

—報告—
Reports

Report on Oceanographic Observation by the 20th Japanese Antarctic Research Expedition 1978–1979

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第 20 次南極地域観測隊海洋部門報告

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要旨: 第 20 次日本南極地域観測隊, 海洋物理・化学定常観測として, 1978 年 11 月から 1979 年 4 月まで「ふじ」艦上で, 表面観測 237 点, BT 観測 45 点, XBT 観測 86 点, GEK 観測 10 点, 各層観測 6 点, およびリュツォ・ホルム湾の海氷上において各層観測 1 点を実施した. とりわけ, 2 時間間隔の表面観測により表面海水中の海洋条件緯度変化, および XBT 観測による水温鉛直分布を詳細に調査した. また, 表面海水中の油成分および放射能も測定した.

Abstract: On board the icebreaker FUJI from November 1978 to April 1979, the physical and chemical oceanographic observations were carried out, as part of the routine programs of the 20th Japanese Antarctic Research Expedition. Two hundreds and thirty seven stations for surface observation, 45 stations for BT observation, 86 stations for XBT observation, 10 stations for GEK measurement and six stations for serial observation were occupied en route. The serial observation was made at one station in the ice-covered area of Lützow-Holm Bay. Latitudinal changes of the oceanographic condition of surface water were investigated with the intensive surface samplings at intervals of two hours. Also, the XBT observation at intervals of two to six hours revealed the fine vertical profile of water temperature. Petroleum oil and radioactivity of surface water were also measured.

1. Introduction

The oceanographic observations of the physical and chemical programs have been carried out since 1965 along the course of the icebreaker FUJI between Tokyo, Japan, and Syowa Station, Antarctica, as part of the routine programs of the Japanese Antarctic Research Expedition (JARE).

The routine observation consists of the surface and serial observations and current

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measurements on board. Analysis of pond water in the Antarctic coastal region is done in addition. The continuous tidal observation has been carried out during the winter season.

This report gives the results obtained during the summer mission of JARE-20 in 1978–1979. The intensive surface observation at intervals of two hours was done in the Indian sector of the Antarctic Ocean on the southward leg between Fremantle and Syowa Station and on the northward leg between Syowa Station and Port Louis. Concurrently, the expendable bathythermograph observations were carried out at intervals of two to six hours in order to clarify the fine structure of temperature distribution in the upper layer of the Antarctic Ocean. Determination of radioactivity and petroleum oil in the surface water has also been done as the routine observation. Data obtained in the JARE-20 are presented.

2. Methods and Materials

Surface water was ordinarily sampled with a five-liter polyethylene bucket three times a day at 0800, 1200 and 1800 by local time along the cruise track of the FUJI as shown in Fig. 1. Also, the surface water was collected by the same method from the ponds in the coastal region. Water temperature was measured with a thermometer (precision: 1/10°C). Other chemical elements were measured by the following methods;

| | |
|------------------|---|
| Salinity | Inductive salinometer (Auto-Lab Model 601 MK-III) |
| Chlorinity | Mohr method |
| pH | Digital pH meter (Denki-kagaku Keiki Co. Model HG-3) |
| Dissolved Oxygen | Winkler's method using a Metrohm Model E415-20S titrator |
| Phosphate-P | } STRICKLAND and PARSONS (1960) |
| Silicate-Si | |
| Nitrate-N | |
| Nitrite-N | |
| Ammonium-N | Indophenol method |
| Alkalinity | Gran Plots method using a Denki-kagaku Keiki Co. Model HG-3 |

Nutrients analyses were carried out on board by using a Shimazu Model UV-210A spectrophotometer with the Auto Flow Cell system. Standard solutions of the Sagami Chemical Central Institute were employed for standard calibration. Concentration of petroleum oil was measured by the method described by the Hydrographic Department (1981). For the measurement of radioactivity, an aliquot of 100 l water was collected and analyzed by the method described in SHIOZAKI *et al.* (1972).

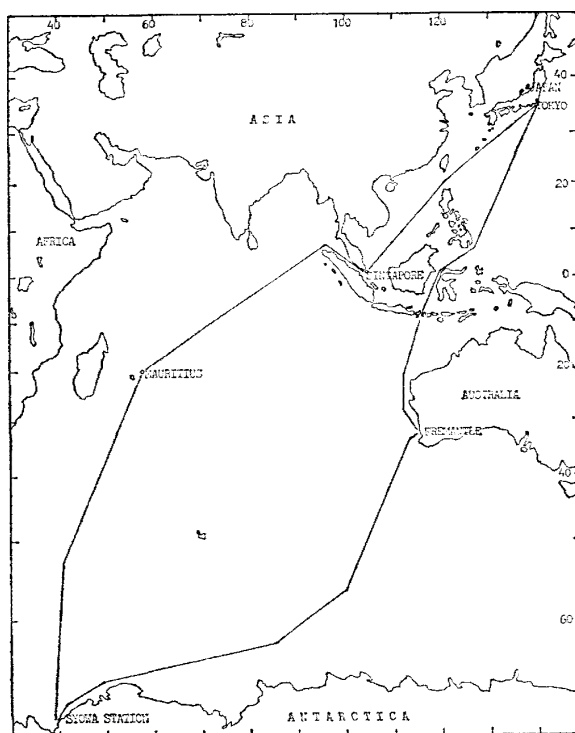


Fig. 1. Cruise track of the icebreaker FUJI from 25th November 1978 to 20th April 1979 in the JARE-20.

Water samples from different depths were collected with Nansen bottles, and water temperature was measured with protected reversing thermometers. Measurements of salinity, dissolved oxygen and other chemical elements were done with the same methods as mentioned above. A total of 16~27 depths was established in accordance with the recommendation by the International Association of Physical Oceanography (IAPO).

In addition, temperature was recorded with the bathythermograph (BT; down to about 250 m) and the expendable bathythermograph (XBT; down to about 500 m or 2000 m).

Current measurement was done by the Geomagnetic Electrokinetograph (GEK).

3. Results and Remarks

Surface observation was started in the western part of the North Pacific Ocean on 26th November 1978 and discontinued in the Luzon Strait on the homeward cruise on 16th April 1979. A total of 237 stations of surface observation was occupied as summarized in Table 1. Among them, petroleum oil and radioactivity were measured at 26 and 5 stations respectively as shown in Fig. 2. Data of these results are listed in Tables 6 and 5. These data will give a fundamental information. Intensive surface

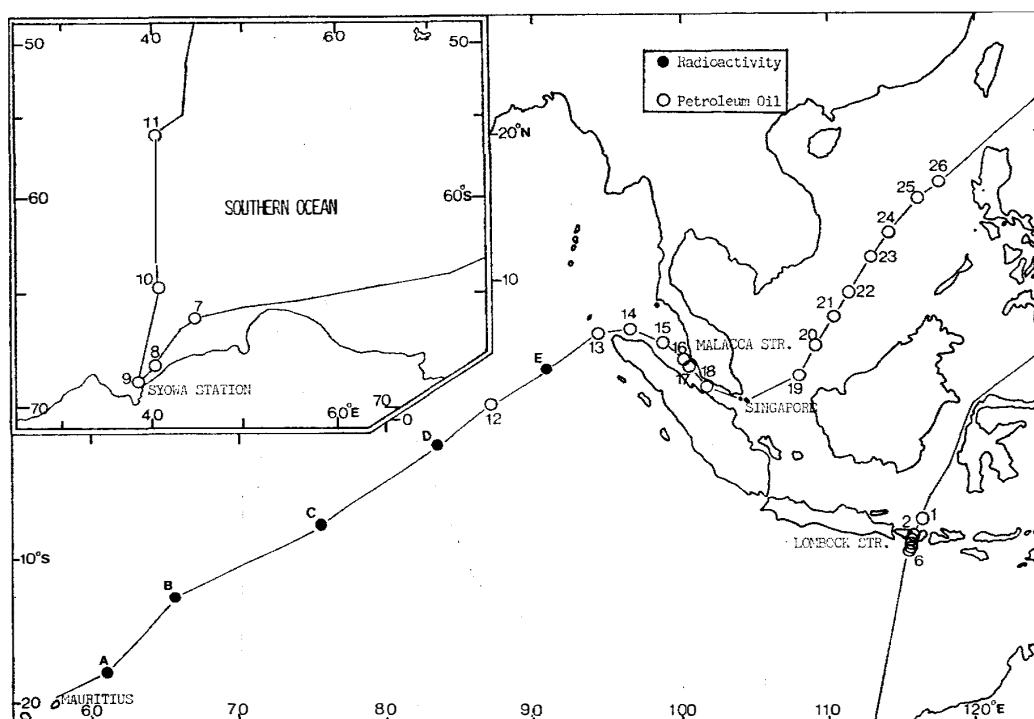


Fig. 2. Stations of radioactivity and petroleum oil measurements.

observations were carried out at 80 stations on the southward leg between $34^{\circ}20'.2S$, $111^{\circ}44'.8E$ and $60^{\circ}22'.4S$, $88^{\circ}58'.6E$ in December 1978, and at 39 stations on the northward leg between $53^{\circ}52'.8S$, $43^{\circ}10'.0E$ and $36^{\circ}27'.1S$, $50^{\circ}41'.5E$ in May 1979. Latitudinal changes of Dissolved Oxygen, Phosphate-P, Silicate-Si, Nitrate-N and Nitrite-N on the southward and northward legs are shown in Figs. 3 and 4, respectively. In these figures, the oceanic frontal zones are also illustrated, which will be discussed later. Each of five elements tends to increase from north to south. The same tendency was reported by SHIOZAKI (1966). However, the pattern of latitudinal changes seems to differ among five elements. For example, Silicate-Si shows a rapid increase around the Antarctic Convergence (AC). On the other hand, other four elements tend to increase rapidly around the Subtropical Convergence (STC). On the southward leg, these four elements seem to increase toward the Australasian Subantarctic Front (ASF; see BURLING, 1961) after crossing STC. On the northward leg, ASF was not found and four elements do not increase greatly south of STC.

Serial observations were carried out at six stations on the northward leg as shown in Fig. 5. In addition, one station was occupied in the fast ice area near Syowa Station. Data of these seven serial observations are listed in Table 4. The relevant meteorological data and interpolated values (temperature, salinity, sigma- t and dynamic depth anomalies) at IAPO standard depths are also included in Table 4. BT observations

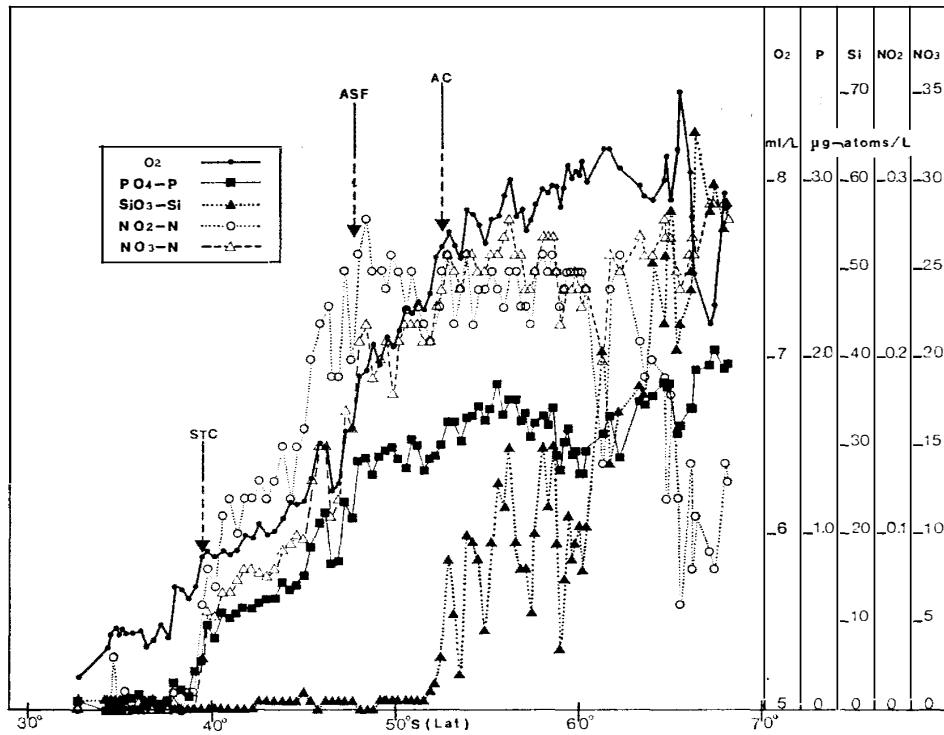


Fig. 3. Latitudinal changes of Dissolved Oxygen, Phosphate-P, Silicate-Si, Nitrate-N and Nitrite-N observed on the southward leg in December, 1978.

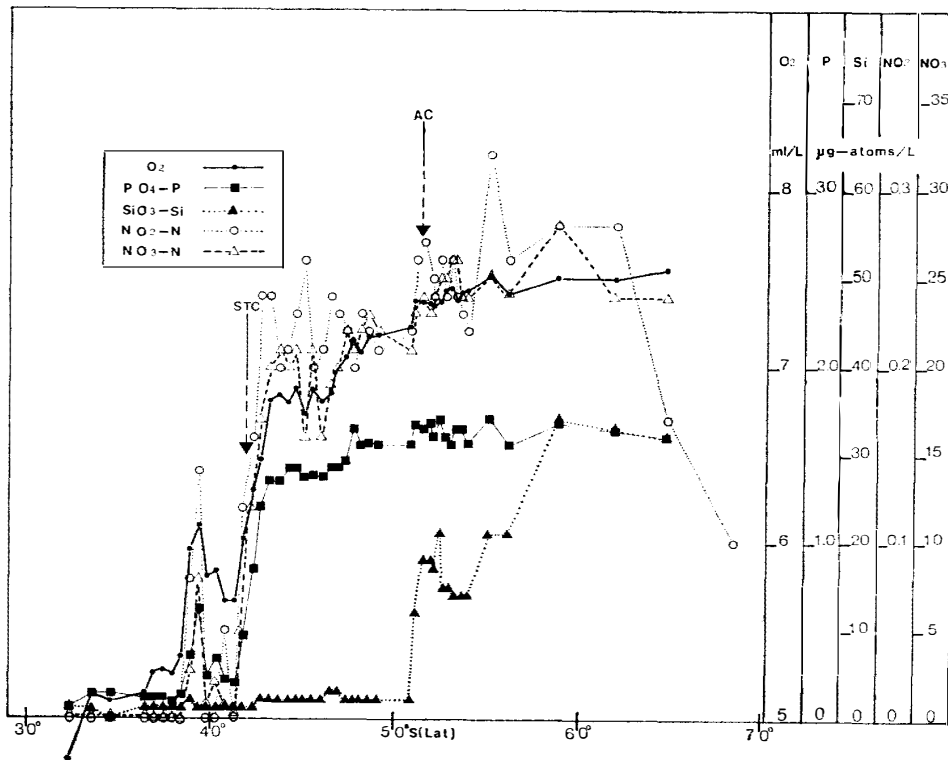


Fig. 4. Latitudinal changes of Dissolved Oxygen, Phosphate-P, Silicate-Si, Nitrate-N and Nitrite-N observed on the northward leg in February-March, 1979.

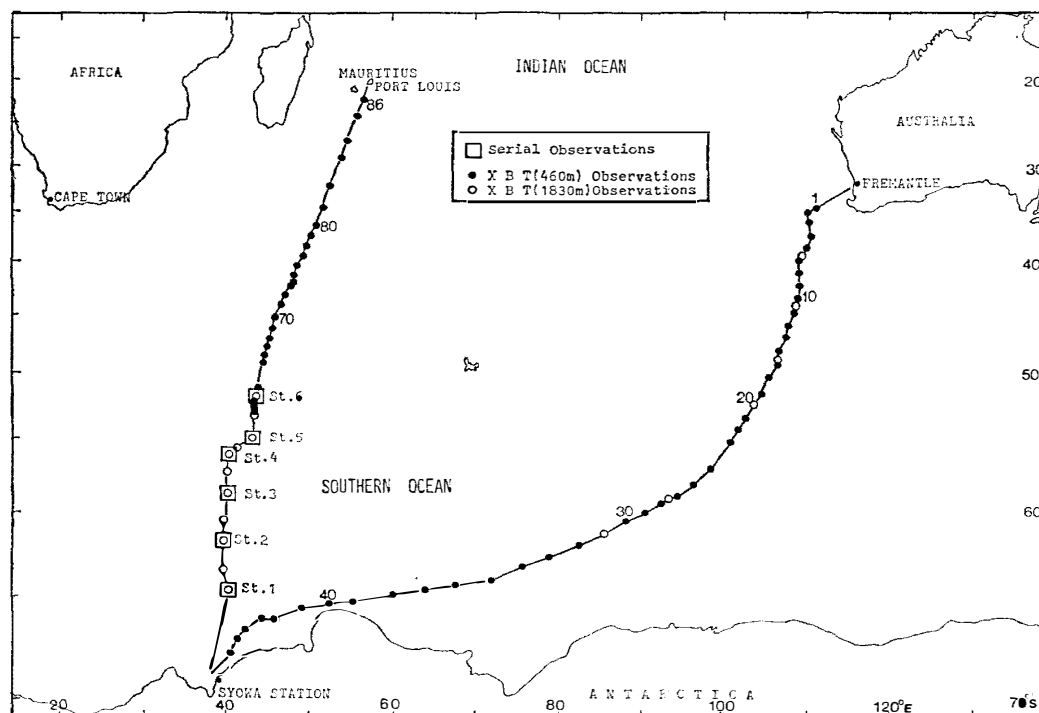


Fig. 5. Stations of serial observation and XBT observation in the Indian sector of the Antarctic Ocean. Numerals indicate the serial number of XBT observation.

were carried out in waters other than the Indian sector of the Antarctic Ocean. A total of 45 stations was occupied and these data are listed in Table 2. On the other hand, in the Indian sector of the Antarctic Ocean, the intensive XBT observation was done on the two legs as shown in Fig. 5. Data of XBT observations are listed in Table 3. Vertical profiles of water temperature down to 500 m on the two legs are shown in Figs. 6 and 7. On the southward leg, three oceanic frontal zones, *i.e.*, STC, ASF and AC, can be found from the temperature profile and the latitudinal changes of chemical elements (Fig. 3). STC, ASF and AC were located around $39^{\circ}26'S$, $47^{\circ}43'S$ and $52^{\circ}32'S$, respectively. Due to the intensive XBT observation, ASF was recorded for the first time in the JARE investigations. On the northward leg, STC and AC were also found around $41^{\circ}46'S$ and $51^{\circ}09'S$, respectively, but ASF was not found. Vertical profile of water temperature differed between the southward and northward legs.

Current measurement was done at ten stations and data are included in Table 1.

In the Antarctic coastal region, the pond water was analyzed in two regions; Kasumi Rock and East and West Ongul Islands. Eight ponds were investigated in the Kasumi Rock region as shown in Fig. 8. Five ponds were investigated in the East and West Ongul Islands. Data of surface temperature, chlorinity and other chemical elements are summarized in Table 7. HIGANO (1977) also observed the pond water

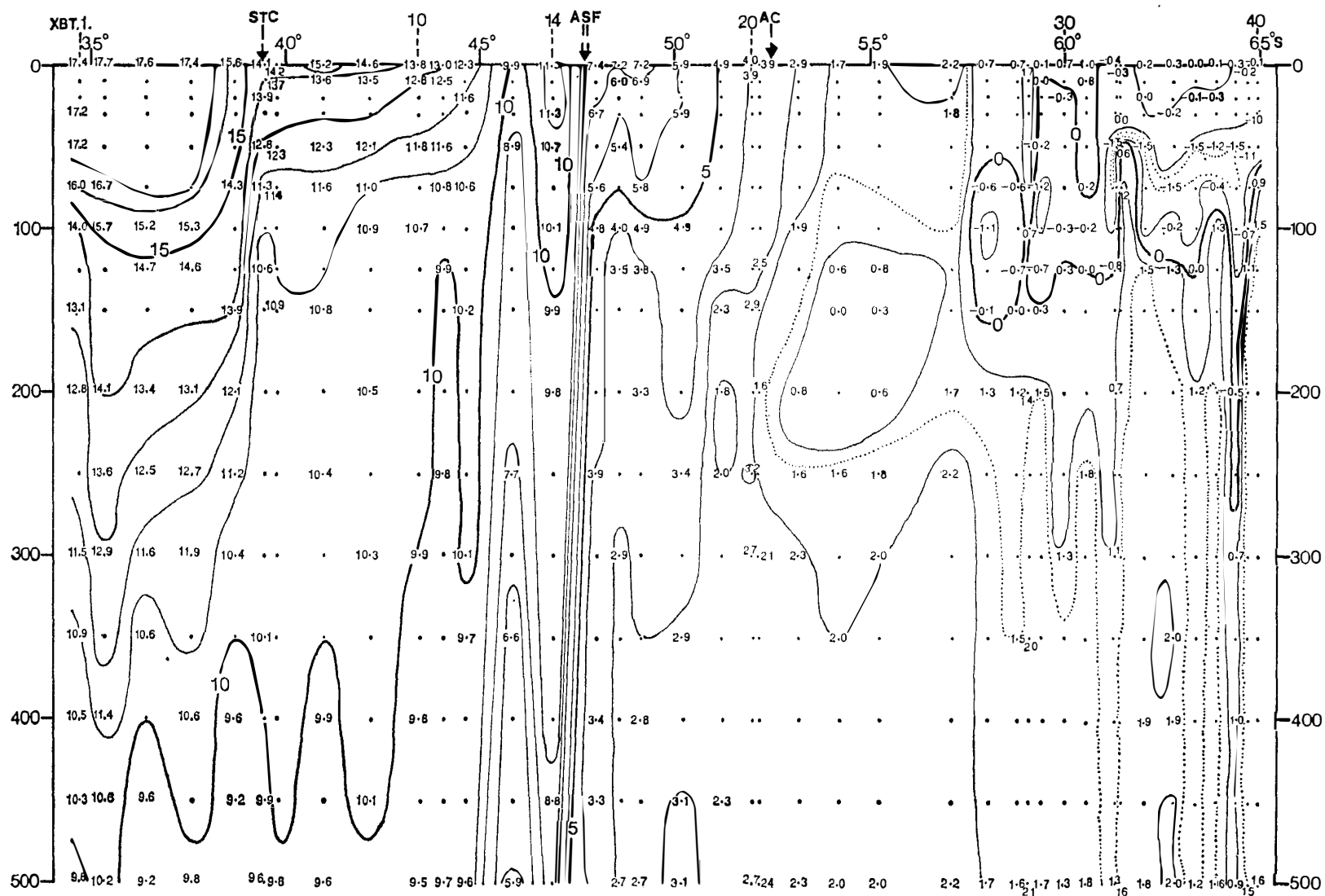


Fig. 6. Vertical profile of water temperature ($^{\circ}\text{C}$) observed on the southward leg between Fremantle and ice edge off Syowa Station in December 1978. STC, ASF and AC indicate Subtropical Convergence, Australasian Subantarctic Front and Antarctic Convergence, respectively. Numerals on top indicate the serial number of XBT station.

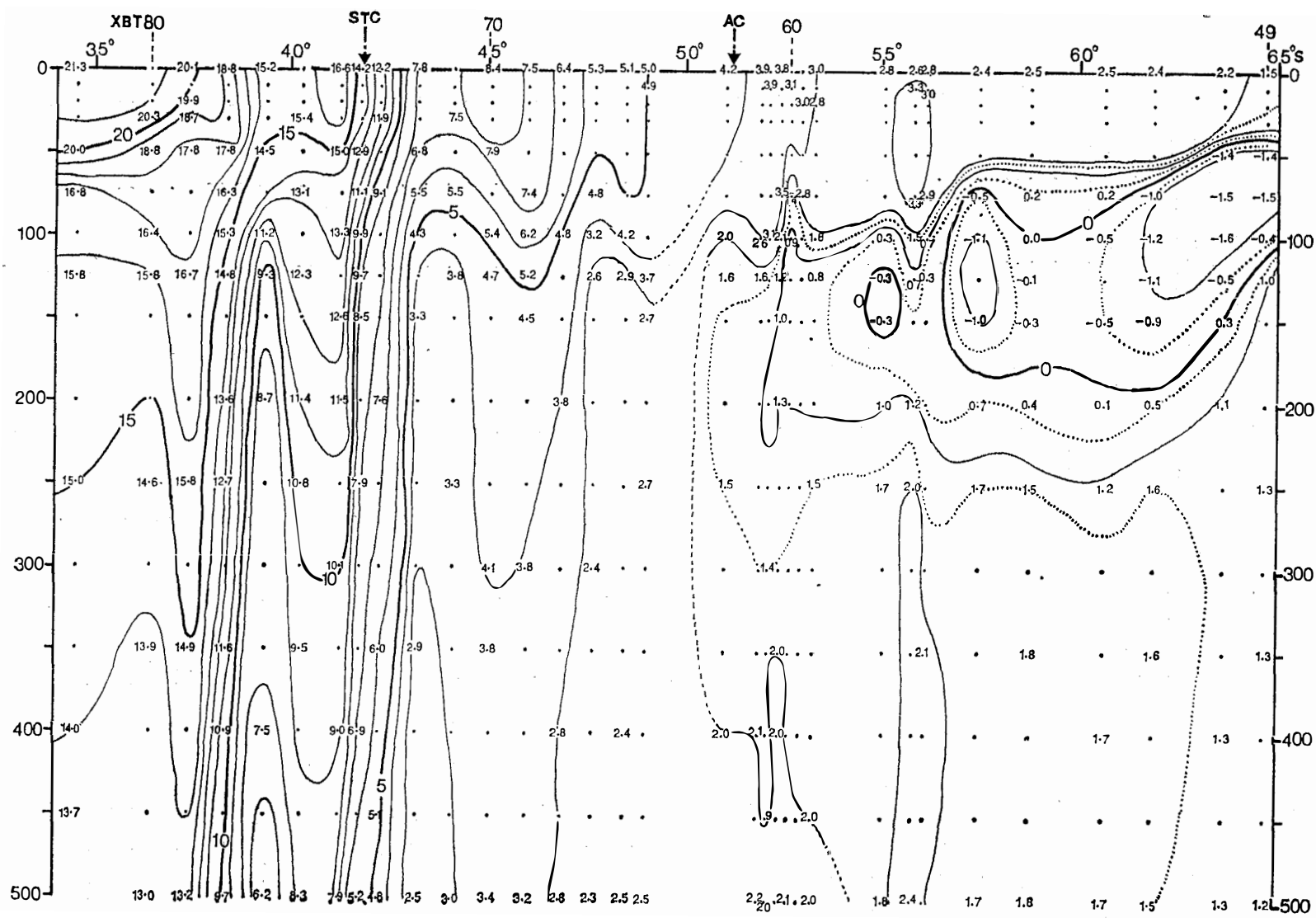


Fig. 7. Vertical profile of water temperature ($^{\circ}\text{C}$) observed on the northward leg between ice edge off Syowa Station and Port Louis in February-March 1979. STC and AC as in Fig. 6.

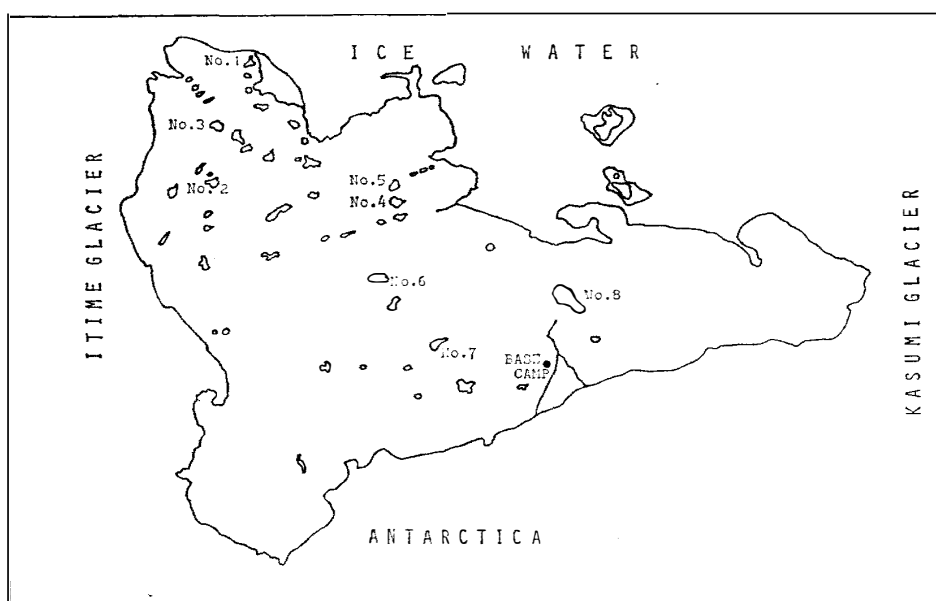


Fig. 8. Locations of ponds in the Kasumi Rock region, Antarctica.

in the East and West Ongul Islands. The present results obtained in the Ongul Islands generally agree with his results. The results in the Kasumi Rock region are recorded for the first time in the present observations.

Acknowledgments

The authors wish to express their gratitude to Prof. Y. YOSHIDA (leader of the JARE-20, National Institute of Polar Research) for his valuable advice. Thanks are also due to Dr. M. FUKUCHI of the same Institute for his kind support and advice during the JARE-20 operation as well as for his valuable suggestions in preparing the manuscript. The authors are indebted to Captain G. TANABE of the icebreaker FUJI and his officers and crew, and also to the members of JARE-20 for their kind cooperation during the cruise.

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(Received August 6, 1981; Revised manuscript received September 3, 1981)

Table 1. Data of surface observation on board the icebreaker FUJI in 1978-1979.

| Date | Time | | Position | | Air temp. | Water temp. | S | pH | O ₂ | Phosphate-P | Silicate-Si | Nitrite-N | Nitrate-N | Ammonia-N | Alkalinity | Current | |
|---------|-------|------|-------------|---------|-----------|-------------|--------|------|----------------|-------------|-------------|-----------|-----------|-----------|------------|------------|--|
| | GMT | LMT | Lat. | Long. | °C | ‰ | ml/l | | µg-atoms/l | | | | | meq/l | Dir. | Speed (kn) | |
| 1978 | | | | | | | | | | | | | | | | | |
| Nov. 25 | | | Leave Tokyo | | | | | | | | | | | | | | |
| 26 | 2300* | 0800 | 32-15N | 138-12E | 20.9 | 23.2 | 34.766 | 8.33 | 5.20 | 0.03 | 2 | — | — | — | — | | |
| | 0300 | 1200 | 31-39 | 137-50 | 21.2 | 21.8 | 34.532 | 8.30 | 4.89 | 0.05 | 3 | — | — | — | — | | |
| | 0900 | 1800 | 30-41 | 137-14 | 21.4 | 21.5 | 34.527 | 8.32 | 5.04 | 0.05 | 1 | 0.03 | — | — | 2.27 | | |
| 27 | 2300* | 0800 | 28-29 | 136-09 | 21.2 | 24.6 | 34.822 | 8.31 | 4.70 | 0.00 | 1 | 0.01 | — | — | 2.26 | | |
| | 0300 | 1200 | 27-47 | 135-50 | 24.2 | 25.3 | 34.856 | 8.33 | 4.74 | 0.00 | 1 | 0.06 | — | — | 2.28 | | |
| | 0900 | 1800 | 26-38 | 135-16 | 23.9 | 25.1 | 34.868 | 8.34 | 4.68 | 0.00 | 0 | 0.00 | — | 0.0 | 2.33 | | |
| 28 | 2300* | 0800 | 23-59 | 133-58 | 24.0 | 25.2 | 34.911 | 8.30 | 4.67 | 0.00 | 1 | 0.00 | 0.1 | 0.2 | 2.32 | | |
| | 0300 | 1200 | 23-13 | 133-33 | 24.1 | 24.5 | 34.824 | 8.30 | 4.74 | 0.03 | 1 | 0.00 | 0.0 | 0.2 | 2.34 | | |
| | 0900 | 1800 | 22-06 | 132-54 | 24.1 | 26.3 | 34.835 | 8.29 | 4.60 | 0.00 | 1 | 0.00 | 0.1 | 0.3 | 2.38 | | |
| 29 | 2300* | 0800 | 19-26 | 131-54 | 24.9 | 27.6 | 34.546 | 8.31 | 4.50 | 0.00 | 1 | 0.00 | 0.1 | 0.2 | 2.38 | | |
| | 0300 | 1200 | 18-41 | 131-31 | 25.7 | 27.5 | 34.547 | 8.30 | 4.52 | 0.00 | 1 | 0.00 | 0.0 | 0.1 | 2.37 | | |
| | 0900 | 1800 | 17-34 | 130-55 | 26.6 | 26.8 | 34.551 | 8.30 | 4.51 | 0.02 | 0 | 0.00 | 0.0 | 0.0 | 2.37 | | |
| 30 | 2300* | 0800 | 14-54 | 129-48 | 27.9 | 27.7 | 34.353 | 8.30 | 4.49 | 0.02 | 0 | 0.00 | 0.0 | 0.5 | 2.37 | | |
| | 0300 | 1200 | 14-08 | 129-29 | 29.1 | 27.9 | 34.334 | 8.29 | 4.49 | 0.02 | 0 | 0.03 | 0.0 | 0.2 | 2.38 | | |
| | 0800 | 1700 | 13-12 | 129-04 | 29.5 | 28.2 | 34.254 | 8.29 | 4.46 | 0.00 | 0 | 0.03 | 0.0 | 0.2 | 2.37 | | |
| Dec. 1 | 0000 | 0800 | 10-09 | 127-53 | 30.0 | 28.4 | 34.081 | 8.27 | 4.45 | 0.03 | 0 | 0.00 | 0.0 | 0.1 | 2.35 | | |
| | 0400 | 1200 | 09-20 | 127-20 | 29.7 | 28.3 | 34.030 | 8.27 | 4.49 | 0.00 | 0 | 0.01 | 0.0 | 0.0 | 2.34 | | |
| | 1000 | 1800 | 08-08 | 126-57 | 28.2 | 28.1 | 34.004 | 8.28 | 4.52 | 0.03 | 0 | 0.00 | 0.0 | 0.0 | 2.36 | | |
| 2 | 0000 | 0800 | 05-11 | 125-34 | 28.3 | 27.9 | 34.300 | 8.28 | 4.47 | 0.02 | 1 | 0.00 | 0.0 | 0.2 | 2.36 | | |
| | 0400 | 1200 | 04-35 | 124-51 | 28.3 | 28.4 | 34.142 | 8.30 | 4.41 | 0.00 | 1 | 0.01 | 0.0 | 0.0 | 2.34 | | |
| | 0900 | 1700 | 03-53 | 123-54 | 26.1 | 28.5 | 34.184 | 8.29 | 4.47 | 0.00 | 1 | 0.03 | 0.0 | 0.0 | 2.35 | | |

* The time of the date of the preceding day.

Table 1 (continued).

| Date | Time | | Position | | Air temp. | Water temp. | S | pH | O ₂ | Phosphate-P | Silicate-Si | Nitrite-N | Nitrate-N | Ammonia-N | Alkalinity | Current | |
|--------|------|---------------------|----------|----------|-----------|-------------|--------|------|----------------|-------------|-------------|-----------|-----------|-----------|------------|---------|------------|
| | GMT | LMT | Lat. | Long. | °C | ‰ | ml/l | | µg-atoms/l | | | | | | meq/l | Dir. | Speed (kn) |
| Dec. 3 | 0000 | 0800 | 02-09N | 121-31E | 28.1 | 28.7 | 33.889 | 8.27 | 4.47 | 0.00 | 2 | 0.01 | 0.0 | 0.0 | 2.30 | | |
| | 0400 | 1200 | 01-45 | 120-54 | 29.0 | 28.7 | 33.525 | 8.26 | 4.55 | 0.00 | 2 | 0.03 | 0.0 | 0.1 | 2.31 | | |
| | 1000 | 1800 | 01-05 | 119-58 | 28.1 | 28.8 | 33.596 | 8.27 | 4.49 | 0.02 | 3 | 0.01 | 0.0 | 0.0 | 2.28 | | |
| 4 | 0000 | 0800 | 01-41 S | 118-53 E | 29.8 | 29.1 | 33.866 | 8.29 | 4.47 | 0.02 | 3 | 0.02 | 0.0 | 0.0 | 2.34 | | |
| | 0400 | 1200 | 02-34 | 118-38 | 29.9 | 29.4 | 34.018 | 8.28 | 4.44 | 0.02 | 3 | 0.03 | 0.0 | 0.1 | 2.33 | | |
| | 1000 | 1800 | 03-48 | 118-08 | 28.9 | 29.6 | 33.176 | 8.28 | 4.37 | 0.00 | 2 | 0.00 | 0.0 | 0.0 | 2.26 | | |
| 5 | 0000 | 0800 | 06-39 | 116-35 | 27.7 | 29.6 | 33.384 | 8.27 | 4.50 | 0.02 | 2 | 0.01 | 0.0 | 0.1 | 2.28 | | |
| | 0400 | 1200 | 07-29 | 116-15 | 26.0 | 28.8 | 32.376 | 8.34 | 4.53 | 0.03 | 2 | 0.01 | 0.0 | 0.0 | 2.22 | | |
| | 1000 | 1800 | 08-45 | 115-45 | 27.0 | 28.0 | 33.319 | 8.32 | 4.46 | 0.08 | 3 | 0.05 | 1.2 | 0.1 | 2.28 | | |
| 6 | 0000 | 0800 | 12-00 | 114-50 | 28.7 | 28.8 | 34.011 | 8.31 | 4.45 | 0.02 | 1 | 0.00 | 0.0 | 0.2 | 2.36 | | |
| | 0400 | 1200 | 12-58 | 114-47 | 28.5 | 29.1 | 34.178 | 8.32 | 4.04 | 0.02 | 1 | 0.01 | 0.0 | 0.2 | 2.35 | | |
| | 1000 | 1800 | 14-22 | 114-27 | 27.3 | 29.1 | 34.178 | 8.31 | 4.44 | 0.03 | 1 | 0.00 | 0.0 | 0.0 | 2.37 | | |
| 7 | 0000 | 0800 | 17-44 | 113-51 | 25.9 | 26.9 | 34.425 | 8.29 | 4.55 | 0.05 | 1 | 0.01 | 0.0 | 0.2 | 2.35 | | |
| | 0400 | 1200 | 18-39 | 113-40 | 25.8 | 25.8 | 34.740 | 8.32 | 4.71 | 0.03 | 2 | 0.00 | 0.0 | 0.1 | 2.41 | | |
| | 1000 | 1800 | 20-01 | 113-26 | 25.4 | 25.5 | 34.842 | 8.32 | 4.73 | 0.03 | 2 | 0.00 | 0.0 | 0.1 | 2.39 | | |
| 8 | 0000 | 0800 | 23-13 | 112-54 | 24.1 | 23.8 | 35.081 | 8.33 | 4.86 | 0.05 | 1 | 0.00 | 0.0 | 0.1 | 2.40 | | |
| | 0400 | 1200 | 24-01 | 112-46 | 24.0 | 23.8 | 35.005 | 8.32 | 4.94 | 0.03 | 0 | 0.00 | 0.0 | 0.0 | 2.39 | | |
| | 1000 | 1800 | 25-12 | 112-30 | 22.9 | 22.6 | 35.182 | 8.32 | 5.12 | 0.08 | 1 | 0.00 | 0.0 | 0.1 | 2.43 | | |
| 9 | 0000 | 0800 | 27-56 | 112-59 | 21.2 | 22.2 | 35.287 | 8.30 | 4.98 | 0.05 | 1 | 0.00 | 0.0 | 0.1 | 2.40 | | |
| | 0400 | 1200 | 28-41 | 113-13 | 21.2 | 22.3 | 35.250 | 8.34 | 4.96 | 0.05 | 1 | 0.00 | 0.3 | 0.1 | 2.40 | | |
| | 1000 | 1800 | 29-46 | 113-51 | 20.6 | 21.2 | 35.511 | 8.32 | 5.08 | 0.06 | 2 | 0.00 | 0.0 | 0.1 | 2.43 | | |
| 10 | | Arrive in Fremantle | | | | | | | | | | | | | | | |
| 15 | | Leave Fremantle | | | | | | | | | | | | | | | |
| | 1000 | 1800 | 32-45 | 114-26 | 22.0 | 20.8 | 35.593 | 8.30 | 5.18 | 0.05 | 1 | 0.00 | 0.1 | — | 2.44 | | |

Table 1 (continued).

| Date | Time | | Position | | Air temp. | Water temp. | S | pH | O ₂ | Phosphate-P | Silicate-Si | Nitrite-N | Nitrate-N | Ammonia-N | Alkalinity | Current | |
|---------|-------|------|----------|----------|-----------|-------------|--------|------|----------------|-------------|-------------|-----------|-----------|-----------|------------|------------|--|
| | GMT | LMT | Lat. | Long. | °C | ‰ | ml/l | | µg-atoms/l | | | | | meq/l | Dir. | Speed (kn) | |
| Dec. 16 | 0100 | 0800 | 34-20 S | 111-45 E | 18.0 | 18.2 | 35.810 | 8.35 | 5.35 | 0.00 | 1 | 0.00 | 0.0 | 0.3 | 2.46 | | |
| | 0300 | 1000 | 34-31 | 111-18 | 17.7 | 17.6 | 35.752 | 8.30 | 5.42 | 0.02 | 1 | 0.00 | 0.0 | 0.1 | 2.50 | | |
| | 0500 | 1200 | 34-43 | 110-52 | 18.2 | 17.4 | 35.748 | 8.30 | 5.46 | 0.00 | 1 | 0.03 | 0.0 | 0.0 | 2.47 | | |
| | 0700 | 1400 | 34-55 | 110-29 | 18.2 | 17.4 | 35.769 | 8.33 | 5.42 | 0.03 | 1 | 0.00 | 0.0 | 0.2 | 2.46 | | |
| | 0900 | 1600 | 35-07 | 110-06 | 17.1 | 17.6 | 35.744 | 8.33 | 5.45 | 0.00 | 1 | 0.00 | 0.0 | 0.1 | 2.46 | | |
| | 1100 | 1800 | 35-20 | 109-52 | 16.7 | 17.7 | 35.772 | 8.35 | 5.43 | 0.06 | 1 | 0.01 | 0.0 | 0.4 | 2.46 | | |
| | 1300 | 2000 | 35-43 | 109-51 | 16.9 | 17.8 | 35.794 | 8.32 | 5.43 | 0.06 | 0 | 0.00 | 0.0 | 0.5 | 2.46 | | |
| | 1500 | 2200 | 36-04 | 110-00 | 16.7 | 17.8 | 35.820 | 8.33 | 5.40 | 0.08 | 0 | 0.00 | 0.1 | 0.7 | 2.46 | | |
| 17 | 1700* | 0000 | 36-27 | 110-09 | 15.3 | 17.6 | 35.770 | 8.34 | 5.36 | 0.03 | 1 | 0.00 | 0.0 | 0.1 | 2.45 | | |
| | 1900* | 0200 | 36-49 | 110-16 | 15.2 | 17.3 | 35.718 | 8.34 | 5.39 | 0.05 | 1 | 0.00 | 0.0 | 0.2 | 2.46 | | |
| | 2100* | 0400 | 37-11 | 110-22 | 15.3 | 16.9 | 35.677 | 8.33 | 5.48 | 0.03 | 0 | 0.00 | 0.0 | 0.1 | 2.47 | | |
| | 2300* | 0600 | 37-35 | 110-18 | 15.4 | 17.4 | 35.774 | 8.33 | 5.40 | 0.05 | 1 | 0.00 | 0.0 | 0.3 | 2.47 | | |
| | 0100 | 0800 | 37-58 | 110-07 | 14.7 | 15.6 | 35.385 | 8.32 | 5.70 | 0.16 | 0 | 0.01 | 0.4 | 0.5 | 2.45 | | |
| | 0300 | 1000 | 38-21 | 109-58 | 15.2 | 15.4 | 35.444 | 8.33 | 5.68 | 0.11 | 0 | 0.00 | 0.1 | 0.4 | 2.45 | | |
| | 0500 | 1200 | 38-43 | 109-49 | 15.3 | 15.6 | 35.567 | 8.32 | 5.63 | 0.08 | 0 | 0.01 | 0.0 | 0.4 | 2.46 | | |
| | 0700 | 1400 | 39-05 | 109-35 | 15.0 | 15.5 | 35.459 | 8.32 | 5.70 | 0.22 | 0 | 0.01 | 0.1 | 0.6 | 2.46 | | |
| 18 | 0900 | 1600 | 39-27 | 109-21 | 15.0 | 14.7 | 35.140 | 8.32 | 5.87 | 0.28 | 0 | 0.06 | 2.7 | 0.4 | 2.44 | | |
| | 1100 | 1800 | 39-47 | 109-11 | 14.9 | 14.2 | 34.893 | 8.28 | 5.90 | 0.49 | 0 | 0.10 | 5.6 | 0.2 | 2.43 | | |
| | 1300 | 2000 | 40-10 | 109-02 | 14.5 | 14.9 | 34.956 | 8.29 | 5.87 | 0.41 | 0 | 0.09 | 5.3 | 0.2 | 2.44 | | |
| | 1500 | 2200 | 40-35 | 109-02 | 14.8 | 14.8 | 34.891 | 8.27 | 5.90 | 0.55 | 0 | 0.13 | 6.7 | 0.2 | 2.45 | | |
| | 1700* | 0000 | 40-59 | 109-02 | 15.0 | 15.2 | 34.904 | 8.27 | 5.88 | 0.52 | 0 | 0.12 | 6.7 | 0.4 | 2.43 | | |
| | 1900* | 0200 | 41-24 | 109-00 | 14.9 | 14.8 | 34.880 | 8.27 | 5.91 | 0.55 | 0 | 0.10 | 7.4 | 0.5 | 2.43 | | |
| | 2100* | 0400 | 41-48 | 109-00 | 14.0 | 14.5 | 34.861 | 8.25 | 5.99 | 0.58 | 0 | 0.12 | 8.0 | 0.3 | 2.42 | | |
| | 2300* | 0600 | 42-11 | 108-57 | 13.9 | 14.6 | 34.848 | 8.25 | 5.98 | 0.58 | 0 | 0.12 | 8.0 | 0.4 | 2.43 | | |

* The time of the date of the preceding day.

Table 1 (continued).

| Date | Time | | Position | | Air temp. | Water temp. | S | pH | O ₂ | Phosphate-P | Silicate-Si | Nitrite-N | Nitrate-N | Ammonia-N | Alkalinity | Current | |
|---------|-------|------|----------|---------|-----------|-------------|--------|------|----------------|-------------|-------------|-----------|-----------|-----------|------------|------------|--|
| | GMT | LMT | Lat. | Long. | °C | ‰ | ml/l | | µg-atoms/l | | | | | meq/l | Dir. | Speed (kn) | |
| Dec. 18 | 0100 | 0800 | 42-35 S | 108-55E | 14.0 | 13.8 | — | 8.26 | 6.06 | 0.61 | 1 | 0.13 | 7.8 | 0.6 | 2.43 | | |
| | 0300 | 1000 | 43-01 | 108-54 | 14.3 | 14.0 | 34.827 | 8.25 | 6.00 | 0.63 | 1 | 0.12 | 7.6 | 0.3 | 2.42 | | |
| | 0500 | 1200 | 43-27 | 108-54 | 14.0 | 13.8 | 34.792 | 8.25 | 6.02 | 0.63 | 1 | 0.13 | 8.0 | 0.4 | 2.43 | | |
| | 0700 | 1400 | 43-53 | 108-53 | 14.5 | 13.4 | 34.758 | 8.25 | 6.09 | 0.72 | 1 | 0.15 | 9.1 | 0.3 | 2.42 | | |
| | 0900 | 1600 | 44-17 | 108-51 | 13.8 | 12.7 | 34.722 | 8.25 | 6.18 | 0.69 | 1 | 0.12 | 9.5 | 0.3 | 2.44 | | |
| | 1100 | 1800 | 44-39 | 108-42 | 13.8 | 12.3 | 34.663 | 8.26 | 6.17 | 0.72 | 1 | 0.15 | 9.9 | 0.3 | 2.42 | | |
| | 1300 | 2000 | 45-02 | 108-32 | 13.1 | 12.3 | 34.710 | 8.25 | 6.19 | 0.76 | 2 | 0.16 | 9.7 | 0.3 | 2.43 | | |
| | 1500 | 2200 | 45-26 | 108-21 | 12.5 | 11.1 | 34.446 | 8.24 | 6.32 | 0.93 | 1 | 0.20 | 13. | 0.3 | 2.42 | | |
| 19 | 1700* | 0000 | 45-51 | 108-09 | 11.1 | 9.9 | 34.274 | 8.22 | 6.52 | 1.07 | 0 | 0.22 | 15. | 0.2 | 2.43 | | |
| | 1900* | 0200 | 46-11 | 107-56 | 10.8 | 9.7 | 34.261 | 8.23 | 6.50 | 1.12 | 1 | 0.23 | 15. | 0.2 | 2.43 | | |
| | 2100* | 0400 | 46-32 | 107-44 | 11.7 | 11.0 | 34.453 | 8.25 | 6.25 | 0.83 | 1 | 0.19 | 11. | 0.1 | 2.45 | | |
| | 2300* | 0600 | 46-53 | 107-33 | 12.2 | 11.3 | 34.471 | 8.24 | 6.28 | 0.85 | 1 | 0.19 | 12. | 0.2 | 2.44 | | |
| | 0100 | 0800 | 47-15 | 107-22 | 11.2 | 9.3 | 34.186 | 8.24 | 6.59 | 1.18 | 1 | 0.25 | 17. | 0.6 | 2.41 | | |
| | 0300 | 1000 | 47-38 | 107-13 | 9.2 | 9.2 | 34.202 | 8.24 | 6.60 | 1.09 | 1 | 0.20 | 16. | 1.0 | 2.42 | | |
| | 0500 | 1200 | 48-01 | 106-59 | 8.3 | 7.4 | 34.019 | 8.22 | 6.91 | 1.42 | 0 | 0.26 | 21. | 1.0 | 2.41 | | |
| | 0700 | 1400 | 48-25 | 106-51 | 8.1 | 7.3 | 34.001 | 8.21 | 6.94 | 1.43 | 0 | 0.28 | 22. | 1.4 | 2.41 | | |
| | 0900 | 1600 | 48-47 | 106-40 | 8.1 | 7.6 | 34.027 | 8.22 | 7.08 | 1.35 | 0 | 0.25 | 19. | 0.3 | 2.42 | | |
| | 1100 | 1800 | 49-09 | 106-26 | 7.9 | 7.2 | 34.017 | 8.22 | 6.97 | 1.45 | 1 | 0.25 | 20. | 0.3 | 2.43 | | |
| | 1300 | 2000 | 49-31 | 106-09 | 6.3 | 6.2 | 33.961 | 8.25 | 7.12 | 1.48 | 1 | 0.24 | 21. | 0.3 | 2.43 | | |
| | 1500 | 2200 | 49-51 | 105-51 | 6.0 | 6.3 | 33.966 | 8.21 | 7.07 | 1.49 | 1 | 0.26 | 18. | 0.4 | 2.43 | | |
| 20 | 1700* | 0000 | 50-12 | 105-32 | 6.3 | 5.9 | 34.044 | 8.22 | 7.16 | 1.43 | 1 | 0.25 | 21. | 0.5 | 2.40 | | |
| | 1900* | 0200 | 50-33 | 105-13 | 6.1 | 5.6 | 34.028 | 8.22 | 7.29 | 1.38 | 1 | 0.23 | 22. | 0.5 | 2.42 | | |
| | 2100* | 0400 | 50-54 | 104-54 | 5.6 | 4.9 | 33.970 | 8.19 | 7.26 | 1.54 | 1 | 0.25 | 22. | 1.0 | 2.41 | | |
| | 2300* | 0600 | 51-14 | 104-35 | 6.0 | 4.9 | 33.990 | 8.22 | 7.33 | 1.51 | 1 | 0.23 | 22. | 0.8 | 2.42 | | |

* The time of the date of the preceding day.

Table 1 (continued).

| Date | Time | | Position | | Air temp. | Water temp. | S | pH | O ₂ | Phosphate-P | Silicate-Si | Nitrite-N | Nitrate-N | Ammonia-N | Alkalinity | Current | |
|---------|-------|------|----------|----------|-----------|-------------|--------|------|----------------|-------------|-------------|-----------|-----------|-----------|------------|------------|--|
| | GMT | LMT | Lat. | Long. | °C | ‰ | ml/l | | µg-atoms/l | | | | | meq/l | Dir. | Speed (kn) | |
| Dec. 20 | 0100 | 0800 | 51-34 S | 104-17 E | 6.2 | 5.1 | 34.052 | 8.26 | 7.28 | 1.37 | 1 | 0.22 | 21. | 0.5 | 2.43 | | |
| | 0300 | 1000 | 51-54 | 103-58 | 6.1 | 4.8 | 34.047 | 8.24 | 7.37 | 1.43 | 2 | 0.21 | 21. | 0.4 | 2.42 | | |
| | 0500 | 1200 | 52-13 | 103-44 | 6.5 | 3.9 | 34.028 | 8.25 | 7.58 | 1.45 | 3 | 0.23 | 23. | 0.4 | 2.42 | | |
| | 0700 | 1400 | 52-32 | 103-26 | 5.9 | 3.7 | 34.054 | 8.24 | 7.65 | 1.51 | 6 | 0.25 | 24. | 0.3 | 2.43 | | |
| | 0900 | 1600 | 52-52 | 103-09 | 5.0 | 2.7 | 34.045 | 8.22 | 7.73 | 1.65 | 17 | 0.26 | 26. | 0.6 | 2.42 | | |
| | 1100 | 1800 | 53-12 | 102-49 | 4.8 | 2.9 | 34.040 | 8.22 | 7.65 | 1.64 | 11 | 0.22 | 25. | 0.3 | 2.42 | | |
| | 1300 | 2000 | 53-33 | 102-28 | 5.1 | 3.5 | 34.025 | 8.23 | 7.58 | 1.54 | 4 | 0.24 | 24. | 0.2 | 2.41 | | |
| 21 | 1500 | 2200 | 53-53 | 102-07 | 4.2 | 1.8 | 34.020 | 8.18 | 7.86 | 1.67 | 20 | 0.26 | 26. | 0.1 | 2.42 | | |
| | 1700* | 0000 | 54-13 | 101-52 | 3.7 | 1.7 | 34.023 | 8.20 | 7.83 | 1.68 | 19 | 0.22 | 26. | 0.5 | 2.43 | | |
| | 1900* | 0200 | 54-34 | 101-28 | 3.7 | 1.9 | 34.018 | 8.21 | 7.77 | 1.73 | 17 | 0.24 | 25. | 0.5 | 2.42 | | |
| | 2100* | 0400 | 54-54 | 101-08 | 4.2 | 2.5 | 34.040 | 8.21 | 7.66 | 1.65 | 9 | 0.24 | 25. | 0.5 | 2.43 | | |
| | 2300* | 0600 | 55-15 | 100-50 | 2.7 | 1.9 | 34.022 | 8.19 | 7.80 | 1.71 | 19 | 0.25 | 26. | 0.5 | 2.43 | | |
| | 0100 | 0800 | 55-35 | 100-30 | 2.4 | 1.5 | 34.010 | 8.19 | 7.82 | 1.86 | 26 | 0.24 | 26. | 0.5 | 2.43 | | |
| | 0300 | 1000 | 55-55 | 100-10 | 3.0 | 1.2 | 33.975 | 8.22 | 7.94 | 1.68 | 23 | 0.23 | 27. | 0.6 | 2.42 | | |
| | 0500 | 1200 | 56-14 | 99-49 | 3.0 | 0.8 | 33.944 | 8.20 | 8.03 | 1.76 | 30 | 0.25 | 28. | 0.4 | 2.42 | | |
| | 0700 | 1400 | 56-35 | 99-30 | 3.4 | 1.9 | 34.013 | 8.19 | 7.82 | 1.76 | 19 | 0.25 | 26. | 0.3 | 2.42 | | |
| | 0900 | 1600 | 56-51 | 98-56 | 3.6 | 1.8 | 33.998 | 8.23 | 7.86 | 1.64 | 16 | 0.23 | 26. | 0.3 | 2.41 | | |
| 22 | 1100 | 1800 | 57-06 | 98-21 | 3.2 | 2.2 | 34.031 | 8.22 | 7.74 | 1.70 | 16 | 0.23 | 24. | 0.2 | 2.42 | | |
| | 1300 | 2000 | 57-22 | 97-44 | 2.9 | 2.5 | 34.038 | 8.25 | 7.79 | 1.56 | 11 | 0.22 | 24. | 0.4 | 2.43 | | |
| | 1500 | 2200 | 57-38 | 97-08 | 2.3 | 1.5 | 33.954 | 8.23 | 7.89 | 1.64 | 20 | 0.25 | 25. | 0.5 | 2.44 | | |
| | 1800* | 0000 | 58-02 | 96-14 | 2.0 | 0.7 | 33.917 | 8.20 | 7.97 | 1.67 | 30 | 0.26 | 27. | 0.5 | 2.41 | | |
| | 2000* | 0200 | 58-19 | 95-40 | 1.7 | 1.0 | 33.939 | 8.19 | 7.95 | 1.62 | 23 | 0.25 | 27. | 0.4 | 2.41 | | |
| | 2200* | 0400 | 58-34 | 95-04 | 2.0 | 0.5 | 33.911 | 8.18 | 7.99 | 1.73 | 30 | 0.26 | 27. | 0.4 | 2.42 | | |
| | 0000 | 0600 | 58-48 | 94-24 | 2.4 | 0.7 | 33.814 | 8.22 | 7.99 | 1.45 | 19 | 0.25 | 25. | 0.6 | 2.41 | | |

* The time of the date of the preceding day.

Table 1 (continued).

| Date | Time | | Position | | Air temp. | Water temp. | S | pH | O ₂ | Phosphate-P | Silicate-Si | Nitrite-N | Nitrate-N | Ammonia-N | Alkalinity | Current | |
|---------|-------|------|----------|---------|-----------|-------------|--------|------|----------------|-------------|-------------|-----------|-----------|-----------|------------|---------|--|
| | GMT | LMT | Lat. | Long. | °C | ‰ | ml/l | | µg-atoms/l | | | | meq/l | Dir. | Speed (kn) | | |
| Dec. 22 | 0200 | 0800 | 58-59 S | 93-43 E | 2.8 | 0.8 | 33.862 | 8.25 | 7.87 | 1.37 | 7 | 0.23 | 22. | 0.4 | 2.41 | | |
| | 0400 | 1000 | 59-12 | 93-05 | 3.1 | 0.5 | 33.771 | 8.23 | 7.98 | 1.53 | 15 | 0.24 | 24. | 0.4 | 2.42 | | |
| | 0600 | 1200 | 59-25 | 92-26 | 2.9 | 0.1 | 33.758 | 8.22 | 8.11 | 1.60 | 22 | 0.25 | 24. | 0.5 | 2.41 | | |
| | 0800 | 1400 | 59-37 | 91-46 | 3.0 | 0.8 | 33.743 | 8.23 | 8.03 | 1.46 | 17 | 0.25 | 24. | 0.5 | 2.42 | | |
| | 1000 | 1600 | 59-49 | 91-07 | 1.4 | 0.6 | 33.712 | 8.24 | 8.07 | 1.48 | 19 | 0.25 | 25. | 0.7 | 2.41 | | |
| | 1200 | 1800 | 60-00 | 90-25 | 1.1 | 0.7 | 33.736 | 8.24 | 8.05 | 1.34 | 21 | 0.25 | 24. | 0.3 | 2.40 | | |
| | 1400 | 2000 | 60-11 | 89-42 | 1.5 | 0.8 | 33.672 | 8.22 | 8.13 | 1.34 | 16 | 0.25 | 23. | 0.3 | 2.41 | | |
| | 1600 | 2200 | 60-22 | 88-59 | 1.4 | 0.8 | 33.833 | 8.21 | 8.01 | 1.48 | 21 | 0.24 | 24. | 0.3 | 2.41 | | |
| 23 | 1800* | 0000 | 60-33 | 88-15 | 1.1 | 1.0 | — | — | — | — | — | — | — | — | — | | |
| | 0200 | 0800 | 61-20 | 85-23 | 0.1 | -0.4 | 33.795 | 8.19 | 8.20 | 1.57 | 41 | 0.14 | 20. | 0.4 | 2.41 | | |
| | 0600 | 1200 | 61-42 | 83-55 | 0.8 | -0.1 | 33.677 | 8.22 | 8.20 | 1.67 | 28 | 0.24 | 26. | 0.6 | 2.44 | | |
| 24 | 1200 | 1800 | 62-13 | 81-38 | 0.4 | 0.3 | 33.756 | 8.22 | 8.09 | 1.43 | 34 | 0.26 | 25. | 0.1 | 2.41 | | |
| | 0300 | 0800 | 63-20 | 75-39 | -0.8 | 0.0 | 33.798 | 8.13 | 7.99 | 1.76 | 37 | 0.21 | 27. | 0.4 | 2.43 | | |
| | 0700 | 1200 | 63-36 | 73-55 | 0.2 | 0.1 | 33.853 | 8.19 | 7.93 | 1.73 | 36 | 0.19 | 26. | 0.1 | 2.43 | | |
| 25 | 1300 | 1800 | 64-02 | 71-17 | -0.1 | 0.1 | 33.747 | 8.14 | 7.91 | 1.79 | 51 | 0.20 | 26. | 0.3 | 2.41 | | |
| | 0400 | 0800 | 64-43 | 64-18 | 0.3 | -0.2 | 33.889 | 8.14 | 8.02 | 1.87 | 44 | 0.19 | 28. | 0.2 | 2.37 | | |
| | 0800 | 1200 | 64-50 | 62-26 | 1.3 | -0.2 | 33.660 | 8.23 | 8.16 | 1.84 | 52 | 0.12 | 27. | 0.2 | 2.41 | | |
| 26 | 1400 | 1800 | 64-58 | 59-29 | 1.8 | 0.1 | 33.908 | 8.19 | 7.91 | 1.86 | 57 | 0.18 | 27. | 0.2 | 2.42 | | |
| | 0400 | 0800 | 65-21 | 52-43 | 1.0 | -0.7 | 33.834 | 8.24 | 8.21 | 1.57 | 41 | 0.12 | 25. | 0.3 | 2.42 | | |
| 27 | 0800 | 1200 | 65-30 | 50-48 | 2.2 | -0.8 | 33.924 | 8.26 | 8.53 | 1.62 | 44 | 0.06 | 24. | 0.3 | 2.44 | | |
| | 0500 | 0800 | 66-11 | 46-16 | 1.0 | -1.5 | 33.887 | 8.20 | 7.82 | 1.71 | 48 | 0.08 | 27. | 0.2 | 2.43 | | |
| | 0900 | 1200 | 66-08 | 45-46 | 1.1 | -1.5 | 33.497 | 8.22 | 8.07 | 1.73 | 50 | 0.14 | 26. | 0.3 | 2.42 | | |
| | 1300 | 1600 | 66-13 | 44-33 | 1.0 | -1.6 | 33.974 | — | — | — | — | — | — | — | — | | |
| | 1500 | 1800 | 66-21 | 44-01 | 0.5 | -1.6 | 33.883 | 8.18 | 7.49 | 1.94 | 66 | 0.11 | 26. | 0.2 | 2.44 | | |

* The time of the date of the preceding day.

Table 1 (continued).

| Date | Time | | Position | | Air temp. | Water temp. | S | pH | O ₂ | Phosphate-P | Silicate-Si | Nitrite-N | Nitrate-N | Ammonia-N | Alkalinity | Current | | |
|--------------------------------------|----------------------------------|-------|----------|---------|-----------|-------------|--------|--------|----------------|-------------|-------------|-----------|-----------|-----------|------------|---------|-----|--|
| | GMT | LMT | Lat. | Long. | °C | ‰ | ml/l | | µg-atoms/l | | | | meq/l | Dir. | Speed (kn) | | | |
| Dec. 28 | 2100* | 0000 | 66-42 S | 42-57 E | — | -1.7 | 33.794 | — | — | — | — | — | — | — | — | | | |
| | 0500 | 0800 | 67-10 | 41-57 | -0.6 | -1.6 | 33.977 | 8.13 | 7.20 | 1.97 | 57 | 0.09 | 29. | 0.4 | 2.44 | | | |
| | 0900 | 1200 | 67-24 | 41-18 | 0.5 | -1.7 | 33.748 | 8.12 | 7.31 | 2.06 | 60 | 0.08 | 29. | 0.3 | 2.43 | | | |
| | 29 | 0900 | 1200 | 67-53 | 40-46 | 1.5 | -1.5 | 33.890 | — | — | — | — | — | — | — | | | |
| | | 1120 | 1420 | 67-59 | 40-52 | 1.5 | -0.6 | 33.835 | 8.15 | 7.95 | 1.94 | 55 | 0.14 | 29. | 0.3 | 2.43 | | |
| | | 1300 | 1600 | 68-06 | 40-44 | 0.6 | -0.9 | 33.847 | 8.16 | 7.87 | 1.97 | 58 | 0.13 | 28. | 0.6 | 2.44 | | |
| Arrive at ice edge off Syowa Station | | | | | | | | | | | | | | | | | | |
| 1979 | | | | | | | | | | | | | | | | | | |
| Feb. 23 | Leave ice edge off Syowa Station | | | | | | | | | | | | | | | | | |
| 24 | 0900 | 1200 | 64-43 | 40-52 | 1.4 | 1.5 | 34.068 | 8.26 | 7.55 | 1.60 | 32 | 0.17 | 24. | 0.4 | 2.35 | 296 | 0.3 | |
| 25 | 0900 | 1200 | 61-52 | 39-58 | 1.7 | 2.4 | 33.904 | 8.18 | 7.51 | 1.64 | 33 | 0.28 | 24. | 0.3 | 2.37 | 288 | 0.3 | |
| 26 | 0900 | 1200 | 58-46 | 40-17 | 3.0 | 2.5 | 34.004 | 8.15 | 7.51 | 1.68 | 34 | 0.28 | 24. | 0.3 | 2.23 | 321 | 0.5 | |
| 27 | 0400 | 0700 | 56-06 | 40-24 | 3.5 | 2.8 | 34.121 | 8.15 | 7.42 | 1.56 | 21 | 0.26 | 24. | 0.4 | 2.31 | 346 | 0.6 | |
| 28 | 0900 | 1200 | 55-04 | 43-02 | 2.5 | 2.8 | 34.076 | 8.19 | 7.52 | 1.70 | 21 | 0.32 | 25. | 0.3 | 2.29 | 320 | 0.4 | |
| Mar. 1 | 2100* | 0000 | 53-53 | 43-10 | 3.3 | 3.0 | 34.097 | 8.20 | 7.44 | 1.56 | 14 | 0.22 | 24. | 0.4 | 2.32 | | | |
| | 2300* | 0200 | 53-36 | 43-12 | 3.6 | 3.2 | 34.038 | 8.17 | 7.42 | 1.64 | 14 | 0.23 | 24. | 0.4 | 2.35 | | | |
| | 0100 | 0400 | 53-18 | 43-14 | 2.9 | 3.0 | 34.076 | 8.18 | 7.38 | 1.64 | 14 | 0.24 | 26. | 0.3 | 2.36 | | | |
| | 0300 | 0600 | 52-59 | 43-13 | 3.1 | 3.1 | 34.071 | 8.19 | 7.45 | 1.57 | 15 | 0.26 | 26. | 0.4 | 2.36 | | | |
| | 0500 | 0800 | 52-42 | 43-14 | 3.2 | 3.2 | 34.058 | 8.20 | 7.44 | 1.60 | 15 | 0.24 | 25. | 0.4 | 2.35 | | | |
| | 0700 | 1000 | 52-26 | 43-16 | 3.5 | 3.8 | 33.993 | 8.18 | 7.37 | 1.70 | 21 | 0.26 | 25. | 0.3 | 2.37 | | | |
| | 0900 | 1200 | 52-09 | 43-16 | 4.1 | 3.9 | 34.035 | 8.18 | 7.35 | 1.60 | 17 | 0.24 | 24. | 0.2 | 2.33 | 347 | 0.9 | |
| | 1300 | 1600 | 51-56 | 43-23 | 4.3 | 3.9 | 33.984 | 8.19 | 7.36 | 1.68 | 18 | 0.25 | 23. | 0.3 | 2.35 | | | |
| 1500 | 1800 | 51-29 | 43-34 | 4.1 | 4.0 | 33.972 | 8.19 | 7.37 | 1.67 | 18 | 0.27 | 24. | 0.2 | 2.35 | | | | |
| 1700 | 2000 | 51-04 | 43-46 | 4.7 | 4.2 | 33.936 | 8.18 | 7.38 | 1.67 | 12 | 0.26 | 23. | 0.1 | 2.36 | | | | |

* The time of the date of the preceding day.

Table 1 (continued).

| Date | Time | | Position | | Air temp. | Water temp. | S | pH | O ₂ | Phosphate-P | Silicate-Si | Nitrite-N | Nitrate-N | Ammonia-N | Alkalinity | Current | |
|--------|-------|------|----------|---------|-----------|-------------|--------|--------|----------------|-------------|-------------|-----------|-----------|-----------|------------|------------|--|
| | GMT | LMT | Lat. | Long. | °C | ‰ | ml/l | | µg-atoms/l | | | | | meq/l | Dir. | Speed (kn) | |
| Mar. 1 | 1900 | 2200 | 50-49 S | 43-53 E | 5.3 | 4.6 | 33.881 | 8.18 | 7.22 | 1.56 | 2 | 0.22 | 21. | 0.1 | 2.35 | | |
| | 2 | 1400 | 1700 | 49-02 | 44-36 | 6.3 | 5.1 | 33.860 | 8.15 | 7.18 | 1.56 | 2 | 0.21 | 22. | 0.4 | 2.29 | |
| 2 | 1700 | 2000 | 48-30 | 44-47 | 6.9 | 5.1 | 33.852 | 8.15 | 7.17 | 1.57 | 2 | 0.22 | 23. | 0.3 | 2.32 | | |
| | 1900 | 2200 | 48-07 | 44-55 | 7.5 | 5.5 | 33.840 | 8.17 | 7.09 | 1.56 | 2 | 0.23 | 22. | 0.2 | 2.32 | | |
| 3 | 2100* | 0000 | 47-43 | 45-03 | 8.3 | 5.3 | 33.845 | 8.17 | 7.15 | 1.64 | 2 | 0.20 | 21. | 0.5 | 2.32 | | |
| | 2300* | 0200 | 47-18 | 45-12 | 7.9 | 5.7 | 33.842 | 8.17 | 7.06 | 1.46 | 2 | 0.22 | 22. | 0.4 | 2.31 | | |
| 3 | 0100 | 0400 | 46-53 | 45-21 | 7.7 | 6.4 | 33.832 | 8.17 | 6.97 | 1.43 | 3 | 0.23 | 20. | 0.1 | 2.31 | | |
| | 0300 | 0600 | 46-28 | 45-28 | 7.8 | 7.3 | 33.809 | 8.16 | 6.85 | 1.42 | 3 | 0.24 | 19. | 0.2 | 2.31 | | |
| 3 | 0500 | 0800 | 46-01 | 45-34 | 8.3 | 7.5 | 33.821 | 8.18 | 6.80 | 1.37 | 2 | 0.21 | 16. | 0.2 | 2.30 | | |
| | 0700 | 1000 | 45-33 | 45-40 | 8.6 | 7.3 | 33.804 | 8.19 | 6.87 | 1.38 | 2 | 0.20 | 21. | 0.4 | 2.30 | | |
| 3 | 0900 | 1200 | 45-05 | 45-57 | 9.5 | 8.4 | 33.778 | 8.21 | 6.73 | 1.37 | 2 | 0.26 | 16. | 0.2 | 2.31 | | |
| | 1100 | 1400 | 44-37 | 46-12 | 9.1 | 7.4 | 33.827 | 8.19 | 6.88 | 1.42 | 2 | 0.23 | 21. | 0.2 | 2.31 | | |
| 3 | 1300 | 1600 | 44-10 | 46-26 | 9.2 | 7.9 | 33.779 | 8.20 | 6.80 | 1.42 | 2 | 0.21 | 20. | 0.5 | 2.31 | | |
| | 1500 | 1800 | 43-42 | 46-41 | 9.0 | 7.7 | 33.772 | 8.19 | 6.84 | 1.34 | 2 | 0.20 | 21. | 0.3 | 2.29 | | |
| 3 | 1700 | 2000 | 43-13 | 46-59 | 9.2 | 7.8 | 33.771 | 8.15 | 6.81 | 1.34 | 2 | 0.24 | 20. | 0.5 | 2.31 | | |
| | 1900 | 2200 | 42-44 | 47-16 | 10.7 | 10.5 | 33.786 | 8.17 | 6.47 | 1.20 | 2 | 0.24 | 17. | 0.4 | 2.31 | | |
| 4 | 2100* | 0000 | 42-15 | 47-33 | 11.2 | 12.2 | 33.868 | 8.23 | 6.30 | 0.83 | 1 | 0.16 | 12. | 0.4 | 2.30 | | |
| | 2300* | 0200 | 41-46 | 47-50 | 11.8 | 14.2 | 34.286 | 8.27 | 6.02 | 0.47 | 1 | 0.12 | 4.8 | 0.4 | 2.34 | | |
| 4 | 0100 | 0400 | 41-17 | 48-09 | 12.6 | 16.6 | 34.901 | 8.29 | 5.67 | 0.20 | 1 | 0.00 | 0.3 | 0.3 | 2.35 | | |
| | 0300 | 0600 | 40-48 | 48-25 | 13.0 | 16.4 | 34.954 | 8.29 | 5.67 | 0.22 | 1 | 0.05 | 0.4 | 0.3 | 2.35 | | |
| 4 | 0500 | 0800 | 40-18 | 48-39 | 15.5 | 15.6 | 34.661 | 8.29 | 5.84 | 0.36 | 1 | 0.00 | 2.1 | 0.7 | 2.31 | | |
| | 0700 | 1000 | 39-49 | 48-54 | 16.4 | 16.2 | 34.758 | 8.28 | 5.81 | 0.24 | 1 | 0.00 | 0.9 | 0.3 | 2.34 | | |
| 4 | 0900 | 1200 | 39-21 | 49-08 | 15.0 | 15.2 | 34.013 | 8.26 | 6.10 | 0.63 | 1 | 0.14 | 8.0 | 0.6 | 2.29 | | |
| | 1100 | 1400 | 38-52 | 49-24 | 15.4 | 15.6 | 34.481 | 8.29 | 5.96 | 0.36 | 2 | 0.08 | 2.8 | 0.3 | 2.31 | | |

* The time of the date of the preceding day.

Table 1 (continued).

| Date | Time | | Position | | Air temp. | Water temp. | S | pH | O ₂ | Phosphate-P | Silicate-Si | Nitrite-N | Nitrate-N | Ammonia-N | Alkalinity | Current | |
|--------|----------------------|------|----------|---------|-----------|-------------|--------|------|----------------|-------------|-------------|------------|-----------|-----------|------------|---------|--|
| | GMT | LMT | Lat. | Long. | °C | ‰ | ml/l | | µg-atoms/l | meq/l | Dir. | Speed (kn) | | | | | |
| Mar. 4 | 1300 | 1600 | 38-23 S | 49-39 E | 15.2 | 18.8 | 35.232 | 8.29 | 5.36 | 0.13 | 1 | 0.00 | 0.0 | 0.2 | 2.35 | | |
| | 1500 | 1800 | 37-54 | 49-55 | 15.4 | 20.1 | 35.446 | 8.28 | 5.25 | 0.09 | 1 | 0.00 | 0.0 | 0.1 | 2.34 | | |
| | 1700 | 2000 | 37-25 | 50-11 | 16.1 | 20.1 | 35.475 | 8.26 | 5.28 | 0.11 | 1 | 0.00 | 0.0 | 0.4 | 2.36 | | |
| | 1900 | 2200 | 36-56 | 50-26 | 16.8 | 20.3 | 35.393 | 8.26 | 5.26 | 0.11 | 1 | 0.00 | 0.0 | 0.3 | 2.38 | | |
| 5 | 2100* | 0000 | 36-27 | 50-42 | 17.4 | 21.3 | 35.491 | 8.24 | 5.14 | 0.11 | 1 | 0.00 | 0.1 | 0.1 | 2.34 | | |
| | 0500 | 0800 | 34-34 | 51-39 | 20.5 | 21.3 | 35.483 | 8.24 | 5.09 | 0.13 | 0 | 0.00 | 0.1 | 0.1 | 2.33 | | |
| | 0900 | 1200 | 33-36 | 51-47 | 21.3 | 21.4 | 35.452 | 8.26 | 5.13 | 0.13 | 1 | 0.00 | 0.1 | 0.2 | 2.35 | | |
| | 1500 | 1800 | 32-17 | 52-27 | 25.0 | 24.7 | 35.519 | 8.27 | 4.77 | 0.05 | 1 | 0.00 | 0.1 | 0.0 | 2.34 | | |
| 6 | 0400 | 0800 | 29-16 | 53-48 | 25.2 | 25.2 | 35.519 | 8.26 | 4.64 | 0.05 | 1 | 0.00 | 0.1 | 0.4 | 2.31 | | |
| | 0800 | 1200 | 28-28 | 54-06 | 26.9 | 25.0 | 35.547 | 8.26 | 4.74 | 0.03 | 1 | 0.00 | 0.1 | 0.1 | 2.36 | | |
| | 1400 | 1800 | 27-15 | 54-39 | 26.7 | 26.6 | 35.324 | 8.28 | 4.68 | 0.05 | 1 | 0.00 | 0.1 | 0.2 | 2.31 | | |
| 7 | 0400 | 0800 | 24-26 | 55-53 | 26.6 | 26.4 | 35.279 | 8.27 | 4.62 | 0.05 | 1 | 0.00 | 0.1 | 0.2 | 2.33 | | |
| | 0800 | 1200 | 23-41 | 56-06 | 26.7 | 26.8 | 35.481 | 8.27 | 4.59 | 0.05 | 1 | 0.00 | 0.1 | 0.2 | 2.34 | | |
| | 1400 | 1800 | 22-37 | 56-28 | 26.9 | 27.2 | 35.149 | 8.27 | 4.61 | 0.03 | 1 | 0.00 | 0.1 | 0.2 | 2.34 | | |
| 8 | Arrive in Port Louis | | | | | | | | | | | | | | | | |
| 16 | Leave Port Louis | | | | | | | | | | | | | | | | |
| 17 | 0400 | 0800 | 17-45 | 60-58 | 27.3 | 27.9 | 34.987 | 8.26 | 4.48 | 0.11 | 1 | 0.00 | 0.0 | 0.4 | 2.30 | | |
| | 1400 | 1800 | 16-41 | 62-28 | 28.0 | 28.3 | 34.715 | 8.25 | 4.56 | 0.08 | 1 | 0.00 | 0.1 | 0.1 | 2.27 | | |
| 18 | 0400 | 0800 | 15-06 | 64-43 | 28.0 | 28.0 | 34.715 | 8.26 | 4.47 | 0.09 | 1 | 0.00 | 0.0 | 0.1 | 2.26 | | |
| | 1400 | 1800 | 14-00 | 66-09 | 28.3 | 29.0 | 34.109 | 8.26 | 4.52 | 0.08 | 1 | 0.00 | 0.1 | 0.0 | 2.24 | | |
| 19 | 0300 | 0800 | 12-40 | 68-12 | 28.5 | 28.9 | 33.938 | 8.26 | 4.48 | 0.06 | 0 | 0.00 | 0.4 | 0.0 | 2.22 | | |
| | 1300 | 1800 | 11-38 | 69-40 | 27.3 | 28.8 | 34.014 | 8.26 | 4.53 | 0.05 | 1 | 0.00 | 0.1 | 0.1 | 2.24 | | |
| 20 | 0300 | 0800 | 10-05 | 71-44 | 28.1 | 28.5 | 34.132 | 8.25 | 4.51 | 0.09 | 0 | 0.00 | 0.1 | 0.0 | 2.22 | | |
| | 1300 | 1800 | 09-01 | 73-16 | 28.2 | 28.7 | 33.960 | 8.26 | 4.53 | 0.09 | 0 | 0.00 | 0.0 | 0.0 | 2.25 | | |

* The time of the date of the preceding day.

Table 1 (continued).

| Date | Time | | Position | | Air temp. | Water temp. | S | pH | O ₂ | Phosphate-P | Silicate-Si | Nitrite-N | Nitrate-N | Ammonia-N | Alkalinity | Current | |
|--------|---------|------|---------------------|---------|-----------|-------------|--------|--------|----------------|-------------|-------------|-----------|-----------|-----------|------------|---------|--|
| | GMT | LMT | Lat. | Long. | °C | ‰ | ml/l | | µg-atoms/l | | | | meq/l | Dir. | Speed (kn) | | |
| | Mar. 21 | 0300 | 0800 | 07-21 S | 75-34 E | 28.6 | 28.6 | 33.807 | 8.25 | 4.48 | 0.08 | 1 | 0.00 | 0.1 | 0.0 | 2.24 | |
| | 1300 | 1800 | 06-15 | 77-09 | 28.9 | 29.1 | 33.960 | 8.25 | 4.54 | 0.08 | 1 | 0.00 | 0.1 | 0.1 | 2.22 | | |
| 22 | 0300 | 0800 | 04-36 | 79-29 | 29.3 | 29.2 | 34.077 | 8.24 | 4.41 | 0.06 | 1 | 0.00 | 0.2 | 0.0 | 2.21 | | |
| | 1300 | 1800 | 03-23 | 81-07 | 29.3 | 30.5 | 34.320 | 8.23 | 4.48 | 0.06 | 1 | 0.00 | 0.1 | 0.0 | 2.26 | | |
| 23 | 0300 | 0800 | 01-50 | 83-30 | 29.0 | 29.5 | 34.450 | 8.24 | 4.43 | 0.11 | 0 | 0.00 | 0.1 | 0.0 | 2.24 | | |
| | 1300 | 1800 | 00-46 | 84-57 | 29.2 | 30.3 | 34.636 | 8.24 | 4.49 | 0.09 | 1 | 0.00 | 0.1 | 0.1 | 2.28 | | |
| 24 | 0300 | 0800 | 00-53 N | 87-13 E | 30.1 | 30.4 | 34.593 | 8.24 | 4.39 | 0.09 | 1 | 0.01 | 0.2 | 0.1 | 2.26 | | |
| | 1300 | 1800 | 02-06 | 88-45 | 29.7 | 30.6 | 34.232 | 8.24 | 4.43 | 0.06 | 1 | 0.00 | 0.1 | 0.1 | 2.24 | | |
| 25 | 0200 | 0800 | 03-39 | 90-51 | 29.8 | 30.2 | 34.638 | 8.24 | 4.41 | 0.11 | 1 | 0.00 | 0.2 | 0.1 | 2.28 | | |
| | 1200 | 1800 | 04-39 | 92-21 | 29.5 | 29.8 | 33.295 | 8.24 | 4.52 | 0.06 | 2 | 0.00 | 0.1 | 0.0 | 2.23 | | |
| 26 | 0200 | 0800 | 05-57 | 94-40 | 29.9 | 30.0 | 33.706 | 8.24 | 4.50 | 0.08 | 1 | 0.00 | 0.2 | 0.1 | 2.22 | | |
| | 1200 | 1800 | 06-08 | 96-20 | 29.7 | 29.9 | 32.970 | 8.24 | 4.48 | 0.00 | 1 | 0.00 | 0.1 | 0.0 | 2.21 | | |
| 27 | 0100 | 0800 | 05-02 | 98-49 | 29.8 | 29.8 | 32.897 | 8.23 | 4.45 | 0.02 | 1 | 0.00 | 0.0 | 0.1 | 2.15 | | |
| | 0800 | 1500 | 04-16 | 100-08 | 30.3 | 30.5 | 31.976 | 8.20 | 4.51 | 0.05 | 3 | 0.00 | 0.0 | 0.2 | 2.11 | | |
| 30 | 0030 | 0800 | 03-18 | 100-32 | 26.3 | 30.0 | 31.645 | 8.20 | 4.49 | 0.06 | 1 | 0.01 | 0.2 | 0.1 | 2.08 | | |
| | 1030 | 1800 | 02-22 | 101-41 | 30.0 | 29.9 | 32.176 | 8.19 | 4.35 | 0.06 | 1 | 0.02 | 0.3 | 0.1 | 2.11 | | |
| Apr. 1 | | | Arrive in Singapore | | | | | | | | | | | | | | |
| 8 | | | Leave Singapore | | | | | | | | | | | | | | |
| 9 | 0000 | 0800 | 02-44 | 107-58 | 29.3 | 29.8 | 33.189 | 8.25 | 4.58 | 0.02 | 1 | 0.01 | 0.2 | 0.1 | 2.17 | | |
| | 1000 | 1800 | 04-27 | 109-02 | 29.7 | 30.1 | 33.769 | 8.26 | 4.49 | 0.00 | 2 | 0.00 | 0.1 | 0.0 | 2.21 | | |
| 10 | 0000 | 0800 | 06-57 | 110-23 | 29.2 | 29.0 | 34.001 | 8.26 | 4.50 | 0.02 | 0 | 0.00 | 0.0 | 0.1 | 2.24 | | |
| | 1000 | 1800 | 08-43 | 111-21 | 29.8 | 29.4 | 33.856 | 8.25 | 4.48 | 0.02 | 1 | 0.00 | 0.0 | 0.0 | 2.24 | | |
| 11 | 0000 | 0800 | 11-10 | 112-59 | 28.9 | 29.3 | 33.815 | 8.25 | 4.50 | 0.00 | 0 | 0.00 | 0.0 | 0.0 | 2.21 | | |
| | 1000 | 1800 | 11-17 | 113-09 | 29.2 | 29.3 | 33.712 | 8.27 | 4.47 | 0.00 | 1 | 0.01 | 0.0 | 0.0 | 2.21 | | |

Table 1 (continued).

| Date | Time | | Position | | Air temp. | Water temp. | S | pH | O ₂ | Phosphate-P | Silicate-Si | Nitrite-N | Nitrate-N | Ammonia-N | Alkalinity | Current | |
|---------|-------|------|-----------------|---------|-----------|-------------|--------|------|----------------|-------------|-------------|-----------|-----------|-----------|------------|---------|------------|
| | GMT | LMT | Lat. | Long. | °C | °C | ‰ | | ml/l | | | | | | meq/l | Dir. | Speed (kn) |
| Apr. 12 | 0000 | 0800 | 14-54N | 115-59E | 28.2 | 28.2 | 33.751 | 8.27 | 4.53 | 0.00 | 0 | 0.00 | 0.0 | 0.1 | 2.15 | | |
| | 1000 | 1800 | 16-07 | 117-29 | 28.1 | 29.0 | 33.783 | 8.28 | 4.50 | 0.00 | 1 | 0.00 | 0.0 | 0.0 | 2.22 | | |
| 13 | 0000 | 0800 | 18-03 | 119-44 | 28.8 | 27.9 | 34.075 | 8.26 | 4.59 | 0.02 | 1 | 0.00 | 0.0 | 0.2 | 2.24 | | |
| | 1000 | 1800 | 19-30 | 121-32 | 28.1 | 27.0 | 34.137 | 8.30 | 4.63 | 0.00 | 1 | 0.00 | 0.0 | 0.1 | 2.24 | | |
| 14 | 2300* | 0800 | 21-11 | 123-15 | 28.8 | 25.4 | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |
| | 0900 | 1800 | 22-30 | 124-26 | 25.3 | 22.0 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 | 0.2 |
| 15 | 2300* | 0800 | 24-21 | 126-37 | 22.7 | 20.9 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 142 | 1.7 |
| | 0900 | 1800 | 25-51 | 128-05 | 23.5 | 23.4 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 90 | 0.8 |
| 16 | 2300* | 0800 | 28-06 | 130-35 | 22.3 | 22.2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 111 | 1.2 |
| 20 | | | Arrive in Tokyo | | | | | | | | | | | | | | |

* The time of the date of the preceding day.

Table 2. Data of bathythermograph (BT) observation on board the icebreaker FUJI in 1978-1979.

| Station Number | Date | | | Time | | Position | | Temperature (°C) at indicated depth (m) | | | | | | | | | | |
|----------------|------|-------|------|-------|------|----------|----------|---|------|------|------|------|------|------|------|------|------|------|
| | Day | Month | Year | GMT | LMT | Lat. | Long. | 0 | 10 | 20 | 30 | 50 | 75 | 100 | 125 | 150 | 200 | 250 |
| 1 | 26 | Nov. | 1978 | 2300* | 0800 | 32-15N | 138-12E | 23.2 | 23.2 | 23.2 | 23.2 | 23.2 | 22.8 | 22.3 | 21.1 | 19.9 | 16.9 | 15.1 |
| 2 | 26 | | | 0900 | 1800 | 30-41 | 137-14 | 21.5 | 21.5 | 21.5 | 21.5 | 21.5 | 21.5 | 20.4 | 19.2 | 17.0 | 14.7 | |
| 3 | 27 | | | 2300* | 0800 | 28-29 | 136-09 | 24.6 | 24.6 | 24.7 | 24.7 | 24.4 | 24.1 | 23.9 | 22.4 | 20.9 | 19.5 | |
| 4 | 27 | | | 0900 | 1800 | 26-38 | 135-16 | 25.1 | 25.1 | 25.2 | 25.2 | 25.2 | 25.2 | 21.7 | 20.2 | 19.1 | 17.8 | |
| 5 | 28 | | | 2300* | 0800 | 23-59 | 133-58 | 25.2 | 25.2 | 25.2 | 25.2 | 25.2 | 24.5 | 20.9 | 18.9 | 17.5 | 16.2 | |
| 6 | 28 | | | 0900 | 1800 | 22-06 | 132-54 | 26.3 | 26.2 | 26.2 | 26.3 | 26.3 | 24.5 | 20.6 | 19.3 | 18.7 | 17.4 | |
| 7 | 29 | | | 2300* | 0800 | 19-26 | 131-54 | 27.6 | 27.6 | 27.6 | 27.6 | 27.7 | 27.7 | 27.4 | 25.6 | 23.9 | 21.6 | |
| 8 | 29 | | | 0900 | 1800 | 17-34 | 130-55 | 26.8 | 26.9 | 26.9 | 26.9 | 26.9 | 25.7 | 23.5 | 22.5 | 20.5 | 18.2 | |
| 9 | 30 | | | 2300* | 0800 | 14-54 | 129-48 | 27.7 | 27.7 | 27.7 | 27.7 | 27.7 | 27.7 | 26.8 | 25.2 | 24.1 | 20.1 | |
| 10 | 30 | | | 0800 | 1700 | 13-12 | 129-04 | 28.2 | 28.2 | 28.2 | 28.2 | 28.2 | 28.1 | 25.8 | 24.4 | 22.0 | 17.5 | |
| 11 | 1 | Dec. | 1978 | 0000 | 0800 | 10-09 | 127-53 | 28.4 | 28.4 | 28.4 | 28.4 | 28.4 | 27.2 | 24.2 | 21.9 | 18.6 | 14.2 | |
| 12 | 1 | | | 1000 | 1800 | 08-08 | 126-57 | 28.1 | 28.1 | 28.1 | 28.1 | 27.8 | 26.0 | 24.6 | 22.7 | 19.3 | 15.9 | |
| 13 | 2 | | | 0000 | 0800 | 05-11 | 125-34 | 27.9 | 27.9 | 27.9 | 27.9 | 27.4 | 26.9 | 23.7 | 20.9 | 17.5 | 14.9 | 12.6 |
| 14 | 2 | | | 0900 | 1700 | 02-07 | 121-29 | 28.5 | 28.4 | 28.4 | 28.1 | 27.8 | 26.7 | 25.4 | 23.4 | 20.3 | 15.9 | 10.8 |
| 15 | 3 | | | 0000 | 0800 | 02-09 | 121-31 | 28.7 | 28.8 | 28.7 | 28.7 | 28.7 | 28.3 | 24.7 | 23.5 | 20.4 | 16.5 | 12.9 |
| 16 | 4 | | | 0000 | 0800 | 01-41 S | 118-52 E | 29.1 | 29.2 | 29.1 | 28.8 | 28.5 | 27.7 | 25.6 | 21.6 | 18.8 | 14.7 | |
| 17 | 6 | | | 0000 | 0800 | 12-00 | 114-50 | 28.8 | 28.8 | 28.8 | 27.7 | 26.3 | 24.6 | 22.9 | 20.9 | 19.5 | 14.9 | 12.7 |
| 18 | 6 | | | 1000 | 1800 | 14-22 | 114-27 | 29.1 | 29.2 | 29.1 | 29.1 | 27.7 | 26.8 | 25.9 | 24.3 | 22.9 | 17.1 | 14.5 |
| 19 | 7 | | | 0000 | 0800 | 17-44 | 113-51 | 26.9 | 26.9 | 26.6 | 26.2 | 24.3 | 23.4 | 22.6 | 21.5 | 20.1 | 17.7 | 14.9 |
| 20 | 7 | | | 1000 | 1800 | 20-01 | 113-26 | 25.5 | 25.4 | 25.1 | 25.1 | 24.6 | 23.4 | 22.4 | 21.7 | 21.0 | 19.0 | 15.9 |
| 21 | 8 | | | 0000 | 0800 | 23-13 | 112-54 | 23.8 | 23.8 | 23.7 | 23.6 | 21.6 | 20.9 | 20.5 | 20.1 | 19.2 | 18.8 | 17.5 |
| 22 | 17 | Mar. | 1979 | 0400 | 0800 | 17-45 | 60-58 | 27.9 | 27.9 | 27.9 | 27.8 | 27.4 | 25.3 | 23.8 | 23.0 | 22.2 | 19.8 | 18.1 |
| 23 | 17 | | | 1400 | 1800 | 16-41 | 62-28 | 28.3 | 28.3 | 28.3 | 28.2 | 27.7 | 24.7 | 24.1 | 23.4 | 22.5 | 20.3 | 18.3 |

* The time of the date of the preceding day.

Table 2 (continued).

| Station Number | Date | | | Time | | Position | | Temperature (°C) at indicated depth (m) | | | | | | | | | | |
|----------------|------|-------|------|-------|------|----------|---------|---|------|------|------|------|------|------|------|------|------|------|
| | Day | Month | Year | GMT | LMT | Lat. | Long. | 0 | 10 | 20 | 30 | 50 | 75 | 100 | 125 | 150 | 200 | 250 |
| 24 | 18 | Mar. | 1979 | 0400 | 0800 | 15-06 S | 64-43 E | 28.0 | 28.0 | 28.0 | 28.0 | 26.3 | 24.1 | 23.0 | 22.1 | 21.3 | 18.8 | 16.2 |
| 25 | 18 | | | 1400 | 1800 | 14-00 | 66-09 | 29.0 | 28.1 | 27.8 | 27.5 | 26.1 | 22.8 | 21.3 | 20.2 | 18.8 | 16.3 | 13.3 |
| 26 | 19 | | | 0300 | 0800 | 12-40 | 68-12 | 28.9 | 28.9 | 28.9 | 28.8 | 27.1 | 25.3 | 22.8 | 20.5 | 17.2 | 14.9 | 12.8 |
| 27 | 19 | | | 1300 | 1800 | 11-40 | 69-40 | 28.8 | 28.8 | 28.7 | 28.6 | 27.8 | 26.3 | 22.5 | 19.8 | 18.1 | 15.5 | 12.1 |
| 28 | 20 | | | 0300 | 0800 | 10-05 | 71-44 | 28.5 | 28.5 | 28.5 | 27.3 | 25.3 | 22.6 | 18.7 | 18.0 | 16.0 | 12.5 | 11.7 |
| 29 | 20 | | | 1300 | 1800 | 09-01 | 73-16 | 28.7 | 28.6 | 28.4 | 27.8 | 21.7 | 17.6 | 16.1 | 13.7 | 12.9 | 12.2 | 11.2 |
| 30 | 21 | | | 0300 | 0800 | 07-21 | 75-34 | 28.6 | 28.6 | 28.6 | 28.6 | 21.2 | 17.4 | 14.7 | 13.0 | 12.5 | 11.7 | 11.1 |
| 31 | 21 | | | 1300 | 1800 | 06-15 | 77-09 | 29.1 | 29.1 | 29.0 | 29.0 | 28.3 | 19.6 | 17.7 | 15.7 | 14.0 | 12.4 | 11.7 |
| 32 | 22 | | | 0300 | 0800 | 04-36 | 79-29 | 29.2 | 29.2 | 29.2 | 29.2 | 26.1 | 20.9 | 19.2 | 18.1 | 17.2 | 14.7 | 12.5 |
| 33 | 22 | | | 1300 | 1800 | 03-23 | 81-07 | 30.5 | 29.5 | 29.2 | 29.0 | 25.9 | 21.2 | 19.2 | 17.0 | 14.7 | 12.7 | 11.9 |
| 34 | 23 | | | 0300 | 0800 | 01-50 | 83-30 | 29.5 | 29.5 | 29.4 | 29.4 | 27.8 | 24.8 | 20.9 | 17.9 | 15.1 | 13.5 | 11.9 |
| 35 | 23 | | | 1300 | 1800 | 00-46 | 84-57 | 30.3 | 29.8 | 29.7 | 29.7 | 25.1 | 23.3 | 21.4 | 18.8 | 16.3 | 14.1 | 12.8 |
| 36 | 24 | | | 0300 | 0800 | 00-53 N | 87-13 E | 30.4 | 30.4 | 30.2 | 30.1 | 28.1 | 25.1 | 22.6 | 19.9 | 17.9 | 14.3 | 12.4 |
| 37 | 24 | | | 1300 | 1800 | 02-06 | 88-45 | 30.6 | 30.2 | 30.1 | 29.8 | 27.6 | 25.0 | 21.7 | 17.1 | 14.9 | 13.6 | 12.3 |
| 38 | 25 | | | 0200 | 0800 | 03-39 | 90-51 | 30.2 | 30.2 | 30.1 | 29.7 | 28.5 | 26.8 | 21.7 | 16.6 | 14.3 | 13.2 | 12.2 |
| 39 | 25 | | | 1200 | 1800 | 04-39 | 92-21 | 29.8 | 29.8 | 30.1 | 29.8 | 28.7 | 25.7 | 21.5 | 17.0 | 14.5 | 13.4 | 12.8 |
| 40 | 26 | | | 0200 | 0800 | 05-57 | 94-40 | 30.0 | 30.0 | 29.9 | 28.9 | 25.4 | 21.7 | 19.2 | 14.8 | 13.8 | 12.4 | 11.8 |
| 41 | 14 | Apr. | 1979 | 2300* | 0800 | 21-11 | 123-15 | 25.4 | 25.4 | 24.9 | 24.9 | 24.3 | 23.8 | 23.2 | 22.6 | 21.5 | 19.8 | |
| 42 | 14 | | | 0900 | 1800 | 22-30 | 124-26 | 26.9 | 26.9 | 25.8 | 25.3 | 24.4 | 23.3 | 22.2 | 21.7 | 21.2 | 19.9 | 18.6 |
| 43 | 15 | | | 2300* | 0800 | 24-21 | 126-37 | 22.3 | 22.3 | 22.3 | 22.3 | 22.3 | 22.1 | 21.8 | 21.8 | 21.5 | 19.5 | 17.4 |
| 44 | 15 | | | 0900 | 1800 | 25-51 | 128-05 | 23.4 | 23.0 | 23.0 | 23.0 | 22.9 | 21.8 | 21.5 | 21.2 | 20.8 | 19.1 | |
| 45 | 16 | | | 2300* | 0800 | 28-06 | 130-35 | 22.2 | 22.0 | 22.0 | 21.9 | 21.6 | 21.1 | 20.8 | 20.5 | 20.2 | 19.2 | 17.7 |

* The time of the date of the preceding day.

Table 3. Data of expendable bathythermograph (XBT) observation on board the icebreaker FUJI in 1978-1979.

| Station | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Date | Dec. 16 | | Dec. 17 | | | | | Dec. 18 | | | |
| Year | 1978 | | | | | | | | | | |
| Time (GMT) | 0500 | 1100 | 1700* | 2300* | 0500 | 0910 | 1100 | 1700* | 2300* | 0500 | 0810 |
| (LMT) | 1200 | 1800 | 0000 | 0600 | 1200 | 1610 | 1800 | 0000 | 0600 | 1200 | 1510 |
| Latitude | 34-43N | 35-20N | 36-27N | 37-35N | 38-43N | 39-29N | 39-47N | 40-59N | 42-11N | 43-27N | 44-06N |
| Longitude | 110-52E | 109-52E | 110-09E | 110-18E | 109-49E | 109-22E | 109-11E | 109-02E | 108-57E | 108-54E | 108-53E |
| 0m | 17.4 | 17.7 | 17.6 | 17.4 | 15.6 | 14.1 | 14.2 | 15.2 | 14.6 | 13.8 | 13.0 |
| 10 | 17.3 | 17.7 | 17.3 | 17.4 | 15.5 | 14.0 | 13.7 | 13.6 | 13.5 | 12.8 | 12.5 |
| 20 | 17.2 | 17.7 | 17.3 | 17.4 | 15.5 | 13.9 | 13.6 | 13.5 | 13.2 | 12.6 | 12.1 |
| 30 | 17.2 | 17.7 | 17.3 | 17.4 | 15.4 | 13.8 | 13.4 | 13.3 | 13.0 | 12.3 | 12.0 |
| 50 | 17.2 | 17.7 | 17.3 | 17.4 | 15.4 | 12.8 | 12.3 | 12.3 | 12.1 | 11.8 | 11.6 |
| 75 | 16.0 | 16.7 | 17.1 | 17.0 | 14.3 | 11.3 | 11.4 | 11.6 | 11.0 | 11.1 | 10.8 |
| 100 | 14.0 | 15.7 | 15.2 | 15.3 | 14.2 | 11.1 | 11.2 | 11.1 | 10.9 | 10.7 | 10.4 |
| 125 | 13.4 | 15.1 | 14.7 | 14.6 | 14.1 | 10.6 | 11.1 | 11.0 | 10.7 | 10.6 | 9.9 |
| 150 | 13.1 | 15.0 | 14.2 | 14.1 | 13.9 | 10.6 | 10.9 | 10.8 | 10.7 | 10.5 | 9.8 |
| 200 | 12.8 | 14.1 | 13.4 | 13.1 | 12.1 | 10.5 | 10.7 | 10.5 | 10.5 | 10.3 | 9.8 |
| 250 | 12.2 | 13.6 | 12.5 | 12.7 | 11.2 | 10.4 | 10.7 | 10.4 | 10.4 | 10.1 | 9.8 |
| 300 | 11.5 | 12.9 | 11.6 | 11.9 | 10.4 | 10.2 | 10.7 | 10.0 | 10.3 | 9.9 | 9.7 |
| 400 | 10.5 | 11.4 | 10.0 | 10.6 | 9.6 | 10.0 | 10.1 | 9.9 | 10.2 | 9.8 | 9.8 |
| 500 | 9.8 | 10.2 | 9.2 | 9.8 | | 9.6 | 9.8 | 9.6 | | 9.5 | 9.7 |
| 600 | | 9.5 | | | | 9.3 | | | | | 9.0 |
| 700 | | 9.1 | | | | 8.8 | | | | | 8.7 |
| 800 | | 8.5 | | | | 7.9 | | | | | 7.7 |
| 1000 | | 5.8 | | | | 5.6 | | | | | 5.3 |
| 1200 | | | | | | 4.0 | | | | | 4.0 |
| 1500 | | | | | | 3.2 | | | | | |
| 1800 | | | | | | 2.8 | | | | | |

* The time of the date of the preceding day.

Table 3 (continued).

| Station | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
|------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Date | Dec. 18 | Dec. 19 | Dec. 20 | | | | | | | | |
| Year | 1978 | | | | | | | | | | |
| Time (GMT) | 1100 | 1700* | 2300* | 0500 | 0750 | 1100 | 1700* | 2300* | 0400 | 0500 | 1100 |
| (LMT) | 1800 | 0000 | 0600 | 1200 | 1450 | 1800 | 0000 | 0600 | 1100 | 1200 | 1800 |
| Latitude | 44-39N | 45-51N | 46-54S | 48-01S | 48-36S | 49-09S | 50-12S | 51-14S | 52-03S | 52-13S | 53-12S |
| Longitude | 108-42E | 108-09E | 107-33E | 106-59E | 106-46E | 106-26E | 105-32E | 104-35E | 103-52E | 103-44E | 102-49E |
| 0m | 12.3 | 9.9 | 11.3 | 7.4 | 7.2 | 7.2 | 5.9 | 4.9 | 4.0 | 3.9 | 2.9 |
| 10 | 12.0 | 9.7 | 11.3 | 7.2 | 6.0 | 6.9 | 5.9 | 4.9 | 3.9 | 3.8 | 2.8 |
| 20 | 11.6 | 9.2 | 11.3 | 7.1 | 6.0 | 6.8 | 6.0 | 4.9 | 3.9 | 3.8 | 2.8 |
| 30 | 11.3 | 9.1 | 11.3 | 6.7 | 6.0 | 6.8 | 5.9 | 4.9 | 3.9 | 3.7 | 2.4 |
| 50 | 11.2 | 8.9 | 10.7 | 6.6 | 5.4 | 6.3 | 5.6 | 4.7 | 3.5 | 3.6 | 2.1 |
| 75 | 10.6 | 8.7 | 10.4 | 5.6 | 5.0 | 5.8 | 5.4 | 4.3 | 3.4 | 3.4 | 2.1 |
| 100 | 10.6 | 8.2 | 10.1 | 4.8 | 4.0 | 4.9 | 4.9 | 4.2 | 3.1 | 3.3 | 1.9 |
| 125 | 10.4 | 8.2 | 10.5 | 4.4 | 3.5 | 3.8 | 4.6 | 3.5 | 3.1 | 3.5 | 1.8 |
| 150 | 10.2 | 8.5 | 9.9 | 4.1 | 3.2 | 3.9 | 4.3 | 2.3 | 2.9 | 2.0 | 1.6 |
| 200 | 10.1 | 8.4 | 9.8 | 4.2 | 3.2 | 3.3 | 4.1 | 1.8 | 2.9 | 1.6 | 0.8 |
| 250 | 10.1 | 7.7 | 9.7 | 3.9 | 3.1 | 3.2 | 3.4 | 2.0 | 3.2 | 1.8 | 1.6 |
| 300 | 10.1 | 7.1 | 9.7 | 3.5 | 2.9 | 3.2 | 3.2 | 2.3 | 2.7 | 2.1 | 2.3 |
| 400 | 9.7 | 6.7 | 9.8 | 3.4 | 2.8 | 2.8 | 2.9 | 2.3 | 2.3 | 2.3 | 2.3 |
| 500 | 9.6 | 5.9 | 8.5 | | 2.7 | 2.7 | 3.1 | | 2.7 | 2.4 | 2.3 |
| 600 | | | | | 2.5 | | | | 2.6 | | |
| 700 | | | | | 2.5 | | | | 2.5 | | |
| 800 | | | | | 2.3 | | | | 2.5 | | |
| 1000 | | | | | 2.3 | | | | 2.4 | | |
| 1200 | | | | | 2.2 | | | | 2.2 | | |
| 1500 | | | | | 2.1 | | | | 2.1 | | |
| 1800 | | | | | | | | | 1.9 | | |

* The time of the date of the preceding day.

Table 3 (continued).

| Station | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 |
|------------|----------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Date | Dec. 21 | | | Dec. 22 | | | | | Dec. 23 | | |
| Year | 1978 | | | | | | | | | | |
| Time (GMT) | 1700* | 2300* | 1100 | 1800* | 0000 | 0245 | 0600 | 1200 | 1800* | 0200 | 0300 |
| (LMT) | 0000 | 0600 | 1800 | 0000 | 0600 | 0845 | 1200 | 1800 | 0000 | 0800 | 0900 |
| Latitude | 54-13 S | 55-15 S | 57-06 S | 58-02 S | 58-48 S | 59-05 S | 59-25 S | 60-00 S | 60-33 S | 61-20 S | 61-25 S |
| Longitude | 101-52 E | 100-50 E | 98-21 E | 96-14 E | 94-24 E | 93-26 E | 92-26 E | 90-25 E | 88-15 E | 85-23 E | 85-04 E |
| 0m | 1.7 | 1.9 | 2.2 | 0.7 | 0.7 | 1.7 | 0.1 | 0.7 | 1.0 | -0.4 | -0.3 |
| 10 | 1.7 | 1.8 | 2.1 | 0.5 | 0.6 | 1.7 | 0.0 | 0.4 | 0.8 | -0.4 | -0.3 |
| 20 | 1.7 | 1.8 | 2.0 | 0.5 | 0.6 | 1.6 | 0.0 | -0.3 | 0.8 | -0.4 | -0.3 |
| 30 | 1.7 | 1.8 | 1.8 | 0.3 | 0.6 | 1.6 | 0.0 | -0.4 | 0.6 | -0.4 | 0.0 |
| 50 | 1.7 | 1.8 | 1.7 | 0.2 | 0.2 | 1.6 | -0.2 | -0.7 | 0.7 | -1.5 | 0.6 |
| 75 | 1.4 | 1.6 | 1.7 | -0.6 | -0.6 | 1.0 | -1.2 | -0.3 | 0.2 | -1.6 | 1.2 |
| 100 | 1.2 | 1.2 | 1.5 | -1.1 | -0.8 | 0.7 | -1.0 | -0.3 | -0.2 | -1.4 | 1.2 |
| 125 | 0.6 | 0.8 | 1.0 | -0.8 | -0.7 | 0.5 | -0.7 | 0.3 | 0.0 | -0.8 | 1.1 |
| 150 | 0.0 | 0.3 | 1.3 | -0.1 | 0.0 | 0.6 | 0.3 | 0.3 | 0.1 | 0.0 | 1.1 |
| 200 | 0.3 | 0.6 | 1.7 | 1.3 | 1.2 | 1.4 | 1.5 | 0.9 | 0.9 | 0.7 | 1.3 |
| 250 | 1.6 | 1.8 | 2.2 | 1.7 | 1.3 | 1.9 | 1.7 | 0.8 | 1.8 | 0.9 | 1.5 |
| 300 | 1.8 | 2.0 | 2.2 | 1.7 | 1.5 | 1.9 | 1.8 | 1.3 | 1.7 | 1.1 | 1.3 |
| 400 | 2.0 | 2.0 | 2.2 | 1.7 | 1.6 | 2.1 | 1.7 | 1.5 | 1.7 | 1.4 | 1.7 |
| 500 | 2.0 | 2.0 | 2.2 | 1.7 | 1.6 | 2.1 | 1.7 | 1.3 | 1.8 | 1.3 | 1.6 |
| 600 | | | | | | 2.0 | | | | | 1.5 |
| 700 | | | | | | 2.0 | | | | | 1.4 |
| 800 | | | | | | 2.0 | | | | | 1.0 |
| 1000 | | | | | | 1.9 | | | | | 1.0 |
| 1200 | | | | | | 1.7 | | | | | 0.9 |
| 1500 | | | | | | 1.4 | | | | | 0.6 |
| 1800 | | | | | | | | | | | 0.5 |

* The time of the date of the preceding day.

Table 3 (continued).

| Station | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 |
|------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Date | Dec. 23 | Dec. 24 | | | Dec. 25 | | | Dec. 26 | | | Dec. 27 |
| Year | 1978 | | | | | | | | | | |
| Time (GMT) | 1000 | 1900* | 0300 | 1100 | 2000* | 0400 | 1200 | 2200* | 0400 | 1900 | 0500 |
| (LMT) | 1600 | 0000 | 0800 | 1600 | 0000 | 0800 | 1600 | 0200 | 0800 | 2300 | 0800 |
| Latitude | 62-03 S | 62-48 S | 63-21 S | 63-54 S | 64-24 S | 64-43 S | 64-55 S | 65-13 S | 65-21 S | 65-39 S | 66-11 S |
| Longitude | 82-25 E | 78-54 E | 75-39 E | 72-11 E | 68-01 E | 64-18 E | 60-27 E | 55-33 E | 52-43 E | 49-29 E | 46-16 E |
| 0m | 0.2 | 0.3 | 0.0 | 0.1 | -0.3 | -0.2 | -0.1 | -0.2 | -0.7 | -1.7 | -1.5 |
| 10 | 0.2 | 0.2 | 0.0 | 0.1 | -0.4 | -0.2 | -0.2 | -0.2 | -0.7 | -1.7 | -1.5 |
| 20 | 0.0 | 0.2 | -0.1 | -0.3 | -0.6 | -0.2 | -0.6 | -0.2 | -0.8 | -1.8 | -1.5 |
| 30 | 0.0 | -0.2 | -0.3 | -0.4 | -0.8 | -0.4 | -1.0 | -0.2 | -1.0 | -1.9 | -1.5 |
| 50 | -1.5 | -0.4 | -1.5 | -1.2 | -1.5 | -1.1 | -1.6 | -1.4 | -1.5 | -1.9 | -1.5 |
| 75 | -1.7 | -1.5 | -1.0 | -0.4 | -1.5 | -1.5 | 0.9 | -1.6 | -1.8 | -1.9 | -1.5 |
| 100 | -1.1 | -0.2 | -1.5 | 1.3 | -1.3 | -0.7 | 1.5 | -1.4 | -1.8 | -1.9 | -1.5 |
| 125 | 1.5 | 1.3 | 0.0 | 1.6 | -1.1 | 1.1 | 1.6 | -1.0 | -1.7 | -1.9 | -1.5 |
| 150 | 1.9 | 1.3 | 0.0 | 1.1 | -1.0 | 1.6 | 1.6 | -0.9 | -1.6 | -1.9 | -1.5 |
| 200 | 1.8 | 1.8 | 1.2 | 1.7 | -0.5 | 1.7 | 1.7 | 0.6 | -1.0 | -1.9 | -1.1 |
| 250 | 1.9 | 1.9 | 1.3 | 1.8 | -0.1 | 1.8 | 1.7 | 1.1 | 0.3 | -1.9 | -0.1 |
| 300 | 1.9 | 1.9 | 1.2 | 1.7 | 0.7 | 1.7 | 1.8 | 1.1 | 1.2 | -1.9 | 0.7 |
| 400 | 1.9 | 1.9 | 1.3 | 1.6 | 1.0 | 1.6 | 1.7 | 0.9 | 1.0 | -1.9 | 1.2 |
| 500 | 1.8 | 2.0 | 1.2 | 1.6 | 0.9 | 1.5 | 1.6 | 1.3 | 0.9 | -1.2 | 1.2 |
| 600 | | | | | | | | | | | |
| 700 | | | | | | | | | | | |
| 800 | | | | | | | | | | | |
| 1000 | | | | | | | | | | | |
| 1200 | | | | | | | | | | | |
| 1500 | | | | | | | | | | | |
| 1800 | | | | | | | | | | | |

* The time of the date of the preceding day.

Table 3 (continued).

| Station | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 |
|------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Date | Dec. 27 | Dec. 28 | | Dec. 29 | Feb. 24 | Feb. 25 | | Feb. 26 | | Feb. 27 | |
| Year | 1978 | | | | 1979 | | | | | | |
| Time (GMT) | 1300 | 2100* | 0500 | 1120 | 0900 | 2100* | 0900 | 2100* | 0900 | 2100* | 0400 |
| (LMT) | 1600 | 0000 | 0800 | 1420 | 1200 | 0000 | 1200 | 0000 | 1200 | 0000 | 0700 |
| Latitude | 66-13 S | 66-42 S | 67-10 S | 67-59 S | 64-43 S | 63-38 S | 61-52 S | 60-37 S | 58-46 S | 57-25 S | 56-07 S |
| Longitude | 44-33 E | 42-57 E | 41-57 E | 40-52 E | 40-52 E | 40-21 E | 39-58 E | 40-10 E | 40-17 E | 40-21 E | 40-23 E |
| 0m | -1.6 | -1.7 | -1.6 | -0.6 | 1.5 | 2.2 | 2.4 | 2.5 | 2.5 | 2.4 | 2.8 |
| 10 | -1.7 | -1.8 | -1.8 | -0.8 | 1.5 | 2.2 | 2.5 | 2.5 | 2.5 | 2.4 | 3.0 |
| 20 | -1.8 | -1.8 | -1.8 | -1.3 | 1.5 | 2.2 | 2.3 | 2.4 | 2.3 | 2.3 | 3.0 |
| 30 | -1.8 | -1.8 | -1.8 | -1.7 | 1.4 | 2.0 | 2.3 | 2.4 | 2.3 | 2.2 | 3.0 |
| 50 | -1.8 | -1.8 | -1.8 | -1.8 | -1.4 | -1.4 | 2.2 | 2.2 | 2.3 | 2.1 | 3.0 |
| 75 | -1.8 | -1.8 | -1.8 | -1.8 | -1.5 | -1.5 | -1.0 | 0.2 | 0.2 | -0.5 | 2.9 |
| 100 | -1.8 | -1.8 | -1.8 | -1.8 | -0.4 | -1.6 | -1.2 | -0.5 | 0.0 | -1.1 | 0.7 |
| 125 | -1.8 | -1.5 | | -1.8 | 1.0 | -0.5 | -1.1 | -0.5 | -0.1 | -1.1 | 0.3 |
| 150 | -1.7 | -1.2 | | -1.8 | 1.1 | 0.3 | -0.9 | -0.5 | -0.3 | -1.0 | 0.2 |
| 200 | -1.3 | -0.1 | | -1.8 | 1.5 | 1.1 | 0.5 | 0.1 | 0.4 | 0.7 | 0.2 |
| 250 | -0.5 | 0.8 | | -1.8 | 1.3 | 1.3 | 1.6 | 1.2 | 1.5 | 1.7 | 1.3 |
| 300 | 0.2 | | | -1.8 | 1.3 | 1.4 | 1.7 | 1.7 | 1.8 | 1.6 | 1.8 |
| 400 | 0.8 | | | -1.3 | 1.3 | 1.3 | 1.6 | 1.7 | 1.8 | 1.7 | 2.2 |
| 500 | 0.8 | | | 0.3 | 1.2 | 1.3 | 1.5 | 1.7 | 1.8 | 1.7 | 2.0 |
| 600 | | | | | 1.0 | 1.2 | 1.3 | 1.7 | 1.8 | 1.7 | 2.0 |
| 700 | | | | | 1.0 | 1.1 | 1.3 | 1.6 | 1.7 | 1.6 | 2.0 |
| 800 | | | | | 0.9 | 1.0 | 1.2 | 1.5 | 1.7 | 1.5 | 1.9 |
| 1000 | | | | | 0.8 | 0.8 | 1.0 | 1.2 | 1.4 | 1.3 | 1.7 |
| 1200 | | | | | 0.6 | 0.7 | 0.8 | 1.1 | | 1.1 | 1.6 |
| 1500 | | | | | 0.5 | 0.5 | 0.6 | 0.8 | | 0.9 | 1.2 |
| 1800 | | | | | 0.3 | 0.3 | 0.5 | 0.5 | | 0.6 | 1.0 |

* The time of the date of the preceding day.

Table 3 (continued).

| Station | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 |
|------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Date | Feb. 28 | | Mar. 1 | | | | | | | Mar. 2 | |
| Year | 1979 | | | | | | | | | | |
| Time (GMT) | 2100* | 0900 | 0100 | 0300 | 0500 | 0700 | 0900 | 1300 | 1700 | 1400 | 1700 |
| (LMT) | 0000 | 1200 | 0400 | 0600 | 0800 | 1000 | 1200 | 1600 | 2000 | 1700 | 2000 |
| Latitude | 55-47 S | 55-04 S | 53-18 S | 52-59 S | 52-42 S | 52-26 S | 52-09 S | 51-56 S | 51-04 S | 49-02 S | 48-30 S |
| Longitude | 41-22 E | 43-02 E | 43-14 E | 43-13 E | 43-14 E | 43-16 E | 43-16 E | 43-23 E | 43-46 E | 44-36 E | 44-47 E |
| 0m | 2.6 | 2.8 | 3.0 | 3.1 | 3.2 | 3.8 | 3.9 | 3.9 | 4.2 | 5.0 | 5.1 |
| 10 | 3.3 | 2.8 | 3.0 | 3.0 | 3.1 | 3.7 | 3.9 | 3.9 | 4.2 | 4.9 | 5.1 |
| 20 | 3.5 | 2.8 | 2.8 | 3.0 | 3.1 | 3.7 | 3.9 | 3.9 | 4.2 | 4.9 | 5.1 |
| 30 | 3.5 | 2.8 | 2.8 | 3.0 | 3.1 | 3.7 | 3.7 | 3.9 | 4.1 | 4.9 | 5.1 |
| 50 | 3.4 | 2.8 | 2.8 | 3.0 | 2.7 | 3.7 | 3.7 | 3.8 | 4.0 | 4.9 | 5.1 |
| 75 | 3.3 | 2.7 | 2.8 | 2.8 | 1.4 | 3.5 | 3.7 | 3.8 | 3.6 | 4.9 | 5.0 |
| 100 | 1.5 | 0.3 | 1.8 | 1.9 | 0.9 | 2.1 | 3.1 | 2.6 | 2.0 | 4.7 | 4.2 |
| 125 | 0.7 | -0.3 | 0.8 | 0.8 | 0.9 | 1.2 | 1.7 | 1.6 | 1.6 | 3.7 | 2.9 |
| 150 | 0.4 | -0.3 | 0.9 | 0.7 | 0.9 | 1.0 | 1.1 | 1.3 | 1.4 | 2.7 | 2.6 |
| 200 | 1.2 | 1.0 | 0.8 | 0.9 | 0.9 | 1.3 | 0.9 | 1.2 | 1.1 | 2.8 | 2.6 |
| 250 | 2.0 | 1.7 | 1.5 | 1.4 | 1.3 | 1.4 | 1.1 | 1.4 | 1.5 | 2.7 | 2.5 |
| 300 | 2.1 | 1.8 | 1.7 | 1.8 | 1.8 | 1.6 | 1.4 | 1.6 | 1.6 | 2.4 | 2.4 |
| 400 | 2.2 | 1.8 | 1.9 | 1.9 | 1.9 | 2.0 | 1.9 | 2.1 | 2.0 | 2.4 | 2.4 |
| 500 | 2.4 | 1.8 | 2.0 | 2.1 | 2.1 | 2.1 | 2.0 | 2.2 | | 2.5 | 2.5 |
| 600 | 2.4 | 1.8 | 2.0 | | | | 2.0 | | | | |
| 700 | 2.3 | 1.8 | 2.0 | | | | 2.0 | | | | |
| 800 | 2.2 | 1.7 | 1.9 | | | | 2.0 | | | | |
| 1000 | 2.1 | 1.5 | 1.8 | | | | 1.9 | | | | |
| 1200 | 2.0 | 1.4 | 1.7 | | | | | | | | |
| 1500 | 1.7 | 1.1 | 1.4 | | | | | | | | |
| 1800 | 1.4 | | 1.1 | | | | | | | | |

* The time of the date of the preceding day.

Table 3 (continued).

| Station | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 |
|------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Date | Mar. 3 | | | | | | Mar. 4 | | | | |
| Year | 1979 | | | | | | | | | | |
| Time (GMT) | 2100* | 0100 | 0500 | 0900 | 1300 | 1700 | 2100* | 2300* | 0100 | 0500 | 0900 |
| (LMT) | 0000 | 0400 | 0800 | 1200 | 1600 | 2000 | 0000 | 0200 | 0400 | 0800 | 1200 |
| Latitude | 47-43 S | 46-53 S | 46-01 S | 45-05 S | 44-10 S | 43-13 S | 42-15 S | 41-46 S | 41-17 S | 40-18 S | 39-21 S |
| Longitude | 45-03 E | 45-21 E | 45-34 E | 45-57 E | 46-26 E | 46-59 E | 47-33 E | 47-50 E | 48-09 E | 48-39 E | 49-08 E |
| 0m | 5.3 | 6.4 | 7.5 | 8.4 | 7.9 | 7.8 | 12.2 | 14.2 | 16.6 | 15.6 | 15.2 |
| 10 | 5.3 | 6.2 | 7.6 | 8.3 | 7.9 | 7.8 | 12.2 | 14.2 | 16.6 | 15.6 | 15.2 |
| 20 | 5.2 | 6.2 | 7.6 | 8.2 | 7.8 | 7.7 | 12.2 | 14.2 | 16.6 | 15.6 | 15.2 |
| 30 | 5.2 | 6.2 | 7.6 | 8.1 | 7.5 | 7.6 | 11.9 | 14.0 | 16.4 | 15.4 | 15.2 |
| 50 | 5.0 | 6.2 | 7.6 | 7.9 | 6.7 | 6.8 | 10.4 | 12.9 | 15.0 | 14.7 | 14.5 |
| 75 | 4.8 | 5.9 | 7.4 | 6.2 | 5.5 | 5.5 | 9.1 | 11.1 | 13.7 | 13.1 | 14.0 |
| 100 | 3.2 | 4.8 | 6.2 | 5.4 | 4.4 | 4.3 | 8.6 | 9.9 | 13.3 | 12.7 | 11.2 |
| 125 | 2.6 | 4.3 | 5.2 | 4.7 | 3.8 | 3.6 | 8.1 | 8.7 | 12.9 | 12.3 | 9.3 |
| 150 | 2.5 | 4.2 | 4.5 | 4.3 | 3.4 | 3.3 | 7.8 | 8.5 | 12.6 | 12.0 | 9.2 |
| 200 | 2.5 | 3.8 | 4.0 | 4.1 | 3.3 | 3.3 | 7.6 | 8.2 | 11.5 | 11.4 | 8.7 |
| 250 | 2.4 | 3.4 | 4.0 | 4.1 | 3.3 | 3.3 | 7.4 | 7.9 | 10.9 | 10.8 | 8.5 |
| 300 | 2.4 | 3.5 | 3.8 | 4.1 | 3.1 | 3.0 | 6.7 | 7.6 | 10.1 | 10.0 | 8.7 |
| 400 | 2.3 | 2.8 | 3.5 | 3.5 | 3.0 | 2.7 | 5.5 | 6.9 | 9.0 | 9.2 | 7.5 |
| 500 | 2.3 | 2.8 | 3.2 | 3.4 | 3.0 | 2.5 | 4.8 | 5.2 | 7.9 | 8.3 | 6.2 |
| 600 | | | | | | | | | | | |
| 700 | | | | | | | | | | | |
| 800 | | | | | | | | | | | |
| 1000 | | | | | | | | | | | |
| 1200 | | | | | | | | | | | |
| 1500 | | | | | | | | | | | |
| 1800 | | | | | | | | | | | |

* The time of the date of the preceding day.

Table 3 (continued).

| Station | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 |
|------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Date | Mar. 4 | | Mar. 5 | | | Mar. 6 | | Mar. 7 | |
| Year | 1979 | | | | | | | | |
| Time (GMT) | 1300 | 1700 | 2100* | 0500 | 1500 | 0400 | 1400 | 0400 | 1400 |
| (LMT) | 1600 | 2000 | 0000 | 0800 | 1800 | 0800 | 1800 | 0800 | 1800 |
| Latitude | 38-23 S | 37-25 S | 36-27 S | 34-34 S | 32-17 S | 29-16 S | 27-15 S | 24-26 S | 22-37 S |
| Longitude | 49-39 E | 50-11 E | 50-42 E | 51-39 E | 52-27 E | 53-48 E | 54-39 E | 55-53 E | 56-28 E |
| 0m | 18.8 | 20.1 | 21.3 | 21.3 | 24.7 | 25.2 | 26.6 | 26.4 | 27.2 |
| 10 | 18.8 | 20.1 | 21.3 | 21.3 | 24.5 | 25.2 | 26.6 | 26.4 | 27.1 |
| 20 | 18.9 | 19.9 | 21.3 | 21.3 | 24.5 | 25.2 | 26.5 | 26.4 | 27.0 |
| 30 | 18.9 | 18.7 | 20.3 | 21.3 | 24.4 | 25.2 | 26.5 | 26.4 | 27.0 |
| 50 | 17.8 | 17.8 | 18.8 | 20.0 | 20.1 | 24.7 | 24.7 | 25.5 | 27.0 |
| 75 | 16.3 | 17.4 | 17.7 | 16.8 | 17.9 | 20.1 | 22.1 | 22.2 | 25.7 |
| 100 | 15.3 | 17.2 | 16.4 | 16.2 | 16.8 | 18.7 | 20.9 | 21.2 | 23.7 |
| 125 | 14.8 | 16.7 | 15.8 | 15.8 | 16.3 | 17.6 | 19.5 | 19.6 | 22.9 |
| 150 | 14.3 | 16.5 | 15.5 | 15.7 | 16.0 | 16.5 | 18.7 | 18.5 | 21.9 |
| 200 | 13.6 | 16.2 | 15.0 | 15.3 | 15.3 | 15.5 | 16.5 | 16.9 | 19.6 |
| 250 | 12.7 | 15.8 | 14.6 | 15.0 | 14.6 | 14.9 | 15.4 | 15.5 | 17.9 |
| 300 | 12.2 | 15.4 | 14.1 | 14.5 | 14.3 | 14.1 | 14.6 | 14.2 | 15.9 |
| 400 | 10.9 | 14.4 | 13.5 | 14.0 | 13.4 | 13.1 | 13.5 | 13.0 | 14.7 |
| 500 | 9.7 | 13.2 | 13.0 | | | 12.3 | 12.5 | 11.8 | 11.9 |
| 600 | | | | | | | | | |
| 700 | | | | | | | | | |
| 800 | | | | | | | | | |
| 1000 | | | | | | | | | |
| 1200 | | | | | | | | | |
| 1500 | | | | | | | | | |
| 1800 | | | | | | | | | |

* The time of the date of the preceding day.

Table 4. Data of six serial observations in the Indian sector of the Antarctic Ocean and one observation in the fast ice area of Lützow-Holm Bay, Antarctica, in February-March, 1979.

| Station 1 | | | | | Meteorological observation | | | | | | | | | | | | | | | | | | | | | | |
|-----------|---------------------|------------|--------|-----------------------|----------------------------|----------------------|--------------------|--------------------|--------------------|------------|--------------|---------|--------|----------------|-------|----------|-----------|-----------------|---------|-----|-----|-----------|-----------|-----------------------|----------|-------|------------|
| Date | : February 24, 1979 | Time (GMT) | : 0900 | Wind direction: | NE | Time (GMT) | : 1200 | velocity | : 8 kt | (LMT) | : 1210-1510 | Weather | : Snow | Humidity | : 94% | Latitude | : 64-44 S | Air temperature | : 1.4°C | Sea | : 3 | Longitude | : 40-52 E | Atmospheric pressure: | 973.9 mb | Swell | : E, NNW/6 |
| Observed | | | | | | | | | | | Interpolated | | | | | | | | | | | | | | | | |
| Depth (m) | T (°C) | S (‰) | pH | O ₂ (ml/l) | PO ₄ -P | SiO ₃ -Si | NO ₂ -N | NO ₃ -N | NH ₄ -N | Alkalinity | Depth (m) | T (°C) | S (‰) | σ _t | ΔD | | | | | | | | | | | | |
| | | | | | (μg-atoms/l) | | | | | (meq/l) | | | | | | | | | | | | | | | | | |
| 0 | 1.50 | 34.068 | 8.26 | 7.55 | 1.60 | 32 | 0.17 | 24. | 0.4 | 2.35 | 0 | 1.50 | 34.068 | 27.29 | 0.000 | | | | | | | | | | | | |
| 10 | 1.67 | 34.058 | 8.26 | 7.53 | 1.51 | 22 | 0.37 | 23. | 0.6 | 2.37 | 10 | 1.67 | 34.058 | 27.27 | 0.008 | | | | | | | | | | | | |
| 19 | 1.65 | 34.058 | 8.26 | 7.48 | 1.54 | 22 | 0.21 | 23. | 0.6 | 2.38 | 20 | 1.65 | 34.058 | 27.27 | 0.016 | | | | | | | | | | | | |
| 29 | 1.65 | 34.060 | 8.26 | 7.48 | 1.57 | 22 | 0.19 | 21. | 0.4 | 2.39 | 30 | 1.67 | 34.059 | 27.27 | 0.024 | | | | | | | | | | | | |
| 48 | 1.59 | 34.072 | 8.21 | 7.51 | 1.68 | 28 | 0.28 | 24. | 0.5 | 2.38 | 50 | 1.33 | 34.090 | 27.32 | 0.040 | | | | | | | | | | | | |
| 72 | -1.50 | 34.315 | 8.17 | 6.91 | 2.09 | 55 | 0.27 | 30. | 0.7 | 2.43 | 75 | -1.56 | 34.327 | 27.65 | 0.055 | | | | | | | | | | | | |
| 96 | -0.95 | 34.399 | 8.09 | 6.02 | 2.12 | 63 | 0.23 | 30. | 0.7 | 2.39 | 100 | -0.66 | 34.433 | 27.70 | 0.066 | | | | | | | | | | | | |
| 120 | 0.75 | 34.591 | 8.01 | 4.42 | 2.41 | 78 | 0.17 | 31. | 0.5 | 2.39 | 125 | 0.89 | 34.605 | 27.76 | 0.075 | | | | | | | | | | | | |
| 143 | 1.13 | 34.626 | 7.99 | 4.32 | 2.39 | 80 | 0.12 | 34. | 0.4 | 2.41 | 150 | 1.20 | 34.633 | 27.76 | 0.084 | | | | | | | | | | | | |
| 190 | 1.44 | 34.657 | 8.00 | 4.22 | 2.33 | 83 | 0.12 | 32. | 0.6 | 2.40 | 200 | 1.47 | 34.662 | 27.76 | 0.102 | | | | | | | | | | | | |
| 237 | 1.50 | 34.676 | 8.01 | 4.31 | 2.28 | 85 | 0.10 | 32. | 0.5 | 2.42 | 250 | 1.49 | 34.680 | 27.78 | 0.119 | | | | | | | | | | | | |
| 284 | 1.44 | 34.687 | 8.03 | 4.35 | 2.23 | 86 | 0.06 | 33. | 1.0 | 2.41 | 300 | 1.42 | 34.689 | 27.79 | 0.136 | | | | | | | | | | | | |
| 377 | 1.36 | 34.698 | 8.02 | 4.41 | 2.25 | 89 | 0.00 | 33. | 0.9 | 2.42 | 400 | 1.35 | 34.703 | 27.80 | 0.168 | | | | | | | | | | | | |
| 469 | 1.30 | 34.715 | 8.09 | 4.36 | 1.92 | 91 | 0.19 | 30. | 0.6 | 2.46 | 500 | 1.27 | 34.714 | 27.82 | 0.199 | | | | | | | | | | | | |
| 560 | 1.20 | 34.708 | 8.04 | 4.52 | 2.20 | 92 | 0.14 | 33. | 0.6 | 2.43 | 600 | 1.14 | 34.710 | 27.82 | 0.230 | | | | | | | | | | | | |
| 652 | 1.06 | — | 8.06 | 4.71 | 2.27 | 95 | 0.14 | 32. | — | 2.42 | 700 | 1.02 | 34.714 | 27.84 | 0.259 | | | | | | | | | | | | |
| 743 | 1.00 | 34.716 | 8.13 | 4.62 | 1.54 | 97 | 0.08 | 29. | — | 2.43 | 800 | 0.96 | 34.711 | 27.84 | 0.289 | | | | | | | | | | | | |
| 925 | 0.87 | 34.700 | 8.05 | 4.64 | 2.23 | 100 | 0.00 | 32. | — | 2.43 | 900 | 0.89 | 34.702 | 27.83 | 0.318 | | | | | | | | | | | | |
| | | | | | | | | | | | 1000 | 0.80 | 34.704 | 27.84 | 0.347 | | | | | | | | | | | | |
| 1151 | 0.67 | 34.713 | 8.04 | 4.63 | 2.20 | 105 | 0.08 | 34. | — | 2.43 | 1250 | 0.62 | 34.707 | 27.86 | 0.416 | | | | | | | | | | | | |
| 1378 | 0.57 | 34.695 | 8.03 | 4.69 | 2.27 | 109 | 0.03 | 31. | 0.8 | 2.42 | 1500 | 0.51 | 34.689 | 27.85 | 0.485 | | | | | | | | | | | | |
| | | | | | | | | | | | 1750 | 0.37 | 34.682 | 27.85 | 0.553 | | | | | | | | | | | | |
| 1832 | 0.33 | 34.682 | 8.02 | 4.83 | 2.14 | 113 | 0.03 | 33. | 0.8 | 2.43 | 2000 | 0.26 | 34.686 | 27.86 | 0.619 | | | | | | | | | | | | |
| | | | | | | | | | | | 2250 | 0.16 | 34.695 | 27.87 | 0.681 | | | | | | | | | | | | |
| 2292 | 0.14 | 34.697 | 8.03 | 5.01 | 2.25 | 115 | 0.08 | 32. | 1.0 | 2.43 | 2500 | 0.05 | 34.706 | 27.89 | 0.738 | | | | | | | | | | | | |
| | | | | | | | | | | | 2750 | -0.04 | 34.709 | 27.89 | 0.791 | | | | | | | | | | | | |
| 2756 | -0.04 | 34.709 | 8.04 | 5.16 | 2.27 | 115 | 0.03 | 28. | 0.7 | 2.44 | 3000 | -0.11 | 34.686 | 27.88 | 0.844 | | | | | | | | | | | | |
| 3231 | -0.16 | 34.661 | 8.02 | 5.37 | 2.31 | 115 | 0.01 | 28. | 0.4 | 2.42 | 3500 | -0.21 | 34.652 | 27.86 | 0.952 | | | | | | | | | | | | |
| 3714 | -0.24 | 34.654 | 8.00 | 5.57 | 2.22 | 111 | 0.02 | 32. | 0.3 | 2.42 | | | | | | | | | | | | | | | | | |

Table 4 (continued).

| Station 2 | | | | | Meteorological observation | | | | | | | | | | | |
|------------|---------------------|--------|------|-----------------------|----------------------------|----------------------|--------------------|--------------------|--------------------|--------------------|-----------------|------------|--------|------------|------------|--|
| Date | : February 25, 1979 | | | | Time (GMT) | : 0900 | | | | | Wind direction: | SSW | | | | |
| Time (GMT) | : 0900-1205 | | | | (LMT) | : 1200 | | | | | velocity | : 13 kt | | | | |
| (LMT) | : 1200-1505 | | | | Weather | : Snow | | | | | Humidity | : 91% | | | | |
| Latitude | : 61-50 S | | | | Air temperature | : 1.7°C | | | | | Sea | : 2 | | | | |
| Longitude | : 40-03 E | | | | Atmospheric pressure: | : 987.2 mb | | | | | Swell | : E, NNW/3 | | | | |
| Observed | | | | | | | | | | | Interpolated | | | | | |
| Depth (m) | T (°C) | S (‰) | pH | O ₂ (ml/l) | PO ₄ -P | SiO ₃ -Si | NO ₂ -N | NO ₃ -N | NH ₄ -N | Alkalinity (meq/l) | Depth (m) | T (°C) | S (‰) | σ_t | ΔD | |
| | | | | | ($\mu\text{g-atoms/l}$) | | | | | | | | | | | |
| 0 | 2.40 | 33.904 | 8.18 | 7.51 | 1.64 | 33 | 0.28 | 24. | 0.3 | 2.37 | 0 | 2.40 | 33.904 | 27.09 | 0.000 | |
| 10 | 2.50 | 33.883 | 8.19 | 7.45 | 1.67 | 32 | 0.33 | 24. | 0.1 | 2.37 | 10 | 2.50 | 33.883 | 27.06 | 0.010 | |
| 20 | 2.42 | 33.881 | 8.18 | 7.40 | 1.70 | 32 | 0.30 | 24. | 0.2 | 2.36 | 20 | 2.42 | 33.881 | 27.07 | 0.020 | |
| 29 | 2.37 | 33.882 | 8.19 | 7.37 | 1.70 | 32 | 0.28 | 24. | 0.2 | 2.38 | 30 | 2.38 | 33.881 | 27.07 | 0.030 | |
| 49 | 2.01 | 33.901 | 8.19 | 7.52 | 1.76 | 33 | 0.30 | 25. | 0.2 | 2.36 | 50 | 1.88 | 33.909 | 27.13 | 0.050 | |
| 73 | -1.10 | 34.107 | 8.17 | 7.92 | 1.98 | 46 | 0.30 | 28. | 0.3 | 2.39 | 75 | -1.16 | 34.114 | 27.46 | 0.069 | |
| 97 | -1.08 | 34.157 | 8.14 | 7.62 | 2.00 | 52 | 0.37 | 26. | 0.4 | 2.39 | 100 | -1.07 | 34.161 | 27.50 | 0.084 | |
| 122 | -0.96 | 34.190 | 8.12 | 7.51 | 2.09 | 53 | 0.33 | 25. | 0.2 | 2.38 | 125 | -0.94 | 34.195 | 27.52 | 0.099 | |
| 147 | -0.66 | 34.246 | 8.11 | 7.14 | 2.14 | 58 | 0.01 | 29. | 0.2 | 2.40 | 150 | -0.58 | 34.257 | 27.56 | 0.113 | |
| 196 | 0.74 | 34.435 | 8.02 | 5.27 | 2.31 | 71 | 0.01 | 32. | 0.2 | 2.40 | 200 | 0.81 | 34.448 | 27.64 | 0.138 | |
| 245 | 1.37 | 34.572 | 7.99 | 4.43 | 2.31 | 81 | 0.02 | 33. | 0.2 | 2.41 | 250 | 1.41 | 34.582 | 27.70 | 0.160 | |
| 294 | 1.66 | 34.644 | 8.00 | 4.17 | 2.30 | 83 | 0.01 | 34. | 0.2 | 2.42 | 300 | 1.67 | 34.649 | 27.74 | 0.179 | |
| 392 | 1.69 | 34.681 | 7.99 | 4.18 | 2.28 | 84 | 0.00 | 32. | 0.3 | 2.41 | 400 | 1.68 | 34.683 | 27.76 | 0.216 | |
| 490 | 1.58 | 34.696 | 8.00 | 4.40 | 2.23 | 87 | 0.05 | 32. | 0.2 | 2.41 | 500 | 1.57 | 34.697 | 27.78 | 0.251 | |
| 588 | 1.46 | 34.702 | 8.00 | 4.38 | 2.22 | 89 | 0.00 | 32. | 0.2 | 2.41 | 600 | 1.44 | 34.702 | 27.80 | 0.285 | |
| 685 | 1.29 | 34.699 | 8.02 | 4.53 | 2.19 | 93 | 0.00 | 32. | 0.2 | 2.41 | 700 | 1.27 | 34.699 | 27.81 | 0.318 | |
| 783 | 1.21 | 34.702 | 8.01 | 4.56 | 1.98 | 95 | 0.00 | 31. | 0.2 | 2.41 | 800 | 1.20 | 34.703 | 27.81 | 0.350 | |
| | | | | | | | | | | | 900 | 1.12 | 34.706 | 27.82 | 0.381 | |
| 979 | 1.06 | 34.707 | 8.01 | 4.64 | 2.19 | 101 | 0.00 | 31. | 0.3 | 2.43 | 1000 | 1.03 | 34.706 | 27.83 | 0.412 | |
| 1223 | 0.79 | 34.697 | 8.02 | 4.59 | 2.23 | 107 | 0.01 | 32. | 0.2 | 2.43 | 1250 | 0.78 | 34.696 | 27.84 | 0.487 | |
| 1468 | 0.77 | 34.691 | 8.00 | 4.62 | 2.28 | 112 | 0.00 | 32. | 0.4 | 2.40 | 1500 | 0.75 | 34.690 | 27.83 | 0.561 | |
| | | | | | | | | | | | 1750 | 0.58 | 34.686 | 27.84 | 0.634 | |
| 1955 | 0.41 | 34.682 | 7.99 | 4.75 | 2.23 | 117 | 0.00 | 32. | 0.2 | 2.42 | 2000 | 0.39 | 34.681 | 27.85 | 0.705 | |
| | | | | | | | | | | | 2250 | 0.27 | 34.675 | 27.85 | 0.772 | |
| 2443 | 0.20 | 34.670 | 7.99 | 4.88 | 2.28 | 119 | 0.01 | 30. | 0.4 | 2.42 | 2500 | 0.18 | 34.669 | 27.85 | 0.838 | |
| | | | | | | | | | | | 2750 | 0.08 | 34.666 | 27.85 | 0.902 | |
| 2932 | 0.02 | 34.664 | 8.00 | 5.05 | 2.30 | 121 | 0.00 | 29. | 0.6 | 2.43 | 3000 | 0.00 | 34.663 | 27.86 | 0.964 | |
| 3424 | -0.13 | 34.657 | 7.98 | 5.22 | 2.34 | 121 | 0.00 | 30. | 0.3 | 2.41 | 3500 | -0.15 | 34.656 | 27.86 | 1.080 | |
| 3918 | -0.21 | 34.652 | 8.00 | 5.34 | 2.16 | 119 | 0.03 | 32. | 0.6 | 2.43 | 4000 | -0.22 | 34.652 | 27.86 | 1.190 | |
| 4414 | -0.26 | 34.651 | 7.98 | 5.47 | 2.25 | 120 | 0.00 | 33. | 0.5 | 2.42 | | | | | | |

Table 4 (continued).

Station 3

Meteorological observation

Date : February 26, 1979
 Time (GMT): 0905-1305
 (LMT): 1205-1605
 Latitude : 58-45 S
 Longitude : 40-18 E

Time (GMT) : 0900
 (LMT) : 1200
 Weather : Cloudy
 Air temperature : 3.0°C
 Atmospheric pressure: 1008.9 mb

Wind direction: WSW
 velocity : 8 kt
 Humidity : 57%
 Sea : 3
 Swell : SW, NW/3

| Depth (m) | T (°C) | S (‰) | pH | O ₂ (ml/l) | Observed | | | | | Alkalinity (meq/l) | Interpolated | | | | |
|-----------|--------|--------|------|-----------------------|--------------------|----------------------|--------------------|--------------------|--------------------|--------------------|--------------|--------|--------|----------------|-------|
| | | | | | PO ₄ -P | SiO ₃ -Si | NO ₂ -N | NO ₃ -N | NH ₄ -N | | Depth (m) | T (°C) | S (‰) | σ _t | ΔD |
| | | | | | (μg-atoms/l) | | | | | | | | | | |
| 0 | 2.50 | 34.004 | 8.15 | 7.51 | 1.68 | 34 | 0.28 | 24. | 0.3 | 2.23 | 0 | 2.50 | 34.004 | 27.16 | 0.000 |
| 10 | 2.50 | 33.970 | 8.16 | 7.52 | 1.62 | 34 | 0.34 | 24. | 0.2 | 2.35 | 10 | 2.50 | 33.970 | 27.13 | 0.009 |
| 19 | 2.39 | 33.966 | 8.16 | 7.52 | 1.70 | 34 | 0.29 | 25. | 0.3 | 2.37 | 20 | 2.39 | 33.966 | 27.14 | 0.019 |
| 29 | 2.40 | 33.969 | 8.17 | 7.51 | 1.70 | 34 | 0.28 | 23. | 0.4 | 2.36 | 30 | 2.42 | 33.968 | 27.13 | 0.028 |
| 48 | 2.40 | 33.968 | 8.16 | 7.45 | 1.75 | 34 | 0.30 | 24. | 0.3 | 2.37 | 50 | 2.24 | 33.980 | 27.16 | 0.047 |
| 72 | 0.40 | 34.130 | 8.12 | 7.59 | 2.03 | 49 | 0.26 | 27. | 0.5 | 2.37 | 75 | 0.31 | 34.139 | 27.42 | 0.067 |
| 96 | 0.03 | 34.170 | 8.11 | 7.56 | 1.98 | 54 | 0.34 | 27. | 0.4 | 2.37 | 100 | -0.06 | 34.172 | 27.46 | 0.083 |
| 120 | -0.36 | 34.179 | 8.09 | 7.43 | 2.09 | 55 | 0.26 | 27. | 0.3 | 2.38 | 125 | -0.33 | 34.186 | 27.49 | 0.098 |
| 144 | -0.09 | 34.218 | 8.08 | 7.21 | 2.12 | 58 | 0.01 | 30. | 0.2 | 2.37 | 150 | -0.05 | 34.226 | 27.51 | 0.113 |
| 192 | 0.36 | 34.304 | 8.03 | 6.14 | 2.19 | 65 | 0.00 | 31. | 0.3 | 2.37 | 200 | 0.56 | 34.333 | 27.56 | 0.141 |
| 240 | 1.50 | 34.479 | 7.95 | 4.55 | 2.33 | 78 | 0.00 | 32. | 0.3 | 2.39 | 250 | 1.59 | 34.502 | 27.63 | 0.167 |
| 288 | 1.74 | 34.566 | 7.94 | 4.12 | 2.31 | 85 | 0.00 | 34. | 0.3 | 2.39 | 300 | 1.76 | 34.578 | 27.67 | 0.190 |
| 384 | 1.79 | 34.628 | 7.94 | 4.11 | 2.33 | 88 | 0.00 | 33. | 0.3 | 2.40 | 400 | 1.79 | 34.635 | 27.72 | 0.232 |
| 481 | 1.78 | 34.666 | 7.96 | 4.19 | 2.27 | 89 | 0.01 | 30. | 0.2 | 2.41 | 500 | 1.78 | 34.673 | 27.75 | 0.271 |
| 577 | 1.78 | 34.695 | 7.97 | 4.22 | 2.27 | 89 | 0.00 | 33. | 0.2 | 2.40 | 600 | 1.77 | 34.699 | 27.77 | 0.308 |
| 673 | 1.72 | 34.708 | 7.98 | 4.38 | 2.19 | 92 | 0.00 | 30. | 0.3 | 2.40 | 700 | 1.70 | 34.711 | 27.79 | 0.344 |
| 769 | 1.64 | 34.716 | 7.97 | 4.40 | 2.12 | 93 | 0.00 | 28. | 0.2 | 2.41 | 800 | 1.61 | 34.718 | 27.80 | 0.378 |
| | | | | | | | | | | | 900 | 1.52 | 34.721 | 27.81 | 0.412 |
| 963 | 1.46 | 34.722 | 7.99 | 4.52 | 2.16 | 98 | 0.00 | 29. | 0.3 | 2.42 | 1000 | 1.43 | 34.723 | 27.81 | 0.445 |
| 1208 | 1.23 | 34.722 | 7.99 | 4.57 | 2.12 | 104 | 0.00 | 30. | 0.3 | 2.40 | 1250 | 1.19 | 34.720 | 27.83 | 0.525 |
| 1453 | 1.01 | 34.711 | 7.98 | 4.68 | 2.12 | 111 | 0.00 | 31. | 0.3 | 2.43 | 1500 | 0.96 | 34.709 | 27.84 | 0.603 |
| | | | | | | | | | | | 1750 | 0.74 | 34.698 | 27.84 | 0.678 |
| 1945 | 0.58 | 34.691 | 7.98 | 4.65 | 2.14 | 123 | 0.01 | 30. | 0.5 | 2.42 | 2000 | 0.55 | 34.689 | 27.85 | 0.751 |
| | | | | | | | | | | | 2250 | 0.44 | 34.682 | 27.85 | 0.821 |
| 2439 | 0.38 | 34.678 | 7.95 | 4.73 | 2.23 | 129 | 0.00 | 32. | 0.4 | 2.43 | 2500 | 0.35 | 34.677 | 27.85 | 0.891 |
| | | | | | | | | | | | 2750 | 0.24 | 34.671 | 27.85 | 0.958 |
| 2934 | 0.15 | 34.668 | 7.96 | 4.97 | 2.27 | 130 | 0.00 | 28. | 0.5 | 2.43 | 3000 | 0.12 | 34.667 | 27.85 | 1.023 |
| 3335 | -0.02 | 34.662 | 7.94 | 5.18 | 2.30 | 131 | 0.00 | 33. | 0.3 | 2.39 | 3500 | -0.07 | 34.660 | 27.86 | 1.145 |
| 3828 | -0.14 | 34.656 | 7.98 | 5.31 | 2.12 | 131 | 0.00 | 33. | 0.4 | 2.44 | 4000 | -0.18 | 34.654 | 27.86 | 1.258 |
| 4323 | -0.23 | 34.651 | 7.94 | 5.48 | 2.25 | 131 | 0.01 | 31. | 0.3 | 2.42 | 4500 | -0.25 | 34.650 | 27.86 | 1.364 |
| 4821 | -0.26 | 34.650 | 7.93 | 5.58 | 2.17 | 132 | 0.04 | 32. | 0.5 | 2.42 | | | | | |

Table 4 (continued).

| Station 4 | | | | | Meteorological observation | | | | | | | | | | |
|--------------|---------------------|--------|------|--------------------------|----------------------------|----------------------|--------------------|--------------------|--------------------|-----------------------|--------------|--------|--------|------------|------------|
| Date | : February 27, 1979 | | | | Time (GMT) | : 0500 | | | | Wind direction: | WNW | | | | |
| Time (GMT) | : 0510-0850 | | | | (LMT) | : 0800 | | | | velocity | : 8 kt | | | | |
| (LMT) | : 0810-1150 | | | | Weather | : Rainy | | | | Humidity | : 98% | | | | |
| Latitude | : 56-08 S | | | | Air temperature | : 3.8°C | | | | Sea | : 3 | | | | |
| Longitude | : 40-27 E | | | | Atmospheric pressure | : 987.9 mb | | | | Swell | : N/3 | | | | |
| Depth (m) | T (°C) | S (‰) | pH | O ₂ (ml/l) | PO ₄ -P | SiO ₃ -Si | NO ₂ -N | NO ₃ -N | NH ₄ -N | Alkalinity (meq/l) | Depth (m) | T (°C) | S (‰) | σ_t | ΔD |
| | | | | | ($\mu\text{g/atoms/l}$) | | | | | | | | | | |
| 0 | 2.80 | 34.121 | 8.15 | 7.42 | 1.56 | 21 | 0.26 | 24. | 0.4 | 2.31 | 0 | 2.80 | 34.121 | 27.22 | 0.000 |
| 9 | 2.71 | 34.099 | 8.16 | 7.47 | 1.51 | 20 | 0.29 | 25. | 0.5 | 2.36 | 10 | 2.70 | 34.098 | 27.21 | 0.009 |
| 19 | 2.68 | 34.091 | 8.17 | 7.49 | 1.57 | 20 | 0.27 | 24. | 0.4 | 2.38 | 20 | 2.68 | 34.091 | 27.21 | 0.017 |
| 28 | 2.70 | 34.091 | 8.18 | 7.45 | 1.57 | 19 | 0.23 | 24. | 0.4 | 2.37 | 30 | 2.70 | 34.091 | 27.21 | 0.026 |
| 46 | 2.72 | 34.087 | 8.16 | 7.38 | 1.62 | 21 | 0.27 | 24. | 0.4 | 2.38 | 50 | 2.78 | 34.084 | 27.20 | 0.043 |
| 69 | 2.68 | 34.086 | 8.17 | 7.38 | 1.60 | 20 | 0.28 | 24. | 0.3 | 2.37 | 75 | 2.22 | 34.107 | 27.26 | 0.065 |
| 92 | 0.79 | 34.168 | 8.11 | 7.11 | 2.00 | 50 | 0.25 | 27. | 0.6 | 2.39 | 100 | 0.44 | 34.174 | 27.44 | 0.083 |
| 115 | 0.12 | 34.174 | 8.12 | 7.36 | 2.08 | 52 | 0.25 | 27. | 0.5 | 2.38 | 125 | 0.14 | 34.175 | 27.45 | 0.099 |
| 137 | 0.29 | 34.181 | 8.11 | 7.17 | 1.97 | 45 | 0.19 | 28. | 0.4 | 2.36 | 150 | 0.45 | 34.206 | 27.46 | 0.115 |
| 183 | 0.84 | 34.289 | 8.04 | 6.15 | 2.16 | 61 | 0.04 | 30. | 0.4 | 2.39 | 200 | 0.93 | 34.321 | 27.53 | 0.145 |
| 228 | 1.09 | 34.375 | 8.02 | 5.64 | 2.25 | 69 | 0.01 | 31. | 0.3 | 2.40 | 250 | 1.43 | 34.429 | 27.58 | 0.172 |
| 273 | 1.78 | 34.483 | 7.96 | 4.27 | 2.33 | 76 | 0.00 | 35. | 0.5 | 2.41 | 300 | 1.90 | 34.521 | 27.62 | 0.198 |
| 363 | 1.88 | 34.576 | 7.96 | 4.08 | 2.36 | 83 | 0.00 | 34. | 0.5 | 2.41 | 400 | 1.93 | 34.608 | 27.69 | 0.244 |
| 453 | 2.00 | 34.646 | 7.96 | 4.12 | 2.33 | 84 | 0.00 | 32. | 0.3 | 2.40 | 500 | 2.03 | 34.667 | 27.72 | 0.286 |
| 543 | 2.02 | 34.679 | 7.97 | 4.11 | 2.25 | 85 | 0.00 | 32. | 0.5 | 2.41 | 600 | 1.89 | 34.684 | 27.75 | 0.326 |
| 633 | 1.82 | 34.686 | 7.96 | 4.27 | 2.20 | 89 | 0.00 | 31. | 0.4 | 2.41 | 700 | 1.83 | 34.706 | 27.77 | 0.363 |
| 722 | 1.84 | 34.713 | 7.97 | 4.28 | 2.05 | 89 | 0.00 | 29. | 0.4 | 2.40 | 800 | 1.82 | 34.728 | 27.79 | 0.399 |
| | | | | | | | | | | | 900 | 1.76 | 34.740 | 27.80 | 0.434 |
| 901 | 1.76 | 34.740 | 8.00 | 4.45 | 2.08 | 90 | 0.00 | 28. | 0.5 | 2.42 | 1000 | 1.66 | 34.743 | 27.81 | 0.468 |
| 1127 | 1.50 | 34.741 | 7.99 | 4.54 | 2.11 | 97 | 0.00 | 30. | 0.4 | 2.41 | 1250 | 1.37 | 34.738 | 27.83 | 0.550 |
| 1356 | 1.27 | 34.734 | 8.00 | 4.63 | 2.11 | 103 | 0.00 | 30. | 0.4 | 2.42 | 1500 | 1.12 | 34.729 | 27.84 | 0.628 |
| | | | | | | | | | | | 1750 | 0.89 | 34.719 | 27.85 | 0.703 |
| 1817 | 0.83 | 34.716 | 7.98 | 4.68 | 2.11 | 116 | 0.00 | 29. | 0.5 | 2.41 | 2000 | 0.71 | 34.708 | 27.85 | 0.776 |
| | | | | | | | | | | | 2250 | 0.57 | 34.698 | 27.85 | 0.848 |
| 2284 | 0.55 | 34.697 | 7.97 | 4.66 | 2.22 | 125 | 0.00 | 33. | 0.5 | 2.42 | 2500 | 0.43 | 34.691 | 27.85 | 0.917 |
| | | | | | | | | | | | 2750 | 0.30 | 34.685 | 27.86 | 0.984 |
| 2765 | 0.29 | 34.685 | 7.97 | 4.83 | 2.30 | 131 | 0.00 | 30. | 0.5 | 2.43 | | | | | |

Table 4 (continued).

Station 5

Meteorological observation

Date : February 28, 1979
 Time (GMT): 1005-1330
 (LMT): 1305-1630
 Latitude : 55-01 S
 Longitude : 43-05 E

Time (GMT) : 1000
 (LMT) : 1300
 Weather : Cloudy
 Air temperature : 3.4°C
 Atmospheric pressure: 1005.7 mb

Wind direction: SW
 velocity : 18 kt
 Humidity : 70%
 Sea : 4
 Swell : SSW/3

| Observed | | | | | | | | | | | Interpolated | | | | |
|-----------|--------|--------|------|-----------------------|--------------------|----------------------|--------------------|--------------------|--------------------|--------------------|--------------|--------|--------|------------|------------|
| Depth (m) | T (°C) | S (‰) | pH | O ₂ (ml/l) | PO ₄ -P | SiO ₃ -Si | NO ₂ -N | NO ₃ -N | NH ₄ -N | Alkalinity (meq/l) | Depth (m) | T (°C) | S (‰) | σ_t | ΔD |
| | | | | | (μg-atoms/l) | | | | | | | | | | |
| 0 | 2.80 | 34.076 | 8.19 | 7.52 | 1.70 | 21 | 0.32 | 25. | 0.3 | 2.29 | 0 | 2.80 | 34.076 | 27.19 | 0.000 |
| 8 | 2.76 | 34.050 | 8.20 | 7.51 | 1.65 | 21 | 0.31 | 26. | 0.2 | 2.39 | 10 | 2.76 | 34.046 | 27.17 | 0.009 |
| 16 | 2.75 | 34.039 | 8.20 | 7.52 | 1.70 | 21 | 0.30 | 26. | 0.2 | 2.39 | 20 | 2.76 | 34.040 | 27.16 | 0.018 |
| 23 | 2.76 | 34.042 | 8.20 | 7.52 | 1.70 | 21 | 0.30 | 25. | 0.3 | 2.39 | 30 | 2.76 | 34.041 | 27.16 | 0.027 |
| 39 | 2.76 | 34.039 | 8.20 | 7.41 | 1.73 | 21 | 0.30 | 26. | 0.2 | 2.37 | 50 | 2.81 | 34.036 | 27.16 | 0.046 |
| 58 | 2.71 | 34.040 | 8.19 | 7.41 | 1.73 | 21 | 0.30 | 25. | 0.3 | 2.34 | 75 | 1.49 | 34.072 | 27.29 | 0.067 |
| 71 | 1.93 | 34.067 | 8.21 | 7.50 | 1.70 | 25 | 0.28 | 25. | 0.2 | 2.38 | | | | | |
| 88 | 0.18 | 34.086 | 8.18 | 7.69 | 2.05 | 40 | 0.23 | 25. | 0.4 | 2.36 | 100 | -0.12 | 34.106 | 27.41 | 0.085 |
| 106 | -0.13 | 34.117 | 8.17 | 7.75 | 2.08 | 45 | 0.24 | 28. | 0.3 | 2.36 | 125 | -0.41 | 34.144 | 27.46 | 0.102 |
| 141 | -0.40 | 34.186 | 8.14 | 7.36 | 2.11 | 53 | 0.23 | 28. | 0.2 | 2.36 | 150 | -0.09 | 34.240 | 27.52 | 0.117 |
| 176 | 0.97 | 34.405 | 8.03 | 5.17 | 2.36 | 71 | 0.00 | 31. | 0.3 | 2.39 | 200 | 1.49 | 34.494 | 27.63 | 0.143 |
| 211 | 1.64 | 34.522 | 7.99 | 4.24 | 2.42 | 80 | 0.00 | 34. | 0.2 | 2.38 | 250 | 1.80 | 34.577 | 27.67 | 0.166 |
| 279 | 1.74 | 34.593 | 7.98 | 4.05 | 2.42 | 83 | 0.00 | 34. | 0.2 | 2.38 | 300 | 1.76 | 34.610 | 27.70 | 0.187 |
| 341 | 1.80 | 34.637 | 7.99 | 4.06 | 2.39 | 85 | 0.00 | 31. | 0.2 | 2.41 | 400 | 1.81 | 34.661 | 27.74 | 0.228 |
| 401 | 1.81 | 34.661 | 7.99 | 4.06 | 2.33 | 86 | 0.00 | 32. | 0.3 | 2.40 | 500 | 1.81 | 34.696 | 27.76 | 0.265 |
| 462 | 1.83 | 34.684 | 8.00 | 4.15 | 2.28 | 87 | 0.00 | 32. | 0.3 | 2.40 | | | | | |
| 521 | 1.80 | 34.701 | 8.01 | 4.20 | 2.20 | 88 | 0.00 | 32. | 0.3 | 2.41 | 600 | 1.75 | 34.712 | 27.78 | 0.301 |
| 640 | 1.72 | 34.716 | 8.02 | 4.35 | 2.22 | 89 | 0.00 | 30. | 0.2 | 2.41 | 700 | 1.67 | 34.724 | 27.80 | 0.335 |
| 792 | 1.60 | 34.733 | 8.03 | 4.45 | 2.14 | 91 | 0.00 | 31. | 0.3 | 2.43 | 800 | 1.59 | 34.733 | 27.81 | 0.369 |
| | | | | | | | | | | | 900 | 1.52 | 34.735 | 27.82 | 0.401 |
| 943 | 1.49 | 34.735 | 8.03 | 4.57 | 2.14 | 94 | 0.00 | 30. | 0.2 | 2.41 | 1000 | 1.43 | 34.735 | 27.82 | 0.433 |
| | | | | | | | | | | | 1250 | 1.17 | 34.729 | 27.84 | 0.512 |
| 1257 | 1.16 | 34.729 | 8.03 | 4.61 | 2.14 | 103 | 0.00 | 31. | 0.3 | 2.39 | 1500 | 0.94 | 34.719 | 27.84 | 0.587 |
| 1561 | 0.89 | 34.716 | 8.02 | 4.63 | 2.22 | 111 | 0.00 | 30. | 0.4 | 2.43 | 1750 | 0.74 | 34.710 | 27.85 | 0.660 |
| 1876 | 0.65 | 34.706 | 8.02 | 4.70 | 2.23 | 118 | 0.00 | 31. | 0.5 | 2.43 | 2000 | 0.57 | 34.702 | 27.85 | 0.730 |
| 2167 | 0.48 | 34.698 | 8.01 | 4.79 | 2.30 | 121 | 0.00 | 32. | 0.4 | 2.36 | | | | | |

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Table 4 (continued).

| Station 6 | | | | | Meteorological observation | | | | | | | | | | |
|-----------------------|--------|--------|------|-----------------------|---------------------------------|----------------------|--------------------|--------------------|--------------------|---------------------|--------------|--------|--------|------------|-------|
| Date : March 1, 1979 | | | | | Time (GMT) : 1000 | | | | | Wind direction: NNE | | | | | |
| Time (GMT): 1005-1150 | | | | | (LMT) : 1300 | | | | | velocity : 20 kt | | | | | |
| (LMT) : 1305-1450 | | | | | Weather : Cloudy | | | | | Humidity : 74% | | | | | |
| Latitude : 52-04 S | | | | | Air temperature : 4.1°C | | | | | Sea : 4 | | | | | |
| Longitude : 43-17 E | | | | | Atmospheric pressure: 1019.8 mb | | | | | Swell : S/3 | | | | | |
| Observed | | | | | | | | | | | Interpolated | | | | |
| Depth (m) | T (°C) | S (‰) | pH | O ₂ (ml/l) | PO ₄ -P | SiO ₃ -Si | NO ₂ -N | NO ₃ -N | NH ₄ -N | Alkalinity (meq/l) | Depth (m) | T (°C) | S (‰) | σ_t | JD |
| | | | | | | | | | | | | | | | |
| 0 | 3.90 | 34.035 | 8.18 | 7.35 | 1.60 | 17 | 0.24 | 24. | 0.2 | 2.33 | 0 | 3.90 | 34.035 | 27.05 | 0.000 |
| 9 | 3.75 | 33.993 | 8.20 | 7.40 | 1.62 | 17 | 0.25 | 24. | 0.1 | 2.34 | 10 | 3.74 | 33.992 | 27.03 | 0.010 |
| 18 | 3.72 | 33.992 | 8.21 | 7.41 | 1.67 | 18 | 0.25 | 24. | 0.2 | 2.35 | 20 | 3.72 | 33.991 | 27.04 | 0.021 |
| 27 | 3.72 | 33.987 | 8.21 | 7.38 | 1.64 | 18 | 0.25 | 24. | 0.2 | 2.36 | 30 | 3.72 | 33.986 | 27.03 | 0.031 |
| 45 | 3.72 | 33.987 | 8.20 | 7.29 | 1.65 | 19 | 0.24 | 24. | 0.2 | 2.36 | 50 | 3.76 | 33.986 | 27.03 | 0.052 |
| 68 | 3.69 | 33.991 | 8.21 | 7.28 | 1.65 | 19 | 0.25 | 24. | 0.3 | 2.34 | 75 | 3.44 | 34.001 | 27.07 | 0.077 |
| 91 | 2.67 | 34.032 | 8.19 | 7.33 | 1.83 | 31 | 0.24 | 25. | 0.5 | 2.38 | 100 | 2.18 | 34.053 | 27.22 | 0.101 |
| 113 | 1.57 | 34.081 | 8.16 | 7.26 | 2.01 | 39 | 0.28 | 26. | 0.3 | 2.35 | 125 | 1.33 | 34.098 | 27.32 | 0.121 |
| 135 | 1.24 | 34.110 | 8.15 | 7.23 | 2.05 | 41 | 0.23 | 29. | 0.2 | 2.36 | 150 | 1.09 | 34.127 | 27.36 | 0.140 |
| 179 | 0.94 | 34.159 | 8.12 | 6.89 | 2.06 | 47 | 0.00 | 30. | 0.1 | 2.34 | 200 | 0.95 | 34.188 | 27.42 | 0.175 |
| 224 | 1.03 | 34.224 | 8.10 | 6.42 | 2.12 | 51 | 0.00 | 28. | 0.2 | 2.37 | 250 | 1.11 | 34.261 | 27.47 | 0.207 |
| 268 | 1.17 | 34.287 | 8.07 | 5.81 | 2.23 | 57 | 0.00 | 32. | 0.3 | 2.35 | 300 | 1.33 | 34.335 | 27.51 | 0.238 |
| 356 | 1.64 | 34.419 | 8.01 | 4.72 | 2.41 | 67 | 0.00 | 33. | 0.2 | 2.37 | 400 | 1.84 | 34.483 | 27.59 | 0.293 |
| 439 | 1.98 | 34.533 | 7.97 | 4.06 | 2.49 | 74 | 0.00 | 32. | 0.1 | 2.39 | 500 | 2.05 | 34.589 | 27.66 | 0.343 |
| 521 | 2.05 | 34.604 | 7.96 | 3.94 | 2.39 | 78 | 0.00 | 33. | 0.2 | 2.40 | 600 | 2.07 | 34.643 | 27.70 | 0.387 |
| 608 | 2.07 | 34.646 | 7.98 | 3.96 | 2.33 | 78 | 0.00 | 33. | 0.2 | 2.39 | 700 | 2.05 | 34.680 | 27.73 | 0.429 |
| 698 | 2.05 | 34.679 | 7.99 | 4.09 | 2.14 | 80 | 0.00 | 32. | 0.1 | 2.40 | | | | | |
| | | | | | | | | | | | 800 | 2.02 | 34.707 | 27.76 | 0.469 |
| 884 | 1.98 | 34.724 | 8.01 | 4.29 | 2.20 | 80 | 0.00 | 29. | 0.2 | 2.40 | 900 | 1.97 | 34.726 | 27.78 | 0.507 |
| | | | | | | | | | | | 1000 | 1.89 | 34.739 | 27.79 | 0.544 |
| 1119 | 1.79 | 34.747 | 8.02 | 4.49 | 2.11 | 84 | 0.00 | 30. | 0.2 | 2.41 | 1250 | 1.69 | 34.752 | 27.82 | 0.631 |
| 1357 | 1.61 | 34.754 | 8.03 | 4.54 | 2.12 | 89 | 0.00 | 29. | 0.2 | 2.41 | 1500 | 1.49 | 34.754 | 27.83 | 0.715 |
| | | | | | | | | | | | 1750 | 1.25 | 34.745 | 27.84 | 0.795 |
| 1840 | 1.16 | 34.739 | 8.02 | 4.71 | 2.08 | 101 | 0.00 | 29. | 0.1 | 2.42 | | | | | |

Table 4 (continued).

Station 7 (in the ice-covered Lützow-Holm Bay)

Date : February 1, 1979 Latitude : 68-20 S
 Time (GMT): 0935-1200 Longitude: 39-21 E
 (LMT): 1235-1500 Depth : 320 m
 Weather : Clear

| Depth (m) | T (°C) | S (‰) | pH | O ₂ (ml/l) | PO ₄ -P | SiO ₃ -Si | NO ₂ -N | NO ₃ -N | NH ₄ -N |
|--------------|--------|--------|------|--------------------------|--------------------|----------------------|--------------------|--------------------|--------------------|
| | | | | | (μg-atoms/l) | | | | |
| Surface | 0.60 | 10.698 | 8.54 | 9.69 | 0.14 | 17 | 0.10 | 0.0 | 1.0 |
| 0. | -1.30 | 33.670 | 7.99 | 7.45 | 1.87 | 56 | 0.12 | 26. | 0.6 |
| 0.5 | -1.50 | 33.592 | 7.98 | 7.56 | 1.95 | 55 | 0.12 | 28. | 0.2 |
| 1. | -1.60 | 33.622 | 8.01 | 7.52 | 1.95 | 55 | 0.12 | 28. | 0.3 |
| 2.5 | -1.60 | 33.657 | 8.01 | 7.51 | 1.97 | 56 | 0.11 | 28. | 0.3 |
| 5. | -1.60 | 33.679 | 8.01 | 7.54 | 1.97 | 57 | 0.12 | 28. | 0.5 |
| 7.5 | -1.60 | 33.778 | 8.02 | 7.47 | 1.86 | 57 | 0.11 | 28. | 0.2 |
| 10. | -1.60 | 33.814 | 8.03 | 7.40 | 2.09 | 57 | 0.10 | 27. | 0.1 |
| 15. | -1.60 | 33.887 | 8.03 | 7.43 | 2.00 | 58 | 0.10 | 27. | 0.3 |
| 20. | -1.60 | 33.982 | 8.06 | 7.38 | 2.03 | 58 | 0.08 | 29. | 0.2 |
| 30. | -1.60 | 34.098 | 8.03 | 7.12 | 1.97 | 62 | 0.08 | 28. | 0.0 |
| 50. | -1.60 | 34.148 | 8.01 | 7.13 | 2.06 | 60 | 0.05 | 30. | 0.2 |
| 75. | -1.60 | 34.180 | 8.00 | 7.27 | 2.05 | 58 | 0.02 | 30. | 0.6 |
| 100. | -1.60 | 34.197 | 8.01 | 7.39 | 2.06 | 58 | 0.01 | 30. | 0.2 |
| 125. | -1.60 | 34.203 | 8.01 | 7.43 | 2.06 | 58 | 0.02 | 30. | 0.0 |
| 150. | -1.60 | 34.215 | 8.02 | 7.39 | 2.06 | 58 | 0.02 | 29. | 0.2 |

Table 5. Data of radioactivity of surface water in the Indian Ocean in March 1979.

| No. | Area | Position | | Sampling date | Time | | Air temp. (°C) | Water temp. (°C) | Salinity (‰) | Radioactivity (pCi/l) | | | |
|-----|--------------|-----------|-----------|---------------|------|------|----------------|------------------|--------------|-----------------------|-------------------|-------------------|------------------|
| | | Lat. | Long. | | GMT | LMT | | | | ¹³⁷ Cs | ¹⁴⁴ Ce | ¹⁰⁶ Ru | ⁹⁰ Sr |
| A | Indian Ocean | 17-45.1 S | 60-58.1 E | 1979. 3. 17 | 0400 | 0800 | 27.3 | 27.9 | 34.987 | 0.102±0.004 | 0.011±0.007 | 0.016±0.007 | 0.069±0.005 |
| B | | 12-39.8 | 68-12.0 | 1979. 3. 19 | 0300 | 0800 | 28.5 | 28.9 | 33.938 | 0.092±0.005 | 0.010±0.003 | 0.007±0.003 | 0.053±0.005 |
| C | | 7-20.7 | 75-34.3 | 1979. 3. 21 | 0300 | 0800 | 28.6 | 28.6 | 33.807 | 0.080±0.005 | 0.015±0.004 | 0.006±0.005 | 0.053±0.005 |
| D | | 1-49.6 | 83-29.9 | 1979. 3. 23 | 0300 | 0800 | 29.0 | 29.5 | 34.450 | 0.093±0.005 | 0.014±0.004 | 0.020±0.010 | 0.062±0.006 |
| E | | 3-38.6 N | 90-51.0 | 1979. 3. 25 | 0200 | 0800 | 29.8 | 30.2 | 34.638 | 0.067±0.004 | 0.013±0.004 | -0.004±0.013 | 0.048±0.005 |

Table 6. Data of petroleum oil in surface water of the Lombok Strait, Antarctic Ocean, Malacca Strait and South China Sea in 1978-1979.

| No. | Area | Position | | Sampling date | Time | | Air temp. (°C) | Water temp. (°C) | Salinity (‰) | Petroleum oil (ppb) |
|-----|------------------------------------|-----------|------------|---------------|------|------|----------------|------------------|--------------|---------------------|
| | | Lat. | Long. | | GMT | LMT | | | | |
| 1 | Lombok Strait | 7-29.1 S | 116-14.7 E | 1978. 12. 5 | 0400 | 1200 | 26.0 | 28.8 | 32.376 | 6.3 |
| 2 | | 8-21.6 | 115-53.0 | 1978. 12. 5 | 0800 | 1600 | — | — | — | 2.3 |
| 3 | | 8-33.9 | 115-48.8 | 1978. 12. 5 | 0900 | 1700 | — | — | — | 5.0 |
| 4 | | 8-45.0 | 115-44.7 | 1978. 12. 5 | 1000 | 1800 | 27.0 | 28.0 | 33.319 | 3.8 |
| 5 | | 8-59.6 | 115-38.3 | 1978. 12. 5 | 1100 | 1900 | — | — | — | 19.6 |
| 6 | | 9-13.4 | 115-32.9 | 1978. 12. 5 | 1200 | 2000 | — | — | — | 8.1 |
| 7 | Antarctic Ocean | 66-07.5 S | 45-45.5 E | 1978. 12. 27 | 0900 | 1200 | 1.1 | -1.5 | 33.497 | 2.0 |
| 8 | | 68-05.5 | 40-44.4 | 1978. 12. 29 | 1300 | 1600 | 0.6 | -0.9 | 33.847 | 0.9 |
| 9 | | 68-20.3 | 39-21.2 | 1979. 2. 1 | 1200 | 1500 | — | -1.3 | 33.670 | 1.7 |
| 10 | | 64-43.0 | 40-54.2 | 1979. 2. 24 | 0900 | 1200 | 1.4 | 1.5 | 34.068 | 2.1 |
| 11 | | 56-05.9 | 40-23.7 | 1979. 2. 27 | 1500 | 1800 | 3.5 | 2.8 | 34.121 | 1.2 |
| 12 | Malacca Strait and South China Sea | 0-52.6 N | 87-13.1 E | 1979. 3. 24 | 0300 | 0800 | 30.1 | 30.4 | 34.593 | 0.5 |
| 13 | | 5-57.1 | 94-40.3 | 1979. 3. 26 | 0200 | 0800 | 29.9 | 30.0 | 33.706 | 1.8 |
| 14 | | 6-07.9 | 96-20.4 | 1979. 3. 26 | 1200 | 1800 | 29.7 | 29.9 | 32.970 | 1.1 |
| 15 | | 5-02.0 | 98-48.7 | 1979. 3. 27 | 0100 | 0800 | 29.8 | 29.8 | 32.897 | 1.8 |
| 16 | | 4-16.0 | 100-08.4 | 1979. 3. 27 | 0800 | 1500 | 30.3 | 30.5 | 31.976 | 2.1 |
| 17 | | 3-17.5 | 100-32.1 | 1979. 3. 30 | 0030 | 0800 | 26.3 | 30.0 | 31.645 | 2.0 |
| 18 | | 2-22.1 | 101-40.9 | 1979. 3. 30 | 1030 | 1800 | 30.0 | 29.9 | 32.176 | 1.5 |
| 19 | | 2-44.1 | 107-57.9 | 1979. 4. 9 | 0000 | 0800 | 29.3 | 29.8 | 33.189 | 1.9 |
| 20 | | 4-27.4 | 109-02.4 | 1979. 4. 9 | 1000 | 1800 | 29.7 | 30.1 | 33.769 | 2.6 |
| 21 | | 6-56.8 | 110-23.0 | 1979. 4. 10 | 0000 | 0800 | 29.2 | 29.0 | 34.001 | 3.2 |
| 22 | | 8-42.9 | 111-20.7 | 1979. 4. 10 | 1000 | 1800 | 29.8 | 29.4 | 33.856 | 1.5 |
| 23 | | 11-10.4 | 112-59.1 | 1979. 4. 11 | 0000 | 0800 | 28.9 | 29.3 | 33.815 | 1.8 |
| 24 | | 11-16.8 | 114-08.5 | 1979. 4. 11 | 1000 | 1800 | 29.2 | 29.3 | 33.712 | 1.7 |
| 25 | | 14-54.1 | 115-58.7 | 1979. 4. 12 | 0000 | 0800 | 28.2 | 28.2 | 33.751 | 9.3 |
| 26 | | 16-06.6 | 117-28.6 | 1979. 4. 12 | 1000 | 1800 | 28.1 | 29.0 | 33.783 | 1.4 |

Table 7. Data of surface observation of ponds water in the Kasumi Rock region and in Ongul Islands, Antarctica.

| Date | Region | Ponds | T (°C) | Cl (‰) | pH | O ₂ (ml/l) | PO ₄ -P | SiO ₃ -Si | NO ₂ -N NO ₃ -N NH ₄ -N | | |
|----------------|-----------------------------------|-----------------|--------|--------------|------|--------------------------|--------------------|----------------------|--|-----|------|
| | | | | | | | | | (μg-atoms/l) | | |
| 1979 Feb. 3 | Kasumi Rock | No. 1 | 6.5 | 17.35 | 8.64 | 7.34 | 1.16 | 39 | 0.25 | 0.0 | 8.96 |
| | | No. 2 | 6.7 | 0.11 | 8.55 | 8.56 | 0.03 | 22 | 0.03 | 0.0 | 0.77 |
| | | No. 3 | 8.0 | 10.75 | 8.19 | 7.95 | 0.06 | 5 | 0.03 | 0.0 | 2.04 |
| | | No. 4 | 9.1 | 1.17 | 8.18 | 8.39 | 0.02 | 5 | 0.01 | 0.0 | 0.09 |
| | | No. 5 | 12.1 | 1.74 | 8.22 | 8.44 | 0.02 | 22 | 0.01 | 0.0 | 0.55 |
| | | No. 6 | 7.6 | 0.08 | 7.92 | 8.46 | 0.02 | 9 | 0.01 | 0.0 | 0.00 |
| | | No. 7 | 10.5 | 0.01 | 8.09 | 8.45 | 0.14 | 39 | 0.03 | 0.0 | 0.13 |
| | | No. 8 | 9.7 | 0.02 | 8.33 | 8.32 | 0.14 | 8 | 0.08 | 0.1 | 0.23 |
| 1979 Feb. 3 | East and West Ongul Islands | Lake Midori 1 | 1.4 | 0.11 | 7.07 | 8.52 | 0.03 | 24 | 0.01 | 0.1 | 0.62 |
| | | Lake Midori 2 | 3.7 | 0.12 | 7.39 | 8.74 | 0.02 | 24 | 0.01 | 0.1 | 0.43 |
| | | Lake Kamome 1 | 3.7 | 0.12 | 7.94 | 8.86 | 0.05 | 30 | 0.01 | 0.0 | 1.53 |
| | | Lake Kamome 2 | 7.0 | 0.12 | 7.67 | 8.77 | 0.03 | 30 | 0.01 | 0.0 | 1.28 |
| | | Lake Taratine 1 | 4.9 | 0.10 | 7.62 | 8.96 | 0.03 | 16 | 0.01 | 0.0 | 1.34 |
| | | Lake Taratine 2 | 5.0 | 0.08 | 7.84 | 8.85 | 0.05 | 15 | 0.01 | 0.0 | 1.17 |
| | | Mizukumi Stream | 3.9 | 0.08 | 7.94 | 8.53 | 0.03 | 28 | 0.00 | 0.0 | 0.13 |
| | | Feb. 4 | | Lake Ô-ike 1 | 7.2 | 0.10 | 7.87 | 8.71 | 0.02 | 18 | 0.01 |
| Lake Ô-ike 2 | 7.0 | | | 0.10 | 7.94 | 8.44 | 0.03 | 18 | 0.01 | 0.0 | 0.26 |
| Lake Ô-ike 3 | 8.6 | | | 0.11 | 8.24 | 8.35 | 0.02 | 15 | 0.01 | 0.0 | 0.00 |
| Lake Ô-ike 4 | 5.7 | | | 0.12 | 8.02 | 8.60 | 0.02 | 16 | 0.01 | 0.0 | 0.00 |