

Oceanographic Data of the 35th Japanese Antarctic Research Expedition from November 1993 to March 1994

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The results of oceanographic observations on the icebreaker “Shirase” and tidal observations at Syowa Station, Antarctica, are presented in this report. The oceanographic observations were carried out in the summer mission of the 35th Japanese Antarctic Research Expedition (JARE-35) from November 1993 to March 1994. The tidal observation was continued through the winter mission of JARE-34 from February 1992 to January 1993.

1. Oceanographic Observations

The track of the icebreaker “Shirase” and the station sites of oceanographic observations in JARE-35 are shown in Fig. 1. Surface water sampling and chemical analysis were done during the cruise from Tokyo to Sydney. XBT (expendable bathythermograph), XCP (expendable current profiler) and serial observations were carried out in the Southern Ocean. Two surface drifting buoys were deployed in the Antarctic Circumpolar Current.

(1) Surface water sampling

Surface water sampling for surface water temperature measurement and chemical analysis were carried out at 115 stations en route. The sampling was done twice or three times a day using a plastic bucket (5 or 10 L). Even if the icebreaker “Shirase” stayed in ice covered area, the sampling was made. The results are given in Table 1.

(2) XBT observation

XBT observations were carried out at 121 stations in the Southern Ocean en route from Fremantle to Sydney. The results are given in Table 2, Figs. 2 and 3.

(3) Serial observation

Serial observations were carried out at 15 stations in total. Serial observations with Rosette sampler (2.5 L Niskin bottle) and CTD (Conductivity, Temperature and Depth profiling system: Falmouth Scientific FSI TRITON ICTD) were carried out at 13 stations, and serial observations with 2 L Nansen bottles and CTD (Neil Brown Mark IIIB) were carried out at 2 stations. The results including interpolated and calculated values of temperature, salinity, sigma-t and dynamic depth anomaly at each standard depth together with meteorological data are given in Table 3.

(4) Chemical analysis of sampled water

Chemical analysis of sea water collected with Nansen bottles, Niskin bottles and bucket was done by the following methods. Chemical analysis for the following items (b) - (h) was carried out by the methods described by Strickland and Parsons (1972). Items (a) and (e) were analyzed by the methods in Japan Oceanographic Data Center (1984) and Motomizu and Korechika (1988), respectively. Items (f, g) were analyzed by the methods in Bergamin *et al.* (1978), Andersson (1979) and Gine *et al.* (1980). Items (i) and (j) were analyzed by the methods in Mizu no Bunseki (Japan Society for Analytical Chemistry, Hokkaido Branch, 1981). Items (k) - (p) were analyzed by the methods in Hydrographic Department (1994).

- (a) Practical salinity : Conductive salinometer (Auto-Sal Model 8400A)
- (b) pH : Glass electrode method (Horiba digital pH meter F-16)
- (c) Dissolved oxygen : Winkler method (Metrohom Model E41520S Titrator)
- (d) Phosphate-P : Molybdenum blue method (Shimadzu UV-210A Spectrophotometer)
- (e) Silicate-Si : Molybdenum yellow method (Sanuki FI-3000 Flow Injection Analysis system)
- (f) Nitrite-N : Naphtylethylenediamine method (Sanuki FI-3000 Flow Injection Analysis system)
- (g) Nitrate-N : Cadmium (Cd) - copper (Cu) reduction column, naphtylethylenediamine method (Sanuki FI-3000 Flow Injection Analysis system)
- (h) Ammonium-N : Indophenol blue method (Shimadzu UV-210A Spectrophotometer)
- (i) Calcium (Ca) : EDTA titration method (Metrohom Model E41520S Titrator)
- (j) Magnesium (Mg) : EDTA titration method (Metrohom Model E41520S Titrator)
- (k) Petroleum oil : n-Hexane extraction-spectrophotofluorometry
- (l) PCBs : n-Hexane extraction-gas chromatography
- (m) Cadmium (Cd) : Solvent extraction-atomic absorption spectrophotometry
- (n) Copper (Cu) : Solvent extraction-atomic absorption spectrophotometry
- (o) Zinc (Zn) : Solvent extraction-atomic absorption spectrophotometry
- (p) Mercury (Hg) : Cold vapor atomic absorption spectrophotometry

The results of items (a) to (j) are given in Tables 1 and 3, and the results of items (k) to (p) are given in Table 4.

(5) Current observation with two surface drifting buoys

Two surface drifting buoys were deployed in the summer mission of JARE-35. The first surface drifting buoy (ID No. 17254) was deployed at 54°36.0' S, 109°48.9' E on December 8, 1993 and the second (ID No. 17255) was deployed at 59°31.8' S, 148°44.0' E on March 14, 1994. The first buoy remained in operation until December

31, 1995 and the second until January 1, 1996. The drifting buoy trajectories are shown in Fig. 4. The location and times of drifting buoys deployed in the operation period are shown in Table 6.

(6) Vertical current observations with XCP

XCP (Sippican Inc. U.S.A.) observations were carried out at three stations. However, normal data were obtained at only one station among three stations. The result is given in Fig. 5.

(7) Ocean current observations

Ocean current observations were carried out for 14 days (January 15 to January 28, 1994) at Kita-no-seto (East Ongul Island) by electromagnetic current meter (ALEC ELECTRONICS Co. ACM8M). The observation depth was 15 m below the sea surface. The results are given in Fig. 6. Figure 6 includes the sea level data obtained at Syowa Station (see the next section).

2. Tidal Observations

Tidal observations at Syowa Station have been carried out since 1966. A tide gauge (Meisei-Denki Co., QWP-8-303D) had been set by JARE-32 members on January 1990. The tide gauge sensor was placed on the sea bed about 15 m below the sea surface in Nisi-no-ura Cove (East Ongul Island). The data logger was installed in the Earth Science Laboratory at Syowa Station.

The methodology of tidal observations is described by Odamaki *et al.* (1991). In this system, the relative water pressure compensated for atmospheric pressure is measured with a quartz oscillator. The sensor range is 0-50 m and its accuracy is 0.01% to full scale, *i.e.* 0.005 m. The data sampled 5 times per second are averaged over one minute and recorded on solid IC memory every 10 min. The gauge was maintained by Mr. K. Okano, a member of the winter party of JARE-34, through the year. Hourly sea level was recorded. Daily and monthly mean sea levels were calculated with the hourly data. The results from February 1993 to January 1994 are given in Table 5.

Acknowledgments

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The authors also express their thanks to Captain T. Hisamatsu, the officers and crews of the icebreaker "Shirase".

References

- Andersson, L. (1979): Simultaneous spectrophotometric determination of nitrite and nitrate by flow injection analysis. *Anal. Chim. Acta*, **110**, 123.
- Bergamin, H., Reis, B.F. and Zagatto, E.A.G. (1978): A new device for improving sensitivity and stabilization in flow injection analysis. *Anal. Chim. Acta*, **97**, 427.
- Gine, M.F., Bergamin, H., Zagatto, E.A.G. and Reis, B.F. (1980): Simultaneous determination of nitrate and nitrite by flow injection analysis. *Anal. Chim. Acta*, **114**, 191.
- Hydrographic Department, Maritime Safety Agency, Japan (1994): Results of surveys in 1993. *Rep. Mar. Pollut. Surv.*, **20**, 70-74.
- Japan Oceanographic Data Center, Hydrographic Department, Maritime Safety Agency, Japan (1984): Practical salinity and international seawater state equation. 104 p.
- Japan Society for Analytical Chemistry, Hokkaido Branch (1981): *Mizu no Bunseki*. Kagaku Dojin Co., 187-192.
- Motomizu, S. and Korechika, K. (1988): FIA for trace amounts of silicon based on spectrophotometric determination of molybdosilicic acid. *Bunseki Kagaku*, **37**, T115-T119.
- Odamaki, M., Michida, Y., Noguchi, I., Iwanaga, Y., Ikeda, S. and Iwamoto, K. (1991) : Mean sea-level observed at Syowa Station, East Antarctica. *Proc. NIPR Symp. Antarct. Geosci.*, **5**, 20-28.
- Strickland, J.D.H. and Parsons, T.R. (1972) : *Practical Handbook of Seawater Analysis*. *Bull. Fish. Res. Board Can.*, 2nd ed., **167**, 311 p.

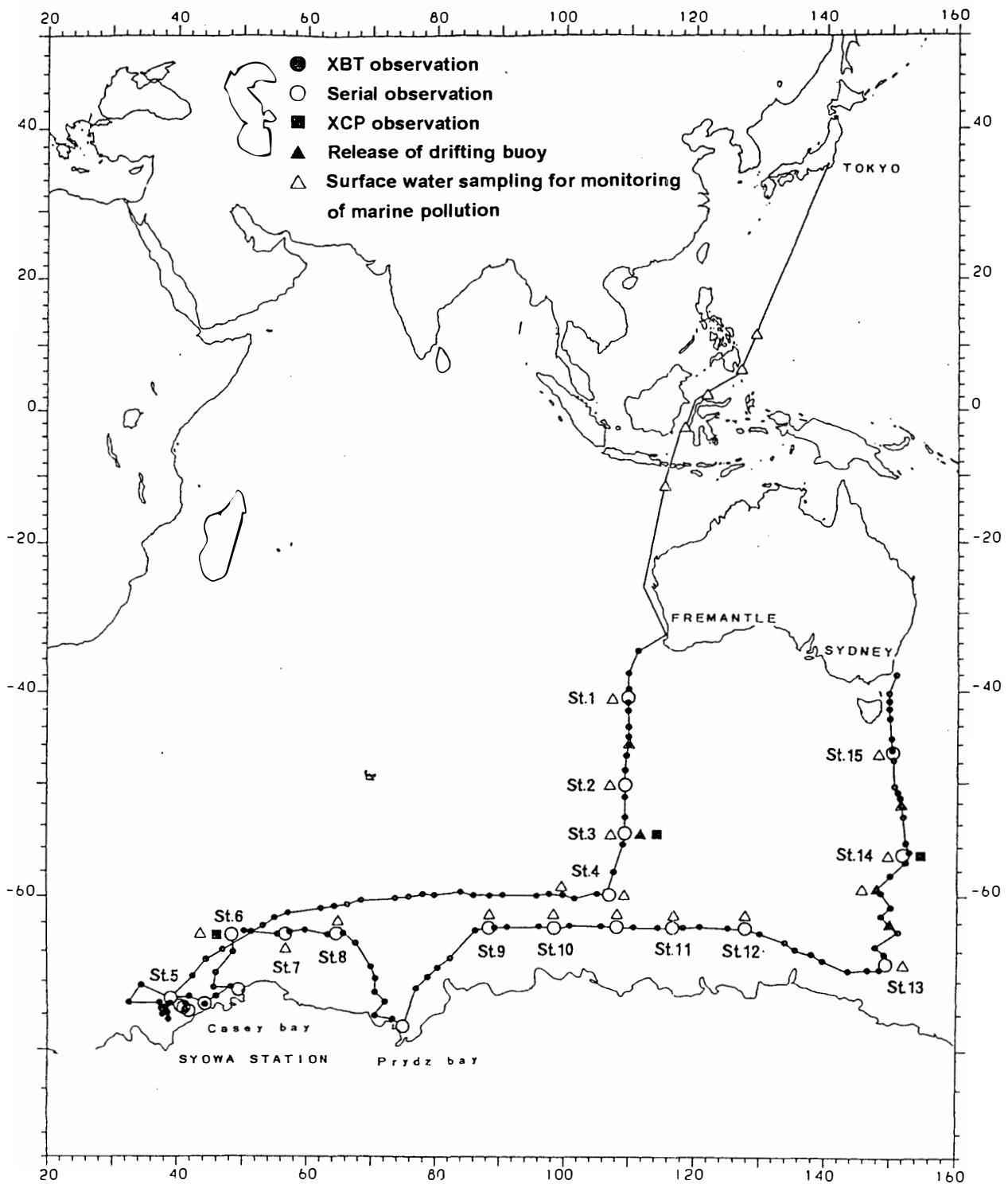


Fig. 1. The track chart of the icebreaker "Shirase" and the station sites of oceanographic observation during the JARE-35 cruise.

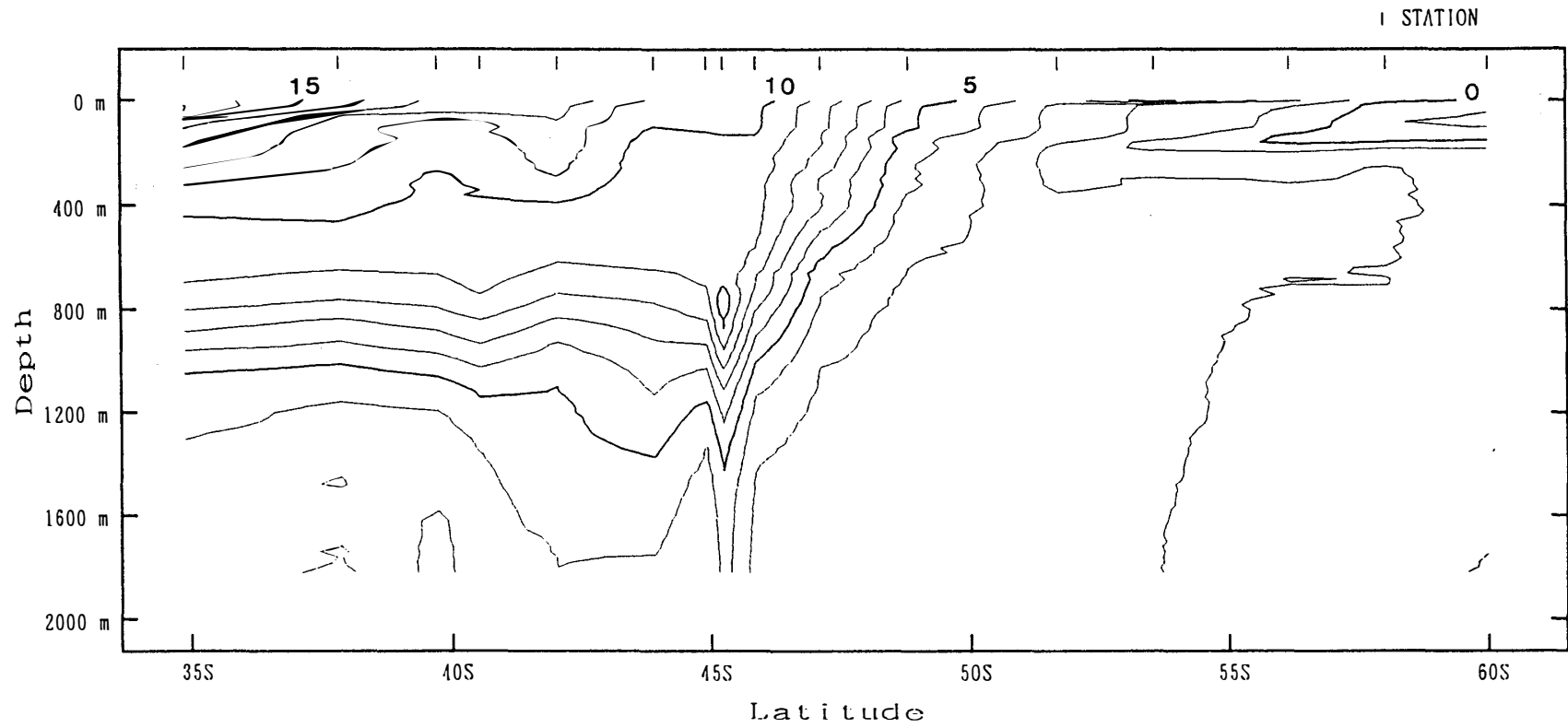


Fig. 2. The vertical profile of water temperature ($^{\circ}\text{C}$) observed along 110°E . Vertical bars on the top of the profile indicate sites of XBT observations.

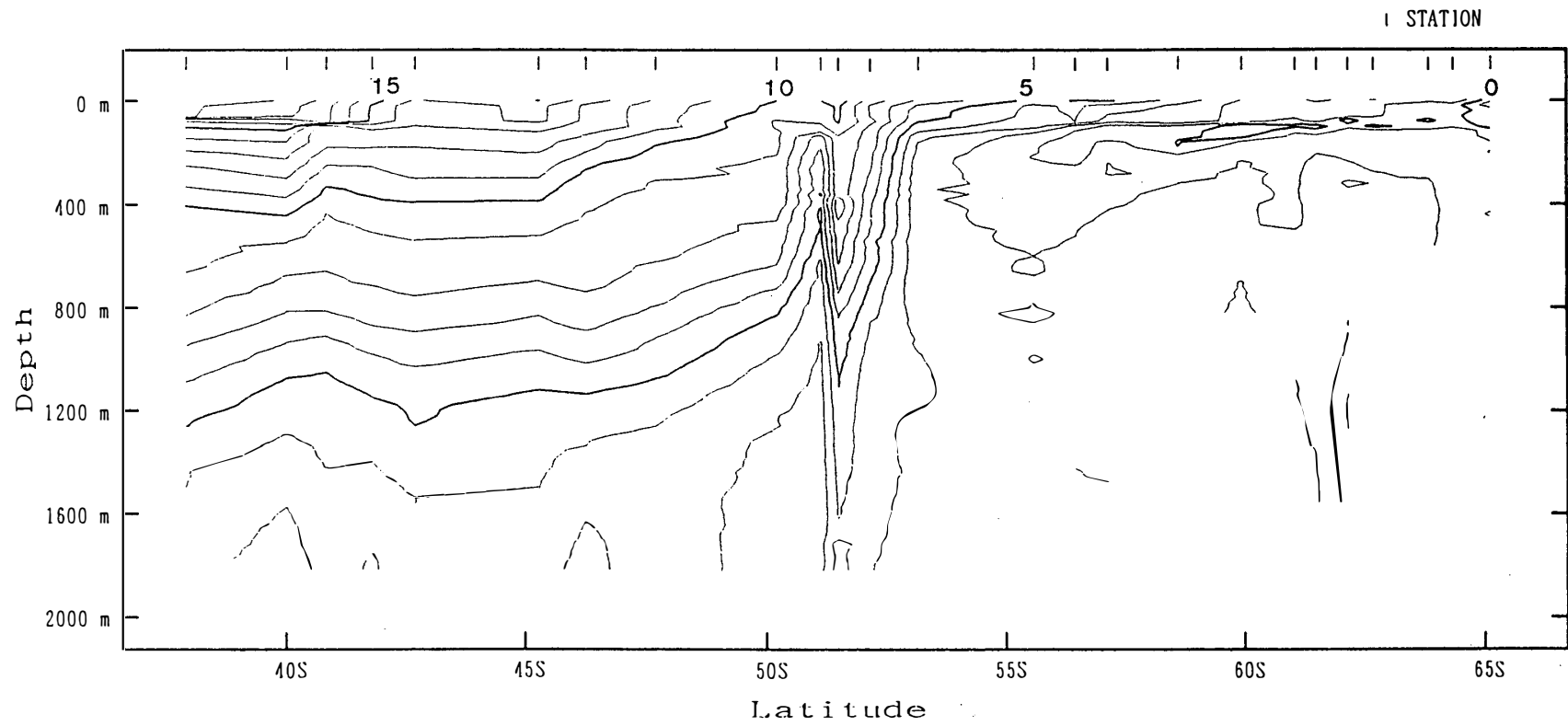


Fig. 3. The vertical profile of water temperature ($^{\circ}\text{C}$) observed along 150°E . Vertical bars as in Fig. 2.

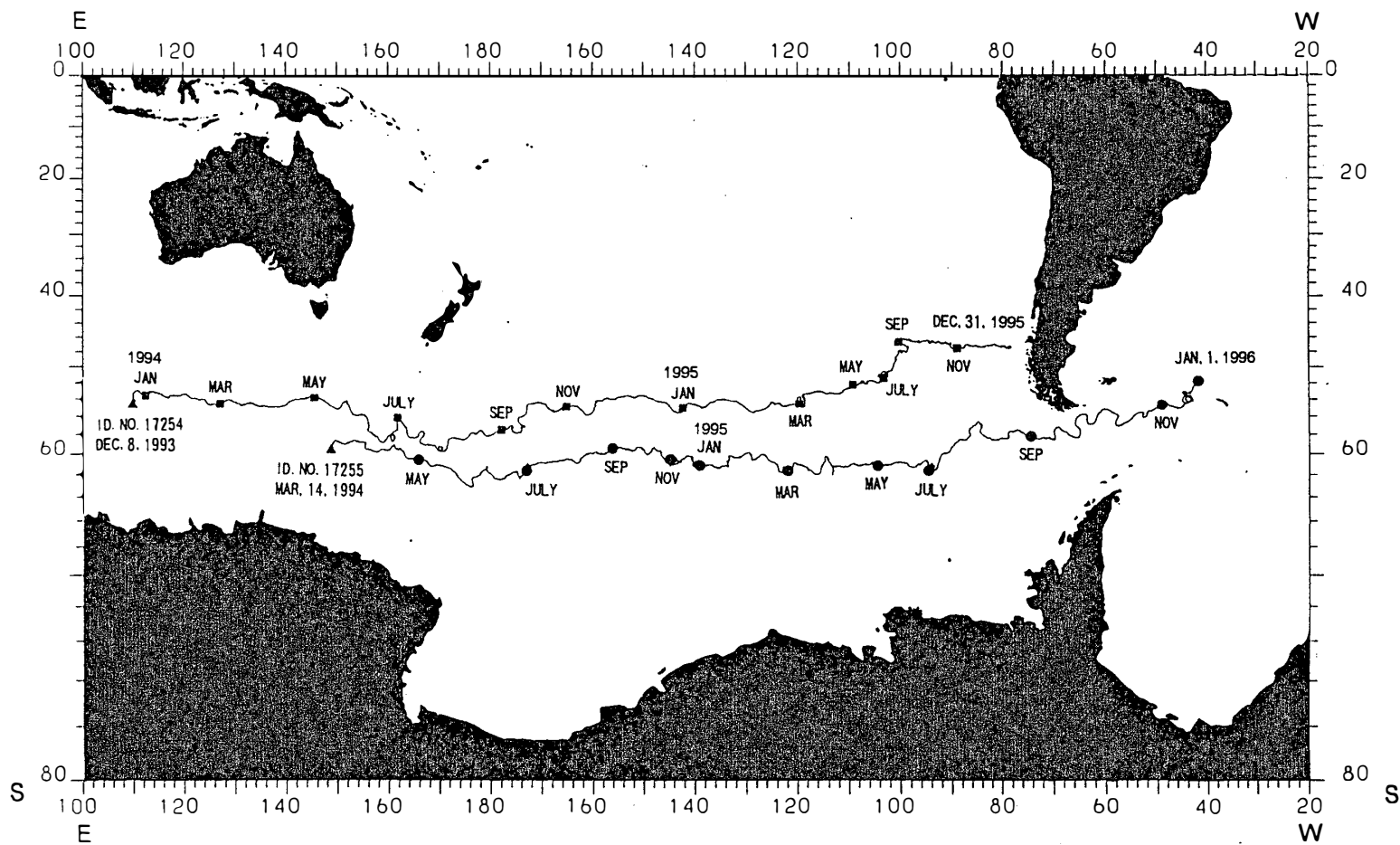


Fig. 4. Trajectories of surface drifting buoys. Triangles (▲) indicate points of release for the first buoy (ID No. 17254) and the second buoy (ID No. 17255). Squares (■) indicate monthly drifting positions of the first buoy and circles (●) indicate those of the second buoy.

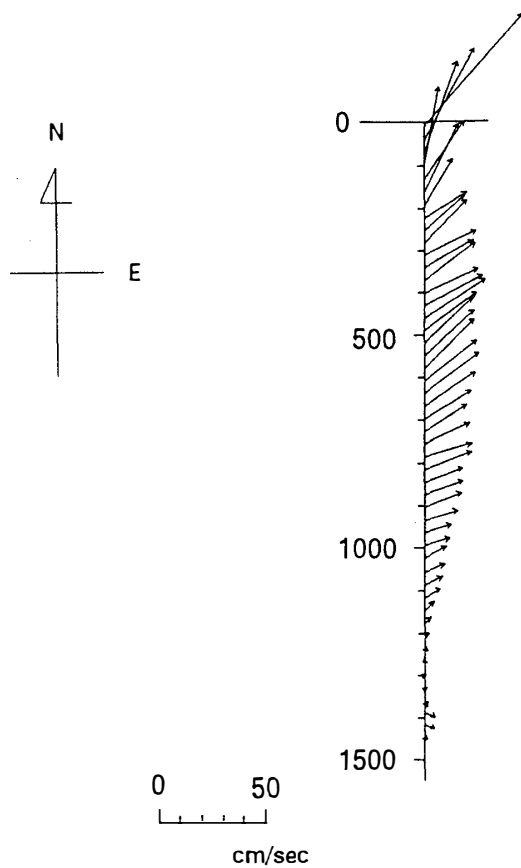


Fig. 5. Vertical ocean current profile observed by XCP. Arrows indicate current velocity (see legends). An XCP was deployed at 0618 AM UT on March 15, 1994 at $56^{\circ}33.5'S$, $153^{\circ}02.7'E$.

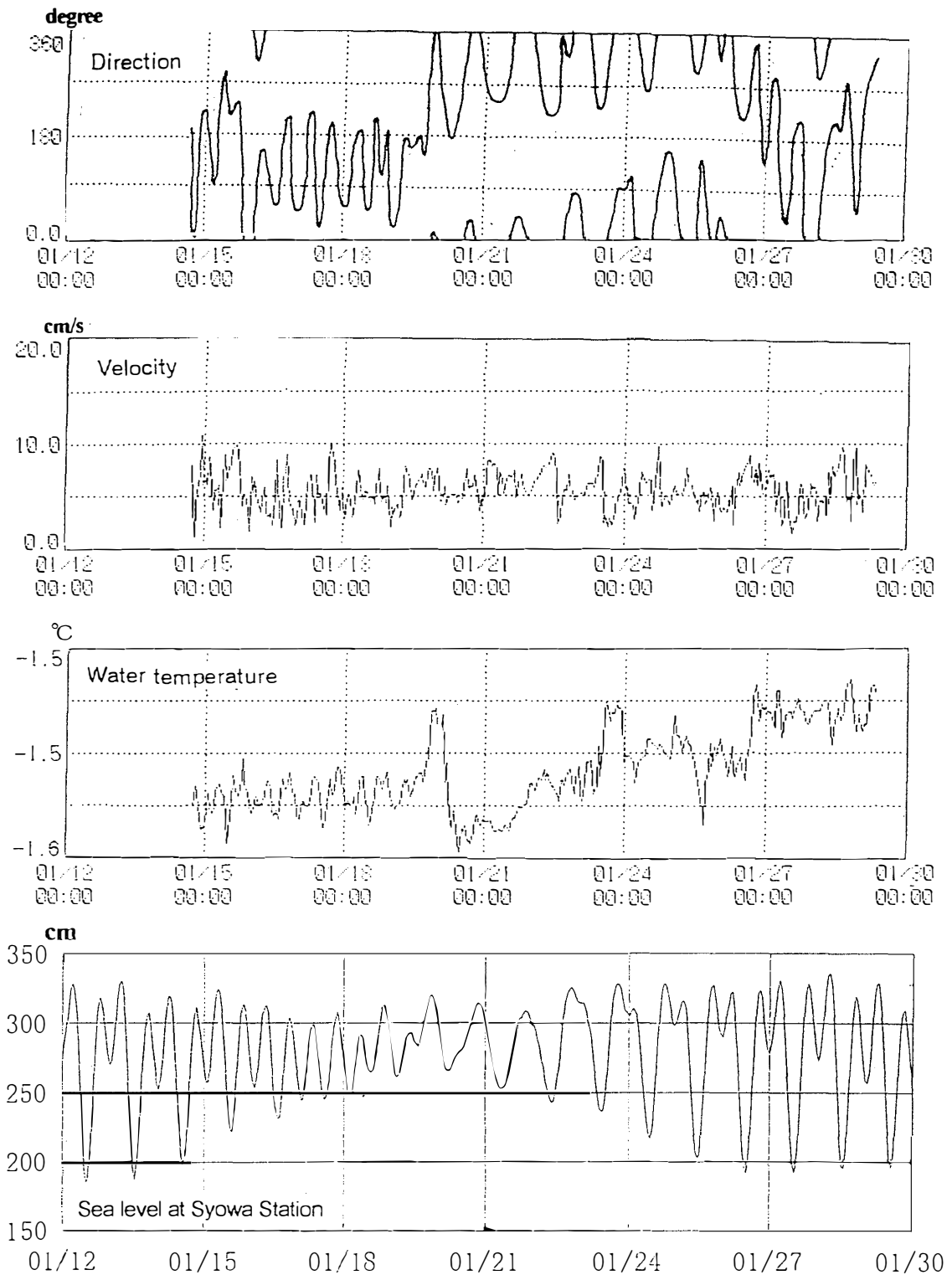


Fig. 6. The results of ocean current observations at Kita-no-seto, East Ongul Island (upper three figures). (Time: 1994/01/14 1700-1994/01/29 0900 LMT; 69°00.1'S, 39°34.3'E; depth-18 m; observed depth-7 m) Sea level observation with ACM8M at Syowa Station (bottom figure) is included.

Table 1. Data of surface water observation on board the icebreaker "Shirase" in 1993-94.

Date	Time (UT)	Position		Air Temp. (°C)	Water Temp. (°C)	Practical Salinity	pH	DO (ml/l)	PO4- P (μ M)	SiO2- Si (μ M)	NO2- N (μ M)	NO3- N (μ M)	NH4- N (μ M)	Ca (mM)	Mg (mM)
		Lat.	Long.												
1993															
Nov.14	2300	31 - 26.0 N	137 - 52.0 E	21.8	23.6	34.700	-	-	-	-	-	-	-	-	-
15	0800	29 - 16.0 N	136 - 46.0 E	22.6	24.0	34.617	-	-	-	-	-	-	-	-	-
	2230	25 - 54.0 N	135 - 16.0 E	23.1	27.0	34.866	-	-	-	-	-	-	-	-	-
16	0800	23 - 41.0 N	134 - 12.0 E	25.3	27.5	34.721	-	-	-	4	0.14	<1	-	-	-
	2300	20 - 00.0 N	132 - 34.0 E	26.9	28.1	34.601	-	-	-	2	0.14	<1	-	-	-
17	0800	17 - 52.0 N	131 - 40.0 E	27.4	28.1	34.662	-	-	-	2	0.14	<1	-	-	-
	2300	14 - 19.0 N	130 - 09.0 E	28.7	28.7	34.073	8.22	-	-	<1	0.11	<1	-	-	-
18	0800	12 - 16.0 N	129 - 11.0 E	27.8	29.1	34.179	8.15	4.63	-	5	0.12	<1	-	-	-
	2300	8 - 41.0 N	127 - 43.0 E	25.9	29.3	33.684	8.21	4.67	-	4	0.08	<1	-	-	-
19	0800	6 - 14.0 N	126 - 43.0 E	27.8	29.1	33.793	8.19	4.50	-	5	0.09	<1	-	-	-
	2300	3 - 34.0 N	123 - 25.0 E	27.3	29.2	34.142	8.21	4.52	-	7	0.09	<1	-	-	-
20	0800	2 - 17.0 N	121 - 29.0 E	28.4	29.7	34.169	8.20	4.79	-	5	0.13	1	-	-	-
	2300	0 - 34.0 S	119 - 10.0 E	27.8	29.6	33.733	8.12	4.57	-	4	0.10	<1	-	-	-
21	0800	2 - 42.0 S	118 - 35.0 E	29.0	29.4	33.518	8.21	4.59	-	3	0.07	<1	-	-	-
	2300	6 - 07.0 S	116 - 47.0 E	28.8	30.1	34.331	8.21	4.57	-	5	0.10	<1	-	-	-
22	2300	11 - 27.0 S	115 - 12.0 E	27.6	29.4	34.688	8.17	4.56	0.04	6	0.15	<1	-	-	-
23	0800	13 - 40.0 S	114 - 49.0 E	26.9	28.2	34.720	8.19	4.59	<0.01	7	0.11	<1	-	-	-
	2300	17 - 05.0 S	114 - 12.0 E	24.9	25.5	35.137	8.21	4.81	0.02	9	0.13	<1	-	-	-
24	0800	19 - 08.0 S	113 - 49.0 E	26.6	26.7	35.093	8.18	4.82	0.02	4	0.15	<1	-	-	-
	2300	22 - 37.0 S	113 - 08.0 E	21.6	22.9	35.421	8.23	4.98	0.01	12	0.22	<1	-	-	-
25	0800	24 - 45.0 S	112 - 44.0 E	21.6	21.9	35.528	8.23	5.00	0.04	12	0.21	<1	-	-	-
	2300	27 - 42.0 S	113 - 04.0 E	18.5	21.5	35.569	8.23	5.08	0.01	12	0.21	<1	-	-	-
26	0800	29 - 16.0 S	113 - 33.0 E	18.6	20.1	35.780	8.22	5.22	0.05	13	0.23	<1	-	-	-
	2300	31 - 33.0 S	115 - 01.0 E	16.8	19.7	35.862	8.22	5.31	0.02	13	0.22	<1	-	-	-

Date	Time (UT)	Position		Air Temp. (°C)	Water Temp. (°C)	Practical Salinity	pH	DO (ml/l)	PO4- P (μ M)	SiO2- Si (μ M)	NO2- N (μ M)	NO3- N (μ M)	NH4- N (μ M)	Ca (mM)	Mg (mM)
		Lat.	Long.												
Dec. 5	0030	39 - 43.6 S	110 - 00.0 E	12.2	12.5	34.886	8.15	6.27	0.51	24	0.39	2	<0.1	-	-
	0500	40 - 34.0 S	110 - 00.4 E	12.7	12.6	34.953	8.16	6.29	0.46	23	0.30	2	<0.1	-	-
6	0030	43 - 55.8 S	109 - 59.7 E	11.5	10.4	34.718	8.18	6.49	0.83	9	0.46	2	1.0	-	-
	0500	44 - 54.8 S	110 - 06.4 E	12.1	10.2	34.723	8.16	7.37	0.86	10	0.27	2	0.3	-	-
	0700	44 - 55.8 S	110 - 06.5 E	11.5	10.4	34.727	8.15	6.53	0.77	9	0.45	2	6.9	-	-
	1000	45 - 16.2 S	110 - 02.2 E	11.2	10.4	34.746	8.16	6.55	0.28	9	0.42	2	2.5	-	-
7	0030	48 - 50.3 S	109 - 45.6 E	4.8	5.4	34.007	8.13	7.13	1.51	10	0.49	4	<0.1	-	-
	0500	49 - 41.7 S	109 - 27.3 E	2.9	4.8	33.995	8.12	7.28	1.57	9	0.45	4	<0.1	-	-
8	0500	54 - 33.4 S	109 - 39.2 E	2.1	2.1	33.991	8.11	7.87	1.75	17	0.30	19	1.3	9.20	54.20
9	0030	58 - 02.0 S	108 - 01.6 E	-1.0	-0.2	33.826	8.13	8.23	1.62	21	0.52	15	1.3	8.82	54.12
	0500	58 - 57.9 S	107 - 24.3 E	-0.6	0.7	33.876	8.11	8.28	1.72	41	0.56	29	0.6	8.88	54.96
10	0030	60 - 10.4 S	101 - 59.3 E	-1.1	-0.6	33.744	8.14	8.23	1.72	43	0.53	26	<0.1	8.82	53.98
	0500	59 - 58.1 S	100 - 11.7 E	2.0	-0.5	33.543	8.12	8.20	1.77	48	0.49	26	1.0	8.78	53.70
	1000	60 - 01.8 S	97 - 59.7 E	-0.2	0.2	33.699	8.12	8.30	1.74	40	0.50	26	<0.1	8.86	53.86
	1400	60 - 02.9 S	96 - 07.4 E	-0.6	0.1	33.878	8.11	8.17	1.82	44	0.52	27	<0.1	8.94	54.12
11	0130	60 - 03.1 S	90 - 38.9 E	-2.3	-0.5	33.864	8.13	8.35	1.61	48	0.53	25	<0.1	8.90	54.22
	0600	59 - 59.3 S	88 - 34.8 E	-0.8	1.1	34.028	8.16	8.29	0.83	36	0.52	16	<0.1	8.88	54.42
	1100	60 - 02.1 S	86 - 12.6 E	-0.7	0.6	33.870	8.11	8.31	1.15	47	0.53	18	<0.1	8.98	54.00
	1500	59 - 52.4 S	84 - 42.8 E	0.0	-0.3	33.812	8.15	8.64	1.52	43	0.52	22	<0.1	8.92	53.88
12	0130	60 - 01.6 S	80 - 01.9 E	-0.1	-0.4	33.982	8.09	8.22	1.38	50	0.55	22	<0.1	8.96	54.08
	0600	60 - 05.6 S	78 - 05.1 E	-0.1	-0.4	33.833	8.13	8.43	1.52	42	0.52	15	<0.1	8.96	54.04
	1100	60 - 11.1 S	75 - 51.9 E	-0.2	-0.4	33.801	8.13	8.41	1.54	42	0.52	18	<0.1	8.88	53.98
13	0230	60 - 38.1 S	68 - 45.0 E	-0.1	-0.6	33.600	8.09	8.19	1.87	43	0.51	19	<0.1	8.84	53.74
	0700	60 - 45.6 S	66 - 41.8 E	-0.3	-0.8	33.488	8.09	8.15	1.82	44	0.50	26	<0.1	8.92	53.36
	1200	60 - 53.7 S	64 - 29.4 E	-0.1	-0.5	33.771	8.07	8.30	1.91	47	0.52	27	<0.1	9.00	54.08

Date	Time (UT)	Position		Air Temp. (°C)	Water Temp. (°C)	Practical Salinity	pH	DO (ml/l)	PO4- P (μ M)	SiO2- Si (μ M)	NO2- N (μ M)	NO3- N (μ M)	NH4- N (μ M)	Ca (mM)	Mg (mM)
		Lat.	Long.												
Dec.14	0330	61 - 19.7 S	57 - 16.5 E	-0.6	-0.7	33.780	8.09	8.20	1.94	47	0.53	28	<0.1	8.94	53.78
	0800	61 - 47.9 S	55 - 21.4 E	-0.5	-0.8	33.844	8.08	8.04	1.95	51	0.53	21	<0.1	9.00	54.04
	1300	62 - 23.8 S	53 - 13.4 E	-0.5	-0.7	33.739	8.09	8.09	1.91	51	0.52	21	<0.1	9.00	53.98
15	0430	64 - 06.8 S	46 - 39.9 E	-0.7	-1.3	33.947	8.07	7.69	2.03	57	0.53	20	<0.1	9.10	54.12
16	0500	67 - 33.4 S	39 - 39.2 E	-1.5	-1.6	34.293	8.05	7.47	2.05	49	0.36	21	0.1	8.96	54.92
22	1700	67 - 54.8 S	38 - 10.7 E	0.3	-1.5	34.045	8.05	8.07	1.45	54	0.20	14	0.8	9.14	54.30
23	0730	68 - 07.3 S	38 - 42.5 E	0.7	-1.6	34.138	8.06	7.86	1.88	57	1.31	21	1.2	9.04	54.28
30	1515	68 - 22.6 S	38 - 49.4 E	-0.9	-0.4	34.021	8.06	7.91	1.95	54	0.02	<1	0.1	9.00	54.40
1994															
Feb.10	0900	67 - 33.5 S	37 - 34.7 E	-3.0	-0.2	33.921	8.06	8.13	1.84	55	0.07	26	0.6	9.08	53.90
	1400	67 - 34.9 S	34 - 19.1 E	-2.6	-0.8	33.953	8.04	8.11	1.86	55	0.04	27	0.5	9.12	54.14
11	0430	67 - 23.4 S	40 - 13.5 E	-2.0	-0.5	33.868	8.08	8.09	1.87	51	0.13	27	2.4	8.94	54.12
12	1100	68 - 00.9 S	41 - 45.8 E	-3.4	-0.2	33.840	8.11	8.11	1.83	49	0.18	27	0.4	8.98	54.08
13	0900	67 - 36.9 S	40 - 43.1 E	0.4	-0.1	33.952	8.11	8.05	1.83	50	0.18	27	1.5	8.96	54.16
15	1000	67 - 43.5 S	44 - 28.6 E	-4.6	-1.4	33.252	8.11	8.25	1.83	52	0.21	27	0.8	8.80	53.14
19	0900	67 - 18.4 S	46 - 13.9 E	-6.5	-1.4	33.462	8.11	8.17	1.90	49	0.21	27	1.1	8.80	53.34
	1400	66 - 36.7 S	48 - 18.9 E	-3.3	-0.6	33.874	8.12	8.33	1.73	47	0.19	26	0.1	8.92	54.12
20	0730	66 - 46.0 S	49 - 51.1 E	-2.1	-1.6	33.559	8.13	8.69	1.80	52	0.37	28	0.5	8.96	53.68
24	1400	66 - 45.4 S	45 - 27.8 E	-1.8	-0.1	34.092	8.08	7.97	1.93	54	0.36	30	0.9	8.94	54.40
25	0430	64 - 13.7 S	48 - 36.7 E	-0.6	0.9	33.955	8.05	7.63	2.07	52	0.42	30	2.0	8.96	54.32
	0900	63 - 09.6 S	48 - 30.4 E	1.4	2.0	33.799	8.08	7.67	1.78	42	0.47	29	0.7	8.84	54.04
26	0430	63 - 04.7 S	55 - 23.9 E	-1.2	1.0	33.807	8.06	7.77	1.84	39	0.46	27	2.1	8.56	54.26
	1000	63 - 01.4 S	57 - 25.8 E	0.2	1.1	33.870	8.09	7.81	1.91	42	0.42	28	0.8	8.82	54.22
27	0330	62 - 59.9 S	63 - 37.5 E	-0.3	1.2	33.861	8.03	7.78	1.88	38	0.46	28	1.9	8.92	54.06
	0800	63 - 00.3 S	65 - 42.6 E	0.5	1.0	33.810	8.09	7.80	1.83	29	0.46	28	1.1	8.90	53.84

Date	Time (UT)	Position		Air Temp. (°C)	Water Temp. (°C)	Practical Salinity	pH	DO (ml/l)	PO4- P (μ M)	SiO2- Si (μ M)	NO2- N (μ M)	NO3- N (μ M)	NH4- N (μ M)	Ca (mM)	Mg (mM)
		Lat.	Long.												
Feb.28	0330	65 - 14.3 S	70 - 24.2 E	-1.8	0.4	34.068	7.96	7.80	1.81	43	0.39	28	2.2	9.02	54.20
	0800	66 - 01.9 S	71 - 04.3 E	-5.7	0.0	34.081	7.98	7.89	1.81	45	0.37	27	1.2	8.94	54.38
	1300	66 - 54.5 S	71 - 04.8 E	-7.2	-0.7	34.276	8.03	8.15	1.43	37	0.35	23	0.5	9.00	54.72
Mar. 1	0230	68 - 33.2 S	70 - 36.3 E	0.0	-1.6	33.705	8.12	8.30	1.04	37	0.33	14	4.6	8.82	53.80
	0700	68 - 54.9 S	73 - 19.6 E	0.0	-1.8	33.399	8.15	8.28	0.97	37	0.32	12	3.4	8.80	53.36
4	0230	66 - 33.2 S	77 - 36.6 E	-1.2	0.0	33.934	8.08	7.79	1.78	44	0.38	28	1.8	8.82	54.36
	0700	66 - 04.5 S	79 - 08.1 E	-1.3	-0.2	33.918	8.09	7.78	1.82	43	0.37	28	1.0	8.86	54.38
	1200	65 - 15.5 S	80 - 52.2 E	0.3	0.4	33.921	8.08	7.65	1.82	40	0.38	28	0.2	8.90	54.30
5	0230	62 - 48.5 S	86 - 39.9 E	1.0	0.9	33.788	8.11	7.70	1.59	28	0.41	24	0.8	8.72	54.04
	0700	62 - 30.1 S	88 - 38.8 E	1.6	1.4	33.871	8.10	7.68	1.72	31	0.42	26	0.6	8.94	53.86
6	0130	62 - 32.5 S	96 - 27.1 E	-0.3	1.2	33.723	8.18	7.83	1.25	17	0.40	21	0.3	8.76	53.88
	0700	62 - 32.8 S	98 - 44.1 E	1.1	1.3	33.730	8.19	7.90	1.23	14	0.38	20	0.5	8.84	53.90
7	0030	62 - 30.2 S	106 - 14.2 E	0.1	1.2	33.755	8.16	7.70	1.41	15	0.40	23	0.8	8.68	54.06
	0500	62 - 31.2 S	108 - 50.8 E	0.3	1.2	33.870	8.13	7.66	1.62	29	0.41	25	0.8	8.76	54.08
8	0030	62 - 30.2 S	115 - 35.0 E	1.2	1.2	33.864	8.11	7.71	1.61	31	0.42	26	0.6	8.84	53.94
	0500	62 - 34.1 S	117 - 34.6 E	1.7	1.2	33.882	8.10	7.68	1.75	41	0.42	26	0.7	8.84	54.06
	2330	62 - 30.8 S	125 - 57.1 E	0.9	0.9	33.926	8.11	7.70	1.46	31	0.39	28	0.4	8.78	54.58
9	0400	62 - 29.4 S	128 - 21.2 E	1.2	1.3	33.917	8.11	7.81	1.58	27	0.42	27	0.5	8.82	54.26
	2230	63 - 39.3 S	134 - 31.2 E	2.2	0.8	33.911	8.09	7.70	1.71	27	0.41	26	0.8	8.76	53.98
10	0300	64 - 00.6 S	136 - 27.2 E	1.1	0.8	33.947	8.08	7.73	1.72	33	0.39	26	1.4	8.88	54.14
	0800	64 - 25.8 S	138 - 32.3 E	-2.6	1.2	33.931	8.09	7.64	1.68	28	0.40	27	1.1	8.78	54.18
	2230	65 - 26.2 S	144 - 26.6 E	-9.4	-0.8	33.855	8.10	7.85	1.82	49	0.36	28	1.1	8.68	54.16
11	0800	65 - 24.5 S	147 - 16.7 E	-3.3	-0.6	33.671	8.08	7.93	1.80	44	0.37	28	1.4	8.78	55.64
	2330	64 - 59.4 S	150 - 15.3 E	0.2	0.0	33.630	8.08	7.93	1.82	47	0.37	28	1.2	8.88	53.60
12	0800	64 - 20.6 S	149 - 19.5 E	-6.1	0.4	33.912	8.08	7.82	1.90	44	0.19	29	0.9	8.92	54.18

Date	Time (UT)	Position		Air Temp. (°C)	Water Temp. (°C)	Practical Salinity	pH	DO (ml/l)	PO4— P (μ M)	SiO2— Si (μ M)	NO2— N (μ M)	NO3— N (μ M)	NH4— N (μ M)	Ca (mM)	Mg (mM)
		Lat.	Long.												
Mar.12	2130	62 — 40.6 S	151 — 43.7 E	1.7	1.3	33.912	8.09	7.79	1.89	41	0.22	29	1.4	8.86	54.00
13	0200	62 — 09.7 S	150 — 50.4 E	2.5	1.5	33.924	8.09	7.75	1.89	35	0.23	29	0.7	8.84	53.94
	0700	61 — 31.5 S	149 — 33.7 E	3.3	1.9	33.908	8.10	7.66	1.83	19	0.26	29	1.3	8.84	53.90
	2130	59 — 58.1 S	149 — 19.9 E	3.5	1.9	33.915	8.08	7.71	1.85	29	0.23	29	0.6	8.82	54.02
14	0200	59 — 31.8 S	148 — 43.8 E	3.3	1.9	33.919	8.09	7.69	1.77	25	0.25	29	0.7	8.78	54.06
	0730	59 — 01.0 S	149 — 51.8 E	3.2	1.6	33.930	8.08	7.70	1.93	46	0.22	29	1.0	8.76	54.10
	2130	57 — 08.2 S	152 — 54.0 E	4.5	3.8	33.912	8.11	7.37	1.68	<1	0.28	26	2.5	8.82	54.06
15	0200	56 — 29.9 S	152 — 47.8 E	5.9	4.8	33.907	8.12	7.29	1.57	1	0.28	25	1.1	8.86	53.86
	2130	53 — 11.3 S	152 — 14.1 E	6.5	6.6	33.884	8.12	7.00	1.46	3	0.16	23	1.1	8.76	54.10
16	0200	52 — 10.7 S	152 — 03.2 E	6.9	8.9	34.268	8.15	6.57	1.01	5	0.17	16	1.1	8.88	54.66
	0700	51 — 08.1 S	151 — 19.6 E	7.1	9.4	34.263	8.16	6.54	1.01	5	0.16	15	0.4	8.86	54.66
	2130	47 — 42.6 S	150 — 29.0 E	8.7	11.6	34.673	8.18	6.26	0.64	7	0.19	8	0.2	9.10	55.16
17	0200	46 — 35.9 S	150 — 22.3 E	10.1	12.8	34.929	8.19	6.11	0.46	8	0.22	5	0.4	9.10	55.76
	2130	42 — 40.1 S	150 — 00.5 E	13.1	13.4	35.035	8.19	6.03	0.39	6	0.16	4	0.4	9.06	55.84
18	0200	41 — 47.1 S	150 — 02.1 E	14.6	15.1	35.250	8.20	5.84	0.22	7	0.14	1	0.1	9.02	56.36
	0700	40 — 50.3 S	150 — 08.6 E	14.6	17.6	35.575	8.21	5.55	0.16	9	0.11	1	0.3	9.04	56.94
	2130	37 — 56.9 S	151 — 04.6 E	16.3	19.1	35.716	8.19	5.34	0.05	10	0.10	<1	0.6	9.22	57.08

Table 2. XBT observation data.

NUMBER	DATE TIME UT	POSITION		TEMPERATURE (°C)															S. L. (M)	AIR TEMP. (°C)				
		LAT.	LONG.	DEPTH (M)																				
				0	10	20	30	50	75	100	125	150	200	250	300	350	400	450						
				500	550	600	650	700	750	800	850	900	950	1000	1100	1200	1300	1400						
				1500	1600	1700	1800																	
SP93001	93-12-04 00.4	34-53S	111-30E	17.1	17.0	17.0	17.0	17.0	14.7	14.1	13.7	13.3	12.8	12.1	11.4	10.7	10.2	10.0	50	15.0				
				9.8	9.7	9.5	9.3	9.0	8.5	8.0	7.3	6.8	6.1	5.6	4.7	4.3	4.0	3.8						
				3.7	3.5	3.5	3.3																	
SP93002	93-12-04 16.0	37-52S	110-01E	14.6	14.4	14.3	14.2	12.1	11.9	11.5	11.3	11.4	11.3	11.0	10.8	10.4	10.2	10.0	40	12.4				
				9.8	9.6	9.3	9.0	8.6	8.2	7.5	6.8	6.3	5.7	5.1	4.4	3.8	3.6	3.7						
				4.0	3.9	4.0	4.1																	
SP93003	93-12-05 00.3	39-44S	110-00E	12.6	12.5	12.5	12.5	12.0	10.9	10.3	10.8	10.8	10.3	10.1	9.9	9.8	9.8	9.7	50	12.2				
				9.6	9.4	9.3	9.0	8.7	8.4	7.9	7.3	6.8	6.2	5.7	4.6	4.0	3.5	3.4						
				3.2	2.9	2.8	2.7																	
SP93004	93-12-05 06.8	40-34S	110-00E	12.8	12.7	12.7	12.7	12.4	10.9	10.8	11.0	10.6	10.4	10.3	10.2	10.0	9.9	9.8	50	12.7				
				9.7	9.7	9.7	9.6	9.2	8.9	8.5	7.9	7.4	6.8	6.3	5.2	4.6	4.1	3.9						
				3.7	3.6	3.6	3.6																	
SP93005	93-12-05 15.9	42-04S	109-59E	12.4	12.3	12.3	12.3	12.2	12.0	11.4	11.6	11.6	11.4	11.3	10.9	10.4	9.9	9.6	70	12.0				
				9.5	9.3	9.1	8.8	8.3	7.9	7.3	6.8	6.3	5.8	5.5	5.0	4.8	4.8	4.7						
				4.6	4.4	4.1	4.0																	
SP93006	93-12-06 00.4	43-56S	110-00E	10.3	10.3	10.2	10.2	10.1	10.1	10.0	9.8	9.6	9.4	9.3	9.3	9.4	9.4	9.3	100	11.5				
				9.3	9.2	9.2	8.9	8.6	8.2	7.7	7.4	7.1	6.8	6.5	6.1	5.7	5.3	4.9						
				4.7	4.4	4.1	3.9																	
SP93008	93-12-06 05.0	44-56S	110-07E	10.3	10.2	10.2	10.2	10.1	10.1	10.0	10.0	9.7	9.6	9.5	9.5	9.4	9.4	9.4	120	12.1				
				9.5	9.5	9.5	9.3	9.1	8.7	8.4	7.9	7.5	6.9	6.3	5.4	4.6	4.1	3.8						
				3.6	3.4	3.2	3.1																	
SP93009	93-12-06 06.9	45-16S	110-02E	10.3	10.2	10.2	10.1	10.1	10.1	10.0	10.0	9.9	9.7	9.5	9.4	9.5	9.5	9.6	140	11.5				
				9.6	9.8	9.8	9.8	9.7	10.5	10.6	10.1	9.7	9.1	8.5	7.2	6.3	5.5	5.1						
				4.8	4.5	4.5	4.4																	
SP93010	93-12-06 09.9	45-53S	110-22E	10.4	10.3	10.3	10.2	10.2	10.2	10.2	10.1	9.8	9.6	9.6	9.5	9.4	9.3	9.3	120	11.2				
				9.3	9.0	8.7	8.4	8.0	7.6	7.0	6.5	6.0	5.5	5.1	4.3	3.8	3.3	3.0						
				2.9	2.8	2.7	2.6																	
SP93011	93-12-06 16.0	47-09S	110-02E	8.5	8.4	8.4	8.4	8.4	8.4	8.3	8.1	8.2	7.8	7.6	6.9	7.0	7.1	6.6	100	8.1				
				6.0	5.4	5.1	4.6	4.3	4.0	3.8	3.5	3.4	3.3	3.1	2.9	2.8	2.6	2.5						
				2.5	2.4	2.3	2.3																	
SP93012	93-12-07 00.3	48-50S	109-46E	5.4	5.3	5.3	5.2	5.2	5.2	5.2	4.6	4.3	4.5	3.9	4.1	4.1	3.7	3.5	100	4.8				
				3.5	3.2	3.1	3.0	2.9	2.7	2.7	2.6	2.6	2.6	2.5	2.4	2.3	2.4	2.3						
				2.4	2.3	2.2	2.2																	
SP93013	93-12-07 16.1	51-41S	109-33E	3.0	3.0	2.8	2.8	2.7	2.7	2.7	2.7	2.6	1.7	1.7	1.8	2.0	2.3	2.3	150	1.7				
				2.3	2.4	2.3	2.3	2.4	2.4	2.4	2.4	2.3	2.4	2.4	2.4	2.3	2.4	2.3						
				2.3	2.3	2.2	2.2																	
SP93014	93-12-08 00.4	53-32S	109-40E	1.9	1.9	1.8	1.8	1.8	1.7	1.8	1.7	0.9	1.2	1.6	2.1	2.2	2.2	2.2	130	2.7				
				2.2	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1					
				2.1	2.1	2.1	2.0																	
SP93015	93-12-08 15.9	56-10S	109-18E	1.2	1.2	1.1	1.1	0.8	0.8	0.8	-0.2	-0.2	1.1	1.9	1.9	2.0	2.1	2.1	110	-0.8				
				2.1	2.1	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.7	1.6	1.5						
				1.4	1.3	1.2	1.1																	
SP93017	93-12-09 00.5	58-03S	108-01E	-0.3	-0.3	-0.4	-0.3	-0.6	-0.8	-1.0	-0.6	-0.3	1.5	2.0	2.1	2.1	2.1	2.1	40	-1.0				
				2.0	2.0	2.0	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.8	1.7	1.7	1.6	1.5						
				1.5	1.4	1.4	1.3																	

NUMBER	DATE TIME UT	POSITION		TEMPERATURE (°C)															S. L. (M)	AIR TEMP. (°C)													
		LAT.	LONG.	DEPTH (M)																													
				0	10	20	30	50	75	100	125	150	200	250	300	350	400	450															
				500	550	600	650	700	750	800	850	900	950	1000	1100	1200	1300	1400															
				1500	1600	1700	1800																										
SP93018	93-12-09 15.9	60-00S	105-39E	-0.5	-0.6	-0.8	-1.0	-1.0	-1.2	-1.0	-0.5	-0.3	1.5	1.7	1.8	1.7	1.8	1.8	20	-1.8													
				1.8	1.8	1.8	1.7	1.7	1.6	1.6	1.6	1.5	1.5	1.5	1.4	1.3	1.2	1.2															
				1.1	1.1	1.0	1.0																										
SP93020	93-12-10 00.5	60-10S	101-58E	-0.5	-0.4	-0.6	-0.6	-0.9	-1.3	-1.1	-0.7	0.3	1.4	1.7	1.8	1.9	2.0	2.0	40	-1.1													
				2.2	2.5	3.2	4.9	6.1	6.4	6.0	4.9	4.3	4.0	3.8	3.0	-	-	-															
SP93021	93-12-10 04.9	59-58S	100-12E	-1.0	-1.1	-1.2	-1.3	-1.5	-1.1	-0.5	0.5	0.9	1.6	1.7	1.7	1.7	1.7	30	2.0														
				1.8	2.4	2.8	3.6	4.3	4.4	4.1	3.8	3.6	3.4	3.2	2.8	2.6	2.4	2.2															
				2.1	1.9	1.9	1.7																										
SP93022	93-12-10 09.8	60-02S	98-00E	0.1	-0.4	-0.5	-0.6	-0.9	-1.2	-0.9	-0.6	-0.3	0.6	1.5	0.9	1.8	2.0	2.0	40	-0.2													
				2.0	2.0	1.9	1.9	1.9	1.9	1.8	1.7	1.8	1.7	1.7	1.6	1.5	1.5	1.4															
				1.3	1.2	1.2	1.0																										
SP93023	93-12-10 13.9	60-03S	96-07E	0.0	-0.0	-0.1	-0.2	-0.4	-0.4	-0.5	-0.6	-0.3	0.5	1.4	1.8	1.9	1.9	1.7	0	-0.6													
				1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.4	1.3	1.3	1.2	1.2	1.2															
				1.1	1.0	0.9	0.9																										
SP93024	93-12-11 01.4	60-03S	90-39E	-0.6	-0.6	-0.7	-0.7	-1.3	-0.9	-0.2	0.3	0.8	1.7	1.7	1.8	1.8	1.9	1.9	30	-2.3													
SP93025	93-12-11 05.9	59-59S	88-35E	0.8	0.8	0.6	0.3	-0.3	-0.4	-0.1	-0.0	0.2	1.3	1.7	2.1	2.0	1.9	1.8	20	-0.8													
SP93026	93-12-11 11.0	60-02S	86-13E	0.3	0.2	-0.2	-0.4	-0.9	-1.3	-1.0	-0.1	-0.1	1.4	1.2	1.4	1.5	1.5	1.6	10	-0.7													
SP93027	93-12-11 14.9	59-52S	84-43E	-0.3	-0.3	-0.3	-1.0	-1.4	-0.2	1.1	0.8	1.3	1.8	1.9	1.9	1.9	1.9	20	0.0														
SP93028	93-12-12 01.4	60-02S	80-02E	-0.5	-0.5	-0.5	-0.5	-1.1	-1.5	-0.7	0.5	1.2	1.9	1.9	1.9	1.9	1.9	1.8	41	-0.1													
SP93029	93-12-12 05.9	60-06S	78-05E	-0.5	-0.5	-0.5	-0.6	-1.4	-1.6	-1.3	0.0	1.3	1.8	2.0	2.1	2.1	2.1	2.2	39	-0.1													
SP93030	93-12-12 10.8	60-11S	75-52E	-0.5	-0.6	-0.7	-1.4	-1.6	-1.5	-0.1	1.3	1.6	2.1	2.2	2.3	2.4	2.4	2.5	23	-0.2													
SP93031	93-12-12 14.9	60-18S	74-01E	-0.9	-0.9	-1.0	-1.2	-1.8	-1.8	-1.0	1.3	1.7	1.9	2.0	2.0	2.0	2.1	2.1	29	-0.7													
SP93032	93-12-13 02.3	60-38S	68-45E	-0.8	-0.8	-0.8	-0.9	-1.0	-1.7	-1.6	-1.1	0.1	1.5	1.7	1.9	1.9	2.0	2.1	51	-0.1													
SP93033	93-12-13 06.8	60-46S	66-42E	-1.1	-1.1	-1.2	-1.4	-1.7	-1.7	-1.5	-0.2	1.3	1.7	1.9	2.0	2.0	2.0	2.0	27	-0.3													
SP93034	93-12-13 11.8	60-54S	64-29E	-0.8	-0.9	-0.9	-1.1	-1.3	-1.7	-1.5	-0.6	1.0	1.8	1.9	1.9	2.0	2.0	2.0	46	-0.1													
SP93035	93-12-13 15.9	60-59S	62-40E	-0.8	-0.9	-0.9	-0.9	-1.2	-1.5	-1.2	0.6	1.6	2.0	2.1	2.2	2.3	2.3	2.3	47	-0.4													
SP93036	93-12-14 03.4	61-20S	57-17E	-0.8	-0.8	-0.8	-0.9	-1.6	-1.7	-1.6	-0.6	0.3	1.7	1.9	2.0	2.1	2.1	2.1	41	-0.6													
SP93037	93-12-14 07.9	61-48S	55-21E	-0.8	-0.8	-0.9	-1.0	-1.7	-1.4	0.5	1.3	1.6	1.8	1.9	1.9	2.0	2.0	2.1	28	-0.5													
SP93038	93-12-14 12.9	62-24S	53-13E	-0.8	-0.8	-0.9	-1.5	-1.7	-1.8	-0.9	0.9	1.3	1.7	1.7	1.8	1.8	1.8	1.8	24	-0.5													
				1.8	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.9	2.0	2.0	2.1	2.0														
				1.9	1.7	1.6	1.5																										
SP93039	93-12-14 16.8	62-50S	51-33E	-1.2	-1.2	-1.2	-1.3	-1.7	-1.7	-0.5	1.0	1.5	1.8	1.9	1.9	2.0	2.0	2.0	31	-0.8													
SP93040	93-12-15 03.4	64-07S	46-40E	-1.4	-1.4	-1.4	-1.7	-1.6	-0.5	1.4	1.5	1.6	1.6	1.6	1.5	1.6	1.5	1.4	21	-0.7													
SP93041	93-12-15 08.0	64-54S	44-42E	-1.5	-1.5	-1.8	-1.6	-1.6	-0.5	1.5	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.7	0	-0.5													
SP93042	93-12-15 13.2	66-02S	42-40E	-1.5	-1.5	-1.5	-1.5	-1.6	-1.4	0.6	1.2	1.4	1.7	1.8	1.8	1.8	1.8	1.7	0	0.2													
SP93044	93-12-19 14.8	67-43S	39-06E	-1.7	-1.7	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.7	-1.6	-0.9	0.1	0.6	0	-2.1													
				0.7	0.8	0.9	0.9	1.0	1.0	1.1	1.2	1.2	1.2	1.1	1.1	1.0	1.0	0.9															
				0.9	0.9	0.8	0.8																										
SP93045	93-12-21 06.8	67-49S	38-34E	-1.8	-1.7	-1.6	-1.6	-1.6	-1.5	-1.3	-1.3	-1.2	-1.0	-1.0	-0.7	0.4	1.4	1.5	0	-0.8													
SP93046	93-12-22 12.1	67-55S	38-11E	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.7	-1.7	-1.6	-1.6	-1.4	-0.5	30	0.5													

NUMBER	DATE TIME UT	POSITION LAT. LONG.		TEMPERATURE (°C)																S. L. (M)	AIR TEMP. (°C)
				DEPTH (M)																	
				0	10	20	30	50	75	100	125	150	200	250	300	350	400	450			
				500	550	600	650	700	750	800	850	900	950	1000	1100	1200	1300	1400			
SP93047	93-12-22 16.4	68-07S	38-11E	-1.7	-1.8	-1.8	-1.8	-1.8	-1.7	-1.7	-1.6	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.6	0	0.3	
SP93049	93-12-23 07.3	68-07S	38-43E	-1.8	-1.9	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.4	-1.0	-0.8	-0.5	-0.1	0.9	0	0.7	
SP93050	93-12-30 15.7	68-23S	38-49E	-1.6	-1.7	-1.7	-1.7	-1.8	-1.7	-1.7	-1.6	-1.6	-1.5	-1.7	-1.6	-1.5	-1.5	-1.5	0	-0.9	
SP93051	94-02-10 08.8	67-33S	37-34E	-0.2	-0.2	-0.2	-0.1	-0.4	-1.2	-1.7	-1.7	-1.3	0.2	1.2	0.9	1.2	1.2	1.2	36	-3.0	
SP93052	94-02-10 13.9	67-35S	34-19E	-0.9	-0.9	-0.9	-0.9	-1.5	-1.6	-1.6	-1.5	-1.5	-1.5	-1.4	-1.1	-0.5	0.2	0.8	47	-2.6	
SP93053	94-02-10 18.5	66-28S	34-32E	-0.2	-0.2	-0.7	-1.1	-1.7	-1.8	-1.7	-1.8	-1.7	-1.8	-1.3	-0.2	0.3	0.6	0.7	12	-0.6	
SP93054	94-02-11 04.5	67-23S	40-14E	-0.5	-0.5	-0.2	-0.0	-0.5	-1.7	-1.8	-1.8	-1.8	-1.8	-1.5	-0.3	0.5	1.3	1.3	34	-2.0	
SP93055	94-02-12 05.6	68-01S	41-46E	-1.6	-1.6	-1.5	-1.5	-1.4	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.6	-1.5	-1.6	-1.5	0	-3.4	
SP93056	94-02-13 10.0	67-37S	40-43E	-0.1	-0.2	-0.2	-0.1	-0.6	-1.1	-1.5	-1.7	-1.6	-1.5	-0.9	-0.1	0.4	0.4	0.5	35	0.4	
SP93057	94-02-14 17.9	67-15S	41-54E	-0.1	-0.0	-0.1	-0.1	-0.1	-1.0	-1.7	-1.8	-1.8	-1.7	-1.2	-0.1	0.4	0.7	0.7	58	-1.8	
SP93058	94-02-15 10.5	67-43S	44-29E	-1.5	-1.6	-1.6	-1.5	-1.0	-1.3	-1.3	-1.3	-1.3	-1.2	-1.1	-1.0	-0.8	-0.5	-0.5	0	-4.6	
SP93059	94-02-19 08.9	67-18S	46-14E	-1.6	-1.6	-1.6	-1.6	-1.6	-1.4	-1.3	-1.4	-1.6	-1.6	-1.5	-1.5	-1.5	-1.5	-1.5	0	-6.5	
SP93060	94-02-19 14.0	66-37S	48-19E	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.6	-0.6	-1.0	-1.7	-1.7	-1.7	-1.6	-1.6	-1.6	136	-3.3	
SP93061	94-02-24 13.8	66-45S	45-28E	-0.3	-0.3	-0.3	-0.3	-0.4	-0.4	-0.5	-1.7	-1.8	-1.7	-1.4	-0.2	0.6	0.6	0.6	151	-1.8	
SP93062	94-02-24 17.9	65-52S	45-57E	0.1	0.0	0.0	0.1	0.0	-0.9	-1.7	-1.8	-1.8	-1.8	-1.3	-1.2	-0.2	0.3	0.4	69	-1.3	
SP93063	94-02-25 04.4	64-14S	48-37E	0.8	0.9	0.8	0.7	0.5	0.1	1.0	1.3	1.4	1.5	1.3	1.3	1.4	1.3	1.3	49	-0.6	
SP93064	94-02-25 17.9	63-04S	50-36E	1.8	1.9	2.0	6.9	6.9	7.0	7.8	8.4	8.4	8.2	7.6	7.4	7.4	7.5	7.4	42	2.0	
SP93065	94-02-26 04.3	63-05S	55-24E	0.9	0.9	0.9	0.9	1.0	-1.2	0.3	1.5	1.9	2.2	2.3	2.4	2.4	2.4	2.5	51	-1.2	
SP93066	94-02-26 13.8	62-53S	57-44E	1.0	1.0	1.0	0.9	0.8	-0.2	1.1	1.5	1.7	1.8	1.8	1.8	1.8	1.8	1.8	50	-0.1	
SP93067	94-02-26 17.9	62-40S	59-27E	1.0	1.0	1.0	1.0	0.9	0.5	1.4	1.6	1.7	1.8	1.9	1.9	1.9	1.9	1.8	54	-0.1	
SP93068	94-02-27 03.6	63-00S	63-38E	0.9	0.9	0.9	0.9	0.9	-0.6	1.1	1.6	1.7	1.8	1.9	1.9	1.9	1.9	1.9	54	-0.3	
SP93069	94-02-27 12.8	63-05S	66-25E	0.9	0.9	0.9	0.9	1.0	-1.0	0.4	1.7	2.1	2.4	2.6	2.7	2.7	2.7	2.8	68	-0.3	
SP93070	94-02-27 16.9	63-38S	67-40E	1.0	1.0	1.0	1.0	1.0	1.4	1.9	2.2	2.3	2.4	2.5	2.6	2.9	3.0	3.1	0	-0.1	
SP93071	94-02-28 03.4	65-14S	70-24E	0.5	0.4	0.4	0.4	0.4	-1.0	-0.9	-0.9	-0.7	0.6	0.9	1.0	0.9	0.8	1.1	53	-1.8	
SP93072	94-02-28 07.8	66-02S	71-04E	0.2	0.2	0.2	0.2	0.2	-1.7	-1.7	-1.4	-0.8	-0.3	0.1	0.1	0.1	0.2	0.4	57	-5.7	
SP93073	94-02-28 12.8	66-54S	71-05E	-0.7	-0.7	-0.7	-0.7	-0.7	-1.1	-1.5	-1.6	-1.6	-1.5	-1.4	-1.2	-1.1	-1.1	-1.2	0	-7.2	
SP93074	94-02-28 16.9	67-17S	72-49E	-0.4	-0.4	-0.4	-0.4	-1.3	-1.3	-1.1	-1.2	-1.3	-1.3	-1.2	-1.3	-1.3	-1.3	-1.3	36	-6.5	
SP93075	94-03-01 02.4	68-33S	70-36E	-1.4	-1.4	-0.8	-0.8	-0.8	-0.7	-0.7	-0.4	-0.0	-0.6	-1.0	-1.0	-0.8	-0.5	0.5	0	0.0	
SP93076	94-03-01 06.9	68-55S	73-20E	-1.5	-1.5	-1.5	-1.3	-0.8	-0.7	-0.8	-0.7	-1.3	-2.0	-2.0	-1.8	-1.8	-1.8	-1.8	126	0.0	
SP93077	94-03-04 02.3	66-33S	77-37E	-0.0	-0.0	-0.0	-0.0	-0.1	-1.6	-1.6	-1.5	-1.5	-1.5	-1.4	-1.2	-0.8	-0.5	-0.4	55	-1.2	
SP93078	94-03-04 06.8	66-04S	79-08E	-0.2	-0.2	-0.2	-0.2	-0.3	-1.5	-1.5	-1.6	-1.4	-1.6	-1.1	0.6	0.5	0.0	0.7	50	-1.3	
SP93079	94-03-04 12.0	65-15S	80-52E	0.3	0.3	0.3	0.2	-1.2	-1.5	-1.5	0.0	-0.3	-0.8	0.6	1.4	1.4	1.4	1.3	44	0.3	
SP93080	94-03-04 15.9	64-37S	82-24E	0.6	0.6	0.6	0.6	0.4	-1.3	-0.3	0.1	0.4	-0.8	-0.4	0.6	0.9	1.2	1.3	50	0.5	

NUMBER	DATE TIME UT	POSITION LAT. LONG.		TEMPERATURE (°C)															S.L. (M)	AIR TEMP. (°C)				
				DEPTH (M)																				
				0	10	20	30	50	75	100	125	150	200	250	300	350	400	450						
500	550	600	650	700	750	800	850	900	950	1000	1100	1200	1300	1400										
				1500	1600	1700	1800																	
SP93081	94-03-05 02.4	62-48S	86-40E	0.8	0.8	0.8	0.8	-1.2	-0.6	-1.3	-1.1	-0.6	-0.2	1.1	1.8	2.2	2.4	2.5	37	1.0				
SP93082	94-03-05 11.9	62-32S	89-37E	1.2	1.2	1.1	0.8	-1.2	-1.0	-0.7	-0.6	-0.5	0.5	1.1	1.2	1.3	1.4	1.4	29	0.4				
SP93083	94-03-05 15.9	62-30S	91-46E	1.4	1.4	1.2	1.2	-1.2	-1.2	-1.2	-1.0	-0.1	0.9	1.2	1.2	1.3	1.4	1.4	37	0.9				
SP93084	94-03-06 01.3	62-32S	96-27E	1.2	1.2	1.2	1.1	-1.2	-1.3	-0.8	-0.3	0.0	0.6	1.0	1.3	1.3	1.3	1.3	37	-0.3				
SP93085	94-03-06 14.9	62-31S	101-23E	0.9	0.8	0.9	0.8	-0.8	-1.2	-0.6	-0.2	0.5	0.8	1.4	1.5	1.6	1.6	1.6	37	-1.0				
SP93086	94-03-07 00.3	62-30S	106-14E	1.2	1.2	1.2	1.2	-0.3	-0.9	-0.2	0.6	0.9	1.3	1.5	1.6	1.5	1.5	1.6	46	0.1				
SP93087	94-03-07 13.9	62-28S	111-12E	1.3	1.3	1.3	1.3	-0.1	-0.7	-0.5	0.3	1.1	1.2	1.5	1.6	1.6	1.6	1.5	40	0.9				
SP93088	94-03-08 00.3	62-30S	115-35E	1.1	1.1	1.2	1.2	-0.2	-0.5	0.4	1.2	1.5	1.9	2.0	2.1	2.1	2.1	2.0	42	1.2				
SP93089	94-03-08 09.8	62-29S	118-42E	1.0	1.0	1.0	1.0	0.8	-0.6	-0.1	0.5	1.3	1.8	1.8	1.8	1.8	1.8	1.7	49	1.4				
SP93090	94-03-08 13.8	62-28S	120-50E	0.8	0.8	0.8	0.8	0.8	-0.7	-0.0	0.8	1.2	1.4	1.5	1.5	1.5	1.5	1.5	60	1.9				
SP93091	94-03-08 23.2	62-31S	125-57E	0.8	0.8	0.8	0.8	0.8	0.8	-0.6	0.7	1.7	1.9	2.0	2.0	2.0	2.0	2.0	82	0.9				
SP93092	94-03-09 12.9	62-55S	130-28E	1.3	1.3	1.3	1.3	1.3	1.1	-0.8	-0.2	0.7	2.1	2.2	2.4	2.5	2.5	2.5	73	1.3				
SP93093	94-03-09 22.3	63-39S	134-31E	0.8	0.8	0.8	0.8	0.2	-0.2	1.4	2.2	2.3	2.4	2.6	2.7	2.7	2.8	2.8	47	2.2				
SP93094	94-03-10 02.8	64-01S	136-27E	0.7	0.7	0.7	0.7	0.5	-0.8	-0.8	-0.3	0.2	0.7	1.1	1.2	1.3	1.3	1.3	55	1.1				
SP93095	94-03-10 08.1	64-26S	138-32E	1.0	1.0	0.9	0.9	0.6	-0.1	0.7	1.3	1.5	1.6	1.7	1.8	1.9	2.0	2.1	49	-2.6				
SP93096	94-03-10 12.0	64-46S	140-11E	-0.2	-0.2	-0.2	-0.2	-0.9	-0.4	0.2	0.6	0.8	1.0	1.1	1.1	1.2	1.2	1.2	42	-7.0				
SP93097	94-03-10 22.3	65-26S	144-23E	-0.6	-0.6	-0.6	-0.6	-0.7	-0.7	0.1	0.6	0.7	1.0	1.0	1.1	1.1	1.1	1.0	44	-9.4				
SP93098	94-03-11 07.7	65-24S	147-16E	-0.7	-0.7	-0.7	-0.8	-1.1	0.1	-0.4	0.8	1.3	1.3	1.4	1.4	1.4	1.3	1.2	60	-3.3				
SP93099	94-03-11 11.9	65-08S	149-08E	-1.5	-1.6	-1.6	-1.4	-0.6	-0.9	-0.5	0.5	0.7	1.0	1.5	1.3	1.5	1.4	1.0	30	-1.5				
SP93100	94-03-12 06.8	64-21S	149-20E	0.5	0.4	0.5	0.5	0.4	0.1	0.8	1.4	1.7	1.9	1.8	1.8	1.8	1.8	1.8	55	-6.1				
				1.8	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.5	1.5	1.5	1.5	-	-	-						
SP93101	94-03-12 10.9	63-50S	148-17E	0.6	0.6	0.5	0.6	0.6	0.4	0.4	1.4	1.7	2.0	1.9	2.0	2.1	2.1	2.1	53	0.3				
				2.1	2.1	-	-	-	-	-	-	-	-	-	-	-	-	-						
SP93102	94-03-12 21.3	62-41S	151-44E	1.1	1.1	1.1	1.1	1.1	1.0	-0.2	1.1	1.6	1.9	2.0	2.0	2.0	2.1	2.1	77	1.7				
				2.1	2.0	-	-	-	-	-	-	-	-	-	-	-	-	-						
SP93103	94-03-13 01.8	62-10S	150-50E	1.5	1.5	1.4	1.4	1.3	-0.3	0.5	1.4	1.8	2.0	2.1	2.1	2.0	2.0	2.1	0	2.5				
				2.2	2.4	2.5	2.7	2.8	2.9	3.0	3.0	3.0	3.1	3.3	3.8	4.1	4.0	3.7						
				3.5	3.3	3.1	3.0																	
SP93104	94-03-13 06.8	61-31S	149-34E	1.9	1.8	1.8	1.7	1.7	1.7	-0.2	0.3	1.4	2.0	2.1	2.2	2.2	2.3	2.2	80	3.3				
				2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.0						
				1.9	-	-	-																	
SP93105	94-03-13 10.9	61-06S	150-36E	1.5	1.4	1.3	1.3	1.3	1.2	-0.2	1.0	1.5	1.6	1.9	1.9	1.9	1.9	1.9	75	2.9				
				2.0	2.1	2.2	2.3	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.0	1.9	1.9	1.9						
				1.9	1.8	1.6	1.5																	
SP93107	94-03-13 21.4	59-57S	149-19E	1.7	1.7	1.7	1.7	1.6	1.6	-0.5	-0.9	0.5	1.8	2.0	2.0	2.1	2.1	2.1	81	3.5				
				2.1	2.0	2.0	2.0	2.0	2.0	2.0	-	-	-	-	-	-	-	-						
SP93109	94-03-14 10.9	58-36S	150-23E	2.9	2.8	2.8	2.8	2.8	2.9	0.9	0.4	0.0	0.9	1.7	1.9	2.1	2.1	2.1	89	3.2				
				2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.5	2.5	2.7	2.8	-	-						

NUMBER	DATE TIME UT	POSITION LAT. LONG.		TEMPERATURE (°C)															S.L. (M)	AIR TEMP. (°C)
				DEPTH (M)																
				0	10	20	30	50	75	100	125	150	200	250	300	350	400	450		
				500	550	600	650	700	750	800	850	900	950	1000	1100	1200	1300	1400		
SP93110	94-03-14 21.4	57-08S	152-54E	3.8	3.7	3.7	3.4	3.2	2.6	0.8	0.5	0.9	1.8	2.0	1.9	1.9	2.0	2.1	100	4.5
				2.2	2.2	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.2	2.2	2.1		
				2.0	1.9	1.8	1.7													
SP93111	94-03-15 06.9	56-27S	153-02E	4.2	4.2	4.2	4.2	4.0	4.0	1.6	0.9	0.6	0.3	1.2	1.3	1.6	1.8	1.9	82	5.5
				2.0	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.1	2.1	2.0		
				1.9	1.7	-	-													
SP93112	94-03-15 11.0	55-36S	152-27E	3.9	3.9	3.8	3.8	3.8	3.6	3.4	1.9	1.5	1.1	1.0	1.6	1.4	1.4	1.5	102	6.0
				1.8	1.9	2.0	1.9	2.1	2.0	2.0	1.9	2.1	2.1	2.0	2.4	2.6	-	-		
SP93113	94-03-15 21.3	53-11S	152-14E	5.9	5.9	5.9	5.8	5.5	5.2	4.4	3.9	3.1	2.7	2.3	2.2	2.2	2.3	2.4	65	6.5
				2.3	2.3	2.3	2.2	2.2	2.3	2.5	2.7	2.9	2.9	3.1	3.1	3.0	2.7	2.6		
				2.6	2.5	2.4	2.3													
SP93114	94-03-16 01.8	52-11S	152-03E	8.0	7.9	7.9	7.9	7.9	8.3	7.8	7.5	7.6	7.3	7.1	6.8	6.5	6.1	6.1	80	6.9
				5.9	5.5	5.6	5.3	4.9	4.6	4.3	4.1	3.8	3.6	3.5	3.3	3.2	3.3	3.5		
				3.5	3.4	3.2	3.1													
SP93115	94-03-16 04.8	51-30S	151-43E	10.2	10.2	10.1	10.1	10.2	10.2	9.9	9.0	8.8	8.8	8.8	8.8	8.7	9.7	9.3	83	6.9
				8.9	8.5	8.2	7.7	7.3	6.9	6.4	5.9	5.6	5.5	5.3	5.0	4.8	4.6	4.4		
				4.2	4.1	3.9	4.4													
SP93116	94-03-16 06.9	51-08S	151-20E	9.5	9.5	9.5	9.4	9.5	9.3	8.7	7.3	6.4	5.8	5.4	5.4	5.2	5.3	4.7	69	7.1
				4.9	4.6	4.2	3.6	3.6	3.4	3.3	3.3	3.1	2.9	2.9	2.8	2.7	2.6	2.5		
				2.5	2.4	2.8	2.6													
SP93117	94-03-16 11.0	50-13S	150-56E	9.8	9.8	9.8	9.8	9.5	9.1	8.9	9.1	9.2	9.1	8.9	8.9	8.8	8.7	8.1	73	7.6
				7.7	7.4	7.2	6.9	6.4	5.7	5.2	4.8	4.5	4.2	3.9	3.5	3.1	2.9	2.8		
				2.7	2.7	2.6	2.6													
SP93118	94-03-16 21.4	47-43S	150-29E	11.6	11.5	11.5	11.5	11.5	11.5	11.6	10.9	10.4	9.8	9.1	9.0	8.9	8.8	8.7	114	8.7
				8.6	8.4	8.2	7.8	7.5	7.3	6.9	6.5	6.2	5.8	5.6	4.8	4.2	3.8	3.6		
				3.5	3.4	3.4	3.5													
SP93119	94-03-17 06.9	46-16S	150-26E	12.9	12.8	12.8	12.8	12.8	12.8	12.6	12.3	11.6	11.0	10.2	9.6	9.2	9.1	9.0	106	10.7
				8.8	8.7	8.6	8.5	8.3	7.9	7.7	7.3	6.9	6.6	6.2	5.3	4.7	4.1	3.8		
				3.4	3.1	2.9	2.7													
SP93120	94-03-17 10.9	45-17S	150-12E	14.4	14.3	14.3	14.3	14.3	14.3	13.4	13.0	12.7	12.0	11.5	11.0	10.4	9.9	9.5	97	11.3
				9.1	8.9	8.7	8.4	8.0	7.6	7.2	7.0	6.6	6.1	5.8	5.1	4.7	4.4	4.1		
				4.0	3.8	3.6	3.3													
SP93121	94-03-17 21.4	42-40S	150-01E	13.4	13.4	13.4	13.4	13.4	13.4	13.0	12.6	12.4	11.9	11.4	11.0	10.5	9.9	9.5	84	13.1
				9.2	9.0	8.8	8.6	8.3	8.1	7.7	7.3	7.0	6.4	6.2	5.5	5.1	4.9	4.5		
				4.1	3.9	3.6	3.4													
SP93122	94-03-18 01.9	41-47S	150-02E	15.0	14.9	14.9	14.9	14.8	14.8	13.7	12.8	12.4	11.8	11.1	10.6	10.1	9.8	9.3	90	14.6
				9.1	8.9	8.7	8.5	8.2	7.8	7.6	7.1	6.7	6.3	5.9	5.3	4.8	4.4	4.0		
				3.7	3.4	3.1	2.9													
SP93123	94-03-18 06.8	40-50S	150-09E	17.6	17.5	17.3	17.3	17.3	17.2	12.5	12.0	12.1	11.8	11.1	10.3	9.9	9.3	8.9	81	14.6
				8.7	8.5	8.5	8.1	7.8	7.4	7.2	6.6	6.1	5.6	5.3	4.8	4.4	4.3	4.1		
				3.8	3.6	3.5	3.3													
SP93124	94-03-18 11.0	40-01S	150-26E	18.5	18.4	18.4	18.4	18.3	17.3	15.7	14.6	14.2	13.2	12.7	12.0	11.4	10.6	9.9	69	14.5
				9.5	9.0	8.6	8.3	7.9	7.5	7.1	6.8	6.4	5.9	5.5	4.8	4.5	4.0	3.6		
				3.2	2.9	2.7	2.6													
SP93125	94-03-18 21.4	37-57S	151-05E	19.2	19.2	19.1	19.1	19.1	16.6	15.2	14.4	13.9	12.9	12.1	11.4	10.7	10.1	9.5	64	16.3
				9.1	9.1	9.2	9.1	8.8	8.5	8.2	7.9	7.4	7.0	6.7	5.9	5.3	4.9	4.2		
				4.0	3.8	3.5	3.3													

Table 3. Serial observation data.

Station 1

Meteorological observation

Date	: December 5, 1993	Weather time(UT)	: 05:00	Wind direction	: W
Time(UT)	: 05:00	Weather	: bc.	Velocity	: 9 m/s
Latitude	: 40° 34.0' S	Air temperature(dry)	: 12.7 °C	Humidity	: 81 %
Longitude	: 110° 00.4' E	Air temperature(wet)	: 9.6 °C	Wind waves	: W/4
Depth	: 4400 m	Atmospheric pressure	: 1022.5 hPa	Swell	: SW/4
				Visibility	: 30 km

O b s e r v e d												I n t e r p o l a t e d				
Depth (m)	W.Temp. (°C)	Salinity	pH	DO (ml/l)	P04-P (μM)	Si02-Si (μM)	NO2-N (μM)	NO3-N (μM)	NH3-N (μM)	Ca (mM)	Mg (mM)	Depth (m)	W.Temp. (°C)	Salinity	σ _t	ΔD
0	12.600	34.953	8.16	6.29	0.46	23	0.30	2	0.0	—	—	0	12.600	34.953	26.45	0.000
508	9.511	34.766	8.11	5.86	1.03	24	0.18	3	0.0	—	—	600	8.816	34.687	26.92	0.673
912	6.092	34.431	7.98	4.80	1.87	34	0.17	6	0.0	—	—	700	7.987	34.571	26.96	0.760
1112	3.047	34.482	7.92	4.32	2.39	58	0.17	7	0.0	—	—	800	7.088	34.469	27.01	0.831
2378	2.135	34.753	7.97	4.45	2.18	73	0.18	6	0.0	—	—	1000	4.697	34.454	27.30	0.767

Station 2

Meteorological observation

Date	: December 7, 1993	Weather time(UT)	: 12:00	Wind direction	: WSW
Time(UT)	: 05:00	Weather	: rs.	VeLOCITY	: 7 m/s
Latitude	: 49° 41.7' S	Air temperature(dry)	: 2.9 °C	Humidity	: 81 %
Longitude	: 109° 27.3' E	Air temperature(wet)	: -0.1 °C	Wind waves	: WSW/4
Depth	: 3100 m	Atmospheric pressure	: 1004.5 hPa	Swell	: W/4
				Visibility	: 4 km

Observed												Interpolated				
Depth (m)	W. Temp. (°C)	Salinity	pH	DO (ml/l)	P04-P (μM)	Si02-Si (μM)	NO2-N (μM)	NO3-N (μM)	NH3-N (μM)	Ca (mM)	Mg (mM)	Depth (m)	W. Temp. (°C)	Salinity	σ t	ΔD
0	4.800	33.995	8.12	7.28	1.57	9	0.45	4	0.0	—	—	0	4.800	33.995	26.92	0.000
13	4.702	33.969	8.14	7.24	1.51	9	0.42	4	4.9	—	—	10	4.726	33.972	26.91	0.011
12	4.675	33.969	8.13	7.28	1.54	8	0.42	4	7.8	—	—	20	4.634	33.967	26.92	0.023
30	4.545	33.966	8.13	7.27	1.54	8	0.42	5	0.0	—	—	30	4.545	33.966	26.93	0.034
47	4.512	33.969	8.14	7.28	1.55	7	0.40	5	0.0	—	—	50	4.511	33.969	26.93	0.057
79	4.502	33.968	8.12	7.26	1.55	8	0.42	5	3.0	—	—	75	4.503	33.968	26.94	0.085
101	4.497	33.974	8.12	7.25	1.54	8	0.42	5	3.0	—	—	100	4.497	33.974	26.94	0.114
153	3.672	34.006	8.11	7.01	1.68	11	0.42	5	0.0	—	—	125	4.188	33.988	26.98	0.142
205	3.103	33.991	8.10	7.23	1.72	12	0.39	5	3.7	—	—	150	3.700	34.005	27.05	0.168
299	3.474	34.160	8.02	6.00	2.00	18	0.42	6	7.9	—	—	200	3.124	33.992	27.09	0.219
402	3.235	34.246	7.98	5.43	2.18	25	0.25	6	0.0	—	—	250	3.253	34.071	27.14	0.267
503	2.929	34.303	7.97	5.04	2.30	31	0.25	6	0.0	—	—	300	3.470	34.162	27.19	0.314
601	2.736	34.369	7.95	4.74	2.34	37	0.25	7	0.0	—	—	400	3.235	34.246	27.28	0.400
804	2.508	34.491	7.93	4.31	2.42	45	0.25	7	0.0	—	—	500	2.929	34.303	27.36	0.479
902	2.435	34.541	7.93	4.22	2.39	48	0.25	7	0.0	—	—	600	2.732	34.371	27.43	0.552
989	2.396	34.623	7.95	4.19	2.37	50	0.25	7	0.0	—	—					
806	2.362	34.609	7.95	4.21	2.29	51	0.25	7	0.0	—	—					
1308	2.246	34.721	7.99	4.36	2.17	54	0.27	6	0.0	—	—					
5076	2.251	34.722	7.98	4.37	2.17	54	0.27	6	0.0	—	—					
6555	2.267	34.703	7.97	4.32	2.20	53	0.27	6	0.0	—	—					

Station 3

Meteorological observation

Date	: December 8, 1993	Weather time(UT)	: 05:00	Wind direction	: N
Time(UT)	: 05:00	Weather	: bc.	Veocity	: 19 m/s
Latitude	: 54° 33.4' S	Air temperature(dry)	: 2.1 °C	Humidity	: 82 %
Longitude	: 109° 39.2' E	Air temperature(wet)	: -0.6 °C	Wind waves	: N/3
Depth	: 3700 m	Atmospheric pressure	: 1000.1 hPa	Swell	: WNW/4
				Visibility	: 10 km

O b s e r v e d												I n t e r p o l a t e d				
Depth (m)	W.Temp. (°C)	Salinity	pH	DO (ml/l)	PO4-P (μM)	SiO2-Si (μM)	NO2-N (μM)	NO3-N (μM)	NH3-N (μM)	Ca (mM)	Mg (mM)	Depth (m)	W.Temp. (°C)	Salinity	σ t	ΔD
0	2.100	33.988	8.11	7.87	1.75	17	0.30	19	1.3	9.20	54.20	0	2.100	33.988	27.18	0.000
15	1.770	33.988	8.14	7.75	1.64	18	1.97	22	0.7	9.20	54.40	10	1.826	33.988	27.20	0.009
41	1.743	33.992	8.12	7.75	1.75	17	1.96	25	0.6	9.00	54.48	20	1.760	33.988	27.20	0.018
54	1.704	34.000	8.13	7.94	1.72	18	1.16	24	0.7	9.20	54.32	30	1.756	33.990	27.20	0.026
73	1.700	33.985	8.12	7.72	1.77	18	0.47	27	0.5	9.00	54.46	50	1.712	33.998	27.21	0.044
102	1.706	33.984	8.14	7.69	1.77	18	0.47	28	0.8	9.00	54.52	75	1.700	33.985	27.20	0.066
128	1.654	33.990	8.12	7.70	1.69	19	0.42	27	1.2	9.00	54.44	100	1.706	33.984	27.20	0.088
193	0.814	34.071	8.13	7.33	1.84	27	0.47	31	1.8	9.20	54.32	125	1.665	33.988	27.21	0.109
244	0.778	34.123	8.05	6.85	2.07	32	0.35	30	0.1	9.00	55.16	150	1.438	34.013	27.24	0.131
307	2.033	34.335	7.94	5.03	2.34	43	0.33	33	0.0	9.20	55.10	200	0.809	34.079	27.34	0.170
362	2.106	34.444	7.94	4.62	2.33	47	0.30	31	0.0	9.20	55.16	250	0.845	34.134	27.38	0.207
407	2.113	34.472	7.95	4.48	2.31	50	0.30	34	0.1	9.20	55.16	300	1.982	34.315	27.45	0.241
461	2.400	34.534	7.94	4.24	2.36	52	0.31	31	0.5	9.20	55.22	400	2.107	34.466	27.56	0.302
516	2.460	34.575	7.94	4.20	2.37	53	0.31	31	0.4	9.20	55.34	500	2.443	34.566	27.61	0.355
571	2.350	34.585	7.97	4.12	2.24	55	0.31	34	0.4	9.40	55.08	600	2.319	34.601	27.65	0.405
706	2.215	34.668	7.97	4.23	2.24	56	0.30	33	0.2	9.20	55.62	700	2.220	34.666	27.71	0.451
840	2.107	34.703	7.99	4.30	2.10	58	0.40	30	0.3	9.40	55.82	800	2.137	34.694	27.74	0.493
1119	1.981	34.749	7.99	4.53	2.10	59	0.31	28	0.2	9.40	55.40	1000	2.036	34.733	27.78	0.572
1409	1.682	34.752	8.03	4.64	2.13	63	0.31	25	0.3	9.40	55.60	1200	1.917	34.750	27.80	0.646

Station 4

Meteorological observation

Date	: December 9, 1993	Weather time(UT)	: 05:00	Wind direction	: WSW
Time(UT)	: 05:00	Weather	: bc.	Velocity	: 16 m/s
Latitude	: 58° 57.9' S	Air temperature(dry)	: -0.6 °C	Humidity	: 71 %
Longitude	: 107° 24.3' E	Air temperature(wet)	: -5.2 °C	Wind waves	: WSW/3
Depth	: 4433 m	Atmospheric pressure	: 994.8 hPa	Swell	: W/1,N/1
				Visibility	: 30 km

O b s e r v e d												I n t e r p o l a t e d				
Depth (m)	W.Temp. (°C)	Salinity	pH	DO (ml/l)	P04-P (μM)	SiO2-Si (μM)	NO2-N (μM)	NO3-N (μM)	NH3-N (μM)	Ca (mM)	Mg (mM)	Depth (m)	W.Temp. (°C)	Salinity	σ t	ΔD
0	0.700	33.873	8.11	8.28	1.72	41	0.56	29	0.6	8.88	54.96	0	0.700	33.873	27.18	0.000
16	0.020	33.863	8.16	8.21	1.65	40	0.55	16	0.6	8.88	54.28	10	0.170	33.866	27.20	0.009
24	-0.028	33.862	8.14	8.14	1.74	40	0.55	27	0.8	8.86	54.10	20	0.004	33.863	27.21	0.018
40	-0.166	33.877	8.14	8.16	1.74	40	0.56	27	1.1	8.96	54.02	30	0.079	33.867	27.22	0.026
60	-0.361	33.890	8.13	8.09	1.72	40	0.54	28	0.6	8.86	54.20	50	0.262	33.882	27.24	0.043
80	-0.585	33.975	8.10	7.98	1.85	43	0.61	29	0.6	8.92	54.34	75	0.529	33.953	27.31	0.063
118	-0.607	34.105	8.08	7.40	1.97	48	0.71	32	0.5	9.04	54.78	100	0.597	34.042	27.38	0.082
157	0.658	34.328	7.97	5.65	2.20	58	0.62	32	0.5	9.12	54.80	125	0.465	34.138	27.45	0.098
239	1.846	34.567	7.94	4.31	2.20	55	0.53	35	0.4	9.08	55.26	150	0.469	34.293	27.53	0.113
312	1.879	34.627	7.94	4.25	2.21	57	0.50	35	1.1	9.14	55.36	200	1.460	34.487	27.62	0.140
388	2.170	34.670	7.94	4.29	2.26	57	0.48	34	0.8	9.20	55.32	250	1.851	34.578	27.67	0.163
458	1.871	34.681	7.94	4.32	2.23	58	0.50	34	0.5	9.28	55.18	300	1.874	34.619	27.70	0.184
536	1.828	34.705	7.97	4.32	2.13	59	0.49	33	0.5	9.56	55.10	400	2.149	34.673	27.72	0.226
610	2.070	34.713	7.98	4.44	2.13	60	0.52	33	0.5	9.00	55.68	500	1.848	34.695	27.76	0.264
684	2.100	34.731	7.97	4.48	2.18	60	0.52	33	0.5	9.18	55.40	600	2.053	34.712	27.76	0.301
757	2.070	34.731	8.02	4.43	1.94	61	0.52	33	0.2	9.14	55.52	700	2.098	34.731	27.77	0.339
937	1.663	34.747	8.00	4.53	2.07	62	0.51	32	0.3	9.12	55.38	800	1.991	34.735	27.78	0.376
1123	1.513	34.741	8.03	4.64	1.94	64	0.56	32	0.3	9.18	55.42	1000	1.612	34.745	27.82	0.445
1501	1.172	34.734	8.00	4.74	2.13	68	0.50	32	0.5	9.24	55.26	1200	1.443	34.740	27.83	0.510
1881	0.855	34.718	8.03	4.79	2.08	72	0.54	33	0.3	9.32	55.62	1500	1.173	34.734	27.84	0.604
2302	0.561	34.698	8.01	4.95	2.18	75	0.52	34	0.3	9.24	55.62	2000	0.767	34.712	27.85	0.754
2750	0.286	34.695	8.06	5.05	2.10	77	0.52	34	0.1	9.46	55.08	2500	0.433	34.696	27.86	0.894
3243	0.105	34.692	8.02	5.24	2.10	77	0.51	33	0.3	9.44	55.24	3000	0.175	34.693	27.87	1.022

Station 5

Meteorological observation

Date	: December 16, 1993	Weather time(UT)	: 05:00	Wind direction	: E
Time(UT)	: 05:00	Weather	: c.	Velocity	: 10 m/s
Latitude	: 67° 33.4' S	Air temperature(dry)	: -1.5 °C	Humidity	: 87 %
Longitude	: 39° 39.2' E	Air temperature(wet)	: -3.4 °C	Wind waves	: - (ice coverd)
Depth	: 3285 m	Atmospheric pressure	: 976.4 °C	Swell	: - (ice coverd)
				Visibility	: 10 km

O b s e r v e d												I n t e r p o l a t e d				
Depth (m)	W.Temp. (°C)	Salinity	pH	DO (ml/l)	P04-P (μM)	SiO2-Si (μM)	NO2-N (μM)	NO3-N (μM)	NH3-N (μM)	Ca (mM)	Mg (mM)	Depth (m)	W.Temp. (°C)	Salinity	σ t	ΔD
0	-1.600	34.281	8.05	7.47	2.05	49	0.36	21	0.1	8.96	54.92	0	-1.600	34.281	27.61	0.074
605	0.813	34.672	7.98	5.31	2.24	68	0.31	34	0.1	8.96	55.44	700	0.631	34.669	27.82	0.139
804	0.453	34.667	7.98	5.56	2.27	72	0.31	33	0.0	8.90	55.48	800	0.451	34.667	27.83	0.012
904	0.362	34.676	7.99	5.48	2.27	72	0.31	33	0.1	9.00	55.40	1000	0.345	34.683	27.85	0.125
1013	0.344	34.683	7.98	5.46	2.27	73	0.31	33	0.0	8.94	55.40	1200	0.299	34.689	27.86	0.028
1243	0.291	34.690	7.99	5.42	2.27	77	0.31	31	0.0	9.02	55.46					

Station 7

Meteorological observation

Date	: Februray 26, 1994	Weather time(UT)	: 10:00	Wind direction	: SW
Time(UT)	: 10:00	Weather	: bc.	Veiocity	: 8 m/s
Latitude	: 63° 01.4' S	Air temperature(dry)	: 0.4 °C	Humidity	: 61 %
Longitude	: 57° 25.8' E	Air temperature(wet)	: -6.2 °C	Wind waves	: SW/2
Depth	: 4738 m	Atmospheric pressure	: 995.2 hPa	Swell	: SW/1, ESE/1
				Visibility	: 40 km

O b s e r v e d												I n t e r p o l a t e d				
Depth (m)	W. Temp. (°C)	Salinity	pH	DO (ml/l)	PO4-P (μM)	SiO2-Si (μM)	NO2-N (μM)	NO3-N (μM)	NH3-N (μM)	Ca (mM)	Mg (mM)	Depth (m)	W. Temp. (°C)	Salinity	σ t	ΔD
0	1.100	33.876	8.09	7.81	1.91	42	0.42	28	0.8	8.82	54.22	0	1.100	33.876	27.16	0.000
10	0.910	33.850	8.10	7.79	1.90	41	0.42	28	1.0	—	—	10	0.910	33.850	27.15	0.009
25	0.824	33.846	8.10	7.82	1.88	41	0.41	28	1.0	—	—	20	0.847	33.847	27.15	0.018
49	0.799	33.849	8.09	7.77	1.88	41	0.41	28	0.7	—	—	30	0.808	33.847	27.15	0.028
74	-1.388	34.108	8.09	7.47	1.97	48	0.35	29	0.7	—	—	50	0.785	33.852	27.16	0.046
99	0.083	34.324	7.99	6.12	2.24	63	0.34	32	0.8	8.96	55.12	75	-1.363	34.117	27.47	0.065
149	1.544	34.554	7.92	4.44	2.45	80	0.33	35	0.4	—	—	100	0.117	34.331	27.58	0.079
199	1.685	34.612	7.91	4.31	2.38	85	0.32	34	0.4	—	—	125	1.031	34.479	27.65	0.092
299	1.775	34.669	7.92	4.31	2.34	87	0.31	33	0.7	—	—	150	1.548	34.556	27.67	0.103
399	1.811	34.704	7.94	4.31	2.28	89	0.31	33	0.4	—	—	200	1.686	34.613	27.71	0.124
498	1.764	34.729	7.96	4.43	2.22	90	0.31	32	0.4	9.16	55.34	250	1.736	34.644	27.73	0.143
595	1.663	34.735	7.96	4.52	2.19	92	0.31	32	0.3	—	—	300	1.776	34.669	27.75	0.162
694	1.603	34.745	7.97	4.58	2.17	94	0.31	31	0.4	—	—	400	1.811	34.704	27.77	0.199
795	1.518	34.747	7.97	4.66	2.19	96	0.31	31	0.4	—	—	500	1.762	34.729	27.79	0.233
894	1.420	34.745	7.98	4.73	2.18	99	0.31	31	0.5	—	—	600	1.659	34.735	27.81	0.266
990	1.320	34.683	7.98	4.93	2.18	96	0.31	32	0.4	9.14	55.38	700	1.598	34.745	27.82	0.298
1240	1.063	34.730	7.97	4.83	2.18	108	0.31	32	0.3	—	—	800	1.513	34.747	27.83	0.329
1487	0.835	34.725	7.97	4.88	2.25	116	0.31	33	0.4	9.12	55.68	1000	1.310	34.683	27.79	0.395
1972	0.501	34.699	7.97	4.96	2.29	126	0.31	34	0.4	9.08	55.20	1200	1.104	34.727	27.84	0.460
2472	0.258	34.687	7.97	5.07	2.25	—	0.15	34	0.5	9.06	55.26	1500	0.824	34.724	27.86	0.547
2966	0.081	34.679	7.98	5.31	2.32	134	0.31	34	0.5	9.04	55.38	2000	0.485	34.698	27.86	0.684
3456	-0.054	34.675	7.98	5.45	2.29	134	0.31	34	0.5	9.06	55.34	2500	0.247	34.686	27.86	0.816
3945	-0.161	34.670	7.99	5.63	2.25	131	0.31	33	0.4	9.18	55.08	3000	0.071	34.679	27.86	0.939
4432	-0.261	34.666	8.00	5.75	2.25	131	0.31	34	0.7	9.18	55.06	3500	0.064	34.675	27.87	1.054

Station 8

Meteorological observation

Date	: Februray 27, 1994	Weather time(UT)	: 08:00	Wind direction	: NW
Time (UT)	: 08:00	Weather	: bc.	Veioicity	: 14 m/s
Latitude	: 63° 00. 3' S	Air temperature(dry)	: 0.5 °C	Humidity	: 75 %
Longitude	: 65° 42. 6' E	Air temperature(wet)	: -3.5 °C	Wind waves	: NW/3
Depth	: 4314 m	Atmospheric pressure	: 989.4 °C	Swell	: SE/3
				Visibility	: 30 km

O b s e r v e d												I n t e r p o l a t e d				
Depth (m)	W. Temp. (°C)	Salinity	pH	DO (ml/l)	P04-P (μM)	Si02-Si (μM)	NO2-N (μM)	NO3-N (μM)	NH3-N (μM)	Ca (mM)	Mg (mM)	Depth (m)	W. Temp. (°C)	Salinity	σ t	ΔD
0	1.000	33.804	8.09	7.80	1.83	29	0.46	28	1.1	8.90	53.84	0	1.000	33.804	27.11	0.000
10	0.871	33.790	8.10	7.73	1.85	29	0.45	27	0.8	—	—	10	0.871	33.790	27.10	0.010
24	0.871	33.793	8.10	7.77	1.83	29	0.45	27	0.8	—	—	20	0.871	33.792	27.10	0.019
48	0.848	33.793	8.10	7.69	1.83	29	0.45	28	0.8	—	—	30	0.869	33.793	27.11	0.029
74	-1.067	34.044	8.08	7.43	2.01	39	0.36	29	0.9	—	—	50	0.809	33.798	27.11	0.048
100	-0.005	34.242	7.99	6.07	2.24	54	0.36	33	0.6	8.88	54.54	75	-1.037	34.052	27.41	0.069
151	1.654	34.493	7.90	4.36	2.49	75	0.31	36	0.3	—	—	100	0.005	34.242	27.52	0.084
200	1.770	34.548	7.89	4.19	2.47	79	0.31	36	0.3	—	—	125	0.994	34.398	27.58	0.098
299	1.940	34.630	7.91	4.10	2.38	83	0.31	35	0.3	—	—	150	1.648	34.491	27.61	0.111
398	1.968	34.667	7.92	4.19	2.32	85	0.31	34	0.1	—	—	200	1.770	34.548	27.65	0.134
499	1.952	34.707	7.94	4.24	2.27	86	0.31	34	0.4	8.96	54.98	250	1.867	34.595	27.68	0.157
597	1.898	34.719	7.95	4.37	2.24	86	0.31	33	0.3	—	—	300	1.941	34.630	27.70	0.178
696	1.836	34.734	7.96	4.45	2.21	88	0.31	33	0.3	—	—	400	1.968	34.668	27.73	0.218
795	1.793	34.746	7.97	4.55	2.18	88	0.31	32	0.4	—	—	500	1.952	34.707	27.76	0.257
895	1.711	34.752	7.97	4.65	2.15	92	0.31	32	0.3	—	—	600	1.896	34.719	27.78	0.293
994	1.614	34.751	7.98	4.68	2.15	94	0.32	32	0.3	9.14	55.18	700	1.834	34.735	27.79	0.328
1244	1.365	34.744	7.97	4.78	2.16	101	0.32	32	0.3	—	—	800	1.790	34.747	27.81	0.362
1488	1.154	34.733	7.98	4.82	2.21	108	0.32	32	0.4	9.14	55.26	1000	1.608	34.751	27.82	0.428
1983	0.736	34.719	7.98	4.97	2.25	120	0.32	33	0.5	9.10	55.40	1200	1.407	34.746	27.83	0.492
2473	0.429	34.694	7.98	5.04	2.29	128	0.32	34	0.3	9.06	55.32	1500	1.144	34.733	27.84	0.585
2962	0.189	34.684	7.98	5.25	2.29	133	0.32	34	0.4	9.10	55.30	2000	0.722	34.718	27.86	0.731
3451	-0.010	34.676	7.98	5.39	2.32	138	0.32	34	0.4	9.00	55.46	2500	0.415	34.693	27.86	0.869
3942	-0.161	34.668	7.99	5.56	2.24	142	0.31	34	0.2	9.08	55.38	3000	0.172	34.683	27.86	0.998
4191	-0.220	34.668	7.98	5.62	2.29	145	0.31	34	0.2	9.06	55.38	3500	0.027	34.675	27.87	1.117

Station 9

Meteorological observation

Date	: March 5, 1994	Weather time(UT)	: 07:00	Wind direction	: WNW
Time(UT)	: 07:00	Weather	: bc.	VeLOCITY	: 7 m/s
Latitude	: 62° 30.1' S	Air temperature(dry)	: 1.6 °C	Humidity	: 89 %
Longitude	: 88° 38.8' E	Air temperature(wet)	: 0.0 °C	Wind waves	: WNW/3
Depth	: 3740 m	Atmospheric pressure	: 978.4 °C	Swell	: WNW/5, NWN/5
				Visibility	: 30 km

O b s e r v e d												I n t e r p o l a t e d				
Depth (m)	W.Temp. (°C)	Salinity	pH	DO (ml/l)	PO4-P (μM)	SiO2-Si (μM)	NO2-N (μM)	NO3-N (μM)	NH3-N (μM)	Ca (mM)	Mg (mM)	Depth (m)	W.Temp. (°C)	Salinity	σ t	ΔD
0	1.400	33.875	8.10	7.68	1.72	31	0.42	26	0.6	8.94	53.86	0	1.400	33.875	27.14	0.000
9	1.201	33.812	8.13	7.76	1.51	23	0.40	24	0.9	—	—	10	1.198	33.812	27.10	0.010
22	1.159	33.810	8.12	7.81	1.51	23	0.39	24	0.4	—	—	20	1.165	33.810	27.10	0.019
48	-0.162	33.985	8.10	7.37	1.81	33	0.37	26	0.4	—	—	30	0.803	33.847	27.15	0.029
73	-1.220	34.306	8.00	6.38	2.24	62	0.37	31	0.4	—	—	50	0.258	34.006	27.34	0.045
99	-0.551	34.402	7.98	5.89	2.24	69	0.32	32	0.7	8.92	54.86	75	-1.169	34.318	27.63	0.061
151	-0.230	34.472	7.98	5.79	2.24	73	0.31	32	0.2	—	—	100	0.544	34.403	27.67	0.072
198	0.209	34.535	7.97	5.48	2.23	77	0.31	32	0.3	—	—	125	0.402	34.437	27.69	0.082
298	0.760	34.605	7.95	5.08	2.24	83	0.31	32	0.3	—	—	150	0.239	34.471	27.71	0.092
399	1.277	34.674	7.94	4.78	2.23	89	0.31	32	0.3	—	—	200	0.221	34.537	27.74	0.111
498	1.585	34.726	7.95	4.62	2.20	92	0.31	31	0.6	9.04	55.68	250	0.504	34.577	27.76	0.129
597	1.444	34.733	7.96	4.74	2.17	95	0.31	31	0.3	—	—	300	0.771	34.606	27.76	0.146
698	1.332	34.731	7.96	4.82	2.17	96	0.31	31	0.5	—	—	400	1.282	34.675	27.79	0.180
792	1.312	34.735	7.97	4.77	2.17	99	0.31	31	0.5	—	—	500	1.583	34.726	27.81	0.213
892	1.143	34.730	7.97	4.88	2.20	102	0.31	31	0.5	—	—	600	1.441	34.733	27.82	0.245
992	0.924	34.716	7.97	4.99	2.21	104	0.31	32	0.2	9.02	55.44	700	1.330	34.731	27.83	0.275
1239	0.886	34.724	7.97	4.93	2.23	113	0.31	32	0.2	—	—	800	1.302	34.735	27.83	0.305
1489	0.695	34.711	7.97	4.95	2.28	119	0.31	32	0.3	9.06	54.98	1000	0.915	34.716	27.84	0.364
1733	0.508	34.707	7.97	4.99	2.28	126	0.31	33	0.2	—	—	1200	0.903	34.723	27.85	0.421
1983	0.338	34.703	7.97	5.03	2.27	125	0.31	33	0.1	9.06	55.48	1500	0.687	34.711	27.85	0.505
2473	0.120	34.667	7.97	5.31	2.27	125	0.31	33	0.1	9.08	55.36	2000	0.328	34.703	27.87	0.637
2964	-0.025	34.682	7.98	5.45	2.30	131	0.31	33	0.1	9.14	55.12	2500	0.111	34.668	27.85	0.763
3454	-0.132	34.678	7.98	5.57	2.26	127	0.31	33	0.1	9.16	53.30	3000	0.033	34.682	27.87	0.882
3668	-0.170	34.680	7.98	5.57	2.30	131	0.31	33	0.3	9.02	53.44	3500	0.141	34.678	27.87	0.990

Station 10

Meteorological observation

Date	: March 6, 1994	Weather time(UT)	: 07:00	Wind direction	: S
Time(UT)	: 07:00	Weather	: bc.	Velocity	: 2 m/s
Latitude	: 62° 32.8' S	Air temperature(dry)	: 1.1 °C	Humidity	: 71 %
Longitude	: 98° 44.1' E	Air temperature(wet)	: -3.1 °C	Wind waves	: S/2
Depth	: 4089 m	Atmospheric pressure	: 981.5 hPa	Swell	: WNW/3, SSE/1
				Visibility	: 30 km

O b s e r v e d												I n t e r p o l a t e d				
Depth (m)	W. Temp. (°C)	Salinity	pH	DO (ml/l)	P04-P (μM)	SiO2-Si (μM)	NO2-N (μM)	NO3-N (μM)	NH3-N (μM)	Ca (mM)	Mg (mM)	Depth (m)	W. Temp. (°C)	Salinity	σ t	ΔD
0	1.300	33.724	8.19	7.90	1.23	14	0.38	20	0.5	8.84	53.90	0	1.300	33.724	27.02	0.000
9	1.095	33.721	8.20	7.79	1.28	15	0.37	20	0.7	—	—	10	1.079	33.721	27.03	0.010
24	1.042	33.725	8.19	7.73	1.32	14	0.37	20	1.2	—	—	20	1.075	33.724	27.04	0.021
49	-1.007	34.160	8.05	6.66	2.15	55	0.35	29	1.4	—	—	30	0.693	33.782	27.11	0.031
75	-0.905	34.353	8.01	6.12	2.23	68	0.35	32	0.3	—	—	50	-1.003	34.170	27.50	0.046
96	-0.527	34.403	7.99	5.87	2.23	72	0.34	32	0.1	8.84	55.18	75	0.905	34.353	27.65	0.059
149	0.338	34.537	7.98	5.26	2.27	81	0.31	32	0.0	—	—	100	0.461	34.413	27.68	0.070
198	1.056	34.626	7.96	4.82	2.28	87	0.31	32	0.0	—	—	125	0.051	34.477	27.71	0.081
298	1.315	34.685	7.96	4.68	2.24	90	0.31	32	0.1	—	—	150	0.354	34.539	27.74	0.090
397	1.416	34.686	7.96	4.67	2.26	90	0.32	32	0.0	—	—	200	1.072	34.628	27.76	0.108
496	1.354	34.723	7.97	4.66	2.20	96	0.30	32	0.1	9.04	55.56	250	1.279	34.669	27.78	0.125
598	1.274	34.724	7.98	4.72	2.20	100	0.31	31	0.1	—	—	300	1.317	34.685	27.79	0.142
694	1.196	34.730	7.98	4.74	2.20	102	0.31	31	0.3	—	—	400	1.415	34.687	27.79	0.175
794	1.099	34.726	7.98	4.77	2.21	107	0.31	32	0.1	—	—	500	1.351	34.723	27.82	0.207
893	1.021	34.724	7.98	4.83	2.23	110	0.31	32	0.0	—	—	600	1.272	34.724	27.83	0.237
992	0.943	34.722	7.98	4.83	2.24	113	0.32	32	0.0	8.96	55.66	700	1.191	34.730	27.84	0.267
1238	0.739	34.716	7.99	4.89	2.26	120	0.31	32	0.0	—	—	800	1.094	34.726	27.84	0.296
1486	0.552	34.702	7.98	4.92	2.28	127	0.31	33	0.0	8.98	55.48	1000	0.937	34.722	27.85	0.353
1981	0.242	34.689	7.98	5.14	2.31	131	0.31	33	0.0	9.08	55.38	1200	0.770	34.717	27.85	0.409
2473	0.041	34.694	7.99	5.13	2.27	131	0.32	33	0.2	9.04	55.46	1500	0.542	34.701	27.86	0.491
2966	-0.107	34.679	7.99	5.50	2.27	128	0.33	32	0.1	9.04	55.52	2000	0.232	34.689	27.86	0.621
3455	-0.165	34.677	7.99	5.58	2.27	126	0.33	32	0.1	9.02	55.38	2500	0.032	34.694	27.88	0.740
3944	-0.205	34.677	7.99	5.65	2.23	127	0.33	32	0.2	—	—	3000	0.112	34.679	27.87	0.850
4017	-0.212	34.673	8.00	5.64	2.28	129	0.33	32	0.2	8.92	55.56	3500	0.169	34.677	27.87	0.956

Station 11

Meteorological observation

Date	: March 8, 1994	Weather time(UT)	: 05:00	Wind direction	: W
Time(UT)	: 05:00	Weather	: fe.	Veocity	: 12 m/s
Latitude	: 62° 34.1' S	Air temperature(dry)	: 1.7 °C	Humidity	: 88 %
Longitude	: 117° 34.6' S	Air temperature(wet)	: 0.0 °C	Wind waves	: W/3
Depth	: 3988 m	Atmospheric pressure	: 961.2 hPa	Swell	: WNW/1, NE/1
				Visibility	: 8 km

O b s e r v e d												I n t e r p o l a t e d				
Depth (m)	W.Temp. (°C)	Salinity	pH	DO (ml/l)	PO4-P (μ M)	SiO2-Si (μ M)	NO2-N (μ M)	NO3-N (μ M)	NH3-N (μ M)	Ca (mM)	Mg (mM)	Depth (m)	W.Temp. (°C)	Salinity	σ_t	ΔD
0	1.200	33.869	8.10	7.68	1.75	41	0.42	26	0.7	8.84	54.06	0	1.200	33.869	27.15	0.000
12	0.999	—	—	—	—	—	—	—	—	—	—	10	1.014	33.868	27.16	0.009
21	0.971	33.868	8.11	7.62	1.74	39	0.40	26	0.7	—	—	20	0.975	33.868	27.16	0.018
30	0.925	33.873	8.11	7.55	1.75	43	0.39	26	0.6	—	—	30	0.925	33.873	27.17	0.028
49	0.853	33.896	8.10	7.57	1.78	46	0.39	27	0.7	—	—	50	0.841	33.899	27.19	0.045
74	-0.687	34.286	8.00	6.33	2.21	65	0.36	32	0.2	—	—	75	0.670	34.292	27.59	0.063
100	-0.152	34.400	7.98	5.70	2.30	74	0.38	33	0.0	8.90	55.02	100	0.152	34.400	27.65	0.075
149	0.713	34.530	7.94	4.93	2.33	83	0.32	34	0.0	—	—	125	0.299	34.469	27.68	0.086
200	1.316	34.625	7.93	4.59	2.31	89	0.31	34	0.0	—	—	150	0.729	34.532	27.71	0.096
298	1.477	34.630	7.93	4.55	2.33	89	0.31	34	0.0	—	—	200	1.316	34.625	27.74	0.115
399	1.473	34.694	7.95	4.53	2.26	95	0.31	33	0.0	—	—	250	1.446	34.628	27.74	0.134
498	1.450	34.713	7.96	4.63	2.21	98	0.31	32	0.0	8.92	55.50	300	1.477	34.631	27.74	0.153
596	1.406	34.718	7.96	4.64	2.21	101	0.31	32	0.1	—	—	400	1.473	34.694	27.79	0.188
696	1.347	34.727	7.97	4.64	2.21	104	0.31	32	0.4	—	—	500	1.449	34.713	27.81	0.221
794	1.292	34.734	7.97	4.69	2.21	107	0.31	32	0.0	—	—	600	1.404	34.718	27.81	0.253
898	1.232	34.726	7.97	4.74	2.21	108	0.31	32	0.0	—	—	700	1.345	34.727	27.82	0.284
992	1.166	34.728	7.97	4.76	2.21	112	0.31	32	0.1	9.08	55.38	800	1.289	34.734	27.83	0.314
1240	0.972	34.718	7.97	4.79	2.24	119	0.31	32	0.0	—	—	1000	1.160	34.728	27.84	0.374
1485	0.781	34.712	7.97	4.84	2.27	126	0.31	33	0.0	9.06	55.46	1200	1.003	34.719	27.84	0.434
1980	0.462	34.689	7.97	5.01	2.26	134	0.31	33	0.0	9.00	55.42	1500	0.769	34.711	27.85	0.521
2472	0.185	34.680	7.97	5.20	2.26	134	0.31	33	0.0	9.12	55.36	2000	0.450	34.688	27.85	0.661
2966	0.003	34.676	7.98	5.38	2.26	136	0.31	33	0.0	9.06	55.40	2500	0.171	34.680	27.86	0.792
3452	-0.106	34.675	7.97	5.48	2.26	139	0.31	33	0.0	9.04	55.42	3000	0.006	34.676	27.87	0.912
3846	-0.225	34.669	7.98	5.61	2.27	139	0.31	33	0.0	9.04	55.38	3500	0.119	34.675	27.87	1.024

Station 12

Meteorological observation

Date	: March 9, 1994	Weather time(UT)	: 04:00	Wind direction	: WNW
Time(UT)	: 04:00	Weather	: bc.	VeLOCITY	: 17 m/s
Latitude	: 62° 29.4' S	Air temperature(dry)	: 1.2 °C	Humidity	: 91 %
Longitude	: 128° 21.2' E	Air temperature(wet)	: 0.0 °C	Wind waves	: WNW/3
Depth	: 4346 m	Atmospheric pressure	: 969.6 hPa	Swell	: NWN/4
				Visibility	: 2 km

Depth (m)	O b s e r v e d											I n t e r p o l a t e d				
	W. Temp. (°C)	Salinity	pH	DO (ml/l)	PO4-P (μM)	SiO2-Si (μM)	NO2-N (μM)	NO3-N (μM)	NH3-N (μM)	Ca (mM)	Mg (mM)	Depth (m)	W. Temp. (°C)	Salinity	σ t	ΔD
0	1.300	33.935	8.11	7.81	1.58	27	0.42	27	0.5	8.82	54.26	0	1.300	33.935	27.19	0.000
11	1.478	33.896	8.13	7.77	1.52	17	0.41	26	0.2	—	—	10	1.476	33.897	27.15	0.009
23	1.474	33.894	8.13	7.75	1.54	17	0.41	26	0.2	—	—	20	1.475	33.894	27.15	0.018
50	1.467	33.897	8.13	7.69	1.52	17	0.41	26	0.1	—	—	30	1.472	33.895	27.15	0.028
75	-0.523	34.061	8.06	7.62	2.04	42	0.36	30	0.3	—	—	50	1.467	33.897	27.15	0.046
100	-0.858	34.198	8.01	6.79	2.23	53	0.35	33	0.5	8.90	54.52	75	0.523	34.061	27.39	0.066
151	1.078	34.473	7.92	4.84	2.49	74	0.31	36	0.7	—	—	100	0.858	34.198	27.52	0.082
201	1.896	34.604	7.90	4.23	2.49	83	0.32	36	0.2	—	—	125	0.112	34.334	27.58	0.096
300	1.946	34.664	7.91	4.30	2.34	86	0.31	35	0.2	—	—	150	1.056	34.468	27.64	0.108
400	1.915	—	—	—	—	—	—	—	—	—	—	200	1.894	34.603	27.68	0.130
497	1.863	34.720	7.94	4.46	2.26	90	0.31	33	0.2	9.00	55.50	250	1.938	34.639	27.71	0.151
598	1.862	34.740	7.96	4.62	2.20	91	0.31	33	0.1	—	—	300	1.946	34.664	27.73	0.171
697	1.797	34.745	7.96	4.65	2.18	94	0.31	32	0.1	—	—	400	1.915	34.699	27.76	0.209
798	1.728	34.750	7.96	4.72	2.17	96	0.31	32	0.1	—	—	500	1.863	34.721	27.78	0.245
895	1.665	34.755	7.97	4.79	2.18	98	0.31	32	0.1	9.02	55.58	600	1.861	34.740	27.80	0.279
996	1.593	—	—	—	—	—	—	—	—	—	—	700	1.795	34.745	27.81	0.313
1242	1.386	34.750	7.98	4.87	2.15	106	0.31	32	0.1	—	—	800	1.727	34.750	27.81	0.346
1488	1.175	34.740	7.98	4.94	2.20	113	0.31	33	0.2	9.00	55.42	1000	1.590	34.757	27.83	0.410
1981	0.793	34.721	7.97	5.03	2.24	126	0.31	33	0.1	8.96	55.58	1200	1.422	34.752	27.84	0.473
2474	0.441	34.718	7.98	5.07	2.20	126	0.31	33	0.1	8.96	55.50	1500	1.165	34.740	27.85	0.565
2964	0.210	34.691	7.98	5.46	2.26	139	0.31	34	0.0	9.00	55.38	2000	0.779	34.720	27.86	0.712
3453	0.051	34.689	7.98	5.55	2.26	140	0.31	34	0.1	9.06	55.42	2500	0.425	34.717	27.87	0.847
3942	-0.075	34.681	7.98	5.70	2.26	139	0.31	33	0.1	8.96	55.52	3000	0.197	34.691	27.87	0.972
4180	-0.154	34.678	7.98	5.73	2.26	134	0.31	33	0.1	8.90	55.44	3500	0.038	34.688	27.87	1.090

Station 13

Meteorological observation

Date	: March 11, 1994	Weather time(UT)	: 23:00	Wind direction	: NWN
Time(UT)	: 23:30	Weather	: s.	VeLOCITY	: 10 m/s
Latitude	: 64° 59.4' S	Air temperature(dry)	: 0.2 °C	Humidity	: 97 %
Longitude	: 150° 15.3' E	Air temperature(wet)	: -0.2 °C	Wind waves	: NWN/3
Depth	: 3237 m	Atmospheric pressure	: 975.4 hPa	Swell	: N/1, NNE/1
				Visibility	: 5 km

O b s e r v e d												I n t e r p o l a t e d				
Depth (m)	W. Temp. (°C)	Salinity	pH	DO (ml/l)	P04-P (μM)	SiO2-Si (μM)	NO2-N (μM)	NO3-N (μM)	NH3-N (μM)	Ca (mM)	Mg (mM)	Depth (m)	W. Temp. (°C)	Salinity	σ t	ΔD
0	0.000	33.615	8.08	7.93	1.82	44	0.37	28	1.2	8.88	53.60	0	0.000	33.615	27.01	0.000
11	-0.193	33.579	8.09	7.87	1.82	43	0.37	28	0.4	—	—	10	0.186	33.581	26.99	0.011
20	-0.167	33.580	8.09	7.88	1.82	44	0.37	28	0.4	—	—	20	0.167	33.580	26.99	0.021
29	-0.015	33.621	8.09	7.82	1.80	44	0.37	28	0.6	—	—	30	0.019	33.627	27.02	0.032
51	-0.110	33.862	8.07	7.64	1.87	46	0.35	28	0.6	—	—	50	0.106	33.848	27.20	0.051
74	0.340	34.433	7.96	5.56	2.26	69	0.39	33	0.5	—	—	75	0.368	34.441	27.66	0.068
100	1.215	34.555	7.91	4.64	2.37	78	0.34	34	0.3	9.08	55.16	100	1.215	34.555	27.69	0.078
148	1.736	34.647	7.91	4.25	2.35	83	0.31	34	0.3	—	—	125	1.623	34.614	27.71	0.088
198	1.661	34.656	7.92	4.39	2.28	83	0.31	34	0.4	—	—	150	1.734	34.648	27.73	0.098
299	1.448	34.655	7.92	4.39	2.29	85	0.31	34	0.3	—	—	200	1.657	34.656	27.74	0.117
398	1.544	34.707	7.95	4.61	2.21	89	0.31	32	0.3	—	—	250	1.537	34.655	27.75	0.135
499	1.548	34.728	7.95	4.65	2.15	92	0.30	31	0.5	9.24	55.28	300	1.449	34.655	27.76	0.153
599	1.428	34.728	7.95	4.70	2.15	95	0.32	31	0.5	—	—	400	1.545	34.708	27.79	0.188
697	1.373	34.730	7.96	4.74	2.16	98	0.31	31	0.4	—	—	500	1.547	34.728	27.81	0.22
795	1.283	34.735	7.96	4.78	2.18	102	0.31	31	0.4	—	—	600	1.427	34.728	27.82	0.251
895	1.188	34.733	7.96	4.83	2.18	105	0.31	32	0.4	—	—	700	1.370	34.73	27.82	0.282
994	1.071	34.728	7.96	4.86	2.19	108	0.31	32	0.1	9.08	55.46	800	1.278	34.735	27.83	0.312
1240	0.877	34.711	7.96	4.87	2.24	116	0.31	32	0.4	—	—	1000	1.066	34.728	27.84	0.371
1487	0.671	34.705	7.96	4.91	2.24	121	0.32	32	0.3	9.16	55.44	1200	0.909	34.714	27.84	0.43
1981	0.315	34.739	7.97	4.93	2.25	123	0.31	33	0.6	9.10	55.60	1500	0.660	34.705	27.85	0.515
2472	0.089	34.686	7.97	5.21	2.25	123	0.31	33	0.2	9.12	55.42	2000	0.305	34.739	27.9	0.64
2716	-0.007	34.689	7.96	5.40	2.25	126	0.31	33	0.1	—	—	2500	0.078	34.686	27.87	0.754
2963	-0.099	34.689	7.97	5.47	2.19	121	0.31	33	0.3	9.10	55.38	3000	0.109	34.69	27.88	0.866
3120	-0.113	34.695	7.97	5.47	2.24	107	0.31	32	0.5	9.12	55.50					

Station 14

Meteorological observation

Date	: March 15, 1994	Weather time(UT)	: 02:00	Wind direction	: N
Time(UT)	: 02:00	Weather	: c.	VeLOCITY	: 19 m/s
Latitude	: 56° 26.9' S	Air temperature(dry)	: 5.9 °C	Humidity	: 91 %
Longitude	: 152° 47.8' E	Air temperature(wet)	: 4.6 °C	Wind waves	: N/4
Depth	: 3673 m	Atmospheric pressure	: 1000.6 hPa	Swell	: SW/4, WNW/4
				Visibility	: 7 km

O b s e r v e d												I n t e r p o l a t e d				
Depth (m)	W. Temp. (°C)	Salinity	pH	DO (ml/l)	P04-P (μM)	Si02-Si (μM)	NO2-N (μM)	NO3-N (μM)	NH3-N (μM)	Ca (mM)	Mg (mM)	Depth (m)	W. Temp. (°C)	Salinity	σ t	ΔD
0	4.800	33.905	8.12	7.29	1.57	1	0.28	25	1.1	8.86	53.86	0	4.800	33.905	26.85	0.000
10	3.499	33.952	8.12	7.46	1.66	5	0.25	26	0.9	8.88	54.18	10	3.495	33.954	27.03	0.011
23	3.432	33.956	8.12	7.45	1.66	6	0.23	26	0.9	8.76	54.18	20	3.442	33.955	27.03	0.022
48	3.356	33.963	8.12	7.48	1.66	8	0.22	26	0.9	8.80	54.16	30	3.410	33.958	27.04	0.032
76	3.290	33.959	8.12	7.49	1.66	10	0.22	26	0.7	8.82	54.14	50	3.351	33.963	27.05	0.053
97	3.284	33.963	8.12	7.54	1.66	11	0.22	26	1.1	8.78	54.24	75	3.292	33.956	27.05	0.078
151	1.018	34.061	8.05	7.55	2.14	35	0.16	30	2.5	8.84	54.44	100	3.260	33.967	27.06	0.104
200	0.659	34.175	8.00	6.78	2.26	48	0.20	33	0.8	8.92	54.50	125	2.196	34.007	27.18	0.128
248	1.179	34.261	7.96	6.00	2.34	55	0.05	34	0.3	8.94	54.70	150	1.037	34.059	27.31	0.149
299	1.828	34.490	7.90	4.51	2.45	72	0.05	36	0.7	8.90	55.18	200	0.659	34.175	27.43	0.185
400	1.871	34.566	7.90	4.39	2.45	80	0.04	36	0.7	8.90	55.28	250	1.203	34.266	27.46	0.217
498	2.159	34.649	7.91	4.19	2.33	83	0.04	34	0.9	8.96	55.36	300	1.835	34.491	27.60	0.246
598	2.157	34.672	7.92	4.23	2.30	84	0.04	34	0.8	8.98	55.38	400	1.871	34.566	27.66	0.294
698	2.122	34.698	7.93	4.30	2.27	86	0.05	33	0.4	9.04	55.38	500	2.159	34.650	27.70	0.339
795	2.062	34.729	7.95	4.51	2.20	87	0.05	32	0.5	9.00	55.40	600	2.156	34.673	27.72	0.381
895	1.937	34.728	7.95	4.45	2.20	90	0.04	33	0.4	9.00	55.58	700	2.121	34.699	27.74	0.422
992	1.901	34.733	7.96	4.52	2.20	92	0.04	32	0.4	9.02	55.48	800	2.058	34.729	27.77	0.460
1239	1.809	34.757	7.96	4.62	2.16	95	0.05	32	0.6	8.96	55.56	1000	1.898	34.734	27.79	0.534
1488	1.532	34.747	7.97	4.71	2.10	103	0.05	32	0.4	8.96	55.56	1200	1.824	34.756	27.81	0.605
1734	1.330	34.741	7.97	4.83	2.16	112	0.05	32	0.1	8.92	55.46	1500	1.522	34.747	27.83	0.708
1981	1.093	34.729	7.97	4.88	2.18	119	0.05	33	0.1	9.02	55.46	2000	1.077	34.728	27.84	0.870
2215	0.927	34.723	7.98	4.93	2.18	126	0.05	33	0.1	9.02	55.36					
2353	0.867	34.723	7.98	4.94	2.23	126	0.05	33	0.1	9.10	55.44					

Station 15

Meteorological observation

Date	: March 17, 1994	Weather time(UT)	: 02:00	Wind direction	: SW
Time(UT)	: 02:00	Weather	: bc.	VeLOCITY	: 20 m/s
Latitude	: 46° 35.9' S	Air temperature(dry)	: 10.1 °C	Humidity	: 68 %
Longitude	: 150° 22.3' E	Air temperature(wet)	: 4.5 °C	Wind waves	: SW/4
Depth	: 4500 m	Atmospheric pressure	: 1017.7 hPa	Swell	: WSW/4
				Visibility	: 30 km

Depth (m)	O b s e r v e d											I n t e r p o l a t e d				
	W.Temp. (°C)	Salinity	pH	DO (ml/l)	P04-P (μM)	SiO2-Si (μM)	NO2-N (μM)	NO3-N (μM)	NH3-N (μM)	Ca (mM)	Mg (mM)	Depth (m)	W.Temp. (°C)	Salinity	σ t	ΔD
0	12.800	34.928	8.19	6.11	0.46	8	0.22	5	0.4	9.10	55.76	0	12.800	34.928	26.40	0.000
8	12.837	34.890	8.19	6.05	0.46	8	0.17	5	0.0	8.96	55.64	10	12.837	34.889	26.36	0.017
23	12.837	34.886	8.20	6.00	0.44	8	0.16	5	0.0	9.02	55.64	20	12.837	34.886	26.36	0.033
50	12.837	34.886	8.19	6.01	0.44	8	0.17	5	0.0	8.92	55.66	30	12.837	34.886	26.36	0.050
75	12.839	34.889	8.18	5.97	0.52	8	0.28	6	0.1	8.90	55.80	50	12.837	34.886	26.36	0.084
101	12.610	34.919	8.11	5.76	0.83	10	0.07	11	0.0	8.86	55.68	75	12.839	34.889	26.36	0.126
151	11.206	34.805	8.10	5.83	0.96	10	0.05	14	0.0	8.98	55.24	100	12.629	34.918	26.42	0.168
203	10.136	34.700	8.10	5.84	1.06	10	0.05	16	0.0	8.94	55.28	125	11.967	34.868	26.51	0.208
301	9.438	34.606	8.10	5.98	1.14	9	0.05	17	0.0	8.88	55.28	150	11.230	34.807	26.60	0.246
399	8.825	34.567	8.10	6.01	1.19	9	0.05	18	0.0	8.84	55.08	200	10.165	34.705	26.71	0.318
500	8.518	34.533	8.07	5.65	1.34	11	0.05	20	0.1	8.94	55.06	250	9.775	34.639	26.73	0.387
598	8.272	34.532	8.03	5.07	1.56	15	0.04	24	0.0	8.84	55.10	300	9.444	34.606	26.76	0.455
698	7.896	34.488	8.00	4.77	1.76	19	0.04	27	0.0	8.76	55.08	400	8.821	34.567	26.83	0.588
797	7.123	34.443	7.97	4.82	1.91	24	0.04	29	0.0	8.74	55.02	500	8.518	34.533	26.85	0.719
899	6.222	34.402	7.96	4.73	2.03	30	0.04	31	0.0	8.80	55.00	600	8.267	34.531	26.89	0.848
996	5.369	34.428	7.93	4.45	2.28	52	0.04	34	0.0	8.70	55.14	700	7.884	34.487	26.91	0.976
1246	3.892	34.489	7.91	4.21	2.38	69	0.05	36	0.0	8.88	55.02	800	7.097	34.442	26.99	1.099
1490	3.107	34.580	7.91	4.13	2.38	81	0.05	36	0.0	8.88	55.20	1000	5.334	34.429	27.21	1.319
1732	2.678	34.581	7.92	4.10	2.36	81	0.07	36	0.0	8.86	55.28	1200	4.089	34.478	27.38	1.499
1980	2.452	34.651	7.93	4.20	2.30	87	0.05	35	0.0	8.82	55.50	1500	3.086	34.580	27.56	1.716
2226	2.262	34.704	7.95	4.33	2.24	91	0.05	34	0.0	8.84	55.50	2000	2.437	34.656	27.68	2.007
2389	2.136	34.725	7.96	4.39	2.18	95	0.05	34	0.0	8.90	55.36	2500	2.050	34.734	27.78	2.250
2761	1.850	34.748	7.97	4.53	2.18	104	0.05	33	0.0	8.90	55.78					

Table 4. Data of petroleum oil, PCBs, cadmium (Cd), copper (Cu), zinc (Zn) and mercury (Hg) in surface seawater.

Station No.	Date	Time (UT)	Position		Air Temp. (°C)	Water Temp. (°C)	Petroleum Oil (μg/l)	PCBs (μg/l)	Cadmium (μg/l)	Copper (μg/l)	Zinc (μg/l)	Mercury (μg/l)
			Lat.	Long.								
1993												
P- 1	Nov.18	0800	12 - 16.0 N	129 - 11.0 E	27.8	29.1	2.5	<0.0001	0.010	0.09	<0.3	0.0018
P- 2	Nov.19	0800	6 - 14.0 N	126 - 43.0 E	27.8	29.1	2.4	<0.0001	0.012	0.04	0.3	<0.0001
P- 3	Nov.20	0800	2 - 17.0 N	121 - 29.0 E	28.4	29.7	4.5	<0.0001	0.005	0.03	<0.3	<0.0001
P- 4	Nov.21	0800	2 - 42.0 S	118 - 35.0 E	29.0	29.4	1.4	<0.0001	0.004	0.37	<0.3	0.0008
P- 5	Nov.22	2300	11 - 27.0 S	115 - 12.0 E	27.6	29.4	4.0	<0.0001	0.008	0.13	0.3	<0.0001
P- 6	Dec. 5	0500	40 - 34.0 S	110 - 00.4 E	12.7	12.6	4.8	<0.0001	0.047	0.24	0.5	0.0004
P- 7	Dec. 6	0500	44 - 54.8 S	110 - 06.4 E	12.1	10.2	1.6	<0.0001	0.037	0.17	0.8	0.0004
P- 8	Dec. 7	0500	49 - 41.7 S	109 - 27.3 E	2.9	4.8	1.8	<0.0001	0.055	0.24	1.1	-
P- 9	Dec. 8	0500	54 - 33.4 S	109 - 39.2 E	2.1	2.1	5.7	<0.0001	0.080	0.82	2.5	<0.0001
P-10	Dec. 9	0500	58 - 57.9 S	107 - 24.3 E	-0.6	0.7	1.8	<0.0001	0.058	0.18	0.6	0.0022
P-11	Dec.10	0500	59 - 58.1 S	100 - 11.7 E	2.0	-0.5	1.9	<0.0001	-	-	-	-
1994												
P-12	Feb.25	0900	63 - 09.6 S	48 - 30.4 E	1.4	2.0	1.3	<0.0001	-	-	-	-
P-13	Feb.26	0900	63 - 01.4 S	57 - 25.8 E	0.2	1.1	1.5	<0.0001	-	-	-	-
P-14	Feb.27	0800	63 - 00.3 S	65 - 42.6 E	0.5	1.0	1.6	<0.0001	-	-	-	-
P-15	Mar. 5	0700	62 - 30.1 S	88 - 38.8 E	1.6	1.4	2.2	<0.0001	-	-	-	-
P-16	Mar. 6	0600	62 - 32.8 S	98 - 44.1 E	-0.7	1.3	2.1	<0.0001	-	-	-	-
P-17	Mar. 8	0500	62 - 34.1 S	117 - 34.6 E	1.8	1.2	2.6	<0.0001	-	-	-	-
P-18	Mar. 9	0400	62 - 29.4 S	128 - 21.2 E	1.2	1.3	3.9	<0.0001	-	-	-	-
P-19	Mar.11	2330	64 - 59.4 S	150 - 15.3 E	0.2	0.0	1.7	<0.0001	0.068	0.27	1.5	<0.0001
P-20	Mar.13	0200	62 - 09.7 S	150 - 50.4 E	2.5	1.5	2.0	<0.0001	0.050	0.10	0.3	<0.0001
P-21	Mar.14	0200	59 - 31.8 S	148 - 43.8 E	3.3	1.9	2.1	<0.0001	0.051	0.12	0.9	<0.0001
P-22	Mar.15	0200	56 - 29.9 S	152 - 47.8 E	5.9	4.8	1.1	<0.0001	0.037	0.36	1.6	<0.0001
P-23	Mar.16	0200	52 - 10.7 S	152 - 03.2 E	6.9	8.9	2.3	<0.0001	0.016	0.12	0.6	0.0019
P-24	Mar.17	0200	46 - 35.9 S	150 - 22.3 E	10.1	12.8	1.5	<0.0001	0.018	0.29	1.5	<0.0001

Table 5. Hourly tidal observation data from February 1993 to January 1994.

Station : SYOWA STATION
 Latitude : 69° 00' 28" S
 Longitude : 39° 34' 13" E
 Duration : Feb. 1-Feb. 28 1993
 Unit : CENTIMETER

The zero level of the tide gauge
 relative to the bench mark No.1040:
 -5.331m Jan.20 1993
 -5.343m Jan.25 1994

Date	Time																							(24H)		(25H)			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	SUM	MEAN	SUM	MEAN	
1	284	275	265	255	247	244	239	235	237	241	241	249	256	265	278	289	298	307	310	311	312	308	305	301	6550	273	6844	274	
2	294	288	282	275	265	256	246	236	231	232	230	236	248	263	278	296	310	317	321	321	317	312	308	301	6665	278	6965	279	
3	300	301	295	290	285	272	255	238	225	214	208	212	223	240	262	286	306	316	322	319	315	308	302	298	6592	275	6889	276	
4	297	299	300	302	297	290	273	248	227	210	195	194	201	220	247	276	300	316	325	322	316	305	296	289	6546	273	6836	273	
5	289	294	302	308	314	307	294	271	242	215	193	182	184	200	228	259	289	315	328	330	322	310	299	288	6564	273	6854	274	
6	290	296	308	322	334	338	328	306	277	244	214	195	187	196	220	249	281	306	325	330	321	307	291	278	6742	281	7015	281	
7	273	276	291	311	329	342	341	329	305	271	238	210	192	195	213	239	268	296	316	325	318	304	285	266	6731	280	6988	280	
8	256	257	270	290	316	335	346	346	328	299	268	237	213	206	215	235	263	288	308	318	316	300	281	259	6752	281	6994	280	
9	242	234	243	260	286	312	329	338	334	315	286	257	230	215	217	232	256	280	300	313	312	300	280	257	6626	276	6862	274	
10	236	222	221	233	256	283	305	319	325	319	302	279	256	239	233	243	261	283	302	314	316	309	290	266	6610	275	6857	274	
11	247	226	215	221	235	258	281	298	309	312	307	292	276	263	256	260	274	288	304	316	319	314	300	281	6653	277	6910	276	
12	257	237	221	215	219	234	252	266	279	286	289	284	275	270	267	268	275	287	301	310	315	313	305	288	6512	271	6782	271	
13	270	253	238	225	222	226	235	247	256	265	274	277	275	277	282	282	290	299	307	316	319	317	315	305	6571	274	6862	274	
14	290	280	267	254	245	242	243	245	248	256	263	269	275	283	291	301	306	311	316	322	322	320	317	311	6777	282	7080	283	
15	304	295	286	276	265	257	249	242	239	239	243	250	259	272	287	301	314	317	319	322	317	316	314	308	6791	283	7098	284	
16	307	304	300	295	287	278	265	251	240	233	231	234	244	261	280	297	314	322	323	322	318	312	308	304	6831	285	7136	285	
17	305	308	307	309	306	298	285	265	247	233	224	225	231	249	271	293	314	325	330	325	317	311	301	297	6874	286	7174	287	
18	300	306	313	318	320	318	305	285	264	242	227	221	225	240	262	287	310	324	330	327	317	303	291	286	6923	288	7210	288	
19	287	294	307	316	324	325	316	297	273	250	228	218	216	228	252	279	301	321	330	327	319	304	289	282	6885	287	7168	287	
20	283	292	306	321	336	344	338	323	300	272	246	229	220	228	250	275	299	318	330	330	318	299	283	271	7011	292	7279	291	
21	268	276	291	311	330	344	340	332	312	282	253	233	222	223	242	266	290	310	322	321	311	291	271	256	6895	287	7142	286	
22	248	249	266	287	309	326	331	328	312	285	258	236	220	219	234	256	281	302	318	320	310	292	269	251	6706	279	6947	278	
23	241	240	252	272	297	318	330	332	321	300	275	254	236	229	240	260	285	306	319	325	321	302	276	257	6789	283	7031	281	
24	242	238	243	261	287	309	326	333	327	312	292	268	251	241	244	262	283	301	317	323	317	302	279	255	6813	284	7052	282	
25	239	228	231	246	267	289	309	318	318	310	292	270	256	246	245	256	276	294	308	315	314	299	279	256	6660	278	6898	276	
26	237	225	224	231	250	274	294	309	314	313	302	289	279	269	271	282	296	312	326	333	331	320	301	279	6859	286	7116	285	
27	257	242	234	235	248	266	280	293	301	303	299	286	278	274	273	279	289	303	315	322	320	314	299	279	6789	283	7050	282	
28	260	246	234	227	234	246	257	271	279	283	284	281	274	274	277	282	290	302	311	317	318	316	304	288	6655	277	6929	277	
1	274																												
MONTHLY MEAN																											280.3cm		

Station : SYOWA STATION
 Latitude : 69° 00' 28" S
 Longitude : 39° 34' 13" E
 Duration : Mar. 1-Mar. 31 1993
 Unit : CENTIMETER

Date	Time																							(24H)		(25H)				
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	SUM	MEAN	SUM	MEAN		
1	274	260	250	244	244	253	258	266	275	284	289	294	296	301	309	317	327	335	343	346	343	339	329	317	7092	295	7396	296		
2	304	291	281	271	264	263	260	261	264	268	273	282	287	294	307	317	322	330	333	333	332	328	321	314	7103	296	7409	296		
3	307	298	290	284	274	267	259	253	247	246	252	259	269	285	298	317	328	333	334	335	330	320	317	311	7012	292	7318	293		
4	307	304	302	299	291	281	268	254	240	233	234	234	248	268	287	309	326	335	334	333	325	313	307	306	6937	289	7243	290		
5	306	308	315	317	311	307	288	265	246	229	218	217	228	248	271	296	317	329	332	325	314	299	287	285	6858	286	7144	286		
6	287	293	306	316	319	318	302	278	251	226	206	197	203	220	243	274	300	314	318	315	301	281	265	260	6593	275	6856	274		
7	262	274	294	314	327	336	329	307	279	250	225	206	202	216	238	267	292	311	320	315	296	275	255	241	6630	276	6869	275		
8	239	251	274	298	322	340	342	330	306	275	246	222	212	219	238	265	292	314	323	321	305	280	253	236	6702	279	6927	277		
9	226	232	255	284	312	338	351	350	338	311	282	257	240	238	256	278	303	325	336	339	326	301	273	250	6999	292	7231	289		
10	232	230	246	276	307	336	358	372	367	350	326	299	281	269	271	291	312	330	344	346	335	311	281	253	7321	305	7550	302		
11	228	214	221	238	266	295	320	338	344	337	321	301	284	273	274	286	307	324	336	342	335	317	290	262	7052	294	7287	291		
12	235	216	210	221	240	266	290	309	320	324	317	304	293	284	283	289	306	322	336	342	340	328	307	282	6963	290	7221	289		
13	257	237	226	226	235	255	273	289	303	313	314	308	303	302	300	303	316	327	338	347	345	336	321	303	7075	295	7354	294		
14	280	260	247	239	240	249	257	269	277	287	294	292	294	298	300	304	309	317	326	330	330	326	316	303	6945	289	7232	289		
15	287	273	261	251	245	243	248	253	256	264	272	277	284	290	298	306	313	317	321	324	325	318	313	307	6846	285	7141	286		
16	295	288	281	270	263	258	252	246	245	249	254	257	268	279	290	305	312	316	317	318	316	309	304	302	6794	283	7093	284		
17	299	295	292	288	284	276	264	253	243	239	237	242	253	267	280	296	307	310	310	306	298	292	287	286	6704	279	6991	280		
18	287	291	295	299	300	293	280	266	253	242	236	236	245	258	276	293	306	312	312	302	292	284	276	274	6709	280	6986	279		
19	278	286	297	303	307	306	294	276	256	241	232	230	235	251	271	289	308	315	314	305	291	277	266	264	6692	279	6959	278		
20	267	278	292	306	316	316	308	289	268	249	234	227	231	248	267	288	307	318	316	306	291	271	257	254	6705	279	6960	278		
21	256	268	289	305	319	327	323	309	287	265	245	234	234	246	264	287	306	316	316	307	288	268	250	240	6748	281	6989	280		
22	241	256	276	297	320	332	332	322	303	280	259	246	241	249	267	290	311	319	326	318	298	275	254	240	6853	286	7090	284		
23	237	247	270	293	317	335	340	335	318	297	275	257	249	252	267	291	311	323	330	322	306	279	255	238	6944	289	7173	287		
24	229	232	256	281	306	331	343	343	331	312	293	273	265	266	279	297	318	334	340	336	319	293	268	247	7092	295	7327	293		
25	235	233	250	273	299	322	339	343	336	320	303	285	271	267	274	291	311	325	334	331	317	292	263	239	7053	294	7274	291		
26	221	216	223	239	265	289	307	317	316	305	291	274	262	258	261	276	292	305	316	314	303	284	256	227	6617	276	6829	273		
27	212	202	202	218	242	268	288	303	309	308	299	290	282	280	285	296	313	327	336	340	332	316	291	267	6805	284	7051	282		
28	246	231	227	234	253	272	287	303	312	311	308	300	293	289	289	295	308	318	327	328	324	310	287	267	6922	288	7168	287		
29	247	226	219	221	226	242	256	270	280	287	287	285	283	281	283	288	296	305	314	317	310	302	287	266	6576	274	6825	273		
30	249	231	222	217	218	226	236	244	253	262	270	271	273	280	284	289	298	304	307	312	306	302	295	281	6428	268	6697	268		
31	269	255	253	250	246	245	253	257	267	274	281	293	295	305	316	320	328	327	331	334	329	318	314	308	6967	290	7266	291		
1	299																													
MONTHLY MEAN																													285.9cm	

Station : SYOWA STATION
 Latitude : 69° 00' 28" S
 Longitude : 39° 34' 13" E
 Duration : Apr. 1-Apr. 30 1993
 Unit : CENTIMETER

Date	Time																							(24H)		(25H)				
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	SUM	MEAN	SUM	MEAN		
1	299	291	285	277	268	260	253	251	247	247	254	262	270	285	296	306	310	312	310	304	298	290	285	282	6740	281	7021	281		
2	281	283	283	280	272	263	251	239	230	227	228	238	252	268	288	303	312	315	312	305	295	286	281	282	6572	274	6859	274		
3	288	296	304	309	308	301	283	265	250	235	230	235	247	264	287	304	317	321	315	303	288	272	262	263	6747	281	7018	281		
4	271	285	303	317	324	322	309	288	264	245	232	228	238	257	278	299	316	318	314	300	280	260	244	243	6736	281	6986	279		
5	251	270	293	317	334	341	336	315	290	265	244	234	238	252	273	293	312	318	314	298	273	247	225	215	6747	281	6967	279		
6	220	239	265	296	321	339	343	333	312	281	261	245	239	249	268	289	306	317	316	302	275	245	217	197	6675	278	6868	275		
7	194	206	234	265	296	326	343	341	330	310	287	268	259	261	279	301	318	330	333	324	302	268	237	214	6827	284	7029	281		
8	201	205	226	257	289	320	345	355	352	339	321	306	291	290	301	320	337	348	355	351	331	300	267	237	7248	302	7463	299		
9	216	208	217	241	268	298	324	340	345	339	327	313	299	294	296	311	329	343	349	348	335	309	280	250	7179	299	7402	296		
10	224	206	206	221	241	267	291	312	321	325	321	313	306	299	301	310	325	340	348	351	342	326	300	273	7070	295	7320	293		
11	250	229	219	224	235	253	272	290	302	311	312	311	307	305	305	309	318	330	341	345	343	331	314	291	7045	294	7316	293		
12	271	255	240	235	236	246	257	271	282	291	297	295	296	299	298	301	306	318	323	326	325	319	309	295	6893	287	7174	287		
13	281	270	259	252	250	252	257	263	274	279	288	294	299	306	314	319	321	326	331	338	337	333	325	320	7090	295	7402	296		
14	313	303	297	289	281	275	273	271	272	276	281	286	293	302	307	311	310	309	309	306	304	301	298	295	7061	294	7351	294		
15	290	290	288	287	284	275	268	263	258	258	261	270	278	289	300	306	311	309	302	297	291	284	284	284	6828	285	7114	285		
16	286	289	292	297	294	289	281	270	261	256	258	264	272	285	297	306	312	312	304	295	288	277	275	279	6839	285	7126	285		
17	287	297	308	317	318	318	309	296	283	272	269	274	280	293	310	321	325	326	318	303	290	275	268	269	7126	297	7402	296		
18	277	290	301	316	324	322	313	299	283	267	258	257	263	278	291	306	313	314	307	288	272	257	246	245	6888	287	7143	286		
19	256	271	290	309	323	326	324	314	295	280	270	265	270	284	303	317	324	326	320	305	285	264	251	248	7020	293	7275	291		
20	255	271	295	319	340	351	352	344	328	311	297	289	289	300	320	332	342	346	339	319	298	274	252	242	7406	309	7650	306		
21	244	258	283	307	329	345	352	347	331	315	298	288	285	291	307	323	336	341	337	320	297	271	243	227	7274	303	7500	300		
22	227	238	258	288	315	334	347	347	335	318	305	293	285	289	303	317	329	336	336	322	301	269	240	221	7153	298	7365	295		
23	212	218	236	261	291	317	331	340	335	322	310	301	291	292	306	319	333	344	347	335	318	290	260	240	7151	298	7376	295		
24	226	218	233	257	284	308	329	340	339	332	321	310	298	296	304	318	331	342	345	340	324	298	270	248	7210	300	7434	297		
25	225	215	223	239	263	289	312	327	335	334	327	318	311	309	311	320	332	343	348	348	334	312	287	259	7220	301	7458	298		
26	238	223	220	228	248	269	288	306	318	322	319	316	308	307	307	310	322	332	338	340	329	317	291	266	7062	294	7308	292		
27	246	227	219	220	229	242	263	278	289	296	300	300	297	296	298	298	305	316	320	321	318	309	292	272	6753	281	7009	280		
28	256	240	229	223	225	235	247	260	270	282	289	292	295	299	301	302	306	313	317	318	317	310	300	288	6714	280	6993	280		
29	279	266	256	249	244	244	247	257	261	270	281	289	293	300	304	304	304	305	307	305	301	299	296	290	6751	281	7039	282		
30	288	282	272	265	257	251	246	245	248	253	262	273	278	289	299	298	295	295	288	286	279	278	275	278	6580	274	6862	274		
1	283																													
MONTHLY MEAN																													289.7cm	

Station : SYOWA STATION
 Latitude : 69° 00' 28" S
 Longitude : 39° 34' 13" E
 Duration : Jun. 1-Jun. 30 1993
 Unit : CENTIMETER

Date	Time																							(24H)		(25H)				
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	SUM	MEAN	SUM	MEAN		
1	250	269	289	303	314	314	304	295	289	281	279	281	289	298	304	307	300	285	267	247	222	208	203	205	6601	275	6821	273		
2	220	243	269	292	312	320	319	311	300	288	283	284	290	297	309	315	313	305	286	263	238	215	202	197	6670	278	6876	275		
3	206	229	254	285	312	328	335	334	325	314	303	301	305	313	322	330	334	328	317	290	259	233	208	195	6961	290	7159	286		
4	198	212	239	269	298	323	338	341	335	325	313	306	303	309	320	330	338	336	332	314	283	252	220	197	7030	293	7220	289		
5	190	197	214	239	270	299	317	329	328	320	308	299	293	298	307	319	331	335	334	325	298	269	238	207	6866	286	7062	282		
6	197	194	203	228	254	282	306	322	323	324	319	304	297	292	299	312	322	334	338	330	316	287	263	230	6876	287	7086	283		
7	209	198	199	215	238	263	289	308	315	318	315	303	293	286	290	299	312	324	332	333	325	308	280	255	6806	284	7038	282		
8	232	218	212	220	235	257	279	295	309	315	311	305	297	287	287	291	300	311	320	326	320	308	289	267	6790	283	7038	282		
9	248	230	217	219	228	245	260	279	290	294	296	292	284	276	270	268	272	282	294	300	296	293	282	268	6485	270	6738	270		
10	253	239	225	223	229	235	249	266	276	283	286	283	277	270	265	259	259	263	273	281	281	283	279	266	6301	263	6560	262		
11	259	248	239	235	236	240	248	262	273	277	283	284	279	277	269	264	263	260	268	276	279	278	280	279	6357	265	6630	265		
12	273	268	264	258	259	262	267	271	282	290	296	302	298	297	294	289	284	278	283	291	297	297	304	305	6812	284	7114	285		
13	302	304	302	301	299	294	295	298	299	303	303	304	305	302	298	293	282	274	270	269	265	269	269	276	6979	291	7262	290		
14	283	289	293	299	304	301	300	299	300	301	303	307	309	309	305	303	293	280	274	266	258	257	259	263	6955	290	7232	289		
15	277	289	300	312	317	320	318	313	314	308	310	317	316	320	321	317	311	297	286	269	259	253	248	257	7144	298	7415	297		
16	271	285	302	318	326	330	332	328	323	318	317	319	322	325	328	328	321	310	295	276	258	247	241	242	7263	303	7519	301		
17	257	274	295	313	330	340	341	337	329	321	317	315	318	322	326	330	326	314	300	282	255	233	224	221	7219	301	7446	298		
18	227	243	265	290	311	329	335	331	326	317	310	308	310	315	321	330	331	323	313	290	264	241	219	213	7062	294	7276	291		
19	214	229	254	279	308	328	338	344	340	329	323	315	314	320	326	336	340	340	331	312	285	256	229	213	7200	300	7411	296		
20	211	217	237	264	294	319	336	344	342	335	323	315	312	315	322	331	339	344	339	324	298	269	236	214	7180	299	7384	295		
21	203	203	219	243	270	294	319	331	334	326	320	312	304	302	308	321	331	339	342	334	315	288	256	228	7041	293	7254	290		
22	213	203	209	229	257	284	306	323	332	330	323	315	305	301	306	315	325	339	346	347	334	315	287	259	7103	296	7340	294		
23	237	222	221	232	252	274	297	318	327	331	327	317	305	297	294	299	307	320	332	336	330	318	293	267	7054	294	7299	292		
24	245	225	211	216	228	246	266	286	297	302	300	296	284	274	267	266	276	287	297	308	309	308	295	276	6565	274	6823	273		
25	259	238	227	223	229	242	259	275	289	296	299	295	284	277	265	259	261	269	280	290	299	301	297	290	6504	271	6786	271		
26	283	268	258	252	250	257	269	281	290	294	304	302	292	284	272	259	255	255	262	271	277	286	292	294	6607	275	6903	276		
27	295	293	287	282	277	278	284	293	299	306	312	314	306	302	290	277	265	259	255	259	263	268	275	286	6824	284	7119	285		
28	294	294	299	301	298	296	296	299	304	309	312	314	315	310	303	289	277	264	253	250	247	247	255	266	6892	287	7175	287		
29	283	291	303	311	316	313	314	309	308	308	313	315	319	321	313	307	297	279	266	253	241	240	244	255	7017	292	7289	292		
30	272	291	311	328	338	345	345	342	337	337	335	337	342	345	347	342	332	318	300	281	259	246	242	245	7515	313	7776	311		
1	261																													
MONTHLY MEAN																													287.1cm	

Station : SYOWA STATION
 Latitude : 69° 00' 28" S
 Longitude : 39° 34' 13" E
 Duration : Jul. 1-Jul. 31 1993
 Unit : CENTIMETER

Date	Time																							(24H)		(25H)				
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	SUM	MEAN	SUM	MEAN		
1	261	281	302	325	347	356	359	355	350	343	337	337	337	342	345	348	341	329	310	288	261	239	224	219	7536	314	7762	310		
2	227	246	267	293	317	337	344	342	335	323	318	315	318	326	329	339	343	335	327	302	272	249	224	210	7237	302	7448	298		
3	210	224	247	276	305	326	342	345	343	329	321	315	317	319	329	340	347	347	340	323	293	262	234	214	7248	302	7453	298		
4	205	210	230	256	283	313	328	336	334	321	312	302	295	300	307	320	330	331	332	324	298	270	238	215	6991	291	7196	288		
5	204	202	218	242	271	300	320	334	338	331	322	310	300	298	306	320	333	342	347	340	322	297	267	238	7104	296	7322	293		
6	218	205	213	229	252	278	297	309	314	309	297	286	273	265	266	280	295	306	319	316	309	289	260	236	6621	276	6837	273		
7	216	202	200	213	237	260	281	300	305	305	295	286	276	271	271	285	299	315	331	338	336	326	311	288	6747	281	7019	281		
8	271	260	256	264	274	301	315	332	339	339	334	322	309	296	287	286	296	313	321	326	327	318	300	281	7267	303	7533	301		
9	265	247	239	237	248	260	276	286	297	296	297	282	269	257	247	242	251	260	277	289	288	291	284	272	6456	269	6716	269		
10	260	249	243	244	251	263	280	292	300	307	304	296	282	277	266	260	258	268	277	285	292	293	295	289	6632	276	6912	276		
11	280	276	271	272	277	283	291	306	313	316	315	312	304	291	282	276	264	272	276	277	287	290	292	293	6916	288	7205	288		
12	290	291	291	289	291	292	301	304	309	311	307	303	297	286	280	273	260	256	257	260	261	263	265	272	6808	284	7083	283		
13	276	277	279	285	288	290	295	298	302	306	303	304	298	295	289	283	272	264	261	257	259	262	263	274	6780	283	7065	283		
14	285	291	302	311	320	321	324	323	325	325	325	325	330	326	321	315	305	294	284	275	265	262	264	267	7288	304	7566	303		
15	278	291	301	315	326	333	335	332	326	325	322	320	321	321	312	307	303	291	273	260	245	235	229	233	7136	297	7383	295		
16	247	263	281	299	319	327	329	331	321	318	315	312	313	314	317	316	312	301	287	264	245	229	215	216	6989	291	7217	289		
17	229	244	264	291	313	327	333	332	326	317	313	308	307	312	319	323	323	318	303	280	257	231	212	206	6989	291	7200	288		
18	211	227	251	279	305	327	335	339	333	320	312	308	306	309	320	328	332	331	323	304	275	245	220	203	7043	293	7249	290		
19	206	217	245	273	301	329	341	349	348	332	322	313	307	311	324	342	353	358	361	344	321	296	262	237	7393	308	7623	305		
20	229	235	246	275	305	331	354	361	363	347	336	320	307	305	312	324	338	349	351	342	321	290	256	227	7423	309	7631	305		
21	207	198	204	226	257	280	302	318	318	307	298	282	269	265	269	285	301	321	331	336	326	304	275	248	6726	280	6955	278		
22	229	216	217	235	260	285	314	327	339	334	323	314	295	282	283	295	309	327	344	352	352	341	314	290	7176	299	7442	298		
23	265	247	241	243	256	276	295	309	317	315	303	288	269	255	246	247	260	277	295	313	318	319	307	290	6749	281	7024	281		
24	275	257	245	246	257	273	289	302	313	312	304	291	272	258	244	237	241	256	271	287	298	304	302	295	6627	276	6911	276		
25	284	271	264	258	263	273	287	297	306	308	305	292	276	261	247	235	229	230	241	254	265	272	277	277	6473	270	6750	270		
26	277	272	270	262	267	271	279	288	295	294	294	291	277	264	251	235	225	217	219	226	231	241	250	257	6254	261	6517	261		
27	263	268	279	277	279	282	285	288	293	295	296	294	289	279	272	260	250	239	229	228	229	233	238	253	6397	267	6662	266		
28	265	282	295	303	315	319	319	321	321	321	322	319	321	316	307	299	288	271	257	244	235	231	230	238	6939	289	7193	288		
29	254	270	289	306	321	325	326	322	322	317	318	319	317	317	320	316	308	294	277	255	240	226	220	223	6999	292	7233	289		
30	233	255	275	296	316	327	328	326	321	313	310	309	307	315	321	316	316	306	291	268	241	224	211	202	6928	289	7138	286		
31	210	223	249	274	296	314	319	316	304	295	288	284	283	291	301	308	309	305	296	274	246	222	201	188	6594	275	6786	271		
1	192																													
MONTHLY MEAN																													288.3cm	

Station : SYOWA STATION
 Latitude : 69° 00' 28" S
 Longitude : 39° 34' 13" E
 Duration : Oct. 1-Oct. 31 1993
 Unit : CENTIMETER

Date	Time																							(24H)		(25H)				
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	SUM	MEAN	SUM	MEAN		
1	238	242	263	282	300	312	311	294	278	256	232	214	209	217	239	268	292	311	323	321	306	286	266	252	6510	271	6753	270		
2	242	246	260	278	295	308	308	301	283	257	232	213	204	205	223	249	276	295	315	318	310	296	278	263	6456	269	6711	268		
3	255	253	265	283	299	315	318	312	294	273	247	226	209	209	222	242	268	294	309	317	318	306	292	280	6605	275	6873	275		
4	267	264	272	283	301	314	318	314	302	281	254	229	212	203	208	226	246	268	289	301	303	298	287	279	6520	272	6790	272		
5	270	266	270	283	300	314	321	320	311	295	277	249	232	223	221	230	247	269	287	301	311	309	306	297	6709	280	7003	280		
6	294	290	291	299	312	325	331	330	324	313	290	269	251	234	229	233	238	253	269	281	292	294	292	290	6822	284	7110	284		
7	288	288	288	293	303	313	316	318	313	305	288	272	254	238	229	228	232	239	251	263	271	277	282	284	6630	276	6917	277		
8	288	292	296	302	310	317	320	321	321	313	307	291	278	268	260	253	252	250	258	265	271	278	285	289	6882	287	7177	287		
9	294	305	308	314	320	323	325	321	313	308	300	293	287	277	271	266	260	252	249	250	247	253	259	269	6862	286	7142	286		
10	280	290	303	312	316	315	314	310	304	298	296	294	294	295	294	290	284	274	264	254	247	245	249	260	6882	287	7157	286		
11	274	290	302	316	323	321	314	304	297	294	289	291	298	305	311	316	312	300	286	269	256	246	242	246	7002	292	7264	291		
12	263	280	297	316	322	319	310	300	286	272	269	272	283	300	317	331	335	329	316	297	276	261	251	256	7058	294	7324	293		
13	266	284	304	321	330	331	319	299	278	260	249	246	256	276	301	320	332	336	326	305	280	257	239	233	6949	290	7191	288		
14	242	256	277	295	313	312	301	281	258	232	217	211	220	243	272	301	325	336	336	325	300	276	256	245	6633	276	6878	275		
15	245	260	279	299	313	321	312	291	263	234	211	196	198	217	247	282	311	333	345	342	323	299	278	263	6662	278	6919	277		
16	258	268	288	304	324	333	329	315	287	257	227	206	200	210	240	275	305	336	355	358	353	337	316	300	6980	291	7269	291		
17	289	293	307	325	342	353	352	340	316	284	252	226	204	203	220	244	275	305	327	342	345	336	321	307	7106	296	7402	296		
18	295	291	298	316	331	343	346	338	324	297	265	234	209	200	203	222	246	270	293	313	325	324	315	307	6905	288	7204	288		
19	299	293	297	313	326	337	347	344	335	319	294	265	241	224	217	225	240	260	280	297	312	319	317	313	7013	292	7324	293		
20	311	306	305	316	325	336	343	343	341	329	307	286	264	247	233	231	237	246	260	275	286	295	301	301	7026	293	7330	293		
21	304	301	302	305	311	317	325	325	323	318	307	290	274	260	249	243	243	245	252	264	270	276	284	290	6878	287	7171	287		
22	294	298	299	299	303	308	310	308	309	306	299	292	281	277	268	259	254	248	246	249	250	256	261	266	6740	281	7015	281		
23	275	277	284	288	287	284	284	281	281	274	274	268	266	266	265	260	254	250	243	237	235	236	240	250	6360	265	6622	265		
24	262	271	282	288	292	287	282	277	277	274	273	276	283	291	298	302	300	294	288	278	271	269	270	278	6762	282	7052	282		
25	290	303	315	322	323	320	306	296	289	280	278	285	291	298	312	318	318	314	303	291	277	269	264	267	7128	297	7408	296		
26	281	292	303	312	315	311	300	285	270	257	255	259	264	283	297	308	315	312	304	291	273	260	254	251	6850	285	7111	284		
27	261	272	286	295	301	298	284	263	247	232	225	229	240	255	276	296	309	309	305	294	278	261	250	250	6517	272	6774	271		
28	257	267	287	296	304	305	287	268	248	229	215	213	222	242	263	288	305	315	312	303	283	269	258	252	6487	270	6740	270		
29	253	268	282	295	304	304	293	273	247	227	207	202	208	225	251	278	300	314	320	312	297	281	267	258	6467	269	6726	269		
30	260	270	285	300	311	315	305	283	259	232	211	200	200	213	237	266	291	309	319	318	305	291	276	265	6520	272	6784	271		
31	263	272	285	301	313	320	311	295	269	241	218	201	191	201	221	248	276	297	312	318	308	294	282	271	6509	271	6774	271		
1	265																													
MONTHLY MEAN																													281.5cm	

Station : SYOWA STATION
 Latitude : 69° 00' 28" S
 Longitude : 39° 34' 13" E
 Duration : Dec. 1-Dec. 31 1993
 Unit : CENTIMETER

Date	Time																							(24H)		(25H)																												
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	SUM	MEAN	SUM	MEAN																										
1	296	296	305	316	326	336	333	322	304	273	241	219	202	198	208	230	257	281	301	318	322	318	309	300	6810	284	7105	284																										
2	295	292	296	307	320	327	329	324	309	287	259	232	211	202	202	217	239	262	285	303	313	313	308	300	6731	280	7026	281																										
3	296	290	290	296	307	316	323	323	313	299	273	247	227	212	207	214	229	251	271	288	303	306	303	303	6687	279	6982	279																										
4	295	289	287	287	297	308	314	315	314	304	288	269	246	230	223	221	229	244	261	277	288	296	298	297	6677	278	6972	279																										
5	296	288	285	280	288	294	298	303	306	303	296	282	266	254	245	239	241	247	260	269	280	290	296	297	6704	279	6999	280																										
6	296	292	289	282	282	287	288	294	298	299	302	298	291	284	279	271	269	267	273	280	285	293	297	302	6899	287	7202	288																										
7	303	301	296	288	281	277	274	273	275	279	286	293	293	297	299	298	293	290	286	289	297	303	307	320	6998	292	7322	293																										
8	324	320	321	310	299	292	280	270	268	269	273	285	295	306	314	315	315	309	298	295	294	292	293	297	7133	297	7436	297																										
9	303	306	304	298	287	275	258	243	236	234	234	246	263	281	298	312	319	319	311	301	296	293	291	296	6805	284	7109	284																										
10	303	305	310	307	300	286	266	246	229	216	216	223	239	263	288	309	326	331	328	321	310	301	297	296	6818	284	7120	285																										
11	302	314	318	320	317	306	285	260	233	212	202	201	214	238	266	296	319	333	336	330	321	307	297	296	6823	284	7122	285																										
12	299	311	318	325	326	318	300	274	243	213	193	184	191	209	238	269	300	322	332	334	327	312	301	297	6738	281	7036	281																										
13	298	305	317	327	334	334	322	296	270	237	207	191	186	199	225	254	288	315	332	341	340	329	316	306	6871	286	7177	287																										
14	305	308	321	332	342	347	342	325	299	266	233	205	192	196	210	237	267	296	320	332	335	328	317	305	6961	290	7261	290																										
15	299	298	307	322	336	346	346	340	321	290	261	231	208	201	209	229	255	281	304	322	329	326	316	305	6981	291	7277	291																										
16	296	291	296	307	324	335	339	338	326	303	277	247	223	209	209	221	242	265	286	304	317	318	309	299	6882	287	7175	287																										
17	293	283	279	289	304	316	325	330	325	312	293	266	245	231	223	229	242	261	279	296	309	314	310	300	6853	286	7147	286																										
18	294	285	278	280	290	304	312	318	320	314	299	281	264	248	239	237	243	258	272	288	299	303	301	296	6824	284	7111	284																										
19	287	279	272	268	270	280	288	296	298	296	290	280	267	255	249	246	250	257	266	279	289	292	296	293	6643	277	6928	277																										
20	285	279	272	262	262	266	271	279	282	283	283	280	275	267	267	265	264	268	277	284	293	296	297	298	6655	277	6949	278																										
21	294	287	280	275	269	268	269	272	280	282	282	283	285	284	287	289	288	291	295	297	302	306	307	311	6883	287	7190	288																										
22	307	302	297	292	285	278	271	268	270	269	271	276	280	286	289	294	300	297	298	298	298	298	300	301	6930	289	7232	289																										
23	302	300	293	288	281	272	260	251	248	247	247	252	262	272	281	293	297	303	301	298	298	296	296	297	6738	281	7037	281																										
24	299	301	303	296	291	283	268	252	244	237	236	243	256	270	286	303	315	320	323	319	317	312	310	311	6897	287	7211	288																										
25	315	317	321	320	315	305	291	275	258	246	243	244	256	274	294	315	331	341	342	339	334	327	320	319	7241	302	7562	302																										
26	322	324	328	328	326	319	300	280	257	237	225	221	231	246	268	294	313	325	332	330	322	311	301	298	7038	293	7339	294																										
27	301	305	312	316	318	312	296	273	248	226	206	198	202	218	245	271	299	317	329	332	327	316	307	302	6778	282	7080	283																										
28	301	310	319	326	332	332	321	299	272	246	221	205	204	216	240	266	295	318	333	339	335	324	313	303	6972	291	7271	291																										
29	298	302	310	322	331	332	325	308	283	251	220	196	186	191	208	235	263	289	308	317	317	309	296	286	6682	278	6961	278																										
30	278	279	289	302	316	324	324	315	295	265	234	208	194	193	204	230	260	288	311	326	330	327	317	305	6712	280	7010	280																										
31	297	294	298	315	330	340	346	342	327	301	270	239	217	205	207	223	249	273	292	310	318	315	302	294	6905	288	7186	287																										
1	281																																																					
MONTHLY MEAN																											285.3cm																											

Station : SYOWA STATION
 Latitude : 69° 00' 28" S
 Longitude : 39° 34' 13" E
 Duration : Jan. 1-Jan. 31 1994
 Unit : CENTIMETER

Date	Time																							(24H)		(25H)				
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	SUM	MEAN	SUM	MEAN		
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2	281	271	268	274	286	301	315	322	324	315	298	274	255	239	230	229	241	258	276	293	303	307	303	293	6757	282	7039	282		
3	282	268	260	256	262	274	287	297	302	304	299	285	270	258	248	245	248	262	275	290	300	303	306	299	6682	278	6970	279		
4	288	274	266	256	256	263	269	278	288	293	293	292	285	277	271	266	267	273	281	290	298	304	306	306	6739	281	7036	281		
5	297	285	275	263	256	252	254	262	267	274	281	287	288	289	289	288	286	289	289	295	299	301	301	303	6768	282	7066	283		
6	297	287	279	267	256	247	238	237	241	246	251	264	273	282	291	298	300	302	301	300	302	305	305	307	6680	278	6987	279		
7	307	301	296	286	274	257	242	232	225	223	228	235	250	268	284	299	306	309	310	306	303	302	301	302	6648	277	6953	278		
8	304	304	303	297	289	274	254	234	221	211	208	215	231	250	274	297	313	321	325	321	314	306	304	304	6675	278	6984	279		
9	308	315	315	315	310	298	278	254	230	212	202	199	208	228	257	284	305	320	327	325	317	306	300	297	6709	280	7011	280		
10	301	308	314	320	322	318	297	271	244	218	198	185	190	204	231	264	292	311	323	327	319	307	296	289	6646	277	6937	277		
11	291	299	308	318	328	329	315	293	266	234	205	187	182	192	214	243	274	297	315	322	317	305	292	279	6607	275	6884	275		
12	277	287	296	309	324	329	325	310	286	254	224	197	185	188	204	232	262	287	308	319	315	305	293	278	6592	275	6862	274		
13	270	273	283	300	318	328	331	325	303	276	241	214	195	187	198	220	245	272	295	305	308	298	283	270	6541	273	6798	272		
14	257	252	259	272	295	310	320	319	309	286	257	231	209	198	203	218	244	270	291	304	312	303	292	280	6490	270	6756	270		
15	266	257	258	269	288	308	321	325	322	308	286	261	238	224	222	233	252	273	292	309	314	310	299	283	6716	280	6985	279		
16	268	258	253	260	272	291	306	311	313	309	291	267	246	236	231	232	246	265	281	296	304	300	293	280	6609	275	6875	275		
17	266	253	245	245	255	268	285	295	299	298	291	274	261	251	245	247	255	267	285	297	304	308	301	287	6584	274	6860	274		
18	275	263	252	246	251	262	273	284	291	292	290	279	271	266	265	266	271	280	292	301	312	313	307	301	6703	279	6991	280		
19	289	276	266	261	262	266	273	281	289	292	293	293	287	286	283	286	293	300	307	315	320	321	317	312	6965	290	7268	291		
20	303	291	280	271	266	266	266	267	273	276	278	280	279	282	287	292	296	300	306	313	315	314	312	306	6920	288	7223	289		
21	303	293	283	275	266	262	257	253	253	254	255	260	265	271	279	290	298	303	303	307	308	307	304	301	6751	281	7050	282		
22	299	295	288	283	273	268	258	252	247	243	244	250	260	271	286	301	314	320	323	325	323	319	315	314	6870	286	7183	287		
23	313	314	310	304	299	290	275	260	249	239	237	237	248	264	283	302	318	325	329	328	325	316	309	308	6983	291	7288	292		
24	305	308	311	309	306	297	280	261	244	229	220	217	226	242	265	291	310	324	329	328	320	312	304	298	6836	285	7136	285		
25	299	305	310	316	316	311	296	272	249	227	208	203	205	225	246	273	298	318	326	328	319	308	297	292	6747	281	7037	281		
26	290	297	308	314	322	323	309	286	262	234	209	194	192	204	228	257	282	307	322	324	319	305	291	281	6658	277	6937	277		
27	279	285	297	312	325	331	325	308	283	250	220	202	192	197	219	249	278	303	323	329	324	310	296	282	6718	280	6991	280		
28	273	277	289	304	322	335	336	328	305	274	244	213	197	196	208	233	262	289	311	320	317	305	287	270	6695	279	6954	278		
29	259	257	266	283	304	322	329	329	314	290	259	228	204	196	202	221	248	273	295	308	310	299	284	266	6546	273	6796	272		
30	250	241	245	258	281	303	319	325	322	306	280	254	228	215	210	225	247	269	293	307	311	306	291	271	6557	273	6812	272		
31	255	241	235	244	266	286	306	319	323	318	300	280	260	241	234	242	257	276	296	310	315	312	300	279	6696	279	6958	278		
1	263																													
MONTHLY MEAN																													279.1cm	

Table 6. Locations and times of drifting buoys.

ID. NO	DEPLOYMENT			LAST RECORD		
	TIME(UT)	LAT.	LONG.	TIME(UT)	LAT.	LONG.
17254	DEC. 08 1026. 1993	54° -35' S	109° -52' E	DEC. 31 2305. 1995	47° -22' S	78° -10' W
17255	MAR. 14 0547. 1994	59° -30' S	148° -46' E	JAN. 01 0042. 1996	51° -51' S	41° -27' W

(10 17254)

DATE						TIME(UT)						LOCATION											
MON	DAY	YEAR	H	M	S	LAT.	LONG.	MON	DAY	YEAR	H	M	S	LAT.	LONG.	MON	DAY	YEAR	H	M	S	LAT.	LONG.
12	8	1993	10	25	47	-54.587	109.868	2	1	1994	01	17	29	-53.404	120.517	3	28	1994	06	20	01	-54.593	133.606
12	9	1993	00	40	39	-54.538	110.056	2	2	1994	00	54	55	-53.743	121.154	3	29	1994	06	08	24	-54.753	133.894
12	10	1993	08	17	40	-54.375	110.341	2	3	1994	00	33	48	-53.942	121.807	3	30	1994	05	56	11	-54.863	134.355
12	11	1993	01	38	35	-54.277	110.388	2	4	1994	06	55	20	-53.900	122.348	3	31	1994	00	25	44	-54.904	134.711
12	12	1993	07	53	47	-54.109	110.107	2	5	1994	06	42	41	-53.928	122.543	4	1	1994	07	12	47	-54.963	135.178
12	13	1993	00	53	54	-54.027	110.038	2	6	1994	01	10	25	-53.988	122.709	4	2	1994	07	00	39	-54.883	135.533
12	14	1993	00	32	41	-53.880	109.887	2	7	1994	00	47	07	-54.077	122.922	4	3	1994	06	48	21	-54.917	136.059
12	15	1993	01	52	09	-53.708	110.114	2	8	1994	00	25	50	-54.142	123.073	4	4	1994	06	35	59	-55.004	136.481
12	16	1993	01	30	52	-53.665	110.007	2	9	1994	07	34	57	-54.173	122.952	4	5	1994	06	23	02	-54.989	137.026
12	17	1993	08	34	05	-53.581	109.818	2	10	1994	07	22	51	-54.168	123.079	4	6	1994	06	11	01	-55.024	137.534
12	18	1993	00	46	05	-53.493	109.856	2	11	1994	01	02	09	-54.111	123.210	4	7	1994	05	58	50	-54.951	137.962
12	19	1993	00	25	02	-53.469	109.883	2	12	1994	00	39	33	-54.024	123.396	4	8	1994	05	46	03	-54.986	138.307
12	20	1993	01	44	09	-53.348	109.944	2	13	1994	06	45	15	-54.030	123.512	4	9	1994	05	33	19	-55.052	138.668
12	21	1993	01	22	13	-53.346	110.091	2	14	1994	06	33	42	-53.987	123.583	4	10	1994	07	02	54	-54.911	139.120
12	22	1993	00	59	45	-53.143	110.301	2	15	1994	06	20	18	-54.079	123.715	4	11	1994	06	50	14	-54.903	139.552
12	23	1993	00	38	10	-53.033	110.617	2	16	1994	00	53	13	-54.081	123.787	4	12	1994	06	38	21	-54.778	140.049
12	24	1993	01	58	54	-52.992	110.837	2	17	1994	00	31	08	-54.045	124.037	4	13	1994	06	25	54	-54.504	140.522
12	25	1993	01	37	01	-53.143	111.160	2	18	1994	07	25	17	-54.272	124.348	4	14	1994	06	13	18	-54.332	140.890
12	26	1993	01	14	22	-53.367	111.463	2	19	1994	07	12	30	-54.464	124.499	4	15	1994	06	00	43	-54.245	141.388
12	27	1993	00	51	51	-53.514	111.857	2	20	1994	07	00	30	-54.640	124.715	4	16	1994	05	49	18	-54.135	141.708
12	28	1993	00	30	47	-53.461	112.125	2	21	1994	00	46	43	-54.685	124.832	4	17	1994	05	35	56	-54.071	141.932
12	29	1993	01	49	59	-53.399	112.327	2	22	1994	00	23	49	-54.682	124.942	4	18	1994	05	23	59	-54.169	142.134
12	30	1993	01	28	21	-53.410	112.450	2	23	1994	00	01	07	-54.661	125.035	4	19	1994	06	52	59	-54.141	142.390
12	31	1993	01	06	53	-53.479	112.486	2	24	1994	07	52	24	-54.712	125.179	4	20	1994	06	40	30	-54.054	142.710
1	1	1994	00	44	14	-53.536	112.348	2	25	1994	01	00	04	-54.765	125.305	4	21	1994	06	28	35	-54.081	142.964
1	2	1994	00	22	34	-53.524	112.386	2	26	1994	00	37	23	-54.675	125.445	4	22	1994	06	16	46	-54.015	143.297
1	3	1994	01	43	06	-53.595	112.553	2	27	1994	07	15	05	-54.618	125.810	4	23	1994	06	03	33	-54.084	143.438
1	4	1994	01	20	16	-53.466	112.776	2	28	1994	07	03	05	-54.705	126.279	4	24	1994	05	51	05	-54.025	143.594
1	5	1994	00	58	52	-53.318	112.839	3	1	1994	06	50	23	-54.610	127.064	4	25	1994	05	38	36	-53.955	143.791
1	6	1994	00	36	45	-53.157	112.985	3	2	1994	00	52	32	-54.545	127.550	4	26	1994	07	08	13	-53.999	143.922
1	7	1994	07	37	25	-52.991	113.238	3	3	1994	00	30	04	-54.359	127.843	4	27	1994	05	13	29	-53.873	144.291
1	8	1994	01	34	52	-53.019	113.348	3	4	1994	06	12	55	-54.322	128.098	4	28	1994	06	42	51	-53.777	144.617
1	9	1994	01	13	11	-53.138	113.424	3	5	1994	07	43	22	-54.171	128.394	4	29	1994	06	30	45	-53.769	144.968
1	10	1994	00	49	31	-53.137	113.462	3	6	1994	07	30	45	-54.161	128.616	4	30	1994	06	18	44	-53.885	145.281
1	11	1994	00	31	31	-53.189	113.526	3	7	1994	00	44	14	-54.114	128.803	5	1	1994	06	06	50	-53.913	145.444
1	12	1994	08	17	05	-53.040	113.821	3	8	1994	00	21	36	-54.090	128.941	5	2	1994	05	53	40	-53.858	145.528
1	13	1994	01	26	36	-53.030	113.963	3	9	1994	06	53	32	-54.190	129.115	5	3	1994	05	41	22	-53.829	145.856
1	14	1994	01	04	55	-53.103	114.224	3	10	1994	06	40	45	-54.240	129.389	5	4	1994	05	28	48	-53.857	146.249
1	15	1994	00	43	20	-53.249	114.419	3	11	1994	06	28	03	-54.365	129.732	5	5	1994	05	15	30	-54.015	146.639
1	16	1994	00	20	57	-53.198	114.639	3	12	1994	00	35	48	-54.414	130.068	5	6	1994	05	03	01	-54.228	147.147
1	17	1994	01	39	30	-53.263	114.805	3	13	1994	00	13	54	-54.590	130.473	5	7	1994	06	33	00	-54.697	148.234
1	18	1994	01	18	38	-53.283	115.079	3	14	1994	07	34	03	-54.710	131.049	5	8	1994	06	21	08	-55.164	149.447
1	19	1994	00	56	22	-53.349	115.295	3	15	1994	07	20	15	-54.833	131.477	5	9	1994	06	07	49	-55.171	150.448
1	20	1994	00	34	41	-53.350	115.572	3	16	1994	07	07	49	-54.685	131.721	5	10	1994	05	56	17	-54.700	150.954
1	21	1994	08	06	59	-53.614	115.869	3	17	1994	00	28	29	-54.694	131.769	5	11	1994	05	43	55	-54.585	151.191
1	22	1994	01	32	40	-53.605	116.134	3	18	1994	06	43	21	-54.688	131.778	5	12	1994	05	31	25	-54.472	151.337
1	23	1994	01	10	53	-53.726	116.437	3	19	1994	06	30	49	-54.660	131.824	5	13	1994	05	18	02	-54.442	151.422
1	24	1994	00	49	27	-53.819	116.896	3	20	1994	06	18	25	-54.759	131.815	5	14	1994	05	06	50	-54.447	151.551
1	25	1994	00	27	32	-53.823	117.072	3	21	1994	06	06	08	-54.678	132.182	5	15	1994	04	54	32	-54.325	151.654
1	26	1994	07	04	47	-53.513	117.354	3	22	1994	00	20	33	-54.606	132.214	5	16	1994	04	40	07	-54.339	151.934
1	27	1994	01	25	33	-53.499	117.573	3	23	1994	07	24	09	-54.607	132.372	5	17	1994	06	10	48	-54.507	151.970
1	28	1994	01	02	54	-53.495	117.844	3	24	1994	07	11	12	-54.596	132.528	5	18	1994	05	58	14	-54.692	152.015
1	29	1994	00	40	53	-53.549	118.272	3	25	1994	06	58	55	-54.579	132.575	5	19	1994	05	45	56	-54.707	152.141
1	30	1994	07	57	49	-53.564	119.280	3	26	1994	06	45	52	-54.547	132.866	5	20	1994	05	33	05	-54.879	152.263
1	31	1994	07	45	21	-53.375	120.094	3	27	1994	06	33	38	-54.546	133.364	5	21	1994	05	20	50	-55.253	152.492

DATE						DATE						DATE											
TIME(UT)			LOCATION			TIME(UT)			LOCATION			TIME(UT)			LOCATION								
MON	DAY	YEAR	H	M	S	LAT.	LONG.	MON	DAY	YEAR	H	M	S	LAT.	LONG.	MON	DAY	YEAR	H	M	S	LAT.	LONG.
5	22	1994	05	08	26	-55.568	152.706	7	21	1994	04	33	26	-58.894	166.119	9	19	1994	03	59	15	-57.162	186.677
5	23	1994	04	55	59	-55.832	153.062	7	22	1994	04	20	27	-59.115	166.848	9	20	1994	03	47	21	-57.156	186.790
5	24	1994	04	42	53	-56.020	153.627	7	23	1994	04	08	41	-59.104	168.132	9	21	1994	03	34	23	-57.170	186.689
5	25	1994	04	30	34	-55.948	154.369	7	24	1994	03	55	56	-59.209	169.025	9	22	1994	03	22	15	-57.250	186.646
5	26	1994	05	59	58	-56.065	155.425	7	25	1994	03	43	51	-59.561	169.420	9	23	1994	03	10	00	-57.116	186.499
5	27	1994	05	48	18	-56.570	155.928	7	26	1994	05	13	22	-59.683	170.217	9	24	1994	04	39	16	-57.049	186.203
5	28	1994	05	35	24	-56.944	156.004	7	27	1994	05	01	13	-59.492	170.483	9	25	1994	04	26	33	-56.945	186.005
5	29	1994	05	22	43	-57.178	156.121	7	28	1994	04	48	22	-59.288	170.290	9	26	1994	04	14	21	-56.791	185.557
5	30	1994	05	10	24	-57.388	156.021	7	29	1994	04	36	25	-59.302	169.793	9	27	1994	04	02	08	-56.540	185.401
5	31	1994	04	57	52	-57.787	156.076	7	30	1994	04	23	30	-59.611	169.835	9	28	1994	03	50	13	-56.318	185.426
6	1	1994	04	45	31	-57.892	156.634	7	31	1994	04	09	55	-59.804	170.543	9	29	1994	03	37	51	-56.120	185.929
6	2	1994	04	31	40	-58.147	156.928	8	1	1994	03	58	32	-59.634	171.100	9	30	1994	03	24	51	-55.914	186.756
6	3	1994	04	19	29	-58.101	157.137	8	2	1994	03	45	46	-59.550	171.264	10	1	1994	04	54	05	-55.454	187.146
6	4	1994	05	49	40	-58.189	157.165	8	3	1994	05	14	47	-59.355	171.431	10	2	1994	04	41	59	-55.106	187.192
6	5	1994	05	37	17	-58.242	157.248	8	4	1994	05	02	28	-59.219	171.438	10	3	1994	04	29	15	-54.805	187.209
6	6	1994	05	24	15	-58.282	157.378	8	5	1994	04	49	58	-59.148	171.472	10	4	1994	04	16	53	-54.623	187.828
6	7	1994	05	12	42	-58.253	157.533	8	6	1994	04	38	14	-59.046	171.580	10	5	1994	04	04	38	-54.591	188.291
6	8	1994	04	59	46	-58.369	157.787	8	7	1994	04	25	32	-58.993	171.508	10	6	1994	03	52	37	-54.596	188.557
6	9	1994	04	47	26	-58.643	158.039	8	8	1994	04	13	37	-59.018	171.568	10	7	1994	03	39	57	-54.522	188.844
6	10	1994	04	34	20	-58.880	158.967	8	9	1994	04	01	29	-58.762	171.635	10	8	1994	03	27	04	-54.447	188.986
6	11	1994	04	22	04	-58.310	159.741	8	10	1994	03	48	03	-58.482	171.886	10	9	1994	03	15	05	-54.431	189.085
6	12	1994	04	10	32	-58.137	160.205	8	11	1994	05	17	25	-58.377	172.928	10	10	1994	03	02	50	-54.454	189.288
6	13	1994	05	39	59	-58.029	160.585	8	12	1994	05	05	27	-58.557	174.234	10	11	1994	02	49	29	-54.496	189.818
6	14	1994	05	27	03	-58.181	160.916	8	13	1994	04	53	21	-58.418	175.301	10	12	1994	04	19	22	-54.543	190.196
6	15	1994	05	14	53	-58.342	161.148	8	14	1994	04	41	46	-57.936	176.041	10	13	1994	02	24	32	-54.609	190.477
6	16	1994	05	02	43	-58.583	161.048	8	15	1994	04	27	40	-57.818	176.570	10	14	1994	03	54	09	-54.697	190.801
6	17	1994	04	49	08	-58.712	160.902	8	16	1994	04	15	34	-57.920	176.904	10	15	1994	03	42	37	-54.781	191.038
6	18	1994	04	37	16	-58.736	160.728	8	17	1994	05	44	54	-57.947	177.178	10	16	1994	03	28	50	-55.029	191.163
6	19	1994	04	24	47	-58.754	160.626	8	18	1994	03	51	05	-57.838	177.340	10	17	1994	03	17	23	-55.184	191.346
6	20	1994	05	54	35	-58.646	160.421	8	19	1994	03	38	02	-57.790	177.550	10	18	1994	03	03	37	-55.091	191.401
6	21	1994	05	41	22	-58.385	160.263	8	20	1994	03	24	56	-57.625	177.812	10	19	1994	02	52	04	-55.207	191.559
6	22	1994	05	29	40	-58.040	160.565	8	21	1994	03	12	39	-57.607	178.112	10	20	1994	02	39	47	-55.345	191.805
6	23	1994	05	16	27	-57.766	161.092	8	22	1994	04	43	27	-57.654	178.419	10	21	1994	04	08	32	-55.392	191.990
6	24	1994	05	04	27	-57.604	161.627	8	23	1994	04	30	22	-57.721	178.443	10	22	1994	03	56	07	-55.354	192.110
6	25	1994	04	51	46	-57.414	161.789	8	24	1994	04	18	00	-57.954	178.662	10	23	1994	03	43	54	-55.321	192.322
6	26	1994	04	39	56	-57.218	161.692	8	25	1994	04	04	57	-58.161	178.972	10	24	1994	03	31	17	-55.443	192.336
6	27	1994	04	27	20	-57.036	161.757	8	26	1994	03	53	18	-58.203	179.303	10	25	1994	03	18	34	-55.575	192.540
6	28	1994	04	14	52	-56.753	161.595	8	27	1994	05	22	06	-58.115	179.480	10	26	1994	03	06	42	-55.473	192.832
6	29	1994	05	44	37	-56.681	161.764	8	28	1994	03	27	30	-58.103	179.855	10	27	1994	02	53	42	-55.384	193.344
6	30	1994	05	31	14	-56.534	161.660	8	29	1994	03	15	39	-58.084	180.107	10	28	1994	04	23	43	-55.268	193.599
7	1	1994	05	19	31	-56.259	161.631	8	30	1994	03	02	19	-57.968	180.504	10	29	1994	04	10	52	-55.109	193.777
7	2	1994	05	07	45	-56.425	161.966	8	31	1994	04	33	24	-57.673	181.340	10	30	1994	03	58	22	-55.056	193.931
7	3	1994	04	54	12	-56.624	162.427	9	1	1994	04	20	34	-57.561	182.134	10	31	1994	03	46	32	-54.927	194.293
7	4	1994	04	42	01	-56.840	162.792	9	2	1994	04	07	49	-57.628	182.448	11	1	1994	03	33	58	-54.927	194.695
7	5	1994	04	29	15	-56.910	162.916	9	3	1994	03	54	35	-57.428	183.061	11	2	1994	03	20	57	-54.960	195.158
7	6	1994	04	16	31	-57.039	163.075	9	4	1994	03	42	42	-57.294	183.586	11	3	1994	03	09	30	-54.915	195.571
7	7	1994	05	46	59	-57.139	163.037	9	5	1994	05	12	06	-57.066	183.966	11	4	1994	02	55	19	-54.885	195.951
7	8	1994	05	33	38	-57.115	163.113	9	6	1994	03	17	22	-57.106	184.124	11	5	1994	02	44	00	-54.863	196.371
7	9	1994	05	21	41	-57.222	163.201	9	7	1994	03	05	13	-57.196	184.334	11	6	1994	02	30	44	-54.891	196.684
7	10	1994	05	09	06	-57.312	163.226	9	8	1994	04	35	08	-57.377	184.276	11	7	1994	02	18	15	-54.886	196.951
7	11	1994	04	57	21	-57.195	163.266	9	9	1994	02	40	02	-57.559	184.215	11	8	1994	03	48	15	-55.064	197.284
7	12	1994	04	44	04	-57.352	163.486	9	10	1994	04	09	59	-57.776	184.615	11	9	1994	01	53	22	-55.273	197.719
7	13	1994	04	31	17	-57.966	163.584	9	11	1994	03	56	55	-57.849	185.286	11	10	1994	03	24	06	-55.475	198.053
7	14	1994	04	19	33	-58.391	164.668	9	12	1994	03	44	40	-57.819	185.784	11	11	1994	03	10	59	-55.603	198.348
7	15	1994	05	49	00	-58.225	165.713	9	13	1994	03	32	44	-57.612	186.121	11	12	1994	02	58	51	-55.810	198.492
7	16	1994	03	53	46	-58.229	165.647	9	14	1994	03	19	33	-57.309	186.170	11	13	1994	02	45	50	-55.869	198.987
7	17	1994	05	24	16	-57.787	166.134	9	15	1994	03	07	08	-57.069	186.240	11	14	1994	02	33	02	-55.762	199.605
7	18	1994	05	11	49	-57.882	166.888	9	16	1994	02	55	42	-57.070	186.464	11	15	1994	04	02	12	-55.533	200.080
7	19	1994	04	58	35	-58.408	166.434	9	17	1994	04	24	41	-57.084	186.524	11	16	1994	03	49	59	-55.297	200.356
7	20	1994	04	46	01	-58.683	165.988	9	18	1994	04	11											

DATE					LOCATION					DATE					LOCATION					DATE					LOCATION						
MON	DAY	YEAR	H	M	S	LAT.	LONG.	MON	DAY	YEAR	H	M	S	LAT.	LONG.	MON	DAY	YEAR	H	M	S	LAT.	LONG.	MON	DAY	YEAR	H	M	S	LAT.	LONG.
11	18	1994	03	24	39	-55.206	200.282	1	17	1995	01	06	58	-54.965	221.621	3	18	1995	02	08	14	-55.002	240.791								
11	19	1994	03	12	25	-55.050	200.386	1	18	1995	02	37	15	-54.970	221.891	3	19	1995	01	30	09	-54.969	240.532								
11	20	1994	03	00	49	-54.923	200.600	1	19	1995	02	24	50	-54.813	222.216	3	20	1995	01	19	47	-54.967	240.236								
11	21	1994	04	27	07	-54.726	200.508	1	20	1995	02	11	49	-54.624	222.584	3	21	1995	01	09	27	-54.885	239.938								
11	22	1994	02	35	35	-54.443	200.652	1	21	1995	02	00	12	-54.362	223.222	3	22	1995	00	58	21	-54.843	239.955								
11	23	1994	02	23	09	-54.432	200.482	1	22	1995	01	47	32	-54.208	223.949	3	23	1995	00	48	04	-54.753	239.942								
11	24	1994	02	10	31	-54.395	200.798	1	23	1995	03	21	18	-54.040	224.305	3	24	1995	00	37	35	-54.692	239.896								
11	25	1994	01	57	37	-54.364	200.918	1	24	1995	01	22	17	-54.043	224.719	3	25	1995	00	26	46	-54.769	240.058								
11	26	1994	03	27	39	-54.313	200.654	1	25	1995	01	09	39	-53.991	225.349	3	26	1995	01	55	32	-54.908	240.127								
11	27	1994	03	15	15	-54.220	200.755	1	26	1995	00	57	13	-54.070	226.150	3	27	1995	01	44	44	-54.919	240.210								
11	28	1994	03	02	06	-54.189	201.210	1	27	1995	00	44	36	-54.173	226.895	3	28	1995	01	34	00	-54.825	240.212								
11	29	1994	02	50	28	-54.259	201.718	1	28	1995	00	31	56	-54.265	227.560	3	29	1995	01	22	45	-54.769	240.464								
11	30	1994	02	38	23	-54.149	202.146	1	29	1995	02	01	42	-54.359	228.280	3	30	1995	02	48	50	-54.735	241.000								
12	1	1994	04	09	27	-53.993	202.341	1	30	1995	01	48	42	-54.600	228.859	3	31	1995	01	02	27	-54.674	241.328								
12	2	1994	02	12	43	-53.938	202.518	1	31	1995	01	36	07	-54.839	229.500	4	1	1995	00	51	24	-54.561	241.500								
12	3	1994	01	59	57	-53.873	202.844	2	1	1995	01	24	27	-55.120	229.998	4	2	1995	00	41	11	-54.349	241.407								
12	4	1994	03	29	07	-53.927	203.216	2	2	1995	01	13	28	-55.358	230.509	4	3	1995	00	30	21	-54.115	241.448								
12	5	1994	03	16	26	-54.014	203.484	2	3	1995	02	42	09	-55.551	231.092	4	4	1995	02	41	17	-53.998	241.438								
12	6	1994	03	04	37	-54.017	203.857	2	4	1995	00	52	26	-55.621	231.511	4	5	1995	00	07	56	-53.851	241.171								
12	7	1994	02	52	30	-54.015	204.080	2	5	1995	00	41	16	-55.481	231.586	4	6	1995	01	37	28	-53.593	241.131								
12	8	1994	02	39	54	-54.024	204.046	2	6	1995	00	30	54	-55.387	231.964	4	7	1995	01	26	38	-53.728	241.255								
12	9	1994	02	26	59	-54.033	204.231	2	7	1995	01	58	16	-55.329	232.761	4	8	1995	01	12	55	-53.718	241.119								
12	10	1994	03	56	48	-53.825	204.762	2	8	1995	00	10	01	-55.187	233.363	4	9	1995	01	05	12	-53.439	241.010								
12	11	1994	03	44	12	-53.764	205.217	2	9	1995	01	38	02	-55.007	234.137	4	10	1995	00	55	28	-53.338	241.856								
12	12	1994	01	49	36	-53.718	205.579	2	10	1995	01	49	20	-54.763	234.521	4	11	1995	01	49	19	-53.265	242.586								
12	13	1994	03	19	31	-53.678	206.025	2	11	1995	01	17	04	-54.551	234.744	4	12	1995	00	34	28	-53.098	243.508								
12	14	1994	03	06	23	-53.617	206.462	2	12	1995	01	06	35	-54.442	234.890	4	13	1995	00	23	25	-53.066	244.408								
12	15	1994	02	54	09	-53.582	207.054	2	13	1995	05	49	58	-54.352	234.973	4	14	1995	02	23	19	-53.156	244.986								
12	16	1994	02	42	38	-53.719	207.675	2	14	1995	00	45	13	-54.340	235.023	4	15	1995	02	01	58	-53.341	245.461								
12	17	1994	02	29	33	-53.812	208.214	2	15	1995	00	34	18	-54.447	235.069	4	16	1995	01	39	12	-53.274	245.990								
12	18	1994	02	16	35	-53.706	208.646	2	16	1995	00	23	23	-54.435	235.235	4	17	1995	01	18	11	-53.291	246.359								
12	19	1994	02	04	22	-53.608	209.068	2	17	1995	01	52	40	-54.528	235.457	4	18	1995	00	55	05	-53.277	246.507								
12	20	1994	01	51	25	-53.562	209.641	2	18	1995	00	02	34	-54.602	235.452	4	19	1995	00	57	13	-53.348	247.110								
12	21	1994	01	39	54	-53.595	210.313	2	19	1995	01	31	19	-54.576	235.883	4	20	1995	00	48	14	-53.314	247.605								
12	22	1994	03	08	26	-53.883	211.012	2	20	1995	03	14	00	-54.516	236.306	4	21	1995	01	30	56	-53.263	248.255								
12	23	1994	02	55	48	-54.019	211.834	2	21	1995	01	09	02	-54.577	236.503	4	22	1995	00	26	54	-53.043	248.704								
12	24	1994	02	43	22	-54.242	212.626	2	22	1995	00	59	11	-54.735	236.833	4	23	1995	00	46	24	-52.819	249.194								
12	25	1994	02	30	53	-54.330	213.557	2	23	1995	00	48	48	-54.860	237.278	4	24	1995	02	06	53	-52.681	249.506								
12	26	1994	02	18	29	-54.433	214.440	2	24	1995	00	37	55	-54.848	237.794	4	25	1995	01	45	02	-52.713	249.640								
12	27	1994	02	05	43	-54.792	215.032	2	25	1995	00	27	16	-54.710	238.572	4	26	1995	01	22	21	-52.720	249.750								
12	28	1994	01	53	32	-55.177	215.549	2	26	1995	01	55	13	-54.644	239.113	4	27	1995	00	59	47	-52.654	250.127								
12	29	1994	01	40	55	-55.545	216.387	2	27	1995	01	45	23	-54.718	239.586	4	28	1995	01	01	27	-52.551	250.469								
12	30	1994	01	28	22	-55.579	217.324	2	28	1995	01	34	43	-54.691	240.114	4	29	1995	00	49	19	-52.275	250.600								
12	31	1994	01	15	36	-55.258	217.817	3	1	1995	01	23	41	-54.520	240.264	4	30	1995	00	40	16	-52.144	250.670								
1	1	1995	02	56	50	-55.049	217.496	3	2	1995	01	12	43	-54.533	240.148	5	1	1995	01	13	59	-52.193	250.613								
1	2	1995	00	50	05	-55.076	217.186	3	3	1995	01	02	20	-54.251	240.089	5	2	1995	00	51	54	-52.223	250.839								
1	3	1995	02	20	03	-55.138	217.056	3	4	1995	00	52	11	-53.882	239.932	5	3	1995	02	11	09	-52.239	251.176								
1	4	1995	02	08	17	-55.183	217.150	3	5	1995	01	41	04	-53.713	240.364	5	4	1995	01	49	40	-52.252	251.604								
1	5	1995	01	55	48	-55.119	217.165	3	6	1995	00	30	53	-54.059	240.637	5	5	1995	01	27	39	-52.309	251.586								
1	6	1995	01	43	27	-55.167	217.205	3	7	1995	01	58	44	-54.321	240.666	5	6	1995	01	04	47	-52.360	251.326								
1	7	1995	01	30	22	-55.217	217.424	3	8	1995	02	25	42	-54.586	240.962	5	7	1995	01	04	06	-52.327	251.446								
1	8	1995	01	18	09	-55.177	217.613	3	9	1995	02	03	12	-54.711	241.014	5	8	1995	02	02	31	-52.198	251.680								
1	9	1995	01	05	11	-55.067	217.733	3	10	1995	03	23	15	-54.798	240.934	5	9	1995	01	40	51	-52.111	251.928								
1	10	1995	02	35	12	-54.857	218.038	3	11	1995	01	16	35	-55.037	241.006	5	10	1995	01	18	26	-52.070	252.206								
1	11	1995	04	03	18	-54.578	218.408	3	12	1995	01	06	13	-54.824	241.214	5	11	1995	02	38	03	-51.837	252.379								
1	12	1995	02	10	22	-54.499	218.912	3	13	1995	00	55	30	-54.860	241.293	5	12	1995	02	16	00	-51.899	252.330								
1	13	1995	01	58	00	-54.584	219.498	3	14	1995	00	44	28	-54.915	241.417	5	13	1995	01	53	47	-52.000	252.450								
1	14	1995	01	45	41	-54.674	220.191	3	15	1995	00	33	27	-54.926	241.303	5	14	1995	01	32	22	-51.820	252.497								
1	15	1995	01	31	55	-54.817	220.865	3	16	1995	00	23	22	-54.952	241.047	5	15	1995	01	10	23	-51.755	252.724								
1	16	1995	01	19	43	-54.991	221.216	3	17	1995	01	51	16</																		

DATE						TIME(UT)						LOCATION											
MON	DAY	YEAR	H	M	S	LAT.	LONG.	MON	DAY	YEAR	H	M	S	LAT.	LONG.	MON	DAY	YEAR	H	M	S	LAT.	LONG.
5	17	1995	02	07	23	-52.125	253.212	7	16	1995	00	23	24	-49.005	259.033	9	14	1995	02	00	08	-46.479	262.607
5	18	1995	01	44	50	-52.137	253.488	7	17	1995	01	43	29	-49.023	258.979	9	15	1995	01	38	21	-46.557	262.884
5	19	1995	01	23	57	-51.947	253.573	7	18	1995	01	20	53	-49.086	259.068	9	16	1995	01	16	42	-46.587	263.404
5	20	1995	00	25	48	-51.786	253.790	7	19	1995	00	58	56	-49.136	259.263	9	17	1995	00	55	09	-46.480	263.632
5	21	1995	00	38	59	-51.723	254.243	7	20	1995	00	36	53	-49.057	259.367	9	18	1995	00	32	52	-46.378	263.652
5	22	1995	00	17	18	-51.788	254.704	7	21	1995	01	56	35	-48.870	259.190	9	19	1995	01	51	54	-46.602	263.539
5	23	1995	01	36	43	-51.832	255.050	7	22	1995	01	34	04	-48.746	259.066	9	20	1995	01	30	32	-46.527	263.687
5	24	1995	01	14	17	-51.979	255.352	7	23	1995	01	12	23	-48.628	259.236	9	21	1995	01	08	32	-46.516	263.614
5	25	1995	00	52	46	-51.973	255.653	7	24	1995	00	49	49	-48.575	259.521	9	22	1995	00	45	03	-46.680	263.769
5	26	1995	00	30	35	-51.932	255.883	7	25	1995	00	28	13	-48.539	259.499	9	23	1995	00	23	12	-46.638	264.034
5	27	1995	01	49	42	-51.853	256.124	7	26	1995	01	47	21	-48.375	259.627	9	24	1995	01	43	12	-46.504	264.405
5	28	1995	00	38	51	-51.896	256.045	7	27	1995	01	25	45	-48.133	259.726	9	25	1995	01	21	27	-46.441	264.769
5	29	1995	01	05	42	-52.019	255.906	7	28	1995	01	03	27	-47.962	259.740	9	26	1995	00	59	40	-46.433	265.210
5	30	1995	00	44	23	-52.090	255.777	7	29	1995	00	41	02	-47.916	259.613	9	27	1995	00	37	07	-46.377	265.559
5	31	1995	00	20	58	-51.966	255.834	7	30	1995	02	00	34	-47.903	259.714	9	28	1995	03	35	22	-46.663	265.697
6	1	1995	01	41	22	-51.900	256.178	7	31	1995	01	38	56	-47.884	259.922	9	29	1995	01	34	05	-46.790	265.905
6	2	1995	01	19	50	-51.878	256.587	8	1	1995	01	17	26	-47.889	260.223	9	30	1995	01	12	23	-46.627	266.015
6	3	1995	00	56	56	-51.832	256.907	8	2	1995	02	35	23	-47.852	260.237	10	1	1995	00	50	01	-46.462	266.148
6	4	1995	00	35	28	-51.563	257.082	8	3	1995	00	32	26	-47.988	260.171	10	2	1995	00	27	14	-46.542	266.291
6	5	1995	01	55	14	-51.405	257.174	8	4	1995	01	51	18	-48.180	260.247	10	3	1995	01	47	22	-46.475	266.243
6	6	1995	01	33	00	-51.288	257.334	8	5	1995	01	30	11	-48.026	260.363	10	4	1995	01	25	32	-46.632	266.156
6	7	1995	00	32	07	-51.200	257.571	8	6	1995	02	48	30	-48.000	260.535	10	5	1995	01	03	24	-46.609	266.259
6	8	1995	00	49	27	-50.964	257.623	8	7	1995	00	45	58	-47.875	260.613	10	6	1995	00	40	42	-46.466	266.331
6	9	1995	00	26	44	-50.796	257.374	8	8	1995	00	23	38	-47.903	260.955	10	7	1995	03	38	43	-46.536	266.436
6	10	1995	01	46	09	-50.683	257.247	8	9	1995	01	42	50	-48.104	261.080	10	8	1995	01	38	46	-46.655	266.627
6	11	1995	01	24	10	-50.611	257.056	8	10	1995	01	21	13	-48.077	261.171	10	9	1995	01	16	12	-46.711	266.997
6	12	1995	01	02	17	-50.569	256.821	8	11	1995	00	58	59	-47.924	261.423	10	10	1995	00	54	43	-46.586	267.243
6	13	1995	00	40	24	-50.629	256.673	8	12	1995	00	37	44	-47.612	261.634	10	11	1995	00	32	09	-46.598	267.419
6	14	1995	01	59	10	-50.840	256.331	8	13	1995	01	56	27	-47.429	261.595	10	12	1995	03	30	03	-46.636	267.586
6	15	1995	01	37	23	-50.941	256.063	8	14	1995	01	34	15	-47.375	261.492	10	13	1995	03	08	44	-46.814	268.036
6	16	1995	00	34	40	-50.959	255.851	8	15	1995	01	12	45	-47.350	261.662	10	14	1995	01	07	40	-46.788	268.504
6	17	1995	00	24	38	-51.081	255.849	8	16	1995	00	50	32	-47.323	261.586	10	15	1995	00	44	59	-46.694	268.626
6	18	1995	00	32	17	-51.145	255.833	8	17	1995	00	27	53	-47.342	261.553	10	16	1995	00	23	42	-46.692	268.761
6	19	1995	01	50	41	-51.082	255.982	8	18	1995	01	47	00	-47.420	261.597	10	17	1995	00	01	46	-46.711	268.960
6	20	1995	01	28	34	-51.076	256.148	8	19	1995	01	26	00	-47.271	261.234	10	18	1995	01	20	11	-46.833	269.138
6	21	1995	01	07	08	-51.087	256.373	8	20	1995	01	04	18	-47.105	260.931	10	19	1995	00	58	32	-46.810	269.272
6	22	1995	00	44	30	-51.056	256.233	8	21	1995	00	41	52	-47.035	260.649	10	20	1995	00	36	45	-46.944	269.389
6	23	1995	02	04	02	-50.985	255.938	8	22	1995	02	00	36	-46.842	260.422	10	21	1995	01	54	39	-46.981	269.402
6	24	1995	01	42	10	-51.170	255.586	8	23	1995	01	39	08	-46.776	260.258	10	22	1995	01	33	43	-46.979	269.654
6	25	1995	01	20	08	-51.232	255.598	8	24	1995	01	17	36	-46.804	260.059	10	23	1995	01	11	30	-46.943	269.885
6	26	1995	00	27	38	-51.234	255.782	8	25	1995	00	54	38	-46.867	259.750	10	24	1995	00	50	04	-46.839	270.011
6	27	1995	00	35	43	-51.228	255.930	8	26	1995	00	33	11	-46.881	259.600	10	25	1995	00	27	57	-46.719	269.929
6	28	1995	01	55	22	-51.415	256.218	8	27	1995	01	51	54	-46.924	259.421	10	26	1995	01	46	03	-46.810	269.728
6	29	1995	01	32	57	-51.426	256.561	8	28	1995	03	10	08	-47.101	259.364	10	27	1995	01	23	59	-47.017	269.709
6	30	1995	01	11	25	-51.318	256.740	8	29	1995	01	08	04	-47.056	259.377	10	28	1995	01	03	21	-47.221	269.795
7	1	1995	02	30	35	-51.209	256.845	8	30	1995	00	46	13	-46.916	259.328	10	29	1995	00	39	50	-47.359	269.970
7	2	1995	00	27	01	-51.059	257.014	8	31	1995	00	23	33	-46.770	259.540	10	30	1995	01	59	04	-47.512	270.245
7	3	1995	03	27	05	-50.865	257.155	9	1	1995	01	43	13	-46.692	259.633	10	31	1995	03	17	11	-47.515	270.708
7	4	1995	01	24	57	-50.710	257.387	9	2	1995	01	21	25	-46.706	259.909	11	1	1995	01	15	44	-47.551	271.005
7	5	1995	01	02	09	-50.551	257.616	9	3	1995	00	59	53	-46.626	260.136	11	2	1995	00	54	10	-47.513	271.379
7	6	1995	00	21	15	-50.565	257.758	9	4	1995	00	37	36	-46.364	260.271	11	3	1995	00	31	47	-47.437	271.556
7	7	1995	02	00	22	-50.514	258.190	9	5	1995	01	56	24	-46.230	260.646	11	4	1995	01	50	39	-47.452	271.746
7	8	1995	01	38	01	-50.270	258.367	9	6	1995	01	34	55	-46.342	260.992	11	5	1995	03	08	08	-47.458	271.988
7	9	1995	01	16	25	-50.081	258.604	9	7	1995	01	11	58	-46.347	261.212	11	6	1995	01	06	19	-47.497	272.305
7	10	1995	00	54	05	-49.841	258.702	9	8	1995	00	50	17	-46.365	261.369	11	7	1995	00	44	08	-47.299	272.607
7	11	1995	00	31	47	-49.633	258.781	9	9	1995	00	28	53	-46.450	261.552	11	8	1995	00	22	43	-47.109	272.656
7	12	1995	01	50	59	-49.451	258.884	9	10	1995	01	46	17	-46.330	261.766	11	9	1995	01	41	27	-47.020	272.865
7	13	1995	03	07	58	-49.266	259.148	9	11	1995	01	25	47	-46.422	261.998	11	10	1995	01	19	29	-47.006	273.141
7	14	1995	01	07	05	-49.135	259.144	9	12	1995	01	03	48	-46.556	262.226	11	11	1995	02	36	51	-47.041	273.345
7	15	1995	00	45	29	-49.057	259.108	9	13	1995	00	40	26	-46.519	262.420	11	12	1995	00	35	36	-47.18	

(ID 17255)

DATE					TIME(UT)					LOCATION													
MON	DAY	YEAR	H	M	S	LAT.	LONG.	MON	DAY	YEAR	H	M	S	LAT.	LONG.	MON	DAY	YEAR	H	M	S	LAT.	LONG.
11	13	1995	01	54	44	-47.203	273.890	3	14	1994	05	46	54	-59.506	148.766	5	13	1994	03	34	22	-62.119	173.391
11	14	1995	01	32	05	-47.209	274.243	3	15	1994	05	37	55	-59.437	148.828	5	14	1994	03	22	14	-62.409	173.923
11	15	1995	01	10	46	-47.250	274.501	3	16	1994	05	24	30	-59.376	148.892	5	15	1994	03	08	35	-62.800	174.874
11	16	1995	00	48	54	-47.124	274.719	3	17	1994	05	11	43	-59.236	148.930	5	16	1994	02	55	50	-63.079	175.904
11	17	1995	00	27	09	-47.077	274.835	3	18	1994	04	59	34	-59.086	149.053	5	17	1994	02	43	10	-63.070	176.409
11	18	1995	01	45	05	-47.215	275.021	3	19	1994	04	47	28	-58.841	149.149	5	18	1994	04	14	17	-62.549	176.259
11	19	1995	03	02	32	-47.287	275.181	3	20	1994	04	34	38	-58.665	149.421	5	19	1994	04	01	20	-62.220	176.787
11	20	1995	01	01	54	-47.291	275.397	3	21	1994	06	05	18	-58.716	149.848	5	20	1994	03	49	42	-62.135	177.457
11	21	1995	00	39	46	-47.321	275.698	3	22	1994	05	51	36	-58.846	150.180	5	21	1994	03	36	28	-61.982	177.888
11	22	1995	01	57	57	-47.314	276.072	3	23	1994	05	40	14	-58.984	150.792	5	22	1994	03	23	56	-61.846	178.020
11	23	1995	01	36	23	-47.385	276.298	3	24	1994	05	27	22	-59.039	151.542	5	23	1994	03	12	03	-61.669	178.292
11	24	1995	02	54	02	-47.263	276.465	3	25	1994	05	15	02	-58.941	151.992	5	24	1994	02	59	21	-61.535	178.863
11	25	1995	00	52	07	-47.206	276.580	3	26	1994	05	02	40	-58.855	152.206	5	25	1994	02	46	45	-61.377	179.302
11	26	1995	00	30	38	-47.138	276.724	3	27	1994	04	51	07	-58.775	152.526	5	26	1994	02	33	52	-61.250	179.060
11	27	1995	01	49	02	-47.135	276.950	3	28	1994	04	37	24	-58.707	153.049	5	27	1994	04	04	16	-61.242	179.229
11	28	1995	01	26	54	-47.179	277.260	3	29	1994	04	25	10	-58.673	153.499	5	28	1994	03	51	35	-61.260	179.352
11	29	1995	02	44	38	-47.084	277.610	3	30	1994	04	12	04	-58.727	153.873	5	29	1994	03	39	36	-61.406	179.233
11	30	1995	00	45	08	-47.116	277.991	3	31	1994	05	42	31	-58.883	154.547	5	30	1994	03	26	50	-61.599	179.178
12	1	1995	00	21	46	-46.969	278.260	4	1	1994	05	30	15	-58.857	155.070	5	31	1994	03	14	05	-61.749	179.398
12	2	1995	01	40	33	-46.989	278.504	4	2	1994	05	17	45	-58.920	155.352	6	1	1994	03	01	27	-61.883	179.816
12	3	1995	01	18	23	-47.045	278.709	4	3	1994	05	04	46	-58.989	155.391	6	2	1994	02	48	56	-62.185	180.478
12	4	1995	00	56	08	-47.191	279.046	4	4	1994	04	52	25	-59.072	155.445	6	3	1994	02	36	23	-62.382	180.872
12	5	1995	00	34	24	-47.320	279.519	4	5	1994	04	40	00	-59.247	155.275	6	4	1994	02	23	28	-62.376	181.059
12	6	1995	01	51	47	-47.315	279.841	4	6	1994	04	27	37	-59.349	155.201	6	5	1994	03	53	51	-62.433	181.566
12	7	1995	01	30	44	-47.145	279.814	4	7	1994	04	15	09	-59.508	155.293	6	6	1994	03	41	17	-62.442	182.065
12	8	1995	01	09	18	-47.285	279.840	4	8	1994	05	44	54	-59.587	155.874	6	7	1994	03	29	36	-62.377	182.431
12	9	1995	00	47	30	-47.319	280.031	4	9	1994	05	31	49	-59.585	155.889	6	8	1994	03	16	41	-62.243	182.828
12	10	1995	00	25	42	-47.158	280.259	4	10	1994	05	20	04	-59.628	156.226	6	9	1994	03	03	55	-62.074	182.912
12	11	1995	01	43	44	-47.259	280.464	4	11	1994	05	07	29	-59.700	156.709	6	10	1994	02	51	49	-62.011	183.270
12	12	1995	01	22	01	-47.332	280.488	4	12	1994	04	54	22	-59.884	157.404	6	11	1994	02	39	01	-62.029	183.519
12	13	1995	02	40	10	-47.395	280.577	4	13	1994	04	42	07	-59.690	158.196	6	12	1994	02	26	13	-61.957	183.628
12	14	1995	00	38	55	-47.437	280.692	4	14	1994	04	29	51	-59.587	158.961	6	13	1994	02	13	27	-61.953	183.734
12	15	1995	01	57	26	-47.542	280.901	4	15	1994	04	18	04	-59.693	159.640	6	14	1994	03	44	16	-61.817	184.146
12	16	1995	01	35	56	-47.516	281.024	4	16	1994	04	04	53	-59.456	160.313	6	15	1994	03	31	26	-61.763	184.391
12	17	1995	01	13	07	-47.557	281.132	4	17	1994	03	53	19	-59.124	160.991	6	16	1994	03	19	04	-61.736	184.750
12	18	1995	02	31	35	-47.509	281.385	4	18	1994	05	22	31	-59.246	161.061	6	17	1994	03	06	43	-61.704	185.041
12	19	1995	02	09	15	-47.330	281.407	4	19	1994	05	10	11	-59.495	161.278	6	18	1994	02	53	41	-61.781	185.199
12	20	1995	01	48	18	-47.279	281.225	4	20	1994	04	57	46	-59.627	161.659	6	19	1994	04	24	07	-61.921	185.249
12	21	1995	01	26	45	-47.378	281.161	4	21	1994	04	44	44	-59.562	161.891	6	20	1994	02	29	34	-62.036	185.272
12	22	1995	01	04	55	-47.410	281.150	4	22	1994	04	32	28	-59.442	162.070	6	21	1994	02	15	48	-62.173	185.466
12	23	1995	00	43	28	-47.481	281.373	4	23	1994	04	20	32	-59.540	162.302	6	22	1994	03	46	22	-62.283	185.750
12	24	1995	00	20	40	-47.440	281.495	4	24	1994	04	07	03	-59.717	162.561	6	23	1994	03	34	01	-62.317	185.666
12	25	1995	01	39	29	-47.469	281.513	4	25	1994	03	55	10	-59.830	162.848	6	24	1994	03	21	05	-62.382	185.660
12	26	1995	01	18	07	-47.429	281.541	4	26	1994	03	41	39	-60.065	163.045	6	25	1994	03	08	22	-62.310	185.759
12	27	1995	02	35	09	-47.384	281.513	4	27	1994	05	12	18	-60.392	163.339	6	26	1994	02	56	22	-62.130	185.911
12	28	1995	00	33	57	-47.361	281.492	4	28	1994	04	59	32	-60.464	164.388	6	27	1994	02	43	43	-62.074	186.347
12	29	1995	01	51	46	-47.212	281.557	4	29	1994	04	47	48	-60.434	164.960	6	28	1994	02	30	55	-62.002	186.857
12	30	1995	01	30	09	-47.288	281.581	4	30	1994	04	35	13	-60.550	165.377	6	29	1994	02	19	34	-61.843	187.213
12	31	1995	01	09	15	-47.392	281.650	5	1	1994	04	22	33	-60.624	165.837	6	30	1994	03	48	16	-61.641	187.144
								5	2	1994	04	09	58	-60.668	166.422	7	1	1994	03	36	56	-61.639	187.090
								5	3	1994	03	58	10	-60.674	166.744	7	2	1994	03	24	09	-61.347	187.106
								5	4	1994	03	44	26	-60.842	167.514	7	3	1994	04	53	36	-61.044	187.140
								5	5	1994	03	32	05	-61.245	168.153	7	4	1994	02	58	41	-60.916	187.237
								5	6	1994	03	20	15	-61.087	169.286	7	5	1994	02	45	56	-60.910	187.193
								5	7	1994	03	06	21	-61.123	169.945	7	6	1994	02	33	43	-61.012	187.175
								5	8	1994	04	36	44	-61.240	170.861	7	7	1994	04	04	06	-61.166	187.147
								5	9	1994	04	24	12	-61.418	171.882	7	8	1994	03	51	02	-61.294	187.007
								5	10	1994	04	11	40	-61.597	172.424	7	9	1994	03	38	49	-61.361	186.930
								5	11	1994	03	59	08	-61.752	172.919	7	10	1994	03	25	54	-61.401	187.066
								5	12	1994	03	47	01	-61.949	173.232	7	11	1994	03	13	01	-61.300	186.979

DATE						TIME(UT)						LOCATION											
MON	DAY	YEAR	H	M	S	LAT.	LONG.	MON	DAY	YEAR	H	M	S	LAT.	LONG.	MON	DAY	YEAR	H	M	S	LAT.	LONG.
7	12	1994	03	01	34	-61.256	187.002	9	10	1994	02	27	15	-59.327	205.336	11	9	1994	01	52	04	-60.654	216.489
7	13	1994	02	48	10	-61.148	187.007	9	11	1994	02	14	53	-59.418	205.600	11	10	1994	01	40	37	-60.643	216.732
7	14	1994	02	36	16	-60.987	187.157	9	12	1994	02	02	32	-59.464	206.006	11	11	1994	01	26	19	-60.658	216.691
7	15	1994	02	23	32	-61.039	187.017	9	13	1994	03	31	46	-59.523	206.385	11	12	1994	01	13	58	-60.674	216.803
7	16	1994	03	53	24	-61.062	187.159	9	14	1994	01	37	24	-59.635	206.512	11	13	1994	01	02	06	-60.673	216.813
7	17	1994	03	41	18	-61.111	187.248	9	15	1994	01	24	45	-59.515	206.552	11	14	1994	00	49	11	-60.752	216.785
7	18	1994	03	28	34	-61.061	187.435	9	16	1994	01	11	15	-59.489	206.828	11	15	1994	02	18	38	-60.880	216.506
7	19	1994	03	15	49	-61.125	187.544	9	17	1994	02	41	48	-59.544	206.998	11	16	1994	02	06	28	-60.938	216.369
7	20	1994	03	03	38	-61.178	187.653	9	18	1994	02	28	47	-59.618	207.118	11	17	1994	01	54	16	-60.926	216.260
7	21	1994	02	50	49	-61.183	187.622	9	19	1994	02	16	26	-59.605	207.389	11	18	1994	01	41	07	-60.971	216.104
7	22	1994	02	38	45	-61.103	187.547	9	20	1994	02	04	59	-59.645	207.527	11	19	1994	01	28	57	-61.030	215.725
7	23	1994	02	25	19	-61.176	187.427	9	21	1994	03	04	42	-59.676	207.634	11	20	1994	01	15	56	-61.047	215.296
7	24	1994	02	12	41	-61.199	187.432	9	22	1994	01	39	05	-59.683	207.712	11	21	1994	01	03	02	-61.116	215.107
7	25	1994	02	00	43	-61.142	187.501	9	23	1994	01	26	57	-59.684	207.857	11	22	1994	00	51	01	-61.173	215.058
7	26	1994	03	29	56	-61.151	187.801	9	24	1994	01	14	01	-59.662	208.122	11	23	1994	02	20	31	-60.955	215.244
7	27	1994	03	18	37	-61.061	188.208	9	25	1994	02	44	40	-59.379	208.465	11	24	1994	02	08	34	-60.741	215.423
7	28	1994	03	05	46	-60.955	188.959	9	26	1994	02	31	52	-59.336	208.540	11	25	1994	01	55	56	-60.608	215.402
7	29	1994	02	53	48	-60.877	189.355	9	27	1994	02	19	07	-59.330	209.105	11	26	1994	01	43	48	-60.465	215.332
7	30	1994	02	40	50	-60.865	189.994	9	28	1994	02	06	14	-59.389	209.597	11	27	1994	01	31	07	-60.394	215.453
7	31	1994	02	27	47	-60.863	190.602	9	29	1994	01	54	53	-59.580	209.797	11	28	1994	01	18	22	-60.448	215.727
8	1	1994	02	15	31	-60.859	190.974	9	30	1994	03	23	32	-59.618	210.027	11	29	1994	02	47	41	-60.489	216.046
8	2	1994	03	45	25	-60.848	191.405	10	1	1994	01	28	36	-59.693	210.083	11	30	1994	00	53	23	-60.519	216.010
8	3	1994	03	33	10	-60.838	191.807	10	2	1994	01	16	26	-59.864	210.169	12	1	1994	02	23	33	-60.362	216.017
8	4	1994	03	21	01	-60.764	192.066	10	3	1994	02	45	54	-59.964	210.444	12	2	1994	00	28	27	-60.293	216.131
8	5	1994	03	07	31	-60.742	192.534	10	4	1994	02	33	46	-60.079	210.546	12	3	1994	01	58	23	-60.465	216.329
8	6	1994	02	56	04	-60.716	193.115	10	5	1994	00	38	09	-60.067	210.752	12	4	1994	01	46	05	-60.611	216.549
8	7	1994	02	43	18	-60.643	193.697	10	6	1994	02	09	02	-59.951	211.034	12	5	1994	01	33	46	-60.723	216.859
8	8	1994	04	13	09	-60.634	194.149	10	7	1994	01	55	38	-59.840	211.296	12	6	1994	03	02	14	-60.814	216.989
8	9	1994	02	18	06	-60.523	194.558	10	8	1994	01	43	03	-59.666	211.481	12	7	1994	01	07	43	-60.765	217.146
8	10	1994	02	05	16	-60.491	195.018	10	9	1994	01	31	07	-59.423	211.801	12	8	1994	00	55	10	-60.804	217.252
8	11	1994	03	34	46	-60.534	195.579	10	10	1994	01	19	06	-59.308	211.900	12	9	1994	02	25	58	-60.663	217.088
8	12	1994	01	39	59	-60.668	196.010	10	11	1994	01	06	52	-59.346	211.977	12	10	1994	00	30	06	-60.555	217.149
8	13	1994	03	10	05	-60.801	196.325	10	12	1994	02	35	32	-59.446	212.221	12	11	1994	01	59	57	-60.466	217.584
8	14	1994	02	57	53	-60.847	197.277	10	13	1994	02	23	25	-59.630	212.528	12	12	1994	01	47	39	-60.462	217.778
8	15	1994	02	45	49	-60.570	197.477	10	14	1994	02	11	22	-59.618	212.981	12	13	1994	03	07	25	-60.317	218.044
8	16	1994	02	32	49	-60.447	197.528	10	15	1994	01	58	38	-59.676	213.204	12	14	1994	01	23	03	-60.271	218.074
8	17	1994	02	20	34	-60.338	197.797	10	16	1994	01	45	49	-59.738	213.318	12	15	1994	01	10	38	-60.185	218.174
8	18	1994	03	49	52	-60.148	198.307	10	17	1994	03	15	03	-59.816	213.332	12	16	1994	02	39	41	-60.203	218.768
8	19	1994	01	54	24	-60.017	198.825	10	18	1994	01	20	43	-59.888	213.283	12	17	1994	00	45	08	-60.247	219.377
8	20	1994	03	24	34	-59.942	199.007	10	19	1994	01	07	42	-59.997	213.305	12	18	1994	02	14	46	-60.388	219.488
8	21	1994	03	12	39	-59.936	199.405	10	20	1994	00	56	01	-60.099	213.405	12	19	1994	02	02	59	-60.367	219.299
8	22	1994	02	59	57	-60.006	199.808	10	21	1994	02	25	02	-60.246	213.652	12	20	1994	01	49	56	-60.415	219.230
8	23	1994	02	47	24	-59.837	200.348	10	22	1994	02	12	41	-60.409	213.833	12	21	1994	01	37	31	-60.497	219.266
8	24	1994	02	35	32	-59.858	200.807	10	23	1994	02	00	23	-60.481	213.966	12	22	1994	01	24	23	-60.528	219.334
8	25	1994	02	22	39	-59.974	201.395	10	24	1994	01	47	25	-60.547	214.063	12	23	1994	01	11	54	-60.645	219.483
8	26	1994	03	52	38	-59.991	201.741	10	25	1994	01	35	27	-60.627	214.127	12	24	1994	02	28	41	-60.772	219.554
8	27	1994	01	58	22	-60.041	202.095	10	26	1994	03	04	50	-60.684	214.250	12	25	1994	02	29	03	-60.935	219.473
8	28	1994	01	45	08	-59.862	202.521	10	27	1994	01	10	43	-60.592	214.480	12	26	1994	02	16	35	-60.990	219.481
8	29	1994	03	15	32	-59.811	202.976	10	28	1994	00	57	20	-60.673	214.655	12	27	1994	02	04	14	-61.040	219.446
8	30	1994	03	02	24	-59.694	203.055	10	29	1994	02	27	21	-60.692	214.727	12	28	1994	01	51	09	-61.178	219.517
8	31	1994	02	50	03	-59.594	203.159	10	30	1994	00	31	45	-60.607	214.901	12	29	1994	01	38	36	-61.185	219.753
9	1	1994	02	37	35	-59.450	203.636	10	31	1994	02	02	37	-60.591	215.099	12	30	1994	01	26	39	-61.151	220.163
9	2	1994	02	25	12	-59.545	203.793	11	1	1994	01	49	54	-60.463	215.191	12	31	1994	01	14	15	-61.077	220.597
9	3	1994	02	12	36	-59.731	203.819	11	2	1994	01	37	03	-60.498	215.462	1	1	1995	02	55	24	-61.036	220.965
9	4	1994	03	42	02	-59.675	203.775	11	3	1994	01	25	41	-60.492	215.716	1	2	1995	00	48	57	-61.025	221.181
9	5	1994	01	47	57	-59.694	204.039	11	4	1994	01	12	56	-60.520	215.606	1	3	1995	02	10	31	-61.065	221.536
9	6	1994	03	17	33	-59.668	204.272	11	5	1994	00	59	29	-60.651	215.789	1	4	1995	00	23	45	-61.066	222.149
9	7	1994	03	05	01	-59.519	204.797	11	6	1994	00	46	47	-60.713	216.109	1	5	1995	01	53	31	-61.046	222.709
9	8	1994	02	52	37	-59.419	204.990	11	7	1994	00	34	50	-60.598	216.362	1	6	1995	01	41	02	-61.017	223.169
9	9	1994	02	39	40	-59.332	205.075	11	8	1994	02	05	35	-60.575	216.408</								

DATE					TIME(UT)					LOCATION													
MON	DAY	YEAR	H	M	S	LAT.	LONG.	MON	DAY	YEAR	H	M	S	LAT.	LONG.	MON	DAY	YEAR	H	M	S	LAT.	LONG.
1	8	1995	01	15	20	-61.310	224.127	3	9	1995	01	36	06	-61.280	241.531	5	8	1995	00	50	52	-61.099	256.992
1	9	1995	01	03	37	-61.359	224.344	3	10	1995	01	39	41	-61.525	241.986	5	9	1995	00	40	50	-61.107	257.422
1	10	1995	00	51	07	-61.362	224.607	3	11	1995	01	15	02	-61.626	241.884	5	10	1995	00	30	51	-61.091	257.842
1	11	1995	00	38	39	-61.244	224.867	3	12	1995	01	04	13	-61.537	242.158	5	11	1995	00	54	50	-60.979	258.304
1	12	1995	02	08	09	-61.127	225.386	3	13	1995	00	53	19	-61.743	242.823	5	12	1995	00	31	55	-60.883	258.809
1	13	1995	01	55	41	-61.126	225.913	3	14	1995	00	42	23	-61.931	243.233	5	13	1995	01	37	31	-60.835	259.225
1	14	1995	01	43	17	-61.218	226.285	3	15	1995	00	31	33	-61.953	243.815	5	14	1995	01	26	49	-60.858	259.531
1	15	1995	01	30	48	-61.156	226.443	3	16	1995	00	21	09	-61.706	244.402	5	15	1995	01	06	43	-60.814	259.957
1	16	1995	01	18	05	-61.114	226.434	3	17	1995	00	46	57	-61.321	244.528	5	16	1995	00	45	00	-60.889	260.563
1	17	1995	01	06	17	-61.007	226.298	3	18	1995	00	24	32	-61.029	244.806	5	17	1995	00	24	03	-60.917	261.175
1	18	1995	00	53	01	-60.737	226.402	3	19	1995	01	29	19	-60.816	244.978	5	18	1995	00	44	57	-61.146	261.499
1	19	1995	00	40	25	-60.644	226.273	3	20	1995	01	22	40	-60.655	245.209	5	19	1995	01	20	33	-61.207	261.716
1	20	1995	00	28	37	-60.667	226.116	3	21	1995	01	00	09	-60.407	245.092	5	20	1995	00	23	09	-61.299	262.065
1	21	1995	01	57	27	-60.663	226.404	3	22	1995	00	39	08	-60.283	245.315	5	21	1995	00	36	11	-61.236	262.464
1	22	1995	01	45	37	-60.462	226.590	3	23	1995	00	46	07	-60.299	245.530	5	22	1995	00	15	26	-61.172	263.001
1	23	1995	01	33	18	-60.246	226.496	3	24	1995	00	35	51	-60.442	245.668	5	23	1995	01	29	05	-60.972	263.237
1	24	1995	01	21	00	-60.190	226.657	3	25	1995	00	24	47	-60.717	245.832	5	24	1995	01	11	59	-61.029	263.582
1	25	1995	01	07	45	-60.251	227.157	3	26	1995	00	51	49	-60.990	246.252	5	25	1995	00	50	30	-60.928	263.913
1	26	1995	00	55	11	-60.314	227.584	3	27	1995	01	43	24	-61.260	246.493	5	26	1995	00	27	44	-60.728	264.325
1	27	1995	00	42	39	-60.363	228.000	3	28	1995	01	32	24	-61.501	246.606	5	27	1995	00	48	17	-60.600	264.833
1	28	1995	02	12	08	-60.329	228.356	3	29	1995	01	22	11	-61.814	246.539	5	28	1995	00	36	40	-60.729	265.126
1	29	1995	01	59	26	-60.273	228.604	3	30	1995	01	11	22	-61.984	246.526	5	29	1995	00	25	33	-61.007	265.375
1	30	1995	01	46	41	-60.341	228.657	3	31	1995	00	43	13	-62.032	246.629	5	30	1995	00	41	03	-61.226	265.310
1	31	1995	01	34	45	-60.335	228.736	4	1	1995	00	21	34	-61.941	246.557	5	31	1995	01	43	22	-61.371	265.056
2	1	1995	01	23	26	-60.313	228.827	4	2	1995	00	38	56	-61.732	246.626	6	1	1995	01	32	21	-61.416	264.935
2	2	1995	01	12	59	-60.229	228.763	4	3	1995	00	28	14	-61.723	246.816	6	2	1995	01	16	18	-61.456	265.040
2	3	1995	02	41	04	-60.143	229.171	4	4	1995	00	56	15	-61.643	246.806	6	3	1995	00	54	28	-61.607	264.949
2	4	1995	00	51	18	-59.989	229.655	4	5	1995	00	06	43	-61.366	246.731	6	4	1995	00	30	37	-61.629	264.956
2	5	1995	00	40	55	-59.865	230.081	4	6	1995	01	35	19	-61.177	246.850	6	5	1995	00	50	38	-61.655	265.164
2	6	1995	00	29	57	-59.925	230.612	4	7	1995	01	24	35	-61.230	247.376	6	6	1995	00	39	36	-61.670	265.375
2	7	1995	01	58	55	-60.113	230.819	4	8	1995	01	10	21	-61.258	248.264	6	7	1995	00	28	43	-61.601	265.783
2	8	1995	00	08	00	-60.310	230.940	4	9	1995	00	48	48	-61.215	249.046	6	8	1995	00	45	11	-61.474	265.676
2	9	1995	01	37	32	-60.512	231.001	4	10	1995	00	25	54	-61.183	249.779	6	9	1995	00	23	31	-61.387	265.927
2	10	1995	01	26	29	-60.582	231.075	4	11	1995	00	42	05	-60.978	250.438	6	10	1995	01	43	26	-61.187	265.880
2	11	1995	01	15	57	-60.536	231.560	4	12	1995	00	31	49	-60.976	250.827	6	11	1995	01	21	05	-61.051	265.821
2	12	1995	01	05	36	-60.247	232.428	4	13	1995	00	20	47	-61.036	251.287	6	12	1995	00	59	19	-60.932	265.869
2	13	1995	05	51	09	-60.065	233.326	4	14	1995	00	39	49	-61.079	251.561	6	13	1995	00	37	37	-60.921	266.014
2	14	1995	00	43	35	-60.311	233.874	4	15	1995	01	59	21	-61.164	252.077	6	14	1995	00	53	57	-61.030	266.198
2	15	1995	00	33	04	-60.687	234.536	4	16	1995	01	25	53	-61.076	252.471	6	15	1995	00	43	03	-61.062	266.231
2	16	1995	00	22	42	-60.918	235.533	4	17	1995	01	15	28	-61.033	252.986	6	16	1995	00	32	54	-61.166	266.044
2	17	1995	00	53	26	-61.252	235.884	4	18	1995	00	53	34	-61.015	253.286	6	17	1995	00	21	53	-61.347	265.924
2	18	1995	02	14	05	-61.448	236.274	4	19	1995	00	56	49	-61.068	253.615	6	18	1995	00	28	05	-61.540	265.901
2	19	1995	01	29	41	-61.681	236.164	4	20	1995	00	45	53	-61.012	254.077	6	19	1995	01	39	59	-61.628	265.960
2	20	1995	01	18	39	-61.707	236.326	4	21	1995	00	35	53	-61.016	254.161	6	20	1995	01	25	31	-61.563	265.999
2	21	1995	01	08	56	-61.725	236.545	4	22	1995	00	23	39	-60.946	254.272	6	21	1995	01	04	39	-61.510	265.897
2	22	1995	00	57	39	-61.772	236.584	4	23	1995	00	44	27	-60.834	254.283	6	22	1995	00	41	51	-61.541	265.890
2	23	1995	00	47	12	-61.798	236.730	4	24	1995	00	22	08	-60.774	254.301	6	23	1995	00	57	07	-61.449	266.238
2	24	1995	00	36	46	-61.786	236.834	4	25	1995	01	31	12	-60.763	254.401	6	24	1995	00	47	04	-61.212	266.488
2	25	1995	00	25	36	-61.765	236.937	4	26	1995	01	19	37	-60.895	254.544	6	25	1995	00	36	26	-61.093	266.427
2	26	1995	00	58	28	-61.749	236.989	4	27	1995	00	57	11	-61.040	254.734	6	26	1995	00	26	04	-61.021	266.080
2	27	1995	01	43	31	-61.778	237.155	4	28	1995	00	36	18	-60.952	254.928	6	27	1995	00	33	35	-60.998	265.920
2	28	1995	01	33	56	-61.693	237.403	4	29	1995	00	48	43	-60.992	255.072	6	28	1995	01	51	39	-61.100	265.694
3	1	1995	01	22	23	-61.551	238.010	4	30	1995	00	38	01	-61.036	255.271	6	29	1995	01	32	19	-61.296	265.364
3	2	1995	01	12	13	-61.396	238.802	5	1	1995	00	27	22	-61.175	255.516	6	30	1995	01	08	30	-61.430	265.215
3	3	1995	01	01	19	-61.082	239.030	5	2	1995	00	49	01	-61.342	255.619	7	1	1995	01	10	45	-61.537	265.322
3	4	1995	00	50	37	-60.883	239.238	5	3	1995	00	26	03	-61.398	255.638	7	2	1995	00	24	47	-61.573	265.561
3	5	1995	00	39	50	-60.906	239.424	5	4	1995	00	04	31	-61.272	255.827	7	3	1995	00	49	29	-61.680	266.038
3	6	1995	00	29	37	-60.952	239.714	5	5	1995	01	24	29	-61.077	256.193	7	4	1995	00	38	18	-61.551	266.628
3	7	1995	01	57	18	-61.095	240.431	5	6	1995	01	03	02	-61.034	256.558	7	5	1995	00	28	34	-61.258	267.056
3	8	1995	00	41	41	-61.150	240.886	5	7	1995	00	40	47	-61.085	256.770	7	6	1995	00	37	41	-60.991	267.237

DATE						TIME(UT)						LOCATION											
MON	DAY	YEAR	H	M	S	LAT.	LONG.	MON	DAY	YEAR	H	M	S	LAT.	LONG.	MON	DAY	YEAR	H	M	S	LAT.	LONG.
7	7	1995	01	45	57	-60.875	267.289	9	5	1995	00	59	06	-58.386	288.784	11	4	1995	01	44	04	-54.830	313.122
7	8	1995	01	34	10	-60.715	267.433	9	6	1995	01	30	15	-58.328	289.160	11	5	1995	01	22	58	-54.905	313.486
7	9	1995	01	12	25	-60.432	267.560	9	7	1995	01	08	35	-58.478	289.170	11	6	1995	01	02	27	-55.004	313.882
7	10	1995	00	51	23	-60.187	267.802	9	8	1995	00	27	22	-58.512	289.617	11	7	1995	00	39	50	-55.070	314.366
7	11	1995	00	29	36	-60.054	267.871	9	9	1995	00	24	37	-58.552	289.982	11	8	1995	01	06	04	-55.014	315.018
7	12	1995	00	53	10	-59.945	268.201	9	10	1995	01	42	48	-58.204	290.072	11	9	1995	00	56	05	-54.674	315.647
7	13	1995	00	42	32	-59.914	268.561	9	11	1995	01	21	26	-57.626	289.991	11	10	1995	00	45	29	-54.461	316.385
7	14	1995	00	31	45	-59.867	269.221	9	12	1995	00	59	59	-57.269	290.493	11	11	1995	00	33	08	-54.163	317.011
7	15	1995	00	20	27	-59.495	269.730	9	13	1995	02	16	56	-57.537	291.381	11	12	1995	00	31	40	-53.796	316.739
7	16	1995	03	27	49	-59.213	270.202	9	14	1995	01	01	43	-57.744	292.171	11	13	1995	01	48	10	-53.689	316.173
7	17	1995	01	39	46	-58.971	270.456	9	15	1995	00	50	49	-57.880	292.573	11	14	1995	01	27	21	-53.878	315.867
7	18	1995	01	18	09	-58.788	270.872	9	16	1995	00	40	34	-58.118	292.943	11	15	1995	01	05	35	-54.136	315.947
7	19	1995	00	56	02	-58.591	271.292	9	17	1995	00	30	06	-58.258	293.597	11	16	1995	00	44	03	-54.234	316.522
7	20	1995	00	33	58	-58.529	271.437	9	18	1995	01	57	53	-58.362	294.351	11	17	1995	00	23	08	-54.070	316.897
7	21	1995	00	55	58	-58.509	271.459	9	19	1995	01	46	23	-57.838	295.046	11	18	1995	00	58	59	-53.725	316.830
7	22	1995	01	30	37	-58.505	271.663	9	20	1995	01	25	29	-57.461	294.947	11	19	1995	00	47	38	-53.550	316.377
7	23	1995	01	09	03	-58.563	272.237	9	21	1995	01	03	19	-57.083	294.305	11	20	1995	00	37	20	-53.528	315.883
7	24	1995	00	47	24	-58.447	272.846	9	22	1995	00	42	19	-56.574	294.179	11	21	1995	00	35	52	-53.762	315.492
7	25	1995	00	25	14	-58.308	273.158	9	23	1995	01	04	50	-56.111	294.640	11	22	1995	01	55	35	-54.019	315.243
7	26	1995	00	03	13	-58.137	273.514	9	24	1995	01	38	47	-55.812	295.479	11	23	1995	01	30	49	-54.309	315.303
7	27	1995	01	22	38	-57.828	273.487	9	25	1995	01	17	00	-55.904	296.333	11	24	1995	01	09	31	-54.428	315.556
7	28	1995	01	01	11	-57.585	273.413	9	26	1995	00	55	38	-56.390	296.439	11	25	1995	00	47	51	-54.489	315.869
7	29	1995	00	38	49	-57.377	273.537	9	27	1995	00	33	09	-56.859	296.642	11	26	1995	00	26	57	-54.375	316.279
7	30	1995	00	58	52	-57.273	273.848	9	28	1995	01	49	24	-56.724	297.944	11	27	1995	01	01	37	-54.346	316.703
7	31	1995	01	35	25	-57.079	274.129	9	29	1995	01	29	08	-56.051	298.446	11	28	1995	00	50	28	-54.274	317.046
8	1	1995	00	36	16	-57.003	274.567	9	30	1995	01	07	55	-55.745	298.723	11	29	1995	01	00	27	-54.224	317.340
8	2	1995	00	51	39	-56.736	274.896	10	1	1995	00	46	12	-55.595	299.003	11	30	1995	00	30	07	-54.134	317.371
8	3	1995	00	30	10	-56.617	275.067	10	2	1995	00	24	12	-55.564	299.141	12	1	1995	00	17	53	-54.021	317.358
8	4	1995	03	22	09	-56.796	275.504	10	3	1995	00	55	20	-55.489	299.220	12	2	1995	01	46	38	-53.902	317.210
8	5	1995	01	27	22	-56.921	275.618	10	4	1995	01	20	51	-55.321	299.384	12	3	1995	01	14	12	-53.785	317.065
8	6	1995	01	22	56	-56.960	275.612	10	5	1995	00	59	14	-55.235	299.883	12	4	1995	00	51	47	-53.609	316.836
8	7	1995	00	43	11	-56.913	275.760	10	6	1995	00	37	18	-55.311	300.594	12	5	1995	00	29	56	-53.624	316.567
8	8	1995	00	20	51	-56.955	275.982	10	7	1995	01	51	39	-55.596	301.363	12	6	1995	01	04	10	-53.552	316.212
8	9	1995	00	51	40	-56.958	275.981	10	8	1995	01	33	51	-55.828	302.245	12	7	1995	00	54	40	-53.461	315.970
8	10	1995	00	39	30	-57.009	275.950	10	9	1995	01	11	47	-56.081	302.621	12	8	1995	00	43	36	-53.406	315.698
8	11	1995	00	30	15	-57.244	275.826	10	10	1995	00	50	02	-56.367	302.345	12	9	1995	00	43	46	-53.256	315.266
8	12	1995	00	34	45	-57.424	275.669	10	11	1995	00	28	47	-56.643	302.094	12	10	1995	00	22	16	-53.112	315.339
8	13	1995	01	47	44	-57.558	275.522	10	12	1995	00	59	20	-56.850	302.076	12	11	1995	01	50	21	-53.092	315.723
8	14	1995	01	30	47	-57.708	275.618	10	13	1995	00	48	51	-57.123	302.332	12	12	1995	01	17	52	-53.180	315.901
8	15	1995	01	09	20	-58.087	276.151	10	14	1995	01	02	20	-57.024	303.025	12	13	1995	00	56	44	-53.211	315.956
8	16	1995	00	47	02	-58.325	276.749	10	15	1995	00	40	35	-57.011	303.301	12	14	1995	00	35	01	-53.268	315.962
8	17	1995	00	25	33	-58.512	277.711	10	16	1995	01	55	30	-56.962	303.377	12	15	1995	01	07	14	-53.232	315.971
8	18	1995	00	53	49	-58.573	278.518	10	17	1995	01	37	10	-56.828	303.586	12	16	1995	00	57	37	-53.260	316.205
8	19	1995	00	41	51	-58.443	279.378	10	18	1995	01	15	27	-56.681	304.274	12	17	1995	00	45	51	-53.252	316.448
8	20	1995	00	32	48	-58.423	280.382	10	19	1995	00	54	21	-56.347	305.184	12	18	1995	00	36	17	-53.309	316.668
8	21	1995	00	38	20	-58.409	280.807	10	20	1995	00	31	24	-55.756	306.164	12	19	1995	00	25	23	-53.305	316.761
8	22	1995	01	50	27	-58.476	280.881	10	21	1995	01	49	48	-55.581	307.214	12	20	1995	01	52	31	-53.248	316.780
8	23	1995	01	34	46	-58.426	280.921	10	22	1995	00	51	26	-55.605	307.588	12	21	1995	01	21	04	-53.254	316.763
8	24	1995	01	13	03	-58.278	281.014	10	23	1995	00	40	00	-55.783	307.631	12	22	1995	01	00	32	-53.133	316.727
8	25	1995	00	51	52	-58.060	280.991	10	24	1995	00	29	03	-55.950	307.456	12	23	1995	00	39	18	-53.075	316.949
8	26	1995	00	29	12	-57.736	281.188	10	25	1995	00	22	51	-56.179	307.503	12	24	1995	01	10	17	-53.038	317.090
8	27	1995	01	48	04	-57.698	281.935	10	26	1995	01	40	58	-56.136	307.972	12	25	1995	00	59	51	-52.875	317.189
8	28	1995	00	46	24	-57.545	282.709	10	27	1995	01	19	29	-55.999	308.198	12	26	1995	00	49	34	-52.689	317.313
8	29	1995	02	44	12	-57.639	283.298	10	28	1995	00	58	44	-55.639	308.359	12	27	1995	00	51	42	-52.580	317.348
8	30	1995	00	42	41	-57.833	283.916	10	29	1995	00	36	23	-55.467	308.817	12	28	1995	00	28	10	-52.371	317.556
8	31	1995	00	20	41	-58.130	284.380	10	30	1995	01	52	57	-55.311	309.513	12	29	1995	01	46	15	-52.345	317.807
9	1	1995	01	39	01	-58.175	285.367	10	31	1995	00	53	47	-55.138	310.122	12	30	1995	01	24	58	-52.237	317.999
9	2	1995	01	16	57	-58.437	286.310	11	1	1995	00	41	51	-54.705	311.092	12	31	1995	01	03	29	-52.094	318.088
9	3	1995	02	34	29	-58.501	287.065	11	2	1995	00	48	50	-54.561	312.099	1	1	1996	00	42	21	-51.853	318.548
9	4	1995	00	33	11	-58.347	287.906	11	3	1995	00	27	45	-54.781	312.69								