

NOAA Data Report ERL PMEL-57



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**CHLOROFLUOROCARBON MEASUREMENTS IN THE SOUTHWESTERN PACIFIC  
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Seattle, Washington  
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**noaa** NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / Environmental Research Laboratories

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**UNITED STATES  
DEPARTMENT OF COMMERCE**

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ATMOSPHERIC ADMINISTRATION

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# Chlorofluorocarbon Measurements in the Southwestern Pacific During the CGC-90 Expedition

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**ABSTRACT.** This report presents chlorofluorocarbon (CFC) and hydrographic data collected in the Southwest Pacific Ocean during the 1990 NOAA Climate and Global Change (CGC-90) expedition on NOAA Research Ship *Malcolm Baldrige*. On this expedition, full water column CTD/hydrocast stations were made on a section extending along 170°W from 5°N to 60°S, on a short section crossing the Southwest Pacific Basin to the southeast of New Zealand, and on a short section along 32° 30'S east of the Kermadec Ridge. Measurements of dissolved and atmospheric dichlorodifluoromethane (CFC-12) and trichlorofluoromethane (CFC-11) made by the SIO and NOAA/PMEL groups are compared in this report. Also included in the report are hydrographic data (measurements of salinity, temperature, pressure and depth) collected by NOAA/PMEL investigators during this expedition. The CFC and hydrographic data sets included in this report are also available from the authors in digital format.

## 1. INTRODUCTION

Analytical techniques have been developed which allow trace levels of chlorofluorocarbons (CFCs) to be measured in the atmosphere and ocean. A number of recent studies have demonstrated the usefulness of dissolved CFCs as time-dependent (transient) tracers of ocean circulation and mixing processes (Bullister, 1989). CFC studies are now included as integral parts of many hydrographic programs, including the World Ocean Circulation Experiment (WOCE).

During the past decade, researchers at NOAA/PMEL have been engaged in a long-term program to document the entry of dissolved CFCs in the Pacific Ocean, by means of repeat hydrographic sections in key regions of the Pacific at 5–10 year intervals (Wisegarver *et al.*, 1993). Such studies of the entry of CFCs (and other tracers) into the ocean can provide a unique description of the time-integrated circulation of the ocean on decadal time scales, and of climatically forced changes in ventilation and circulation. CFC (and other tracer) studies may also provide a means for improving estimates of the evolving oceanic burden of carbon dioxide and other climate-linked trace gases. The CGC-90 expedition was part of this repeat section program, re-occupying stations in this region of the Southwest Pacific sampled by the PMEL group in 1984.

The NOAA Research Ship *Malcolm Baldrige* departed from Pago Pago, American Samoa on 23 February 1990 to begin Leg 1 of the CGC-90 expedition (see Fig. 1). A series of hydrographic stations were occupied southward along 170°W from 14°S to 60°S. At 60°S, the ship track turned

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northwestward, and a series of stations were occupied across the Southwest Pacific Basin to the edge of the Campbell Plateau. Leg 1 ended in Wellington, New Zealand. The *Malcolm Baldrige* departed Wellington on 26 March 1990 to begin Leg 2 of the CGC-90 expedition, and proceeded to occupy a series of stations along 32°30'S from about 178°W to 171°W. The ship track turned northward, and occupied a series of stations along 170°W from 30°S to 5°N. Several stations were occupied in the vicinity of Samoa Passage (10°S, 170°W). Because of severe CFC contamination problems encountered during the first seven stations of Leg 1 (from 14°S to 22°S along 170°W), several of these locations were resampled during Leg 2.

Leg 2 of the CGC-90 expedition ended in Honolulu. A total of 110 CTD/rosette casts were made at 69 locations during this expedition.

At each station of this expedition, vertical profiles of conductivity, temperature and depth were obtained using a Neil Brown Instruments System Mark III CTD, mounted on a General Oceanics Rosette. The rosette contained 12 (or 24) General Oceanics 10-liter Niskin Bottles, which were used to collect discrete seawater samples. A subsample was collected from each bottle for analysis of salinity and dissolved oxygen. Many of the bottles were also sampled for the analyses of CFCs, dissolved carbon dioxide, alkalinity, pH, nutrients, helium-3 ( $^3\text{He}$ ), tritium and other parameters. The CTD temperature, bottle salinity, CTD salinity, CFC-11 and CFC-12 are included in this report. Measurements of dissolved carbon dioxide have been reported elsewhere (Lamb *et al.*, 1993).

### **1.1 CTD Data Processing**

The CTD data, and the acquisition, processing and calibration procedures used on this cruise are documented in McTaggart *et al.* (1993). At each station, the CTD/rosette package was lowered through the water column on an electrical/mechanical cable. The digitized CTD signal was recorded on magnetic tape in the ship's laboratory. Initial processing of the data at sea yielded preliminary values for temperature, salinity and pressure. Final calibration and processing of the CTD data was done at PMEL following the completion of the expedition.

The CTD instruments were calibrated at the Northwest Regional Calibration Center (NRCC) (Seattle, WA) before and after the cruise. Although several reversing thermometers were used on most casts, the CTD pressure and temperature readings are considered to be more accurate and no corrections were applied from the thermometer data. Salinity samples drawn from each Niskin bottle were used to determine the calibration of the CTD conductivity cell. Temperatures are reported on the IPTS-68 temperature scale.

### **1.2 Salinity Data Processing**

Seawater samples were analyzed for salinity on a Guildline Autosol salinometer. Vials of IAPSO Standard Seawater (Batch P112) were used to calibrate the Autosol and were run before and after a batch of seawater samples (typically one station would be run as a batch). Data are reported in practical salinity units (PSU) discussed in Lewis and Fofonoff (1979).

### 1.3 Chlorofluorocarbon (CFC) Analytical Techniques

To reduce CFC contamination from elastomers, the internal elastic tubing normally used to close Niskin Bottles was replaced with an epoxy-coated spring, and the end cap O-rings used to seal the Niskin bottles were exchanged with vacuum-baked O-rings prior to the first station.

When collected, CFC samples were the first samples drawn from the Niskin Bottles. To minimize contact with air, seawater samples were drawn through the stopcocks of the 10-liter Niskin bottles directly into 100-ml glass syringes. Syringes containing seawater samples were stored in a stainless steel holding tank, which was continuously flushed with a supply of clean surface seawater. The holding tank was placed in the ship's wet laboratory and the outside hatch left open. This reduced the possibility of contamination of the stored samples due to high CFC levels frequently encountered in enclosed laboratory space on board research vessels.

The primary CFC system used on the CGC-90 expedition was an analytical system designed and constructed at SIO (Bullister and Weiss, 1988). A second, PMEL-designed CFC analytical system (Wisegarver *et al.*, 1993) was used at some stations to compare the two CFC-11 and CFC-12 techniques, and to develop and test analytical techniques for the determination of dissolved CFC-113 in seawater. The CFC-11 and CFC-12 data collected by both groups are presented in the data tables and displayed as vertical profiles in this data report. Due to the relatively small number of samples analyzed on the PMEL system, only the CFC data collected with the SIO system are shown in the contoured sections.

### 1.4 CFC Standardization

Concentrations of CFC-11 and CFC-12 in air and water samples were calibrated at sea using gas-phase CFC working standards stored in high pressure cylinders. Calibration curves were generated by injecting multiple volumes of these working standards into the analytical system using carefully calibrated loop volumes. The amounts of CFCs injected into the system in these calibration runs spanned the range of CFCs present in the air and water samples. Full calibration curves were typically run at 1–2 day intervals during the expedition. Single loop volumes of standard were run frequently between calibration curves to check for changes in sensitivity of the analytical system. The techniques used for fitting multi-term expressions to the standard gas calibration data, correcting for analytical blanks, correcting for changes in sensitivity, and calculating CFC-11 and CFC-12 concentrations in air and seawater samples are discussed in Bullister and Weiss (1988).

Dissolved CFC concentrations are reported in units of picomoles per kilogram of seawater (pmol/kg). Air concentration measurements are reported as dry air mole fraction and are expressed as ppt ( $1 \text{ ppt} = 10^{-12}$ ).

The SIO and PMEL measurements of CFC-11 and CFC-12 are reported on the SIO 1986 calibration scale (Bullister and Weiss, 1988). The SIO concentration measurements on CGC-90 were referenced to SIO working standard cylinder 16457 (see Table 1). The concentrations assigned to this working standard are based on comparisons with primary CFC standards prepared at SIO



(Bullister, 1984). The PMEL measurements made on CGC-90 are referenced to PMEL working standard 71487. During the cruise, the CFC-11 and CFC-12 concentrations in PMEL working standard 71487 were calibrated relative to the SIO standard 16457. The CFC-11 and CFC-12 concentrations assigned to 71487 are shown in Table 1.

Table 1. Summary of standards used for the calibration of the CFC analytical system. CFC concentrations are reported in the SIO 1986 scale (Bullister and Weiss, 1988).

| Cylinder #   | Calibration              | CFC-11<br>(ppt) | CFC-12<br>(ppt) |
|--------------|--------------------------|-----------------|-----------------|
| 16457 (SIO)  | vs SIO primary standards | 198.53          | 359.84          |
| 71487 (PMEL) | vs 16457                 | 263.0           | 481.6           |

### 1.5 CFC Air Measurement Techniques

Air samples were analyzed for CFC-11 and CFC-12 on both instruments periodically on station or while the ship was underway. An air inlet was mounted on the bow jackstaff of the vessel, and clean marine air was pumped into the laboratory through 3/8-inch O.D. Dekabon tubing. Air samples were normally analyzed in groups of three or more, with a single geographic position reported for each group. Typical precision ( $\pm$  one standard deviation) for these groups averaged 0.5% to 1.0% for both gases.

These air samples were used to determine the temporal and spatial distribution of CFCs in the near-surface atmosphere along the ship tracks (Fig. 2). The averages of the atmospheric concentrations south of 10°S are 252.3 ppt and 461.3 ppt for CFC-11 and CFC-12 using the SIO system, and 253.3 ppt and 459.4 ppt for the PMEL system. Since the atmospheric measurements made with the SIO and PMEL systems agree to within the estimated analytical errors (see below) and air measurements were made more frequently with the SIO system on this expedition, the SIO air values are used in calculating equilibrium dissolved CFC concentrations for each station.

CFC atmospheric values for each hydrographic station location were determined by averaging measurements taken within  $\pm 7$  days of a station and within a radius starting at 60 km, and increased in steps of 60 km, until a minimum of 5 air values were found. These mean values are reported in the station listings. These atmospheric values, together with measurements of temperature and salinity and CFC solubility data (Warner and Weiss, 1985), are used to calculate equilibrium concentrations for dissolved CFC samples at each station. The ratio of measured dissolved CFC concentrations to calculated equilibrium concentrations are reported in the data tables as percent saturation.

### 1.6 CFC Blank Corrections

Two types of blank corrections were applied to the CFC samples. An analytical (or "system") blank, derived from the analysis of CFC-free gas, was subtracted from standard and air samples.

CFC-11 and CFC-12 peak areas generated from analysis of analytical blanks were typically less than 1% of those for standard or air samples.

Estimates of seawater blanks were sometimes more difficult to determine. CFC contamination can occur during storage of the seawater sample in a Niskin Bottle, glass syringe, or sparging chamber, during the seawater transfer procedures, and during sample analysis.

Based on earlier CFC studies (Wisegarver *et al.*, 1993) and other time-dependent tracer studies in the Pacific Ocean (Broecker and Peng, 1982), much of the deep water at stations sampled north of  $\sim 25^{\circ}\text{S}$  and away from western boundary influences should contain near-zero concentrations of dissolved CFCs at the present time. Estimates of CFC seawater blanks for samples collected at stations along the northern end of the CGC-90 section (stations north of  $25^{\circ}\text{S}$ ) are based on analysis of deep water samples in that area. Estimates of typical seawater sample blanks at the more southerly stations (south of  $25^{\circ}\text{S}$ ) of this expedition are based on estimates from the northern end of the section, analyses of replicate samples (several bottles closed at the same depth), and bottle incubation experiments (see Wisegarver *et al.*, 1993). The analytical blanks subtracted from the sample concentrations are listed below.

Table 2. Summary of the water sample blank corrections for the SIO and PMEL systems.

| Stations | SIO sample blanks |        | Stations | PMEL sample blanks |        |
|----------|-------------------|--------|----------|--------------------|--------|
|          | CFC-11            | CFC-12 |          | CFC-11             | CFC-12 |
| 9-37     | 0.013             | 0.000  | 9-37     | 0.008              | 0.003  |
| 38-47    | 0.008             | 0.010  | 38-69    | 0.007              | 0.004  |
| 48-49    | 0.006             | 0.010  |          |                    |        |
| 50-55    | 0.009             | 0.010  |          |                    |        |
| 56-69    | 0.011             | 0.010  |          |                    |        |

### 1.7 Estimation of Analytical Precision and Accuracy

Several techniques were used to obtain estimates of analytical precision for the CFC measurements in seawater samples. Replicate samples were obtained by filling two or more syringes with seawater from the same Niskin Bottle, or by closing two or more Niskin Bottles at the same depth at a station, and sampling each for CFCs. In some cases, estimates of analytical precision could also be made from analysis of samples collected in a region of near-uniform CFC distribution (e.g., from a set of Niskin bottles closed in the mixed layer, or from a set of Niskin Bottles closed in deep, CFC-free water). The standard deviations for analyses of these types of replicate samples were used to estimate the overall analytical precision.

At most stations, the dissolved CFC concentrations ranged from a high of 1 (or more) pmol/kg in the near surface waters, to near-zero concentration in deep waters. In many cases, the analytical precision for a group of samples of varying concentrations can be expressed as either fixed amount (in pmol/kg) or as a percent of sample concentration, whichever is greater.

Based on the analysis of replicate samples on the SIO system, the precision is estimated to be 0.005 pmol/kg or 1.4% (whichever is greater) for CFC-11 and 0.005 pmol/kg or 1.0% for CFC-12. There were not very many replicate samples measured on the PMEL system and those analyzed were on consecutive runs. This was done to increase the flushing of sample through the injection valve when experimenting with the analysis of CFC-113, and does not provide an accurate estimate of the precision of the method. Duplicate samples were usually run some time apart so as to include errors arising from drifting standard responses and sample storage. Based on the scatter of the data, the estimated precision for the PMEL samples is 1.5% or 0.007 pmole/kg for CFC-11 and 1.0% or 0.005 pmole/kg for CFC-12.

A comparison of analyses made using the two CFC systems on water from the same Niskin bottles is shown in Figs. 3 and 4. The slope of the linear regression through the CFC-11 data is 1.012 and the intercept is  $-0.0040$ . For CFC-12, the slope is 1.048 and the intercept 0.0015. For concentrations greater than 0.5 pmol/kg, the mean ratio of the PMEL to SIO concentrations was 1.003 for CFC-11 and 1.048 for CFC-12. For concentrations less than 0.5 pmol/kg, the mean difference of PMEL and SIO concentrations was 0.0024 for CFC-11 and 0.0062 for CFC-12. These differences in CFC-12 are somewhat greater than the estimated analytical precisions for the two systems, and may be due to small systematic differences in detector linearities and sensitivities, sample transfer and trapping techniques, chromatographic columns, peak integration techniques and other factors. Discussions of differences in reported CFC concentrations during intercomparison studies are given in Wallace (1992) and Bullister *et al.* (1993).

The sensitivity of the SIO and PMEL systems to low concentrations of dissolved CFC-12 was substantially less than that for CFC-11. For many vertical profiles where the deep CFC-11 concentration fell between 0.03 and 0.01 pmol/kg, the corresponding CFC-12 peak was too small to integrate either digitally or manually and was assigned a value of 0. For this cruise, it appears that the detection limit for CFC-12 on the SIO system was on the order of 0.01 to 0.015 pmole/kg. As a consequence, low concentration features which appear in the CFC-11 sections could not be contoured reliably with the same detail using the CFC-12 data (see Figs. 5c, 5d). Additionally, CFC-11/CFC-12 ratios at low CFC concentrations were often higher than expected, due to the difficulty in the measurement of very small peaks.

## 1.8 Flagging System

The flagging system used for the CFC data follows the system developed for WOCE (WOCE Operations Manual, 1994). The following flags were used for CFC-11 and CFC-12:

| <b><u>Flag</u></b> | <b><u>Definition</u></b>                    |
|--------------------|---|
| 2                  | Acceptable measurement                      |
| 3                  | Questionable measurement                    |
| 4                  | Bad measurement                             |
| 6                  | Mean value of replicate measurements        |
| 7                  | Manual integration of chromatographic peaks |
| 9                  | Not sampled                                 |

Because of severe CFC contamination problems in the Niskin bottles used for Sta. 1–8, data from these stations are not included in this report. A different set of bottles was used after Sta. 8, which in general provided much reduced levels of CFC contamination for the rest of the cruise.

A flag of 4 has been assigned to samples that were considered bad due to analytical problems, or that had grossly anomalous CFC-11 and/or CFC-12 concentrations relative to surrounding samples. Data flagged as 3 (questionable) deviated significantly from otherwise relatively smooth concentration profiles. In many cases, the CFC-11/CFC-12 ratio provided a sensitive test for assigning the questionable flag to a CFC-11 or CFC-12 value.

In this report, most of the data marked questionable were samples with concentrations of CFC-11 greater than 0.03 pmole/kg and with CFC-11/CFC-12 ratios greater than 2.4, an indication of CFC-11 contamination. Samples that had CFC-11 concentrations below 0.03 pmoles/kg frequently had high or anomalous CFC-11/CFC-12 ratios, due to the large relative errors in CFC-11 and CFC-12 concentration measurements at low levels, and the reduced sensitivity of the instruments to low levels of CFC-12. These low-concentration samples were not generally flagged as questionable.

Values for samples flagged as “bad” or “questionable” are included in the data tables in this report, but are not included in the contoured sections or vertical profile plots. It is important to emphasize that the data have been flagged to identify serious “flyers” and contaminated samples. However, not all of the data have yet been subjected to the level of scrutiny associated with careful interpretive work. Readers are therefore requested to contact the authors for any revisions in the data which may post-date this report, and to draw to our attention any suspected inconsistencies.

## **1.9 Plotting Techniques**

The gridding and contouring routines used are based on those developed by D. Roemmich (1983). The contoured sections in this report follow a few protocols. North is always to the right in latitudinal plots, and east is to the right in longitudinal plots. Stations are listed on the upper axis. The section begins with a map of the stations used in the contour plots. Sections for the 170°W line (from 60°S to 5°N), the Southwest Basin and the Kermadec Ridge, are included in this report.

The plots of vertical profiles of CFC's shown in this report were generated using software developed by the CFC group at SIO. Each page consists of a map of the station locations, and CFC profiles from five stations. Each station is plotted on two scales so that both high and low CFC concentrations may be easily displayed. CFC-11 is represented with circles and CFC-12 with triangles; the solid symbols are plotted against the lower concentration scale on the bottom axis.

## 2. ACKNOWLEDGMENTS

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# **CGC-90 Data**

## **Station Locations**

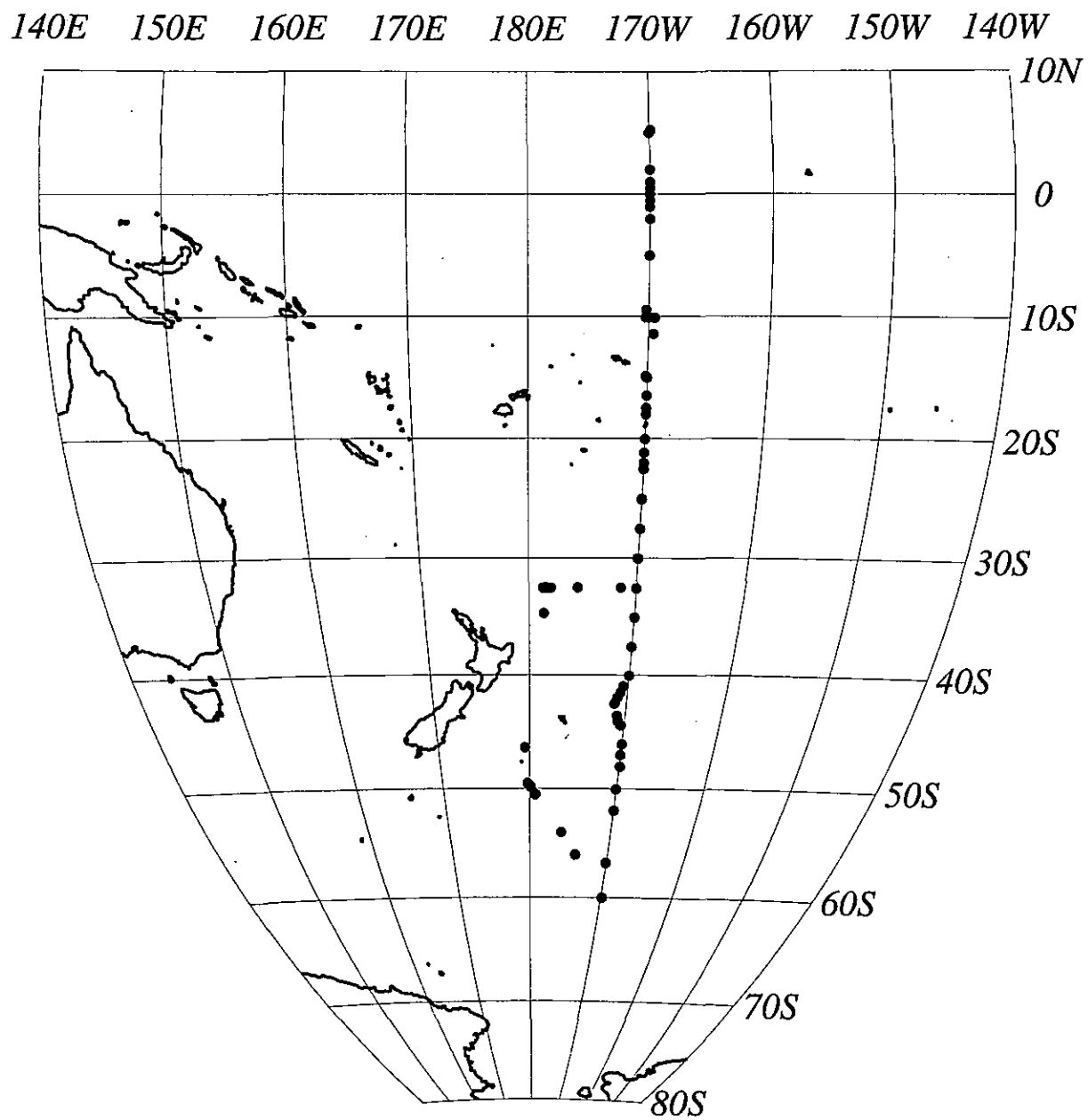


Fig. 1. Station locations for the CGC-90 expedition.



## CGC-90 Station List for Hydrographic Stations where CFCs were Measured

| Station | Date      | Latitude    | Longitude    | Bottom<br>Depth (m) | Atm. F-11<br>$\times 10^{-12}$ | Atm. F-12<br>$\times 10^{-12}$ |
|---------|-----------|-------------|--------------|---------------------|--------------------------------|--------------------------------|
| 9       | 27 Feb 90 | 25° 01.3' S | 170° 00.9' W | 5712                | 253.0                          | 464.2                          |
| 10      | 28 Feb 90 | 27° 30.8' S | 170° 00.9' W | 5316                | 251.8                          | 461.5                          |
| 11      | 1 Mar 90  | 30° 00.3' S | 170° 02.6' W | 5429                | 251.0                          | 461.5                          |
| 12      | 2 Mar 90  | 32° 33.2' S | 170° 03.1' W | 5568                | 251.1                          | 461.2                          |
| 13      | 2 Mar 90  | 35° 01.4' S | 170° 00.6' W | 5225                | 251.1                          | 461.2                          |
| 14      | 3 Mar 90  | 37° 32.6' S | 170° 02.2' W | 5170                | 252.3                          | 461.5                          |
| 15      | 4 Mar 90  | 40° 01.7' S | 170° 01.7' W | 4626                | 249.7                          | 461.2                          |
| 16      | 4 Mar 90  | 40° 58.1' S | 170° 29.0' W | 4323                | 249.7                          | 461.2                          |
| 17      | 5 Mar 90  | 41° 29.4' S | 170° 43.4' W | 3984                | 249.7                          | 461.2                          |
| 18      | 5 Mar 90  | 41° 58.9' S | 170° 59.0' W | 2974                | 249.7                          | 461.2                          |
| 19      | 5 Mar 90  | 42° 28.7' S | 171° 12.5' W | 1857                | 249.7                          | 461.8                          |
| 20      | 5 Mar 90  | 43° 30.1' S | 170° 51.2' W | 2904                | 249.0                          | 461.5                          |
| 21      | 6 Mar 90  | 43° 59.1' S | 170° 41.6' W | 4473                | 249.0                          | 461.5                          |
| 22      | 6 Mar 90  | 44° 22.2' S | 170° 19.7' W | 5108                | 249.0                          | 461.5                          |
| 23      | 6 Mar 90  | 46° 02.7' S | 170° 00.1' W | 5190                | 250.5                          | 460.9                          |
| 24      | 7 Mar 90  | 47° 00.4' S | 170° 00.8' W | 5252                | 250.5                          | 460.9                          |
| 25      | 7 Mar 90  | 48° 01.3' S | 169° 54.9' W | 5294                | 250.5                          | 460.9                          |
| 26      | 8 Mar 90  | 50° 04.0' S | 170° 04.2' W | 5279                | 252.1                          | 460.1                          |
| 27      | 9 Mar 90  | 51° 58.0' S | 169° 59.1' W | 5054                | 252.1                          | 460.1                          |
| 28      | 10 Mar 90 | 56° 46.1' S | 170° 04.1' W | 4822                | 251.0                          | 456.9                          |
| 29      | 11 Mar 90 | 60° 00.6' S | 169° 53.0' W | 4139                | 251.0                          | 456.9                          |
| 30      | 12 Mar 90 | 55° 59.8' S | 174° 10.1' W | 4970                | 251.0                          | 456.9                          |
| 31      | 13 Mar 90 | 53° 56.9' S | 176° 09.5' W | 5289                | 251.2                          | 460.0                          |
| 32      | 15 Mar 90 | 50° 30.3' S | 179° 23.7' W | 4448                | 252.0                          | 460.8                          |
| 33      | 15 Mar 90 | 49° 29.9' S | 179° 44.7' E | 2012                | 252.0                          | 460.5                          |
| 34      | 16 Mar 90 | 49° 43.5' S | 179° 59.9' W | 3111                | 251.9                          | 460.1                          |
| 35      | 16 Mar 90 | 49° 50.9' S | 179° 52.7' W | 4030                | 251.9                          | 460.1                          |
| 36      | 18 Mar 90 | 50° 29.0' S | 179° 21.4' W | 4458                | 252.0                          | 460.8                          |
| 37      | 20 Mar 90 | 46° 20.0' S | 179° 28.9' E | 3317                | 250.9                          | 460.1                          |
| 38      | 28 Mar 90 | 34° 38.9' S | 178° 38.2' W | 6556                | 254.0                          | 461.4                          |
| 39      | 28 Mar 90 | 32° 29.8' S | 178° 18.8' W | 4994                | 253.3                          | 459.6                          |
| 40      | 29 Mar 90 | 32° 30.6' S | 178° 31.4' W | 4172                | 253.3                          | 460.3                          |
| 41      | 29 Mar 90 | 32° 29.8' S | 178° 44.6' W | 2959                | 253.3                          | 460.3                          |
| 42      | 29 Mar 90 | 32° 29.0' S | 178° 30.1' W | 4211                | 253.3                          | 460.3                          |
| 43      | 29 Mar 90 | 32° 29.6' S | 178° 17.8' W | 5004                | 253.3                          | 459.6                          |
| 44      | 29 Mar 90 | 32° 29.5' S | 178° 00.2' W | 5898                | 253.3                          | 459.6                          |
| 45      | 30 Mar 90 | 32° 29.0' S | 175° 29.0' W | 5462                | 252.9                          | 460.4                          |
| 46      | 31 Mar 90 | 32° 28.8' S | 171° 28.7' W | 5182                | 252.7                          | 460.7                          |
| 47      | 1 Apr 90  | 30° 00.0' S | 170° 00.4' W | 5425                | 252.2                          | 460.6                          |
| 48      | 2 Apr 90  | 24° 58.6' S | 170° 01.3' W | 5740                | 251.5                          | 461.0                          |
| 49      | 2 Apr 90  | 22° 29.8' S | 170° 00.4' W | 5645                | 251.5                          | 459.9                          |
| 50      | 3 Apr 90  | 20° 00.4' S | 170° 00.4' W | 5398                | 252.9                          | 459.7                          |

CGC-90 Station List for Hydrographic Stations where CFCs were Measured

| Station | Date      | Latitude    | Longitude    | Bottom<br>Depth (m) | Atm. F-11<br>$\times 10^{-12}$ | Atm. F-12<br>$\times 10^{-12}$ |
|---------|-----------|-------------|--------------|---------------------|--------------------------------|--------------------------------|
| 51      | 4 Apr 90  | 17° 29.5' S | 170° 00.3' W | 4848                | 252.9                          | 459.7                          |
| 52      | 4 Apr 90  | 15° 00.2' S | 170° 00.6' W | 4833                | 253.0                          | 465.7                          |
| 54      | 6 Apr 90  | 10° 06.1' S | 169° 30.2' W | 5249                | 256.2                          | 466.7                          |
| 55      | 6 Apr 90  | 10° 05.4' S | 169° 59.5' W | 5163                | 256.2                          | 466.7                          |
| 56      | 6 Apr 90  | 10° 05.3' S | 170° 14.9' W | 5051                | 256.2                          | 466.7                          |
| 58      | 7 Apr 90  | 05° 00.1' S | 170° 00.8' W | 5411                | 255.2                          | 466.9                          |
| 59      | 8 Apr 90  | 02° 00.3' S | 170° 00.4' W | 5214                | 255.2                          | 467.5                          |
| 60      | 9 Apr 90  | 00° 59.7' S | 170° 01.2' W | 5435                | 254.0                          | 465.5                          |
| 61      | 9 Apr 90  | 00° 29.9' S | 170° 00.4' W | 5698                | 254.1                          | 465.2                          |
| 62      | 9 Apr 90  | 00° -0.0' N | 170° 01.2' W | 5342                | 254.1                          | 465.2                          |
| 64      | 11 Apr 90 | 00° -0.0' N | 170° 00.2' W | 5508                | 254.1                          | 465.2                          |
| 65      | 11 Apr 90 | 00° 30.0' N | 170° 00.3' W | 5285                | 254.1                          | 465.2                          |
| 66      | 11 Apr 90 | 01° 00.1' N | 170° 00.3' W | 5316                | 254.1                          | 465.2                          |
| 67      | 12 Apr 90 | 02° 00.3' N | 170° 00.9' W | 5357                | 254.1                          | 465.2                          |
| 68      | 12 Apr 90 | 05° 00.1' N | 170° 00.6' W | 7161                | 254.1                          | 465.2                          |

# **Atmospheric CFC Measurements and Data Comparisons**

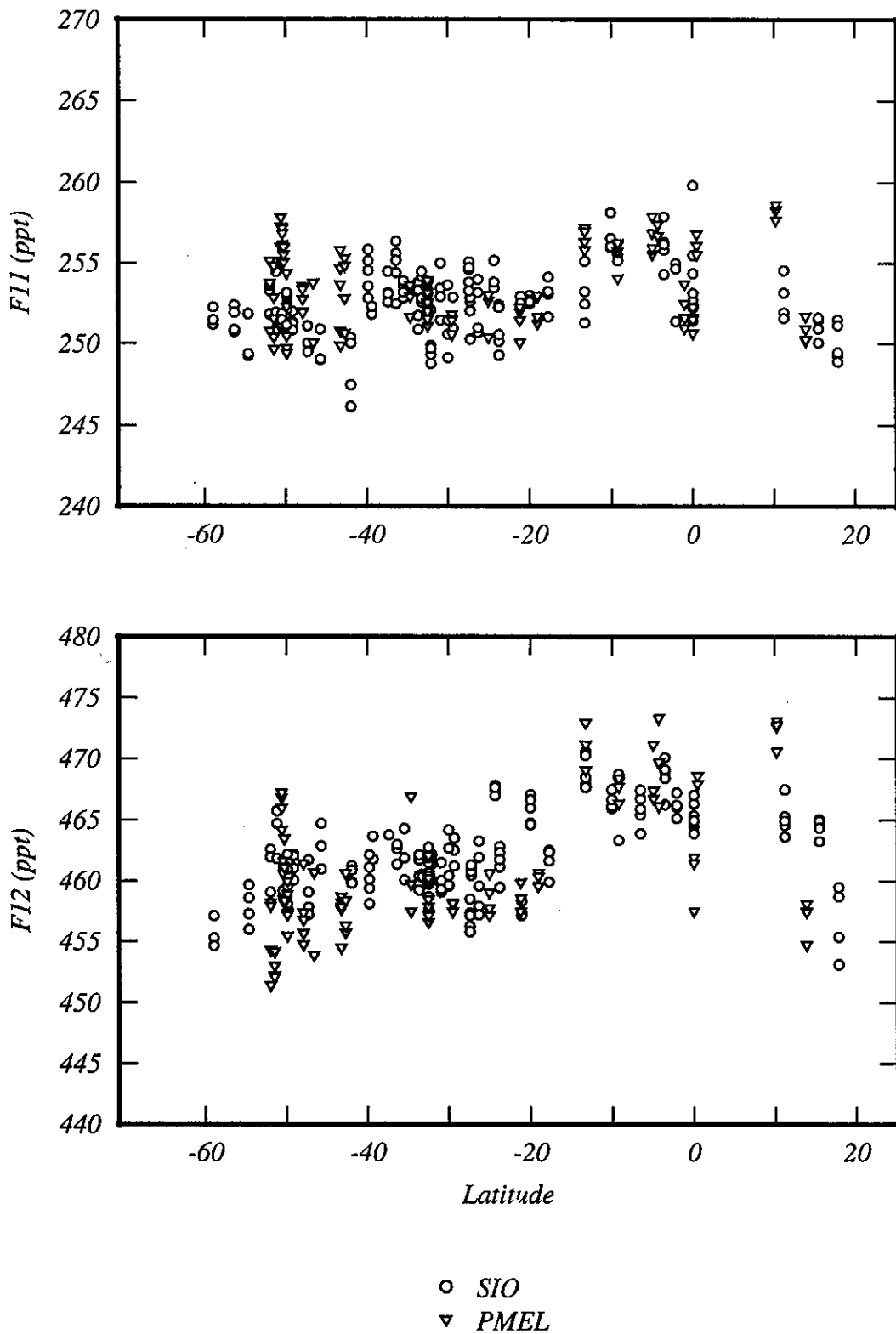


Fig. 2. Atmospheric measurement of CFC-11 and CFC-12 analyzed during the CGC-90 expedition using the SIO and PMEL systems. Concentrations are in ppt (1 ppt =  $10^{-12}$ ).

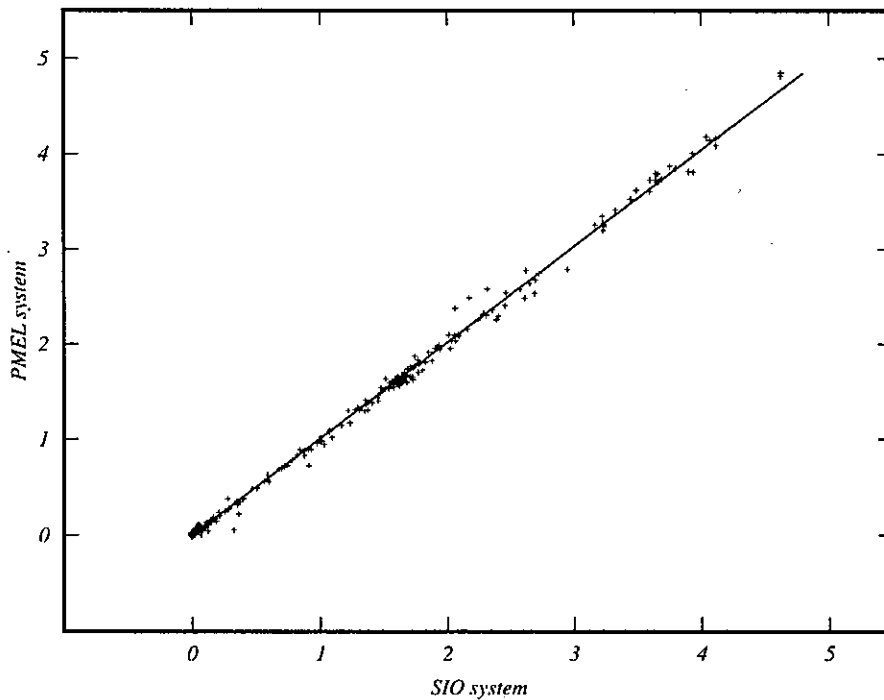


Fig. 3. Comparison of CFC-11 seawater measurements made on the SIO and PMEL systems. Concentrations are in pM/kg (1 pM =  $10^{-12}$  mole). A linear regression fit to the data gives the relationship:  $PMEL11 = 1.012 * SIO11 - 0.0040$ .

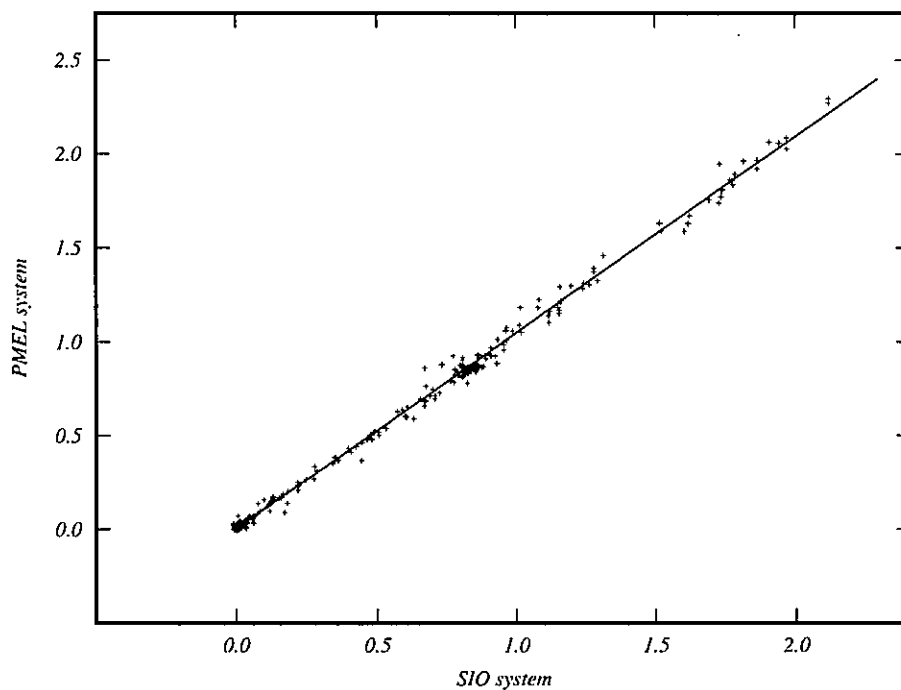


Fig. 4. Comparison of CFC-12 seawater measurements made on the SIO and PMEL systems. Concentrations are in pM/kg (1 pM =  $10^{-12}$  mole). A linear regression fit to the data gives the relationship:  $PMEL12 = 1.048 * SIO12 + 0.0015$ .

## CGC-90 SIO Atmospheric CFC Measurements

| Date      | Time | Latitude    | Longitude    | F-11<br>$\times 10^{-12}$ | F-12<br>$\times 10^{-12}$ |
|-----------|------|-------------|--------------|---------------------------|---------------------------|
| 25 Feb 90 | 2053 | 20° 00.6' S | 169° 59.0' W | 253.0                     | 464.7                     |
| 25 Feb 90 | 2107 |             |              | 252.7                     | 467.1                     |
| 25 Feb 90 | 2133 |             |              | 252.5                     | 464.6                     |
| 25 Feb 90 | 2145 |             |              | 252.5                     | 466.0                     |
| 25 Feb 90 | 2158 |             |              | 252.6                     | 466.7                     |
| 27 Feb 90 | 0303 | 24° 18.0' S | 169° 58.5' W | 255.2                     | 467.8                     |
| 27 Feb 90 | 0342 |             |              | 253.5                     | 467.5                     |
| 27 Feb 90 | 0354 |             |              | 253.5                     | 467.0                     |
| 27 Feb 90 | 0405 |             |              | 253.8                     | 467.6                     |
| 28 Feb 90 | 0540 | 27° 13.1' S | 170° 00.1' W | 252.6                     | 461.1                     |
| 28 Feb 90 | 0552 |             |              | 252.9                     | 460.5                     |
| 28 Feb 90 | 0603 |             |              | 252.0                     | 460.8                     |
| 28 Feb 90 | 0615 |             |              | 250.3                     | 461.3                     |
| 28 Feb 90 | 1906 | 29° 19.0' S | 170° 00.0' W | 251.0                     | —                         |
| 28 Feb 90 | 1918 |             |              | 252.9                     | 463.5                     |
| 28 Feb 90 | 1930 |             |              | 251.0                     | 462.5                     |
| 28 Feb 90 | 2010 |             |              | —                         | 461.2                     |
| 1 Mar 90  | 1612 | 32° 05.9' S | 169° 59.4' W | 249.9                     | 461.8                     |
| 1 Mar 90  | 1624 |             |              | 249.4                     | 462.1                     |
| 1 Mar 90  | 1636 |             |              | 249.7                     | 462.2                     |
| 1 Mar 90  | 1648 |             |              | 252.1                     | 460.1                     |
| 1 Mar 90  | 1712 |             |              | 248.8                     | 461.4                     |
| 2 Mar 90  | 0843 | 33° 39.7' S | 169° 59.8' W | 251.7                     | 461.7                     |
| 2 Mar 90  | 0855 |             |              | 253.8                     | 462.1                     |
| 2 Mar 90  | 0907 |             |              | 253.3                     | 460.4                     |
| 2 Mar 90  | 0932 |             |              | 250.9                     | 459.2                     |
| 3 Mar 90  | 2126 | 39° 21.0' S | 169° 59.0' W | 251.8                     | 461.8                     |
| 3 Mar 90  | 2143 |             |              | 252.3                     | 463.7                     |
| 5 Mar 90  | 0706 | 41° 59.1' S | 170° 59.4' W | 250.4                     | 459.9                     |
| 5 Mar 90  | 0718 |             |              | 250.1                     | 461.2                     |
| 5 Mar 90  | 0731 |             |              | 247.5                     | 459.8                     |
| 5 Mar 90  | 0743 |             |              | 246.1                     | 460.9                     |
| 6 Mar 90  | 1443 | 45° 43.3' S | 170° 04.7' W | 249.0                     | 460.9                     |
| 6 Mar 90  | 1455 |             |              | 250.9                     | —                         |
| 6 Mar 90  | 1507 |             |              | 249.0                     | 462.9                     |
| 6 Mar 90  | 1532 |             |              | —                         | 464.7                     |

CGC-90 SIO Atmospheric CFC Measurements

| Date      | Time | Latitude    | Longitude    | F-11<br>$\times 10^{-12}$ | F-12<br>$\times 10^{-12}$ |
|-----------|------|-------------|--------------|---------------------------|---------------------------|
| 8 Mar 90  | 0233 | 50° 00.4' S | 170° 00.3' W | 250.8                     | 458.8                     |
| 8 Mar 90  | 0243 |             |              | 251.8                     | 458.7                     |
| 8 Mar 90  | 0252 |             |              | 251.2                     | 459.3                     |
| 9 Mar 90  | 0231 | 52° 00.0' S | 170° 00.0' W | 253.3                     | 462.6                     |
| 9 Mar 90  | 0243 |             |              | 253.6                     | —                         |
| 9 Mar 90  | 0253 |             |              | 251.8                     | 461.9                     |
| 9 Mar 90  | 0303 |             |              | 251.9                     | 459.1                     |
| 9 Mar 90  | 2320 | 56° 21.9' S | 169° 58.0' W | 252.4                     | —                         |
| 9 Mar 90  | 2330 |             |              | 251.9                     | —                         |
| 9 Mar 90  | 2349 |             |              | 250.7                     | —                         |
| 9 Mar 90  | 2359 |             |              | 250.9                     | —                         |
| 10 Mar 90 | 2003 | 58° 56.7' S | 170° 00.5' W | —                         | 455.3                     |
| 10 Mar 90 | 2015 |             |              | 251.2                     | 454.7                     |
| 10 Mar 90 | 2028 |             |              | 252.3                     | 457.1                     |
| 10 Mar 90 | 2040 |             |              | 251.5                     | —                         |
| 13 Mar 90 | 0617 | 54° 42.2' S | 175° 32.3' W | 249.3                     | 457.3                     |
| 13 Mar 90 | 0629 |             |              | 249.3                     | 456.0                     |
| 13 Mar 90 | 0653 |             |              | 249.4                     | 459.7                     |
| 13 Mar 90 | 0704 |             |              | 251.9                     | 458.6                     |
| 15 Mar 90 | 0010 | 51° 13.6' S | 178° 58.9' W | 250.9                     | 464.7                     |
| 15 Mar 90 | 0040 |             |              | 254.5                     | —                         |
| 15 Mar 90 | 0104 |             |              | —                         | 465.7                     |
| 15 Mar 90 | 0115 |             |              | 251.9                     | 461.8                     |
| 16 Mar 90 | 0301 | 49° 08.2' S | 179° 52.5' E | 251.3                     | 462.2                     |
| 16 Mar 90 | 0311 |             |              | 251.3                     | 460.1                     |
| 16 Mar 90 | 0320 |             |              | 252.0                     | 461.0                     |
| 16 Mar 90 | 0330 |             |              | 250.9                     | 462.0                     |
| 17 Mar 90 | 0220 | 49° 51.6' S | 179° 17.6' W | 252.1                     | 460.5                     |
| 17 Mar 90 | 0230 |             |              | 252.4                     | 457.6                     |
| 17 Mar 90 | 0250 |             |              | 252.1                     | 461.4                     |
| 17 Mar 90 | 0259 |             |              | 252.9                     | —                         |
| 18 Mar 90 | 0745 | 50° 28.8' S | 179° 21.2' W | 251.9                     | 459.1                     |
| 18 Mar 90 | 0755 |             |              | 251.1                     | 458.7                     |
| 18 Mar 90 | 0805 |             |              | 251.2                     | 458.8                     |
| 18 Mar 90 | 0814 |             |              | 251.5                     | 459.2                     |

## CGC-90 SIO Atmospheric CFC Measurements

| Date      | Time | Latitude    | Longitude    | F-11<br>$\times 10^{-12}$ | F-12<br>$\times 10^{-12}$ |
|-----------|------|-------------|--------------|---------------------------|---------------------------|
| 19 Mar 90 | 0359 | 49° 54.2' S | 179° 08.5' E | 253.1                     | 460.9                     |
| 19 Mar 90 | 0408 |             |              | —                         | 462.2                     |
| 19 Mar 90 | 0418 |             |              | 253.2                     | 459.5                     |
| 19 Mar 90 | 0428 |             |              | 251.2                     | 458.1                     |
| 19 Mar 90 | 1813 | 47° 17.0' S | 179° 50.0' W | 251.1                     | 457.8                     |
| 19 Mar 90 | 1828 |             |              | 250.0                     | 457.2                     |
| 19 Mar 90 | 1840 |             |              | 249.5                     | 461.7                     |
| 19 Mar 90 | 1853 |             |              | 251.1                     | 459.1                     |
| 27 Mar 90 | 0455 | 39° 49.6' S | 178° 28.8' E | 252.8                     | 460.1                     |
| 27 Mar 90 | 0510 |             |              | 253.6                     | 462.1                     |
| 27 Mar 90 | 0523 |             |              | 255.1                     | 459.4                     |
| 27 Mar 90 | 0536 |             |              | 254.5                     | 458.1                     |
| 27 Mar 90 | 0548 |             |              | 255.8                     | 461.1                     |
| 27 Mar 90 | 1610 | 37° 22.7' S | 179° 52.4' E | 253.2                     | —                         |
| 27 Mar 90 | 1640 |             |              | 254.5                     | —                         |
| 27 Mar 90 | 1652 |             |              | 252.6                     | 463.8                     |
| 27 Mar 90 | 1704 |             |              | 253.1                     | —                         |
| 27 Mar 90 | 2042 | 36° 23.5' S | 179° 16.5' W | 255.6                     | 461.4                     |
| 27 Mar 90 | 2054 |             |              | 255.2                     | 462.6                     |
| 27 Mar 90 | 2105 |             |              | 256.3                     | —                         |
| 27 Mar 90 | 2118 |             |              | 252.5                     | —                         |
| 27 Mar 90 | 2130 |             |              | 254.4                     | 463.0                     |
| 28 Mar 90 | 0157 | 35° 28.5' S | 178° 45.2' W | 253.6                     | 461.9                     |
| 28 Mar 90 | 0213 |             |              | 253.9                     | 460.1                     |
| 28 Mar 90 | 0225 |             |              | 252.8                     | 460.1                     |
| 28 Mar 90 | 0237 |             |              | 253.2                     | 464.3                     |
| 28 Mar 90 | 1654 | 33° 15.5' S | 178° 28.4' W | 254.2                     | 460.5                     |
| 28 Mar 90 | 1706 |             |              | —                         | 460.3                     |
| 28 Mar 90 | 1718 |             |              | 252.6                     | —                         |
| 28 Mar 90 | 1731 |             |              | 254.5                     | 460.3                     |
| 28 Mar 90 | 1743 |             |              | 252.8                     | —                         |
| 30 Mar 90 | 1037 | 32° 29.3' S | 175° 53.6' W | 251.8                     | 459.9                     |
| 30 Mar 90 | 1108 |             |              | 253.9                     | 459.7                     |
| 30 Mar 90 | 1123 |             |              | 253.4                     | 458.7                     |
| 30 Mar 90 | 1135 |             |              | 253.1                     | 457.6                     |



## CGC-90 SIO Atmospheric CFC Measurements

| Date      | Time | Latitude    | Longitude    | F-11<br>$\times 10^{-12}$ | F-12<br>$\times 10^{-12}$ |
|-----------|------|-------------|--------------|---------------------------|---------------------------|
| 31 Mar 90 | 0625 | 32° 30.0' S | 172° 20.0' W | 252.3                     | 460.7                     |
| 31 Mar 90 | 0637 |             |              | 252.2                     | 461.5                     |
| 31 Mar 90 | 0648 |             |              | 252.4                     | 462.7                     |
| 31 Mar 90 | 0700 |             |              | 251.9                     | 461.9                     |
| 31 Mar 90 | 2023 | 30° 56.0' S | 170° 34.6' W | —                         | 459.1                     |
| 31 Mar 90 | 2035 |             |              | 253.4                     | 459.6                     |
| 31 Mar 90 | 2049 |             |              | 251.5                     | 459.3                     |
| 31 Mar 90 | 2101 |             |              | 255.0                     | 460.0                     |
| 31 Mar 90 | 2114 |             |              | 252.9                     | 461.5                     |
| 1 Apr 90  | 0304 | 29° 59.9' S | 170° 00.7' W | 250.6                     | 462.7                     |
| 1 Apr 90  | 0317 |             |              | 251.5                     | 464.2                     |
| 1 Apr 90  | 0329 |             |              | 249.1                     | 459.6                     |
| 1 Apr 90  | 0345 |             |              | —                         | 459.7                     |
| 1 Apr 90  | 0357 |             |              | 253.6                     | 460.4                     |
| 1 Apr 90  | 1532 | 27° 22.9' S | 169° 58.9' W | 253.3                     | 457.3                     |
| 1 Apr 90  | 1544 |             |              | 254.6                     | 457.2                     |
| 1 Apr 90  | 1556 |             |              | 255.1                     | 458.5                     |
| 1 Apr 90  | 1608 |             |              | 254.7                     | 456.2                     |
| 1 Apr 90  | 1620 |             |              | 253.8                     | 455.8                     |
| 1 Apr 90  | 2029 | 26° 15.5' S | 170° 00.1' W | 254.0                     | 459.6                     |
| 1 Apr 90  | 2041 |             |              | 250.7                     | 463.3                     |
| 1 Apr 90  | 2053 |             |              | —                         | 463.3                     |
| 1 Apr 90  | 2106 |             |              | 251.0                     | 461.9                     |
| 1 Apr 90  | 2141 |             |              | 253.2                     | 457.9                     |
| 1 Apr 90  | 2155 |             |              | —                         | 457.2                     |
| 2 Apr 90  | 1722 | 23° 43.7' S | 170° 00.0' W | 250.2                     | 462.8                     |
| 2 Apr 90  | 1734 |             |              | 249.3                     | 462.3                     |
| 2 Apr 90  | 1746 |             |              | 250.6                     | 461.2                     |
| 2 Apr 90  | 1758 |             |              | 252.4                     | 461.7                     |
| 2 Apr 90  | 1810 |             |              | 252.2                     | 459.5                     |
| 3 Apr 90  | 0817 | 21° 06.0' S | 170° 00.0' W | —                         | 457.4                     |
| 3 Apr 90  | 0829 |             |              | —                         | 458.4                     |
| 3 Apr 90  | 0841 |             |              | 252.9                     | 458.3                     |
| 3 Apr 90  | 0853 |             |              | 252.5                     | 457.2                     |
| 4 Apr 90  | 0729 | 17° 43.4' S | 170° 00.7' W | 253.1                     | 462.5                     |
| 4 Apr 90  | 0741 |             |              | 254.1                     | 462.3                     |
| 4 Apr 90  | 0753 |             |              | 251.7                     | 461.6                     |
| 4 Apr 90  | 0812 |             |              | 253.3                     | 459.9                     |

## CGC-90 SIO Atmospheric CFC Measurements

| Date      | Time | Latitude    | Longitude    | F-11<br>$\times 10^{-12}$ | F-12<br>$\times 10^{-12}$ |
|-----------|------|-------------|--------------|---------------------------|---------------------------|
| 5 Apr 90  | 1354 | 13° 15.6' S | 169° 50.2' W | 251.3                     | 467.9                     |
| 5 Apr 90  | 1406 |             |              | 252.5                     | 467.7                     |
| 5 Apr 90  | 1418 |             |              | 253.2                     | 468.5                     |
| 5 Apr 90  | 1430 |             |              | —                         | 470.6                     |
| 5 Apr 90  | 1442 |             |              | 255.1                     | 470.3                     |
| 6 Apr 90  | 0652 | 10° 06.1' S | 169° 30.3' W | —                         | 467.5                     |
| 6 Apr 90  | 0704 |             |              | 258.1                     | 465.9                     |
| 6 Apr 90  | 0716 |             |              | 256.0                     | 466.7                     |
| 6 Apr 90  | 0728 |             |              | 256.5                     | 466.2                     |
| 6 Apr 90  | 0740 |             |              | 256.0                     | 466.7                     |
| 7 Apr 90  | 0430 | 09° 14.3' S | 170° 12.0' W | 255.5                     | 468.4                     |
| 7 Apr 90  | 0442 |             |              | 255.1                     | 468.7                     |
| 7 Apr 90  | 0456 |             |              | —                         | 463.3                     |
| 7 Apr 90  | 1547 | 06° 35.9' S | 170° 08.1' W | —                         | 465.4                     |
| 7 Apr 90  | 1559 |             |              | —                         | 466.7                     |
| 7 Apr 90  | 1613 |             |              | —                         | 465.9                     |
| 7 Apr 90  | 1625 |             |              | —                         | 463.9                     |
| 7 Apr 90  | 1637 |             |              | —                         | 467.4                     |
| 8 Apr 90  | 1355 | 03° 33.6' S | 170° 00.5' W | 255.8                     | 469.0                     |
| 8 Apr 90  | 1407 |             |              | 254.3                     | 466.3                     |
| 8 Apr 90  | 1419 |             |              | 256.3                     | 468.4                     |
| 8 Apr 90  | 1432 |             |              | 256.2                     | 470.1                     |
| 8 Apr 90  | 1444 |             |              | 257.9                     | 469.1                     |
| 8 Apr 90  | 1955 | 02° 08.2' S | 169° 59.8' W | 255.0                     | 465.1                     |
| 8 Apr 90  | 2009 |             |              | 251.4                     | 466.0                     |
| 8 Apr 90  | 2022 |             |              | 254.7                     | 467.2                     |
| 8 Apr 90  | 2047 |             |              | —                         | 466.2                     |
| 10 Apr 90 | 2115 | 00° 00.6' N | 169° 30.2' W | 252.3                     | 464.5                     |
| 10 Apr 90 | 2127 |             |              | 252.7                     | 463.9                     |
| 10 Apr 90 | 2141 |             |              | 255.5                     | 464.8                     |
| 10 Apr 90 | 2207 |             |              | 254.4                     | 465.0                     |
| 11 Apr 90 | 1416 | 00° 00.1' S | 170° 00.2' W | 253.1                     | —                         |
| 11 Apr 90 | 1428 |             |              | 259.8                     | 465.4                     |
| 11 Apr 90 | 1441 |             |              | 255.5                     | 466.3                     |
| 11 Apr 90 | 1453 |             |              | 251.4                     | 467.0                     |
| 11 Apr 90 | 1505 |             |              | 252.2                     | 465.0                     |

CGC-90 SIO Atmospheric CFC Measurements

| Date      | Time | Latitude    | Longitude    | F-11<br>$\times 10^{-12}$ | F-12<br>$\times 10^{-12}$ |
|-----------|------|-------------|--------------|---------------------------|---------------------------|
| 14 Apr 90 | 0634 | 11° 14.1' N | 165° 28.2' W | 254.6                     | 465.3                     |
| 14 Apr 90 | 0647 |             |              | —                         | 467.5                     |
| 14 Apr 90 | 0659 |             |              | 253.2                     | 463.6                     |
| 14 Apr 90 | 0711 |             |              | 252.0                     | 464.6                     |
| 14 Apr 90 | 0723 |             |              | 251.6                     | 465.0                     |
| 15 Apr 90 | 0552 | 15° 26.6' N | 162° 20.0' W | 250.1                     | 463.3                     |
| 15 Apr 90 | 0605 |             |              | 251.5                     | 465.1                     |
| 15 Apr 90 | 0616 |             |              | 251.6                     | 464.9                     |
| 15 Apr 90 | 0633 |             |              | 250.9                     | 464.4                     |
| 15 Apr 90 | 1756 | 17° 50.7' N | 160° 29.3' W | 251.5                     | 459.5                     |
| 15 Apr 90 | 1816 |             |              | 251.2                     | 458.7                     |
| 15 Apr 90 | 1828 |             |              | 249.2                     | 455.4                     |
| 15 Apr 90 | 1840 |             |              | 249.5                     | 453.1                     |
| 15 Apr 90 | 1852 |             |              | 248.9                     | 453.1                     |

## CGC-90 PMEL Atmospheric CFC Measurements

| Date      | Time | Latitude    | Longitude    | F-11<br>$\times 10^{-12}$ | F-12<br>$\times 10^{-12}$ |
|-----------|------|-------------|--------------|---------------------------|---------------------------|
| 14 Mar 90 | 0656 | 51° 58.6' S | 178° 07.2' W | 253.9                     | 451.4                     |
| 14 Mar 90 | 0804 |             |              | —                         | 454.3                     |
| 14 Mar 90 | 0824 |             |              | 255.3                     | 458.2                     |
| 14 Mar 90 | 0846 |             |              | 251.0                     | 457.9                     |
| 14 Mar 90 | 1615 | 50° 36.0' S | 179° 22.0' W | 257.9                     | 466.8                     |
| 14 Mar 90 | 1638 |             |              | 255.3                     | 467.2                     |
| 14 Mar 90 | 1658 |             |              | 256.1                     | 466.0                     |
| 14 Mar 90 | 1724 |             |              | 257.3                     | 464.2                     |
| 16 Mar 90 | 0932 | 49° 53.9' S | 179° 50.7' W | 254.5                     | 460.0                     |
| 16 Mar 90 | 0953 |             |              | 250.0                     | 457.3                     |
| 16 Mar 90 | 1012 |             |              | 250.7                     | 458.9                     |
| 16 Mar 90 | 1033 |             |              | 252.5                     | 455.5                     |
| 16 Mar 90 | 1054 |             |              | 249.7                     | 457.2                     |
| 17 Mar 90 | 0337 | 50° 27.7' S | 179° 18.9' W | 257.2                     | 461.0                     |
| 17 Mar 90 | 0356 |             |              | 256.1                     | 461.2                     |
| 17 Mar 90 | 0414 |             |              | 257.1                     | 460.6                     |
| 17 Mar 90 | 0446 |             |              | 256.8                     | 461.7                     |
| 18 Mar 90 | 0624 | 51° 30.5' S | 178° 32.1' W | 249.7                     | 452.2                     |
| 18 Mar 90 | 0645 |             |              | 252.9                     | 453.0                     |
| 18 Mar 90 | 0703 |             |              | 251.6                     | 452.1                     |
| 18 Mar 90 | 0749 |             |              | 250.4                     | 452.1                     |
| 18 Mar 90 | 0818 |             |              | 254.8                     | 454.2                     |
| 18 Mar 90 | 1404 | 50° 18.0' S | 179° 41.0' E | 255.9                     | 458.2                     |
| 18 Mar 90 | 1424 |             |              | 255.1                     | 463.4                     |
| 18 Mar 90 | 1442 |             |              | 255.5                     | 458.4                     |
| 18 Mar 90 | 1501 |             |              | 256.0                     | 461.1                     |
| 10 Mar 90 | 0320 | 47° 54.0' S | 179° 57.5' E | 253.6                     | 461.4                     |
| 19 Mar 90 | 0339 |             |              | 252.0                     | 457.4                     |
| 19 Mar 90 | 0358 |             |              | 253.4                     | 455.7                     |
| 19 Mar 90 | 0417 |             |              | 252.0                     | 454.7                     |
| 19 Mar 90 | 0443 |             |              | 252.8                     | 456.8                     |
| 19 Mar 90 | 1041 | 46° 36.7' S | 179° 40.6' E | 250.1                     | 453.9                     |
| 19 Mar 90 | 1107 |             |              | 253.8                     | 460.7                     |
| 25 Mar 90 | 1214 | 43° 15.9' S | 176° 34.4' E | 250.8                     | 457.7                     |
| 25 Mar 90 | 1233 |             |              | 254.7                     | 458.2                     |
| 25 Mar 90 | 1251 |             |              | 249.9                     | 454.5                     |
| 25 Mar 90 | 1329 |             |              | 255.8                     | 458.7                     |
| 25 Mar 90 | 1354 |             |              | 253.7                     | 457.8                     |

## CGC-90 PMEL Atmospheric CFC Measurements

| Date      | Time | Latitude    | Longitude    | F-11<br>$\times 10^{-12}$ | F-12<br>$\times 10^{-12}$ |
|-----------|------|-------------|--------------|---------------------------|---------------------------|
| 25 Mar 90 | 1821 | 42° 42.0' S | 176° 03.0' E | 250.7                     | 455.7                     |
| 25 Mar 90 | 1841 |             |              | 252.8                     | 456.3                     |
| 25 Mar 90 | 1906 |             |              | 254.8                     | 458.4                     |
| 25 Mar 90 | 1926 |             |              | 255.3                     | 460.6                     |
| 27 Mar 90 | 2231 | 34° 39.0' S | 178° 38.3' W | 251.7                     | 457.5                     |
| 27 Mar 90 | 2244 |             |              | 253.4                     | 459.7                     |
| 27 Mar 90 | 2256 |             |              | 252.9                     | 459.7                     |
| 27 Mar 90 | 2310 |             |              | 253.6                     | 466.9                     |
| 28 Mar 90 | 1057 | 32° 29.8' S | 178° 19.6' W | 252.9                     | 460.5                     |
| 28 Mar 90 | 1110 |             |              | 252.5                     | 459.9                     |
| 28 Mar 90 | 1125 |             |              | 253.2                     | 460.2                     |
| 28 Mar 90 | 1138 |             |              | 253.7                     | 460.3                     |
| 29 Mar 90 | 1438 | 32° 30.0' S | 178° 00.0' W | 253.9                     | 462.1                     |
| 29 Mar 90 | 1451 |             |              | 253.8                     | 460.5                     |
| 29 Mar 90 | 1503 |             |              | 253.9                     | 460.2                     |
| 29 Mar 90 | 1542 |             |              | 252.6                     | 457.9                     |
| 30 Mar 90 | 1815 | 32° 30.0' S | 172° 22.0' W | 251.1                     | 456.6                     |
| 30 Mar 90 | 1828 |             |              | 252.0                     | 458.5                     |
| 30 Mar 90 | 1840 |             |              | 251.5                     | 457.2                     |
| 30 Mar 90 | 1856 |             |              | 251.5                     | 457.1                     |
| 31 Mar 90 | 1902 | 29° 30.0' S | 170° 00.0' W | 251.8                     | 458.2                     |
| 31 Mar 90 | 1915 |             |              | 251.5                     | 458.1                     |
| 31 Mar 90 | 1929 |             |              | 250.6                     | 458.2                     |
| 31 Mar 90 | 1947 |             |              | 251.4                     | 457.5                     |
| 1 Apr 90  | 1935 | 25° 00.0' S | 170° 00.0' W | 252.7                     | 457.7                     |
| 1 Apr 90  | 1947 |             |              | 252.7                     | 459.0                     |
| 1 Apr 90  | 1959 |             |              | 253.0                     | 460.6                     |
| 1 Apr 90  | 2036 |             |              | 250.4                     | 457.2                     |
| 2 Apr 90  | 1955 | 21° 13.4' S | 170° 00.8' W | 250.1                     | 458.6                     |
| 2 Apr 90  | 2007 |             |              | 252.0                     | 459.9                     |
| 2 Apr 90  | 2019 |             |              | 252.3                     | 457.5                     |
| 2 Apr 90  | 2034 |             |              | 251.5                     | 457.5                     |
| 4 Apr 90  | 1401 | 19° 01.9' S | 170° 00.6' W | 251.3                     | 460.7                     |
| 4 Apr 90  | 1413 |             |              | 252.9                     | 460.4                     |
| 4 Apr 90  | 1424 |             |              | 251.7                     | 459.6                     |
| 4 Apr 90  | 1437 |             |              | 253.0                     | 459.6                     |

## CGC-90 PMEL Atmospheric CFC Measurements

| Date      | Time | Latitude    | Longitude    | F-11<br>$\times 10^{-12}$ | F-12<br>$\times 10^{-12}$ |
|-----------|------|-------------|--------------|---------------------------|---------------------------|
| 5 Apr 90  | 0224 | 13° 15.6' S | 169° 50.2' W | 255.8                     | 469.1                     |
| 5 Apr 90  | 0239 |             |              | 257.2                     | 471.2                     |
| 5 Apr 90  | 0252 |             |              | 257.0                     | 473.0                     |
| 5 Apr 90  | 0306 |             |              | 256.3                     | —                         |
| 6 Apr 90  | 1702 | 09° 14.3' S | 170° 12.0' W | 255.7                     | 466.4                     |
| 6 Apr 90  | 1714 |             |              | 256.1                     | 468.2                     |
| 6 Apr 90  | 1726 |             |              | 256.2                     | 468.4                     |
| 6 Apr 90  | 1751 |             |              | 254.1                     | 467.7                     |
| 7 Apr 90  | 1137 | 05° 00.0' S | 170° 00.0' W | 256.9                     | 467.4                     |
| 7 Apr 90  | 1155 |             |              | 257.9                     | 471.1                     |
| 7 Apr 90  | 1208 |             |              | 255.6                     | 466.8                     |
| 7 Apr 90  | 1238 |             |              | 255.9                     | 467.4                     |
| 7 Apr 90  | 2345 | 04° 19.2' S | 170° 00.6' W | 256.7                     | 466.1                     |
| 7 Apr 90  | 2357 |             |              | 256.7                     | 469.7                     |
| 8 Apr 90  | 0009 |             |              | 257.4                     | 469.7                     |
| 8 Apr 90  | 0034 |             |              | 257.4                     | 473.3                     |
| 8 Apr 90  | 1727 | 01° 00.0' S | 170° 00.0' W | 253.7                     | —                         |
| 8 Apr 90  | 1743 |             |              | 252.5                     | —                         |
| 8 Apr 90  | 1956 |             |              | 251.6                     | —                         |
| 8 Apr 90  | 2009 |             |              | 251.0                     | —                         |
| 9 Apr 90  | 1905 | 00° 00.0' N | 169° 30.0' W | 251.6                     | 461.9                     |
| 9 Apr 90  | 1917 |             |              | 250.7                     | 457.5                     |
| 9 Apr 90  | 1930 |             |              | 252.3                     | 461.5                     |
| 9 Apr 90  | 1951 |             |              | 251.5                     | 461.5                     |
| 11 Apr 90 | 0756 | 00° 30.0' N | 170° 00.0' W | 256.1                     | —                         |
| 11 Apr 90 | 0808 |             |              | 256.8                     | 468.6                     |
| 11 Apr 90 | 0901 |             |              | 255.5                     | 467.9                     |
| 13 Apr 90 | 1357 | 10° 15.0' N | 166° 12.0' W | 258.3                     | 473.1                     |
| 13 Apr 90 | 1410 |             |              | 258.3                     | 470.6                     |
| 13 Apr 90 | 1424 |             |              | 258.6                     | 472.7                     |
| 13 Apr 90 | 1436 |             |              | 257.7                     | 472.8                     |
| 14 Apr 90 | 0856 | 13° 54.0' N | 163° 27.0' W | 251.0                     | 454.7                     |
| 14 Apr 90 | 0908 |             |              | 251.7                     | 457.5                     |
| 14 Apr 90 | 0921 |             |              | 250.2                     | 458.1                     |
| 14 Apr 90 | 0935 |             |              | 250.3                     | 457.5                     |

**Sections**  
**Potential temperature, salinity, CFC-11, CFC-12**  
**(5°N to 60°S, Southwest Basin, Kermadec Ridge)**

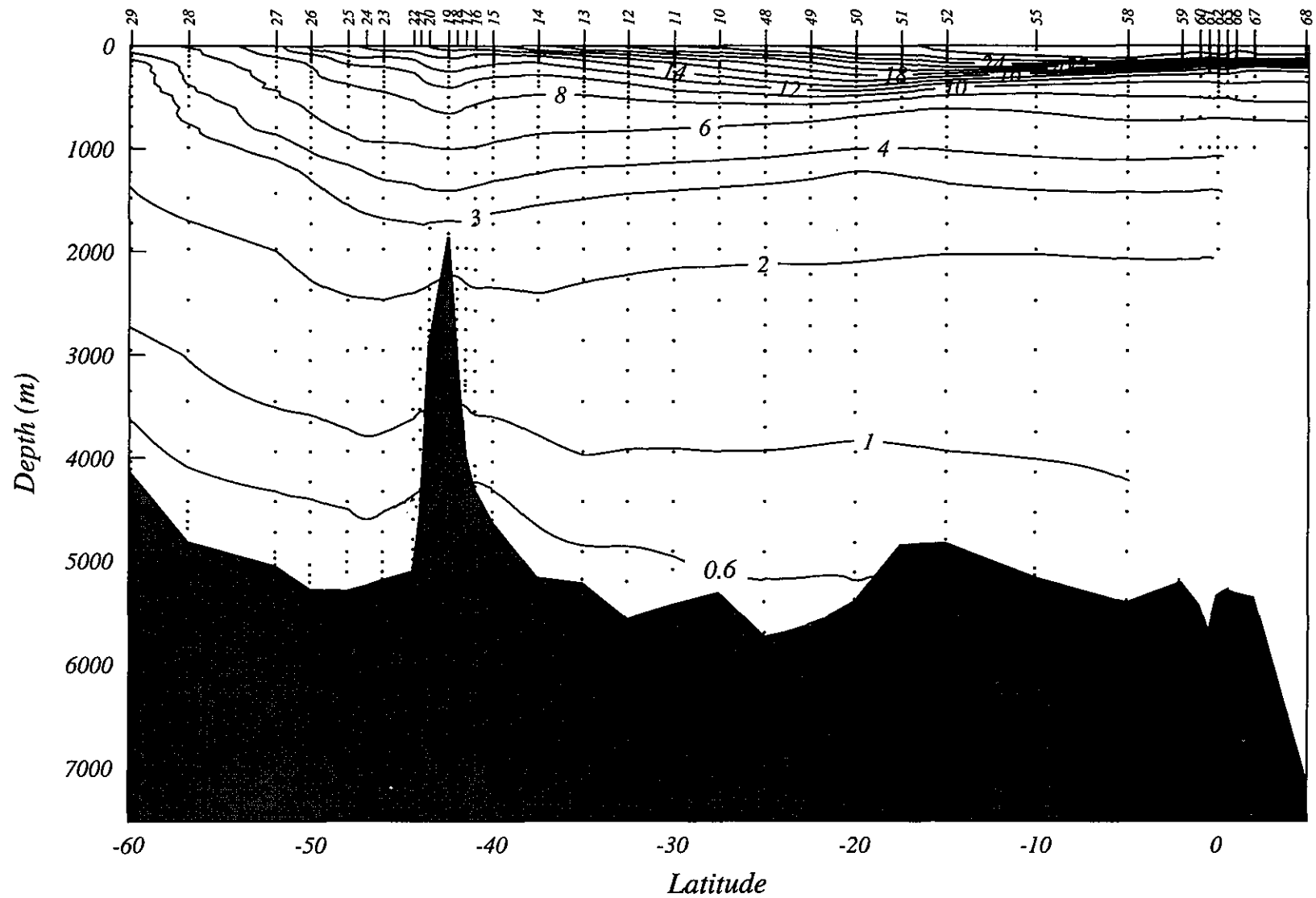


Fig. 5a. Potential Temperature (in °C) along 170°W during the CGC-90 expedition. Station numbers are along the top axis. Dots indicate locations where bottle samples were obtained.



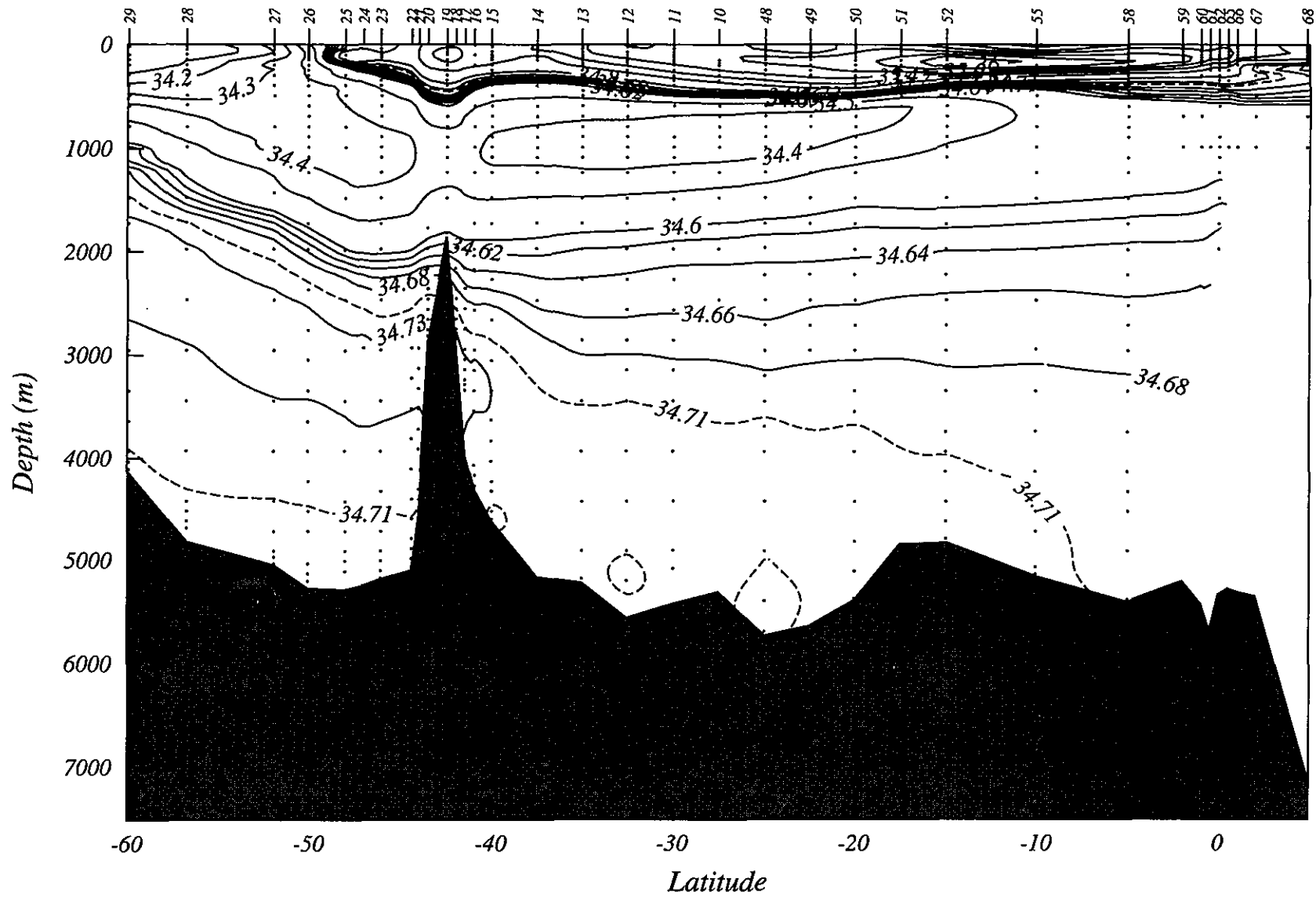


Fig. 5b. CTD salinity along 170°W during the CGC-90 expedition. Station numbers are along the top axis. Dots indicate locations where bottle samples were obtained.

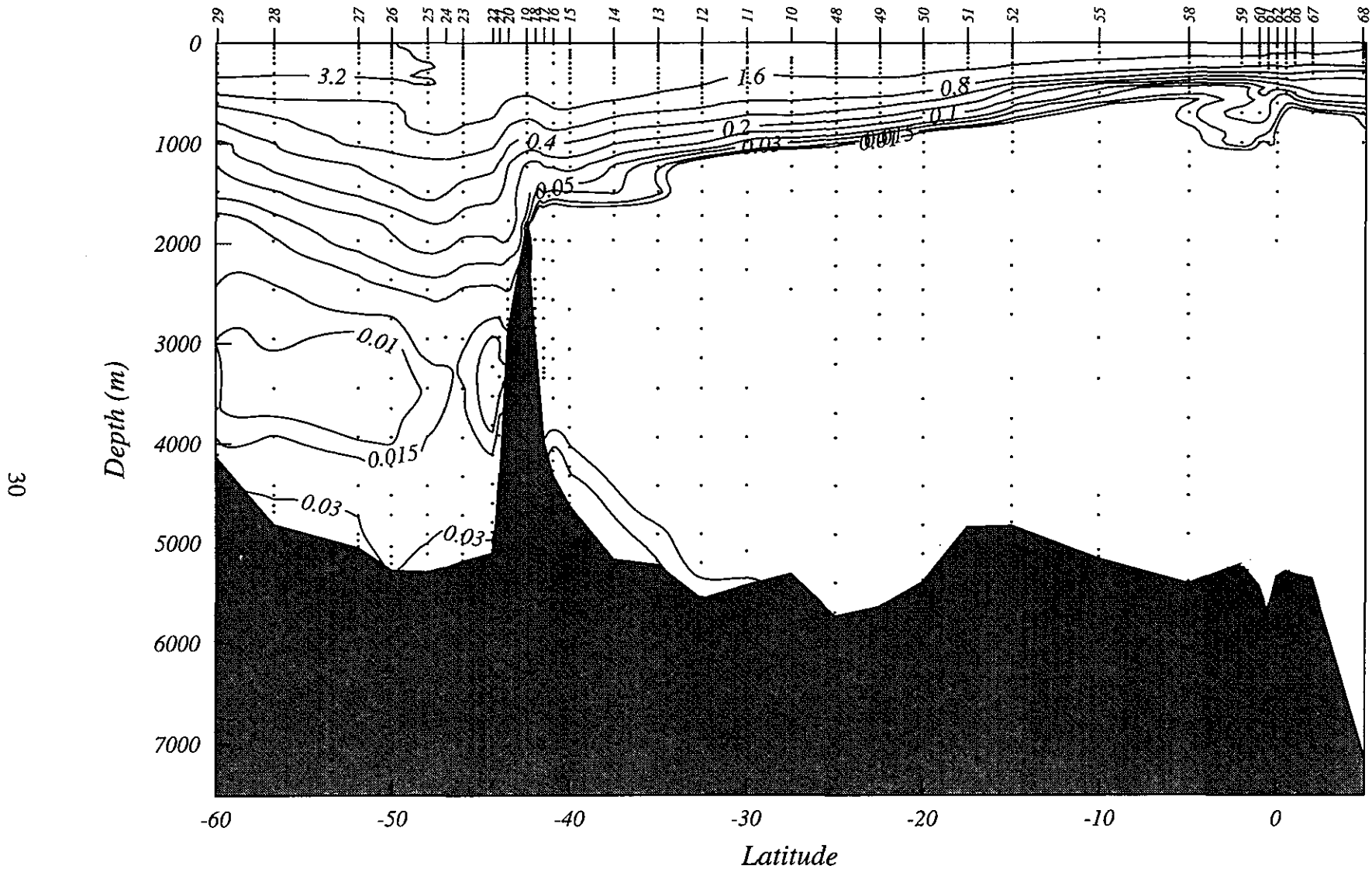


Fig. 5c. CFC-11 (in pM/kg) along 170°W during the CGC-90 expedition. Samples were analyzed using the SIO system. Station numbers are along the top axis. Dots indicate locations where bottle samples were obtained.

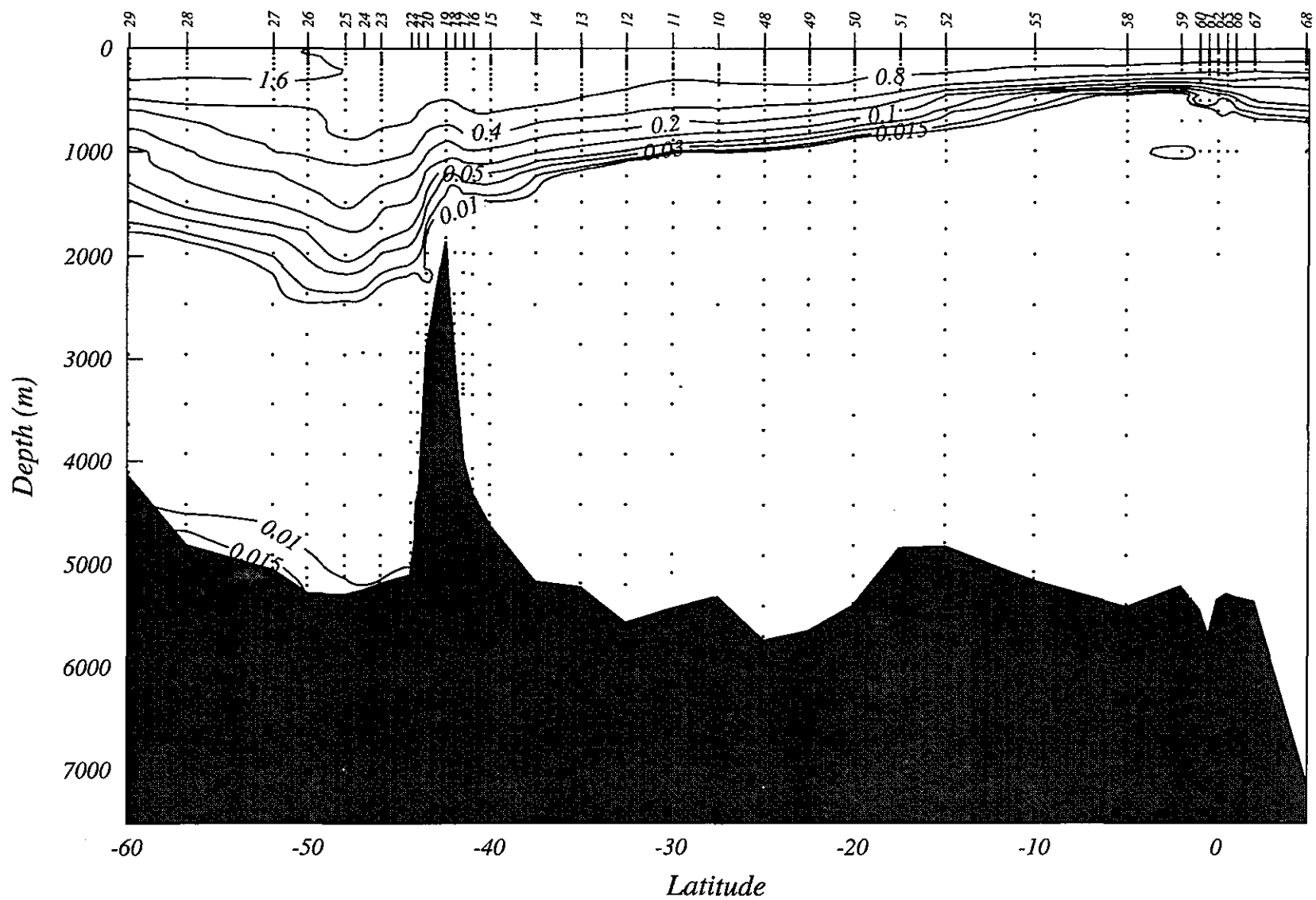


Fig. 5d. CFC-12 (in pM/kg) along 170°W during the CGC-90 expedition. Samples were analyzed using the SIO system. Station numbers are along the top axis. Dots indicate locations where bottle samples were obtained.

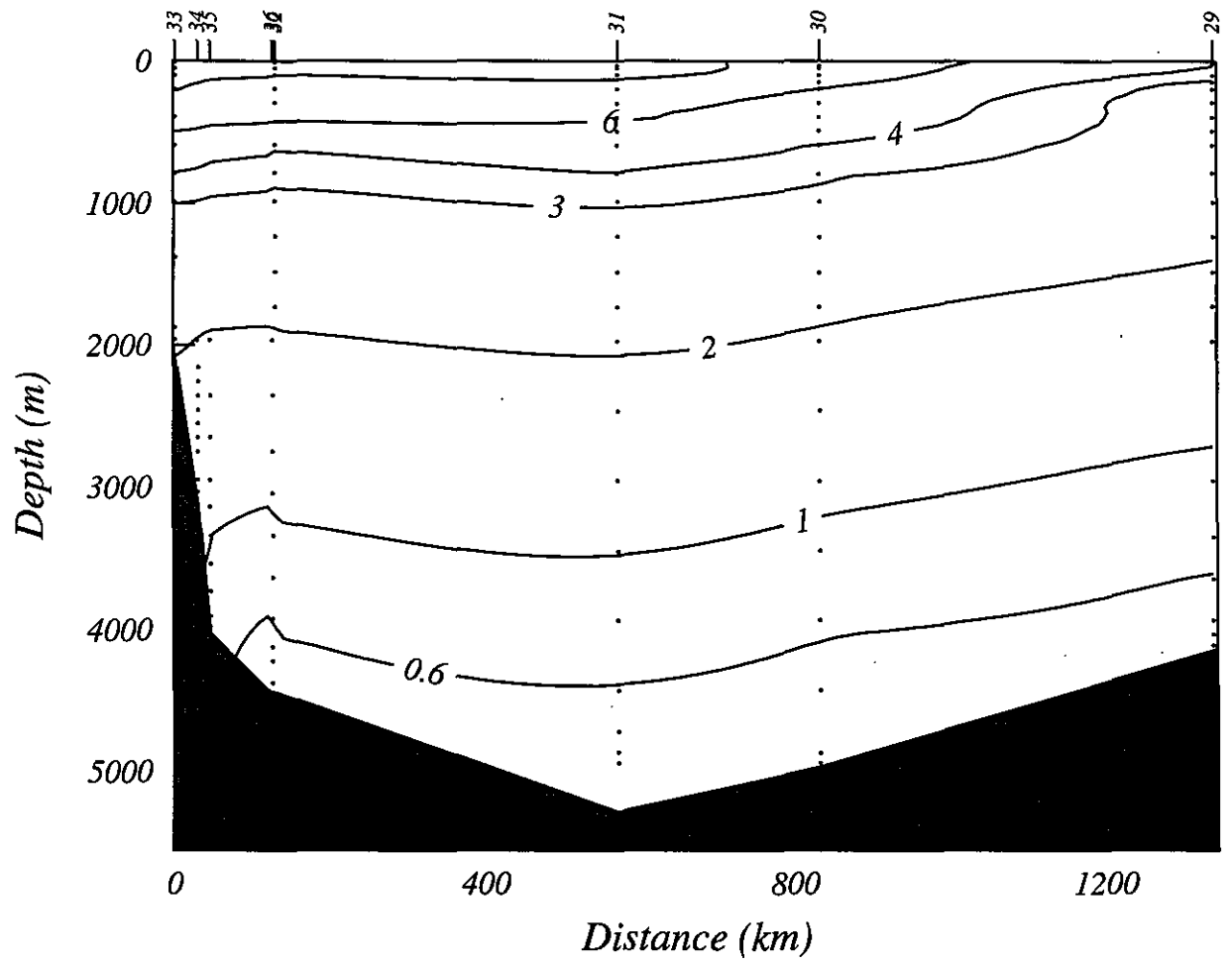


Fig. 6a. Potential Temperature (in °C) on diagonal section crossing the Southwest Pacific Basin during the CGC-90 expedition. Station numbers are along the top axis. Dots indicate locations where bottle samples were obtained.

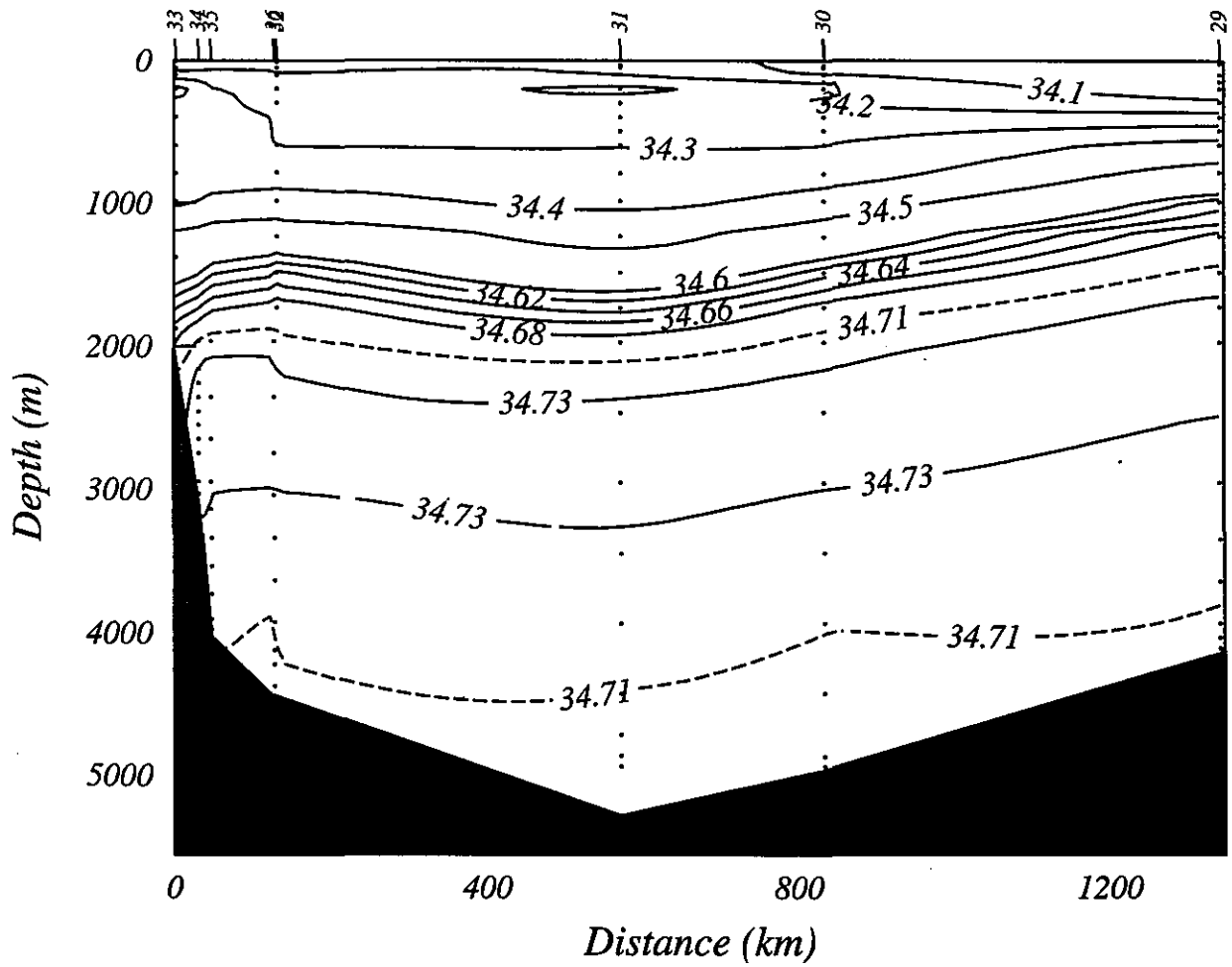


Fig. 6b. CTD salinity on diagonal section crossing the Southwest Pacific Basin during the CGC-90 expedition. Station numbers are along the top axis. Dots indicate locations where bottle samples were obtained.

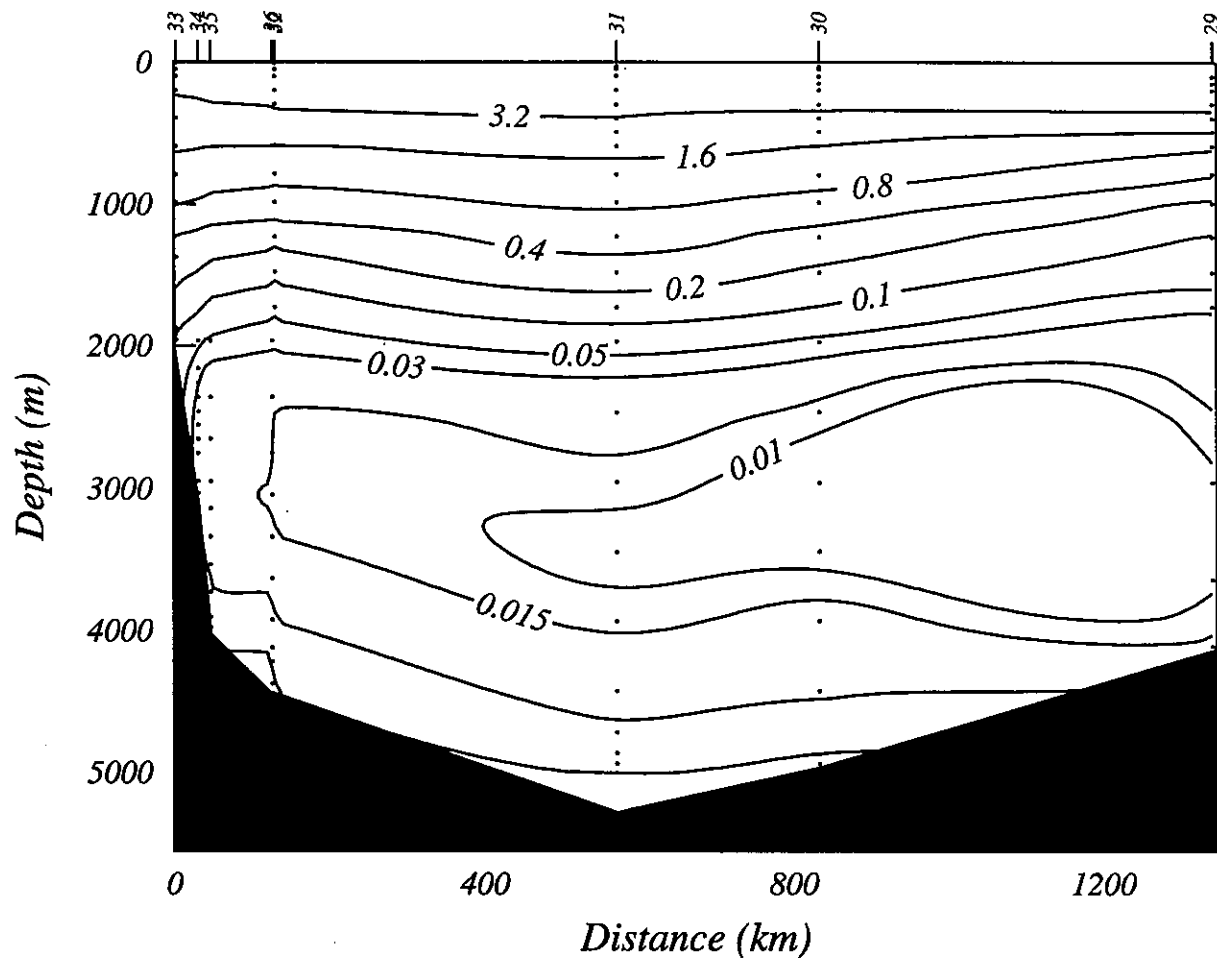


Fig. 6c. CFC-11 (in pM/kg) on diagonal section crossing the Southwest Pacific Basin during the CGC-90 expedition. Samples were analyzed using the SIO system. Station numbers are along the top axis. Dots indicate locations where bottle samples were obtained.

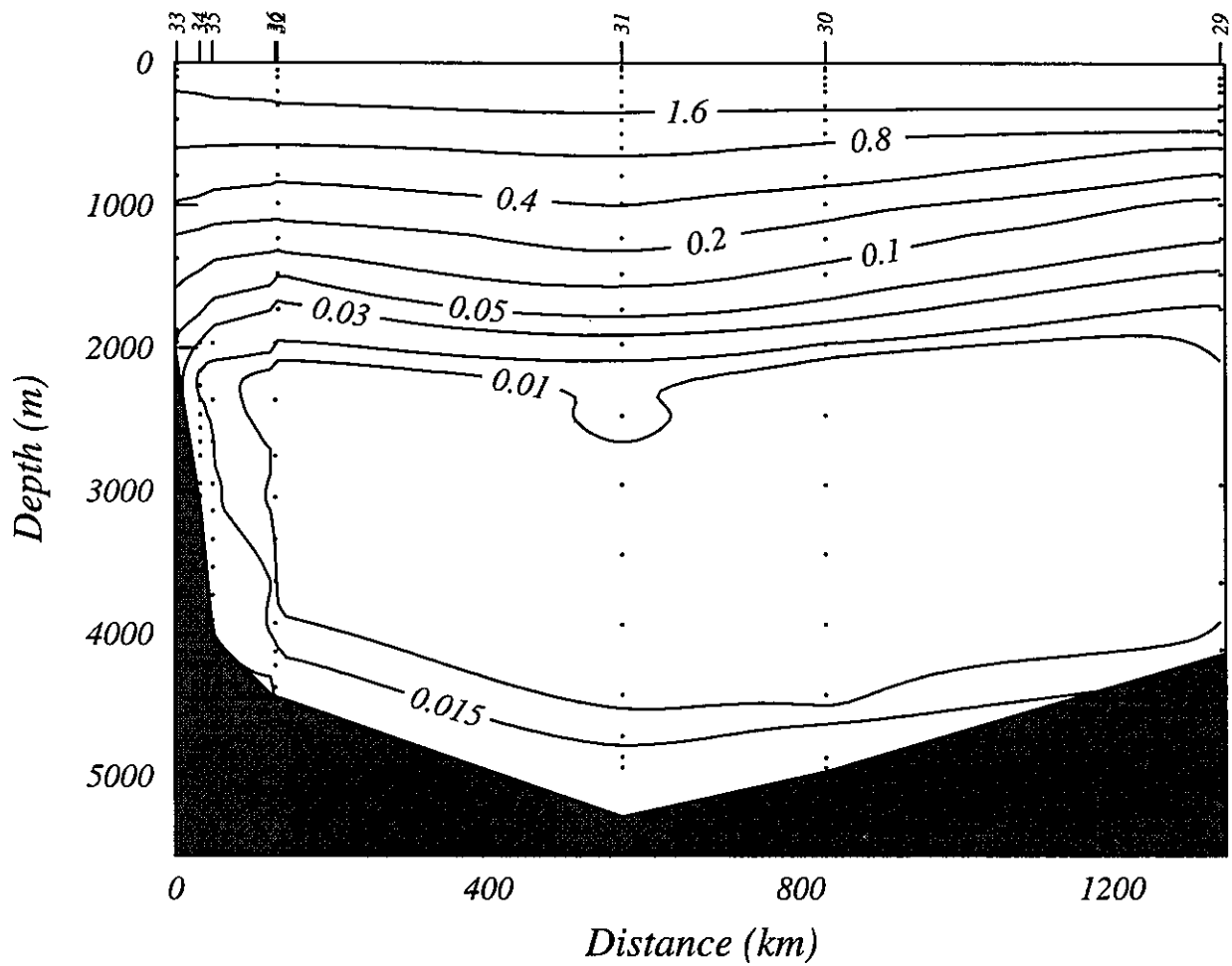


Fig. 6d. CFC-12 (in pM/kg) on diagonal section crossing the Southwest Pacific Basin during the CGC-90 expedition. Samples were analyzed using the SIO system. Station numbers are along the top axis. Dots indicate locations where bottle samples were obtained.

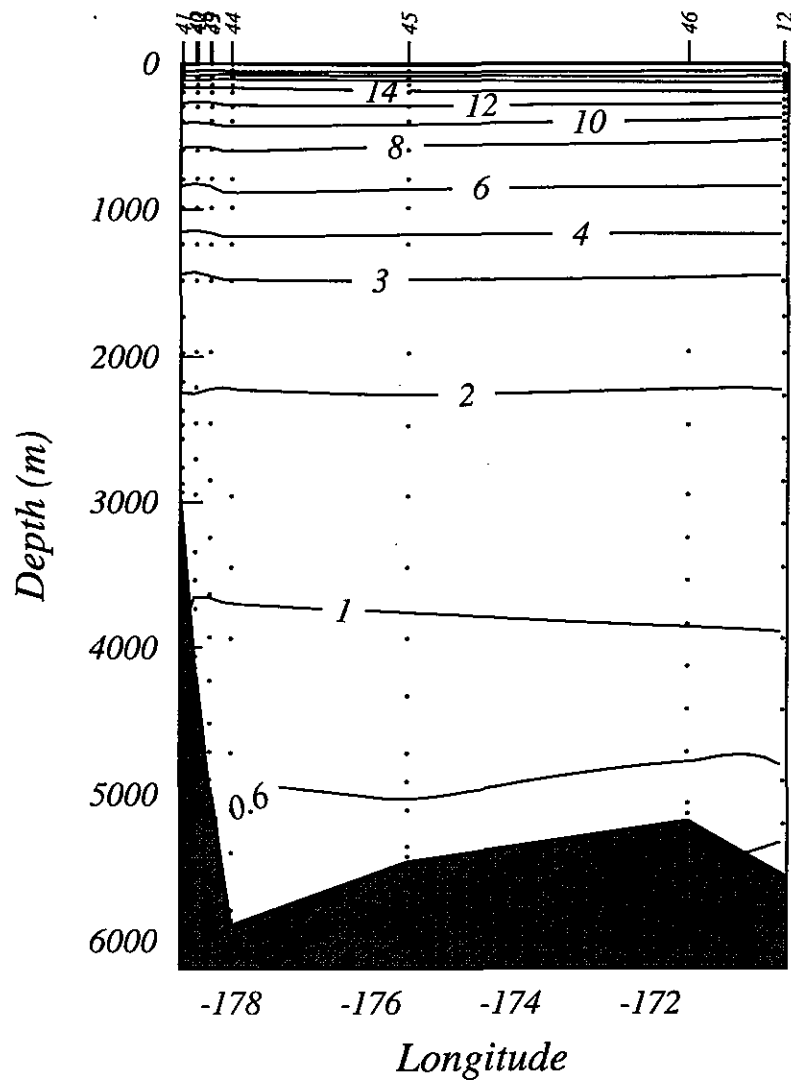


Fig. 7a. Potential Temperature (in  $^{\circ}\text{C}$ ) on section east of Kermadec Ridge during the CGC-90 expedition. Station numbers are along the top axis. Dots indicate locations where bottle samples were obtained.

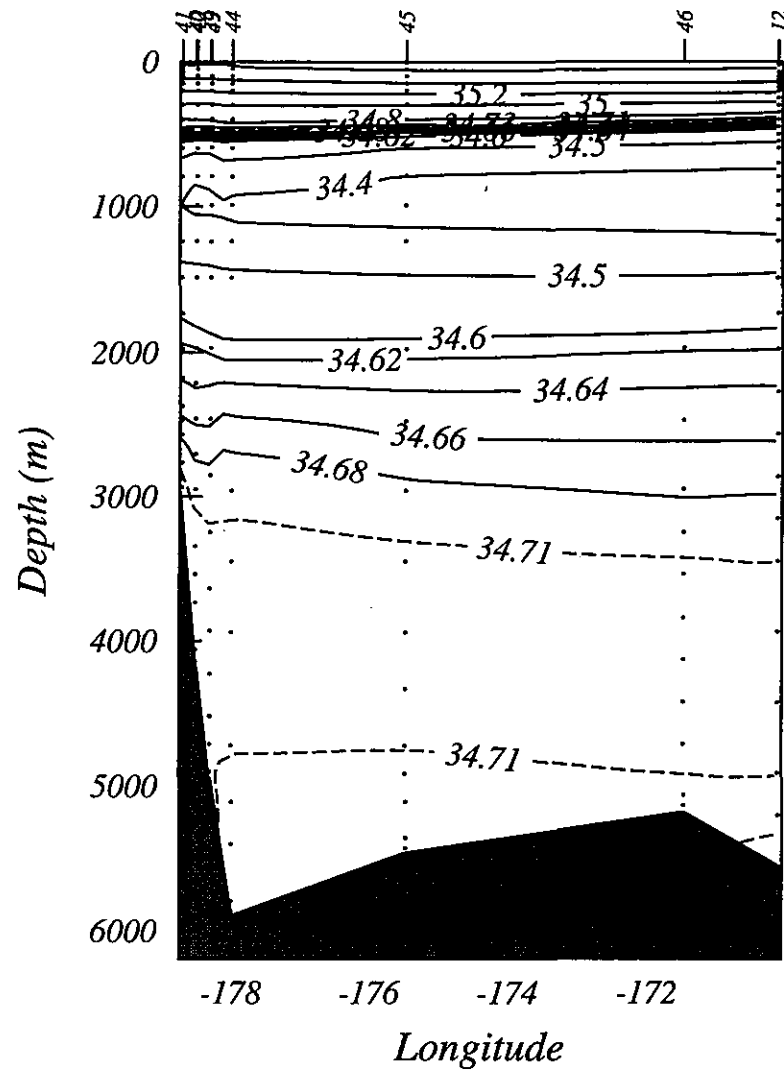


Fig. 7b. CTD salinity on section east of Kermadec Ridge during the CGC-90 expedition. Station numbers are along the top axis. Dots indicate locations where bottle samples were obtained.



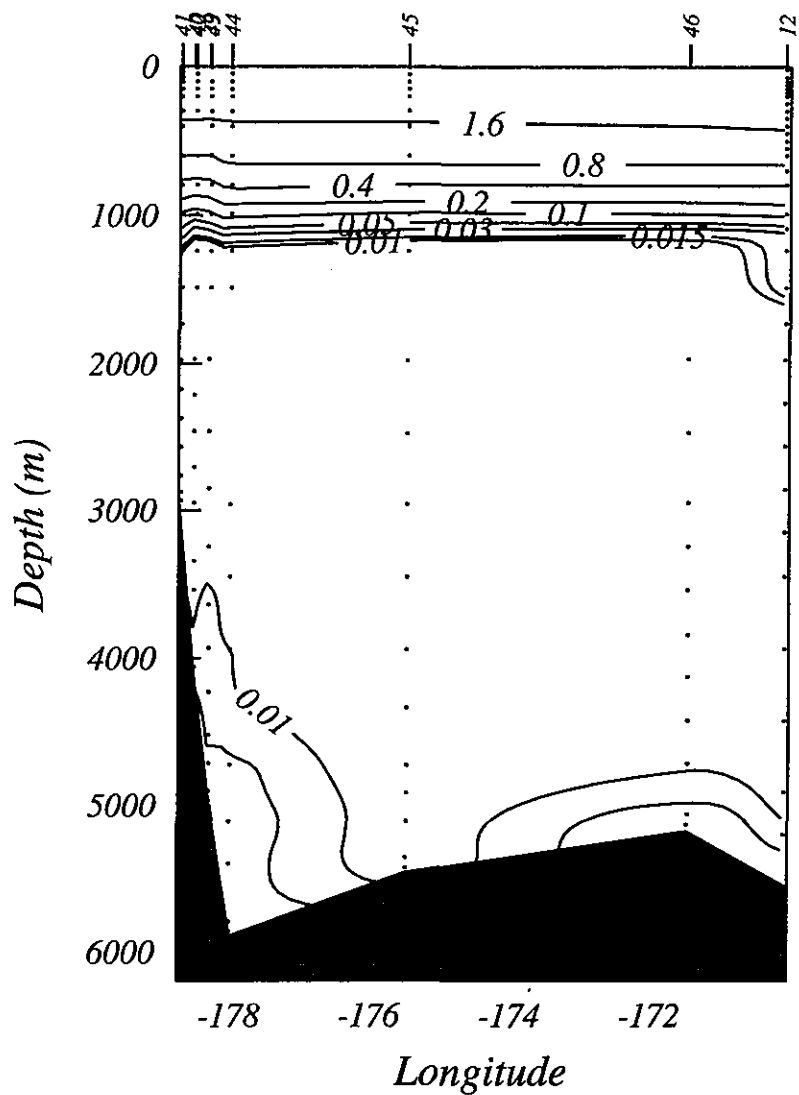


Fig. 7c. CFC-11 (in pM/kg) on section east of Kermadec Ridge during the CGC-90 expedition. Samples were analyzed using the SIO system. Station numbers are along the top axis. Dots indicate locations where bottle samples were obtained.

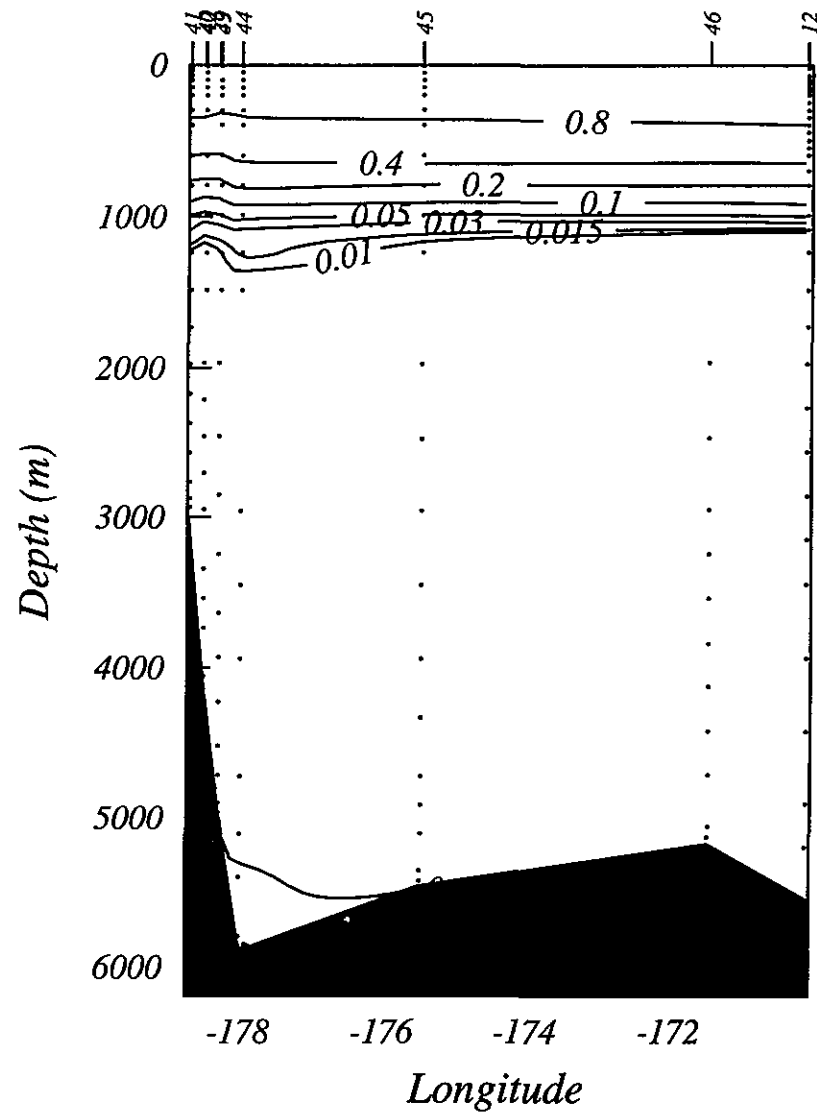
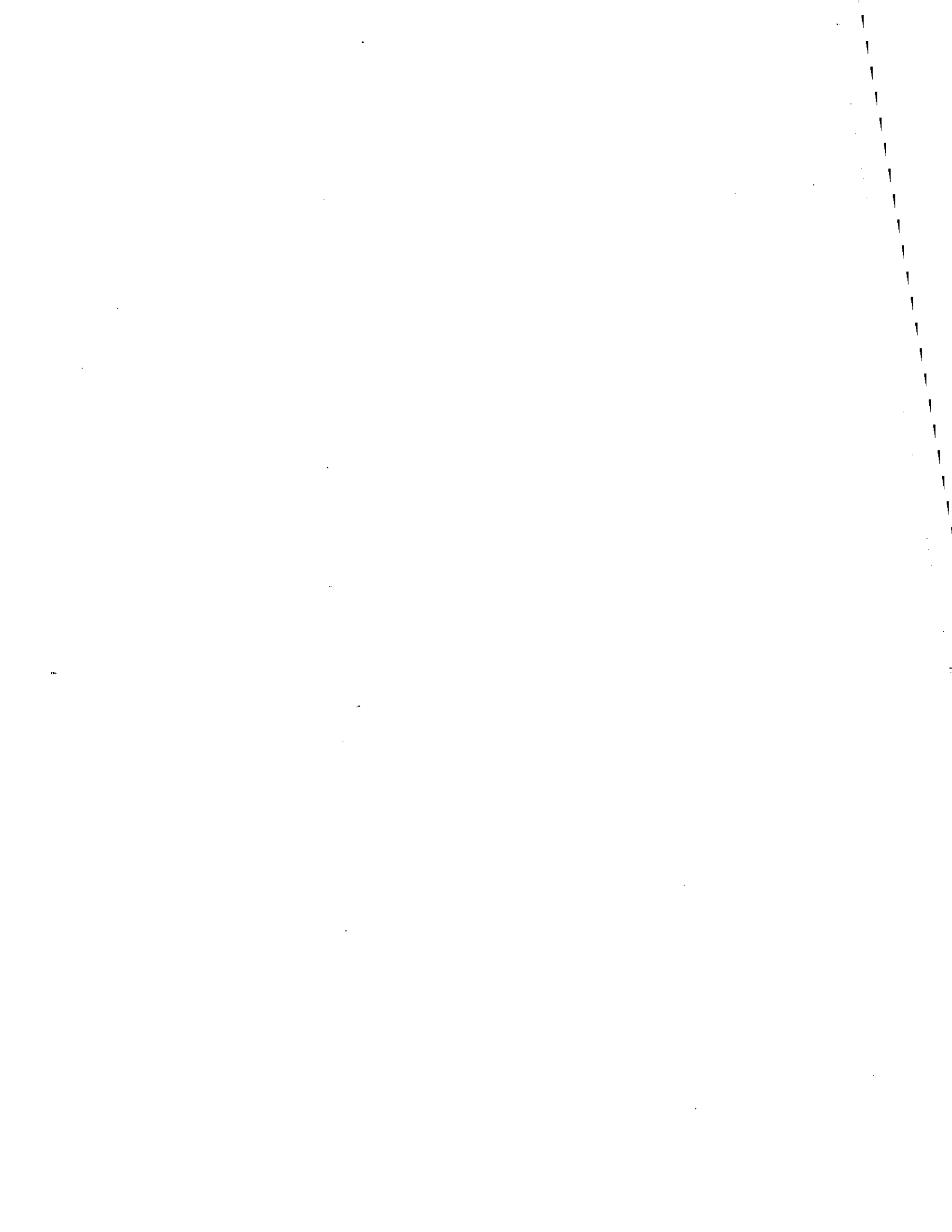


Fig. 7d. CFC-12 (in pM/kg) on section east of Kermadec Ridge during the CGC-90 expedition. Samples were analyzed using the SIO system. Station numbers are along the top axis. Dots indicate locations where bottle samples were obtained.



## CFC Bottle Data

The following tables include listings of :

Sample Number

Depth (meters)

Pressure (dBar)

Theta (°C)

Bottle Salinity

CTD Salinity

Sigma-0

SIO F-11 (pM/kg)

PMEL F-11 (pM/kg)

SIO F-12 (pM/kg)

PMEL F-12 (pM/kg)

SIO F-11/F-12 ratio (for concentrations of F-11 >0.05 pM/kg and F-12>0.05 pM/kg)

PMEL F-11/F-12 ratio (for concentrations of F-11 >0.05 pM/kg and F-12>0.05 pM/kg)

SIO F-11 saturation (relative to SIO atmospheric F-11 measurements)

PMEL F11 saturation (relative to SIO atmospheric F-11 measurements)

SIO F-12 saturation (relative to SIO atmospheric F-12 measurements)

PMEL F-12 saturation (relative to SIO atmospheric F-12 measurements)

Flag (digits correspond to SIO F-11, PMEL F-11, SIO F-12 and PMEL F-12 measurements, respectively)

## CGC-90 CFC BOTTLE DATA

STATION 9

| LATITUDE   |      | LONGITUDE   |        | DAY-MO-YR |        | BOTTOM DEPTH      |          |           |          | ATM. F-11 |             | ATM. F-12    |             |              |             |              |      |
|------------|------|-------------|--------|-----------|--------|-------------------|----------|-----------|----------|-----------|-------------|--------------|-------------|--------------|-------------|--------------|------|
| 25° 1.3' S |      | 170° 0.9' W |        | 27 2 90   |        | 5712 m            |          |           |          | 253.0 ppt |             | 464.2 ppt    |             |              |             |              |      |
| SAMP       | DEP  | PRS         | THETA  | SAL       | CTD-S  | SIG-0             | SIO F-11 | PMEL F-11 | SIO F-12 | PMEL F-12 | SIO F11 F12 | PMEL F11 F12 | SIO F11 SAT | PMEL F11 SAT | SIO F12 SAT | PMEL F12 SAT | FLAG |
|            | m    | db          | C      |           |        | Kg/m <sup>3</sup> | pM/kg    | pM/kg     | pM/kg    | pM/kg     |             |              |             |              |             |              | ---- |
| 1252       | 6    | 6           | 24.651 |           | 35.344 | 23.709            | 1.912    |           | 0.890    |           | 2.1         |              | 105.8       |              | 94.4        |              | 2939 |
| 1251       | 19   | 19          | 24.650 | 35.346    | 35.342 | 23.708            | 1.833    |           | 0.892    |           | 2.1         |              | 101.4       |              | 94.6        |              | 2939 |
| 1250       | 26   | 27          | 24.641 |           | 35.343 | 23.711            |          |           |          |           |             |              |             |              |             |              | 9999 |
| 1249       | 58   | 58          | 23.427 | 35.372    | 35.355 | 24.080            | 1.913    |           | 0.968    |           | 2.0         |              | 100.4       |              | 98.0        |              | 2929 |
| 1248       | 98   | 99          | 20.410 | 35.611    | 35.606 | 25.116            | 1.966    |           | 0.910    |           | 2.2         |              | 90.4        |              | 82.0        |              | 4939 |
| 1247       | 138  | 139         | 19.347 | 35.641    | 35.648 | 25.428            | 2.351    |           | 0.972    |           | 2.4         |              | 103.0       |              | 83.9        |              | 4929 |
| 1246       | 169  | 170         | 18.568 | 35.628    | 35.626 | 25.611            | 1.820    |           | 0.904    |           | 2.0         |              | 76.8        |              | 75.5        |              | 2929 |
| 1245       | 199  | 201         | 17.586 | 35.546    | 35.551 | 25.797            | 1.735    |           | 0.860    |           | 2.0         |              | 69.8        |              | 68.9        |              | 2929 |
| 1244       | 296  | 298         | 15.202 |           | 35.370 | 26.213            | 1.761    |           | 0.814    |           | 2.2         |              | 63.0        |              | 58.7        |              | 2929 |
| 1243       | 394  | 398         | 12.069 |           | 34.965 | 26.549            | 1.588    |           | 0.604    |           | 2.6         |              | 48.1        |              | 37.6        |              | 2939 |
| 1242       | 495  | 499         | 9.259  | 34.648    | 34.646 | 26.799            | 0.876    |           | 0.539    |           | 1.6         |              | 22.7        |              | 29.3        |              | 2949 |
| 1241       | 595  | 599         | 7.334  | 34.451    | 34.449 | 26.938            | 0.660    |           | 0.327    |           | 2.0         |              | 15.3        |              | 16.1        |              | 2929 |
| 1352       | 689  | 694         | 6.521  |           | 34.380 | 26.995            | 0.410    |           | 0.181    |           | 2.3         |              | 9.1         |              | 8.6         |              | 2929 |
| 1351       | 789  | 795         | 5.739  | 34.345    | 34.349 | 27.071            | 0.149    |           | 0.044    |           |             |              | 3.2         |              | 2.0         |              | 2949 |
| 1350       | 986  | 995         | 4.415  | 34.357    | 34.361 | 27.234            | 0.014    |           | -0.001   |           |             |              | 0.3         |              | 0.0         |              | 4979 |
| 1349       | 1231 | 1243        | 3.288  | 34.466    | 34.465 | 27.431            | 0.040    |           | -0.006   |           |             |              | 0.7         |              | -0.2        |              | 4979 |
| 1348       | 1477 | 1492        | 2.578  | 34.562    | 34.560 | 27.571            | -0.006   | 0.012     | -0.004   | 0.001     |             |              | -0.1        | 0.2          | -0.2        | 0.0          | 2277 |
| 1347       | 1972 | 1994        | 2.062  | 34.634    | 34.633 | 27.673            | -0.007   | 0.004     | -0.006   | 0.004     |             |              | -0.1        | 0.1          | -0.2        | 0.2          | 2676 |
| 1346       | 2462 | 2493        | 1.760  | 34.654    | 34.659 | 27.717            |          | 0.004     |          | 0.001     |             |              | 0.1         |              | 0.0         | 0.0          | 9696 |
| 1116       | 2463 | 2494        | 1.776  | 34.655    | 34.661 | 27.718            | 0.031    |           | 0.003    |           |             |              | 0.5         |              | 0.1         |              | 4979 |
| 1104       | 2463 | 2494        | 1.776  | 34.656    | 34.659 | 27.716            | 0.016    |           | -0.002   |           |             |              | 0.3         |              | -0.1        |              | 4979 |
| 1345       | 2955 | 2996        | 1.512  | 34.673    | 34.674 | 27.748            | 0.003    | 0.005     | -0.007   | -0.002    |             |              | 0.1         | 0.1          | -0.2        | -0.1         | 2777 |
| 1344       | 3443 | 3493        | 1.296  | 34.702    | 34.702 | 27.786            | 0.019    |           | -0.004   |           |             |              | 0.3         |              | -0.1        |              | 4979 |
| 1343       | 3934 | 3997        | 0.990  | 34.724    | 34.723 | 27.823            | -0.003   |           | -0.007   |           |             |              | -0.1        |              | -0.2        |              | 2979 |
| 1342       | 4420 | 4495        | 0.725  | 34.715    | 34.716 | 27.835            | 0.092    |           | 0.000    |           |             |              | 1.4         |              | 0.0         |              | 4979 |
| 1341       | 4962 | 5053        | 0.616  | 34.713    | 34.712 | 27.838            | 0.009    |           | -0.004   |           |             |              | 0.1         |              | -0.1        |              | 4979 |

## CGC-90 CFC BOTTLE DATA

STATION 10

| LATITUDE    |      | LONGITUDE   |        | DAY-MO-YR |        | BOTTOM DEPTH      |          |           |          | ATM. F-11 |             | ATM. F-12    |             |              |             |              |      |
|-------------|------|-------------|--------|-----------|--------|-------------------|----------|-----------|----------|-----------|-------------|--------------|-------------|--------------|-------------|--------------|------|
| 27° 30.8' S |      | 170° 0.9' W |        | 28 2 90   |        | 5316 m            |          |           |          | 251.8 ppt |             | 461.5 ppt    |             |              |             |              |      |
| SAMP        | DEP  | PRS         | THETA  | SAL       | CTD-S  | SIG-0             | SIO F-11 | PMEL F-11 | SIO F-12 | PMEL F-12 | SIO F11 F12 | PMEL F11 F12 | SIO F11 SAT | PMEL F11 SAT | SIO F12 SAT | PMEL F12 SAT | FLAG |
|             | m    | db          | C      |           |        | Kg/m <sup>3</sup> | pM/kg    | pM/kg     | pM/kg    | pM/kg     |             |              |             |              |             |              | ---- |
| 1452        | 146  | 147         | 17.678 | 35.602    | 35.598 | 25.810            | 1.971    |           | 0.994    |           | 2.0         |              | 80.1        |              | 80.4        |              | 2929 |
| 1451        | 170  | 171         | 17.033 | 35.553    | 35.551 | 25.931            |          |           |          |           |             |              |             |              |             |              | 9999 |
| 1450        | 170  | 171         | 17.033 | 35.554    | 35.551 | 25.931            | 1.987    |           | 0.978    |           | 2.0         |              | 78.2        |              | 77.0        |              | 2929 |
| 1449        | 170  | 171         | 17.033 | 35.554    | 35.551 | 25.931            |          |           |          |           |             |              |             |              |             |              | 9999 |
| 1448        | 194  | 195         | 16.349 | 35.477    | 35.476 | 26.034            | 1.793    |           | 0.886    |           | 2.0         |              | 68.2        |              | 67.6        |              | 2929 |
| 1447        | 244  | 246         | 15.447 | 35.414    | 35.414 | 26.193            | 1.899    |           | 0.921    |           | 2.1         |              | 69.1        |              | 67.6        |              | 2929 |
| 1446        | 244  | 246         | 15.447 | 35.415    | 35.414 | 26.193            | 1.903    |           | 0.920    |           | 2.1         |              | 69.2        |              | 67.5        |              | 2929 |
| 1445        | 294  | 296         | 14.054 | 35.261    | 35.252 | 26.371            | 1.838    |           | 0.903    |           | 2.0         |              | 62.2        |              | 62.2        |              | 6969 |
| 1444        | 294  | 296         | 14.054 | 35.262    | 35.252 | 26.371            | 1.765    |           | 0.842    |           | 2.1         |              | 59.8        |              | 58.0        |              | 2929 |
| 1443        | 294  | 296         | 14.054 | 35.263    | 35.252 | 26.371            | 2.038    |           | 0.889    |           | 2.3         |              | 69.0        |              | 61.2        |              | 3929 |
| 1442        | 294  | 296         | 14.054 | 35.263    | 35.252 | 26.371            | 2.044    |           | 0.905    |           | 2.3         |              | 69.2        |              | 62.3        |              | 3929 |
| 1441        | 345  | 348         | 12.445 | 35.046    | 35.047 | 26.540            | 1.552    |           | 0.763    |           | 2.0         |              | 48.2        |              | 48.7        |              | 6969 |
| 1552        | 491  | 495         | 8.803  | 34.612    | 34.612 | 26.846            | 1.134    |           | 0.552    |           | 2.1         |              | 28.8        |              | 29.5        |              | 2929 |
| 1551        | 589  | 594         | 7.507  | 34.472    | 34.471 | 26.931            | 0.813    |           | 0.390    |           | 2.1         |              | 19.2        |              | 19.5        |              | 2929 |
| 1550        | 589  | 594         | 7.507  | 34.469    | 34.471 | 26.931            | 0.812    |           | 0.400    |           | 2.0         |              | 19.2        |              | 20.0        |              | 6969 |
| 1549        | 688  | 694         | 6.615  | 34.390    | 34.389 | 26.990            | 0.507    |           | 0.258    |           | 2.0         |              | 11.4        |              | 12.3        |              | 2929 |
| 1548        | 787  | 794         | 5.949  | 34.350    | 34.349 | 27.045            | 0.225    |           | 0.110    |           | 2.0         |              | 4.8         |              | 5.1         |              | 6969 |
| 1547        | 883  | 891         | 5.302  | 34.332    | 34.334 | 27.112            | 0.092    |           | 0.055    |           | 1.7         |              | 1.9         |              | 2.5         |              | 2929 |
| 1546        | 984  | 994         | 4.806  | 34.349    | 34.348 | 27.181            | 0.039    |           | 0.012    |           |             |              | 0.8         |              | 0.5         |              | 2929 |
| 1545        | 1231 | 1243        | 3.392  | 34.442    | 34.445 | 27.405            | -0.001   |           | -0.002   |           |             |              | 0.0         |              | -0.1        |              | 2979 |
| 1544        | 1477 | 1493        | 2.720  | 34.542    | 34.543 | 27.545            | -0.007   |           | -0.002   |           |             |              | -0.1        |              | -0.1        |              | 2979 |
| 1543        | 1723 | 1742        | 2.360  | 34.602    | 34.604 | 27.625            | 0.021    |           | -0.005   |           |             |              | 0.4         |              | -0.2        |              | 4979 |
| 1542        | 1970 | 1993        | 2.146  | 34.628    | 34.628 | 27.662            | 0.054    |           | 0.094    |           | 0.6         |              | 0.9         |              | 3.5         |              | 4949 |
| 1541        | 2462 | 2493        | 1.824  | 34.654    | 34.656 | 27.710            | -0.003   |           | -0.002   |           |             |              | -0.1        |              | -0.1        |              | 2979 |

## CGC-90 CFC BOTTLE DATA

STATION 11

| LATITUDE   |      | LONGITUDE   |        | DAY-MO-YR |        |                   | BOTTOM DEPTH |              |             |              | ATM. F-11         |                    | ATM. F-12  |             |            |             |      |
|------------|------|-------------|--------|-----------|--------|-------------------|--------------|--------------|-------------|--------------|-------------------|--------------------|------------|-------------|------------|-------------|------|
| 30° 0.3' S |      | 170° 2.6' W |        | 1 3 90    |        |                   | 5429 m       |              |             |              | 251.0 ppt         |                    | 461.5 ppt  |             |            |             |      |
| SAMP       | DEP  | PRS         | THETA  | SAL       | CTD-S  | SIG-0             | SIO<br>F-11  | PMEL<br>F-11 | SIO<br>F-12 | PMEL<br>F-12 | SIO<br>F11<br>F12 | PMEL<br>F11<br>F12 | SIO<br>SAT | PMEL<br>SAT | SIO<br>SAT | PMEL<br>SAT | FLAG |
|            | m    | db          | C      |           |        | Kg/m <sup>3</sup> | pM/kg        | pM/kg        | pM/kg       | pM/kg        |                   |                    |            |             |            |             |      |
| 1652       | 3    | 3           | 23.727 | 35.558    | 35.556 | 24.145            | 1.934        | 1.986        | 3.144       | 3.355        | 0.6               | 0.6                | 103.8      | 106.6       | 324.5      | 346.2       | 2244 |
| 1651       | 20   | 20          | 23.700 |           | 35.557 | 24.154            |              | 1.987        |             | 1.397        |                   | 1.4                |            | 106.6       |            | 144.0       | 9294 |
| 1650       | 29   | 29          | 23.680 | 35.566    | 35.558 | 24.160            |              |              |             |              |                   |                    |            |             |            |             | 9999 |
| 1649       | 38   | 38          | 23.629 | 35.573    | 35.572 | 24.186            | 1.904        | 1.951        | 0.956       | 0.957        | 2.0               | 2.0                | 101.8      | 104.3       | 98.3       | 98.4        | 2222 |
| 1648       | 68   | 69          | 20.297 | 35.599    | 35.607 | 25.147            |              |              |             |              |                   |                    |            |             |            |             | 9999 |
| 1647       | 97   | 97          | 18.522 | 35.607    | 35.611 | 25.611            | 2.290        | 2.327        | 1.079       | 1.182        | 2.1               | 2.0                | 97.2       | 98.8        | 90.5       | 99.1        | 2222 |
| 1646       | 121  | 122         | 17.033 | 35.574    | 35.578 | 25.951            |              |              |             |              |                   |                    |            |             |            |             | 9999 |
| 1645       | 146  | 147         | 16.267 | 35.511    | 35.512 | 26.081            | 2.083        | 2.103        | 0.963       | 1.060        | 2.2               | 2.0                | 79.2       | 80.0        | 73.3       | 80.7        | 2626 |
| 1644       | 171  | 172         | 15.619 | 35.448    | 35.441 | 26.175            | 1.917        | 0.928        |             |              | 2.1               | 2.1                | 70.6       |             | 68.6       |             | 2929 |
| 1643       | 194  | 195         | 15.152 | 35.399    | 35.397 | 26.245            | 2.011        | 2.095        | 0.934       | 1.014        | 2.2               | 2.1                | 72.3       | 75.3        | 67.6       | 73.4        | 2222 |
| 1642       | 246  | 248         | 14.061 | 35.273    | 35.266 | 26.381            | 1.921        |              | 0.917       |              | 2.1               |                    | 65.3       |             | 63.2       |             | 2929 |
| 1641       | 298  | 300         | 12.743 | 35.094    | 35.099 | 26.522            | 1.675        | 1.738        | 0.789       | 0.843        | 2.1               | 2.1                | 53.1       | 55.1        | 51.1       | 54.6        | 6262 |
| 1752       | 342  | 345         | 11.586 | 34.931    | 34.926 | 26.611            | 1.254        |              | 0.607       |              | 2.1               |                    | 37.3       |             | 37.2       |             | 2929 |
| 1751       | 391  | 394         | 10.651 | 34.828    | 34.826 | 26.703            | 1.217        | 1.296        | 0.573       | 0.627        | 2.1               | 2.1                | 34.4       | 36.7        | 33.5       | 36.7        | 2222 |
| 1750       | 441  | 445         | 9.899  | 34.736    | 34.736 | 26.763            | 1.129        |              | 0.542       |              | 2.1               |                    | 30.6       |             | 30.6       |             | 2929 |
| 1749       | 491  | 495         | 8.790  | 34.603    | 34.602 | 26.840            | 0.837        | 0.887        | 0.339       | 0.449        | 2.5               | 2.0                | 21.3       | 22.6        | 18.1       | 24.0        | 3242 |
| 1748       | 586  | 591         | 7.345  | 34.460    | 34.458 | 26.944            | 0.589        | 0.620        | 0.278       | 0.333        | 2.1               | 1.9                | 13.8       | 14.5        | 13.8       | 16.5        | 2223 |
| 1747       | 688  | 694         | 6.597  | 34.397    | 34.389 | 26.992            | 0.364        |              | 0.158       |              | 2.3               |                    | 8.2        |             | 7.5        |             | 2929 |
| 1746       | 786  | 793         | 5.905  |           | 34.351 | 27.052            | 0.163        | 0.185        | 0.077       | 0.135        | 2.1               | 1.4                | 3.5        | 4.0         | 3.5        | 6.2         | 6262 |
| 1745       | 886  | 894         | 5.253  | 34.339    | 34.340 | 27.123            | 0.062        |              | 0.003       |              |                   |                    | 1.3        |             | 0.1        |             | 2939 |
| 1744       | 984  | 993         | 4.626  | 34.356    | 34.357 | 27.208            | 0.033        | 0.064        | 0.007       | 0.069        |                   | 0.9                | 0.7        | 1.3         | 0.3        | 3.0         | 2723 |
| 1743       | 1083 | 1094        | 4.057  | 34.381    | 34.382 | 27.289            |              |              |             |              |                   |                    |            |             |            |             | 9999 |
| 1742       | 1231 | 1243        | 3.391  | 34.464    | 34.443 | 27.404            | 0.037        | 0.057        | 0.035       | 0.011        |                   |                    | 0.7        | 1.1         | 1.4        | 0.4         | 4444 |
| 1741       | 1489 | 1505        | 2.697  | 34.540    | 34.543 | 27.548            | 0.024        | 0.009        | -0.008      | 0.021        |                   |                    | 0.4        | 0.2         | -0.3       | 0.8         | 3233 |
| 1851       | 1723 | 1742        | 2.328  | 34.597    | 34.602 | 27.626            | -0.009       | -0.005       | -0.003      | -0.001       |                   |                    | -0.2       | -0.1        | -0.1       | 0.0         | 2777 |
| 1850       | 1969 | 1992        | 2.106  | 34.633    | 34.630 | 27.667            | -0.002       | -0.003       | -0.005      | 0.002        |                   |                    | 0.0        | -0.1        | -0.2       | 0.1         | 2777 |
| 1849       | 2265 | 2293        | 1.914  | 34.648    | 34.650 | 27.698            | 0.000        | 0.002        | -0.002      | -0.001       |                   |                    | 0.0        | 0.0         | -0.1       | 0.0         | 2777 |
| 1848       | 2559 | 2593        | 1.754  | 34.660    | 34.659 | 27.718            | 0.013        |              | -0.005      |              |                   |                    | 0.2        |             | -0.2       |             | 4979 |
| 1847       | 2855 | 2895        | 1.618  | 34.669    | 34.669 | 27.736            | 0.011        |              | -0.004      |              |                   |                    | 0.2        |             | -0.2       |             | 4979 |
| 1846       | 3145 | 3191        | 1.474  | 34.675    | 34.685 | 27.759            | 0.008        |              | 0.000       |              |                   |                    | 0.1        |             | 0.0        |             | 4979 |
| 1845       | 3443 | 3495        | 1.336  | 34.713    | 34.712 | 27.791            | -0.001       |              | -0.006      |              |                   |                    | 0.0        |             | -0.2       |             | 2979 |
| 1844       | 3931 | 3995        | 0.950  | 34.724    | 34.723 | 27.826            | 0.002        |              | -0.002      |              |                   |                    | 0.0        |             | -0.1       |             | 2979 |
| 1843       | 4418 | 4496        | 0.696  | 34.715    | 34.716 | 27.837            | 0.001        |              | 0.021       |              |                   |                    | 0.0        |             | 0.7        |             | 2949 |
| 1842       | 4902 | 4993        | 0.601  | 34.712    | 34.712 | 27.839            | 0.058        |              | -0.002      |              |                   |                    | 0.9        |             | -0.1       |             | 4979 |
| 1841       | 5079 | 5176        | 0.592  | 34.719    | 34.711 | 27.839            | 0.009        |              | 0.001       |              |                   |                    | 0.1        |             | 0.0        |             | 6969 |

## CGC-90 CFC BOTTLE DATA

STATION 12

| LATITUDE    |      |      | LONGITUDE   |        |        | DAY-MO-YR         |             |              | BOTTOM DEPTH |              |                   |                    | ATM. F-11         |                    | ATM. F-12         |                    |      |  |
|-------------|------|------|-------------|--------|--------|-------------------|-------------|--------------|--------------|--------------|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|------|--|
| 32° 33.2' S |      |      | 170° 3.1' W |        |        | 2 3 90            |             |              | 5568 m       |              |                   |                    | 251.1 ppt         |                    | 461.2 ppt         |                    |      |  |
| SAMP        | DEP  | PRS  | THETA       | SAL    | CTD-S  | SIG-0             | SIO<br>F-11 | PMEL<br>F-11 | SIO<br>F-12  | PMEL<br>F-12 | SIO<br>F11<br>F12 | PMEL<br>F11<br>F12 | SIO<br>F11<br>SAT | PMEL<br>F11<br>SAT | SIO<br>F12<br>SAT | PMEL<br>F12<br>SAT | FLAG |  |
|             | m    | db   | C           |        |        | Kg/m <sup>3</sup> | pM/kg       | pM/kg        | pM/kg        | pM/kg        |                   |                    |                   |                    |                   |                    | ---- |  |
| 1952        | 4    | 4    | 22.078      | 35.677 | 35.673 | 24.709            | 2.057       |              | 1.153        |              | 1.8               |                    | 102.8             |                    | 111.8             |                    | 2949 |  |
| 1951        | 18   | 18   | 22.080      | 35.677 | 35.673 | 24.708            | 2.118       |              | 1.125        |              | 1.9               |                    | 105.9             |                    | 109.1             |                    | 2929 |  |
| 1950        | 37   | 37   | 22.079      |        | 35.676 | 24.711            |             |              |              |              |                   |                    |                   |                    |                   |                    | 9999 |  |
| 1949        | 68   | 69   | 18.954      | 35.488 | 35.491 | 25.410            | 2.440       |              | 1.173        |              | 2.1               |                    | 105.5             |                    | 100.1             |                    | 2929 |  |
| 1948        | 97   | 97   | 16.952      | 35.486 | 35.496 | 25.907            | 2.539       |              | 1.193        |              | 2.1               |                    | 99.8              |                    | 93.6              |                    | 2929 |  |
| 1947        | 122  | 122  | 15.843      | 35.418 | 35.412 | 26.101            | 2.553       |              | 1.247        |              | 2.0               |                    | 95.0              |                    | 93.1              |                    | 2929 |  |
| 1946        | 147  | 148  | 15.258      | 35.383 | 35.381 | 26.209            | 2.549       |              | 1.229        |              | 2.1               |                    | 92.1              |                    | 89.4              |                    | 2929 |  |
| 1945        | 169  | 170  | 14.717      | 35.316 | 35.321 | 26.282            | 2.626       |              | 1.248        |              | 2.1               |                    | 92.3              |                    | 88.6              |                    | 2929 |  |
| 1944        | 195  | 197  | 13.921      | 35.230 | 35.231 | 26.383            | 2.514       |              | 1.229        |              | 2.0               |                    | 84.8              |                    | 84.1              |                    | 2929 |  |
| 1943        | 245  | 247  | 12.567      | 35.082 | 35.080 | 26.542            | 2.514       |              | 1.195        |              | 2.1               |                    | 78.9              |                    | 76.8              |                    | 2929 |  |
| 1942        | 295  | 297  | 11.311      | 34.913 | 34.915 | 26.653            | 2.093       |              | 1.018        |              | 2.1               |                    | 61.4              |                    | 61.6              |                    | 6969 |  |
| 1941        | 344  | 347  | 10.302      | 34.788 | 34.787 | 26.734            | 1.866       |              | 0.912        |              | 2.0               |                    | 51.8              |                    | 52.5              |                    | 2929 |  |
| 2052        | 394  | 397  | 9.497       | 34.692 | 34.691 | 26.796            | 1.707       |              | 0.798        |              | 2.1               |                    | 45.3              |                    | 44.2              |                    | 2929 |  |
| 2051        | 442  | 446  | 8.773       | 34.613 | 34.609 | 26.848            | 1.520       |              | 0.726        |              | 2.1               |                    | 38.7              |                    | 38.7              |                    | 2929 |  |
| 2050        | 493  | 498  | 8.119       | 34.544 | 34.535 | 26.891            | 1.309       |              | 0.615        |              | 2.1               |                    | 32.1              |                    | 31.7              |                    | 2929 |  |
| 2049        | 542  | 547  | 7.728       | 34.503 | 34.498 | 26.920            | 1.225       |              | 0.584        |              | 2.1               |                    | 29.4              |                    | 29.6              |                    | 2929 |  |
| 2048        | 590  | 595  | 7.419       | 34.472 | 34.470 | 26.943            | 1.023       |              | 0.481        |              | 2.1               |                    | 24.1              |                    | 24.0              |                    | 2929 |  |
| 2047        | 691  | 697  | 6.803       | 34.420 | 34.419 | 26.988            | 0.684       |              | 0.328        |              | 2.1               |                    | 15.5              |                    | 15.8              |                    | 2929 |  |
| 2046        | 788  | 795  | 6.219       | 34.372 | 34.373 | 27.029            | 0.371       |              | 0.173        |              | 2.1               |                    | 8.1               |                    | 8.1               |                    | 2929 |  |
| 2045        | 886  | 894  | 5.694       | 34.358 | 34.357 | 27.083            |             |              |              |              |                   |                    |                   |                    |                   |                    | 9999 |  |
| 2044        | 986  | 996  | 5.023       | 34.352 | 34.350 | 27.157            | 0.114       |              | 0.053        |              | 2.2               |                    | 2.3               |                    | 2.3               |                    | 2929 |  |
| 2043        | 1083 | 1094 | 4.480       | 34.356 | 34.357 | 27.224            | 0.026       |              | 0.005        |              |                   |                    | 0.5               |                    | 0.2               |                    | 2929 |  |
| 2042        | 1231 | 1244 | 3.672       | 34.405 | 34.405 | 27.346            | 0.029       |              | 0.003        |              |                   |                    | 0.6               |                    | 0.1               |                    | 3979 |  |
| 2041        | 1481 | 1497 | 2.820       | 34.521 | 34.522 | 27.520            | 0.030       |              | 0.002        |              |                   |                    | 0.5               |                    | 0.1               |                    | 3969 |  |
| 2152        | 1721 | 1741 | 2.453       | 34.587 | 34.588 | 27.604            | 0.010       | 0.028        | -0.001       | 0.010        |                   |                    | 0.2               | 0.5                | 0.0               | 0.4                | 4777 |  |
| 2151        | 1723 | 1742 | 2.452       | 34.587 | 34.589 | 27.605            | -0.008      | 0.019        | -0.002       | 0.006        |                   |                    | -0.1              | 0.3                | -0.1              | 0.2                | 2377 |  |
| 2150        | 1969 | 1992 | 2.198       | 34.621 | 34.622 | 27.653            | -0.003      | 0.017        | -0.001       | 0.007        |                   |                    | -0.1              | 0.3                | 0.0               | 0.3                | 2377 |  |
| 2149        | 2264 | 2293 | 1.976       | 34.642 | 34.642 | 27.687            | -0.006      | 0.019        | 0.000        | 0.004        |                   |                    | -0.1              | 0.3                | 0.0               | 0.2                | 2377 |  |
| 2148        | 2558 | 2592 | 1.790       | 34.660 | 34.657 | 27.713            | -0.005      | 0.013        | 0.000        | 0.014        |                   |                    | -0.1              | 0.2                | 0.0               | 0.5                | 2373 |  |
| 2147        | 2855 | 2895 | 1.627       | 34.670 | 34.672 | 27.738            | -0.009      | 0.025        | -0.001       | 0.006        |                   |                    | -0.2              | 0.4                | 0.0               | 0.2                | 2377 |  |
| 2146        | 3144 | 3191 | 1.484       | 34.691 | 34.692 | 27.764            | 0.000       |              | -0.001       |              |                   |                    | 0.0               |                    | 0.0               |                    | 2969 |  |
| 2145        | 3442 | 3495 | 1.326       | 34.715 | 34.714 | 27.793            | -0.010      | 0.026        | 0.000        | 0.009        |                   |                    | -0.2              | 0.4                | 0.0               | 0.3                | 2377 |  |
| 2144        | 3931 | 3996 | 0.954       | 34.723 | 34.721 | 27.824            | 0.001       |              | -0.001       |              |                   |                    | 0.0               |                    | 0.0               |                    | 2969 |  |
| 2143        | 4419 | 4497 | 0.663       | 34.713 | 34.712 | 27.836            | 0.011       |              | 0.003        |              |                   |                    | 0.2               |                    | 0.1               |                    | 6969 |  |
| 2142        | 4905 | 4997 | 0.594       | 34.711 | 34.710 | 27.838            | 0.004       |              | 0.001        |              |                   |                    | 0.1               |                    | 0.0               |                    | 2969 |  |
| 2141        | 5196 | 5297 | 0.582       | 34.709 | 34.709 | 27.838            | 0.005       |              | 0.001        |              |                   |                    | 0.1               |                    | 0.0               |                    | 2969 |  |



## CGC-90 CFC BOTTLE DATA

STATION 15

| LATITUDE   |      | LONGITUDE   |        | DAY-MO-YR |        | BOTTOM DEPTH      |          | ATM. F-11 |          | ATM. F-12 |             |              |             |              |             |              |      |
|------------|------|-------------|--------|-----------|--------|-------------------|----------|-----------|----------|-----------|-------------|--------------|-------------|--------------|-------------|--------------|------|
| 40° 1.7' S |      | 170° 1.7' W |        | 4 3 90    |        | 4626 m            |          | 249.7 ppt |          | 461.2 ppt |             |              |             |              |             |              |      |
| SAMP       | DEP  | PRS         | THETA  | SAL       | CTD-S  | SIG-0             | SIO F-11 | PMEL F-11 | SIO F-12 | PMEL F-12 | SIO F11 F12 | PMEL F11 F12 | SIO F11 SAT | PMEL F11 SAT | SIO F12 SAT | PMEL F12 SAT | FLAG |
|            | m    | db          | C      |           |        | Kg/m <sup>3</sup> | pM/kg    | pM/kg     | pM/kg    | pM/kg     |             |              |             |              |             |              |      |
| 2752       | 2    | 2           | 17.404 | 34.966    | 34.966 | 25.392            | 2.595    |           | 1.277    |           | 2.0         |              | 104.3       |              | 101.6       |              | 2929 |
| 2751       | 18   | 18          | 16.837 | 34.983    | 34.985 | 25.542            |          |           |          |           |             |              |             |              |             |              | 9999 |
| 2750       | 38   | 38          | 16.700 |           | 34.960 | 25.556            | 2.652    | 2.649     | 1.280    | 1.370     | 2.1         | 1.9          | 103.0       | 102.9        | 98.8        | 105.7        | 2222 |
| 2749       | 65   | 66          | 14.067 | 35.175    | 35.168 | 26.303            | 2.741    |           | 1.312    |           | 2.1         |              | 93.6        |              | 90.3        |              | 2929 |
| 2748       | 97   | 98          | 13.376 | 35.237    | 35.238 | 26.501            | 2.697    | 2.683     | 1.279    | 1.390     | 2.1         | 1.9          | 88.9        | 88.5         | 85.4        | 92.8         | 2222 |
| 2747       | 121  | 122         | 12.957 | 35.171    | 35.166 | 26.531            | 2.813    |           | 1.271    |           | 2.2         |              | 90.7        |              | 83.2        |              | 2929 |
| 2746       | 145  | 146         | 12.359 | 35.054    | 35.055 | 26.563            | 3.020    |           | 1.372    |           | 2.2         |              | 94.3        |              | 87.3        |              | 2929 |
| 2745       | 194  | 196         | 11.930 | 34.997    | 35.004 | 26.606            | 2.949    | 2.792     | 1.313    | 1.458     | 2.2         | 1.9          | 90.0        | 85.2         | 81.8        | 90.9         | 2222 |
| 2744       | 244  | 246         | 11.085 | 34.877    | 34.879 | 26.666            | 2.565    |           | 1.236    |           | 2.1         |              | 74.7        |              | 73.9        |              | 2929 |
| 2743       | 293  | 296         | 10.093 | 34.753    | 34.748 | 26.740            | 2.692    | 2.540     | 1.243    | 1.310     | 2.2         | 1.9          | 74.2        | 70.0         | 70.8        | 74.7         | 2222 |
| 2742       | 343  | 346         | 9.371  | 34.666    | 34.660 | 26.792            | 2.496    |           | 1.193    |           | 2.1         |              | 66.1        |              | 65.6        |              | 6969 |
| 2741       | 389  | 393         | 8.789  | 34.586    | 34.585 | 26.827            | 2.902    |           | 1.360    |           | 2.1         |              | 74.3        |              | 72.6        |              | 6969 |
| 2847       | 491  | 496         | 8.060  | 34.515    | 34.513 | 26.883            | 2.483    |           | 1.163    |           | 2.1         |              | 61.0        |              | 59.8        |              | 2929 |
| 2846       | 589  | 595         | 7.606  | 34.479    | 34.479 | 26.923            | 2.023    | 1.955     | 0.908    | 0.969     | 2.2         | 2.0          | 48.4        | 46.8         | 45.6        | 48.7         | 2222 |
| 2845       | 687  | 694         | 7.189  | 34.445    | 34.445 | 26.955            | 1.490    |           | 0.680    |           | 2.2         |              | 34.8        |              | 33.5        |              | 2929 |
| 2844       | 787  | 795         | 6.749  | 34.412    | 34.413 | 26.991            | 1.009    | 0.977     | 0.481    | 0.479     | 2.1         | 2.0          | 23.0        | 22.2         | 23.1        | 23.0         | 2222 |
| 2843       | 885  | 894         | 6.196  | 34.391    | 34.389 | 27.045            | 0.663    |           | 0.292    |           | 2.3         |              | 14.6        |              | 13.6        |              | 2929 |
| 2842       | 983  | 993         | 5.717  | 34.390    | 34.392 | 27.108            | 0.384    | 0.379     | 0.172    | 0.088     | 2.2         | 4.3          | 8.2         | 8.1          | 7.8         | 4.0          | 6263 |
| 2841       | 1081 | 1093        | 5.073  | 34.389    | 34.387 | 27.181            | 0.296    |           | 0.131    |           | 2.3         |              | 6.1         |              | 5.8         |              | 2929 |
| 2852       | 1229 | 1243        | 4.261  | 34.397    | 34.403 | 27.284            | 0.132    |           | 0.047    |           |             |              | 2.6         |              | 2.0         |              | 2929 |
| 2851       | 1475 | 1492        | 3.404  | 34.494    | 34.492 | 27.442            | 0.025    | 0.069     | 0.000    | 0.016     |             |              | 0.5         | 1.3          | 0.0         | 0.7          | 2337 |
| 2850       | 1723 | 1744        | 2.768  | 34.574    | 34.576 | 27.567            |          |           |          |           |             |              |             |              |             |              | 9999 |
| 2849       | 1968 | 1993        | 2.360  | 34.616    | 34.618 | 27.636            | 0.006    |           | 0.001    |           |             |              | 0.1         |              | 0.0         |              | 2979 |
| 2848       | 2264 | 2294        | 2.045  | 34.646    | 34.649 | 27.687            | 0.041    |           | 0.001    |           |             |              | 0.7         |              | 0.0         |              | 4969 |
| 2946       | 2656 | 2694        | 1.706  | 34.696    | 34.699 | 27.753            | -0.003   | 0.013     | 0.000    | 0.021     |             |              | -0.1        | 0.2          | 0.0         | 0.8          | 2773 |
| 2947       | 2656 | 2694        | 1.705  | 34.695    | 34.700 | 27.754            |          |           |          |           |             |              |             |              |             |              | 9999 |
| 2945       | 3050 | 3097        | 1.424  | 34.728    | 34.730 | 27.799            | -0.006   |           | 0.003    |           |             |              | -0.1        |              | 0.1         |              | 7979 |
| 2944       | 3341 | 3394        | 1.172  | 34.735    | 34.730 | 27.817            | -0.003   | 0.005     | 0.001    | 0.006     |             |              | -0.1        | 0.1          | 0.0         | 0.2          | 2777 |
| 2943       | 3625 | 3685        | 0.945  | 34.710    | 34.730 | 27.832            | 0.004    |           | 0.001    |           |             |              | 0.1         |              | 0.0         |              | 2979 |
| 2942       | 3829 | 3894        | 0.804  | 34.717    | 34.719 | 27.832            | 0.007    | 0.011     | 0.001    | 0.015     |             |              | 0.1         | 0.2          | 0.0         | 0.5          | 2272 |
| 2941       | 4026 | 4097        | 0.697  | 34.715    | 34.715 | 27.836            | 0.011    |           | 0.004    |           |             |              | 0.2         |              | 0.1         |              | 2979 |
| 2951       | 4224 | 4300        | 0.616  | 34.710    | 34.712 | 27.838            | 0.014    |           | 0.005    |           |             |              | 0.2         |              | 0.2         |              | 2979 |
| 2950       | 4318 | 4396        | 0.591  | 34.711    | 34.712 | 27.840            | 0.015    | 0.028     | 0.005    | 0.032     |             |              | 0.2         | 0.4          | 0.2         | 1.1          | 2273 |
| 2949       | 4514 | 4598        | 0.549  | 34.708    | 34.709 | 27.840            | 0.021    |           | 0.004    |           |             |              | 0.3         |              | 0.1         |              | 6969 |
| 2948       | 4589 | 4675        | 0.538  | 34.713    | 34.708 | 27.840            | 0.025    |           | 0.004    |           |             |              | 0.4         |              | 0.1         |              | 6969 |

## CGC-90 CFC BOTTLE DATA

STATION 16

| LATITUDE    |      | LONGITUDE    |        | DAY-MO-YR |        | BOTTOM DEPTH      |          | ATM. F-11 |          | ATM. F-12 |             |              |             |              |             |              |      |
|-------------|------|--------------|--------|-----------|--------|-------------------|----------|-----------|----------|-----------|-------------|--------------|-------------|--------------|-------------|--------------|------|
| 40° 58.1' S |      | 170° 29.0' W |        | 4 3 90    |        | 4323 m            |          | 249.7 ppt |          | 461.2 ppt |             |              |             |              |             |              |      |
| SAMP        | DEP  | PRS          | THETA  | SAL       | CTD-S  | SIG-0             | SIO F-11 | PMEL F-11 | SIO F-12 | PMEL F-12 | SIO F11 F12 | PMEL F11 F12 | SIO F11 SAT | PMEL F11 SAT | SIO F12 SAT | PMEL F12 SAT | FLAG |
|             | m    | db           | C      |           |        | Kg/m <sup>3</sup> | pM/kg    | pM/kg     | pM/kg    | pM/kg     |             |              |             |              |             |              |      |
| 3047        | 4    | 4            | 17.573 | 35.078    | 35.082 | 25.440            | 2.505    |           | 2.002    |           | 1.3         |              | 101.6       |              | 160.6       |              | 2949 |
| 3046        | 28   | 29           | 17.072 |           | 35.097 | 25.573            |          |           |          |           |             |              |             |              |             |              | 9999 |
| 3045        | 97   | 98           | 12.982 | 35.087    | 35.091 | 26.468            | 2.957    |           | 1.419    |           | 2.1         |              | 95.4        |              | 92.9        |              | 2929 |
| 3044        | 195  | 197          | 12.213 | 35.040    | 35.037 | 26.577            | 3.029    |           | 1.427    |           | 2.1         |              | 93.8        |              | 90.2        |              | 2929 |
| 3043        | 392  | 395          | 9.139  | 34.637    | 34.639 | 26.813            | 2.432    |           | 1.125    |           | 2.2         |              | 63.5        |              | 61.1        |              | 2929 |
| 3042        | 589  | 595          | 7.824  | 34.506    | 34.507 | 26.913            | 1.770    |           | 0.848    |           | 2.1         |              | 42.9        |              | 43.1        |              | 2929 |
| 3041        | 787  | 795          | 7.017  | 34.443    | 34.447 | 26.981            | 1.068    |           | 0.525    |           | 2.0         |              | 24.7        |              | 25.6        |              | 2929 |
| 3052        | 986  | 996          | 5.910  | 34.404    | 34.406 | 27.095            | 0.386    |           | 0.176    |           | 2.2         |              | 8.4         |              | 8.1         |              | 6969 |
| 3051        | 1230 | 1244         | 4.527  | 34.424    | 34.428 | 27.275            | 0.093    |           | 0.039    |           |             |              | 1.9         |              | 1.7         |              | 2929 |
| 3050        | 1477 | 1494         | 3.463  | 34.428    | 34.501 | 27.443            | 0.023    |           | 0.003    |           |             |              | 0.4         |              | 0.1         |              | 6969 |
| 3049        | 1722 | 1743         | 2.802  | 34.574    | 34.575 | 27.564            | 0.002    |           | 0.001    |           |             |              | 0.0         |              | 0.0         |              | 2979 |
| 3048        | 1972 | 1997         | 2.386  | 34.615    | 34.619 | 27.635            | -0.004   |           | 0.001    |           |             |              | -0.1        |              | 0.0         |              | 6969 |
| 3146        | 2167 | 2195         | 2.151  | 34.672    | 34.638 | 27.670            | -0.008   |           | 0.002    |           |             |              | -0.1        |              | 0.1         |              | 6969 |
| 3145        | 2559 | 2595         | 1.828  | 34.685    | 34.681 | 27.730            | -0.008   |           | 0.000    |           |             |              | -0.1        |              | 0.0         |              | 2979 |
| 3144        | 2947 | 2991         | 1.569  | 34.728    | 34.730 | 27.788            | 0.000    |           | 0.000    |           |             |              | 0.0         |              | 0.0         |              | 2979 |
| 3143        | 3147 | 3195         | 1.374  | 34.731    | 34.736 | 27.807            | 0.001    |           | 0.001    |           |             |              | 0.0         |              | 0.0         |              | 6969 |
| 3142        | 3342 | 3396         | 1.188  | 34.725    | 34.733 | 27.818            | 0.006    |           | 0.008    |           |             |              | 0.1         |              | 0.3         |              | 2929 |
| 3141        | 3537 | 3595         | 1.003  | 34.726    | 34.728 | 27.827            | 0.001    |           | 0.000    |           |             |              | 0.0         |              | 0.0         |              | 2979 |
| 3152        | 3734 | 3797         | 0.837  |           | 34.723 | 27.833            | 0.017    |           | 0.003    |           |             |              | 0.3         |              | 0.1         |              | 3939 |
| 3151        | 3929 | 3997         | 0.713  |           | 34.718 | 27.837            | 0.030    |           | 0.004    |           |             |              | 0.5         |              | 0.1         |              | 6929 |
| 3150        | 4066 | 4137         | 0.663  | 34.711    | 34.715 | 27.838            | 0.015    |           | 0.003    |           |             |              | 0.2         |              | 0.1         |              | 2979 |
| 3149        | 4163 | 4238         | 0.617  | 34.703    | 34.714 | 27.840            | 0.024    |           | 0.012    |           |             |              | 0.4         |              | 0.4         |              | 6969 |
| 3148        | 4266 | 4343         | 0.567  | 34.727    | 34.712 | 27.841            | 0.018    |           | 0.002    |           |             |              | 0.3         |              | 0.1         |              | 6969 |



## CGC-90 CFC BOTTLE DATA

STATION 17

| LATITUDE    |      |      | LONGITUDE    |        |        | DAY-MO-YR         |             |              | BOTTOM DEPTH |              |                   |                    | ATM. F-11  |             | ATM. F-12  |             |            |             |      |
|-------------|------|------|--------------|--------|--------|-------------------|-------------|--------------|--------------|--------------|-------------------|--------------------|------------|-------------|------------|-------------|------------|-------------|------|
| 41° 29.4' S |      |      | 170° 43.4' W |        |        | 5 3 90            |             |              | 3984 m       |              |                   |                    | 249.7 ppt  |             | 461.2 ppt  |             |            |             |      |
| SAMP        | DEP  | PRS  | THETA        | SAL    | CTD-S  | SIG-0             | SIO<br>F-11 | PMEL<br>F-11 | SIO<br>F-12  | PMEL<br>F-12 | SIO<br>F11<br>F12 | PMEL<br>F11<br>F12 | SIO<br>SAT | PMEL<br>SAT | SIO<br>SAT | PMEL<br>SAT | SIO<br>SAT | PMEL<br>SAT | FLAG |
|             | m    | db   | C            |        |        | Kg/m <sup>3</sup> | pM/kg       | pM/kg        | pM/kg        | pM/kg        |                   |                    |            |             |            |             |            |             | ---- |
| 3247        | 1968 | 1993 | 2.406        | 34.612 | 34.618 | 27.632            | -0.002      |              | 0.003        |              |                   |                    | 0.0        |             | 0.1        |             |            |             | 7979 |
| 3246        | 2162 | 2191 | 2.152        | 34.636 | 34.639 | 27.670            | -0.005      |              | 0.000        |              |                   |                    | -0.1       |             | 0.0        |             |            |             | 2929 |
| 3245        | 2360 | 2392 | 1.954        | 34.658 | 34.662 | 27.705            | 0.003       |              | 0.001        |              |                   |                    | 0.1        |             | 0.0        |             |            |             | 2979 |
| 3244        | 2554 | 2590 | 1.788        | 34.681 | 34.689 | 27.739            | -0.002      |              | 0.003        |              |                   |                    | 0.0        |             | 0.1        |             |            |             | 2979 |
| 3243        | 2754 | 2794 | 1.647        | 34.709 | 34.712 | 27.768            | -0.005      |              | 0.001        |              |                   |                    | -0.1       |             | 0.0        |             |            |             | 2979 |
| 3242        | 2952 | 2996 | 1.511        | 34.724 | 34.729 | 27.792            | 0.014       |              | 0.000        |              |                   |                    | 0.2        |             | 0.0        |             |            |             | 4929 |
| 3241        | 3049 | 3096 | 1.435        | 34.728 | 34.734 | 27.802            | -0.001      |              | 0.001        |              |                   |                    | 0.0        |             | 0.0        |             |            |             | 2979 |
| 3251        | 3148 | 3196 | 1.289        | 34.730 | 34.736 | 27.813            | -0.003      |              | 0.001        |              |                   |                    | -0.1       |             | 0.0        |             |            |             | 2979 |
| 3250        | 3248 | 3299 | 1.167        | 34.753 | 34.733 | 27.820            | -0.001      |              | 0.001        |              |                   |                    | 0.0        |             | 0.0        |             |            |             | 6969 |
| 3249        | 3291 | 3344 | 1.134        | 34.724 | 34.733 | 27.822            | 0.001       |              | 0.001        |              |                   |                    | 0.0        |             | 0.0        |             |            |             | 2979 |
| 3248        | 3346 | 3400 | 1.077        | 34.736 | 34.731 | 27.824            | -0.002      |              | 0.002        |              |                   |                    | 0.0        |             | 0.1        |             |            |             | 6969 |

## CGC-90 CFC BOTTLE DATA

STATION 18

| LATITUDE    |      |      | LONGITUDE    |        |        | DAY-MO-YR         |             |              | BOTTOM DEPTH |              |                   |                    | ATM. F-11  |             | ATM. F-12  |             |            |             |      |
|-------------|------|------|--------------|--------|--------|-------------------|-------------|--------------|--------------|--------------|-------------------|--------------------|------------|-------------|------------|-------------|------------|-------------|------|
| 41° 58.9' S |      |      | 170° 59.0' W |        |        | 5 3 90            |             |              | 2974 m       |              |                   |                    | 249.7 ppt  |             | 461.2 ppt  |             |            |             |      |
| SAMP        | DEP  | PRS  | THETA        | SAL    | CTD-S  | SIG-0             | SIO<br>F-11 | PMEL<br>F-11 | SIO<br>F-12  | PMEL<br>F-12 | SIO<br>F11<br>F12 | PMEL<br>F11<br>F12 | SIO<br>SAT | PMEL<br>SAT | SIO<br>SAT | PMEL<br>SAT | SIO<br>SAT | PMEL<br>SAT | FLAG |
|             | m    | db   | C            |        |        | Kg/m <sup>3</sup> | pM/kg       | pM/kg        | pM/kg        | pM/kg        |                   |                    |            |             |            |             |            |             | ---- |
| 3346        | 1967 | 1992 | 2.387        | 34.616 | 34.620 | 27.636            | -0.004      |              | 0.001        |              |                   |                    | -0.1       |             | 0.0        |             |            |             | 2979 |
| 3347        | 1967 | 1993 | 2.387        |        | 34.620 | 27.636            | -0.001      |              | 0.000        |              |                   |                    | 0.0        |             | 0.0        |             |            |             | 2929 |
| 3345        | 2164 | 2193 | 2.115        | 34.639 | 34.644 | 27.677            |             |              | 0.001        |              |                   |                    | 0.0        |             | 0.0        |             |            |             | 9999 |
| 3344        | 2367 | 2400 | 1.857        | 34.672 | 34.678 | 27.725            | 0.002       |              | 0.001        |              |                   |                    | 0.0        |             | 0.0        |             |            |             | 2979 |
| 3343        | 2458 | 2493 | 1.745        | 34.697 | 34.693 | 27.746            | -0.010      |              | 0.000        |              |                   |                    | -0.2       |             | 0.0        |             |            |             | 2929 |
| 3342        | 2556 | 2592 | 1.673        | 34.706 | 34.712 | 27.766            | -0.004      |              | 0.000        |              |                   |                    | -0.1       |             | 0.0        |             |            |             | 2929 |
| 3341        | 2656 | 2694 | 1.593        | 34.718 | 34.723 | 27.781            | 0.003       |              | 0.000        |              |                   |                    | 0.1        |             | 0.0        |             |            |             | 2929 |
| 3351        | 2753 | 2793 | 1.488        | 34.727 | 34.732 | 27.796            | -0.003      |              | 0.000        |              |                   |                    | -0.1       |             | 0.0        |             |            |             | 2929 |
| 3350        | 2851 | 2893 | 1.377        | 34.734 | 34.736 | 27.807            | 0.000       |              | 0.001        |              |                   |                    | 0.0        |             | 0.0        |             |            |             | 2979 |
| 3349        | 2851 | 2894 | 1.377        | 34.730 | 34.735 | 27.806            | -0.006      |              | 0.000        |              |                   |                    | -0.1       |             | 0.0        |             |            |             | 2929 |
| 3348        | 2928 | 2972 | 1.296        | 34.730 | 34.735 | 27.812            | -0.004      |              | 0.000        |              |                   |                    | -0.1       |             | 0.0        |             |            |             | 6969 |

## CGC-90 CFC BOTTLE DATA

STATION 19

| LATITUDE    |      | LONGITUDE    |        | DAY-MO-YR |        | BOTTOM DEPTH      |          | ATM. F-11 |          | ATM. F-12 |             |              |         |          |         |          |      |
|-------------|------|--------------|--------|-----------|--------|-------------------|----------|-----------|----------|-----------|-------------|--------------|---------|----------|---------|----------|------|
| 42° 28.7' S |      | 171° 12.5' W |        | 5 3 90    |        | 1857 m            |          | 249.7 ppt |          | 461.8 ppt |             |              |         |          |         |          |      |
| SAMP        | DEP  | PRS          | THETA  | SAL       | CTD-S  | SIG-0             | SIO F-11 | PMEL F-11 | SIO F-12 | PMEL F-12 | SIO F11 F12 | PMEL F11 F12 | SIO SAT | PMEL SAT | SIO SAT | PMEL SAT | FLAG |
|             | m    | db           | C      |           |        | Kg/m <sup>3</sup> | pM/kg    | pM/kg     | pM/kg    | pM/kg     |             |              |         |          |         |          | ---- |
| 3447        | 3    | 3            | 17.785 | 35.114    | 35.116 | 25.415            | 2.594    |           | 1.901    |           | 1.4         |              | 106.3   |          | 153.7   |          | 2949 |
| 3547        | 29   | 29           | 17.379 |           | 35.133 | 25.527            |          |           |          |           |             |              |         |          |         |          | 9999 |
| 3446        | 35   | 36           | 17.320 | 35.140    | 35.141 | 25.547            | 2.491    |           | 1.184    |           | 2.1         |              | 99.9    |          | 93.9    |          | 2939 |
| 3445        | 67   | 67           | 14.887 | 35.351    | 35.353 | 26.270            | 2.563    |           | 1.223    |           | 2.1         |              | 91.4    |          | 87.4    |          | 2929 |
| 3444        | 95   | 96           | 14.050 |           | 35.285 | 26.398            |          |           |          |           |             |              |         |          |         |          | 9999 |
| 3546        | 98   | 98           | 14.219 | 35.300    | 35.304 | 26.376            | 2.471    |           | 1.198    |           | 2.1         |              | 85.1    |          | 83.1    |          | 2969 |
| 3443        | 120  | 121          | 13.752 |           | 35.254 | 26.436            | 2.457    |           | 1.224    |           | 2.0         |              | 82.6    |          | 83.1    |          | 6969 |
| 3442        | 145  | 146          | 13.457 | 35.253    | 35.258 | 26.500            | 2.567    |           | 1.285    |           | 2.0         |              | 85.0    |          | 86.0    |          | 2929 |
| 3441        | 195  | 196          | 12.896 | 35.166    | 35.157 | 26.536            | 2.547    |           | 1.258    |           | 2.0         |              | 81.8    |          | 82.0    |          | 2929 |
| 3452        | 243  | 245          | 12.048 | 35.020    | 35.003 | 26.583            | 2.439    |           | 1.197    |           | 2.0         |              | 74.9    |          | 74.9    |          | 2929 |
| 3451        | 292  | 295          | 11.376 | 34.918    | 34.923 | 26.647            | 2.373    |           | 1.148    |           | 2.1         |              | 70.2    |          | 69.6    |          | 2929 |
| 3450        | 342  | 345          | 10.721 | 34.837    | 34.840 | 26.702            | 2.172    |           | 1.077    |           | 2.0         |              | 62.0    |          | 63.2    |          | 2929 |
| 3449        | 393  | 396          | 10.123 | 34.778    | 34.784 | 26.763            | 1.828    |           | 0.924    |           | 2.0         |              | 50.5    |          | 52.7    |          | 2929 |
| 3448        | 492  | 496          | 9.251  | 34.688    | 34.693 | 26.837            | 1.585    |           | 0.756    |           | 2.1         |              | 41.7    |          | 41.3    |          | 2929 |
| 3545        | 588  | 594          | 8.407  | 34.610    | 34.609 | 26.905            | 1.267    |           | 0.559    |           | 2.3         |              | 31.8    |          | 29.2    |          | 2929 |
| 3544        | 690  | 697          | 7.838  | 34.554    | 34.557 | 26.950            | 0.961    |           | 0.469    |           | 2.0         |              | 23.3    |          | 23.8    |          | 2929 |
| 3543        | 785  | 793          | 7.172  | 34.504    | 34.504 | 27.004            | 0.627    |           | 0.282    |           | 2.2         |              | 14.6    |          | 13.9    |          | 2929 |
| 3542        | 886  | 895          | 6.594  | 34.474    | 34.474 | 27.060            | 0.432    |           | 0.190    |           | 2.3         |              | 9.8     |          | 9.1     |          | 6969 |
| 3541        | 984  | 995          | 6.077  | 34.464    | 34.466 | 27.121            | 0.282    |           | 0.126    |           | 2.2         |              | 6.2     |          | 5.8     |          | 2929 |
| 3551        | 1086 | 1097         | 5.407  | 34.458    | 34.445 | 27.187            | 0.157    |           | 0.063    |           | 2.5         |              | 3.3     |          | 2.8     |          | 2939 |
| 3550        | 1229 | 1243         | 4.646  | 34.471    | 34.483 | 27.306            | 0.074    |           | 0.021    |           |             |              | 1.5     |          | 0.9     |          | 6969 |
| 3549        | 1477 | 1495         | 3.630  | 34.590    | 34.528 | 27.448            |          |           |          |           |             |              |         |          |         |          | 9999 |
| 3548        | 1814 | 1836         | 2.566  | 34.622    | 34.608 | 27.611            | -0.001   |           | -0.002   |           |             |              | 0.0     |          | -0.1    |          | 6969 |

## CGC-90 CFC BOTTLE DATA

STATION 20

| LATITUDE    |      | LONGITUDE    |        | DAY-MO-YR |        | BOTTOM DEPTH      |          | ATM. F-11 |          | ATM. F-12 |             |              |         |          |         |          |      |
|-------------|------|--------------|--------|-----------|--------|-------------------|----------|-----------|----------|-----------|-------------|--------------|---------|----------|---------|----------|------|
| 43° 30.1' S |      | 170° 51.2' W |        | 5 3 90    |        | 2904 m            |          | 249.0 ppt |          | 461.5 ppt |             |              |         |          |         |          |      |
| SAMP        | DEP  | PRS          | THETA  | SAL       | CTD-S  | SIG-0             | SIO F-11 | PMEL F-11 | SIO F-12 | PMEL F-12 | SIO F11 F12 | PMEL F11 F12 | SIO SAT | PMEL SAT | SIO SAT | PMEL SAT | FLAG |
|             | m    | db           | C      |           |        | Kg/m <sup>3</sup> | pM/kg    | pM/kg     | pM/kg    | pM/kg     |             |              |         |          |         |          | ---- |
| 3647        | 28   | 28           | 14.793 |           | 34.684 | 25.774            |          |           |          |           |             |              |         |          |         |          | 9999 |
| 3646        | 1774 | 1797         | 2.545  | 34.551    | 34.554 | 27.569            | 0.188    |           | 0.058    |           | 3.2         |              | 3.3     |          | 2.2     |          | 2939 |
| 3645        | 1970 | 1996         | 2.309  | 34.615    | 34.618 | 27.641            | 0.109    |           | 0.024    |           |             |              | 1.9     |          | 0.9     |          | 2939 |
| 3644        | 2168 | 2197         | 2.104  | 34.660    | 34.666 | 27.696            | 0.038    |           | 0.017    |           |             |              | 0.7     |          | 0.6     |          | 2929 |
| 3643        | 2360 | 2393         | 1.958  | 34.700    | 34.707 | 27.740            | 0.033    |           | 0.004    |           |             |              | 0.6     |          | 0.2     |          | 2979 |
| 3642        | 2461 | 2496         | 1.892  | 34.713    | 34.717 | 27.753            | 0.035    |           | 0.014    |           |             |              | 0.6     |          | 0.5     |          | 2929 |
| 3641        | 2558 | 2595         | 1.832  | 34.729    | 34.728 | 27.767            | 0.028    |           | 0.013    |           |             |              | 0.5     |          | 0.5     |          | 2979 |
| 3651        | 2659 | 2698         | 1.693  | 34.724    | 34.728 | 27.778            | 0.022    |           | -0.001   |           |             |              | 0.4     |          | 0.0     |          | 2979 |
| 3650        | 2760 | 2801         | 1.550  | 34.736    | 34.739 | 27.797            | 0.019    |           | 0.005    |           |             |              | 0.3     |          | 0.2     |          | 2979 |
| 3649        | 2817 | 2859         | 1.488  | 34.733    | 34.738 | 27.801            | 0.016    |           | 0.002    |           |             |              | 0.3     |          | 0.1     |          | 2979 |
| 3648        | 2874 | 2917         | 1.468  | 34.739    | 34.740 | 27.804            | 0.009    |           | 0.001    |           |             |              | 0.2     |          | 0.0     |          | 2979 |

## CGC-90 CFC BOTTLE DATA

STATION 21

| LATITUDE    |      |      | LONGITUDE    |        |        | DAY-MO-YR |                   | BOTTOM DEPTH |       |       |       | ATM. F-11 |     | ATM. F-12 |     |      |     |      |      |
|-------------|------|------|--------------|--------|--------|-----------|-------------------|--------------|-------|-------|-------|-----------|-----|-----------|-----|------|-----|------|------|
| 43° 59.1' S |      |      | 170° 41.6' W |        |        | 6 3 90    |                   | 4473 m       |       |       |       | 249.0 ppt |     | 461.5 ppt |     |      |     |      |      |
| SAMP        | DEP  | PRS  | THETA        | SAL    | CTD-S  | SIG-0     | SIO               | PMEL         | SIO   | PMEL  | SIO   | PMEL      | SIO | PMEL      | SIO | PMEL | SIO | PMEL | FLAG |
|             | m    | db   | C            |        |        |           | Kg/m <sup>3</sup> | pM/kg        | pM/kg | pM/kg | pM/kg |           |     |           |     |      |     |      | ---- |
| 3747        | 2753 | 2794 | 1.719        | 34.734 | 34.733 | 27.780    | 0.014             |              |       | 0.003 |       |           |     |           | 0.2 |      | 0.1 |      | 2979 |
| 3746        | 2949 | 2994 | 1.563        | 34.735 | 34.738 | 27.795    | 0.008             |              |       | 0.004 |       |           |     |           | 0.1 |      | 0.2 |      | 2979 |
| 3745        | 3145 | 3195 | 1.346        | 34.734 | 34.737 | 27.810    | 0.014             |              |       | 0.004 |       |           |     |           | 0.2 |      | 0.1 |      | 2979 |
| 3744        | 3339 | 3393 | 1.167        | 34.730 | 34.734 | 27.820    | 0.006             |              |       | 0.008 |       |           |     |           | 0.1 |      | 0.3 |      | 2979 |
| 3743        | 3535 | 3594 | 0.992        | 34.726 | 34.728 | 27.827    | 0.011             |              |       | 0.001 |       |           |     |           | 0.2 |      | 0.0 |      | 2979 |
| 3742        | 3732 | 3796 | 0.839        | 34.720 | 34.722 | 27.833    | 0.018             |              |       | 0.005 |       |           |     |           | 0.3 |      | 0.2 |      | 2979 |
| 3741        | 3925 | 3994 | 0.706        | 34.714 | 34.718 | 27.838    | 0.025             |              |       | 0.005 |       |           |     |           | 0.4 |      | 0.2 |      | 2979 |
| 3751        | 4122 | 4197 | 0.632        | 34.714 | 34.714 | 27.839    | 0.031             |              |       | 0.008 |       |           |     |           | 0.5 |      | 0.3 |      | 2979 |
| 3750        | 4316 | 4396 | 0.573        | 34.715 | 34.711 | 27.840    | 0.032             |              |       | 0.009 |       |           |     |           | 0.5 |      | 0.3 |      | 2979 |
| 3749        | 4415 | 4498 | 0.557        | 34.709 | 34.711 | 27.841    | 0.035             |              |       | 0.012 |       |           |     |           | 0.6 |      | 0.4 |      | 6969 |
| 3748        | 4558 | 4645 | 0.532        | 34.708 | 34.709 | 27.841    | 0.038             |              |       | 0.012 |       |           |     |           | 0.6 |      | 0.4 |      | 6969 |

## CGC-90 CFC BOTTLE DATA

STATION 22

| LATITUDE    |      |      | LONGITUDE    |        |        | DAY-MO-YR |                   | BOTTOM DEPTH |       |       |       | ATM. F-11 |     | ATM. F-12 |     |      |     |      |      |
|-------------|------|------|--------------|--------|--------|-----------|-------------------|--------------|-------|-------|-------|-----------|-----|-----------|-----|------|-----|------|------|
| 44° 22.2' S |      |      | 170° 19.7' W |        |        | 6 3 90    |                   | 5108 m       |       |       |       | 249.0 ppt |     | 461.5 ppt |     |      |     |      |      |
| SAMP        | DEP  | PRS  | THETA        | SAL    | CTD-S  | SIG-0     | SIO               | PMEL         | SIO   | PMEL  | SIO   | PMEL      | SIO | PMEL      | SIO | PMEL | SIO | PMEL | FLAG |
|             | m    | db   | C            |        |        |           | Kg/m <sup>3</sup> | pM/kg        | pM/kg | pM/kg | pM/kg |           |     |           |     |      |     |      | ---- |
| 3847        | 2949 | 2994 | 1.533        | 34.737 | 34.741 | 27.800    | 0.008             |              |       | 0.001 |       |           |     |           | 0.1 |      | 0.0 |      | 2979 |
| 3846        | 3242 | 3294 | 1.263        | 34.737 | 34.737 | 27.816    | 0.005             |              |       | 0.007 |       |           |     |           | 0.1 |      | 0.2 |      | 2979 |
| 3845        | 3536 | 3595 | 1.051        | 34.728 | 34.729 | 27.824    | 0.003             |              |       | 0.001 |       |           |     |           | 0.1 |      | 0.0 |      | 2979 |
| 3844        | 3826 | 3893 | 0.829        | 34.719 | 34.722 | 27.833    | 0.006             |              |       | 0.001 |       |           |     |           | 0.1 |      | 0.0 |      | 2979 |
| 3843        | 4123 | 4198 | 0.666        | 34.711 | 34.715 | 27.838    | 0.014             |              |       | 0.011 |       |           |     |           | 0.2 |      | 0.4 |      | 2979 |
| 3842        | 4416 | 4499 | 0.582        | 34.711 | 34.712 | 27.841    | 0.017             |              |       | 0.008 |       |           |     |           | 0.3 |      | 0.3 |      | 2979 |
| 3841        | 4608 | 4696 | 0.550        | 34.706 | 34.710 | 27.841    | 0.033             |              |       | 0.007 |       |           |     |           | 0.5 |      | 0.2 |      | 3979 |
| 3851        | 4802 | 4897 | 0.530        | 34.712 | 34.709 | 27.841    | 0.023             |              |       | 0.007 |       |           |     |           | 0.4 |      | 0.2 |      | 2979 |
| 3850        | 4900 | 4998 | 0.522        | 34.705 | 34.708 | 27.841    | 0.030             |              |       | 0.011 |       |           |     |           | 0.5 |      | 0.4 |      | 2979 |
| 3849        | 4998 | 5098 | 0.517        | 34.703 | 34.708 | 27.841    | 0.032             |              |       | 0.007 |       |           |     |           | 0.5 |      | 0.2 |      | 6969 |
| 3848        | 5080 | 5183 | 0.514        | 34.703 | 34.709 | 27.842    | 0.034             |              |       | 0.014 |       |           |     |           | 0.5 |      | 0.5 |      | 6969 |

## CGC-90 CFC BOTTLE DATA

STATION 23

| LATITUDE   |      | LONGITUDE   |        | DAY-MO-YR |        | BOTTOM DEPTH      |          |           |          | ATM. F-11 |             | ATM. F-12    |             |              |             |              |      |
|------------|------|-------------|--------|-----------|--------|-------------------|----------|-----------|----------|-----------|-------------|--------------|-------------|--------------|-------------|--------------|------|
| 46° 2.7' S |      | 170° 0.1' W |        | 6 3 90    |        | 5190 m            |          |           |          | 250.5 ppt |             | 460.9 ppt    |             |              |             |              |      |
| SAMP       | DEP  | PRS         | THETA  | SAL       | CTD-S  | SIG-0             | SIO F-11 | PMEL F-11 | SIO F-12 | PMEL F-12 | SIO F11 F12 | PMEL F11 F12 | SIO F11 SAT | PMEL F11 SAT | SIO F12 SAT | PMEL F12 SAT | FLAG |
|            | m    | db          | C      |           |        | Kg/m <sup>3</sup> | pM/kg    | pM/kg     | pM/kg    | pM/kg     |             |              |             |              |             |              | ---- |
| 3947       | 4    | 4           | 14.689 | 34.704    | 34.707 | 25.815            | 2.977    |           | 1.691    |           | 1.8         |              | 104.1       |              | 119.3       |              | 2949 |
| 3946       | 19   | 19          | 14.681 |           | 34.706 | 25.816            | 3.018    |           | 1.343    |           | 2.2         |              | 105.4       |              | 94.7        |              | 2939 |
| 3945       | 29   | 29          | 14.419 |           | 34.716 | 25.880            |          |           |          |           |             |              |             |              |             |              | 9999 |
| 3944       | 38   | 38          | 14.371 | 34.717    | 34.718 | 25.891            | 3.019    |           | 1.338    |           | 2.3         |              | 103.8       |              | 93.0        |              | 2939 |
| 3943       | 69   | 70          | 13.924 | 34.712    | 34.726 | 25.992            | 2.878    |           | 1.347    |           | 2.1         |              | 96.8        |              | 91.8        |              | 2929 |
| 3942       | 97   | 97          | 11.635 | 34.854    | 34.847 | 26.540            | 3.162    |           | 1.524    |           | 2.1         |              | 94.5        |              | 93.6        |              | 2929 |
| 3941       | 122  | 123         | 11.208 | 34.852    | 34.854 | 26.625            | 3.130    |           | 1.503    |           | 2.1         |              | 91.4        |              | 90.5        |              | 6969 |
| 3952       | 147  | 148         | 10.790 | 34.795    | 34.797 | 26.656            | 3.025    |           | 1.431    |           | 2.1         |              | 86.4        |              | 84.4        |              | 2929 |
| 3951       | 196  | 198         | 10.014 | 34.692    | 34.694 | 26.711            | 3.025    |           | 1.486    |           | 2.0         |              | 82.7        |              | 84.4        |              | 2929 |
| 3950       | 245  | 248         | 9.381  | 34.633    | 34.634 | 26.770            | 3.260    |           | 1.564    |           | 2.1         |              | 86.0        |              | 86.1        |              | 2929 |
| 3949       | 296  | 299         | 9.004  | 34.609    | 34.616 | 26.817            | 2.938    |           | 1.372    |           | 2.1         |              | 75.9        |              | 74.1        |              | 6969 |
| 3948       | 345  | 348         | 8.670  | 34.578    | 34.582 | 26.843            | 2.804    |           | 1.309    |           | 2.1         |              | 71.1        |              | 69.5        |              | 2929 |
| 4047       | 394  | 398         | 8.203  | 34.522    | 34.519 | 26.866            | 2.700    |           | 1.264    |           | 2.1         |              | 66.6        |              | 65.6        |              | 2929 |
| 4046       | 442  | 447         | 7.957  | 34.494    | 34.495 | 26.884            | 2.708    |           | 1.312    |           | 2.1         |              | 65.9        |              | 67.2        |              | 2929 |
| 4045       | 492  | 497         | 7.735  | 34.476    | 34.479 | 26.904            | 2.620    |           | 1.235    |           | 2.1         |              | 62.9        |              | 62.5        |              | 2929 |
| 4044       | 591  | 597         | 7.386  | 34.444    | 34.445 | 26.928            | 2.409    |           | 1.142    |           | 2.1         |              | 56.7        |              | 56.8        |              | 2929 |
| 4043       | 688  | 695         | 7.100  | 34.424    | 34.426 | 26.953            | 2.020    |           | 0.965    |           | 2.1         |              | 46.8        |              | 47.3        |              | 2929 |
| 4042       | 786  | 794         | 6.688  | 34.404    | 34.401 | 26.990            | 1.603    |           | 0.691    |           | 2.3         |              | 36.2        |              | 33.2        |              | 2929 |
| 4041       | 883  | 893         | 6.206  | 34.375    | 34.378 | 27.035            | 1.284    |           | 0.595    |           | 2.2         |              | 28.2        |              | 27.8        |              | 2929 |
| 4052       | 983  | 994         | 5.628  | 34.356    | 34.361 | 27.094            | 1.089    |           | 0.527    |           | 2.1         |              | 23.1        |              | 23.9        |              | 2929 |
| 4051       | 1082 | 1094        | 5.060  | 34.383    | 34.358 | 27.160            | 0.895    |           | 0.395    |           | 2.3         |              | 18.4        |              | 17.4        |              | 2929 |
| 4050       | 1229 | 1243        | 4.232  | 34.362    | 34.368 | 27.259            | 0.540    |           | 0.241    |           | 2.2         |              | 10.6        |              | 10.2        |              | 6929 |
| 4049       | 1477 | 1494        | 3.336  | 34.437    | 34.444 | 27.410            | 0.232    |           | 0.095    |           | 2.4         |              | 4.3         |              | 3.8         |              | 2929 |
| 4048       | 1723 | 1744        | 2.769  | 34.514    | 34.525 | 27.527            | 0.160    |           | 0.055    |           | 2.9         |              | 2.9         |              | 2.2         |              | 6939 |
| 4147       | 1969 | 1995        | 2.431  | 34.591    | 34.590 | 27.608            | 0.076    |           | 0.023    |           |             |              | 1.3         |              | 0.9         |              | 2929 |
| 4146       | 2460 | 2496        | 2.005  | 34.686    | 34.688 | 27.721            | 0.026    |           | 0.003    |           |             |              | 0.4         |              | 0.1         |              | 2979 |
| 4145       | 2947 | 2993        | 1.662  | 34.730    | 34.738 | 27.788            | 0.018    |           | 0.001    |           |             |              | 0.3         |              | 0.0         |              | 2979 |
| 4144       | 3438 | 3495        | 1.231  | 34.728    | 34.734 | 27.816            | 0.018    |           | 0.001    |           |             |              | 0.3         |              | 0.0         |              | 2979 |
| 4143       | 3928 | 3998        | 0.855  | 34.718    | 34.721 | 27.831            | 0.021    |           | 0.001    |           |             |              | 0.3         |              | 0.0         |              | 2979 |
| 4142       | 4319 | 4400        | 0.639  | 34.710    | 34.711 | 27.836            | 0.030    |           | 0.003    |           |             |              | 0.5         |              | 0.1         |              | 2979 |
| 4141       | 4707 | 4800        | 0.553  | 34.706    | 34.708 | 27.839            | 0.050    |           | 0.005    |           |             |              | 0.8         |              | 0.2         |              | 3979 |
| 4151       | 4902 | 5000        | 0.531  | 34.705    | 34.707 | 27.840            | 0.029    |           | 0.011    |           |             |              | 0.4         |              | 0.4         |              | 2979 |
| 4150       | 4999 | 5100        | 0.520  | 34.705    | 34.707 | 27.840            | 0.033    |           | 0.008    |           |             |              | 0.5         |              | 0.3         |              | 2979 |
| 4149       | 5094 | 5199        | 0.509  | 34.698    | 34.707 | 27.841            | 0.038    |           | 0.011    |           |             |              | 0.6         |              | 0.4         |              | 2979 |
| 4148       | 5165 | 5272        | 0.506  | 34.706    | 34.707 | 27.841            | 0.041    |           | 0.010    |           |             |              | 0.6         |              | 0.3         |              | 6969 |

## CGC-90 CFC BOTTLE DATA

STATION 24

| LATITUDE   |      | LONGITUDE   |       | DAY-MO-YR |        | BOTTOM DEPTH      |          |           |          | ATM. F-11 |             | ATM. F-12    |             |              |             |              |      |
|------------|------|-------------|-------|-----------|--------|-------------------|----------|-----------|----------|-----------|-------------|--------------|-------------|--------------|-------------|--------------|------|
| 47° 0.4' S |      | 170° 0.8' W |       | 7 3 90    |        | 5252 m            |          |           |          | 250.5 ppt |             | 460.9 ppt    |             |              |             |              |      |
| SAMP       | DEP  | PRS         | THETA | SAL       | CTD-S  | SIG-0             | SIO F-11 | PMEL F-11 | SIO F-12 | PMEL F-12 | SIO F11 F12 | PMEL F11 F12 | SIO F11 SAT | PMEL F11 SAT | SIO F12 SAT | PMEL F12 SAT | FLAG |
|            | m    | db          | C     |           |        | Kg/m <sup>3</sup> | pM/kg    | pM/kg     | pM/kg    | pM/kg     |             |              |             |              |             |              | ---- |
| 4249       | 2947 | 2992        | 1.650 | 34.736    | 34.740 | 27.790            | 0.013    |           | 0.003    |           |             |              | 0.2         |              | 0.1         |              | 6969 |
| 4248       | 2948 | 2994        | 1.651 | 34.735    | 34.739 | 27.790            | 0.021    |           | 0.003    |           |             |              | 0.4         |              | 0.1         |              | 6969 |



## CGC-90 CFC BOTTLE DATA

STATION 27

| LATITUDE<br>51° 58.0' S |      |      | LONGITUDE<br>169° 59.1' W |        |        | DAY-MO-YR<br>9 3 90 |                   | BOTTOM DEPTH<br>5054 m |             |              |                   | ATM. F-11<br>252.1 ppt |            | ATM. F-12<br>460.1 ppt |            |             |          |
|-------------------------|------|------|---------------------------|--------|--------|---------------------|-------------------|------------------------|-------------|--------------|-------------------|------------------------|------------|------------------------|------------|-------------|----------|
| SAMP                    | DEP  | PRS  | THETA                     | SAL    | CTD-S  | SIG-0               | SIO<br>F-11       | PMEL<br>F-11           | SIO<br>F-12 | PMEL<br>F-12 | SIO<br>F11<br>F12 | PMEL<br>F11<br>F12     | SIO<br>SAT | PMEL<br>SAT            | SIO<br>SAT | PMEL<br>SAT | F12 FLAG |
|                         | m    | db   | C                         |        |        |                     | Kg/m <sup>3</sup> | pM/kg                  | pM/kg       | pM/kg        | pM/kg             |                        |            |                        |            |             |          |
| 4847                    | 6    | 6    | 9.429                     | 34.238 | 34.238 | 26.452              | 3.657             |                        | 5.260       |              | 0.7               |                        | 95.8       |                        | 289.5      |             | 2949     |
| 4846                    | 18   | 19   | 9.402                     | 34.237 | 34.239 | 26.458              | 3.766             |                        | 1.679       |              | 2.2               |                        | 98.5       |                        | 92.3       |             | 2939     |
| 4845                    | 47   | 47   | 9.361                     | 34.241 | 34.235 | 26.461              | 3.722             |                        | 1.735       |              | 2.1               |                        | 97.1       |                        | 95.2       |             | 2929     |
| 4844                    | 96   | 97   | 8.876                     | 34.216 | 34.224 | 26.531              | 3.758             |                        | 1.756       |              | 2.1               |                        | 95.4       |                        | 94.0       |             | 2929     |
| 4843                    | 147  | 148  | 7.709                     | 34.350 | 34.360 | 26.814              | 3.785             |                        | 1.766       |              | 2.1               |                        | 90.1       |                        | 89.4       |             | 2929     |
| 4842                    | 197  | 199  | 7.446                     | 34.348 | 34.348 | 26.843              | 3.651             |                        | 1.753       |              | 2.1               |                        | 85.6       |                        | 87.5       |             | 6969     |
| 4841                    | 295  | 297  | 7.118                     | 34.346 | 34.343 | 26.885              | 3.439             |                        | 1.644       |              | 2.1               |                        | 79.1       |                        | 80.7       |             | 2929     |
| 4852                    | 392  | 396  | 6.856                     | 34.353 | 34.354 | 26.930              | 3.112             |                        | 1.467       |              | 2.1               |                        | 70.6       |                        | 71.1       |             | 2929     |
| 4851                    | 491  | 496  | 6.354                     | 34.331 | 34.333 | 26.980              | 2.729             |                        | 1.275       |              | 2.1               |                        | 60.1       |                        | 60.2       |             | 2929     |
| 4850                    | 587  | 593  | 5.865                     |        | 34.327 | 27.038              |                   |                        |             |              |                   |                        |            |                        |            |             | 9999     |
| 4849                    | 787  | 796  | 4.704                     | 34.320 | 34.323 | 27.172              | 1.477             |                        | 0.654       |              | 2.3               |                        | 29.5       |                        | 28.3       |             | 2929     |
| 4848                    | 984  | 996  | 3.504                     | 34.338 | 34.337 | 27.309              | 1.065             |                        | 0.468       |              | 2.3               |                        | 19.8       |                        | 19.0       |             | 2929     |
| 4947                    | 1426 | 1443 | 2.611                     | 34.509 | 34.510 | 27.529              | 0.289             |                        | 0.125       |              | 2.3               |                        | 5.1        |                        | 4.8        |             | 2929     |
| 4946                    | 1965 | 1992 | 2.150                     | 34.676 | 34.671 | 27.696              | 0.070             |                        | 0.024       |              |                   |                        | 1.2        |                        | 0.9        |             | 6939     |
| 4945                    | 2459 | 2496 | 1.828                     | 34.735 | 34.733 | 27.771              | 0.027             |                        | 0.012       |              |                   |                        | 0.4        |                        | 0.4        |             | 2979     |
| 4944                    | 2947 | 2995 | 1.427                     | 34.742 | 34.739 | 27.806              | 0.007             |                        | 0.001       |              |                   |                        | 0.1        |                        | 0.0        |             | 2979     |
| 4943                    | 3436 | 3495 | 1.046                     | 34.727 | 34.730 | 27.825              | 0.002             |                        | 0.001       |              |                   |                        | 0.0        |                        | 0.0        |             | 2979     |
| 4942                    | 3923 | 3995 | 0.741                     | 34.716 | 34.717 | 27.835              | 0.008             |                        | 0.002       |              |                   |                        | 0.1        |                        | 0.1        |             | 2979     |
| 4941                    | 4410 | 4496 | 0.566                     | 34.708 | 34.709 | 27.839              | 0.029             |                        | 0.009       |              |                   |                        | 0.4        |                        | 0.3        |             | 2979     |
| 4951                    | 4707 | 4802 | 0.528                     | 34.708 | 34.707 | 27.840              | 0.032             |                        | 0.010       |              |                   |                        | 0.5        |                        | 0.4        |             | 2979     |
| 4950                    | 4899 | 5000 | 0.518                     | 34.714 | 34.708 | 27.841              | 0.031             |                        | 0.012       |              |                   |                        | 0.5        |                        | 0.4        |             | 2929     |
| 4949                    | 4958 | 5062 | 0.515                     | 34.708 | 34.708 | 27.841              | 0.031             |                        | 0.017       |              |                   |                        | 0.5        |                        | 0.6        |             | 2929     |
| 4948                    | 5023 | 5128 | 0.510                     | 34.708 | 34.707 | 27.841              | 0.036             |                        | 0.018       |              |                   |                        | 0.6        |                        | 0.6        |             | 6969     |

## CGC-90 CFC BOTTLE DATA

STATION 28

| LATITUDE<br>56° 46.1' S |      |      | LONGITUDE<br>170° 4.1' W |        |        | DAY-MO-YR<br>10 3 90 |                   | BOTTOM DEPTH<br>4822 m |             |              |                   | ATM. F-11<br>251.0 ppt |            | ATM. F-12<br>456.9 ppt |            |             |          |
|-------------------------|------|------|--------------------------|--------|--------|----------------------|-------------------|------------------------|-------------|--------------|-------------------|------------------------|------------|------------------------|------------|-------------|----------|
| SAMP                    | DEP  | PRS  | THETA                    | SAL    | CTD-S  | SIG-0                | SIO<br>F-11       | PMEL<br>F-11           | SIO<br>F-12 | PMEL<br>F-12 | SIO<br>F11<br>F12 | PMEL<br>F11<br>F12     | SIO<br>SAT | PMEL<br>SAT            | SIO<br>SAT | PMEL<br>SAT | F12 FLAG |
|                         | m    | db   | C                        |        |        |                      | Kg/m <sup>3</sup> | pM/kg                  | pM/kg       | pM/kg        | pM/kg             |                        |            |                        |            |             |          |
| 5047                    | 5    | 5    | 5.525                    | 33.954 | 33.957 | 26.787               |                   |                        |             |              |                   |                        |            |                        |            |             | 9999     |
| 5046                    | 17   | 17   | 5.471                    | 33.954 | 33.954 | 26.791               | 4.603             |                        | 2.076       |              | 2.2               |                        | 96.3       |                        | 93.9       |             | 6969     |
| 5045                    | 47   | 47   | 5.404                    | 33.957 | 33.955 | 26.800               | 4.695             |                        | 2.120       |              | 2.2               |                        | 97.8       |                        | 95.6       |             | 2929     |
| 5044                    | 95   | 96   | 5.404                    | 33.957 | 33.957 | 26.801               | 4.501             |                        | 2.083       |              | 2.2               |                        | 93.8       |                        | 93.9       |             | 2929     |
| 5043                    | 144  | 146  | 4.661                    | 34.079 | 34.083 | 26.986               | 4.247             |                        | 2.004       |              | 2.1               |                        | 84.7       |                        | 87.0       |             | 2929     |
| 5042                    | 195  | 197  | 4.275                    | 34.090 | 34.086 | 27.031               | 4.029             |                        | 1.883       |              | 2.1               |                        | 78.5       |                        | 80.1       |             | 2929     |
| 5041                    | 292  | 295  | 4.098                    | 34.162 | 34.162 | 27.110               | 3.082             |                        | 1.466       |              | 2.1               |                        | 59.5       |                        | 61.8       |             | 2929     |
| 5052                    | 392  | 396  | 3.603                    | 34.199 | 34.201 | 27.191               | 2.470             |                        | 1.160       |              | 2.1               |                        | 46.3       |                        | 47.6       |             | 2929     |
| 5051                    | 490  | 495  | 2.894                    | 34.218 | 34.217 | 27.270               | 2.286             |                        | 1.083       |              | 2.1               |                        | 41.0       |                        | 42.8       |             | 2929     |
| 5050                    | 580  | 586  | 2.931                    | 34.302 | 34.304 | 27.336               | 1.390             |                        | 0.643       |              | 2.2               |                        | 25.0       |                        | 25.5       |             | 2929     |
| 5049                    | 785  | 794  | 2.617                    | 34.438 | 34.435 | 27.468               | 0.600             |                        | 0.294       |              | 2.0               |                        | 10.6       |                        | 11.5       |             | 2929     |
| 5048                    | 982  | 994  | 2.356                    | 34.535 | 34.539 | 27.573               | 0.366             |                        | 0.177       |              | 2.1               |                        | 6.4        |                        | 6.8        |             | 6969     |
| 5147                    | 1474 | 1494 | 2.101                    | 34.695 | 34.692 | 27.717               | 0.069             |                        | 0.012       |              |                   |                        | 1.2        |                        | 0.5        |             | 2939     |
| 5146                    | 1710 | 1734 | 1.963                    | 34.722 | 34.722 | 27.752               | 0.045             |                        | 0.018       |              |                   |                        | 0.8        |                        | 0.7        |             | 2929     |
| 5145                    | 1966 | 1994 | 1.780                    | 34.741 | 34.738 | 27.779               | 0.026             |                        | 0.004       |              |                   |                        | 0.4        |                        | 0.2        |             | 2929     |
| 5144                    | 2458 | 2495 | 1.377                    | 34.744 | 34.740 | 27.810               | 0.013             |                        | -0.002      |              |                   |                        | 0.2        |                        | -0.1       |             | 2979     |
| 5143                    | 2946 | 2994 | 1.002                    | 34.732 | 34.727 | 27.826               | 0.014             |                        | 0.004       |              |                   |                        | 0.2        |                        | 0.1        |             | 6969     |
| 5142                    | 3434 | 3495 | 0.733                    | 34.720 | 34.718 | 27.836               | 0.007             |                        | 0.014       |              |                   |                        | 0.1        |                        | 0.5        |             | 2939     |
| 5141                    | 3917 | 3991 | 0.564                    | 34.718 | 34.710 | 27.840               | 0.020             |                        | 0.019       |              |                   |                        | 0.3        |                        | 0.7        |             | 2939     |
| 5151                    | 4409 | 4497 | 0.512                    | 34.710 | 34.709 | 27.842               | 0.029             |                        | 0.005       |              |                   |                        | 0.4        |                        | 0.2        |             | 2929     |
| 5150                    | 4504 | 4594 | 0.507                    | 34.718 | 34.708 | 27.842               | 0.026             |                        | 0.012       |              |                   |                        | 0.4        |                        | 0.4        |             | 2979     |
| 5149                    | 4603 | 4697 | 0.495                    | 34.712 | 34.707 | 27.842               | 0.033             |                        | 0.016       |              |                   |                        | 0.5        |                        | 0.6        |             | 2929     |
| 5148                    | 4671 | 4767 | 0.491                    | 34.757 | 34.708 | 27.843               | 0.040             |                        | 0.016       |              |                   |                        | 0.6        |                        | 0.6        |             | 6929     |

## CGC-90 CFC BOTTLE DATA

STATION 29

| LATITUDE<br>60° 0.6' S |      |      | LONGITUDE<br>169° 53.0' W |        |        | DAY-MO-YR<br>11 3 90 |             | BOTTOM DEPTH<br>4139 m |             |              |                   | ATM. F-11<br>251.0 ppt |                   | ATM. F-12<br>456.9 ppt |                   |                    |      |
|------------------------|------|------|---------------------------|--------|--------|----------------------|-------------|------------------------|-------------|--------------|-------------------|------------------------|-------------------|------------------------|-------------------|--------------------|------|
| SAMP                   | DEP  | PRS  | THETA                     | SAL    | CTD-S  | SIG-0                | SIO<br>F-11 | PMEL<br>F-11           | SIO<br>F-12 | PMEL<br>F-12 | SIO<br>F11<br>F12 | PMEL<br>F11<br>F12     | SIO<br>F11<br>SAT | PMEL<br>F11<br>SAT     | SIO<br>F12<br>SAT | PMEL<br>F12<br>SAT | FLAG |
|                        | m    | db   | C                         |        |        | Kg/m <sup>3</sup>    | pM/kg       | pM/kg                  | pM/kg       | pM/kg        |                   |                        |                   |                        |                   |                    | ---- |
| 5247                   | 17   | 17   | 3.787                     | 34.002 | 33.928 | 26.955               |             | 5.146                  |             | 3.103        |                   | 1.7                    |                   | 97.2                   |                   | 128.3              | 9294 |
| 5246                   | 47   | 47   | 3.759                     |        | 33.930 | 26.959               | 5.067       |                        | 2.215       |              | 2.3               |                        | 95.6              |                        | 91.5              |                    | 6969 |
| 5245                   | 97   | 98   | 3.615                     | 33.935 | 33.938 | 26.980               | 4.935       |                        | 2.201       |              | 2.2               |                        | 92.3              |                        | 90.2              |                    | 2929 |
| 5244                   | 145  | 146  | 2.471                     | 34.009 | 34.009 | 27.140               | 4.622       | 4.834                  | 2.119       | 2.283        | 2.2               | 2.1                    | 80.6              | 84.3                   | 81.6              | 88.0               | 2626 |
| 5243                   | 194  | 196  | 2.176                     | 34.044 | 34.032 | 27.182               | 4.658       |                        | 2.140       |              | 2.2               |                        | 79.8              |                        | 81.1              |                    | 2929 |
| 5242                   | 291  | 294  | 1.951                     | 34.110 | 34.106 | 27.259               | 3.934       | 4.009                  | 1.740       | 1.810        | 2.3               | 2.2                    | 66.5              | 67.7                   | 65.2              | 67.8               | 2222 |
| 5241                   | 392  | 396  | 2.204                     | 34.239 | 34.239 | 27.346               | 2.460       |                        | 1.096       |              | 2.2               |                        | 42.3              |                        | 41.7              |                    | 2929 |
| 5252                   | 489  | 494  | 2.184                     | 34.342 | 34.348 | 27.435               | 1.512       | 1.631                  | 0.689       | 0.714        | 2.2               | 2.3                    | 26.0              | 28.0                   | 26.2              | 27.2               | 2222 |
| 5251                   | 587  | 594  | 2.338                     | 34.443 | 34.454 | 27.507               | 0.832       |                        | 0.348       |              | 2.4               |                        | 14.4              |                        | 13.4              |                    | 2929 |
| 5250                   | 587  | 594  | 2.338                     | 34.441 | 34.454 | 27.507               | 0.816       | 0.835                  | 0.362       | 0.367        | 2.3               | 2.3                    | 14.2              | 14.5                   | 13.9              | 14.1               | 2222 |
| 5249                   | 782  | 791  | 2.300                     | 34.586 | 34.560 | 27.595               | 0.348       | 0.358                  | 0.152       | 0.169        | 2.3               | 2.1                    | 6.0               | 6.2                    | 5.8               | 6.5                | 2222 |
| 5248                   | 986  | 998  | 2.233                     | 34.645 | 34.643 | 27.667               | 0.137       |                        | 0.058       |              | 2.4               |                        | 2.4               |                        | 2.2               |                    | 6969 |
| 5347                   | 1225 | 1240 | 2.091                     | 34.692 | 34.692 | 27.718               | 0.089       |                        | 0.053       |              | 1.7               |                        | 1.5               |                        | 2.0               |                    | 2929 |
| 5346                   | 1475 | 1494 | 1.943                     | 34.721 | 34.721 | 27.753               | 0.065       |                        | 0.024       |              |                   |                        | 1.1               |                        | 0.9               |                    | 2929 |
| 5345                   | 1717 | 1741 | 1.753                     | 34.733 | 34.739 | 27.782               | 0.027       |                        | 0.012       |              |                   |                        | 0.4               |                        | 0.4               |                    | 2979 |
| 5344                   | 1964 | 1993 | 1.556                     | 34.752 | 34.742 | 27.799               |             |                        |             |              |                   |                        |                   |                        |                   |                    | 9999 |
| 5343                   | 2451 | 2489 | 1.171                     |        | 34.733 | 27.819               |             |                        |             |              |                   |                        |                   |                        |                   |                    | 9999 |
| 5342                   | 2944 | 2994 | 0.859                     | 34.724 | 34.720 | 27.830               | 0.008       |                        | 0.009       |              |                   |                        | 0.1               |                        | 0.3               |                    | 2929 |
| 5341                   | 3335 | 3394 | 0.666                     | 34.714 | 34.714 | 27.837               |             |                        |             |              |                   |                        |                   |                        |                   |                    | 9999 |
| 5351                   | 3630 | 3696 | 0.561                     | 34.718 | 34.710 | 27.840               | 0.008       |                        | 0.008       |              |                   |                        | 0.1               |                        | 0.3               |                    | 2929 |
| 5350                   | 3922 | 3997 | 0.530                     | 34.709 | 34.709 | 27.841               |             |                        |             |              |                   |                        |                   |                        |                   |                    | 9999 |
| 5349                   | 4020 | 4097 | 0.525                     | 34.710 | 34.708 | 27.841               |             |                        |             |              |                   |                        |                   |                        |                   |                    | 9999 |
| 5348                   | 4094 | 4174 | 0.521                     | 34.712 | 34.708 | 27.841               | 0.015       |                        | 0.002       |              |                   |                        | 0.2               |                        | 0.1               |                    | 6929 |

## CGC-90 CFC BOTTLE DATA

STATION 30

| LATITUDE<br>55° 59.8' S |      |      | LONGITUDE<br>174° 10.1' W |        |        | DAY-MO-YR<br>12 3 90 |             | BOTTOM DEPTH<br>4970 m |             |              |                   | ATM. F-11<br>251.0 ppt |                   | ATM. F-12<br>456.9 ppt |                   |                    |      |
|-------------------------|------|------|---------------------------|--------|--------|----------------------|-------------|------------------------|-------------|--------------|-------------------|------------------------|-------------------|------------------------|-------------------|--------------------|------|
| SAMP                    | DEP  | PRS  | THETA                     | SAL    | CTD-S  | SIG-0                | SIO<br>F-11 | PMEL<br>F-11           | SIO<br>F-12 | PMEL<br>F-12 | SIO<br>F11<br>F12 | PMEL<br>F11<br>F12     | SIO<br>F11<br>SAT | PMEL<br>F11<br>SAT     | SIO<br>F12<br>SAT | PMEL<br>F12<br>SAT | FLAG |
|                         | m    | db   | C                         |        |        | Kg/m <sup>3</sup>    | pM/kg       | pM/kg                  | pM/kg       | pM/kg        |                   |                        |                   |                        |                   |                    | ---- |
| 5447                    | 29   | 29   | 6.988                     | 33.407 | 34.058 | 26.678               | 4.148       |                        | 1.960       |              | 2.1               |                        | 94.9              |                        | 96.0              |                    | 2929 |
| 5446                    | 47   | 47   | 6.988                     | 34.062 | 34.058 | 26.678               | 4.116       | 4.127                  | 1.969       | 2.056        | 2.1               | 2.0                    | 94.2              | 94.4                   | 96.4              | 100.7              | 2626 |
| 5445                    | 97   | 98   | 6.945                     | 34.064 | 34.065 | 26.690               | 4.069       | 4.146                  | 1.942       | 2.057        | 2.1               | 2.0                    | 92.8              | 94.6                   | 94.9              | 100.5              | 2222 |
| 5444                    | 146  | 147  | 6.466                     | 34.222 | 34.225 | 26.880               | 3.803       | 3.853                  | 1.863       | 1.920        | 2.0               | 2.0                    | 84.6              | 85.7                   | 89.0              | 91.7               | 2222 |
| 5443                    | 195  | 197  | 5.933                     | 34.196 | 34.195 | 26.925               | 3.688       | 3.743                  | 1.767       | 1.859        | 2.1               | 2.0                    | 79.4              | 80.6                   | 82.1              | 86.4               | 2222 |
| 5442                    | 294  | 297  | 5.231                     | 34.159 | 34.161 | 26.983               | 3.667       | 3.708                  | 1.777       | 1.834        | 2.1               | 2.0                    | 75.8              | 76.6                   | 79.6              | 82.1               | 2222 |
| 5441                    | 392  | 396  | 5.042                     | 34.258 | 34.256 | 27.081               | 2.357       | 2.365                  | 1.122       | 1.161        | 2.1               | 2.0                    | 48.2              | 48.4                   | 49.8              | 51.5               | 2222 |
| 5452                    | 489  | 494  | 4.420                     | 34.275 | 34.274 | 27.164               | 1.826       | 1.811                  | 0.856       | 0.849        | 2.1               | 2.1                    | 36.0              | 35.7                   | 36.8              | 36.5               | 2222 |
| 5451                    | 489  | 494  | 4.420                     | 34.274 | 34.274 | 27.164               | 1.879       | 1.826                  | 0.863       | 0.872        | 2.2               | 2.1                    | 37.0              | 36.0                   | 37.1              | 37.4               | 2222 |
| 5450                    | 588  | 595  | 3.856                     | 34.281 | 34.283 | 27.230               |             | 1.575                  |             | 0.746        |                   | 2.1                    |                   | 30.0                   |                   | 31.1               | 9292 |
| 5449                    | 790  | 799  | 2.940                     | 34.344 | 34.344 | 27.367               | 1.091       | 1.018                  | 0.481       | 0.482        | 2.3               | 2.1                    | 19.6              | 18.3                   | 19.1              | 19.1               | 2222 |
| 5448                    | 983  | 994  | 2.630                     | 34.457 | 34.458 | 27.485               | 0.505       | 0.491                  | 0.218       | 0.241        | 2.3               | 2.0                    | 8.9               | 8.7                    | 8.5               | 9.4                | 2626 |
| 5546                    | 1229 | 1244 | 2.364                     | 34.563 | 34.559 | 27.589               | 0.277       | 0.379                  | 0.129       | 0.170        | 2.1               | 2.2                    | 4.8               | 6.6                    | 5.0               | 6.5                | 2222 |
| 5545                    | 1477 | 1497 | 2.198                     | 34.651 | 34.648 | 27.674               | 0.139       | 0.156                  | 0.064       | 0.068        | 2.2               | 2.3                    | 2.4               | 2.7                    | 2.4               | 2.6                | 2227 |
| 5544                    | 1721 | 1745 | 2.057                     | 34.703 | 34.701 | 27.728               |             | 0.096                  |             | 0.038        |                   |                        |                   | 1.6                    |                   | 1.4                | 9696 |
| 5543                    | 1966 | 1993 | 1.899                     | 34.728 | 34.724 | 27.758               | 0.037       | 0.061                  | 0.012       | 0.024        |                   |                        | 0.6               | 1.0                    | 0.4               | 0.9                | 2676 |
| 5542                    | 2454 | 2492 | 1.505                     | 34.743 | 34.739 | 27.800               | 0.014       | 0.041                  | 0.006       | 0.016        |                   |                        | 0.2               | 0.7                    | 0.2               | 0.6                | 2676 |
| 5541                    | 2946 | 2994 | 1.115                     | 34.732 | 34.730 | 27.821               | 0.005       | 0.024                  | 0.002       | 0.011        |                   |                        | 0.1               | 0.4                    | 0.1               | 0.4                | 2777 |
| 5552                    | 3433 | 3493 | 0.809                     | 34.719 | 34.718 | 27.831               | 0.009       | 0.027                  | 0.012       | 0.014        |                   |                        | 0.1               | 0.4                    | 0.4               | 0.5                | 2727 |
| 5551                    | 3921 | 3995 | 0.612                     | 34.712 | 34.709 | 27.836               | 0.025       | 0.034                  | 0.009       | 0.017        |                   |                        | 0.4               | 0.5                    | 0.3               | 0.6                | 2777 |
| 5550                    | 4414 | 4502 | 0.514                     | 34.717 | 34.705 | 27.839               | 0.028       | 0.043                  | 0.005       | 0.025        |                   |                        | 0.4               | 0.7                    | 0.2               | 0.9                | 2777 |
| 5549                    | 4854 | 4956 | 0.473                     | 34.706 | 34.703 | 27.840               | 0.052       | 0.068                  | 0.039       | 0.028        |                   |                        | 0.8               | 1.0                    | 1.4               | 1.0                | 2737 |
| 5548                    | 4924 | 5028 | 0.468                     | 34.708 | 34.703 | 27.840               | 0.059       | 0.076                  | 0.013       | 0.032        |                   |                        | 0.9               | 1.2                    | 0.4               | 1.1                | 6626 |

## CGC-90 CFC BOTTLE DATA

STATION 31

| LATITUDE    |      |      | LONGITUDE   |        |        | DAY-MO-YR         |             |              | BOTTOM DEPTH |              |                   |                    | ATM. F-11         |                    | ATM. F-12         |                    |      |  |
|-------------|------|------|-------------|--------|--------|-------------------|-------------|--------------|--------------|--------------|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|------|--|
| 53° 56.9' S |      |      | 176° 9.5' W |        |        | 13 3 90           |             |              | 5289 m       |              |                   |                    | 251.2 ppt         |                    | 460.0 ppt         |                    |      |  |
| SAMP        | DEP  | PRS  | THETA       | SAL    | CTD-S  | SIG-0             | SIO<br>F-11 | PMEL<br>F-11 | SIO<br>F-12  | PMEL<br>F-12 | SIO<br>F11<br>F12 | PMEL<br>F11<br>F12 | SIO<br>F11<br>SAT | PMEL<br>F11<br>SAT | SIO<br>F12<br>SAT | PMEL<br>F12<br>SAT | FLAG |  |
|             | m    | db   | C           |        |        | Kg/m <sup>3</sup> | pM/kg       | pM/kg        | pM/kg        | pM/kg        |                   |                    |                   |                    |                   |                    |      |  |
| 5747        | 28   | 29   | 9.098       | 34.211 | 34.206 | 26.481            | 3.658       | 3.789        | 1.775        | 1.856        | 2.1               | 2.0                | 94.3              | 97.7               | 96.1              | 100.5              | 2222 |  |
| 5746        | 45   | 46   | 8.910       | 34.196 | 34.193 | 26.501            | 3.737       |              | 1.838        |              | 2.0               |                    | 95.4              |                    | 98.6              |                    | 2929 |  |
| 5745        | 96   | 97   | 8.693       | 34.191 | 34.186 | 26.529            | 3.716       |              | 1.811        |              | 2.1               |                    | 93.7              |                    | 96.1              |                    | 2929 |  |
| 5753        | 195  | 196  | 7.590       | 34.376 | 34.368 | 26.838            | 3.490       | 3.617        | 1.728        | 1.737        | 2.0               | 2.1                | 82.8              | 85.8               | 86.9              | 87.4               | 2222 |  |
| 5743        | 296  | 299  | 6.809       | 34.314 | 34.310 | 26.902            | 3.410       |              | 1.687        |              | 2.0               |                    | 77.3              |                    | 81.5              |                    | 2929 |  |
| 5742        | 394  | 398  | 6.225       | 34.278 | 34.272 | 26.949            | 3.225       | 3.342        | 1.603        | 1.587        | 2.0               | 2.1                | 70.7              | 73.2               | 75.2              | 74.4               | 2222 |  |
| 5741        | 394  | 398  | 6.225       | 34.279 | 34.272 | 26.949            | 3.234       |              | 1.526        |              | 2.1               |                    | 70.9              |                    | 71.5              |                    | 2929 |  |
| 5752        | 493  | 498  | 5.771       | 34.279 | 34.278 | 27.011            | 2.623       | 2.779        | 1.240        | 1.283        | 2.1               | 2.2                | 56.0              | 59.3               | 56.8              | 58.8               | 2222 |  |
| 5751        | 591  | 598  | 5.271       | 34.301 | 34.304 | 27.092            | 2.076       |              | 0.979        |              | 2.1               |                    | 43.0              |                    | 43.7              |                    | 2929 |  |
| 5750        | 789  | 797  | 4.180       | 34.314 | 34.316 | 27.223            | 1.306       | 1.305        | 0.605        | 0.598        | 2.2               | 2.2                | 25.4              | 25.3               | 25.5              | 25.2               | 2222 |  |
| 5749        | 983  | 994  | 3.220       | 34.334 | 34.337 | 27.336            | 1.031       |              | 0.452        |              | 2.3               |                    | 18.9              |                    | 18.1              |                    | 2929 |  |
| 5748        | 1225 | 1240 | 2.637       | 34.446 | 34.449 | 27.478            | 0.596       | 0.576        | 0.275        | 0.269        | 2.2               | 2.1                | 10.5              | 10.2               | 10.7              | 10.4               | 2222 |  |
| 5646        | 1478 | 1497 | 2.443       | 34.538 | 34.537 | 27.565            | 0.307       |              | 0.132        |              | 2.3               |                    | 5.4               |                    | 5.1               |                    | 2929 |  |
| 5645        | 1724 | 1747 | 2.270       | 34.628 | 34.627 | 27.651            | 0.140       |              | 0.059        |              | 2.4               |                    | 2.4               |                    | 2.2               |                    | 2929 |  |
| 5653        | 1965 | 1992 | 2.115       | 34.686 | 34.687 | 27.712            | 0.070       |              | 0.022        |              |                   |                    | 1.2               |                    | 0.8               |                    | 2979 |  |
| 5643        | 2459 | 2496 | 1.811       | 34.744 | 34.734 | 27.773            | 0.024       | 0.058        | 0.013        | 0.016        |                   |                    | 0.4               | 1.0                | 0.5               | 0.6                | 2373 |  |
| 5642        | 2945 | 2992 | 1.388       | 34.741 | 34.737 | 27.807            | 0.014       | 0.024        | 0.012        | 0.010        |                   |                    | 0.2               | 0.4                | 0.4               | 0.4                | 2727 |  |
| 5641        | 3437 | 3497 | 0.998       | 34.734 | 34.726 | 27.825            | 0.006       |              | 0.001        |              |                   |                    | 0.1               |                    | 0.0               |                    | 2979 |  |
| 5652        | 3924 | 3997 | 0.776       | 34.718 | 34.718 | 27.833            | 0.013       | 0.028        | 0.002        | 0.014        |                   |                    | 0.2               | 0.4                | 0.1               | 0.5                | 2777 |  |
| 5651        | 4413 | 4500 | 0.578       | 34.711 | 34.709 | 27.838            | 0.024       |              | 0.009        |              |                   |                    | 0.4               |                    | 0.3               |                    | 6969 |  |
| 5650        | 4703 | 4798 | 0.523       | 34.709 | 34.707 | 27.840            | 0.032       | 0.059        | 0.010        | 0.024        |                   |                    | 0.5               | 0.9                | 0.4               | 0.8                | 2727 |  |
| 5649        | 4849 | 4949 | 0.499       | 34.708 | 34.708 | 27.842            | 0.036       |              | 0.030        |              |                   |                    | 0.6               |                    | 1.0               |                    | 2939 |  |
| 5648        | 4923 | 5026 | 0.485       | 34.708 | 34.705 | 27.841            | 0.049       | 0.094        | 0.014        | 0.048        |                   |                    | 0.8               | 1.4                | 0.5               | 1.7                | 6262 |  |

## CGC-90 CFC BOTTLE DATA

STATION 32

| LATITUDE    |      |      | LONGITUDE    |        |        | DAY-MO-YR         |             |              | BOTTOM DEPTH |              |                   |                    | ATM. F-11         |                    | ATM. F-12         |                    |      |  |
|-------------|------|------|--------------|--------|--------|-------------------|-------------|--------------|--------------|--------------|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|------|--|
| 50° 30.3' S |      |      | 179° 23.7' W |        |        | 15 3 90           |             |              | 4448 m       |              |                   |                    | 252.0 ppt         |                    | 460.8 ppt         |                    |      |  |
| SAMP        | DEP  | PRS  | THETA        | SAL    | CTD-S  | SIG-0             | SIO<br>F-11 | PMEL<br>F-11 | SIO<br>F-12  | PMEL<br>F-12 | SIO<br>F11<br>F12 | PMEL<br>F11<br>F12 | SIO<br>F11<br>SAT | PMEL<br>F11<br>SAT | SIO<br>F12<br>SAT | PMEL<br>F12<br>SAT | FLAG |  |
|             | m    | db   | C            |        |        | Kg/m <sup>3</sup> | pM/kg       | pM/kg        | pM/kg        | pM/kg        |                   |                    |                   |                    |                   |                    |      |  |
| 5847        | 5    | 5    | 10.208       | 34.188 | 34.186 | 26.281            | 3.643       | 3.718        | 2.653        | 2.870        | 1.4               | 1.3                | 99.5              | 101.6              | 151.3             | 163.7              | 2644 |  |
| 5846        | 47   | 47   | 10.189       | 34.193 | 34.185 | 26.284            | 3.576       |              | 1.719        |              | 2.1               |                    | 97.6              |                    | 97.9              |                    | 2929 |  |
| 5845        | 96   | 97   | 7.288        | 34.198 | 34.195 | 26.745            | 4.040       | 4.179        | 1.907        | 2.063        | 2.1               | 2.0                | 93.8              | 97.0               | 94.2              | 101.9              | 2222 |  |
| 5853        | 194  | 196  | 6.195        | 34.228 | 34.223 | 26.914            | 3.753       | 3.874        | 1.785        | 1.891        | 2.1               | 2.0                | 81.8              | 84.4               | 83.4              | 86.3               | 2222 |  |
| 5843        | 293  | 296  | 5.653        | 34.221 | 34.220 | 26.979            | 3.320       |              | 1.558        |              | 2.1               |                    | 70.1              |                    | 70.8              |                    | 2929 |  |
| 5842        | 391  | 395  | 5.192        |        | 34.258 | 27.065            | 2.465       | 2.542        | 1.161        | 1.217        | 2.1               | 2.1                | 50.7              | 52.2               | 51.5              | 54.0               | 2222 |  |
| 5841        | 587  | 593  | 3.974        | 34.298 | 34.293 | 27.226            | 1.453       | 1.430        | 0.667        | 0.685        | 2.2               | 2.1                | 27.8              | 27.3               | 27.7              | 28.5               | 2626 |  |
| 5852        | 783  | 791  | 3.061        | 34.365 | 34.363 | 27.371            | 0.876       | 0.880        | 0.407        | 0.412        | 2.2               | 2.1                | 15.8              | 15.9               | 16.1              | 16.3               | 2222 |  |
| 5851        | 981  | 992  | 2.641        | 34.466 | 34.466 | 27.491            | 0.470       | 0.485        | 0.222        | 0.231        | 2.1               | 2.1                | 8.3               | 8.6                | 8.6               | 8.9                | 2222 |  |
| 5850        | 1225 | 1240 | 2.374        | 34.579 | 34.575 | 27.601            | 0.207       | 0.237        | 0.119        | 0.097        | 1.7               | 2.4                | 3.6               | 4.1                | 4.5               | 3.7                | 2222 |  |
| 5849        | 1474 | 1492 | 2.212        | 34.656 | 34.655 | 27.678            | 0.100       |              | 0.039        |              |                   |                    | 1.7               |                    | 1.5               |                    | 2979 |  |
| 5848        | 1723 | 1746 | 2.060        | 34.702 | 34.702 | 27.728            | 0.053       | 0.111        | 0.021        | 0.029        |                   |                    | 0.9               | 1.9                | 0.8               | 1.1                | 2373 |  |



## CGC-90 CFC BOTTLE DATA

STATION 33

| LATITUDE    |      |      | LONGITUDE    |        |        | DAY-MO-YR         |          |           | BOTTOM DEPTH |           |             |              | ATM. F-11   |              | ATM. F-12   |              |      |  |
|-------------|------|------|--------------|--------|--------|-------------------|----------|-----------|--------------|-----------|-------------|--------------|-------------|--------------|-------------|--------------|------|--|
| 49° 29.9' S |      |      | 179° 44.7' E |        |        | 15 3 90           |          |           | 2012 m       |           |             |              | 252.0 ppt   |              | 460.5 ppt   |              |      |  |
| SAMP        | DEP  | PRS  | THETA        | SAL    | CTD-S  | SIG-0             | SIO F-11 | PMEL F-11 | SIO F-12     | PMEL F-12 | SIO F11 F12 | PMEL F11 F12 | SIO F11 SAT | PMEL F11 SAT | SIO F12 SAT | PMEL F12 SAT | FLAG |  |
|             | m    | db   | C            |        |        | Kg/m <sup>3</sup> | pM/kg    | pM/kg     | pM/kg        | pM/kg     |             |              |             |              |             |              | ---- |  |
| 5946        | 5    | 5    | 8.804        | 34.145 | 34.135 | 26.472            | 3.940    | 3.810     | 1.864        | 1.966     | 2.1         | 1.9          | 99.6        | 96.3         | 99.3        | 104.7        | 2222 |  |
| 5945        | 46   | 46   | 8.686        | 34.150 | 34.129 | 26.486            | 3.902    | 3.816     | 1.815        | 1.961     | 2.1         | 1.9          | 98.0        | 95.8         | 96.1        | 103.8        | 2222 |  |
| 5953        | 97   | 98   | 8.207        | 34.269 | 34.251 | 26.655            | 3.641    | 3.794     | 1.730        | 1.945     | 2.1         | 2.0          | 89.1        | 92.8         | 89.6        | 100.7        | 2222 |  |
| 5943        | 197  | 199  | 8.214        | 34.492 | 34.480 | 26.833            | 3.271    |           | 1.600        |           | 2.0         |              | 80.3        |              | 83.1        |              | 2929 |  |
| 5942        | 391  | 395  | 6.949        | 34.390 | 34.380 | 26.938            | 2.456    | 2.413     | 1.163        | 1.216     | 2.1         | 2.0          | 56.0        | 55.0         | 56.6        | 59.2         | 2222 |  |
| 5941        | 591  | 597  | 5.385        | 34.341 | 34.332 | 27.101            | 1.705    | 1.659     | 0.808        | 0.819     | 2.1         | 2.0          | 35.5        | 34.5         | 36.2        | 36.7         | 2222 |  |
| 5952        | 786  | 795  | 3.906        | 34.325 | 34.316 | 27.252            | 1.277    |           | 0.597        |           | 2.1         |              | 24.3        |              | 24.8        |              | 2929 |  |
| 5951        | 983  | 994  | 3.005        | 34.386 | 34.379 | 27.389            | 0.827    |           | 0.380        |           | 2.2         |              | 14.9        |              | 15.0        |              | 6969 |  |
| 5950        | 1370 | 1386 | 2.423        | 34.561 | 34.552 | 27.578            | 0.276    |           | 0.131        |           | 2.1         |              | 4.8         |              | 5.0         |              | 6969 |  |
| 5949        | 1869 | 1894 | 2.176        | 34.675 | 34.668 | 27.691            | 0.109    | 0.135     | 0.055        | 0.059     | 2.0         | 2.3          | 1.9         | 2.3          | 2.1         | 2.2          | 2222 |  |
| 5948        | 1954 | 1980 | 2.146        | 34.681 | 34.675 | 27.700            | 0.100    | 0.100     | 0.053        | 0.052     | 1.9         | 1.9          | 1.7         | 1.7          | 2.0         | 2.0          | 6267 |  |

## CGC-90 CFC BOTTLE DATA

STATION 34

| LATITUDE    |      |      | LONGITUDE    |        |        | DAY-MO-YR         |          |           | BOTTOM DEPTH |           |             |              | ATM. F-11   |              | ATM. F-12   |              |      |  |
|-------------|------|------|--------------|--------|--------|-------------------|----------|-----------|--------------|-----------|-------------|--------------|-------------|--------------|-------------|--------------|------|--|
| 49° 43.5' S |      |      | 179° 59.9' W |        |        | 16 3 90           |          |           | 3111 m       |           |             |              | 251.9 ppt   |              | 460.1 ppt   |              |      |  |
| SAMP        | DEP  | PRS  | THETA        | SAL    | CTD-S  | SIG-0             | SIO F-11 | PMEL F-11 | SIO F-12     | PMEL F-12 | SIO F11 F12 | PMEL F11 F12 | SIO F11 SAT | PMEL F11 SAT | SIO F12 SAT | PMEL F12 SAT | FLAG |  |
|             | m    | db   | C            |        |        | Kg/m <sup>3</sup> | pM/kg    | pM/kg     | pM/kg        | pM/kg     |             |              |             |              |             |              | ---- |  |
| 6046        | 1967 | 1993 | 1.952        | 34.723 | 34.721 | 27.752            | 0.052    | 0.065     | 0.028        | 0.028     |             |              | 0.9         | 1.1          | 1.0         | 1.0          | 2727 |  |
| 6045        | 2160 | 2191 | 1.789        | 34.754 | 34.734 | 27.775            | 0.036    |           | 0.011        |           |             |              | 0.6         |              | 0.4         |              | 2929 |  |
| 6053        | 2260 | 2293 | 1.731        | 34.742 | 34.735 | 27.780            | 0.029    | 0.043     | 0.008        | 0.017     |             |              | 0.5         | 0.7          | 0.3         | 0.6          | 2727 |  |
| 6043        | 2363 | 2397 | 1.623        | 34.744 | 34.736 | 27.789            | 0.025    |           | 0.018        |           |             |              | 0.4         |              | 0.7         |              | 2929 |  |
| 6042        | 2462 | 2498 | 1.576        | 34.744 | 34.738 | 27.794            | 0.021    |           | 0.019        |           |             |              | 0.4         |              | 0.7         |              | 2929 |  |
| 6041        | 2555 | 2593 | 1.495        | 34.744 | 34.739 | 27.801            | 0.022    | 0.031     | 0.022        | 0.015     |             |              | 0.4         | 0.5          | 0.8         | 0.6          | 2727 |  |
| 6052        | 2653 | 2693 | 1.472        | 34.744 | 34.737 | 27.801            | 0.022    |           | 0.027        |           |             |              | 0.4         |              | 1.0         |              | 2929 |  |
| 6051        | 2750 | 2793 | 1.453        | 34.748 | 34.737 | 27.803            | 0.018    |           | 0.023        |           |             |              | 0.3         |              | 0.8         |              | 2929 |  |
| 6050        | 2946 | 2993 | 1.422        | 34.748 | 34.737 | 27.805            | 0.019    | 0.031     | 0.019        | 0.012     |             |              | 0.3         | 0.5          | 0.7         | 0.4          | 2727 |  |
| 6049        | 3031 | 3080 | 1.407        | 34.743 | 34.736 | 27.805            | 0.022    | 0.029     | 0.011        | 0.013     |             |              | 0.4         | 0.5          | 0.4         | 0.5          | 2777 |  |
| 6048        | 3034 | 3082 | 1.407        | 34.744 | 34.736 | 27.805            | 0.020    | 0.056     | 0.010        | 0.022     |             |              | 0.3         | 0.9          | 0.4         | 0.8          | 2676 |  |

## CGC-90 CFC BOTTLE DATA

STATION 35

| LATITUDE    |      |      | LONGITUDE    |        |        | DAY-MO-YR         |          |           | BOTTOM DEPTH |           |             |              | ATM. F-11   |              | ATM. F-12   |              |      |  |
|-------------|------|------|--------------|--------|--------|-------------------|----------|-----------|--------------|-----------|-------------|--------------|-------------|--------------|-------------|--------------|------|--|
| 49° 50.9' S |      |      | 179° 52.7' W |        |        | 16 3 90           |          |           | 4030 m       |           |             |              | 251.9 ppt   |              | 460.1 ppt   |              |      |  |
| SAMP        | DEP  | PRS  | THETA        | SAL    | CTD-S  | SIG-0             | SIO F-11 | PMEL F-11 | SIO F-12     | PMEL F-12 | SIO F11 F12 | PMEL F11 F12 | SIO F11 SAT | PMEL F11 SAT | SIO F12 SAT | PMEL F12 SAT | FLAG |  |
|             | m    | db   | C            |        |        | Kg/m <sup>3</sup> | pM/kg    | pM/kg     | pM/kg        | pM/kg     |             |              |             |              |             |              | ---- |  |
| 6146        | 1968 | 1995 | 1.947        | 34.723 | 34.719 | 27.751            | 0.049    |           | 0.024        |           |             |              | 0.8         |              | 0.9         |              | 2929 |  |
| 6145        | 2359 | 2393 | 1.647        | 34.742 | 34.738 | 27.789            | 0.023    | 0.033     | 0.016        | 0.014     |             |              | 0.4         | 0.6          | 0.6         | 0.5          | 2727 |  |
| 6153        | 2651 | 2692 | 1.435        | 34.743 | 34.737 | 27.804            | 0.020    | 0.024     | 0.016        | 0.014     |             |              | 0.3         | 0.4          | 0.6         | 0.5          | 2727 |  |
| 6143        | 2949 | 2996 | 1.221        | 34.736 | 34.730 | 27.813            | 0.015    |           | 0.018        |           |             |              | 0.2         |              | 0.7         |              | 2929 |  |
| 6142        | 3140 | 3191 | 1.108        | 34.735 | 34.727 | 27.819            | 0.020    | 0.020     | 0.015        | 0.015     |             |              | 0.3         | 0.3          | 0.5         | 0.5          | 2727 |  |
| 6141        | 3339 | 3395 | 0.968        | 34.730 | 34.722 | 27.824            | 0.018    |           | 0.021        |           |             |              | 0.3         |              | 0.7         |              | 2929 |  |
| 6152        | 3535 | 3596 | 0.884        | 34.724 | 34.721 | 27.829            | 0.027    | 0.026     | 0.020        | 0.018     |             |              | 0.4         | 0.4          | 0.7         | 0.6          | 2727 |  |
| 6151        | 3729 | 3795 | 0.802        | 34.720 | 34.717 | 27.831            | 0.031    |           | 0.029        |           |             |              | 0.5         |              | 1.0         |              | 2929 |  |
| 6150        | 3906 | 3977 | 0.764        | 34.722 | 34.714 | 27.831            | 0.036    | 0.033     | 0.028        | 0.024     |             |              | 0.6         | 0.5          | 1.0         | 0.8          | 2727 |  |
| 6149        | 3979 | 4052 | 0.730        | 34.720 | 34.713 | 27.832            | 0.039    |           | 0.031        |           |             |              | 0.6         |              | 1.1         |              | 2929 |  |
| 6148        | 3980 | 4053 | 0.735        | 34.719 | 34.713 | 27.832            |          | 0.027     |              | 0.024     |             |              |             | 0.4          |             | 0.8          | 9797 |  |

## CGC-90 CFC BOTTLE DATA

STATION 36

| LATITUDE    |      |      | LONGITUDE    |        |        | DAY-MO-YR         |          | BOTTOM DEPTH |          |           |             | ATM. F-11    |         | ATM. F-12 |         |          |      |
|-------------|------|------|--------------|--------|--------|-------------------|----------|--------------|----------|-----------|-------------|--------------|---------|-----------|---------|----------|------|
| 50° 29.0' S |      |      | 179° 21.4' W |        |        | 18 3 90           |          | 4458 m       |          |           |             | 252.0 ppt    |         | 460.8 ppt |         |          |      |
| SAMP        | DEP  | PRS  | THETA        | SAL    | CTD-S  | SIG-0             | SIO F-11 | PMEL F-11    | SIO F-12 | PMEL F-12 | SIO F11 F12 | PMEL F11 F12 | SIO SAT | PMEL SAT  | SIO SAT | PMEL SAT | FLAG |
| m           | db   |      | C            |        |        | Kg/m <sup>3</sup> | pM/kg    | pM/kg        | pM/kg    | pM/kg     |             |              |         |           |         |          |      |
| 6246        | 1967 | 1994 | 1.922        | 34.727 | 34.723 | 27.756            | 0.036    | 0.044        | 0.020    | 0.022     |             |              | 0.6     | 0.7       | 0.8     | 0.8      | 2727 |
| 6245        | 2359 | 2393 | 1.606        | 34.738 | 34.740 | 27.794            | 0.020    | 0.031        | 0.004    | 0.019     |             |              | 0.3     | 0.5       | 0.2     | 0.7      | 2777 |
| 6253        | 2752 | 2794 | 1.267        | 34.734 | 34.735 | 27.814            | 0.022    | 0.029        | 0.012    | 0.026     |             |              | 0.4     | 0.5       | 0.4     | 0.9      | 2723 |
| 6243        | 3043 | 3093 | 1.030        | 34.728 | 34.728 | 27.825            | 0.012    | 0.018        | 0.007    | 0.009     |             |              | 0.2     | 0.3       | 0.2     | 0.3      | 6767 |
| 6242        | 3339 | 3395 | 0.837        | 34.719 | 34.721 | 27.832            | 0.022    | 0.026        | 0.014    | 0.016     |             |              | 0.4     | 0.4       | 0.5     | 0.6      | 2727 |
| 6241        | 3633 | 3697 | 0.585        | 34.713 | 34.713 | 27.835            | 0.026    | 0.035        | 0.017    | 0.019     |             |              | 0.4     | 0.6       | 0.6     | 0.7      | 2626 |
| 6252        | 3924 | 3996 | 0.559        | 34.708 | 34.707 | 27.838            | 0.042    | 0.048        | 0.008    | 0.024     |             |              | 0.7     | 0.7       | 0.3     | 0.8      | 2727 |
| 6251        | 4121 | 4198 | 0.510        | 34.710 | 34.707 | 27.841            | 0.051    | 0.060        | 0.012    | 0.031     |             |              | 0.8     | 0.9       | 0.4     | 1.1      | 2676 |
| 6250        | 4218 | 4297 | 0.494        | 34.707 | 34.705 | 27.840            | 0.050    | 0.068        | 0.034    | 0.032     |             |              | 0.8     | 1.0       | 1.2     | 1.1      | 2227 |
| 6249        | 4374 | 4458 | 0.465        | 34.706 | 34.705 | 27.842            | 0.067    | 0.058        | 0.035    | 0.035     |             |              | 1.0     | 0.9       | 1.2     | 1.2      | 6267 |
| 6248        | 4441 | 4528 | 0.459        | 34.712 | 34.704 | 27.841            | 0.069    | 0.082        | 0.036    | 0.042     |             |              | 1.1     | 1.3       | 1.2     | 1.4      | 6666 |

## CGC-90 CFC BOTTLE DATA

STATION 38

| LATITUDE    |      |      | LONGITUDE    |        |        | DAY-MO-YR         |          | BOTTOM DEPTH |          |           |             | ATM. F-11    |         | ATM. F-12 |         |          |      |
|-------------|------|------|--------------|--------|--------|-------------------|----------|--------------|----------|-----------|-------------|--------------|---------|-----------|---------|----------|------|
| 34° 38.9' S |      |      | 178° 38.2' W |        |        | 28 3 90           |          | 6556 m       |          |           |             | 254.0 ppt    |         | 461.4 ppt |         |          |      |
| SAMP        | DEP  | PRS  | THETA        | SAL    | CTD-S  | SIG-0             | SIO F-11 | PMEL F-11    | SIO F-12 | PMEL F-12 | SIO F11 F12 | PMEL F11 F12 | SIO SAT | PMEL SAT  | SIO SAT | PMEL SAT | FLAG |
| m           | db   |      | C            |        |        | Kg/m <sup>3</sup> | pM/kg    | pM/kg        | pM/kg    | pM/kg     |             |              |         |           |         |          |      |
| 6552        | 2948 | 2990 | 1.596        | 34.706 | 34.702 | 27.764            | -0.001   | 0.001        | 0.001    | 0.000     |             |              | 0.0     | 0.0       | 0.0     | 0.0      | 2777 |
| 6551        | 2949 | 2991 | 1.594        | 34.705 | 34.702 | 27.764            | -0.001   |              | 0.001    |           |             |              | 0.0     |           | 0.0     |          | 2979 |
| 6549        | 2949 | 2992 | 1.593        | 34.702 | 34.703 | 27.765            | 0.001    |              | 0.001    |           |             |              | 0.0     |           | 0.0     |          | 7979 |
| 6550        | 2949 | 2992 | 1.592        | 34.702 | 34.704 | 27.766            | 0.000    | 0.001        | 0.004    | 0.002     |             |              | 0.0     | 0.0       | 0.2     | 0.1      | 2477 |
| 6548        | 2949 | 2992 | 1.592        | 34.703 | 34.704 | 27.766            | 0.000    | 0.001        | 0.001    | 0.000     |             |              | 0.0     | 0.0       | 0.0     | 0.0      | 2777 |
| 6547        | 2949 | 2992 | 1.591        | 34.703 | 34.704 | 27.766            | 0.019    |              | 0.008    |           |             |              | 0.3     |           | 0.3     |          | 4949 |
| 6546        | 2949 | 2992 | 1.590        | 34.703 | 34.702 | 27.764            | -0.001   | 0.005        | -0.010   | 0.029     |             |              | 0.0     | 0.1       | -0.4    | 1.1      | 2723 |
| 6553        | 2950 | 2993 | 1.588        | 34.713 | 34.703 | 27.765            | 0.000    | 0.001        | -0.004   | 0.009     |             |              | 0.0     | 0.0       | -0.2    | 0.3      | 7777 |
| 6542        | 2950 | 2993 | 1.586        | 34.707 | 34.703 | 27.766            | 0.007    | 0.000        | -0.004   | 0.006     |             |              | 0.1     | 0.0       | -0.2    | 0.2      | 2777 |
| 6543        | 2951 | 2993 | 1.585        | 34.706 | 34.704 | 27.766            | 0.002    |              | -0.004   |           |             |              | 0.0     |           | -0.2    |          | 2979 |
| 6545        | 2951 | 2994 | 1.585        | 34.703 | 34.703 | 27.766            | 0.002    |              | -0.004   |           |             |              | 0.0     |           | -0.2    |          | 2979 |
| 6541        | 2952 | 2994 | 1.586        | 34.712 | 34.702 | 27.765            | 0.001    | 0.006        | -0.003   | 0.015     |             |              | 0.0     | 0.1       | -0.1    | 0.6      | 6663 |

## CGC-90 CFC BOTTLE DATA

STATION 39

| LATITUDE    |      |      | LONGITUDE    |        |        | DAY-MO-YR         |          | BOTTOM DEPTH |          |           |             | ATM. F-11    |         | ATM. F-12 |         |          |      |
|-------------|------|------|--------------|--------|--------|-------------------|----------|--------------|----------|-----------|-------------|--------------|---------|-----------|---------|----------|------|
| 32° 29.8' S |      |      | 178° 18.8' W |        |        | 28 3 90           |          | 4994 m       |          |           |             | 253.3 ppt    |         | 459.6 ppt |         |          |      |
| SAMP        | DEP  | PRS  | THETA        | SAL    | CTD-S  | SIG-0             | SIO F-11 | PMEL F-11    | SIO F-12 | PMEL F-12 | SIO F11 F12 | PMEL F11 F12 | SIO SAT | PMEL SAT  | SIO SAT | PMEL SAT | FLAG |
| m           | db   |      | C            |        |        | Kg/m <sup>3</sup> | pM/kg    | pM/kg        | pM/kg    | pM/kg     |             |              |         |           |         |          |      |
| 6651        | 1970 | 1993 | 2.241        | 34.620 | 34.619 | 27.647            | 0.002    | 0.003        | 0.000    | -0.001    |             |              | 0.0     | 0.1       | 0.0     | 0.0      | 2777 |
| 6650        | 2461 | 2494 | 1.876        | 34.654 | 34.650 | 27.701            | 0.014    | 0.017        | 0.008    | -0.003    |             |              | 0.2     | 0.3       | 0.3     | -0.1     | 3327 |
| 6649        | 2853 | 2893 | 1.586        | 34.690 | 34.686 | 27.752            | 0.003    | 0.005        | 0.005    | -0.002    |             |              | 0.1     | 0.1       | 0.2     | -0.1     | 2777 |
| 6648        | 3247 | 3295 | 1.318        | 34.724 | 34.721 | 27.799            | 0.000    |              | 0.000    |           |             |              | 0.0     |           | 0.0     |          | 7979 |
| 6647        | 3637 | 3695 | 0.995        | 34.725 | 34.723 | 27.823            | 0.022    | 0.009        | 0.010    | 0.007     |             |              | 0.4     | 0.1       | 0.4     | 0.2      | 3727 |
| 6646        | 3928 | 3993 | 0.794        | 34.717 | 34.716 | 27.830            | 0.009    |              | -0.003   |           |             |              | 0.1     |           | -0.1    |          | 2979 |
| 6645        | 4225 | 4298 | 0.675        | 34.713 | 34.711 | 27.834            | 0.012    | 0.019        | 0.007    | 0.018     |             |              | 0.2     | 0.3       | 0.2     | 0.6      | 2773 |
| 6653        | 4517 | 4598 | 0.627        | 34.711 | 34.710 | 27.836            | 0.013    |              | 0.004    |           |             |              | 0.2     |           | 0.1     |          | 2979 |
| 6643        | 4711 | 4797 | 0.616        | 34.713 | 34.709 | 27.836            | 0.018    | 0.024        | 0.015    | 0.008     |             |              | 0.3     | 0.4       | 0.5     | 0.3      | 2777 |
| 6642        | 4898 | 4991 | 0.605        | 34.717 | 34.710 | 27.837            | 0.016    | 0.021        | 0.008    | 0.009     |             |              | 0.2     | 0.3       | 0.3     | 0.3      | 2676 |
| 6641        | 4967 | 5061 | 0.601        | 34.711 | 34.710 | 27.838            | 0.018    | 0.023        | 0.009    | 0.010     |             |              | 0.3     | 0.4       | 0.3     | 0.4      | 6767 |

## CGC-90 CFC BOTTLE DATA

STATION 40

| LATITUDE    |      |      | LONGITUDE    |        |        | DAY-MO-YR         |             |              | BOTTOM DEPTH |              |                   |                    | ATM. F-11  |             | ATM. F-12  |             |      |  |
|-------------|------|------|--------------|--------|--------|-------------------|-------------|--------------|--------------|--------------|-------------------|--------------------|------------|-------------|------------|-------------|------|--|
| 32° 30.6' S |      |      | 178° 31.4' W |        |        | 29 3 90           |             |              | 4172 m       |              |                   |                    | 253.3 ppt  |             | 460.3 ppt  |             |      |  |
| SAMP        | DEP  | PRS  | THETA        | SAL    | CTD-S  | SIG-0             | SIO<br>F-11 | PMEL<br>F-11 | SIO<br>F-12  | PMEL<br>F-12 | SIO<br>F11<br>F12 | PMEL<br>F11<br>F12 | SIO<br>SAT | PMEL<br>SAT | SIO<br>SAT | PMEL<br>SAT | FLAG |  |
|             | m    | db   | C            |        |        | Kg/m <sup>3</sup> | pM/kg       | pM/kg        | pM/kg        | pM/kg        |                   |                    |            |             |            |             |      |  |
| 6751        | 1970 | 1994 | 2.209        | 34.624 | 34.623 | 27.653            | 0.003       | 0.003        | -0.005       | 0.000        |                   |                    | 0.1        | 0.1         | -0.2       | 0.0         | 2777 |  |
| 6750        | 2216 | 2244 | 2.039        | 34.640 | 34.638 | 27.679            | 0.004       |              | -0.003       |              |                   |                    | 0.1        |             | -0.1       |             | 2979 |  |
| 6749        | 2462 | 2494 | 1.846        | 34.657 | 34.654 | 27.706            | 0.002       | 0.001        | 0.005        | 0.000        |                   |                    | 0.0        | 0.0         | 0.2        | 0.0         | 2777 |  |
| 6748        | 2707 | 2744 | 1.687        | 34.671 | 34.670 | 27.732            | -0.003      |              | 0.001        |              |                   |                    | -0.1       |             | 0.0        |             | 7979 |  |
| 6747        | 2952 | 2994 | 1.554        | 34.701 | 34.700 | 27.765            | 0.001       |              | 0.008        |              |                   |                    | 0.0        |             | 0.3        |             | 2979 |  |
| 6746        | 3149 | 3195 | 1.425        |        | 34.502 | 27.616            | -0.001      | 0.001        | 0.003        | 0.004        |                   |                    | 0.0        | 0.0         | 0.1        | 0.2         | 2777 |  |
| 6745        | 3345 | 3395 | 1.222        | 34.726 | 34.729 | 27.812            | 0.002       |              | -0.003       |              |                   |                    | 0.0        |             | -0.1       |             | 2979 |  |
| 6753        | 3540 | 3595 | 1.039        | 34.726 | 34.726 | 27.823            | 0.007       | 0.006        | 0.001        | 0.002        |                   |                    | 0.1        | 0.1         | 0.0        | 0.1         | 2777 |  |
| 6743        | 3736 | 3796 | 0.907        | 34.722 | 34.723 | 27.829            | 0.010       |              | 0.001        |              |                   |                    | 0.2        |             | 0.0        |             | 2979 |  |
| 6742        | 4058 | 4126 | 0.789        | 34.717 | 34.718 | 27.833            | 0.011       | 0.010        | -0.001       | 0.002        |                   |                    | 0.2        | 0.2         | 0.0        | 0.1         | 2727 |  |
| 6741        | 4141 | 4212 | 0.785        | 34.717 | 34.718 | 27.833            | 0.008       | 0.013        | 0.002        | 0.003        |                   |                    | 0.1        | 0.2         | 0.1        | 0.1         | 2767 |  |

## CGC-90 CFC BOTTLE DATA

STATION 41

| LATITUDE    |      |      | LONGITUDE    |        |        | DAY-MO-YR         |             |              | BOTTOM DEPTH |              |                   |                    | ATM. F-11  |             | ATM. F-12  |             |      |  |
|-------------|------|------|--------------|--------|--------|-------------------|-------------|--------------|--------------|--------------|-------------------|--------------------|------------|-------------|------------|-------------|------|--|
| 32° 29.8' S |      |      | 178° 44.6' W |        |        | 29 3 90           |             |              | 2959 m       |              |                   |                    | 253.3 ppt  |             | 460.3 ppt  |             |      |  |
| SAMP        | DEP  | PRS  | THETA        | SAL    | CTD-S  | SIG-0             | SIO<br>F-11 | PMEL<br>F-11 | SIO<br>F-12  | PMEL<br>F-12 | SIO<br>F11<br>F12 | PMEL<br>F11<br>F12 | SIO<br>SAT | PMEL<br>SAT | SIO<br>SAT | PMEL<br>SAT | FLAG |  |
|             | m    | db   | C            |        |        | Kg/m <sup>3</sup> | pM/kg       | pM/kg        | pM/kg        | pM/kg        |                   |                    |            |             |            |             |      |  |
| 6852        | 5    | 5    | 22.037       | 35.616 | 35.617 | 24.678            | 1.990       |              | 0.950        |              | 2.1               |                    | 98.4       |             | 92.1       |             | 2939 |  |
| 6851        | 17   | 18   | 22.033       | 35.616 | 35.616 | 24.678            | 2.044       |              | 1.004        |              | 2.0               |                    | 101.0      |             | 97.3       |             | 2929 |  |
| 6850        | 37   | 37   | 21.975       | 35.614 | 35.615 | 24.694            | 2.060       |              | 1.018        |              | 2.0               |                    | 101.5      |             | 98.4       |             | 2929 |  |
| 6849        | 66   | 67   | 18.945       | 35.445 | 35.452 | 25.382            | 2.391       |              | 1.190        |              | 2.0               |                    | 102.4      |             | 101.7      |             | 2929 |  |
| 6848        | 97   | 98   | 16.602       | 35.431 | 35.454 | 25.958            | 2.521       |              | 1.257        |              | 2.0               |                    | 96.6       |             | 97.2       |             | 2929 |  |
| 6847        | 145  | 146  | 14.379       | 35.336 | 35.341 | 26.371            | 2.433       |              | 1.228        |              | 2.0               |                    | 83.3       |             | 86.1       |             | 2929 |  |
| 6846        | 194  | 196  | 13.308       | 35.214 | 35.208 | 26.492            | 2.110       |              | 1.042        |              | 2.0               |                    | 68.3       |             | 69.5       |             | 2929 |  |
| 6845        | 293  | 296  | 11.594       | 34.992 | 34.998 | 26.665            | 1.870       |              | 0.928        |              | 2.0               |                    | 55.2       |             | 57.1       |             | 2929 |  |
| 6853        | 393  | 396  | 10.096       | 34.789 | 34.790 | 26.772            | 1.451       |              | 0.712        |              | 2.0               |                    | 39.4       |             | 40.7       |             | 2929 |  |
| 6843        | 589  | 594  | 7.870        | 34.558 | 34.553 | 26.942            | 0.860       |              | 0.424        |              | 2.0               |                    | 20.6       |             | 21.7       |             | 2929 |  |
| 6842        | 787  | 794  | 6.271        | 34.419 | 34.417 | 27.057            | 0.309       |              | 0.157        |              | 2.0               |                    | 6.7        |             | 7.4        |             | 2929 |  |
| 6841        | 983  | 993  | 5.023        | 34.393 | 34.398 | 27.195            | 0.082       |              | 0.047        |              |                   |                    | 1.7        |             | 2.1        |             | 6969 |  |
| 6951        | 1231 | 1244 | 3.543        | 34.446 | 34.448 | 27.393            | 0.009       |              | 0.006        |              |                   |                    | 0.2        |             | 0.2        |             | 2979 |  |
| 6950        | 1477 | 1493 | 2.809        | 34.542 | 34.540 | 27.535            | -0.001      |              | 0.001        |              |                   |                    | 0.0        |             | 0.0        |             | 2979 |  |
| 6949        | 1724 | 1743 | 2.420        | 34.600 | 34.601 | 27.618            | 0.001       |              | 0.011        |              |                   |                    | 0.0        |             | 0.4        |             | 7979 |  |
| 6948        | 1968 | 1992 | 2.216        | 34.626 | 34.626 | 27.655            | 0.000       |              | 0.003        |              |                   |                    | 0.0        |             | 0.1        |             | 2979 |  |
| 6947        | 2166 | 2193 | 2.058        | 34.637 | 34.638 | 27.677            | -0.005      |              | -0.004       |              |                   |                    | -0.1       |             | -0.2       |             | 7979 |  |
| 6946        | 2363 | 2393 | 1.885        | 34.656 | 34.653 | 27.703            | -0.002      |              | 0.002        |              |                   |                    | 0.0        |             | 0.1        |             | 2979 |  |
| 6945        | 2461 | 2494 | 1.798        | 34.662 | 34.661 | 27.716            |             |              |              |              |                   |                    |            |             |            |             | 9999 |  |
| 6953        | 2560 | 2594 | 1.691        | 34.678 | 34.676 | 27.736            | 0.000       |              | 0.005        |              |                   |                    | 0.0        |             | 0.2        |             | 2979 |  |
| 6943        | 2755 | 2793 | 1.507        | 34.713 | 34.713 | 27.779            | 0.000       |              | 0.001        |              |                   |                    | 0.0        |             | 0.0        |             | 7979 |  |
| 6942        | 2866 | 2906 | 1.421        | 34.720 | 34.720 | 27.791            | -0.002      |              | 0.002        |              |                   |                    | 0.0        |             | 0.1        |             | 2979 |  |
| 6941        | 2926 | 2967 | 1.366        | 34.724 | 34.726 | 27.800            | 0.001       |              | -0.003       |              |                   |                    | 0.0        |             | -0.1       |             | 6969 |  |

## CGC-90 CFC BOTTLE DATA

STATION 42

| LATITUDE    |      |      | LONGITUDE    |        |        | DAY-MO-YR         |             |              | BOTTOM DEPTH |              |                   |                    | ATM. F-11  |             | ATM. F-12  |             |      |  |
|-------------|------|------|--------------|--------|--------|-------------------|-------------|--------------|--------------|--------------|-------------------|--------------------|------------|-------------|------------|-------------|------|--|
| 32° 29.0' S |      |      | 178° 30.1' W |        |        | 29 3 90           |             |              | 4211 m       |              |                   |                    | 253.3 ppt  |             | 460.3 ppt  |             |      |  |
| SAMP        | DEP  | PRS  | THETA        | SAL    | CTD-S  | SIG-0             | SIO<br>F-11 | PMEL<br>F-11 | SIO<br>F-12  | PMEL<br>F-12 | SIO<br>F11<br>F12 | PMEL<br>F11<br>F12 | SIO<br>SAT | PMEL<br>SAT | SIO<br>SAT | PMEL<br>SAT | FLAG |  |
|             | m    | db   | C            |        |        | Kg/m <sup>3</sup> | pM/kg       | pM/kg        | pM/kg        | pM/kg        |                   |                    |            |             |            |             | ---- |  |
| 7052        | 6    | 6    | 21.965       | 35.615 | 35.614 | 24.696            | 2.050       |              | 0.933        |              | 2.2               |                    | 101.0      |             | 90.2       |             | 2939 |  |
| 7051        | 47   | 47   | 21.915       | 35.608 | 35.614 | 24.710            | 2.074       |              | 0.981        |              | 2.1               |                    | 102.0      |             | 94.7       |             | 2939 |  |
| 7050        | 96   | 96   | 15.594       | 35.414 | 35.411 | 26.157            | 2.524       |              | 1.327        |              | 1.9               |                    | 91.9       |             | 98.2       |             | 3929 |  |
| 7049        | 145  | 146  | 14.186       | 35.318 | 35.318 | 26.394            | 2.444       |              | 1.224        |              | 2.0               |                    | 82.9       |             | 85.0       |             | 2929 |  |
| 7048        | 195  | 196  | 13.305       | 35.198 | 35.207 | 26.492            | 2.329       |              | 1.145        |              | 2.0               |                    | 75.4       |             | 76.3       |             | 2929 |  |
| 7047        | 292  | 295  | 11.379       | 34.960 | 34.955 | 26.672            | 1.750       |              | 0.832        |              | 2.1               |                    | 51.1       |             | 50.6       |             | 2929 |  |
| 7046        | 392  | 396  | 9.837        |        | 34.730 | 26.769            | 1.549       |              | 0.729        |              | 2.1               |                    | 41.5       |             | 41.1       |             | 2929 |  |
| 7045        | 590  | 595  | 7.510        | 34.502 | 34.501 | 26.954            | 0.731       |              | 0.351        |              | 2.1               |                    | 17.1       |             | 17.6       |             | 2929 |  |
| 7053        | 785  | 793  | 6.041        | 34.402 | 34.401 | 27.074            | 0.231       |              | 0.115        |              | 2.0               |                    | 5.0        |             | 5.3        |             | 2929 |  |
| 7043        | 985  | 995  | 4.798        | 34.387 | 34.383 | 27.209            | 0.054       |              | 0.032        |              |                   |                    | 1.1        |             | 1.4        |             | 2929 |  |
| 7042        | 1232 | 1245 | 3.557        | 34.445 | 34.449 | 27.393            | 0.003       |              | 0.014        |              |                   |                    | 0.1        |             | 0.6        |             | 2929 |  |
| 7041        | 1477 | 1493 | 2.807        | 34.540 | 34.545 | 27.539            | -0.001      |              | 0.002        |              |                   |                    | 0.0        |             | 0.1        |             | 2979 |  |

## CGC-90 CFC BOTTLE DATA

STATION 43

| LATITUDE    |      |      | LONGITUDE    |        |        | DAY-MO-YR         |             |              | BOTTOM DEPTH |              |                   |                    | ATM. F-11  |             | ATM. F-12  |             |      |  |
|-------------|------|------|--------------|--------|--------|-------------------|-------------|--------------|--------------|--------------|-------------------|--------------------|------------|-------------|------------|-------------|------|--|
| 32° 29.6' S |      |      | 178° 17.8' W |        |        | 29 3 90           |             |              | 5004 m       |              |                   |                    | 253.3 ppt  |             | 459.6 ppt  |             |      |  |
| SAMP        | DEP  | PRS  | THETA        | SAL    | CTD-S  | SIG-0             | SIO<br>F-11 | PMEL<br>F-11 | SIO<br>F-12  | PMEL<br>F-12 | SIO<br>F11<br>F12 | PMEL<br>F11<br>F12 | SIO<br>SAT | PMEL<br>SAT | SIO<br>SAT | PMEL<br>SAT | FLAG |  |
|             | m    | db   | C            |        |        | Kg/m <sup>3</sup> | pM/kg       | pM/kg        | pM/kg        | pM/kg        |                   |                    |            |             |            |             | ---- |  |
| 7152        | 4    | 4    | 21.951       | 35.617 | 35.612 | 24.698            | 2.058       | 2.092        | 1.013        | 1.088        | 2.0               | 1.9                | 101.3      | 103.0       | 98.0       | 105.3       | 2222 |  |
| 7151        | 47   | 48   | 21.946       |        | 35.616 | 24.703            | 2.032       |              | 0.951        |              | 2.1               |                    | 100.0      |             | 92.0       |             | 2939 |  |
| 7150        | 97   | 97   | 16.010       | 35.476 | 35.469 | 26.107            | 2.318       | 2.587        | 1.159        | 1.293        | 2.0               | 2.0                | 86.2       | 96.2        | 87.5       | 97.7        | 2222 |  |
| 7149        | 145  | 146  | 14.602       | 35.355 | 35.356 | 26.334            | 2.173       | 2.492        | 1.083        | 1.225        | 2.0               | 2.0                | 75.3       | 86.3        | 76.8       | 86.9        | 2222 |  |
| 7148        | 195  | 197  | 13.462       | 35.223 | 35.219 | 26.469            | 2.061       | 2.380        | 1.016        | 1.183        | 2.0               | 2.0                | 67.3       | 77.7        | 68.3       | 79.6        | 2222 |  |
| 7147        | 294  | 297  | 11.653       | 34.990 | 34.990 | 26.648            | 1.743       | 1.872        | 0.773        | 0.926        | 2.3               | 2.0                | 51.6       | 55.5        | 47.7       | 57.2        | 2222 |  |
| 7146        | 391  | 394  | 10.319       | 34.824 | 34.814 | 26.752            | 1.475       | 1.538        | 0.674        | 0.765        | 2.2               | 2.0                | 40.6       | 42.3        | 39.0       | 44.2        | 2222 |  |
| 7145        | 585  | 590  | 7.989        | 34.567 | 34.561 | 26.931            | 0.911       | 0.721        | 0.444        | 0.366        | 2.1               | 2.0                | 22.0       | 17.4        | 22.8       | 18.8        | 2222 |  |
| 7153        | 786  | 793  | 6.452        | 34.435 | 34.434 | 27.047            | 0.363       | 0.221        | 0.181        | 0.138        | 2.0               | 1.6                | 8.0        | 4.9         | 8.6        | 6.6         | 2222 |  |
| 7143        | 985  | 994  | 5.301        | 34.410 | 34.408 | 27.171            | 0.123       | 0.044        | 0.062        | 0.032        | 2.0               |                    | 2.5        | 0.9         | 2.8        | 1.4         | 2227 |  |
| 7142        | 1232 | 1245 | 3.703        | 34.434 | 34.435 | 27.367            | 0.006       | 0.008        | 0.010        | 0.002        |                   |                    | 0.1        | 0.2         | 0.4        | 0.1         | 2777 |  |
| 7141        | 1478 | 1494 | 2.859        | 34.535 | 34.536 | 27.528            | 0.002       | -0.001       | 0.006        | -0.002       |                   |                    | 0.0        | 0.0         | 0.2        | -0.1        | 2777 |  |

## CGC-90 CFC BOTTLE DATA

STATION 44

| LATITUDE    |      | LONGITUDE   |        | DAY-MO-YR |        | BOTTOM DEPTH      |          |           |          | ATM. F-11 |             | ATM. F-12    |         |          |         |          |      |
|-------------|------|-------------|--------|-----------|--------|-------------------|----------|-----------|----------|-----------|-------------|--------------|---------|----------|---------|----------|------|
| 32° 29.5' S |      | 178° 0.2' W |        | 29 3 90   |        | 5898 m            |          |           |          | 253.3 ppt |             | 459.6 ppt    |         |          |         |          |      |
| SAMP        | DEP  | PRS         | THETA  | SAL       | CTD-S  | SIG-0             | SIO F-11 | PMEL F-11 | SIO F-12 | PMEL F-12 | SIO F11 F12 | PMEL F11 F12 | SIO SAT | PMEL SAT | SIO SAT | PMEL SAT | FLAG |
|             | m    | db          | C      |           |        | Kg/m <sup>3</sup> | pM/kg    | pM/kg     | pM/kg    | pM/kg     |             |              |         |          |         |          | ---- |
| 7252        | 6    | 6           | 21.727 | 35.594    | 35.593 | 24.746            | 2.039    |           | 1.014    |           | 2.0         |              | 99.4    |          | 97.2    |          | 2929 |
| 7251        | 46   | 46          | 21.709 | 35.593    | 35.596 | 24.754            | 2.052    |           | 1.024    |           | 2.0         |              | 99.9    |          | 98.1    |          | 2929 |
| 7250        | 97   | 98          | 15.699 | 35.444    | 35.445 | 26.160            | 2.234    |           | 1.134    |           | 2.0         |              | 81.8    |          | 84.5    |          | 2929 |
| 7249        | 147  | 148         | 14.330 | 35.328    | 35.325 | 26.369            | 2.162    |           | 1.078    |           | 2.0         |              | 73.8    |          | 75.5    |          | 2929 |
| 7248        | 195  | 197         | 13.533 | 35.236    | 35.234 | 26.466            | 2.113    |           | 1.119    |           | 1.9         |              | 69.2    |          | 75.5    |          | 2929 |
| 7247        | 294  | 297         | 11.830 | 35.026    | 35.016 | 26.634            | 1.753    |           | 0.882    |           | 2.0         |              | 52.4    |          | 54.9    |          | 2929 |
| 7246        | 393  | 397         | 10.671 | 34.865    | 34.866 | 26.731            | 1.584    |           | 0.762    |           | 2.1         |              | 44.5    |          | 44.9    |          | 2929 |
| 7245        | 590  | 596         | 8.157  | 34.577    | 34.577 | 26.918            | 0.977    |           | 0.460    |           | 2.1         |              | 23.8    |          | 23.9    |          | 6969 |
| 7253        | 787  | 794         | 6.823  | 34.467    | 34.465 | 27.022            | 0.483    |           | 0.233    |           | 2.1         |              | 10.9    |          | 11.3    |          | 2929 |
| 7243        | 983  | 993         | 5.355  | 34.394    | 34.388 | 27.149            | 0.122    |           | 0.061    |           | 2.0         |              | 2.5     |          | 2.7     |          | 2929 |
| 7242        | 1231 | 1244        | 3.833  | 34.419    | 34.427 | 27.347            | 0.010    |           | 0.021    |           |             |              | 0.2     |          | 0.9     |          | 2939 |
| 7241        | 1478 | 1494        | 2.934  | 34.519    | 34.526 | 27.513            | 0.003    |           | 0.006    |           |             |              | 0.1     |          | 0.2     |          | 2979 |
| 7351        | 1969 | 1993        | 2.272  |           | 34.615 | 27.641            |          |           |          |           |             |              |         |          |         |          | 9999 |
| 7350        | 2461 | 2493        | 1.923  |           | 34.649 | 27.697            | 0.004    |           | 0.000    |           |             |              | 0.1     |          | 0.0     |          | 6969 |
| 7349        | 2951 | 2993        | 1.526  | 34.707    | 34.706 | 27.772            | 0.003    |           | -0.003   |           |             |              | 0.1     |          | -0.1    |          | 2979 |
| 7348        | 3442 | 3495        | 1.154  | 34.726    | 34.726 | 27.815            | 0.007    |           | -0.004   |           |             |              | 0.1     |          | -0.1    |          | 2979 |
| 7347        | 3931 | 3996        | 0.813  | 34.724    | 34.718 | 27.831            | 0.011    |           | 0.012    |           |             |              | 0.2     |          | 0.4     |          | 2979 |
| 7346        | 4327 | 4403        | 0.678  |           | 34.714 | 27.836            | 0.014    |           | 0.010    |           |             |              | 0.2     |          | 0.4     |          | 2979 |
| 7345        | 4711 | 4797        | 0.620  | 34.714    | 34.710 | 27.837            | 0.019    |           | 0.005    |           |             |              | 0.3     |          | 0.2     |          | 2979 |
| 7353        | 5099 | 5198        | 0.592  | 34.709    | 34.709 | 27.837            | 0.022    |           | 0.010    |           |             |              | 0.3     |          | 0.4     |          | 2929 |
| 7343        | 5390 | 5497        | 0.581  | 34.707    | 34.708 | 27.837            | 0.018    |           | 0.012    |           |             |              | 0.3     |          | 0.4     |          | 2979 |
| 7342        | 5782 | 5903        | 0.569  | 34.708    | 34.707 | 27.837            | 0.019    |           | 0.011    |           |             |              | 0.3     |          | 0.4     |          | 2929 |
| 7341        | 5849 | 5972        | 0.568  | 34.709    | 34.707 | 27.837            | 0.018    |           | 0.008    |           |             |              | 0.3     |          | 0.3     |          | 6969 |

## CGC-90 CFC BOTTLE DATA

STATION 45

| LATITUDE    |      | LONGITUDE    |        | DAY-MO-YR |        | BOTTOM DEPTH      |          |           |          | ATM. F-11 |             | ATM. F-12    |         |          |         |          |      |
|-------------|------|--------------|--------|-----------|--------|-------------------|----------|-----------|----------|-----------|-------------|--------------|---------|----------|---------|----------|------|
| 32° 29.0' S |      | 175° 29.0' W |        | 30 3 90   |        | 5462 m            |          |           |          | 252.9 ppt |             | 460.4 ppt    |         |          |         |          |      |
| SAMP        | DEP  | PRS          | THETA  | SAL       | CTD-S  | SIG-0             | SIO F-11 | PMEL F-11 | SIO F-12 | PMEL F-12 | SIO F11 F12 | PMEL F11 F12 | SIO SAT | PMEL SAT | SIO SAT | PMEL SAT | FLAG |
|             | m    | db           | C      |           |        | Kg/m <sup>3</sup> | pM/kg    | pM/kg     | pM/kg    | pM/kg     |             |              |         |          |         |          | ---- |
| 7452        | 5    | 5            | 21.957 | 35.667    | 35.661 | 24.734            | 2.033    | 2.033     | 0.965    | 1.074     | 2.1         | 1.9          | 100.3   | 100.3    | 93.3    | 103.8    | 2232 |
| 7451        | 48   | 49           | 21.906 | 35.661    | 35.661 | 24.748            | 2.065    | 2.035     | 0.988    | 1.057     | 2.1         | 1.9          | 101.7   | 100.2    | 95.3    | 102.0    | 2232 |
| 7450        | 96   | 97           | 15.253 | 35.490    | 35.494 | 26.070            | 2.405    |           | 1.184    |           | 2.0         |              | 90.7    |          | 90.2    |          | 2929 |
| 7449        | 145  | 146          | 15.166 | 35.431    | 35.424 | 26.263            | 2.309    | 2.310     | 1.155    | 1.161     | 2.0         | 2.0          | 82.5    | 82.5     | 83.9    | 84.3     | 2626 |
| 7448        | 194  | 196          | 13.895 | 35.278    | 35.270 | 26.419            | 2.246    | 2.262     | 1.117    | 1.139     | 2.0         | 2.0          | 75.1    | 75.7     | 76.5    | 78.0     | 2222 |
| 7447        | 292  | 294          | 11.970 | 35.014    | 35.010 | 26.603            | 2.092    | 2.085     | 1.019    | 1.052     | 2.1         | 2.0          | 63.1    | 62.9     | 63.8    | 65.8     | 2222 |
| 7446        | 392  | 395          | 10.368 | 34.803    | 34.803 | 26.735            | 1.408    | 1.382     | 0.675    | 0.684     | 2.1         | 2.0          | 38.9    | 38.2     | 39.1    | 39.6     | 6262 |
| 7445        | 589  | 594          | 7.582  | 34.490    | 34.487 | 26.933            | 1.000    | 1.016     | 0.489    | 0.516     | 2.0         | 2.0          | 23.6    | 24.0     | 24.6    | 26.0     | 2222 |
| 7453        | 787  | 794          | 6.319  | 34.388    | 34.386 | 27.027            | 0.326    | 0.056     | 0.166    | 0.187     | 2.0         | 0.3          | 7.1     | 1.2      | 7.8     | 8.8      | 2322 |
| 7443        | 985  | 995          | 5.066  | 34.390    | 34.382 | 27.178            | 0.071    | -0.002    | 0.037    | 0.004     |             |              | 1.4     | 0.0      | 1.6     | 0.2      | 2727 |
| 7442        | 1230 | 1243         | 3.633  | 34.434    | 34.435 | 27.374            | 0.004    |           | 0.008    |           |             |              | 0.1     |          | 0.3     |          | 2979 |
| 7441        | 1478 | 1494         | 2.870  |           | 34.534 | 27.525            | 0.000    | -0.012    | 0.006    | -0.001    |             |              | 0.0     | -0.2     | 0.2     | 0.0      | 2777 |
| 7547        | 1970 | 1994         | 2.272  | 34.615    | 34.613 | 27.640            | -0.002   | -0.001    | 0.002    | 0.000     |             |              | 0.0     | 0.0      | 0.1     | 0.0      | 2777 |
| 7546        | 2468 | 2501         | 1.920  | 34.648    | 34.647 | 27.695            | 0.005    | 0.008     | 0.002    | -0.001    |             |              | 0.1     | 0.1      | 0.1     | 0.0      | 2777 |
| 7545        | 2952 | 2994         | 1.600  | 34.685    | 34.683 | 27.748            | -0.003   | 0.001     | 0.004    | 0.002     |             |              | -0.1    | 0.0      | 0.2     | 0.1      | 2777 |
| 7553        | 3443 | 3496         | 1.253  | 34.728    | 34.723 | 27.806            | 0.001    |           | 0.003    |           |             |              | 0.0     |          | 0.1     |          | 2979 |
| 7543        | 3930 | 3995         | 0.823  | 34.719    | 34.716 | 27.829            | 0.000    | 0.004     | 0.008    | 0.000     |             |              | 0.0     | 0.1      | 0.3     | 0.0      | 2777 |
| 7542        | 4320 | 4395         | 0.719  | 34.715    | 34.713 | 27.833            | 0.004    | 0.005     | 0.004    | 0.004     |             |              | 0.1     | 0.1      | 0.1     | 0.1      | 2777 |
| 7541        | 4712 | 4799         | 0.634  | 34.714    | 34.710 | 27.836            | 0.003    | 0.006     | -0.001   | 0.006     |             |              | 0.1     | 0.1      | 0.0     | 0.2      | 2727 |
| 7551        | 4903 | 4995         | 0.613  | 34.714    | 34.708 | 27.836            | 0.007    |           | 0.001    |           |             |              | 0.1     |          | 0.0     |          | 2929 |
| 7550        | 5098 | 5197         | 0.600  | 34.714    | 34.708 | 27.836            | 0.007    | 0.011     | 0.007    | 0.003     |             |              | 0.1     | 0.2      | 0.2     | 0.1      | 2777 |
| 7549        | 5347 | 5453         | 0.583  | 34.711    | 34.708 | 27.837            | 0.005    |           | 0.002    |           |             |              | 0.1     |          | 0.1     |          | 2979 |
| 7548        | 5415 | 5524         | 0.583  | 34.718    | 34.707 | 27.837            | 0.004    | 0.006     | 0.015    | 0.010     |             |              | 0.1     | 0.1      | 0.5     | 0.4      | 2737 |

## CGC-90 CFC BOTTLE DATA

STATION 46

| LATITUDE    |      |      | LONGITUDE    |        |        | DAY-MO-YR         |             |              | BOTTOM DEPTH |              |                   |                    | ATM. F-11  |             | ATM. F-12  |             |      |  |
|-------------|------|------|--------------|--------|--------|-------------------|-------------|--------------|--------------|--------------|-------------------|--------------------|------------|-------------|------------|-------------|------|--|
| 32° 28.8' S |      |      | 171° 28.7' W |        |        | 31 3 90           |             |              | 5182 m       |              |                   |                    | 252.7 ppt  |             | 460.7 ppt  |             |      |  |
| SAMP        | DEP  | PRS  | THETA        | SAL    | CTD-S  | SIG-0             | SIO<br>F-11 | PMEL<br>F-11 | SIO<br>F-12  | PMEL<br>F-12 | SIO<br>F11<br>F12 | PMEL<br>F11<br>F12 | SIO<br>SAT | PMEL<br>SAT | SIO<br>SAT | PMEL<br>SAT | FLAG |  |
|             | m    | db   | C            |        |        | Kg/m <sup>3</sup> | pM/kg       | pM/kg        | pM/kg        | pM/kg        |                   |                    |            |             |            |             | ---- |  |
| 7647        | 1969 | 1993 | 2.201        | 34.621 | 34.621 | 27.652            | 0.004       | 0.010        | -0.004       | 0.009        |                   |                    | 0.1        | 0.2         | -0.2       | 0.3         | 2777 |  |
| 7646        | 2473 | 2505 | 1.831        | 34.656 | 34.654 | 27.708            | 0.001       | 0.007        | 0.002        | 0.008        |                   |                    | 0.0        | 0.1         | 0.1        | 0.3         | 2777 |  |
| 7645        | 2951 | 2993 | 1.595        | 34.676 | 34.675 | 27.742            | -0.002      | 0.001        | 0.001        | -0.001       |                   |                    | 0.0        | 0.0         | 0.0        | 0.0         | 6666 |  |
| 7653        | 3246 | 3295 | 1.435        | 34.707 | 34.700 | 27.774            | -0.003      | 0.003        | -0.002       | 0.001        |                   |                    | -0.1       | 0.1         | -0.1       | 0.0         | 2777 |  |
| 7643        | 3540 | 3595 | 1.255        | 34.721 | 34.719 | 27.802            | -0.001      | 0.010        | -0.003       | 0.037        |                   |                    | 0.0        | 0.2         | -0.1       | 1.3         | 2774 |  |
| 7642        | 3840 | 3903 | 0.999        | 34.723 | 34.721 | 27.821            | 0.004       | 0.007        | 0.004        | 0.001        |                   |                    | 0.1        | 0.1         | 0.1        | 0.0         | 2777 |  |
| 7641        | 4126 | 4196 | 0.808        | 34.720 | 34.719 | 27.832            | 0.000       |              | 0.001        |              |                   |                    | 0.0        |             | 0.0        |             | 2979 |  |
| 7651        | 4419 | 4497 | 0.678        | 34.714 | 34.714 | 27.836            | 0.005       | 0.011        | 0.003        | 0.004        |                   |                    | 0.1        | 0.2         | 0.1        | 0.1         | 2777 |  |
| 7650        | 4711 | 4798 | 0.610        | 34.711 | 34.712 | 27.839            | 0.011       | 0.016        | 0.006        | 0.006        |                   |                    | 0.2        | 0.2         | 0.2        | 0.2         | 2777 |  |
| 7649        | 5060 | 5157 | 0.581        | 34.711 | 34.709 | 27.838            | 0.013       | 0.025        | 0.006        | 0.008        |                   |                    | 0.2        | 0.4         | 0.2        | 0.3         | 2777 |  |
| 7648        | 5131 | 5230 | 0.577        | 34.711 | 34.709 | 27.838            | 0.033       | 0.047        | 0.011        | 0.009        |                   |                    | 0.5        | 0.7         | 0.4        | 0.3         | 6767 |  |

## CGC-90 CFC BOTTLE DATA

STATION 47

| LATITUDE   |      |      | LONGITUDE   |        |        | DAY-MO-YR         |             |              | BOTTOM DEPTH |              |                   |                    | ATM. F-11  |             | ATM. F-12  |             |      |  |
|------------|------|------|-------------|--------|--------|-------------------|-------------|--------------|--------------|--------------|-------------------|--------------------|------------|-------------|------------|-------------|------|--|
| 30° 0.0' S |      |      | 170° 0.4' W |        |        | 1 4 90            |             |              | 5425 m       |              |                   |                    | 252.2 ppt  |             | 460.6 ppt  |             |      |  |
| SAMP       | DEP  | PRS  | THETA       | SAL    | CTD-S  | SIG-0             | SIO<br>F-11 | PMEL<br>F-11 | SIO<br>F-12  | PMEL<br>F-12 | SIO<br>F11<br>F12 | PMEL<br>F11<br>F12 | SIO<br>SAT | PMEL<br>SAT | SIO<br>SAT | PMEL<br>SAT | FLAG |  |
|            | m    | db   | C           |        |        | Kg/m <sup>3</sup> | pM/kg       | pM/kg        | pM/kg        | pM/kg        |                   |                    |            |             |            |             | ---- |  |
| 7751       | 491  | 495  | 8.586       | 34.578 | 34.578 | 26.853            |             |              |              |              |                   |                    |            |             |            |             | 9999 |  |
| 7750       | 589  | 594  | 7.473       |        | 34.470 | 26.935            | 0.775       | 0.779        | 0.353        | 0.380        | 2.2               | 2.0                | 18.2       | 18.3        | 17.6       | 19.0        | 2222 |  |
| 7749       | 788  | 795  | 6.038       | 34.360 | 34.356 | 27.039            | 0.253       | 0.244        | 0.124        | 0.149        | 2.0               | 1.6                | 5.5        | 5.3         | 5.8        | 6.9         | 2222 |  |
| 7748       | 984  | 994  | 4.836       | 34.347 | 34.346 | 27.176            | 0.066       | 0.067        | 0.029        | 0.044        |                   |                    | 1.3        | 1.4         | 1.3        | 1.9         | 2222 |  |
| 7747       | 1230 | 1242 | 3.559       | 34.415 | 34.415 | 27.365            | 0.006       | 0.010        | 0.006        | 0.006        |                   |                    | 0.1        | 0.2         | 0.2        | 0.2         | 2777 |  |
| 7746       | 1477 | 1492 | 2.762       | 34.525 | 34.523 | 27.526            | 0.003       | 0.005        | 0.000        | 0.000        |                   |                    | 0.1        | 0.1         | 0.0        | 0.0         | 6767 |  |
| 7745       | 3442 | 3494 | 1.346       | 34.708 | 34.705 | 27.785            | -0.002      |              | 0.001        |              |                   |                    | 0.0        |             | 0.0        |             | 2979 |  |
| 7753       | 3929 | 3993 | 1.000       | 34.724 | 34.720 | 27.820            | 0.001       | 0.041        | 0.000        | 0.000        |                   |                    | 0.0        | 0.7         | 0.0        | 0.0         | 2472 |  |
| 7743       | 4420 | 4497 | 0.696       | 34.713 | 34.713 | 27.834            | 0.010       |              | 0.001        |              |                   |                    | 0.2        |             | 0.0        |             | 3929 |  |
| 7742       | 4905 | 4996 | 0.603       | 34.714 | 34.709 | 27.837            | 0.002       | 0.003        | 0.003        | 0.008        |                   |                    | 0.0        | 0.1         | 0.1        | 0.3         | 6666 |  |
| 7741       | 5395 | 5501 | 0.587       | 34.715 | 34.708 | 27.837            | 0.005       | 0.008        | 0.001        | 0.005        |                   |                    | 0.1        | 0.1         | 0.0        | 0.2         | 6666 |  |



## CGC-90 CFC BOTTLE DATA

STATION 50

| LATITUDE   |      | LONGITUDE   |        | DAY-MO-YR |        |                   | BOTTOM DEPTH |              |             |              | ATM. F-11         |                    | ATM. F-12         |                    |                   |                    |      |
|------------|------|-------------|--------|-----------|--------|-------------------|--------------|--------------|-------------|--------------|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|------|
| 20° 0.4' S |      | 170° 0.4' W |        | 3 4 90    |        |                   | 5398 m       |              |             |              | 252.9 ppt         |                    | 459.7 ppt         |                    |                   |                    |      |
| SAMP       | DEP  | PRS         | THETA  | SAL       | CTD-S  | SIG-0             | SIO<br>F-11  | PMEL<br>F-11 | SIO<br>F-12 | PMEL<br>F-12 | SIO<br>F11<br>F12 | PMEL<br>F11<br>F12 | SIO<br>F11<br>SAT | PMEL<br>F11<br>SAT | SIO<br>F12<br>SAT | PMEL<br>F12<br>SAT | FLAG |
|            | m    | db          | C      |           |        | Kg/m <sup>3</sup> | pM/kg        | pM/kg        | pM/kg       | pM/kg        |                   |                    |                   |                    |                   |                    | ---- |
| 8352       | 6    | 6           | 27.175 | 35.579    | 35.575 | 23.097            | 1.653        | 1.663        | 0.961       | 1.033        | 1.7               | 1.6                | 101.9             | 102.5              | 113.3             | 121.8              | 2644 |
| 8351       | 17   | 17          | 27.175 | 35.574    | 35.573 | 23.095            | 1.650        |              | 0.781       |              | 2.1               |                    | 101.7             |                    | 92.0              |                    | 2939 |
| 8350       | 37   | 37          | 27.178 | 35.576    | 35.574 | 23.095            | 1.661        | 1.665        | 0.839       | 0.863        | 2.0               | 1.9                | 102.4             | 102.7              | 98.9              | 101.7              | 2222 |
| 8349       | 66   | 67          | 27.164 | 35.576    | 35.576 | 23.101            | 1.588        |              | 0.860       |              | 1.8               |                    | 97.9              |                    | 101.3             |                    | 2929 |
| 8348       | 95   | 96          | 25.489 | 35.739    | 35.722 | 23.739            | 1.731        | 1.750        | 0.862       | 0.916        | 2.0               | 1.9                | 99.6              | 100.7              | 95.6              | 101.6              | 2222 |
| 8347       | 120  | 121         | 23.914 | 35.742    | 35.748 | 24.235            | 1.759        |              | 0.898       |              | 2.0               |                    | 94.7              |                    | 93.9              |                    | 2929 |
| 8346       | 147  | 148         | 22.621 | 35.718    | 35.707 | 24.581            | 1.779        | 1.808        | 0.908       | 0.926        | 2.0               | 2.0                | 90.5              | 91.9               | 90.3              | 92.1               | 2222 |
| 8345       | 194  | 196         | 20.995 | 35.764    | 35.768 | 25.082            | 1.690        | 1.731        | 0.860       | 0.881        | 2.0               | 2.0                | 80.0              | 81.9               | 80.2              | 82.2               | 2222 |
| 8353       | 245  | 246         | 19.333 | 35.641    | 35.636 | 25.423            | 1.632        |              | 0.818       |              | 2.0               |                    | 71.4              |                    | 71.2              |                    | 2929 |
| 8343       | 294  | 296         | 17.473 | 35.486    | 35.486 | 25.775            | 1.613        | 1.633        | 0.791       | 0.822        | 2.0               | 2.0                | 64.6              | 65.4               | 63.6              | 66.1               | 2222 |
| 8342       | 343  | 345         | 16.033 | 35.362    | 35.355 | 26.014            | 1.548        |              | 0.771       |              | 2.0               |                    | 57.7              |                    | 58.2              |                    | 2929 |
| 8341       | 393  | 396         | 14.241 | 35.149    | 35.150 | 26.253            | 1.381        | 1.406        | 0.668       | 0.697        | 2.1               | 2.0                | 47.0              | 47.8               | 46.5              | 48.5               | 6262 |
| 8452       | 491  | 494         | 9.470  | 34.628    | 34.638 | 26.759            | 0.679        | 0.690        | 0.341       | 0.351        | 2.0               | 2.0                | 17.8              | 18.1               | 18.9              | 19.5               | 2222 |
| 8451       | 589  | 594         | 6.879  | 34.399    | 34.398 | 26.961            |              | 0.236        |             | 0.129        |                   |                    | 1.8               | 5.3                |                   | 6.3                | 9292 |
| 8450       | 689  | 695         | 5.817  | 34.355    | 34.356 | 27.067            | 0.109        |              | 0.061       |              | 1.8               |                    | 2.3               |                    | 2.8               |                    | 2929 |
| 8449       | 788  | 794         | 5.129  | 34.363    | 34.367 | 27.159            | 0.041        | 0.031        | 0.026       | 0.026        |                   |                    | 0.8               | 0.6                | 1.1               | 1.1                | 2222 |
| 8448       | 886  | 893         | 4.584  | 34.412    | 34.414 | 27.258            | 0.005        |              | 0.000       |              |                   |                    | 0.1               |                    | 0.0               |                    | 2979 |
| 8447       | 985  | 994         | 4.025  | 34.445    | 34.448 | 27.344            | 0.000        | -0.003       | 0.003       | -0.001       |                   |                    | 0.0               | -0.1               | 0.1               | 0.0                | 2777 |
| 8446       | 1084 | 1094        | 3.497  | 34.479    | 34.482 | 27.425            | -0.003       |              | 0.001       |              |                   |                    | -0.1              |                    | 0.0               |                    | 2979 |
| 8445       | 1234 | 1246        | 2.903  | 34.525    | 34.528 | 27.517            | -0.002       |              | 0.001       |              |                   |                    | 0.0               |                    | 0.0               |                    | 2929 |
| 8453       | 1477 | 1492        | 2.489  | 34.593    | 34.596 | 27.608            | 0.009        |              | 0.001       |              |                   |                    | 0.2               |                    | 0.0               |                    | 2979 |
| 8443       | 1726 | 1744        | 2.277  | 34.616    | 34.618 | 27.643            | -0.001       |              | 0.005       |              |                   |                    | 0.0               |                    | 0.2               |                    | 2929 |
| 8442       | 1974 | 1996        | 2.084  | 34.639    | 34.635 | 27.673            | -0.004       |              | -0.003      |              |                   |                    | -0.1              |                    | -0.1              |                    | 7979 |
| 8441       | 2217 | 2243        | 1.906  | 34.646    | 34.651 | 27.699            | 0.010        |              | 0.000       |              |                   |                    | 0.2               |                    | 0.0               |                    | 6929 |
| 8551       | 2464 | 2494        | 1.748  | 34.657    | 34.658 | 27.717            | 0.005        |              | 0.004       |              |                   |                    | 0.1               |                    | 0.2               |                    | 2969 |
| 8550       | 2709 | 2744        | 1.617  | 34.665    | 34.668 | 27.735            | 0.010        |              | 0.000       |              |                   |                    | 0.2               |                    | 0.0               |                    | 2979 |
| 8549       | 2954 | 2993        | 1.493  | 34.671    | 34.676 | 27.751            | 0.005        |              | -0.004      |              |                   |                    | 0.1               |                    | -0.2              |                    | 2979 |
| 8548       | 3347 | 3395        | 1.297  | 34.688    | 34.692 | 27.778            | 0.014        |              | 0.030       |              |                   |                    | 0.2               |                    | 1.1               |                    | 4949 |
| 8547       | 3546 | 3598        | 1.172  | 34.707    | 34.710 | 27.801            | 0.005        |              | 0.001       |              |                   |                    | 0.1               |                    | 0.0               |                    | 2979 |
| 8546       | 3745 | 3802        | 1.034  |           | 34.720 | 27.818            | 0.004        |              | -0.001      |              |                   |                    | 0.1               |                    | 0.0               |                    | 2929 |
| 8545       | 3934 | 3996        | 0.905  | 34.715    | 34.719 | 27.826            | 0.007        |              | 0.003       |              |                   |                    | 0.1               |                    | 0.1               |                    | 2969 |
| 8553       | 4422 | 4496        | 0.675  | 34.721    | 34.713 | 27.836            | 0.003        |              | 0.000       |              |                   |                    | 0.1               |                    | 0.0               |                    | 2979 |
| 8543       | 4813 | 4898        | 0.617  | 34.703    | 34.712 | 27.838            | 0.004        |              | 0.001       |              |                   |                    | 0.1               |                    | 0.0               |                    | 2979 |
| 8542       | 5104 | 5198        | 0.607  | 34.705    | 34.710 | 27.837            | 0.004        |              | 0.004       |              |                   |                    | 0.1               |                    | 0.1               |                    | 2979 |
| 8541       | 5368 | 5470        | 0.601  | 34.715    | 34.711 | 27.839            | 0.004        |              | 0.002       |              |                   |                    | 0.1               |                    | 0.1               |                    | 6969 |

## CGC-90 CFC BOTTLE DATA

STATION 51

| LATITUDE    |     | LONGITUDE   |        | DAY-MO-YR |        |                   | BOTTOM DEPTH |              |             |              | ATM. F-11         |                    | ATM. F-12         |                    |                   |                    |      |
|-------------|-----|-------------|--------|-----------|--------|-------------------|--------------|--------------|-------------|--------------|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|------|
| 17° 29.5' S |     | 170° 0.3' W |        | 4 4 90    |        |                   | 4848 m       |              |             |              | 252.9 ppt         |                    | 459.7 ppt         |                    |                   |                    |      |
| SAMP        | DEP | PRS         | THETA  | SAL       | CTD-S  | SIG-0             | SIO<br>F-11  | PMEL<br>F-11 | SIO<br>F-12 | PMEL<br>F-12 | SIO<br>F11<br>F12 | PMEL<br>F11<br>F12 | SIO<br>F11<br>SAT | PMEL<br>F11<br>SAT | SIO<br>F12<br>SAT | PMEL<br>F12<br>SAT | FLAG |
|             | m   | db          | C      |           |        | Kg/m <sup>3</sup> | pM/kg        | pM/kg        | pM/kg       | pM/kg        |                   |                    |                   |                    |                   |                    | ---- |
| 8647        | 5   | 5           | 27.564 | 35.579    | 35.579 | 22.974            | 1.628        | 1.615        | 0.914       | 1.024        | 1.8               | 1.6                | 102.0             | 101.2              | 109.2             | 122.4              | 2244 |
| 8646        | 17  | 17          | 27.560 | 35.579    | 35.580 | 22.976            | 1.660        | 1.626        | 0.807       | 0.910        | 2.1               | 1.8                | 104.0             | 101.8              | 96.5              | 108.8              | 2626 |
| 8645        | 38  | 38          | 27.563 | 35.578    | 35.579 | 22.975            | 1.598        | 1.614        | 0.732       | 0.880        | 2.2               | 1.8                | 100.1             | 101.1              | 87.5              | 105.2              | 2232 |
| 8653        | 65  | 65          | 27.112 | 35.637    | 35.670 | 23.189            | 1.676        | 1.651        | 0.731       | 0.878        | 2.3               | 1.9                | 103.2             | 101.6              | 86.0              | 103.3              | 2232 |
| 8643        | 98  | 98          | 24.635 | 35.672    | 35.651 | 23.946            | 1.803        | 1.726        | 0.891       | 0.912        | 2.0               | 1.9                | 100.0             | 95.8               | 95.7              | 97.9               | 2222 |
| 8642        | 146 | 147         | 22.400 | 35.875    | 35.863 | 24.762            | 1.769        | 1.703        | 0.930       | 0.886        | 1.9               | 1.9                | 89.2              | 85.9               | 91.8              | 87.5               | 2222 |
| 8641        | 195 | 196         | 20.823 | 35.827    | 35.817 | 25.166            | 1.724        | 1.653        | 0.875       | 0.865        | 2.0               | 1.9                | 81.0              | 77.6               | 81.1              | 80.2               | 2222 |
| 8652        | 243 | 245         | 19.414 | 35.653    | 35.653 | 25.415            | 1.708        | 1.762        | 0.806       | 0.880        | 2.1               | 2.0                | 75.1              | 77.4               | 70.4              | 76.9               | 2222 |
| 8651        | 343 | 345         | 14.555 | 35.077    | 35.083 | 26.134            | 1.166        | 1.143        | 0.630       | 0.588        | 1.9               | 1.9                | 40.2              | 39.5               | 44.5              | 41.5               | 2222 |
| 8650        | 392 | 395         | 11.930 | 34.810    | 34.818 | 26.462            | 0.863        | 0.827        | 0.419       | 0.442        | 2.1               | 1.9                | 25.9              | 24.9               | 26.2              | 27.6               | 6262 |
| 8649        | 491 | 494         | 8.005  | 34.473    | 34.480 | 26.865            | 0.350        | 0.340        | 0.183       | 0.202        | 1.9               | 1.7                | 8.5               | 8.2                | 9.4               | 10.4               | 2222 |
| 8648        | 590 | 595         | 6.280  | 34.368    | 34.373 | 27.021            | 0.214        | 0.200        | 0.111       | 0.122        | 1.9               | 1.6                | 4.7               | 4.4                | 5.2               | 5.8                | 2222 |



## CGC-90 CFC BOTTLE DATA

STATION 52

| LATITUDE   |      | LONGITUDE   |        | DAY-MO-YR |        | BOTTOM DEPTH      |          |           |          | ATM. F-11 |             | ATM. F-12    |             |              |             |              |      |
|------------|------|-------------|--------|-----------|--------|-------------------|----------|-----------|----------|-----------|-------------|--------------|-------------|--------------|-------------|--------------|------|
| 15° 0.2' S |      | 170° 0.6' W |        | 4 4 90    |        | 4833 m            |          |           |          | 253.0 ppt |             | 465.7 ppt    |             |              |             |              |      |
| SAMP       | DEP  | PRS         | THETA  | SAL       | CTD-S  | SIG-0             | SIO F-11 | PMEL F-11 | SIO F-12 | PMEL F-12 | SIO F11 F12 | PMEL F11 F12 | SIO F11 SAT | PMEL F11 SAT | SIO F12 SAT | PMEL F12 SAT | FLAG |
|            | m    | db          | C      |           |        | Kg/m <sup>3</sup> | pM/kg    | pM/kg     | pM/kg    | pM/kg     |             |              |             |              |             |              | ---- |
| 8752       | 4    | 4           | 28.489 | 35.155    | 35.180 | 22.371            | 1.636    | 1.616     | 0.832    | 0.924     | 2.0         | 1.7          | 105.9       | 104.6        | 101.1       | 112.3        | 2224 |
| 8751       | 18   | 18          | 28.617 | 35.410    | 35.412 | 22.503            | 1.593    |           | 0.789    |           | 2.0         |              | 103.9       |              | 96.5        |              | 2929 |
| 8750       | 35   | 35          | 28.536 | 35.411    | 35.419 | 22.535            | 1.626    | 1.604     | 0.834    | 0.856     | 1.9         | 1.9          | 105.7       | 104.3        | 101.7       | 104.4        | 2626 |
| 8749       | 67   | 67          | 27.952 | 35.568    | 35.550 | 22.826            | 1.613    |           | 0.853    |           | 1.9         |              | 102.6       |              | 102.0       |              | 2929 |
| 8748       | 97   | 98          | 27.090 | 35.950    | 35.960 | 23.414            | 1.614    | 1.626     | 0.824    | 0.859     | 2.0         | 1.9          | 99.5        | 100.3        | 95.9        | 100.0        | 2222 |
| 8747       | 121  | 121         | 26.333 | 36.037    | 36.045 | 23.719            | 1.640    |           | 0.796    |           | 2.1         |              | 98.1        |              | 90.2        |              | 2929 |
| 8746       | 146  | 147         | 25.045 | 36.203    | 36.211 | 24.245            | 1.696    |           | 0.815    |           | 2.1         |              | 96.2        |              | 88.2        |              | 2929 |
| 8745       | 196  | 197         | 22.751 | 36.133    | 36.157 | 24.885            | 1.642    | 1.643     | 0.857    | 0.862     | 1.9         | 1.9          | 84.3        | 84.4         | 84.9        | 85.4         | 2222 |
| 8753       | 245  | 246         | 19.842 | 35.745    | 35.748 | 25.376            | 1.533    |           | 0.800    |           | 1.9         |              | 68.8        |              | 70.3        |              | 2929 |
| 8743       | 294  | 296         | 16.238 | 35.252    | 35.260 | 25.894            | 1.230    | 1.167     | 0.601    | 0.602     | 2.0         | 1.9          | 46.2        | 43.9         | 45.2        | 45.2         | 2626 |
| 8742       | 343  | 346         | 12.975 | 34.878    | 34.869 | 26.297            | 0.740    |           | 0.381    |           | 1.9         |              | 23.5        |              | 24.6        |              | 2929 |
| 8741       | 391  | 394         | 10.246 | 34.649    | 34.657 | 26.642            | 0.371    | 0.341     | 0.183    | 0.668     | 2.0         | 0.5          | 10.2        | 9.4          | 10.4        | 37.9         | 2624 |
| 8852       | 441  | 444         | 8.720  | 34.561    | 34.556 | 26.815            | 0.180    | 0.171     | 0.087    | 0.096     | 2.1         | 1.8          | 4.5         | 4.3          | 4.6         | 5.1          | 6262 |
| 8851       | 492  | 496         | 7.760  | 34.519    | 34.519 | 26.932            | 0.115    | 0.112     | 0.060    | 0.068     | 1.9         | 1.6          | 2.7         | 2.7          | 3.0         | 3.4          | 2222 |
| 8850       | 590  | 595         | 6.124  | 34.464    | 34.462 | 27.112            | 0.048    | 0.052     | 0.029    | 0.039     |             |              | 1.0         | 1.1          | 1.3         | 1.8          | 2222 |
| 8849       | 688  | 694         | 5.394  | 34.476    | 34.473 | 27.211            | 0.021    | 0.023     | 0.031    | 0.007     |             |              | 0.4         | 0.5          | 1.4         | 0.3          | 2232 |
| 8848       | 787  | 793         | 4.818  | 34.477    | 34.479 | 27.283            | 0.009    |           | 0.009    |           |             |              | 0.2         |              | 0.4         |              | 2979 |
| 8847       | 884  | 892         | 4.423  | 34.496    | 34.493 | 27.338            | 0.004    | 0.007     | 0.001    | -0.004    |             |              | 0.1         | 0.1          | 0.0         | -0.2         | 2272 |
| 8846       | 984  | 992         | 4.087  | 34.508    | 34.509 | 27.386            | 0.002    |           | 0.002    |           |             |              | 0.0         |              | 0.1         |              | 2979 |
| 8845       | 1083 | 1093        | 3.767  | 34.524    | 34.525 | 27.432            | -0.001   |           | 0.004    |           |             |              | 0.0         |              | 0.2         |              | 2979 |
| 8853       | 1231 | 1242        | 3.224  |           | 34.559 | 27.512            | 0.000    |           | 0.002    |           |             |              | 0.0         |              | 0.1         |              | 2979 |
| 8843       | 1477 | 1492        | 2.703  | 34.587    | 34.589 | 27.584            | -0.004   |           | -0.003   |           |             |              | -0.1        |              | -0.1        |              | 7979 |
| 8842       | 1732 | 1749        | 2.334  | 34.612    | 34.616 | 27.637            | 0.056    |           | 0.009    |           |             |              | 1.0         |              | 0.3         |              | 4929 |
| 8841       | 1971 | 1992        | 2.031  | 34.633    | 34.641 | 27.682            | 0.007    |           | 0.002    |           |             |              | 0.1         |              | 0.1         |              | 2929 |
| 8951       | 2219 | 2244        | 1.844  | 34.653    | 34.652 | 27.705            | 0.007    |           | 0.006    |           |             |              | 0.1         |              | 0.2         |              | 2979 |
| 8950       | 2463 | 2492        | 1.714  | 34.664    | 34.663 | 27.724            | 0.006    |           | 0.003    |           |             |              | 0.1         |              | 0.1         |              | 2929 |
| 8949       | 2709 | 2743        | 1.591  | 34.672    | 34.672 | 27.740            | 0.015    |           | 0.004    |           |             |              | 0.2         |              | 0.1         |              | 3979 |
| 8948       | 2956 | 2995        | 1.495  | 34.678    | 34.676 | 27.751            | 0.029    |           | 0.002    |           |             |              | 0.5         |              | 0.1         |              | 4979 |
| 8947       | 3347 | 3394        | 1.334  | 34.687    | 34.685 | 27.769            | 0.005    |           | 0.009    |           |             |              | 0.1         |              | 0.3         |              | 6969 |
| 8946       | 3746 | 3802        | 1.126  | 34.702    | 34.701 | 27.797            | 0.002    |           | 0.001    |           |             |              | 0.0         |              | 0.0         |              | 2979 |
| 8945       | 3938 | 3998        | 0.975  | 34.712    | 34.712 | 27.816            | 0.007    |           | 0.002    |           |             |              | 0.1         |              | 0.1         |              | 2979 |
| 8953       | 4132 | 4197        | 0.837  | 34.714    | 34.715 | 27.827            | 0.000    |           | -0.003   |           |             |              | 0.0         |              | -0.1        |              | 2979 |
| 8943       | 4425 | 4498        | 0.697  | 34.716    | 34.714 | 27.835            | 0.005    |           | 0.005    |           |             |              | 0.1         |              | 0.2         |              | 2979 |
| 8942       | 4619 | 4697        | 0.660  | 34.717    | 34.713 | 27.837            | 0.008    |           | 0.002    |           |             |              | 0.1         |              | 0.1         |              | 2979 |
| 8941       | 4790 | 4873        | 0.639  | 34.710    | 34.712 | 27.837            | 0.002    |           | 0.000    |           |             |              | 0.0         |              | 0.0         |              | 6969 |

## CGC-90 CFC BOTTLE DATA

STATION 54

| LATITUDE   |      | LONGITUDE    |       | DAY-MO-YR |        | BOTTOM DEPTH      |          |           |          | ATM. F-11 |             | ATM. F-12    |             |              |             |              |      |
|------------|------|--------------|-------|-----------|--------|-------------------|----------|-----------|----------|-----------|-------------|--------------|-------------|--------------|-------------|--------------|------|
| 10° 6.1' S |      | 169° 30.2' W |       | 6 4 90    |        | 5249 m            |          |           |          | 256.2 ppt |             | 466.7 ppt    |             |              |             |              |      |
| SAMP       | DEP  | PRS          | THETA | SAL       | CTD-S  | SIG-0             | SIO F-11 | PMEL F-11 | SIO F-12 | PMEL F-12 | SIO F11 F12 | PMEL F11 F12 | SIO F11 SAT | PMEL F11 SAT | SIO F12 SAT | PMEL F12 SAT | FLAG |
|            | m    | db           | C     |           |        | Kg/m <sup>3</sup> | pM/kg    | pM/kg     | pM/kg    | pM/kg     |             |              |             |              |             |              | ---- |
| 9142       | 1972 | 1993         | 2.012 | 34.645    | 34.641 | 27.683            | -0.003   |           | 0.000    |           |             |              | -0.1        |              | 0.0         |              | 2979 |
| 9141       | 2464 | 2493         | 1.671 | 34.669    | 34.666 | 27.729            | 0.014    |           | 0.004    |           |             |              | 0.2         |              | 0.2         |              | 3979 |
| 9151       | 2956 | 2994         | 1.416 | 34.682    | 34.679 | 27.759            | 0.005    |           | 0.001    |           |             |              | 0.1         |              | 0.0         |              | 6969 |
| 9150       | 3349 | 3395         | 1.306 | 34.686    | 34.684 | 27.770            | -0.001   |           | -0.002   |           |             |              | 0.0         |              | -0.1        |              | 2979 |
| 9149       | 3740 | 3795         | 1.175 | 34.692    | 34.691 | 27.785            | 0.009    |           | 0.000    |           |             |              | 0.1         |              | 0.0         |              | 2979 |
| 9148       | 4131 | 4196         | 0.963 | 34.707    | 34.705 | 27.811            | 0.028    |           | 0.003    |           |             |              | 0.4         |              | 0.1         |              | 4929 |
| 9147       | 4523 | 4597         | 0.706 | 34.712    | 34.711 | 27.832            | 0.002    |           | 0.006    |           |             |              | 0.0         |              | 0.2         |              | 2929 |
| 9146       | 4714 | 4794         | 0.670 | 34.711    | 34.712 | 27.835            | 0.004    |           | -0.003   |           |             |              | 0.1         |              | -0.1        |              | 2979 |
| 9145       | 4913 | 4999         | 0.661 | 34.720    | 34.711 | 27.835            | 0.006    |           | 0.005    |           |             |              | 0.1         |              | 0.2         |              | 2979 |
| 9153       | 5206 | 5301         | 0.655 | 34.712    | 34.711 | 27.835            | 0.004    |           | 0.001    |           |             |              | 0.6         |              | 0.0         |              | 4979 |
| 9143       | 5207 | 5301         | 0.655 | 34.712    | 34.712 | 27.836            | 0.009    |           | 0.004    |           |             |              | 0.1         |              | 0.1         |              | 6969 |

## CGC-90 CFC BOTTLE DATA

STATION 55

| LATITUDE   |      |      | LONGITUDE    |        |        | DAY-MO-YR         |             |              | BOTTOM DEPTH |              |                   |                    | ATM. F-11  |             | ATM. F-12  |             |      |  |
|------------|------|------|--------------|--------|--------|-------------------|-------------|--------------|--------------|--------------|-------------------|--------------------|------------|-------------|------------|-------------|------|--|
| 10° 5.4' S |      |      | 169° 59.5' W |        |        | 6 4 90            |             |              | 5163 m       |              |                   |                    | 256.2 ppt  |             | 466.7 ppt  |             |      |  |
| SAMP       | DEP  | PRS  | THETA        | SAL    | CTD-S  | SIG-0             | SIO<br>F-11 | PMEL<br>F-11 | SIO<br>F-12  | PMEL<br>F-12 | SIO<br>F11<br>F12 | PMEL<br>F11<br>F12 | SIO<br>SAT | PMEL<br>SAT | SIO<br>SAT | PMEL<br>SAT | FLAG |  |
|            | m    | db   | C            |        |        | Kg/m <sup>3</sup> | pM/kg       | pM/kg        | pM/kg        | pM/kg        |                   |                    |            |             |            |             | ---- |  |
| 9242       | 5    | 5    | 28.693       | 34.784 | 34.762 | 21.990            | 1.583       | 1.618        | 0.808        | 0.896        | 2.0               | 1.8                | 101.6      | 103.8       | 98.3       | 109.0       | 2224 |  |
| 9241       | 38   | 38   | 28.612       | 34.950 | 34.946 | 22.155            | 1.650       | 1.616        | 0.825        | 0.831        | 2.0               | 1.9                | 105.8      | 103.6       | 100.2      | 101.0       | 2222 |  |
| 9252       | 97   | 97   | 28.059       | 35.431 | 35.434 | 22.704            | 1.660       | 1.615        | 0.817        | 0.854        | 2.0               | 1.9                | 104.6      | 101.7       | 97.8       | 102.2       | 2222 |  |
| 9251       | 196  | 197  | 21.770       | 35.941 | 35.937 | 24.996            | 1.540       | 1.534        | 0.763        | 0.795        | 2.0               | 1.9                | 74.6       | 74.3        | 72.4       | 75.5        | 2222 |  |
| 9250       | 292  | 294  | 13.654       | 34.781 | 34.963 | 26.232            | 0.731       | 0.706        | 0.378        | 0.379        | 1.9               | 1.9                | 23.8       | 22.9        | 25.2       | 25.3        | 4242 |  |
| 9249       | 393  | 396  | 8.676        | 34.630 | 34.626 | 26.877            | 0.074       | 0.065        | 0.037        | 0.048        |                   |                    | 1.8        | 1.6         | 1.9        | 2.5         | 2222 |  |
| 9248       | 490  | 494  | 7.226        | 34.562 | 34.562 | 27.042            | 0.049       | 0.032        | 0.029        | 0.022        |                   |                    | 1.1        | 0.7         | 1.4        | 1.1         | 2222 |  |
| 9247       | 590  | 595  | 6.276        | 34.530 | 34.529 | 27.145            | 0.014       |              | 0.011        |              |                   |                    | 0.3        |             | 0.5        |             | 6969 |  |
| 9246       | 786  | 792  | 5.042        | 34.520 | 34.518 | 27.288            | 0.004       | -0.002       | 0.003        | -0.001       |                   |                    | 0.1        | 0.0         | 0.1        | 0.0         | 2727 |  |
| 9245       | 984  | 992  | 4.349        | 34.528 | 34.530 | 27.375            | -0.003      |              | 0.000        |              |                   |                    | -0.1       |             | 0.0        |             | 2979 |  |
| 9253       | 1233 | 1244 | 3.459        | 34.561 | 34.562 | 27.492            | -0.002      |              | 0.002        |              |                   |                    | 0.0        |             | 0.1        |             | 2979 |  |
| 9243       | 1482 | 1496 | 2.760        | 34.602 | 34.595 | 27.583            | 0.000       |              | 0.001        |              |                   |                    | 0.0        |             | 0.0        |             | 2979 |  |
| 9353       | 1973 | 1994 | 2.020        | 34.640 | 34.641 | 27.683            | -0.002      | -0.002       | 0.001        | 0.001        |                   |                    | 0.0        | 0.0         | 0.0        | 0.0         | 6767 |  |
| 9343       | 2466 | 2494 | 1.652        | 34.666 | 34.666 | 27.731            | -0.005      | -0.004       | -0.003       | 0.000        |                   |                    | -0.1       | -0.1        | -0.1       | 0.0         | 2777 |  |
| 9342       | 2944 | 2982 | 1.432        | 34.680 | 34.679 | 27.757            | 0.002       | 0.003        | 0.002        | -0.001       |                   |                    | 0.0        | 0.1         | 0.1        | 0.0         | 6767 |  |
| 9341       | 3350 | 3396 | 1.312        | 34.686 | 34.684 | 27.770            | 0.005       | 0.019        | 0.001        | 0.012        |                   |                    | 0.1        | 0.3         | 0.0        | 0.4         | 2373 |  |
| 9351       | 3741 | 3796 | 1.189        | 34.691 | 34.691 | 27.784            | 0.048       | 0.034        | -0.001       | 0.005        |                   |                    | 0.8        | 0.5         | 0.0        | 0.2         | 4477 |  |
| 9350       | 4133 | 4197 | 0.894        | 34.711 | 34.711 | 27.820            | 0.047       |              | 0.000        |              |                   |                    | 0.7        |             | 0.0        |             | 4979 |  |
| 9349       | 4523 | 4598 | 0.678        | 34.712 | 34.712 | 27.835            | 0.011       | 0.010        | 0.005        | 0.011        |                   |                    | 0.2        | 0.2         | 0.2        | 0.4         | 2777 |  |
| 9348       | 4718 | 4798 | 0.654        | 34.713 | 34.712 | 27.836            | 0.003       |              | 0.002        |              |                   |                    | 0.1        |             | 0.1        |             | 2979 |  |
| 9347       | 5067 | 5157 | 0.648        | 34.711 | 34.710 | 27.835            | 0.005       | -0.002       | 0.001        | 0.002        |                   |                    | 0.1        | 0.0         | 0.0        | 0.1         | 2777 |  |
| 9346       | 5134 | 5226 | 0.648        | 34.714 | 34.711 | 27.836            | 0.004       |              | -0.001       |              |                   |                    | 0.1        |             | 0.0        |             | 6969 |  |
| 9345       | 5137 | 5230 | 0.648        | 34.713 | 34.711 | 27.836            | 0.012       |              | 0.000        |              |                   |                    | 0.2        |             | 0.0        |             | 2929 |  |

## CGC-90 CFC BOTTLE DATA

STATION 56

| LATITUDE   |      |      | LONGITUDE    |        |        | DAY-MO-YR         |             |              | BOTTOM DEPTH |              |                   |                    | ATM. F-11  |             | ATM. F-12  |             |      |  |
|------------|------|------|--------------|--------|--------|-------------------|-------------|--------------|--------------|--------------|-------------------|--------------------|------------|-------------|------------|-------------|------|--|
| 10° 5.3' S |      |      | 170° 14.9' W |        |        | 6 4 90            |             |              | 5051 m       |              |                   |                    | 256.2 ppt  |             | 466.7 ppt  |             |      |  |
| SAMP       | DEP  | PRS  | THETA        | SAL    | CTD-S  | SIG-0             | SIO<br>F-11 | PMEL<br>F-11 | SIO<br>F-12  | PMEL<br>F-12 | SIO<br>F11<br>F12 | PMEL<br>F11<br>F12 | SIO<br>SAT | PMEL<br>SAT | SIO<br>SAT | PMEL<br>SAT | FLAG |  |
|            | m    | db   | C            |        |        | Kg/m <sup>3</sup> | pM/kg       | pM/kg        | pM/kg        | pM/kg        |                   |                    |            |             |            |             | ---- |  |
| 9453       | 1972 | 1993 | 2.023        | 34.644 | 34.641 | 27.682            | 0.003       |              | 0.001        |              |                   |                    | 0.1        |             | 0.0        |             | 2979 |  |
| 9443       | 2465 | 2494 | 1.652        | 34.667 | 34.665 | 27.730            | -0.003      |              | -0.001       |              |                   |                    | -0.1       |             | 0.0        |             | 2979 |  |
| 9442       | 2956 | 2994 | 1.438        | 34.682 | 34.679 | 27.757            | -0.001      |              | 0.002        |              |                   |                    | 0.0        |             | 0.1        |             | 2929 |  |
| 9441       | 3348 | 3394 | 1.302        | 34.684 | 34.685 | 27.772            | 0.006       |              | 0.001        |              |                   |                    | 0.1        |             | 0.0        |             | 6929 |  |
| 9451       | 3740 | 3795 | 1.156        | 34.695 | 34.693 | 27.788            | -0.001      |              | 0.002        |              |                   |                    | 0.0        |             | 0.1        |             | 2929 |  |
| 9450       | 4131 | 4196 | 0.808        | 34.712 | 34.712 | 27.826            | -0.001      |              | 0.005        |              |                   |                    | 0.0        |             | 0.2        |             | 2929 |  |
| 9449       | 4523 | 4597 | 0.702        | 34.712 | 34.712 | 27.833            | 0.000       |              | 0.000        |              |                   |                    | 0.0        |             | 0.0        |             | 2929 |  |
| 9448       | 4718 | 4798 | 0.668        | 34.712 | 34.712 | 27.835            | 0.004       |              | 0.009        |              |                   |                    | 0.1        |             | 0.3        |             | 2929 |  |
| 9447       | 4955 | 5042 | 0.659        | 34.719 | 34.711 | 27.835            | 0.000       |              | 0.006        |              |                   |                    | 0.0        |             | 0.2        |             | 2979 |  |
| 9446       | 5018 | 5107 | 0.659        | 34.712 | 34.712 | 27.836            | 0.006       |              | -0.001       |              |                   |                    | 0.1        |             | 0.0        |             | 2979 |  |
| 9445       | 5022 | 5111 | 0.660        | 34.713 | 34.712 | 27.836            | -0.001      |              | -0.001       |              |                   |                    | 0.0        |             | 0.0        |             | 6969 |  |

## CGC-90 CFC BOTTLE DATA

STATION 58

| LATITUDE  |      | LONGITUDE   |        | DAY-MO-YR |        |                   | BOTTOM DEPTH |           |          |           | ATM. F-11   |              | ATM. F-12   |              |             |              |      |
|-----------|------|-------------|--------|-----------|--------|-------------------|--------------|-----------|----------|-----------|-------------|--------------|-------------|--------------|-------------|--------------|------|
| 5° 0.1' S |      | 170° 0.8' W |        | 7 4 90    |        |                   | 5411 m       |           |          |           | 255.2 ppt   |              | 466.9 ppt   |              |             |              |      |
| SAMP      | DEP  | PRS         | THETA  | SAL       | CTD-S  | SIG-0             | SIO F-11     | PMEL F-11 | SIO F-12 | PMEL F-12 | SIO F11 F12 | PMEL F11 F12 | SIO F11 SAT | PMEL F11 SAT | SIO F12 SAT | PMEL F12 SAT | FLAG |
|           | m    | db          | C      |           |        | Kg/m <sup>3</sup> | pM/kg        | pM/kg     | pM/kg    | pM/kg     |             |              |             |              |             |              | ---- |
| 9653      | 5    | 5           | 29.045 | 35.531    | 35.530 | 22.449            |              | 1.559     | 0.831    |           |             |              |             |              |             |              | 9292 |
| 9643      | 17   | 17          | 29.001 | 35.534    | 35.534 | 22.467            | 1.573        | 1.571     | 0.777    | 0.824     | 2.0         | 1.9          | 103.4       | 103.3        | 96.2        | 102.0        | 2232 |
| 9642      | 36   | 36          | 28.982 | 35.536    | 35.535 | 22.474            | 1.607        | 1.600     | 0.821    | 0.839     | 2.0         | 1.9          | 105.6       | 105.1        | 101.6       | 103.8        | 2222 |
| 9641      | 67   | 68          | 28.838 | 35.547    | 35.543 | 22.528            | 1.641        | 1.657     | 0.831    | 0.848     | 2.0         | 2.0          | 107.2       | 108.2        | 102.3       | 104.4        | 2222 |
| 9652      | 98   | 98          | 28.281 | 35.696    | 35.696 | 22.828            | 1.582        | 1.606     | 0.807    | 0.841     | 2.0         | 1.9          | 101.2       | 102.8        | 97.6        | 101.7        | 2222 |
| 9651      | 122  | 122         | 28.157 | 35.715    | 35.704 | 22.875            | 1.617        | 1.611     | 0.854    | 0.841     | 1.9         | 1.9          | 103.0       | 102.6        | 102.8       | 101.2        | 2222 |
| 9650      | 146  | 147         | 27.039 | 35.801    | 35.811 | 23.319            | 1.597        | 1.605     | 0.807    | 0.845     | 2.0         | 1.9          | 97.3        | 97.8         | 93.4        | 97.8         | 2222 |
| 9649      | 197  | 198         | 20.591 | 35.842    | 35.840 | 25.246            | 1.490        | 1.517     | 0.776    | 0.785     | 1.9         | 1.9          | 68.6        | 69.9         | 70.2        | 71.0         | 2222 |
| 9648      | 246  | 248         | 14.021 | 35.098    | 35.090 | 26.253            | 0.697        | 0.692     | 0.349    | 0.364     | 2.0         | 1.9          | 23.2        | 23.0         | 23.7        | 24.7         | 2222 |
| 9647      | 293  | 295         | 11.543 | 34.861    | 34.866 | 26.572            | 0.257        | 0.243     | 0.127    | 0.151     | 2.0         | 1.6          | 7.5         | 7.1          | 7.7         | 9.1          | 2626 |
| 9646      | 344  | 347         | 10.201 | 34.764    | 34.764 | 26.734            | 0.129        | 0.114     | 0.048    | 0.072     |             | 1.6          | 3.5         | 3.1          | 2.7         | 4.1          | 2222 |
| 9645      | 394  | 397         | 9.365  | 34.710    | 34.711 | 26.833            | 0.067        | 0.052     | 0.031    | 0.037     |             |              | 1.7         | 1.4          | 1.7         | 2.0          | 2227 |
| 9753      | 442  | 445         | 8.596  | 34.666    | 34.663 | 26.918            | 0.029        | 0.031     | 0.015    | 0.014     |             |              | 0.7         | 0.8          | 0.8         | 0.7          | 2727 |
| 9743      | 490  | 494         | 8.253  | 34.648    | 34.646 | 26.958            | 0.028        | 0.026     | 0.006    | 0.010     |             |              | 0.7         | 0.6          | 0.3         | 0.5          | 2777 |
| 9742      | 590  | 595         | 7.414  | 34.604    | 34.603 | 27.048            | 0.069        | 0.038     | 0.020    | 0.017     |             |              | 1.6         | 0.9          | 1.0         | 0.8          | 4333 |
| 9741      | 689  | 694         | 6.434  | 34.562    | 34.559 | 27.148            | 0.010        | 0.006     | 0.002    | 0.003     |             |              | 0.2         | 0.1          | 0.1         | 0.1          | 2777 |
| 9752      | 788  | 795         | 5.785  | 34.542    | 34.541 | 27.217            | 0.039        |           | 0.016    |           |             |              | 0.8         |              | 0.7         |              | 4939 |
| 9751      | 888  | 895         | 5.150  | 34.537    | 34.536 | 27.290            | 0.030        |           | 0.008    |           |             |              | 0.6         |              | 0.4         |              | 4929 |
| 9750      | 984  | 992         | 4.627  |           | 34.541 | 27.354            | 0.008        |           | 0.001    |           |             |              | 0.2         |              | 0.0         |              | 2979 |
| 9749      | 1084 | 1094        | 4.122  | 34.556    | 34.552 | 27.417            | 0.001        |           | 0.006    |           |             |              | 0.0         |              | 0.2         |              | 2929 |
| 9748      | 1229 | 1240        | 3.523  | 34.576    | 34.573 | 27.495            | -0.001       |           | 0.002    |           |             |              | 0.0         |              | 0.1         |              | 2979 |
| 9747      | 1479 | 1493        | 2.817  | 34.612    | 34.604 | 27.586            | 0.000        |           | -0.001   |           |             |              | 0.0         |              | 0.0         |              | 2979 |
| 9746      | 1726 | 1743        | 2.374  | 34.632    | 34.628 | 27.643            | 0.018        |           | 0.008    |           |             |              | 0.3         |              | 0.3         |              | 4949 |
| 9745      | 1973 | 1994        | 2.067  | 34.647    | 34.647 | 27.684            | 0.009        |           | 0.000    |           |             |              | 0.2         |              | 0.0         |              | 2979 |
| 9853      | 2218 | 2243        | 1.915  | 34.653    | 34.653 | 27.700            | 0.005        |           | -0.001   |           |             |              | 0.1         |              | 0.0         |              | 6969 |
| 9843      | 2514 | 2543        | 1.713  | 34.664    | 34.662 | 27.723            | 0.002        |           | -0.003   |           |             |              | 0.0         |              | -0.1        |              | 6969 |
| 9842      | 2706 | 2739        | 1.606  | 34.678    | 34.667 | 27.735            | 0.004        |           | 0.002    |           |             |              | 0.1         |              | 0.1         |              | 6969 |
| 9841      | 2955 | 2993        | 1.462  | 34.677    | 34.676 | 27.753            | 0.009        |           | 0.004    |           |             |              | 0.2         |              | 0.1         |              | 6969 |
| 9851      | 3349 | 3394        | 1.298  | 34.685    | 34.684 | 27.771            | 0.001        |           | -0.001   |           |             |              | 0.0         |              | 0.0         |              | 2979 |
| 9850      | 3744 | 3798        | 1.170  | 34.692    | 34.690 | 27.785            | 0.004        |           | -0.010   |           |             |              | 0.1         |              | -0.4        |              | 2929 |
| 9849      | 4132 | 4196        | 1.032  | 34.701    | 34.697 | 27.800            | 0.006        |           | 0.018    |           |             |              | 0.1         |              | 0.6         |              | 2949 |
| 9848      | 4328 | 4397        | 0.965  | 34.703    | 34.700 | 27.807            | 0.012        |           | -0.001   |           |             |              | 0.2         |              | 0.0         |              | 3979 |
| 9847      | 4521 | 4595        | 0.877  | 34.708    | 34.704 | 27.816            | 0.006        |           | -0.001   |           |             |              | 0.1         |              | 0.0         |              | 2979 |
| 9846      | 4907 | 4992        | 0.774  | 34.712    | 34.709 | 27.826            | 0.002        |           | 0.002    |           |             |              | 0.0         |              | 0.1         |              | 2979 |
| 9845      | 5381 | 5480        | 0.761  | 34.711    | 34.708 | 27.826            | 0.002        |           | 0.007    |           |             |              | 0.0         |              | 0.2         |              | 2929 |

## CGC-90 CFC BOTTLE DATA

STATION 59

| LATITUDE  |     | LONGITUDE   |        | DAY-MO-YR |        |                   | BOTTOM DEPTH |           |          |           | ATM. F-11   |              | ATM. F-12   |              |             |              |      |      |
|-----------|-----|-------------|--------|-----------|--------|-------------------|--------------|-----------|----------|-----------|-------------|--------------|-------------|--------------|-------------|--------------|------|------|
| 2° 0.3' S |     | 170° 0.4' W |        | 8 4 90    |        |                   | 5214 m       |           |          |           | 255.2 ppt   |              | 467.5 ppt   |              |             |              |      |      |
| SAMP      | DEP | PRS         | THETA  | SAL       | CTD-S  | SIG-0             | SIO F-11     | PMEL F-11 | SIO F-12 | PMEL F-12 | SIO F11 F12 | PMEL F11 F12 | SIO F11 SAT | PMEL F11 SAT | SIO F12 SAT | PMEL F12 SAT | FLAG |      |
|           | m   | db          | C      |           |        | Kg/m <sup>3</sup> | pM/kg        | pM/kg     | pM/kg    | pM/kg     |             |              |             |              |             |              | ---- |      |
| 9948      | 6   | 6           | 28.329 | 35.366    | 35.362 | 22.561            | 1.676        | 1.673     | 0.905    | 0.969     | 1.9         | 1.7          | 107.1       | 106.9        | 109.1       | 116.8        | 2224 |      |
| 9947      | 17  | 17          | 28.330 | 35.367    | 35.363 | 22.561            | 1.633        |           | 0.862    |           | 1.9         |              | 104.3       |              | 103.9       |              | 2929 |      |
| 9946      | 36  | 36          | 28.301 | 35.366    | 35.363 | 22.571            | 1.611        | 1.592     | 0.779    | 0.851     | 2.1         | 1.9          | 102.8       | 101.6        | 93.8        | 102.5        | 2222 |      |
| 9945      | 67  | 67          | 27.916 | 35.494    | 35.490 | 22.793            | 1.653        |           | 0.820    |           | 2.0         |              | 104.0       |              | 97.5        |              | 2929 |      |
| 9953      | 95  | 96          | 27.435 | 35.576    | 35.574 | 23.012            | 1.642        | 1.646     | 0.824    | 0.874     | 2.0         | 1.9          | 101.4       | 101.6        | 96.4        | 102.2        | 2222 |      |
| 9943      | 123 | 124         | 26.939 | 35.592    | 35.590 | 23.184            | 1.655        | 1.662     | 0.845    | 0.886     | 2.0         | 1.9          | 100.2       | 100.6        | 97.1        | 101.8        | 2222 |      |
| 9942      | 145 | 146         | 24.424 | 35.781    | 35.803 | 24.125            | 1.634        | 1.619     | 0.833    | 0.857     | 2.0         | 1.9          | 89.2        | 88.3         | 87.4        | 89.9         | 2222 |      |
| 9941      | 197 | 198         | 16.564 | 35.338    | 35.330 | 25.872            | 0.974        | 0.957     | 0.475    | 0.504     | 2.1         | 1.9          | 36.9        | 36.3         | 36.1        | 38.3         | 2222 |      |
| 9952      | 295 | 297         | 10.607 |           | 34.769 | 26.666            |              |           |          |           |             |              |             |              |             |              | 9999 |      |
| 9951      | 490 | 494         | 8.382  |           | 34.693 | 26.975            | 0.095        | 0.087     | 0.037    | 0.051     |             |              | 1.7         | 2.3          | 2.1         | 1.9          | 2.6  | 2222 |
| 9950      | 689 | 694         | 6.078  | 34.558    | 34.559 | 27.194            | 0.053        |           | 0.001    |           |             |              | 1.1         |              | 0.1         |              | 2939 |      |
| 9949      | 986 | 994         | 4.342  | 34.560    | 34.559 | 27.399            | 0.028        |           | 0.019    |           |             |              | 0.5         |              | 0.8         |              | 2929 |      |

## CGC-90 CFC BOTTLE DATA

STATION 60

| LATITUDE   |     | LONGITUDE   |        | DAY-MO-YR |        | BOTTOM DEPTH      |       |       |       | ATM. F-11 |     | ATM. F-12 |       |       |       |       |      |      |
|------------|-----|-------------|--------|-----------|--------|-------------------|-------|-------|-------|-----------|-----|-----------|-------|-------|-------|-------|------|------|
| 0° 59.7' S |     | 170° 1.2' W |        | 9 4 90    |        | 5435 m            |       |       |       | 254.0 ppt |     | 465.5 ppt |       |       |       |       |      |      |
| SAMP       | DEP | PRS         | THETA  | SAL       | CTD-S  | SIG-0             | SIO   | PMEL  | SIO   | PMEL      | SIO | PMEL      | SIO   | PMEL  | SIO   | PMEL  | FLAG |      |
|            | m   | db          | C      |           |        | Kg/m <sup>3</sup> | pM/kg | pM/kg | pM/kg | pM/kg     | F11 | F12       | F11   | F12   | F11   | F12   | SAT  |      |
| 10048      | 5   | 5           | 28.210 | 35.367    | 35.367 | 22.604            | 1.632 | 1.595 | 0.853 | 0.866     | 1.9 | 1.8       | 104.3 | 101.9 | 102.8 | 104.4 | 2222 |      |
| 10047      | 19  | 19          | 28.098 | 35.364    | 35.362 | 22.637            | 1.723 |       | 0.842 |           | 2.0 |           | 109.6 |       | 101.1 |       | 2929 |      |
| 10046      | 39  | 39          | 28.071 | 35.365    | 35.364 | 22.647            | 1.681 | 1.596 | 0.844 | 0.861     | 2.0 | 1.9       | 106.8 | 101.4 | 101.3 | 103.3 | 2222 |      |
| 10045      | 67  | 68          | 28.041 | 35.370    | 35.368 | 22.660            | 1.690 |       | 0.839 |           | 2.0 |           | 107.2 |       | 100.5 |       | 2929 |      |
| 10053      | 97  | 98          | 27.609 | 35.465    | 35.460 | 22.870            | 1.647 | 1.606 | 0.866 | 0.869     | 1.9 | 1.8       | 102.8 | 100.2 | 102.3 | 102.6 | 2222 |      |
| 10043      | 120 | 121         | 26.704 | 35.571    | 35.581 | 23.252            | 1.729 | 1.623 | 0.859 | 0.876     | 2.0 | 1.9       | 104.1 | 97.7  | 98.3  | 100.2 | 2222 |      |
| 10042      | 146 | 147         | 21.138 | 35.470    | 35.486 | 24.828            | 1.346 | 1.297 | 0.706 | 0.696     | 1.9 | 1.9       | 63.6  | 61.3  | 65.2  | 64.3  | 2222 |      |
| 10041      | 195 | 196         | 15.624 | 35.167    | 35.170 | 25.965            | 1.029 | 0.943 | 0.506 | 0.503     | 2.0 | 1.9       | 37.3  | 34.2  | 37.0  | 36.8  | 2222 |      |
| 10052      | 294 | 296         | 11.231 | 34.807    | 34.817 | 26.591            | 0.350 | 0.319 | 0.159 | 0.167     | 2.2 | 1.9       | 10.1  | 9.2   | 9.5   | 10.0  | 6222 |      |
| 10051      | 494 | 498         | 8.122  | 34.627    | 34.634 | 26.968            | 0.088 | 0.066 | 0.042 | 0.058     |     |           | 1.1   | 2.1   | 1.6   | 2.2   | 3.0  | 2222 |
| 10050      | 688 | 694         | 6.016  | 34.557    | 34.562 | 27.205            | 0.051 |       | 0.001 |           |     |           | 1.1   |       | 0.1   |       | 2939 |      |
| 10049      | 986 | 994         | 4.528  | 34.556    | 34.560 | 27.380            | 0.002 |       | 0.005 |           |     |           | 0.0   |       | 0.2   |       | 2979 |      |

## CGC-90 CFC BOTTLE DATA

STATION 61

| LATITUDE   |     | LONGITUDE   |        | DAY-MO-YR |        | BOTTOM DEPTH      |       |       |       | ATM. F-11 |     | ATM. F-12 |       |       |       |       |      |
|------------|-----|-------------|--------|-----------|--------|-------------------|-------|-------|-------|-----------|-----|-----------|-------|-------|-------|-------|------|
| 0° 29.9' S |     | 170° 0.4' W |        | 9 4 90    |        | 5698 m            |       |       |       | 254.1 ppt |     | 465.2 ppt |       |       |       |       |      |
| SAMP       | DEP | PRS         | THETA  | SAL       | CTD-S  | SIG-0             | SIO   | PMEL  | SIO   | PMEL      | SIO | PMEL      | SIO   | PMEL  | SIO   | PMEL  | FLAG |
|            | m   | db          | C      |           |        | Kg/m <sup>3</sup> | pM/kg | pM/kg | pM/kg | pM/kg     | F11 | F12       | F11   | F12   | F11   | F12   | SAT  |
| 10152      | 6   | 6           | 28.206 | 35.386    | 35.390 | 22.622            | 1.622 | 1.564 | 0.780 | 0.854     | 2.1 | 1.8       | 103.6 | 99.9  | 94.1  | 103.0 | 2232 |
| 10151      | 17  | 18          | 28.122 | 35.384    | 35.397 | 22.655            | 1.605 |       | 0.782 |           | 2.1 |           | 102.2 |       | 94.1  |       | 2939 |
| 10150      | 38  | 38          | 28.072 | 35.382    | 35.385 | 22.663            | 1.618 | 1.574 | 0.803 | 0.864     | 2.0 | 1.8       | 102.8 | 100.0 | 96.4  | 103.7 | 2232 |
| 10149      | 67  | 67          | 28.032 | 35.380    | 35.384 | 22.675            | 1.679 |       | 0.850 |           | 2.0 |           | 106.5 |       | 101.9 |       | 2929 |
| 10148      | 97  | 97          | 27.529 | 35.498    | 35.522 | 22.943            | 1.613 | 1.581 | 0.830 | 0.865     | 1.9 | 1.8       | 100.4 | 98.4  | 97.9  | 102.0 | 2222 |
| 10147      | 120 | 121         | 26.155 | 35.572    | 35.561 | 23.410            | 1.577 | 1.544 | 0.821 | 0.848     | 1.9 | 1.8       | 92.8  | 90.8  | 92.1  | 95.1  | 2222 |
| 10146      | 146 | 147         | 21.490 | 35.362    | 35.307 | 24.595            | 1.372 | 1.302 | 0.688 | 0.713     | 2.0 | 1.8       | 65.8  | 62.4  | 64.4  | 66.7  | 2222 |
| 10145      | 195 | 196         | 14.948 | 35.052    | 35.048 | 26.021            | 0.928 | 0.890 | 0.465 | 0.479     | 2.0 | 1.9       | 32.5  | 31.2  | 33.0  | 34.0  | 2222 |
| 10153      | 245 | 246         | 12.399 | 34.914    | 34.907 | 26.440            | 0.600 | 0.556 | 0.286 | 0.310     | 2.1 | 1.8       | 18.4  | 17.1  | 18.0  | 19.6  | 2222 |
| 10143      | 343 | 345         | 10.348 |           | 34.762 | 26.706            | 0.188 | 0.143 | 0.113 | 0.132     | 1.7 | 1.1       | 5.2   | 3.9   | 6.5   | 7.5   | 2323 |
| 10142      | 493 | 497         | 8.324  | 34.641    | 34.651 | 26.951            | 0.044 | 0.045 | 0.022 | 0.027     |     |           | 1.1   | 1.1   | 1.1   | 1.4   | 2727 |
| 10141      | 985 | 994         | 4.328  | 34.562    | 34.571 | 27.410            | 0.017 |       | 0.005 |           |     |           | 0.3   |       | 0.2   |       | 2979 |

## CGC-90 CFC BOTTLE DATA

STATION 62

| LATITUDE |      |      | LONGITUDE   |        |        | DAY-MO-YR         |          |           | BOTTOM DEPTH |           |             |              | ATM. F-11   |              | ATM. F-12   |              |      |  |
|----------|------|------|-------------|--------|--------|-------------------|----------|-----------|--------------|-----------|-------------|--------------|-------------|--------------|-------------|--------------|------|--|
| 0° 0.0'  |      |      | 170° 1.2' W |        |        | 9 4 90            |          |           | 5342 m       |           |             |              | 254.1 ppt   |              | 465.2 ppt   |              |      |  |
| SAMP     | DEP  | PRS  | THETA       | SAL    | CTD-S  | SIG-0             | SIO F-11 | PMEL F-11 | SIO F-12     | PMEL F-12 | SIO F11 F12 | PMEL F11 F12 | SIO F11 SAT | PMEL F11 SAT | SIO F12 SAT | PMEL F12 SAT | FLAG |  |
|          | m    | db   | C           |        |        | Kg/m <sup>3</sup> | pM/kg    | pM/kg     | pM/kg        | pM/kg     |             |              |             |              |             |              | ---- |  |
| 10352    | 4    | 4    | 28.026      | 35.391 | 35.393 | 22.684            | 1.603    | 1.660     | 0.796        | 0.876     | 2.0         | 1.9          | 101.6       | 105.2        | 95.4        | 105.0        | 2232 |  |
| 10351    | 18   | 18   | 28.025      | 35.396 | 35.392 | 22.683            | 1.655    | 1.662     | 0.799        | 0.875     | 2.1         | 1.9          | 104.9       | 105.4        | 95.8        | 104.9        | 2232 |  |
| 10350    | 37   | 37   | 27.971      | 35.391 | 35.390 | 22.700            | 1.610    | 1.658     | 0.670        | 0.861     | 2.4         | 1.9          | 101.8       | 104.9        | 80.2        | 103.0        | 2232 |  |
| 10349    | 66   | 67   | 27.933      | 35.390 | 35.388 | 22.711            |          | 1.680     |              | 0.871     |             | 1.9          |             | 106.1        |             | 104.1        | 9292 |  |
| 10348    | 97   | 97   | 27.689      | 35.408 | 35.426 | 22.819            | 1.668    | 1.656     | 0.882        | 0.868     | 1.9         | 1.9          | 104.4       | 103.6        | 104.5       | 102.8        | 2222 |  |
| 10347    | 119  | 120  | 27.168      | 35.550 | 35.558 | 23.087            | 1.594    | 1.625     | 0.833        | 0.862     | 1.9         | 1.9          | 97.8        | 99.7         | 97.0        | 100.3        | 2222 |  |
| 10346    | 147  | 147  | 21.020      | 35.266 | 35.315 | 24.730            | 1.359    | 1.364     | 0.707        | 0.712     | 1.9         | 1.9          | 63.8        | 64.0         | 64.9        | 65.4         | 2222 |  |
| 10345    | 194  | 195  | 15.542      | 35.120 | 35.135 | 25.956            | 0.997    | 0.984     | 0.506        | 0.518     | 2.0         | 1.9          | 36.0        | 35.5         | 36.9        | 37.8         | 2222 |  |
| 10353    | 245  | 247  | 12.961      | 34.888 | 34.891 | 26.317            | 0.718    | 0.715     | 0.352        | 0.383     | 2.0         | 1.9          | 22.7        | 22.6         | 22.8        | 24.8         | 2222 |  |
| 10343    | 295  | 297  | 11.709      | 34.836 | 34.847 | 26.526            | 0.432    |           | 0.213        |           | 2.0         |              | 12.8        |              | 13.0        |              | 2929 |  |
| 10342    | 344  | 346  | 10.235      | 34.745 | 34.748 | 26.715            | 0.148    | 0.129     | 0.075        | 0.081     | 2.0         | 1.6          | 4.0         | 3.5          | 4.3         | 4.6          | 2222 |  |
| 10341    | 392  | 394  | 9.860       | 34.725 | 34.736 | 26.770            | 0.145    |           | 0.065        |           | 2.2         |              | 3.9         |              | 3.6         |              | 2929 |  |
| 10252    | 443  | 446  | 8.398       | 34.643 | 34.650 | 26.939            | 0.051    |           | 0.014        |           |             |              | 1.3         |              | 0.7         |              | 2929 |  |
| 10251    | 491  | 495  | 8.153       | 34.633 | 34.638 | 26.967            | 0.084    |           | 0.015        |           |             |              | 2.0         |              | 0.8         |              | 4949 |  |
| 10250    | 591  | 596  | 6.628       | 34.571 | 34.577 | 27.136            | 0.023    |           | 0.019        |           |             |              | 0.5         |              | 0.9         |              | 2929 |  |
| 10249    | 690  | 695  | 5.871       |        | 34.560 | 27.221            | 0.016    |           | 0.013        |           |             |              | 0.3         |              | 0.6         |              | 2929 |  |
| 10248    | 789  | 795  | 5.396       |        | 34.532 | 27.258            | 0.013    |           | -0.010       |           |             |              | 0.3         |              | -0.4        |              | 3929 |  |
| 10247    | 887  | 894  | 4.924       | 34.550 | 34.554 | 27.330            | 0.002    |           | 0.003        |           |             |              | 0.0         |              | 0.1         |              | 2979 |  |
| 10246    | 985  | 993  | 4.341       | 34.559 | 34.564 | 27.403            | 0.020    |           | -0.001       |           |             |              | 0.4         |              | 0.0         |              | 3979 |  |
| 10245    | 1084 | 1093 | 3.924       | 34.569 | 34.576 | 27.457            | 0.001    |           | -0.003       |           |             |              | 0.0         |              | -0.1        |              | 2979 |  |
| 10253    | 1232 | 1243 | 3.397       | 34.588 | 34.595 | 27.524            | -0.005   |           | 0.009        |           |             |              | -0.1        |              | 0.4         |              | 2929 |  |
| 10243    | 1480 | 1494 | 2.820       | 34.610 | 34.617 | 27.596            | 0.000    |           | 0.002        |           |             |              | 0.0         |              | 0.1         |              | 2979 |  |
| 10242    | 1728 | 1745 | 2.366       | 34.630 | 34.639 | 27.653            | 0.001    |           | -0.001       |           |             |              | 0.0         |              | 0.0         |              | 2979 |  |
| 10241    | 1972 | 1992 | 2.054       | 34.646 | 34.656 | 27.692            | 0.013    |           | -0.001       |           |             |              | 0.2         |              | 0.0         |              | 3979 |  |

## CGC-90 CFC BOTTLE DATA

STATION 64

| LATITUDE |      |      | LONGITUDE   |        |        | DAY-MO-YR         |          |           | BOTTOM DEPTH |           |             |              | ATM. F-11   |              | ATM. F-12   |              |      |  |
|----------|------|------|-------------|--------|--------|-------------------|----------|-----------|--------------|-----------|-------------|--------------|-------------|--------------|-------------|--------------|------|--|
| 0° 0.0'  |      |      | 170° 0.2' W |        |        | 11 4 90           |          |           | 5508 m       |           |             |              | 254.1 ppt   |              | 465.2 ppt   |              |      |  |
| SAMP     | DEP  | PRS  | THETA       | SAL    | CTD-S  | SIG-0             | SIO F-11 | PMEL F-11 | SIO F-12     | PMEL F-12 | SIO F11 F12 | PMEL F11 F12 | SIO F11 SAT | PMEL F11 SAT | SIO F12 SAT | PMEL F12 SAT | FLAG |  |
|          | m    | db   | C           |        |        | Kg/m <sup>3</sup> | pM/kg    | pM/kg     | pM/kg        | pM/kg     |             |              |             |              |             |              | ---- |  |
| 10551    | 2219 | 2244 | 1.813       | 34.656 | 34.657 | 27.712            | 0.003    | 0.007     | -0.004       | 0.006     |             |              | 0.1         | 0.1          | -0.2        | 0.2          | 2777 |  |
| 10550    | 2464 | 2492 | 1.697       | 34.666 | 34.665 | 27.727            | 0.026    | 0.035     | -0.002       | 0.014     |             |              | 0.4         | 0.6          | -0.1        | 0.5          | 4474 |  |
| 10549    | 2712 | 2745 | 1.538       | 34.669 | 34.670 | 27.743            | 0.027    |           | 0.003        |           |             |              | 0.4         |              | 0.1         |              | 4929 |  |
| 10548    | 2958 | 2996 | 1.413       | 34.677 | 34.677 | 27.757            | 0.002    |           | -0.003       |           |             |              | 0.0         |              | -0.1        |              | 2979 |  |
| 10547    | 3447 | 3495 | 1.270       | 34.683 | 34.684 | 27.773            | 0.002    |           | -0.003       |           |             |              | 0.0         |              | -0.1        |              | 2979 |  |
| 10546    | 3940 | 3999 | 1.082       | 34.694 | 34.696 | 27.796            | 0.026    |           | 0.004        |           |             |              | 0.4         |              | 0.1         |              | 4979 |  |
| 10545    | 4231 | 4297 | 0.981       | 34.698 | 34.699 | 27.805            | 0.006    |           | 0.001        |           |             |              | 0.1         |              | 0.0         |              | 2979 |  |
| 10553    | 4525 | 4599 | 0.877       | 34.705 | 34.705 | 27.816            | -0.003   |           | 0.000        |           |             |              | -0.1        |              | 0.0         |              | 2979 |  |
| 10543    | 4817 | 4899 | 0.831       | 34.706 | 34.707 | 27.821            | 0.002    |           | -0.003       |           |             |              | 0.0         |              | -0.1        |              | 2979 |  |
| 10542    | 5108 | 5198 | 0.818       | 34.705 | 34.709 | 27.823            | 0.017    |           | 0.005        |           |             |              | 0.3         |              | 0.2         |              | 3929 |  |
| 10541    | 5477 | 5579 | 0.815       | 34.710 | 34.707 | 27.822            | 0.003    |           | 0.003        |           |             |              | 0.1         |              | 0.1         |              | 2929 |  |

## GC90 CFC BOTTLE DATA

STATION 65

| LATITUDE   |     | LONGITUDE   |        | DAY-MO-YR |        |        | BOTTOM DEPTH      |              |             |              | ATM. F-11         |                    | ATM. F-12  |             |            |             |      |
|------------|-----|-------------|--------|-----------|--------|--------|-------------------|--------------|-------------|--------------|-------------------|--------------------|------------|-------------|------------|-------------|------|
| 0° 30.0' N |     | 170° 0.3' W |        | 11 4 90   |        |        | 5285 m            |              |             |              | 254.1 ppt         |                    | 465.2 ppt  |             |            |             |      |
| SAMP       | DEP | PRS         | THETA  | SAL       | CTD-S  | SIG-0  | SIO<br>F-11       | PMEL<br>F-11 | SIO<br>F-12 | PMEL<br>F-12 | SIO<br>F11<br>F12 | PMEL<br>F11<br>F12 | SIO<br>SAT | PMEL<br>SAT | SIO<br>SAT | PMEL<br>SAT | FLAG |
|            | m   | db          | C      |           |        |        | Kg/m <sup>3</sup> | pM/kg        | pM/kg       | pM/kg        | pM/kg             |                    |            |             |            |             |      |
| 10647      | 5   | 5           | 28.017 | 35.379    | 35.381 | 22.678 | 1.646             | 1.626        | 0.857       | 0.875        | 1.9               | 1.9                | 104.3      | 103.1       | 102.7      | 104.8       | 2222 |
| 10646      | 16  | 16          | 28.001 | 35.380    | 35.381 | 22.683 | 1.651             |              | 0.848       |              | 1.9               |                    | 104.6      |             | 101.5      |             | 2929 |
| 10645      | 38  | 38          | 27.973 | 35.378    | 35.378 | 22.690 | 1.632             |              | 0.789       |              | 2.1               |                    | 103.2      |             | 94.4       |             | 2939 |
| 10653      | 66  | 67          | 27.855 | 35.382    | 35.383 | 22.732 | 1.615             |              | 0.823       |              | 2.0               |                    | 101.7      |             | 98.0       |             | 2929 |
| 10643      | 96  | 97          | 27.718 | 35.460    | 35.484 | 22.853 | 1.634             | 1.637        | 0.811       | 0.864        | 2.0               | 1.9                | 102.4      | 102.6       | 96.2       | 102.5       | 2232 |
| 10642      | 121 | 122         | 26.798 | 35.370    | 35.372 | 23.065 | 1.544             | 1.592        | 0.817       | 0.843        | 1.9               | 1.9                | 93.1       | 96.0        | 93.7       | 96.7        | 2222 |
| 10641      | 148 | 149         | 25.063 | 35.409    | 35.441 | 23.657 | 1.532             | 1.534        | 0.805       | 0.813        | 1.9               | 1.9                | 85.9       | 86.1        | 86.6       | 87.5        | 2222 |
| 10652      | 195 | 196         | 15.058 | 35.020    | 34.985 | 25.948 | 1.071             | 1.073        | 0.531       | 0.538        | 2.0               | 2.0                | 37.7       | 37.8        | 37.8       | 38.3        | 2222 |
| 10651      | 244 | 245         | 12.798 | 34.856    | 34.860 | 26.326 | 0.696             |              | 0.344       |              | 2.0               |                    | 21.8       |             | 22.1       |             | 2929 |
| 10650      | 345 | 348         | 10.699 | 34.767    | 34.768 | 26.649 | 0.259             |              | 0.103       |              | 2.5               |                    | 7.2        |             | 6.0        |             | 2939 |
| 10649      | 493 | 496         | 8.110  | 34.629    | 34.632 | 26.969 | 0.026             |              | 0.011       |              |                   |                    | 0.6        |             | 0.6        |             | 2929 |
| 10648      | 986 | 994         | 4.306  | 34.557    | 34.564 | 27.407 | 0.085             | 0.078        | 0.001       | 0.012        |                   |                    | 1.6        | 1.5         | 0.0        | 0.5         | 4423 |

## CGC-90 CFC BOTTLE DATA

STATION 66

| LATITUDE  |     | LONGITUDE   |        | DAY-MO-YR |        |        | BOTTOM DEPTH      |              |             |              | ATM. F-11         |                    | ATM. F-12  |             |            |             |      |
|-----------|-----|-------------|--------|-----------|--------|--------|-------------------|--------------|-------------|--------------|-------------------|--------------------|------------|-------------|------------|-------------|------|
| 1° 0.1' N |     | 170° 0.3' W |        | 11 4 90   |        |        | 5316 m            |              |             |              | 254.1 ppt         |                    | 465.2 ppt  |             |            |             |      |
| SAMP      | DEP | PRS         | THETA  | SAL       | CTD-S  | SIG-0  | SIO<br>F-11       | PMEL<br>F-11 | SIO<br>F-12 | PMEL<br>F-12 | SIO<br>F11<br>F12 | PMEL<br>F11<br>F12 | SIO<br>SAT | PMEL<br>SAT | SIO<br>SAT | PMEL<br>SAT | FLAG |
|           | m   | db          | C      |           |        |        | Kg/m <sup>3</sup> | pM/kg        | pM/kg       | pM/kg        | pM/kg             |                    |            |             |            |             |      |
| 10752     | 5   | 5           | 28.055 | 35.324    | 35.328 | 22.625 | 1.643             |              | 0.796       |              | 2.1               |                    | 104.2      |             | 95.5       |             | 2939 |
| 10751     | 16  | 16          | 28.000 | 35.335    | 35.334 | 22.648 | 1.619             | 1.646        | 0.816       | 0.852        | 2.0               | 1.9                | 102.5      | 104.2       | 97.7       | 102.0       | 2222 |
| 10750     | 37  | 37          | 27.964 | 35.338    | 35.339 | 22.663 | 1.611             |              | 0.792       |              | 2.0               |                    | 101.8      |             | 94.7       |             | 2939 |
| 10749     | 67  | 68          | 27.803 | 35.337    | 35.338 | 22.715 | 1.595             | 1.609        | 0.827       | 0.844        | 1.9               | 1.9                | 100.2      | 101.0       | 98.3       | 100.3       | 2222 |
| 10748     | 97  | 98          | 27.270 | 35.380    | 35.377 | 22.917 | 1.599             | 1.585        | 0.823       | 0.779        | 1.9               | 2.0                | 98.3       | 97.4        | 96.0       | 90.9        | 2223 |
| 10747     | 121 | 122         | 26.797 | 35.356    | 35.359 | 23.055 | 1.577             | 1.594        | 0.815       | 0.839        | 1.9               | 1.9                | 95.1       | 96.1        | 93.4       | 96.2        | 2222 |
| 10746     | 147 | 148         | 21.673 | 35.088    | 34.773 | 24.138 | 1.452             | 1.434        | 0.700       | 0.745        | 2.1               | 1.9                | 69.8       | 68.9        | 65.7       | 69.9        | 2222 |
| 10745     | 195 | 196         | 13.694 | 34.806    | 34.809 | 26.104 | 0.909             | 0.893        | 0.445       | 0.461        | 2.0               | 1.9                | 29.8       | 29.3        | 29.8       | 30.8        | 2222 |
| 10753     | 294 | 296         | 11.654 | 34.834    | 34.826 | 26.520 | 0.400             | 0.381        | 0.218       | 0.207        | 1.8               | 1.8                | 11.8       | 11.2        | 13.3       | 12.6        | 2222 |
| 10743     | 491 | 494         | 8.684  | 34.657    | 34.658 | 26.901 | 0.074             | 0.060        | 0.032       | 0.032        |                   |                    | 1.9        | 1.5         | 1.7        | 1.7         | 2227 |
| 10742     | 690 | 695         | 6.208  |           | 34.560 | 27.178 | 0.021             |              | 0.016       |              |                   |                    | 0.5        |             | 0.7        |             | 2929 |
| 10741     | 986 | 994         | 4.492  | 34.557    | 34.561 | 27.385 | 0.093             |              | 0.008       |              |                   |                    | 1.8        |             | 0.3        |             | 4929 |

## CGC-90 CFC BOTTLE DATA

STATION 67

| LATITUDE  |     | LONGITUDE   |        | DAY-MO-YR |        |        | BOTTOM DEPTH      |              |             |              | ATM. F-11         |                    | ATM. F-12  |             |            |             |      |
|-----------|-----|-------------|--------|-----------|--------|--------|-------------------|--------------|-------------|--------------|-------------------|--------------------|------------|-------------|------------|-------------|------|
| 2° 0.3' N |     | 170° 0.9' W |        | 12 4 90   |        |        | 5357 m            |              |             |              | 254.1 ppt         |                    | 465.2 ppt  |             |            |             |      |
| SAMP      | DEP | PRS         | THETA  | SAL       | CTD-S  | SIG-0  | SIO<br>F-11       | PMEL<br>F-11 | SIO<br>F-12 | PMEL<br>F-12 | SIO<br>F11<br>F12 | PMEL<br>F11<br>F12 | SIO<br>SAT | PMEL<br>SAT | SIO<br>SAT | PMEL<br>SAT | FLAG |
|           | m   | db          | C      |           |        |        | Kg/m <sup>3</sup> | pM/kg        | pM/kg       | pM/kg        | pM/kg             |                    |            |             |            |             |      |
| 10852     | 6   | 6           | 28.422 | 35.306    | 35.309 | 22.490 | 1.687             |              | 0.837       |              | 2.0               |                    | 108.6      |             | 101.7      |             | 2929 |
| 10851     | 18  | 18          | 28.094 | 35.300    | 35.302 | 22.593 | 1.672             |              | 0.804       |              | 2.1               |                    | 106.2      |             | 96.5       |             | 2929 |
| 10850     | 37  | 37          | 27.955 | 35.302    | 35.300 | 22.637 | 1.612             |              | 0.823       |              | 2.0               |                    | 101.8      |             | 98.3       |             | 2929 |
| 10849     | 68  | 68          | 27.924 | 35.299    | 35.298 | 22.646 | 1.644             |              | 0.854       |              | 1.9               |                    | 103.7      |             | 101.9      |             | 2929 |
| 10848     | 95  | 96          | 27.610 | 35.282    | 35.284 | 22.737 | 1.618             |              | 0.838       |              | 1.9               |                    | 100.8      |             | 98.9       |             | 2929 |
| 10847     | 119 | 120         | 27.168 | 35.202    | 35.205 | 22.821 | 1.599             |              | 0.821       |              | 1.9               |                    | 97.7       |             | 95.2       |             | 2929 |
| 10846     | 146 | 147         | 24.248 | 35.054    | 35.055 | 23.611 | 1.537             |              | 0.776       |              | 2.0               |                    | 83.0       |             | 80.7       |             | 2929 |
| 10845     | 193 | 194         | 12.962 | 34.668    | 34.671 | 26.146 | 0.801             |              | 0.404       |              | 2.0               |                    | 25.3       |             | 26.1       |             | 2929 |
| 10853     | 294 | 296         | 11.058 | 34.774    | 34.778 | 26.593 | 0.314             |              | 0.167       |              | 1.9               |                    | 9.0        |             | 9.9        |             | 2929 |
| 10843     | 491 | 495         | 8.931  | 34.652    | 34.661 | 26.864 | 0.119             |              | 0.065       |              | 1.8               |                    | 3.0        |             | 3.5        |             | 2929 |
| 10842     | 692 | 697         | 6.211  | 34.557    | 34.564 | 27.181 | 0.008             |              | 0.009       |              |                   |                    | 0.2        |             | 0.4        |             | 2979 |
| 10841     | 986 | 994         | 4.301  | 34.560    | 34.567 | 27.410 | 0.028             |              | 0.014       |              |                   |                    | 0.5        |             | 0.6        |             | 4979 |

GC90 CFC BOTTLE DATA

STATION 68

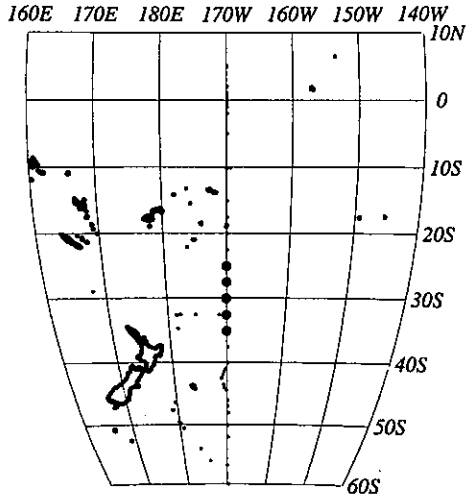
| LATITUDE  |     | LONGITUDE   |        | DAY-MO-YR |        |                   | BOTTOM DEPTH |              |             |              | ATM. F-11         |                    | ATM. F-12         |                    |                   |                    |      |
|-----------|-----|-------------|--------|-----------|--------|-------------------|--------------|--------------|-------------|--------------|-------------------|--------------------|-------------------|--------------------|-------------------|--------------------|------|
| 5° 0.1' N |     | 170° 0.6' W |        | 12 4 90   |        |                   | 7161 m       |              |             |              | 254.1 ppt         |                    | 465.2 ppt         |                    |                   |                    |      |
| SAMP      | DEP | PRS         | THETA  | SAL       | CTD-S  | SIG-0             | SIO<br>F-11  | PMEL<br>F-11 | SIO<br>F-12 | PMEL<br>F-12 | SIO<br>F11<br>F12 | PMEL<br>F11<br>F12 | SIO<br>F11<br>SAT | PMEL<br>F11<br>SAT | SIO<br>F12<br>SAT | PMEL<br>F12<br>SAT | FLAG |
|           | m   | db          | C      |           |        | Kg/m <sup>3</sup> | pM/kg        | pM/kg        | pM/kg       | pM/kg        |                   |                    |                   |                    |                   |                    | ---- |
| 10952     | 5   | 5           | 28.362 | 34.998    | 34.999 | 22.277            | 1.741        | 1.773        | 1.931       | 2.116        | 0.9               | 0.8                | 111.4             | 113.5              | 233.4             | 255.7              | 2244 |
| 10951     | 18  | 18          | 28.368 | 35.002    | 35.001 | 22.277            | 1.608        | 1.639        | 0.831       | 0.852        | 1.9               | 1.9                | 102.9             | 104.9              | 100.5             | 103.0              | 2222 |
| 10950     | 39  | 39          | 28.431 | 35.048    | 35.049 | 22.292            | 1.598        |              | 0.838       |              | 1.9               |                    | 102.6             |                    | 101.6             |                    | 2929 |
| 10949     | 65  | 66          | 28.425 | 35.116    | 35.114 | 22.343            | 1.586        |              | 0.855       |              | 1.9               |                    | 101.9             |                    | 103.7             |                    | 2929 |
| 10948     | 96  | 97          | 28.022 | 35.155    | 35.151 | 22.503            | 1.564        | 1.606        | 0.810       | 0.842        | 1.9               | 1.9                | 98.9              | 101.6              | 96.9              | 100.7              | 2222 |
| 10947     | 121 | 122         | 26.300 | 35.095    | 35.093 | 23.012            | 1.525        |              | 0.809       |              | 1.9               |                    | 89.8              |                    | 90.8              |                    | 2929 |
| 10946     | 145 | 146         | 23.147 | 34.955    | 34.956 | 23.859            | 1.510        | 1.528        | 0.766       | 0.796        | 2.0               | 1.9                | 77.6              | 78.5               | 76.2              | 79.2               | 2222 |
| 10945     | 195 | 196         | 14.413 | 34.613    | 34.595 | 25.787            | 1.178        |              | 0.586       |              | 2.0               |                    | 40.0              |                    | 40.4              |                    | 2929 |
| 10953     | 293 | 295         | 9.951  | 34.661    | 34.668 | 26.701            | 0.163        | 0.167        | 0.098       | 0.156        | 1.7               | 1.1                | 4.4               | 4.5                | 5.5               | 8.8                | 2224 |
| 10943     | 493 | 496         | 7.927  |           | 34.611 | 26.979            | 0.019        | 0.015        | 0.003       | 0.014        |                   |                    | 0.5               | 0.4                | 0.2               | 0.7                | 2272 |
| 10942     | 689 | 695         | 6.145  | 34.553    | 34.558 | 27.185            | 0.009        |              | 0.005       |              |                   |                    | 0.2               |                    | 0.2               |                    | 2979 |
| 10941     | 988 | 996         | 4.413  | 34.564    | 34.568 | 27.399            | 0.001        |              | 0.006       |              |                   |                    | 0.0               |                    | 0.2               |                    | 2979 |



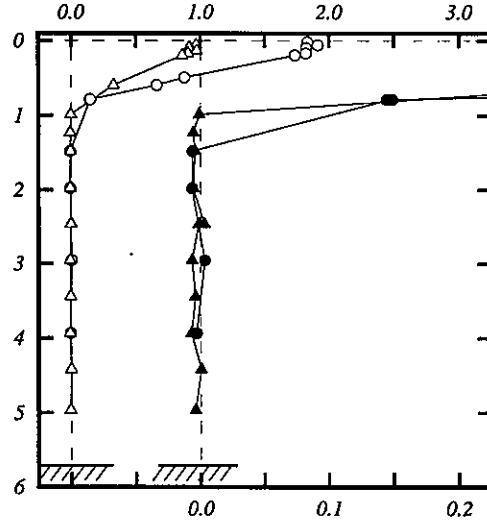


**CFC Profile Plots**  
**(measurements using SIO system)**

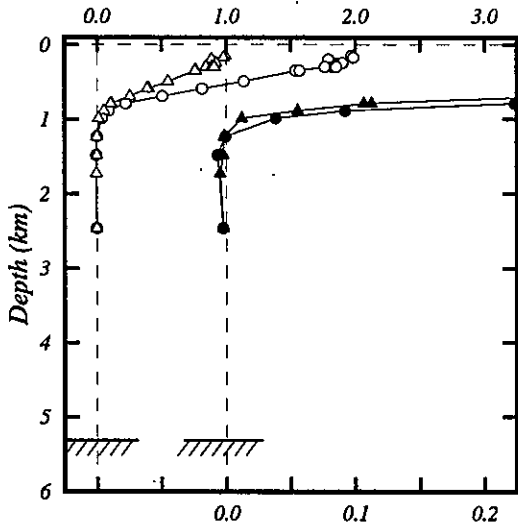
Locations of Stations on This Page



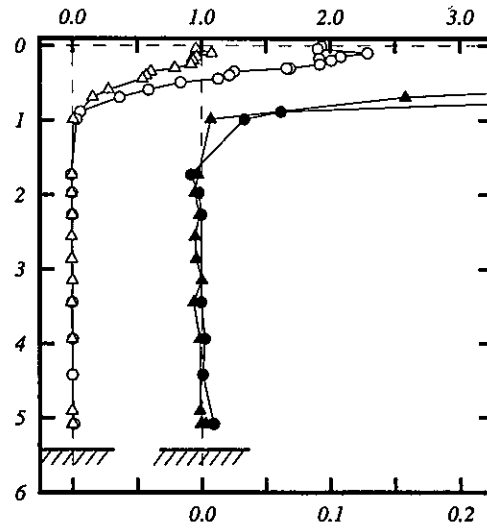
Station 9



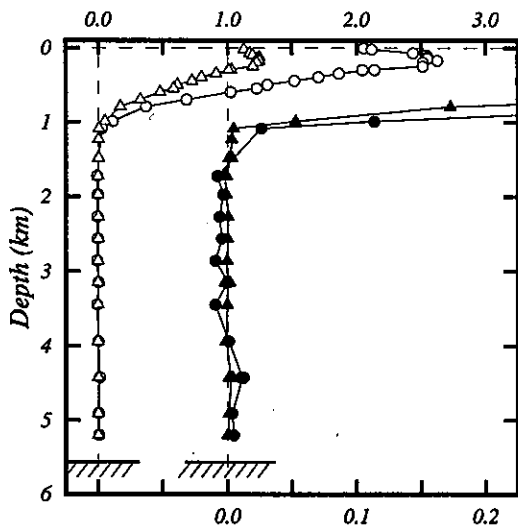
Station 10



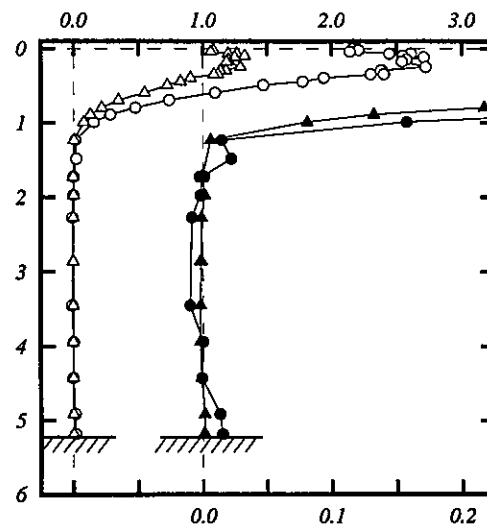
Station 11



Station 12



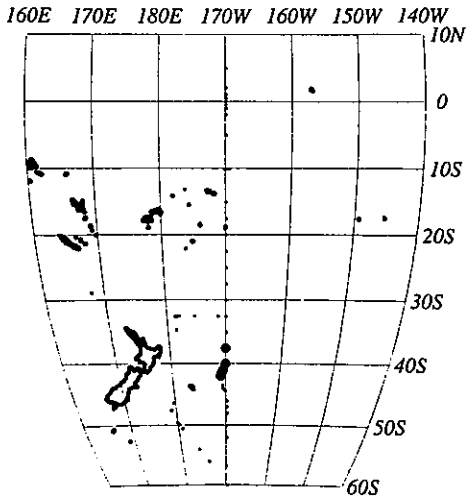
Station 13



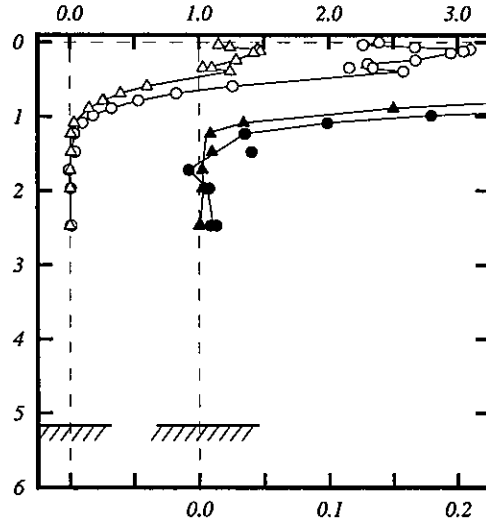
SIO CFC (pmol/kg)

SIO CFC (pmol/kg)

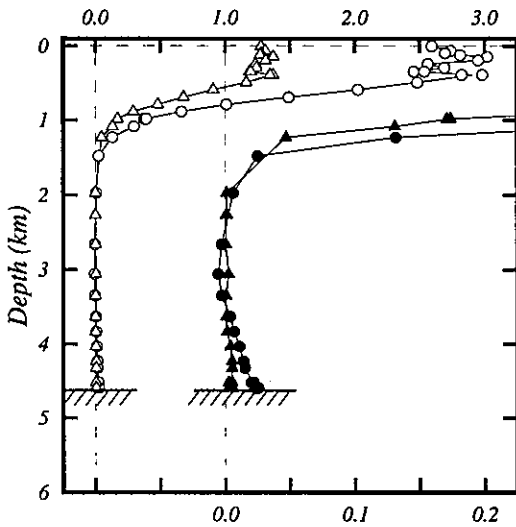
Locations of Stations on This Page



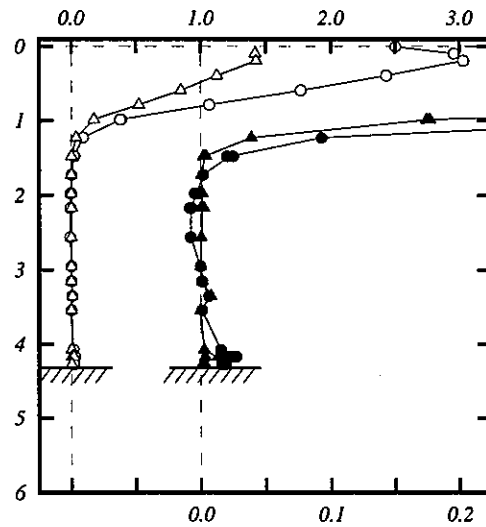
Station 14



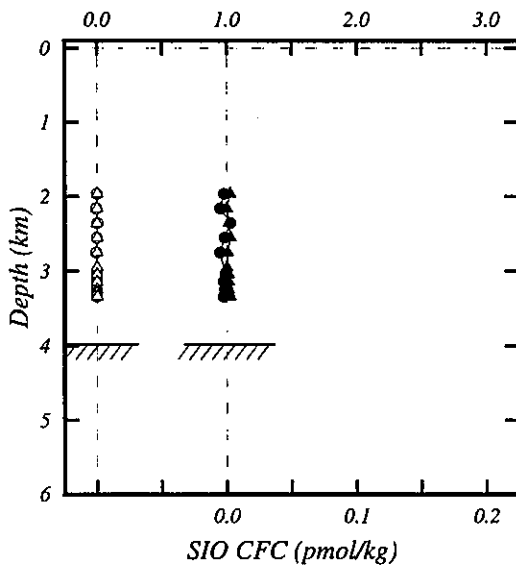
Station 15



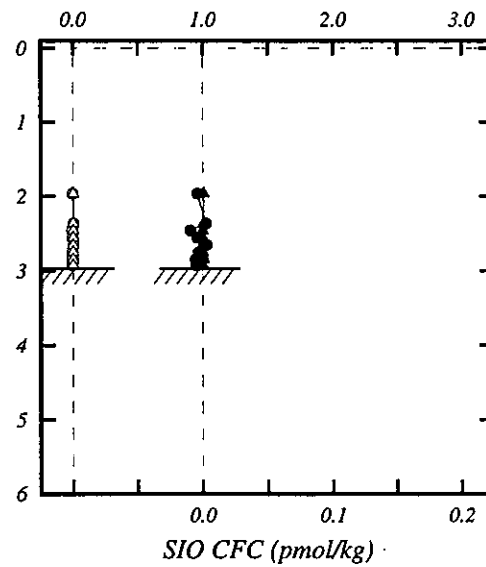
Station 16



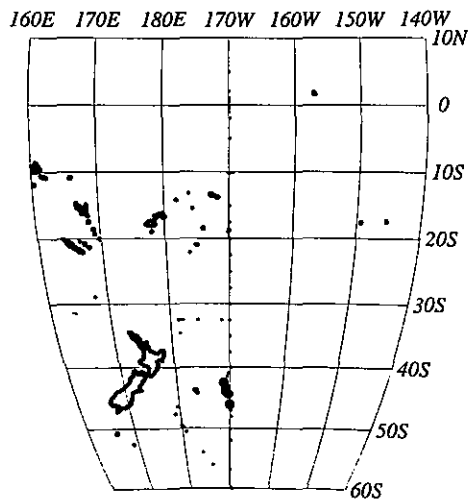
Station 17



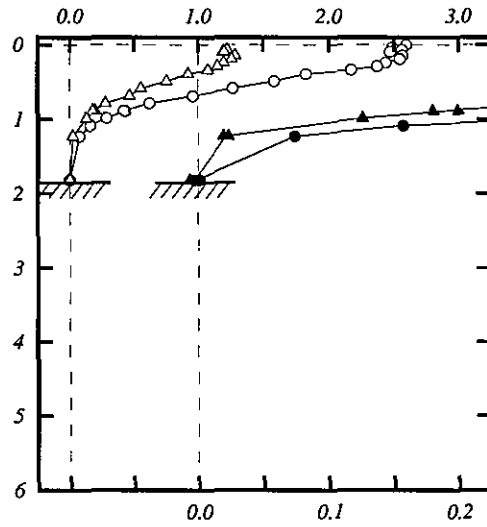
Station 18



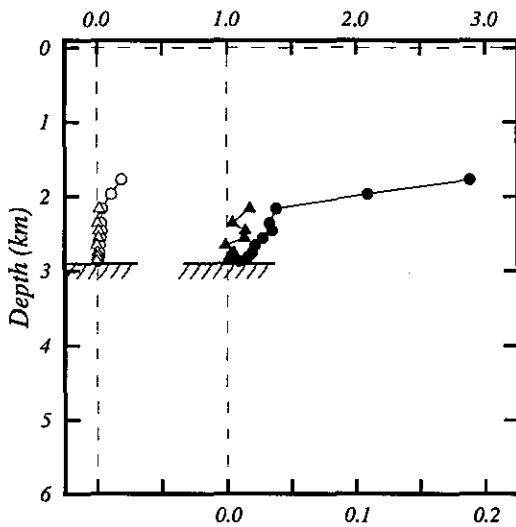
Locations of Stations on This Page



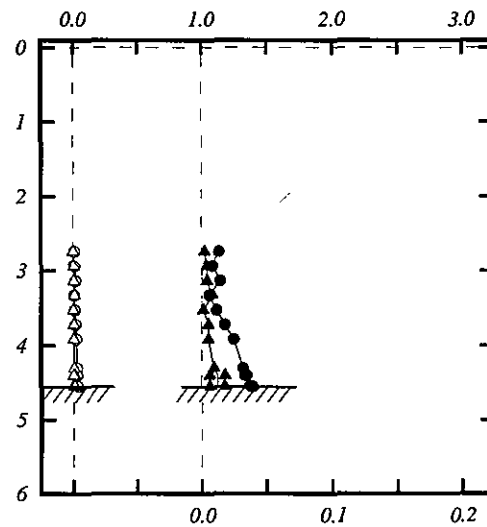
Station 19



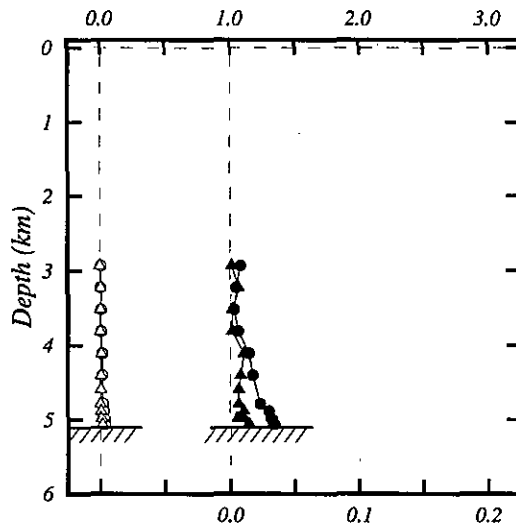
Station 20



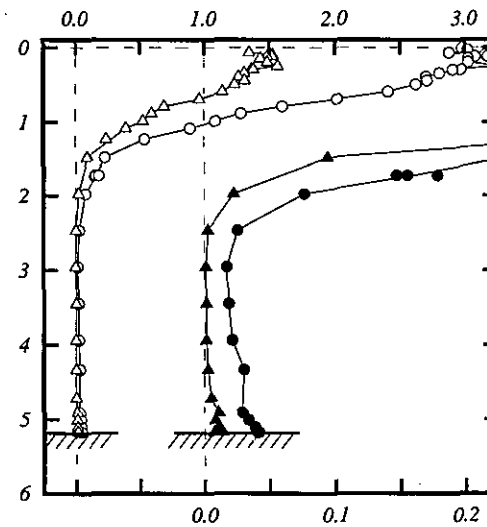
Station 21



Station 22



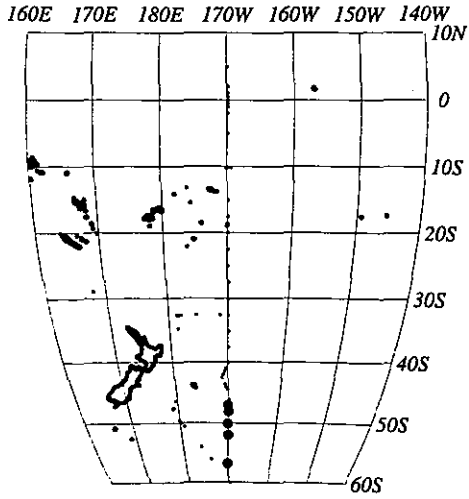
Station 23



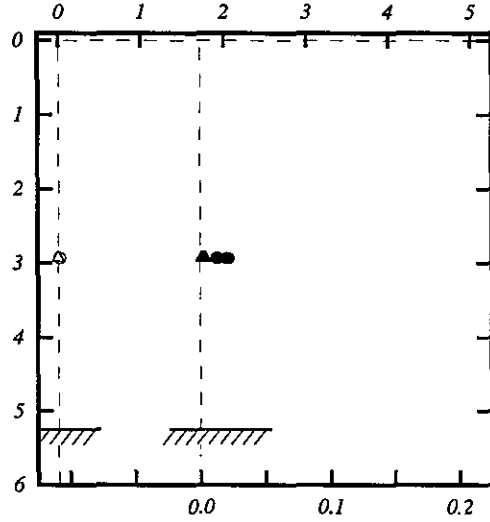
SIO CFC (pmol/kg)

SIO CFC (pmol/kg)

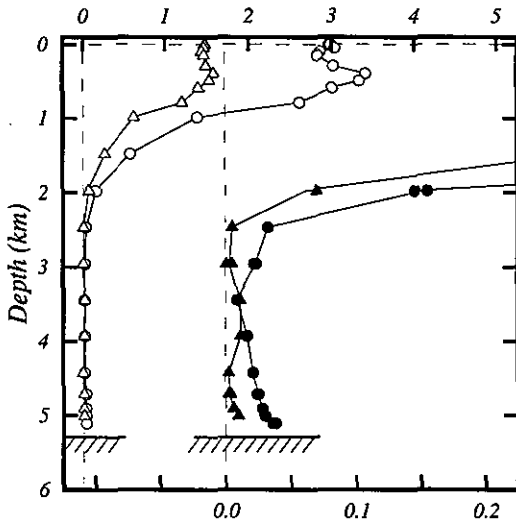
Locations of Stations on This Page



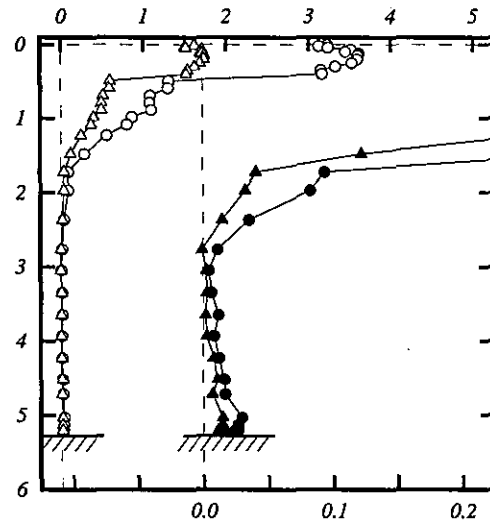
Station 24



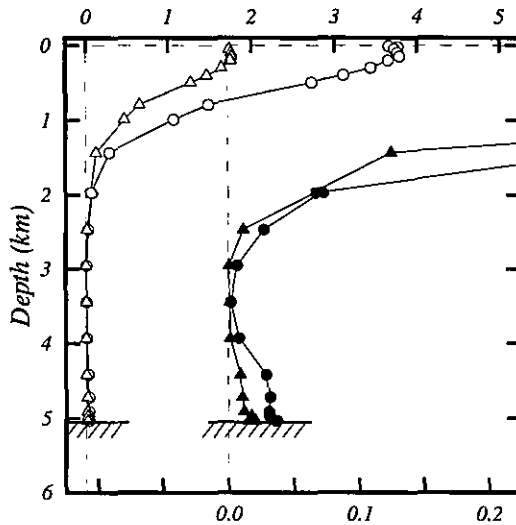
Station 25



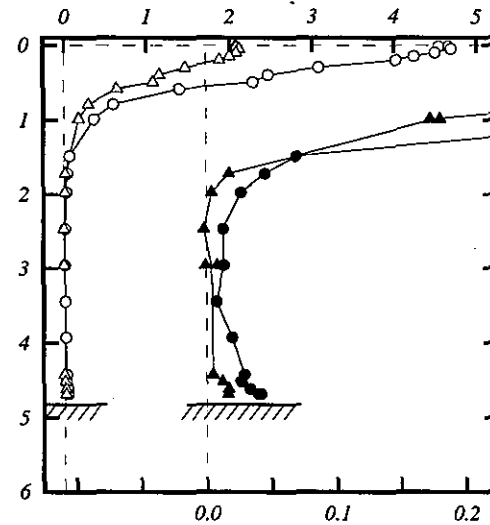
Station 26



Station 27



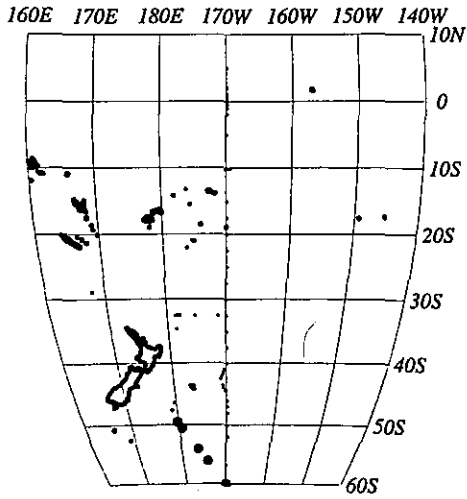
Station 28



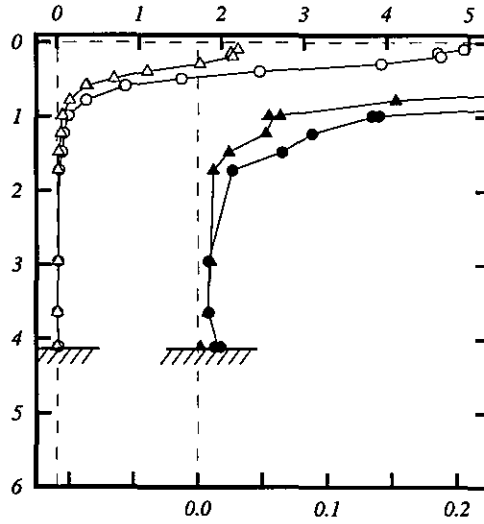
SIO CFC (pmol/kg)

SIO CFC (pmol/kg)

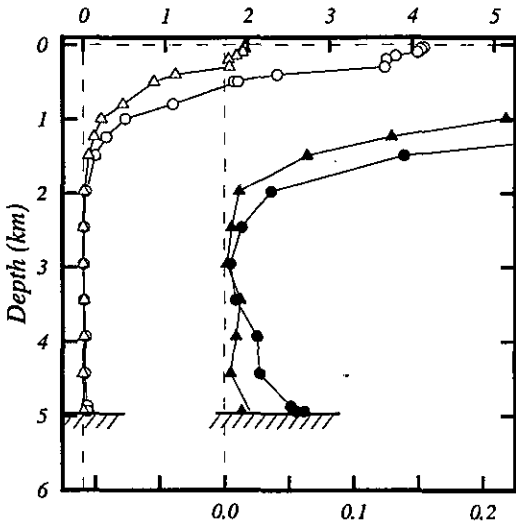
Locations of Stations on This Page



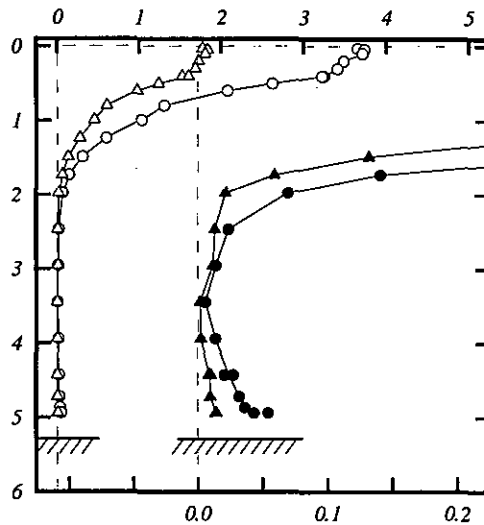
Station 29



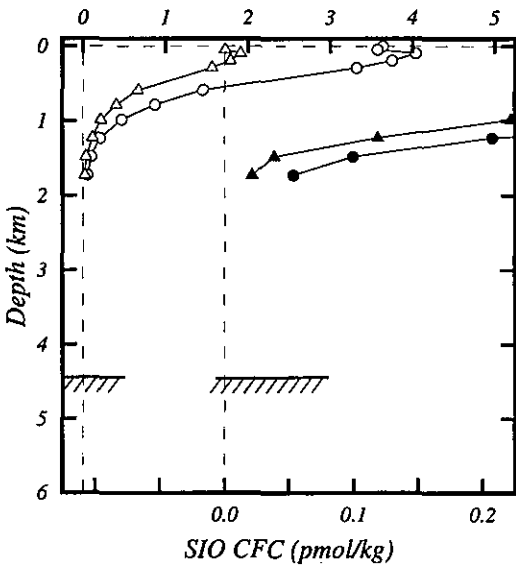
Station 30



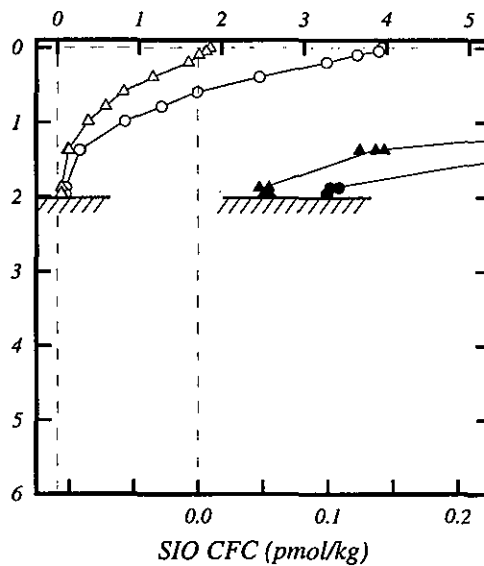
Station 31



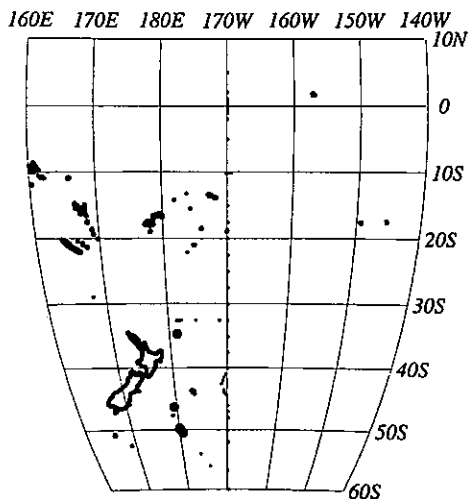
Station 32



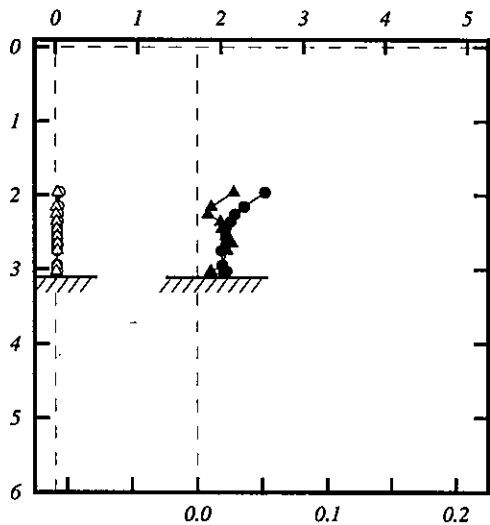
Station 33



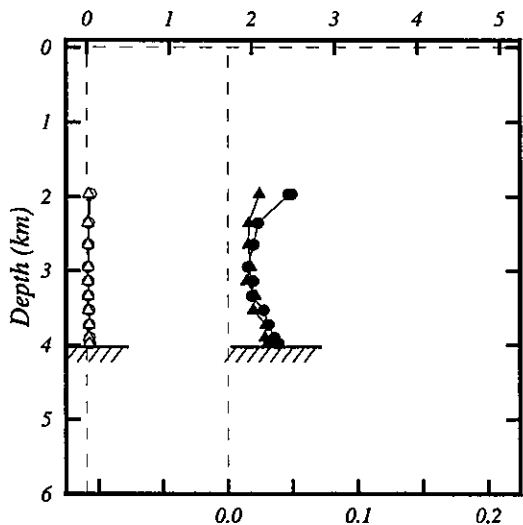
Locations of Stations on This Page



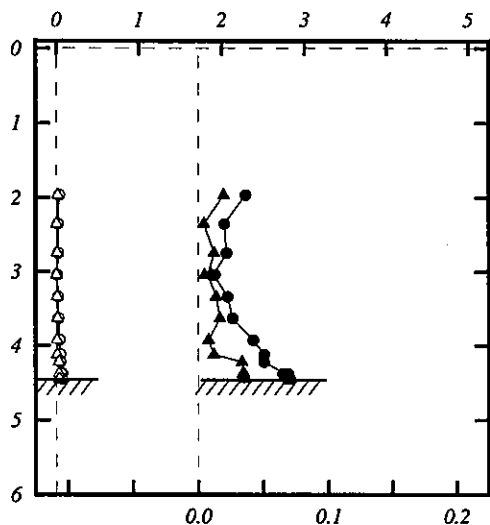
Station 34



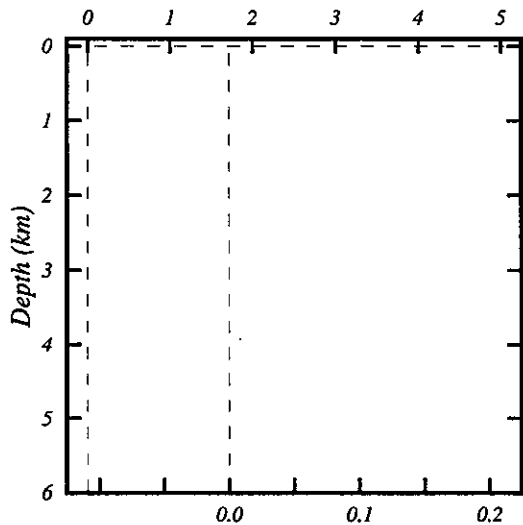
Station 35



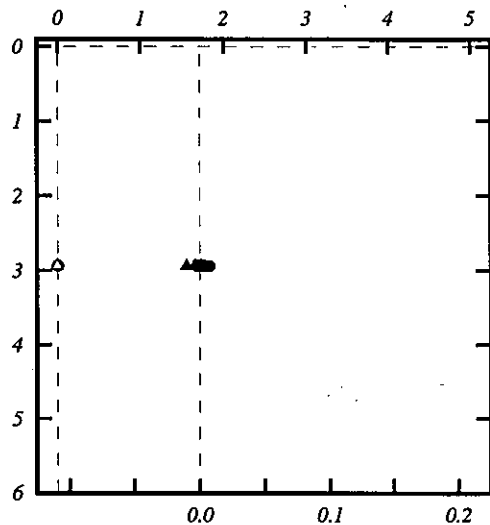
Station 36



Station 37



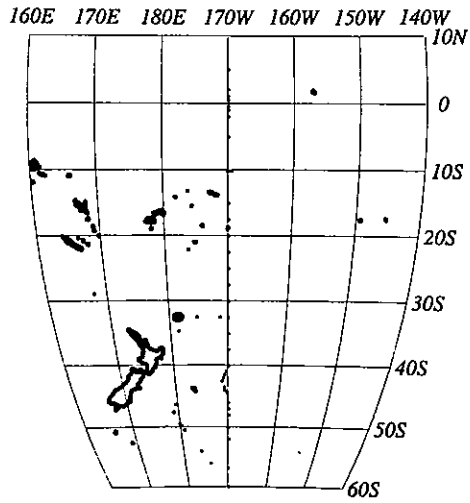
Station 38



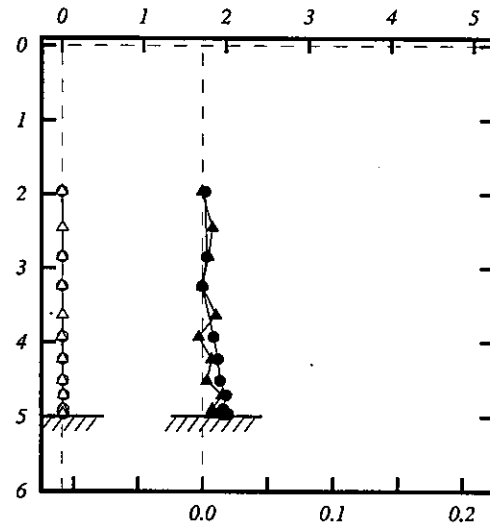
SIO CFC (pmol/kg)

SIO CFC (pmol/kg)

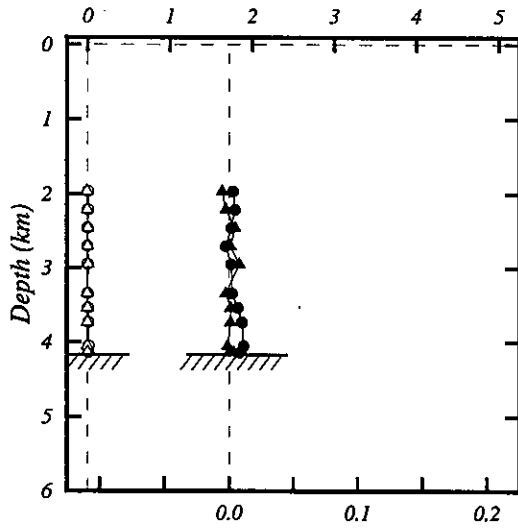
Locations of Stations on This Page



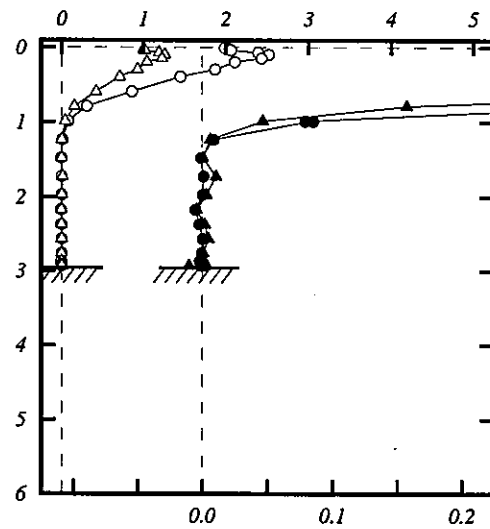
Station 39



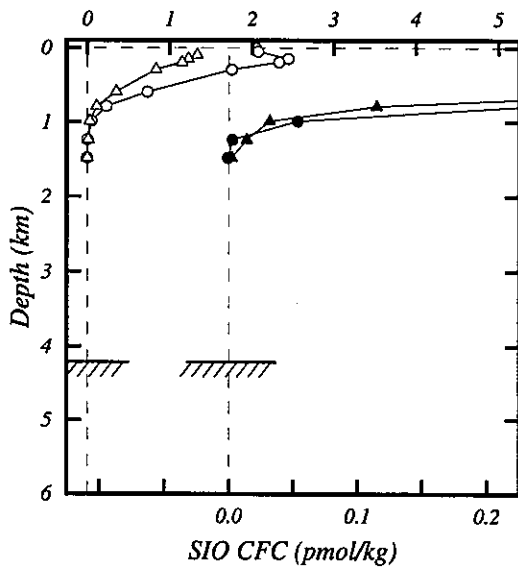
Station 40



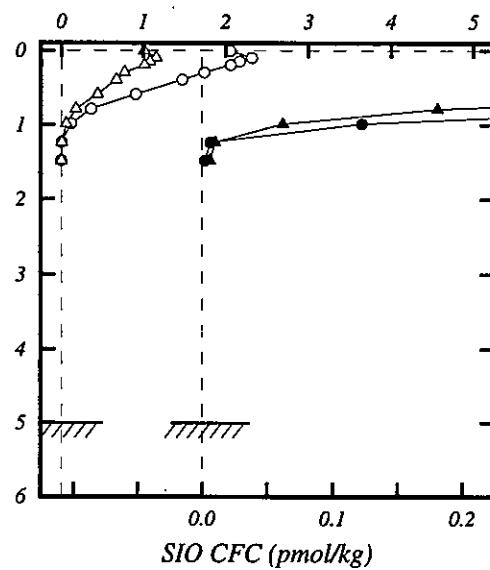
Station 41



Station 42

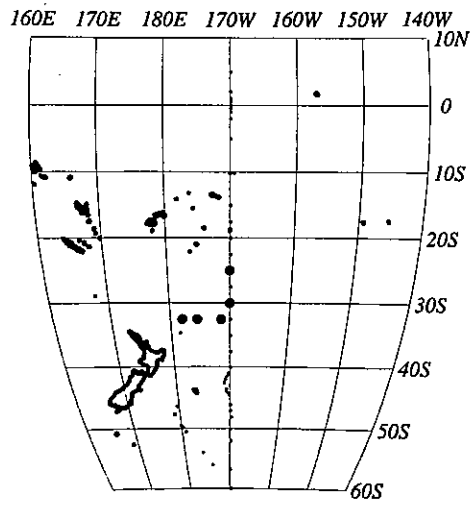


Station 43

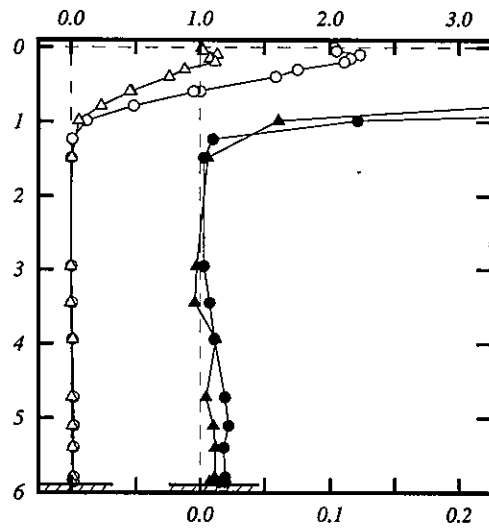




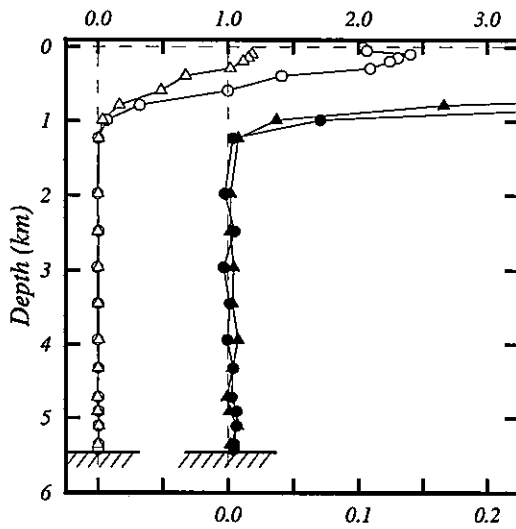
Locations of Stations on This Page



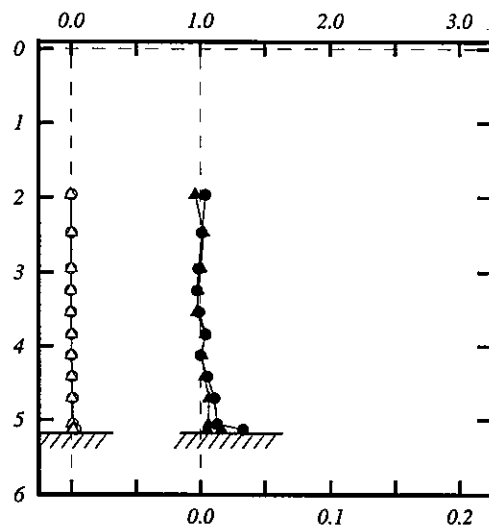
Station 44



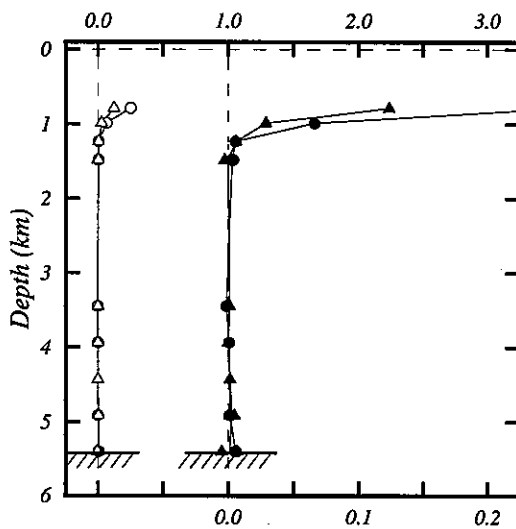
Station 45



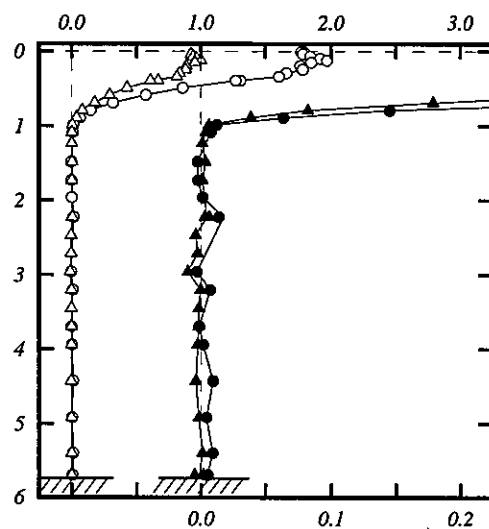
Station 46



Station 47



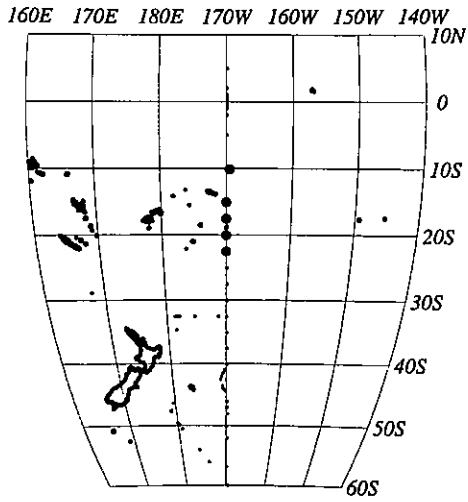
Station 48



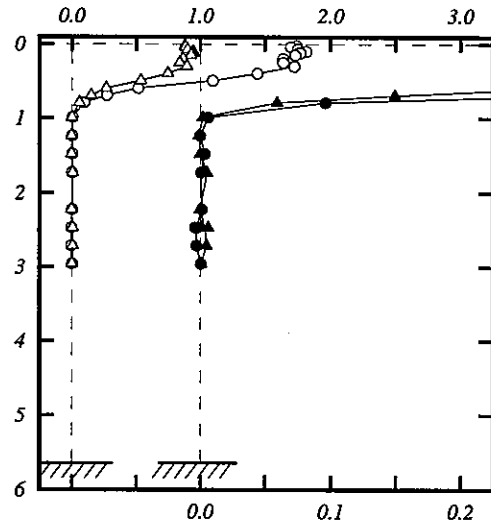
SIO CFC (pmol/kg)

SIO CFC (pmol/kg)

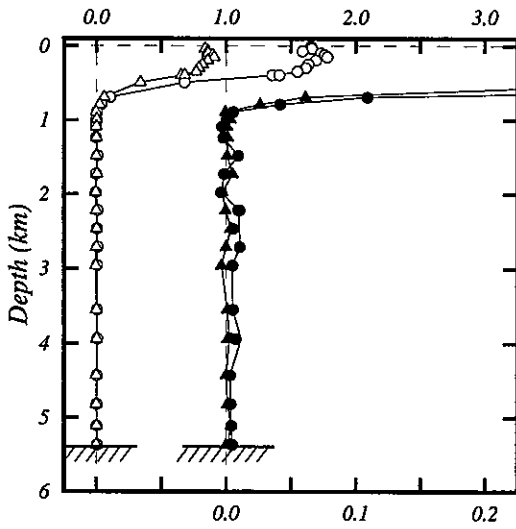
Locations of Stations on This Page



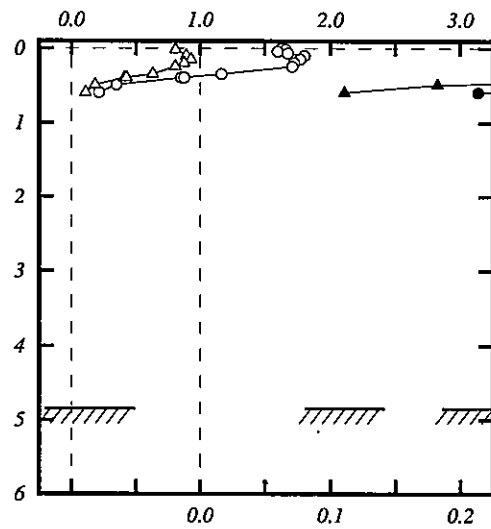
Station 49



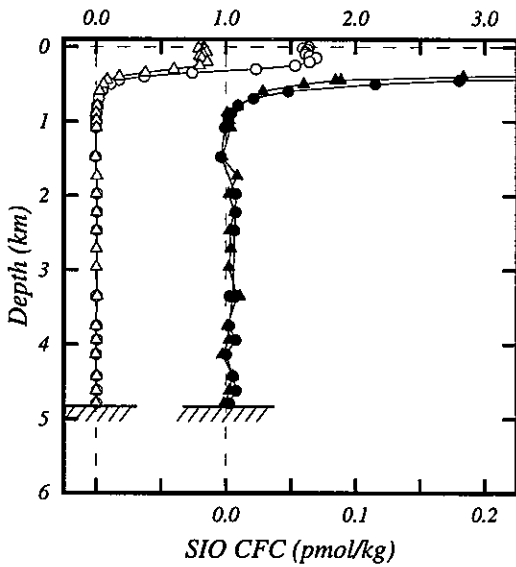
Station 50



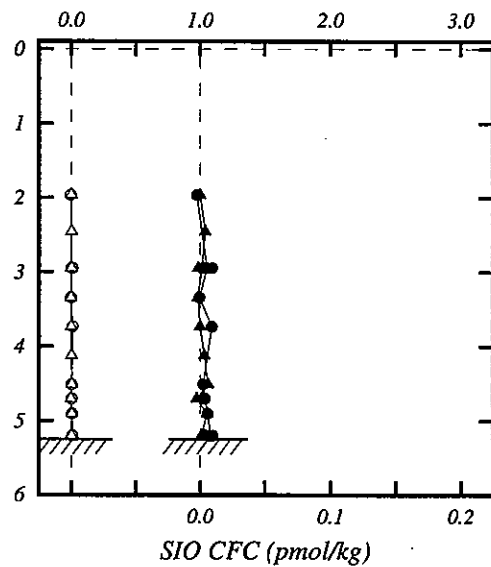
Station 51



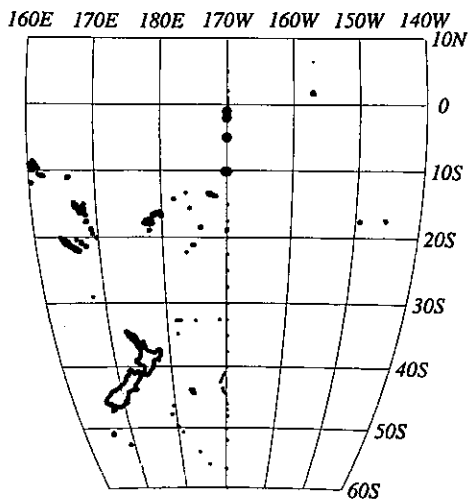
Station 52



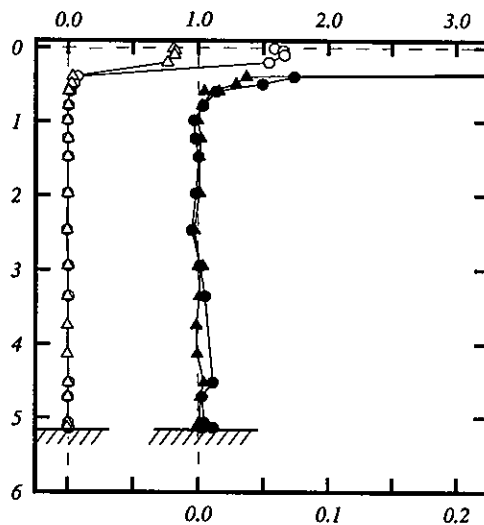
Station 54



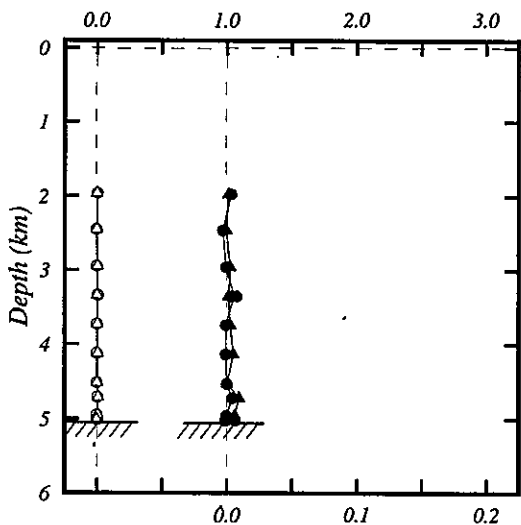
Locations of Stations on This Page



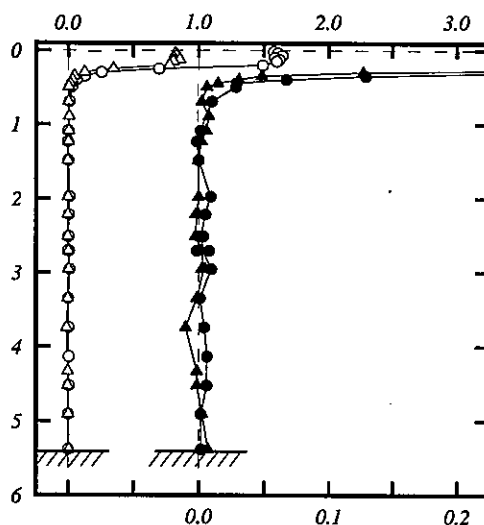
Station 55



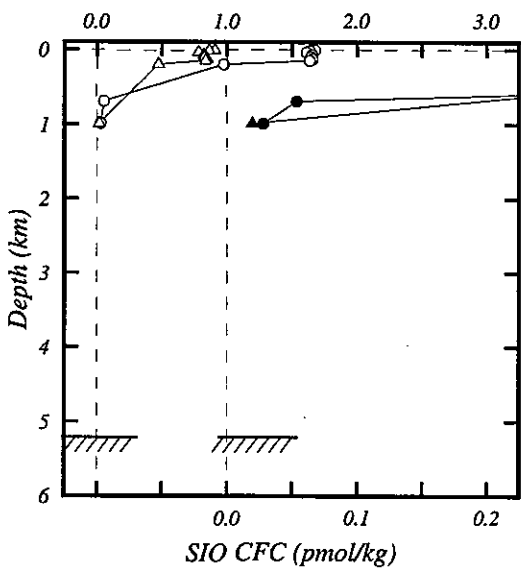
Station 56



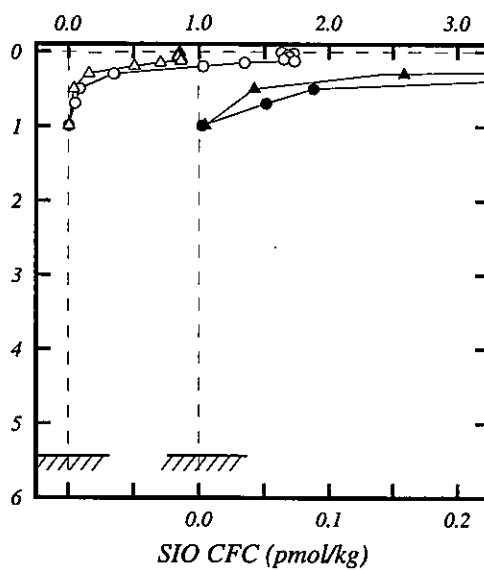
Station 58



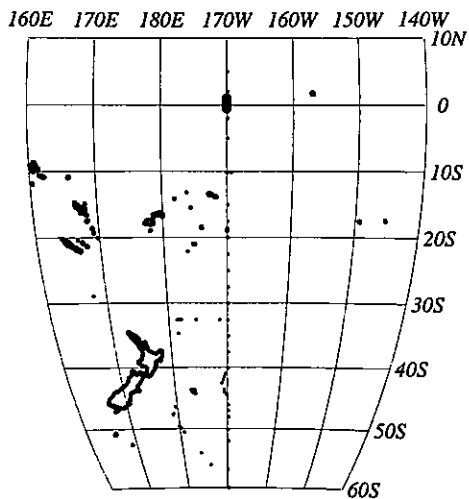
Station 59



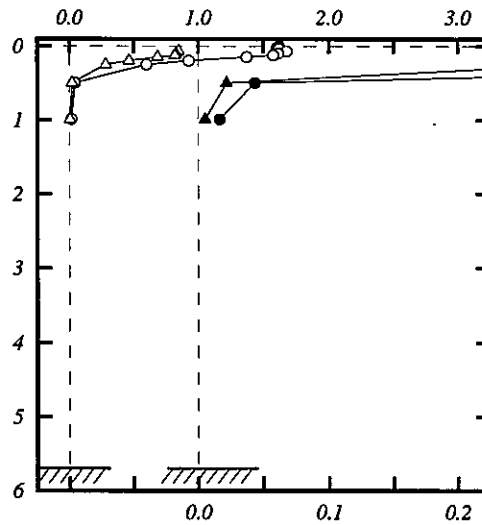
Station 60



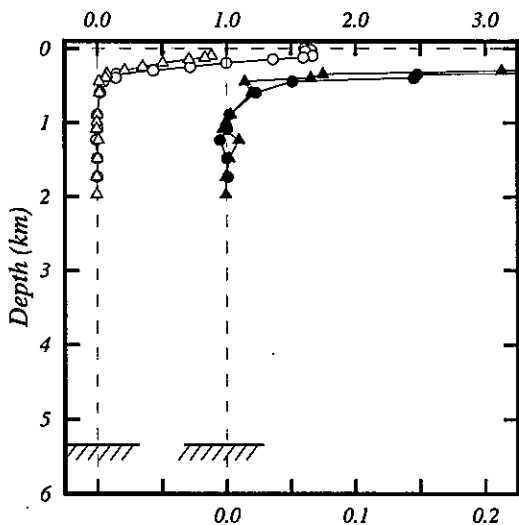
Locations of Stations on This Page



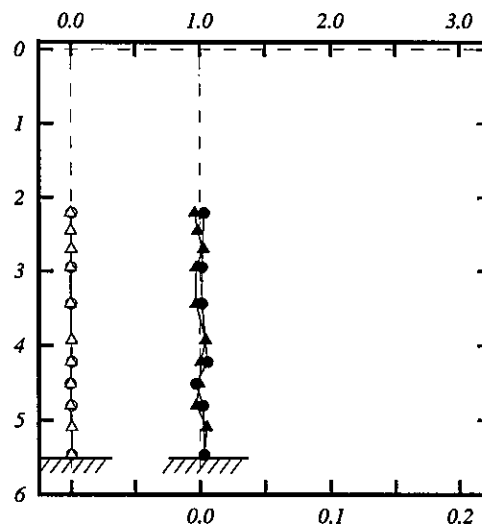
Station 61



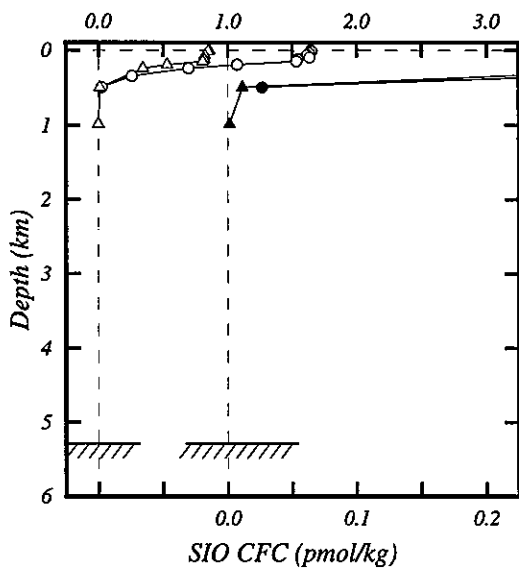
Station 62



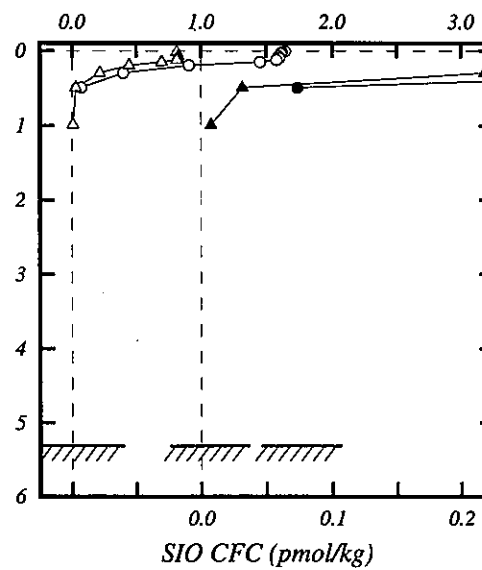
Station 64



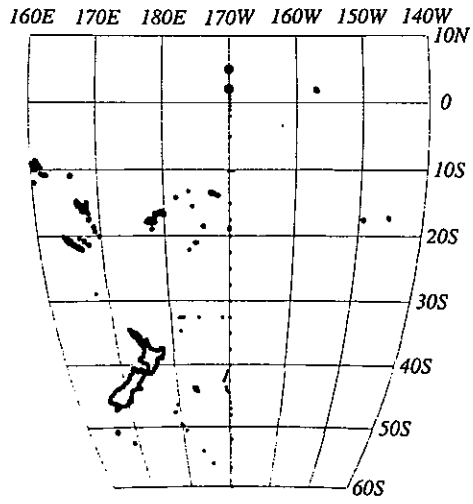
Station 65



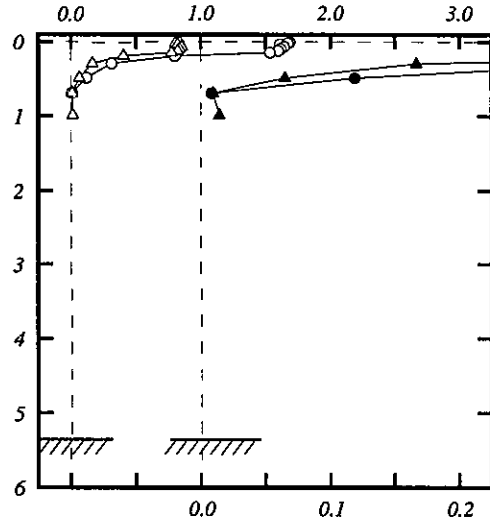
Station 66



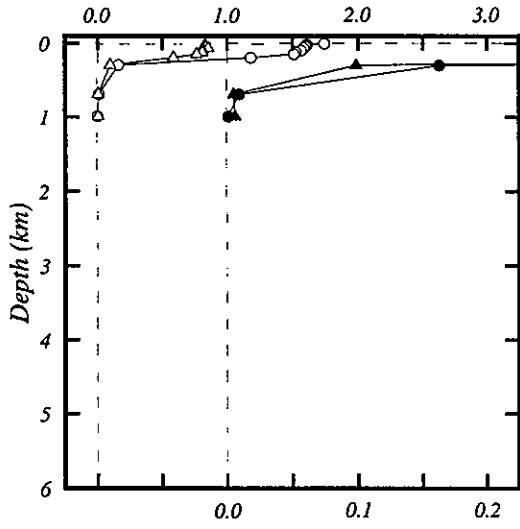
Locations of Stations on This Page

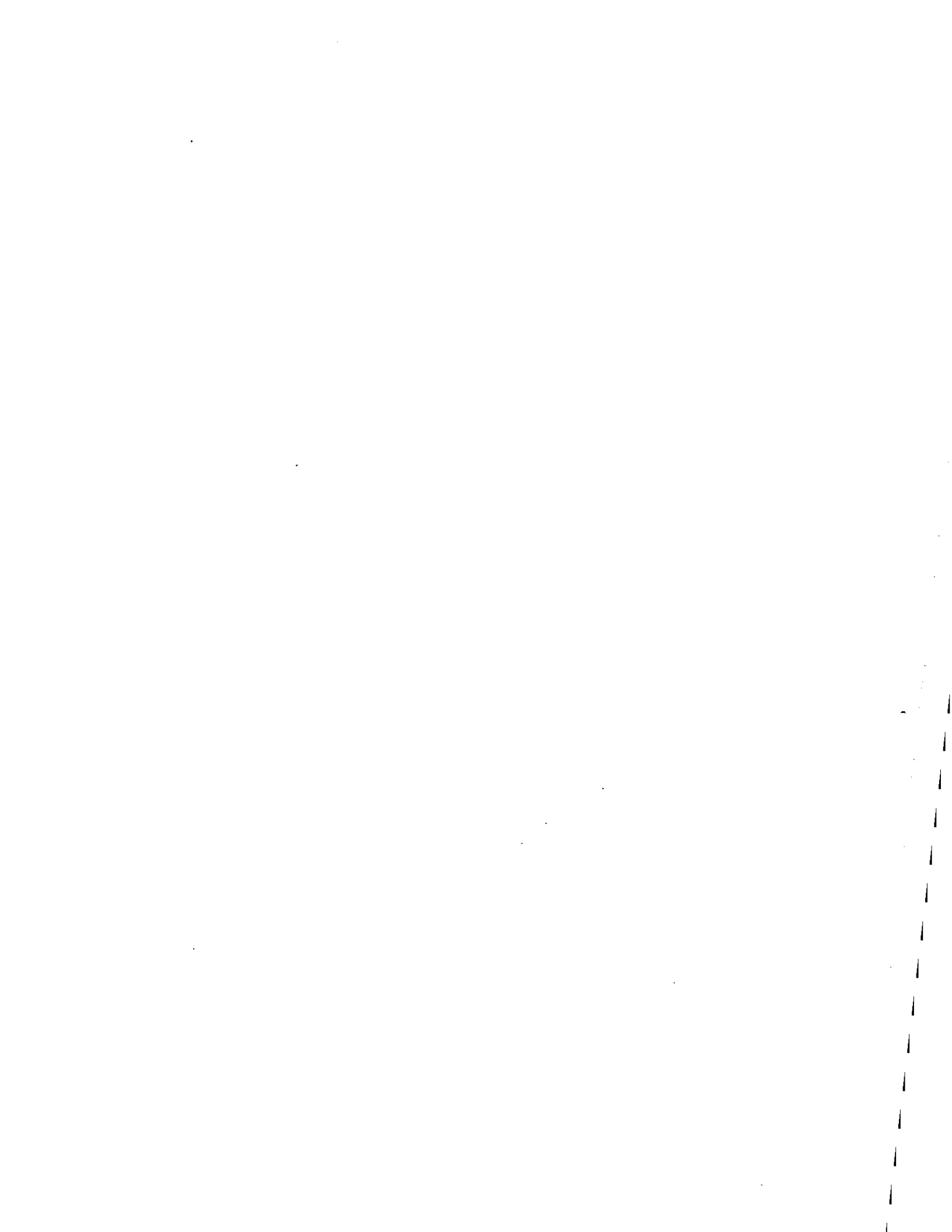


Station 67



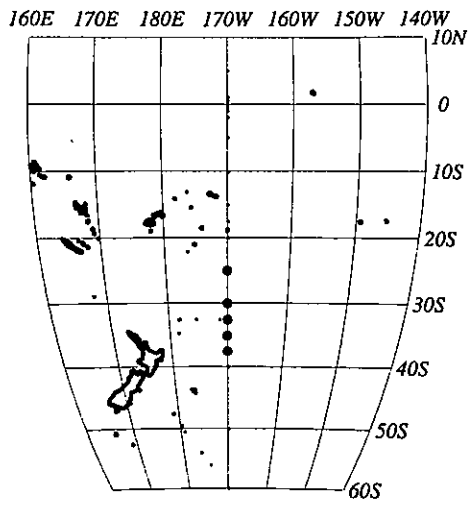
Station 68



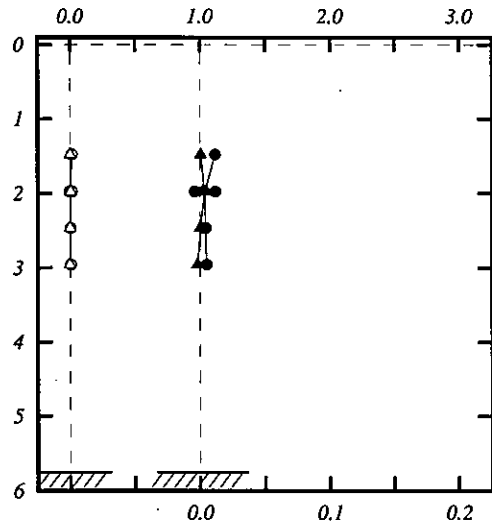


**CFC Profile Plots**  
**(measurements using PMEL system)**

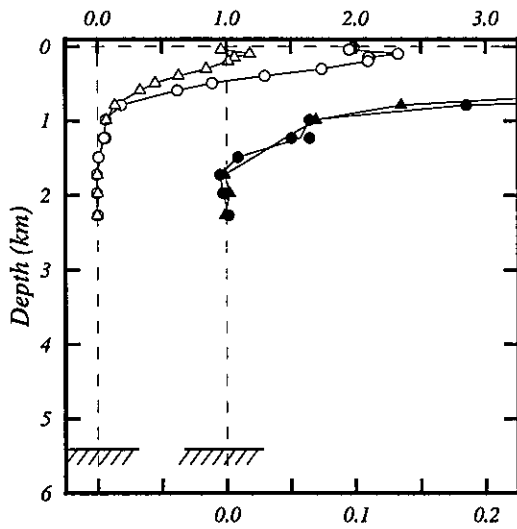
Locations of Stations on This Page



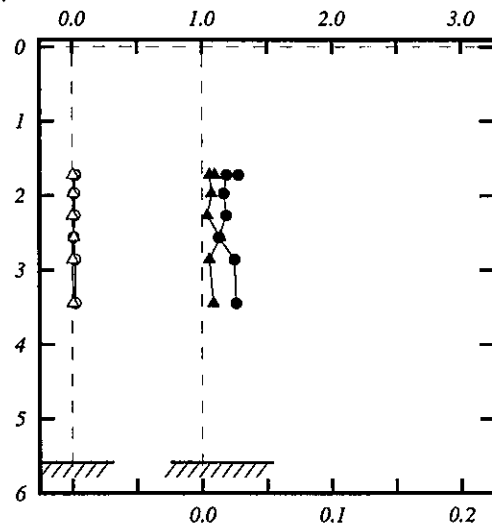
Station 9



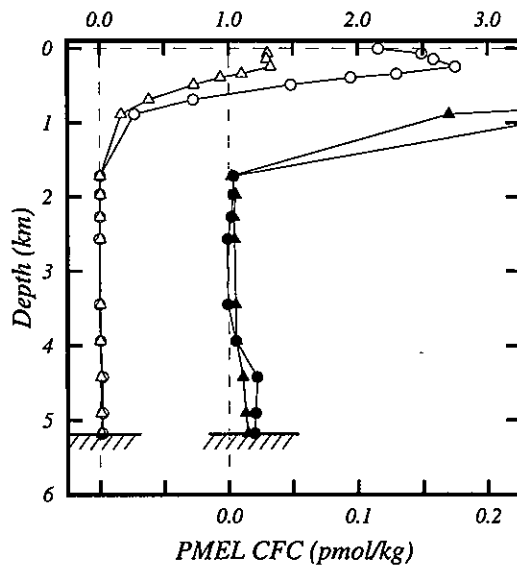
Station 11



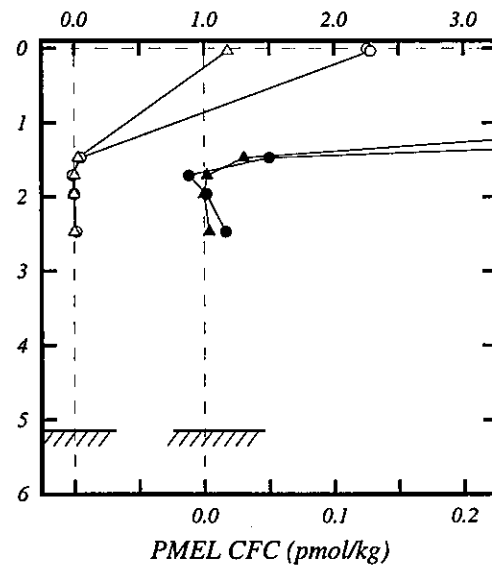
Station 12



Station 13

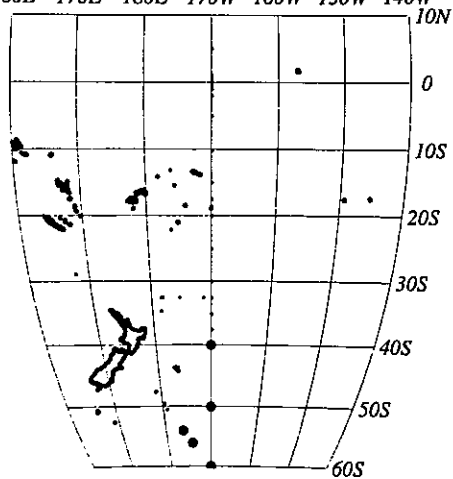


Station 14

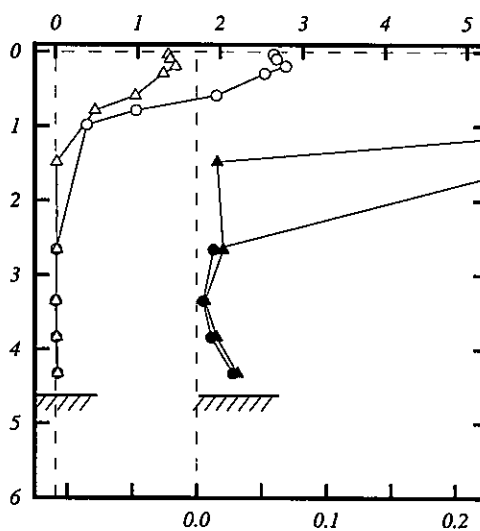




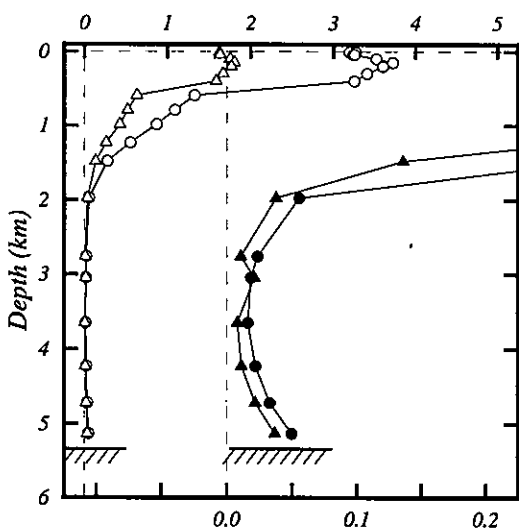
Locations of Stations on This Page  
 160E 170E 180E 170W 160W 150W 140W



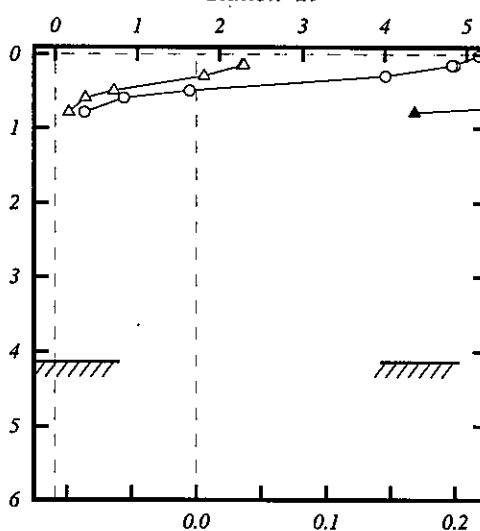
Station 15



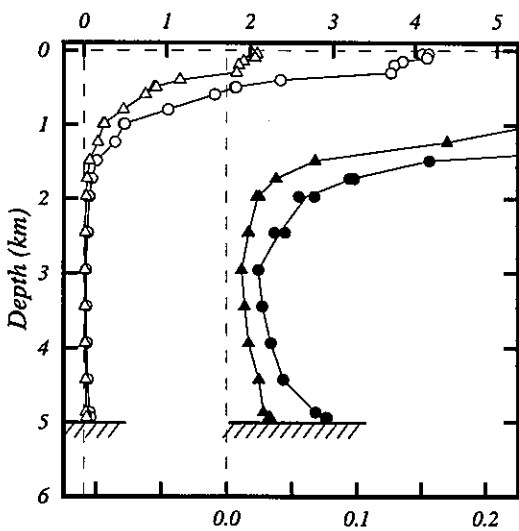
Station 26



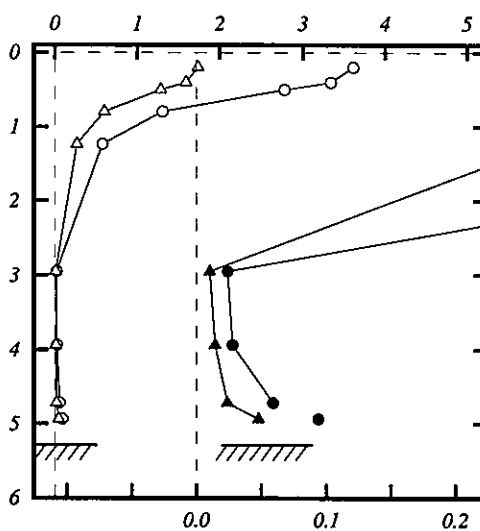
Station 29



Station 30



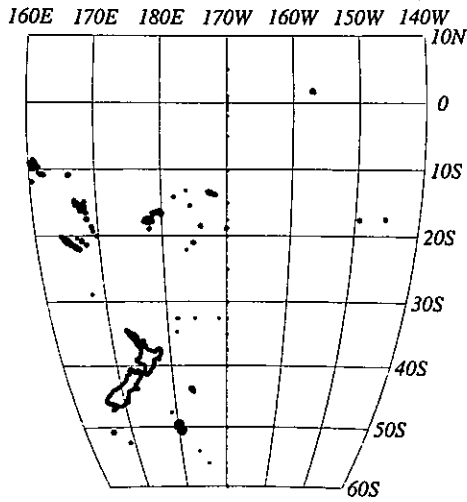
Station 31



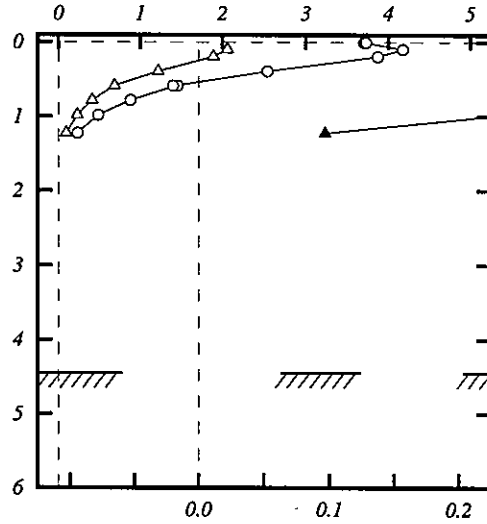
PMEL CFC (pmol/kg)

PMEL CFC (pmol/kg)

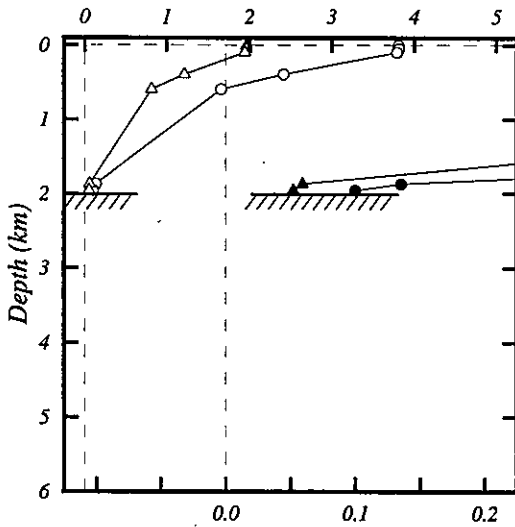
Locations of Stations on This Page



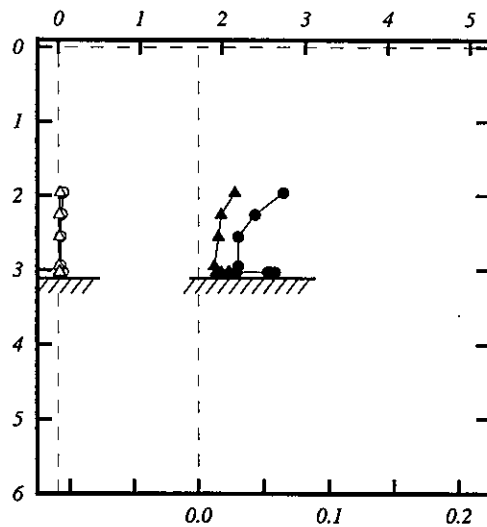
Station 32



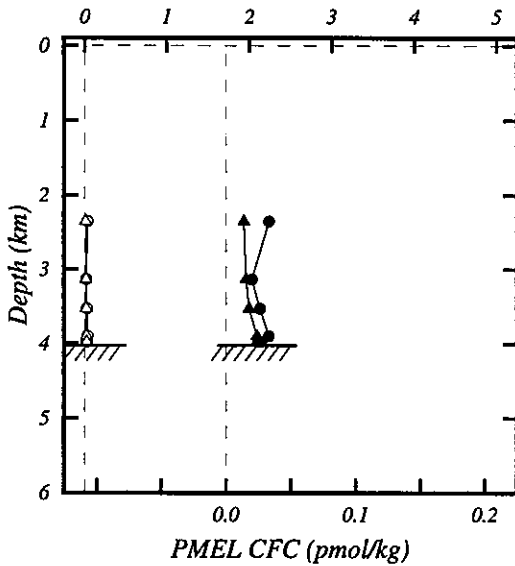
Station 33



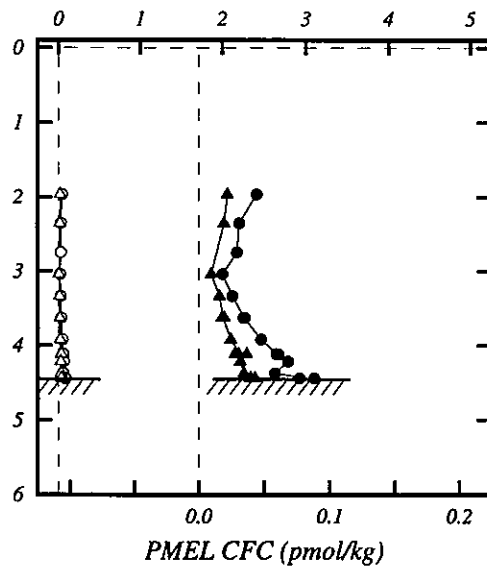
Station 34



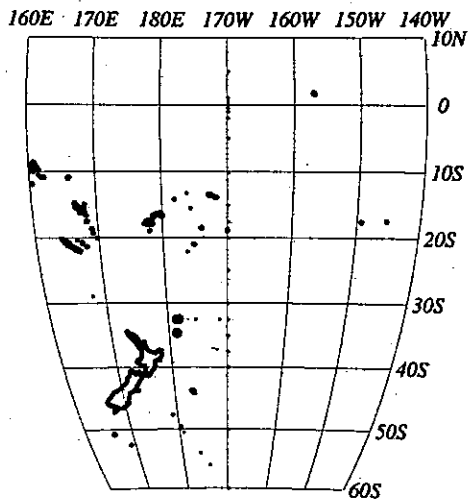
Station 35



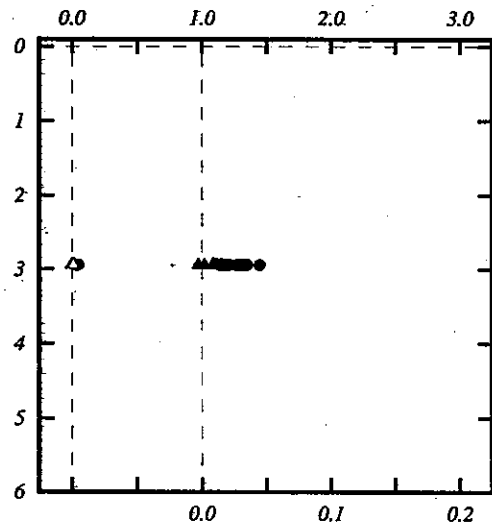
Station 36



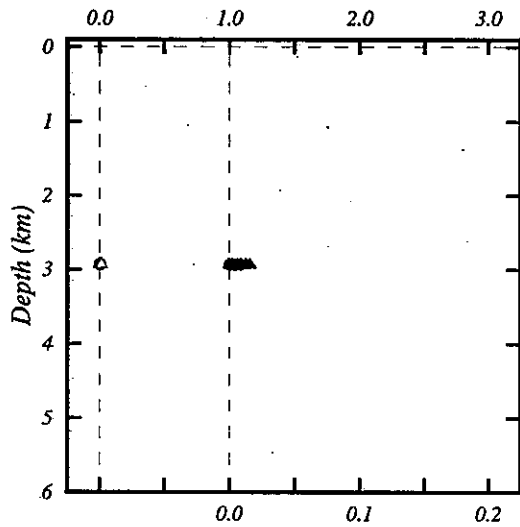
Locations of Stations on This Page



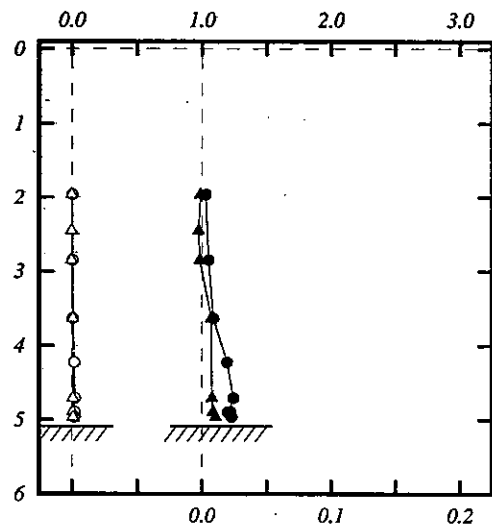
Station 37



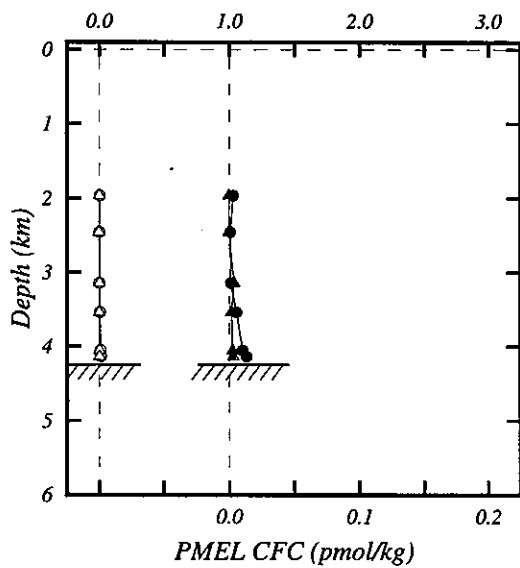
Station 38



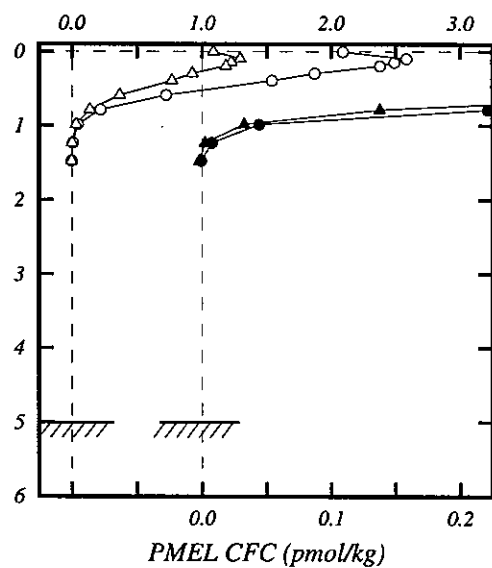
Station 39



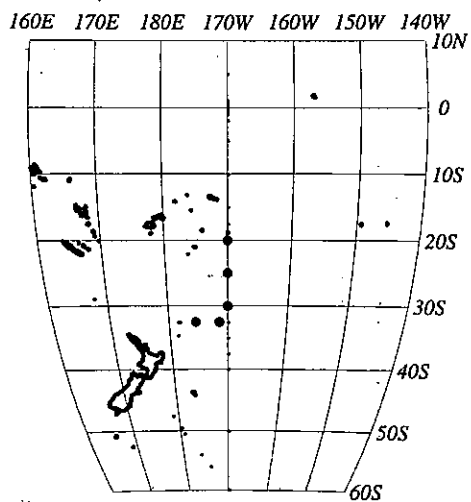
Station 40



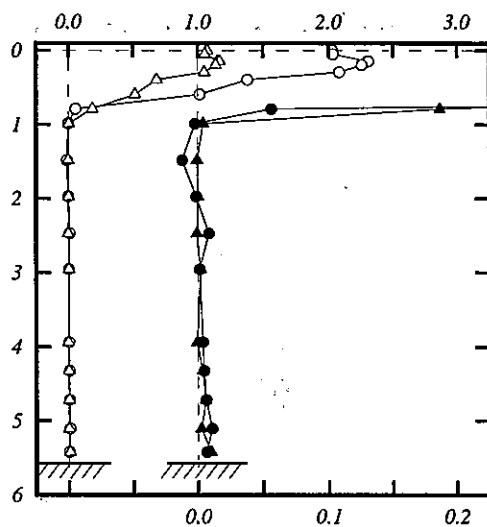
Station 43



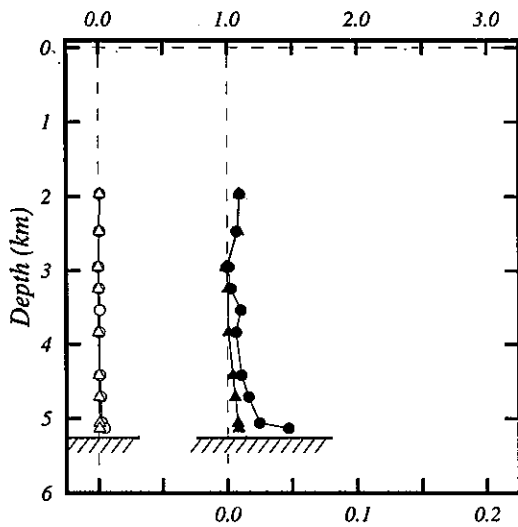
Locations of Stations on This Page



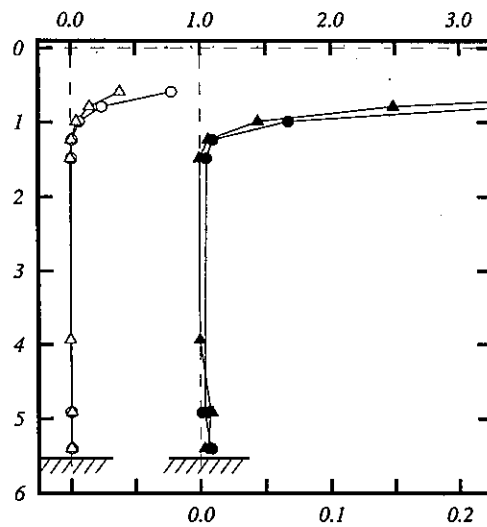
Station 45



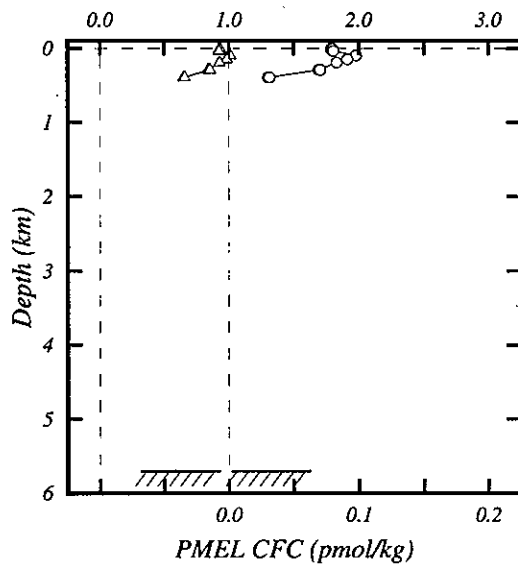
Station 46



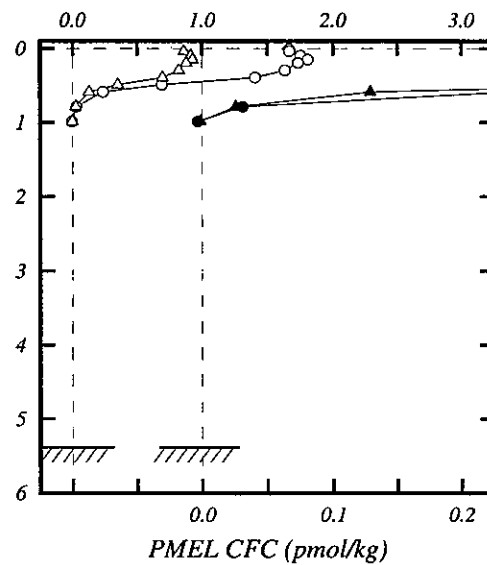
Station 47



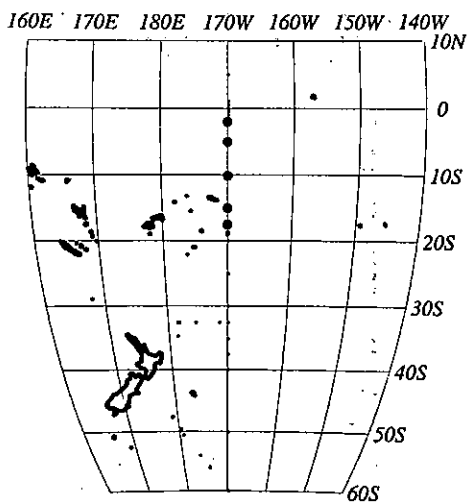
Station 48



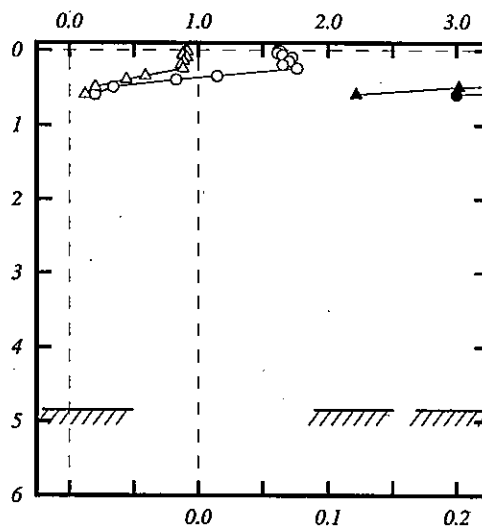
Station 50



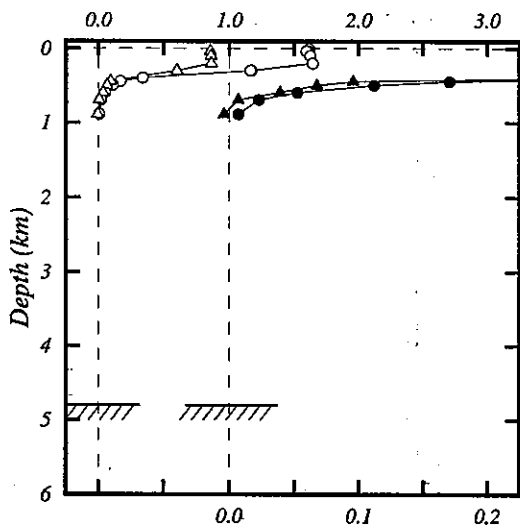
Locations of Stations on This Page



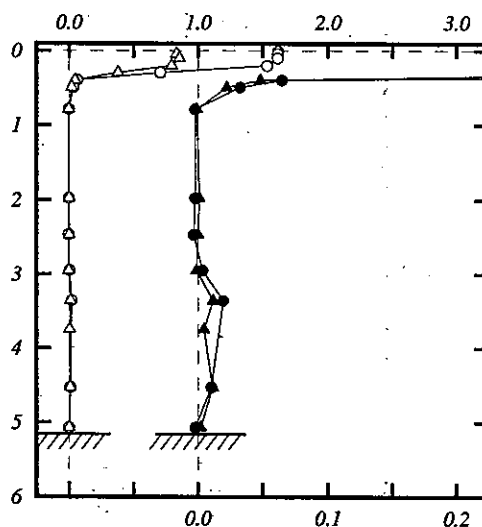
Station 51



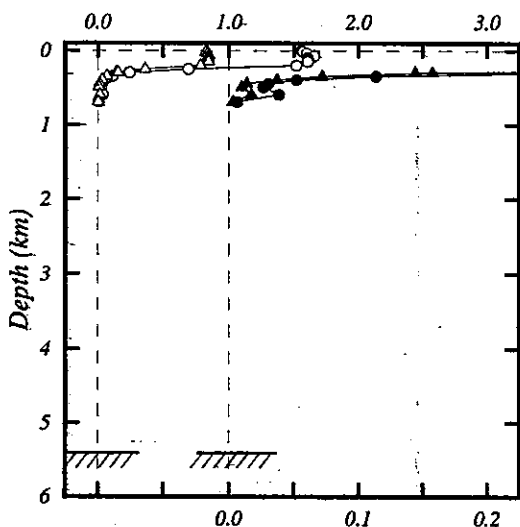
Station 52



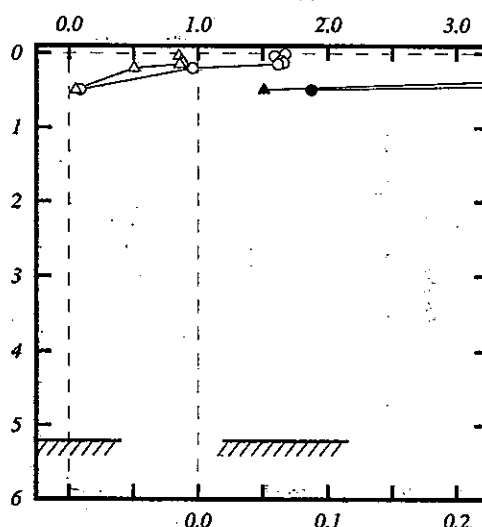
Station 55



Station 58



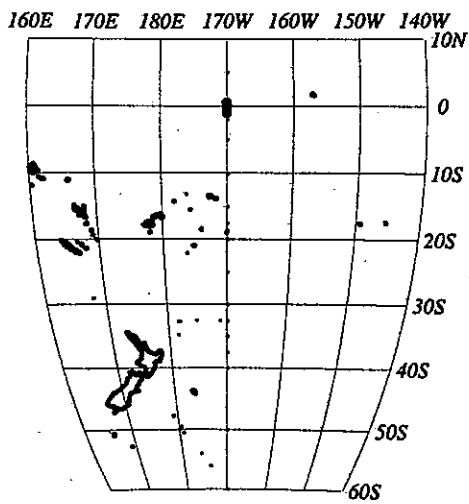
Station 59



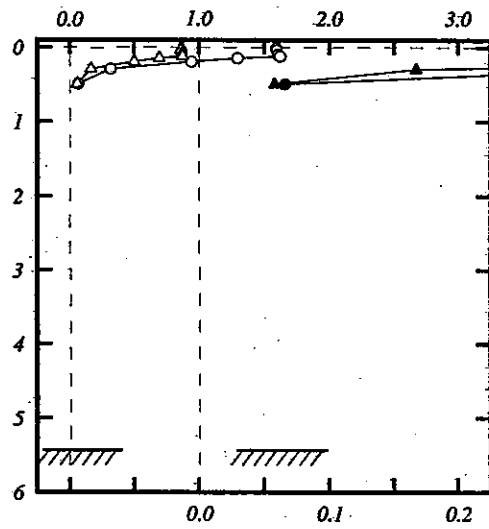
PMEL CFC (pmol/kg)

PMEL CFC (pmol/kg)

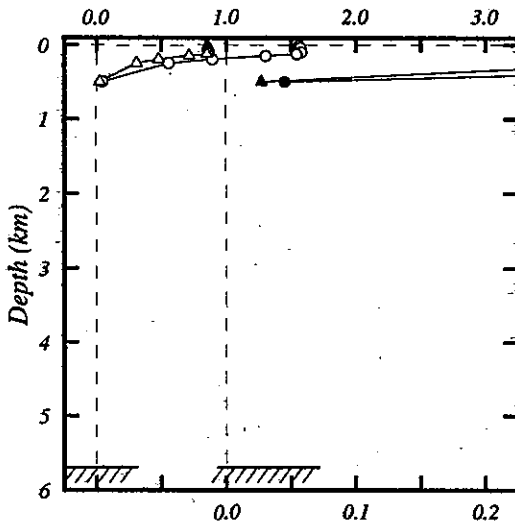
**Locations of Stations on This Page**



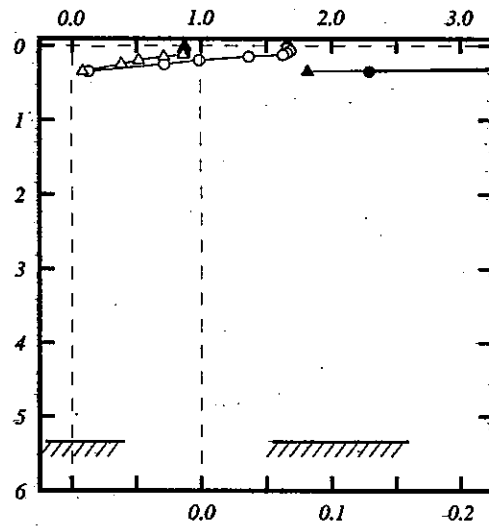
**Station 60**



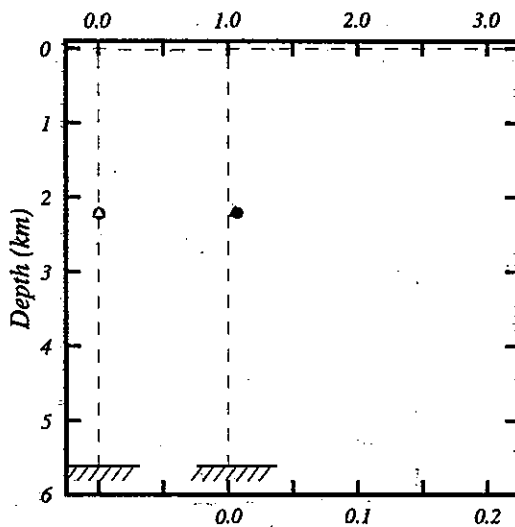
**Station 61**



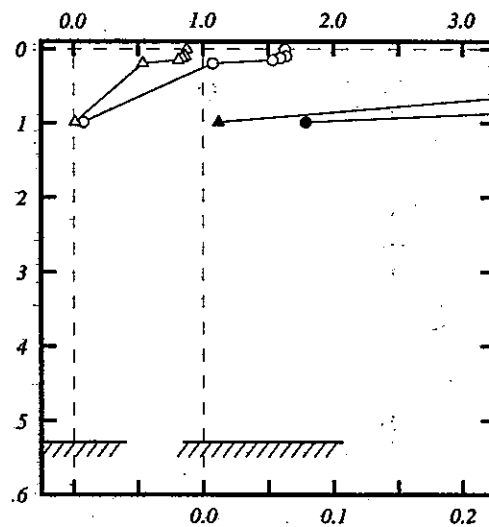
**Station 62**



**Station 64**



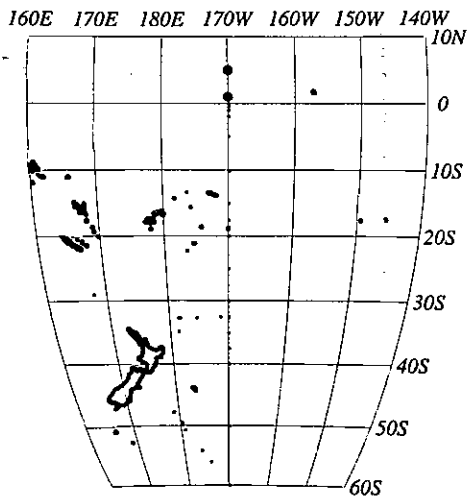
**Station 65**



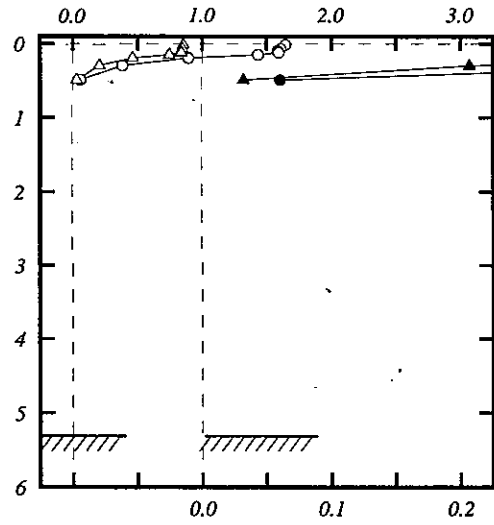
PMEL CFC (pmol/kg)

PMEL CFC (pmol/kg)

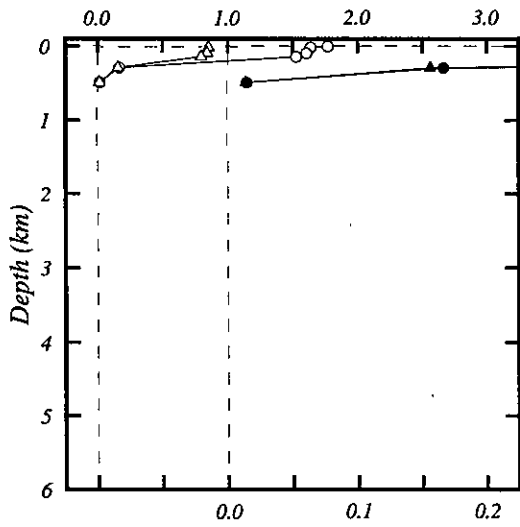
Locations of Stations on This Page

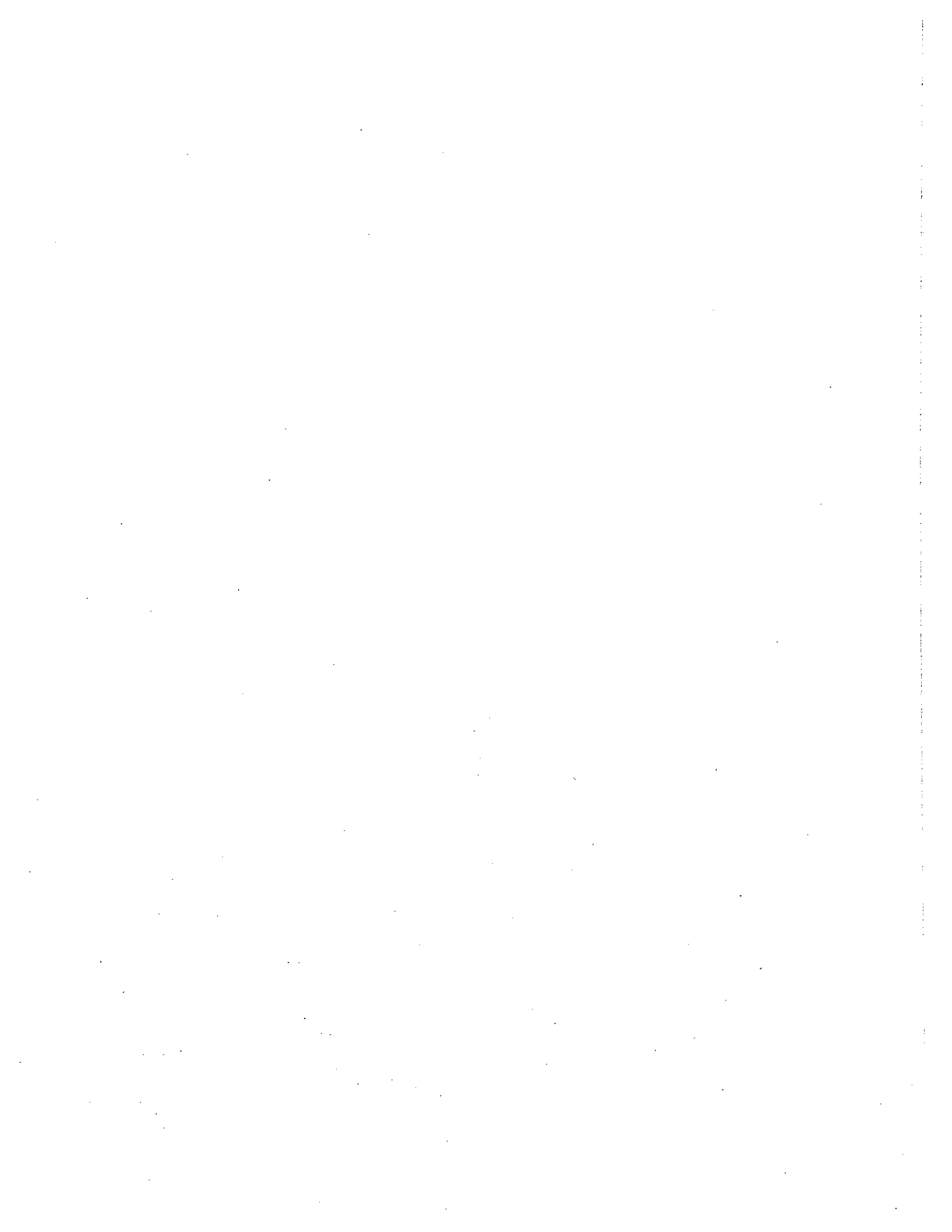


Station 66



Station 68







# **Replicate CFC Seawater Measurements (using SIO system)**

CGC-90 SIO Replicate CFC Measurements

| Station | Sample No. | F-11 (pM/kg)   | F-12 (pM/kg)         | F-11 F-12    | Station | Sample No. | F-11 (pM/kg)    | F-12 (pM/kg)         | F-11 F-12    |
|---------|------------|----------------|----------------------|--------------|---------|------------|-----------------|----------------------|--------------|
| 9       | 1248       | 1.822<br>—     | 0.919<br>0.910       | 1.98<br>—    | 13      | 2241       | 2.303<br>2.404  | 1.085<br>1.119       | 2.12<br>2.15 |
| 9       | 1351       | 0.149<br>0.145 | —<br>—               | —<br>—       | 13      | 2242       | 2.380<br>2.392  | 1.136<br>1.180       | 2.10<br>2.03 |
| 10      | 1441       | 1.568<br>1.536 | 0.759<br>0.767       | 2.07<br>2.00 | 13      | 2249       | 2.446<br>2.613  | 1.199<br>1.264       | 2.04<br>2.07 |
| 10      | 1445       | 1.822<br>1.854 | 0.896<br>0.910       | 2.03<br>2.04 | 13      | 2441       | 0.015<br>0.015  | 0.001 M<br>0.001 M   | —<br>—       |
| 10      | 1548       | 0.227<br>0.223 | 0.113<br>0.107       | 2.02<br>2.09 | 13      | 2442       | 0.013<br>0.013  | 0.001 M<br>0.001 M   | —<br>—       |
| 10      | 1550       | 0.815<br>0.810 | 0.405<br>0.394       | 2.01<br>2.05 | 13      | 2447       | —<br>—          | -0.002 M<br>-0.001 M | —<br>—       |
| 11      | 1641       | 1.662<br>1.689 | 0.793<br>0.786       | 2.10<br>2.15 | 13      | 2451       | 0.001<br>-0.003 | 0.000 M<br>-0.001 M  | —<br>—       |
| 11      | 1746       | 0.165<br>0.161 | 0.077<br>0.077       | 2.14<br>2.10 | 14      | 2542       | 2.341<br>2.157  | 1.100<br>1.029       | 2.13<br>2.10 |
| 11      | 1841       | 0.009<br>0.009 | 0.003 M<br>-0.001 M  | —<br>—       | 14      | 2641       | 0.009<br>0.013  | 0.001 M<br>0.000     | —<br>—       |
| 12      | 1942       | 2.046<br>2.140 | 1.007<br>1.030       | 2.03<br>2.08 | 14      | 2642       | 0.005<br>0.008  | 0.004 M<br>0.002 M   | —<br>—       |
| 12      | 2041       | —<br>—         | 0.003 M<br>0.001 M   | —<br>—       | 14      | 2645       | 0.036<br>0.035  | 0.009 M<br>—         | —<br>—       |
| 12      | 2141       | 0.005<br>—     | 0.000 M<br>0.001 M   | —<br>—       | 14      | 2649       | 0.532<br>0.534  | 0.268<br>0.255       | 1.99<br>2.09 |
| 12      | 2142       | —<br>0.004     | 0.001 M<br>0.001 M   | —<br>—       | 15      | 2741       | 2.824<br>2.980  | 1.348<br>1.371       | 2.10<br>2.17 |
| 12      | 2143       | 0.010<br>0.012 | 0.004 M<br>0.001 M   | —<br>—       | 15      | 2742       | 2.454<br>2.537  | 1.198<br>1.188       | 2.05<br>2.14 |
| 12      | 2144       | 0.001<br>—     | -0.001 M<br>-0.001 M | —<br>—       | 15      | 2842       | 0.392<br>0.377  | 0.171<br>0.174       | 2.30<br>2.17 |
| 12      | 2146       | -0.000<br>—    | 0.001 M<br>-0.002 M  | —<br>—       | 15      | 2848       | —<br>—          | 0.001 M<br>0.001 M   | —<br>—       |

M = manual peak integration

## CGC-90 SIO Replicate-CFC Measurements

| Station | Sample No. | F-11 (pM/kg)            | F-12 (pM/kg)                | F-11/F-12         | Station | Sample No. | F-11 (pM/kg)            | F-12 (pM/kg)                  | F-11/F-12    |
|---------|------------|-------------------------|-----------------------------|-------------------|---------|------------|-------------------------|-------------------------------|--------------|
|         |            |                         |                             |                   | 19      | 3548       | -0.003<br>0.001         | 0.001 M<br>-0.006 M           | —<br>—       |
| 15      | 2948       | 0.026<br>0.023          | 0.005 M<br>0.003 M          | —<br>—            | 19      | 3550       | 0.074<br>0.074          | 0.019<br>0.023                | 3.81<br>3.21 |
| 15      | 2949       | 0.022<br>0.020          | 0.005 M<br>0.003 M          | —<br>—            | 21      | 3748       | 0.039<br>0.037          | 0.018<br>0.007 M              | 2.18<br>—    |
| 16      | 3048       | -0.005<br>-0.002        | 0.000 M<br>0.001 M          | —<br>—            | 21      | 3749       | 0.034<br>0.035          | 0.018<br>0.007 M              | 1.85<br>—    |
| 16      | 3050       | 0.025<br>0.020          | 0.004 M<br>0.002 M          | —<br>—            | 22      | 3848       | 0.033<br>0.034          | 0.013 M<br>0.014              | 2.46<br>2.33 |
| 16      | 3052       | 0.381<br>0.390          | 0.175<br>0.177              | 2.18<br>2.20      | 22      | 3849       | 0.032<br>0.031          | 0.005 M<br>0.010              | —<br>3.01    |
| 16      | 3143       | 0.001<br>0.001          | 0.001 M<br>0.001 M          | —<br>—            | 23      | 3941       | 3.082<br>3.178          | 1.485<br>1.522                | 2.08<br>2.09 |
| 16      | 3146       | -0.007 M<br>-0.008      | 0.003 M<br>0.000            | —<br>—            | 23      | 3949       | 2.906<br>2.970          | 1.379<br>1.364                | 2.11<br>2.18 |
| 16      | 3148       | 0.019<br>0.016          | 0.001 M<br>0.003 M          | —<br>—            | 23      | 4048       | 0.178<br>0.155<br>0.147 | —<br>—<br>—                   | —<br>—<br>—  |
| 16      | 3149       | 0.027<br>0.023<br>0.022 | 0.018<br>0.013 M<br>0.004 M | 1.46<br>1.76<br>— | 23      | 4050       | 0.539<br>0.541          | —<br>0.241                    | —<br>2.24    |
| 16      | 3151       | 0.029<br>0.030          | 0.004 M<br>—                | —<br>—            | 23      | 4148       | 0.040<br>0.041          | 0.007 M<br>0.013 M            | —<br>3.09    |
| 17      | 3248       | -0.002<br>-0.003        | 0.001 M<br>0.003 M          | —<br>—            | 24      | 4241       | 0.016<br>0.018<br>0.015 | 0.001 M<br>0.001 M<br>0.003 M | —<br>—<br>—  |
| 17      | 3250       | -0.002<br>0.000         | 0.001 M<br>0.001 M          | —<br>—            | 24      | 4242       | 0.022<br>0.023<br>0.023 | 0.001 M<br>0.004 M<br>0.003 M | —<br>—<br>—  |
| 18      | 3348       | -0.004<br>-0.005        | 0.000<br>0.000              | —<br>—            | 24      | 4243       | 0.016<br>0.018<br>0.018 | 0.003 M<br>0.003 M<br>0.001 M | —<br>—<br>—  |
| 19      | 3443       | 2.468<br>2.445          | 1.228<br>1.221              | 2.01<br>2.00      | 24      | 4248       | 0.022<br>0.020<br>0.020 | 0.003 M<br>0.003 M<br>0.003 M | —<br>—<br>—  |
| 19      | 3542       | 0.426<br>0.437          | 0.180<br>0.200              | 2.36<br>2.19      |         |            |                         |                               |              |
| 19      | 3546       | —<br>2.471              | 1.204<br>1.192              | —<br>2.07         |         |            |                         |                               |              |

M = manual peak integration

## CGC-90 SIO Replicate CFC Measurements

| Station | Sample No. | F-11 (pM/kg)            | F-12 (pM/kg)                  | F-11/F-12    |
|---------|------------|-------------------------|-------------------------------|--------------|
| 24      | 4249       | 0.013<br>0.013<br>0.013 | 0.004 M<br>0.001 M<br>0.003 M | —<br>—<br>—  |
| 24      | 4250       | 0.022<br>0.020<br>0.020 | 0.003 M<br>0.003 M<br>0.004 M | —<br>—<br>—  |
| 24      | 4251       | 0.029<br>0.026<br>0.027 | —<br>0.001 M<br>—             | —<br>—<br>—  |
| 24      | 4252       | 0.023<br>0.028<br>0.021 | 0.001 M<br>—<br>—             | —<br>—<br>—  |
| 25      | 4347       | 2.967<br>2.988          | 1.483<br>1.473                | 2.00<br>2.03 |
| 25      | 4444       | 0.024<br>0.022          | 0.005 M<br>0.001 M            | —<br>—       |
| 25      | 4446       | 0.155<br>0.145          | 0.070<br>—                    | 2.22<br>—    |
| 25      | 4448       | 0.036<br>0.038          | —<br>—                        | —<br>—       |
| 25      | 4451       | 0.024<br>0.025          | 0.002 M<br>0.004 M            | —<br>—       |
| 26      | 4748       | 0.027<br>0.024          | 0.016 M<br>0.011 M            | 1.69<br>2.15 |
| 27      | 4842       | 3.650<br>3.651          | 1.758<br>1.749                | 2.08<br>2.09 |
| 27      | 4946       | 0.067<br>0.073          | —<br>—                        | —<br>—       |
| 27      | 4948       | 0.036<br>0.037          | 0.015 M<br>0.020 M            | 2.38<br>1.81 |
| 28      | 5046       | 4.661<br>4.546          | 2.069<br>2.083                | 2.25<br>2.18 |
| 28      | 5048       | 0.365<br>0.366          | 0.181<br>0.173                | 2.02<br>2.11 |

| Station | Sample No. | F-11 (pM/kg)            | F-12 (pM/kg)            | F-11/F-12            |
|---------|------------|-------------------------|-------------------------|----------------------|
| 28      | 5143       | 0.013<br>0.014          | -0.000<br>0.008 M       | —<br>—               |
| 28      | 5148       | 0.041<br>0.039          | —<br>0.016              | —<br>2.48            |
| 29      | 5246       | 5.087<br>5.047          | 2.231<br>2.199          | 2.28<br>2.29         |
| 29      | 5248       | 0.134<br>0.140          | 0.063<br>0.054          | 2.12<br>2.57         |
| 29      | 5348       | 0.018<br>0.013          | —<br>0.002 M            | —<br>—               |
| 30      | 5548       | 0.056<br>0.062          | 0.013 M<br>—            | 4.15<br>—            |
| 31      | 5648       | 0.054<br>0.043          | 0.014 M<br>0.014 M      | 3.77<br>3.13         |
| 31      | 5651       | 0.027<br>0.021          | 0.010 M<br>0.009 M      | 2.71<br>—            |
| 31      | 5741       | 3.234<br>3.251          | 1.526<br>—              | 2.12<br>—            |
| 33      | 5948       | 0.099<br>0.100          | 0.056<br>0.050          | 1.77<br>1.99         |
| 33      | 5949       | 0.102<br>0.109          | 0.047<br>0.055          | 2.15<br>1.98         |
| 33      | 5950       | 0.274<br>0.279<br>0.274 | 0.137<br>0.125<br>0.144 | 2.00<br>2.23<br>1.91 |
| 33      | 5951       | 0.828<br>0.827          | 0.378<br>0.383          | 2.19<br>2.16         |
| 35      | 6146       | 0.046<br>0.049          | —<br>0.024              | —<br>2.02            |
| 36      | 6243       | 0.013<br>0.011          | 0.010 M<br>0.005 M      | —<br>—               |
| 36      | 6248       | 0.070<br>0.069          | 0.036<br>0.036          | 1.94<br>1.90         |

M = manual peak integration

CGC-90 SIO Replicate CFC Measurements

| Station | Sample No. | F-11 (pM/kg)                         | F-12 (pM/kg)                                 | F-11/F-12        | Station | Sample No. | F-11 (pM/kg)       | F-12 (pM/kg)        | F-11/F-12    |
|---------|------------|--------------------------------------|--|------------------|---------|------------|--------------------|---------------------|--------------|
|         |            |                                      |  |                  | 47      | 7746       | 0.002<br>0.004     | -0.003 M<br>0.002 M | —<br>—       |
| 36      | 6249       | 0.069<br>0.065                       | 0.035<br>0.034                               | 1.96<br>1.91     | 48      | 7841       | 1.269<br>1.306     | 0.608<br>0.669      | 2.09<br>1.95 |
| 37      | 6448       | 0.014<br>0.018                       | 0.001 M<br>—                                 | —<br>—           | 48      | 7941       | 0.014<br>—         | 0.006 M<br>0.003    | —<br>—       |
| 37      | 6451       | 0.021<br>0.021                       | —<br>—                                       | —<br>—           | 48      | 8041       | 0.005<br>0.004     | 0.002 M<br>-0.005 M | —<br>—       |
| 38      | 6541       | 0.002<br>-0.001 M<br>-0.002<br>0.005 | -0.003 M<br>-0.003 M<br>-0.003 M<br>-0.003 M | —<br>—<br>—<br>— | 49      | 8142       | 1.770<br>1.753     | 0.932<br>0.947      | 1.90<br>1.85 |
| 39      | 6641       | 0.016<br>0.020                       | 0.012 M<br>0.006 M                           | 1.29<br>—        | 49      | 8247       | -0.003 M<br>-0.004 | 0.006<br>0.001      | —<br>—       |
| 40      | 6741       | 0.008<br>—                           | 0.004 M<br>-0.000                            | —<br>—           | 50      | 8341       | 1.408<br>1.353     | 0.681<br>0.654      | 2.07<br>2.07 |
| 41      | 6841       | 0.079<br>0.085                       | 0.047<br>0.047                               | 1.69<br>1.83     | 50      | 8441       | 0.011<br>0.009     | -0.000 M<br>—       | —<br>—       |
| 41      | 6941       | -0.001<br>0.002 M                    | 0.003 M<br>-0.010                            | —<br>—           | 50      | 8541       | 0.004<br>0.005     | -0.000 M<br>0.003 M | —<br>—       |
| 44      | 7245       | 0.950<br>1.005                       | 0.453<br>0.467                               | 2.09<br>2.15     | 50      | 8545       | 0.007<br>—         | 0.001 M<br>0.004 M  | —<br>—       |
| 44      | 7341       | 0.020<br>0.015                       | 0.007<br>0.009                               | —<br>—           | 50      | 8551       | 0.005<br>—         | 0.004 M<br>0.003    | —<br>—       |
| 44      | 7350       | -0.000<br>0.007                      | -0.003 M<br>0.002 M                          | —<br>—           | 51      | 8650       | 0.850<br>0.875     | 0.412<br>0.425      | 2.06<br>2.06 |
| 45      | 7446       | 1.405<br>1.411                       | 0.673<br>0.677                               | 2.09<br>2.09     | 52      | 8852       | 0.180<br>0.180     | 0.089<br>0.084      | 2.03<br>2.14 |
| 46      | 7645       | -0.002<br>-0.001                     | -0.000 M<br>0.001 M                          | —<br>—           | 52      | 8941       | 0.002<br>0.002     | 0.001 M<br>-0.001 M | —<br>—       |
| 46      | 7648       | 0.033<br>0.033                       | 0.005<br>0.016 M                             | —<br>2.05        | 52      | 8947       | 0.003<br>0.008     | 0.011<br>0.007      | —<br>—       |
| 47      | 7741       | 0.006<br>0.005                       | -0.005 M<br>0.007 M                          | —<br>—           | 54      | 9143       | 0.010<br>0.007     | 0.004 M<br>0.004 M  | —<br>—       |
| 47      | 7742       | 0.002<br>0.001                       | 0.005 M<br>0.001 M                           | —<br>—           |         |            |                    |                     |              |

M = manual peak integration

CGC-90 SIO Replicate CFC Measurements

| Station | Sample No. | F-11 (pM/kg) | F-12 (pM/kg) | F-11 F-12 |
|---------|------------|--------------|--------------|-----------|
| 54      | 9151       | 0.005        | 0.002 M      | —         |
|         |            | 0.009        | -0.002 M     | —         |
|         |            | 0.002        | 0.002 M      | —         |
| 55      | 9247       | 0.014        | 0.016        | 0.89      |
|         |            | 0.013        | 0.005 M      | —         |
| 55      | 9342       | 0.001        | 0.004 M      | —         |
|         |            | 0.002        | -0.000 M     | —         |
| 55      | 9346       | 0.004        | -0.000 M     | —         |
|         |            | 0.003        | -0.001       | —         |
| 55      | 9353       | -0.002       | 0.001 M      | —         |
|         |            | -0.001       | -0.000 M     | —         |
| 56      | 9441       | 0.004        | 0.001        | —         |
|         |            | 0.008        | —            | —         |
| 56      | 9445       | -0.001       | -0.001 M     | —         |
|         |            | -0.001       | 0.000 M      | —         |
| 58      | 9841       | 0.009        | 0.002        | —         |
|         |            | 0.009        | 0.005 M      | —         |
| 58      | 9842       | -0.001       | 0.002 M      | —         |
|         |            | 0.008        | 0.002 M      | —         |
| 58      | 9843       | 0.000        | -0.003 M     | —         |
|         |            | 0.003        | -0.003 M     | —         |
| 58      | 9853       | 0.005        | -0.002 M     | —         |
|         |            | 0.005        | -0.000 M     | —         |
| 60      | 10052      | 0.352        | 0.159        | 2.22      |
|         |            | 0.347        | —            | —         |

M = manual peak integration