NOAA Data Report ERL PMEL-52

VENTS 1993 CLEFT AND COAXIAL SEGMENT PLUME MONITORING: PHYSICAL AND CHEMICAL DATA, NOAA SHIP *DISCOVERER* AND R/V *ATLANTIS II*, JUNE TO OCTOBER 1993

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UNITED STATES DEPARTMENT OF COMMERCE

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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

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VENTS 1993 Cleft and CoAxial Segment Plume Monitoring: Physical and Chemical Data, NOAA Ship *Discoverer* and R/V *Atlantis II*, June to October 1993

Michael S. Devany[1], Edward T. Baker[1], Richard A. Feely[1], David J. Pashinski[1], Geoffrey T. Lebon[1], Sharon L. Walker[1], and Katherine A. Krogslund[2]

Abstract. This report summarizes salinity, temperature, nutrient, optical, and total suspended matter data collected during the NOAA VENTS cruises in June to October of 1993. The data was collected over the Juan de Fuca Ridge covering an area from 44°00'N to 48°30'N and 128°30'W to 130°40'W.

1.0 INTRODUCTION

The National Oceanic and Atmospheric Administration (NOAA) VENTS Program was established in 1984 to study the oceanic effects of hydrothermal activity along seafloor spreading centers. VENTS Program scientists from the Pacific Marine Environmental Laboratory (PMEL) have conducted intensive oceanographic research on the Cleft and CoAxial Segment of the Juan de Fuca Ridge spreading center located in the northeast Pacific Ocean basin.

The Juan de Fuca Ridge is a medium rate spreading center, consisting of the Cleft, Vance, Axial, CoAxial, Cobb, Endeavour, and West Valley segments. The ridge is bounded on the south by the Blanco Fracture Zone and on the north by the Sovanco Fracture Zone.

As part of the continuing VENTS Program research effort, chemical and physical oceanography cruises were conducted in June, July, and August 1993 aboard the NOAA Ship *Discoverer* with scientists from NOAA and the University of Hawaii. An additional cruise was conducted in October 1993 aboard the Woods Hole Institute's R/V *Atlantis II* with scientists from NOAA and the University of Washington. These cruises concentrated on physical oceanography and geochemical studies of the neutrally buoyant hydrothermal plumes over the Cleft and CoAxial Segments (Fig. 1) in order to quantitatively assess the impact of hydrothermal emissions of seawater chemistry of the northeast Pacific Ocean. This report includes the complete set of hydrographic, nutrient, optical, and total suspended matter data collected on the cruise (Appendix A) and a description of the sampling and analytical methods employed.

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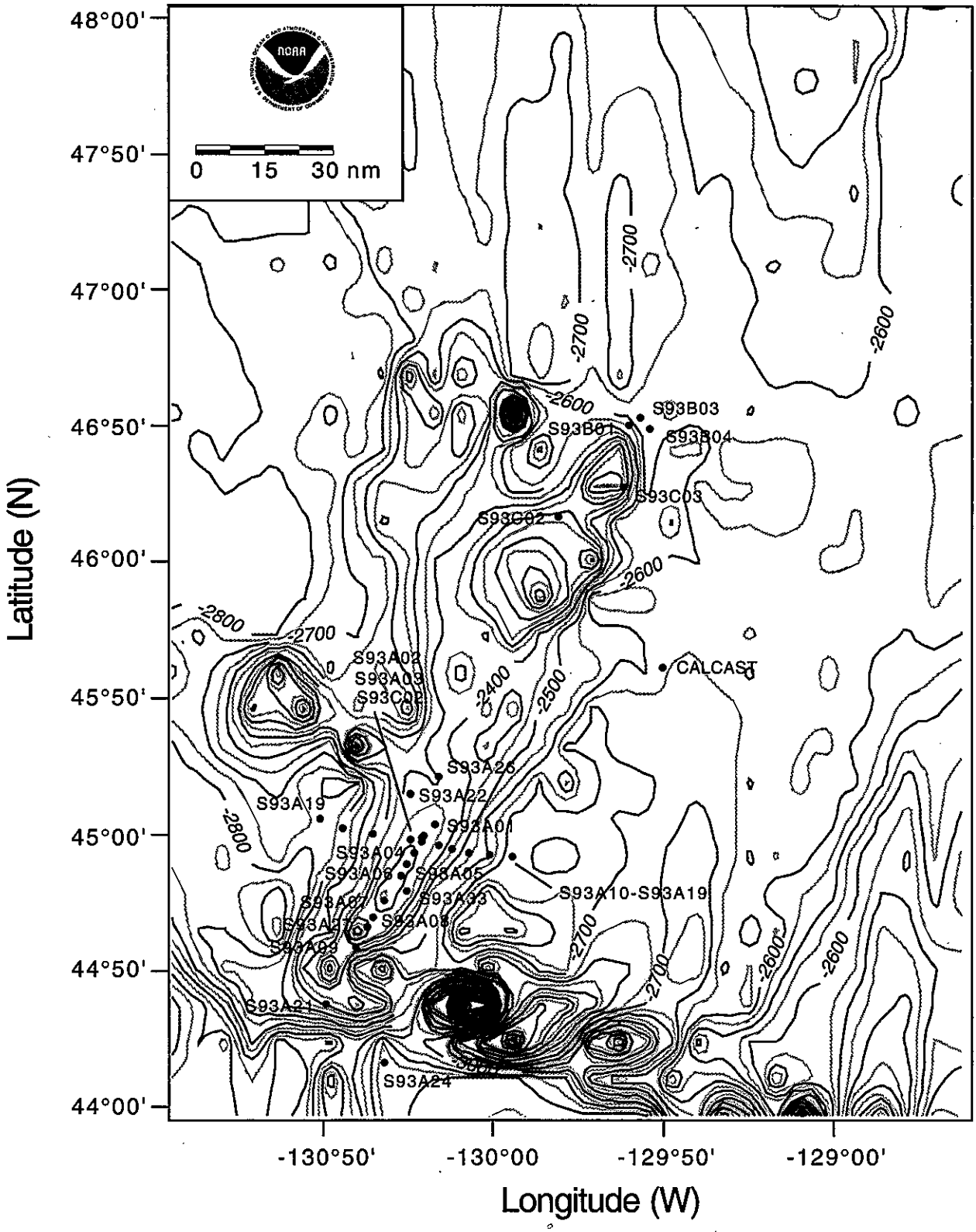

Fig. 1. Station locations for VENTS 1993 plume monitoring experiment.

2.0 SAMPLING METHODS

2.1 Sample and Data Collection

2.1.1 Seawater Samples

Seawater samples were collected in standard 30-liter Niskin™ bottles fixed to a 12-position General Oceanics™ sampling rosette. The Niskin™ bottles were internally coated with Teflon and modified with Teflon stopcocks. The sampling rosette was equipped with a CTD-transmissometer, altimeter, and pinger locator, and lowered into the water using standard hydrographic cable. The bottles were electronically tripped at pre-determined depths via a signal from the shipboard deck unit and closed by use of silastic tubing. Upon retrieval the Niskin™ bottles were removed from the rosette and placed in a non-contaminating pressure filtration rack for sub-sampling (Feely *et al.*, 1991).

Salinity samples were collected from the Niskin™ bottle in 250-ml citrate bottles.

Nutrient samples were collected from the Niskin™ bottle in HDPE 60-ml bottles prepared by washing with 10% HCL and rinsed with deionized water. Unfiltered nutrient samples were taken directly from the Niskin™ bottle. Filtered nutrient samples were taken downline of the 0.4-μm pore size Nuclepore polycarbonate filter during the total suspended matter pressure filtration of the seawater. All nutrients were analyzed at sea within 12 hours after collection.

Total suspended matter samples were collected in 30-L Niskin™ bottles and pressure filtered (12 psi) through 37 mm diameter, 0.4-μm pore size Nuclepore polycarbonate filters. As described in detail in Feely *et al.* (1991), an air filter was placed in the tygon line connecting the nitrogen gas and the Niskin™ bottle to prevent contamination of the seawater sample from particulates in the gas. To ensure that all particulates were filtered out of the seawater, the filtration racks were designed to tilt the Niskin™ bottle at a 45-degree angle and during filtration the bottle was gently agitated to keep particles in suspension. The seawater filtrate was directed into pre-calibrated 20-L plastic jerricans and volumes were measured to the nearest 100 mL. Depending upon the sample's proximity to the ridge crest, it took from 2 to 8 hours to filter 20 L of seawater, or to obtain a total of 400 μg of loading on the filter. All filters were loaded and unloaded from the teflon savillex holders inside a laminar flow hood. After filtration the particulate samples were rinsed with pH 8.0 deionized water and dried in a desiccator under vacuum.

2.1.2 Conductivity-Temperature-Depth-Transmissometer Data

CTD-transmissometer data was collected using a Sea-Bird conductivity-temperature-depth (CTD) sensor and a Sea Tech 0.25-m path length beam transmissometer secured to the frame of a General Oceanics™ sampling rosette. CTD information at the sampling depths were recorded shipboard on a MicroVax data acquisition system at trip time by taking a 10-second average of the continuously collected 1-second average data.

2.2 Sample Analysis

2.2.1 Bottle Salinity

Bottle salinity analysis was conducted by NOAA Ship *Discoverer* personnel on a shipboard Guildline Autosal™. Samples were stabilized to room temperature, 18°C, before analysis. Final salinity was determined by averaging three measurements from each citrate bottle. Bottle salinities from the R/V *Atlantis II* were determined by the Northwest Calibration Center using a calibrated Guildline Autosal 8400 laboratory salinometer using the NRCC standard procedure.

2.2.2 Nutrients

Silicic acid and phosphate analysis were conducted by Kathy Krogslund of the University of Washington, employing a Technicon Autoanalyzer and the techniques described by Whitledge (1981). In the analysis of silicic acid, the average precision of the replicate analyses was ±0.5 µmol/l. Alpha Inorganics™ reagent grade Na_2SiF_6 was the standard used for this analysis. The phosphate analysis had an average precision of replicate analyses of ±20.0 nmol/l. Fisher™ certified primary standard KH_2PO_4 was used for standardization.

2.2.3 Total Suspended Matter

Total suspended matter filters were weighed after desiccation on a Cahn 26™ Automatic Electrobalance which has an accuracy of ±0.005% of the true sample mass. Corrections for changes in filter weight were determined by reweighing reference filters, resulting in a net weight of particulate suspended matter. Given the net weight and volume of water filtered, total suspended matter concentrations were determined.

2.2.4 Conductivity-Temperature-Depth-Transmissometer Data

Measured conductivity was converted to salinity using standard UNESCO algorithms (Fofonoff and Millard, 1983). The conductivity data was corrected by direct comparison of bottle salinity and CTD salinity values. An average offset was determined for each cast.

Potential temperature was calculated using standard UNESCO algorithms (Fofonoff and Millard, 1983) and the CTD measured values of in situ temperature and salinity.

In situ density was calculated using standard UNESCO algorithms (Fofonoff and Millard, 1983) and the CTD measured values of in situ temperature and salinity.

Potential density was determined using standard UNESCO algorithms (Fofonoff and Millard, 1983) and the CTD measured salinity values.

Attenuation was measured and final values calculated as described in detail in Bartz *et al.* (1978).

The attenuation anomaly was calculated by determining the background value associated with each cast and subtracting that value from each discrete value.

The temperature anomaly ($\Delta\theta$) of each cast was calculated relative to the ambient water of the same potential density using the method of Lupton *et al.* (1985) with the equation

$$\Delta\theta = (\theta + m * \sigma_\theta) - b$$

where θ and σ_θ are the potential temperature and potential density, respectively, of the linear equation of the θ versus σ_θ trend for water immediately above the hydrothermal plume where the hydrographic effect of the hydrothermal emissions is negligible. The equation used for calculating the temperature anomaly for each individual cast is listed in the bottom left-hand portion of each station table.

3.0 STATION DATA

3.1 Station Locations for VENTS 1993

The data represented in Appendix A were collected from June 10 to October 23, 1991 over the Juan de Fuca Ridge covering an area from 44°00′N to 48°30′N and 128°30′W to 130°40′W. GPS was used for shipboard navigation and a listing of each station's latitude, longitude, and date of occupation is given in Table 1.

Vertical CTD profiles were taken at the majority of stations. Additionally, given the dynamic nature of hydrothermal plumes, a limited number of lengthy, horizontal tows, called "to-yos," were also conducted. To-yos were conducted by regularly cycling the CTD rosette package between the top and bottom layers of the hydrothermal plume. The ship's towing speed varied from 2–3 km/hr. Niskin™ bottle trip positions for each tow are given in Table 2.

A bathymetric map of the cruise project area overlaid with vertical cast positions is given in Fig. 1.

3.2 Individual Station Data

The header on the data tables in Appendix A contains the station identification and consecutive cast number, the date the station was occupied, and the latitude and longitude of the station. The data is listed in rows by Niskin™ bottle number and in twenty-one columns as follows:

Column 1: Niskin™ bottle number
Column 2: Depth in meters
Column 3: Depth in decibars
Column 4: In situ temperature (°C)
Column 5: Potential temperature (°C)
Column 6: Temperature anomaly (°C)
Column 7: Salinity-CTD (PSU)
Column 8: Salinity-Bottle (PSU)
Column 9: Attenuation (1/m)
Column 10: Attenuation anomaly (1/m)
Column 11: In situ density (CTD salinity)
Column 12: In situ density (Bottle salinity)

Column 13: Potential density (CTD salinity)
Column 14: Potential density (Bottle salinity)
Column 15: Filtered PO_4
Column 16: Filtered SiO_4
Column 17: Total suspended matter

The lower left portion of each table displays the equation used to calculate the station's temperature anomaly and attenuation anomaly.

4.0 ACKNOWLEDGMENTS

The research was supported by the National Oceanic and Atmospheric Administration's VENTS Program. We gratefully acknowledge the assistance and professionalism of the officers and crew of the NOAA Ship *Discoverer* and R/V *Atlantis II* in the collection of this data.

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Table 1. VENTS 1993 (June–October 1993) station locations.

STATION NAME	DATE OCCUPIED	LATITUDE (N)	LONGITUDE (W)
S93A19C01	12 JUN 93	45°–03.4′	130°–30.7′
S93A18C02	12 JUN 93	45°–01.3′	130°–26.2′
S93A10C03	13 JUN 93	44°–54.7′	129°–56.3′
S93A11C04	14 JUN 93	44°–55.4′	130°–00.5′
S93A12C05	14 JUN 93	44°–55.9′	130°–04.4′
S93A17C06	14 JUN 93	44°–59.9′	130°–20.7′
S93A16C08	15 JUN 93	44°–59.1′	130°–16.2′
S93A15c09	15 JUN 93	44°–58.7′	130°–14.3′
S93A14C10	15 JUN 93	44°–57.5′	130°–09.5′
S93A13C11	15 JUN 93	44°–56.7′	130°–07.0′
T93A01C12	15 JUN 93	44°–48.5′	130°–17.6′
S93A01C13	16 JUN 93	45°–02.0′	130°–10.4′
S93A02C14	16 JUN 93	44°–59.5′	130°–11.9′
S93A03C15	16 JUN 93	44°–58.3′	130°–12.7′
T93A05C16	16 JUN 93	45°–01.8′	130°–04.3′
T93A06C17	17 JUN 93	44°–58.0′	130°–05.0′
T93A07C18	17 JUN 93	44°–54.0′	130°–06.5′
S93A04C19	18 JUN 93	44°–55.8′	130°–13.9′
S93A05C20	18 JUN 93	44°–53.1′	130°–15.0′
S93A06C21	18 JUN 93	44°–50.8′	130°–16.0′
S93A04C22	19 JUN 93	44°–55.8′	130°–13.9′
T93A09C23	19 JUN 93	44°–51.6′	130°–09.6′
S93A07C24	19 JUN 93	44°–45.2′	130°–19.2′
S93A09C25	19 JUN 93	44°–34.8′	130°–24.2′
S93A21C26	20 JUN 93	44°–22.2′	130°–29.4′
T93A02C27	20 JUN 93	44°–31.7′	130°–25.8′
S93A22C28	21 JUN 93	45°–08.5′	130°–14.4′
S93A24C30	21 JUN 93	44°–09.4′	130°–19.5′
S93A26C32	21 JUN 93	45°–12.4′	130°–09.9′
T93A08C33	22 JUN 93	44°–40.0′	130°–14.2′
S93A08C34	22 JUN 93	44°–41.6′	130°–20.9′
S93A27C35	22 JUN 93	44°–39.4′	130°–21.9′
T93A04C36	22 JUN 93	44°–55.3′	130°–10.1′
S93A33C42	23 JUN 93	44°–47.6′	130°–15.0′
T93A03C43	23 JUN 93	44°–57.0′	130°–12.0′
CALCASTC44	24 JUN 93	45°–36.5′	129°–30.2′
S93B01C01	10 JUL 93	46°–29.9′	129°–35.7′
S93B01C02	10 JUL 93	46°–29.7′	129°–35.2′
T93B01C03	11 JUL 93	46°–36.0′	129°–30.6′
S93B03C05	13 JUL 93	46°–31.6′	129°–34.4′
T93B02C06	13 JUL 93	46°–31.6′	129°–29.0′
T93B03C07	13 JUL 93	46°–28.5′	129°–32.0′
T93B04C08	14 JUL 93	46°–28.5′	129°–31.1′
T93B05C09	14 JUL 93	46°–33.0′	129°–32.0′
T93B08C12	16 JUL 93	46°–33.6′	129°–32.3′
T93B09C13	18 JUL 93	46°–31.7′	129°–34.4′
S93B04C14	19 JUL 93	46°–29.0′	129°–32.5′
T93B11C17	26 JUL 93	46°–16.0′	129°–32.0′
T93B12C18	26 JUL 93	46°–13.5′	129°–48.5′
T93B13C19	02 AUG 93	46°–33.6′	129°–33.3′

TABLE 1 (continued)

STATION NAME	DATE OCCUPIED	LATITUDE (N)	LONGITUDE (W)
T93C01C01	15 AUG 93	44°–49.0′	130°–13.0′
S93C02C02	15 AUG 93	44°–59.2′	130°–12.5′
S93C02C03	16 AUG 93	44°–58.3′	130°–12.7′
T93C03C05	17 AUG 93	46°–15.4′	129°–43.1′
T93C04C06	18 AUG 93	46°–28.6′	129°–31.1′
S93C03C08	19 AUG 93	46°–16.0′	129°–37.0′
T93C05C09	19 AUG 93	46°–00.0′	129°–40.5′
S93C04C10	20 AUG 93	43°–30.0′	129°–58.0′
T93D01C01	10 OCT 93	46°–16.9′	129°–40.2′
T93D02C02	11 OCT 93	46°–11.2′	129°–46.5′
T93D03C03	12 OCT 93	46°–03.0′	129°–51.0′
T93D04C04	14 OCT 93	46°–08.6′	129°–44.0′
T93D05C05	16 OCT 93	46°–34.0′	129°–32.3′
T93D06C07	18 OCT 93	46°–11.9′	129°–46.0′
T93D07C08	20 OCT 93	46°–10.3′	129°–48.1′
T93D08C09	20 OCT 93	46°–09.5′	129°–48.7′
T93D09C10	20 OCT 93	46°–09.9′	129°–48.6′
T93D10C11	21 OCT 93	46°–06.3′	129°–50.1′
T93D14C15	23 OCT 93	46°–09.4′	129°–48.3′
S93D02C16	23 OCT 93	46°–09.3′	129°–48.4′

Table 2. VENTS 1993 (June–October 1993) tow Niskin™ trip positions.

STATION NAME	DATE OCCUPIED	NISKIN NO.	LONGITUDE (W)	LATITUDE (N)
T93A01	15-Jun-1993	19	130°–13.8′	44°–56.22′
		17	130°–12.0′	44°–58.86′
		25	130°–10.8′	45°–1.50′
		3	130°–10.2′	45°–3.36′
		27	130°–9.60′	45°–4.26′
		24	130°–9.00′	45°–4.86′
		9	130°–8.40′	45°–6.42′
T93A02	20-Jun-1994	2	130°–24.0′	44°–35.34′
		1	130°–22.8′	44°–37.62′
		9	130°–21.6′	44°–39.54′
		23	130°–21.6′	44°–40.32′
		3	130°–21.0′	44°–41.64′
		10	130°–20.4′	44°–42.72′
		27	130°–19.8′	44°–44.34′
		18	130°–19.2′	44°–44.94′
		19	130°–19.2′	44°–45.78′
		16	130°–18.0′	44°–47.16′
T93A03	23-Jun-1994	23	130°–12.6′	44°–57.12′
		15	130°–13.2′	44°–58.26′
		21	130°–13.2′	44°–59.04′
		14	130°–13.8′	45°–0.48′
		10	130°–14.4′	45°–1.50′
		24	130°–15.0′	45°–2.40′
T93A04	22-Jun-1994	10	130°–10.2′	44°–53.52′
		31	130°–10.2′	44°–52.80′
		24	130°–10.8′	44°–52.68′
		2	130°–11.4′	44°–52.20′
		11	130°–12.6′	44°–51.30′
		22	130°–12.6′	44°–50.70′
		12	130°–13.2′	44°–50.22′
		14	130°–13.8′	44°–49.80′
		21	130°–14.4′	44°–48.54′
T93A05	16-Jun-1994	18	130°–7.20′	45°–2.40′
		1	130°–8.40′	45°–2.70′
		21	130°–10.2′	45°–3.12′
		26	130°–11.4′	45°–3.48′
		6	130°–13.2′	45°–3.90′
T93A06	17-Jun-1994	30	130°–6.60′	44°–58.32′
		13	130°–7.80′	44°–58.68′
		14	130°–9.60′	44°–59.10′
		6	130°–10.8′	44°–59.46′
		20	130°–11.4′	44°–59.64′
		22	130°–12.6′	44°–59.82′
		11	130°–13.8′	45°–0.18′

Table 2. (continued)

STATION NAME	DATE OCCUPIED	NISKIN NO.	LONGITUDE (W)	LATITUDE (N)
		8	130°–15.0′	45°–0.54′
		15	130°–16.2′	45°–0.84′
		5	130°–17.4′	45°–1.02′
T93A07	17-Jun-1993	29	130°–10.2′	44°–55.08′
		10	130°–12.0′	44°–55.32′
		21	130°–12.6′	44°–55.44′
		1	130°–13.2′	44°–55.62′
		18	130°–14.4′	44°–56.04′
		4	130°–15.0′	44°–56.16′
		16	130°–15.6′	44°–56.28′
		2	130°–17.4′	44°–56.76′
		12	130°–19.2′	44°–57.24′
		31	130°–20.4′	44°–57.54′
T93A08	22-Jun-1993	11	130°–15.6′	44°–40.44′
		2	130°–18.0′	44°–40.92′
		24	130°–19.2′	44°–41.22′
		31	130°–20.4′	44°–41.46′
		21	130°–21.6′	44°–41.70′
		22	130°–22.2′	44°–41.88′
		14	130°–24.0′	44°–42.24′
		12	130°–26.4′	44°–42.78′
T93A09	19-Jun-1993	13	130°–9.60′	44°–50.94′
		14	130°–11.4′	44°–51.78′
		15	130°–12.0′	44°–52.02′
		16	130°–13.2′	44°–52.56′
		17	130°–15.0′	44°–53.04′
		18	130°–15.6′	44°–53.16′
		19	130°–16.8′	44°–53.34′
		20	130°–17.4′	44°–53.52′
		21	130°–18.0′	44°–53.70′
		22	130°–21.0′	44°–54.42′
T93B01	11-Jul-1993	1	129°–33.0′	46°–33.00′
		2	129°–33.0′	46°–32.22′
		3	129°–33.6′	46°–31.86′
		4	129°–33.6′	46°–31.44′
		5	129°–34.2′	46°–31.02′
		6	129°–34.8′	46°–30.00′
		7	129°–35.4′	46°–29.22′
		8	129°–35.4′	46°–29.10′
		9	129°–36.6′	46°–27.48′
		10	129°–38.4′	46°–25.32′
T93B02	13-Jul-1993	15	129°–30.0′	46°–31.62′
		18	129°–30.0′	46°–31.62′
		17	129°–30.6′	46°–31.62′

Table 2. (continued)

STATION NAME	DATE OCCUPIED	NISKIN NO.	LONGITUDE (W)	LATITUDE (N)
		16	129°–31.8′	46°–31.62′
		14	129°–34.2′	46°–31.62′
		13	129°–34.8′	46°–31.62′
		12	129°–35.4′	46°–31.62′
		11	129°–36.0′	46°–31.62′
		17	129°–37.8′	46°–31.62′
		14	129°–39.0′	46°–31.62′
T93B03	13-Jul-1993	1	129°–31.8′	46°–28.44′
T93B04	14-Jul-1993	15	129°–31.2′	46°–28.44′
		18	129°–32.4′	46°–28.44′
		17	129°–34.8′	46°–28.50′
		16	129°–35.4′	46°–28.50′
T93B05	14-Jul-1994	8	129°–33.6′	46°–33.00′
		7	129°–34.8′	46°–31.32′
		6	129°–33.6′	46°–30.96′
		5	129°–34.8′	46°–31.02′
T93B08	16-Jul-1993	11	129°–33.6′	46°–31.38′
		12	129°–34.2′	46°–30.78′
		13	129°–34.2′	46°–30.60′
		14	129°–34.8′	46°–30.06′
		15	129°–35.4′	46°–28.92′
		16	129°–37.2′	46°–26.70′
		17	129°–37.8′	46°–25.50′
		18	129°–40.8′	46°–22.02′
		19	129°–41.4′	46°–20.70′
		20	129°–42.6′	46°–19.68′
T93B09	18-Jul-1993	12	129°–34.8′	46°–31.38′
		13	129°–34.8′	46°–31.38′
		14	129°–34.8′	46°–31.38′
		16	129°–35.4′	46°–30.84′
		17	129°–35.4′	46°–30.90′
T93B11	26-Jul-1993	12	129°–33.0′	46°–16.02′
		22	129°–36.0′	46°–15.96′
		7	129°–36.6′	46°–15.96′
		1	129°–37.8′	46°–16.02′
		17	129°–39.6′	46°–16.02′
		16	129°–45.6′	46°–16.02′
		2	129°–46.8′	46°–16.02′
		19	129°–47.4′	46°–16.02′
		13	129°–49.2′	46°–16.02′
T93B12	26-Jul-1993	4	129°–48.6′	46°–13.44′
		5	129°–51.0′	46°–13.50′

Table 2. (continued)

STATION NAME	DATE OCCUPIED	NISKIN NO.	LONGITUDE (W)	LATITUDE (N)
T93B13	2-Aug-1993	15	129°–34.8′	46°–30.96′
		6	129°–34.8′	46°–30.90′
		16	129°–35.4′	46°–30.66′
		8	129°–36.0′	46°–29.40′
		1	129°–36.6′	46°–28.50′
		20	129°–36.6′	46°–28.32′
		21	129°–39.0′	46°–24.54′
		18	129°–41.4′	46°–20.94′
		17	129°–41.4′	46°–20.88′
T93C01	15-Aug-1993	8	130°–13.2′	44°–50.34′
		27	130°–13.2′	44°–50.88′
		6	130°–13.2′	44°–51.78′
		14	130°–13.2′	44°–52.74′
		2	130°–13.2′	44°–53.88′
		19	130°–13.2′	44°–55.68′
		18	130°–13.2′	44°–56.52′
		5	130°–13.2′	44°–56.94′
		17	130°–13.2′	44°–57.72′
		27	130°–13.2′	44°–58.20′
T93C03	17-Aug-1993	18	129°–43.2′	46°–16.44′
		2	129°–42.6′	46°–17.76′
		14	129°–37.8′	46°–25.44′
		19	129°–36.0′	46°–28.32′
		21	129°–35.4′	46°–28.44′
		13	129°–34.2′	46°–30.60′
		22	129°–31.8′	46°–33.78′
		9	129°–31.2′	46°–34.68′
T93C04	18-Aug-1993	17	129°–32.4′	46°–29.16′
		5	129°–33.6′	46°–30.00′
		16	129°–34.8′	46°–30.60′
		10	129°–37.2′	46°–31.80′
		23	129°–39.0′	46°–32.94′
		6	129°–40.2′	46°–33.60′
T93C05	19-Aug-1993	14	129°–41.4′	45°–58.98′
		18	129°–47.4′	45°–47.34′
T93D01	10-Oct-1993	22	129°–40.8′	46°–17.22′
		23	129°–41.4′	46°–17.34′
		4	129°–42.6′	46°–17.52′
		6	129°–43.2′	46°–17.76′
		46	129°–43.2′	46°–17.82′
		24	129°–43.8′	46°–17.82′
		12	129°–43.8′	46°–17.94′
		27	129°–44.4′	46°–18.18′

Table 2. (continued)

STATION NAME	DATE OCCUPIED	NISKIN NO.	LONGITUDE (W)	LATITUDE (N)
		15	129°–45.0′	46°–18.30′
		21	129°–46.2′	46°–18.60′
T93D02	11-Oct-1993	22	129°–48.6′	46°–11.22′
		23	129°–45.6′	46°–12.84′
		6	129°–45.0′	46°–14.22′
		16	129°–44.4′	46°–15.48′
		27	129°–43.2′	46°–17.40′
		15	129°–42.6′	46°–18.18′
		24	129°–42.6′	46°–18.30′
		12	129°–42.0′	46°–18.78′
		4	129°–42.0′	46°–19.02′
T93D03	12-Oct-1993	12	129°–48.6′	46°–6.96′
		23	129°–48.6′	46°–7.74′
		6	129°–48.0′	46°–8.40′
		8	129°–47.4′	46°–9.12′
		27	129°–47.4′	46°–9.78′
		15	129°–46.8′	46°–10.08′
		13	129°–45.6′	46°–12.30′
T93D04	14-Oct-1993	12	129°–46.8′	46°–9.42′
		24	129°–47.4′	46°–9.54′
		6	129°–48.0′	46°–9.72′
		27	129°–48.0′	46°–9.78′
		13	129°–48.0′	46°–9.78′
		15	129°–48.0′	46°–9.84′
		8	129°–48.0′	46°–9.84′
		16	129°–48.6′	46°–9.96′
T93D05	16-Oct-1993	12	129°–34.8′	46°–30.66′
		24	129°–34.8′	46°–30.12′
		8	129°–36.0′	46°–28.44′
T93D06	18-Oct-1993	16	129°–48.6′	46°–8.52′
T93D07	20-Oct-1993	22	129°–47.4′	46°–10.14′
		12	129°–47.4′	46°–9.90′
		27	129°–46.8′	46°–9.78′
		6	129°–46.2′	46°–9.66′
T93D08	20-Oct-1993	22	129°–48.6′	46°–9.48′
		12	129°–48.0′	46°–9.42′
		27	129°–47.4′	46°–9.18′
		6	129°–46.8′	46°–9.06′
T93D09	20-Oct-1993	22	129°–48.0′	46°–9.78′
		12	129°–47.4′	46°–9.60′
		27	129°–46.8′	46°–9.54′

Table 2. (continued)

STATION NAME	DATE OCCUPIED	NISKIN NO.	LONGITUDE (W)	LATITUDE (N)
		6	129°–46.8′	46°–9.36′
		15	129°–46.2′	46°–9.30′
T93D10	21-Oct-1993	6	129°–49.8′	46°–6.72′
T93D14	23-Oct-1993	24	129°–48.6′	46°–9.24′
		13	129°–48.6′	46°–9.18′
		8	129°–48.0′	46°–9.18′
		23	129°–48.0′	46°–9.12′

APPENDIX:

Station Data Tables
VENTS 1993

VENTS 1993 - LEG I Station S9319 Cast 01 12 JUN 1993
LAT: 45 03.4N LONG: 130 30.7W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Pottemp	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)
3	2711.9	2752	1.738	1.540	-0.004298	34.635	34.636	0.359	0.0045	27.700	27.701
29	2404.8	2439	1.811	1.640	0.005200	34.621	34.620	0.355	0.0005	27.683	27.682
25	2253.6	2284	1.844	1.686	0.003236	34.613	34.616	0.357	0.0025	27.674	27.676
1	2202.8	2233	1.854	1.700	0.004508	34.611	34.613	0.358	0.0035	27.671	27.673
10	2153.7	2183	1.865	1.715	0.006283	34.609	34.610	0.359	0.0045	27.669	27.670
23	2105.9	2134	1.873	1.727	0.006086	34.607	34.608	0.360	0.0055	27.667	27.668
24	2053.8	2081	1.885	1.744	0.008569	34.605	34.607	0.363	0.0085	27.664	27.666
2	2003.8	2030	1.895	1.758	0.005775	34.602	34.604	0.362	0.0075	27.661	27.663
5	1903.3	1928	1.934	1.805	-0.003739	34.592	34.602	0.357	0.0025	27.650	27.658
27	1754.4	1776	2.052	1.933	0.002432	34.573	34.591	0.355	0.0005	27.625	27.640
22	1503.8	1522	2.411	2.308	0.035758	34.523	34.572	0.357	0.0025	27.556	27.595

Sigma-Theta (CTD)	Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.714	27.715				
27.696	27.695				
27.686	27.688				
27.683	27.685				13.44
27.680	27.682				14.58
27.678	27.679				14.48
27.675	27.676				21.71
27.672	27.673				17.20
27.660	27.668				5.59
27.635	27.649				
27.565	27.604				

Atten-Anom = Atten - 0.3545
D-Theta (rows 1 to 11) = (ptemp + (4.8657 * pden)) - 136.3938

VENTS 1993 - LEG I Station S9318 Cast 02 12 JUN 1993
LAT: 45 01.3N LONG: 130 26.2W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Pottemp	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)
19	2502.0	2538	1.780	1.601	-0.004295	34.625	34.626	0.348	0.0025	27.688	27.689
30	2405.1	2439	1.811	1.640	-0.002620	34.619	34.620	0.346	0.0005	27.681	27.682
15	2303.9	2336	1.834	1.672	-0.001948	34.614	34.615	0.348	0.0025	27.675	27.676
9	2252.5	2283	1.845	1.687	0.000019	34.612	34.612	0.347	0.0015	27.673	27.673
13	2203.6	2233	1.859	1.705	0.003684	34.610	34.609	0.347	0.0015	27.670	27.669
8	2152.7	2182	1.878	1.728	-0.001178	34.605	34.605	0.347	0.0015	27.665	27.665
16	2106.4	2135	1.891	1.745	-0.002263	34.602	34.602	0.348	0.0025	27.661	27.661
11	2053.6	2081	1.910	1.768	-0.007104	34.597	34.598	0.347	0.0015	27.656	27.657
6	2004.7	2031	1.929	1.791	-0.008305	34.593	34.594	0.347	0.0015	27.651	27.652
17	1904.7	1929	1.978	1.848	-0.011756	34.583	34.582	0.346	0.0005	27.639	27.639
26	1803.9	1827	2.066	1.943	-0.014931	34.567	34.567	0.346	0.0005	27.620	27.620
12	1604.9	1624	2.272	2.163	-0.028428	34.529	34.530	0.347	0.0015	27.572	27.573

Sigma-Theta (CTD)	Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.702	27.703				
27.694	27.695				
27.688	27.688				
27.685	27.685				
27.682	27.681				10.23
27.676	27.676				8.07
27.673	27.673				11.08
27.667	27.667				9.74
27.662	27.662				11.39
27.649	27.649				
27.629	27.629				
27.581	27.582				

Atten-Anom = Atten - 0.3455
D-Theta (rows 1 to 12) = (ptemp + (4.8657 * pden)) - 136.3938

VENTS 1993 - LEG I Station S9310 Cast 03 13 JUN 1993
LAT: 44 54.7N LONG: 129 56.3W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Pottemp	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)
20	2514.1	2550	1.769	1.589	0.005507	34.628	34.615	0.350	0.0048	27.692	27.682
30	2413.5	2447	1.770	1.599	0.000645	34.625	34.612	0.348	0.0028	27.689	27.679
4	2306.3	2338	1.784	1.622	-0.003337	34.620	34.607	0.346	0.0008	27.684	27.673
15	2245.3	2276	1.794	1.637	-0.004959	34.617	34.617	0.347	0.0018	27.681	27.681
19	2208.7	2239	1.799	1.646	-0.003533	34.616	34.628	0.346	0.0008	27.680	27.689
12	2155.1	2184	1.817	1.668	-0.004398	34.612	34.625	0.346	0.0008	27.675	27.686
5	2105.0	2133	1.839	1.694	-0.006799	34.607	34.620	0.346	0.0008	27.669	27.680
17	2055.5	2083	1.864	1.723	-0.007394	34.602	34.602	0.346	0.0008	27.663	27.663
14	2007.3	2034	1.893	1.755	-0.009423	34.596	34.595	0.346	0.0008	27.656	27.656
18	1906.0	1931	1.948	1.818	-0.007678	34.586	34.585	0.346	0.0008	27.644	27.643
27	1755.2	1777	2.072	1.953	-0.006646	34.564	34.562	0.346	0.0008	27.617	27.615

Sigma-Theta (CTD)	Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.705	27.695				
27.702	27.691				
27.696	27.686				
27.693	27.693				
27.691	27.701				11.60
27.686	27.697				10.41
27.680	27.691				8.99
27.674	27.674				10.94
27.667	27.666				
27.654	27.653				
27.626	27.625				

Atten-Anom = Atten - 0.3452
D-Theta (rows 1 to 11) = (ptemp + (4.7632 * pden)) - 133.5483

VENTS 1993 - LEG I Station S9311 Cast 04 14 JUN 1993
LAT: 44 55.4N LONG: 130 00.5W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Pottemp	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)
2	2503.5	2539	1.780	1.600	-0.001586	34.626	34.626	0.351	0.004	27.689	27.689
29	2413.3	2447	1.785	1.614	-0.003949	34.623	34.623	0.350	0.003	27.686	27.686
13	2304.0	2336	1.802	1.640	-0.004875	34.618	34.617	0.348	0.001	27.681	27.681
3	2259.4	2290	1.808	1.650	-0.009430	34.615	34.615	0.347	0.000	27.678	27.678
16	2215.0	2245	1.819	1.665	-0.010797	34.612	34.612	0.348	0.001	27.675	27.675
27	2161.4	2191	1.839	1.689	-0.009543	34.608	34.607	0.347	0.000	27.670	27.670
9	2109.7	2138	1.865	1.719	-0.011945	34.602	34.602	0.347	0.000	27.663	27.664
26	2057.1	2084	1.884	1.742	-0.011501	34.598	34.599	0.347	0.000	27.659	27.659
10	2005.6	2032	1.915	1.777	-0.007153	34.593	34.593	0.347	0.000	27.652	27.652
1	1905.6	1930	1.972	1.842	-0.009405	34.581	34.582	0.347	0.000	27.638	27.639
8	1754.3	1776	2.090	1.971	-0.007422	34.559	34.560	0.348	0.001	27.611	27.612
22	1503.2	1521	2.342	2.240	-0.002711	34.514	34.515	0.349	0.002	27.555	27.556

Sigma-Theta (CTD)	Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.703	27.703				
27.699	27.699				
27.693	27.693				
27.690	27.690				
27.687	27.686				8.15
27.682	27.681				9.09
27.675	27.675				8.21
27.670	27.670				12.26
27.663	27.663				7.64
27.648	27.649				
27.621	27.621				
27.563	27.564				

Atten-Anom = Atten - 0.347
D-Theta (rows 1 to 12) = (ptemp + (4.5899 * pden)) - 128.7545

VENTS 1993 - LEG I Station S9312 Cast 05 14 JUN 1993
LAT: 44 55.9N LONG: 130 04.4W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Pottemp	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)
2	2449.8	2485	1.785	1.610	0.001980	34.626	34.625	0.352	0.0075	27.689	27.688
29	2405.4	2439	1.791	1.620	-0.006324	34.622	34.622	0.347	0.0025	27.685	27.685
13	2304.6	2336	1.812	1.650	-0.009101	34.616	34.615	0.345	0.0005	27.679	27.678
3	2257.0	2288	1.831	1.673	-0.001541	34.614	34.614	0.347	0.0025	27.676	27.675
5	2205.0	2235	1.845	1.691	-0.004387	34.610	34.610	0.347	0.0025	27.671	27.671
12	2154.3	2183	1.857	1.707	-0.004919	34.607	34.606	0.346	0.0015	27.668	27.667
19	2105.2	2133	1.885	1.739	-0.006469	34.601	34.601	0.346	0.0015	27.661	27.661
23	2054.2	2081	1.901	1.759	-0.004510	34.598	34.598	0.346	0.0015	27.657	27.657
21	2003.9	2030	1.921	1.783	-0.007498	34.593	34.593	0.346	0.0015	27.652	27.652
1	1905.0	1929	1.978	1.848	-0.002918	34.583	34.585	0.346	0.0015	27.639	27.641
8	1753.2	1775	2.085	1.966	-0.005100	34.562	34.562	0.345	0.0005	27.614	27.614
22	1504.2	1522	2.352	2.250	0.003085	34.516	34.517	0.347	0.0025	27.555	27.556

Sigma-Theta (CTD)	Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.702	27.701				
27.698	27.698				
27.691	27.690				
27.688	27.687				
27.683	27.683				10.93
27.679	27.678				9.68
27.672	27.672				10.40
27.668	27.668				8.45
27.662	27.662				8.86
27.649	27.651				
27.623	27.624				
27.564	27.564				

Atten-Anom = Atten - 0.3445
D-Theta (rows 1 to 12) = (ptemp + (4.6242 * pden)) - 129.7076

VENTS 1993 - LEG I Station S9317 Cast 06 14 JUN 1993
LAT: 44 59.9N LONG: 130 20.7W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Pottemp	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)
30	2421.6	2456	1.789	1.617	-0.012301	34.624	34.624	0.346	0.0015	27.687	27.687
27	2353.0	2386	1.810	1.644	-0.010476	34.620	34.620	0.345	0.0005	27.682	27.682
18	2302.2	2334	1.817	1.655	-0.010851	34.618	34.618	0.346	0.0015	27.680	27.680
24	2251.7	2283	1.825	1.667	-0.010650	34.616	34.617	0.345	0.0005	27.678	27.679
1	2201.7	2232	1.842	1.688	-0.008696	34.613	34.613	0.346	0.0015	27.674	27.674
8	2151.4	2180	1.851	1.702	-0.011794	34.610	34.611	0.346	0.0015	27.671	27.672
22	2104.5	2133	1.868	1.723	-0.010091	34.607	34.607	0.346	0.0015	27.667	27.667
2	2054.8	2082	1.886	1.745	-0.011508	34.603	34.603	0.347	0.0025	27.663	27.662
29	2008.0	2034	1.908	1.770	-0.010620	34.599	34.599	0.345	0.0005	27.658	27.657
15	1901.6	1926	1.969	1.839	-0.009313	34.588	34.587	0.345	0.0005	27.644	27.643
3	1805.8	1829	2.034	1.911	-0.010263	34.576	34.577	0.345	0.0005	27.629	27.630
4	1501.4	1519	2.410	2.308	0.029048	34.523	34.522	0.346	0.0015	27.556	27.556

Sigma-Theta (CTD)	Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.700	27.700				
27.695	27.694				
27.692	27.692				
27.690	27.690				
27.686	27.685				11.95
27.682	27.683				9.30
27.678	27.678				9.21
27.673	27.673				14.63
27.668	27.668				
27.654	27.654				
27.639	27.639				
27.565	27.564				

Atten-Anom = Atten - 0.3445
D-Theta (rows 1 to 12) = (ptemp + (4.8049 * pden)) - 134.7241

VENTS 1993 - LEG I Station S9316 Cast 08 15 JUN 1993
LAT: 44 59.1N LONG: 130 16.2W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)	Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27	2227.1	2257.4	1.836	1.680	0.010776	34.617	34.612	0.348	0.0035	27.678	27.674	27.690	27.685				13.76
26	2196.2	2226.0	1.846	1.693	0.010864	34.615	34.610	0.348	0.0035	27.675	27.672	27.687	27.683				17.94
23	2170.1	2199.3	1.859	1.708	0.012545	34.613	34.609	0.348	0.0035	27.673	27.669	27.684	27.681				13.79
1	2147.3	2176.1	1.865	1.716	0.013600	34.612	34.606	0.349	0.0045	27.671	27.667	27.683	27.678				15.63
8	2121.2	2149.6	1.877	1.730	0.014622	34.610	34.605	0.351	0.0065	27.669	27.665	27.680	27.676				13.99
21	2096.6	2124.5	1.883	1.738	0.011839	34.608	34.604	0.351	0.0065	27.667	27.664	27.678	27.675				14.93
10	2068.7	2096.1	1.891	1.748	0.010461	34.606	34.601	0.350	0.0055	27.665	27.661	27.676	27.672				17.22
5	2043.3	2070.2	1.897	1.756	0.007703	34.604	34.600	0.351	0.0065	27.663	27.659	27.673	27.670				16.68
16	1995.1	2021.1	1.910	1.773	0.006557	34.601	34.598	0.346	0.0015	27.659	27.656	27.670	27.667				10.23
9	1893.9	1918.2	1.963	1.834	0.009257	34.592	34.589	0.345	0.0005	27.648	27.646	27.658	27.656				6.88
12	1744.5	1766.2	2.091	1.973	0.008881	34.570	34.566	0.345	0.0005	27.620	27.617	27.629	27.626				
19	1494.8	1512.5	2.372	2.271	-0.022077	34.516	34.511	0.346	0.0015	27.554	27.550	27.562	27.558				

Atten-Anom = Atten - 0.3445
D-Theta (rows 1 to 12) = (ptemp + (4.8923 * pden)) - 137.1349

VENTS 1993 - LEG I Station S9315 Cast 09 15 JUN 1993
LAT: 44 58.7N LONG: 130 14.3W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
4	2230.5	2260.9	1.854	1.698	0.013488	34.615	34.609	0.348	0.0035	27.675	27.670	27.687
11	2172.8	2202.1	1.865	1.714	0.012014	34.612	34.607	0.348	0.0035	27.671	27.668	27.683
18	2120.2	2148.5	1.873	1.726	0.012206	34.610	34.605	0.349	0.0045	27.669	27.665	27.680
6	2097.2	2125.1	1.879	1.734	0.013356	34.609	34.605	0.349	0.0045	27.668	27.665	27.679
15	2070.2	2097.6	1.886	1.743	0.015344	34.608	34.602	0.351	0.0065	27.667	27.662	27.678
17	2046.0	2073.0	1.888	1.747	0.014045	34.607	34.603	0.351	0.0065	27.666	27.662	27.676
14	2021.1	2047.6	1.892	1.753	0.010167	34.605	34.601	0.349	0.0045	27.664	27.661	27.674
24	1997.7	2023.8	1.895	1.758	0.009436	34.604	34.599	0.349	0.0045	27.663	27.658	27.673
27	1945.7	1970.9	1.916	1.783	0.009856	34.600	34.597	0.346	0.0015	27.658	27.655	27.668
3	1846.2	1869.7	1.973	1.848	0.008009	34.589	34.584	0.345	0.0005	27.645	27.640	27.654
12	1746.5	1768.2	2.088	1.970	0.010641	34.570	34.565	0.345	0.0005	27.620	27.616	27.630
19	1495.3	1513.0	2.354	2.253	-0.008861	34.520		0.346	0.0015	27.558		27.567

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.682				14.77
27.679				14.33
27.676				14.68
27.676				15.53
27.672				18.29
27.673				15.35
27.671				20.22
27.669				12.37
27.665				6.84
27.650				6.34
27.626				

Atten-Anom = Atten - 0.3445
D-Theta (rows 1 to 12) = (ptemp + (4.82 * pden)) - 135.1336

VENTS 1993 - LEG I Station S9314 Cast 10 15 JUN 1993
LAT: 44 57.5N LONG: 130 09.5W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
20	2332.6	2364.9	1.845	1.680	0.019361	34.620	34.614	0.350	0.0055	27.679	27.675	27.692
29	2271.0	2302.1	1.852	1.692	0.019525	34.618	34.612	0.348	0.0035	27.677	27.672	27.689
30	2218.9	2249.1	1.860	1.705	0.019734	34.616	34.610	0.348	0.0035	27.675	27.670	27.687
2	2194.1	2223.8	1.863	1.710	0.019135	34.615	34.611	0.348	0.0035	27.674	27.671	27.686
22	2168.3	2197.5	1.869	1.718	0.016593	34.613	34.608	0.348	0.0035	27.672	27.668	27.683
13	2153.8	2182.7	1.872	1.722	0.015408	34.612	34.607	0.348	0.0035	27.671	27.667	27.682
12	2086.1	2113.8	1.889	1.745	0.010420	34.607	34.606	0.346	0.0015	27.666	27.664	27.677
9	2050.4	2077.4	1.899	1.758	0.010874	34.605	34.600	0.346	0.0015	27.663	27.659	27.674
19	1997.7	2023.8	1.926	1.789	0.007336	34.599	34.594	0.346	0.0015	27.656	27.652	27.667
25	1897.0	1921.3	1.977	1.848	0.005682	34.589	34.583	0.345	0.0005	27.644	27.640	27.654

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.687				15.29
27.685				14.46
27.682				12.97
27.682				12.70
27.679				11.92
27.678				24.80
27.675				9.67
27.670				6.72
27.663				10.31
27.650				8.92

Atten-Anom = Atten - 0.3445
D-Theta (rows 1 to 10) = (ptemp + (4.8236 * pden)) - 135.2353

VENTS 1993 - LEG I Station S9313 Cast 11 15 JUN 1993
LAT: 44 56.7N LONG: 130 07.0W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
10	2400.7	2434.4	1.804	1.633	0.008817	34.626	34.620	0.350	0.005	27.687	27.683	27.700
16	2269.3	2300.4	1.840	1.680	0.015604	34.619	34.613	0.348	0.003	27.679	27.674	27.691
21	2220.7	2250.9	1.850	1.695	0.017958	34.617	34.612	0.348	0.003	27.677	27.672	27.688
14	2196.0	2225.7	1.853	1.700	0.021379	34.617	34.609	0.348	0.003	27.676	27.670	27.688
5	2168.8	2198.0	1.852	1.701	0.018770	34.616	34.611	0.348	0.003	27.676	27.672	27.687
27	2145.1	2173.8	1.851	1.702	0.015953	34.615	34.610	0.348	0.003	27.675	27.671	27.686
26	2094.2	2122.1	1.870	1.725	0.024260	34.613	34.609	0.349	0.004	27.672	27.669	27.683
23	2044.2	2071.1	1.892	1.751	0.016737	34.606	34.600	0.346	0.001	27.665	27.660	27.675
1	1996.8	2022.9	1.906	1.769	0.007325	34.600	34.597	0.345	0.000	27.659	27.656	27.669
8	1890.7	1914.9	1.957	1.828	0.011097	34.590	34.586	0.345	0.000	27.647	27.643	27.657

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.696				12.98
27.686				12.69
27.684				13.95
27.682				18.29
27.683				15.39
27.683				14.55
27.680				18.16
27.671				10.28
27.667				9.03
27.653				8.20

Atten-Anom = Atten - 0.345
D-Theta (rows 1 to 10) = (ptemp + (4.4185 * pden)) - 124.018

VENTS 1993 - LEG I Station T9301 Cast 12 15 JUN 1993
LAT: 44 48.5N LONG: 130 17.6W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
19	2067.7	2095.0	1.910	1.767	0.041140	34.610	34.607	0.369	0.023	27.666	27.664	27.677
17	2143.8	2172.5	1.884	1.735	0.041776	34.615	34.614	0.351	0.005	27.672	27.671	27.684
25	2166.0	2195.2	1.849	1.698	0.018714	34.615	34.609	0.348	0.002	27.675	27.670	27.687
3	2238.9	2269.4	1.855	1.698	0.023452	34.616	34.615	0.348	0.002	27.675	27.674	27.687
27	2211.9	2241.9	1.853	1.698	0.016480	34.614	34.613	0.349	0.003	27.674	27.673	27.686
24	2193.6	2223.3	1.854	1.701	0.014565	34.613	34.611	0.353	0.007	27.673	27.671	27.685
9	2217.7	2247.8	1.847	1.692	0.012250	34.614	34.612	0.348	0.002	27.674	27.672	27.686

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.675				60.00
27.683				15.51
27.682				13.53
27.686				11.22
27.685				14.91
27.683				19.36
27.684				12.51

Atten-Anom = Atten - 0.346
D-Theta (rows 1 to 1) = (ptemp + (4.5195 * pden)) - 126.8136
D-Theta (rows 2 to 3) = (ptemp + (4.846 * pden)) - 135.8487
D-Theta (rows 4 to 7) = (ptemp + (4.5195 * pden)) - 126.8076

VENTS 1993 - LEG I Station S9301 Cast 13 16 JUN 1993
LAT: 45 02.0N LONG: 130 10.4W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
1	2264.4	2295.4	1.849	1.690	0.018817	34.620	34.614	0.346	0.0015	27.679	27.675	27.691
26	2196.1	2225.8	1.853	1.700	0.018126	34.618	34.614	0.346	0.0015	27.677	27.674	27.689
8	2170.8	2200.0	1.851	1.700	0.014661	34.617	34.613	0.346	0.0015	27.677	27.673	27.688
15	2144.7	2173.5	1.859	1.710	0.014078	34.615	34.609	0.347	0.0025	27.674	27.669	27.686
5	2119.6	2147.9	1.867	1.720	0.013434	34.613	34.609	0.347	0.0025	27.672	27.669	27.683
21	2095.9	2123.8	1.877	1.732	0.013990	34.611	34.605	0.346	0.0015	27.670	27.665	27.681
10	2069.8	2097.2	1.884	1.741	0.012734	34.609	34.603	0.348	0.0035	27.668	27.663	27.678
11	2046.3	2073.2	1.890	1.749	0.014310	34.608	34.602	0.348	0.0035	27.666	27.661	27.677
4	1996.3	2022.4	1.905	1.768	0.012267	34.604	34.598	0.348	0.0035	27.662	27.657	27.672
18	1896.3	1920.6	1.960	1.831	0.009634	34.592	34.586	0.345	0.0005	27.648	27.643	27.658
27	1744.8	1766.6	2.073	1.955	0.010185	34.570	34.565	0.345	0.0005	27.621	27.617	27.631
23	1496.0	1513.8	2.352	2.251	0.031641	34.524	34.519	0.346	0.0015	27.562	27.558	27.570

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.687				6.94
27.686				16.00
27.685				13.58
27.681				16.03
27.680				12.92
27.676				19.44
27.674				14.98
27.672				13.70
27.667				23.98
27.653				17.99
27.627				
27.566				

Atten-Anom = Atten - 0.3445
D-Theta (rows 1 to 12) = (ptemp + (4.5287 * pden)) - 127.0761

VENTS 1993 - LEG I Station S9302 Cast 14 16 JUN 1993
LAT: 44 59.5N LONG: 130 11.9W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
22	2230.8	2261.2	1.874	1.717	0.033335	34.619	34.613	0.348	0.0035	27.676	27.671	27.688
29	2196.1	2225.8	1.880	1.726	0.028342	34.616	34.611	0.349	0.0045	27.673	27.670	27.685
20	2171.1	2200.4	1.877	1.726	0.020580	34.614	34.609	0.350	0.0055	27.672	27.668	27.684
6	2145.6	2174.4	1.877	1.728	0.018416	34.613	34.608	0.350	0.0055	27.671	27.667	27.683
14	2119.3	2147.6	1.883	1.736	0.020170	34.612	34.606	0.351	0.0065	27.670	27.665	27.681
13	2100.1	2128.1	1.883	1.738	0.017629	34.611	34.606	0.351	0.0065	27.669	27.665	27.680
30	2071.2	2098.7	1.890	1.747	0.020158	34.610	34.604	0.353	0.0085	27.668	27.663	27.679
12	2047.7	2074.7	1.895	1.754	0.017456	34.608	34.605	0.351	0.0065	27.666	27.664	27.677
16	1997.4	2023.5	1.916	1.779	0.015671	34.603	34.597	0.346	0.0015	27.660	27.656	27.671
2	1896.9	1921.2	1.970	1.841	0.019650	34.593	34.587	0.345	0.0005	27.648	27.644	27.658
27	1745.6	1767.3	2.098	1.979	0.029662	34.571	34.515	0.345	0.0005	27.620	27.576	27.630
31	1497.4	1515.2	2.362	2.260	0.026909	34.521		0.346	0.0015	27.559		27.567

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.683				11.95
27.682				14.58
27.679				14.96
27.678				18.67
27.676				18.27
27.676				20.00
27.674				18.26
27.675				15.40
27.666				10.26
27.654				7.25
27.585				

Atten-Anom = Atten - 0.3445
D-Theta (rows 1 to 12) = (ptemp + (4.5287 * pden)) - 127.0761

VENTS 1993 - LEG I Station S9303 Cast 15 16 JUN 1993
LAT: 44 58.3N LONG: 130 12.7W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
27	2246.1	2276.8	1.876	1.718	0.033736	34.619	34.566	0.358	0.013	27.676	27.634	27.688
23	2197.6	2227.3	1.897	1.743	0.035609	34.615	34.613	0.351	0.006	27.671	27.669	27.683
25	2167.8	2197.0	1.902	1.750	0.040552	34.615	34.610	0.351	0.006	27.671	27.667	27.683
19	2146.2	2175.0	1.892	1.742	0.024447	34.612	34.607	0.353	0.008	27.669	27.666	27.681
17	2120.3	2148.6	1.893	1.746	0.022945	34.611	34.606	0.353	0.008	27.668	27.664	27.680
9	2098.0	2125.9	1.893	1.748	0.024213	34.611	34.605	0.354	0.009	27.668	27.664	27.680
3	2069.2	2096.5	1.893	1.750	0.022218	34.610	34.606	0.353	0.008	27.668	27.664	27.679
24	2045.1	2072.0	1.893	1.752	0.019944	34.609	34.605	0.353	0.008	27.667	27.664	27.678
27	2000.3	2026.4	1.895	1.758	0.016482	34.607	34.603	0.352	0.007	27.665	27.662	27.676
31	1792.0	1814.5	2.066	1.944	0.024989	34.576	34.605	0.345	0.000	27.627	27.650	27.636

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.646				58.48
27.681				19.45
27.678				23.33
27.677				20.36
27.676				19.69
27.675				19.12
27.675				19.23
27.675				22.42
27.673				15.45
27.659				7.55

Atten-Anom = Atten - 0.345
D-Theta (rows 1 to 10) = (ptemp + (4.5287 * pden)) - 127.0761

VENTS 1993 - LEG I Station T9305 Cast 16 16 JUN 1993
LAT: 45 01.8N LONG: 130 04.3W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
4	2139.4	2168.1	1.855	1.707	0.009044	34.611	34.608	0.346	0.000	27.671	27.669	27.683
18	2129.1	2157.5	1.851	1.704	0.014461	34.613	34.611	0.356	0.010	27.673	27.672	27.685
1	2144.5	2173.3	1.855	1.706	0.020967	34.613	34.609	0.347	0.001	27.673	27.670	27.684
21	2140.6	2169.3	1.867	1.718	0.021261	34.611	34.607	0.349	0.003	27.670	27.668	27.682
26	2142.5	2171.2	1.863	1.714	0.022389	34.612	34.609	0.348	0.002	27.672	27.669	27.683

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.680				8.75
27.683				9.85
27.681				26.43
27.679				10.32
27.680				13.89

Atten-Anom = Atten - 0.346
D-Theta (rows 1 to 2) = (ptemp + (4.6123 * pden)) - 129.3786
D-Theta (rows 3 to 5) = (ptemp + (4.7038 * pden)) - 131.9069

VENTS 1993 - LEG I Station T9306 Cast 17 17 JUN 1993
LAT: 44 58.0N LONG: 130 05.0W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
30	2135.9	2164.5	1.853	1.705	0.015175	34.611	34.608	0.346	0.001	27.672	27.669	27.683
13	2143.0	2171.7	1.851	1.702	0.017158	34.612	34.609	0.346	0.001	27.673	27.670	27.684
14	2134.9	2163.5	1.861	1.713	0.010133	34.612	34.609	0.348	0.003	27.672	27.669	27.683
6	2126.8	2155.2	1.883	1.735	0.020418	34.611	34.608	0.352	0.007	27.669	27.667	27.681
20	2163.7	2192.8	1.889	1.738	0.029881	34.613	34.609	0.354	0.009	27.670	27.667	27.682
22	2074.2	2101.7	1.892	1.749	0.017250	34.608	34.604	0.353	0.008	27.666	27.663	27.677
11	2147.5	2176.3	1.891	1.741	0.020375	34.610	34.607	0.353	0.008	27.668	27.665	27.679
8	2104.6	2132.6	1.892	1.746	0.023357	34.610	34.607	0.353	0.008	27.668	27.665	27.679
15	2146.4	2175.2	1.858	1.709	0.007626	34.612	34.609	0.346	0.001	27.672	27.670	27.683
5	2149.1	2177.9	1.856	1.707	0.010113	34.613	34.609	0.346	0.001	27.673	27.669	27.684

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.680				8.13
27.682				8.65
27.681				9.70
27.678				14.47
27.679				14.76
27.674				16.96
27.677				21.34
27.676				19.09
27.681				7.41
27.681				8.29

Atten-Anom = Atten - 0.345
D-Theta (rows 1 to 2) = (ptemp + (4.5823 * pden)) - 128.5409
D-Theta (rows 3 to 10) = (ptemp + (4.8436 * pden)) - 135.7884

VENTS 1993 - LEG I Station T9307 Cast 18 17 JUN 1993
LAT: 44 54.0N LONG: 130 06.5W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
29	2143.4	2172.2	1.871	1.722	0.010092	34.611	34.608	0.349	0.003	27.670	27.667	27.682
10	2140.6	2169.3	1.871	1.722	0.006495	34.610		0.349	0.003	27.669		27.681
21	2146.7	2175.5	1.870	1.721	0.013585	34.611		0.348	0.002	27.670		27.682
1	2114.1	2142.3	1.899	1.752	0.033637	34.611		0.361	0.015	27.668		27.679
18	2078.9	2106.4	1.901	1.757	0.036840	34.611	34.607	0.365	0.019	27.668	27.664	27.679
4	2124.6	2153.0	1.902	1.754	0.034938	34.611	34.607	0.364	0.018	27.668	27.664	27.679
16	2160.5	2189.5	1.905	1.754	0.034825	34.611	34.608	0.367	0.021	27.668	27.665	27.679
2	2054.1	2081.2	1.893	1.751	0.021724	34.608	34.605	0.354	0.008	27.666	27.664	27.677
12	2075.7	2103.2	1.882	1.739	0.012094	34.608	34.605	0.350	0.004	27.667	27.664	27.678
31	2084.4	2112.1	1.883	1.739	0.008347	34.607	34.604	0.348	0.002	27.666	27.663	27.677

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.679				
27.676				33.04
27.676				34.67
27.676				37.80
27.674				18.58
27.675				12.34
27.674				10.53

Atten-Anom = Atten - 0.346
D-Theta (rows 1 to 2) = (ptemp + (4.6873 * pden)) - 131.4637
D-Theta (rows 3 to 8) = (ptemp + (4.7614 * pden)) - 133.5106
D-Theta (rows 9 to 10) = (ptemp + (4.8571 * pden)) - 136.1609

VENTS 1993 - LEG I Station S9304 Cast 19 18 JUN 1993
LAT: 44 55.8N LONG: 130 13.9W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
19	2233.3	2263.7	1.891	1.734	0.030291	34.616	34.609	0.350	0.0055	27.673	27.667	27.685
23	2199.7	2229.5	1.894	1.740	0.026917	34.614	34.608	0.355	0.0105	27.671	27.666	27.683
21	2171.9	2201.2	1.903	1.751	0.030701	34.613	34.608	0.361	0.0165	27.669	27.665	27.681
1	2149.4	2178.3	1.900	1.750	0.026426	34.612	34.608	0.360	0.0155	27.669	27.665	27.680
13	2118.8	2147.1	1.899	1.752	0.023902	34.611	34.608	0.355	0.0105	27.668	27.665	27.679
15	2094.1	2121.9	1.897	1.752	0.024019	34.611	34.608	0.355	0.0105	27.668	27.666	27.679
5	2069.5	2096.8	1.900	1.757	0.027350	34.611	34.608	0.361	0.0165	27.668	27.665	27.679
11	2048.6	2075.6	1.896	1.755	0.022312	34.610	34.604	0.354	0.0095	27.667	27.662	27.678
6	2004.1	2030.3	1.896	1.759	0.013914	34.607	34.604	0.353	0.0085	27.665	27.662	27.676
30	1798.0	1820.6	2.033	1.911	0.011518	34.579	34.573	0.345	0.0005	27.632	27.627	27.641

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.679				19.08
27.678				24.05
27.677				30.72
27.677				30.44
27.677				25.56
27.677				24.23
27.676				30.57
27.673				21.83
27.673				17.31
27.636				7.40

Atten-Anom = Atten - 0.3445
D-Theta (rows 1 to 10) = (ptemp + (4.5287 * pden)) - 127.0791

VENTS 1993 - LEG I Station s9305 Cast 20 18 JUN 1993
LAT: 44 53.1N LONG: 130 15.0W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
27	2248.9	2279.7	1.903	1.744	0.032233	34.613	34.607	0.353	0.0087	27.669	27.665	27.681
10	2194.0	2223.6	1.896	1.742	0.030914	34.613	34.607	0.353	0.0087	27.670	27.665	27.682
8	2169.6	2198.8	1.894	1.742	0.031027	34.613	34.608	0.353	0.0087	27.670	27.666	27.682
14	2144.2	2173.0	1.892	1.743	0.031189	34.613	34.607	0.353	0.0087	27.670	27.666	27.682
24	2118.9	2147.2	1.893	1.746	0.029653	34.612	34.607	0.354	0.0097	27.669	27.665	27.681
31	2095.7	2123.5	1.895	1.750	0.032268	34.612	34.607	0.354	0.0097	27.669	27.665	27.680
12	2069.1	2096.4	1.894	1.751	0.033129	34.612	34.606	0.355	0.0107	27.669	27.665	27.680
27	2045.6	2072.5	1.895	1.754	0.031467	34.611	34.608	0.356	0.0117	27.668	27.666	27.679
17	1995.1	2021.1	1.892	1.756	0.025094	34.609	34.605	0.352	0.0077	27.667	27.663	27.677
22	1793.4	1815.9	2.013	1.892	0.008616	34.580	34.575	0.345	0.0007	27.634	27.630	27.644

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.677				19.67
27.677				18.97
27.677				19.92
27.677				20.53
27.676				21.52
27.676				25.23
27.676				22.61
27.677				24.51
27.674				18.10
27.639				6.42

Atten-Anom = Atten - 0.3443
D-Theta (rows 1 to 10) = (ptemp + (4.5287 * pden)) - 127.0731

VENTS 1993 - LEG I Station S9306 Cast 21 18 JUN 1993
LAT: 44 50.8N LONG: 130 16.0W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
30	2231.5	2261.9	1.871	1.714	0.016204	34.614	34.607	0.346	0.0017	27.673	27.667	27.685
18	2188.8	2218.4	1.877	1.724	0.022562	34.614	34.608	0.348	0.0037	27.672	27.667	27.684
2	2162.8	2191.9	1.884	1.733	0.032216	34.615	34.607	0.350	0.0057	27.672	27.666	27.684
16	2149.6	2178.4	1.887	1.737	0.031285	34.614	34.608	0.350	0.0057	27.671	27.667	27.683
26	2121.1	2149.4	1.884	1.737	0.027345	34.613	34.606	0.349	0.0047	27.671	27.665	27.682
9	2096.9	2124.7	1.886	1.741	0.026388	34.612	34.605	0.350	0.0057	27.670	27.664	27.681
3	2072.3	2099.7	1.880	1.737	0.013010	34.609	34.602	0.346	0.0017	27.668	27.662	27.679
29	2044.3	2071.2	1.887	1.746	0.011852	34.607	34.604	0.346	0.0017	27.666	27.663	27.676
19	1994.9	2020.9	1.901	1.764	0.009138	34.603	34.596	0.346	0.0017	27.661	27.656	27.672
1	1793.7	1816.2	2.048	1.926	0.016434	34.576	34.572	0.345	0.0007	27.628	27.625	27.638

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.679				10.46
27.679				11.92
27.678				14.27
27.678				15.86
27.676				15.29
27.675				14.90
27.673				10.04
27.674				12.73
27.666				11.38
27.634				8.04

Atten-Anom = Atten - 0.3443
D-Theta (rows 1 to 10) = (ptemp + (4.5287 * pden)) - 127.0731

VENTS 1993 - LEG I Station S9304 Cast 22 19 JUN 1993
LAT: 44 55.8N LONG: 130 13.9W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
9	2244.5	2275.2	1.890	1.732	0.031987	34.616	34.611	0.351	0.0065	27.673	27.669	27.685
1	2244.0	2274.7	1.890	1.732	0.032016	34.616	34.611	0.351	0.0065	27.673	27.668	27.685
3	2243.7	2274.3	1.890	1.732	0.032039	34.616	34.611	0.351	0.0065	27.673	27.669	27.685
19	2243.4	2274.0	1.890	1.732	0.032056	34.616	34.610	0.351	0.0065	27.673	27.668	27.685
27	2197.1	2226.8	1.896	1.742	0.027732	34.613	34.608	0.355	0.0105	27.670	27.666	27.682
10	2169.3	2198.6	1.898	1.746	0.030621	34.613	34.608	0.358	0.0135	27.670	27.666	27.681
8	2143.7	2172.4	1.899	1.750	0.032743	34.613	34.608	0.362	0.0175	27.670	27.666	27.681
22	2119.7	2148.0	1.901	1.754	0.035402	34.613	34.609	0.362	0.0175	27.669	27.666	27.681
29	2094.4	2122.2	1.902	1.757	0.033859	34.612	34.607	0.365	0.0205	27.669	27.664	27.680
18	2067.1	2094.4	1.901	1.758	0.034758	34.612	34.606	0.365	0.0205	27.669	27.663	27.680
17	2018.4	2044.8	1.902	1.763	0.023622	34.608	34.603	0.355	0.0105	27.665	27.661	27.676
30	1894.0	1918.3	1.961	1.832	0.010400	34.592	34.587	0.345	0.0005	27.648	27.644	27.658

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.681				
27.680				
27.681				
27.680				
27.678				
27.677				
27.677				
27.677				
27.676				
27.674				
27.672				
27.654				

Atten-Anom = Atten - 0.3445
D-Theta (rows 1 to 12) = (ptemp + (4.5287 * pden)) - 127.0761

VENTS 1993 - LEG I Station T9309 Cast 23 19 JUN 1993
LAT: 44 51.6N LONG: 130 09.6W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
9	2273.1	2304.3	1.848	1.688	0.013396	34.618	34.614	0.349	0.004	27.678	27.675	27.690
1	2176.4	2205.7	1.870	1.718	0.015122	34.613	34.610	0.348	0.003	27.672	27.670	27.683
3	2124.8	2153.2	1.899	1.751	0.029561	34.611	34.608	0.360	0.015	27.668	27.666	27.679
15	2115.5	2143.7	1.897	1.750	0.025172	34.610	34.608	0.360	0.015	27.667	27.666	27.679
6	2152.5	2181.4	1.897	1.747	0.023056	34.610	34.607	0.355	0.010	27.667	27.665	27.679
23	2117.0	2145.2	1.893	1.746	0.022505	34.610	34.605	0.354	0.009	27.668	27.663	27.679
21	2120.9	2149.2	1.894	1.747	0.022927	34.610	34.608	0.354	0.009	27.668	27.666	27.679
13	2058.1	2085.2	1.893	1.751	0.022214	34.609	34.605	0.355	0.010	27.667	27.664	27.678
5	2087.5	2115.2	1.895	1.751	0.018211	34.608	34.605	0.354	0.009	27.666	27.664	27.677
11	2175.4	2204.7	1.863	1.711	0.003388	34.611	34.608	0.346	0.001	27.671	27.668	27.682

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.687				12.79
27.681				12.14
27.677				26.57
27.677				25.56
27.676				20.60
27.675				20.17
27.677				20.15
27.675				23.63
27.675				19.66
27.680				9.38

Atten-Anom = Atten - 0.345
D-Theta (rows 1 to 10) = (ptemp + (4.5287 * pden)) - 127.0731

VENTS 1993 - LEG I Station S9307 Cast 24 19 JUN 1993
LAT: 44 45.2N LONG: 130 19.2W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
10	2225.3	2255.6	1.881	1.725	0.046176	34.614	34.608	0.347	0.0028	27.672	27.667	27.684
27	2195.3	2225.0	1.879	1.725	0.046572	34.614	34.607	0.348	0.0038	27.672	27.666	27.684
18	2171.4	2200.6	1.878	1.727	0.042771	34.613	34.608	0.348	0.0038	27.671	27.667	27.683
19	2143.7	2172.4	1.877	1.728	0.043603	34.613	34.607	0.349	0.0048	27.671	27.666	27.683
2	2119.9	2148.2	1.875	1.728	0.039209	34.612	34.606	0.350	0.0058	27.671	27.666	27.682
17	2093.8	2121.6	1.878	1.733	0.033330	34.610	34.604	0.349	0.0048	27.669	27.664	27.680
30	2042.5	2069.4	1.894	1.753	0.027199	34.606	34.599	0.348	0.0038	27.664	27.659	27.675
16	1993.4	2019.4	1.904	1.767	0.021959	34.603	34.598	0.347	0.0028	27.661	27.657	27.672
26	1895.9	1920.1	1.938	1.809	0.010388	34.595	34.591	0.345	0.0008	27.652	27.649	27.662
29	1746.2	1768.0	2.092	1.974	0.001521	34.572	34.567	0.345	0.0008	27.621	27.618	27.631

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.679				12.75
27.678				15.05
27.679				14.37
27.678				14.75
27.677				15.72
27.675				13.60
27.670				16.63
27.668				15.94
27.658				9.40
27.627				7.04

Atten-Anom = Atten - 0.3442
D-Theta (rows 1 to 10) = (ptemp + (5.5515 * pden)) - 155.3649

VENTS 1993 - LEG I Station S9309 Cast 25 19 JUN 1993
LAT: 44 34.8N LONG: 130 24.2W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
5	2192.4	2222.0	1.873	1.720	0.025474	34.615	34.608	0.351	0.0046	27.673	27.668	27.685
31	2167.9	2197.0	1.883	1.732	0.029413	34.614	34.608	0.353	0.0066	27.672	27.667	27.683
14	2143.0	2171.7	1.882	1.733	0.030176	34.614	34.608	0.354	0.0076	27.672	27.667	27.683
24	2119.7	2148.0	1.882	1.735	0.031478	34.614	34.607	0.354	0.0076	27.672	27.666	27.683
8	2094.8	2122.5	1.889	1.744	0.029747	34.612	34.605	0.354	0.0076	27.670	27.664	27.681
13	2070.1	2097.4	1.891	1.748	0.028601	34.611	34.603	0.354	0.0076	27.669	27.662	27.680
22	2045.3	2072.1	1.897	1.756	0.022434	34.608	34.601	0.353	0.0066	27.666	27.660	27.677
27	2019.4	2045.8	1.918	1.779	0.014452	34.602	34.599	0.348	0.0016	27.659	27.657	27.670
12	1995.2	2021.2	1.929	1.792	0.011378	34.599	34.592	0.347	0.0006	27.656	27.650	27.667
21	1893.3	1917.5	1.991	1.862	0.006749	34.586	34.580	0.346	-0.0004	27.641	27.636	27.651
11	1745.5	1767.1	2.122	2.003	0.031959	34.569	34.567	0.346	-0.0004	27.617	27.615	27.626
23	1492.9	1510.5	2.466	2.364	0.080856	34.523	34.520	0.348	0.0016	27.551	27.549	27.560

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.679				15.53
27.679				19.08
27.678				18.02
27.677				18.68
27.675				20.58
27.673				19.84
27.671				17.47
27.667				
27.661				10.43
27.646				8.39
27.625				8.46
27.558				

Atten-Anom = Atten - 0.3464
D-Theta (rows 1 to 12) = (ptemp + (4.7116 * pden)) - 132.1346

VENTS 1993 - LEG I Station S9321 Cast 26 20 JUN 1993
LAT: 44 22.2N LONG: 130 29.4W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)	Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
9	2578.5	2615.7	1.706	1.521	-0.007395	34.641	34.636	0.345	0.001	27.707	27.703	27.721	27.717				
1	2352.0	2384.6	1.817	1.650	0.011968	34.624	34.619	0.344	0.000	27.685	27.681	27.697	27.693				
20	2298.3	2329.9	1.824	1.662	0.011883	34.622	34.618	0.344	0.000	27.683	27.679	27.695	27.691				
3	2237.8	2268.2	1.838	1.681	0.012775	34.619	34.613	0.345	0.001	27.679	27.674	27.691	27.686				
29	2195.6	2225.2	1.845	1.692	0.008162	34.616	34.610	0.345	0.001	27.676	27.671	27.688	27.683				9.75
26	2144.3	2172.9	1.858	1.709	0.007826	34.613	34.609	0.346	0.002	27.673	27.669	27.684	27.681				10.88
27	2094.8	2122.5	1.877	1.732	0.007323	34.609	34.605	0.345	0.001	27.668	27.665	27.679	27.676				9.72
6	1993.8	2019.7	1.919	1.782	0.008797	34.601	34.567	0.345	0.001	27.658	27.631	27.669	27.641				
15	1798.8	1821.4	2.090	1.967	0.011445	34.571	34.567	0.345	0.001	27.621	27.617	27.631	27.627				
23	1799.4	1821.9	2.090	1.967	0.011419	34.571		0.345	0.001	27.621		27.631					

Atten-Anom = Atten - 0.344
D-Theta (rows 1 to 10) = (ptemp + (4.7515 * pden)) - 133.2425

VENTS 1993 - LEG I Station T9302 Cast 27 20 JUN 1993
LAT: 44 31.7N LONG: 130 25.8W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
2	2140.3	2168.9	1.875	1.726	0.016541	34.613	34.609	0.352	0.0065	27.671	27.668	27.683
1	2150.1	2178.9	1.891	1.741	0.022622	34.612	34.608	0.353	0.0075	27.669	27.667	27.681
9	2168.9	2198.0	1.903	1.751	0.025606	34.611	34.609	0.356	0.0105	27.668	27.666	27.679
23	2148.9	2177.7	1.897	1.747	0.022889	34.611	34.608	0.356	0.0105	27.668	27.666	27.680
3	1998.3	2024.3	1.909	1.772	0.024446	34.607	34.604	0.373	0.0275	27.664	27.662	27.675
10	2145.6	2174.3	1.904	1.754	0.023921	34.610	34.606	0.364	0.0185	27.667	27.664	27.678
27	2032.6	2059.3	1.901	1.761	0.010076	34.605	34.601	0.351	0.0055	27.663	27.660	27.674
18	1997.9	2023.9	1.907	1.770	0.008550	34.603	34.603	0.350	0.0045	27.661	27.661	27.671
19	2010.5	2036.7	1.895	1.757	0.011114	34.606	34.603	0.351	0.0055	27.664	27.662	27.675
16	1998.0	2024.0	1.897	1.760	0.005776	34.604	34.601	0.349	0.0035	27.663	27.660	27.673

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.680				15.98
27.678				18.19
27.678				38.06
27.677				41.40
27.672				56.44
27.675				52.20
27.671				16.24
27.671				14.74
27.672				15.49
27.670				15.11

Atten-Anom = Atten - 0.3455
D-Theta (rows 1 to 10) = (ptemp + (4.5643 * pden)) - 128.0625

VENTS 1993 - LEG I Station S9322 Cast 28 21 JUN 1993
LAT: 45 08.5N LONG: 130 14.4W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)	Sigma-Theta (Bottle)
1	2138.9	2167.6	1.855	1.707		34.616	34.611	0.348		27.675	27.671	27.687	27.683

PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)

VENTS 1993 - LEG I Station S9324 Cast 30 21 JUN 1993
LAT: 44 09.4N LONG: 130 19.5W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)	Sigma-Theta (Bottle)
1	2146.3	2175.2	1.867	1.718		34.614	34.609	0.348	0.0026	27.673	27.669	27.684	27.680

PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)

Atten-Anom = Atten - 0.3454

VENTS 1993 - LEG I Station S9326 Cast 32 21 JUN 1993
LAT: 45 12.4N LONG: 130 09.9W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)	Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
20	2395.2	2428.8	1.861	1.690	0.019750	34.619		0.348	0.003	27.677		27.690					
8	2343.9	2376.5	1.856	1.690	0.015844	34.618		0.347	0.002	27.677		27.690					
24	2292.7	2324.3	1.859	1.697	0.020744	34.618		0.348	0.003	27.677		27.689					
31	2262.4	2293.4	1.858	1.699	0.021861	34.618		0.348	0.003	27.677		27.689					

Atten-Anom = Atten - 0.345
D-Theta (rows 1 to 4) = (ptemp + (4.6571 * pden)) - 130.627

VENTS 1993 - LEG I Station T9308 Cast 33 22 JUN 1993
LAT: 44 40.0N LONG: 130 14.2W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
11	2120.0	2148.2	1.872	1.725	0.029309	34.611	34.609	0.346	0.001	27.670	27.668	27.681
2	2077.9	2105.4	1.895	1.751	0.040331	34.610	34.610	0.360	0.015	27.667	27.668	27.679
24	2050.4	2077.4	1.902	1.761	0.041369	34.609	34.606	0.367	0.022	27.666	27.664	27.677
31	2034.8	2061.5	1.905	1.765	0.039501	34.608	34.607	0.371	0.026	27.665	27.664	27.676
21	2017.3	2043.7	1.897	1.759	0.040146	34.609	34.605	0.365	0.020	27.667	27.663	27.677
22	2046.0	2072.9	1.897	1.756	0.038712	34.609	34.606	0.368	0.023	27.667	27.664	27.677
14	2068.6	2095.9	1.891	1.748	0.038497	34.610	34.606	0.356	0.011	27.668	27.665	27.679
12	2139.6	2168.3	1.862	1.714	0.031277	34.613	34.608	0.346	0.001	27.672	27.669	27.684

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.680				8.93
27.679				28.84
27.675				35.15
27.675				43.77
27.674				41.72
27.675				36.75
27.676				24.49
27.680				10.75

Atten-Anom = Atten - 0.345
D-Theta (rows 1 to 8) = (ptemp + (5.4603 * pden)) - 152.8441

VENTS 1993 - LEG I Station S9308 Cast 34 22 JUN 1993
LAT: 44 41.6N LONG: 130 20.9W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
1	2196.6	2226.3	1.903	1.749	0.047635	34.612	34.607	0.355	0.0105	27.668	27.664	27.680
27	2185.1	2214.6	1.905	1.752	0.045001	34.611	34.607	0.358	0.0135	27.668	27.664	27.679
3	2142.7	2171.4	1.902	1.753	0.045449	34.611	34.606	0.360	0.0155	27.668	27.664	27.679
5	2128.6	2157.0	1.903	1.755	0.046746	34.611	34.604	0.364	0.0195	27.668	27.662	27.679
9	2103.2	2131.1	1.903	1.757	0.043662	34.610	34.606	0.365	0.0205	27.667	27.663	27.678
16	2080.4	2108.0	1.900	1.756	0.043082	34.610	34.605	0.363	0.0185	27.667	27.663	27.678
19	2051.4	2078.4	1.903	1.762	0.041895	34.609	34.603	0.369	0.0245	27.666	27.661	27.677
10	2031.2	2057.8	1.904	1.764	0.039107	34.608	34.602	0.371	0.0265	27.665	27.661	27.676
18	1997.7	2023.8	1.908	1.771	0.034318	34.606	34.597	0.365	0.0205	27.663	27.656	27.674
23	1895.9	1920.1	1.942	1.813	0.010697	34.595		0.346	0.0015	27.652		27.662

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.676				26.84
27.676				30.50
27.675				33.33
27.674				
27.675				38.93
27.674				33.98
27.672				44.33
27.671				43.98
27.666				41.61
				9.78

Atten-Anom = Atten - 0.3445
D-Theta (rows 1 to 10) = (ptemp + (5.4603 * pden)) - 152.8441

VENTS 1993 - LEG I Station S9327 Cast 35 22 JUN 1993
LAT: 44 39.4N LONG: 130 21.9W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
15	2188.0	2217.6	1.908	1.755	0.039312	34.611	34.609	0.362	0.0178	27.667	27.666	27.679
30	2171.3	2200.5	1.908	1.756	0.040215	34.611	34.606	0.363	0.0188	27.667	27.663	27.679
29	2144.8	2173.5	1.907	1.757	0.041033	34.611	34.607	0.365	0.0208	27.667	27.664	27.679
6	2119.7	2147.9	1.906	1.759	0.041771	34.611	34.605	0.366	0.0218	27.667	27.663	27.679
17	2100.0	2127.9	1.905	1.759	0.042212	34.611	34.605	0.368	0.0238	27.668	27.663	27.679
27	2070.0	2097.4	1.906	1.763	0.040303	34.610	34.605	0.374	0.0298	27.667	27.662	27.678
4	2046.8	2073.7	1.902	1.761	0.039119	34.610	34.605	0.374	0.0298	27.667	27.663	27.678
13	2021.6	2048.1	1.906	1.767	0.038750	34.609	34.604	0.369	0.0248	27.666	27.662	27.677
20	1996.1	2022.1	1.906	1.769	0.015522	34.603	34.601	0.349	0.0048	27.661	27.659	27.672
23	1895.0	1919.2	1.951	1.822	0.010906	34.594	34.589	0.345	0.0008	27.650	27.646	27.660

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.678				31.91
27.675				33.26
27.675				36.80
27.674				42.34
27.674				39.38
27.673				45.17
27.674				43.37
27.672				31.58
27.670				14.89
27.656				7.98

Atten-Anom = Atten - 0.3442
D-Theta (rows 1 to 10) = (ptemp + (5.1062 * pden)) - 143.0502

VENTS 1993 - LEG I Station T9304 Cast 36 22 JUN 1993
LAT: 44 55.3N LONG: 130 10.1W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
10	2003.1	2029.3	1.906	1.769	0.019474	34.607	34.602	0.346	0.001	27.664	27.660	27.675
31	2147.9	2176.7	1.892	1.742	0.032791	34.615	34.598	0.354	0.009	27.672	27.658	27.683
24	2088.9	2116.6	1.892	1.747	0.032313	34.614	34.612	0.356	0.011	27.671	27.669	27.682
2	2073.8	2101.2	1.896	1.753	0.031908	34.613	34.615	0.354	0.009	27.670	27.671	27.681
11	2045.8	2072.8	1.892	1.751	0.030918	34.613	34.610	0.354	0.009	27.670	27.667	27.681
22	2078.0	2105.6	1.895	1.751	0.031036	34.613	34.609	0.356	0.011	27.670	27.666	27.681
12	2079.1	2106.6	1.898	1.754	0.032879	34.613	34.609	0.361	0.016	27.670	27.666	27.681
14	2086.2	2113.9	1.894	1.750	0.029952	34.613	34.612	0.358	0.013	27.670	27.669	27.681
21	2056.7	2083.8	1.898	1.756	0.037889	34.614	34.610	0.365	0.020	27.670	27.667	27.681

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.670				7.07
27.670				7.28
27.680				19.44
27.682				20.05
27.678				20.85
27.677				20.49
27.677				22.80
27.680				31.39
27.678				26.49

Atten-Anom = Atten - 0.345
D-Theta (rows 1 to 9) = (ptemp + (4.7069 * pden)) - 132.0117

VENTS 1993 - LEG I Station S9333 Cast 42 23 JUN 1993
LAT: 44 47.6N LONG: 130 15.0W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
29	2249.7	2280.4	1.875	1.717	0.031352	34.619	34.612	0.350	0.005	27.676	27.670	27.688
26	2194.3	2224.0	1.890	1.736	0.040227	34.618	34.611	0.354	0.009	27.674	27.669	27.686
13	2145.6	2174.4	1.897	1.747	0.039853	34.616	34.609	0.355	0.010	27.672	27.666	27.684
30	2120.4	2148.7	1.899	1.752	0.042529	34.616	34.608	0.360	0.015	27.672	27.666	27.683
4	2095.9	2123.8	1.898	1.753	0.039487	34.615	34.613	0.363	0.018	27.671	27.670	27.682
27	2079.5	2107.0	1.899	1.755	0.041034	34.615	34.608	0.364	0.019	27.671	27.666	27.682
6	2044.9	2071.8	1.900	1.759	0.043576	34.615	34.611	0.366	0.021	27.671	27.668	27.682
17	1994.6	2020.6	1.899	1.762	0.026835	34.610	34.604	0.354	0.009	27.667	27.662	27.678

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.682				16.31
27.681				23.75
27.678				23.19
27.677				28.97
27.681				33.96
27.677				34.85
27.678				38.30
27.672				19.34

Atten-Anom = Atten - 0.345
D-Theta (rows 1 to 8) = (ptemp + (4.7069 * pden)) - 132.0117

VENTS 1993 - LEG I Station T9303 Cast 43 23 JUN 1993
LAT: 44 57.0N LONG: 130 12.0W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
23	2019.6	2046.1	1.892	1.753	0.020609	34.612	34.608	0.359	0.014	27.669	27.666	27.680
15	2098.2	2126.1	1.906	1.760	0.047883	34.618	34.615	0.351	0.006	27.673	27.671	27.684
21	2022.4	2048.9	1.900	1.761	0.006518	34.607	34.603	0.351	0.006	27.665	27.661	27.675
14	2100.5	2128.5	1.866	1.721	0.007341	34.614	34.609	0.346	0.001	27.673	27.669	27.684
10	2098.5	2126.4	1.875	1.730	0.005546	34.612	34.610	0.348	0.003	27.671	27.669	27.682
24	2192.5	2222.1	1.843	1.690	0.002837	34.618	34.613	0.347	0.002	27.678	27.674	27.690
2	2147.7	2176.5	1.861	1.712	0.005352	34.615	34.610	0.352	0.007	27.674	27.670	27.686

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.677				27.88
27.682				20.95
27.672				17.16
27.680				10.62
27.680				10.48
27.686				10.66
27.681				12.31

Atten-Anom = Atten - 0.345
D-Theta (rows 1 to 7) = (ptemp + (4.7362 * pden)) - 132.8307

VENTS 1993 - LEG I Station CALCAST Cast 44 24 JUN 1993
LAT: 45 36.5N LONG: 129 30.2W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)	Sigma-Theta (Bottle)
5	2657.9	2697.0	1.729	1.536		34.648	34.641	0.355		27.711	27.705	27.725	27.719
1	2497.1	2532.9	1.769	1.590		34.637	34.630	0.346		27.699	27.693	27.712	27.707
31	2240.7	2271.4	1.800	1.644		34.625	34.619	0.344		27.687	27.682	27.699	27.693
20	1994.3	2020.4	1.893	1.757		34.605	34.601	0.344		27.664	27.660	27.674	27.671
6	1695.1	1716.1	2.148	2.033		34.567	34.560	0.346		27.613	27.608	27.622	27.617
17	1397.8	1414.1	2.587	2.491		34.506	34.500	0.346		27.527	27.523	27.536	27.531
9	994.5	1005.1	3.250	3.180		34.385	34.379	0.348		27.371	27.367	27.378	27.373
22	744.7	752.2	4.065	4.009		34.293	34.289	0.351		27.217	27.214	27.223	27.219
12	493.3	498.0	4.462	4.425		34.069	34.065	0.349		26.997	26.994	27.001	26.998
3	246.6	248.7	5.892	5.871		33.871	33.869	0.359		26.674	26.673	26.677	26.675
27	93.8	94.6	8.534	8.524		32.894	32.888	0.362		25.541	25.537	25.543	25.538

PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)

VENTS 1993 - LEG II Station S93B01 Cast 01 10 JUL 1993
LAT: 46 29.9N LONG: 129 35.7W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
1	2340.4	2373.2	1.806	1.641	0.021653	34.615	34.612	0.358	0.0025	27.678	27.676	27.691
2	2090.8	2118.9	1.857	1.713	0.026295	34.604	34.598	0.358	0.0025	27.666	27.661	27.677
3	1995.8	2022.1	1.909	1.772	0.041492	34.598	34.593	0.363	0.0075	27.657	27.653	27.667
4	1980.7	2006.8	1.915	1.779	0.042279	34.597	34.592	0.363	0.0075	27.656	27.651	27.666
5	1898.6	1923.2	2.063	1.932	0.161880	34.603	34.597	0.399	0.0435	27.649	27.644	27.659
6	1879.9	1904.1	2.080	1.950	0.173406	34.603	34.597	0.404	0.0485	27.647	27.643	27.658
7	1873.4	1897.6	2.082	1.953	0.174982	34.603	34.595	0.406	0.0505	27.647	27.641	27.657
8	1827.0	1850.4	2.066	1.941	0.159922	34.601	34.597	0.399	0.0435	27.647	27.643	27.657
9	1809.0	1832.1	2.104	1.980	0.191965	34.603	34.595	0.409	0.0535	27.645	27.639	27.655
10	1543.6	1562.3	2.169	2.066	0.010058	34.541	34.536	0.361	0.0055	27.590	27.586	27.599

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.688	2.655	138.964	33.368	18.57
27.672	2.964	174.673	41.255	11.14
27.664	2.884	174.299	41.360	18.31
27.662	2.831	155.153	37.899	17.55
27.654	2.911	156.859	41.094	79.70
27.653	2.889	164.803	40.008	84.29
27.651	2.885	174.239	41.120	53.04
27.653	2.852	167.311	40.416	78.07
27.649	2.945	158.590	41.152	86.67
27.595	3.089	163.049	49.932	12.67

Atten-Anom = Atten - 0.3555
D-Theta (rows 1 to 10) = (ptemp + (4.7418 * pden)) - 132.9236

VENTS 1993 - LEG II Station S93B02 Cast 02 10 JUL 1993
LAT: 46 29.7N LONG: 129 35.2W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)	Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
21	2342.8	2375.7	1.807	1.641	0.041156	34.620	34.614	0.367	0.002	27.682	27.678	27.695	27.690				
16	2296.2	2328.2	1.837	1.675	0.051468	34.617	34.612	0.368	0.003	27.678	27.674	27.690	27.686				
1	2023.3	2050.1	1.896	1.757	0.028011	34.597	34.592	0.365	0.000	27.657	27.653	27.668	27.664				
17	1907.1	1931.9	2.058	1.926	0.158325	34.603	34.599	0.409	0.044	27.649	27.646	27.659	27.656				
14	1840.3	1863.9	2.118	1.991	0.195168	34.602	34.596	0.417	0.052	27.643	27.639	27.654	27.649				
9	1799.1	1821.9	2.142	2.018	0.193125	34.597	34.596	0.414	0.049	27.637	27.636	27.647	27.646				
15	1742.7	1764.7	2.155	2.036	0.173656	34.589	34.584	0.404	0.039	27.630	27.626	27.640	27.635				
10	1531.9	1550.4	2.244	2.141	0.014794	34.530	34.523	0.366	0.001	27.576	27.570	27.584	27.578				

Atten-Anom = Atten - 0.365
D-Theta (rows 1 to 8) = (ptemp + (4.7418 * pden)) - 132.9236

VENTS 1993 - LEG II Station T93B01 Cast 03 11 JUL 1993
LAT: 46 36.0N LONG: 129 30.6W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
1	2290.2	2322.0	1.806	1.645	0.048529	34.621	34.619	0.370	0.003026	27.683	27.681	27.695
2	1655.6	1676.1	2.260	2.147	0.178946	34.572	34.573	0.394	0.025358	27.608	27.608	27.617
3	2216.9	2247.4	1.851	1.696	0.073620	34.619	34.618	0.380	0.012858	27.678	27.677	27.690
4	1658.7	1679.2	2.246	2.133	0.208224	34.582	34.577	0.382	0.013405	27.617	27.613	27.626
5	1625.6	1645.6	2.287	2.176	0.231028	34.581	34.578	0.380	0.011261	27.613	27.610	27.622
6	2228.7	2259.4	1.866	1.710	0.063424	34.614	34.608	0.376	0.008812	27.673	27.668	27.685
7	1774.1	1796.6	2.129	2.008	0.187576	34.597	34.591	0.421	0.052821	27.639	27.633	27.648
8	2203.1	2233.3	1.845	1.691	0.040196	34.611	34.603	0.370	0.002873	27.672	27.666	27.684
9	1818.1	1841.4	2.111	1.986	0.196970	34.603	34.597	0.435	0.066892	27.645	27.640	27.655
10	2004.2	2030.7	1.935	1.797	0.077532	34.603	34.598	0.390	0.022521	27.659	27.655	27.669

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.693	2.882	176.184	40.974	32.72
27.618	2.987	166.690	42.167	82.06
27.689	2.863	171.049	40.394	55.93
27.623	2.921	169.356	38.164	63.38
27.620	2.943	171.823	42.163	62.05
27.680	2.900	173.471	41.020	41.04
27.643	2.957	167.835	41.469	84.60
27.677	2.935	176.783	41.099	17.76
27.650	2.926	168.781	41.474	113.66
27.665	2.905	167.576	41.484	45.95

Atten-Anom = Atten - (0.3615 + 0.003327*Theta)
D-Theta (rows 1 to 10) = (ptemp + (4.741842 * pden)) - 132.9236

VENTS 1993 - LEG II Station S93B03 Cast 05 13 JUL 1993
LAT: 46 31.6N LONG: 129 34.4W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
14	2415.4	2449.7	1.776	1.604	0.024804	34.622	34.621	0.377	0.001	27.686	27.686	27.699
10	2173.2	2202.8	1.880	1.728	0.089439	34.618	34.614	0.401	0.025	27.675	27.672	27.687
9	1953.4	1979.0	1.906	1.773	0.022891	34.593	34.589	0.377	0.001	27.653	27.650	27.663
15	1863.1	1887.1	2.072	1.944	0.146548	34.597	34.593	0.391	0.015	27.643	27.640	27.653
16	1706.9	1728.2	2.218	2.101	0.191323	34.583	34.579	0.397	0.021	27.620	27.617	27.630
21	1616.7	1636.6	2.243	2.133	0.127634	34.561	34.556	0.391	0.015	27.600	27.597	27.609
1	1617.9	1637.8	2.235	2.125	0.126491	34.562	34.558	0.391	0.015	27.602	27.599	27.611
17	1482.6	1500.3	2.282	2.183	-0.005188	34.518	34.515	0.378	0.002	27.563	27.561	27.571

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.699	2.836	172.743	40.656	
27.684	2.750	155.886	38.532	
27.660	2.958	174.573	41.810	
27.650	2.905	164.428	41.518	
27.626				
27.606				
27.608	3.023	154.425	42.374	
27.569	3.119	160.082	43.577	

Atten-Anom = Atten - 0.376
D-Theta (rows 1 to 8) = (ptemp + (4.7418 * pden)) - 132.9236

VENTS 1993 - LEG II Station T93B02 Cast 06 13 JUL 1993
LAT: 46 31.6N LONG: 129 29.0W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
15	2302.7	2334.8	1.775	1.614	0.015522	34.618	34.537	0.378	0.000355	27.683	27.618	27.695
18	1560.6	1579.5	2.196	2.091	0.014396	34.538	34.615	0.380	0.000975	27.586	27.647	27.594
17	1522.0	1540.4	2.354	2.250	0.146539	34.547	34.532	0.409	0.029515	27.580	27.568	27.589
16	1694.5	1715.6	2.236	2.120	0.195352	34.581	34.543	0.402	0.022893	27.617	27.587	27.626
14	1781.6	1804.2	2.160	2.038	0.201298	34.596	34.576	0.404	0.025130	27.635	27.619	27.645
13	1809.1	1832.2	2.082	1.958	0.170766	34.601	34.593	0.401	0.022359	27.646	27.639	27.655
12	2197.9	2228.0	1.871	1.717	0.078567	34.617	34.601	0.404	0.026056	27.675	27.662	27.687
11	1519.7	1538.0	2.302	2.199	0.065862	34.534	34.611	0.390	0.010663	27.574	27.635	27.582
17	2094.0	2122.2	1.826	1.682	0.014096	34.606	34.527	0.378	0.000158	27.670	27.606	27.681
14	1604.5	1624.2	2.160	2.052	-0.006101	34.539	34.603	0.379	0.000088	27.590	27.641	27.598

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.630	2.915	167.238	40.787	
27.656	3.075	162.686	43.278	
27.577	3.037	166.027	42.768	
27.596	2.932	159.156	41.917	
27.629	2.924	160.947	39.939	
27.649	2.905	168.854	41.065	
27.674	2.865	173.476	40.904	
27.644	2.965	151.811	41.172	
27.617	2.937	171.737	40.952	
27.650	3.071	160.184	43.174	

Atten-Anom = Atten - (0.372983 + 0.002889*Theta)
D-Theta (rows 1 to 10) = (ptemp + (4.7418 * pden)) - 132.9236

VENTS 1993 - LEG II Station T93B03 Cast 07 13 JUL 1993
LAT: 46 28.5N LONG: 129 32.0W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
1	1679.2	1700	2.144	2.030	0.118148	34.575		0.41	0.026	27.620		27.629

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)

Atten-Anom = Atten - 0.384
D-Theta (rows 1 to 1) = (ptemp + (4.741842 * pden)) - 132.9236

VENTS 1993 - LEG II Station T93B04 Cast 08 14 JUL 1993
LAT: 46 28.5N LONG: 129 31.1W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
15	1642.2	1662.5	2.163	2.052	0.100164	34.567	34.613	0.432	0.020182	27.612	27.649	27.621
18	2235.5	2266.3	1.843	1.686	0.054939	34.616	34.592	0.419	0.008094	27.676	27.657	27.688
17	1872.2	1896.4	1.980	1.853	0.085029	34.596	34.611	0.437	0.025680	27.650	27.661	27.660
16	2251.8	2282.9	1.854	1.696	0.057168	34.615	34.615	0.414	0.003071	27.675	27.675	27.687

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.658	2.778	159.732	38.650	40.00
27.669	2.824	164.553	39.274	
27.671	2.877	170.868	39.916	22.06
27.687	2.867	167.013	40.214	12.86

Atten-Anom = Atten - (0.4067 + 0.002494*Theta)
D-Theta (rows 1 to 4) = (ptemp + (4.7418 * pden)) - 132.9236

VENTS 1993 - LEG II Station T93B05 Cast 09 14 JUL 1993
LAT: 46 33.0N LONG: 129 32.0W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
8	2276.0	2307.5	1.780	1.621	0.039257	34.623	34.619	0.370	0.002	27.687	27.683	27.699
7	1963.9	1989.7	1.910	1.776	0.059046	34.602	34.596	0.388	0.020	27.660	27.655	27.670
6	1844.6	1868.3	2.058	1.932	0.176829	34.607	34.602	0.428	0.060	27.652	27.649	27.662
5	2187.0	2216.9	1.875	1.722	0.085507	34.618	34.614	0.375	0.007	27.675	27.672	27.687

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.695	2.885	170.459	40.808	
27.666	2.960	174.655	41.476	
27.659	2.960	174.398	41.157	
27.684	2.920	172.051	40.787	

Atten-Anom = Atten - 0.368
D-Theta (rows 1 to 4) = (ptemp + (4.7418 * pden)) - 132.9236

VENTS 1993 - LEG II Station T93B08 Cast 12 16 JUL 1993
LAT: 46 33.6N LONG: 129 32.3W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
11	2263.2	2294.6	1.787	1.629	0.036678	34.620	34.613			27.684	27.678	27.696
12	2083.1	2111.0	1.861	1.717	0.063244	34.612	34.608			27.672	27.669	27.683
13	2142.8	2171.8	1.868	1.719	0.083373	34.617	34.614			27.675	27.673	27.687
14	2037.1	2064.2	1.883	1.743	0.083451	34.613	34.607			27.671	27.666	27.682
15	1605.9	1625.6	2.226	2.117	0.102016	34.556	34.553			27.598	27.595	27.607
16	2073.6	2101.3	1.875	1.732	0.053577	34.607	34.605			27.667	27.665	27.678
17	2163.5	2192.9	1.873	1.722	0.058732	34.610	34.607			27.669	27.667	27.681
18	2168.5	2198.0	1.878	1.727	0.065409	34.611	34.606			27.670	27.665	27.681
19	2199.2	2229.3	1.898	1.744	0.068669	34.609	34.607			27.666	27.664	27.678
20	1890.1	1914.5	1.926	1.798	0.038525	34.592	34.582			27.651	27.642	27.661

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.690	2.866	176.337	40.499	
27.680	2.883	172.267	40.686	42.29
27.684	2.882	176.013	40.549	66.53
27.677	2.882	172.702	40.615	76.96
27.604	2.979	166.730	42.125	46.07
27.676	2.899	174.152	40.600	25.81
27.678	2.895	174.391	40.752	31.02
27.677	2.881	176.221	40.560	
27.676	2.603	163.982	34.141	26.84
27.652	2.973	170.347	41.659	

No attenuation data
D-Theta (rows 1 to 10) = (ptemp + (4.7469 * pden)) - 133.0612

VENTS 1993 - LEG II Station T93B09 Cast 13 18 JUL 1993
LAT: 46 31.7N LONG: 129 34.4W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
12	2361.5	2394.7	1.795	1.628	0.043854	34.623	34.621			27.686	27.684	27.698
13	2361.6	2394.9	1.915	1.746	0.119706	34.623	34.619			27.676	27.673	27.689
14	2361.5	2394.8	1.930	1.761	0.132935	34.624	34.618			27.676	27.671	27.689
16	2337.3	2370.1	2.180	2.008	0.274262	34.620	34.615			27.653	27.648	27.667
17	2355.5	2388.6	1.819	1.652	0.044235	34.619	34.614			27.681	27.677	27.693
19	2158.7	2188.1	1.850	1.700	0.067503	34.617	34.614			27.677	27.675	27.688

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.697	2.621	162.607	33.945	
27.686	2.836	174.959	40.034	
27.684	2.737	167.212	37.355	
27.662	2.826	182.944	40.179	
27.690	2.822	174.535	39.926	
27.686	2.862	178.408	40.048	

No attenuation values
D-Theta (rows 1 to 6) = (ptemp + (4.7418 * pden)) - 132.9236

VENTS 1993 - LEG II Station S93B04 Cast 14 19 JUL 1993
LAT: 46 29.0N LONG: 129 32.5W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
17	2604.2	2642.4	1.745	1.557	0.008934	34.626	34.624			27.692	27.690	27.706
21	2169.0	2198.6	1.842	1.691	0.065665	34.618	34.618			27.678	27.678	27.689
1	2093.0	2121.1	1.850	1.706	0.063564	34.615	34.611			27.675	27.672	27.686
16	1874.7	1898.9	1.938	1.811	0.016802	34.585	34.581			27.644	27.641	27.654
15	1731.5	1753.3	2.043	1.926	0.010064	34.564	34.562			27.619	27.617	27.628
9	1522.4	1540.7	2.251	2.149	0.008146	34.527	34.523			27.573	27.570	27.581
10	1522.4	1540.8	2.251	2.149	0.008142	34.527	34.492			27.573	27.544	27.581
22	1379.9	1396.1	2.449	2.356	0.001867	34.492	34.488			27.528	27.525	27.536

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.704	2.857	175.964	39.376	
27.689	2.827	175.918	39.425	
27.683	2.865	178.645	39.760	
27.651	2.983	173.725	40.831	
27.627	2.983	165.621	40.785	
27.578	2.934	155.417	39.563	15.50
27.553	3.130	160.958	42.670	14.84
27.533	2.701	127.977	33.313	

No attenuation values
D-Theta (rows 1 to 8) = (ptemp + (4.7418 * pden)) - 132.9236

VENTS 1993 - LEG II Station T93B11 Cast 17 26 JUL 1993
LAT: 46 16.0N LONG: 129 32.0W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
12	1613.7	1633.5	2.197	2.088	0.076897	34.555	34.550			27.599	27.596	27.608
22	1877.0	1901.2	2.078	1.949	0.134337	34.593	34.552			27.639	27.606	27.650
17	1783.2	1805.8	2.138	2.016	0.176297	34.593	34.588			27.635	27.631	27.644
1	1769.3	1791.7	2.147	2.026	0.178757	34.592	34.587			27.633	27.629	27.643
17	1750.0	1772.0	2.146	2.026	0.167752	34.589	34.584			27.631	27.627	27.640
16	2155.3	2184.5	1.893	1.743	0.045429	34.604	34.602			27.663	27.662	27.674
2	2080.2	2108.0	1.939	1.794	0.082321	34.605	34.601			27.660	27.657	27.671
19	1997.8	2024.1	1.956	1.818	0.078486	34.600	34.600			27.655	27.655	27.665
13	1960.1	1985.7	1.975	1.840	0.100014	34.602	34.528			27.655	27.596	27.665

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.604	3.009	168.733	42.368	
27.617	2.925	174.618	41.517	54.26
27.640	2.904	173.575	39.534	85.05
27.639	2.916	173.953	39.465	84.34
27.636	2.892	173.923	39.396	86.42
27.673	2.924	175.893	39.013	
27.668	2.911	179.736	38.822	
27.665	2.958	178.226	38.693	36.76
27.606	2.932	159.619	40.838	

No attenuation values
D-Theta (rows 1 to 9) = (ptemp + (4.7418 * pden)) - 132.9236

VENTS 1993 - LEG II Station T93B12 Cast 18 26 JUL 1993
LAT: 46 13.5N LONG: 129 48.5W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
4	2058.3	2085.7	1.904	1.762	0.050135	34.602	34.596			27.660	27.655	27.671
5	1927.6	1952.7	1.915	1.784	0.033741	34.594	34.591			27.653	27.651	27.663

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.666	3.267	169.833	40.913	
27.661	3.056	172.297	41.228	

No attenuation values
D-Theta (rows 1 to 2) = (ptemp + (4.7418 * pden)) - 132.9236

VENTS 1993 - LEG II Station S93B13 Cast 19 02 AUG 1993
LAT: 46 33.6N LONG: 129 33.3W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
15	2211.5	2241.9	1.809	1.655	0.042350	34.618	34.614			27.681	27.677	27.692
6	2157.5	2186.8	1.808	1.659	0.033358	34.615	34.612			27.678	27.676	27.690
16	1831.7	1855.1	1.931	1.808	0.014681	34.585	34.577			27.645	27.638	27.654
8	2138.8	2167.8	1.814	1.666	0.038210	34.615	34.608			27.678	27.672	27.689
1	1652.7	1673.1	2.139	2.028	0.001334	34.545	34.540			27.596	27.592	27.605
20	2353.2	2386.3	1.836	1.669	0.051340	34.618	34.612			27.678	27.674	27.691
21	2148.2	2177.3	1.845	1.696	0.053529	34.614	34.610			27.675	27.671	27.686
18	2109.8	2138.3	1.863	1.717	0.055639	34.611	34.606			27.671	27.667	27.682
17	2113.1	2141.6	1.865	1.719	0.049120	34.609	34.605			27.669	27.666	27.680

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.689	2.898	179.094	38.701	
27.687	2.935	174.897	38.821	
27.648	3.110	170.093	30.366	
27.684	3.110	178.219	39.101	
27.601	3.150	165.810	42.277	
27.686	2.900	174.527	40.565	
27.682	2.902	175.019	40.650	
27.678	3.194	177.412	40.724	19.65
27.677	3.021	171.961	40.795	24.22

No attenuation data
D-Theta (rows 1 to 9) = (ptemp + (4.7418 * pden)) - 132.9236

VENTS 1993 - LEG III Station T93C01 Cast 01 15 AUG 1993
LAT: 44 49.0N LONG: 130 13.0W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
8	2123.7	2152.2	1.841	1.694	0.009270	34.614	34.613	0.361	0.0005	27.675	27.674	27.686
27	2176.7	2206.2	1.834	1.683	0.016375	34.618	34.562	0.362	0.0015	27.679	27.634	27.690
6	1705.3	1726.5	2.116	2.001	-0.005851	34.564	34.605	0.361	0.0005	27.613	27.646	27.622
14	2068.6	2096.2	1.885	1.742	0.025651	34.610	34.605	0.368	0.0075	27.668	27.664	27.679
2	2070.1	2097.6	1.887	1.744	0.030872	34.611	34.604	0.372	0.0115	27.669	27.664	27.680
19	2053.8	2081.0	1.894	1.752	0.031871	34.610	34.605	0.376	0.0155	27.668	27.664	27.678
18	2061.6	2089.0	1.892	1.750	0.030250	34.610	34.609	0.375	0.0145	27.668	27.667	27.679
5	2102.2	2130.3	1.902	1.756	0.046391	34.613	34.609	0.378	0.0175	27.669	27.666	27.681
17	2087.9	2115.7	1.905	1.760	0.053044	34.614	34.609	0.376	0.0155	27.670	27.666	27.681
27	2083.4	2111.2	1.904	1.760	0.056760	34.615		0.374	0.0135	27.671		27.682

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.685				
27.646				
27.655	2.914	174.240	41.559	
27.675	2.825	171.903	39.596	
27.675				
27.675	2.874	175.248	41.293	
27.678				
27.678	2.883	175.336	41.504	
27.677	2.878	176.290	41.412	

D-Theta (rows 1 to 2) = (ptemp + (4.569529 * pden)) - 128.1972
D-Theta (rows 3 to 10) = (ptemp + (5.095717 * pden)) - 142.7621
Atten-Anom = Atten - 0.3605
Atten-Anom = Atten - 0.3605

VENTS 1993 - LEG III Station S93C01 Cast 02 15 AUG 1993
LAT: 44 59.2N LONG: 130 12.5W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
23	2243.3	2273.9	1.887	1.729	0.050178	34.618	34.611	0.370	0.009	27.675	27.669	27.687
27	2189.0	2218.6	1.886	1.733	0.044350	34.616	34.609	0.371	0.010	27.673	27.668	27.685
6	2173.2	2202.5	1.889	1.737	0.042928	34.615	34.608	0.371	0.010	27.672	27.666	27.684
14	2148.4	2177.2	1.891	1.741	0.041385	34.614	34.607	0.372	0.011	27.671	27.665	27.682
2	2122.9	2151.3	1.892	1.745	0.043347	34.614	34.609	0.372	0.011	27.671	27.667	27.682
19	2097.4	2125.3	1.892	1.747	0.040620	34.613	34.606	0.372	0.011	27.670	27.665	27.681
18	2071.8	2099.3	1.891	1.748	0.037283	34.612	34.607	0.372	0.011	27.669	27.665	27.680
10	2045.0	2071.9	1.890	1.749	0.038096	34.612	34.605	0.372	0.011	27.669	27.664	27.680
17	1992.2	2018.2	1.900	1.764	0.026462	34.607	34.600	0.370	0.009	27.665	27.659	27.675
27	1893.2	1917.5	1.948	1.819	0.011412	34.595	34.589	0.361	0.000	27.651	27.647	27.661
9	1747.4	1769.2	2.084	1.966	0.018086	34.575	34.568	0.361	0.000	27.625	27.619	27.634
22	1495.1	1512.8	2.361	2.260	0.004009	34.529	34.523	0.363	0.002	27.565	27.560	27.573

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.681				34.17
27.679				31.75
27.678	2.969	175.032	41.470	26.22
27.677	2.982	176.331	41.296	28.23
27.678				19.91
27.676	2.882	171.203	40.612	27.05
27.676				26.48
27.675				28.03
27.670	2.917	172.466	41.568	19.50
27.657	3.006	172.725	42.257	13.16
27.629	3.011	170.195	41.845	
27.569	3.145	160.009	47.294	

D-Theta (rows 1 to 12) = (ptemp + (5.095717 * pden)) - 142.7621
Atten-Anom = Atten - 0.361

VENTS 1993 - LEG III Station S93C01 Cast 03 16 AUG 1993
LAT: 44 58.3N LONG: 130 12.7W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
23	2236.4	2266.9	1.888	1.731	0.047072	34.617	34.610	0.370	0.009	27.674	27.668	27.686
27	2193.7	2223.3	1.894	1.740	0.048930	34.616	34.609	0.374	0.013	27.672	27.667	27.684
6	2169.3	2198.5	1.892	1.740	0.049035	34.616	34.608	0.375	0.014	27.673	27.666	27.684
15	2143.4	2172.1	1.890	1.741	0.049219	34.616	34.608	0.374	0.013	27.673	27.666	27.684
2	2118.5	2146.8	1.890	1.743	0.046460	34.615	34.608	0.375	0.014	27.672	27.666	27.683
5	2093.8	2121.6	1.888	1.743	0.042483	34.614	34.609	0.372	0.011	27.671	27.667	27.682
16	2067.7	2095.1	1.888	1.745	0.039774	34.613	34.606	0.371	0.010	27.670	27.665	27.681
10	2044.0	2070.9	1.891	1.750	0.038752	34.612	34.605	0.371	0.010	27.669	27.664	27.680
17	1993.7	2019.7	1.897	1.761	0.028661	34.608	34.601	0.371	0.010	27.666	27.660	27.676
27	1894.9	1919.2	1.930	1.801	0.012769	34.598	34.592	0.361	0.000	27.655	27.650	27.665
9	1743.0	1764.7	2.069	1.951	0.021670	34.578	34.572	0.361	0.000	27.628	27.623	27.637
22	1494.5	1512.2	2.358	2.257	0.002313	34.529	34.523	0.361	0.000	27.565	27.561	27.574

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.680	2.919	170.816	39.621	30.09
27.678	2.780	167.412	41.602	44.08
27.678				35.19
27.678	2.935	176.087	41.537	35.59
27.677	2.929	173.348	40.555	32.52
27.678	2.890	169.933	38.039	28.32
27.676	3.070	174.047	40.088	32.74
27.675	2.956	175.043	41.497	24.16
27.671	2.625	161.006	34.835	21.14
27.660	2.643	166.506	32.853	17.96
27.632	2.665	137.343	32.990	
27.569				

D-Theta (rows 1 to 12) = (ptemp + (5.095717 * pden)) - 142.7621
Atten-Anom = Atten - 0.361

VENTS 1993 - LEG III Station T93C03 Cast 05 17 AUG 1993
LAT: 46 15.4N LONG: 129 43.1W

Niskin #	Depth (m)	Depth ~~(db)~~ (m)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)
18	1965.300	~~1931.~~000	1.980000	1.845	0.067459	34.602000	34.598	0.375000	0.013769	27.654	27.651
2	2097.969	2070.562	1.935980	1.795	0.041349	34.603634	34.600	0.382784	0.021737	27.659	27.657
14	2200.320	2171.058	1.866990	1.718	0.011877	34.609005	34.606	0.361563	0.000796	27.669	27.666
19	1958.435	1933.484	1.970340	1.840	0.025433	34.591522	34.589	0.364771	0.003557	27.647	27.644
21	2266.679	2236.187	1.864690	1.710	0.025259	34.613972	34.612	0.361792	0.001054	27.673	27.671
13	2266.701	2236.208	1.875929	1.721	0.041974	34.616535	34.614	0.363014	0.002235	27.674	27.672
22	2175.186	2146.383	1.840188	1.694	-0.003572	34.609093	34.615	0.359568	-0.001110	27.671	27.675
9	1522.954	1505.093	2.339459	2.239	0.007586	34.519028	34.515	0.362632	-0.000044	27.559	27.556

Sigma-Theta (CTD)	Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.665	27.662	2.944	182.121	42.156	37.09
27.670	27.667	2.794	180.319	42.226	14.87
27.680	27.677	2.742	175.316	41.854	11.78
27.657	27.655	2.869	175.339	42.168	16.28
27.685	27.683	2.643	164.080	37.527	12.10
27.686	27.684	2.689	175.419	36.930	23.71
27.682	27.686	2.713	172.584	39.361	9.44
27.567	27.564	3.130	148.335	40.957	11.10

Atten-Anom = Atten - (0.35447 + 0.003665*Theta)
D-Theta (rows 1 to 8) = (ptemp + (4.643 * pden)) - 130.2257

VENTS 1993 - LEG III Station T93C04 Cast 06 18 AUG 1993
LAT: 46 28.6N LONG: 129 31.1W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
17	2201.1	2231.2	1.864	1.710	0.040364	34.619	34.614	0.365	0.005	27.677	27.673	27.689
5	2195.8	2225.9	1.873	1.719	0.030355	34.615	34.612	0.362	0.002	27.673	27.670	27.685
16	2305.7	2337.8	1.875	1.712	0.041318	34.619	34.614	0.361	0.001	27.676	27.672	27.689
10	2104.0	2132.3	1.894	1.748	0.008695	34.605	34.600	0.361	0.001	27.664	27.660	27.675
23	2206.2	2236.4	1.850	1.696	0.007673	34.613	34.606	0.361	0.001	27.673	27.668	27.685
6	1516.3	1534.6	2.343	2.240	0.012192	34.517		0.362	0.002	27.557		27.565

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.685	2.960	178.989	41.669	38.93
27.682	2.946	179.884	41.986	18.08
27.685	2.906	181.525	41.732	14.95
27.671	2.702	176.338	43.047	11.58
27.680	2.904	179.310	41.914	14.35

Atten-Anom = Atten - 0.36
D-Theta (rows 1 to 5) = (ptemp + (4.9411 * pden)) - 138.4832
D-Theta (rows 6 to 6) = (ptemp + (4.388 * pden)) - 123.1851

VENTS 1993 - LEG III Station S93C03 Cast 08 19 AUG 1993
LAT: 46 16.0N LONG: 129 37.0W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
5	2133.6	2162.4	1.920	1.771	0.034802	34.608	34.601	0.365	0.0045	27.664	27.658	27.675
2	1809.8	1832.8	2.015	1.892	0.010263	34.581	34.575	0.360	-0.0005	27.635	27.630	27.644

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.670	3.322	178.197	42.057	
27.640	2.587	175.236	43.055	

D-Theta (rows 1 to 2) = (ptemp + (4.705449 * pden)) - 131.9616
Atten-Anom = Atten - 0.3605

VENTS 1993 - LEG III Station T93C05 Cast 09 19 AUG 1993
LAT: 46 00.0N LONG: 129 40.5W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
14	1914.7	1939.5	1.970	1.839	0.041288	34.599	34.594	0.372	0.009462	27.653	27.649	27.663
18	1313.0	1328.1	2.607	2.518	0.028545	34.477	34.476	0.365	-0.000123	27.503	27.502	27.510

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
27.659	3.158	176.189	41.583	22.95
27.510	3.349	158.114	45.072	

Atten-Anom = Atten - (0.35553 + 0.003811*Theta)
D-Theta (rows 1 to 2) = (ptemp + (4.5247 * pden)) - 126.9646

VENTS 1993 - LEG III Station S93C04 Cast 10 20 AUG 1993
LAT: 43 30.0N LONG: 129 58.0W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)	Sigma-Theta (Bottle)
13	2997.9	3043.8	1.621	1.397		34.658	34.652	0.367		27.727	27.722	27.743	27.738
4	2496.7	2532.0	1.779	1.600		34.635	34.628	0.368		27.696	27.691	27.710	27.704
6	2195.1	2224.5	1.858	1.705		34.622	34.618	0.369		27.680	27.677	27.692	27.689
16	1994.2	2019.9	1.924	1.787		34.610	34.604	0.369		27.665	27.661	27.676	27.671
23	1796.1	1818.5	2.105	1.982		34.588	34.582	0.370		27.633	27.629	27.643	27.639
27	1496.2	1513.7	2.524	2.421		34.540	34.535	0.371		27.560	27.556	27.569	27.565
15	996.9	1007.4	3.558	3.485		34.415	34.409	0.374		27.365	27.360	27.372	27.367
27	796.7	804.7	4.024	3.964		34.308	34.301	0.374		27.233	27.228	27.239	27.234
1	595.2	600.9	4.590	4.544		34.181	34.175	0.373		27.072	27.067	27.077	27.073
17	395.9	399.5	5.595	5.562		34.028	34.024	0.376		26.835	26.831	26.839	26.835
10	195.9	197.5	7.023	7.005		33.821	33.818	0.381		26.487	26.485	26.490	26.488
19	95.1	95.9	8.902	8.892		32.868	32.864	0.390		25.465	25.461	25.466	25.463

PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)	TSM (ug/l)
			10.93
			13.19
			14.49

VENTS 1993 - LEG I Station T93D01 Cast 01 10 OCT 1993
LAT: 46 16.9N LONG: 129 40.2W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)	Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)
22	2149.2	2178.3	1.942	1.791	0.044531	34.609		0.367	0.0055	27.663		27.675	27.674			
23	2124.5	2153.1	1.951	1.802	0.055358	34.610	34.609	0.369	0.0075	27.663	27.662	27.675	27.674			
4	2040.0	2067.1	1.966	1.824	0.069645	34.610	34.611	0.387	0.0255	27.662	27.663	27.673	27.676			
6	2101.1	2129.4	1.970	1.823	0.068764	34.610		0.378	0.0165	27.662		27.673	27.671			
46	2032.2	2059.1	1.970	1.829	0.072626	34.610	34.614	0.390	0.0285	27.662	27.665	27.673				
24	1946.8	1972.2	1.962	1.829	0.046427	34.603	34.608	0.367	0.0055	27.657	27.661	27.667				
12	2098.3	2126.5	1.958	1.812	0.057601	34.609		0.374	0.0125	27.662		27.673	27.676			
27	2099.9	2128.1	1.960	1.813	0.055098	34.608	34.613	0.366	0.0045	27.661	27.665	27.672	27.673			
15	2113.4	2141.8	1.948	1.800	0.046697	34.608	34.608	0.365	0.0035	27.662	27.662	27.673	27.662			
21	2011.1	2037.7	1.982	1.843	0.033480	34.597	34.598	0.361	-0.0005	27.650	27.651	27.661				

D-Theta (rows 1 to 10) = (ptemp + (4.602133 * pden)) - 129.1094
Atten-Anom = Atten - 0.3615

VENTS 1993 - LEG I Station T93D02 Cast 02 11 OCT 1993
LAT: 46 11.2N LONG: 129 46.5W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)	Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)
22	1986.8	2012.9	1.989	1.852	0.082606	34.609	34.612	0.386	0.0245	27.659	27.662	27.670	27.672			
23	2042.3	2069.5	1.963	1.821	0.059173	34.608		0.371	0.0095	27.661		27.672				
6	2054.5	2081.9	1.957	1.814	0.054626	34.608	34.603	0.365	0.0035	27.661	27.657	27.672	27.668			
16	2080.6	2108.4	1.972	1.827	0.062803	34.608	34.603	0.375	0.0135	27.660	27.656	27.671	27.667			
27	2146.1	2175.2	1.947	1.797	0.042973	34.608	34.603	0.365	0.0035	27.662	27.658	27.673	27.669			
15	1979.3	2005.3	1.970	1.834	0.067203	34.608	34.605	0.419	0.0575	27.660	27.658	27.671	27.668			
24	2028.6	2055.4	1.974	1.833	0.070639	34.609	34.604	0.432	0.0705	27.661	27.656	27.671	27.667			
12	1949.9	1975.4	1.970	1.836	0.068832	34.608	34.604	0.423	0.0615	27.660	27.657	27.670	27.667			
4	2217.9	2248.2	1.940	1.783	0.052392	34.613	34.605	0.417	0.0555	27.666	27.660	27.678	27.672			

D-Theta (rows 1 to 9) = (ptemp + (4.509957 * pden)) - 126.5598
Atten-Anom = Atten - 0.3615

VENTS 1993 - LEG I Station T93D03 Cast 03 12 OCT 1993
LAT: 46 03.0N LONG: 129 51.0W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)	Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)
12	2001.6	2028.0	1.970	1.832	0.072163	34.609	34.604	0.378	0.017	27.661	27.657	27.672	27.668			
23	2033.0	2060.0	1.982	1.841	0.081744	34.610	34.607	0.380	0.019	27.661	27.658	27.672	27.669			
6	2035.0	2062.0	1.986	1.845	0.084152	34.610	34.605	0.382	0.021	27.660	27.656	27.671	27.667			
8	2018.1	2044.7	1.993	1.853	0.093239	34.611	34.608	0.386	0.025	27.661	27.658	27.672	27.669			
27	2068.0	2095.6	1.985	1.841	0.081701	34.610	34.605	0.380	0.019	27.660	27.656	27.672	27.668			
15	2096.4	2124.5	1.987	1.840	0.081382	34.610	34.605	0.380	0.019	27.660	27.656	27.672	27.668			
13	2044.0	2071.1	1.976	1.834	0.077367	34.610	34.610	0.377	0.016	27.661	27.661	27.672	27.672			
16	1972.3	1998.2	1.970	1.834	0.062506	34.606	34.608	0.372	0.011	27.658	27.660	27.669	27.671			
22	1902.9	1927.5	1.975	1.845	0.035645	34.597	34.593	0.361	0.000	27.651	27.648	27.661	27.658			

D-Theta (rows 1 to 9) = (ptemp + (4.681761 * pden)) - 131.3113
Atten-Anom = Atten - 0.361

VENTS 1993 - LEG I Station T93D04 Cast 04 14 OCT 1993
LAT: 46 08.6N LONG: 129 44.0W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
12	2054.0	2081.3	1.964	1.821	0.056615	34.606		0.370	0.009	27.659		27.670
24	2014.7	2041.4	1.991	1.851	0.090734	34.610	34.607	0.386	0.025	27.660	27.658	27.671
6	1865.4	1889.4	2.012	1.885	0.030378	34.588	34.589	0.362	0.001	27.641	27.641	27.651
27	1911.3	1936.0	1.975	1.844	0.037965	34.597	34.598	0.366	0.005	27.651	27.652	27.661
13	1940.1	1965.4	1.976	1.843	0.055610	34.602	34.603	0.380	0.019	27.655	27.656	27.665
15	2038.2	2065.3	1.981	1.839	0.075682	34.608	34.609	0.380	0.019	27.659	27.660	27.670
8	2091.9	2119.9	1.964	1.818	0.058217	34.607	34.609	0.370	0.009	27.660	27.661	27.671
16	2023.2	2049.9	1.961	1.821	0.048991	34.604	34.604	0.368	0.007	27.658	27.658	27.668

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)
27.668			
27.651			
27.662			
27.666			
27.671			
27.673			
27.668			

D-Theta (rows 1 to 8) = (ptemp + (4.637029 * pden)) - 130.0712
Atten-Anom = Atten - 0.361

VENTS 1993 - LEG I Station T93D05 Cast 05 16 OCT 1993
LAT: 46 34.0N LONG: 129 32.3W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)	Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)
12	2339.4	2372.2	1.839	1.673	0.042511	34.626	34.623	0.362	0.002	27.685	27.682	27.697	27.695			
24	2290.6	2322.5	1.858	1.696	0.053629	34.625	34.633	0.362	0.002	27.682	27.689	27.695	27.701			
8	2229.5	2260.2	1.861	1.705	0.059039	34.625	34.621	0.364	0.004	27.682	27.679	27.694	27.691			
15	2098.4	2126.6	1.906	1.760	0.045866	34.612	34.614	0.379	0.019	27.668	27.670	27.679	27.681			
6	2072.9	2100.7	1.936	1.792	0.058659	34.610	34.606	0.395	0.035	27.664	27.661	27.675	27.672			
27	2074.4	2102.2	1.946	1.802	0.061102	34.609	34.605	0.408	0.048	27.663	27.660	27.674	27.671			
13	2058.2	2085.6	1.951	1.808	0.065149	34.609	34.606	0.452	0.092	27.662	27.660	27.673	27.671			
16	2156.3	2185.7	1.942	1.791	0.061556	34.611	34.612	0.393	0.033	27.665	27.665	27.676	27.677			
22	2216.7	2247.2	1.948	1.791	0.061922	34.611	34.611	0.390	0.030	27.664	27.664	27.676	27.676			
23	1991.6	2017.9	1.954	1.817	0.059366	34.606	34.606	0.367	0.007	27.660	27.660	27.670	27.670			

D-Theta (rows 1 to 10) = (ptemp + (4.706618 * pden)) - 131.9911
Atten-Anom = Atten - 0.36

VENTS 1993 - LEG I Station T93D06 Cast 07 18 OCT 1993
LAT: 46 11.9N LONG: 129 46.0W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)	Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)
13	2031.2	2058.1	1.968	1.827	0.053064	34.603	34.605	0.369	0.008	27.656	27.658	27.667	27.669			
15	1913.2	1938.0	2.013	1.882	0.062401	34.596	34.601	0.373	0.012	27.647	27.651	27.657	27.661			
16	1907.7	1932.4	2.000	1.869	0.045769	34.595	34.600	0.366	0.005	27.647	27.651	27.657	27.661			

D-Theta (rows 1 to 2) = (ptemp + (4.591961 * pden)) - 128.8205
D-Theta (rows 3 to 3) = (ptemp + (4.591961 * pden)) - 128.8255
Atten-Anom = Atten - 0.361

VENTS 1993 - LEG I Station T93D07 Cast 08 20 OCT 1993
LAT: 46 10.3N LONG: 129 48.1W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)	Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)
22	2030.0	2056.9	1.949	1.809	0.049118	34.605		0.366	0.005	27.659		27.670				
12	2070.6	2098.3	1.947	1.803	0.049347	34.606		0.364	0.003	27.660		27.671				
27	2032.2	2059.1	1.959	1.818	0.059059	34.606		0.370	0.009	27.659		27.670				
6	2042.9	2070.0	1.943	1.802	0.044615	34.605		0.364	0.003	27.660		27.671				

D-Theta (rows 1 to 4) = (ptemp + (4.670361 * pden)) - 130.9891
Atten-Anom = Atten - 0.361

VENTS 1993 - LEG I Station T93D08 Cast 09 20 OCT 1993
LAT: 46 09.5N LONG: 129 48.7W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
22	2025.4	2052.2	1.955	1.815	0.050765	34.604	34.607	0.366	0.005	27.658	27.660	27.669
12	2051.0	2078.3	1.954	1.812	0.056163	34.606	34.610	0.365	0.004	27.660	27.663	27.671
27	2050.3	2077.5	1.949	1.807	0.049314	34.605	34.610	0.366	0.005	27.659	27.663	27.670
6	2039.0	2066.0	1.957	1.816	0.055007	34.605	34.604	0.368	0.007	27.659	27.658	27.670

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)
27.671			
27.674			
27.674			
27.669			

D-Theta (rows 1 to 4) = (ptemp + (4.648739 * pden)) - 130.3895
Atten-Anom = Atten - 0.361

VENTS 1993 - LEG I Station T93D09 Cast 10 20 OCT 1993
LAT: 46 09.9N LONG: 129 48.6W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
22	2079.4	2107.2	1.959	1.814	0.059195	34.606	34.603	0.366	0.005	27.659	27.657	27.671
12	2046.8	2074.0	1.955	1.813	0.047355	34.603	34.603	0.365	0.004	27.657	27.657	27.668
27	2062.0	2089.4	1.949	1.806	0.053819	34.606	34.604	0.365	0.004	27.660	27.658	27.671
6	2025.8	2052.6	1.964	1.824	0.057941	34.604	34.601	0.371	0.010	27.657	27.655	27.668
15	2053.6	2080.9	1.966	1.823	0.057668	34.604	34.604	0.370	0.009	27.657	27.657	27.668

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)
27.668			
27.668			
27.670			
27.666			
27.668			

D-Theta (rows 1 to 5) = (ptemp + (4.62435 * pden)) - 129.7132
Atten-Anom = Atten - 0.361

VENTS 1993 - LEG I Station T93D10 Cast 11 21 OCT 1993
LAT: 46 06.3N LONG: 129 50.1W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)	Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)
6	2026.1	2053	1.96	1.820	0.057061	34.606		0.37	0.0085	27.659		27.670				

D-Theta (rows 1 to 1) = (ptemp + (4.610753 * pden)) - 129.3427
Atten-Anom = Atten - 0.3615

VENTS 1993 - LEG I Station S93D02 Cast 16 23 OCT 1993
LAT: 46 09.3N LONG: 129 48.4W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)
22	1974.2	2000.1	1.982	1.846	0.071108	34.603	34.604	0.375	0.0135	27.655	27.656	27.666
12	1940.4	1965.7	1.994	1.861	0.080478	34.603	34.603	0.377	0.0155	27.654	27.654	27.665
16	1927.1	1952.2	2.015	1.882	0.068062	34.596	34.599	0.371	0.0095	27.647	27.649	27.657
8	1899.3	1923.9	2.035	1.904	0.070806	34.593	34.599	0.370	0.0085	27.643	27.648	27.653
23	1903.9	1928.5	2.017	1.886	0.070566	34.596	34.601	0.370	0.0085	27.647	27.651	27.657

Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)
27.666			
27.665			
27.660			
27.658			
27.661			

D-Theta (rows 1 to 5) = (ptemp + (4.690306 * pden)) - 131.5353
Atten-Anom = Atten - 0.3615

VENTS 1993 - LEG I Station T93D14 Cast 15 23 OCT 1993
LAT: 46 09.4N LONG: 129 48.3W

Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Potential Temp.	Temp. Anom	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	Sigma-t (Bottle)	Sigma-Theta (CTD)	Sigma-Theta (Bottle)	PO4-UNF (umol/L)	SiO4-UNF (umol/L)	NO3-UNF (umol/L)
24	1874.0	1898.1	2.031	1.903	0.072541	34.594	34.598	0.376	0.0145	27.644	27.647	27.654	27.657			
13	1962.4	1988.1	1.971	1.836	0.052680	34.600	34.603	0.370	0.0085	27.654	27.656	27.664	27.666			
8	1914.2	1939.0	1.985	1.854	0.041540	34.594	34.593	0.365	0.0035	27.648	27.647	27.658	27.657			
23	1944.2	1969.6	1.985	1.851	0.054952	34.598	34.599	0.372	0.0105	27.651	27.652	27.661	27.662			

D-Theta (rows 1 to 4) = (ptemp + (4.690184 * pden)) - 131.5328
Atten-Anom = Atten - 0.3615

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