.660		
2310.2	2279.5	3.339	34.956	34.954	3.152	27.836	34.726	36.972	41.386	45.700	6.17	17.1	1.23	0.00	17.3	0.201	0.374		
2657.9	2620.5	2.999	34.935	34.934	2.784	27.853	34.759	37.009	41.432	45.756	6.30	16.7	1.19	0.01	16.6	0.347	0.737		
3013.0	2968.1	2.759	34.931	34.931	2.512	27.874	34.790	37.044	41.475	45.805	6.25	20.3	1.19	0.00	17.1	0.223	0.441		
3308.7	3257.2	2.517		34.919	2.245														
3509.1	3452.9	2.383	34.908	34.910	2.093	27.891	34.825	37.084	41.526	45.867	6.27	25.1	1.28	0.01	17.3	0.229	0.451		
3713.7	3652.5	2.296	34.900	34.903	1.985	27.893	34.832	37.092	41.537	45.881	6.29	26.7	1.30	0.01	17.4	0.244	0.496		
3910.5	3844.4	2.266	34.899	34.900	1.934	27.896	34.837	37.098	41.544	45.889	6.27	27.8	1.21	0.01	17.5	0.270	0.543		
4210.1	4136.1	2.252	34.894	34.896	1.886	27.896	34.839	37.101	41.548	45.894	6.24	29.0	1.26	0.01	17.7				
4511.0	4428.7	2.253		34.894	1.852														
4734.6	4645.9	2.246	34.889	34.890	1.818	27.897	34.843	37.106	41.555	45.903	6.19	33.2	1.24	0.01	18.2	0.267	0.544		

ENDEAVOR 223 Station 2 91-3-28 Lat: 42.394 Lon: 55.021 Sonic Depth: 4482

Tr and He sampled

PR	DE	T	CTD	S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113	
dbars	meters	deg C	PSU	PSU	PSU	deg C	-----	-----	-----	-----	-----	ml/l	-----	-----	-----	-----	-----	-----	-----	-----
11.0	10.9	10.139	34.894	34.894	34.894	10.138	26.846	33.488	35.652	39.909	44.072	6.11	4.9	0.62	0.24	7.2	1.757	3.670		
103.3	102.5	10.159	34.893	34.896	34.896	10.147	26.844	33.485	35.650	39.906	44.069	6.13	4.9	0.62	0.24	7.2	1.763	3.691		
253.4	251.2	8.363	34.958	34.960	34.960	8.337	27.190	33.890	36.074	40.367	44.566	3.97	13.0	1.42	0.00	20.1	0.799	1.725		
354.5	351.4	6.919		34.917	34.917	6.886						4.16	15.0	1.51	0.01	21.3	0.712	1.536		
452.9	448.8	6.257	34.968	34.979	34.979	6.216	27.500	34.274	36.481	40.821	45.065	4.55	14.7	1.45	0.00	20.6	0.612	1.332		
552.9	547.8	5.391		34.941	34.941	5.344						5.15	13.9	1.35	0.00	19.2	0.812	1.767		
653.4	647.2	4.845	34.948	34.951	34.951	4.793	27.658	34.485	36.709	41.083	45.359	5.52	13.1	1.29	0.00	18.5	0.919	1.990		
754.7	747.4	4.551	34.949	34.952	34.952	4.492	27.693	34.531	36.759	41.140	45.423	5.68	12.9	1.27	0.00	18.2	0.954	2.082		
852.2	843.8	4.268	34.945	34.944	34.944	4.202	27.721	34.571	36.802	41.191	45.480	6.01	12.1	1.22	0.00	17.5	1.034	2.272		
954.6	944.9	4.244		34.958	34.958	4.170						5.99	12.3	1.24	0.00	17.6	0.837	1.827		
1056.4	1045.4	4.287	34.985	34.983	34.983	4.204	27.753	34.602	36.833	41.221	45.510	5.96	12.7	1.22	0.00	17.7	0.621	1.334		
1201.5	1188.6	4.047	34.955	34.959	34.959	3.953	27.755	34.614	36.849	41.243	45.539	6.13	12.6	1.22	0.00	17.5	0.681	1.466		
1357.2	1342.1	3.950	34.958	34.958	34.960	3.843	27.769	34.632	36.869	41.266	45.563	6.16	12.8	1.20	0.00	17.4	0.613	1.306		
1506.4	1489.1	3.791		34.944	34.944	3.673														
1705.6	1685.3	3.657	34.936	34.937	34.937	3.522	27.784	34.660	36.901	41.306	45.611	6.30	13.1	1.20	0.01	17.1	0.596	1.262		
1907.3	1883.7	3.568	34.938	34.938	34.938	3.415	27.796	34.676	36.918	41.326	45.634	6.29	13.5	1.19	0.00	17.1	0.510	1.088		
2153.5	2125.6	3.472	34.950	34.950	34.950	3.298	27.817	34.702	36.945	41.356	45.667	6.23	14.8	1.20	0.00	17.3	0.316	0.670		
2406.6	2374.0	3.319	34.945	34.945	34.952	3.122	27.830	34.722	36.967	41.382	45.697	6.21	16.4	1.21	0.00	17.4	0.234	0.501		
2657.1	2619.6	3.086	34.937	34.941	34.941	2.869	27.847	34.749	36.998	41.419	45.741	6.25	17.0	1.21	0.00	17.1	0.276	0.591		
2909.3	2866.6	2.881	34.923	34.932	34.932	2.642	27.856	34.768	37.019	41.447	45.774	6.32	17.4	1.20	0.00	16.8	0.334	0.705		
3158.1	3109.9	2.728	34.923	34.928	34.928	2.467	27.871	34.790	37.044	41.476	45.808	6.27	20.7	1.20	0.01	17.2	0.223	0.454		
3412.0	3358.0	2.531	34.917	34.918	34.918	2.247	27.885	34.813	37.070	41.508	45.845	6.27	22.0	1.22	0.01	17.3	0.245	0.517		
3611.8	3553.0	2.406	34.911	34.911	34.911	2.104	27.892	34.826	37.085	41.526	45.867	6.31	24.4	1.20	0.01	17.4	0.240	0.499		
3799.8	3736.4	2.335	34.905	34.904	34.904	2.014	27.895	34.832	37.092	41.536	45.879	6.31	24.8	1.23	0.01	17.4	0.277	0.587		

ENDEAVOR 223 Station 3 91-3-28 Lat: 42.795 Lon: 55.007 Sonic Depth: 4406

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113	
dbars	meters	deg C	PSU	PSU	deg C	-----	-----	kg/m**3	-----	-----	ml/l	-----	-----	-----	-----	-----	-----	-----	-----
13.2	13.1	12.004	35.266	35.267	12.003	26.796	33.376	35.521	39.739	43.865	5.80	3.7	0.54	0.22	6.7	1.554	3.260		
151.7	150.4	10.000	34.865	34.858	9.982	26.850	33.497	35.663	39.924	44.090	6.13	4.6	0.61	0.26	7.1	1.793	3.813		
301.3	298.7	7.501	34.770	34.773	7.471	27.171	33.903	36.097	40.410	44.628	3.75	11.4	1.28	0.01	17.5	1.170	2.569		
453.6	449.5	6.003	34.800	34.804	5.963	27.400	34.185	36.396	40.743	44.993	4.58	14.5	1.47	0.01	20.4	0.932	2.021		
603.1	597.5	4.691		34.827	4.643														
701.3	694.6	4.701	34.923	34.925	4.646	27.655	34.488	36.714	41.092	45.371	5.61	12.9	1.31	0.00	18.5	1.021	2.255		
802.2	794.3	4.471	34.932	34.935	4.408	27.688	34.530	36.759	41.143	45.427	5.76	12.4	1.29	0.00	18.2	0.990	2.151		
903.2	894.1	4.324	34.944	34.944	4.253	27.715	34.562	36.793	41.180	45.468	5.88	12.2	1.28	0.01	18.1	0.911	2.005		
1005.6	995.2	4.093	34.930	34.929	4.015	27.729	34.586	36.820	41.213	45.507		12.0	1.26	0.01	17.7	0.976	2.147		
1155.2	1142.9	3.844	34.914	34.917	3.755	27.743	34.610	36.848	41.247	45.547	6.25	11.8	1.23	0.00	17.4	1.035	2.239		
1306.7	1292.3	3.739	34.910	34.913	3.639	27.752	34.624	36.863	41.265	45.568	6.29	11.8	1.21	0.01	17.2	0.977	2.147		
1455.7	1439.1	3.723	34.923	34.924	3.610	27.765	34.638	36.877	41.280	45.584	6.29	12.2	1.24	0.01	17.4	0.815	1.742		
1655.4	1635.8	3.681	34.926	34.926	3.551	27.773	34.648	36.889	41.293	45.598	6.32	12.7	1.22	0.01	17.3	0.729	1.577		
1856.8	1834.0	3.637	34.940	34.937	3.489	27.791	34.668	36.909	41.315	45.621	6.28	13.2	1.24	0.01	17.4	0.565	1.206		
2058.6	2032.3	3.601	34.950	34.953	3.434	27.804	34.683	36.925	41.332	45.640	6.21	14.4	1.25	0.01	17.5	0.346	0.702		
2355.7	2324.0	3.409	34.956	34.953	3.216	27.830	34.718	36.962	41.375	45.687	6.20	16.1	1.26	0.01	17.5	0.241	0.504		
2658.6	2621.0	3.187	34.956	34.947	2.968	27.853	34.751	36.999	41.417	45.736	6.19	17.5	1.24	0.01	17.5	0.204	0.415		
2958.0	2914.1	2.939		34.938	2.694						6.23	19.2	1.26	0.01	17.4	0.203	0.424		
3210.5	3161.0	2.715	34.918	34.925	2.448	27.869	34.788	37.043	41.475	45.807	6.34	17.9	1.21	0.01	16.8	0.361	0.795		
3459.9	3404.6	2.542	34.917	34.918	2.253	27.885	34.812	37.069	41.507	45.844	6.31	21.6	1.25	0.01	17.2	0.281	0.583		
3658.2	3598.2	2.381	34.901	34.909	2.074	27.886	34.821	37.081	41.523	45.865	6.31	23.9	1.26	0.01	17.5	0.298	0.615		
3861.3	3796.2	2.303	34.905	34.903	1.976	27.898	34.837	37.097	41.542	45.886	6.27	26.1	1.25	0.01	17.7	0.277	0.595		
4108.1	4036.5	2.262	34.895	34.898	1.908	27.895	34.837	37.099	41.546	45.891	6.27	28.2	1.29	0.00	18.0	0.279	0.588		
4479.2	4397.5	2.244	34.893	34.892	1.847	27.898	34.843	37.105	41.554	45.901	6.22	30.8	1.33	0.01	18.2	0.282	0.592		

ENDEAVOR 223 Station 4 91-3-28 Lat: 43.169 Lon: 55.001 Sonic Depth: 4258

Tr and He sampled

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	deg C		kg/m**3	kg/m**3	kg/m**3	kg/m**3	ml/l	umol/l	umol/l	umol/l	umol/l	pm/kg	pm/kg	pm/kg
11.5	11.4	7.301	34.094	34.095	7.300	26.664	33.409	35.607	39.930	44.156	6.86	4.0	0.56	0.22	4.9	2.148	4.460	
101.6	100.8	10.435	34.899	34.905	10.423	26.800	33.433	35.595	39.846	44.003	5.97	4.7	0.61	0.28	7.2	1.727	3.472	
251.9	249.7	7.161	34.760	34.753	7.138	27.211	33.954	36.152	40.473	44.698	4.56	11.8	1.32	0.01	18.3	1.127	2.446	
402.1	398.5	5.210	34.724	34.721	5.177	27.436	34.251	36.471	40.838	45.106	4.89	14.2	1.41	0.01	19.6	1.113	2.420	
501.9	497.3	5.873	35.007	35.011	5.829	27.580	34.368	36.580	40.929	45.180	4.76	14.5	1.46	0.01	20.9	0.527	1.123	
603.2	597.5	5.257	35.003	35.008	5.207	27.653	34.464	36.683	41.047	45.313	5.21	13.8	1.38	0.01	19.7	0.582	1.239	
703.3	696.5	4.482	34.935	34.934	4.427	27.689	34.530	36.759	41.141	45.426	5.80	12.5	1.28	0.00	18.2			
804.6	796.7	4.389	34.953	34.953	4.326	27.714	34.559	36.789	41.174	45.460	5.85	12.5	1.28	0.00	18.2	0.877	1.877	
903.2	894.1	4.299	34.957	34.960	4.228	27.728	34.576	36.808	41.195	45.484	5.93	12.6	1.27	0.00	18.0	0.800	1.751	
1053.8	1042.8	3.994	34.935	34.937	3.914	27.744	34.604	36.840	41.235	45.531	6.14	12.1	1.24	0.00	17.7	0.874	1.871	
1202.3	1189.3	3.847	34.928	34.928	3.755	27.754	34.621	36.859	41.258	45.558	6.25	12.1	1.23	0.00	17.5	0.858	1.853	
1405.9	1390.0	3.739	34.931	34.928	3.630	27.769	34.641	36.880	41.283	45.586	6.29	12.3	1.23	0.00	17.3	0.758	1.649	
1604.6	1585.7	3.609	34.923	34.924	3.484	27.778	34.655	36.896	41.302	45.609	6.33	12.6	1.21	0.00	17.2	0.729	1.594	
1856.0	1833.1	3.546	34.933	34.933	3.399	27.794	34.675	36.917	41.325	45.633	6.29	13.3	1.23	0.01	17.3	0.554	1.216	
2156.7	2128.6	3.553	34.962	34.964	3.377	27.819	34.701	36.943	41.351	45.660	6.15	15.5	1.25	0.00	17.6	0.213	0.459	
2459.3	2425.5	3.338	34.958	34.958	3.136	27.839	34.730	36.975	41.390	45.705	6.15	17.2	1.25	0.00	17.6	0.160	0.343	
2759.1	2719.3	3.006	34.933	34.932	2.780	27.852	34.758	37.008	41.431	45.755	6.31	15.5	1.23	0.00	16.7	0.386	0.866	
3007.7	2962.6	2.798		34.927	2.551						6.35	16.8	1.20	0.00	16.6	0.404	0.879	
3208.6	3159.1	2.605	34.921	34.921	2.341	27.880	34.804	37.060	41.495	45.830	6.34	19.0	1.20	0.00	16.8	0.346	0.792	
3410.5	3356.3	2.456	34.913		2.175	27.888	34.819	37.077	41.516	45.855	6.33	21.3	1.23	0.00	17.0	0.321	0.724	
3607.2	3548.3	2.357	34.906	34.907	2.057	27.892	34.828	37.087	41.530	45.872	6.32	23.8	1.25	0.00	17.4	0.289	0.653	
3861.0	3795.7	2.246	34.897	34.899	1.920	27.896	34.837	37.099	41.545	45.890	6.27	26.9	1.27	0.00	17.8			
4109.2	4037.5	2.216	34.893	34.894	1.863	27.897	34.841	37.103	41.551	45.898	6.24	28.9	1.30	0.00	17.9	0.296	0.658	
4316.8	4239.5	2.227	34.893	34.894	1.849	27.898	34.842	37.105	41.553	45.900	6.21	29.9	1.29	0.00	17.9	0.298	0.651	

ENDEAVOR 223 Station 5 91-3-29 Lat: 43.452 Lon: 54.998 Sonic Depth: 3998

Tr and He sampled

PR	DE	T	CTD S	S	PSU	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	PSU	deg C	-----	-----	-----	-----	-----	ml/l	-----	-----	-----	-----	-----	-----	-----
								kg/m**3	kg/m**3	kg/m**3	kg/m**3	-----	-----	-----	-----	-----	-----	-----	-----
14.6	14.5	6.278	33.900	33.902	33.902	6.277	26.648	33.432	35.643	39.990	44.240	6.91	5.4	0.64	0.17	5.8	2.242	4.889	
151.1	149.8	6.881	34.622	34.620	34.620	6.867	27.140	33.894	36.095	40.424	44.655	4.93	10.6	1.21	0.01	16.0	1.399	3.081	
301.7	299.1	5.477	34.682	34.682	34.682	5.453	27.370	34.175	36.392	40.753	45.015	4.86	13.6	1.39	0.01	19.2	1.154	2.593	
452.1	448.0	4.907	34.855	34.856	34.856	4.871	27.575	34.400	36.624	40.997	45.271	5.24	13.6	1.35	0.00	19.2	1.020	2.268	
551.5	546.4	4.610	34.907	34.907	34.907	4.567	27.651	34.487	36.714	41.094	45.375	5.61	12.9	1.30	0.00	18.5	1.052	2.340	
650.6	644.4	4.411	34.925	34.923	34.923	4.361	27.688	34.532	36.762	41.146	45.432	5.82	12.5	1.27	0.00	18.1	1.067	2.350	
751.8	744.5	4.303	34.949	34.940	34.940	4.245	27.720	34.567	36.799	41.186	45.474	5.93	12.4	1.24	0.00	18.0	0.925	2.053	
851.6	843.1	4.155	34.942	34.941	34.941	4.090	27.731	34.585	36.818	41.209	45.501	6.05	12.2	1.23	0.00	17.8	0.932	2.062	
953.1	943.3	3.967	34.925	34.925	34.925	3.894	27.738	34.599	36.835	41.231	45.527	6.18	11.9	1.21	0.00	17.5	1.023	2.269	
1053.9	1042.8	3.864	34.925	34.925	34.925	3.784	27.749	34.615	36.852	41.251	45.550	6.22	11.9	1.22	0.00	17.5	0.961	2.121	
1204.8	1191.7	3.804	34.926	34.926	34.926	3.712	27.757	34.626	36.864	41.264	45.565	6.26	12.0	1.20	0.00	17.4	0.874	1.932	
1349.0	1333.9	3.741	34.925	34.926	34.926	3.637	27.764	34.636	36.875	41.277	45.580	6.30	12.3	1.20	0.00	17.4	0.816	1.818	
1504.5	1487.1	3.671	34.919	34.924	34.924	3.554	27.767	34.642	36.882	41.287	45.592	6.32	12.6	1.20	0.00	17.3	0.763	1.696	
1704.9	1684.4	3.605	34.926	34.926	34.926	3.471	27.781	34.659	36.901	41.307	45.614	6.31	12.8	1.20	0.00	17.3	0.718	1.563	
2006.9	1981.4	3.542	34.944	34.942	34.942	3.380	27.804	34.686	36.928	41.337	45.646	6.23	14.2	1.21	0.00	17.3	0.449	0.965	
2306.5	2275.6	3.331	34.939	34.938	34.938	3.144	27.823	34.714	36.959	41.374	45.688	6.29	14.7	1.20	0.00	17.1	0.413	0.911	
2607.2	2570.5	3.064	34.932	34.932	34.932	2.853	27.844	34.747	36.996	41.418	45.740	6.32	15.6	1.18	0.00	16.8	0.413	0.877	
2828.4	2787.1	2.810	34.929	34.928	34.928	2.581	27.866	34.780	37.033	41.462	45.790	6.35	17.1	1.20	0.00	16.7	0.405	0.897	
3107.0	3059.7	2.438	34.914	34.914	34.914	2.189	27.888	34.818	37.076	41.515	45.853	6.37	19.9	1.21	0.00	16.7	0.411	0.894	
3307.9	3256.0	2.322	34.907	34.908	34.908	2.055	27.893	34.829	37.088	41.531	45.873	6.37	22.4	1.24	0.00	17.0	0.362	0.806	
3508.4	3451.8	2.257	34.903	34.903	34.903	1.969	27.896	34.836	37.097	41.542	45.886	6.37	23.7	1.22	0.00	17.1	0.382	0.848	
3709.2	3647.7	2.211	34.898	34.898	34.898	1.904	27.898	34.840	37.102	41.549	45.894	6.29	27.9	1.30	0.01	17.7	0.292	0.623	
3908.7	3842.1	2.199	34.896	34.896	34.896	1.869	27.899	34.842	37.105	41.552	45.899	6.25	29.1	1.27	0.00	17.9	0.299	0.655	
4063.6	3993.0	2.211	34.895	34.895	34.895	1.864	27.898	34.842	37.105	41.553	45.899	6.24	29.1	1.28	0.01	17.8	0.322	0.656	

ENDEAVOR 223 Station 6 91-3-29 Lat: 43.663 Lon: 54.797 Sonic Depth: 3723

Tr and He sampled

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113	
dbars	meters	deg C	PSU	PSU	deg C	-----	-----kg/m**3	-----	-----	-----	ml/l	-----umol/l	-----	-----	-----	-----	-----	-----	-----
11.2	11.1	5.867	33.848	33.850	5.866	26.659	33.459	35.675	40.031	44.290	6.99	5.5	0.65	0.16	5.7	2.305	4.891		
101.0	100.2	7.641	34.515	34.518	7.631	26.947	33.677	35.869	40.182	44.398	5.49	7.8	0.95	0.04	11.6	1.717	3.608		
201.6	199.9	6.188	34.676	34.672	6.170	27.275	34.054	36.263	40.607	44.853	4.77	12.7	1.35	0.01	18.3	1.192	2.576		
302.5	299.9	5.675	34.759	34.759	5.650	27.406	34.203	36.418	40.773	45.031	4.78	14.0	1.41	0.01	19.5	1.037	2.263		
403.0	399.4	4.698	34.767	34.766	4.667	27.529	34.362	36.589	40.967	45.247	5.28	13.8	1.34	0.01	18.6	1.201	2.586		
503.3	498.7	4.545	34.848	34.849	4.507	27.611	34.450	36.678	41.060	45.343	5.57	13.0	1.29	0.01	18.1	1.196	2.609		
603.9	598.2	4.501	34.916	34.915	4.454	27.671	34.511	36.740	41.122	45.405	5.74	12.6	1.27	0.01	18.0	1.097	2.400		
703.6	696.8	4.348	34.937	34.936	4.294	27.705	34.551	36.782	41.168	45.455	5.89	12.3	1.26	0.01	17.7	1.019	2.197		
803.5	795.5	4.194	34.940	34.939	4.133	27.725	34.577	36.809	41.199	45.490	6.02	12.2	1.25	0.01	17.6	0.988	2.090		
904.7	895.5	4.019	34.928	34.927	3.951	27.734	34.594	36.829	41.223	45.518	6.12	12.0	1.21	0.01	17.3	1.020	2.246		
1003.4	993.0	4.034	34.945	34.945	3.957	27.747	34.606	36.841	41.235	45.530	6.12	12.2	1.23	0.01	17.4	0.866	1.858		
1105.1	1093.4	3.901	34.935	34.934	3.817	27.754	34.618	36.855	41.253	45.551	6.21	12.0	1.21	0.00	17.3	0.884	1.888		
1253.9	1240.1	3.729	34.921	34.921	3.633	27.761	34.633	36.872	41.274	45.577	6.31	12.0	1.19	0.01	17.1	0.905	1.937		
1405.4	1389.5	3.658	34.919	34.923	3.550	27.768	34.643	36.883	41.288	45.593	6.35	12.3	1.20	0.01	17.0	0.850	1.785		
1607.8	1588.8	3.578	34.920	34.921	3.453	27.778	34.657	36.899	41.305	45.613	6.37	12.6	1.20	0.01	17.0	0.775	1.636		
1855.4	1832.4	3.585	34.943	34.942	3.437	27.798	34.677	36.919	41.326	45.633	6.27	13.6	1.19	0.01	17.2	0.485	1.014		
2104.8	2077.5	3.519	34.958	34.956	3.348	27.819	34.701	36.944	41.353	45.663	6.19	15.4	1.21	0.01	17.3	0.272	0.557		
2405.5	2372.7	3.250	34.945	34.944	3.055	27.836	34.731	36.977	41.394	45.711	6.25	15.8	1.22	0.01	17.1	0.319	0.663		
2654.2	2616.5	2.993	34.933	34.932	2.778	27.852	34.758	37.008	41.432	45.755	6.30	16.0	1.20	0.01	16.8	0.387	0.843		
2907.3	2864.3	2.630	34.921	34.920	2.397	27.876	34.797	37.052	41.486	45.819	6.38	17.4	1.17	0.01	16.4	0.438	0.978		
3208.7	3159.0	2.360	34.910	34.910	2.102	27.891	34.825	37.084	41.526	45.867	6.35	22.0	1.18	0.00	16.9	0.353	0.770		
3355.9	3302.8	2.279	34.902	34.904	2.007	27.893	34.830	37.091	41.535	45.878		22.7	1.24	0.01	17.1	0.451	0.979		
3600.6	3541.7	2.220	34.900	34.900	1.924	27.898	34.839	37.101	41.547	45.892	6.31	25.5	1.21	0.01	17.3	0.351	0.784		
3761.7	3698.8	2.216	34.899	34.898	1.902	27.899	34.841	37.103	41.550	45.895	6.31	25.5	1.25	0.01	17.2	0.392	0.860		



ENDEAVOR 223 Station 7 91-3-29 Lat: 43.902 Lon: 54.633 Sonic Depth: 3362

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113	
dbars	meters	deg C	PSU	PSU	deg C	-----	-----	kg/m**3	-----	-----	ml/l	-----	-----	-----	-----	-----	-----	-----	-----
15.0	14.9	5.894	33.843	33.843	5.893	26.652	33.451	35.666	40.022	44.281	6.96	5.2	0.66	0.17	5.7	2.303	4.908	.	.
99.7	98.9	6.199	34.167	34.162	6.190	26.870	33.654	35.865	40.212	44.462	6.25	6.7	0.84	0.12	9.4	2.049	4.353	.	.
200.3	198.6	4.327	34.347	34.348	4.313	27.234	34.086	36.319	40.709	45.000	5.64	10.7	1.18	0.02	15.2	1.761	3.884	.	.
301.5	298.9	5.710	34.760	34.762	5.685	27.403	34.199	36.413	40.767	45.024	4.72	13.9	1.43	0.01	19.8	1.007	2.227	.	.
401.6	398.0	4.982	34.795	34.798	4.951	27.519	34.341	36.564	40.936	45.209	5.11	13.9	1.38	0.01	19.2	1.065	2.338	.	.
501.7	497.1	4.985	34.930	34.931	4.944	27.626	34.448	36.670	41.041	45.313	5.35	13.0	1.34	0.01	18.9	0.899	1.962	.	.
602.5	596.8	4.558	34.933	34.936	4.511	27.678	34.516	36.744	41.124	45.406	5.74	12.3	1.28	0.01	18.0	1.036	2.254	.	.
702.7	695.9	4.274	34.933	34.934	4.220	27.710	34.558	36.790	41.178	45.467	5.92	12.0	1.25	0.01	17.8	1.009	2.187	.	.
801.7	793.7	4.186	34.939	34.938	4.125	27.725	34.577	36.810	41.200	45.491	6.00	12.0	1.24	0.01	17.6	0.971	2.091	.	.
901.9	892.7	4.273	34.969	34.969	4.202	27.740	34.589	36.821	41.209	45.498	6.03	12.4	1.25	0.01	17.7	0.720	1.560	.	.
1001.8	991.4	4.155	34.964	34.965	4.077	27.750	34.604	36.837	41.228	45.520	6.02	12.4	1.23	0.00	17.4	0.672	1.425	.	.
1103.2	1091.5	3.861	34.925	34.927	3.777	27.750	34.616	36.853	41.252	45.551	6.22	11.9	1.21	0.00	17.1	0.934	2.000	.	.
1203.6	1190.5	3.682	34.909	34.910	3.592	27.756	34.629	36.869	41.273	45.577	6.34	11.6	1.19	0.00	16.9	1.000	2.146	.	.
1353.3	1338.1	3.625	34.912	34.911	3.522	27.765	34.641	36.882	41.287	45.593	6.35	11.9	1.20	0.00	17.0	0.910	1.938	.	.
1503.5	1486.1	3.574	34.914	34.914	3.458	27.773	34.652	36.893	41.300	45.607	6.38	12.2	1.19	0.00	17.0	0.833	1.785	.	.
1702.7	1682.2	3.598	34.939	34.938	3.464	27.792	34.671	36.912	41.318	45.625	6.27	13.0	1.21	0.00	17.2	0.528	1.138	.	.
1955.4	1930.7	3.526	34.950	34.949	3.370	27.810	34.692	36.934	41.343	45.652	6.23	14.3	1.22	0.00	17.3	0.375	0.797	.	.
2205.7	2176.6	3.324	34.948	34.948	3.147	27.830	34.721	36.966	41.380	45.695	6.22	15.6	1.21	0.00	17.2	0.292	0.602	.	.
2454.0	2420.2	3.108	34.945	34.946	2.910	27.850	34.750	36.998	41.419	45.739	6.21	17.5	1.22	0.00	17.3	0.230	0.464	.	.
2705.9	2667.0	2.822	34.930	34.930	2.605	27.865	34.778	37.030	41.459	45.786	6.32	17.3	1.20	0.00	16.9	0.349	0.746	.	.
2956.7	2912.6	2.572	34.921	34.922	2.335	27.881	34.805	37.061	41.496	45.831	6.30	19.9	1.21	0.00	17.0	0.314	0.650	.	.
3157.7	3109.1	2.385	34.911	34.911	2.132	27.890	34.822	37.081	41.522	45.862	6.32	22.3	1.23	0.00	17.2	0.334	0.710	.	.
3257.7	3206.8	2.318	34.908	34.907	2.056	27.894	34.829	37.089	41.532	45.874	6.34	22.1	1.22	0.00	17.0	0.381	0.800	.	.
3415.5	3361.0	2.286	34.915	34.905	2.008	27.903	34.841	37.101	41.545	45.888	6.31	12.6	1.20	0.00	17.1	0.877	1.850	.	.

ENDEAVOR 223 Station 8 91-3-29 Lat: 44.131 Lon: 54.469 Sonic Depth: 2673

Tr and He sampled

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	deg C	kg/m**3	kg/m**3	kg/m**3	kg/m**3	kg/m**3	ml/l	umol/l	umol/l	umol/l	umol/l	pm/kg	pm/kg	pm/kg
11.7	11.6	1.595	33.081	33.084	1.594	26.464	33.441	35.715	40.185	44.553	8.02	5.9	0.76	0.11	5.4	3.020	6.605	
53.5	53.1	5.096	33.674	33.645	5.092	26.614	33.444	35.670	40.046	44.324	7.08	5.3	0.69	0.18	5.6	2.398	5.201	
153.0	151.7	5.623	34.426	34.392	5.611	27.148	33.950	36.167	40.525	44.786	5.46	10.4	1.16	0.02	14.4	1.675	3.677	
253.0	250.8	4.880	34.532	34.528	4.860	27.320	34.149	36.375	40.750	45.027	5.36	12.0	1.29	0.01	16.9			
352.4	349.3	5.525	34.822	34.818	5.496	27.475	34.277	36.494	40.852	45.112	4.77	14.5	1.46	0.01	19.7	0.924	2.026	
453.3	449.2	4.992	34.879	34.879	4.956	27.585	34.406	36.629	40.999	45.272	5.22	13.5	1.39	0.01	18.8	0.953	2.094	
551.5	546.3	4.668	34.922	34.923	4.625	27.657	34.490	36.717	41.095	45.374	5.66	12.7	1.31	0.00	17.9	1.061	2.312	
654.6	648.3	4.528	34.955	34.953	4.477	27.699	34.538	36.766	41.148	45.430	5.81	12.4	1.30	0.00	17.8	0.931	2.041	
753.0	745.6	4.223	34.932	34.932	4.165	27.715	34.566	36.798	41.187	45.477	6.05	11.8	1.26	0.00	17.3	1.083	2.334	
855.6	847.0	3.963	34.915	34.915	3.899	27.729	34.591	36.827	41.222	45.519	6.20	11.7	1.24	0.00	17.0	1.164	2.524	
954.1	944.3	3.833	34.908	34.909	3.762	27.738	34.605	36.842	41.242	45.541	6.27	11.7	1.24	0.00	16.9	1.141	2.487	
1054.7	1043.6	3.720	34.903	34.904	3.641	27.746	34.618	36.857	41.259	45.562	6.32	11.7	1.22	0.00	16.7	1.128	2.447	
1154.2	1141.8	3.627	34.896	34.896	3.541	27.750	34.626	36.867	41.271	45.577	6.38	11.7	1.22	0.00	16.7	1.129	2.476	
1251.2	1237.4	3.550	34.891	34.890	3.457	27.755	34.634	36.875	41.282	45.590	6.43	11.4	1.21	0.00	16.6	1.122	2.458	
1356.1	1340.8	3.488	34.886	34.890	3.386	27.758	34.640	36.882	41.291	45.600	6.47	11.7	1.21	0.00	16.6	1.102	2.402	
1455.2	1438.5	3.443	34.887	34.888	3.333	27.764	34.648	36.891	41.301	45.611	6.47	11.6	1.21	0.00	16.6	1.144	2.235	
1555.0	1536.8	3.417	34.889		3.299	27.768	34.654	36.897	41.308	45.620	6.49	11.8	1.22	0.00	16.5	1.144	2.295	
1706.7	1686.1	3.462	34.906	34.907	3.330	27.779	34.663	36.906	41.316	45.627	6.42	12.5	1.22	0.00	16.6	0.844	1.817	
1855.8	1832.7	3.370	34.902	34.902	3.226	27.786	34.674	36.918	41.331	45.644	6.47	12.3	1.21	0.00	16.5	0.873	1.897	
2008.2	1982.5	3.436		34.923	3.276						6.35	13.3	1.23	0.00	16.7	0.628	1.333	
2157.8	2129.5	3.424	34.940	34.942	3.250	27.814	34.701	36.944	41.356	45.668	6.27	14.6	1.24	0.00	16.8	0.417	0.857	
2406.7	2373.7	3.176	34.940	34.941	2.982	27.839	34.736	36.984	41.402	45.721	6.26	15.7	1.22	0.00	16.8	0.340	0.713	
2556.0	2520.1	3.030	34.935	34.936	2.824	27.849	34.753	37.003	41.426	45.748	6.28	16.4	1.21	0.00	16.7	0.347	0.721	
2698.9	2660.1	2.871	34.930	34.931	2.653	27.861	34.772	37.023	41.450	45.777	6.30	17.0	1.21	0.00	16.5	0.372	0.805	

ENDEAVOR 223 Station 9 91- 3-30 Lat: 44.344 Lon: 54.133 Sonic Depth: 2275

Tr and He sampled

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	deg C	kg/m**3	kg/m**3	kg/m**3	kg/m**3	kg/m**3	ml/l	umol/l	umol/l	umol/l	umol/l	pm/kg	pm/kg	pm/kg
14.5	14.4	1.603	32.794	32.793	1.602	26.233	33.214	35.489	39.960	44.330	7.91	6.6	0.76	0.14	5.1	3.011	6.757	
76.6	76.0	3.539	33.487	33.491	3.534	26.628	33.521	35.767	40.183	44.500	7.25	6.9	0.80	0.15	7.0	2.630	5.714	
150.9	149.6	7.784	34.565	34.563	7.770	26.967	33.690	35.882	40.190	44.403	5.57	7.9	0.93	0.03	11.6	1.692	3.549	
225.6	223.7	7.436	34.762	34.761	7.414	27.173	33.907	36.101	40.416	44.635	4.63	11.9	1.29	0.01	17.6	1.162	2.522	
303.0	300.3	6.311	34.766	34.746	6.284	27.331	34.105	36.312	40.653	44.896	4.49	13.7	1.42	0.01	20.0	1.021	2.221	
377.4	374.0	5.674	34.755	34.757	5.642	27.404	34.202	36.417	40.772	45.029	4.72	14.4	1.43	0.01	20.1	1.014	2.224	
451.8	447.7	5.107	34.803	34.803	5.071	27.511	34.329	36.551	40.919	45.189	5.01	14.1	1.40	0.00	19.9	1.024	2.235	
551.2	546.0	4.752	34.883	34.882	4.709	27.616	34.447	36.673	41.049	45.327	5.44	13.7	1.33	0.00	19.1	1.030	2.235	
651.7	645.4	4.451	34.922	34.921	4.401	27.681	34.523	36.753	41.136	45.421	5.80	12.7	1.28	0.00	18.3	1.067	2.317	
753.8	746.4	4.249	34.929	34.929	4.192	27.710	34.560	36.792	41.180	45.470	5.98	12.1	1.26	0.00	18.0	1.065	2.287	
855.3	846.7	4.148	34.937	34.936	4.082	27.728	34.582	36.815	41.206	45.498	6.02	12.2	1.25	0.01	17.8	0.962	2.104	
953.1	943.3	3.986	34.930	34.929	3.914	27.740	34.600	36.836	41.231	45.527	6.13	12.2	1.24	0.00	17.7	0.962	2.085	
1055.4	1044.2	3.905	34.930	34.929	3.825	27.749	34.613	36.850	41.247	45.546	6.19	12.2	1.22	0.01	17.5			
1153.5	1141.0	3.775	34.919	34.918	3.688	27.754	34.624	36.862	41.263	45.565	6.26	12.2	1.22	0.00	17.4	0.938	2.050	
1253.8	1240.0	3.635	34.905	34.903	3.540	27.758	34.633	36.874	41.278	45.584	6.38	12.1	1.21	0.01	17.1	1.037	2.256	
1354.4	1339.1	3.579	34.903	34.902	3.476	27.762	34.641	36.882	41.288	45.595	6.39	12.2	1.21	0.01	17.1	0.997	2.156	
1454.6	1437.9	3.560	34.908	34.908	3.449	27.769	34.648	36.890	41.297	45.604	6.40	12.2	1.21	0.00	17.1	0.906	1.993	
1553.1	1534.9	3.549	34.910	34.910	3.429	27.773	34.653	36.894	41.302	45.610	6.39	12.2	1.20	0.01	17.1	0.874	1.898	
1654.7	1634.9	3.552	34.918	34.916	3.423	27.779	34.660	36.901	41.309	45.617	6.35	12.5	1.22	0.01	17.2	0.786	1.683	
1755.1	1733.7	3.550	34.925	34.924	3.412	27.786	34.667	36.909	41.316	45.625	6.34	12.8	1.22	0.00	17.2	0.670	1.471	
1906.3	1882.4	3.518	34.931	34.930	3.367	27.795	34.678	36.920	41.329	45.638	6.32	13.6	1.23	0.00	17.2	0.578	1.250	
2057.3	2030.7	3.487	34.944	34.941	3.321	27.810	34.694	36.937	41.347	45.657	6.24	14.7	1.23	0.00	17.3	0.408	0.878	
2129.7	2101.9	3.491	34.951	34.949	3.319	27.816	34.700	36.943	41.353	45.663	6.20	15.0	1.25	0.01	17.5	0.323	0.701	
2307.2	2276.1	3.298	34.945	34.943	3.112	27.831	34.723	36.969	41.384	45.699	6.22	16.1	1.24	0.00	17.3	0.320	0.686	

ENDEAVOR 223 Station 10 91- 3-30 Lat: 44.567 Lon: 54.050 Sonic Depth: 1430

Tr and He sampled

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	deg C	kg/m**3	kg/m**3	kg/m**3	kg/m**3	kg/m**3	ml/l	umol/l	umol/l	umol/l	umol/l	pm/kg	pm/kg	pm/kg
12.0	11.9	2.060	32.970	32.973	2.059	26.341	33.301	35.568	40.026	44.383	7.80	6.5	0.75	0.14	5.0	2.909	6.629	.
102.4	101.5	7.119	34.299	34.267	7.109	26.852	33.601	35.801	40.126	44.355	6.12	6.5	0.79	0.09	8.7	1.986	4.170	.
202.5	200.8	6.854	34.620	34.615	6.836	27.142	33.898	36.100	40.429	44.661	4.87	10.7	1.19	0.01	15.7	1.405	3.033	.
277.5	275.1	5.658	34.595	34.594	5.635	27.279	34.078	36.294	40.650	44.909	4.96	12.4	1.31	0.01	17.4	1.330	2.905	.
355.3	352.1	5.222	34.711	34.718	5.193	27.424	34.238	36.459	40.825	45.093	4.92	13.7	1.38	0.01	19.0	1.145	2.496	.
428.6	424.7	4.912	34.804	34.805	4.878	27.534	34.359	36.583	40.956	45.231	5.21	13.4	1.35	0.01	18.9	1.075	2.372	.
504.2	499.5	4.662	34.867	34.867	4.623	27.613	34.447	36.674	41.053	45.333	5.48	13.3	1.31	0.01	18.5	1.065	2.277	.
580.1	574.6	4.356	34.896	34.896	4.312	27.670	34.516	36.747	41.133	45.420	5.78	12.6	1.29	0.01	18.0	1.094	2.388	.
653.7	647.4	4.179	34.909	34.910	4.130	27.700	34.553	36.786	41.176	45.467	5.97	12.3	1.27	0.00	17.6	.	.	.
729.8	722.6	4.032	34.907	34.908	3.977	27.715	34.573	36.808	41.202	45.497	6.06	12.2	1.23	0.01	17.5	1.131	2.437	.
805.8	797.7	3.898	34.904	34.904	3.839	27.727	34.591	36.827	41.225	45.523	6.19	12.0	1.21	0.01	17.3	1.135	2.366	.
878.1	869.2	3.885	34.903	34.904	3.819	27.728	34.593	36.829	41.227	45.526	6.20	12.0	1.23	0.01	17.3	1.137	2.466	.
954.4	944.5	3.845	34.904	34.905	3.773	27.733	34.600	36.837	41.236	45.536	6.20	12.0	1.20	0.01	17.3	1.135	2.415	.
1315.6	1300.9	3.645	34.900	34.901	3.545	27.753	34.629	36.869	41.274	45.579	6.34	12.1	1.23	0.01	17.1	1.061	2.290	.

ENDEAVOR 223 Station 11 91-4-1 Lat: 43.892 Lon: 42.155 Sonic Depth: 4774

Tr and He sampled

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	deg C	-----kg/m**3-----	-----kg/m**3-----	-----kg/m**3-----	-----kg/m**3-----	-----kg/m**3-----	m/l	-----umol/l-----	-----umol/l-----	-----umol/l-----	-----umol/l-----	-----pm/kg-----	-----pm/kg-----	-----pm/kg-----
14.8	14.7	16.345	36.314	36.312	16.342	26.680	33.129	35.232	39.367	43.413	5.45	2.5	0.29	0.08	4.2	1.319	2.519	
100.8	100.0	16.302	36.307	36.306	16.286	26.688	33.139	35.242	39.378	43.425	5.35	2.5	0.28	0.08	4.6	1.297	2.475	
201.9	200.2	16.294	36.302	36.303	16.261	26.690	33.141	35.244	39.381	43.429	5.35	2.5	0.29	0.11	4.7	1.284	2.505	
300.3	297.7	16.239	36.287	36.286	16.190	26.695	33.148	35.252	39.390	43.439	5.30	2.5	0.30	0.07	4.9	1.266	2.520	
479.6	475.2	12.895	35.663	35.661	12.828	26.942	33.494	35.629	39.830	43.938	4.38	6.5	0.88	0.01	13.7	0.915	1.824	
677.3	670.8	8.643	35.088	35.093	8.569	27.256	33.947	36.127	40.415	44.608	4.05	12.9	1.39	0.01	20.4	0.669	1.381	
852.4	843.8	6.015	34.948	34.950	5.938	27.520	34.304	36.515	40.862	45.111	4.69	14.2	1.43	0.01	20.7	0.721	1.500	
1028.0	1017.2	5.336	35.022	35.029	5.246	27.664	34.473	36.691	41.054	45.318	5.33	13.0	1.31	0.01	18.9	0.699	1.468	
1204.1	1191.0	4.722	35.002	35.004	4.622	27.720	34.553	36.779	41.157	45.436	5.74	12.6	1.25	0.01	18.2	0.719	1.526	
1354.0	1338.8	4.301	34.971	34.973	4.190	27.743	34.593	36.824	41.213	45.502	5.99	12.3	1.24	0.01		0.755	1.609	
1529.1	1511.3	3.932	34.936	34.939	3.810	27.755	34.620	36.857	41.255	45.553	6.20	11.9	1.22	0.01		0.824	1.764	
1704.8	1684.3	3.673	34.909	34.911	3.538	27.761	34.637	36.877	41.282	45.587	6.35	11.8	1.19	0.01	17.0	0.905	1.940	
1903.3	1879.5	3.568	34.909	34.906	3.416	27.773	34.654	36.895	41.303	45.612	6.40	12.1	1.19	0.01	17.0	0.836	1.779	
2104.6	2077.3	3.588	34.934	34.933	3.417	27.793	34.673	36.915	41.323	45.631	6.28	13.3	1.19	0.01	17.1	0.525	1.064	
2354.9	2323.0	3.530	34.950	34.950	3.335	27.814	34.697	36.940	41.349	45.659	6.20	14.9	1.21	0.01	17.1	0.309	0.612	
2505.3	2470.5	3.451	34.954	34.954	3.242	27.826	34.713	36.957	41.369	45.681	6.17	15.9	1.22	0.01	17.2	0.253	0.492	
2806.3	2765.4	3.193	34.943	34.945	2.959	27.844	34.742	36.990	41.409	45.728	6.21	16.8	1.21	0.01	17.1	0.248	0.477	
3157.0	3108.4	2.900	34.933	34.932	2.635	27.865	34.776	37.028	41.456	45.783	6.27	18.2	1.18	0.01	16.9			
3407.8	3353.4	2.701	34.923	34.924	2.413	27.876	34.797	37.052	41.485	45.818	6.29	19.6	1.21	0.01	16.9	0.302	0.606	
3657.9	3597.5	2.519	34.914	34.915	2.209	27.886	34.815	37.073	41.512	45.850	6.30	22.1	1.22	0.01	17.0	0.288	0.566	
3909.2	3842.5	2.322	34.907		1.989	27.898	34.837	37.097	41.542	45.885	6.28	24.0	1.22	0.02	17.2	0.281	0.566	
4210.0	4135.3	2.312	34.899	34.901	1.944	27.895	34.836	37.097	41.543	45.887	6.28	26.1	1.25	0.03	17.2	0.316	0.619	
4510.0	4427.0	2.280	34.895	34.896	1.878	27.897	34.840	37.103	41.550	45.897	6.29	27.2	1.24	0.02	17.4	0.351	0.706	
4864.2	4770.9	2.273	34.895	34.896	1.829	27.901	34.846	37.109	41.558	45.906	6.35	24.8	1.21	0.02	16.9	0.326	0.683	

ENDEAVOR 223 Station 12 91- 4- 1 Lat: 43.967 Lon: 42.468 Sonic Depth: 4778

Tr and He sampled

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	FI2	FI1	FI13
dbars	meters	deg C	PSU	PSU	deg C	-----	-----	kg/m**3	-----	-----	ml/l	-----	-----	umol/l	-----	-----	-----	-----
11.4	11.3	16.309	36.313	36.313	16.307	26.688	33.138	35.240	39.377	43.423	5.50	2.4	0.24	0.06	4.0	1.359	2.539	.
101.4	100.6	16.339	36.314	36.316	16.322	26.685	33.135	35.237	39.373	43.419	5.46	2.4	0.24	0.07	4.0	1.297	2.509	.
252.7	250.5	16.369	36.324	36.323	16.328	26.691	33.141	35.243	39.379	43.425	5.31	2.4	0.28	0.06	4.6	1.281	2.511	.
401.2	397.6	13.980	35.846	35.842	13.922	26.859	33.378	35.502	39.682	43.770	4.42	5.3	0.76	0.01	11.9	0.940	1.889	.
576.5	571.1	9.516	35.176	35.168	9.450	27.183	33.844	36.014	40.283	44.458	3.99	11.6	1.31	0.00	19.3	0.705	1.428	.
731.6	724.5	6.900	35.002	35.002	6.830	27.444	34.196	36.396	40.722	44.952	4.41	14.1	1.43	0.00	20.5	0.646	1.363	.
875.9	867.0	5.668	35.012	35.014	5.591	27.614	34.410	36.625	40.979	45.236	5.05	13.3	1.34	0.00	19.2	0.694	1.474	.
1030.8	1020.0	5.012	35.011	35.015	4.925	27.693	34.514	36.737	41.107	45.379	5.55	12.8	1.29	0.00	18.3	0.764	1.595	.
1204.1	1191.0	4.351	34.961	34.961	4.254	27.728	34.576	36.807	41.193	45.481	5.95	12.0	1.23	0.00	17.6	0.903	1.930	.
1407.7	1391.7	3.913	34.921	34.926	3.802	27.744	34.609	36.846	41.244	45.543	6.23	11.5	1.20	0.00	17.2	1.056	2.235	.
1606.7	1587.7	3.816	34.933	34.932	3.688	27.765	34.635	36.873	41.274	45.575	6.27	12.0	1.20	0.01	17.2	0.776	1.622	.
1806.2	1784.0	3.684	34.927	34.927	3.540	27.775	34.651	36.891	41.296	45.601	6.32	12.5	1.20	0.00	17.1	0.680	1.430	.
2005.1	1979.5	3.569	34.924	34.921	3.408	27.786	34.667	36.909	41.316	45.625	6.34	12.8	1.19	0.02	16.8	0.649	1.368	.
2205.8	2176.6	3.545	34.937	34.936	3.364	27.800	34.683	36.925	41.334	45.643	6.28	13.9	1.20	0.01	17.1	0.425	0.852	.
2452.9	2419.1	3.428	34.947	34.947	3.225	27.822	34.709	36.954	41.366	45.679	6.23	15.1	1.21	0.02	17.1	0.297	0.592	.
2706.2	2667.3	3.228	34.943	34.942	3.003	27.839	34.736	36.983	41.401	45.719	6.23	16.1	1.19	0.02	16.9	0.264	0.527	.
2956.6	2912.4	3.031	34.938	34.939	2.784	27.855	34.761	37.011	41.435	45.758	6.26	17.6	1.21	0.01	16.9	0.266	0.538	.
3207.8	3158.1	2.848	34.931	34.933	2.578	27.868	34.782	37.035	41.464	45.792	6.25	19.3	1.18	0.04	16.8	0.247	0.539	.
3457.6	3402.0	2.657	34.922	34.923	2.365	27.879	34.802	37.058	41.492	45.826	6.28	21.1	1.21	0.02	17.0	0.240	0.474	.
3710.3	3648.6	2.454	34.911	34.912	2.140	27.889	34.821	37.080	41.521	45.860	6.30	23.4	1.23	0.01	17.1	0.255	0.527	.
4009.4	3940.0	2.345	34.902	34.904	2.000	27.893	34.831	37.092	41.536	45.880	6.27	25.6	1.25	0.01	17.3	0.268	0.542	.
4310.0	4232.5	2.289	34.899	34.898	1.911	27.898	34.840	37.102	41.548	45.894	6.27	27.1	1.24	0.01	17.5	0.309	0.626	.
4610.4	4524.5	2.275	34.893	34.894	1.861	27.897	34.841	37.103	41.551	45.898	6.24	28.8	1.27	0.01	17.6	0.287	0.602	.
4887.2	4793.2	2.276	34.897	34.894	1.828	27.903	34.848	37.111	41.560	45.908	6.30	26.0	1.24	0.01	17.1	0.436	0.883	.

ENDEAVOR 223 Station 13 91-4-2 Lat: 44.040 Lon: 42.833 Sonic Depth: 4883

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	deg C	-----kg/m**3-----	-----kg/m**3-----	-----kg/m**3-----	-----kg/m**3-----	-----kg/m**3-----	m/l	-----umol/l-----	-----umol/l-----	-----umol/l-----	-----umol/l-----	-----pm/kg-----	-----pm/kg-----	-----pm/kg-----
15.0	14.9	13.545	35.511	35.512	13.542	26.679	33.212	35.341	39.529	43.626	5.77	3.6	0.43	0.17	5.4	1.485	3.000	
100.1	99.3	12.758	35.386	35.390	12.744	26.744	33.301	35.438	39.642	43.754	5.65	3.7	0.52	0.19	6.6	1.497	3.006	
225.9	224.0	10.694	35.071	35.085	10.666	26.891	33.515	35.673	39.918	44.070	5.11	6.2	0.83	0.06	11.1	1.393	2.906	
351.9	348.8	9.359	35.045	35.051	9.319	27.102	33.768	35.941	40.214	44.391	4.25	10.6	1.23	0.02	17.4	0.920	1.960	
502.7	498.1	7.867	35.005	35.007	7.815	27.306	34.023	36.212	40.517	44.725	4.00	14.2	1.47	0.01	21.0	0.625	1.320	
677.3	670.8	6.651	35.099	35.102	6.587	27.554	34.313	36.516	40.847	45.081	4.65	13.5	1.38	0.01	19.6	0.557	1.143	
852.3	843.7	5.432	35.046	35.050	5.358	27.669	34.474	36.691	41.051	45.313	5.27	12.8	1.31	0.00	18.6	0.663	1.391	
1003.5	993.0	4.927	35.022	35.025	4.843	27.711	34.535	36.759	41.131	45.405	5.61	12.6	1.33	0.00	18.0	0.672	1.444	
1174.6	1161.9	4.505	35.002	35.006	4.410	27.744	34.585	36.814	41.196	45.480	5.87	12.5	1.24	0.00	17.5	0.643	1.340	
1355.5	1340.3	4.096	34.960	34.960	3.988	27.756	34.613	36.848	41.241	45.535	6.10	12.1	1.22	0.00	17.2	0.697	1.490	
1553.8	1535.6	3.842	34.939	34.938	3.719	27.767	34.635	36.873	41.273	45.574	6.25	12.1	1.17	0.00	17.0	0.713	1.512	
1755.9	1734.5	3.674	34.930	34.929	3.535	27.778	34.654	36.894	41.299	45.604	6.30	12.5	1.17	0.00	16.9	0.633	1.368	
1954.3	1929.6	3.631	34.937	34.936	3.473	27.790	34.668	36.909	41.315	45.622	6.28	12.9	1.20	0.01	16.9	0.544	1.106	
2153.0	2124.8	3.560	34.946	34.945	3.384	27.806	34.687	36.929	41.338	45.646	6.24	14.0	1.20	0.01	16.9	0.388	0.790	
2406.8	2373.9	3.386	34.941	34.940	3.189	27.820	34.710	36.954	41.368	45.681	6.27	14.4	1.19	0.02	16.7	0.365	0.737	
2705.2	2666.3	3.198	34.939	34.938	2.974	27.839	34.737	36.984	41.403	45.722	6.28	15.5	1.18	0.02	16.5	0.339	0.697	
3007.1	2961.8	2.987	34.934	34.934	2.735	27.857	34.764	37.015	41.440	45.764	6.30	16.8	1.17	0.01	16.6	0.327	0.647	
3257.3	3206.4	2.852	34.929	34.926	2.577	27.867	34.781	37.033	41.462	45.791	6.30	17.9	1.15	0.02	16.6	0.326	0.682	
3509.2	3452.4	2.677	34.922	34.922	2.379	27.878	34.800	37.056	41.490	45.823	6.31	19.5	1.20	0.00	16.7	0.309	0.642	
3758.6	3695.6	2.490	34.912	34.912	2.169	27.888	34.818	37.077	41.516	45.855	6.34	20.8	1.21	0.01	16.7	0.351	0.740	
4059.0	3988.3	2.361	34.903	34.905	2.010	27.893	34.831	37.091	41.535	45.878	6.39	21.3	1.17	0.02	16.6	0.426	0.893	
4358.8	4280.0	2.287	34.898	34.898	1.903	27.898	34.840	37.102	41.549	45.894	6.30	26.4	1.24	0.03	17.3	0.320	0.680	
4659.6	4572.2	2.251	34.896	34.896	1.832	27.902	34.847	37.110	41.558	45.906	6.38	23.5	1.18	0.01	16.6	0.522	1.072	
4883.3	4789.3	2.223	34.896	34.896	1.777	27.906	34.853	37.117	41.567	45.916	6.49	18.4	1.12	0.02	15.6	0.720	1.547	

ENDEAVOR 223 Station 14 91-4-2 Lat: 44.134 Lon: 43.467 Sonic Depth: 4795

Tr and He sampled

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	FI2	FI1	FI13
dbars	meters	deg C	PSU	PSU	deg C	-----	-----	kg/m**3	-----	-----	ml/l	-----	-----	umol/l	-----	-----	-----	-----
9.9	9.8	10.587	34.803	34.804	10.586	26.697	33.325	35.486	39.734	43.889	6.54	4.5	0.43	0.12	4.0	1.775	3.739	
101.9	101.1	11.644	35.295	35.299	11.631	26.889	33.480	35.628	39.854	43.986	5.61	4.6	0.61	0.42	7.8	1.483	3.011	
224.2	222.3	11.689	35.493	35.492	11.660	27.038	33.626	35.773	39.996	44.127	5.66	5.2	0.66	0.09	9.4	1.485	3.063	
352.4	349.3	9.245	35.113	35.123	9.205	27.174	33.843	36.017	40.291	44.471	4.18	11.5	1.30	0.02	18.5	0.814	1.692	
502.6	498.0	6.883	34.965	34.966	6.836	27.414	34.166	36.366	40.693	44.923	4.39	14.2	1.44	0.01	20.2	0.710	1.557	
677.2	670.7	5.290	34.961	34.961	5.233	27.617	34.427	36.646	41.010	45.275	5.24	13.1	1.31	0.01	18.7	0.868	1.923	
854.1	845.5	4.451		34.940	4.383											1.178	2.516	
1003.8	993.3	4.325	34.965	34.961	4.245	27.732	34.580	36.811	41.198	45.486	5.98	12.4	1.23	0.01	17.5	0.884	1.919	
1177.9	1165.1	4.025	34.945	34.944	3.933	27.750	34.609	36.845	41.239	45.535	6.12	12.7	1.22	0.02	17.3	0.822	1.804	
1354.4	1339.2	3.776	34.924	34.924	3.671	27.760	34.630	36.869	41.270	45.572	6.30	12.3	1.18	0.01	16.9	0.883	1.862	
1554.8	1536.6	3.626	34.917	34.917	3.505	27.771	34.648	36.888	41.294	45.600	6.35	12.6	1.18	0.01	16.9	0.843	1.783	
1756.2	1734.8	3.572	34.918	34.918	3.434	27.778	34.658	36.900	41.307	45.615	6.34	12.7	1.19	0.01	16.9	0.739	1.573	
1957.6	1932.8	3.561	34.933	34.933	3.404	27.793	34.674	36.916	41.324	45.632	6.29	13.5	1.19	0.01	17.0	0.585	1.177	
2154.8	2126.5	3.498	34.944	34.944	3.323	27.810	34.694	36.937	41.347	45.657	6.25	14.6	1.20	0.01	17.0	0.361	0.759	
2405.7	2372.8	3.329	34.945	34.945	3.133	27.829	34.720	36.966	41.381	45.695	6.24	15.8	1.20	0.01	17.0	0.296	0.618	
2706.1	2667.2	3.134	34.939	34.939	2.911	27.845	34.745	36.993	41.414	45.734	6.33	16.7	1.19	0.03	16.8	0.304	0.649	
3003.9	2958.7	2.926	34.933	34.933	2.677	27.861	34.771	37.022	41.449	45.775	6.26	18.1	1.19	0.01	16.8	0.278	0.578	
3256.9	3206.0	2.705	34.926	34.925	2.433	27.877	34.796	37.051	41.484	45.816	6.27	20.8	1.23	0.01	17.0	0.245	0.502	
3507.3	3450.5	2.522	34.916	34.916	2.228	27.886	34.814	37.072	41.510	45.847	6.28	22.4	1.24	0.01	17.1	0.261	0.535	
3761.6	3698.5	2.380	34.907	34.908	2.062	27.892	34.828	37.087	41.530	45.872	6.30	24.1	1.23	0.01	17.1	0.301	0.601	
4059.7	3988.9	2.308	34.901	34.902	1.958	27.896	34.836	37.097	41.542	45.887	6.32	25.7	1.19	0.04	17.1	0.336	0.670	
4356.8	4278.0	2.270	34.897	34.896	1.887	27.898	34.841	37.103	41.550	45.897	6.30	27.4	1.25	0.01	17.4	0.357	0.724	
4658.3	4570.9	2.255	34.894	34.895	1.836	27.900	34.845	37.108	41.556	45.904	6.30	26.5	1.21	0.05	17.1	0.404	0.882	
4886.3	4792.2	2.214	34.895	34.896	1.769	27.906	34.854	37.117	41.568	45.917	6.56	19.9	1.15	0.01	15.9	0.704	1.518	



ENDEAVOR 223 Station 15 91- 4- 2 Lat: 44.336 Lon: 44.351 Sonic Depth: 4728

Tr and He sampled

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F11	F12	F13
dbars	meters	deg C	PSU	PSU	deg C	kg/m**3	kg/m**3	kg/m**3	kg/m**3	kg/m**3	ml/l	umol/l	umol/l	umol/l	umol/l	pm/kg	pm/kg	pm/kg
10.0	9.9	7.905	34.215	34.216	7.904	26.672	33.395	35.586	39.894	44.106	7.02	4.5	0.50	0.19	4.5	2.113	4.583	
150.9	149.6	6.275	34.368	34.369	6.262	27.020	33.799	36.008	40.352	44.599	6.22	7.2	0.86	0.07	10.2	1.698	4.208	
302.3	299.6	5.057	34.668	34.672	5.033	27.408	34.229	36.452	40.822	45.094	5.17	12.9	1.32	0.02	17.8	1.288	2.879	
452.5	448.4	4.744	34.820	34.821	4.708	27.566	34.398	36.624	41.000	45.279	5.42	12.9	1.32	0.01	18.3	1.185	2.653	
602.6	596.9	4.038	34.802	34.799	3.993	27.629	34.489	36.724	41.118	45.413	5.98	11.5	1.24	0.01	17.4	1.468	3.244	
752.8	745.4	3.585	34.808	34.809	3.532	27.681	34.558	36.799	41.205	45.511	6.33	10.9	1.20	0.01	16.8	1.584	3.511	
903.0	893.8	3.290	34.817	34.818	3.227	27.718	34.607	36.852	41.265	45.579	6.59	10.5	1.16	0.01	16.4	1.415	3.139	
1054.4	1043.3	3.335	34.856	34.856	3.259	27.746	34.633	36.877	41.290	45.602	6.56	11.0	1.16	0.01	16.4	1.413	3.113	
1203.1	1190.0	3.254	34.870	34.870	3.167	27.766	34.657	36.902	41.316	45.631	6.58	11.3	1.16	0.01	16.3	0.914	2.034	
1404.4	1388.4	3.247	34.897	34.896	3.143	27.790	34.681	36.927	41.341	45.656	6.49	11.9	1.16	0.01	16.4	0.924	2.023	
1605.2	1586.2	3.234	34.917	34.917	3.114	27.808	34.701	36.947	41.362	45.678	6.40	13.1	1.18	0.01	16.4	0.653	1.447	
1804.9	1782.7	3.258	34.935	34.934	3.119	27.822	34.714	36.960	41.375	45.690	6.30	14.4	1.19	0.01	16.7	0.418	0.900	
2055.2	2028.7	3.168	34.937	34.936	3.008	27.834	34.731	36.978	41.396	45.714	6.29	15.2	1.20	0.01	16.8	0.357	0.778	
2307.8	2276.7	3.025	34.935	34.934	2.843	27.848	34.751	37.000	41.422	45.744	6.30	16.0	1.19	0.01	16.7	0.348	0.730	
2607.0	2570.1	2.963	34.933	34.933	2.753	27.854	34.761	37.011	41.436	45.760	6.31	16.7	1.19	0.01	16.8	0.335	0.712	
2907.7	2864.5	2.825	34.930	34.929	2.587	27.866	34.780	37.033	41.461	45.790	6.31	17.5	1.19	0.01	16.6	0.348	0.752	
3209.3	3159.4	2.619	34.921	34.920	2.354	27.879	34.802	37.058	41.493	45.827	6.34	19.5	1.21	0.01	16.7	0.343	0.730	
3607.7	3548.4	2.449	34.911	34.911	2.146	27.889	34.821	37.079	41.519	45.859	6.31	22.0	1.21	0.01	16.8	0.321	0.664	
4005.3	3935.9	2.281	34.900	34.900	1.938	27.897	34.837	37.099	41.545	45.889	6.30	25.4	1.24	0.01	17.2	0.324	0.658	
4406.2	4325.9	2.248	34.896	34.896	1.860	27.900	34.844	37.106	41.554	45.901	6.29	26.3	1.26	0.01	17.3	0.359	0.770	
4628.8	4542.2	2.217	34.896	34.896	1.802	27.904	34.850	37.114	41.563	45.911	6.43	21.7	1.17	0.01	16.3	0.581	1.257	
4678.2	4590.2	2.215	34.896	34.895	1.795	27.905	34.851	37.115	41.564	45.913	6.44	20.9	1.18	0.01	16.1	0.612	1.323	
4728.1	4638.6	2.204	34.896	34.896	1.778	27.906	34.853	37.117	41.567	45.916	6.46	19.5	1.14	0.01	15.9	0.676	1.481	
4815.9	4723.8	2.209	34.896	34.894	1.773	27.906	34.854	37.118	41.568	45.917	6.46	19.1	1.15	0.01	15.8	0.714	1.530	

ENDEAVOR 223 Station 16 91-4-3 Lat: 44.502 Lon: 45.348 Sonic Depth: 4146

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	deg C	-----	-----	-----	-----	-----	ml/l	-----	-----	-----	-----	-----	-----	-----
12.7	12.6	7.865	34.348	34.347	7.863	26.782	33.505	35.696	40.004	44.217	6.88	3.5	0.51	0.16	4.6	2.045	4.391	.
108.5	107.6	7.803	34.612	34.620	7.792	27.000	33.723	35.913	40.221	44.433	5.79	7.1	0.87	0.18	10.7	1.753	3.743	.
250.8	248.6	5.611	34.614	34.618	5.590	27.299	34.100	36.316	40.674	44.933	5.08	12.4	1.31	0.03	17.5	1.299	2.845	.
377.3	373.9	5.423	34.853	34.852	5.391	27.512	34.318	36.535	40.896	45.158	4.99	13.5	1.37	0.02	19.0	0.976	2.118	.
500.3	495.7	5.167	34.960	34.962	5.126	27.629	34.443	36.663	41.029	45.297	5.32	13.0	1.30	0.01	18.6	0.880	1.884	.
627.2	621.2	4.851	34.986	34.984	4.801	27.687	34.513	36.738	41.111	45.386	5.59	12.5	1.28	0.01	18.1	0.837	1.795	.
752.5	745.1	4.153	34.933	34.935	4.096	27.723	34.577	36.810	41.201	45.492	6.05	11.8	1.21	0.01	17.3	1.104	2.386	.
879.5	870.6	4.198	34.961	34.960	4.130	27.742	34.594	36.826	41.216	45.507	6.06	12.1	1.22	0.01	17.4	0.829	1.782	.
1002.4	991.9	3.948	34.941	34.941	3.872	27.753	34.615	36.851	41.247	45.544	6.16	12.0	1.22	0.01	17.2	0.823	1.782	.
1155.2	1142.7	3.699	34.918	34.916	3.612	27.761	34.634	36.873	41.276	45.579	6.32	11.8	1.19	0.01	17.0	0.896	1.923	.
1306.6	1292.0	3.495	34.896	34.890	3.397	27.764	34.646	36.888	41.297	45.605	6.47	11.7	1.15	0.01	16.8	1.026	2.227	.
1456.4	1439.6	3.326	34.877	34.879	3.217	27.767	34.655	36.900	41.313	45.627	6.58	11.4	1.17	0.00	16.6	1.192	2.583	.
1604.8	1585.7	3.131	34.857	34.856	3.012	27.770	34.667	36.915	41.333	45.652	6.70	10.7	1.12	0.00	16.2	1.397	3.014	.
1806.8	1784.5	3.141	34.867	34.867	3.003	.	.	.	.	.	6.64	10.8	1.12	0.00	16.2	.	.	.
2056.3	2029.7	3.432	34.935	34.935	3.268	27.808	34.694	36.938	41.349	45.661	6.29	13.6	1.18	0.00	16.9	0.464	0.966	.
2307.9	2276.7	3.257	34.932	34.933	3.071	27.824	34.718	36.965	41.381	45.697	6.33	14.2	1.19	0.00	16.7	0.442	0.962	.
2557.3	2521.3	3.023	34.927	34.927	2.817	27.844	34.748	36.998	41.421	45.743	6.37	14.2	1.13	0.02	16.3	0.522	1.094	.
2809.0	2767.8	2.834	34.924	34.922	2.607	27.860	34.773	37.025	41.454	45.782	6.40	14.3	1.15	0.00	16.1	0.587	1.202	.
3006.6	2961.2	2.694	34.920	34.920	2.449	27.870	34.790	37.044	41.477	45.809	6.42	15.4	1.14	0.00	16.1	0.528	1.154	.
3210.1	3160.2	2.554	34.916	34.916	2.291	27.881	34.806	37.063	41.500	45.836	6.38	18.6	1.18	0.00	16.6	0.407	0.860	.
3459.8	3404.0	2.399	34.911	34.910	2.114	27.891	34.825	37.084	41.525	45.865	6.35	21.6	1.19	0.00	16.9	0.334	0.714	.
3706.7	3644.9	2.280	34.904	34.903	1.971	27.897	34.836	37.097	41.542	45.887	6.35	22.7	1.14	0.00	17.0	0.390	0.796	.
3960.5	3892.2	2.206	34.898	34.898	1.870	27.900	34.844	37.106	41.554	45.901	6.39	22.7	1.14	0.00	16.7	0.464	1.012	.
4237.4	4161.7	2.072	34.895	34.894	1.709	27.910	34.861	37.125	41.577	45.928	6.58	15.4	1.06	0.00	15.1	0.896	1.984	.

ENDEAVOR 223 Station 17 91-4-3 Lat: 44.699 Lon: 46.082 Sonic Depth: 3733

Tr and He sampled

PR	DE	T	CTD	S	PSU	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	deg C	kg/m**3	kg/m**3	kg/m**3	kg/m**3	kg/m**3	kg/m**3	m/l	umol/l	umol/l	umol/l	umol/l	pm/kg	pm/kg	pm/kg
8.5	8.4	5.507	34.030	34.032	5.506	26.847	33.658	35.877	40.241	44.507	7.14	4.6	0.60	0.21	5.4	2.444	4.607		
101.0	100.2	6.031		34.325	6.033						6.47	6.5	0.80	0.27	8.8	2.118	4.212		
199.3	197.6	4.639		34.456	4.636						5.41	12.3	1.25	0.02	16.6	1.563	3.314		
300.3	297.7	5.221	34.850	34.851	5.197	27.533	34.346	36.566	40.931	45.198	5.11	13.4	1.36	0.01	18.8	1.054	2.247		
400.5	396.9	5.010	34.932	34.934	4.978	27.624	34.444	36.666	41.036	45.307	5.39	13.0	1.31	0.01	18.2				
501.0	496.3	4.887	34.987	34.989	4.847	27.683	34.507	36.731	41.103	45.377	5.62	12.6	1.28	0.01	17.9	0.894	1.853		
604.3	598.5	4.602	34.978	34.979	4.555	27.709	34.544	36.772	41.151	45.432	5.76	12.3	1.26	0.01	17.6	0.861	1.832		
702.1	695.2	4.490	34.986	34.984	4.435	27.728	34.568	36.797	41.179	45.463	5.89	12.3	1.25	0.01	17.5	0.861	1.716		
803.0	795.0	4.268	34.971	34.971	4.206	27.741	34.590	36.822	41.210	45.499	5.99	12.3	1.24	0.01	17.3				
901.6	892.4	4.084	34.955	34.956	4.015	27.749	34.605	36.840	41.232	45.526	6.09	12.1	1.22	0.00	17.1	0.857	1.739		
1054.2	1043.0	3.887	34.940	34.940	3.807	27.759	34.623	36.860	41.258	45.557	6.57	12.0	1.21	0.00	16.9	0.810	1.752		
1204.4	1191.2	3.698	34.922	34.924	3.607	27.765	34.637	36.877	41.280	45.583	6.35	12.0	1.20	0.00	16.7	0.810	1.693		
1356.5	1341.2	3.350	34.878	34.877	3.250	27.764	34.652	36.896	41.308	45.621	6.57	11.0	1.17	0.01	16.2	1.179	2.595		
1531.2	1513.3	3.166	34.856	34.857	3.053	27.765	34.661	36.908	41.325	45.643	6.70	10.6	1.15	0.01	16.0	1.406	2.976		
1707.3	1686.6	3.106	34.856	34.856	2.979	27.772	34.671	36.919	41.338	45.657	6.73	10.6	1.14	0.01	15.8	1.384	2.939		
1951.6	1926.8	3.215	34.898	34.897	3.064	27.798	34.693	36.939	41.356	45.673	6.50	11.9	1.15	0.01	16.0	0.963	1.955		
2155.4	2127.0	3.332	34.941	34.942	3.160	27.823	34.714	36.959	41.373	45.687	6.28	14.8	1.20	0.01	16.6	0.368	0.761		
2405.6	2372.5	3.186	34.942	34.940	2.992	27.840	34.737	36.984	41.402	45.721	6.24	16.0	1.20	0.01	16.7	0.311	0.569		
2656.5	2618.5	2.973	34.932	34.931	2.758	27.853	34.760	37.010	41.434	45.758	6.31	16.1	1.18	0.01	16.4	0.382	0.710		
2907.0	2863.7	2.798	34.926	34.926	2.561	27.866	34.780	37.033	41.463	45.792	6.40	16.1	1.16	0.01	16.1	0.456	0.849		
3106.9	3059.2	2.642	34.919	34.919	2.388	27.875	34.797	37.052	41.486	45.819	6.41	16.1	1.16	0.01	16.0	0.519	1.013		
3305.9	3253.7	2.489	34.912	34.912	2.218	27.884	34.812	37.070	41.509	45.846	6.45	15.9	1.14	0.01	15.6	0.591	1.277		
3507.5	3450.5	2.313	34.905	34.906	2.024	27.894	34.831	37.091	41.535	45.877	6.42	18.9	1.16	0.01	16.0	0.520	1.116		
3757.4	3694.2	2.072	34.897	34.896	1.763	27.908	34.856	37.120	41.570	45.920	6.50	17.1	1.12	0.01	15.3	0.748	1.699		

ENDEAVOR 223 Station 18 91-4-4 Lat: 44.916 Lon: 46.614 Sonic Depth: 3565

Tr and He sampled

PR	DE	T	CTD S	S	PSU	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113	
dbars	meters	deg C	PSU	PSU	PSU	deg C	l	-kg/m**3	-kg/m**3	-kg/m**3	-kg/m**3	ml/l	l	umol/l	umol/l	umol/l	l	pm/kg	pm/kg	pm/kg
10.4	10.3	4.722	33.737	33.739	33.739	4.722	26.705	33.549	35.779	40.164	44.450	7.39	2.3	0.53	0.13	3.2	2.477	5.047		
150.4	149.1	4.010	34.293	34.291	34.291	3.999	27.224	34.089	36.326	40.724	45.023	5.91	10.6	1.13	0.05	14.3	1.860	3.996		
251.8	249.6	4.587	34.591	34.591	34.591	4.568	27.400	34.240	36.468	40.850	45.133	5.33	13.7	1.33	0.03	18.0	1.376	3.013		
326.5	323.6	5.699	34.895	34.879	34.879	5.671	27.511	34.306	36.520	40.874	45.130	4.86	14.2	1.42	0.02	19.9	0.831	1.905		
400.7	397.1	5.367	34.954	34.955	34.955	5.334	27.599	34.406	36.624	40.985	45.248	5.16	13.7	1.36	0.01	19.2	0.830	1.876		
476.8	472.4	5.032	34.987	34.987	34.987	4.994	27.666	34.485	36.707	41.075	45.346	5.52	13.1	1.31	0.01	18.5	0.814	1.892		
551.6	546.4	4.626	34.967	34.968	34.968	4.583	27.697	34.531	36.758	41.137	45.417	5.77	12.5	1.28	0.01	18.2	0.919	2.066		
627.1	621.1	4.420	34.953	34.953	34.953	4.372	27.709	34.552	36.782	41.166	45.451	5.92	12.3	1.26	0.01	18.0	1.024	2.224		
703.0	696.1	4.207	34.945	34.943	34.943	4.154	27.726	34.578	36.810	41.199	45.490	6.01	12.3	1.25	0.01	17.8	0.992	2.189		
778.3	770.5	4.069	34.939	34.937	34.937	4.010	27.737	34.594	36.828	41.221	45.515	6.12	12.0	1.24	0.01	17.6	0.974	2.091		
852.3	843.7	4.037	34.944	34.942	34.942	3.972	27.745	34.603	36.838	41.231	45.526	6.15	12.1	1.24	0.01	17.5	0.920	1.994		
952.0	942.1	3.739	34.913	34.911	34.911	3.669	27.751	34.622	36.860	41.262	45.564	6.31	12.0	1.21	0.00	17.3	1.044	2.213		
1103.8	1091.9	3.603	34.907	34.905	34.905	3.521	27.761	34.638	36.878	41.283	45.589	6.40	12.0	1.20	0.00	17.0	0.962	2.118		
1303.8	1289.2	3.523	34.907	34.907	34.907	3.426	27.771	34.651	36.893	41.300	45.608	6.43	12.2	1.20	0.00	17.0	0.884	1.891		
1505.6	1488.0	3.434	34.907	34.906	34.906	3.320	27.781	34.665	36.908	41.319	45.629	6.48	12.5	1.20	0.00	17.0	0.787	1.687		
1703.6	1682.9	3.441	34.923	34.922	34.922	3.309	27.795	34.679	36.922	41.333	45.644	6.36	13.3	1.20	0.00	17.0	0.640	1.252		
1906.5	1882.5	3.403	34.935	34.934	34.934	3.253	27.809	34.696	36.940	41.352	45.664	6.32	14.0	1.20	0.00	17.1	0.503	1.008		
2206.8	2177.4	3.248	34.938	34.938	34.938	3.072	27.829	34.723	36.969	41.385	45.702	6.30	15.0	1.21	0.00	17.0	0.366	0.753		
2506.3	2471.2	3.033	34.929	34.929	34.929	2.832	27.844	34.748	36.997	41.420	45.742	6.36	14.8	1.19	0.00	16.6	0.462	0.974		
2806.1	2764.9	2.858	34.925	34.924	34.924	2.630	27.859	34.771	37.023	41.450	45.778	6.41	14.9	1.17	0.00	16.3	0.502	1.127		
3008.0	2962.5	2.712	34.921	34.920	34.920	2.467	27.870	34.788	37.043	41.475	45.806	6.42	15.9	1.17	0.00	16.3	0.498	1.119		
3208.2	3158.2	2.549	34.916	34.915	34.915	2.287	27.881	34.807	37.064	41.500	45.836	6.43	16.9	1.17	0.00	16.3	0.507	1.053		
3409.1	3354.4	2.372	34.908	34.909	34.909	2.092	27.891	34.825	37.084	41.526	45.867	6.47	17.3	1.16	0.00	16.2	0.570	1.155		
3609.2	3549.7	2.248	34.904	34.902	34.902	1.950	27.899	34.839	37.100	41.546	45.890	6.48	17.8	1.16	0.00	16.0	0.601	1.393		

ENDEAVOR 223 Station 19 91-4-4 Lat: 45.149 Lon: 46.936 Sonic Depth: 3398

Tr and He sampled

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113	
dbars	meters	deg C	PSU	PSU	deg C	-----	-----	kg/m**3	-----	-----	ml/l	-----	-----	-----	-----	-----	-----	-----	-----
10.8	10.7	6.378	34.232	34.234	6.377	26.898	33.674	35.882	40.225	44.470	6.87	4.6	0.65	0.19	6.2	2.247	4.420		
150.7	149.4	4.898	34.419	34.418	4.887	27.228	34.057	36.283	40.658	44.935	5.61	10.9	1.14	0.04	14.8	1.690	3.638		
300.5	297.8	5.629	34.908	34.912	5.604	27.530	34.327	36.542	40.897	45.154	4.93	13.6	1.36	0.02	19.2	0.813	1.954		
352.5	349.3	5.259	34.925	34.924	5.230	27.589	34.399	36.619	40.982	45.248	5.20	13.3	1.32	0.01	18.7	0.894	1.985		
402.7	399.0	4.835	34.910	34.910	4.804	27.627	34.454	36.678	41.052	45.328	5.51	12.9	1.27	0.01	18.1	1.053	2.381		
502.7	498.0	4.734	34.963	34.962	4.694	27.681	34.512	36.737	41.113	45.391	5.64	12.5	1.27	0.01	17.9	0.957	2.042		
603.6	597.8	4.288	34.939	34.939	4.242	27.712	34.560	36.791	41.179	45.467	5.95	11.9	1.23	0.01	17.4	1.043	2.404		
703.5	696.6	4.105	34.932	34.934	4.052	27.727	34.582	36.816	41.208	45.501	6.10	11.9	1.23	0.01	17.3	1.012	2.371		
752.8	745.3	4.104	34.941	34.941	4.047	27.734	34.590	36.824	41.216	45.509	6.08	11.9	1.22	0.01	17.3	0.939	2.093		
803.5	795.4	4.108	34.952	34.951	4.047	27.743	34.599	36.832	41.224	45.517	6.10	12.1	1.22	0.01	17.3	0.845	1.841		
854.4	845.7	4.002	34.940	34.942	3.938	27.745	34.605	36.840	41.235	45.530	6.16	12.0	1.20	0.01	17.2	0.884	1.976		
903.8	894.5	3.870	34.924	34.928	3.803	27.746	34.611	36.848	41.247	45.545	6.26	11.8	1.20	0.01	17.1	0.938	2.088		
1001.9	991.4	3.752	34.918	34.917	3.677	27.754	34.624	36.863	41.264	45.566	6.30	11.8	1.19	0.01	16.9				
1153.6	1141.1	3.585	34.906	34.906	3.499	27.762	34.640	36.881	41.286	45.593	6.38	11.8	1.19	0.01	16.9	0.934	2.072		
1304.9	1290.2	3.459	34.896	34.896	3.362	27.768	34.651	36.893	41.303	45.612	6.46	11.8	1.18	0.01	16.6	0.935	2.127		
1505.1	1487.5	3.298	34.883	34.882	3.186	27.774	34.664	36.909	41.323	45.637	6.55	11.8	1.16	0.01	16.4	1.008	2.347		
1705.6	1684.8	3.300	34.892	34.894	3.170	27.783	34.674	36.919	41.333	45.647	6.51	12.0	1.16	0.01	16.4	0.922	2.031		
1956.3	1931.4	3.353	34.925	34.924	3.199	27.807	34.696	36.940	41.354	45.667	6.35	13.4	1.18	0.01	16.7	0.509	1.185		
2305.6	2274.3	3.148	34.927	34.927	2.964	27.830	34.729	36.976	41.395	45.715	6.36	14.1	1.16	0.01	16.4	0.515	1.046		
2608.0	2570.8	2.959	34.928	34.929	2.749	27.851	34.758	37.008	41.433	45.757	6.34	15.3	1.17	0.01	16.4	0.429	0.885		
2805.2	2764.0	2.819	34.923	34.923	2.592	27.860	34.774	37.027	41.455	45.784	6.41	14.9	1.15	0.01	16.1	0.508	1.079		
3005.3	2959.8	2.703	34.920	34.920	2.458	27.870	34.789	37.043	41.475	45.807	6.42	15.6	1.15	0.01	16.0	0.513	1.166		
3208.6	3158.5	2.547	34.915	34.915	2.285	27.880	34.807	37.063	41.500	45.836	6.41	16.8	1.15	0.01	16.0	0.512	1.097		
3431.3	3376.0	2.151	34.899	34.900	1.874	27.901	34.844	37.106	41.554	45.901	6.47	17.3	1.15	0.01	15.7	0.688	1.466		

ENDEAVOR 223 Station 20 91-4-4 Lat: 45.338 Lon: 47.243 Sonic Depth: 2857

Tr and He sampled

PR	DE	T	CTD	S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	PSU	deg C	kg/m**3	kg/m**3	kg/m**3	kg/m**3	kg/m**3	ml/l	umol/l	umol/l	umol/l	umol/l	pm/kg	pm/kg	pm/kg
9.9	9.8	3.112	33.500	33.502	33.502	3.112	26.678	33.588	35.839	40.266	44.592	7.79						0.002	
99.2	98.4	2.382	33.922	33.930	33.930	2.376	27.078	34.013	36.272	40.714	45.056	7.78	1.3	0.47	0.12	2.5	2.795	5.709	
201.5	199.8	3.922	34.539	34.534	34.534	3.908	27.429	34.295	36.532	40.930	45.230	6.92	8.6	0.94	0.10	10.7	2.527	5.399	
251.3	249.1	4.947	34.791	34.792	34.792	4.927	27.518	34.342	36.565	40.937	45.211	5.74	12.1	1.22	0.02	16.5	1.695	3.633	
299.2	296.5	4.949		34.869	34.869	4.925						5.26	13.3	1.30	0.01	18.3	0.799	1.713	
351.6	348.4	4.632	34.884	34.883	34.883	4.606	27.629	34.463	36.690	41.069	45.349	5.61	12.1	1.26	0.01	17.8	1.195	2.718	
401.1	397.4	4.417	34.891	34.890	34.890	4.387	27.658	34.501	36.731	41.115	45.400	5.80	12.0	1.24	0.01	17.5	1.254	2.837	
451.9	447.7	4.432	34.934	34.931	34.931	4.398	27.691	34.533	36.763	41.146	45.431	5.85	12.1	1.23	0.01	17.5	1.179	2.543	
503.5	498.8	4.547	34.966	34.964	34.964	4.508	27.704	34.542	36.770	41.150	45.432	5.83	12.1	1.23	0.01	17.6	0.990	2.256	
552.3	547.1	4.366	34.957	34.941	34.941	4.324	27.718	34.562	36.792	41.177	45.464	5.89	12.1	1.23	0.01	17.5	1.190	2.577	
602.3	596.5	4.292	34.957	34.957	34.957	4.247	27.726	34.573	36.805	41.192	45.480	5.94	12.1	1.23	0.01	17.5	0.958	2.209	
652.7	646.4	4.359	34.979	34.979	34.979	4.309	27.737	34.582	36.812	41.197	45.484	5.93	12.1	1.23	0.01	17.5	0.975	2.231	
703.5	696.6	4.189	34.960	34.960	34.960	4.135	27.740	34.592	36.825	41.214	45.505	6.03	12.1	1.21	0.00	17.4	0.891	1.865	
804.3	796.2	3.989	34.942	34.940	34.940	3.929	27.748	34.608	36.843	41.238	45.534	6.14	11.9	1.19	0.00	17.1	0.897	2.007	
903.1	893.8	3.806	34.923	34.922	34.922	3.739	27.752	34.620	36.857	41.257	45.558	6.26	11.8	1.19	0.00	17.0	0.948	2.203	
1003.6	993.0	3.671	34.911	34.910	34.910	3.597	27.757	34.630	36.870	41.273	45.577	6.35	11.8	1.18	0.00	16.9	0.968	2.290	
1154.0	1141.4	3.539	34.901	34.902	34.902	3.453	27.763	34.642	36.884	41.291	45.598	6.42	11.8	1.17	0.00	16.7	0.981	2.273	
1304.5	1289.8	3.459	34.897	34.896	34.896	3.362	27.769	34.652	36.894	41.304	45.613	6.46	11.7	1.16	0.00	16.7	0.972	2.239	
1503.8	1486.2	3.455	34.911	34.911	34.911	3.340	27.782	34.665	36.908	41.318	45.628	6.41	12.3	1.16	0.00	16.8	0.762	1.779	
1705.6	1684.8	3.369	34.911	34.910	34.910	3.238	27.792	34.679	36.924	41.336	45.649	6.43	12.4	1.15	0.00	16.6	0.749	1.742	
2006.6	1980.7	3.285	34.922	34.921	34.921	3.127	27.811	34.703	36.949	41.364	45.679	6.38	13.1	1.15	0.00	16.5	0.597	1.394	
2304.7	2273.4	3.138	34.928	34.929	34.929	2.955	27.832	34.731	36.978	41.398	45.717	6.35	14.0	1.15	0.00	16.5	0.501	1.139	
2605.2	2568.0	2.913	34.925	34.925	34.925	2.705	27.852	34.761	37.012	41.438	45.764	6.39	14.5	1.14	0.00	16.2	0.516	1.155	
2839.1	2797.1	2.723	34.921	34.921	34.921	2.494	27.867	34.785	37.039	41.470	45.801	6.40	15.4	1.14	0.00	16.1	0.481	1.139	

ENDEAVOR 223 Station 21 91-4-4 Lat: 45.499 Lon: 47.638 Sonic Depth: 2011

Tr and He sampled

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	deg C	-----	-----	-----	-----	-----	ml/l	-----	-----	-----	-----	-----	-----	-----
								kg/m**3				umol/l						
10.7	10.6	-0.596	33.208		-0.596	26.686	33.759	36.063	40.593	45.019	8.30	8.8	0.88	0.06	8.4	3.285	6.838	
50.9	50.5	1.666		33.821	1.664						7.57	9.1	0.91	0.10	10.0	2.885	5.748	
101.5	100.6	0.513	33.951	34.051	0.509	27.232	34.245	36.531	41.023	45.413	7.35	10.0	0.99	0.05	12.2	2.588	5.382	
149.1	147.8	1.203	34.229	34.226	1.196	27.412	34.393	36.667	41.138	45.508	7.23	10.4	1.03	0.02	13.3	2.653	5.411	
201.4	199.7	3.021	34.564	34.569	3.008	27.536	34.437	36.686	41.107	45.428	6.50	10.4	1.13	0.01	15.5	2.079	4.427	
250.5	248.3	4.007	34.792	34.789	3.989	27.622	34.481	36.717	41.111	45.406	5.97	11.5	1.23	0.01	17.3	1.591	3.293	
301.4	298.7	4.153	34.851	34.851	4.132	27.654	34.507	36.740	41.131	45.423	5.95	11.7	1.23	0.01	17.5	1.442	3.193	
351.6	348.4	4.269	34.896	34.900	4.244	27.678	34.526	36.758	41.145	45.434	5.93	11.8	1.24	0.01	17.6	1.292	2.885	
401.3	397.6	4.199	34.903	34.918	4.170	27.691	34.542	36.775	41.164	45.454	6.06	11.8	1.23	0.01	17.5			
452.5	448.3	4.264	34.939	34.939	4.230	27.713	34.562	36.793	41.181	45.469	5.98	11.8	1.23	0.01	17.6	1.099	2.354	
502.0	497.3	4.042	34.923	34.922	4.005	27.725	34.582	36.816	41.209	45.503	6.13	11.5	1.23	0.01	17.4	1.153	2.596	
552.4	547.2	3.934	34.917	34.916	3.893	27.731	34.593	36.829	41.225	45.522	6.19	11.5	1.22	0.01	17.3	1.164	2.591	
603.2	597.4	3.851	34.911	34.914	3.807	27.735	34.601	36.838	41.236	45.535	6.23	11.4	1.21	0.01	17.2	1.102	2.536	
652.7	646.4	3.821	34.914	34.914	3.773	27.741	34.608	36.845	41.244	45.544	6.26	11.5	1.21	0.01	17.1	1.084	2.478	
702.1	695.2	3.740	34.910	34.909	3.689	27.747	34.616	36.855	41.256	45.558	6.31	11.7	1.19	0.01	17.0	1.161	2.341	
801.5	793.4	3.655	34.905	34.903	3.597	27.752	34.625	36.865	41.268	45.572	6.35	11.7	1.19	0.01	16.9	1.033	2.384	
952.6	942.7	3.511	34.897	34.898	3.442	27.761	34.641	36.882	41.290	45.597	6.44	11.7	1.19	0.01	16.9	1.034	2.247	
1078.9	1067.3	3.467	34.898	34.897	3.388	27.767	34.649	36.891	41.300	45.609	6.45	11.8	1.18	0.01	16.8	0.985	2.203	
1202.9	1189.6	3.392	34.895	34.894	3.304	27.773	34.658	36.901	41.312	45.623	6.50	11.9	1.18	0.01	16.8	0.988	2.224	
1353.6	1338.2	3.439	34.913	34.912	3.338	27.784	34.667	36.910	41.320	45.630	6.43	12.7	1.19	0.01	16.9	0.741	1.718	
1505.0	1487.3	3.234	34.887	34.885	3.123	27.784	34.676	36.922	41.337	45.653		12.1	1.16	0.01	16.5	1.034	2.327	
1705.9	1685.1	3.210	34.893	34.894	3.081	27.792	34.686	36.933	41.349	45.666	6.53	12.2	1.14	0.01	16.4	0.938	2.063	
1904.3	1880.2	3.210	34.912	34.911	3.063	27.809	34.704	36.950	41.367	45.684	6.42	12.9	1.14	0.00	16.4	0.734	1.567	
2004.8	1979.0	3.178	34.918	34.917	3.023	27.818	34.714	36.961	41.379	45.696	6.38	13.2	1.16	0.01	16.5	0.686	1.462	

ENDEAVOR 223 Station 22 91-4-5 Lat: 45.677 Lon: 47.864 Sonic Depth: 1248

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	deg C	kg/m**3	kg/m**3	kg/m**3	kg/m**3	kg/m**3	m/l	umol/l	umol/l	umol/l	umol/l	pm/kg	pm/kg	pm/kg
10.8	10.7	-0.831			-0.831						8.32	8.4	0.89	0.05	7.7	3.385	7.097	
50.9	50.5	2.549	33.737	33.754	2.546	36.104	33.846	36.104	40.543	44.882	7.73	6.1	0.71	0.16	7.2	2.926	5.708	
100.3	99.5	2.378	34.052	34.056	2.372	36.375	34.116	36.375	40.816	45.156	7.15	7.9	0.93	0.04	11.2	2.598	5.414	
150.0	148.7	1.220	34.188	34.231	1.213	36.633	34.359	36.633	41.104	45.473	7.03	10.5	1.03	0.02	13.0	2.485	5.281	
201.2	199.5	1.506	34.360	34.407	1.496	36.732	34.463	36.732	41.194	45.555	7.18	10.4	1.05	0.01	13.7			
250.1	247.9	2.723	34.590	34.566	2.708	36.749	34.497	36.749	41.178	45.506	6.68	11.2	1.12	0.01	14.9	2.200	4.666	
301.3	298.6	3.304	34.722	34.716	3.284	36.769	34.525	36.769	41.182	45.495	6.58	10.9	1.13	0.01	15.6	2.045	4.430	
404.1	400.4	3.664	34.812	34.811	3.636	36.786	34.547	36.786	41.190	45.493	6.54	10.8	1.15	0.01	16.0	1.915	4.047	
552.3	547.1	3.737	34.868	34.867	3.698	36.821	34.582	36.821	41.222	45.524	6.56	10.4	1.15	0.01	16.3	1.812	3.748	
702.0	695.1	3.526	34.859	34.858	3.477	36.847	34.606	36.847	41.254	45.561	6.54	10.8	1.18	0.01	16.6	1.578	3.581	
753.0	745.5	3.467	34.858	34.857	3.415	36.856	34.614	36.856	41.264	45.573	6.62	10.7	1.17	0.01	16.4	1.656	3.647	
805.0	796.9	3.422	34.857	34.856	3.366	36.862	34.620	36.862	41.272	45.582	6.59	10.8	1.17	0.00	16.5	1.552	3.504	
852.4	843.7	3.370	34.853	34.853	3.310	36.868	34.624	36.868	41.279	45.590	6.64	10.8	1.17	0.00	16.3	1.649	3.527	
953.6	943.6	3.253	34.848	34.848	3.186	36.882	34.637	36.882	41.296	45.610	6.65	11.0	1.17	0.00	16.4	1.585	3.494	
1079.2	1067.6	3.207	34.851	34.852	3.130	36.893	34.647	36.893	41.308	45.624	6.65	11.0	1.17	0.00	16.3	1.515	3.324	
1185.3	1172.3	3.132	34.847		3.048	36.902	34.655	36.902	41.319	45.637	6.68	11.0	1.17	0.00	16.3	1.571	3.232	



ENDEAVOR 223 Station 23 91-4-10 Lat: 47.083 Lon: 47.049 Sonic Depth: 1118

Tr and He sampled

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113	
dbars	meters	deg C	PSU	PSU	deg C	-----	-----	-----	-----	-----	ml/l	-----	-----	-----	-----	-----	-----	-----	
15.5	15.4	-0.511	33.529	32.432	-0.511	26.942	34.007	36.309	40.833	45.254	8.20	9.0	0.90	0.06	10.1	3.185	6.783	.	
51.6	51.2	-0.340	33.636	32.897	-0.341	27.021	34.077	36.376	40.895	45.310	8.09	9.2	0.91	0.05	10.6	3.110	6.638	.	
101.2	100.3	-0.075	33.863	33.697	-0.079	27.192	34.233	36.527	41.037	45.443	7.72	9.8	0.97	0.06	11.8	2.856	6.314	.	
151.1	149.8	1.090	34.158	34.158	1.084	27.363	34.349	36.625	41.100	45.473	6.89	12.2	1.08	0.01	13.3	2.475	5.501	.	
201.8	200.0	1.688	34.315	34.319	1.678	27.447	34.406	36.674	41.131	45.487	6.76	13.0	1.10	0.01	14.0	2.405	5.296	.	
252.3	250.1	1.566	34.424	34.428	1.553	27.544	34.507	36.775	41.235	45.594	7.31	9.7	1.02	0.02	13.8	2.600	5.695	.	
302.3	299.6	2.150	34.563	34.564	2.133	27.611	34.548	36.808	41.251	45.594	7.24	9.3	1.05	0.02	14.4	2.637	5.327	.	
352.1	348.9	2.849	34.691	34.691	2.827	27.654	34.561	36.811	41.236	45.560	6.99	9.5	1.08	0.02	15.0	2.304	4.998	.	
402.0	398.3	3.476	34.800	34.799	3.449	27.683	34.563	36.805	41.213	45.522	6.71	10.1	1.13	0.01	15.8	2.007	4.445	.	
452.5	448.3	3.780	34.852	34.856	3.748	27.695	34.563	36.801	41.201	45.501	6.60	10.3	1.14	0.01	16.0	1.945	3.980	.	
551.4	546.1	3.681	34.865	34.864	3.642	27.716	34.588	36.827	41.230	45.533	6.59	10.2	1.15	0.01	16.2	1.847	3.789	.	
651.8	645.4	3.518	34.862	34.862	3.472	27.730	34.609	36.850	41.257	45.564	6.65	10.2	1.13	0.01	16.2	1.743	3.736	.	
752.6	745.0	3.411	.	34.857	3.358	.	.	.	.	.	.	.	.	.	.	.	.	.	.
852.9	844.1	3.310	34.853	34.853	3.251	27.744	34.632	36.876	41.289	45.602	6.70	10.2	1.14	0.01	16.2	1.644	3.553	.	
1003.3	992.6	3.146	34.847	34.846	3.076	27.756	34.651	36.897	41.314	45.631	6.74	10.8	1.14	0.01	16.1	.	.	.	
1107.6	1095.5	3.080	34.851	34.847	3.003	27.766	34.664	36.911	41.330	45.649	6.72	11.5	1.16	0.02	16.1	1.539	3.365	.	

ENDEAVOR 223 Station 24 91-4-10 Lat: 47.087 Lon: 46.675 Sonic Depth: 984

Tr and He sampled

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	deg C	l	kg/m**3	kg/m**3	kg/m**3	kg/m**3	m/l	umol/l	umol/l	umol/l	umol/l	pm/kg	pm/kg	pm/kg
10.3	10.2	-0.302	33.561		-0.303	26.959	34.014	36.312	40.831	45.246	8.17	8.9	0.90	0.06	10.2	3.138	6.817	
51.0	50.6	0.206	33.881	33.885	0.204	27.192	34.220	36.510	41.011	45.410	7.36	10.5	0.99	0.03	11.8	2.772	5.839	
101.1	100.2	1.101	34.220	34.220	1.096	27.412	34.397	36.672	41.146	45.518	7.11	10.5	1.03	0.03	13.1	2.531	5.581	
149.4	148.1	1.752	34.464	34.467	1.744	27.562	34.516	36.782	41.236	45.590	7.41	8.8	1.01	0.04	13.6	2.546	5.673	
200.1	198.3	2.408	34.614	34.611	2.397	27.630	34.555	36.812	41.248	45.584	7.16	9.2	1.05	0.02	14.4	2.427	5.140	
251.3	249.1	3.037	34.724	34.725	3.022	27.663	34.561	36.809	41.228	45.548	6.89	9.2	1.09	0.02	15.3	2.187	4.700	
302.8	300.1	3.395	34.787	34.792	3.375	27.680	34.563	36.806	41.216	45.526	6.77	9.4	1.11	0.02	15.7	1.930	4.339	
351.2	348.0	3.312	34.796	34.797	3.289	27.695	34.582	36.826	41.238	45.550	6.81	9.4	1.10	0.02	15.5	2.016	4.289	
402.5	398.8	3.468	34.826	34.828	3.441	27.704	34.585	36.827	41.235	45.543	6.76	9.7	1.12	0.01	15.9	1.927	4.072	
451.8	447.6	3.543	34.845	34.845	3.512	27.713	34.590	36.831	41.237	45.543	6.65	9.8	1.13	0.01	16.1	1.907	3.932	
552.0	546.7	3.500	34.852	34.854	3.462	27.723	34.603	36.844	41.251	45.559	6.71	10.0	1.13	0.02	16.1	1.761	3.916	
653.6	647.1	3.434	34.858		3.389	27.735	34.617	36.860	41.269	45.578	6.67	10.1	1.13	0.02	16.1	1.712	3.756	
751.5	743.9	3.298	34.847	34.847	3.246	27.740	34.628	36.872	41.285	45.598	6.67	10.5	1.16	0.02	16.3	1.628	3.602	
852.9	844.1	3.240	34.848	34.847	3.181	27.747	34.638	36.883	41.297	45.611	6.71	10.5	1.13	0.02	16.2	1.592	3.494	
1072.0	1060.4	3.073	34.850	34.848	2.998	27.766	34.664	36.911	41.330	45.649	6.73	11.3	1.14	0.02	16.0	1.502	3.252	

ENDEAVOR 223 Station 25 91-4-10 Lat: 47.169 Lon: 45.734 Sonic Depth: 278

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	deg C	kg/m**3	kg/m**3	kg/m**3	kg/m**3	kg/m**3	ml/l	umol/l	umol/l	umol/l	umol/l	pm/kg	pm/kg	pm/kg
9.8	9.7	1.667	33.760	33.765	1.666	27.003	33.969	36.239	40.701	45.062	7.98	7.4	0.77	0.12	8.7	3.216	6.283	
51.0	50.6	1.587	33.772	33.774	1.585	27.019	33.988	36.259	40.723	45.086	7.95	7.4	0.77	0.13	8.8	2.988	6.385	
150.0	148.7	2.610	34.320	34.308	2.601	27.378	34.298	36.553	40.986	45.319	6.91	9.2	1.03	0.03	13.7	1.875	4.195	
201.6	199.8	3.246	34.700	34.701	3.233	27.624	34.514	36.759	41.174	45.488	6.17	11.5	1.21	0.02	17.1	1.814	4.048	
266.6	264.2	3.289	34.756	34.756	3.272	27.665	34.553	36.797	41.210	45.523	6.23	12.1	1.22	0.02	17.2	1.850	4.013	

ENDEAVOR 223 Station 26 91- 4-10 Lat: 47.484 Lon: 45.151 Sonic Depth: 233

Tr and He sampled

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	deg C	kg/m**3	kg/m**3	kg/m**3	kg/m**3	kg/m**3	ml/l	umol/l	umol/l	umol/l	umol/l	pm/kg	pm/kg	pm/kg
11.8	11.7	1.740	33.907	33.910	1.740	27.116	34.077	36.345	40.804	45.162	7.94	6.9	0.77	0.13	9.5	2.958	6.297	0.592
50.0	49.6	1.661	33.922	33.921	1.659	27.134	34.098	36.367	40.829	45.188	7.91	7.4	0.82	0.14	10.3	3.059	6.251	.
100.6	99.7	1.572	33.994	34.003	1.567	27.198	34.165	36.436	40.899	45.260	7.87	7.0	0.77	0.14	9.5	2.916	6.170	.
149.9	148.6	1.803	34.276	34.278	1.795	27.407	34.362	36.628	41.082	45.436	7.26	8.6	0.97	0.04	12.9	2.763	5.524	.
190.3	188.6	2.709	34.502	34.505	2.698	27.515	34.429	36.682	41.111	45.440	6.39	10.7	1.14	0.02	16.0	2.252	4.905	.
200.4	198.6	2.893	34.558	34.562	2.880	27.543	34.449	36.700	41.124	45.448	6.21	11.5	1.20	0.02	16.7	.	.	0.315
220.1	218.1	2.940	34.576	34.579	2.927	27.553	34.458	36.707	41.130	45.453	6.11	11.8	1.22	0.02	16.9	2.035	4.628	0.315

ENDEAVOR 223 Station 27 91-4-10 Lat: 47.867 Lon: 44.799 Sonic Depth: 278

Tr and He sampled

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	deg C	-----kg/m**3-----	-----kg/m**3-----	-----kg/m**3-----	-----kg/m**3-----	-----kg/m**3-----	ml/l	-----umol/l-----	-----umol/l-----	-----umol/l-----	-----umol/l-----	-----pm/kg-----	-----pm/kg-----	-----pm/kg-----
9.2	9.1	1.778	33.847	33.852	1.777	27.065	34.025	36.293	40.752	45.109	7.95	7.5	0.79	0.13	9.2	3.015	6.212	0.547
49.6	49.2	1.085	33.855	33.861	1.083	27.119	34.109	36.387	40.864	45.239	8.00	8.0	0.84	0.10	10.1	2.963	6.441	
101.7	100.8	1.449	34.045	34.045	1.444	27.248	34.220	36.491	40.957	45.322	7.88	8.3	0.88	0.09	11.0	2.923	6.271	0.548
151.4	150.1	2.188	34.378	34.393	2.179	27.459	34.396	36.656	41.100	45.443	7.10	8.9	1.01	0.02	13.7	2.486	5.245	0.422
200.2	198.4	3.026	34.615	34.615	3.014	27.577	34.477	36.725	41.145	45.466	6.12	12.0	1.22	0.02	17.0	2.019	4.440	0.311
251.6	249.3	3.179	34.701	34.705	3.163	27.631	34.525	36.771	41.186	45.502	6.16	12.1	1.22	0.03	17.2	1.905	4.040	
265.2	262.8	3.218	34.731	34.728	3.201	27.652	34.543	36.788	41.203	45.518	6.17	12.3	1.21	0.05	17.3	1.813	3.969	0.256

ENDEAVOR 223 Station 28 91- 4-10 Lat: 48.368 Lon: 44.536 Sonic Depth: 905

Tr and He sampled

PR	DE	T	CTD S	S	PSU	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113	
dbars	meters	deg C	PSU	PSU	deg C	-----kg/m**3-----	-----	-----	-----	-----	-----	ml/l	-----umol/l-----	-----	-----	-----	-----	-----	-----	-----
11.4	11.3	2.122	34.334	34.337	2.122	27.429	34.369	36.630	41.075	45.420	7.80	8.4	0.90	0.09	0.09	11.9	2.714	5.881	.	.
101.4	100.5	2.113	34.392	34.391	2.107	27.476	34.416	36.677	41.123	45.467	7.59	8.0	0.92	0.09	0.09	12.3	2.654	5.634	.	.
175.5	173.9	2.369	34.589	34.593	2.359	27.613	34.540	36.797	41.235	45.571	7.31	8.5	1.01	0.03	0.03	14.0	2.373	5.110	.	.
225.4	223.4	2.763	34.692	34.690	2.749	27.662	34.572	36.823	41.250	45.576	7.10	8.9	1.06	0.01	0.01	14.7	2.240	4.889	.	.
277.5	275.0	3.013	34.747	34.740	2.996	27.684	34.583	36.831	41.251	45.570	6.96	9.1	1.07	0.01	0.01	15.2	2.080	4.575	.	.
327.6	324.6	3.641	34.852	34.852	3.618	27.708	34.581	36.820	41.224	45.527	6.55	10.0	1.13	0.00	0.00	16.2	1.712	3.783	.	.
427.6	423.6	3.467	34.852	34.845	3.438	27.725	34.606	36.848	41.255	45.564	6.55	10.1	1.14	0.00	0.00	16.3	1.632	3.595	.	.
527.0	521.9	3.380	34.853	34.852	3.344	27.735	34.619	36.862	41.273	45.583	6.57	10.3	1.14	0.00	0.00	16.4	1.535	3.497	.	.
628.8	622.6	3.309	34.854	34.851	3.266	27.744	34.631	36.875	41.287	45.599	6.64	10.3	1.14	0.00	0.00	16.2	1.558	3.353	.	.
728.9	721.5	3.210	34.851	34.847	3.160	27.751	34.643	36.888	41.303	45.618	6.65	10.9	1.15	0.00	0.00	16.3	1.526	3.364	.	.
828.4	819.8	3.090	.	34.845	3.129	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
901.5	892.0	3.063	.	34.847	3.002	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

ENDEAVOR 223 Station 29 91- 4-11 Lat: 48.637 Lon: 44.388 Sonic Depth: 1623

Tr and He sampled

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	FI2	FI1	FI13
dbars	meters	deg C	PSU	PSU	deg C	-----	-----	kg/m**3	-----	-----	ml/l	-----	-----	umol/l	-----	-----	-----	-----
12.9	12.8	1.645	34.307	34.306	1.645	27.443	34.404	36.672	41.130	45.487	7.82	9.0	0.94	0.06	12.5	2.872	5.948	
99.1	98.2	1.865	34.473	34.472	1.860	27.560	34.510	36.774	41.225	45.575	7.53	9.0	0.99	0.07	13.3	2.612	5.526	
149.2	147.9	2.272	34.553	34.558	2.264	27.592	34.524	36.782	41.222	45.562	7.47	8.8	1.00	0.07	13.7			
202.0	200.2	2.304	34.579	34.577	2.293	27.611	34.541	36.799	41.238	45.576	7.32	8.8	1.01	0.05	13.9	2.469	5.186	
250.9	248.6	2.766	34.690	34.686	2.751	27.660	34.570	36.822	41.248	45.574	7.03	9.0	1.05	0.01	14.7	2.255	4.868	
299.1	296.4	3.023	34.751	34.749	3.004	27.686	34.585	36.833	41.252	45.572	6.94	9.0	1.07	0.01	15.1	2.183	4.644	
401.5	397.7	2.950	34.762	34.760	2.925	27.702	34.604	36.853	41.274	45.596	6.98	9.0	1.07	0.01	15.2	2.121	4.514	
502.0	497.2	2.786		34.751	2.754													
603.0	597.0	2.823	34.763	34.764	2.785	27.716	34.623	36.874	41.299	45.624	7.02	9.0	1.06	0.01	15.1	2.219	4.547	
651.5	645.0	2.998	34.785	34.782	2.955	27.718	34.618	36.867	41.287	45.607	6.95	9.0	1.09	0.01	15.3	2.056	4.460	
700.8	693.7	3.054	34.798	34.793	3.007	27.723	34.621	36.869	41.288	45.607	6.93	9.0	1.09	0.01	15.4	1.989	4.395	
750.9	743.2	3.177	34.818		3.126	27.728	34.621	36.867	41.283	45.599	6.87	9.3	1.10	0.01	15.6	1.922	4.202	
851.1	842.2	3.324	34.852	34.848	3.264	27.742	34.629	36.874	41.286	45.598	6.76	9.7	1.11	0.01	16.0	1.779	3.734	
1002.4	991.5	3.242	34.858	34.854	3.171	27.756	34.647	36.892	41.306	45.621	6.75	10.1	1.12	0.00	16.0	1.554	3.285	
1154.1	1141.2	3.140	34.855	34.852	3.058	27.764	34.660	36.906	41.324	45.641	6.78	10.2	1.11	0.01	16.1	1.493	3.163	
1302.6	1287.6	3.104	34.857	34.854	3.011	27.770	34.667	36.915	41.333	45.652	6.78	10.2	1.11	0.00	16.1	1.542	3.151	
1454.3	1437.0	3.084	34.862	34.860	2.979	27.777	34.676	36.923	41.343	45.662	6.75	10.4	1.11	0.00	15.9	1.377	2.922	
1622.8	1602.9	3.135	34.879	34.876	3.015	27.787	34.684	36.931	41.350	45.668	6.66	10.7	1.13	0.01	16.1	1.179	2.548	

ENDEAVOR 223 Station 30 91- 4-11 Lat: 48.951 Lon: 44.183 Sonic Depth: 2395

Tr and He sampled

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	deg C	kg/m**3	kg/m**3	kg/m**3	kg/m**3	kg/m**3	ml/l	umol/l	umol/l	umol/l	umol/l	pm/kg	pm/kg	pm/kg
10.7	10.6	2.744	34.498	34.499	2.743	27.507	34.420	36.672	41.100	45.428	7.66	8.2	0.91	0.10	12.4	2.622	5.713	0.481
52.3	51.8	2.520	34.537	34.545	2.517	27.558	34.480	36.735	41.168	45.502	7.58	8.8	0.95	0.10	13.2	2.569	5.625	0.484
101.5	100.6	2.644	34.663	34.671	2.638	27.649	34.563	36.816	41.246	45.575	7.24	9.2	1.04	0.08	14.5	2.380	5.115	0.429
150.3	149.0	2.778	34.724	34.730	2.769	27.686	34.595	36.846	41.271	45.597	7.15	9.3	1.06	0.04	15.1	2.214	4.770	0.360
200.2	198.4	2.940	34.770	34.770	2.928	27.708	34.610	36.859	41.280	45.601	6.97	9.4	1.08	0.02	15.4	2.056	4.441	0.321
250.0	247.7	2.982	34.783	34.783	2.967	27.715	34.615	36.863	41.284	45.604	6.94	9.4	1.08	0.01	15.4	2.054	4.404	0.343
323.8	320.8	3.095	34.804	34.806	3.074	27.722	34.617	36.864	41.281	45.599	6.91	9.4	1.08	0.01	15.5	1.929	4.232	0.293
402.2	398.4	3.120	34.814	34.815	3.094	27.728	34.623	36.869	41.286	45.603	7.16	9.5	1.09	0.01	15.6	1.936	4.154	0.322
504.2	499.3	3.217	34.832	34.834	3.184	27.734	34.625	36.870	41.284	45.599	6.82	9.8	1.10	0.01	15.8	1.793	3.899	0.250
601.1	595.1	3.258	34.847	34.848	3.218	27.743	34.632	36.877	41.290	45.604	6.82	9.9	1.09	0.01	15.9	1.676	3.667	0.240
703.0	695.9	3.243	34.854	34.855	3.195	27.750	34.640	36.885	41.299	45.613	6.78	10.2	1.11	0.00	16.1	1.585	3.389	0.239
802.7	794.4	3.204	34.855	34.854	3.149	27.756	34.647	36.893	41.308	45.623	6.77	10.2	1.11	0.00	16.2	1.585	3.323	
902.0	892.4	3.174	34.854	34.855	3.111	27.758	34.652	36.898	41.314	45.630	6.77	10.2	1.12	0.00	16.2	1.510	3.233	0.216
1003.4	992.5	3.149	34.853	34.853	3.079	27.761	34.655	36.902	41.318	45.635	6.79	10.2	1.12	0.00	16.0	1.467	3.184	0.184
1102.8	1090.6	3.120	34.853	34.853	3.042	27.764	34.660	36.907	41.325	45.643	6.79	10.2	1.12	0.00	16.1	1.487	3.162	0.168
1201.7	1188.1	3.088	34.854	34.855	3.003	27.768	34.666	36.914	41.332	45.651	6.79	10.3	1.12	0.00	16.0	1.443	3.110	0.190
1354.0	1338.2	3.122	34.872	34.873	3.024	27.781	34.677	36.925	41.343	45.661	6.69	11.0	1.12	0.00	16.0	1.222	2.652	0.148
1505.9	1487.8	3.155	34.890	34.890	3.045	27.793	34.689	36.936	41.353	45.671	6.61	11.4	1.13	0.00	15.9	0.982	2.218	0.140
1652.6	1632.1	3.116	34.909	34.908	2.993	27.813	34.711	36.958	41.377	45.695	6.52	11.6	1.11	0.00	15.9	0.806	1.749	0.121
1804.7	1781.7	2.963	34.916	34.913	2.828	27.834	34.738	36.987	41.410	45.733	6.52	12.0	1.10	0.00	15.8	0.762	1.581	0.076
1953.4	1927.8	2.870	34.916	34.914	2.724	27.843	34.751	37.002	41.428	45.753	6.55	12.6	1.10	0.00	15.8	0.724	1.547	0.082
2104.6	2076.3	2.774	34.915	34.916	2.615	27.852	34.765	37.017	41.445	45.773	6.53	12.8	1.10	0.00	15.7	0.742	1.574	0.077
2281.1	2249.5	2.684	34.914	34.915	2.511	27.860	34.777	37.031	41.462	45.792	6.52	12.8	1.10	0.00	15.6	0.724	1.556	0.102
2407.6	2373.6	2.666	34.913	34.912	2.481	27.862	34.780	37.034	41.466	45.797	6.53	12.8	1.09	0.00	15.5	0.762	1.636	0.099



ENDEAVOR 223 Station 31 91-4-11 Lat: 49.134 Lon: 44.000 Sonic Depth: 3220

Tr and He sampled

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	deg C	kg/m**3	kg/m**3	kg/m**3	kg/m**3	kg/m**3	ml/l	umol/l	umol/l	umol/l	umol/l	pm/kg	pm/kg	pm/kg
9.9	9.8	3.917	34.419	34.421	3.916	27.333	34.199	36.437	40.836	45.136	7.45	7.3	0.86	0.14	11.1	2.547	5.287	
73.9	73.3	3.440	34.601	34.602	3.435	27.526	34.409	36.652	41.062	45.372	6.69	9.4	1.07	0.06	15.0	2.144	4.344	
151.7	150.4	3.648	34.782	34.772	3.638	27.650	34.523	36.763	41.166	45.470	6.50	10.3	1.12	0.02	16.1	1.829	3.783	
228.4	226.3	3.384	34.783	34.777	3.369	27.677	34.561	36.804	41.214	45.524	6.81	9.7	1.09	0.01	15.9	2.022	4.177	
301.1	298.3	3.173	34.794	34.787	3.154	27.706	34.599	36.845	41.260	45.575	6.84	9.5	1.09	0.00	15.8	2.075	4.108	
376.6	373.1	3.132	34.802	34.798	3.108	27.717	34.611	36.858	41.274	45.591	6.88	9.4	1.08	0.00	15.6	2.065	4.211	
451.9	447.6	3.185	34.817	34.814	3.155	27.725	34.617	36.862	41.277	45.593	6.81	9.5	1.09	0.00	15.8	1.990	3.983	
551.7	546.3	3.308	34.841	34.839	3.271	27.733	34.620	36.864	41.276	45.588	6.76	9.9	1.11	0.00	16.0	1.875	3.703	
652.4	645.8	3.350	34.856	34.856	3.305	27.741	34.627	36.871	41.282	45.593	6.72	10.1	1.11	0.00	16.1	1.625	3.506	
752.1	744.4	3.302	34.857	34.856	3.250	27.748	34.635	36.880	41.292	45.605	6.73	10.2	1.12	0.00	16.2	1.693	3.295	
852.5	843.5	3.223	34.854	34.854	3.164	27.753	34.645	36.890	41.305	45.619	6.76	10.3	1.11	0.00	16.1	1.531	3.250	
952.1	941.9	3.167	34.852	34.852	3.101	27.758	34.651	36.898	41.314	45.630	6.76	10.3	1.11	0.00	16.0	1.537	3.225	
1103.0	1090.7	3.107	34.851	34.852	3.030	27.764	34.660	36.907	41.325	45.644	6.78	10.9	1.12	0.00	16.0	1.629	3.032	
1253.7	1239.3	3.080		34.853	2.991													
1403.3	1386.7	3.156	34.874	34.875	3.054	27.780	34.675	36.922	41.339	45.656	6.66	11.8	1.12	0.00	16.2	1.141	2.404	
1553.7	1534.8	3.221	34.900	34.900	3.105	27.796	34.689	36.935	41.350	45.666	6.53	11.8	1.12	0.00	16.2	0.866	1.836	
1705.2	1683.8	3.209	34.916	34.915	3.080	27.811	34.705	36.951	41.367	45.683	6.46	12.2	1.12	0.00	16.1	0.615	1.404	
1903.2	1878.5	3.084	34.923	34.922	2.939	27.829	34.729	36.977	41.397	45.716	6.42	13.0	1.12	0.00	16.1	0.582	1.234	
2105.6	2077.3	2.975	34.926	34.925	2.813	27.843	34.748	36.997	41.420	45.743	6.42	13.4	1.13	0.01	16.1	0.555	1.110	
2356.2	2323.1	2.755	34.920	34.919	2.573	27.860	34.774	37.027	41.456	45.785	6.48	13.4	1.10	0.01	15.6	0.635	1.300	0.077
2607.7	2569.6	2.566	34.920	34.920	2.363	27.878	34.801	37.056	41.491	45.825	6.43	16.2	1.13	0.01	16.0	0.496	1.016	0.068
2854.6	2811.3	2.307	34.904	34.903	2.086	27.888	34.822	37.082	41.524	45.865	6.61	13.5	1.08	0.01	15.2	0.727	1.642	0.105
3107.5	3058.6	1.996	34.892	34.894	1.757	27.904	34.853	37.117	41.567	45.917	6.67	13.8	1.05	0.01	14.9	0.877	1.935	0.105
3257.0	3204.6	1.909	34.888	34.889	1.657	27.909	34.861	37.127	41.580	45.932	6.72	12.9	1.03	0.01	14.7	1.104	2.230	0.114

ENDEAVOR 223 Station 32 91-4-11 Lat: 49.333 Lon: 43.819 Sonic Depth: 3899

Tr and He sampled

PR	DE	T	CTDS	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113	
dbars	meters	deg C	PSU	PSU	deg C	-----	-----	-----	-----	-----	ml/l	-----	-----	-----	-----	-----	-----	-----	-----
						-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
9.9	9.8	3.767	34.334	34.335	3.766	27.280	34.154	36.394	40.797	45.101	7.54	7.3	0.82	0.13	10.3	2.513	5.443	0.503	
123.6	122.5	2.319	34.585	34.584	2.312	27.614	34.543	36.801	41.239	45.577	7.33	8.8	1.03	0.03	14.3	2.390	5.210	0.420	
199.3	197.5	3.106	34.732	34.729	3.093	27.663	34.558	36.805	41.222	45.540	6.87	9.5	1.10	0.02	15.5	2.032	4.384	0.322	
274.3	271.8	2.698	34.710	34.709	2.682	27.682	34.595	36.847	41.275	45.603	7.14	9.1	1.08	0.01	15.2	2.172	4.775	0.387	
352.1	348.8	3.054	34.773	34.774	3.031	27.701	34.599	36.846	41.265	45.583	6.93	9.5	1.10	0.01	15.6	2.028	4.341	0.320	
425.4	421.3	3.234	34.810	34.810	3.206	27.714	34.604	36.849	41.263	45.577	6.88	9.5	1.10	0.01	15.7	1.934	4.213	0.293	
524.7	519.6	3.273	34.826	34.826	3.238	27.724	34.613	36.857	41.270	45.583	6.82	9.7	1.10	0.00	15.8	1.803	3.961	0.273	
626.0	619.7	3.349	34.844	34.845	3.306	27.732	34.618	36.861	41.272	45.584	6.77	10.0	1.11	0.00	16.0	1.681	3.779	0.297	
750.9	743.2	3.355	34.857	34.857	3.303	27.742	34.628	36.872	41.283	45.594	6.72	10.1	1.14	0.00	16.2	1.569	3.397	0.205	
901.7	892.1	3.300	34.859	34.859	3.237	27.750	34.639	36.883	41.296	45.609	6.74	10.3	1.14	0.00	16.2	1.417	3.123	0.169	
1102.9	1090.6	3.156	34.852	34.851	3.079	27.760	34.655	36.901	41.318	45.635	6.79	10.1	1.12	0.00	16.1	1.479	3.240	0.188	
1303.3	1288.2	3.155	34.860	34.860	3.062	27.768	34.663	36.910	41.327	45.644	6.75	10.4	1.14	0.00	16.1	1.339	2.909		
1501.5	1483.4	3.241	34.887	34.886	3.130	27.783	34.675	36.921	41.336	45.652	6.62	11.4	1.14	0.00	16.3	0.985	2.206	0.167	
1704.8	1683.4	3.260	34.905	34.907	3.130	27.797	34.689	36.935	41.350	45.665	6.52	11.8	1.14	0.00	16.2	0.748	1.694	0.075	
1904.8	1880.0	3.131	34.913	34.913	2.985	27.817	34.715	36.962	41.381	45.700	6.48	11.8	1.13	0.00	16.0	0.693	1.605	0.082	
2105.5	2077.1	2.961	34.914	34.913	2.800	27.835	34.740	36.990	41.413	45.737	6.50	12.1	1.12	0.00	15.8	0.710	1.622	0.072	
2357.0	2323.9	2.817	34.925	34.926	2.634	27.858	34.770	37.022	41.450	45.777	6.44	14.2	1.13	0.00	16.0	0.515	1.111	0.050	
2606.2	2568.1	2.614	34.922	34.921	2.411	27.875	34.796	37.051	41.485	45.817	6.45	15.6	1.13	0.00	16.0	0.494	1.105	0.056	
2857.7	2814.3	2.410	34.913	34.913	2.186	27.887	34.817	37.075	41.514	45.853	6.46	17.2	1.15	0.00	16.1	0.483	1.059	0.047	
3108.1	3059.1	2.282	34.907	34.909	2.036	27.894	34.831	37.091	41.534	45.877	6.45	19.3	1.16	0.00	16.2	0.452	0.988	0.053	
3358.7	3303.8	2.177	34.901	34.903	1.908	27.900	34.842	37.104	41.550	45.896	6.50	19.0	1.14	0.00	16.0	0.562	1.237	0.065	
3608.5	3547.5	2.085	34.898	34.897	1.791	27.906	34.853	37.117	41.566	45.915	6.59	16.3	1.09	0.00	15.4	0.767	1.690	0.069	
3807.6	3741.6	1.879	34.888	34.889	1.569	27.915	34.872	37.138	41.594	45.948	6.73	13.1	1.05	0.00	14.7	1.064	2.350	0.117	
3966.1	3895.9	1.887	34.888	34.888	1.560	27.916	34.873	37.139	41.595	45.950	6.71	12.9	1.04	0.00	14.5	1.076	2.385	0.111	

ENDEAVOR 223 Station 33 91- 4-12 Lat: 49.507 Lon: 43.627 Sonic Depth: 4013

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	deg C	-----	-----	kg/m**3	-----	-----	ml/l	-----	-----	umol/l	-----	-----	-----	-----
13.3	13.2	3.023	34.398	34.398	3.022	27.519	34.437	36.691	41.123	45.454	7.28	9.3	0.96	0.13	13.1	2.564	5.379	
75.2	74.5	2.614	34.498	34.497	2.610	27.685	34.579	36.825	41.242	45.558	6.75	10.4	1.10	0.03	15.7	2.109	4.367	
151.6	150.3	3.129	34.763	34.764	3.119	27.690	34.586	36.832	41.250	45.567	6.80	10.4	1.10	0.02	15.7	2.076	4.389	
201.6	199.8	3.101	34.766	34.767	3.088	27.700	34.593	36.839	41.255	45.571	6.60	10.5	1.12	0.02	15.8	1.964	4.291	
251.4	249.1	3.153	34.784	34.791	3.137	27.707	34.599	36.845	41.259	45.575	6.61	10.4	1.11	0.02	15.9	1.952	4.170	
326.6	323.6	3.191	34.797	34.790	3.170	27.719	34.600	36.842	41.250	45.558	6.64	10.5	1.12	0.02	16.0	1.837	3.954	
402.9	399.1	3.458	34.843	34.845	3.431	27.729	34.616	36.860	41.271	45.583	6.71	10.5	1.11	0.01	16.0	1.748	3.830	
551.9	546.5	3.322	34.838	34.839	3.285	27.740	34.624	36.867	41.277	45.588	6.55	10.6	1.13	0.02	16.3	1.670	3.599	
701.9	694.7	3.388	34.858	34.857	3.339	27.752	34.635	36.877	41.286	45.596	6.48	11.6	1.15	0.01	16.6	1.243	2.770	
853.6	844.6	3.438	34.878	34.877	3.378	27.755	34.648	36.893	41.309	45.624	6.68	10.9	1.13	0.01	16.3	1.372	3.237	
997.3	986.4	3.206	34.853	34.853	3.136	27.764	34.656	36.902	41.317	45.632	6.60	11.4	1.14	0.01	16.4	1.266	2.734	
1152.3	1139.3	3.231	34.866	34.866	3.148	27.772	34.665	36.911	41.327	45.643	6.69	11.6	1.15	0.01	16.4	1.234	2.618	
1304.3	1289.1	3.199	34.870	34.869	3.104	27.780	34.675	36.921	41.338	45.655	6.65	11.7	1.16	0.01	16.5	1.148	2.487	
1504.9	1486.7	3.174	34.875	34.875	3.063	27.796	34.689	36.935	41.350	45.666	6.53	12.6	1.16	0.01	16.4	0.864	1.878	
1704.0	1682.6	3.235	34.900	34.899	3.106	27.811	34.707	36.953	41.370	45.688	6.48	12.9	1.16	0.01	16.3	0.739	1.589	
1904.8	1880.0	3.194	34.913	34.913	3.048	27.834	34.735	36.984	41.405	45.725	6.41	14.3	1.16	0.01	16.4	0.567	1.131	
2205.2	2174.9	3.074	34.925	34.926	2.901	27.856	34.765	37.017	41.443	45.769	6.42	15.3	1.16	0.01	16.3	0.524	1.040	
2505.7	2469.6	2.883	34.927	34.927	2.685	27.876	34.796	37.051	41.484	45.817	6.45	15.9	1.15	0.01	16.2	0.530	1.132	
2806.3	2763.9	2.640	34.923	34.920	2.417	27.888	34.820	37.078	41.519	45.858	6.49	17.2	1.16	0.00	16.2	0.551	1.166	
3105.9	3056.9	2.400	34.911	34.911	2.151	27.900	34.842	37.103	41.550	45.895	6.52	19.0	1.16	0.00	16.1	0.602	1.267	0.070
3407.6	3351.5	2.189	34.902	34.902	1.914	27.906	34.852	37.115	41.565	45.913	6.63	15.9	1.12	0.00	15.4	0.811	1.667	0.112
3657.6	3595.3	2.102	34.898	34.898	1.802	27.912	34.865	37.131	41.585	45.937	6.70	14.0	1.08	0.00	14.9	0.964	2.103	
3876.7	3808.8	1.962	34.891	34.891	1.642	27.917	34.875	37.142	41.598	45.954	6.74	12.9	1.06	0.00	14.7	1.132	2.386	0.186
4044.3	3972.0	1.876	34.888	34.887	1.540													

ENDEAVOR 223 Station 34 91-4-12 Lat: 49.749 Lon: 43.171 Sonic Depth: 4237

Tr and He sampled

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	deg C	l	kg/m**3	kg/m**3	kg/m**3	kg/m**3	ml/l	l	umol/l	umol/l	l	l	pm/kg	l
12.1	12.0	5.758	34.279	34.278	5.757	27.013	33.812	36.027	40.384	44.642	7.05	5.0	0.67	0.20	7.4	2.269	4.842	0.455
100.9	100.0	4.054	34.232	34.236	4.047	27.170	34.034	36.271	40.668	44.967	6.96	7.7	0.87	0.16	10.6	2.278	5.061	0.448
161.1	159.7	2.663	34.186	34.187	2.653	27.266	34.186	36.441	40.874	45.206	7.36	7.7	0.89	0.19	11.1	2.615	5.579	0.441
201.7	199.9	4.551	34.516	34.532	4.537	27.344	34.186	36.415	40.798	45.083	5.76	11.6	1.17	0.02	15.8	1.663	3.678	0.309
251.7	249.4	5.450	34.764	34.705	5.430	27.437	34.242	36.460	40.820	45.082	5.02	13.1	1.32	0.02	18.5	1.173	2.523	0.220
302.0	299.2	5.856	34.928	34.928	5.831	27.518	34.306	36.518	40.868	45.120	4.86	14.0	1.36	0.01	19.4	0.785	1.766	0.108
351.7	348.4	4.662		34.809	4.635													0.294
400.8	397.0	3.762	34.766	34.762	3.734	27.627	34.497	36.736	41.137	45.438	6.44	10.5	1.14	0.02	16.1	1.770	3.845	0.294
497.8	493.0	4.164	34.885	34.886	4.127	27.681	34.534	36.767	41.158	45.449	6.18	11.3	1.19	0.01	16.9	1.460	3.109	0.208
586.7	580.9	4.040	34.900	34.899	3.997	27.707	34.565	36.800	41.193	45.488	6.26	11.3	1.19	0.01	17.0	1.372	3.046	0.176
677.9	671.0	3.834	34.894	34.893	3.784	27.724	34.590	36.828	41.227	45.526	6.39	11.2	1.17	0.01	16.7	1.398	3.061	0.198
752.9	745.1	3.736	34.889	34.886	3.682	27.731	34.601	36.840	41.241	45.543	6.46	11.0	1.17	0.00	16.6	1.382	3.032	0.208
985.0	974.3	3.519	34.885	34.878	3.448	27.751	34.630	36.872	41.279	45.587	6.52	11.3	1.16	0.00	16.5	1.275	2.766	
1204.1	1190.4	3.464	34.892	34.883	3.375	27.763	34.646	36.888	41.297	45.607	6.52	11.7	1.16	0.01	16.6	1.083	2.347	0.126
1505.7	1487.5	3.283	34.884	34.876	3.171	27.777	34.667	36.912	41.327	45.641	6.60	11.7	1.15	0.00	16.5	1.006	2.217	0.185
1808.2	1785.0	3.230	34.893	34.888	3.091	27.791	34.685	36.931	41.347	45.664	6.58	12.0	1.15	0.00	16.4	0.971	2.107	0.118
2106.2	2077.7	3.237	34.919	34.915	3.071	27.814	34.708	36.954	41.371	45.688	6.45	13.1	1.15	0.00	16.4	0.622	1.373	0.072
2407.3	2373.1	3.150	34.932	34.925	2.957	27.835	34.734	36.981	41.401	45.720	6.39	14.4	1.15	0.01	16.5	0.482	0.969	0.021
2707.4	2667.1	2.928	34.926	34.921	2.709	27.853	34.761	37.012	41.438	45.763	6.46	14.4	1.14	0.00	16.1	0.543	1.163	0.033
3008.2	2961.3	2.726	34.925	34.922	2.480	27.872	34.790	37.044	41.475	45.807	6.43	15.7	1.14	0.00	16.1	0.463	1.052	0.086
3403.6	3347.5	2.371	34.907	34.906	2.092	27.890	34.824	37.083	41.525	45.866	6.53	16.7	1.11	0.01	15.7	0.614	1.340	0.078
3805.6	3739.5	2.149	34.898	34.895	1.832	27.903	34.848	37.111	41.560	45.908	6.64	14.9	1.08	0.00	15.2	0.837	1.812	0.092
4156.7	4081.2	1.928	34.889	34.888	1.578	27.915	34.871	37.138	41.593	45.947	6.48	11.2	1.15	0.01	16.7	1.305	2.818	0.225
4274.4	4195.7	1.889	34.886	34.879	1.527	27.917	34.875	37.142	41.599	45.954	6.74	13.0	1.04	0.01	14.5	1.122	2.432	0.156

ENDEAVOR 223 Station 35 91-4-13 Lat: 50.068 Lon: 42.974 Sonic Depth: 4270

Tr and He sampled

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	deg C	-----kg/m**3-----	-----umol/l-----	ml/l	-----pm/kg-----									
10.4	10.3	9.250	35.082	35.084	9.249	27.142	33.811	35.984	40.258	44.437	6.10	6.5	0.77	0.18	10.4	1.687	3.475	0.284
98.9	98.0	9.694	35.185	35.185	9.683	27.151	33.804	35.972	40.237	44.406	5.98	6.5	0.77	0.19	10.5	1.635	3.343	0.281
200.0	198.2	9.762	35.257	35.257	9.739	27.198	33.848	36.016	40.278	44.447	5.98	6.7	0.79	0.15	11.1	1.626	3.311	0.279
276.0	273.5	9.311	35.219	35.217	9.280	27.244	33.910	36.083	40.355	44.533	5.45	8.6	0.98	0.01	14.3			0.110
349.8	346.5	6.932		34.894	6.899													0.110
400.8	397.0	6.593	34.933	34.928	6.556	27.427	34.189	36.393	40.726	44.962	4.70	13.1	1.36	0.01	19.5	0.902	1.883	0.110
426.6	422.5	6.519	34.949	34.950	6.480	27.450	34.215	36.419	40.753	44.991	4.65	13.6	1.38	0.01	19.9	0.798	1.733	0.123
553.5	548.0	5.435	34.969	34.968	5.388	27.605	34.409	36.626	40.986	45.247	5.24	13.1	1.31	0.00	18.8	0.855	1.840	0.147
750.5	742.7	4.816	34.990	34.987	4.756	27.696	34.523	36.748	41.123	45.399	5.68	12.5	1.25	0.00	18.1	0.831	1.806	0.133
950.7	940.4	4.132	34.946	34.942	4.059	27.737	34.592	36.826	41.217	45.510	6.13	11.8	1.21	0.00	17.3	0.806	2.018	
1154.6	1141.5	3.557	34.880	34.884	3.472	27.744	34.623	36.865	41.271	45.578	6.55	10.7	1.16	0.00	16.5	1.379	3.008	0.174
1356.1	1340.1	3.299	34.855	34.855	3.199	27.751	34.641	36.886	41.299	45.613	6.72	10.4	1.13	0.00	16.2	1.510	3.214	0.189
1554.4	1535.3	3.206	34.855	34.854	3.091	27.761	34.655	36.902	41.318	45.635	6.73	10.6	1.13	0.00	16.2	1.439	3.011	0.154
1805.1	1781.9	3.151	34.856	34.856	3.014	27.769	34.666	36.914	41.332	45.650	6.76	10.6	1.13	0.00	16.1	1.364	2.940	0.186
2104.3	2075.8	3.299	34.899	34.899	3.133	27.792	34.684	36.930	41.345	45.660	6.51	12.0	1.15	0.00	16.3	0.901	1.863	0.057
2405.3	2371.1	3.164	34.914	34.914	2.971	27.819	34.718	36.965	41.384	45.703	6.47	12.5	1.13	0.00	16.0	0.718	1.566	0.061
2707.0	2666.6	3.027	34.926	34.925	2.806	27.844	34.749	36.998	41.422	45.745	6.42	14.0	1.14	0.00	16.1	0.545	1.112	0.027
2906.2	2861.5	2.884	34.927	34.927	2.646	27.859	34.770	37.022	41.449	45.776	6.42	14.6	1.14	0.00	16.1	0.512	1.072	0.031
3105.6	3056.4	2.741	34.926		2.485	27.872	34.790	37.044	41.475	45.806	6.44	15.2	1.13	0.00	15.9	0.529	1.145	0.035
3307.9	3254.0	2.533	34.918	34.918	2.260	27.885	34.812	37.069	41.506	45.843	6.48	16.5	1.13	0.00	16.0	0.543	1.135	
3607.1	3545.9	2.264	34.902	34.902	1.966	27.896	34.835	37.096	41.542	45.886	6.60	15.0	1.09	0.00	15.3	0.758	1.643	0.111
3908.8	3839.9	2.137	34.898	34.898	1.809	27.905	34.851	37.114	41.564	45.912	6.60	16.5	1.10	0.00	15.3	0.767	1.604	0.072
4109.0	4034.7	2.027	34.893	34.892	1.680	27.911	34.863	37.127	41.580	45.932	6.70	13.7	1.05	0.00	14.7	0.975	2.127	0.106
4338.0	4257.4	1.852	34.884	34.883	1.484	27.918	34.878	37.146	41.604	45.961	6.76	12.5	1.03	0.00	14.3	1.128	2.515	0.114

ENDEAVOR 223 Station 36 91-4-13 Lat: 50.382 Lon: 42.801 Sonic Depth: 4263

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	deg C	kg/m**3	kg/m**3	kg/m**3	kg/m**3	kg/m**3	ml/l	umol/l	umol/l	umol/l	umol/l	pm/kg	pm/kg	pm/kg
11.2	11.1	9.930	35.308	35.307	9.929	27.205	33.849	36.015	40.273	44.437	6.11	6.5	0.78	0.14	11.1	1.664	3.287	.
152.0	150.6	9.936	35.316	35.317	9.919	27.213	33.857	36.023	40.281	44.446	6.12	6.3	0.78	0.13	11.2	1.672	3.333	.
301.0	298.2	9.769	35.293	35.295	9.734	27.227	33.877	36.044	40.307	44.475	5.86	7.1	0.86	0.04	12.6	1.555	3.077	.
352.3	349.0	9.155	35.198	35.196	9.116	27.255	33.926	36.101	40.376	44.557	5.34	9.0	1.03	0.02	15.1	1.269	2.582	.
400.6	396.8	7.398	34.952	34.950	7.359	27.331	34.064	36.258	40.573	44.792	4.59	12.6	1.32	0.01	19.3	0.941	1.942	.
452.1	447.7	6.898	34.961	34.959	6.856	27.408	34.160	36.360	40.686	44.915	4.57	13.4	1.34	0.01	20.1	0.792	1.715	.
502.4	497.5	6.133	34.912	34.912	6.088	27.472	34.251	36.460	40.804	45.051	4.85	13.3	1.34	0.01	19.6	.	.	.
553.9	548.4	5.374	34.874	34.870	5.328	27.537	34.344	36.563	40.924	45.188	5.27	12.9	1.30	0.01	18.6	1.111	2.298	.
601.4	595.4	5.537	34.979	34.984	5.486	27.601	34.401	36.617	40.975	45.234	5.18	13.3	1.30	0.01	19.2	0.788	1.726	.
650.1	643.5	5.038	34.955	34.955	4.985	27.642	34.461	36.683	41.052	45.323	5.49	12.7	1.27	0.01	18.5	0.920	2.002	.
702.4	695.2	4.984	34.976	34.978	4.926	27.665	34.486	36.709	41.080	45.352	5.55	12.9	1.27	0.01	18.3	0.881	1.901	.
752.4	744.6	4.532	34.941	34.936	4.473	27.689	34.528	36.756	41.138	45.421	5.86	11.9	1.22	0.01	17.7	1.090	2.413	.
804.6	796.1	4.599	34.971	34.964	4.535	27.705	34.542	36.769	41.149	45.431	5.81	12.2	1.24	0.01	17.9	0.902	1.992	.
901.4	891.7	3.820	34.876	34.877	3.753	27.713	34.581	36.819	41.218	45.519	6.51	10.6	1.07	0.02	16.5	1.534	3.456	.
1054.2	1042.5	3.772	34.909	34.898	3.693	27.746	34.615	36.854	41.255	45.556	6.35	11.5	1.18	0.01	17.0	1.207	2.573	.
1203.3	1189.5	3.446	34.867	34.866	3.357	27.745	34.629	36.871	41.281	45.591	6.58	11.0	1.15	0.00	16.7	1.372	3.024	.
1503.2	1484.9	3.285	34.857	34.861	3.173	27.755	34.646	36.891	41.305	45.620	6.68	11.1	1.14	0.00	16.4	1.247	2.837	.
1905.4	1880.4	3.212	34.870	34.869	3.065	27.775	34.670	36.917	41.334	45.651	6.68	11.2	1.13	0.01	16.3	1.210	2.604	.
2308.4	2276.0	3.309	34.918	34.918	3.123	27.808	34.700	36.946	41.361	45.677	6.43	12.8	1.15	0.00	16.4	0.644	1.375	.
2708.2	2667.7	3.035	34.928	34.927	2.813	27.845	34.749	36.999	41.422	45.745	6.43	14.3	1.14	0.00	16.2	0.620	1.038	.
3110.1	3060.8	2.726	34.926	34.925	2.470	27.873	34.792	37.046	41.478	45.809	6.43	16.0	1.13	0.00	16.1	0.508	0.952	.
3508.2	3449.4	2.372	34.910	34.910	2.082	27.893	34.828	37.087	41.529	45.870	6.48	17.7	1.14	0.00	15.9	0.566	1.145	0.121
3908.8	3839.8	2.120	34.897	34.899	1.792	27.906	34.852	37.116	41.565	45.914	6.60	15.6	1.08	0.00	15.2	0.772	1.732	0.124
4333.4	4252.8	1.839	34.894	34.884	1.471	27.927	34.888	37.155	41.614	45.971	6.75	12.9	1.03	0.01	14.4	1.161	2.491	0.162

ENDEAVOR 223 Station 37 91-4-17 Lat: 48.708 Lon: 44.217 Sonic Depth: 1837

Tr and He sampled

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113	
dbars	meters	deg C	PSU	PSU	deg C		kg/m**3				ml/l		umol/l						
11.4	11.3	2.712	34.499	34.502	2.711	27.511	34.425	36.678	41.107	45.435	7.55	8.5	0.93	0.12	12.8	2.563	5.437	0.552	
100.5	99.6	2.875			2.869						7.51	8.9	0.95	0.11	13.1	2.622	5.316	0.434	
201.3	199.5	2.852	34.756	34.759	2.840	27.705	34.610	36.860	41.284	45.608	6.96	9.6	1.06	0.02	15.2	2.119	4.364	0.382	
250.5	248.2	2.952	34.778	34.778	2.936	27.714	34.615	36.864	41.285	45.606	6.90	9.6	1.09	0.02	15.2	2.030	4.232	0.286	
301.5	298.7	2.976	34.786	34.787	2.957	27.718	34.619	36.867	41.287	45.608	6.89	9.6	1.07	0.01	15.2	2.156	4.195	0.321	
404.8	401.0	2.838	34.779	34.779	2.813	27.726	34.632	36.882	41.307	45.631	6.96	9.6	1.07	0.02	15.2	2.048	4.332	0.301	
501.8	497.0	2.792	34.774	34.778	2.761	27.726	34.635	36.886	41.311	45.637	7.02	9.4	1.05	0.02	15.2	2.066	4.355	0.288	
602.6	596.6	2.829	34.782	34.784	2.791	27.730	34.637	36.888	41.313	45.637	6.94	9.5	1.06	0.01	15.2			0.303	
651.9	645.4	2.961	34.802	34.801	2.918	27.735	34.636	36.885	41.306	45.628	6.94	9.7	1.08	0.01	15.4	1.970	4.089	0.303	
702.6	695.5	3.098	34.821	34.823	3.051	27.738	34.634	36.881	41.299	45.616	6.83	9.8	1.07	0.02	15.6	1.799	3.895	0.262	
853.2	844.2	3.235	34.853	34.854	3.176	27.751	34.642	36.887	41.302	45.616	6.68	10.4	1.11	0.01	16.0	1.822	3.309	0.225	
1003.8	992.9	3.153	34.852	34.852	3.083	27.759	34.654	36.900	41.317	45.634	6.75	10.6	1.10	0.01	16.0	1.513	3.134	0.159	

ENDEAVOR 223 Station 38 91-4-17 Lat: 48.787 Lon: 44.124 Sonic Depth: 1966

Tr and He sampled

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	deg C	-----	-----	-----	-----	-----	ml/l	-----	-----	-----	-----	-----	-----	-----
						-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
8.8	8.7	2.520	34.471	34.473	2.519	27.505	34.427	36.683	41.117	45.450	7.62	8.9	0.95	0.11	12.9	2.848	5.554	
101.7	100.8	2.457	34.532	34.527	2.451	27.560	34.484	36.740	41.175	45.510	7.51	9.1	0.96	0.12	13.1	2.715	5.405	
199.9	198.1	2.825	34.750	34.755	2.813	27.703	34.609	36.860	41.284	45.608	7.01	9.5	1.08	0.03	15.1	2.281	4.475	
253.5	251.2	2.967	34.776	34.778	2.951	27.711	34.612	36.860	41.281	45.601	6.94	9.6	1.08	0.02	15.3	2.143	4.292	
302.5	299.7	3.131	34.807	34.807	3.112	27.721	34.615	36.861	41.277	45.594	6.85	9.6	1.08	0.01	15.5	2.037	4.136	
400.8	397.0	2.962	34.794	34.795	2.937	27.727	34.628	36.876	41.297	45.618	6.95	9.6	1.07	0.02	15.4	2.023	4.214	
500.0	495.2	2.997	34.806	34.806	2.965	27.734	34.633	36.882	41.302	45.622	6.91	9.7	1.08	0.01	15.5	1.954	4.097	
599.4	593.5	3.202	34.834	34.836	3.162	27.738	34.629	36.875	41.290	45.605	6.79	10.0	1.10	0.02	15.8	1.821	3.736	
650.0	643.5	3.267	34.850	34.851	3.223	27.745	34.634	36.878	41.291	45.605	6.76	10.3	1.11	0.01	15.9	1.555	3.435	
699.8	692.7	3.255	34.854	34.854	3.207	27.749	34.639	36.884	41.297	45.611	6.74	10.4	1.10	0.01	15.9	1.594	3.306	
854.3	845.3	3.164	34.853	34.853	3.106	27.758	34.652	36.898	41.314	45.630	6.74	10.6	1.10	0.01	16.0	1.492	3.155	
1011.2	1000.2	3.112	34.852	34.852	3.041	27.763	34.659	36.906	41.324	45.642	6.75	10.7	1.09	0.01	15.9	1.368	3.020	



ENDEAVOR 223 Station 39 91-4-17 Lat: 48.773 Lon: 44.297 Sonic Depth: 1802

Tr and He sampled

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	deg C	kg/m**3	kg/m**3	kg/m**3	kg/m**3	kg/m**3	ml/l	umol/l	umol/l	umol/l	umol/l	pm/kg	pm/kg	pm/kg
12.0	11.9	2.410	34.485	34.486	2.410	27.526	34.452	36.709	41.146	45.482	7.55	9.5	0.97	0.07	13.4	2.611	5.448	
99.1	98.2	2.345	34.508	34.509	2.339	27.550	34.479	36.737	41.175	45.513	7.52	9.4	0.97	0.08	13.5	2.611	5.377	0.563
198.7	196.9	3.347	34.815	34.816	3.334	27.706	34.591	36.834	41.245	45.556	6.68	9.7	1.10	0.01	16.1	1.706	3.874	
251.5	249.2	3.292	34.810	34.813	3.276	27.708	34.595	36.839	41.251	45.564	6.70	10.1	1.09	0.01	16.0	1.852	3.937	0.305
302.1	299.3	3.269	34.817	34.819	3.249	27.716	34.604	36.848	41.261	45.574	6.73	10.2	1.11	0.00	16.0	1.748	3.900	
399.9	396.1	3.108	34.814	34.805	3.082	27.729	34.624	36.871	41.288	45.605	6.77	10.1	1.10	0.00	15.9	1.832	3.919	0.348
502.7	497.8	3.278	34.836	34.839	3.244	27.731	34.620	36.864	41.277	45.590	6.80	10.0	1.08	0.00	15.9	1.815	3.858	0.268
601.0	595.1	3.191	34.836	34.835	3.151	27.740	34.632	36.878	41.293	45.608	6.78	10.1	1.10	0.00	16.0	1.806	3.767	0.285
652.9	646.4	3.182	34.837	34.836	3.138	27.742	34.635	36.881	41.296	45.611	6.80	10.0	1.09	0.00	15.9	1.710	3.726	
701.9	694.8	3.289	34.855	34.855	3.241	27.747	34.635	36.879	41.292	45.605	6.70	10.4	1.11	0.00	16.2	1.642	3.364	0.247
854.0	845.0	3.188	34.852	34.852	3.130	27.755	34.648	36.894	41.309	45.625	6.72	10.5	1.11	0.00	16.1	1.514	3.259	
1002.1	991.2	3.103	34.852	34.853	3.033	27.764	34.660	36.908	41.326	45.644	6.79	10.7	1.11	0.00	16.1	1.482	3.143	0.252

ENDEAVOR 223 Station 40 91- 4-17 Lat: 48.637 Lon: 44.276 Sonic Depth: 1678

Tr and He sampled

PR	DE	T	CTD S	S	PSU	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	deg C	deg C	kg/m**3	kg/m**3	kg/m**3	kg/m**3	kg/m**3	ml/l	umol/l	umol/l	umol/l	umol/l	pm/kg	pm/kg	pm/kg
12.7	12.6	2.578	34.513	34.514	2.578	27.534	34.453	36.707	41.140	45.472	7.62	9.1	0.94	0.10	0.10	13.1	2.742	5.488	
101.0	100.1	2.446	34.534	34.535	2.441	27.562	34.487	36.743	41.179	45.514	7.58	9.1	0.95	0.10	0.10	13.3	2.624	5.436	
201.6	199.8	2.870	34.756	34.756	2.857	27.703	34.608	36.858	41.281	45.604	6.98	9.5	1.06	0.01	0.01	15.5			
251.0	248.7	2.957	34.782	34.782	2.941	27.717	34.618	36.866	41.287	45.608	6.94	9.7	1.07	0.01	0.01	15.6	2.133	4.195	
302.4	299.6	3.003	34.791	34.792	2.984	27.720	34.619	36.867	41.287	45.606	6.90	9.7	1.07	0.01	0.01	15.6	2.038	4.280	
401.5	397.7	3.033	34.803	34.803	3.008	27.727	34.625	36.873	41.292	45.611	6.89	9.7	1.09	0.01	0.01	15.6	1.928	4.162	
502.0	497.2	3.063	34.813	34.815	3.030	27.733	34.630	36.878	41.296	45.614	6.88	10.0	1.08	0.01	0.01	15.7		4.020	
604.1	598.1	3.206	34.840	34.840	3.166	27.742	34.633	36.879	41.294	45.608	6.77	10.4	1.09	0.01	0.01	16.0	1.738	3.607	
651.6	645.1	3.245	34.848	34.848	3.201	27.745	34.635	36.880	41.294	45.608	6.75	10.5	1.09	0.01	0.01	16.0	1.661	3.490	
702.6	695.5	3.219	34.848	34.847	3.172	27.748	34.639	36.884	41.299	45.613	6.75	10.7	1.11	0.01	0.01	16.1	1.614	3.417	
852.6	843.7	3.180	34.854	34.853	3.121	27.757	34.650	36.896	41.312	45.628	6.74	10.7	1.10	0.01	0.01	16.1	1.760	3.808	
1003.7	992.8	3.114	34.855	34.852	3.044	27.765	34.661	36.908	41.326	45.644	6.76	10.7	1.11	0.01	0.01	16.1	1.473	3.077	

ENDEAVOR 223 Station 41 91-4-17 Lat: 48.667 Lon: 44.119 Sonic Depth: 1931

Tr and He sampled

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	deg C		kg/m**3				ml/l	umol/l				pm/kg		
10.3	10.2	2.612	34.499	34.498	2.612	27.520	34.438	36.692	41.123	45.454	7.62							
9.9	9.8	2.608	34.499	34.497	2.608	27.520	34.438	36.692	41.124	45.455	7.61	9.2	0.96	0.10	13.1	2.892	5.527	
99.1	98.2	2.482	34.533	34.530	2.476	27.559	34.482	36.737	41.172	45.506	7.55	9.2	0.98	0.10	13.4	2.449	5.333	
200.3	198.5	2.783	34.745	34.743	2.771	27.702	34.611	36.862	41.287	45.612	7.03	9.4	1.07	0.01	15.4	2.126	4.540	
250.0	247.7	3.019	34.783	34.780	3.003	27.712	34.610	36.858	41.277	45.597	6.90	9.7	1.09	0.01	15.6	1.945	4.310	
301.3	298.5	3.015	34.788	34.788	2.996	27.716	34.615	36.863	41.282	45.602	6.90	9.7	1.09	0.01	15.5	2.025	4.219	
401.7	397.9	3.185	34.821	34.819	3.159	27.727	34.619	36.865	41.280	45.595	6.81	10.0	1.09	0.01	15.9	1.902	3.950	
500.5	495.7	3.258	34.822	34.836	3.225	27.722	34.611	36.856	41.269	45.583	6.81	10.0	1.09	0.01	15.9	1.890	3.960	
602.7	596.7	3.306	34.849	34.847	3.265	27.740	34.627	36.871	41.283	45.596	6.72	10.5	1.11	0.01	16.0	1.791	3.523	
649.8	643.3	3.247	34.855		3.203	27.750	34.640	36.885	41.299	45.613	6.70	10.6	1.11	0.00	16.0	1.593	3.445	
702.0	694.9	3.301	34.854	34.853	3.253	27.745	34.633	36.877	41.289	45.602	6.71	10.6	1.11	0.00	16.1	1.503	3.365	
852.4	843.5	3.234	34.855	34.852	3.175	27.753	34.644	36.889	41.304	45.618	6.72	10.8	1.10	0.00	16.2	1.676	3.130	
1002.3	991.4	3.180	34.856	34.852	3.110	27.760	34.653	36.900	41.316	45.632	6.74	10.7	1.11	0.01	16.2	1.429	3.088	

ENDEAVOR 223 Station 42 91- 4-19 Lat: 53.950 Lon: 46.430 Sonic Depth: 3616

Tr and He sampled

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	deg C	kg/m**3	kg/m**3	kg/m**3	kg/m**3	kg/m**3	ml/l	umol/l	umol/l	umol/l	umol/l	pm/kg	pm/kg	pm/kg
10.1	10.0	3.142	34.732	34.733	3.142	27.658	34.552	36.798	41.214	45.530	7.40	9.5	1.06	0.07	14.7	2.312	5.015	0.454
73.4	72.7	3.087	34.734	34.735	3.082	27.665	34.561	36.808	41.226	45.543	7.31	9.6	1.07	0.08	14.7	2.329	4.861	0.423
148.1	146.7	2.957	34.760	34.761	2.948	27.698	34.599	36.848	41.269	45.590	7.15	9.8	1.10	0.06	15.2	2.162	4.586	0.380
230.0	227.8	2.962	34.782	34.782	2.948	27.716	34.617	36.865	41.286	45.607	7.25	9.9	1.09	0.05	15.3	2.066	4.573	0.403
350.1	346.7	3.085	34.815	34.816	3.063	27.732	34.628	36.874	41.292	45.609	6.86	10.3	1.12	0.01	15.9	1.751	3.814	0.270
475.9	471.1	3.316	34.857	34.857	3.284	27.744	34.631	36.875	41.286	45.598	6.65	10.6	1.15	0.00	16.1	1.381	3.053	0.166
625.7	619.2	3.250	34.857	34.858	3.208	27.752	34.641	36.886	41.299	45.613	6.70	10.6	1.13	0.00	16.0	1.408	3.000	0.174
801.2	792.5	3.038	34.833	34.833	2.984	27.753	34.652	36.900	41.319	45.639	6.87	10.6	1.09	0.01	15.7	1.617	3.555	0.293
902.3	892.3	3.079	34.842	34.843	3.017	27.757	34.655	36.902	41.321	45.639	6.87	10.6	1.12	0.00	15.8	1.515	3.330	0.216
1052.7	1040.7	3.047	34.841	34.841	2.974	27.761	34.660	36.908	41.327	45.647	6.82	10.4	1.11	0.00	15.7	1.549	3.359	0.225
1252.9	1238.0	3.001	34.838	34.839	2.913	27.764	34.665	36.914	41.335	45.656	6.84	10.4	1.08	0.00	15.7	1.590	3.454	0.240
1452.9	1434.9	3.015	34.843	34.842	2.910	27.768	34.670	36.918	41.340	45.661	6.83	10.5	1.10	0.00	15.7	1.520	3.340	0.240
1627.2	1606.4	3.024	34.846	34.846	2.905	27.771	34.673	36.922	41.343	45.664	6.83	10.5	1.12	0.00	15.7	1.541	3.290	0.240
1804.5	1780.7	3.220	34.884	34.884	3.082	27.785	34.679	36.925	41.342	45.659	6.58	11.4	1.12	0.00	15.9	1.031	1.560	0.105
1953.6	1927.2	3.308	34.909	34.910	3.155	27.798	34.689	36.934	41.349	45.663	6.45	11.9	1.13	0.00	15.9	0.714	1.560	0.105
2153.6	2123.5	3.271	34.924	34.923	3.100	27.815	34.708	36.954	41.370	45.686	6.37	12.4	1.13	0.00	15.8	0.571	1.272	0.098
2354.1	2320.1	3.165	34.928	34.926	2.977	27.830	34.728	36.975	41.394	45.713	6.41	13.1	1.13	0.00	15.6	0.548	1.171	0.038
2555.5	2517.4	3.036	34.933	34.932	2.830	27.847	34.751	37.000	41.423	45.745	6.37	13.7	1.12	0.00	15.6	0.468	1.042	0.027
2804.8	2761.4	2.889	34.937	34.937	2.660	27.866	34.776	37.028	41.455	45.781	6.37	14.6	1.11	0.00	15.6	0.472	1.043	0.036
3055.3	3006.2	2.715	34.931	34.931	2.464	27.878	34.796	37.051	41.483	45.814	6.42	15.7	1.10	0.00	15.5	0.471	1.065	0.081
3297.0	3242.3	2.521	34.921	34.920	2.250	27.888	34.816	37.073	41.510	45.847	6.45	16.9	1.10	0.00	15.4	0.483	1.097	0.063
3506.4	3446.5	2.349	34.911	34.912	2.059	27.896	34.831	37.091	41.534	45.875	6.47	17.2	1.06	0.00	15.2	0.578	1.277	0.102
3607.8	3545.4	2.250	34.906	34.905	1.952	27.900	34.840	37.101	41.547	45.891	6.52	16.6	1.09	0.00	14.9	0.651	1.472	0.063
3661.7	3597.9	2.173	34.902	34.902	1.870	27.900	34.840	37.101	41.547	45.891	6.55	16.1	1.10	0.00	15.2	0.744	1.655	0.077

ENDEAVOR 223 Station 43 91-4-19 Lat: 55.200 Lon: 47.134 Sonic Depth: 3591

Tr and He sampled

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	deg C	kg/m**3	kg/m**3	kg/m**3	kg/m**3	kg/m**3	ml/l	ml/l	umol/l	umol/l	umol/l	pm/kg	pm/kg	pm/kg
9.0	8.9	2.851	34.792	34.791	2.850	27.733	34.637	36.887	41.310	45.633	7.27	10.4	1.11	0.04	15.8	2.216	4.669	0.385
99.6	98.7	2.807	34.792	34.792	2.801	27.737	34.644	36.894	41.319	45.643	7.22	10.2	1.11	0.03	15.9	2.155	4.559	0.383
199.1	197.2	2.924	34.817	34.818	2.912	27.747	34.649	36.898	41.319	45.640	6.95	10.5	1.13	0.01	16.3	1.780	3.861	0.288
299.9	297.0	2.861	34.815	34.815	2.842	27.752	34.657	36.906	41.329	45.652	7.04	10.5	1.13	0.01	16.2	1.844	4.031	0.300
398.4	394.4	2.800	34.812	34.811	2.775	27.756	34.663	36.914	41.338	45.663	7.14	10.4	1.13	0.02	16.2	2.020	4.291	0.363
500.9	495.8	2.893	34.827	34.827	2.862	27.760	34.664	36.913	41.336	45.658	7.01	10.5	1.14	0.00	16.3	1.798	3.788	0.335
599.9	593.6	2.925	34.832	34.832	2.886	27.762	34.664	36.913	41.335	45.657	6.95	10.5	1.14	0.00	16.3	1.679	3.652	0.323
701.6	694.1	2.851	34.825	34.824	2.805	27.763	34.669	36.919	41.343	45.667	7.04	10.5	1.13	0.01	16.2	1.832	3.980	0.311
826.7	817.6	2.845	34.824	34.824	2.791	27.764	34.670	36.921	41.345	45.669	7.02	10.4	1.12	0.00	16.2	1.894	4.016	0.300
951.8	941.0	2.849	34.823	34.824	2.785	27.763	34.670	36.921	41.345	45.670	7.02	10.5	1.12	0.01	16.2	1.863	3.944	0.301
1151.6	1138.0	2.855	34.825	34.823	2.776	27.766	34.673	36.924	41.348	45.673	7.01	10.4	1.12	0.00	16.1	1.810	3.947	0.297
1352.6	1336.0	2.896	34.829	34.829	2.800	27.767	34.673	36.923	41.347	45.671	6.97	10.5	1.12	0.00	16.2	1.762	3.723	0.289
1553.1	1533.4	2.912	34.832	34.830	2.800	27.769	34.675	36.926	41.350	45.674	6.99	10.5	1.13	0.00	16.1	1.735	3.809	0.287
1753.8	1730.7	3.011	34.847	34.847	2.880	27.774	34.677	36.926	41.348	45.670	6.82	10.5	1.12	0.00	16.2	1.482	3.297	0.215
1879.2	1853.9	3.139	34.872	34.873	2.996	27.783	34.681	36.929	41.348	45.666	6.69	11.2	1.14	0.00	16.3	1.176	2.575	0.174
2004.4	1976.8	3.266	34.901	34.902	3.109	27.796	34.689	36.935	41.350	45.666	6.52	11.9	1.14	0.00	16.5	0.804	1.810	0.084
2203.9	2172.6	3.236	34.925	34.924	3.061	27.820	34.714	36.961	41.377	45.694	6.38					0.530	1.250	
2455.7	2419.4	3.076	34.929	34.927	2.879	27.840	34.741	36.990	41.412	45.733	6.41	13.5	1.14	0.00	16.3	0.500	1.146	0.047
2705.5	2663.9	2.910	34.930	34.931	2.691	27.857	34.767	37.018	41.444	45.770	6.44	14.5	1.13	0.00	16.1	0.497	1.120	0.031
2954.1	2907.0	2.706	34.927	34.928	2.466	27.875	34.793	37.047	41.479	45.811	6.43	15.4	1.13	0.00	16.1	0.491	1.133	0.031
3206.6	3153.7	2.447	34.914	34.914	2.187	27.888	34.818	37.076	41.515	45.854	6.48	16.2	1.14	0.00	15.9	0.534	1.226	0.059
3456.4	3397.4	2.286	34.906	34.906	2.003	27.896	34.834	37.095	41.539	45.882	6.52	16.1	1.12	0.00	15.6	0.674	1.469	0.082
3567.6	3505.8	2.192	34.902	34.902	1.900	27.901	34.843	37.105	41.552	45.898	6.53	16.0	1.10	0.00	15.5			0.090
3625.1	3561.9	2.195	34.902	34.903	1.897	27.901	34.844	37.106	41.553	45.899	6.57	16.0	1.08	0.00	15.5	0.760	1.663	0.090

ENDEAVOR 223 Station 44 91-4-20 Lat: 58.310 Lon: 42.639 Sonic Depth: 2897

Tr and He sampled

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	deg C		kg/m**3	kg/m**3	kg/m**3	kg/m**3	m/l	umol/l	umol/l	umol/l	umol/l	pm/kg	pm/kg	pm/kg
8.2	8.1	3.879	34.864	34.865	3.878	27.691	34.554	36.790	41.187	45.484	7.67	9.2	0.93	0.04	12.1	2.271	4.803	0.387
97.0	96.1	3.613	34.884	34.884	3.606	27.734	34.608	36.847	41.251	45.554	7.03	9.7	1.08	0.03	14.9	2.001	4.297	0.339
300.7	297.7	3.324	34.877	34.877	3.305	27.758	34.644	36.887	41.298	45.609	6.92	10.3	1.11	0.01	15.7	1.854	4.019	0.301
500.2	495.0	3.201	34.863	34.867	3.168	27.760	34.651	36.896	41.311	45.626	6.98	10.3	1.11	0.01	15.5	1.833	4.049	0.342
700.8	693.1	3.139	34.859	34.860	3.092	27.764	34.658	36.904	41.321	45.637	6.99	10.1	1.11	0.01	15.6	1.871	4.029	0.310
910.8	900.4	3.066	34.849	34.850	3.003	27.764	34.662	36.910	41.328	45.647	7.01	10.1	1.11	0.00	15.6	1.854	3.997	0.292
1051.9	1039.5	3.036	34.846	34.847	2.963	27.766	34.665	36.913	41.333	45.653	7.00	10.1	1.11	0.00	15.5	2.058	3.898	0.272
1202.8	1188.2	3.026	34.847	34.847	2.941	27.768	34.669	36.917	41.337	45.658	6.90	10.3	1.12	0.00	15.5	1.616	3.543	0.237
1353.2	1336.3	3.037	34.850	34.849	2.941	27.771	34.671	36.920	41.340	45.660	6.86	10.3	1.11	0.00	15.5	1.559	3.407	0.214
1503.8	1484.5	2.953	34.836	34.837	2.845	27.768	34.673	36.922	41.345	45.668	6.99	10.2	1.11	0.00	15.5	1.798	3.873	0.282
1653.3	1631.5	3.120	34.872	34.871	2.997	27.783	34.681	36.929	41.347	45.666	6.71	10.8	1.12	0.00	15.6	1.253	2.783	0.192
1803.6	1779.2	3.280	34.914	34.914	3.142	27.803	34.695	36.940	41.355	45.670	6.48	11.7	1.13	0.00	15.7	0.793	1.714	0.110
1904.1	1877.9	3.248	34.921	34.921	3.101	27.813	34.706	36.952	41.367	45.683	6.46	11.8	1.12	0.00	15.7	0.756	1.605	0.103
2054.1	2025.1	3.123	34.923	34.924	2.963	27.827	34.726	36.973	41.392	45.712	6.44	12.4	1.11	0.00	15.4	0.765	1.638	0.075
2205.0	2173.1	3.015	34.922	34.924	2.843	27.837	34.741	36.990	41.412	45.734	6.45	12.8	1.10	0.00	15.4	0.723	1.536	0.080
2355.3	2320.4	2.842	34.921	34.921	2.659	27.853	34.764	37.016	41.443	45.769	6.49	12.9	1.10	0.00	15.2	0.784	1.663	0.082
2505.3	2467.3	2.578		34.913	2.659						6.56	12.9	1.07	0.00	14.9	0.903	1.951	0.104
2605.6	2565.5	2.410		34.908	2.354						6.59	12.9	1.07	0.00	14.8	0.923	2.003	0.099
2705.0	2662.7	2.056	34.891	34.888	1.854	27.896	34.840	37.103	41.551	45.898	6.75	11.2	1.02	0.00	14.2	1.196	2.640	0.173
2756.1	2712.7	1.755	34.885	34.884	1.555	27.914	34.871	37.138	41.594	45.949	6.82	10.2	0.99	0.00	13.8	1.305	2.905	0.190
2805.2	2760.7	1.556	34.886	34.886	1.355	27.929	34.895	37.164	41.626	45.986	6.91	9.5	0.97	0.00	13.5	1.440	3.179	0.208
2854.6	2809.0	1.524	34.886	34.887	1.319	27.932	34.899	37.169	41.631	45.992	6.91	9.4	0.96	0.00	13.4	1.410	3.168	0.204
2905.8	2859.1	1.496	34.886	34.885	1.287	27.934	34.902	37.173	41.636	45.998	6.92	9.7	0.96	0.00	13.5	1.436	3.172	0.227
2958.5	2910.6	1.451	34.885	34.883	1.238	27.937	34.907	37.178	41.643	46.006	6.90	10.1	0.98	0.00	13.6	1.419	3.143	0.210

ENDEAVOR 223 Station 45 91-4-20 Lat: 58.501 Lon: 42.685 Sonic Depth: 2621

Tr and He sampled

PR	DE	T	CTD S	S	PSU	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	F12	F11	F113
dbars	meters	deg C	PSU	PSU	deg C	kg/m**3	kg/m**3	kg/m**3	kg/m**3	kg/m**3	kg/m**3	ml/l	umol/l	umol/l	umol/l	umol/l	pm/kg	pm/kg	pm/kg
8.4	8.3	3.831	34.871	34.780	3.830	27.701	34.566	36.803	41.201	45.499	7.69	9.2	0.95	0.04	12.6	2.226	4.783	0.434	
99.7	98.7	3.424	34.860	34.860	3.417	27.734	34.615	36.857	41.265	45.574	7.24	9.5	1.06	0.04	14.8	2.125	4.562	0.397	
198.8	196.9	3.310	34.875	34.876	3.297	27.757	34.643	36.887	41.298	45.609	7.01	10.0	1.11	0.03	15.7	1.915	4.167	0.335	
299.8	296.8	3.236	34.870	34.871	3.216	27.761	34.650	36.895	41.308	45.621	7.02	10.0	1.11	0.02	15.9	1.905	4.143	0.330	
447.4	442.8	3.167	34.865	34.865	3.138	27.765	34.657	36.902	41.318	45.633	7.07	10.0	1.11	0.03	15.7	1.998	4.323	0.400	
651.6	644.5	3.082	34.853	34.853	3.039	27.764	34.661	36.908	41.325	45.643	7.02	10.1	1.12	0.01	15.9	1.849	3.920	0.306	
851.0	841.4	3.044	34.847	34.847	2.986	27.764	34.663	36.911	41.330	45.649	7.00	10.3	1.12	0.01	15.8	1.802	3.925	0.361	
1051.4	1039.0	3.019	34.843	34.843	2.946	27.765	34.665	36.913	41.333	45.654	7.00	10.3	1.12	0.01	15.8	1.680	3.782	0.295	
1177.9	1163.6	2.994	34.840	34.840	2.912	27.766	34.667	36.916	41.337	45.658	6.95	10.4	1.11	0.01	15.7	1.727	3.734	0.263	
1303.7	1287.5	2.999	34.841	34.841	2.906	27.767	34.669	36.917	41.339	45.660	6.95	10.4	1.11	0.01	15.7	1.808	3.935	0.321	
1402.7	1385.0	2.987	34.841	34.842	2.886	27.769	34.671	36.920	41.342	45.664	7.01	10.3	1.11	0.01	15.7	1.844	4.091	0.462	
1552.5	1532.3	2.943	34.836	34.836	2.830	27.770	34.675	36.924	41.348	45.671	7.05	10.3	1.11	0.01	15.7	1.306	2.759	0.341	
1703.2	1680.5	3.163	34.876	34.872	3.035	27.783	34.679	36.926	41.344	45.662	6.70	10.8	1.12	0.01	15.7	1.840	1.805	0.299	
1803.8	1779.3	3.286	34.911	34.912	3.147	27.800	34.692	36.937	41.352	45.666	6.58	11.7	1.13	0.01	15.8	0.840	1.805	0.299	
1903.7	1877.4	3.217	34.925	34.925	3.070	27.819	34.713	36.959	41.376	45.692	6.43	12.0	1.11	0.01	15.7	0.783	1.637	0.284	
2054.3	2025.2	3.056	34.933	34.933	2.898	27.841	34.742	36.991	41.411	45.732	6.41	13.1	1.11	0.01	15.6	0.683	1.337	0.120	
2203.5	2171.6	2.794	34.919	34.918	2.626	27.854	34.766	37.019	41.446	45.774	6.51	12.8	1.08	0.01	15.1	0.794	1.745	0.165	
2305.6	2271.6	2.632	34.913	34.916	2.457	27.864	34.783	37.038	41.470	45.802	6.57	12.5	1.08	0.01	14.9	0.912	1.923	0.165	
2404.2	2368.3	2.420	34.909	34.908	2.240	27.879	34.807	37.065	41.503	45.840	6.59	13.0	1.07	0.01	14.9	0.902	1.954	0.185	
2453.9	2416.9	2.216	34.903	34.900	2.035	27.891	34.828	37.088	41.531	45.874	6.63	13.1	1.06	0.01	14.7	0.932	1.999	0.270	
2503.4	2465.4	1.845	34.889	34.889	1.666	27.909	34.861	37.126	41.579	45.931	6.79	10.4	1.01	0.01	14.0	1.239	2.714	0.299	
2554.8	2515.7	1.620	34.889	34.890	1.441	27.926	34.887	37.155	41.615	45.972	6.91	9.2	0.98	0.00	13.5	1.405	3.106	0.236	
2605.2	2565.0	1.605	34.889	34.890	1.421	27.927	34.889	37.158	41.618	45.976	6.89	9.3	0.98	0.01	13.6	1.383	3.030	0.236	
2652.6	2611.4	1.608	34.890	34.890	1.420	27.928	34.890	37.159	41.619	45.977	6.89	9.2	0.98	0.01	13.5	1.429	3.114	0.257	

ENDEAVOR 223 Station 46 91-4-20 Lat: 58.664 Lon: 42.800 Sonic Depth: 2330

Tr and He sampled

PR	DE	T	CTD S	S	Theta	Sig 0	Sig 1.5	Sig 2.0	Sig 3.0	Sig 4.	O2	SiO2	Phos	NO2	NO3	FI2	FI1	FI13
dbars	meters	deg C	PSU	PSU	deg C	-----	-----	kg/m**3	-----	-----	ml/l	-----	-----	umol/l	-----	-----	-----	-----
9.4	9.3	4.259	34.907	34.906	4.258	27.685	34.533	36.764	41.151	45.439	7.34	8.9	0.98	0.06	13.7	2.152	4.747	0.407
99.1	98.2	4.135	34.929	34.929	4.128	27.716	34.569	36.802	41.192	45.483	7.01	9.2	1.08	0.06	15.2	2.062	4.405	.
199.1	197.1	4.056	34.936	34.937	4.042	27.731	34.587	36.821	41.213	45.506	6.89	9.4	1.12	0.06	15.6	1.962	4.272	.
299.6	296.6	3.822	34.914	34.913	3.801	27.738	34.604	36.841	41.239	45.538	6.94	9.6	1.13	0.05	15.6	1.931	4.198	0.353
401.0	396.9	3.532	34.886	34.888	3.505	27.746	34.623	36.864	41.270	45.576	7.14	9.8	1.12	0.04	15.5	2.091	4.465	.
500.3	495.0	3.443	34.886	34.887	3.408	27.755	34.636	36.879	41.287	45.595	6.99	10.0	1.15	0.03	16.0	1.962	4.215	0.570
600.1	593.6	3.336	34.876	34.875	3.295	27.758	34.644	36.888	41.299	45.610	6.97	10.2	1.15	0.01	16.2	1.900	4.120	.
701.2	693.5	3.318	34.876	34.876	3.269	27.761	34.648	36.892	41.303	45.615	6.97	10.1	1.12	0.02	16.0	1.862	4.088	.
801.4	792.4	3.248	34.869	34.868	3.193	27.763	34.653	36.897	41.311	45.625	6.98	10.0	1.12	0.01	16.0	1.913	4.093	.
900.5	890.2	3.196	34.864	34.863	3.133	27.764	34.657	36.902	41.318	45.633	7.04	9.8	1.12	0.01	16.0	.	.	.
1000.3	988.6	3.171	34.860	34.860	3.101	27.764	34.658	36.904	41.320	45.636	7.04	10.1	1.12	0.01	16.0	1.923	4.185	.
1101.6	1088.4	3.138	34.857	34.856	3.061	27.765	34.661	36.908	41.325	45.642	7.05	10.2	1.12	0.01	15.9	1.906	4.159	.
1202.4	1187.8	3.101	34.851	34.850	3.016	27.765	34.662	36.909	41.328	45.646	7.02	10.2	1.12	0.02	16.0	1.829	4.029	.
1302.1	1285.9	3.076	34.849	34.848	2.983	27.766	34.665	36.913	41.332	45.651	6.95	10.4	1.12	0.01	15.9	1.721	3.764	.
1402.5	1384.8	3.059	34.849	34.849	2.958	27.769	34.668	36.916	41.336	45.656	6.87	10.5	1.12	0.00	15.9	1.565	3.404	0.223
1503.1	1483.7	3.111	34.862	34.861	3.001	27.775	34.673	36.920	41.339	45.658	6.77	10.5	1.12	0.00	16.0	1.403	3.021	.
1603.4	1582.4	3.210	34.885	34.885	3.090	27.785	34.679	36.925	41.341	45.658	6.65	10.9	1.12	0.01	15.9	1.122	2.484	0.245
1703.1	1680.4	3.263	34.915	34.915	3.134	27.805	34.697	36.942	41.357	45.672	6.48	11.7	1.12	0.01	15.8	0.892	1.929	.
1803.5	1779.0	3.201	34.921	34.922	3.064	27.816	34.711	36.957	41.374	45.691	6.48	11.9	1.12	0.01	15.9	0.795	1.720	0.097
1903.5	1877.2	2.979	34.913	34.913	2.836	27.831	34.735	36.984	41.407	45.729	6.53	11.5	1.09	0.01	15.4	1.000	2.125	.
2053.3	2024.2	2.851	34.929	34.930	2.695	27.856	34.765	37.017	41.443	45.768	6.46	13.2	1.11	0.01	15.7	0.647	1.440	0.077
2203.3	2171.3	2.386	34.900	34.901	2.224	27.873	34.802	37.060	41.498	45.836	6.67	11.2	1.05	0.01	14.8	1.094	2.412	0.147
2314.5	2280.3	1.893	34.890	34.890	1.731	27.905	34.854	37.118	41.570	45.920	6.84	9.9	0.99	0.01	14.0	1.290	2.882	.
2366.9	2331.7	1.868	34.889	34.889	1.701	27.906	34.857	37.122	41.574	45.925	6.82	9.6	1.00	0.01	13.9	1.332	2.956	0.209



## Appendix. Tritium and Helium Data.

This section presents the final tritium and helium-3 data, along with depth, temperature, salinity, potential density and AOU (apparent oxygen utilization) for each level reported. Missing values are listed as -99, and uncertainties quoted are the quadrature sum of absolute uncertainties and measurement errors deduced from replicate samples.

### Sampling and Analysis

Samples were drawn from Niskin bottles through tygon tubing, using a gravity technique, into approximately 0.5 m lengths of 1.6 cm outside-diameter copper tubing which was crimp-sealed on both ends. Helium was extracted in a ultra-high vacuum (UHV) system into aluminosilicate ampoules, and the degassed water stored in aluminosilicate glass flasks. Tritium was determined by the mass spectrometric measurement of regrowth helium-3 after a storage period of about one year. The helium isotope measurements were made using an all metal, statically operated mass spectrometer standardized with marine atmospheric helium (see Lott and Jenkins, 1984). Excess helium-3 was computed from the helium concentration and helium isotope ratio anomaly assuming all excess helium was atmospheric bubble injected, and using standard solubility isotope factors (see Jenkins, 1988). Tritium-Helium Age was computed using the standard age equation (e.g., Jenkins and Clarke, 1976).

### References

- Jenkins, W. J., 1988. The use of anthropogenic tritium and helium-3 to study subtropical gyre ventilation and circulation. *Proc. Roy. Soc. (London)* A325, 43-61.
- Jenkins, W. J. and W. B. Clarke, 1976. The distribution of helium-3 in the western Atlantic Ocean. *Deep-Sea Res.* 23, 481-494.
- Lott, D. E. and W. J. Jenkins, 1984. An automated cryogenic charcoal trap system for helium isotope mass spectrometry. *Rev. Sci. Instrum.* 55, 1982-1988.

Sta. No.	Bottle No.	Press. (db)	Temp. (C)	Salinity (PSU)	$\sigma_\theta$ (kg/m <sup>3</sup> )	AOU umol/kg	Trit. TU	$\pm$	XS3He TU	$\pm$	T-HeAge (yrs)	$\pm$
2	19	552	5.391	34.941	27.582	81	1.58	0.04	1.43	0.03	11.57	0.34
2	17	754	4.551	34.949	27.686	65	1.69	0.06	1.40	0.03	10.82	0.32
2	16	852	4.268	34.945	27.714	53	1.60	0.06	1.41	0.04	11.34	0.47
2	15	954	4.244	34.958	27.727	54	1.55	0.06	1.61	0.03	12.80	0.35
2	14	1056	4.287	34.985	27.744	55	1.35	0.04	1.73	0.03	14.80	0.40
2	13	1201	4.047	34.955	27.746	49	1.39	0.06	1.65	0.04	14.01	0.55
2	12	1357	3.950	34.958	27.758	49	1.27	0.04	1.67	0.03	15.07	0.42
4	19	603	5.257	35.003	27.647	80	1.34	0.04	1.56	0.04	13.89	0.57
4	18	703	4.482	34.935	27.683	60	1.76	0.04	1.36	0.03	10.24	0.31
4	17	804	4.389	34.953	27.707	59	1.56	0.04	1.51	0.03	12.11	0.35
4	16	903	4.299	34.957	27.720	56	1.69	0.04	1.35	0.04	10.54	0.45
4	15	1053	3.994	34.935	27.735	49	1.68	0.04	1.63	0.03	12.17	0.32
4	14	1202	3.847	34.928	27.745	46	1.65	0.06	1.59	0.04	12.09	0.46
4	13	1405	3.739	34.931	27.758	45	1.51	0.06	1.60	0.04	13.01	0.50
5	18	751	4.303	34.949	27.714	56	1.71	0.06	1.54	0.04	11.54	0.45
5	17	851	4.155	34.942	27.724	52	1.63	0.06	1.54	0.04	11.95	0.47
5	13	1349	3.741	34.925	27.753	44	1.54	0.06	1.58	0.03	12.71	0.35
5	12	1504	3.671	34.919	27.756	44	1.47	0.06	1.60	0.03	13.23	0.37
6	12	1253	3.729	34.921	27.751	44	1.48	0.06	1.42	0.04	12.06	0.51
6	02	3600	2.220	34.900	27.874	58	0.81	0.06	-99.00	-99.00	-99.00	-99.00
8	16	753	4.223	34.932	27.709	51	1.67	0.06	-99.00	-99.00	-99.00	-99.00
8	15	855	3.963	34.915	27.723	47	1.81	0.06	1.33	0.04	9.91	0.42
8	14	954	3.833	34.908	27.730	45	1.86	0.06	-99.00	-99.00	-99.00	-99.00
8	12	1154	3.627	34.896	27.742	42	1.85	0.06	-99.00	-99.00	-99.00	-99.00
8	01	2698	2.871	34.930	27.841	52	0.91	0.06	1.33	0.04	16.18	0.83
9	15	753	4.249	34.929	27.703	54	1.62	0.06	-99.00	-99.00	-99.00	-99.00
9	14	855	4.148	34.937	27.721	53	1.57	0.06	1.47	0.04	11.87	0.49
9	10	1253	3.635	34.905	27.748	42	1.71	0.06	1.49	0.04	11.26	0.45
9	09	1354	3.579	34.903	27.752	42	1.64	0.06	1.48	0.04	11.54	0.47
9	08	1454	3.560	34.908	27.758	42	1.54	0.06	1.43	0.04	11.78	0.49
10	11	277	5.658	34.595	27.276	88	2.63	0.06	-99.00	-99.00	-99.00	-99.00
10	07	580	4.356	34.896	27.666	62	1.70	0.04	1.44	0.04	10.98	0.45
10	03	878	3.885	34.903	27.721	47	1.83	0.06	1.42	0.04	10.29	0.42
11	23	100	16.302	36.307	26.684	6	2.02	0.06	0.08	0.04	0.67	0.38
11	20	479	12.895	35.663	26.929	67	1.94	0.06	1.30	0.04	9.19	0.39

Sta. No.	Bottle No.	Press. (db)	Temp. (C)	Salinity (PSU)	$\sigma_\theta$ (kg/m <sup>3</sup> )	AOU umol/kg	Trit. TU	±	XS3He TU	±	T-HeAge (yrs)	±
12	22	1252	16.369	36.324	26.682	8	1.93	0.06	0.12	0.03	1.11	0.28
12	21	401	13.980	35.846	26.846	59	2.06	0.06	1.17	0.04	8.08	0.37
12	20	576	9.516	35.176	27.172	104	1.67	0.06	1.49	0.03	11.46	0.32
12	19	731	6.900	35.002	27.435	103	1.49	0.04	1.69	0.04	13.57	0.51
12	17	1030	5.012	35.011	27.683	67	1.50	0.04	1.74	0.04	13.86	0.51
12	15	1407	3.913	34.921	27.733	46	1.75	0.04	1.56	0.03	11.44	0.31
12	14	1606	3.816	34.933	27.752	45	1.54	0.06	1.92	0.04	14.54	0.49
12	13	1806	3.684	34.927	27.761	44	1.39	0.06	1.87	0.04	15.30	0.55
12	12	2005	3.569	34.924	27.770	44	1.37	0.06	1.86	0.03	15.41	0.39
12	11	2205	3.545	34.937	27.783	47	1.03	0.06	1.91	0.04	18.79	0.73
12	07	3207	2.848	34.931	27.844	55	0.81	0.06	-99.00	-99.00	-99.00	-99.00
14	20	502	6.883	34.965	27.408	104	1.55	0.06	1.53	0.04	12.32	0.49
14	16	1177	4.025	34.945	27.740	50	1.59	0.06	1.76	0.03	13.33	0.34
14	14	1554	3.626	34.917	27.759	43	1.57	0.06	1.67	0.04	12.97	0.48
14	13	1756	3.572	34.918	27.765	44	1.32	0.06	1.78	0.04	15.36	0.58
14	12	1957	3.561	34.933	27.778	47	1.22	0.06	1.54	0.03	14.63	0.44
14	11	2154	3.498	34.944	27.793	49	0.95	0.06	-99.00	-99.00	-99.00	-99.00
14	07	3256	2.705	34.926	27.853	55	0.68	0.04	1.19	0.04	18.19	1.11
14	03	4356	2.270	34.897	27.867	59	0.76	0.04	1.32	0.03	18.12	0.71
14	01	4886	2.214	34.895	27.870	49	1.40	0.06	1.53	0.04	13.26	0.54
15	22	302	5.057	34.668	27.406	83	2.24	0.04	1.22	0.03	7.78	0.24
15	19	752	3.585	34.808	27.676	44	2.14	0.04	0.98	0.03	6.79	0.25
15	17	1054	3.335	34.856	27.739	36	2.13	0.06	1.25	0.04	8.28	0.36
15	16	1203	3.254	34.870	27.757	36	1.97	0.06	1.53	0.04	10.31	0.39
15	15	1404	3.247	34.897	27.780	40	1.65	0.06	1.65	0.04	12.40	0.46
15	13	1804	3.258	34.935	27.809	49	1.02	0.04	1.71	0.03	17.71	0.53
15	11	2307	3.025	34.935	27.831	51	0.87	0.06	1.62	0.04	18.89	0.87
15	10	2607	2.963	34.933	27.835	51	0.93	0.06	1.54	0.04	17.49	0.81
15	03	4678	2.215	34.896	27.871	54	1.50	0.06	-99.00	-99.00	-99.00	-99.00
17	08	2155	3.332	34.941	27.807	49	0.89	0.06	1.61	0.04	18.54	0.85
17	05	2907	2.798	34.926	27.845	49	1.00	0.04	1.68	0.03	17.70	0.54
17	02	3507	2.313	34.905	27.870	52	1.11	0.06	1.68	0.04	16.61	0.69
18	19	476	5.032	34.987	27.661	68	1.64	0.06	1.58	0.04	12.11	0.46
18	14	852	4.037	34.944	27.738	48	1.77	0.06	-99.00	-99.00	-99.00	-99.00
18	12	1103	3.603	34.907	27.753	41	1.74	0.06	1.68	0.04	12.17	0.44
18	10	1505	3.434	34.907	27.770	39	1.48	0.06	1.73	0.04	13.89	0.51
18	07	2206	3.248	34.938	27.812	49	0.45	0.06	-99.00	-99.00	-99.00	-99.00
18	03	3208	2.549	34.916	27.859	50	1.09	0.06	-99.00	-99.00	-99.00	-99.00

Sta. No.	Bottle No.	Press. (db)	Temp. (C)	Salinity (PSU)	$\sigma_\theta$ (kg/m <sup>3</sup> )	AOU umol/kg	Trit. TU	$\pm$	XS3He TU	$\pm$	T-HeAge (yrs)	$\pm$
19	19	502	4.734	34.963	27.677	65	1.64	0.06	1.57	0.04	12.05	0.46
19	18	603	4.288	34.939	27.707	55	1.74	0.06	1.54	0.04	11.38	0.44
19	17	703	4.105	34.932	27.721	50	2.13	0.06	-99.00	-99.00	-99.00	-99.00
19	16	752	4.104	34.941	27.728	51	1.67	0.06	1.57	0.04	11.92	0.46
19	15	803	4.108	34.952	27.737	50	1.86	0.06	-99.00	-99.00	-99.00	-99.00
19	12	1001	3.752	34.918	27.747	44	1.70	0.06	1.64	0.04	12.11	0.45
19	08	1705	3.300	34.892	27.771	39	1.56	0.06	1.61	0.04	12.73	0.49
19	05	2608	2.959	34.928	27.832	50	1.05	0.06	-99.00	-99.00	-99.00	-99.00
20	19	351	4.632	34.884	27.625	67	1.74	0.06	1.34	0.04	10.24	0.44
20	15	552	4.366	34.957	27.713	57	1.64	0.06	1.53	0.03	11.79	0.33
20	13	652	4.359	34.979	27.731	55	1.50	0.04	1.73	0.03	13.80	0.36
20	10	903	3.806	34.923	27.745	45	1.57	0.06	-99.00	-99.00	-99.00	-99.00
21	20	201	3.021	34.564	27.535	42	2.55	0.06	0.60	0.03	3.79	0.21
21	18	301	4.153	34.851	27.652	56	2.00	0.06	1.12	0.03	7.96	0.27
21	17	351	4.269	34.896	27.675	56	1.83	0.06	1.26	0.03	9.39	0.30
21	14	502	4.042	34.923	27.721	49	1.81	0.06	1.47	0.03	10.70	0.30
21	12	603	3.851	34.911	27.731	46	1.71	0.06	1.52	0.03	11.38	0.32
21	07	1078	3.467	34.898	27.759	40	1.54	0.06	1.72	0.03	13.42	0.35
21	04	1505	3.234	34.887	27.773	40	1.63	0.06	1.52	0.03	11.80	0.33
21	02	1904	3.210	34.912	27.795	44	1.43	0.06	1.83	0.03	14.73	0.38
22	14	100	2.378	34.052	27.182	20	3.29	0.04	0.17	0.03	0.89	0.17
22	12	201	1.506	34.360	27.496	25	3.05	0.06	0.22	0.04	1.23	0.25
22	11	250	2.723	34.590	27.583	36	2.80	0.06	0.48	0.03	2.84	0.19
22	10	301	3.304	34.722	27.635	35	2.61	0.04	0.54	0.03	3.39	0.21
22	08	552	3.737	34.868	27.708	33	2.27	0.06	0.78	0.04	5.28	0.34
22	06	753	3.467	34.858	27.727	32	2.19	0.06	0.94	0.04	6.41	0.35
22	04	852	3.370	34.853	27.733	32	2.16	0.04	1.07	0.04	7.26	0.35
22	03	953	3.253	34.848	27.740	33	2.20	0.06	1.14	0.03	7.47	0.25
23	12	201	1.688	34.315	27.447	42	3.17	0.04	0.52	0.04	2.74	0.24
23	09	352	2.849	34.691	27.652	21	2.52	0.06	0.33	0.04	2.21	0.30
23	07	452	3.780	34.852	27.691	31	2.32	0.04	0.72	0.03	4.85	0.23
23	05	651	3.518	34.862	27.725	31	2.25	0.06	0.95	0.03	6.31	0.24
23	02	1003	3.146	34.847	27.749	30	-99.00	-99.00	0.94	0.04	-99.00	-99.00
23	01	1107	3.080	34.851	27.759	31	2.04	0.06	1.24	0.03	8.56	0.27
24	13	101	1.101	34.220	27.412	32	3.27	0.06	0.33	0.03	1.71	0.17
24	11	200	2.408	34.614	27.629	18	2.65	0.06	0.20	0.03	1.28	0.21
24	09	302	3.395	34.787	27.678	26	2.53	0.06	0.50	0.04	3.25	0.30
24	05	552	3.500	34.852	27.719	28	2.26	0.06	0.83	0.03	5.62	0.24
24	03	751	3.298	34.847	27.735	32	2.20	0.06	1.09	0.03	7.20	0.25
24	01	1072	3.073	34.850	27.759	31	2.17	0.06	1.24	0.03	8.12	0.25
26	06	50	1.661	33.922	27.133	-6	3.28	0.06	-0.24	0.04	-1.35	0.23
26	05	100	1.572	33.994	27.198	-4	3.16	0.04	-0.17	0.03	-1.01	0.17
26	04	149	1.803	34.276	27.407	19	2.99	0.06	-99.00	-99.00	-99.00	-99.00
26	01	220	2.940	34.576	27.552	59	2.63	0.06	0.56	0.03	3.48	0.21

Sta. No.	Bottle No.	Press. (db)	Temp. (C)	Salinity (PSU)	$\sigma_\theta$ (kg/m <sup>3</sup> )	AOU umol/kg	Trit. TU	$\pm$	XS3He TU	$\pm$	T-HeAge (yrs)	$\pm$
27	05	101	1.449	34.045	27.247	-3	2.60	0.06	-0.07	0.04	-0.47	0.29
27	03	200	3.026	34.615	27.575	58	2.46	0.06	0.58	0.04	3.78	0.31
28	11	101	2.113	34.392	27.476	2	2.76	0.06	-0.14	0.03	-0.94	0.20
28	10	175	2.369	34.589	27.612	12	2.88	0.06	-99.00	-99.00	-99.00	-99.00
28	07	327	3.641	34.852	27.705	34	2.12	0.06	0.82	0.03	5.89	0.26
28	06	427	3.467	34.852	27.722	35	2.22	0.06	0.91	0.03	6.14	0.24
28	05	527	3.380	34.853	27.732	35	2.11	0.06	1.03	0.04	7.18	0.36
28	03	728	3.210	34.851	27.747	33	2.16	0.04	1.17	0.04	7.79	0.35
29	13	299	3.023	34.751	27.684	22	2.37	0.06	0.48	0.04	3.31	0.32
29	10	603	2.823	34.763	27.712	20	2.44	0.06	0.43	0.04	2.90	0.31
29	09	651	2.998	34.785	27.714	22	2.45	0.06	-99.00	-99.00	-99.00	-99.00
29	06	851	3.324	34.852	27.736	28	2.19	0.06	0.95	0.04	6.47	0.35
29	05	1002	3.242	34.858	27.749	29	2.07	0.06	1.18	0.04	8.12	0.37
29	02	1454	3.084	34.862	27.767	30	2.03	0.04	1.30	0.03	8.86	0.27
30	20	200	2.940	34.770	27.707	21	2.26	0.04	0.40	0.04	2.91	0.34
30	07	1505	3.155	34.890	27.783	36	1.74	0.06	1.69	0.04	12.20	0.44
30	05	1804	2.963	34.916	27.822	41	1.48	0.04	1.92	0.04	14.96	0.51
31	12	1103	3.107	34.851	27.756	29	2.07	0.04	-99.00	-99.00	-99.00	-99.00
31	10	1403	3.156	34.874	27.770	34	1.68	0.06	1.46	0.04	11.23	0.45
32	22	199	3.106	34.732	27.661	24	2.27	0.06	-99.00	-99.00	-99.00	-99.00
32	19	425	3.234	34.810	27.712	23	2.45	0.06	-99.00	-99.00	-99.00	-99.00
32	14	1102	3.156	34.852	27.752	28	2.14	0.06	-99.00	-99.00	-99.00	-99.00
32	13	1303	3.155	34.860	27.759	30	2.00	0.06	-99.00	-99.00	-99.00	-99.00
32	12	1501	3.241	34.887	27.772	35	1.56	0.06	-99.00	-99.00	-99.00	-99.00
32	10	1904	3.131	34.913	27.803	42	1.47	0.06	1.88	0.04	14.81	0.52
32	02	3807	1.879	34.888	27.892	43	1.80	0.06	-99.00	-99.00	-99.00	-99.00
34	01	12	5.758	34.279	27.013	-2	3.24	0.04	0.00	0.04	0.01	0.24
34	22	201	4.551	34.516	27.342	62	2.59	0.06	-99.00	-99.00	-99.00	-99.00
34	21	251	5.450	34.764	27.435	87	2.04	0.06	-99.00	-99.00	-99.00	-99.00
34	20	302	5.856	34.928	27.514	90	1.58	0.06	1.49	0.03	11.94	0.34
34	18	400	3.762	34.766	27.625	38	2.18	0.06	0.76	0.04	5.37	0.35
34	17	497	4.164	34.885	27.677	46	2.07	0.04	1.07	0.03	7.47	0.26
34	16	586	4.040	34.900	27.703	43	2.03	0.06	1.20	0.04	8.31	0.38
34	15	677	3.834	34.894	27.719	39	2.01	0.06	-99.00	-99.00	-99.00	-99.00
34	10	1808	3.230	34.893	27.778	37	1.63	0.06	-99.00	-99.00	-99.00	-99.00
34	07	2707	2.928	34.926	27.833	45	1.21	0.06	-99.00	-99.00	-99.00	-99.00
34	02	4274	1.889	34.886	27.889	43	1.81	0.06	-99.00	-99.00	-99.00	-99.00

Sta. No.	Bottle No.	Press. (db)	Temp. (C)	Salinity (PSU)	$\sigma_\theta$ (kg/m <sup>3</sup> )	AOU umol/kg	Trit. TU	$\pm$	XS3He TU	$\pm$	T-HeAge (yrs)	$\pm$
35	23	98	9.694	35.185	27.149	16	-99.00	-99.00	0.08	0.04	-99.00	-99.00
35	22	200	9.762	35.257	27.194	15	2.42	0.06	0.84	0.04	5.35	0.32
35	21	276	9.311	35.219	27.239	41	2.12	0.06	-99.00	-99.00	-99.00	-99.00
35	19	400	6.593	34.933	27.422	92	1.71	0.04	1.40	0.03	10.71	0.32
35	18	426	6.519	34.949	27.445	95	1.59	0.06	1.50	0.04	11.90	0.48
35	16	750	4.816	34.990	27.689	63	1.55	0.06	1.65	0.03	13.02	0.35
35	15	950	4.132	34.946	27.729	48	1.64	0.06	-99.00	-99.00	-99.00	-99.00
35	13	1356	3.299	34.855	27.741	30	2.08	0.06	1.22	0.03	8.31	0.26
35	09	2405	3.164	34.914	27.801	42	1.37	0.06	1.88	0.03	15.51	0.39
35	04	3607	2.264	34.902	27.872	45	1.45	0.06	1.83	0.03	14.62	0.37
35	02	4109	2.027	34.893	27.884	43	1.64	0.06	1.75	0.04	13.01	0.46
35	01	4338	1.852	34.884	27.891	42	1.86	0.06	1.71	0.04	11.73	0.41
37	11	100	2.875	-99.000	-99.000	42	2.61	0.06	-0.03	0.04	-0.17	0.29
37	10	201	2.852	34.756	27.704	23	2.39	0.06	0.38	0.04	2.62	0.32
37	09	250	2.952	34.778	27.712	24	2.34	0.04	0.50	0.04	3.47	0.33
37	06	501	2.792	34.774	27.724	21	2.31	0.06	0.40	0.04	2.90	0.33
37	04	651	2.961	34.802	27.731	23	2.24	0.06	-99.00	-99.00	-99.00	-99.00
37	03	702	3.098	34.821	27.733	26	2.26	0.06	0.77	0.04	5.26	0.34
37	02	853	3.235	34.853	27.746	32	-99.00	-99.00	1.28	0.04	-99.00	-99.00
37	01	1003	3.153	34.852	27.753	29	2.11	0.06	-99.00	-99.00	-99.00	-99.00
38	11	101	2.457	34.532	27.559	2	2.63	0.06	-99.00	-99.00	-99.00	-99.00
38	10	199	2.825	34.750	27.702	21	2.67	0.06	0.34	0.03	2.16	0.20
38	09	253	2.967	34.776	27.709	22	2.38	0.04	0.45	0.03	3.09	0.23
38	08	302	3.131	34.807	27.719	25	2.43	0.06	0.58	0.03	3.86	0.22
38	07	400	2.962	34.794	27.724	22	2.23	0.04	0.50	0.03	3.62	0.24
38	06	500	2.997	34.806	27.731	24	2.30	0.04	0.60	0.03	4.19	0.24
38	05	599	3.202	34.834	27.734	27	2.24	0.04	0.87	0.03	5.87	0.24
38	04	650	3.267	34.850	27.740	28	2.20	0.04	1.01	0.03	6.79	0.25
38	03	699	3.255	34.854	27.745	29	2.18	0.04	1.13	0.03	7.51	0.25
38	02	854	3.164	34.853	27.753	30	2.09	0.04	1.20	0.03	8.13	0.26
38	01	1011	3.112	34.852	27.756	30	2.17	0.06	1.25	0.03	8.15	0.25
39	12	12	2.410	34.485	27.526	1	2.41	0.06	0.03	0.04	0.25	0.32
39	11	99	2.345	34.508	27.550	3	2.59	0.06	0.01	0.03	0.06	0.21
39	10	198	3.347	34.815	27.705	31	2.19	0.06	0.75	0.03	5.28	0.25
39	09	251	3.292	34.810	27.706	30	2.22	0.06	0.72	0.03	5.03	0.24
39	08	302	3.269	34.817	27.714	29	2.19	0.06	0.74	0.03	5.26	0.25
39	06	502	3.278	34.836	27.728	26	2.23	0.06	0.85	0.04	5.78	0.34
39	05	601	3.191	34.836	27.736	28	2.21	0.06	0.87	0.04	5.95	0.35
39	04	652	3.182	34.837	27.738	27	2.16	0.04	1.03	0.03	6.99	0.25
39	03	701	3.289	34.855	27.742	30	2.22	0.06	1.13	0.03	7.41	0.24
39	02	854	3.188	34.852	27.749	30	2.25	0.06	-99.00	-99.00	-99.00	-99.00
39	01	1002	3.103	34.852	27.757	28	2.21	0.04	1.27	0.04	8.17	0.35

Sta. No.	Bottle No.	Press. (db)	Temp. (C)	Salinity (PSU)	$\sigma_\theta$ (kg/m <sup>3</sup> )	AOU umol/kg	Trit. TU	±	XS3He TU	±	T-HeAge (yrs)	±
40	11	101	2.446	34.534	27.562	0	2.70	0.06	-99.00	-99.00	-99.00	-99.00
40	09	251	2.957	34.782	27.715	22	2.35	0.06	0.48	0.04	3.36	0.33
40	08	302	3.003	34.791	27.718	24	2.33	0.06	0.50	0.04	3.49	0.33
40	06	502	3.063	34.813	27.730	24	2.28	0.06	0.64	0.04	4.43	0.34
40	05	604	3.206	34.840	27.738	28	2.24	0.06	0.90	0.03	6.09	0.24
40	04	651	3.245	34.848	27.741	29	2.17	0.06	1.07	0.03	7.17	0.25
40	03	702	3.219	34.848	27.743	29	2.17	0.06	1.15	0.04	7.60	0.35
40	02	852	3.180	34.854	27.752	30	2.12	0.06	1.27	0.03	8.40	0.26
40	01	1003	3.114	34.855	27.759	29	2.11	0.06	1.30	0.04	8.64	0.36
41	12	9	2.608	34.499	27.520	-2	2.56	0.06	-0.11	0.04	-0.78	0.30
41	11	99	2.482	34.533	27.558	0	2.34	0.06	-0.05	0.03	-0.36	0.23
41	10	200	2.783	34.745	27.701	20	2.18	0.06	0.30	0.03	2.35	0.25
41	09	250	3.019	34.783	27.710	24	2.37	0.04	0.52	0.03	3.57	0.23
41	08	301	3.015	34.788	27.715	24	1.86	0.06	0.57	0.03	4.78	0.29
41	07	401	3.185	34.821	27.725	26	2.30	0.04	0.73	0.03	4.91	0.24
41	06	500	3.258	34.822	27.719	26	2.28	0.06	0.75	0.03	5.12	0.24
41	05	602	3.306	34.849	27.736	29	2.20	0.04	0.99	0.03	6.70	0.25
41	04	649	3.247	34.855	27.746	31	2.17	0.04	1.06	0.03	7.13	0.25
41	03	702	3.301	34.854	27.740	30	2.03	0.06	1.11	0.03	7.82	0.27
41	02	852	3.234	34.855	27.747	30	2.09	0.06	1.25	0.03	8.44	0.26
41	01	1002	3.180	34.856	27.753	30	2.08	0.06	1.33	0.03	8.88	0.26
42	23	73	3.087	34.734	27.665	5	2.28	0.06	0.00	0.03	0.03	0.24
42	22	148	2.957	34.760	27.698	13	2.23	0.06	0.19	0.03	1.48	0.24
42	21	230	2.962	34.782	27.715	9	2.12	0.06	0.17	0.03	1.40	0.26
42	20	350	3.085	34.815	27.730	25	2.09	0.06	0.73	0.03	5.35	0.26
42	19	475	3.316	34.857	27.741	32	2.04	0.06	1.23	0.03	8.49	0.27
42	18	625	3.250	34.857	27.748	31	2.02	0.06	1.35	0.03	9.17	0.27
42	17	801	3.038	34.833	27.748	25	2.06	0.06	0.92	0.03	6.65	0.26
42	15	1052	3.047	34.841	27.754	27	1.95	0.06	1.08	0.03	7.93	0.28
42	14	1252	3.001	34.838	27.756	27	2.09	0.06	0.99	0.03	6.99	0.26
42	13	1452	3.015	34.843	27.758	27	2.07	0.04	0.99	0.03	7.02	0.26
42	12	1627	3.024	34.846	27.760	27	1.89	0.04	0.99	0.04	7.53	0.40
42	11	1804	3.220	34.884	27.772	37	1.64	0.04	1.59	0.03	12.18	0.33
42	09	2153	3.271	34.924	27.799	46	1.25	0.06	1.90	0.03	16.57	0.43
42	07	2555	3.036	34.933	27.828	48	1.11	0.04	1.88	0.03	17.74	0.48
42	06	2804	2.889	34.937	27.845	49	1.09	0.04	1.78	0.03	17.37	0.49
42	02	3607	2.250	34.906	27.876	49	1.30	0.04	1.82	0.03	15.70	0.41
42	01	3661	2.173	34.902	27.879	48	1.44	0.04	1.77	0.03	14.37	0.37
43	23	99	2.807	34.792	27.737	11	2.27	0.06	0.25	0.03	1.84	0.24
43	22	199	2.924	34.817	27.746	22	2.09	0.04	0.70	0.03	5.18	0.26
43	21	299	2.861	34.815	27.750	19	2.13	0.06	0.58	0.03	4.31	0.25
43	20	398	2.800	34.812	27.753	15	2.17	0.06	0.33	0.04	2.56	0.35
43	19	500	2.893	34.827	27.757	20	2.07	0.06	0.75	0.03	5.54	0.26
43	17	701	2.851	34.825	27.759	19	2.15	0.04	0.60	0.03	4.41	0.25
43	16	826	2.845	34.824	27.759	20	2.15	0.06	0.54	0.03	4.01	0.25
43	15	951	2.849	34.823	27.758	20	2.06	0.06	0.58	0.03	4.48	0.26
43	14	1151	2.855	34.825	27.759	21	2.15	0.04	0.57	0.04	4.21	0.36

Sta. No.	Bottle No.	Press. (db)	Temp. (C)	Salinity (PSU)	$\sigma_\theta$ (kg/m <sup>3</sup> )	AOU umol/kg	Trit. TU	±	XS3He TU	±	T-HeAge (yrs)	±
43	13	1352	2.896	34.829	27.758	22	2.11	0.06	0.75	0.03	5.48	0.26
43	12	1553	2.912	34.832	27.759	21	2.03	0.06	0.74	0.03	5.59	0.27
43	10	1879	3.139	34.872	27.770	33	1.77	0.06	1.47	0.03	10.84	0.31
43	09	2004	3.266	34.901	27.781	39	1.60	0.06	1.78	0.03	13.44	0.34
43	08	2203	3.236	34.925	27.803	46	1.26	0.04	1.95	0.03	16.84	0.43
43	06	2705	2.910	34.930	27.838	46	1.16	0.04	1.80	0.03	16.83	0.46
43	04	3206	2.447	34.914	27.866	48	1.21	0.04	1.84	0.03	16.59	0.44
43	02	3567	2.192	34.902	27.878	49	1.36	0.04	1.84	0.03	15.39	0.40
43	01	3625	2.195	34.902	27.877	47	1.45	0.04	1.73	0.03	14.11	0.37
44	22	300	3.324	34.877	27.756	20	2.09	0.06	0.66	0.03	4.94	0.26
44	21	500	3.201	34.863	27.757	19	2.08	0.06	0.63	0.03	4.74	0.26
44	19	910	3.066	34.849	27.758	19	2.13	0.06	0.61	0.03	4.53	0.25
44	16	1353	3.037	34.850	27.762	26	2.03	0.06	0.92	0.03	6.73	0.27
44	15	1503	2.953	34.836	27.759	21	2.10	0.06	0.57	0.03	4.31	0.26
44	14	1653	3.120	34.872	27.772	32	1.89	0.04	1.31	0.03	9.44	0.29
44	13	1803	3.280	34.914	27.790	41	-99.00	-99.00	1.75	0.03	-99.00	-99.00
44	11	2054	3.123	34.923	27.812	44	1.40	0.04	1.83	0.03	15.00	0.39
44	10	2205	3.015	34.922	27.822	44	1.43	0.06	1.76	0.03	14.36	0.38
44	07	2605	2.410	34.908	27.864	43	1.55	0.06	1.62	0.03	12.86	0.35
44	06	2705	2.056	34.891	27.880	40	1.80	0.04	1.55	0.03	11.18	0.30
44	03	2854	1.524	34.886	27.917	37	1.98	0.06	1.43	0.03	9.74	0.27
44	02	2905	1.496	34.886	27.919	37	2.04	0.06	1.45	0.03	9.63	0.27
44	01	2958	1.451	34.885	27.922	38	1.99	0.06	1.45	0.03	9.85	0.27
45	22	198	3.310	34.875	27.756	16	2.14	0.06	0.41	0.03	3.17	0.25
45	20	447	3.167	34.865	27.762	15	2.14	0.06	0.32	0.03	2.50	0.25
45	19	651	3.082	34.853	27.760	18	2.10	0.06	0.43	0.03	3.36	0.26
45	15	1303	2.999	34.841	27.758	22	2.15	0.04	0.81	0.03	5.75	0.25
45	14	1402	2.987	34.841	27.759	20	2.10	0.04	0.63	0.03	4.70	0.26
45	13	1552	2.943	34.836	27.760	19	2.06	0.06	0.53	0.03	4.12	0.26
45	12	1703	3.163	34.876	27.771	32	1.94	0.06	1.39	0.03	9.69	0.28
45	11	1803	3.286	34.911	27.787	36	1.66	0.06	1.87	0.03	13.53	0.33
45	10	1903	3.217	34.925	27.805	43	1.54	0.06	1.94	0.03	14.61	0.35
45	09	2054	3.056	34.933	27.827	46	1.37	0.04	1.92	0.03	15.68	0.39
45	06	2404	2.420	34.909	27.864	43	1.52	0.06	1.66	0.03	13.25	0.36
45	04	2503	1.845	34.889	27.895	39	1.86	0.06	1.50	0.03	10.61	0.29
45	02	2554	1.620	34.889	27.912	36	1.93	0.06	1.47	0.03	10.15	0.28
45	03	2605	1.605	34.889	27.914	37	1.88	0.06	1.47	0.03	10.37	0.29
45	01	2652	1.608	34.890	27.914	37	1.93	0.06	1.45	0.03	10.06	0.28
46	24	9	4.259	34.907	27.685	-5	2.36	0.06	-99.00	-99.00	-99.00	-99.00
46	22	199	4.056	34.936	27.730	16	2.05	0.04	0.36	0.03	2.92	0.26
46	20	401	3.532	34.886	27.743	9	2.10	0.06	0.21	0.04	1.74	0.36
46	18	600	3.336	34.876	27.755	18	2.16	0.06	0.51	0.03	3.79	0.25
46	16	801	3.248	34.869	27.757	19	2.16	0.06	0.57	0.03	4.20	0.25
46	14	1000	3.171	34.860	27.757	17	1.99	0.06	-99.00	-99.00	-99.00	-99.00
46	12	1202	3.101	34.851	27.757	18	1.68	0.06	0.64	0.03	5.78	0.32
46	09	1503	3.111	34.862	27.765	29	2.06	0.06	1.34	0.03	9.00	0.26
46	08	1603	3.210	34.885	27.774	34	1.89	0.06	1.59	0.03	10.99	0.29



Sta. No.	Bottle No.	Press. (db)	Temp. (C)	Salinity (PSU)	$\sigma_\theta$ (kg/m <sup>3</sup> )	AOU umol/kg	Trit. TU	±	XS3He TU	±	T-HeAge (yrs)	±
46	07	1703	3.263	34.915	27.793	41	1.67	0.06	1.90	0.03	13.63	0.32
46	06	1803	3.201	34.921	27.803	41	1.59	0.06	1.92	0.03	14.24	0.34
46	04	2053	2.851	34.929	27.842	45	1.33	0.06	1.99	0.04	16.40	0.57
46	03	2203	2.386	34.900	27.860	40	1.77	0.06	1.62	0.03	11.67	0.31
46	02	2314	1.893	34.890	27.892	37	1.92	0.06	1.54	0.03	10.55	0.28
46	01	2366	1.868	34.889	27.893	38	1.97	0.06	1.54	0.03	10.38	0.27
47	24	8	3.171	34.837	27.739	4	2.13	0.06	-99.00	-99.00	-99.00	-99.00
47	21	401	2.975	34.843	27.762	17	2.21	0.04	0.35	0.03	2.67	0.25
47	20	600	2.999	34.845	27.762	17	2.26	0.06	0.34	0.03	2.49	0.24
47	19	802	2.942	34.838	27.761	19	2.28	0.06	-99.00	-99.00	-99.00	-99.00
47	16	1402	2.927	34.835	27.760	18	2.06	0.06	0.39	0.04	3.15	0.37
47	15	1603	2.951	34.836	27.759	18	2.14	0.04	0.49	0.03	3.72	0.25
47	13	1904	3.092	34.861	27.766	28	1.89	0.06	1.13	0.04	8.40	0.40
47	11	2004	3.261	34.898	27.779	37	1.69	0.06	-99.00	-99.00	-99.00	-99.00
47	07	2504	3.024	34.935	27.831	47	1.66	0.04	1.78	0.04	13.04	0.46
47	06	2705	2.823	34.933	27.848	48	1.19	0.06	1.90	0.04	17.14	0.64
47	04	2955	2.239	34.896	27.869	40	1.69	0.04	1.64	0.03	12.17	0.32
47	03	3055	1.925	34.890	27.890	40	1.79	0.06	1.70	0.04	12.01	0.43
47	01	3167	1.423	34.883	27.922	42	1.82	0.06	1.51	0.04	10.85	0.42

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<b>16. Abstract (Limit: 200 words)</b>  In March-April, 1991, a 34-day hydrographic cruise aboard R/V <i>Endeavor</i> was undertaken to investigate the formation of the shallow component of the North Atlantic Deep Western Boundary Current (DWBC). Forty-seven stations were occupied, including 4 crossings of the DWBC. Five of the stations comprise a detailed CTD/XBT survey taken in the region of a lens of newly ventilated water. Two additional stations were occupied in the central part of the Labrador Sea. Dissolved Oxygen, Nitrate, Nitrite, Phosphate, Silicate, and Chlorofluorocarbons (CFCs) F-11 and F-12 were measured at all stations. F-113 measurements were taken in the latter part of the cruise, and Tritium and Helium were measured at selected stations. An acoustic transport (POGO) float was deployed at each station to measure average velocity directly over the upper 1000-1500 meters. The shipboard Acoustic Doppler Current Profiler (ADCP) measured upper layer currents throughout the cruise. Eighty-four XBTs were taken. This report presents vertical profiles and sections of the bottle and CTD data, a vector map of the average POGO currents, and listings of the bottle data. Tritium and Helium data are listed in an appendix.		<b>13. Type of Report &amp; Period Covered</b> Technical Report	
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