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**THE VENTS 1989 CLEFT SEGMENT PLUME MONITORING EXPERIMENT:
PHYSICAL AND CHEMICAL DATA, NOAA SHIP *DISCOVERER*,
AUGUST 1989**

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The VENTS 1989 Cleft Segment Plume Monitoring Experiment: Physical and Chemical Data, NOAA Ship *Discoverer*, August 1989

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Abstract. This report summarizes salinity, temperature, nutrient, and total suspended matter data collected during the NOAA VENTS cruise in August 1989. These data were collected from July 29 to August 24, 1989 over the Juan de Fuca Ridge covering an area from 44°39'N to 48°02'N and 128°12'W to 132°46'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 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, 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, a chemical oceanography cruise was conducted in August 1989 aboard the NOAA Ship *Discoverer* with scientists from NOAA, the University of Washington, the Lamont-Doherty Geological Observatory, and the Florida Institute of Technology. This cruise concentrated on physical oceanography and geochemical studies of the neutrally buoyant hydrothermal plumes over the Cleft segment (Fig. 1) in order to quantitatively assess the impact of hydrothermal emissions on the seawater chemistry of the northeast Pacific Ocean. This report includes the complete set of hydrographic, nutrient, 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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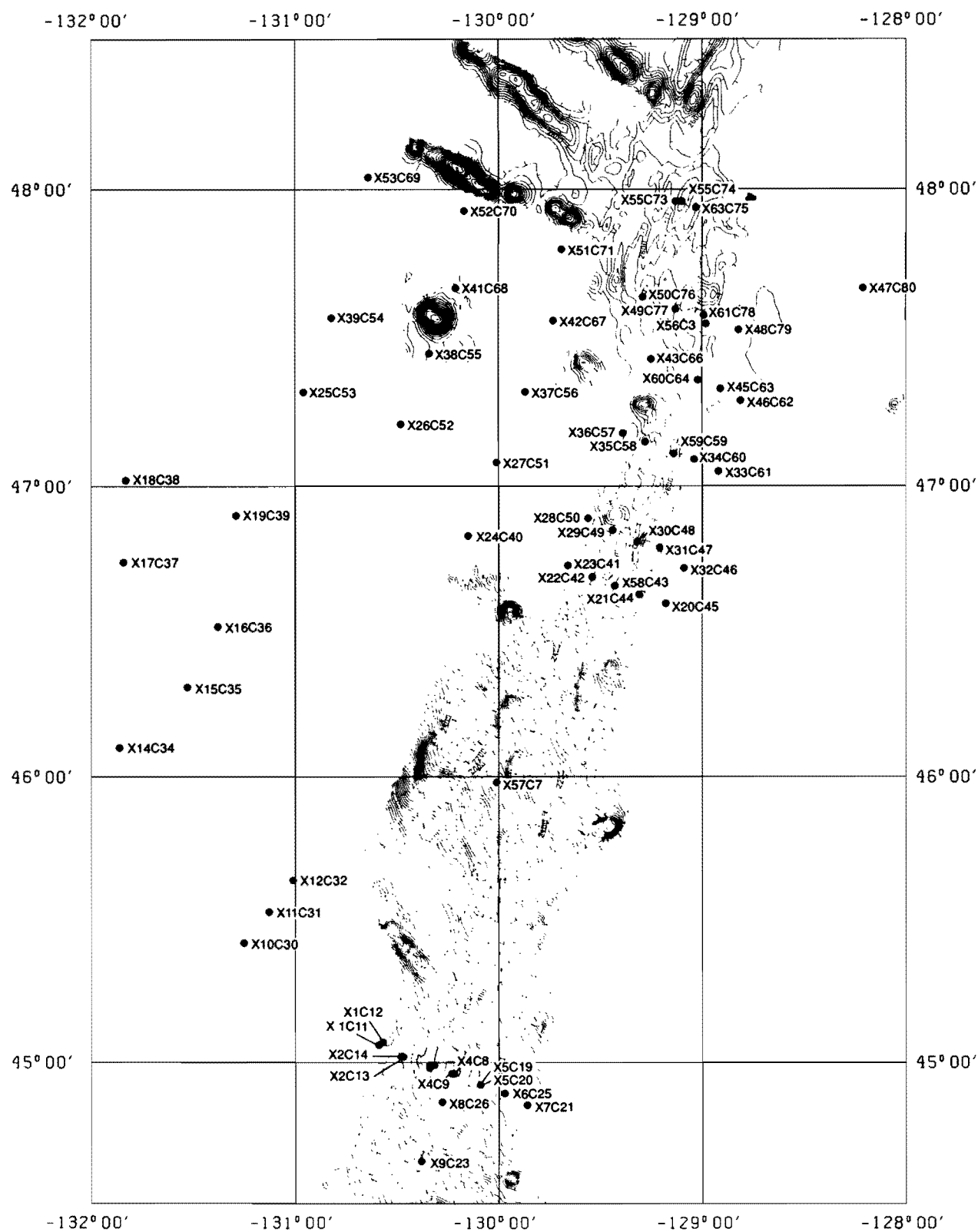


Fig. 1. Vertical casts occupied during the August 1989 VENTS cruise.

2.0 SAMPLING METHODS

2.1 Sample and Data Collection

2.1.1 Seawater Samples

Seawater samples were collected in standard 30-liter NiskinTM bottles fixed to a 12-position General OceanicsTM sampling rosette. The NiskinTM bottles were internally coated with Teflon and modified with Teflon stopcocks. The sampling rosette was also equipped with a CTD-transmissometer, altimeter, and pinger locator. It was lowered into the water using 0.322" diameter electromechanical 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 NiskinTM 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 NiskinTM bottle in 250 ml citrate bottles.

Nutrient samples were collected from the NiskinTM bottle in HDPE 60 ml bottles prepared using 10% HCL and rinsed with deionized water. Unfiltered nutrient samples were taken directly from the NiskinTM bottle. Filtered nutrient samples were taken downline of the 0.4 μ m 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 by 12 psi nitrogen pressure filtration of the seawater in the NiskinTM bottle through 37 mm diameter, 0.4 μ m 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 NiskinTM 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 NiskinTM bottle at a 45° 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. All filters were loaded and unloaded from the teflon holders inside a laminar flow hood. After filtration the particulate samples were rinsed with pH 8.0 deionized water then 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 OceanicsTM sampling rosette. CTD information at the sampling depths was 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 AutosolTM. Samples were equilibrated to room temperature, 18°C, before analysis. Final salinity was determined by averaging three measurements from each citrate bottle.

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 $\pm 0.5 \mu\text{mol/l}$. Alpha InorganicsTM reagent grade Na_2SiF_6 was the standard used for this analysis. The phosphate analysis had an average precision of replicate analyses of $\pm 20.0 \text{ nmol/l}$. FisherTM 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 26TM Automatic Electrobalance which has an accuracy of $\pm 0.005\%$ 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 salinity 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 ambient water of the same potential density using the method of Lupton *et al.* (1985) with the equation

$$\Delta\theta = \theta - k\sigma_{\theta} - b$$

where θ and σ_{θ} are the potential temperature and potential density, respectively, and k and b are the slope and intercept, respectively, of the trend of θ as a function of σ_{θ} in 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

The data presented in Appendix A were collected from July 29 to August 24, 1989 over the Juan de Fuca Ridge covering an area from 44°39'N to 48°02'N and 128°12'W to 132°46'W. LORAN-C 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 "tow-yos," were also conducted. Tow-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, and a listing of each NiskinTM bottle trip position and date of occupation is given in Table 2.

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 NiskinTM bottle number and in 21 columns as follows:

- Column 1: NiskinTM 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
- Column 8: Salinity-Bottle
- Column 9: Attenuation (1/m)
- Column 10: Attenuation anomaly
- Column 11: In situ density (CTD salinity)

TABLE 1
VENTS 1989 – LEG I
(AUGUST 1989)
STATION LOCATIONS

STATION	LATITUDE	LONGITUDE	MEASUREMENTS
X56C3	47° 33.04'	128° 58.67'	NUT 1,2,3/TSM
X57C7	45° 58.88'	130° 00.75'	NUT 1,2,3/TSM
X4C8	44° 57.70'	130° 13.40'	NUT 1,2,3/TSM
X4C9	44° 57.50'	130° 13.50'	NUT 1,2,3
X1C11	45° 03.70'	130° 35.30'	NUT 1,2,3
X1C12	45° 04.40'	130° 34.40'	NUT 1,2,3/TSM
X2C13	45° 00.90'	130° 28.45'	NUT 1,2,3/TSM
X2C14	45° 01.23'	130° 28.59'	NUT 1,2,3/TSM
X3C15	44° 59.15'	130° 19.36'	NUT 1,2,3
X3C17	44° 58.65'	130° 20.34'	NUT 1,2,3
X3C18	44° 59.25'	130° 20.42'	NUT 1,2,3/TSM
X5C19	44° 55.21'	130° 05.20'	NUT 1,2,3
X5C20	44° 55.45'	130° 05.35'	NUT 1,2,3/TSM
X7C21	44° 51.23'	129° 51.54'	NUT 1,2,3/TSM
X9C23	44° 39.15'	130° 22.70'	NUT 1,2,3/TSM
X9C24	44° 39.10'	130° 22.55'	NUT 1,2,3/TSM
X6C25	44° 53.15'	129° 58.25'	NUT 1,2,3/TSM
X8C26	44° 51.65'	130° 16.70'	NUT 1,2,3
X10C30	45° 25.25'	131° 15.25'	NUT 1,2
X11C31	45° 31.95'	131° 07.99'	NUT 1,2,3
X12C32	45° 38.20'	131° 00.85'	NUT 1,2
X13C33	45° 53.80'	132° 45.70'	NUT 1,2
X14C34	46° 06.17'	131° 51.87'	NUT 1,2,3
X15C35	46° 18.80'	131° 31.85'	NUT 1,2,3
X16C36	46° 31.08'	131° 23.08'	NUT 1,2,3
X17C37	46° 44.20'	131° 50.25'	NUT 1,2,3
X18C38	47° 01.15'	131° 50.00'	NUT 1,2,3
X19C39	46° 53.67'	131° 17.67'	NUT 1,2,3/TSM
X24C40	46° 50.05'	130° 08.81'	NUT 1,2/TSM
X23C41	46° 43.75'	129° 39.83'	NUT 1,2/TSM
X22C42	46° 41.65'	129° 32.35'	NUT 1,2,3/TSM
X58C43	46° 39.50'	129° 25.50'	NUT 1,2/TSM
X21C44	46° 37.88'	129° 18.31'	NUT 1,2,3/TSM
X20C45	46° 35.81'	129° 10.93'	NUT 1,2,3/TSM
X32C46	46° 43.40'	129° 05.30'	NUT 1,2,3
X31C47	46° 47.23'	129° 12.71'	NUT 1,2/TSM
X30C48	46° 48.83'	129° 19.50'	NUT 1,2,3/TSM
X29C49	46° 51.00'	129° 26.28'	NUT 1,2,3/TSM
X28C50	46° 53.43'	129° 33.63'	NUT 1,2,3/TSM

TABLE 1 (continued)
VENTS 1989 – LEG I
(AUGUST 1989)
STATION LOCATIONS

STATION	LATITUDE	LONGITUDE	MEASUREMENTS
X27C51	47° 04.80'	130° 00.63'	NUT 1,2,3/TSM
X26C52	47° 12.28'	130° 28.90'	NUT 1,2,3/TSM
X25C53	47° 19.46'	130° 57.76'	NUT 1,2,3/TSM
X39C54	47° 34.00'	130° 49.50'	NUT 1,2,3/TSM
X38C55	47° 26.68'	130° 20.69'	NUT 1,2,3/TSM
X37C56	47° 19.43'	129° 51.90'	NUT 1,2,3/TSM
X36C57	47° 10.50'	129° 23.35'	NUT 1,2,3/TSM
X35C58	47° 09.03'	129° 16.68'	NUT 1,2,3/TSM
X59C59	47° 06.86'	129° 08.39'	NUT 1,2,3/TSM
X34C60	47° 05.10'	129° 02.17'	NUT 1,2,3/TSM
X33C61	47° 03.02'	128° 54.94'	NUT 1,2,3/TSM
X46C62	47° 17.50'	128° 48.83'	NUT 1,2,3/TSM
X45C63	47° 19.60'	128° 54.50'	NUT 1,2,3/TSM
X60C64	47° 21.65'	129° 00.95'	NUT 1,2,3/TSM
X43C66	47° 25.79'	129° 15.11'	NUT 1,2,3/TSM
X42C67	47° 33.40'	129° 43.96'	NUT 1,2,3/TSM
X41C68	47° 40.45'	130° 12.68'	NUT 1,2,3/TSM
X53C69	48° 02.15'	130° 38.55'	NUT 1,2,3/TSM
X52C70	47° 55.74'	130° 10.25'	NUT 1,2,3/TSM
X51C71	47° 47.95'	129° 41.28'	NUT 1,2,3/TSM
X55C73	47° 57.50'	129° 06.30'	NUT 1,2,3/TSM
X55C74	47° 57.57'	129° 07.77'	NUT 1,2/TSM
X63C75	47° 56.67'	129° 01.64'	NUT 1,2,3/TSM
X50C76	47° 38.56'	129° 17.46'	NUT 1,2,3/TSM
X49C77	47° 36.02'	129° 07.99'	NUT 1,2,3/TSM
X61C78	47° 34.50'	128° 59.72'	NUT 1,2,3/TSM
X48C79	47° 31.90'	128° 49.40'	NUT 1,2,3/TSM
X47C80	47° 40.31'	128° 12.46'	NUT 1,2,3/TSM

Measurements: CTD at each station
NUT 1 – Phosphate
NUT 2 – Silicate
NUT 3 – Nitrate
TSM – Total Suspended Matter

TABLE 2
VENTS 1989 – LEG I
(AUGUST 1989)
TOW NISKIN™ TRIP LOCATIONS

STATION NAME	DATE OCCUPIED	NISKIN NO.	LATITUDE (N)	LONGITUDE (W)
XT1C01	29-JUL-89	18	129° 17.20'	47° 33.82'
XT1C01	29-JUL-89	19	129° 17.06'	47° 36.56'
XT1C01	29-JUL-89	20	129° 17.43'	47° 37.16'
XT1C01	29-JUL-89	21	129° 17.52'	47° 37.35'
XT1C01	29-JUL-89	22	129° 17.70'	47° 37.74'
XT1C01	29-JUL-89	23	129° 15.51'	47° 42.48'
XT1C01	29-JUL-89	24	129° 13.10'	47° 45.70'
XT1C01	29-JUL-89	25	129° 12.05'	47° 47.57'
XT1C01	29-JUL-89	26	129° 10.74'	47° 49.62'
XT1C01	29-JUL-89	27	129° 10.61'	47° 49.84'
XT1C01	29-JUL-89	16	129° 10.41'	47° 50.15'
XT1C01	29-JUL-89	29	129° 10.37'	47° 50.20'
XT2C02	30-JUL-89	1	129° 06.63'	47° 56.78'
XT2C02	30-JUL-89	2	129° 06.34'	47° 57.59'
XT2C02	30-JUL-89	3	129° 06.34'	47° 57.61'
XT2C02	30-JUL-89	4	129° 06.19'	47° 57.67'
XT2C02	30-JUL-89	5	129° 05.98'	47° 57.83'
XT2C02	30-JUL-89	6	129° 05.97'	47° 57.83'
XT2C02	30-JUL-89	7	129° 03.94'	48° 00.16'
XT2C02	30-JUL-89	8	128° 57.92'	48° 15.02'
XT2C02	30-JUL-89	9	128° 57.71'	48° 15.22'
XT2C02	30-JUL-89	10	128° 57.47'	48° 15.46'
XT3C04	31-JUL-89	11	128° 59.93'	47° 45.03'
XT3C04	31-JUL-89	12	128° 58.79'	47° 41.30'
XT3C04	31-JUL-89	13	128° 58.99'	47° 35.22'
XT3C04	31-JUL-89	14	128° 59.08'	47° 34.28'
XT3C04	31-JUL-89	15	128° 59.07'	47° 34.16'
XT3C04	31-JUL-89	6	128° 58.54'	47° 30.88'
XT3C04	31-JUL-89	17	128° 58.72'	47° 28.90'
XT3C04	31-JUL-89	1	128° 59.02'	47° 27.19'
XT3C04	31-JUL-89	8	129° 03.73'	47° 16.00'
XT3C04	31-JUL-89	31	129° 03.88'	47° 15.87'
XT4C05	01-AUG-89	3	128° 51.31'	47° 43.17'
XT4C05	01-AUG-89	4	128° 59.68'	47° 43.31'
XT4C05	01-AUG-89	5	128° 59.86'	47° 43.31'
XT4C05	01-AUG-89	7	129° 07.01'	47° 43.44'

TABLE 2 (Continued)
VENTS 1989 – LEG I
(AUGUST 1989)
TOW NISKIN™ TRIP LOCATIONS

STATION NAME	DATE OCCUPIED	NISKIN NO.	LATITUDE (N)	LONGITUDE (W)
XT4C05	01-AUG-89	9	129° 08.75'	47° 43.63'
XT4C05	01-AUG-89	10	129° 21.05'	47° 43.29'
XT4C05	01-AUG-89	16	129° 21.65'	47° 43.28'
XT4C05	01-AUG-89	18	129° 22.00'	47° 43.29'
XT4C05	01-AUG-89	19	129° 20.81'	47° 41.54'
XT4C05	01-AUG-89	20	129° 18.79'	47° 40.07'
XT4C05	01-AUG-89	21	129° 18.68'	47° 40.01'
XT4C05	01-AUG-89	30	129° 17.35'	47° 39.14'
XT5C06	03-AUG-89	2	129° 13.13'	46° 59.73'
XT5C06	03-AUG-89	14	129° 13.19'	46° 59.65'
XT5C06	03-AUG-89	13	129° 19.12'	46° 49.96'
XT5C06	03-AUG-89	22	129° 19.27'	46° 49.25'
XT5C06	03-AUG-89	6	129° 19.90'	46° 48.13'
XT5C06	03-AUG-89	1	129° 20.21'	46° 47.35'
XT5C06	03-AUG-89	17	129° 20.38'	46° 47.13'
XT5C06	03-AUG-89	28	129° 23.96'	46° 40.63'
XT5C06	03-AUG-89	26	129° 25.57'	46° 38.63'
XT5C06	03-AUG-89	8	129° 27.41'	46° 36.97'
XT5C06	03-AUG-89	15	129° 28.04'	46° 36.37'
XT5C06	03-AUG-89	23	129° 29.62'	46° 35.31'
XT6C010	05-AUG-89	11	130° 18.19'	44° 48.96'
XT6C010	05-AUG-89	31	130° 17.20'	44° 50.65'
XT6C010	05-AUG-89	1	130° 16.52'	44° 51.95'
XT6C010	05-AUG-89	30	130° 12.82'	44° 59.19'
XT6C010	05-AUG-89	18	130° 12.57'	44° 59.90'
XT6C010	05-AUG-89	23	130° 11.71'	45° 00.43'
XT6C010	09° AUG-89	17	130° 13.66'	45° 05.13'
XT6C010	09° AUG-89	6	130° 13.69'	45° 04.97'
XT6C010	09° AUG-89	27	130° 14.74'	45° 01.94'
XT6C010	09° AUG-89	2	130° 14.44'	44° 59.67'
XT6C010	05-AUG-89	5	130° 12.32'	44° 55.88'
XT6C010	05-AUG-89	26	130° 11.74'	44° 54.26'
XT7C016	08-AUG-89	27	130° 10.86'	44° 58.17'
XT7C016	08-AUG-89	18	130° 12.09'	44° 57.97'
XT7C016	08-AUG-89	22	130° 18.32'	44° 56.65'
XT7C016	08-AUG-89	12	130° 17.56'	44° 53.30'
XT7C016	08-AUG-89	21	130° 16.54'	44° 52.60'

TABLE 2 (Continued)
VENTS 1989 – LEG I
(AUGUST 1989)
TOW NISKIN™ TRIP LOCATIONS

STATION NAME	DATE OCCUPIED	NISKIN NO.	LATITUDE (N)	LONGITUDE (W)
XT7C016	08-AUG-89	17	130° 15.78'	44° 52.21'
XT7C016	08-AUG-89	23	130° 14.66'	44° 51.43'
XT7C016	08-AUG-89	3	130° 14.34'	44° 47.39'
XT7C016	08-AUG-89	1	130° 19.37'	44° 45.92'
XT7C016	08-AUG-89	24	130° 20.09'	44° 45.77'
XT7C016	08-AUG-89	14	130° 20.62'	44° 45.68'
XT7C016	08-AUG-89	19	130° 23.38'	44° 45.03'
XT8C016	08-AUG-89	27	130° 20.97'	44° 43.52'
XT8C016	08-AUG-89	18	130° 22.40'	44° 40.75'
XT8C016	08-AUG-89	22	130° 22.55'	44° 40.48'
XT8C016	08-AUG-89	12	130° 22.68'	44° 39.96'
XT8C016	08-AUG-89	21	130° 22.77'	44° 39.75'
XT8C016	08-AUG-89	17	130° 22.99'	44° 39.28'
XT8C016	08-AUG-89	23	130° 22.97'	44° 39.19'
XT8C016	08-AUG-89	3	130° 23.04'	44° 39.06'
XT8C016	08-AUG-89	1	130° 23.27'	44° 38.66'
XT8C016	08-AUG-89	24	130° 23.36'	44° 38.46'
XT8C016	08-AUG-89	14	130° 23.42'	44° 38.23'
XT8C016	08-AUG-89	19	130° 23.84'	44° 37.29'
XT10C029	13-Aug-89	23	130° 16.80'	44° 51.60'
XT10C029	13-Aug-89	3	130° 16.80'	44° 51.54'
XT10C029	13-Aug-89	13	130° 16.80'	44° 51.54'
XT10C029	13-Aug-89	18	130° 16.80'	44° 51.48'
XT10C029	13-Aug-89	16	130° 16.80'	44° 51.42'
XT10C029	13-Aug-89	2	130° 16.80'	44° 51.42'
XT10C029	13-Aug-89	1	130° 16.80'	44° 51.36'
XT10C029	13-Aug-89	21	130° 17.40'	44° 51.30'
XT10C029	13-Aug-89	12	130° 17.40'	44° 51.30'
XT10C029	13-Aug-89	26	130° 17.40'	44° 51.24'
XT11C072	22-AUG-89	31	129° 13.54'	47° 58.86'
XT11C072	22-AUG-89	24	129° 13.56'	47° 58.85'
XT11C072	22-AUG-89	18	129° 13.58'	47° 58.85'
XT11C072	22-AUG-89	6	129° 13.61'	47° 58.85'
XT11C072	22-AUG-89	20	129° 13.65'	47° 58.85'
XT11C072	22-AUG-89	15	129° 13.67'	47° 58.85'
XT11C072	22-AUG-89	12	129° 13.70'	47° 58.88'
XT11C072	22-AUG-89	9	129° 13.75'	47° 58.99'
XT11C072	22-AUG-89	14	129° 13.81'	47° 59.05'
XT11C072	22-AUG-89	29	129° 13.84'	47° 59.09'

Column 12: In situ density (bottle salinity)
 Column 13: Potential density (CTD salinity)
 Column 14: Potential density (bottle salinity)
 Column 15: Unfiltered PO_4
 Column 16: Filtered PO_4
 Column 17: Unfiltered SiO_4
 Column 18: Filtered SiO_4
 Column 19: Unfiltered NO_3
 Column 20: Filtered NO_3
 Column 21: 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

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APPENDIX A:
Station Data Tables

VENTS 1989 - LEG I
Station XT-1 Cast 1 29 JUL 1989
LAT: 47 32.2N LONG: 129 16.2W

0	1	2	3	4	5	6	7	8	9	10
	Niskin #	Depth (m)	Depth (db)	Temp.	Temp.	Temp. Anom.	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom
1	19	1964	1990	1.927	1.793	0.001026	34.592	34.592	0.385	0.003
2	29	2000	2027	1.903	1.766	0.010120	34.599	34.597	0.385	0.003
3	22	2018	2045	1.900	1.761	0.010994	34.600	34.600	0.385	0.003
4	16	2025	2052	1.888	1.749	0.006727	34.601	34.600	0.385	0.003
5	27	2168	2198	1.834	1.683	0.005665	34.612	34.529	0.383	0.001
6	23	2336	2369	1.788	1.623	0.011656	34.624	34.626	0.384	0.002
7	18	2365	2399	1.793	1.626	0.013124	34.624	34.621	0.385	0.003
8	21	2413	2447	1.784	1.613	0.012072	34.626		0.384	0.002
9	25	2438	2473	1.783	1.609	0.017431	34.628		0.387	0.005
10	24	2442	2477	1.779	1.605	0.014651	34.628	34.629	0.387	0.005
11	26	2443	2478	1.783	1.609	0.017151	34.628	34.615	0.388	0.006
12	20	2726	2767	1.747	1.547	-0.000752	34.634	34.632	0.388	0.006

0	11	Sigma-t (CTD)	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNE (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNE (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNE (uM/L)
1		27.651		27.651		27.661		27.661		2.81				182.44				40.44
2		27.658		27.656		27.669		27.667		2.83				185.69				40.20
3		27.659		27.659		27.670		27.670		2.82				183.28				39.97
4		27.661		27.660		27.671		27.671		2.83				188.63				39.91
5		27.674		27.607		27.685		27.619		2.77				182.34				37.20
6		27.687		27.689		27.699		27.701		2.80				191.89				38.69
7		27.687		27.684		27.699		27.697		2.75				188.21				43.92
8		27.689				27.702												
9		27.691				27.704												
10		27.691		27.692		27.704		27.705		2.78				191.93				37.60
11		27.691		27.680		27.704		27.693		2.77				191.97				38.17
12		27.698		27.697		27.713		27.711		2.72				187.12				38.17

D-Theta = (ptemp + (4.6807 * pden)) - 131.2642
Atten-Anom = Atten - 0.382

VENTS 1989 - LEG I
 Station XT-1 Cast 1 29 JUL 1989
 LAT: 47 32.2N LONG: 129 16.2W

0	20 NO3-FIL (uM/L)	21 TSM (ug/l)
1		18.16
2		
3		14.92
4		20.65
5		
6		15.66
7		17.71
8		
9		
10		
11		19.85
12		17.54

D-Theta = (ptemp + (4.6807 * pden)) - 131.2642
 Atten-Anom = Atten - 0.382

VENTS 1989 - LEG I
 Station XT-2 Cast 2 30 JUL 1989
 LAT: 47 51.9N LONG: 129 08.8W

0	1	2	3	4	5	6	7	8	9	10	11
	Niskin #	Depth (m)	Depth (db)	In situ Temp.	Pottemp	Temp. Anom.	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)
1	3	1974	2000	1.917	1.782	0.024758	34.603	34.604	0.395	0.012	27.660
2	2	1975	2001	1.917	1.782	0.024683	34.603		0.394	0.011	27.660
3	7	1992	2019	1.924	1.787	0.020674	34.601	34.603	0.393	0.010	27.658
4	6	2005	2032	1.924	1.786	0.038719	34.606	34.608	0.402	0.019	27.662
5	5	2006	2032	1.924	1.786	0.038693	34.606	34.607	0.398	0.015	27.662
6	4	2022	2050	1.918	1.779	0.033972	34.606	34.607	0.397	0.014	27.662
7	1	2208	2238	1.831	1.677	0.013283	34.618	34.618	0.387	0.004	27.679
8	10	2303	2335	1.788	1.626	0.006557	34.625	34.626	0.385	0.002	27.688
9	9	2500	2537	1.778	1.599	0.014727	34.632	34.636	0.391	0.008	27.694
10	8	2670	2710	1.796	1.600	0.019645	34.633	34.636	0.395	0.012	27.694

0	12	Sigma-t (Bottle)	13 Sigma-t (CTD)	14 Sigma-Theta	15 Sigma-Theta	16 PO4-UNF (uM/L)	17 PO4-FIL (uM/L)	18 SIO4-UNF (uM/L)	19 SIO4-FIL (uM/L)	20 NO3-UNF (uM/L)	21 NO3-FIL (uM/L)
1	27.661	27.671	27.671	27.671	2.723	178.09	43.13				
2		27.671	27.669	27.670	2.691	179.86	42.92				
3	27.660	27.673	27.673	27.674	2.732	184.49	43.81				
4	27.664	27.673	27.673	27.673	2.700	180.91	43.55				
5	27.663	27.673	27.673	27.674	2.726	182.88	43.65				
6	27.663	27.673	27.673	27.691	2.689	183.07	43.05				
7	27.679	27.691	27.700	27.701	2.676	183.01	42.91				
8	27.689	27.700	27.708	27.711	2.689	187.81	43.03				
9	27.697	27.708	27.708	27.711	2.727	191.39	42.76				
10	27.696										

0	21 TSM (ug/l)
1	39.58
2	32.73
3	23.43
4	27.79
5	
6	27.97
7	19.12
8	23.31
9	24.67
10	27.20

D-Theta = (ptemp + (4.6778 * pden)) - 131.19463
 Atten-Anom = Atten - 0.383

VENTS 1989 - LEG I
 Station X56 Cast 3 31 JUL 1989
 LAT: 47 33.0N LONG: 128 58.7W

0	1	Niskin #	Depth 2 (m)	Depth 3 (db)	4	Insitu Temp.	5	Pottemp	6 Temp. Anom.	7 Salinity (CTD)	8 Salinity (Bottle)	9 Atten. (1/m)	10 Atten. Anom	11 Sigma-t (CTD)
1	29	1500	1519	2.407	2.305	0.042250	34.521	34.521	0.382	0.001	27.555			
2	28	1700	1721	2.165	2.049	0.015561	34.556	34.555	0.382	0.001	27.603			
3	16	1901	1926	1.965	1.835	0.000396	34.588	34.588	0.381	0.000	27.644			
4	27	1999	2026	1.908	1.771	0.000442	34.599	34.601	0.381	0.000	27.658			
5	25	2100	2128	1.858	1.713	0.000765	34.609	34.608	0.382	0.001	27.670			
6	24	2198	2229	1.815	1.662	0.005437	34.619	34.620	0.382	0.001	27.681			
7	22	2299	2331	1.789	1.628	0.009359	34.626	34.626	0.381	0.000	27.688			
8	21	2361	2395	1.783	1.616	0.013178	34.629	34.629	0.382	0.001	27.691			
9	20	2441	2476	1.778	1.604	0.016559	34.632	34.630	0.382	0.001	27.694			
10	19	2499	2535	1.774	1.595	0.014289	34.633	34.634	0.383	0.002	27.695			
11	18	2628	2667	1.768	1.577	0.010136	34.635	34.635	0.386	0.005	27.697			
12	23	2644	2683	1.769	1.576	0.009800	34.635	34.637	0.387	0.006	27.697			

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15 PO4-UNF (uM/L)	16 PO4-FIL (uM/L)	17 SiO4-UNF (uM/L)	18 SiO4-FIL (uM/L)	19 NO3-UNF (uM/L)	20 NO3-FIL (uM/L)
1	27.555	27.563	27.563	27.612	27.611	2.949	168.19	169.20	43.95			
2	27.602	27.612	27.612	27.654	27.654	2.800	174.26	176.25	44.45			
3	27.644	27.654	27.654	27.668	27.670	2.795	178.49	180.48	43.97			
4	27.659	27.668	27.668	27.681	27.680	2.755	181.68	184.71	43.28			
5	27.669	27.681	27.681	27.692	27.693	2.755	182.76	182.87	42.84			
6	27.682	27.692	27.692	27.701	27.701	2.725	183.17	182.87	43.37			
7	27.688	27.701	27.701	27.704	27.704	2.749	182.76	182.87	42.29			
8	27.691	27.704	27.704	27.707	27.706	2.754	182.76	182.87	42.79			
9	27.693	27.707	27.707	27.709	27.710	2.724	182.76	182.87	42.71			
10	27.696	27.709	27.709	27.712	27.712	2.714	182.87	182.87	42.11			
11	27.697	27.712	27.712	27.713	27.713	2.703	182.87	182.87	42.10			
12	27.699	27.712	27.712			2.693	182.68		42.10			

D-Theta = (ptemp + (4.6903 * pden)) - 131.5427
 Atten-Anom = Atten - 0.381

VENTS 1989 - LEG I
 Station X56 Cast 3 31 JUL 1989
 LAT: 47 33.0N LONG: 128 58.7W

0	21 TSM (ug/l)
1	12.74
2	41.44
3	10.33
4	11.63
5	17.64
6	13.77
7	10.61
8	11.96
9	13.32
10	13.88
11	17.07
12	15.58

D-Theta = (ptemp + (4.6903 * pden)) - 131.5427
 Atten-Anom = Atten - 0.381

VENTS 1989 - LEG I
 Station XT-3 Cast 4 31 JUL 1989
 LAT: 47 44.8N LONG: 128 59.9W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom	11	Sigma-t (CTD)
1	12			2305		2337		1.812		1.650		0.012028		34.623		34.589		0.392		0.003		27.684
2	31			2417		2452		1.779		1.607		0.021934		34.633		34.632		0.390		0.001		27.695
3	14			2439		2474		1.780		1.606		0.017533		34.632		34.633		0.391		0.002		27.694
4	11			2459		2494		1.782		1.606		0.013879		34.631		34.630		0.393		0.004		27.693
5	6			2539		2577		1.775		1.592		0.019588		34.635		34.635		0.392		0.003		27.697
6	8			2585		2624		1.763		1.576		0.012859		34.636		34.636		0.393		0.004		27.698
7	17			2603		2641		1.770		1.581		0.016276		34.636		34.635		0.393		0.004		27.698
8	13			2603		2642		1.775		1.586		0.030745		34.639		34.639		0.398		0.009		27.700
9	15			2634		2673		1.779		1.587		0.031445		34.639		34.638		0.396		0.007		27.700
10	1			2669		2709		1.778		1.583		0.036151		34.641		34.641		0.403		0.014		27.701

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		27.657		27.697		27.669												
2		27.694		27.708		27.707		2.697				184.70				46.43		
3		27.695		27.707		27.708		2.697				184.52				41.65		
4		27.692		27.706		27.705		2.695				183.33				42.11		
5		27.697		27.711		27.711		2.704				185.65				42.50		
6		27.698		27.713		27.713		2.668				181.74				42.40		
7		27.697		27.712		27.711		2.698				184.26				40.88		
8		27.700		27.714		27.714		2.744				189.57				41.32		
9		27.699		27.714		27.713		2.704				188.32				41.32		
10		27.701		27.716		27.716		2.698				187.48				41.28		

0	21	TSM (ug/l)
1		
2		
3		25.06
4		26.07
5		
6		19.58
7		56.31
8		20.04
9		21.26
10		22.62

D-Theta = (ptemp + (4.690284 * pden)) - 131.54268
 Atten-Anom = Atten - 0.389

VENTS 1989 - LEG I
 Station XT-4 Cast 5 01 AUG 1989
 LAT: 47 43.3N LONG: 128 52.1W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom
1	10		10	2016		2043		1.905		1.767		0.011627		34.602		34.603		0.396		0.007
2	30		30	2091		2120		1.860		1.716		0.001447		34.608		34.604		0.392		0.003
3	18		18	2434		2469		1.780		1.607		0.005880		34.628		34.629		0.393		0.004
4	9		9	2442		2477		1.775		1.601		0.013513		34.631		34.632		0.395		0.006
5	5		5	2451		2487		1.783		1.608		0.014326		34.630		34.629		0.393		0.004
6	19		19	2551		2589		1.756		1.572		-0.001468		34.632		34.632		0.394		0.005
7	3		3	2610		2649		1.766		1.577		0.035197		34.641		34.637		0.404		0.015
8	16		16	2675		2715		1.758		1.563		-0.004028		34.633		34.631		0.395		0.006
9	21		21	2701		2742		1.751		1.553		-0.006367		34.634		34.635		0.395		0.006
10	20		20	2855		2899		1.760		1.547		-0.006576		34.635		34.630		0.395		0.006

0	11	Sigma-t (CTD)	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)
1	27.660		27.661		27.671		27.672		2.748		2.748		165.470		165.470		44.140	
2	27.669		27.665		27.680		27.676		2.761		2.761		179.870		179.870		42.345	
3	27.691		27.692		27.704		27.705		2.682		2.682		169.965		169.965		43.110	
4	27.694		27.694		27.707		27.707		2.693		2.693		171.830		171.830		43.080	
5	27.692		27.691		27.705		27.705		2.694		2.694		169.800		169.800		43.110	
6	27.696		27.696		27.710		27.710		2.679		2.679		171.275		171.275		42.605	
7	27.702		27.699		27.716		27.713		2.719		2.719		175.715		175.715		43.130	
8	27.696		27.695		27.711		27.709		2.662		2.662		168.660		168.660		42.980	
9	27.698		27.699		27.713		27.713		2.668		2.668		181.595		181.595		41.770	
10	27.698		27.694		27.714		27.710		2.707		2.707		190.200		190.200		41.020	

0	20	NO3-FIL (uM/L)	21	TSM (ug/l)
1				18.47
2				18.68
3				16.80
4				17.86
5				19.62
6				18.26
7				35.80
8				16.55
9				19.73
10				17.99

D-Theta = (ptemp + (4.6903 * pden)) - 131.54
 Atten-Anom = Atten - 0.389

VENTS 1989 - LEG I
 Station XT-5 Cast 6 03 AUG 1989
 LAT: 47 11.1N LONG: 129 06.8W

0	1	Niskin #	Depth (m)	Depth (db)	4 Insitu Temp.	5 Pottemp	6 Temp. Anom.	7 Salinity (CTD)	8 Salinity (Bottle)	9 Atten. (1/m)	10 Atten. Anom
1	2	2054	2081	1.867	1.726	0.001241	34.607	34.610	0.389	0.001	
2	15	2165	2195	1.844	1.694	0.006755	34.614	34.614	0.389	0.001	
3	22	2221	2251	1.826	1.671	0.014702	34.620		0.390	0.002	
4	1	2222	2253	1.827	1.672	0.019013	34.621	34.622	0.392	0.004	
5	13	2227	2258	1.827	1.671	0.018756	34.621	34.622	0.390	0.002	
6	6	2230	2261	1.826	1.670	0.021680	34.622	34.622	0.391	0.003	
7	28	2236	2267	1.822	1.666	0.022591	34.623	34.622	0.396	0.008	
8	26	2359	2392	1.813	1.646	0.013488	34.624	34.625	0.390	0.002	
9	17	2389	2423	1.827	1.657	0.016892	34.623	34.622	0.390	0.002	
10	14	2409	2443	1.778	1.607	-0.000527	34.627	34.627	0.391	0.003	
11	8	2410	2444	1.804	1.632	0.008502	34.625	34.826	0.390	0.002	
12	23	2535	2572	1.803	1.620	0.011675	34.628	34.627	0.390	0.002	

0	11	Sigma-t (CTD)	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)
1		27.667		27.670		27.678		27.680		2.705		2.701		171.83		174.64		42.23
2		27.675		27.675		27.686		27.686		2.060		2.059		98.00		96.59		32.64
3		27.681				27.693				2.751		2.759		180.64		180.23		42.29
4		27.682		27.682		27.693		27.694		2.751		2.750		176.79		171.62		42.10
5		27.682		27.682		27.693		27.694		2.716		2.740		177.97		180.18		43.53
6		27.682		27.682		27.694		27.694										
7		27.684		27.683		27.695		27.695		2.660		2.660		169.34		169.60		42.11
8		27.685		27.686		27.698		27.698		2.675		2.704		171.14		169.88		42.43
9		27.683		27.682		27.696		27.695		2.677		2.697		169.92		170.39		41.60
10		27.690		27.690		27.703		27.703		2.794		2.793		177.69		177.72		42.96
11		27.687		27.687		27.700		27.861		2.703		2.707		169.92		171.46		42.62
12		27.689		27.688		27.703		27.702		2.706		2.714		168.12		168.15		42.62

D-Theta = (ptemp + (4.694 * pden)) - 131.6454
 Atten-Anom = Atten - 0.388

VENTS 1989 - LEG I
 Station XT-5 Cast 6 03 AUG 1989
 LAT: 47 11.1N LONG: 129 06.8W

0	20 NO3-FIL (uM/L)	21 TSM (ug/l)
1	42.49	24.59
2	32.50	44.90
3	42.66	10.25
4	42.86	10.08
5	42.29	
6		
7	42.17	19.74
8	42.49	11.00
9	41.73	11.32
10	42.47	11.86
11	42.74	8.78
12	42.74	10.63

D-Theta = (ptemp + (4.694 * pden)) - 131.6454
 Atten-Anom = Atten - 0.388

VENTS 1989 - LEG I
 Station X57 Cast 7 04 AUG 1989
 LAT: 45 58.9N LONG: 130 00.8W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom	11	Sigma-t (CTD)
1	11			999		1009		3.155		3.085				34.386		34.387		0.390		0.0025		27.381
2	21			1100		1112		2.982		2.906				34.423		34.423		0.390		0.0025		27.426
3	12			1200		1213		2.781		2.699				34.457		34.456		0.390		0.0025		27.471
4	10			1299		1314		2.553		2.465				34.491		34.492		0.389		0.0015		27.518
5	9			1401		1417		2.404		2.310				34.516		34.516		0.391		0.0035		27.551
6	31			1449		1466		2.396		2.298				34.518		34.517		0.391		0.0035		27.553
7	20			1501		1519		2.397		2.295				34.519		34.517		0.392		0.0045		27.554
8	27			1509		1527		2.397		2.294				34.520		34.511		0.392		0.0045		27.555
9	25			1515		1533		2.402		2.299				34.521		34.520		0.393		0.0055		27.555
10	16			1520		1538		2.404		2.300				34.521		34.522		0.395		0.0075		27.555
11	24			1525		1544		2.405		2.301				34.521		34.519		0.393		0.0055		27.555
12	5			1532		1550		2.408		2.303				34.520		34.520		0.393		0.0055		27.554

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		27.382		27.387		27.388		3.056				160.435				44.935		
2		27.426		27.433		27.433		3.048				166.135				45.185		
3		27.471		27.479		27.478		3.017				174.856				45.295		
4		27.519		27.526		27.527		2.931				170.150				46.070		
5		27.551		27.559		27.559		2.930				171.120				45.330		
6		27.553		27.561		27.561		2.942				176.950				44.470		
7		27.552		27.563		27.561		2.918				184.585				44.490		
8		27.548		27.563		27.556		2.922				183.140				45.525		
9		27.554		27.564		27.563		2.912				185.695				44.310		
10		27.556		27.564		27.565		2.912				186.670				44.415		
11		27.553		27.564		27.562		2.915				188.255				44.710		
12		27.554		27.563		27.563		2.929				187.175				44.830		

0 21 TSM (ug/l)

1	13.96
2	12.91
3	11.18
4	11.65
5	14.56
6	16.46
7	15.21
8	
9	17.75
10	15.21
11	17.28
12	14.77

Atten-Anom = Atten - 0.3875

VENTS 1989 - LEG I
 Station X4 Cast 8 05 AUG 1989
 LAT: 44 57.7N LONG: 130 13.4W

0	1	Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Pottemp	6 Temp. Anom.	7 Salinity (CTD)	8 Salinity (Bottle)	9 Atten. (1/m)	10 Atten. Anom	11	Sigma-t (CTD)
1		11	1502	1520	2.352	2.250	0.000000	34.529	34.530	0.390	0.004		27.566
2		29	1750	1772	2.068	1.949	0.007248	34.574	34.574	0.388	0.002		27.625
3		22	1899	1923	1.935	1.806	0.003208	34.596	34.597	0.433	0.047		27.653
4		24	1951	1976	1.911	1.778	0.005000	34.601	34.602	0.566	0.180		27.659
5		16	1999	2025	1.887	1.750	0.014749	34.608	34.608	0.395	0.009		27.667
6		12	2050	2077	1.884	1.743	0.033476	34.614	34.614	0.403	0.017		27.672
7		20	2125	2153	1.897	1.749	0.049120	34.617	34.616	0.406	0.020		27.673
8		30	2151	2180	1.894	1.744	0.045806	34.617	34.618	0.406	0.020		27.673
9		1	2202	2231	1.891	1.737	0.041141	34.617	34.618	0.406	0.020		27.673
10		31	2261	2292	1.873	1.714	0.030494	34.618	34.617	0.399	0.013		27.676

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		27.567		27.574		27.575		3.162		3.1630		165.980		165.495		44.565		47.025
2		27.625		27.634		27.634		3.082		3.0830		173.495		174.055		44.735		44.040
3		27.654		27.663		27.664		3.033		3.0280		180.210		179.035		43.470		43.500
4		27.660		27.669		27.670		3.026		3.0300		178.510		179.060		43.880		43.860
5		27.667		27.677		27.677		3.034		3.0350		180.960		181.395		43.640		43.850
6		27.672		27.682		27.682		2.992		2.9940		182.490		182.465		39.910		36.680
7		27.672		27.684		27.683		2.950		2.9510		182.975		179.270		40.290		41.495
8		27.674		27.685		27.686		2.989		2.9780		185.425		185.520		42.090		43.805
9		27.674		27.685		27.686		2.962		2.9620		184.805		185.520		42.095		42.680
10		27.675		27.688		27.687		3.090		2.9455		182.600		179.235		42.865		42.770

0	21	TSM (ug/l)
1		13.29
2		12.27
3		11.78
4		16.67
5		19.95
6		34.49
7		57.16
8		45.38
9		46.34
10		20.71

D-Theta = (ptemp + (4.85 * pden)) - 135.969
 Atten-Anom = Atten - 0.386

VENTS 1989 - LEG I
 Station X4 Cast 9 05 AUG 1989
 LAT: 44 57.5N LONG: 130 13.5W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom	11	Sigma-t (CTD)
1	26		1811	1833		2.015	1.892	0.006637		34.583	34.584	0.855	0.469	27.636								
2	5		1901	1925		1.949	1.820	0.000120		34.593	34.586	0.388	0.002	27.650								
3	2		1999	2026		1.899	1.762	0.018291		34.607	34.608	0.438	0.052	27.665								
4	27		2051	2078		1.898	1.757	0.038210		34.613	34.615	0.425	0.039	27.670								
5	6		2099	2127		1.904	1.758	0.043228		34.614	34.616	0.417	0.031	27.670								
6	14		2144	2173		1.900	1.751	0.038268		34.614	34.619	0.437	0.051	27.670								
7	25		2144	2173		1.900	1.751	0.038268		34.614	34.622	0.437	0.051	27.670								
8	9		2144	2173		1.900	1.751	0.038268		34.614	34.620	0.437	0.051	27.670								
9	8		2144	2173		1.900	1.751	0.038268		34.614	34.622	0.437	0.051	27.670								
10	17		2150	2179		1.904	1.754	0.044294		34.615	34.616	0.423	0.037	27.671								
11	23		2203	2233		1.894	1.739	0.039031		34.616	34.617	0.413	0.027	27.672								
12	18		2255	2286		1.862	1.703	0.023958		34.618	34.619	0.394	0.008	27.676								

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		27.637		27.646		27.647		3.076		3.079		173.060		172.990		41.930		41.930
2		27.644		27.660		27.654		3.062		3.061		172.840		173.850		42.570		42.570
3		27.666		27.675		27.676		2.980		2.978		179.020		177.020		41.440		41.230
4		27.671		27.681		27.682		2.932		2.965		179.880		180.190		40.960		40.810
5		27.672		27.681		27.683		2.963		2.966		181.670		182.440		41.460		40.810
6		27.674		27.682		27.686		2.950		2.945		183.953		183.427		41.487		41.783
7		27.677		27.682		27.688		2.944		2.947		184.593		184.303		41.883		42.150
8		27.675		27.682		27.687		2.946		2.948		184.463		184.323		41.637		41.437
9		27.677		27.682		27.688		2.944		2.945		183.630		183.337		42.633		41.357
10		27.672		27.682		27.683		2.969		2.953		184.140		183.070		40.810		40.280
11		27.673		27.684		27.685		2.956		2.939		180.840		180.930		40.780		40.830
12		27.677		27.689		27.689		2.938		2.951		180.780		180.630		40.720		40.710

D-Theta = (ptemp + (4.85 * pden)) - 135.969
 Atten-Anom = Atten - 0.386

VENTS 1989 - LEG I
 Station X4 Cast 9 05 AUG 1989
 LAT: 44 57.5N LONG: 130 13.5W

0 21 TSM
 (ug/l)

1
 2
 3
 4
 5
 6
 7
 8
 9
 10
 11
 12

D-Theta = (ptemp + (4.85 * pden)) - 135.969
 Atten-Anom = Atten - 0.386

VENTS 1989 - LEG I
 Station XT-6 Cast 10 05 AUG 1989
 LAT: 44 49.1N LONG: 130 18.4W

0	1	Niskin #	Depth (m)	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom	11	Sigma-t (CTD)
1		1	1984	2009		1.931		1.795	0.073976		34.616		34.615		0.491		0.1035		27.669	
2		11	2020	2047		1.903		1.764	0.046869		34.614		34.614		0.438		0.0505		27.670	
3		31	2046	2073		1.921		1.780	0.060527		34.615		34.615		0.461		0.0735		27.669	
4		6	2066	2093		1.879		1.737	0.010035		34.609		34.609		0.391		0.0035		27.668	
5		5	2076	2103		1.889		1.746	0.035158		34.614		34.614		0.421		0.0335		27.671	
6		26	2078	2106		1.879		1.736	0.032700		34.615		34.616		0.407		0.0195		27.673	
7		2	2090	2118		1.892		1.747	0.032344		34.613		34.614		0.416		0.0285		27.670	
8		27	2102	2130		1.878		1.733	0.026881		34.614		34.613		0.400		0.0125		27.672	
9		23	2113	2141		1.886		1.739	0.042932		34.617		34.616		0.408		0.0205		27.674	
10		30	2134	2163		1.883		1.735	0.036018		34.616		34.616		0.417		0.0295		27.673	
11		18	2151	2179		1.885		1.735	0.040235		34.617		34.618		0.406		0.0185		27.674	
12		17	2393	2427		1.853		1.682	0.018236		34.620		34.620		0.393		0.0055		27.679	

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		27.669		27.680		27.679		2.923		2.911		183.92		183.70		39.62		39.31
2		27.670		27.681		27.681		2.933		2.950		181.38		181.62		39.01		38.95
3		27.669		27.680		27.680		2.928		2.935		182.07		181.84		39.00		38.89
4		27.668		27.679		27.679		2.939		2.979		182.46		182.24		39.07		39.60
5		27.671		27.682		27.682		2.937		2.935		181.50		184.77		40.17		40.17
6		27.674		27.684		27.685		2.950		2.944		176.82		181.02				40.22
7		27.671		27.681		27.682		2.933		2.931		185.47		185.01		39.19		39.43
8		27.671		27.683		27.682		2.938		2.941		185.02		184.56		39.19		39.13
9		27.673		27.685		27.684		2.926		2.924		185.75		183.89		38.46		39.01
10		27.673		27.685		27.685		2.955		2.953		179.95		181.35		39.74		39.80
11		27.675		27.685		27.686		2.964		2.934		176.90		174.11		40.23		39.06
12		27.679		27.692		27.692		2.925		2.932		185.74		185.75		39.31		38.89

D-Theta = (ptemp + (4.85 * pden)) - 135.969
 Atten-Anom = Atten - 0.3875

VENTS 1989 - LEG I
 Station XT-6 Cast 10 05 AUG 1989
 LAT: 44 49.1N LONG: 130 18.4W

0	21 TSM (ug/l)
1	85.42
2	51.76
3	63.80
4	14.85
5	42.15
6	33.57
7	42.64
8	26.79
9	42.75
10	35.58
11	36.79
12	16.15

D-Theta = (ptemp + (4.85 * pden)) - 135.969
 Atten-Anom = Atten - 0.3875

VENTS 1989 - LEG I
 Station X1 Cast 11 07 AUG 1989
 LAT: 45 03.7N LONG: 130 35.3W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp: Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom	11	Sigma-t (CTD)
1	16			1801		1824		2.051		1.929				34.579		34.579		0.388		0.002		27.630
2	14			1951		1976		1.954		1.820				34.596		34.596		0.388		0.002		27.652
3	13			2052		2079		1.898		1.757				34.607		34.607		0.388		0.002		27.665
4	24			2052		2080		1.898		1.757				34.607		34.607		0.388		0.002		27.665
5	3			2101		2129		1.879		1.734				34.611		34.610		0.388		0.002		27.670
6	25			2101		2129		1.879		1.734				34.610		34.613		0.388		0.002		27.669
7	19			2151		2179		1.858		1.709				34.614		34.608		0.388		0.002		27.674
8	21			2151		2180		1.858		1.709				34.614		34.614		0.389		0.003		27.674
9	10			2198		2228		1.842		1.689				34.618		34.618		0.389		0.003		27.678
10	8			2199		2228		1.842		1.689				34.618		34.618		0.390		0.004		27.678
11	9			2399		2433		1.787		1.617				34.629		34.629		0.389		0.003		27.691
12	29			2598		2636		1.743		1.555				34.637		34.637		0.391		0.005		27.701

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		27.630		27.640		27.640		3.199		3.208		180.25		178.89		43.16		42.66
2		27.652		27.662		27.662		3.160		3.137		182.59		182.84		42.08		42.51
3		27.665		27.676		27.676		3.137		3.135		184.74		184.76		41.52		41.53
4		27.665		27.676		27.676		3.141		3.154		184.70		185.18		41.50		41.51
5		27.669		27.681		27.680		3.094		3.123		180.90		176.08		40.90		40.67
6		27.671		27.680		27.682		3.144		3.096		185.47		187.33		41.36		40.54
7		27.669		27.685		27.680		3.092		3.075		184.43		184.22		40.81		40.93
8		27.674		27.685		27.685		3.080		3.073		183.24		185.33		40.62		40.68
9		27.678		27.690		27.690		3.095		3.063		184.73		185.21		40.36		40.36
10		27.678		27.690		27.690		3.073		3.102		185.62		185.41		40.58		40.41
11		27.691		27.704		27.704		3.056		3.065		185.46		185.48		40.01		40.32
12		27.701		27.715		27.715		3.007		3.005		185.50		185.98		39.91		39.85

0 21 TSM (ug/l) -----

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Atten-Anom = Atten - 0.386

VENTS 1989 - LEG I
Station X1 Cast 12 07 AUG 89
LAT: 45 04.4N LONG: 130 34.4W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	In situ Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom.
1		20		999		1009		3.276		3.205		0.029175		34.394		34.391		0.392		0.004
2		27		1249		1263		2.770		2.684		0.023131		34.468		34.467		0.390		0.002
3		24		1500		1545		2.337		2.233		0.017298		34.535		34.533		0.391		0.003
4		18		1750		1772		2.066		1.948		0.005697		34.577		34.584		0.389		0.001
5		22		1900		1924		1.955		1.826		-0.000331		34.595		34.596		0.389		0.001
6		3		1999		2025		1.900		1.763		0.003052		34.606		34.606		0.389		0.001
7		21		2050		2076		1.876		1.735		0.000948		34.610		34.611		0.389		0.001
8		1		2100		2128		1.867		1.722		0.004246		34.613		34.611		0.389		0.001
9		8		2148		2176		1.851		1.702		0.003361		34.616		34.616		0.388		0.000
10		15		2198		2228		1.838		1.685		0.000154		34.618		34.617		0.388		0.000
11		12		2411		2443		1.769		1.598		-0.000678		34.632		34.629		0.391		0.003
12		28		2602		2639		1.731		1.543		-0.008763		34.639		34.639		0.392		0.004

0	11	Sigma-t (CTD)	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		27.376		27.373		27.382		27.380		3.280		3.310		138.51		140.25		45.54		45.54
2		27.481		27.480		27.489		27.488		3.269		3.265		157.02		157.07		44.98		44.98
3		27.572		27.570		27.580		27.579		3.171		3.200		172.13		172.13		44.17		44.17
4		27.628		27.633		27.637		27.643		3.106		3.112		182.79		182.32		43.41		43.41
5		27.651		27.652		27.661		27.662		3.052		3.043		185.90		187.09		43.18		43.18
6		27.664		27.664		27.674		27.674		3.017		3.022		188.54		188.05		45.55		45.55
7		27.669		27.670		27.680		27.681		3.020		3.002		189.02		188.78		42.06		42.06
8		27.672		27.670		27.683		27.682		3.014		3.015		191.20		189.75		42.53		42.53
9		27.676		27.676		27.687		27.687		3.008		3.009		192.17		191.44		38.83		38.83
10		27.678		27.678		27.690		27.689		2.992		3.008		192.42		192.17		38.20		38.20
11		27.695		27.692		27.708		27.705		2.928		2.919		193.14		193.39		37.78		37.78
12		27.703		27.703		27.717		27.717		2.908		2.913		194.36		193.63		41.20		41.20

0	20	NO3-FIL (uM/L)	21	TSM (ug/l)
1		45.63		10.38
2		45.45		10.15
3		44.19		10.51
4		43.57		8.32
5		43.33		7.70
6		42.13		9.17
7		42.02		10.26
8		42.10		10.17
9		42.37		7.97
10		38.44		10.19
11		37.86		11.74
12		41.09		19.95

D-Theta = (ptemp + (4.85 * pden)) - 135.981
Atten-Anom = Atten - 0.388

VENTS 1989 - LEG I
Station X2 Cast 13 07 AUG 1989
LAT: 45 00.9N LONG: 130 28.5W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp Anom.	6	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (l/m)	10	Atten. Anom	11	Sigma-t (CTD)
1		30		800		808		3.708		3.650			34.280		34.281		0.391		0.006		27.243
2		27		1200		1214		2.861		2.778			34.457		34.456		0.390		0.005		27.464
3		25		1599		1618		2.242		2.134			34.552		34.551		0.389		0.004		27.593
4		2		1929		1954		1.946		1.814			34.598		34.597		0.388		0.003		27.654
5		13		1930		1954		1.947		1.815			34.598		34.597		0.388		0.003		27.654
6		17		2100		2128		1.867		1.722			34.613		34.612		0.388		0.003		27.672
7		6		2100		2128		1.868		1.723			34.613		34.612		0.388		0.003		27.672
8		19		2150		2179		1.847		1.698			34.617		34.616		0.387		0.002		27.677
9		10		2150		2179		1.847		1.698			34.617		34.616		0.387		0.003		27.677
10		29		2200		2230		1.831		1.678			34.620		34.619		0.387		0.002		27.680
11		9		2200		2230		1.832		1.679			34.620		34.614		0.387		0.002		27.680
12		23		2500		2535		1.725		1.547			34.638		34.637		0.387		0.002		27.703

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		27.244		27.249		27.250		3.314		3.314		118.20		118.35		44.15		44.68
2		27.463		27.472		27.471		3.313		3.313		150.30		149.08		45.01		45.27
3		27.593		27.602		27.601		3.180		3.194		164.45		163.00		44.69		44.69
4		27.653		27.664		27.663		3.065		3.070		176.63		179.79		43.20		41.84
5		27.653		27.664		27.663		3.091		3.071		175.15		176.70		43.91		43.46
6		27.671		27.683		27.682		3.030		3.030		182.60		182.76		41.60		41.74
7		27.671		27.683		27.682		3.035		3.070		182.27		182.43		41.65		40.69
8		27.676		27.688		27.687		3.024		3.039		182.92		182.86		42.13		42.00
9		27.677		27.688		27.688		3.053		3.019		183.25		183.19		42.01		42.00
10		27.680		27.692		27.691		3.018		3.018		172.81		175.05		41.96		41.90
11		27.676		27.692		27.687		3.018		3.053		181.27		178.20		41.89		41.83
12		27.702		27.716		27.715		2.968		2.963		180.08		180.70		41.65		41.65

0 21 TSM (ug/l) -----

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Atten-Anom = Atten - 0.385

VENTS 1989 - LEG I
Station X2 Cast 14 07 AUG 89
LAT: 45 01.2N LONG: 130 28.6W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom
1		15		1250		1271		2.743		2.656		0.029254		34.475		34.640		0.389		0.004
2		8		1498		1523		2.379		2.277		0.034465		34.534		34.533		0.389		0.004
3		26		1745		1775		2.080		1.961		-0.006439		34.573		34.574		0.388		0.003
4		13		1897		1929		1.959		1.829		-0.010911		34.593		34.594		0.388		0.003
5		2		1998		2031		1.904		1.767		-0.011436		34.603		34.605		0.388		0.003
6		6		2050		2083		1.883		1.741		-0.007815		34.608		34.609		0.388		0.003
7		16		2100		2135		1.862		1.716		-0.008134		34.612		34.614		0.388		0.003
8		19		2149		2184		1.854		1.704		-0.008009		34.614		34.614		0.387		0.002
9		14		2199		2236		1.842		1.688		-0.006639		34.617		34.618		0.387		0.002
10		9		2399		2439		1.776		1.605		-0.012706		34.629		34.627		0.386		0.001
11		5		2604		2648		1.707		1.519		-0.025568		34.640		34.641		0.388		0.003
12		29		2604		2648		1.709		1.521		-0.028206		34.639		34.641		0.388		0.003

0	11	Sigma-t (CTD)	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)
1		27.489		27.621		27.497		27.629		2.894		2.895		178.82		178.26		40.30
2		27.568		27.567		27.576		27.575		3.175		3.180		161.46		161.35		43.91
3		27.623		27.624		27.633		27.633		3.101		3.101		170.46		171.97		42.71
4		27.649		27.650		27.659		27.660		3.047		3.047		174.35		174.48		42.38
5		27.661		27.663		27.672		27.673		2.992		3.036		175.94		176.30		42.27
6		27.667		27.668		27.678		27.678		3.020		3.011		177.06		177.42		42.45
7		27.672		27.673		27.683		27.684		2.990		2.996		177.48		178.07		42.27
8		27.674		27.674		27.685		27.685		2.989		2.990		182.26		178.27		41.43
9		27.677		27.678		27.689		27.690		2.983		2.989		183.82		183.96		41.97
10		27.692		27.690		27.705		27.703		2.949		2.949		185.15		185.06		44.07
11		27.706		27.707		27.720		27.721		2.883		2.884		183.92		184.74		41.29
12		27.705		27.707		27.719		27.721		2.889		2.861		185.34		185.02		41.54

0	20	NO3-FIL (uM/L)	21	TSM (ug/l)
1		40.19		
2		43.82		9.92
3		42.83		11.47
4		42.66		8.43
5		42.62		14.10
6		42.36		9.13
7		42.25		8.41
8		42.50		9.04
9		44.81		10.13
10		41.77		7.20
11		41.34		10.43
12		41.30		11.77

D-Theta = (ptemp + (4.85 * pden)) - 135.986
Atten-Anom = Atten - 0.385

VENTS 1989 - LEG I
Station X3 Cast 15 08 AUG 1989
LAT: 44 59.2N LONG: 130 19.4W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom	11	Sigma-t (CTD)
1	12			999		1010		3.366		3.295				34.399		34.398		0.390		0.004		27.371
2	28			1251		1266		2.842		2.755				34.473		34.472		0.390		0.004		27.479
3	24			1499		1517		2.370		2.268				34.535		34.536		0.388		0.002		27.569
4	1			1750		1772		2.054		1.936				34.577		34.579		0.389		0.003		27.629
5	3			1899		1923		1.919		1.790				34.598		34.441		0.388		0.002		27.656
6	23			1999		2025		1.886		1.749				34.606		34.608		0.392		0.006		27.665
7	17			2049		2076		1.875		1.734				34.610		34.611		0.393		0.007		27.669
8	21			2100		2128		1.865		1.720				34.612		34.611		0.392		0.006		27.671
9	25			2150		2179		1.849		1.700				34.616		34.617		0.392		0.007		27.676
10	22			2200		2230		1.841		1.688				34.618		34.619		0.392		0.006		27.678
11	18			2301		2333		1.832		1.670				34.620		34.621		0.391		0.005		27.680
12	27			2380		2414		1.813		1.644				34.624		34.622		0.390		0.004		27.685

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1	27.370			27.378		27.377		2.954		2.954		2.954		184.45		39.39		39.91
2	27.478			27.486		27.486		2.959		2.963		2.963		175.29		40.36		40.68
3	27.570			27.578		27.578		2.968		2.958		2.958		179.83		40.23		40.11
4	27.630			27.638		27.639		2.963		2.962		2.962		179.87		40.30		40.18
5	27.530			27.666		27.540		3.001		3.006		3.006		179.92		41.66		40.68
6	27.667			27.675		27.677		3.015		3.049		3.049		178.84		40.88		41.00
7	27.670			27.680		27.681		2.995		3.014		3.014		179.34		40.61		40.17
8	27.671			27.683		27.682		2.941		2.940		2.940		153.19		39.53		39.54
9	27.677			27.687		27.688		3.102		3.106		3.106		173.38		41.02		41.17
10	27.679			27.690		27.691		3.185		3.189		3.189		164.47		42.79		42.38
11	27.681			27.693		27.694		3.302		3.282		3.282		150.64		42.89		42.77
12	27.683			27.698		27.696		3.287		3.306		3.306		133.69		43.03		43.42

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Atten-Anom = Atten - 0.386

VENTS 1989 - LEG I
 Station XT-7 Cast 16 08 AUG 1989
 LAT: 44 58.6N LONG: 130 08.0W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom
1	17		2017	2043				1.918		1.779		-0.939507		34.613		34.613		0.454		0.068
2	14		2017	2044				1.889		1.751		-0.961443		34.612		34.611		0.418		0.032
3	23		2055	2083				1.901		1.759		-0.952160		34.613		34.613		0.426		0.040
4	18		2065	2093				1.903		1.760		-0.943687		34.615		34.615		0.427		0.041
5	21		2068	2095				1.919		1.776		-0.941669		34.613		34.613		0.451		0.065
6	1		2070	2097				1.889		1.746		-0.960404		34.613		34.613		0.413		0.027
7	24		2094	2122				1.889		1.744		-0.961721		34.613		34.614		0.409		0.023
8	12		2097	2125				1.906		1.761		-0.947423		34.614		34.614		0.431		0.045
9	22		2111	2139				1.887		1.741		-0.963884		34.613		34.613		0.405		0.019
10	19		2151	2180				1.865		1.715		-0.979818		34.613		34.614		0.392		0.006
11	27		2201	2231				1.845		1.691		-0.975611		34.618		34.619		0.392		0.006
12	3		2216	2246				1.826		1.671		-0.980543		34.620		34.621		0.393		0.007

0	11	Sigma-t (CTD)	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)
1	27.668		27.668		27.668		27.679		27.679	2.949	2.967		185.72		185.62		41.91	
2	27.670		27.670		27.669		27.680		27.679	2.979	2.982		182.01		181.69		42.49	
3	27.669		27.669		27.669		27.680		27.680	2.978	2.976		185.24		185.15		41.71	
4	27.671		27.671		27.671		27.682		27.682	2.904	2.907		178.28		181.07		42.04	
5	27.668		27.668		27.668		27.679		27.679	2.931	2.914		185.52		184.98		41.85	
6	27.670		27.670		27.670		27.681		27.681	2.986	2.979		184.08		183.98		41.20	
7	27.670		27.670		27.671		27.681		27.682	2.980	2.983		184.27		185.07		42.98	
8	27.670		27.670		27.670		27.681		27.681	2.883	2.881		183.99		183.23		41.09	
9	27.671		27.671		27.671		27.682		27.682	2.942	2.940		180.03		176.38		41.98	
10	27.672		27.672		27.673		27.684		27.684	2.929	2.927		181.54		180.10		41.29	
11	27.678		27.678		27.679		27.689		27.690	2.949	2.932		180.08		182.20		42.43	
12	27.681		27.681		27.682		27.693		27.693	2.957	2.975		184.11		184.45		40.70	

D-Theta = (ptemp + (4.85 * pden)) - 136.961
 Atten-Anom = Atten - 0.386

VENTS 1989 - LEG I
 Station XT-7 Cast 16 08 AUG 1989
 LAT: 44 58.6N LONG: 130 08.0W

0	20	NO3-FIL (uM/L)	21	TSM (ug/l)
1		41.84		57.29
2		42.56		46.73
3		41.90		40.13
4		41.98		58.16
5		41.72		47.07
6		44.15		24.75
7		41.87		31.48
8		41.16		42.43
9		42.55		26.15
10		42.43		13.92
11		41.23		17.10
12		41.13		14.61

D-Theta = (ptemp + (4.85 * pden)) - 136.961
 Atten-Anom = Atten - 0.386

VENTS 1989 - LEG I
Station X3 Cast 18 09 AUG 89
LAT: 44 59.3N LONG: 130 20.4W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom
1	27			1003		1014		3.287		3.216		0.083599		34.404		34.405		0.389		0.003
2	22			1249		1264		2.792		2.706		0.080465		34.477		34.477		0.388		0.002
3	21			1503		1522		2.410		2.307		0.060108		34.532		34.533		0.388		0.002
4	9			1753		1777		2.080		1.961		0.012338		34.574		34.576		0.385		-0.001
5	8			1902		1926		1.968		1.838		0.005916		34.592		34.593		0.389		0.003
6	17			2003		2030		1.910		1.773		0.011238		34.604		34.605		0.385		-0.001
7	6			2052		2079		1.889		1.748		0.011126		34.608		34.609		0.389		0.003
8	5			2101		2130		1.872		1.727		0.013349		34.612		34.611		0.388		0.002
9	14			2154		2182		1.859		1.709		0.010236		34.614		34.614		0.388		0.002
10	3			2197		2228		1.845		1.692		0.010640		34.617		34.618		0.388		0.002
11	23			2303		2338		1.820		1.658		0.012258		34.623		34.624		0.389		0.003
12	1			2400		2435		1.796		1.625		0.007299		34.627		34.629		0.387		0.001

0	11 Sigma-t (CTD)	12 Sigma-t (Bottle)	13 Sigma-Theta (CTD)	14 Sigma-Theta (Bottle)	15 PO4-UNF (uM/L)	16 PO4-FIL (uM/L)	17 SiO4-UNF (uM/L)	18 SiO4-FIL (uM/L)	19 NO3-UNF (uM/L)
1	27.383	27.384	27.389	27.390	3.358	3.367	135.59	135.60	42.26
2	27.486	27.486	27.494	27.494	3.317	3.306	152.96	152.98	45.37
3	27.563	27.564	27.572	27.573	3.236	3.230	164.11	164.12	44.70
4	27.624	27.626	27.633	27.635	3.126	3.124	173.25	174.60	42.87
5	27.647	27.648	27.657	27.658	3.089	3.098	175.50	178.18	42.26
6	27.662	27.662	27.672	27.673	3.077	3.076	179.97	179.76	42.26
7	27.666	27.667	27.677	27.678	3.065	3.069	180.43	180.00	42.32
8	27.671	27.670	27.682	27.681	3.018	3.017	180.01	180.24	42.20
9	27.673	27.673	27.685	27.685	3.016	3.050	180.26	180.49	41.89
10	27.677	27.678	27.689	27.689	3.049	3.028	182.06	182.07	42.14
11	27.684	27.685	27.696	27.697	3.022	3.016	183.64	182.98	41.83
12	27.689	27.690	27.702	27.703	2.970	2.999	182.99	182.11	41.59

0	20	NO3-FIL (uM/L)	21	TSM (ug/l)
1	45.12		14.43	
2	45.37		12.54	
3	44.34		15.40	
4	43.24		10.18	
5	42.81		12.30	
6	42.26		11.14	
7	42.63		21.62	
8	42.14		13.10	
9	41.89		14.45	
10	42.63		12.19	
11	41.77		13.07	
12	41.59		11.28	

D-Theta = (ptemp + (4.85 * pden)) - 135.971
Atten-Anom = Atten - 0.386

VENTS 1989 - LEG I
 Station X3 Cast 17 09 AUG 1989
 LAT: 44 58.7N LONG: 130 20.3W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom.	11	Sigma-t (CTD)
1	1	5	1948	1974	1.939	1.806	34.599	34.599	34.599	0.388	0.0015	27.655										
2	2	28	2005	2031	1.904	1.767	34.603	34.603	34.603	0.390	0.0035	27.661										
3	3	16	2033	2060	1.897	1.757	34.605	34.605	34.605	0.393	0.0065	27.663										
4	4	13	2102	2130	1.868	1.723	34.612	34.612	34.612	0.392	0.0055	27.671										
5	5	26	2131	2160	1.859	1.711	34.614	34.614	34.614	0.392	0.0055	27.673										
6	6	10	2204	2234	1.839	1.685	34.618	34.618	34.618	0.390	0.0035	27.678										
7	7	25	2242	2273	1.836	1.679	34.620	34.620	34.620	0.393	0.0065	27.680										
8	8	8	2242	2273	1.836	1.679	34.620	34.620	34.620	0.393	0.0065	27.680										
9	9	9	2242	2273	1.836	1.679	34.620	34.620	34.620	0.393	0.0065	27.680										
10	10	20	2242	2273	1.836	1.679	34.620	34.620	34.620	0.393	0.0065	27.680										
11	11	15	2242	2273	1.836	1.679	34.620	34.620	34.600	0.393	0.0065	27.680										
12	12	31	2456	2491	1.775	1.600	34.631	34.629	34.629	0.392	0.0055	27.694										

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1	1	27.655	27.666	27.666	27.666	27.666	3.054	3.058	178.36	178.67	42.54	42.53						
2	2	27.661	27.672	27.672	27.672	27.672	3.017	3.016	178.86	178.72	42.06	42.48						
3	3	27.663	27.674	27.674	27.674	27.674	3.004	3.018	178.91	179.00	41.34	42.01						
4	4	27.671	27.682	27.682	27.682	27.682	3.020	2.981	180.08	180.39	42.40	42.45						
5	5	27.673	27.685	27.685	27.685	27.685	3.003	3.016	181.91	180.88	42.47	42.47						
6	6	27.678	27.690	27.690	27.690	27.690	3.004	2.984	181.96	182.05	41.94	41.93						
7	7	27.674	27.692	27.692	27.692	27.686	3.018	2.992	179.32	180.74	41.46	41.82						
8	8	27.680	27.692	27.692	27.692	27.692	3.026	3.030	184.84	184.93	40.95	41.31						
9	9	27.681	27.692	27.692	27.692	27.693	3.039	3.013	179.66	181.76	42.04	42.03						
10	10	27.674	27.692	27.692	27.692	27.686	3.022	3.026	181.84	179.92	41.78	41.96						
11	11	27.664	27.692	27.692	27.692	27.676	3.006	3.005	178.00	177.86	41.95	41.33						
12	12	27.692	27.707	27.707	27.705	27.705	2.985	2.989	179.15	178.56	41.47	41.10						

0 21 TSM (ug/l)

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Atten-Anom = Atten - 0.3865

VENTS 1989 - LEG I
Station X5 Cast 19 10 AUG 1989
LAT: 44 55.2N LONG: 130 05.2W

0	1	Niskin #	Depth (m)	Depth (db)	Insitu Temp.	6 Temp. Anom.	7 Salinity (CTD)	8 Salinity (Bottle)	9 Atten. (1/m)	10 Atten. Anom	11	Sigma-t (CTD)
1		2	1501	1519	2.446	2.343	34.530	34.527	0.386	0.0005		27.559
2		26	1999	2025	1.877	1.740	34.605	34.606	0.385	-0.0005		27.665
3		16	2047	2074	1.850	1.710	34.611	34.610	0.385	-0.0005		27.672
4		13	2048	2075	1.850	1.710	34.611	34.612	0.385	-0.0005		27.672
5		31	2099	2127	1.834	1.689	34.615	34.614	0.386	0.0005		27.676
6		10	2100	2128	1.834	1.689	34.615	34.615	0.386	0.0005		27.676
7		30	2100	2128	1.835	1.690	34.615	34.612	0.385	-0.0005		27.676
8		25	2149	2178	1.818	1.669	34.619	34.616	0.386	0.0005		27.681
9		19	2150	2179	1.818	1.669	34.619	34.619	0.386	0.0005		27.681
10		24	2203	2233	1.815	1.662	34.621	34.622	0.387	0.0015		27.682
11		12	2203	2233	1.815	1.662	34.621	34.619	0.387	0.0015		27.682
12		28	2398	2432	1.795	1.625	34.628	34.627	0.389	0.0035		27.690

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15 PO4-UNF (uM/L)	16 PO4-UNF (uM/L)	17 SiO4-FIL (uM/L)	18 SiO4-UNF (uM/L)	19 NO3-UNF (uM/L)	20 NO3-FIL (uM/L)
1		27.556		27.567		27.565		3.238		164.28		42.93
2		27.666		27.675		27.676		3.071		180.27		41.78
3		27.671		27.682		27.682		3.083		181.09		41.26
4		27.673		27.682		27.683		3.054		181.84		41.18
5		27.675		27.687		27.686		3.054		178.98		40.88
6		27.676		27.687		27.687		3.049		181.33		41.34
7		27.674		27.687		27.685		3.066		179.14		40.79
8		27.678		27.692		27.690		3.050		182.68		41.24
9		27.681		27.692		27.692		3.092		179.48		41.17
10		27.683		27.694		27.695		3.073		186.74		41.15
11		27.681		27.694		27.692		3.035		183.76		41.20
12		27.689		27.702		27.702		2.981		186.64		40.93

0 21 TSM (ug/l)

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Atten-Anom = Atten - 0.3855

VENTIS 1989 - LEG I
Station X5 Cast 20 10 AUG 89
LAT: 44 55.5N LONG: 130 05.4W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	In situ Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom.
1		23		999		1010		3.313		3.242		0.153343		34.415		34.414		0.388		0.002
2		28		1252		1266		2.818		2.731		0.131424		34.483		34.482		0.387		0.001
3		8		1498		1516		2.374		2.272		0.059839		34.534		34.533		0.387		0.001
4		25		1750		1771		2.052		1.934		0.008523		34.574		34.570		0.385		-0.001
5		5		1899		1923		1.937		1.808		0.007692		34.594		34.595		0.386		0.000
6		24		1999		2025		1.887		1.750		0.010190		34.604		34.603		0.385		-0.001
7		14		2049		2076		1.861		1.720		0.014648		34.610		34.608		0.386		0.000
8		3		2101		2128		1.840		1.695		0.014288		34.614		34.614		0.386		0.000
9		1		2149		2178		1.825		1.676		0.013883		34.617		34.617		0.386		0.000
10		17		2200		2230		1.814		1.661		0.019704		34.621		34.612		0.388		0.002
11		15		2299		2331		1.805		1.643		0.020161		34.624		34.609		0.389		0.003
12		30		2399		2432		1.791		1.621		0.025136		34.629		34.629		0.388		0.002

0	11	Sigma-t (CTD)	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	P04-UNF (uM/L)	16	P04-FIL (uM/L)	17	S104-UNF (uM/L)	18	S104-FIL (uM/L)	19	NO3-UNF (uM/L)
1		27.389		27.388		27.396		27.395		3.269		3.230		133.56		131.34		43.83
2		27.489		27.488		27.497		27.496		3.187		3.201		152.55		151.67		45.13
3		27.568		27.567		27.576		27.576		3.129		3.128		165.66		166.81		44.61
4		27.626		27.623		27.636		27.632		3.033		3.032		175.39		176.09		43.13
5		27.651		27.652		27.661		27.662		2.989		3.022		180.17		179.96		42.97
6		27.663		27.663		27.674		27.673		3.007		2.997		180.44		183.83		42.81
7		27.670		27.669		27.681		27.679		2.982		3.024		182.06		182.30		42.44
8		27.675		27.675		27.686		27.686		3.033		3.033		182.77		182.57		42.97
9		27.679		27.679		27.690		27.690		2.994		3.003		182.82		183.52		42.94
10		27.683		27.675		27.694		27.687		2.983		2.945		184.66		183.11		42.92
11		27.686		27.674		27.698		27.686		2.944		2.939		182.23		182.26		42.90
12		27.691		27.691		27.704		27.704		2.929		2.924		186.77		186.34		42.94

0	20	NO3-FIL (uM/L)	21	TSM (ug/L)
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1		45.22		10.44
2		45.19		19.47
3		44.47		13.67
4		43.20		13.58
5		42.54		11.71
6		42.51		9.29
7		42.77		13.43
8		42.96		10.23
9		42.92		8.83
10		42.92		12.17
11		42.89		13.81
12		42.94		12.39

D-Theta = (ptemp + (4.85 * pden)) - 135.958
Atten-Anom = Atten - 0.386

VENTS 1989 - LEG I
 Station X7 Cast 21 10 AUG 89
 LAT: 44 51.2N LONG: 129 51.5W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	In situ Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom
1		13		1899		1925		1.941		1.812		0.001933		34.595		34.595		0.386		0.001
2		29		1993		2020		1.888		1.752		0.002993		34.605		34.605		0.385		0.000
3		12		2050		2077		1.867		1.726		0.002407		34.609		34.609		0.386		0.001
4		19		2050		2077		1.867		1.726		0.002420		34.609		34.610		0.385		0.000
5		13		2097		2125		1.849		1.704		0.004162		34.613		34.613		0.385		0.000
6		16		2098		2126		1.849		1.704		0.000224		34.612		34.615		0.385		0.000
7		2		2148		2178		1.819		1.670		0.002010		34.618		34.618		0.386		0.001
8		26		2149		2178		1.819		1.670		0.002005		34.618		34.618		0.384		-0.001
9		21		2199		2230		1.809		1.656		0.004587		34.621		34.621		0.387		0.002
10		9		2199		2229		1.809		1.656		0.000718		34.620		34.620		0.384		-0.001
11		18		2300		2332		1.788		1.627		0.012968		34.628		34.627		0.385		0.000
12		27		2407		2442		1.775		1.604		0.014149		34.632		34.631		0.386		0.001

0	11	Sigma-t (CTD)	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		27.652		27.652		27.662		27.662		3.023		3.022		177.64		179.94		41.32		41.32
2		27.664		27.664		27.674		27.674		2.974		2.973		177.73		182.28		42.18		42.18
3		27.669		27.669		27.680		27.680		2.976		2.970		180.15		182.67		42.17		42.17
4		27.669		27.670		27.680		27.680		2.972		2.976		182.54		183.04		41.97		41.97
5		27.673		27.673		27.684		27.684		2.960		2.964		182.49		183.21		42.16		42.16
6		27.673		27.675		27.684		27.684		2.958		2.943		181.00		182.84		42.23		42.23
7		27.680		27.680		27.691		27.691		2.964		2.925		186.80		176.70		42.21		42.21
8		27.680		27.680		27.691		27.691		2.942		2.941		184.01		184.96		42.15		42.15
9		27.683		27.683		27.695		27.695		2.918		2.917		183.14		181.83		42.14		42.14
10		27.682		27.683		27.694		27.694		2.939		2.938		176.29		182.20		42.76		42.76
11		27.690		27.689		27.702		27.702		2.917		2.911		185.48		185.30		42.20		42.20
12		27.694		27.694		27.707		27.706		2.901		2.909		187.37		187.63		41.92		41.92

0	20	NO3-FIL (uM/L)	21	TSM (ug/l)
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1		41.91		9.60
2		42.04		10.36
3		42.03		8.85
4		42.10		
5		42.02		9.46
6		42.16		
7		42.69		10.13
8		42.42		
9		42.27		9.77
10		42.69		
11		42.06		8.70
12		41.92		11.45

D-Theta = (ptemp + (4.85 * pden)) - 135.97
 Atten-Anom = Atten - 0.385

VENTS 1989 - LEG I
Station XT-8 Cast 22 10 AUG 1989
LAT: 44 47.5N LONG: 130 19.2W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom	11	Sigma-t (CTD)
1		5		2036		2063		1.901		1.761		0.043785		34.614		34.615		0.416		0.0295		27.670
2		28		2042		2068		1.887		1.747		0.019223		34.610		34.613		0.399		0.0125		27.668
3		25		2053		2080		1.896		1.754		0.035860		34.613		34.612		0.419		0.0325		27.670
4		17		2079		2107		1.897		1.753		0.035057		34.613		34.614		0.415		0.0285		27.670
5		15		2080		2107		1.898		1.754		0.039534		34.614		34.572		0.414		0.0275		27.670
6		14		2080		2108		1.905		1.761		0.043872		34.614		34.614		0.418		0.0315		27.670
7		3		2081		2108		1.903		1.759		0.038721		34.613		34.614		0.419		0.0325		27.669
8		30		2084		2112		1.895		1.751		0.033541		34.613		34.613		0.416		0.0295		27.670
9		1		2085		2112		1.903		1.759		0.042373		34.614		34.614		0.420		0.0335		27.670
10		23		2089		2117		1.898		1.753		0.035143		34.613		34.613		0.412		0.0255		27.670
11		24		2182		2212		1.905		1.752		0.038245		34.614		34.613		0.407		0.0205		27.670
12		8		2188		2217		1.889		1.736		0.028015		34.614		34.615		0.402		0.0155		27.671

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		27.671		27.681		27.682		2.949		2.950		184.01		181.41		39.61		39.73
2		27.671		27.679		27.681		2.999		2.991		181.70		180.19		40.02		40.28
3		27.669		27.681		27.680		2.956		2.948		180.69		181.81		39.88		40.01
4		27.671		27.681		27.682		2.977		2.983		179.86		185.10		38.47		38.58
5		27.637		27.682		27.648		2.975		2.976		173.60		172.33		38.57		38.69
6		27.670		27.681		27.681		2.964		2.932		182.13		183.68		38.55		38.66
7		27.670		27.680		27.681		2.962		2.968		181.08		182.19		38.17		
8		27.670		27.681		27.681		2.939		2.935		179.73		179.97		38.19		38.39
9		27.670		27.681		27.681		2.936		2.942		181.99		180.49		38.16		38.29
10		27.670		27.681		27.681		2.987		2.988		179.91		182.34		39.14		39.95
11		27.669		27.682		27.681		2.971		2.977		181.65		180.37				38.59
12		27.672		27.683		27.684		2.997		2.964		181.74		181.77		40.40		40.01

D-Theta = (ptemp + (4.85 * pden)) - 135.97
Atten-Anom = Atten - 0.3865

VENTS 1989 - LEG I
 Station XT-8 Cast 22 10 AUG 1989
 LAT: 44 47.5N LONG: 130 19.2W

0	21 TSM (ug/l)
1	45.77
2	30.71
3	50.49
4	31.77
5	39.66
6	45.06
7	36.55
8	50.60
9	41.47
10	50.40
11	35.55
12	20.35

D-Theta = (ptemp + (4.85 * pden)) - 135.97
 Atten-Anom = Atten - 0.3865

VENTS 1989 - LEG I
 Station X9 Cast 23 11 AUG 1989
 LAT: 44 39.2N LONG: 130 22.7W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom.
1	10		1749	1770		2.071	1.953	0.012063		34.575		34.577		0.387		0.002				
2	27		1850	1874		1.960	1.835	0.000779		34.591		34.594		0.386		0.001				
3	16		1951	1977		1.902	1.769	0.013950		34.605		34.605		0.395		0.010				
4	2		2002	2029		1.900	1.763	0.029417		34.610		34.611		0.413		0.028				
5	21		2028	2054		1.901	1.762	0.044235		34.614		34.614		0.413		0.028				
6	18		2052	2079		1.902	1.761	0.043556		34.614		34.613		0.414		0.029				
7	20		2071	2098		1.901	1.758	0.041879		34.614		34.611		0.414		0.029				
8	19		2101	2129		1.902	1.756	0.036974		34.613		34.614		0.413		0.028				
9	9		2125	2153		1.900	1.752	0.034424		34.613		34.614		0.414		0.029				
10	13		2151	2179		1.901	1.751	0.033639		34.613		34.614		0.415		0.030				
11	6		2174	2203		1.903	1.751	0.037460		34.614		34.614		0.417		0.032				
12	26		2199	2229		1.902	1.748	0.035442		34.614		34.611		0.409		0.024				

0	11	Sigma-t (CTD)	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)
1	27.626		27.627	27.635		27.637	27.637	3.068		3.079		173.27		173.56		43.91		
2	27.647		27.650	27.657		27.659	27.659	3.040		3.045		177.93		178.65		43.97		
3	27.663		27.663	27.673		27.673	27.673	3.021		3.031		180.88		180.96		43.33		
4	27.667		27.668	27.678		27.678	27.678	2.997		2.998		181.46		181.76		42.37		
5	27.670		27.670	27.681		27.681	27.681	2.993		2.989		182.48		182.34		41.60		
6	27.670		27.669	27.681		27.681	27.680	2.989		3.024		181.77		183.57		43.71		
7	27.670		27.668	27.681		27.681	27.679	2.990		2.990		182.36		183.73		41.78		
8	27.669		27.670	27.681		27.681	27.681	2.956		2.976		182.08		182.16		41.71		
9	27.670		27.670	27.681		27.681	27.682	2.943		2.948		183.10		182.96		41.70		
10	27.669		27.670	27.681		27.681	27.682	2.987		2.997		182.39		183.98		41.95		
11	27.670		27.670	27.682		27.682	27.682	2.983		3.003		182.55		183.06		42.02		
12	27.670		27.668	27.682		27.680	27.680	2.955		2.950		182.05		180.61		41.30		

D-Theta = (ptemp + (4.85 * pden)) - 135.97
 Atten-Anom = Atten - 0.385

VENTS 1989 - LEG I
 Station X9 Cast 23 11 AUG 1989
 LAT: 44 39.2N LONG: 130 22.7W

0	20 NO3-FIL	21 TSM
	(uM/L)	(ug/l)
1	44.00	8.66
2	44.00	8.44
3	42.85	16.88
4	42.02	57.36
5	41.57	46.08
6	41.69	44.29
7	41.68	44.32
8	41.68	44.20
9	41.79	43.20
10	41.79	43.00
11	41.46	41.93
12	41.07	35.00

D-Theta = (ptemp + (4.85 * pden)) - 135.97
 Atten-Anom = Atten - 0.385

VENTS 1989 - LEG I
 Station X9 Cast 24 11 AUG 1989
 LAT: 44 39.1N LONG: 130 22.6W

0	1	Niskin #	Depth 2 (m)	Depth 3 (db)	4	Insitu Temp.	5	Pottemp	6 Temp. Anom.	7 Salinity (CTD)	8 Salinity (Bottle)	9 Atten. (1/m)	10 Atten. Anom	11 Sigma-t (CTD)
1		30	1893	1917		1.929		1.801	0.006601	34.598	34.597	0.388	0.001	27.655
2		24	1946	1971		1.906		1.774	0.008968	34.603	34.504	0.393	0.006	27.661
3		25	2026	2053		1.904		1.765	0.042270	34.613	34.612	0.427	0.040	27.669
4		28	2026	2053		1.904		1.765	0.042270	34.613	34.614	0.427	0.040	27.669
5		8	2026	2053		1.904		1.765	0.042270	34.613	34.611	0.427	0.040	27.669
6		5	2026	2053		1.904		1.765	0.042270	34.613	34.612	0.427	0.040	27.669
7		17	2176	2206		1.906		1.754	0.035322	34.613	34.613	0.416	0.029	27.669
8		23	2177	2206		1.906		1.754	0.035295	34.613	34.614	0.419	0.032	27.669
9		15	2197	2226		1.908		1.754	0.035429	34.613	34.611	0.417	0.030	27.669
10		29	2197	2226		1.908		1.754	0.035429	34.613	34.614	0.417	0.030	27.669

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	P04-UNF (uM/L)	16	P04-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		27.654		27.665		27.664		3.114		3.108		177.82		178.68		39.43		41.02
2		27.582		27.671		27.592		2.946		2.954		165.33		165.09		40.23		40.48
3		27.668		27.680		27.679		3.007		2.997		180.71		180.91		44.56		44.64
4		27.670		27.680		27.681		3.019		3.004		182.49		180.95		43.87		44.04
5		27.668		27.680		27.678		3.040		3.020		181.22		181.20		43.01		43.79
6		27.668		27.680		27.679		3.029		3.032		183.00		183.42		41.88		42.49
7		27.669		27.681		27.681		2.993		3.010		181.08		181.93		45.32		45.49
8		27.670		27.681		27.682		2.995		3.022		182.42		180.22		44.72		44.89
9		27.667		27.681		27.679		2.993		2.987		179.27		180.34		46.26		46.34
10		27.670		27.681		27.682		3.004		2.998		183.22		180.37		45.75		46.27

0 21 TSM (ug/l)

1
 2
 3
 4
 5
 6 42.94
 7
 8
 9 40.55
 10

D-Theta = (ptemp + (4.85 * pden)) - 135.97
 Atten-Anom = Atten - 0.387

VENTS 1989 - LEG I
Station X6 Cast 25 12 AUG 89
LAT: 44 53.2N LONG: 129 58.3W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	In situ Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom
1		9		1494		1513		2.385		2.283		0.059843		34.531		34.533		0.535		0.149
2		6		1750		1772		2.065		1.947		0.029195		34.576		34.575		1.371		0.985
3		13		2000		2026		1.869		1.732		0.007817		34.605		34.606		0.385		-0.001
4		3		2049		2078		1.847		1.706		0.010799		34.610		34.610		0.387		0.001
5		1		2049		2077		1.847		1.706		0.010815		34.610		34.608		0.387		0.001
6		16		2102		2131		1.835		1.690		0.012118		34.613		34.613		0.385		-0.001
7		19		2103		2131		1.835		1.690		0.012113		34.613		34.613		0.385		-0.001
8		26		2149		2178		1.824		1.675		0.014342		34.616		34.616		0.385		-0.001
9		23		2150		2178		1.824		1.675		0.010460		34.615		34.612		0.387		0.001
10		14		2200		2231		1.809		1.656		0.009841		34.618		34.619		0.386		0.000
11		17		2201		2232		1.809						34.619				0.385		-0.001
12		27		2406		2440		1.784		1.613		0.021357		34.628		34.625		0.388		0.002

0	11	Sigma-t (CTD)	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-UNF (uM/L)	17	SiO4-FIL (uM/L)	18	SiO4-UNF (uM/L)	19	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)
1		27.565		27.566		27.573		27.575		3.182		3.182		3.181		163.84		162.88		42.56
2		27.627		27.626		27.636		27.635		3.103		3.103		3.102		173.19		172.02		42.75
3		27.665		27.666		27.676		27.677		3.013		3.013		3.017		176.23		176.58		41.67
4		27.671		27.671		27.682		27.682		3.019		3.019		3.018		176.34		176.47		40.93
5		27.671		27.670		27.682		27.682		3.021		3.021		3.005		176.30		176.43		41.27
6		27.675		27.675		27.686		27.686		3.041		3.041		3.060		182.46		176.73		41.13
7		27.675		27.675		27.686		27.686		3.059		3.059		3.024		178.60		179.60		40.78
8		27.678		27.678		27.689		27.689		3.016		3.016		3.001		177.16		177.29		40.40
9		27.677		27.675		27.688		27.688		3.013		3.013		3.017		178.58		176.81		40.56
10		27.681		27.681		27.692		27.692		3.022		3.022		2.958		180.73		180.86		40.35
11		27.681								3.004		3.004		3.018		178.29		179.72		40.17
12		27.690		27.688		27.703		27.701		2.971		2.971		2.961		180.99		182.42		40.18

0	20	NO3-FIL (uM/L)	21	TSM (ug/l)
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1		43.44		10.17
2		42.43		9.86
3		41.76		9.75
4		41.01		11.23
5		40.87		
6		41.27		
7		40.84		10.07
8		40.26		11.96
9		40.48		
10		40.12		11.73
11		40.58		
12		40.23		12.23

D-Theta = (ptemp + (4.85 * pden)) - 135.953
Atten-Anom = Atten - 0.386

VENTS 1989 - LEG I
 Station X8 Cast 26 12 AUG 1989
 LAT: 44 51.7N LONG: 130 16.7W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom
1		22		1894		1918		1.919		1.791		0.017093		34.600		34.601		0.404		0.0165
2		28		1941		1966		1.925		1.793		0.068883		34.613		34.613		0.478		0.0905
3		12		1942		1967		1.925		1.792		0.076569		34.615		34.610		0.480		0.0925
4		1		1988		2014		1.931		1.795		0.081756		34.616		34.613		0.487		0.0995
5		31		1988		2014		1.931		1.794		0.073961		34.614		34.612		0.490		0.1025
6		25		1988		2014		1.931		1.794		0.073955		34.614		34.614		0.486		0.0985
7		24		1988		2014		1.931		1.794		0.077832		34.615		34.615		0.492		0.1045
8		16		1988		2014		1.931		1.794		0.077827		34.615		34.615		0.490		0.1025
9		8		2051		2078		1.930		1.788		0.073834		34.615		34.614		0.479		0.0915
10		23		2051		2078		1.930		1.788		0.069936		34.614		34.614		0.481		0.0935
11		17		2100		2128		1.923		1.777		0.066819		34.615		34.614		0.459		0.0715
12		30		2203		2233		1.914		1.759		0.055584		34.615		34.613		0.427		0.0395
0	11	Sigma-t (CTD)	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	P04-UNF (uM/L)	16	P04-FIL (uM/L)	17	S104-FIL (uM/L)	18	S104-UNF (uM/L)	19	S104-FIL (uM/L)	19	NO3-UNF (uM/L)
1		27.658		27.658		27.668		27.668		27.668		2.999		2.979		181.17		179.85		39.52
2		27.668		27.668		27.678		27.678		27.678		2.939		2.904		182.05		182.05		40.27
3		27.669		27.665		27.679		27.679		27.675		2.922		2.935		184.25		183.59		40.38
4		27.669		27.667		27.680		27.680		27.678		2.886		2.890		182.05		181.83		40.22
5		27.668		27.666		27.678		27.678		27.677		2.874		2.883		183.35		182.91		40.37
6		27.668		27.668		27.678		27.678		27.678		2.903		2.892		183.14		183.14		39.83
7		27.669		27.669		27.679		27.679		27.679		2.944		2.928		185.79		185.56		40.49
8		27.669		27.669		27.679		27.679		27.679		2.896		2.919		183.14		183.14		39.95
9		27.669		27.668		27.680		27.680		27.679		2.833		2.832		183.78		183.34		39.86
10		27.668		27.669		27.679		27.679		27.680		2.903		2.873		183.34		185.74		40.09
11		27.669		27.669		27.681		27.681		27.680		2.898		2.911		182.03		183.99		40.20
12		27.670		27.668		27.682		27.682		27.680		2.915		2.918		183.33		179.62		40.31

D-Theta = (ptemp + (4.85 * pden)) - 135.961
 Atten-Anom = Atten - 0.3875

VENTS 1989 - LEG I
 Station X8 Cast 26 12 AUG 1989
 LAT: 44 51.7N LONG: 130 16.7W

0	20 NO3-FIL (uM/L)	21 TSM (ug/l)
1	40.41	
2	40.36	
3	40.47	
4	39.82	
5	39.98	
6	39.93	
7	42.03	
8	40.12	
9	39.89	
10	40.10	
11	40.55	
12	40.40	

D-Theta = (ptemp + (4.85 * pden)) - 135.961
 Atten-Anom = Atten - 0.3875

VENTS 1989 - LEG I
 Station XT-10 Cast 29 13 AUG 89
 LAT: 44 54.4N LONG: 130 10.8W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom
1		26		1776		1798		1.988		1.869		0.002870		34.583		34.583		0.385		-0.001
2		12		1883		1904		1.909		1.782		0.016734		34.602		34.603		0.408		0.022
3		21		1909		1937		1.920		1.790		0.051500		34.610		34.607		0.457		0.071
4		1		1970		1997		1.929		1.794		0.065028		34.613		34.613		0.484		0.098
5		2		2004		2035		1.931		1.793		0.064241		34.613		34.615		0.484		0.098
6		16		2038		2065		1.932		1.791		0.063275		34.613		34.613		0.481		0.095
7		18		2085		2112		1.928		1.783		0.058101		34.613		34.616		0.465		0.079
8		13		2131		2157		1.915		1.767		0.043605		34.612		34.614		0.437		0.051
9		3		2197		2226		1.913		1.759		0.038484		34.612		34.611		0.422		0.036
10		23		2243		2274		1.912		1.754		0.035156		34.612		34.611		0.413		0.027

0	11	Sigma-t (CTD)	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)
1		27.639		27.639		27.648		27.648		3.121		3.112		175.040		175.190		41.050
2		27.660		27.661		27.670		27.671		3.073		3.070		181.283		179.653		40.863
3		27.666		27.663		27.676		27.673										
4		27.667		27.667		27.678		27.678		3.039		3.026		183.960		184.180		40.150
5		27.667		27.669		27.678		27.679		3.008		3.002		183.283		185.000		39.910
6		27.667		27.667		27.678		27.678		3.004		3.005		183.537		183.687		39.620
7		27.667		27.670		27.679		27.681		3.007		3.005		183.217		182.800		39.647
8		27.668		27.669		27.679		27.679		3.033		3.022		182.263		182.980		39.700
9		27.668		27.667		27.680		27.679		3.027		3.035		182.020		181.460		38.800
10		27.668		27.667		27.680		27.679		3.022		3.020		181.207		181.090		39.583

0	20	NO3-FIL (uM/L)	21	TSM (ug/l)
1		41.423		8.98
2		40.867		30.06
3				
4		40.187		84.29
5		39.790		87.83
6		39.740		80.99
7		39.667		66.76
8		39.657		52.47
9		39.157		40.16
10		39.673		33.64

D-Theta = (ptemp + (4.5906 * pden)) - 128.7861
 Atten-Anom = Atten - 0.386

VENTS 1989 - LEG I
 Station X10 Cast 30 14 AUG 1989
 LAT: 45 25.3N LONG: 131 15.3W

0	1	2	3	4	5	6	7	8	9	10	11
	Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Pottemp	Temp. Anom.	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)
1	27	1015	1026	3.239	3.167		34.396	34.395	0.389	0.002	27.381
2	5	1252	1266	2.805	2.718		34.472	34.471	0.389	0.002	27.481
3	15	1501	1519	2.377	2.275		34.524	34.523	0.388	0.001	27.560
4	19	1749	1771	2.091	1.972		34.569	34.571	0.387	0.000	27.619
5	14	1901	1925	1.980	1.850		34.587	34.588	0.387	0.000	27.642
6	24	2000	2026	1.935	1.797		34.597	34.598	0.387	0.000	27.654
7	22	2041	2068	1.915	1.774		34.602	34.603	0.387	0.000	27.660
8	9	2099	2127	1.890	1.745		34.606	34.606	0.387	0.000	27.665
9	6	2149	2178	1.875	1.726		34.609	34.611	0.387	0.000	27.668
10	10	2201	2231	1.855	1.701		34.614	34.613	0.387	0.000	27.674
11	29	2418	2453	1.790	1.618		34.625	34.627	0.386	-0.001	27.688
12	17	2601	2639	1.711	1.524		34.638	34.634	0.385	-0.002	27.704

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15 PO4-UNF (uM/L)	16 PO4-UNF (uM/L)	17 PO4-FIL (uM/L)	18 SIO4-UNF (uM/L)	19 SIO4-FIL (uM/L)	20 NO3-UNF (uM/L)	21 NO3-FIL (uM/L)
1	27.380	27.388	27.387	3.380	3.393	137.89	136.66						
2	27.480	27.489	27.488	3.332	3.310	151.62	151.67						
3	27.559	27.568	27.567	3.269	3.232	164.50	164.55						
4	27.621	27.629	27.630	3.161	3.174	172.91	173.17						
5	27.643	27.653	27.653	3.117	3.116	175.57	175.62						
6	27.655	27.665	27.665	3.109	3.103	177.80	177.43						
7	27.660	27.670	27.671	3.061	3.089	177.70	180.10						
8	27.665	27.676	27.676	3.078	3.056	179.09	178.50						
9	27.670	27.680	27.681	3.069	3.053	179.62	179.04						
10	27.673	27.686	27.685	3.056	3.049	177.17	182.34						
11	27.689	27.701	27.702	2.998	3.001	180.26	180.32						
12	27.701	27.718	27.715	2.960	2.943	180.37	180.43						

0 21 TSM (ug/l)

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Atten-Anom = Atten - 0.387

VENTS 1989 - LEG I
Station X11 Cast 31 14 AUG 1989
LAT: 45 32.0N LONG: 131 08.0W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom	11	Sigma-t (CTD)
1	27		994	1005		3.181		3.111		34.384		34.383		0.390		0.0045		27.377				27.377
2	5		1249	1264		2.746		2.660		34.469		34.470		0.388		0.0025		27.484				27.484
3	15		1501	1519		2.360		2.258		34.529		34.529		0.387		0.0015		27.565				27.565
4	19		1751	1773		2.074		1.955		34.573		34.573		0.386		0.0005		27.624				27.624
5	4		1896	1921		1.965		1.836		34.590		34.589		0.385		-0.0005		27.646				27.646
6	24		2001	2027		1.916		1.779		34.601		34.601		0.386		0.0005		27.659				27.659
7	22		2050	2078		1.898		1.757		34.605		34.604		0.387		0.0015		27.663				27.663
8	9		2102	2130		1.885		1.739		34.608				0.386		0.0005		27.667				27.667
9	6		2147	2176		1.873		1.724		34.611				0.387		0.0015		27.670				27.670
10	10		2200	2230		1.862		1.708		34.614				0.387		0.0015		27.673				27.673
11	29		2398	2432		1.811		1.640		34.624				0.386		0.0005		27.685				27.685
12	17		2602	2640		1.738		1.550		34.635				0.384		-0.0015		27.700				27.700

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		27.376		27.383		27.382		3.49		3.49		136.59		138.36		44.17		45.50
2		27.485		27.492		27.492		3.34		3.39		153.10		151.88		45.49		45.47
3		27.565		27.574		27.574		3.29		3.24		164.07		164.13		44.68		44.68
4		27.624		27.633		27.633		3.16		3.19		172.70		172.76		43.76		43.74
5		27.645		27.656		27.655		3.10		3.12		175.38		175.23		43.19		43.17
6		27.659		27.669		27.669		3.14		3.10		177.20		177.26		42.93		42.53
7		27.662		27.674		27.673		3.10		3.11		177.33		178.03		42.29		42.35
8				27.678														
9		27.670		27.681		27.681		3.11		3.10		179.37		179.21		42.25		42.31
10		27.670		27.685		27.682		3.11		3.11		179.49		179.34		42.22		42.27
11		27.686		27.698		27.699		3.04		3.07		180.04		182.23		42.10		42.09
12		27.700		27.714		27.714		3.04		3.02		179.95		180.01		41.31		41.30

0 21 TSM (ug/l)

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Atten-Anom = Atten - 0.3855

VENTS 1989 - LEG I
 Station X12 Cast 32 14 AUG 1989
 LAT: 45 38.2N LONG: 131 00.9W

0	1	Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Pottemp	6 Temp. Anom.	7 Salinity (CTD)	8 Salinity (Bottle)	9 Atten. (1/m)	10 Atten. Anom	11	Sigma-t (CTD)
1	27		999	1010	3.241	3.171		34.391	34.389	0.717	0.329		27.377
2	5		1250	1264	2.797	2.711		34.471	34.469	0.665	0.277		27.481
3	15		1499	1517	2.359	2.257		34.529	34.503	0.387	-0.001		27.565
4	19		1747	1769	2.058	1.940		34.575	34.576	0.387	-0.001		27.627
5	14		1900	1925	1.964	1.834		34.592	34.592	0.387	-0.001		27.648
6	24		2001	2027	1.917	1.780		34.602	34.594	0.386	-0.002		27.659
7	31		2049	2076	1.896	1.755		34.606	34.606	0.386	-0.002		27.664
8	9		2102	2130	1.877	1.732		34.609	34.610	0.388	0.000		27.668
9	6		2150	2179	1.864	1.715		34.613	34.610	0.387	-0.001		27.672
10	10		2201	2231	1.850	1.696		34.616	34.616	0.386	-0.002		27.676
11	29		2400	2434	1.793	1.623		34.625	34.625	0.387	-0.001		27.687
12	12		2601	2639	1.746	1.558		34.634	34.634	0.388	0.000		27.698

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15 PO4-UNF (uM/L)	16 PO4-FIL (uM/L)	17 SiO4-UNF (uM/L)	18 SiO4-FIL (uM/L)	19 NO3-UNF (uM/L)	20 NO3-FIL (uM/L)
1	27.375		27.383	27.382	27.382	3.348	3.352	136.93	138.49			
2	27.480		27.489	27.487	27.487	3.310	3.293	151.23	148.07			
3	27.544		27.574	27.553	27.553	3.192	3.191	161.45	161.08			
4	27.627		27.636	27.637	27.637	3.114	3.098	172.96	169.80			
5	27.648		27.658	27.658	27.658	3.081	3.069	176.09	176.15			
6	27.653		27.670	27.664	27.664	3.033	3.031	178.58	176.70			
7	27.664		27.675	27.675	27.675	3.030	3.028	177.84	180.91			
8	27.669		27.679	27.680	27.680	3.026	3.020	178.60	178.88			
9	27.670		27.684	27.681	27.681	3.018	2.981	180.87	179.00			
10	27.676		27.687	27.687	27.687	3.009	3.013	179.27	177.18			
11	27.687		27.700	27.700	27.700	2.962	2.955	179.82	179.67			
12	27.698		27.712	27.712	27.712	2.924	2.912	183.38	179.57			

0 21 TSM (ug/l)

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Atten-Anom = Atten - 0.388

VENTS 1989 - LEG I
 Station X13 Cast 33 15 AUG 1989
 LAT: 45 53.8N LONG: 132 45.7W

0	1	2	3	4	5	6	7	8	9	10	11
	Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Pottemp	Temp. Anom.	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-T (CTD)
1	27	1003	1014	3.244	3.173		34.376	34.375	0.388	0.0025	27.364
2	5	1250	1264	2.728	2.642		34.461	34.656	0.387	0.0015	27.479
3	15	1499	1517	2.356	2.254		34.518	34.518	0.386	0.0005	27.562
4	19	1748	1769	2.083	1.965		34.572	34.573	0.386	0.0005	27.622
5	14	1899	1924	1.973	1.843		34.591	34.593	0.385	-0.0005	27.646
6	24	2001	2027	1.930	1.792		34.600	34.601	0.385	-0.0005	27.657
7	31	2049	2077	1.914	1.773		34.603	34.605	0.385	-0.0005	27.660
8	9	2102	2130	1.889	1.743		34.608	34.609	0.385	-0.0005	27.666
9	10	2149	2178	1.870	1.721		34.612	34.613	0.386	0.0005	27.671
10	6	2198	2228	1.855	1.702		34.614	34.615	0.386	0.0005	27.674
11	29	2403	2437	1.790	1.619		34.626	34.627	0.384	-0.0015	27.688
12	12	2600	2637	1.719	1.532		34.637	34.635	0.384	-0.0015	27.703

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTP)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		27.364		27.371		27.370		3.242		3.231		132.59		133.87				
2		27.635		27.487		27.643		2.739		2.729		175.13		172.78				
3		27.557		27.571		27.565		3.094		3.050		163.55		163.34				
4		27.623		27.632		27.632		3.046		3.035		170.64		166.18				
5		27.648		27.656		27.658		2.987		2.991		173.81		170.84				
6		27.658		27.667		27.668		3.032		2.984		178.04		179.30				
7		27.662		27.671		27.673		2.954		2.986		180.99		179.92				
8		27.667		27.678		27.678		2.938		2.941		179.07		180.54				
9		27.672		27.682		27.683		2.935		2.925		179.05		174.39				
10		27.675		27.686		27.686		2.928		2.923		176.92		175.64				
11		27.689		27.701		27.702		2.898		2.882		176.69		178.16				
12		27.701		27.717		27.715		2.829		2.824		174.98		174.76				

0 21 TSM (ug/l)

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Atten-Anom = Atten - 0.3855

VENTS 1989 - LEG I
 Station X14 Cast 34 15 AUG 1989
 LAT: 46 06.2N LONG: 131 51.9W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp Anom.	6	Temp. (CTD)	7	Salinity (Bottle)	8	Salinity (l/m)	9	Atten. Anom	10	Atten. Anom	11	Sigma-t (CTD)
1	27			999		1009		3.240		3.170		34.377		34.376		0.388		0.002		0.002		27.366
2	5			1249		1263		2.793		2.707		34.467		34.466		0.388		0.002		0.002		27.478
3	21			1501		1519		2.379		2.277		34.519		34.521		0.387		0.001		0.001		27.556
4	19			1748		1770		2.090		1.971		34.566		34.569		0.387		0.001		0.001		27.617
5	14			1898		1923		1.981		1.851		34.586		34.587		0.386		0.000		0.000		27.642
6	24			2000		2026		1.922		1.785		34.597		34.598		0.386		0.000		0.000		27.655
7	31			2050		2078		1.889		1.748		34.605		34.604		0.387		0.001		0.001		27.664
8	9			2100		2128		1.868		1.723		34.610		34.611		0.385		-0.001		-0.001		27.670
9	10			2150		2179		1.849		1.700		34.614		34.615		0.385		-0.001		-0.001		27.674
10	6			2200		2230		1.830		1.677		34.617		34.617		0.385		-0.001		-0.001		27.678
11	29			2398		2432		1.750		1.581		34.631		34.632		0.385		-0.001		-0.001		27.695
12	12			2601		2639		1.686		1.499		34.640		34.639		0.384		-0.002		-0.002		27.708

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1	27.365			27.372		27.371		3.271		3.266		133.40		131.91		42.72		44.55
2	27.477			27.486		27.485		3.245		3.249		146.61		147.89		44.62		45.03
3	27.557			27.564		27.566		3.167		3.190		160.68		159.19		44.56		44.42
4	27.619			27.626		27.629		3.103		3.092		165.15		164.94		44.15		43.81
5	27.642			27.652		27.652		3.039		3.038		166.00		166.00		42.93		42.80
6	27.656			27.666		27.666		3.018		3.016		168.14		168.56		42.73		42.66
7	27.663			27.675		27.674		2.996		3.000		169.41		169.63		42.53		42.59
8	27.670			27.681		27.681		2.999		2.955		171.55		170.69		42.59		42.53
9	27.675			27.686		27.686		2.944		2.952		168.99		168.99		42.39		42.19
10	27.678			27.690		27.690		2.937		2.940		169.63		169.41		41.98		41.98
11	27.696			27.708		27.709		2.896		2.895		169.84		169.84		41.85		41.78
12	27.707			27.721		27.721		2.823		2.845		177.92		174.30		41.37		41.37

0 21 TSM (ug/l)

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Atten-Anom = Atten - 0.386

VENTS 1989 - LEG I
 Station X15 Cast 35 15 AUG 1989
 LAT: 46 18.8N LONG: 131 31.9W

0	1	Niskin #	Depth 2 (m)	Depth 3 (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom	11	Sigma-t (CTD)
1	28	1011	1022	3.236	3.165	34.391	34.388	0.388	0.002											27.377
2	18	1246	1261	2.786	2.700	34.462	34.463	0.387	0.001											27.475
3	21	1501	1519	2.369	2.267	34.526	34.526	0.386	0.000											27.562
4	19	1749	1771	2.086	1.967	34.572	34.572	0.385	-0.001											27.622
5	14	1899	1924	1.985	1.855	34.590	34.590	0.385	-0.001											27.644
6	24	1997	2024	1.939	1.802	34.599	34.579	0.386	0.000											27.655
7	13	2050	2077	1.917	1.775	34.604	34.604	0.386	0.000											27.661
8	9	2101	2130	1.894	1.748	34.608	34.608	0.386	0.000											27.666
9	10	2148	2177	1.876	1.727	34.611	34.612	0.385	-0.001											27.670
10	6	2202	2232	1.862	1.708	34.614	34.612	0.385	-0.001											27.673
11	29	2398	2432	1.815	1.644	34.624	34.623	0.385	-0.001											27.685
12	12	2600	2638	1.741	1.553	34.634	34.629	0.386	0.000											27.699
0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)		
1		27.375		27.384		27.381		3.279		3.271		136.34		136.45		43.27				44.38
2		27.476		27.482		27.483		3.263		3.265		151.33		151.66		44.63				44.59
3		27.562		27.570		27.570		3.156		3.153		164.41		164.75		43.89				43.72
4		27.622		27.631		27.631		3.088		3.094		171.51		171.42		43.20				43.24
5		27.644		27.655		27.655		3.043		3.016		173.48		173.82		42.66				42.50
6		27.639		27.666		27.650		2.998		2.995		175.87		175.78		41.98				41.88
7		27.661		27.672		27.672		2.983		2.985		178.27		180.33		41.51				41.46
8		27.666		27.677		27.677		2.982		2.978		174.44		180.59		42.25				42.14
9		27.671		27.681		27.682		2.975		2.968		178.57		176.97		42.17				42.13
10		27.672		27.685		27.683		2.945		2.933		175.81		177.22		41.68				41.72
11		27.684		27.698		27.697		2.944		2.893		179.72		179.63		42.30				41.98
12		27.695		27.713		27.709		2.852		2.853		179.33		179.89		41.27				41.57

0 21 TSM (ug/l)

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Atten-Anom = Atten - 0.386

VENTS 1989 - LEG I
 Station X16 Cast 36 15 AUG 1989
 LAT: 46 31.1N LONG: 131 23.1W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom
1		28		1000		1011		3.213		3.143		-0.050937		34.377		34.376		0.388		0.0025
2		18		1249		1264		2.752		2.666		0.017299		34.464		34.462		0.388		0.0025
3		21		1500		1518		2.345		2.243		0.012331		34.527		34.528		0.390		0.0045
4		19		1757		1779		2.086		1.967		0.088047		34.590		34.567		0.385		-0.0005
5		14		1905		1930		1.995		1.865		0.009049		34.586		34.588		0.387		0.0015
6		2		1999		2025		1.955		1.817		0.010481		34.594		34.594		0.387		0.0015
7		13		2043		2071		1.939		1.798		0.009846		34.601		34.598		0.387		0.0015
8		9		2097		2125		1.919		1.773		0.010095		34.605		34.599		0.388		0.0025
9		10		2148		2177		1.903		1.753		0.012896		34.608		34.605		0.387		0.0015
10		6		2205		2235		1.890		1.735		0.013316		34.621		34.622		0.389		0.0035
11		29		2403		2437		1.814		1.643		0.005171		34.630		34.629		0.387		0.0015
12		12		2594		2632		1.754		1.566		-0.008844		34.630		34.629		0.387		0.0015

0	11	Sigma-t (CTD)	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)
1		27.368		27.367		27.375		27.374		3.301		3.293		136.87		136.87		42.52
2		27.480		27.478		27.487		27.485		3.247		3.229		152.57		152.56		43.94
3		27.565		27.566		27.573		27.574		3.144		3.136		165.12		165.12		43.20
4		27.636		27.618		27.646		27.627		3.042		3.039		173.28		173.06		42.73
5		27.640		27.642		27.651		27.652		2.998		3.023		175.57		175.56		42.33
6		27.650		27.650		27.661		27.661		3.025		2.984		177.44		177.65		42.95
7		27.654		27.654		27.665		27.665		2.976		2.977		177.64		177.43		42.54
8		27.658		27.657		27.670		27.668		2.969		2.962		177.63		177.63		42.15
9		27.663		27.663		27.674		27.674		2.963		2.960		177.62		177.83		42.11
10		27.666				27.678				2.805		2.807		180.13		180.12		41.34
11		27.683		27.683		27.696		27.696		2.908		2.905		179.70		178.65		42.14
12		27.694		27.694		27.708		27.708		2.873		2.842		179.69		179.68		41.16

D-Theta = (ptemp + (4.85 * pden)) - 135.961
 Atten-Anom = Atten - 0.3855

VENTS 1989 - LEG I
 Station X16 Cast 36 15 AUG 1989
 LAT: 46 31.1N LONG: 131 23.1W

0	20 NO3-FIL	21 TSM
	(uM/L)	(ug/L)
1	43.91	
2	43.91	
3	43.17	
4	42.76	
5	42.34	
6	42.94	
7	42.54	
8	42.14	
9	42.16	
10	41.30	
11	41.91	
12	41.28	

D-Theta = (ptemp + (4.85 * pden)) - 135.961
 Atten-Anom = Atten - 0.3855

VENTS 1989 - LEG I
 Station X17 Cast 37 15 AUG 1989
 LAT: 46 44.2N LONG: 131 50.3W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom	11	Sigma-t (CTD)
1	28		999	1010			3.162		3.092		34.362		34.363		34.363		0.388		0.003		27.361	
2	18		1248	1262			2.796		2.710		34.455		34.456		34.456		1.251		0.866		27.468	
3	21		1500	1518			2.410		2.308		34.518		34.518		34.518		0.386		0.001		27.552	
4	19		1751	1773			2.124		2.005		34.559		34.561		34.561		0.385		0.000		27.609	
5	14		1872	1896			2.020		1.892		34.582		34.582		34.582		0.385		0.000		27.634	
6	2		2002	2028			1.935		1.797		34.597		34.598		34.598		0.385		0.000		27.654	
7	13		2050	2077			1.908		1.767		34.603		34.604		34.604		0.385		0.000		27.661	
8	9		2100	2128			1.884		1.739		34.606		34.606		34.606		0.384		-0.001		27.665	
9	10		2152	2181			1.876		1.726		34.609		34.609		34.610		0.385		0.000		27.668	
10	6		2204	2234			1.852		1.698		34.614		34.615		34.615		0.384		-0.001		27.674	
11	29		2400	2435			1.792		1.622		34.625		34.627		34.627		0.385		0.000		27.687	
12	12		2602	2640			1.720		1.532		34.635		34.631		34.631		0.384		-0.001		27.701	

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1	27.362		27.367		27.368		27.368	3.209	3.231	3.231	139.08	138.88	46.45				46.79	
2	27.469		27.476		27.477		27.477	3.230	3.214	3.214	151.55	153.01					45.86	
3	27.552		27.561		27.561		27.561	3.128	3.131	3.131	162.57	162.58	45.29				45.33	
4	27.610		27.618		27.620		27.620	3.064	3.062	3.062	171.31	172.98	44.74				44.81	
5	27.635		27.644		27.644		27.644	3.023	3.036	3.036	174.23	174.44	44.00				43.94	
6	27.655		27.665		27.665		27.665	2.987	2.991	2.991	176.53	175.29	43.45				43.34	
7	27.662		27.672		27.673		27.673	2.951	2.964	2.964	176.75	176.76	43.17				43.21	
8	27.665		27.676		27.676		27.676	2.972	2.971	2.971	178.63	178.64	42.97				42.93	
9	27.669		27.680		27.680		27.680	2.960	3.001	3.001	178.65	178.65	43.01				43.42	
10	27.675		27.686		27.687		27.687	2.990	2.998	2.998	178.87	178.66	42.88				42.64	
11	27.689		27.700		27.702		27.702	3.026	3.024	3.024	179.92	180.55	42.64				42.10	
12	27.698		27.715		27.712		27.712	2.971	2.964	2.964	180.14	178.07	41.98				41.74	

0 21 TSM (ug/l)

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Atten-Anom = Atten - 0.385

VENTS 1989 - LEG I
 Station X18 Cast 38 16 AUG 1989
 LAT: 47 01.2N LONG: 131 50.0W

0	1	Niskin #	Depth (m)	Depth (db)	4	Insitu Temp.	5	Pottemp	6 Temp. Anom.	7 Salinity (CTD)	8 Salinity (Bottle)	9 Atten. (1/m)	10 Atten. Anom	11	Sigma-t (CTD)
1	28	3	3	3	16.523	16.523	16.523	16.523		32.558	32.559	0.633	0.248		23.752
2	18	24	24	24	13.216	13.213	13.213	13.213		32.566	32.569	0.550	0.165		24.466
3	21	51	52	52	8.474	8.469	8.469	8.469		32.622	32.620	0.491	0.106		25.337
4	19	102	103	103	6.321	6.312	6.312	6.312		32.750	32.746	1.603	1.218		25.735
5	14	251	253	253	5.879	5.858	5.858	5.858		33.885	33.883	0.397	0.012		26.687
6	2	500	504	504	4.297	4.260	4.260	4.260		34.044	34.042	0.387	0.002		26.995
7	13	1000	1010	1010	3.117	3.048	3.048	3.048		34.367	34.366	0.387	0.002		27.369
8	9	1498	1516	1516	2.377	2.275	2.275	2.275		34.516	34.516	0.387	0.002		27.553
9	10	2001	2028	2028	1.927	1.789	1.789	1.789		34.597	34.597	0.385	0.000		27.655
10	6	2501	2537	2537	1.735	1.556	1.556	1.556		34.632	34.630	0.384	-0.001		27.697
11	29	3005	3052	3052	1.614	1.390	1.390	1.390		34.656	34.655	0.386	0.001		27.726
12	1	3236	3289	3289	1.613	1.365	1.365	1.365		34.659	34.658	0.391	0.006		27.728

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		23.753		23.752		23.753		0.618		0.616		1.96		2.01		3.74		3.74
2		24.468		24.467		24.469		0.758		0.766		2.07		2.12		5.19		5.52
3		25.336		25.338		25.336		0.956		0.992		2.59		2.65		8.41		9.01
4		25.732		25.736		25.733		1.283		1.233		8.78		8.62		13.95		14.91
5		26.685		26.689		26.688		2.133		2.131		43.90		42.90		28.60		30.86
6		26.993		26.999		26.997		3.007		3.005		88.44		87.85		41.24		42.80
7		27.368		27.375		27.375		3.325		3.337		141.54		143.46		46.11		46.40
8		27.553		27.562		27.562		3.249		3.251		166.13		166.16		45.82		45.77
9		27.655		27.665		27.665		3.105		3.123		177.50		177.32		44.30		43.36
10		27.696		27.711		27.709		2.991		2.989		181.54		179.69		42.15		42.09
11		27.725		27.742		27.741		2.881		2.874		181.81		179.33		40.87		40.81
12		27.727		27.746		27.745		2.844		2.832		179.99		181.07		40.82		40.82

0 21 TSM (ug/l)

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Atten-Anom = Atten - 0.385

VENTS 1989 - LEG I
 Station X19 Cast 39 16 AUG 1989
 LAT: 46 53.7N LONG: 131 17.7W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp Anom.	6	Temp. (CTD)	7	Salinity (Bottle)	8	Salinity (CTD)	9	Atten. (1/m)	10	Atten. Anom	11	Sigma-t (CTD)
1	22			993		1004		3.193		3.124		34.368		34.367		0.387		0.0015		0.0015		27.363
2	23			1250		1264		2.765		2.679		34.451		34.451		0.387		0.0015		0.0015		27.468
3	5			1501		1519		2.355		2.253		34.514		34.515		0.386		0.0005		0.0005		27.554
4	25			1748		1771		2.097		1.978		34.563		34.563		0.386		0.0005		0.0005		27.614
5	11			1901		1926		1.962		1.832		34.588		34.586		0.385		-0.0005		-0.0005		27.645
6	3			2001		2027		1.899		1.762		34.599		34.600		0.384		-0.0015		-0.0015		27.658
7	24			2051		2078		1.872		1.731		34.605		34.605		0.385		-0.0005		-0.0005		27.665
8	15			2102		2130		1.852		1.707		34.609		34.609		0.385		-0.0005		-0.0005		27.670
9	8			2152		2181		1.846		1.697		34.613		34.614		0.385		-0.0005		-0.0005		27.674
10	30			2203		2234		1.831		1.677		34.617		34.607		0.385		-0.0005		-0.0005		27.678
11	16			2401		2435		1.764		1.594		34.628		34.627		0.384		-0.0015		-0.0015		27.692
12	27			2598		2637		1.693		1.506		34.638		34.636		0.385		-0.0005		-0.0005		27.705

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1	27.362			27.369		27.368		3.243		3.238		134.820		136.520		43.160		43.825
2	27.468			27.476		27.476		3.234		3.211		149.490		149.910		43.640		43.850
3	27.554			27.562		27.563		3.132		3.144		165.085		164.970		43.300		42.875
4	27.614			27.623		27.623		3.052		3.057		172.895		170.760		42.120		42.300
5	27.643			27.655		27.653		3.016		2.975		173.275		169.975		42.790		43.815
6	27.659			27.669		27.670		2.955		2.953		171.110		170.565		43.580		43.515
7	27.665			27.676		27.676		2.916		2.935		177.840		178.565		42.845		43.345
8	27.670			27.681		27.681		2.922		2.917		176.725		176.610		42.450		42.855
9	27.674			27.685		27.686		2.930		2.965		179.740		179.725		42.585		42.915
10	27.670			27.690		27.692		2.896		2.889		179.580		179.355		42.690		42.905
11	27.691			27.705		27.704		2.861		2.868		175.520		173.925		42.515		42.535
12	27.704			27.719		27.718		2.813		2.836		175.045		175.240		41.757		41.535

0 21 TSM (ug/l)

1	11.89
2	9.92
3	8.76
4	13.23
5	10.00
6	9.42
7	9.50
8	9.84
9	9.10
10	10.04
11	9.42
12	14.20

Atten-Anom = Atten - 0.3855

VENTS 1989 - LEG I
 Station X24 Cast 40 16 AUG 1989
 LAT: 46 50.1N LONG: 130 08.8W

0	1	Niskin #	Depth 2 (m)	Depth 3 (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom	11	Sigma-t (CTD)
1	1	5	1502	1520		2.390		2.288	-0.002610		34.512		34.626		0.386		0.000		27.549	
2	2	25	1750	1772		2.100		1.981	0.006005		34.565		34.563		0.385		-0.001		27.615	
3	3	3	2002	2028		1.939		1.801	0.004545		34.595		34.595		0.386		0.000		27.652	
4	4	24	2101	2129		1.891		1.745	0.010087		34.606		34.606		0.385		-0.001		27.665	
5	5	15	2203	2233		1.845		1.691	-0.002270		34.612		34.610		0.385		-0.001		27.673	
6	6	8	2250	2281		1.820		1.663	-0.005855		34.616		34.617		0.385		-0.001		27.678	
7	7	30	2302	2334		1.796		1.634	-0.005329		34.621		34.622		0.384		-0.002		27.684	
8	8	16	2399	2433		1.754		1.584	-0.015305		34.627		34.628		0.384		-0.002		27.692	
9	9	27	2437	2472		1.746		1.573	-0.015187		34.629		34.624		0.386		0.000		27.694	
0	0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)	
1	1	27.640	27.558	27.649	27.623	2.844	2.856	182.015	181.410											
2	2	27.614	27.625	27.623	27.663	3.013	3.017	173.705	174.060											
3	3	27.652	27.663	27.663	27.676	2.944	2.934	178.890	179.345											
4	4	27.665	27.676	27.676	27.685	2.918	2.917	179.440	179.365											
5	5	27.671	27.685	27.683	27.691	2.892	2.908	179.350	179.485											
6	6	27.679	27.690	27.691	27.697	2.878	2.889	179.995	180.335											
7	7	27.685	27.696	27.697	27.705	2.863	2.874	180.020	179.830											
8	8	27.693	27.705	27.705	27.703	2.858	2.860	177.930	177.970											
9	9	27.690	27.707	27.703		2.839	2.846	175.980	175.165											

0 21 TSM (ug/l)

1 11.42
 2 12.60
 3 8.54
 4 11.63
 5 8.46
 6 9.48
 7 8.84
 8 13.18
 9 11.55

D-Theta = (ptemp + (4.694 * pden)) - 131.6454
 Atten-Anom = Atten - 0.386

VENTS 1989 - LEG I
 Station X23 Cast 41 17 AUG 1989
 LAT: 46 43.8N LONG: 129 39.8W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom	11	Sigma-t (CTD)
1	1	18	1505	1523	2.351	2.249	0.014891	34.523	34.521	0.386	0.0005	27.561										
2	2	19	1750	1772	2.077	1.958	-0.000794	34.567	34.565	0.385	-0.0005	27.619										
3	3	17	2002	2028	1.924	1.786	0.002577	34.597	34.597	0.385	-0.0005	27.655										
4	4	12	2108	2137	1.884	1.738	0.005239	34.606	34.602	0.384	-0.0015	27.665										
5	5	1	2205	2235	1.835	1.681	-0.001210	34.614	34.613	0.384	-0.0015	27.675										
6	6	20	2245	2276	1.817	1.660	0.000073	34.618	34.616	0.384	-0.0015	27.680										
7	7	14	2301	2333	1.792	1.630	0.003445	34.624	34.621	0.383	-0.0025	27.687										
8	8	6	2395	2429	1.762	1.593	-0.006191	34.628	34.625	0.384	-0.0015	27.692										
9	9	31	2606	2644	1.749	1.560	-0.004619	34.634	34.633	0.388	0.0025	27.698										

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNE (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNE (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNE (uM/L)	20	NO3-FIL (uM/L)
1		27.559		27.570		27.568		3.146		2.134		165.225		164.825				
2		27.617		27.628		27.626		3.061		3.063		172.105		171.500				
3		27.655		27.665		27.665		3.007		3.009		175.225		174.935				
4		27.662		27.676		27.673		2.981		2.967		175.940		176.905				
5		27.675		27.687		27.686		2.943		2.950		176.140		175.960				
6		27.678		27.692		27.690		2.949		2.939		176.020		176.985				
7		27.684		27.699		27.696		2.907		2.909		176.110		176.240				
8		27.690		27.705		27.702		2.905		2.899		176.420		176.855				
9		27.697		27.712		27.711		2.886		2.884		178.070		179.035				

0	21 TSM (ug/l)
1	8.86
2	9.40
3	7.54
4	9.19
5	10.27
6	9.92
7	9.59
8	8.92
9	14.69

D-Theta = (ptemp + (4.694 * pden)) - 131.6454
 Atten-Anom = Atten - 0.3855

VENTS 1989 - LEG I
 Station X22 Cast 42 17 AUG 1989
 LAT: 46 41.7N LONG: 129 32.4W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom	11	Sigma-t (CTD)
1		28		1500		1519		2.349		2.247		0.010372		34.521		34.521		0.386		-0.001		27.560
2		2		1752		1774		2.065		1.946		-0.004388		34.567		34.568		0.386		-0.001		27.620
3		10		2002		2028		1.916		1.779		0.005283		34.598		34.599		0.386		-0.001		27.656
4		13		2103		2131		1.879		1.733		0.010132		34.607		34.607		0.385		-0.002		27.666
5		9		2202		2232		1.839		1.685		0.001713		34.613		34.614		0.385		-0.002		27.674
6		21		2252		2284		1.822		1.664		0.003060		34.617		34.619		0.386		-0.001		27.679
7		11		2289		2321		1.805		1.644		0.001389		34.620		34.619		0.385		-0.002		27.682
8		22		2349		2382		1.792		1.626		-0.002845		34.622		34.624		0.385		-0.002		27.685
9		23		2408		2442		1.784		1.613		-0.000168		34.625		34.627		0.387		0.000		27.688

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1	27.560		27.568		27.568		3.212	3.219	168.225	168.455	35.81	35.36						
2	27.620		27.629		27.630		3.119	3.136	175.315	175.330	34.72	34.69						
3	27.657		27.667		27.668		3.060	3.044	178.775	179.000	33.92	35.34						
4	27.666		27.677		27.677		3.061	3.038	181.160	180.120	34.01	33.84						
5	27.675		27.686		27.687		3.013	2.999	180.460	180.590	33.02	33.95						
6	27.680		27.691		27.692		2.982	2.988	177.655	179.680	33.10	33.83						
7	27.682		27.695		27.694		2.993	2.992	179.610	180.045	32.81	33.01						
8	27.687		27.698		27.699		2.973	2.993	180.510	180.410	33.40	32.98						
9	27.690		27.701		27.703		2.964	2.968	182.030	183.200	32.80	32.79						

0 21 TSM (ug/l)

1	15.44
2	9.93
3	9.23
4	7.85
5	8.27
6	8.90
7	14.13
8	10.42
9	11.70

D-Theta = (ptemp + (4.694 * pden)) - 131.6414
 Atten-Anom = Atten - 0.387

VENTS 1989 - LEG I
 Station X58 Cast 43 17 AUG 1989
 LAT: 46 39.5N LONG: 129 25.5W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom	11	Sigma-t (CTD)
1		26		1495		1513		2.313		2.212		0.003503		34.526		34.527		0.387		0.001		27.567
2		5		1753		1775		2.070		1.951		0.005964		34.570		34.571		0.385		-0.001		27.622
3		25		1833		1856		2.007		1.883		0.003739		34.581		34.574		0.385		-0.001		27.635
4		3		2005		2031		1.884		1.747		0.007198		34.605		34.606		0.385		-0.001		27.664
5		24		2049		2076		1.861		1.720		0.005238		34.609		34.609		0.385		-0.001		27.669
6		15		2148		2177		1.828		1.679		0.008824		34.617		34.619		0.385		-0.001		27.678
7		8		2247		2278		1.823		1.666		0.018807		34.622		34.622		0.386		0.000		27.683
8		30		2297		2329		1.815		1.653		0.014586		34.623		34.619		0.386		0.000		27.684
9		16		2349		2382		1.815		1.649		0.015338		34.624		34.619		0.386		0.000		27.685
10		27		2390		2424		1.821		1.651		0.016738		34.624		34.621		0.386		0.000		27.684

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		27.567		27.575		27.576		3.106		3.108		165.53		165.18				
2		27.622		27.631		27.632		3.043		3.037		171.34		172.03				
3		27.630		27.645		27.640		3.005		2.994		174.95		173.23				
4		27.665		27.675		27.676		2.948		2.954		175.42		177.58				
5		27.669		27.680		27.680		2.945		2.921		175.89		176.05				
6		27.680		27.690		27.691		2.870		2.904		178.98		179.15				
7		27.683		27.695		27.695		2.901		2.900		179.56		179.84				
8		27.681		27.696		27.693		2.893		2.882		179.33		181.92				
9				27.697														
10		27.682		27.697		27.695		2.890		2.889		179.63		179.81				

0	21	TSM (ug/l)
1		10.32
2		8.85
3		10.49
4		10.35
5		9.16
6		12.03
7		11.63
8		
9		
10		13.79

D-Theta = (ptemp + (4.694 * pden)) - 131.6454
 Atten-Anom = Atten - 0.386

VENTS 1989 - LEG I
 Station X21 Cast 44 17 AUG 1989
 LAT: 46 37.9N LONG: 129 18.3W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom	11	Sigma-t (CTD)
1		1		1491		1509		2.346		2.245		0.021291		34.524		34.616		0.385		-0.001		27.562
2		20		1751		1773		2.054		1.936		0.004842		34.571		34.572		0.385		-0.001		27.624
3		14		1998		2024		1.907		1.770		0.008345		34.600		34.601		0.385		-0.001		27.659
4		6		2100		2128		1.865		1.720		0.009952		34.609		34.610		0.385		-0.001		27.669
5		31		2199		2229		1.821		1.668		0.006454		34.617		34.617		0.385		-0.001		27.679
6		18		2251		2282		1.797		1.640		0.006987		34.622		34.623		0.385		-0.001		27.685
7		19		2298		2330		1.789		1.628		0.010473		34.625		34.626		0.387		0.001		27.688
8		17		2397		2431		1.779		1.609		0.017083		34.630		34.631		0.387		0.001		27.692
9		12		2600		2638		1.793		1.604		0.021421		34.632		34.633		0.392		0.006		27.693

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		27.636		27.571		27.644		2.998		2.983		179.59		179.58		42.11		42.00
2		27.625		27.633		27.634		3.122		3.120		173.44		173.33		43.34		43.38
3		27.659		27.669		27.670		3.058		3.062		177.97		177.01		42.39		42.21
4		27.670		27.680		27.681		3.056		3.061		178.79		177.94		42.03		41.74
5		27.679		27.690		27.690		3.028		3.021		179.19		178.98		41.20		41.26
6		27.685		27.697		27.697		3.002		2.998		180.13		179.70		41.15		40.65
7		27.688		27.700		27.701		3.001		3.006		181.59		181.47		41.05		40.83
8		27.693		27.705		27.706		2.995		3.010		183.89		183.98		40.60		40.92
9		27.694		27.707		27.708		3.056		3.007		185.23		184.91		40.50		40.53

0	21	TSM (ug/l)
1		10.42
2		11.01
3		9.61
4		10.43
5		11.95
6		10.75
7		11.52
8		13.43
9		18.92

D-Theta = (ptemp + (4.694 * pden)) - 131.6404
 Atten-Anom = Atten - 0.386

VENTS 1989 - LEG I
 Station X20 Cast 45 17 AUG 1989
 LAT: 46 35.8N LONG: 129 10.9W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom
1		21		2307		2339		1.796		1.634		0.005914		34.623		34.617		0.384		-0.002
2		9		2399		2433		1.784		1.614		0.015403		34.629		34.628		0.383		-0.003
3		29		2600		2638		1.766		1.578		0.033207		34.640		34.640		0.390		0.004
0	11	Sigma-t (CTD)	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)		
1		27.686		27.681		27.698		27.698		27.693		2.997		3.011		180.58		179.84		40.88
2		27.691		27.690		27.704		27.704		27.703		2.964		2.980		183.51		181.29		40.79
3		27.701		27.701		27.716		27.716		27.716		2.940		2.936		186.01		187.06		40.17
0	20	NO3-FIL (uM/L)	21	TSM (ug/l)																
1		40.93		10.31																
2		40.47		9.18																
3		40.03		15.62																

D-Theta = (ptemp + (4.694 * pden)) - 131.6414
 Atten-Anom = Atten - 0.386

VENTS 1989 - LEG I
Station X32 Cast 46 18 AUG 1989
LAT: 46 43.4N LONG: 129 05.3W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom
1		23		1502		1520		2.381		2.279		0.046521		34.526		34.635		0.385		-0.0005
2		10		1752		1774		2.086		1.967		0.014199		34.569		34.598		0.384		-0.0015
3		13		2002		2028		1.905		1.768		0.007617		34.601		34.611		0.385		-0.0005
4		2		2103		2131		1.862		1.717		0.008651		34.610		34.613		0.384		-0.0015
5		22		2196		2226		1.824		1.671		0.009314		34.618		34.620		0.383		-0.0025
6		11		2253		2284		1.807		1.649		0.010262		34.622		34.621		0.383		-0.0025
7		25		2298		2330		1.796		1.635		0.011953		34.625		34.625		0.383		-0.0025
8		3		2398		2432		1.783		1.613		0.012833		34.629		34.636		0.383		-0.0025
9		26		2586		2624		1.768		1.581		0.025804		34.638		34.522		0.389		0.0035

0	11	Sigma-t (CTD)	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)
1		27.561		27.648		27.569		27.657		3.136		3.057		186.175		186.320		39.91
2		27.620		27.643		27.629		27.652		3.113		3.130		353.440		178.430		41.15
3		27.659		27.668		27.670		27.678		3.137		3.134		178.340		178.370		41.36
4		27.672		27.672		27.681		27.684		3.069		3.074		181.200		180.510		41.59
5		27.679		27.681		27.691		27.693		3.062		3.069		180.935		181.705		41.49
6		27.684		27.683		27.696		27.695		3.064		3.064		182.550		183.005		41.18
7		27.687		27.687		27.699		27.699		3.057		3.024		182.285		182.530		37.07
8		27.691		27.697		27.704		27.710		2.721		2.798		187.660		187.800		37.08
9		27.700		27.607		27.714		27.621		2.992		3.037		164.410		164.345		40.86

0	20	NO3-FIL (uM/L)	21	TSM (ug/l)
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1	39.52
2	41.15
3	41.10
4	42.01
5	41.56
6	40.94
7	38.19
8	36.94
9	40.78

D-Theta = (ptemp + (4.694 * pden)) - 131.6434
Atten-Anom = Atten - 0.3855

VENTS 1989 - LEG I
 Station X31 Cast 47 18 AUG 1989
 LAT: 46 47.2N LONG: 129 12.7W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom
1		14		1502		1520		2.349		2.247		0.031850		34.527		34.527		0.385		-0.001
2		6		1754		1776		2.087		1.968		0.011950		34.568		34.567		0.384		-0.002
3		20		2005		2031		1.897		1.760		0.003402		34.601		34.600		0.385		-0.001
4		31		2100		2128		1.863		1.718		0.002908		34.608		34.607		0.385		-0.001
5		18		2204		2234		1.813		1.660		0.006599		34.619		34.617		0.384		-0.002
6		19		2242		2273		1.800		1.644		0.003658		34.621		34.621		0.385		-0.001
7		12		2396		2430		1.778		1.608		0.006973		34.628		34.631		0.386		0.000
8		27		2482		2518		1.780		1.602		0.010695		34.630		34.629		0.388		0.002

0	11	Sigma-t (CTD)	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)
1		27.564		27.564		27.573		27.573		3.142		3.117		165.82		165.32		
2		27.619		27.618		27.628		27.627		3.055		3.063		172.51		171.60		
3		27.660		27.659		27.671		27.670		3.003		3.000		177.22		177.13		
4		27.668		27.668		27.679		27.679		2.968		2.955		177.94		177.97		
5		27.681		27.679		27.693		27.691		2.955		2.955		181.17		179.22		
6		27.684		27.684		27.695		27.695		2.948		2.943		180.33		180.04		
7		27.691		27.693		27.704		27.706		2.902		2.904		182.19		181.49		
8		27.692		27.692		27.706		27.705		2.906		2.919		182.81		182.84		

0	20	NO3-FIL (uM/L)	21	TSM (ug/l)
1				11.15
2				11.46
3				10.49
4				12.53
5				19.76
6				9.63
7				11.68
8				15.89

D-Theta = (ptemp + (4.694 * pden)) - 131.6424
 Atten-Anom = Atten - 0.386

VENTS 1989 - LEG I
 Station X30 Cast 48 18 AUG 1989
 LAT: 46 48.8N LONG: 129 19.5W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom	11	Sigma-t (CTD)
1		5		1499		1517		2.332		2.231		0.008146		34.525		34.525		0.386		0.000		27.564
2		30		1757		1779		2.054		1.935		0.004025		34.573		34.567		0.385		-0.001		27.625
3		16		1822		1845		1.996		1.873		0.005691		34.584		34.583		0.385		-0.001		27.639
4		15		2000		2026		1.903		1.766		0.008977		34.603		34.602		0.385		-0.001		27.661
5		24		2046		2073		1.886		1.745		0.006973		34.606		34.600		0.385		-0.001		27.665
6		1		2100		2128		1.867		1.722		0.006974		34.610		34.612		0.385		-0.001		27.670
7		8		2162		2192		1.827		1.677		0.008126		34.618		34.618		0.385		-0.001		27.679
8		21		2260		2291		1.816		1.658		0.018160		34.624		34.625		0.387		0.001		27.685
9		9		2288		2320		1.815		1.654		0.015906		34.624		34.624		0.386		0.000		27.685
10		29		2361		2394		1.825		1.657		0.018010		34.624		34.623		0.387		0.001		27.684

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		27.564		27.573		27.573		3.186		3.157		163.39		165.26				
2		27.621		27.635		27.630		3.063		3.056		170.11		170.38				
3		27.638		27.648		27.648		3.035		3.033		172.81		172.70				
4		27.660		27.672		27.671		3.003		3.006		176.67		176.85				
5		27.660		27.676		27.671		3.007		3.000		175.78		176.38				
6		27.671		27.681		27.682		2.951		2.938		177.22		177.39				
7		27.679		27.691		27.691		2.907		2.907		178.12		178.08				
8		27.686		27.697		27.698		2.905		2.881		179.66		179.31				
9		27.685		27.697		27.697		2.894		2.884		179.51		179.63				
10		27.683		27.697		27.696		2.904		2.907		178.83		178.80				

0	21	TSM (ug/l)
1		10.56
2		11.13
3		9.64
4		9.70
5		13.92
6		12.07
7		10.83
8		11.79
9		12.45
10		11.21

D-Theta = (ptemp + (4.694 * pden)) - 131.6484
 Atten-Anom = Atten - 0.386

VENTS 1989 - LEG I
 Station X29 Cast 49 18 AUG 1989
 LAT: 46 51.0N LONG: 129 26.3W

0	1	Niskin #	Depth 2 (m)	Depth 3 (db)	4	Insitu Temp.	5	Pottemp	6 Temp. Anom.	7 Salinity (CTD)	8 Salinity (Bottle)	9 Atten. (1/m)	10 Atten. Anom	11	Sigma-t (CTD)
1	23	1499	1517		2.319		2.218	0.006958		34.526	34.525	0.386	0.000		27.566
2	10	1748	1770		2.050		1.932	0.001227		34.572	34.571	0.385	-0.001		27.625
3	13	2002	2028		1.911		1.774	0.009407		34.601	33.125	0.385	-0.001		27.659
4	2	2101	2130		1.872		1.727	0.009298		34.609	34.606	0.385	-0.001		27.668
5	22	2203	2233		1.824		1.671	0.003177		34.617	34.614	0.384	-0.002		27.679
6	11	2252	2283		1.809		1.652	0.005826		34.621	34.616	0.385	-0.001		27.683
7	25	2301	2333		1.799		1.637	0.004149		34.623	34.620	0.385	-0.001		27.685
8	3	2401	2435		1.776		1.606	-0.001344		34.627	34.627	0.385	-0.001		27.690
9	26	2538	2575		1.751		1.569	-0.002956		34.633	34.629	0.388	0.002		27.697

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1	27.565		27.574		27.574		3.094	3.090		164.69	165.57							
2	27.624		27.634		27.633		2.996	2.988		172.05	172.61							
3	26.476		27.670		26.486													
4	27.666		27.680		27.677		2.915	2.922		176.79	176.52							
5	27.676		27.690		27.688		2.902	2.902		177.83	178.18							
6	27.679		27.695		27.691		2.890	2.882		177.88	178.13							
7	27.683		27.698		27.695		2.917	2.914		180.03	177.97							
8	27.690		27.703		27.703		2.902	2.889		177.78	177.19							
9	27.694		27.711		27.707		2.872	2.871		177.20	178.49							

0	21	TSM (ug/l)
1	10.75	
2	10.89	
3	61.04	
4	11.63	
5	11.29	
6	13.77	
7	13.27	
8	9.65	
9	14.14	

D-Theta = (ptemp + (4.694 * pden)) - 131.6454
 Atten-Anom = Atten - 0.386

VENTS 1989 - LEG I
 Station X28 Cast 50 18 AUG 1989
 LAT: 46 53.4N LONG: 129 33.6W

0	1	Niskin #	Depth 2 (m)	Depth 3 (db)	4 Insitu Temp.	5 Pottemp	6 Temp. Anom.	7 Salinity (CTD)	8 Salinity (Bottle)	9 Atten. (1/m)	10 Atten. Anom	11 Sigma-t (CTD)
1		27	1496	1514	2.366	2.265	0.015663	34.518	34.513	0.387	0.0015	27.556
2		18	1751	1773	2.077	1.958	0.001600	34.565	34.566	0.387	0.0015	27.617
3		19	1999	2025	1.902	1.765	0.006354	34.599	34.599	0.385	-0.0005	27.658
4		17	2100	2129	1.856	1.711	0.009206	34.609	34.609	0.384	-0.0015	27.670
5		12	2203	2234	1.815	1.662	0.007398	34.617	34.615	0.385	-0.0005	27.679
6		20	2245	2276	1.797	1.640	0.004809	34.620	34.620	0.384	-0.0015	27.683
7		6	2300	2332	1.780	1.619	0.002090	34.623	34.622	0.384	-0.0015	27.687
8		14	2400	2434	1.758	1.588	0.000944	34.628	34.629	0.385	-0.0005	27.692
9		31	2600	2638	1.755	1.567	0.002068	34.632	34.628	0.390	0.0045	27.696

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		27.552		27.564		27.560		3.194		3.192		164.58		163.67				
2		27.618		27.626		27.627		3.117		3.117		172.20		172.41				
3		27.658		27.669		27.669		3.081		3.089		177.89		178.00				
4		27.670		27.681		27.681		3.041		3.046		179.48		180.63				
5		27.678		27.689		27.689		3.053		3.057		179.75		179.04				
6		27.683		27.695		27.695		3.062		3.066		179.60		179.92				
7		27.686		27.699		27.699		3.053		3.050		182.44		180.50				
8		27.693		27.705		27.706		3.032		3.012		181.36		181.17				
9		27.693		27.710		27.707		2.889		2.904		179.56		179.67				

0	21	TSM (ug/l)
1	25.60	
2	10.91	
3	10.72	
4	10.74	
5	10.86	
6	10.70	
7	10.71	
8	12.43	
9	14.86	

D-Theta = (ptemp + (4.694 * pden)) - 131.6354
 Atten-Anom = Atten - 0.3855

VENTS 1989 - LEG I
 Station X27 Cast 51 18 AUG 1989
 LAT: 47 04.8N LONG: 130 00.6W

0	1	2	3	4	5	6	7	8	9	10	11	
		Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Pottemp	Temp. Anom.	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)
1	16		1495	1513	2.318	2.217		34.524	34.524	0.386	0.0005	27.565
2	30		1754	1776	2.053	1.934		34.570	34.565	0.386	0.0005	27.623
3	5		2002	2028	1.921	1.783		34.601	34.599	0.384	-0.0015	27.658
4	8		2105	2133	1.889	1.743		34.606	34.605	0.384	-0.0015	27.665
5	1		2196	2226	1.852	1.699		34.612	34.608	0.384	-0.0015	27.672
6	15		2249	2280	1.835	1.677		34.615	34.613	0.383	-0.0025	27.676
7	21		2303	2335	1.814	1.652		34.618	34.618	0.384	-0.0015	27.680
8	9		2401	2436	1.772	1.602		34.625	34.624	0.383	-0.0025	27.689
9	29		2603	2642	1.725	1.537		34.634	34.638	0.388	0.0025	27.700

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1	27.565	27.573	27.573	27.628	27.628	27.628	3.282	3.282	163.98	163.98	162.56	172.28	177.94	177.94	177.94	177.94	177.94	177.94
2	27.619	27.632	27.632	27.667	27.667	27.667	3.175	3.175	178.11	178.11	177.77	175.21	175.21	175.21	175.21	175.21	175.21	175.21
3	27.657	27.669	27.669	27.676	27.676	27.676	3.130	3.130	178.26	178.26	174.73	173.44	173.44	173.44	173.44	173.44	173.44	173.44
4	27.664	27.676	27.676	27.684	27.684	27.684	3.098	3.098	180.31	180.31	180.66	180.66	180.66	180.66	180.66	180.66	180.66	180.66
5	27.669	27.681	27.681	27.688	27.688	27.688	3.066	3.066	178.89	178.89	178.81	178.81	178.81	178.81	178.81	178.81	178.81	178.81
6	27.675	27.687	27.687	27.692	27.692	27.692	3.050	3.050	178.89	178.89	178.81	178.81	178.81	178.81	178.81	178.81	178.81	178.81
7	27.680	27.692	27.692	27.701	27.701	27.701	3.036	3.036	178.89	178.89	178.81	178.81	178.81	178.81	178.81	178.81	178.81	178.81
8	27.688	27.702	27.702	27.714	27.714	27.714	2.986	2.986	178.89	178.89	178.81	178.81	178.81	178.81	178.81	178.81	178.81	178.81
9	27.703	27.714	27.714				2.951	2.951										

0	21	TSM (ug/l)
1	9.83	
2	9.68	
3	8.35	
4	10.68	
5	9.06	
6	8.95	
7	8.42	
8	9.88	
9	15.04	

Atten-Anom = Atten - 0.3855

VENTS 1989 - LEG I
 Station X26 Cast 52 19 AUG 1989
 LAT: 47 12.3N LONG: 130 28.9W

0	1	Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Pottemp	6 Temp. Anom.	7 Salinity (CTD)	8 Salinity (Bottle)	9 Atten. (1/m)	10 Atten. Anom.	11 Sigma-t (CTD)
1	23		1501	1519	2.333	2.231	0.003086	34.519	34.517	0.386	0.001	27.559
2	19		1749	1771	2.080	1.961	0.007597	34.565	34.564	0.385	0.000	27.617
3	17		2004	2030	1.902	1.765	0.002556	34.597	34.596	0.385	0.000	27.657
4	2		2101	2129	1.853	1.708	0.011277	34.609	34.609	0.384	-0.001	27.670
5	10		2199	2230	1.824	1.671	0.013598	34.616	34.614	0.383	-0.002	27.678
6	3		2247	2279	1.807	1.650	0.007534	34.618	34.619	0.383	-0.002	27.681
7	24		2300	2332	1.786	1.625	0.009912	34.623	34.621	0.384	-0.001	27.686
8	22		2398	2432	1.733	1.564	0.000285	34.631	34.631	0.384	-0.001	27.697
9	26		2600	2639	1.706	1.519	-0.006659	34.637	34.632	0.389	0.004	27.704

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		27.558		27.568		27.566		3.241		3.221		165.08		164.97				
2		27.616		27.626		27.625		3.169		3.143		171.53		171.63				
3		27.656		27.666		27.666		3.031		3.025		175.48		174.96				
4		27.670		27.681		27.681		3.025		3.024		176.31		175.38				
5		27.676		27.689		27.688		3.014		2.998		176.11		175.80				
6		27.682		27.693		27.693		2.977		3.002		174.65		174.34				
7		27.685		27.698		27.697		2.950		2.960		174.66		174.55				
8		27.697		27.709		27.709		2.960		2.959		174.45		172.69				
9		27.700		27.718		27.714		2.923		2.907		181.10		179.12				

0	21	TSM (ug/l)
1		11.40
2		8.40
3		11.22
4		8.35
5		9.59
6		9.15
7		10.73
8		10.23
9		15.91

D-Theta = (ptemp + (4.694 * pden)) - 131.6314
 Atten-Anom = Atten - 0.385

VENTS 1989 - LEG I
 Station X25 Cast 53 19 AUG 1989
 LAT: 47 19.5N LONG: 130 57.8W

0	1	Niskin #	Depth (m)	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom	11	Sigma-t (CTD)
1		14	1500	1518		2.377		2.275	0.028118		34.518		34.518		0.386		0.001		27.555	
2		6	1753	1775		2.106		1.987	0.014283		34.562		34.562		0.386		0.001		27.612	
3		20	1999	2026		1.911		1.774	0.002979		34.595		34.596		0.385		0.000		27.654	
4		12	2100	2129		1.864		1.719	0.005233		34.605		34.606		0.385		0.000		27.666	
5		18	2201	2232		1.822		1.669	0.006679		34.614		34.615		0.384		-0.001		27.676	
6		11	2246	2277		1.811		1.654	0.000870		34.615		34.616		0.384		-0.001		27.678	
7		31	2298	2330		1.784		1.623	0.003190		34.621		34.621		0.384		-0.001		27.685	
8		25	2395	2429		1.750		1.581	0.002100		34.628		34.617		0.383		-0.002		27.693	
9		27	2605	2644		1.694		1.507	-0.008925		34.638		34.635		0.386		0.001		27.705	

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		27.555		27.563		27.563		3.252		3.281		162.96		163.07				
2		27.612		27.622		27.622		3.165		3.169		170.05		167.66				
3		27.655		27.665		27.666		3.105		3.087		169.43		169.74				
4		27.667		27.677		27.678		3.065		3.058		174.02		178.08				
5		27.677		27.688		27.689		3.045		3.033		176.94		176.84				
6		27.679		27.690		27.691		3.021		3.029		176.11		172.47				
7		27.685		27.697		27.697		3.048		3.046		174.66		178.30				
8		27.684		27.706		27.697		3.018		3.032		173.00		178.52				
9		27.703		27.719		27.717		2.897		2.925		174.88		177.69				

0	21	TSM (ug/l)
1		11.54
2		11.75
3		10.46
4		10.65
5		9.26
6		9.22
7		9.15
8		12.21
9		14.54

D-Theta = (ptemp + (4.694 * pden)) - 131.6294
 Atten-Anom = Atten - 0.385

VENTS 1989 - LEG I
Station X39 Cast 54 19 AUG 89
LAT: 47 34.0N LONG: 130 49.5W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom
1		13		20		15		16.721		16.719		-4.909538		32.205		32.245		0.618		0.231
2		16		1500		1519		2.448		2.345		0.061966		34.518		34.517		0.386		-0.001
3		30		1749		1773		2.104		1.985		0.011689		34.564		34.563		0.385		-0.002
4		5		1998		2025		1.909		1.772		0.007800		34.599		34.599		0.400		0.013
5		8		2103		2133		1.863		1.718		0.006629		34.608		34.608		0.385		-0.002
6		1		2202		2233		1.822		1.669		0.012679		34.618		34.617		0.386		-0.001
7		21		2305		2337		1.787		1.625		0.010779		34.625		34.625		0.385		-0.002
8		9		2400		2436		1.766		1.596		0.010480		34.630		34.632		0.386		-0.001
9		29		2595		2632		1.702		1.515		-0.008311		34.639		34.639		0.386		-0.001

0	11	Sigma-t (CTD)	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-UNF (uM/L)	17	SiO4-FIL (uM/L)	18	SiO4-UNF (uM/L)	19	SiO4-FIL (uM/L)	20	NO3-UNF (uM/L)
1		23.436		23.466		23.436		23.467		3.071		3.112		161.41		161.63		161.63		
2		27.549		27.548		27.558		27.557		3.022		3.019		170.44		170.66		170.66		
3		27.614		27.613		27.624		27.623		2.958		2.956		177.37		177.60		177.60		
4		27.658		27.658		27.668		27.668		2.919		2.946		179.08		178.67		178.67		
5		27.668		27.668		27.679		27.679		2.900		2.892		181.41		180.37		180.37		
6		27.680		27.679		27.691		27.690		2.885		2.848		185.41		182.49		182.49		
7		27.688		27.688		27.700		27.700		2.880		2.882		179.16		179.59		179.59		
8		27.693		27.695		27.706		27.708		2.845		2.838		181.07		181.50		181.50		
9		27.706		27.706		27.719		27.719		2.816		2.799		183.19		184.25		184.25		

0	20	NO3-FIL (uM/L)	21	TSM (ug/l)
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1		441.37		
2		10.28		
3		8.25		
4		10.31		
5		12.43		
6		13.14		
7		10.65		
8		10.44		
9		11.59		

D-Theta = (ptemp + (4.694 * pden)) - 131.6384
Atten-Anom = Atten - 0.387

VENTS 1989 - LEG I
 Station X38 Cast 55 19 AUG 1989
 LAT: 47 26.7N LONG: 130 20.7W

0	1	Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Pottemp	6 Temp. Anom.	7 Salinity (CTD)	8 Salinity (Bottle)	9 Atten. (1/m)	10 Atten. Anom	11 Sigma-t (CTD)
1		26	1500	1518	2.330	2.229	-0.001394	34.522	34.521	0.385	0.000	27.562
2		11	1750	1772	2.064	1.946	-0.001385	34.569	34.582	0.384	-0.001	27.621
3		22	2002	2029	1.896	1.759	-0.007644	34.599	34.599	0.384	-0.001	27.659
4		3	2096	2125	1.849	1.704	-0.008800	34.608	34.608	0.385	0.000	27.669
5		10	2207	2237	1.805	1.652	-0.012966	34.616	34.638	0.384	-0.001	27.679
6		2	2247	2278	1.792	1.635	-0.016033	34.618	34.640	0.384	-0.001	27.682
7		17	2296	2329	1.764	1.603	-0.017982	34.623	34.622	0.384	-0.001	27.688
8		19	2402	2436	1.738	1.568	-0.014464	34.630	34.630	0.384	-0.001	27.696
9		23	2603	2642	1.689	1.502	-0.020513	34.640	34.636	0.387	0.002	27.707

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		27.561		27.570		27.570		3.236		3.238		165.77		166.02				
2		27.632		27.631		27.641		3.114		3.106		173.78		173.41				
3		27.659		27.669		27.669		3.068		3.066		174.92		176.22				
4		27.669		27.680		27.680		3.038		3.050		176.27		176.73				
5		27.697		27.691		27.709		2.936		2.918		178.03		178.91				
6		27.699		27.694		27.711		2.926		2.923		179.17		179.01				
7		27.687		27.700		27.699		2.972		2.974		178.85		177.65				
8		27.696		27.708		27.708		2.967		2.929		180.82		178.37				
9		27.704		27.721		27.718		2.911		2.909		180.92		178.68				

0	21	TSM (ug/l)
1		12.53
2		11.72
3		10.27
4		11.78
5		9.92
6		10.16
7		18.83
8		13.17
9		13.68

D-Theta = (ptemp + (4.694 * pden)) - 131.6454
 Atten-Anom = Atten - 0.385

VENTS 1989 - LEG I
 Station X37 Cast 56 19 AUG 1989
 LAT: 47 19.4N LONG: 129 51.9W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom
1		31		1746		1768		2.065		1.947		-0.001852		34.566		34.625		0.548		
2		20		2002		2028		1.901		1.764		0.005571		34.599		34.635		0.548		
3		12		2102		2130		1.862		1.717		0.005389		34.607		34.601		0.547		
4		9		2199		2230		1.814		1.661		0.003220		34.616		34.615		0.547		
5		6		2258		2290		1.793		1.635		0.005256		34.621		34.619		0.547		
6		14		2303		2335		1.776		1.615		0.003089		34.624		34.623		0.546		
7		18		2398		2432		1.751		1.581		0.004086		34.630		34.622		0.546		
8		27		2583		2621		1.712		1.526		-0.005710		34.637		34.631		0.548		

0	11	Sigma-t (CTD)	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)
1		27.619		27.666		27.628		27.675		2.907		2.873		179.41		177.85		
2		27.658		27.687		27.669		27.698		2.859		2.861		177.95		179.51		
3		27.668		27.663		27.679		27.674		2.969		2.975		177.75		178.06		
4		27.679		27.678		27.690		27.689		2.962		2.938		177.33		177.44		
5		27.684		27.683		27.696		27.694		2.939		2.971		178.37		178.89		
6		27.688		27.687		27.700		27.699		2.927		2.934		178.58		179.31		
7		27.695		27.688		27.707		27.701		2.925		2.927		179.20		178.89		
8		27.703		27.698		27.717		27.712		2.883		2.869		178.58		177.24		

0	20	NO3-FIL (uM/L)	21	TSM (ug/l)
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1		11.82		
2		12.73		
3		10.04		
4		8.95		
5		16.29		
6		9.68		
7		9.59		
8		13.94		

D-Theta = (ptemp + (4.694 * pden)) - 131.6354

VENTS 1989 - LEG I
 Station X36 Cast 57 20 AUG 1989
 LAT: 47 105N LONG: 129 23.4W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom	11	Sigma-t (CTD)
1		11		1500		1518		2.359		2.257		0.013980		34.519		34.517		0.388		0.001		27.557
2		30		1748		1770		2.103		1.984		0.001924		34.561		34.560		0.386		-0.001		27.612
3		16		2000		2027		1.921		1.784		0.002243		34.595		34.593		0.387		0.000		27.653
4		5		2098		2126		1.878		1.733		0.003484		34.604		34.604		0.386		-0.001		27.664
5		8		2200		2231		1.832		1.679		0.002350		34.613		34.612		0.386		-0.001		27.675
6		1		2250		2281		1.818		1.661		0.001875		34.616		34.616		0.385		-0.002		27.678
7		15		2301		2333		1.798		1.636		0.001242		34.620		34.617		0.385		-0.002		27.683
8		21		2400		2434		1.779		1.609		0.002095		34.625		34.624		0.386		-0.001		27.688
9		29		2603		2641		1.753		1.565		-0.007942		34.630		34.627		0.387		0.000		27.694

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		27.556		27.566		27.564		3.233		3.204		164.98		163.63				
2		27.611		27.621		27.620		3.136		3.122		171.66		171.98				
3		27.652		27.664		27.662		3.043		3.045		176.48		175.34				
4		27.664		27.675		27.675		3.001		3.002		177.34		178.08				
5		27.674		27.686		27.686		2.998		2.999		178.19		178.52				
6		27.678		27.690		27.690		3.006		3.007		178.84		178.96				
7		27.681		27.695		27.693		2.998		2.964		179.50		177.93				
8		27.688		27.701		27.700		2.965		2.956		178.26		180.47				
9		27.692		27.709		27.706		2.917		2.943		179.12		178.81				

0	21	TSM (ug/l)
1		11.94
2		10.53
3		11.57
4		11.30
5		10.62
6		11.48
7		11.57
8		14.24
9		17.05

D-Theta = (ptemp + (4.694 * pden)) - 131.6364
 Atten-Anom = Atten - 0.387

VENTS 1989 - LEG I
 Station X35 Cast 58 20 AUG 1989
 LAT: 47 09.0N LONG: 129 16.7W

0	1	Niskin #	Depth (m)	Depth (db)	4 Insitu Temp.	5 Pottemp	6 Temp. Anom.	7 Salinity (CTD)	8 Salinity (Bottle)	9 Atten. (1/m)	10 Atten. Anom	11 Sigma-t (CTD)
1		13	1489	1507	2.375	2.274	0.020693	34.517	34.491	0.387	0.001	27.554
2		3	1747	1769	2.086	1.968	0.002922	34.563	34.561	0.384	-0.002	27.615
3		22	2000	2027	1.916	1.779	0.003077	34.595	34.595	0.385	-0.001	27.654
4		26	2104	2133	1.867	1.722	0.003914	34.605	34.630	0.385	-0.001	27.666
5		10	2198	2228	1.831	1.678	0.005858	34.613	34.613	0.385	-0.001	27.675
6		19	2249	2280	1.823	1.666	0.005373	34.615	34.615	0.386	0.000	27.677
7		17	2304	2336	1.801	1.639	0.003202	34.619	34.620	0.384	-0.002	27.682
8		2	2398	2432	1.769	1.599	0.003594	34.626	34.625	0.385	-0.001	27.690
9		23	2509	2545	1.764	1.584	0.001294	34.628	34.527	0.388	0.002	27.692

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		27.533		27.563		27.542		3.218		3.211		156.92		159.06				
2		27.613		27.624		27.623		3.113		3.096		167.26		166.89				
3		27.654		27.664		27.664		2.988		2.976		174.25		174.08				
4		27.686		27.677		27.697		2.858		2.856		180.18		179.81				
5		27.675		27.686		27.686		2.895		2.888		179.02		177.39				
6		27.677		27.689		27.689		2.902		2.854		177.44		177.48				
7		27.683		27.694		27.695		2.837		2.836		178.15		178.20				
8		27.689		27.703		27.702		2.844		2.817		178.66		180.58				
9		27.611		27.705		27.624		3.075		3.104		164.17		163.17				

0	21	TSM (ug/l)
1		13.49
2		10.79
3		10.04
4		10.53
5		10.72
6		10.36
7		12.69
8		12.04
9		11.69

D-Theta = (ptemp + (4.694 * pden)) - 131.6324
 Atten-Anom = Atten - 0.386

VENTS 1989 - LEG I
 Station X59 Cast 59 20 AUG 1989
 LAT: 47 06.9N LONG: 129 08.4W

0	1	Niskin #	Depth (m)	Depth (db)	Temp.	Insitu Temp.	Pottemp	6 Temp. Anom.	7 Salinity (CTD)	8 Salinity (Bottle)	9 Atten. (1/m)	10 Atten. Anom.	11 Sigma-t (CTD)
1	20		1502	1520	2.355	2.355	2.253	0.037448	34.523	34.520	0.388	0.0005	27.561
2	15		1755	1777	2.071	2.071	1.952	0.007660	34.565	34.565	0.387	-0.0005	27.618
3	6		2018	2045	1.898	1.898	1.759	0.005232	34.597	34.597	0.387	-0.0005	27.657
4	31		2108	2136	1.854	1.854	1.708	0.008219	34.606	34.607	0.386	-0.0015	27.667
5	12		2208	2239	1.817	1.817	1.663	0.007093	34.614	34.615	0.386	-0.0015	27.677
6	9		2232	2263	1.814	1.814	1.658	0.007582	34.615	34.616	0.386	-0.0015	27.678
7	14		2286	2318	1.799	1.799	1.639	0.009968	34.619	34.620	0.386	-0.0015	27.682
8	18		2402	2436	1.759	1.759	1.589	0.011475	34.628	34.628	0.388	0.0005	27.692
9	27		2503	2539	1.767	1.767	1.588	0.010594	34.628	34.626	0.391	0.0035	27.692

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		27.558		27.569		27.567		3.189		3.182		162.82		162.75				
2		27.618		27.627		27.627		3.125		3.128		170.43		170.15				
3		27.657		27.667		27.667		3.051		3.051		174.40		175.37				
4		27.668		27.679		27.679		2.974		2.982		175.15		175.29				
5		27.678		27.688		27.689		2.937		2.938		176.43		176.56				
6		27.679		27.690		27.690		2.910		2.928		176.03		176.07				
7		27.683		27.694		27.695		2.912		2.914		177.93		177.85				
8		27.692		27.705		27.705		2.873		2.871		178.89		179.02				
9		27.690		27.705		27.704		2.884		2.884		178.70		178.73				

0	21	TSM (ug/l)
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1	11.12
2	10.93
3	11.84
4	10.93
5	10.26
6	10.17
7	11.49
8	12.83
9	15.58

D-Theta = (ptemp + (4.694 * pden)) - 131.6254
 Atten-Anom = Atten - 0.3875

VENTS 1989 - LEG I
 Station X34 Cast 60 20 AUG 1989
 LAT: 47 05.1N LONG: 129 02.2W

0	1	Niskin #	Depth (m)	Depth (db)	Temp.	Insitu Temp.	Pottemp	6 Temp. Anom.	7 Salinity (CTD)	8 Salinity (Bottle)	9 Atten. (1/m)	10 Atten. Anom	11	Sigma-t (CTD)
1		24	1749	1771	2.060	2.060	1.942	0.003635	34.567	34.566	0.386	0.000		27.620
2		5	2002	2029	1.899	1.899	1.762	0.001732	34.597	34.597	0.385	-0.001		27.657
3		16	2099	2127	1.850	1.850	1.705	0.002942	34.607	34.607	0.385	-0.001		27.669
4		11	2200	2230	1.804	1.804	1.651	0.001792	34.616	34.616	0.384	-0.002		27.679
5		8	2254	2285	1.789	1.789	1.632	0.004199	34.620	34.618	0.385	-0.001		27.684
6		1	2302	2334	1.782	1.782	1.621	0.004453	34.622	34.622	0.384	-0.002		27.686
7		21	2398	2432	1.758	1.758	1.588	0.009812	34.629	34.629	0.384	-0.002		27.693
8		29	2595	2633	1.776	1.776	1.588	0.005755	34.628	34.626	0.388	0.002		27.691

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15 PO4-UNF (uM/L)	16 PO4-FIL (uM/L)	17 SiO4-UNF (uM/L)	18 SiO4-FIL (uM/L)	19 NO3-UNF (uM/L)	20 NO3-FIL (uM/L)
1		27.619		27.629		27.629	3.029	2.994	171.59	171.47		
2		27.657		27.667		27.667	2.930	2.935	175.64	175.92		
3		27.669		27.680		27.680	2.905	2.900	177.23	177.52		
4		27.679		27.691		27.691	2.880	2.880	178.42	176.66		
5		27.682		27.696		27.694	2.875	2.865	180.42	179.07		
6		27.686		27.698		27.698	2.899	2.879	180.38	179.85		
7		27.693		27.706		27.706	2.830	2.829	180.75	180.63		
8		27.689		27.705		27.704	2.834	2.829	180.91	180.58		

0	21	TSM (ug/l)
1		9.04
2		9.02
3		10.43
4		9.49
5		8.94
6		9.65
7		12.96
8		11.95

D-Theta = (ptemp + (4.694 * pden)) - 131.6304
 Atten-Anom = Atten - 0.386

VENTS 1989 - LEG I
 Station X33 Cast 61 20 AUG 1989
 LAT: 47 03.0N LONG: 128 54.9W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom	11	Sigma-t (CTD)
1		23		1497		1515		2.391		2.289		0.026246		34.516		34.514		0.385		-0.001		27.552
2		22		1739		1761		2.096		1.978		0.009564		34.563		34.561		0.384		-0.002		27.614
3		3		1998		2025		1.909		1.772		0.006281		34.597		34.596		0.385		-0.001		27.656
4		19		2107		2136		1.857		1.711		0.004922		34.607		34.609		0.384		-0.002		27.668
5		2		2191		2221		1.820		1.668		0.006735		34.615		34.613		0.384		-0.002		27.677
6		17		2256		2288		1.802		1.644		0.006586		34.619		34.621		0.384		-0.002		27.682
7		10		2296		2328		1.791		1.630		0.004809		34.621		34.623		0.384		-0.002		27.684
8		13		2397		2431		1.778		1.608		0.009387		34.626		34.627		0.385		-0.001		27.689
9		26		2486		2521		1.768		1.590		0.009029		34.629		34.631		0.387		0.001		27.693

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1	27.551			27.561		27.559		3.173		3.172		163.70		163.42				
2	27.612			27.623		27.622		3.090		3.089		169.98		170.33				
3	27.655			27.667		27.666		3.012		3.011		175.03		176.00				
4	27.670			27.679		27.681		2.959		2.958		176.14		175.86				
5	27.676			27.689		27.687		2.966		2.960		177.04		177.18				
6	27.683			27.694		27.695		2.948		2.962		177.32		177.67				
7	27.686			27.696		27.698		2.941		2.939		179.26		178.36				
8	27.690			27.702		27.703		2.938		2.946		179.96		180.10				
9	27.694			27.706		27.707		2.895		2.893		182.11		180.59				

0	21	TSM (ug/l)
1	10.30	
2	11.12	
3	9.59	
4	9.24	
5	10.66	
6	10.08	
7	10.90	
8	10.15	
9	13.62	

D-Theta = (ptemp + (4.694 * pden)) - 131.6324
 Atten-Anom = Atten - 0.386

VENTS 1989 - LEG I
 Station X46 Cast 62 20 AUG 1989
 LAT: 47 17.5N LONG: 128 48.8W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom	11	Sigma-t (CTD)
1		31		1502		1520		2.429		2.326		0.041467		34.514		34.514		0.387		0.001		27.547
2		6		1751		1774		2.104		1.985		0.002598		34.560		34.558		0.387		0.001		27.611
3		20		2001		2028		1.921		1.784		0.002422		34.594		34.629		0.386		0.000		27.653
4		15		2107		2136		1.868		1.722		0.004390		34.605		34.604		0.386		0.000		27.666
5		12		2192		2222		1.831		1.678		0.00956		34.614		34.616		0.387		0.001		27.676
6		9		2251		2282		1.812		1.655		0.009506		34.618		34.616		0.386		0.000		27.680
7		14		2303		2335		1.802		1.640		0.011436		34.621		34.623		0.386		0.000		27.683
8		18		2401		2435		1.782		1.612		0.011739		34.626		34.627		0.384		-0.002		27.689
9		27		2623		2661		1.770		1.579		0.013288		34.632		34.629		0.392		0.006		27.695

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		27.547		27.556		27.556		3.185		3.189		158.95		158.87				
2		27.609		27.620		27.619		3.182		3.181		167.34		169.57				
3		27.681		27.663		27.691		3.114		3.073		174.71		174.43				
4		27.665		27.677		27.676		2.906		2.910		176.86		176.80				
5		27.677		27.687		27.689		2.978		2.972		178.60		178.54				
6		27.679		27.692		27.691		2.950		2.919		179.09		179.03				
7		27.685		27.696		27.697		2.928		2.956		180.42		179.93				
8		27.690		27.702		27.703		2.945		2.933		179.87		180.01				
9		27.692		27.709		27.707		2.907		2.905		180.36		180.29				

0	21	TSM (ug/l)
1		8.97
2		9.16
3		8.56
4		14.27
5		17.23
6		11.26
7		10.29
8		11.14
9		18.65

D-Theta = (ptemp + (4.694 * pden)) - 131.6324
 Atten-Anom = Atten - 0.386

VENTS 1989 - LEG I
 Station X45 Cast 63 21 AUG 1989
 LAT: 47 19.6N LONG: 128 54.5W

0	1	Niskin #	Depth (m)	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom	11	Sigma-t (CTD)
1	29	29	1495	1513		2.388		2.286	0.042064			34.522	34.522	34.522		0.387		0.001		27.557
2	24	24	1750	1772		2.070		1.952	0.010352			34.569	34.562	34.562		0.387		0.001		27.621
3	5	5	2002	2028		1.893		1.756	0.006013			34.601	34.600	34.600		0.387		0.001		27.660
4	16	16	2102	2130		1.855		1.710	0.006467			34.609	34.589	34.589		0.386		0.000		27.670
5	11	11	2199	2230		1.820		1.667	0.005042			34.616	34.616	34.616		0.387		0.001		27.678
6	8	8	2247	2278		1.807		1.650	0.005326			34.619	34.620	34.620		0.386		0.000		27.682
7	1	1	2298	2330		1.794		1.633	0.005361			34.622				0.386		0.000		27.685
8	21	21	2399	2434		1.773		1.603	0.004816			34.627	34.628	34.628		0.387		0.001		27.691
9	30	30	2555	2592		1.758		1.574	0.004720			34.632	34.627	34.627		0.388		0.002		27.696

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		27.557		27.566		27.566		3.139	3.139		3.159		163.16	163.16		162.96		
2		27.615		27.630		27.625		3.056	3.056		3.037		172.44	172.44		170.80		
3		27.660		27.671		27.670		2.963	2.963		3.081		179.25	179.25		178.85		
4		27.654		27.681		27.665		3.043	3.043		3.048		178.85	178.85		177.00		
5		27.678		27.690		27.690		3.029	3.029		3.004		181.34	181.34		187.11		
6		27.682		27.693		27.694		3.010	3.010		3.015		181.14	181.14		180.94		
7				27.697														
8		27.691		27.703		27.704		2.981	2.981		2.956		181.15	181.15		181.57		
9		27.692		27.709		27.705		2.913	2.913		2.908		181.58	181.58		181.38		

0	21	TSM (ug/l)
1		9.03
2		10.62
3		10.28
4		10.81
5		12.06
6		9.10
7		
8		10.90
9		11.73

D-Theta = (ptemp + (4.694 * pden)) - 131.6374
 Atten-Anom = Atten - 0.386

VENTS 1989 - LEG I
 Station X60 Cast 64 21 AUG 1989
 LAT: 47 21.7N LONG: 129 01.1W

0	1	Niskin #	Depth (m)	Depth (db)	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom	11	Sigma-t (CTD)
1		23	1501	1519	2.394		2.292	0.037655		34.521		34.520		0.388		0.002			27.556
2		19	1758	1780	2.080		1.961	0.000881		34.566		34.566		0.389		0.003			27.618
3		22	2004	2030	1.914		1.776	0.007689		34.599		34.599		0.388		0.002			27.657
4		2	2102	2130	1.874		1.729	0.007020		34.607		34.608		0.387		0.001			27.667
5		17	2201	2231	1.836		1.683	0.007408		34.615		34.615		0.387		0.001			27.676
6		10	2298	2330	1.805		1.643	0.008389		34.622		34.633		0.388		0.002			27.684
7		13	2398	2432	1.784		1.614	0.011714		34.628		34.627		0.387		0.001			27.690
8		26	2560	2597	1.768		1.583	0.010611		34.633		34.632		0.392		0.006			27.696

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		27.555		27.564		27.564		3.256		3.246		163.44		163.23				
2		27.618		27.627		27.627		3.181		3.169		172.27		172.47				
3		27.657		27.668		27.668		3.090		3.081		177.19		177.29				
4		27.668		27.678		27.679		3.051		3.031		178.32		178.93				
5		27.676		27.688		27.688		3.028		3.013		179.44		179.44				
6		27.693		27.696		27.705		2.961		2.956		181.69		181.69				
7		27.690		27.703		27.702		2.990		2.993		182.20		183.32				
8		27.695		27.710		27.709		2.970		2.985		181.89		181.89				

0	21	TSM (ug/l)
1		12.57
2		13.18
3		11.07
4		9.70
5		12.31
6		12.93
7		16.39
8		15.60

D-Theta = (ptemp + (4.694 * pden)) - 131.6414
 Atten-Anom = Atten - 0.386

VENTS 1989 - LEG I
 Station X43 Cast 66 21 AUG 1989
 LAT: 47 25.8N LONG: 129 15.1W

0	1	Niskin #	Depth (m)	Depth (db)	Insitu Temp.	6 Temp. Anom.	7 Salinity (CTD)	8 Salinity (Bottle)	9 Atten. (1/m)	10 Atten. Anom	11	Sigma-t (CTD)
1	1	1502	1520	2.356	2.254	0.021812	34.520	34.521	0.387	0.000		27.558
2	6	1748	1770	2.077	1.959	0.006748	34.565	34.566	0.387	0.000		27.617
3	20	2001	2027	1.906	1.769	0.013773	34.599	34.598	0.386	-0.001		27.658
4	15	2100	2129	1.863	1.718	0.011107	34.607	34.608	0.387	0.000		27.668
5	12	2201	2231	1.821	1.668	0.008832	34.615	34.615	0.386	-0.001		27.677
6	9	2250	2281	1.798	1.641	0.006397	34.619	34.621	0.387	0.000		27.682
7	14	2300	2332	1.778	1.617	0.005765	34.623	34.624	0.386	-0.001		27.687
8	18	2400	2434	1.760	1.590	0.003456	34.627	34.629	0.387	0.000		27.692
9	31	2600	2639	1.734	1.546	0.004827	34.635	34.634	0.390	0.003		27.700

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15 PO4-UNF (uM/L)	16 PO4-FIL (uM/L)	17 SiO4-UNF (uM/L)	18 SiO4-FIL (uM/L)	19 NO3-UNF (uM/L)	20 NO3-FIL (uM/L)
1	27.559	27.567	27.567	27.567	27.567	3.066	3.057	164.91	164.91	164.91		
2	27.618	27.626	27.626	27.627	27.627	2.964	2.969	172.34	172.34	172.75		
3	27.657	27.668	27.668	27.668	27.668	2.905	2.901	177.09	177.09	176.89		
4	27.668	27.679	27.679	27.679	27.679	2.901	2.901	177.31	177.31	177.52		
5	27.677	27.689	27.689	27.689	27.689	2.857	2.862	178.56	178.56	177.94		
6	27.684	27.694	27.694	27.696	27.696	2.858	2.858	178.98	178.98	178.78		
7	27.688	27.699	27.699	27.700	27.700	2.873	2.859	179.40	179.40	179.20		
8	27.693	27.704	27.704	27.706	27.706	2.814	2.820	181.06	181.06	183.13		
9	27.699	27.714	27.714	27.713	27.713	2.810	2.815	180.66	180.66	180.88		

0	21	TSM (ug/l)
1	9.76	
2	9.02	
3	10.60	
4	8.71	
5	9.07	
6	8.59	
7	10.62	
8	10.58	
9	12.78	

D-Theta = (ptemp + (4.694 * pden)) - 131.6304
 Atten-Anom = Atten - 0.387

VENTS 1989 - LEG I
 Station X42 Cast 67 21 AUG 1989
 LAT: 47 33.4N LONG: 129 44.0W

0	1	Niskin #	Depth (m)	Depth (db)	Insitu Temp.	6 Temp. Anom.	7 Salinity (CTD)	8 Salinity (Bottle)	9 Atten. (1/m)	10 Atten. Anom	11 Sigma-t (CTD)
1	29	1499	1517	2.326	2.225	-0.003569	34.517	34.511	0.388	0.002	27.558
2	16	1751	1773	2.075	1.956	-0.001931	34.562	34.561	0.387	0.001	27.615
3	25	1998	2024	1.903	1.766	0.012290	34.598	34.598	0.387	0.001	27.657
4	13	2100	2128	1.851	1.706	0.011297	34.608	34.609	0.387	0.001	27.669
5	2	2203	2233	1.814	1.661	0.019557	34.618	34.618	0.388	0.002	27.680
6	10	2251	2282	1.804	1.647	0.021707	34.621	34.622	0.388	0.002	27.683
7	22	2298	2331	1.794	1.633	0.020102	34.623	34.622	0.388	0.002	27.686
8	17	2401	2436	1.781	1.611	0.017064	34.626	34.626	0.387	0.001	27.689
9	27	2600	2638	1.725	1.537	0.006852	34.636	34.624	0.390	0.004	27.701

0	12	Sigma-t (Bottle)	13 Sigma-Theta (CTD)	14 Sigma-Theta (Bottle)	15 PO4-UNF (uM/L)	16 PO4-FIL (uM/L)	17 SiO4-UNF (uM/L)	18 SiO4-FIL (uM/L)	19 NO3-UNF (uM/L)	20 NO3-FIL (uM/L)
1	27.554	27.567	27.562	27.623	3.231	3.228	165.81	165.43		
2	27.614	27.624	27.623	27.668	3.142	3.135	172.00	170.59		
3	27.657	27.668	27.668	27.681	3.071	3.057	175.67	175.70		
4	27.670	27.680	27.680	27.692	3.044	3.052	177.57	177.59		
5	27.680	27.692	27.692	27.696	3.013	3.010	181.51	181.54		
6	27.684	27.695	27.695	27.697	3.023	2.995	182.18	182.20		
7	27.685	27.698	27.698	27.702	2.987	3.005	181.82	182.05		
8	27.689	27.702	27.702	27.706	2.966	2.963	182.08	182.31		
9	27.692	27.715	27.715		2.924	2.932	180.29	180.31		

0 21 TSM (ug/l)

1	8.89
2	7.90
3	13.64
4	9.31
5	11.41
6	13.18
7	11.52
8	11.03
9	14.70

D-Theta = (ptemp + (4.694 * pden)) - 131.6264
 Atten-Anom = Atten - 0.386

VENTS 1989 - LEG I
 Station X41 Cast 68 21 AUG 1989
 LAT: 47 40.5N LONG: 130 12.7W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom	11	Sigma-t (CTD)
1	1	3	1507	1525	2.319	2.217	0.012823	34.525	34.524	0.388	0.0025	27.565										
2	2	23	1716	1737	2.112	1.996	0.013931	34.562	34.555	0.387	0.0015	27.612										
3	3	24	1999	2025	1.899	1.762	0.000693	34.598	34.598	0.386	0.0005	27.658										
4	4	5	2101	2130	1.854	1.709	0.000338	34.607	34.604	0.386	0.0005	27.668										
5	5	19	2200	2231	1.816	1.663	0.000677	34.615	34.615	0.386	0.0005	27.678										
6	6	11	2252	2283	1.800	1.643	-0.001190	34.618	34.617	0.386	0.0005	27.681										
7	7	8	2303	2336	1.773	1.612	-0.002624	34.623	34.623	0.386	0.0005	27.687										
8	8	21	2405	2439	1.750	1.580	-0.004478	34.628	34.628	0.386	0.0005	27.693										
9	9	30	2587	2625	1.700	1.514	-0.013712	34.637	34.637	0.388	0.0025	27.704										

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		27.565		27.574		27.573		3.165		3.131		165.17		164.83				
2		27.606		27.621		27.616		3.091		3.096		171.22		171.69				
3		27.658		27.668		27.668		3.032		3.017		175.83		176.09				
4		27.666		27.679		27.677		3.017		3.016		177.79		178.05				
5		27.678		27.689		27.689												
6		27.680		27.693		27.692		2.967		2.972		178.32		178.79				
7		27.687		27.699		27.699		2.971		3.005		182.12		180.14				
8		27.693		27.706		27.706		2.880		2.929		178.94		179.00				
9		27.704		27.718		27.718		2.909		2.904		178.45		178.10				

0	21	TSM (ug/l)
1	14.27	
2	10.88	
3	9.54	
4	9.83	
5	11.30	
6	11.35	
7	11.24	
8	11.28	
9	12.53	

D-Theta = (ptemp + (4.694 * pden)) - 131.6354
 Atten-Anom = Atten - 0.3855

VENTS 1989 - LEG I
 Station X49 Cast 77 23 AUG 1989
 LAT: 47 36.0N LONG: 129 08.0W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom
1		26		1503		1521		2.381		2.279		0.015134		34.518		34.513		0.388		0.002
2		10		1752		1774		2.089		1.970		-0.000497		34.565		34.560		0.584		0.198
3		22		2003		2030		1.911		1.774		0.002136		34.599		34.594		0.387		0.001
4		17		2103		2132		1.867		1.722		0.002555		34.608		34.605		0.387		0.001
5		16		2198		2228		1.823		1.670		-0.000724		34.616		34.614		0.387		0.001
6		2		2250		2281		1.808		1.651		0.001779		34.620		34.616		0.387		0.001
7		19		2299		2331		1.799		1.638		0.008266		34.624		34.622		0.388		0.002
8		1		2401		2435		1.782		1.612		0.006458		34.628		34.626		0.388		0.002
9		27		2493		2529		1.768		1.589		0.003269		34.631		34.626		0.390		0.004

0	11	Sigma-t (CTD)	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)
1		27.555		27.551		27.563		27.559		3.185		3.206		162.55		163.15		
2		27.616		27.612		27.626		27.622		3.100		3.111		169.87		170.06		
3		27.657		27.653		27.668		27.664		3.055		3.056		174.94		174.93		
4		27.668		27.666		27.679		27.677		3.016		3.017		176.34		175.93		
5		27.678		27.676		27.689		27.688		3.013		2.977		176.93		176.92		
6		27.682		27.679		27.694		27.691		2.983		2.979		176.71		176.29		
7		27.686		27.685		27.698		27.697		2.970		2.991		176.89		178.71		
8		27.691				27.703												
9		27.694		27.690		27.708		27.703		2.997		2.967		178.90		181.13		

0	20	NO3-FIL (uM/L)	21	TSM (ug/l)
1				8.93
2				8.57
3				8.89
4				9.00
5				8.83
6				10.00
7				11.63
8				
9				15.69

D-Theta = (ptemp + (4.6903 * pden)) - 131.5427
 Atten-Anom = Atten - 0.386

VENTS 1989 - LEG I
 Station X48 Cast 79 24 AUG 1989
 LAT: 47 31.9N LONG: 128 49.4W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom
1	22			1500		1518		2.383		2.281		0.036493		34.522		34.522		0.388		0.0025
2	9			1749		1772		2.100		1.981		0.011499		34.565		34.555		0.387		0.0015
3	23			2001		2027		1.915		1.778		0.002283		34.597		34.588		0.387		0.0015
4	8			2100		2129		1.865		1.720		0.002689		34.607		34.600		0.386		0.0005
5	14			2197		2227		1.826		1.673		0.002490		34.615		34.607		0.386		0.0005
6	25			2250		2281		1.811		1.654		0.004957		34.619		34.611		0.386		0.0005
7	13			2301		2333		1.800		1.638		0.006253		34.622		34.615		0.386		0.0005
8	30			2399		2433		1.783		1.613		0.012220		34.628		34.618		0.386		0.0005
9	17			2601		2640		1.767		1.578		0.016128		34.635		34.626		0.389		0.0035

0	11	Sigma-t (CTD)	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)
1		27.558		27.558		27.566		27.566		3.205		3.241		162.76		162.78		
2		27.615		27.607		27.625		27.617		3.134		3.134		170.56		171.00		
3		27.656		27.648		27.666		27.659		3.041		3.087		175.51		175.94		
4		27.667		27.662		27.679		27.673		3.046		3.041		177.59		178.03		
5		27.677		27.670		27.688		27.682		3.036		2.995		177.23		184.19		
6		27.681		27.675		27.693		27.687		3.031		3.010		179.93		179.34		
7		27.684		27.679		27.697		27.691		2.989		3.015		179.77		179.79		
8		27.691		27.683		27.703		27.695		3.000		2.994		182.06		182.49		
9		27.697		27.690		27.712		27.704		2.989		2.984		183.94		184.17		

0	20	NO3-FIL (uM/L)	21	TSM (ug/l)
1				12.66
2				11.56
3				12.04
4				13.50
5				11.98
6				13.35
7				11.98
8				11.66
9				17.12

D-Theta = (ptemp + (4.6903 * pden)) - 131.5377
 Atten-Anom = Atten - 0.3855

VENTS 1989 - LEG I
 Station X47 Cast 80 24 AUG 1989
 LAT: 47 40.3N LONG: 128 12.5W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom
1		5		1502		1520		2.474		2.371		0.078827		34.520		34.514		0.391		0.006
2		27		1752		1774		2.117		1.998		0.005655		34.562		34.560		0.388		0.003
3		19		1998		2024		1.918		1.781		-0.000658		34.597		34.598		0.387		0.002
4		3		2098		2126		1.858		1.713		0.000874		34.609		34.608		0.441		0.056
5		2		2200		2231		1.816		1.663		0.002197		34.618		34.617		0.386		0.001
6		16		2247		2279		1.801		1.644		0.004975		34.622		34.622		0.386		0.001
7		10		2298		2330		1.791		1.630		0.006957		34.625		34.625		0.386		0.001
8		15		2400		2434		1.779		1.609		0.008339		34.629		34.632		0.384		-0.001
9		12		2599		2637		1.774		1.586		0.034577		34.640		34.641		0.387		0.002

0	11	Sigma-t (CTD)	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)
1		27.548		27.544		27.557		27.552		3.220		3.246		157.88		158.88		
2		27.611		27.610		27.621		27.619		3.138		3.140		166.17		170.67		
3		27.655		27.656		27.666		27.667		3.089		3.052		180.30		181.32		
4		27.670		27.669		27.681		27.680		3.030		2.994		183.51		174.50		
5		27.680		27.679		27.692		27.691		2.938		2.935		175.52		173.04		
6		27.684		27.684		27.696		27.696		2.927		2.963		174.29		183.04		
7		27.688		27.688		27.700		27.700		2.970		2.972		184.07		185.10		
8		27.692		27.694		27.704		27.707		2.950		2.942		182.14		179.89		
9		27.701		27.702		27.715		27.716		2.925		2.908		186.08		181.71		

0	20	NO3-FIL (uM/L)	21	TSM (ug/l)
1				9.92
2				12.09
3				11.07
4				11.28
5				12.78
6				10.68
7				14.24
8				10.82
9				12.42

D-Theta = (ptemp + (4.6903 * pden)) - 131.5427
 Atten-Anom = Atten - 0.385

VENTS 1989 - LEG I
 Station X53 Cast 69 22 AUG 1989
 LAT: 48 02.2N LONG: 130 38.6W

0	1	Niskin #	Depth (m)	Depth (db)	Insitu Temp.	Pottemp	6 Temp. Anom.	7 Salinity (CTD)	8 Salinity (Bottle)	9 Atten. (1/m)	10 Atten. Anom
1		1	1500	1519	2.387	2.285	0.016893	34.515	34.517	0.387	2282.619665
2		6	1745	1768	2.111	1.992	0.004244	34.560	34.560	0.387	1990.326288
3		20	1999	2026	1.920	1.783	0.002670	34.595	34.594	0.387	1780.952417
4		15	2099	2127	1.879	1.734	-0.002456	34.602	34.602	0.387	1732.073757
5		12	2201	2231	1.833	1.680	0.000202	34.612	34.611	0.387	1677.986224
6		9	2249	2280	1.813	1.656	-0.004028	34.615	34.616	0.386	1654.070584
7		14	2299	2331	1.792	1.631	0.002250	34.621	34.620	0.386	1628.991598
8		18	2402	2437	1.762	1.592	-0.004165	34.626	34.617	0.387	1590.301679
9		31	2602	2640	1.696	1.509	-0.013431	34.638	34.637	0.389	1507.277932

0	11	Sigma-t (CTD)	12 Sigma-t (Bottle)	13 Sigma-t	14 Sigma-Theta (CTD)	15 Sigma-Theta (Bottle)	16 PO4-UNF (uM/L)	17 PO4-FIL (uM/L)	18 SiO4-UNF (uM/L)	19 SiO4-FIL (uM/L)	NO3-UNF (uM/L)
1		27.552	27.553	27.560	27.562	27.562	3.212	3.251	163.18	163.04	
2		27.610	27.610	27.620	27.620	27.620	3.143	3.157	171.06	171.12	
3		27.654	27.653	27.664	27.663	27.664	3.054	3.063	176.29	175.94	
4		27.662	27.662	27.673	27.673	27.673	3.053	3.018	175.59	175.86	
5		27.674	27.673	27.686	27.685	27.686	3.018	3.067	179.80	178.02	
6		27.678	27.679	27.690	27.691	27.691	2.954	2.939	176.50	176.97	
7		27.684	27.683	27.696	27.696	27.696	2.997	2.977	177.80	177.66	
8		27.691	27.683	27.703	27.696	27.696	2.942	2.952	176.29	176.35	
9		27.705	27.704	27.719	27.718	27.718	2.883	2.912	177.84	178.11	

0	20	NO3-FIL (uM/L)	21 TSM (ug/l)
1			10.60
2			9.81
3			11.74
4			8.50
5			9.48
6			9.18
7			9.14
8			12.56
9			11.75

D-Theta = (ptemp + (4.694 * pden)) - 131.6354
 Atten-Anom = Atten - (0.386 + -999*Theta)

VENTS 1989 - LEG I
 Station X52 Cast 70 22 AUG 1989
 LAT: 47 55.7 N LONG: 130 10.3W

0	1	Niskin #	Depth (m)	Depth (db)	4 Insitu Temp.	5 Pottemp	6 Temp. Anom.	7 Salinity (CTD)	8 Salinity (Bottle)	9 Atten. (1/m)	10 Atten. Anom	11 Sigma-t (CTD)
1		2	1500	1519	2.345	2.243	0.010935	34.521	34.520	0.388	0.001	27.560
2		29	1750	1772	2.121	2.002	0.003460	34.559	34.560	0.389	0.002	27.609
3		10	2001	2028	1.946	1.808	0.000924	34.591	34.590	0.388	0.001	27.648
4		22	2100	2129	1.892	1.746	0.002693	34.602	34.601	0.388	0.001	27.661
5		17	2200	2231	1.849	1.695	0.003634	34.611	34.612	0.388	0.001	27.672
6		27	2251	2282	1.832	1.674	0.001216	34.614	34.613	0.388	0.001	27.676
7		16	2301	2333	1.811	1.649	0.003769	34.619	34.621	0.387	0.000	27.681
8		13	2401	2435	1.776	1.606	-0.001895	34.625	34.621	0.388	0.001	27.689
9		26	2603	2641	1.733	1.545	-0.011501	34.633	34.632	0.388	0.001	27.698

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1	27.559	27.568	27.568	27.568	27.568	27.568	3.130	3.120	165.04	164.69	171.18	171.18	176.65	176.65	180.26	180.18	180.71	182.89
2	27.610	27.618	27.618	27.618	27.618	27.618	3.052	3.071	171.53	171.18	176.65	176.65	180.26	180.18	180.71	182.89	181.37	181.37
3	27.647	27.659	27.659	27.659	27.659	27.659	3.017	3.017	177.00	177.00	178.35	178.35	180.33	180.33	180.65	181.39	181.39	181.39
4	27.661	27.672	27.672	27.672	27.672	27.672	2.973	2.973	178.35	178.35	180.33	180.33	180.65	180.65	181.39	181.39	181.39	181.39
5	27.673	27.684	27.684	27.684	27.684	27.684	2.978	2.968	180.33	180.33	180.65	180.65	181.39	181.39	181.39	181.39	181.39	181.39
6	27.675	27.688	27.688	27.688	27.688	27.688	2.972	2.992	180.65	180.65	181.39	181.39	181.39	181.39	181.39	181.39	181.39	181.39
7	27.683	27.693	27.693	27.693	27.693	27.693	3.016	3.046	181.39	181.39	181.39	181.39	181.39	181.39	181.39	181.39	181.39	181.39
8		27.701	27.701	27.701	27.701	27.701												
9	27.698	27.712	27.712	27.712	27.712	27.712	3.021	3.099	183.77	183.77	183.77	183.77	183.77	183.77	183.77	183.77	183.77	183.77

0	21	TSM (ug/l)
1	12.47	
2	12.05	
3	11.81	
4	12.78	
5	13.19	
6	11.58	
7	10.07	
8		
9	12.72	

D-Theta = (ptemp + (4.694 * pden)) - 131.6384
 Atten-Anom = Atten - 0.387

VENTS 1989 - LEG I
 Station X51 Cast 71 22 AUG 1989
 LAT: 47 48.0N LONG: 129 41.3W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	In situ Temp.	5	Pot temp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom	11	Sigma-t (CTD)
1		30		1501		1519		2.373		2.271		0.036428		34.523		34.505		0.388		0.001		27.559
2		25		1748		1770		2.080		1.962		0.005413		34.566		34.545		0.389		0.002		27.618
3		11		2000		2027		1.912		1.775		0.003066		34.597		34.578		0.388		0.001		27.656
4		8		2102		2130		1.874		1.729		0.007257		34.606		34.593		0.389		0.002		27.666
5		21		2200		2230		1.817		1.664		0.006875		34.617		34.601		0.388		0.001		27.679
6		5		2250		2281		1.804		1.647		0.006994		34.620		34.557		0.389		0.002		27.683
7		3		2300		2333		1.794		1.632		0.005224		34.622		34.606		0.388		0.001		27.685
8		13		2400		2434		1.781		1.611		0.006151		34.626		34.611		0.388		0.001		27.689
9		23		2539		2576		1.776		1.593		0.005950		34.629		34.605		0.388		0.001		27.692

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		27.545		27.568		27.553		3.188		3.178		164.79		165.67				
2		27.601		27.627		27.610		3.055		3.031		171.90		171.34				
3		27.641		27.666		27.651		2.977		2.976		175.72		175.99				
4		27.655		27.677		27.667		2.962		2.932		177.90		177.96				
5		27.666		27.691		27.678		2.917		2.917		179.66		183.83				
6		27.632		27.694		27.644		3.015		3.005		171.98		171.83				
7		27.672		27.697		27.684		2.917		2.917		180.11		180.17				
8		27.677		27.702		27.690		2.912		2.897		182.29		180.71				
9		27.673		27.706		27.686		2.868		2.877		180.56		182.27				

0	21	TSM (ug/l)
1		11.13
2		19.96
3		17.22
4		13.85
5		14.70
6		32.53
7		13.37
8		14.57
9		13.79

D-Theta = (ptemp + (4.694 * pden)) - 131.6374
 Atten-Anom = Atten - 0.387

VENTS 1989 - LEG I
 Station XT-11 Cast 72 22 AUG 1989
 LAT: 47 59.8N LONG: 129 13.0W

0	1	2	3	4	5	6	7	8	9	10	11	
	Niskin #	Depth (m)	Depth (db)	In situ Temp.	Pottemp	Temp. Anom.	Salinity (CTD)	Salinity (Bottle)	Atten. (1/m)	Atten. Anom	Sigma-t (CTD)	
1	12	2402	2436	1.789	1.618	0.010732	34.626	34.626	0.392	0.0045	27.688	
2	15	2424	2458	1.787	1.614	0.011906	34.627	34.625	0.393	0.0055	27.689	
3	20	2449	2485	1.789	1.614	0.011648	34.627	34.626	0.393	0.0055	27.689	
4	29	2453	2488	1.796	1.621	0.012182	34.626	34.619	0.392	0.0045	27.688	
5	6	2474	2510	1.789	1.612	0.013940	34.628	34.621	0.395	0.0075	27.690	
6	18	2486	2522	1.789	1.611	0.013194	34.628	34.627	0.394	0.0065	27.690	
7	24	2491	2527	1.788	1.609	0.012271	34.628	34.602	0.394	0.0065	27.690	
8	9	2497	2534	1.787	1.608	0.011253	34.628	34.505	0.394	0.0065	27.690	
9	31	2500	2536	1.780	1.601	0.010375	34.629	34.601	0.395	0.0075	27.692	
10	14	2507	2544	1.786	1.606	0.010010	34.628	34.623	0.394	0.0065	27.690	

0	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)	20	NO3-FIL (uM/L)
1		27.688		27.701		27.701		2.831		2.852		181.83		181.62				
2		27.688		27.702		27.701		2.850		2.835		182.04		181.83				
3		27.688		27.702		27.702		2.818		2.813		181.83		182.24				
4		27.682		27.701		27.696		2.876		2.866		179.77		179.97				
5		27.684		27.703		27.698		2.816		2.807		181.83		182.24				
6		27.689		27.704		27.703		2.805		2.790		181.62		181.62				
7		27.669		27.704		27.683		2.773		2.814		182.04		182.45				
8		27.592		27.704		27.605		3.012		2.972		157.48		158.92				
9		27.669		27.705		27.683		2.787		2.777		181.83		182.04				
10		27.686		27.704		27.700		2.849		2.855		179.97		179.97				

0	21 TSM (ug/l)
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D-Theta = (ptemp + (4.678 * pden)) - 131.1946
 Atten-Anom = Atten - 0.3875

VENTS 1989 - LEG I
Station X55 Cast 73 23 AUG 89
LAT: 47 57.5N LONG: 129 06.3W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom.
1		13		1702		1723		2.102		1.987		0.000000		34.564		34.553		0.388		0.001
2		27		1771		1793		1.994		1.875		0.033050		34.590		34.574		0.388		0.001
3		1		1848		1872		2.000		1.874		0.092690		34.606		34.593		0.388		0.001
4		14		1898		1923		2.004		1.874		0.092538		34.606		34.596		0.388		0.001
5		2		1952		1977		2.001		1.867		0.087782		34.606		34.598		0.388		0.001
6		16		1993		2019		1.999		1.861		0.103020		34.611		34.601		0.387		0.000
7		17		2002		2028		1.998		1.859		0.083168		34.606		34.600		0.387		0.000
8		22		2026		2053		1.986		1.845		0.078022		34.607		34.599		0.386		-0.001
9		10		2048		2075		1.980		1.838		0.076786		34.608		34.601		0.388		0.001
10		26		2071		2098		1.965		1.821		0.066091		34.608		34.600		0.388		0.001

0	11	Sigma-t (CTD)	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)
1		27.614		27.605		27.623		27.615		2.966		2.956		2.917		170.46		170.90
2		27.644		27.631		27.653		27.640		2.903		2.917		2.857		175.15		174.98
3		27.656		27.646		27.666		27.658		2.865		2.880		2.858		179.63		180.27
4		27.656		27.648		27.666		27.658		2.865		2.880		2.858		183.41		183.02
5		27.656		27.650		27.666		27.660		2.892		2.896		2.896		182.57		182.49
6		27.660		27.652		27.671		27.663		2.908		2.928		2.928		181.84		182.06
7		27.656		27.651		27.667		27.662		2.894		2.871		2.871		180.76		180.21
8		27.658		27.652		27.669		27.663		2.880		2.889		2.889		179.47		179.47
9		27.659		27.654		27.670		27.665		2.905		2.916		2.916		180.65		182.10
10		27.660		27.654		27.672		27.665		2.930		2.922		2.922		180.74		180.86

0	20	NO3-FIL (uM/L)	21	TSM (ug/l)
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1		11.40		
2		19.43		
3		43.52		
4		43.11		
5		46.53		
6		43.46		
7		42.79		
8		43.75		
9		37.85		
10		35.42		

D-Theta = (ptemp + (4.678 * pden)) - 131.2026
Atten-Anom = Atten - 0.387

VENTS 1989 - LEG I
 Station X55 Cast 74 23 AUG 1989
 LAT: 47 57.6N LONG: 129 07.8W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	In situ Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom
1		3		1849		1873		1.999		1.873		0.080765		34.603		34.591		0.422		0.035
2		5		1849		1973		1.999		1.865		0.075493		34.603		34.590		0.422		0.035
3		21		1910		1935		1.994		1.863		0.081856		34.605		34.595		0.444		0.057
4		23		1910		1935		1.994		1.863		0.081861		34.605		34.595		0.444		0.057
5		25		1947		1973		1.994		1.860		0.083611		34.606		34.594		0.467		0.080
6		30		1947		1973		1.994		1.860		0.083595		34.606		34.594		0.467		0.080
7		11		1947		1973		1.994		1.860		0.083595		34.606		34.590		0.467		0.080
8		8		1947		1973		1.994		1.860		0.083595		34.606		34.596		0.467		0.080
9		12		1997		2024		1.992		1.854		0.083364		34.607		34.595		0.472		0.085
10		14		1997		2024		1.992		1.854		0.083358		34.607		34.594		0.472		0.085

0	11	Sigma-t (CTD)	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)
1		27.654		27.644		27.664		27.654		2.872		2.862		182.21		182.54		
2		27.654		27.643		27.664		27.654		2.832		2.837		181.56		181.68		
3		27.656		27.648		27.666		27.658		2.819		2.829		182.47		182.80		
4		27.656		27.648		27.666		27.658		2.857		2.858		182.45		182.56		
5		27.657		27.647		27.667		27.657		2.845		2.855		185.70		185.61		
6		27.657		27.647		27.667		27.657		2.864		2.854		185.67		185.37		
7		27.657		27.644		27.667		27.654		2.795		2.820		181.27		179.30		
8		27.657		27.649		27.667		27.659		2.834		2.834		182.70		182.82		
9		27.657		27.648		27.668		27.659		2.850		2.880		188.04		188.37		
10		27.657		27.647		27.668		27.658		2.855		2.850		186.14		187.92		

0 20 NO3-FIL 21 TSM (uM/L) (ug/l)

1
2
3
4
5
6
7
8
9
10

D-Theta = (ptemp + (4.678 * pden)) - 131.2026
 Atten-Anom = Atten - 0.387

VENTS 1989 - LEG I
 Station X50 Cast 76 23 AUG 1989
 LAT: 47 38.6N LONG: 129 17.5W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom
1		9		1498		1516		2.325		2.224		0.009384		34.523		34.507		0.389		0.000
2		15		1751		1773		2.083		1.964		0.005369		34.565		34.550		0.389		0.000
3		5		2004		2031		1.903		1.766		0.002940		34.598		34.580		0.390		0.001
4		23		2098		2127		1.870		1.725		0.003153		34.605		34.592		0.390		0.001
5		8		2200		2231		1.824		1.671		0.005767		34.615		34.603		0.390		0.001
6		14		2244		2276		1.806		1.649		0.006817		34.619		34.611		0.390		0.001
7		25		2299		2331		1.794		1.633		0.007332		34.622		34.614		0.389		0.000
8		13		2396		2430		1.775		1.605		0.004529		34.626		34.618		0.390		0.001
9		30		2604		2642		1.743		1.555		-0.005887		34.632		34.620		0.391		0.002

0	11	Sigma-t (CTD)	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)
1		27.563		27.550		27.572		27.559		3.206		3.201		165.00		164.40		
2		27.617		27.605		27.626		27.614		3.144		3.144		171.43		171.45		
3		27.657		27.643		27.668		27.653		3.031		3.057		177.23		176.22		
4		27.665		27.655		27.677		27.666		3.031		3.026		178.50		177.90		
5		27.677		27.667		27.689		27.679		3.011		3.016		179.98		180.00		
6		27.682		27.675		27.693		27.687		3.001		3.006		182.07		181.68		
7		27.685		27.678		27.697		27.691		3.006		2.991		181.28		181.09		
8		27.690		27.683		27.702		27.696		2.975		2.986		181.73		181.74		
9		27.697		27.687		27.711		27.701		2.960		2.960		181.35		179.72		

0	20	NO3-FIL (uM/L)	21	TSM (ug/l)
1				11.43
2				10.04
3				11.41
4				11.63
5				12.05
6				10.70
7				15.26
8				12.02
9				13.02

D-Theta = (ptemp + (4.694 * pden)) - 131.6354
 Atten-Anom = Atten - 0.389

VENTS 1989 - LEG I
 Station X63 Cast 75 23 AUG 1989
 LAT: 47 56.7N LONG: 129 01.7W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom
1	29			1901		1926		1.946		1.817				34.591		34.581		0.390		0.002
2	3			2002		2029		1.934		1.796				34.606		34.596		0.405		0.017
3	20			2251		2282		1.849		1.691				34.617		34.604		0.392		0.004
4	21			2264		2296		1.850		1.691				34.617		34.607		0.392		0.004
5	18			2273		2304		1.848		1.688				34.617		34.606		0.392		0.004
6	11			2280		2312		1.847		1.686				34.617		34.607		0.392		0.004
7	6			2287		2319		1.836		1.675				34.619		34.609		0.392		0.004
8	12			2294		2327		1.836		1.674				34.618		34.609		0.392		0.004
9	31			2307		2339		1.840		1.677				34.618		34.610		0.391		0.003

0	11	Sigma-t (CTD)	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)
1	27.648		27.640		27.658		27.650		2.882		2.877		174.15		176.44			
2	27.661		27.653		27.672		27.664		2.793		2.834		181.00		181.02			
3	27.677		27.666		27.689		27.678		2.806		2.791		180.41		180.63			
4	27.677		27.669		27.689		27.681		2.805		2.827		180.85		180.86			
5	27.677		27.668		27.689		27.680		2.808		2.799		180.46		181.09			
6	27.677		27.669		27.689		27.681		2.821		2.802		179.25		178.23			
7	27.679		27.671		27.692		27.683		2.821		2.820		177.01		177.22			
8	27.678		27.671		27.691		27.684		2.834		2.786		179.09		181.16			
9	27.678		27.672		27.691		27.684		2.786				180.55					

0	20	NO3-FIL (uM/L)	21	TSM (ug/l)
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1		12.95		
2		26.60		
3		15.53		
4		14.69		
5		15.82		
6		17.31		
7		15.32		
8		16.26		
9				

NOTE: CTD data corrected using NRCC salinity calibrations
 Atten-Anom = Atten - 0.388

VENTS 1989 - LEG I
 Station X61 Cast 78 23 AUG 1989
 LAT: 47 34.5N LONG: 128 59.7W

0	1	Niskin #	2	Depth (m)	3	Depth (db)	4	Insitu Temp.	5	Pottemp	6	Temp. Anom.	7	Salinity (CTD)	8	Salinity (Bottle)	9	Atten. (1/m)	10	Atten. Anom
1		31		1491		1509		2.389		2.288		0.042585		34.522		34.515		0.388		0.001
2		1		1751		1773		2.089		1.970		0.006575		34.565		34.558		0.387		0.000
3		12		2002		2028		1.911		1.774		0.005452		34.598		34.593		0.387		0.000
4		6		2200		2230		1.817		1.664		0.006097		34.617		34.611		0.387		0.000
5		11		2301		2333		1.796		1.634		0.009462		34.623		34.618		0.387		0.000
6		18		2399		2434		1.783		1.613		0.014179		34.628		34.624		0.388		0.001
7		20		2518		2554		1.768		1.587		0.012568		34.632		34.611		0.391		0.004
8		21		2602		2641		1.773		1.584		0.021914		34.635		34.632		0.394		0.007
9		29		2665		2705		1.773		1.578		0.029311		34.638		34.634		0.396		0.009

0	11	Sigma-t (CTD)	12	Sigma-t (Bottle)	13	Sigma-Theta (CTD)	14	Sigma-Theta (Bottle)	15	PO4-UNF (uM/L)	16	PO4-FIL (uM/L)	17	SiO4-UNF (uM/L)	18	SiO4-FIL (uM/L)	19	NO3-UNF (uM/L)
1		27.557		27.552		27.566		27.560		3.133		3.126		3.041		3.041		
2		27.616		27.611		27.626		27.620		2.946		2.949		2.891		2.891		
3		27.657		27.653		27.667		27.663		2.892		2.891		2.859		2.851		
4		27.679		27.674		27.691		27.686		2.885		2.885		2.851		2.844		
5		27.686		27.682		27.698		27.694		2.822		2.822		2.831		2.831		
6		27.691		27.687		27.703		27.700		2.850		2.850		2.867		2.867		
7		27.695		27.678		27.708		27.692		2.831		2.831						
8		27.697		27.695		27.711		27.709										
9		27.699		27.696		27.714		27.711										

0	20	NO3-FIL (uM/L)	21	TSM (ug/l)
1				12.52
2				10.00
3				9.77
4				10.27
5				10.16
6				11.38
7				13.03
8				16.15
9				19.22

D-Theta = (ptemp + (4.6903 * pden)) - 131.5357
 Atten-Anom = Atten - 0.387