

**Oceanographic Data of the 38th Japanese Antarctic Research Expedition  
from November 1996 to March 1997**

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The results of oceanographic observations on board the icebreaker “Shirase” and tidal observations at Syowa Station, Antarctica, are presented in this report. The oceanographic observations were carried out by the summer party of the 38th Japanese Antarctic Research Expedition (JARE-38) during the austral summer of 1996/1997. The tidal observations were carried out by the winter party of JARE-37 from February 1996 to January 1997.

### **1. Oceanographic Observations**

The track of the icebreaker “Shirase” and the sites of oceanographic stations are shown in Fig. 1. Surface water was sampled during the cruise using a plastic bucket (10L). XBT (expendable bathythermograph) and serial observations were taken in the Southern Ocean. Two surface drifting buoys were deployed and five XCP (expendable current profiler) observations were taken in the Antarctic Circumpolar Current.

(1) Surface water sampling

Surface water was sampled one or three times a day at 48 stations for chemical analysis. The results are given in Table 1.

(2) Monitoring of marine pollution

Surface water was sampled at 9 stations in the Southern Ocean for monitoring of marine pollution. Items and methods of analyses are given in the following section of (5).

(3) XBT observations

XBT observations were carried out at 238 stations in the Southern Ocean from Fremantle to Antarctica and back to Sydney. The results are listed in Table 2. Vertical profiles of water temperature are shown in Figs. 2 and 3.

(4) Serial observations

Serial observations with Rosette sampler, equipped with twenty three Niskin bottles of 2.5L capacity, and CTD (Conductivity, Temperature and Depth profiling system: Falmouth Scientific FSI TRITON ICTD) were carried out at 11 stations. The results including interpolated and calculated values of temperature, practical salinity,  $\sigma_t$  and

dynamic depth anomaly at each standard depth together with meteorological data are given in Table 3.

(5) Chemical analysis of sampled water

Chemical analysis of seawater collected with a bucket (10L) for surface observation or Niskin bottle (2.5L) for serial observation was done with the following methods. Chemical analyses for the item (a) was calculated from conductivity using the 1978 practical salinity scale (UNESCO, 1981). Items (b), (d) and (h) were carried out with the method described by Strickland and Parsons (1972). Item (c) was analyzed by the Winkler method as modified by Carpenter (1965) for more precision. Item (e) was analyzed with the method in Motomizu and Korechika (1988). Items (f) and (g) were analyzed with the method in Bergamin *et al.* (1978), Andersson (1979) and Gine *et al.* (1980). Items (i), (j) and (k) were analyzed with the method in Hydrographic Department (1995).

- (a) Practical salinity : Conductive salinometer (Guildline Autosol salinometer model 8400B).
- (b) pH : Glass electrode method (Horiba digital pH meter F-16).
- (c) Dissolved oxygen : Carpenter method (Metrohm model E41520S titrator).
- (d) Phosphate-P : Molybdenum blue method (Shimadzu model UV-120A spectrophotometer).
- (e) Silicate-Si : Molybdenum yellow method (Shimadzu model UV-120A spectrophotometer).
- (f) Nitrite-N : Naphthylethylenediamine method (Shimadzu model UV-120A spectrophotometer).
- (g) Nitrate-N : Cadmium (Cd) – copper (Cu) reduction column, Naphthylethylenediamine method (Shimadzu model UV-120A spectrophotometer).
- (h) Ammonium-N : Indophenol blue method (Shimadzu model UV-120A spectrophotometer).
- (i) Petroleum oil : n-hexane extraction – fluorophotometric analysis.
- (j) Cadmium (Cd) : Solvent extraction – atomic absorption spectrophotometry.
- (k) Mercury (Hg) : Cold vapor atomic absorption spectrophotometry.

The results of analytical items (a) to (h) are given in Tables 1 and 3. The results of monitoring of marine pollution items (i) to (k) are given in Table 4.

(6) Current observation with one surface drifting buoy

One surface drifting buoy was deployed at 60°05'S, 105°54'E (st. 4) on December 9, 1996. It was operated until July 4, 1997. The trajectory is shown in Fig. 4.

(7) Vertical current observations with XCP ·

XCP (Sippican Inc. U.S.A.) observations were completed at the following 2 stations.

December 5, 1996 08:05 (UT) 41°54'S, 109°58' E0 (St. 1)

March 13, 1997 05:44 (UT) 60°35' S, 147°08 E (St. 9)

The results are given in Fig. 5.

## 2. Tidal Observations at Syowa Station

Tidal observations at Syowa Station have been carried out since 1965. The tide gauge (QWP-8-303D, Meisei Denki Co.) was set on the sea bottom of about 15 m below the sea surface at Nisi-no-ura Cove, East Ongul Island by JARE-36 members on February 2, 1995. Result obtained from February 1996 to January 1997 are described in this report. 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 range of the sensor 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 record on solid IC memory every 10 min. The gauge was maintained by Mr. H. Negishi, a member of the JARE-37 winter party, through the year. Hourly sea level was recorded. Daily and monthly mean sea levels were calculated from the hourly data. The results are given in Table 5.

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The authors also express their thanks to Captain M. Chousa, the officers and crew 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.
- Carpenter, J. H. (1965): The accuracy of the Winkler method for dissolved oxygen. *Limnol. Oceanogr.*, **10**, 135–140.
- Gine, M. F., Bergamin, H., Zagatto, E. A. G. and Reis, B. F. (1980): Simultaneous determination of nitrite and nitrate by flow injection analysis. *Anal. Chim. Acta*, **114**, 191.
- Hydrographic Department, Maritime Safety Agency, Japan (1995): Results of surveys in 1993. *Rep. Mar. Pollut. Surv.*, **21**, 70–74 (in Japanese).
- 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.
- UNESCO (1981): Tenth Report of the Joint Panel on Oceanographic Tables and Standards. *UNESCO Technical Papers in Marine Science*, **36**.

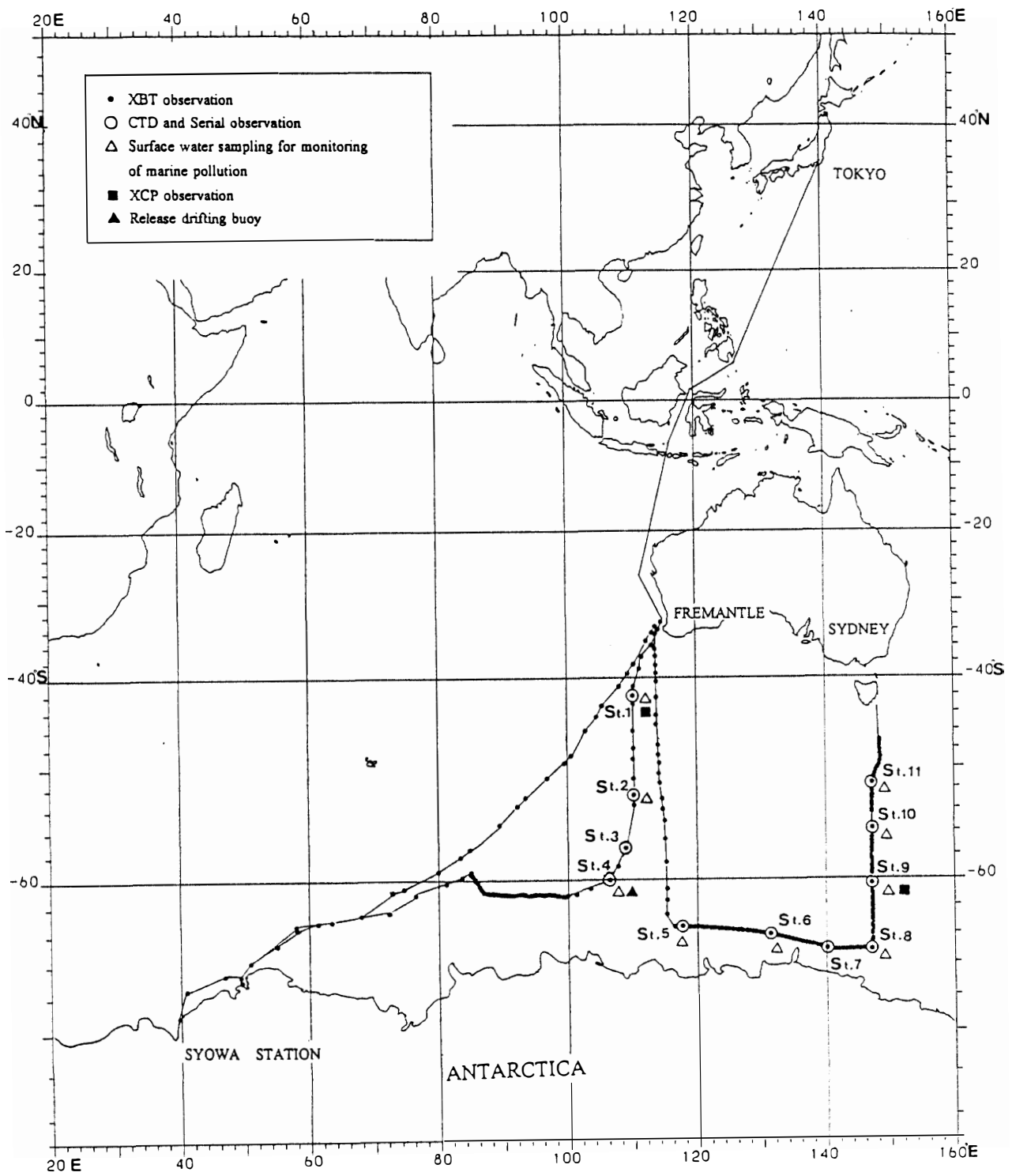


Fig. 1. The track of the icebreaker "Shirase" and the sites of oceanographic stations.

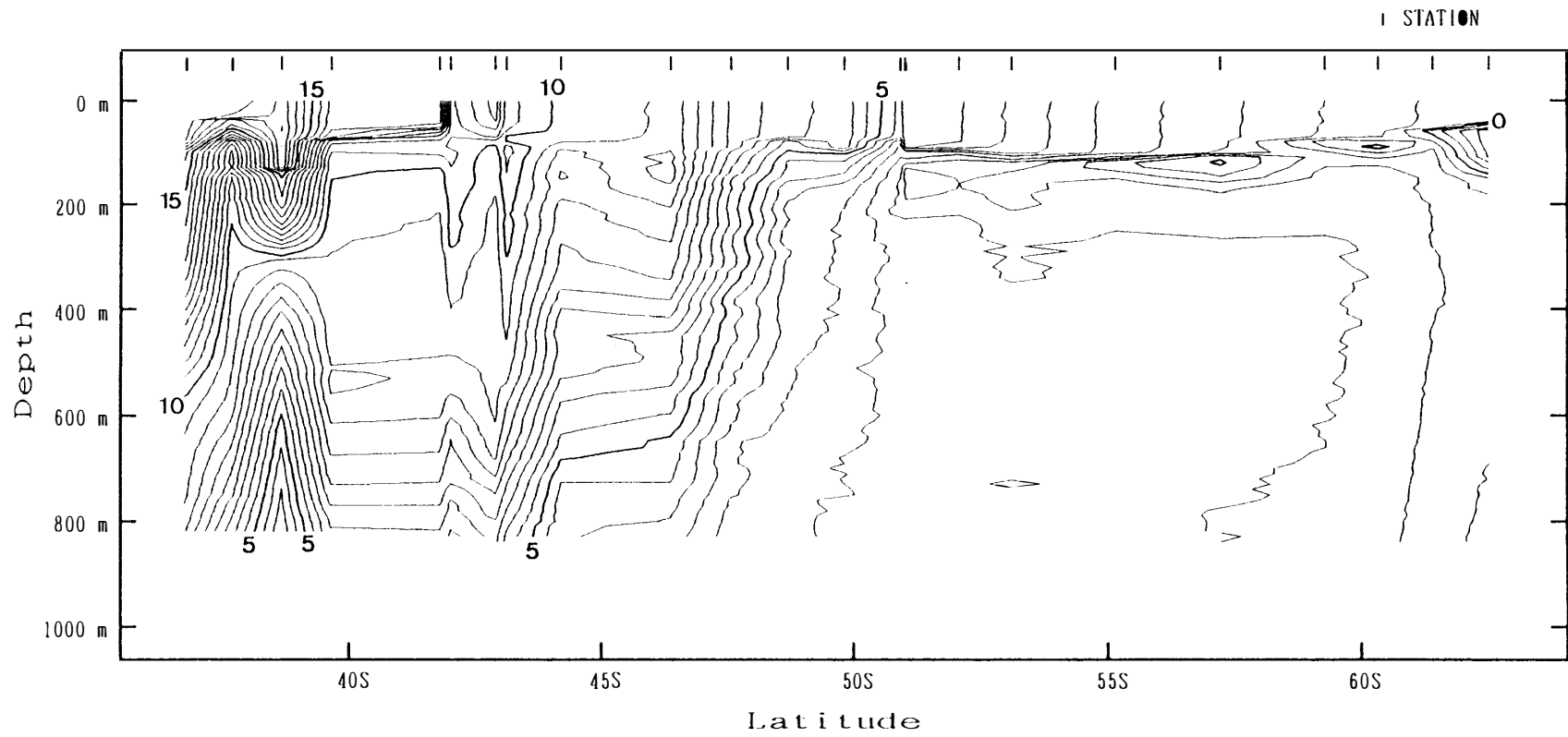


Fig. 2. Vertical profile of water temperature ( $^{\circ}\text{C}$ ) observed with XBT along  $114^{\circ}\text{E}$ .

Vertical bars on the top of the profile indicate sites of XBT observations.

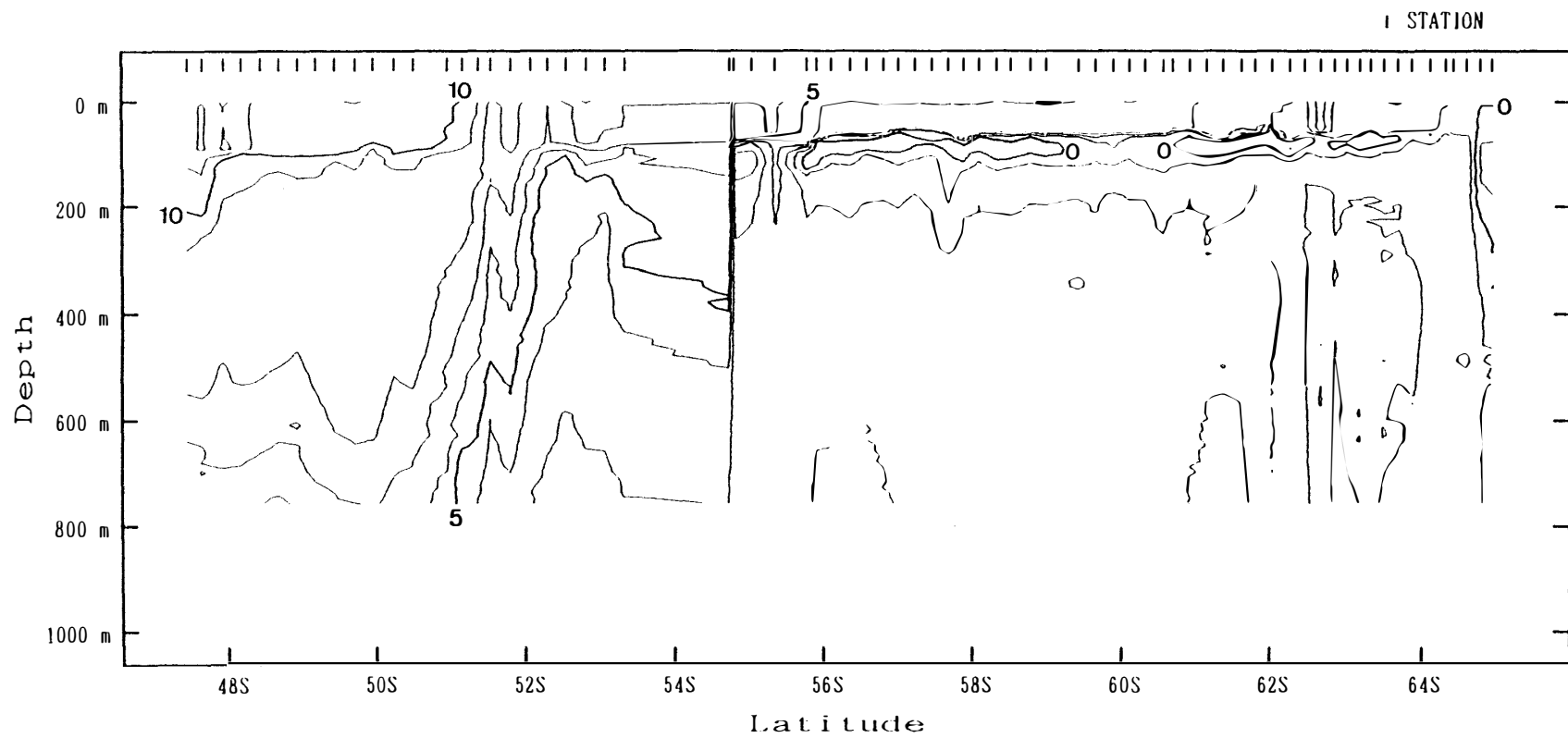


Fig. 3. Vertical profile of water temperature ( $^{\circ}\text{C}$ ) observed with XBT along  $145^{\circ}\text{E}$ .

Vertical bars on the top of the profile indicate sites of XBT observations.

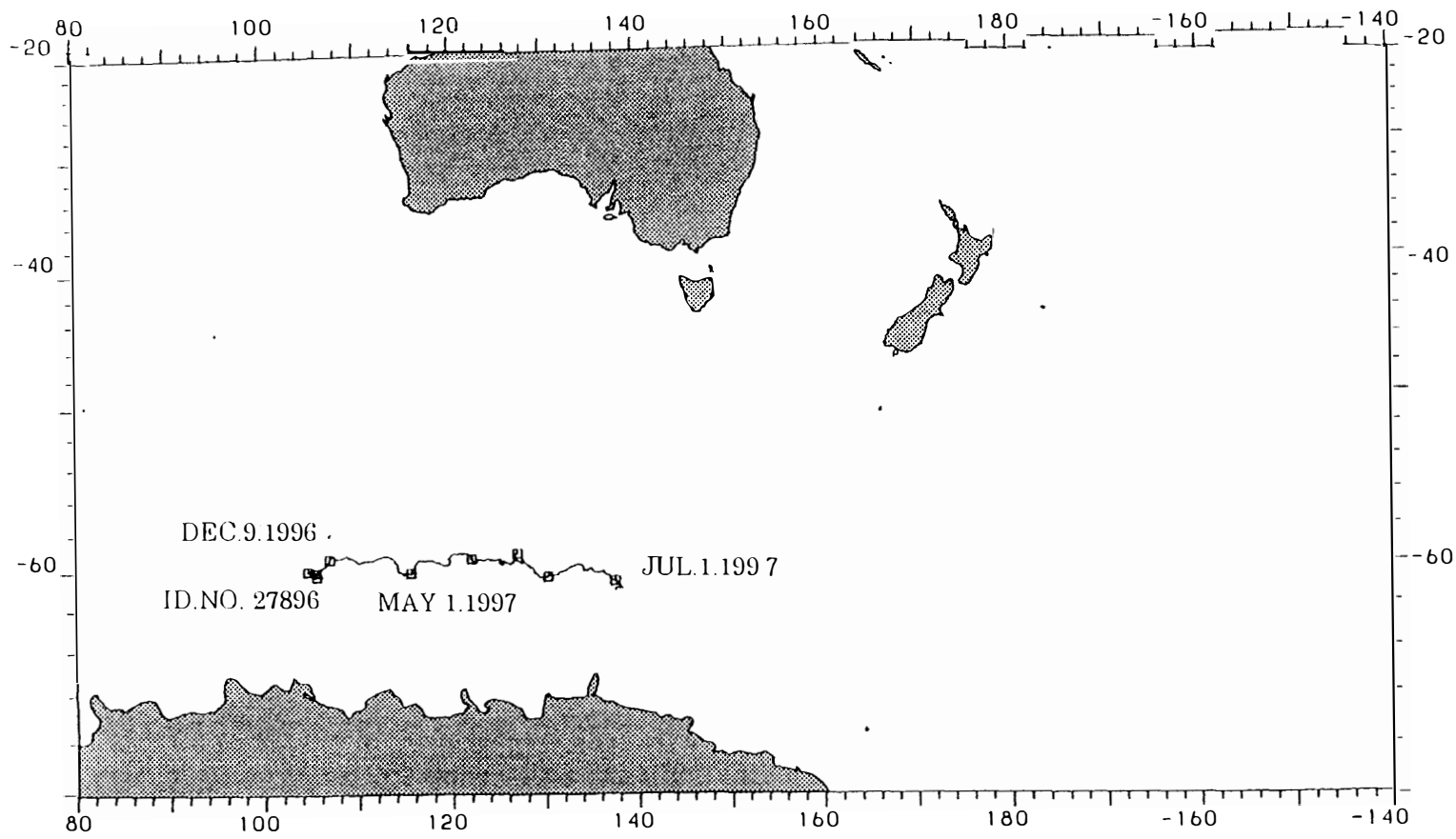


Fig. 4. Trajectory of surface drifting buoy. Squares mark the deployment location and the location on the first day of every month (ID. No. 27896).



1996.12.5  
05:05(UT)  
LAT. 41-53.9S  
LONG.109-58.3E

1997.3.13  
06:45(UT)  
LAT. 60-34.5S  
LONG.147-07.6E

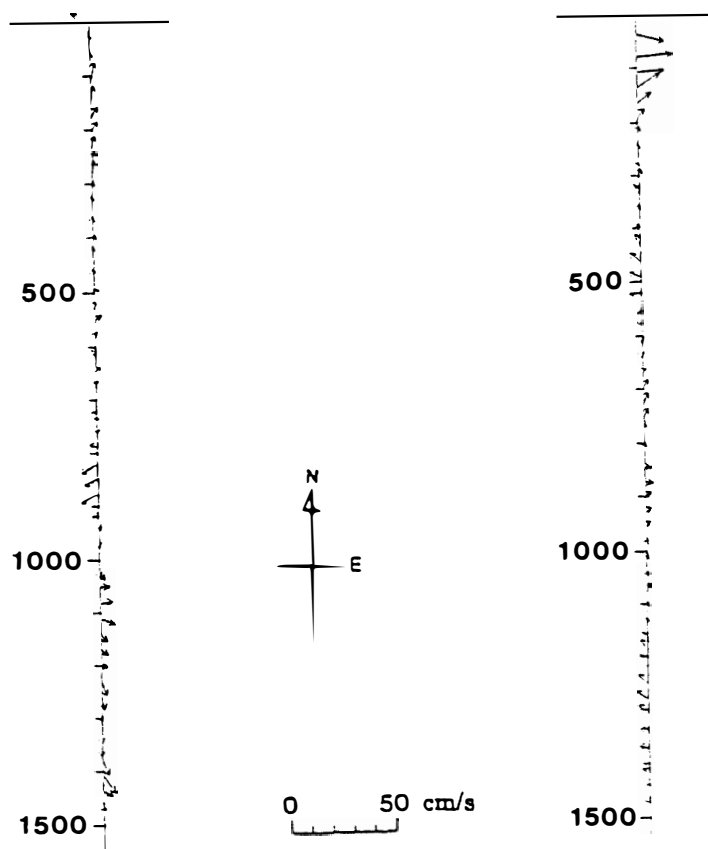


Fig. 5. Vertical profiles of current relative to the deepest layer measured with XCP. Length of arrows indicates current speed and direction of arrows indicates horizontal direction (see legends).

Table 1. Data of surface water observations on board the icebreaker "Shirase" in 1996-97.

Date	Time		Position		Air. Temp.	Water. Temp.	S	pH	DO2	P04-P	SI03-Si	N02-N	N03-N	NH4-N
	UT	LMT	lat.	long.	C					$\mu\text{mol/l}$				
1996														
Nov. 14			left Tokyo											
15	0300	1200	30-31 N	137-21 E	21.5	24.1	34.549	8.11	237	0.16	0	0.02	1	0.3
16	0300	1200	24-54	135-03	22.6	25.5	34.679	8.19	221	0.08	0	0.00	0	0.3
17	0300	1200	19-22	132-32	27.6	27.1	34.385	8.16	220	0.10	0	0.02	1	0.0
18	0300	1200	13-50	130-17	29.3	29.3	33.960	8.14	208	0.00	0	0.02	1	0.2
19	0300	1200	8-10	127-44	29.6	29.4	33.909	8.10	204	0.00	0	0.00	1	0.0
23	0300	1200	11-39 S	115-08	28.8	29.4	34.470	8.14	208	0.00	0	0.00	0	0.2
24	0300	1200	17-14	114-09	27.0	27.5	34.754	8.20	223	0.00	3	0.00	1	0.1
25	0300	1200	22-37	113-09	23.7	24.1	35.100	8.23	226	0.14	0	0.06	1	0.0
26	0300	1200	27-50	113-18	22.0	22.5	35.411	8.24	230	0.08	3	0.02	1	0.1
Nov. 28			Arrived in Fremantle											
Dec. 3			Left Fremantle											
4	0000	0800	36-02	112-42	15.1	15.3	35.439	8.15	304	0.22	2	0.05	1	0.1
4	0800	1600	37-40	111-35	13.2	15.5	35.587	8.20	266	0.19	0	0.03	0	0.0
5	0100	0800	41-04	109-59	8.1	11.2	34.779	8.14	286	0.71	4	0.15	8	0.1
6	0100	0800	46-04	109-59	9.5	9.6	34.689	8.07	289	0.86	2	0.22	12	0.2
6	0900	1600	47-48	110-01	7.4	8.1	34.407	8.15	303	0.91	2	0.22	14	0.1
7	0100	0800	51-30	110-02	3.1	3.3	33.972	8.07	338	1.61	13	0.14	22	0.1
8	0100	0800	56-29	108-35	4.6	1.8	33.955	8.04	348	1.70	21	0.19	24	0.1
10	0100	0800	60-47	95-48	0.8	-0.1	33.298	8.16	354	1.61	41	0.25	26	0.2
10	0800	1500	60-46	94-09	0.8	0.0	33.408	8.20	243	1.42	39	0.12	26	0.1
11	0200	0800	60-38	86-21	0.1	-1.2	33.532	8.26	252	1.42	52	0.12	23	0.1
11	1000	1600	59-46	83-36	0.3	-0.1	33.630	8.28	---	1.04	40	0.65	22	0.2
12	0200	0800	61-18	75-54	-0.4	-0.2	33.455	8.33	254	1.27	30	0.10	21	0.0
Mar. 1	0000	0800	36-12	113-58	17.9	19.4	35.771	8.14	229	1.00	2	0.06	0	0.1
1	0000	1600	38-19	114-04	15.0	18.0	35.594	8.17	236	0.10	2	0.09	8	0.1
2	0000	0800	42-11	114-10	12.1	13.6	34.812	8.13	253	0.52	0	0.06	11	0.1

\* The time of the date of the preceding day.

Date	Time		Position		Air.	Water.	S	pH	DO2	PO4- P	SI03-	N02-	N03-	NH4-	
	UT	LMT	lat.	long.	Temp.	Temp.					Si	N	N	N	
Arrived at the ice edge off SYOWA station															
Left at the ice edge off SYOWA station															
$\mu\text{mol/l}$															
1997															
Mar.	2	0800	1600	43-58 S	114-17 E	9.9	10.8	34.448	8.13	277	0.92	2	0.16	11	0.4
	3	0000	0800	47-39	114-31	9.6	9.5	34.320	8.10	288	1.08	4	0.11	16	0.1
	3	0800	1600	49-19	114-43	8.4	6.8	33.942	8.02	312	1.52	4	0.14	21	0.4
	4	0800	1600	54-53	115-50	3.3	4.0	33.855	8.08	320	1.69	7	0.32	25	0.2
	5	0800	0800	58-46	115-27	0.8	2.3	33.886	8.07	335	1.69	14	0.37	26	0.2
	5	0800	1600	60-41	115-31	1.1	1.7	33.820	8.06	317	1.88	31	0.35	27	0.3
	6	0000	0800	63-30	117-29	0.1	1.0	34.090	8.00	319	1.85	41	0.26	26	0.1
	7	0000	0800	63-43	124-51	0.5	1.6	33.995	8.09	342	1.64	22	0.40	26	0.0
	8	0000	0800	63-59	129-35	-0.1	1.9	33.831	8.12	310	1.74	31	0.40	25	0.0
	9	2300 *	0800	64-09	133-50	-6.6	1.5	33.878	8.16	334	1.70	35	0.34	26	0.1
	9	0700	1600	64-19	135-31	-6.4	1.1	33.945	8.12	336	1.64	34	0.33	25	0.0
	10	2300 *	0800	64-39	138-45	-3.9	0.5	33.975	8.14	328	1.66	34	0.33	25	0.0
	11	2300 *	0800	65-00	145-25	-4.6	0.5	33.943	8.17	337	1.64	29	0.34	25	0.2
	11	0900	2000	64-37	147-09	-1.1	0.6	33.937	8.16	256	1.64	29	0.25	24	0.2
	12	2200 *	0800	63-31	147-03	2.6	1.7	33.816	8.14	317	1.59	15	0.36	24	0.0
	12	0500	1500	62-53	147-00	1.2	1.9	33.809	8.14	293	1.70	16	0.45	25	0.1
	12	0100	2000	62-29	147-00	0.4	2.2	33.807	8.16	330	1.63	11	0.26	23	0.0
	13	2200 *	0800	61-09	147-04	0.4	3.2	33.802	8.11	272	1.77	10	0.33	26	0.4
	13	1000	2000	60-20	147-15	1.6	3.7	33.834	8.17	309	1.70	4	0.32	25	0.3
	14	2200 *	0800	59-13	147-01	2.7	3.7	33.809	8.15	302	1.49	3	0.37	25	0.3
	14	0600	1600	58-08	147-02	3.6	3.8	33.798	8.12	203	1.56	3	0.33	24	0.0
	14	1000	2000	57-41	147-03	4.2	3.7	33.799	8.19	307	1.56	3	0.16	24	0.1
	15	2200 *	0800	56-22	147-03	3.6	4.0	33.788	8.16	316	1.61	7	0.36	25	0.0
	16	2200 *	0800	53-04	147-05	5.7	8.1	34.077	8.20	293	1.18	2	0.28	19	0.3

\* The time of the date of the preceding day.

Table 2. XBT observation data. "S.L." indicates surface layer depth in meters.

NUMBER	DATE TIME		POSITION		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				
SP96001	96-12-03	08.0	32-50S	114-50E	20.7	20.7	20.7	20.6	20.3	20.1	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	39	18.1
					19.7	19.7	19.7	19.7	19.7	19.7	-	-	-	-	-	-	-	-	-	-	-		
SP96002	96-12-03	12.0	33-40S	114-16E	21.1	21.1	21.1	21.1	21.0	20.6	19.9	19.2	18.5	16.0	14.1	12.7	11.7	10.6	9.9			79	17.4
					9.4	9.1	8.6	7.7	6.7	5.4	-	-	-	-	-	-	-	-	-	-	-		
SP96003	96-12-04	00.0	36-02S	112-42E	15.3	15.3	15.3	15.3	13.7	13.6	12.9	12.4	12.4	11.9	11.3	10.4	9.8	9.6	9.4			40	14.1
					9.2	9.1	8.8	8.3	7.6	7.0	-	-	-	-	-	-	-	-	-	-	-		
SP96004	97-12-04	08.0	37-38S	111-36E	15.6	15.6	15.5	15.4	15.4	14.1	12.9	12.5	12.4	11.9	11.0	10.3	9.9	9.7	9.4			56	13.2
					9.3	9.1	8.9	8.4	7.8	7.3	-	-	-	-	-	-	-	-	-	-	-		
SP96005	97-12-04	12.0	38-25S	111-05E	13.8	13.8	13.8	13.8	13.7	12.9	12.7	12.5	12.2	11.7	11.1	10.2	9.7	9.5	9.3			54	11.8
					9.2	9.0	8.8	8.3	7.7	7.2	-	-	-	-	-	-	-	-	-	-	-		
SP96006	96-12-05	01.0	41-03S	109-59E	11.1	11.1	11.1	11.1	11.1	10.3	10.0	9.9	9.8	9.7	9.6	9.6	9.5	9.5	9.5			66	8.1
					9.5	9.3	9.3	8.8	8.1	7.7	-	-	-	-	-	-	-	-	-	-	-		
SP96007	96-12-05	07.1	41-54S	109-58E	11.4	11.4	11.4	11.4	11.3	11.3	10.3	9.9	9.7	9.6	9.6	9.5	9.4	9.3	9.2			86	9.6
					9.0	8.6	8.3	7.8	7.4	7.0	-	-	-	-	-	-	-	-	-	-	-		
SP96008	96-12-05	13.0	43-14S	109-59E	10.7	10.7	10.7	10.7	10.7	10.7	10.2	9.9	9.8	9.7	9.6	9.5	9.6	9.6	9.5			94	8.8
					9.4	9.2	9.1	8.5	7.9	7.3	-	-	-	-	-	-	-	-	-	-	-		
SP96009	96-12-06	01.0	46-03S	109-59E	9.5	9.5	9.4	9.4	9.4	9.4	9.3	9.0	9.2	9.1	8.7	8.4	8.2	7.6	7.3			93	9.5
					6.8	6.8	6.4	5.9	5.3	4.9	-	-	-	-	-	-	-	-	-	-	-		
SP96010	96-12-06	09.0	47-48S	110-01E	8.0	8.0	8.0	8.0	8.0	8.0	7.9	7.5	7.2	7.0	6.6	6.1	6.3	6.0	5.4			0	7.2
					4.9	4.5	4.3	3.8	3.6	3.2	-	-	-	-	-	-	-	-	-	-	-		
SP96011	97-12-06	13.0	48-43S	110-01E	5.4	5.4	5.4	5.4	5.3	4.7	4.3	4.0	3.7	3.6	3.7	3.2	3.5	3.4	3.1			46	5.8
					3.0	2.9	2.8	2.7	2.7	2.7	-	-	-	-	-	-	-	-	-	-	-		
SP96012	97-12-07	01.0	51-30S	110-02E	3.2	3.1	3.1	3.1	3.1	2.4	2.2	2.0	2.2	2.2	1.9	2.2	2.1	2.2	2.4			52	3.0
					2.3	2.5	2.4	2.3	2.4	2.4	-	-	-	-	-	-	-	-	-	-	-		
SP96013	97-12-07	07.8	52-20S	110-01E	2.9	2.9	2.9	2.9	2.8	2.6	2.1	2.4	1.6	1.9	2.4	2.6	2.4	2.3	2.4			32	2.9
					2.5	2.6	2.5	2.4	2.5	2.5	-	-	-	-	-	-	-	-	-	-	-		
SP96014	96-12-07	11.0	53-31S	109-38E	2.6	2.6	2.6	2.4	2.3	2.0	1.5	1.2	1.0	1.9	2.0	2.1	2.2	2.2	2.4			22	2.4
					2.4	2.4	2.4	2.3	2.3	2.3	-	-	-	-	-	-	-	-	-	-	-		
SP96016	96-12-08	07.6	57-27S	108-12E	1.5	1.5	1.5	1.3	0.4	0.1	-0.3	-0.2	0.9	1.8	1.9	2.0	2.0	2.0	2.1			26	2.5
					2.1	2.0	2.0	2.0	2.0	1.9	-	-	-	-	-	-	-	-	-	-	-		

NUMBER	DATE TIME		POSITION		TEMPERATURE (°C)																S. L.	AIR TEMP.
					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			
SP96017	97-12-08	13.0	58-55S	107-42E	0.8	0.8	0.8	0.5	-0.2	-0.3	-0.5	-0.4	0.3	1.8	2.0	2.0	2.0	2.0	2.0	19	1.7	
					2.0	2.0	1.9	1.9	1.9	1.8	-	-	-	-	-	-	-	-	-			
SP96018	96-12-09	03.5	60-05S	105-54E	0.4	0.4	0.0	-0.2	-1.1	-1.1	-0.3	0.9	1.5	1.8	1.9	1.9	1.8	1.8	1.8	18	0.5	
					1.7	1.7	1.6	1.6	1.6	1.6	-	-	-	-	-	-	-	-	-			
SP96019	96-12-09	09.0	60-31S	103-10E	0.4	-0.2	-0.3	0.1	-0.6	-1.3	-1.0	0.1	1.0	1.8	1.8	1.8	1.7	1.7	1.7	0	0.4	
					1.6	1.6	1.6	1.6	1.6	1.6	-	-	-	-	-	-	-	-	-			
SP96020	96-12-09	11.0	60-56S	101-22E	0.2	0.1	-0.7	-1.2	-1.5	-1.6	-1.3	0.3	1.1	1.5	1.6	1.6	1.7	1.6	1.7	10	0.2	
					1.6	1.6	1.7	1.6	1.6	1.6	-	-	-	-	-	-	-	-	-			
SP96021	96-12-09	16.0	61-04S	99-43E	-0.5	-0.6	-1.2	-1.4	-1.6	-1.4	-0.4	0.9	1.2	1.8	1.7	1.8	1.7	1.7	1.7	10	0.1	
					1.7	1.7	1.7	1.6	1.6	1.5	-	-	-	-	-	-	-	-	-			
SP96022	96-12-09	17.0	61-05S	99-14E	-0.1	-0.2	-1.1	-1.4	-1.6	-1.4	-0.4	0.5	1.3	1.6	1.7	1.6	1.7	1.8	1.8	15	1.3	
					1.7	1.7	1.7	1.7	1.6	1.6	-	-	-	-	-	-	-	-	-			
SP96023	96-12-09	18.0	61-08S	98-42E	-0.5	-0.7	-1.0	-1.3	-1.5	-1.4	-0.7	0.4	1.2	1.4	1.6	1.6	1.6	1.7	1.7	17	0.8	
					1.7	1.6	1.6	1.6	1.6	1.5	-	-	-	-	-	-	-	-	-			
SP96024	96-12-09	19.0	61-07S	98-11E	0.2	0.0	-0.8	-1.3	-1.6	-1.5	-0.9	0.5	1.1	1.7	1.8	1.7	1.7	1.8	1.8	8	0.1	
					1.9	1.8	1.7	1.7	1.7	1.6	-	-	-	-	-	-	-	-	-			
SP96025	96-12-09	20.0	61-04S	97-45E	0.2	0.1	-0.4	-0.9	-1.3	-1.4	-0.5	0.4	1.1	1.7	1.7	1.7	1.8	1.9	1.9	7	-2.1	
					1.8	1.8	1.8	1.8	1.7	1.7	-	-	-	-	-	-	-	-	-			
SP96026	96-12-09	21.0	60-59S	97-22E	-0.1	-0.6	-0.9	-1.3	-1.6	-1.4	-0.9	0.7	1.5	1.8	1.8	1.9	1.7	1.9	1.8	15	-2.4	
					1.8	1.8	1.8	1.7	1.7	1.7	-	-	-	-	-	-	-	-	-			
SP96027	96-12-09	22.0	60-03S	96-54E	-0.4	-0.7	-1.1	-1.4	-1.6	-1.3	-1.1	-0.2	0.4	1.0	1.3	1.4	1.5	1.5	1.6	7	-1.5	
					1.6	1.6	1.5	1.5	1.4	1.4	-	-	-	-	-	-	-	-	-			
SP96028	96-12-09	23.0	60-56S	96-42E	-1.6	-1.2	-1.3	-1.4	-1.6	-1.4	-0.8	0.1	0.4	1.1	1.3	1.4	1.6	1.5	1.6	18	-0.8	
SP96029	96-12-09	22.0	60-55S	96-15E	-0.7	-0.9	-1.0	-1.5	-1.6	-1.1	0.5	0.8	1.2	1.5	1.7	1.7	1.7	1.7	1.7	5	-0.3	
					1.7	1.6	1.6	1.6	1.5	1.5	-	-	-	-	-	-	-	-	-			
SP96030	96-12-10	01.0	60-53S	95-48E	-0.6	-0.8	-0.9	-1.1	-1.6	-1.3	-0.4	1.2	1.5	1.4	1.6	1.7	1.6	1.7	1.7	0	0.2	
					1.6	1.6	1.6	1.5	1.5	1.4	-	-	-	-	-	-	-	-	-			
SP96031	96-12-10	02.0	60-49S	95-31E	-0.8	-1.0	-1.3	-1.4	-1.6	-1.4	-1.2	-0.6	0.6	1.6	1.5	1.6	1.5	1.6	1.6	0	0.9	
					1.6	1.6	1.6	1.5	1.5	1.4	-	-	-	-	-	-	-	-	-			
SP96032	96-12-10	03.0	60-56S	95-04E	-0.8	-1.0	-1.2	-1.4	-1.6	-1.3	-0.2	0.7	1.2	1.4	1.6	1.5	1.5	1.8	1.7	0	0.9	
					1.7	1.6	1.6	1.6	1.5	1.5	-	-	-	-	-	-	-	-	-			
SP96033	96-12-10	04.0	60-59S	94-33E	-1.1	-1.0	-1.2	-1.5	-1.7	-1.4	-0.6	0.7	0.9	1.4	1.6	1.6	1.6	1.6	1.6	0	0.9	
					1.6	1.6	1.5	1.5	1.5	1.4	-	-	-	-	-	-	-	-	-			

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			
SP96034	96-12-10 05.0	61-05S	94-06E	-0.7	-0.7	-1.0	-1.2	-1.5	-0.8	0.4	1.3	1.5	1.6	1.8	1.7	1.6	1.6	1.8	0	1.8	
				1.7	1.7	1.7	1.6	1.6	1.5	-	-	-	-	-	-	-	-	-			
SP96035	96-12-10 06.0	61-08S	93-42E	-0.9	-1.0	-1.1	-1.3	-1.6	-1.5	-1.1	-0.4	0.9	1.5	1.5	1.6	1.7	1.8	1.8	0	0.9	
				1.7	1.7	1.7	1.6	1.6	1.5	-	-	-	-	-	-	-	-	-			
SP96036	96-12-10 07.0	60-55S	93-47E	-0.3	-0.4	-1.1	-1.3	-1.5	-1.5	-0.7	0.5	1.3	1.6	1.7	1.7	1.7	1.7	1.7	10	1.1	
				1.7	1.7	1.7	1.6	1.6	1.6	-	-	-	-	-	-	-	-	-			
SP96037	96-12-10 09.0	60-46S	94-09E	-0.4	-0.7	-1.2	-1.4	-1.5	-1.3	0.1	0.9	1.5	1.6	1.6	1.7	1.7	1.7	1.7	7	0.8	
				1.7	1.7	1.6	1.6	1.6	1.5	-	-	-	-	-	-	-	-	-			
SP96038	96-12-10 11.0	60-43S	93-25E	-0.2	-0.2	-1.1	-1.4	-1.6	-1.4	-0.8	0.4	1.0	1.5	1.7	1.6	1.6	1.6	1.7	11	0.5	
				1.6	1.6	1.6	1.6	1.5	1.5	-	-	-	-	-	-	-	-	-			
SP96039	96-12-10 12.0	60-46S	92-51E	-0.7	-0.7	-1.0	-1.2	-1.5	-1.7	-1.6	-0.6	0.1	1.1	1.3	1.3	1.5	1.5	1.4	16	0.3	
				1.4	1.4	1.4	1.4	1.4	1.4	-	-	-	-	-	-	-	-	-			
SP96040	96-12-10 13.0	60-49S	92-25E	-0.7	-2.2	-1.1	-1.4	-1.6	-1.7	-1.5	-0.8	0.1	0.7	1.2	1.3	1.4	1.4	1.5	15	-0.2	
				1.4	1.4	1.5	1.4	1.4	1.4	-	-	-	-	-	-	-	-	-			
SP96041	96-12-10 14.0	60-47S	91-53E	-1.1	-1.1	-1.1	-1.1	-1.5	-1.2	-1.2	-0.8	-0.1	1.3	1.6	1.7	1.4	1.5	1.7	13	0.0	
				1.6	1.5	1.7	1.7	1.7	1.6	-	-	-	-	-	-	-	-	-			
SP96042	96-12-10 15.0	60-48S	91-21E	-0.6	-0.6	-0.6	-0.6	-1.5	-1.4	-0.8	0.3	0.7	1.3	1.7	1.7	1.8	1.7	1.7	30	-0.2	
				1.8	1.8	1.7	1.7	1.7	1.7	-	-	-	-	-	-	-	-	-			
SP96043	96-12-10 16.0	60-51S	90-50E	-0.2	-0.3	-0.3	-0.6	-1.3	-1.1	-0.7	0.2	1.1	1.8	1.9	1.7	1.9	1.8	1.8	22	0.0	
				1.8	1.8	1.7	1.8	1.7	1.7	-	-	-	-	-	-	-	-	-			
SP96044	96-12-10 17.0	60-53S	90-21E	-0.2	-0.2	-0.3	-0.4	-1.5	-1.4	-0.2	0.5	1.1	1.5	1.9	1.8	2.0	1.8	1.9	28	0.0	
				1.8	1.8	1.7	1.8	1.7	1.7	-	-	-	-	-	-	-	-	-			
SP96045	96-12-10 18.0	60-55S	89-51E	-0.7	-0.7	-0.6	-0.7	-1.6	-1.2	-0.6	0.4	1.3	1.7	1.8	2.0	1.9	1.9	1.8	30	0.2	
				1.9	1.7	1.7	1.7	1.7	1.7	-	-	-	-	-	-	-	-	-			
SP96046	96-12-10 19.0	60-56S	89-17E	-0.8	-0.8	-0.8	-1.5	-1.6	-1.0	-0.1	0.5	1.1	1.7	1.6	1.7	1.7	1.7	1.7	21	0.0	
				1.7	1.7	1.7	1.7	1.6	1.6	-	-	-	-	-	-	-	-	-			
SP96047	96-12-10 20.0	60-59S	88-45E	-0.8	-0.8	-0.9	-1.1	-1.6	-1.1	-0.8	0.4	1.1	1.5	1.5	1.6	1.6	1.6	1.7	30	-0.1	
				1.7	1.7	1.7	1.6	1.6	1.6	-	-	-	-	-	-	-	-	-			
SP96048	96-12-10 21.0	61-02S	88-13E	-0.7	-0.7	-0.7	-1.1	-1.6	-1.1	-1.3	-0.3	0.4	1.2	1.2	1.3	1.4	1.4	1.6	23	0.0	
				1.6	1.6	1.6	1.5	1.5	1.6	-	-	-	-	-	-	-	-	-			
SP96049	96-12-10 22.0	61-04S	87-40E	-0.5	-0.5	-0.5	-1.3	-1.4	-0.9	-0.5	0.3	1.2	1.6	1.8	2.0	2.0	1.7	1.7	23	-0.2	
				1.7	1.7	1.7	1.7	1.7	1.6	-	-	-	-	-	-	-	-	-			
SP96050	96-12-10 23.0	61-08S	87-10E	-1.2	-1.2	-1.3	-1.6	-1.5	-1.7	-1.6	-1.2	-0.7	0.2	0.7	1.1	1.3	1.4	1.3	20	-0.3	
				1.2	1.1	1.2	1.1	1.1	1.1	-	-	-	-	-	-	-	-	-			

NUMBER	DATE TIME	POSITION		TEMPERATURE (° C)														S. L. (M)	AIR TEMP. (° C)	
		LAT.	LONG.	DEPTH (M)																
	UT			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													
SP96051	96-12-11 00.0	61-03S	86-42E	-1.4	-1.4	-1.7	-1.7	-1.5	-0.9	-0.9	-0.1	0.2	0.9	1.0	1.3	1.3	1.4	1.4	10	-0.4
				1.4	1.4	1.4	1.4	1.3	1.1	-	-	-	-	-	-	-	-	-		
SP96052	96-12-11 01.0	60-50S	86-30E	-1.6	-1.6	-1.6	-1.5	-1.6	-1.6	-1.4	-1.3	0.2	0.9	0.9	1.0	1.2	1.4	1.4	120	-0.3
				1.4	1.4	1.3	1.2	1.2	1.1	-	-	-	-	-	-	-	-	-		
SP96053	96-12-11 02.0	60-38S	86-21E	-1.4	-1.4	-1.4	-1.6	-1.6	-1.1	-0.5	-0.1	0.8	1.4	1.5	1.7	1.8	1.6	1.7	74	-0.6
				1.7	1.7	1.6	1.5	1.4	1.4	-	-	-	-	-	-	-	-	-		
SP96054	96-12-11 03.0	60-26S	86-02E	-1.7	-1.7	-1.7	-1.7	-1.5	-1.5	-0.4	-0.1	0.2	1.2	1.6	1.7	1.7	1.8	1.8	85	-0.4
				1.7	1.7	1.7	1.5	1.5	1.5	-	-	-	-	-	-	-	-	-		
SP96055	96-12-11 04.0	60-16S	85-46E	-1.7	-1.7	-1.7	-1.7	-1.8	-1.5	-1.5	-1.0	-0.6	0.3	0.6	0.9	1.2	1.3	1.3	118	-0.2
				1.2	1.3	1.3	1.2	1.2	1.2	-	-	-	-	-	-	-	-	-		
SP96056	96-12-11 05.0	60-03S	85-31E	-1.7	-1.7	-1.7	-1.8	-1.5	-1.4	-1.3	-0.7	0.7	1.2	1.6	1.7	1.6	1.6	1.6	70	0.0
				1.7	1.6	1.6	1.3	1.4	1.4	-	-	-	-	-	-	-	-	-		
SP96057	96-12-11 06.0	59-50S	85-19E	-1.6	-1.7	-1.6	-1.2	-1.4	-1.5	-0.8	-1.2	-0.3	0.8	1.5	1.6	1.7	1.7	1.6	97	0.1
				1.6	1.6	1.5	1.4	1.5	1.4	-	-	-	-	-	-	-	-	-		
SP96058	96-12-11 07.0	59-37S	85-00E	-1.7	-1.7	-1.6	-1.6	-1.5	-1.1	-0.2	0.2	1.1	1.7	1.7	1.7	1.7	1.6	1.6	51	0.1
				1.5	1.6	1.5	1.5	1.5	1.4	-	-	-	-	-	-	-	-	-		
SP96059	96-12-11 10.0	59-46S	83-36E	-0.2	-0.2	-0.2	-0.3	-1.7	-1.0	-0.1	1.3	1.7	1.9	1.9	1.9	1.9	1.9	1.8	30	0.8
				1.8	1.8	1.8	1.7	1.7	1.6	-	-	-	-	-	-	-	-	-		
SP96060	96-12-11 14.0	60-09S	81-38E	-0.3	-0.4	-0.4	-0.4	-1.6	-1.7	-0.5	0.6	1.5	1.9	1.9	1.9	1.9	1.9	1.8	30	0.2
				1.8	1.8	1.7	1.7	1.6	1.6	-	-	-	-	-	-	-	-	-		
SP96061	96-12-12 02.0	61-18S	75-54E	-0.4	-0.4	-0.5	-1.5	-1.6	-1.6	-1.5	-0.2	1.0	1.8	1.9	2.0	2.1	2.1	2.1	21	-0.4
				2.1	2.1	2.1	2.0	2.0	2.0	-	-	-	-	-	-	-	-	-		
SP96062	96-12-12 12.0	62-35S	72-14E	-1.2	-1.1	-1.3	-1.4	-1.8	-1.5	0.6	1.4	1.7	1.9	1.9	2.0	2.0	2.0	2.0	28	-0.8
				2.0	2.0	2.0	2.1	2.2	2.3	-	-	-	-	-	-	-	-	-		
SP96063	96-12-13 06.0	63-02S	63-51E	-1.1	-1.1	-1.0	-1.2	-1.7	-1.7	-1.1	1.0	1.6	1.9	1.9	1.9	1.9	2.0	1.9	22	-1.4
				1.9	1.9	1.9	1.8	1.8	1.7	-	-	-	-	-	-	-	-	-		
SP96064	96-12-13 18.0	63-16S	57-46E	-0.8	-0.8	-0.9	-1.4	-1.8	-1.8	-1.1	0.8	1.4	1.7	1.7	1.7	1.7	1.7	1.7	22	1.0
				1.7	1.7	1.6	1.6	1.5	1.5	-	-	-	-	-	-	-	-	-		
SP96065	97-02-04 17.0	67-44S	40-31E	-0.6	-0.5	-0.6	-0.3	-0.8	-1.5	-1.7	-1.7	-1.7	-1.1	0.6	0.8	0.8	0.9	0.7	44	-1.6
				0.7	0.8	0.7	0.5	0.5	0.5	-	-	-	-	-	-	-	-	-		
SP96066	97-02-15 05.0	66-29S	46-50E	-0.3	-0.3	-0.3	-0.2	-0.2	-0.4	-1.0	-1.6	-1.7	-1.7	-1.7	-1.6	-1.0	0.5	0.9	86	0.2
				1.0	0.9	0.9	0.7	0.6	0.6	-	-	-	-	-	-	-	-	-		
SP96067	97-02-16 05.0	66-43S	49-43E	-1.5	-1.5	-1.5	-1.0	-0.7	-0.7	-0.7	-0.9	-1.3	-1.6	-1.7	-1.7	-1.7	-1.7	-1.6	25	-0.8
				-1.5	-1.5	-1.5	-1.5	-1.6	-1.5	-	-	-	-	-	-	-	-	-		

NUMBER	DATE TIME		POSITION		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
SP96068	97-02-19	13.0	66-23S	49-38E	-0.9	-0.9	-0.9	-0.9	-0.6	-0.6	-0.7	-0.7	-0.7	-1.0	-1.6	-1.6	-1.6	-1.6	-1.5	40	-3.4
					-1.2	-1.2	-1.2	-1.2	-1.2	-1.3	-	-	-	-	-	-	-	-	-		
SP96069	97-02-18	17.0	65-41S	50-46E	-0.4	-0.4	-0.5	-0.5	-0.4	-0.4	-0.6	-1.2	-1.5	-1.6	-1.6	-1.2	-1.0	-0.7	-0.5	96	-4.5
					-0.4	-0.3	-0.2	-0.1	-0.1	-0.0	-	-	-	-	-	-	-	-	-		
SP96070	97-02-20	05.0	64-27S	54-57E	0.6	0.6	0.6	0.6	-1.1	-0.4	0.8	1.4	1.5	1.6	1.6	1.6	1.7	1.6	1.5	45	0.4
					1.5	1.4	1.4	1.4	1.3	1.3	-	-	-	-	-	-	-	-	-		
SP96071	97-02-20	13.0	63-21S	58-53E	1.1	1.1	1.2	1.3	0.9	-1.6	-1.1	0.3	1.4	1.6	1.7	1.8	1.8	1.8	1.8	46	1.9
					1.8	1.7	1.7	1.7	1.6	1.6	-	-	-	-	-	-	-	-	-		
SP96072	97-02-20	17.0	63-10S	61-19E	1.3	1.3	1.3	1.3	-1.5	-1.6	-0.7	1.1	1.5	1.8	1.8	1.9	1.9	1.9	1.9	37	1.7
					1.8	1.8	1.8	1.7	1.7	2.3	-	-	-	-	-	-	-	-	-		
SP96073	97-02-21	04.0	62-28S	68-05E	1.5	1.5	1.5	1.5	0.7	-1.3	-1.5	-1.0	0.2	1.7	1.8	2.0	2.0	2.0	2.0	0	1.9
					2.0	2.0	2.0	2.0	1.9	1.9	-	-	-	-	-	-	-	-	-		
SP96074	97-02-21	12.0	61-31S	72-26E	1.4	1.4	1.4	1.4	-1.4	-1.5	-1.5	0.5	1.4	1.7	1.9	2.0	2.0	2.0	2.0	42	2.3
					2.0	2.1	2.1	2.1	2.1	2.1	-	-	-	-	-	-	-	-	-		
SP96075	97-02-21	16.0	60-59S	74-33E	1.5	1.5	1.5	1.5	-0.8	-1.7	-1.1	0.8	1.5	1.7	1.9	1.9	1.9	2.0	2.0	41	-2.3
					2.0	2.0	2.1	2.1	2.1	2.1	-	-	-	-	-	-	-	-	-		
SP96076	97-02-22	03.0	59-23S	80-00E	1.6	1.6	1.6	1.6	0.5	-0.0	1.0	1.7	1.7	1.9	2.0	2.0	2.0	2.0	2.0	49	2.6
					2.0	2.0	2.0	2.0	1.9	1.9	-	-	-	-	-	-	-	-	-		
SP96077	97-02-22	11.0	58-01S	83-27E	1.5	1.5	1.5	1.5	-1.3	-1.2	-1.0	-0.8	-0.6	0.2	0.7	1.3	1.3	1.2	1.3	43	3.2
					1.4	1.4	1.3	1.3	1.2	1.2	-	-	-	-	-	-	-	-	-		
SP96078	97-02-22	15.0	57-22S	85-11E	2.9	2.8	2.8	2.8	2.8	2.8	0.9	1.1	1.2	1.5	1.8	1.9	2.0	2.2	4.3	80	4.1
					4.5	3.9	3.9	3.8	3.7	3.5	-	-	-	-	-	-	-	-	-		
SP96079	97-02-23	02.0	55-22S	89-36E	2.9	2.9	2.9	2.9	2.8	2.7	2.5	0.5	-0.2	0.4	1.1	1.7	1.8	1.8	1.9	95	3.3
					1.9	1.8	1.8	1.9	1.9	1.9	-	-	-	-	-	-	-	-	-		
SP96080	97-02-23	10.0	53-46S	92-23E	4.6	4.6	4.6	4.7	4.8	4.5	4.2	3.7	3.8	3.3	2.6	2.1	2.4	2.4	2.6	37	5.0
					2.7	2.8	2.6	2.5	2.4	2.4	-	-	-	-	-	-	-	-	-		
SP96081	97-02-23	14.0	52-59S	93-42E	4.3	4.3	4.4	4.3	4.3	4.1	2.4	2.1	1.7	2.3	2.0	2.2	2.2	2.3	2.4	77	4.6
					2.4	2.3	2.3	2.3	2.3	2.3	-	-	-	-	-	-	-	-	-		
SP96082	97-02-24	02.0	50-42S	97-13E	5.6	5.5	5.5	5.4	4.9	4.1	3.1	3.0	2.5	2.1	2.1	2.0	2.1	2.2	2.3	23	4.4
					2.3	2.3	2.4	2.5	2.6	2.7	-	-	-	-	-	-	-	-	-		
SP96083	97-02-24	10.0	49-13S	99-26E	6.6	6.6	6.5	6.4	6.3	6.2	5.6	5.2	4.7	4.3	4.2	3.9	3.7	3.4	3.2	76	7.2
					3.1	3.2	3.1	2.8	2.9	2.8	-	-	-	-	-	-	-	-	-		
SP96084	97-02-24	14.0	48-24S	100-30E	7.5	7.5	7.5	7.4	7.1	6.9	6.5	5.7	5.5	5.2	4.6	4.7	4.4	4.2	3.9	0	8.1
					3.7	3.4	3.2	3.2	3.0	2.9	-	-	-	-	-	-	-	-	-		



NUMBER	DATE TIME		POSITION		TEMPERATURE (° C)														S. L.	AIR TEMP.	
					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
SP96085	97-02-24	23.0	45-59S	103-05E	9.3	9.3	9.1	8.8	8.8	8.8	8.2	7.9	7.9	7.9	7.3	6.7	6.5	6.2	5.8	17	8.7
					5.1	4.5	4.4	4.0	3.9	3.8	-	-	-	-	-	-	-	-	-		
SP96086	97-02-25	09.0	44-16S	104-51E	11.7	11.6	11.4	11.4	11.2	11.1	11.0	10.8	10.6	10.5	10.3	10.3	10.2	10.0	9.8	0	11.4
					9.7	9.3	8.7	8.4	7.7	7.1	-	-	-	-	-	-	-	-	-		
SP96087	97-02-25	13.0	43-25S	105-42E	12.0	11.9	11.8	11.7	11.5	11.4	10.7	10.7	10.5	10.1	10.1	9.9	9.8	9.7	9.6	0	11.0
					9.3	8.8	8.1	7.7	7.2	6.7	-	-	-	-	-	-	-	-	-		
SP96088	97-02-26	01.0	40-54S	108-13E	13.1	13.1	13.1	13.0	12.9	12.6	11.2	11.2	10.9	10.3	10.0	9.8	9.7	9.6	9.6	67	11.6
					9.6	9.5	9.3	9.1	8.7	8.3	-	-	-	-	-	-	-	-	-		
SP96089	97-02-26	09.0	39-12S	109-51E	15.8	15.9	16.0	16.1	16.0	15.8	14.0	13.0	12.1	11.3	10.6	10.2	9.8	9.7	9.5	85	13.4
					9.4	9.5	9.3	9.2	8.7	8.3	-	-	-	-	-	-	-	-	-		
SP96090	97-02-26	13.0	38-22S	110-35E	17.3	17.1	16.9	16.9	16.8	15.4	14.3	12.7	12.2	11.4	10.7	10.3	9.8	9.5	9.4	53	15.4
					9.2	9.1	8.8	8.6	8.2	7.6	-	-	-	-	-	-	-	-	-		
SP96091	97-02-27	01.0	35-47S	112-32E	19.3	19.3	18.9	18.9	18.9	18.9	16.3	15.3	14.7	13.4	11.8	10.7	9.7	9.3	8.9	80	19.1
					8.4	7.7	7.0	6.3	5.5	5.0	-	-	-	-	-	-	-	-	-		
SP96092	97-02-27	09.0	34-22S	113-36E	22.8	22.8	22.7	21.8	20.3	20.2	17.2	16.0	15.0	13.5	12.3	10.9	9.8	9.1	8.5	19	20.5
					7.6	6.8	6.2	5.5	4.9	4.7	-	-	-	-	-	-	-	-	-		
SP96093	97-02-27	13.0	33-44S	114-05E	22.6	22.7	22.7	21.9	21.7	20.3	18.1	16.5	15.4	13.3	12.0	11.3	9.9	9.4	9.2	25	20.2
					9.0	8.6	8.0	7.0	6.1	5.3	-	-	-	-	-	-	-	-	-		
SP96094	97-02-28	16.0	34-08S	114-11E	22.9	22.9	22.9	22.9	22.9	21.7	19.8	18.8	18.2	16.8	14.6	12.7	11.7	10.4	9.8	63	19.7
					9.3	9.1	8.5	7.6	6.0	4.8	-	-	-	-	-	-	-	-	-		
SP96095	97-03-01	00.0	36-12S	113-58E	19.7	19.7	19.7	19.3	18.5	14.7	14.8	14.4	13.8	11.8	11.4	10.7	10.1	9.8	9.6	26	18.0
					9.4	9.3	9.1	8.9	8.5	8.1	-	-	-	-	-	-	-	-	-		
SP96096	97-03-01	04.0	37-14S	114-01E	17.9	17.9	17.8	17.8	17.8	17.5	15.7	15.4	15.2	14.8	14.5	14.1	13.4	12.6	11.7	81	17.6
					11.0	10.2	9.7	9.5	9.3	9.1	-	-	-	-	-	-	-	-	-		
SP96097	97-03-01	08.0	38-17S	114-04E	18.0	17.8	17.6	17.4	15.4	13.5	11.4	11.6	10.5	10.1	9.9	9.7	9.6	9.4	9.3	30	15.2
					9.1	8.9	8.6	8.1	7.6	7.2	-	-	-	-	-	-	-	-	-		
SP96098	97-03-02	12.0	39-19S	114-07E	16.9	16.9	16.9	16.9	17.0	17.0	17.0	17.0	15.0	14.3	12.5	10.0	8.5	7.6	6.9	129	14.5
					6.1	5.5	5.0	4.6	4.2	3.9	-	-	-	-	-	-	-	-	-		
SP96099	97-03-01	16.0	40-22S	114-07E	13.9	13.9	13.9	13.7	13.7	12.3	10.5	10.1	10.0	9.8	9.6	9.5	9.4	9.4	9.2	64	14.1
					9.0	9.1	8.6	8.2	7.8	7.3	-	-	-	-	-	-	-	-	-		
SP96100	97-03-02	00.0	42-11S	114-10E	13.6	13.6	13.6	13.6	13.4	11.2	10.7	10.1	9.7	9.5	9.4	9.3	9.2	9.2	9.1	46	12.1
					9.0	8.8	8.6	8.2	7.7	7.3	-	-	-	-	-	-	-	-	-		
SP96101	97-03-02	04.0	43-05S	114-14E	12.2	12.2	12.2	12.1	11.8	10.7	9.7	9.5	9.6	9.4	9.3	9.2	9.1	9.1	9.1	42	11.8
					9.1	9.1	9.1	8.8	8.3	7.5	-	-	-	-	-	-	-	-	-		

NUMBER	DATE TIME UT	POSITION		TEMPERATURE (° C)																S.L. (M)	AIR TEMP. (° C)				
		LAT.	LONG.	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																		
SP96102	97-03-02 07.7	43-58S	114-17E	10.9	10.9	10.8	10.8	10.8	10.5	10.7	10.5	10.4	10.2	10.2	9.8	9.7	9.5	9.2	54	10.7					
				8.9	8.6	8.1	7.5	7.1	6.6	-	-	-	-	-	-	-	-	-							
SP96103	97-03-02 12.0	44-52S	114-19E	10.7	10.7	10.7	10.7	10.6	9.9	10.8	10.6	10.5	10.2	10.2	10.0	9.8	9.7	9.6	65	9.1					
				9.3	8.9	8.4	8.0	7.4	6.8	-	-	-	-	-	-	-	-	-							
SP96104	97-03-02 16.0	45-48S	114-24E	9.9	9.9	9.9	9.9	9.9	9.7	8.8	8.6	8.4	8.4	8.2	7.9	7.6	7.0	6.6	68	9.1					
				6.7	6.3	5.8	5.4	4.9	4.4	-	-	-	-	-	-	-	-	-							
SP96105	97-03-03 00.0	47-38S	114-31E	9.4	9.4	9.4	9.4	9.4	9.4	9.5	9.7	9.7	9.1	8.6	8.3	7.9	7.3	6.3	97	8.9					
				6.4	6.0	5.5	4.9	4.7	4.2	-	-	-	-	-	-	-	-	-							
SP96106	97-03-03 04.0	48-27S	114-38E	7.4	7.4	7.4	7.4	7.4	7.4	7.0	6.7	6.1	5.8	5.8	5.7	5.2	4.8	4.7	92	8.5					
				4.2	3.9	3.6	3.1	3.2	3.1	-	-	-	-	-	-	-	-	-							
SP96107	97-03-03 08.0	49-19S	114-43E	6.7	6.6	6.7	6.6	6.6	6.4	4.9	4.5	4.2	3.4	3.3	3.5	3.4	3.2	3.3	72	8.5					
				3.1	3.0	2.9	2.7	2.6	2.6	-	-	-	-	-	-	-	-	-							
SP96108	97-03-03 12.0	50-11S	114-48E	6.3	6.3	6.3	6.3	6.3	6.3	5.3	4.4	3.9	3.0	2.9	2.9	2.9	2.9	2.8	90	8.1					
				2.6	2.7	2.7	2.6	2.5	2.6	-	-	-	-	-	-	-	-	-							
SP96109	97-03-03 16.0	51-04S	114-55E	4.3	4.3	4.3	4.3	4.3	3.4	2.7	2.3	2.0	1.9	2.1	2.4	2.2	2.1	2.3	69	6.7					
				2.3	2.3	2.4	2.3	2.3	2.3	-	-	-	-	-	-	-	-	-							
SP96110	97-03-04 00.0	52-58S	115-00E	4.8	4.8	4.8	4.8	4.8	4.8	2.9	1.7	1.3	1.7	2.1	2.1	2.0	2.2	2.3	86	4.9					
				2.3	2.3	2.3	2.2	2.2	2.2	-	-	-	-	-	-	-	-	-							
SP96111	97-03-04 03.0	53-56S	115-05E	4.6	4.6	4.5	4.6	4.5	4.5	2.8	1.8	1.5	1.8	2.1	2.1	2.3	2.3	2.3	86	4.2					
				2.3	2.4	2.3	2.3	2.3	2.3	-	-	-	-	-	-	-	-	-							
SP96112	97-03-04 07.0	54-53S	115-50E	3.9	3.9	3.9	3.9	3.9	3.9	3.8	1.8	1.5	1.4	1.8	2.0	2.0	2.2	2.2	106	3.4					
				2.2	2.3	2.2	2.3	2.3	2.4	-	-	-	-	-	-	-	-	-							
SP96114	97-03-04 16.0	56-50S	115-18E	2.8	2.8	2.8	2.8	2.8	2.8	2.8	0.6	1.4	1.8	2.0	2.1	2.2	2.2	2.2	107	2.1					
				2.2	2.2	2.2	2.2	2.2	2.1	-	-	-	-	-	-	-	-	-							
SP96115	97-03-05 00.0	58-46S	115-27E	2.1	2.1	2.1	2.1	2.1	2.1	1.9	-0.0	0.6	1.6	2.0	2.1	2.2	2.1	2.2	94	0.8					
				2.4	2.2	2.2	2.1	2.1	2.1	-	-	-	-	-	-	-	-	-							
SP96117	97-03-05 07.0	60-41S	115-31E	1.5	1.5	1.5	1.5	1.5	0.8	1.1	1.5	1.7	1.9	2.0	2.0	2.1	2.0	2.0	68	1.6					
				2.1	2.1	2.0	2.0	2.0	1.9	-	-	-	-	-	-	-	-	-							
SP96118	97-03-05 12.0	61-39S	115-34E	1.2	1.2	1.2	1.2	1.2	0.8	0.3	1.4	1.7	1.9	2.0	1.9	1.9	1.9	1.9	68	1.1					
				1.9	1.9	1.9	1.9	1.8	1.8	-	-	-	-	-	-	-	-	-							
SP96119	97-03-04 15.7	62-36S	115-38E	0.9	0.9	0.9	0.9	0.9	0.3	1.1	1.2	1.4	1.5	1.5	1.5	1.6	1.5	1.5	50	0.6					
				1.5	1.4	1.4	1.4	1.3	1.3	-	-	-	-	-	-	-	-	-							
SP96120	97-03-06 00.0	63-30S	117-29E	0.9	0.9	0.8	0.8	-0.7	-1.8	-1.6	-0.9	0.5	1.2	1.3	1.3	1.3	1.3	1.2	36	0.1					
				1.1	1.1	1.1	1.0	1.0	0.9	-	-	-	-	-	-	-	-	-							

NUMBER	DATE TIME		POSITION		TEMPERATURE (° C)																S. L.	AIR TEMP.
					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			
SP96121	97-03-06	07.0	63-31S	118-49E	1.3	1.3	1.2	1.2	-0.4	-1.7	-1.6	-0.4	0.6	1.2	1.4	1.4	1.4	1.4	1.3	46	1.0	
					1.3	1.3	1.3	1.2	1.2	1.1	-	-	-	-	-	-	-	-	-			
SP96122	97-03-06	10.0	63-32S	119-50E	1.2	1.1	1.1	1.1	-1.8	-1.7	0.0	1.2	1.3	1.4	1.5	1.5	1.5	1.4	1.4	30	0.4	
					1.3	1.3	1.3	1.2	1.2	1.2	-	-	-	-	-	-	-	-	-			
SP96123	97-03-06	11.0	63-31S	120-11E	1.3	1.3	1.3	1.2	0.9	0.4	1.2	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.4	46	0.3	
					1.4	1.4	1.3	1.3	1.3	1.2	-	-	-	-	-	-	-	-	-			
SP96124	97-03-06	13.0	63-33S	120-52E	1.5	1.5	1.4	1.4	1.3	1.0	1.2	1.3	1.4	1.5	1.5	1.5	1.5	1.5	1.5	50	1.1	
					1.4	1.4	1.4	1.3	1.3	1.3	-	-	-	-	-	-	-	-	-			
SP96125	97-03-06	15.0	63-35S	121-37E	1.4	1.4	1.3	1.3	1.3	0.7	1.2	1.3	1.4	1.5	1.5	1.5	1.5	1.5	1.5	51	0.9	
					1.4	1.4	1.4	1.3	1.3	1.3	-	-	-	-	-	-	-	-	-			
SP96126	97-03-06	16.7	63-37S	122-16E	1.6	1.6	1.6	1.9	0.6	0.7	1.3	1.5	1.4	1.6	1.6	1.7	1.7	1.7	1.7	22	0.9	
					1.7	1.7	1.7	1.6	1.6	1.6	-	-	-	-	-	-	-	-	-			
SP96127	97-03-06	17.0	63-39S	122-43E	1.4	1.4	1.4	1.3	0.5	0.8	1.3	1.4	1.5	1.5	1.5	1.6	1.5	1.6	1.5	42	0.9	
					1.5	1.5	1.4	1.4	1.4	1.3	-	-	-	-	-	-	-	-	-			
SP96128	97-03-06	19.0	63-39S	123-01E	1.5	1.5	1.5	1.5	1.4	1.5	1.6	1.5	1.4	1.6	1.5	1.5	1.6	1.5	1.6	0	1.2	
					1.5	1.5	1.5	1.4	1.4	1.3	-	-	-	-	-	-	-	-	-			
SP96129	97-03-06	21.0	63-41S	123-46E	1.5	1.4	1.4	1.4	1.3	-1.0	-0.7	0.5	1.1	1.3	1.4	1.4	1.4	1.4	1.4	51	1.0	
					1.3	1.3	1.3	1.3	1.2	1.2	-	-	-	-	-	-	-	-	-			
SP96130	97-03-06	23.0	63-42S	124-29E	1.6	1.5	1.5	1.5	0.2	0.9	1.1	1.3	1.4	1.5	1.5	1.5	1.5	1.6	1.6	46	0.4	
					1.5	1.5	1.5	1.4	1.4	1.4	-	-	-	-	-	-	-	-	-			
SP96131	97-03-07	01.0	63-44S	125-10E	1.3	1.3	1.2	1.2	-0.9	-1.2	0.6	1.0	1.0	1.4	1.5	1.5	1.5	1.5	1.5	46	0.3	
					1.5	1.5	1.5	1.4	1.4	1.4	-	-	-	-	-	-	-	-	-			
SP96132	97-03-07	02.0	63-47S	125-53E	1.8	1.8	1.7	1.7	0.9	1.4	1.7	1.6	1.6	1.6	1.7	1.7	1.6	1.6	1.6	39	-0.3	
					1.7	1.7	1.6	1.6	1.5	1.5	-	-	-	-	-	-	-	-	-			
SP96133	97-03-07	09.0	63-49S	126-47E	1.6	1.6	1.5	1.4	0.5	1.1	1.4	1.5	1.5	1.6	1.6	1.7	1.7	1.6	1.6	34	-0.5	
					1.6	1.6	1.5	1.5	1.4	1.4	-	-	-	-	-	-	-	-	-			
SP96134	97-03-07	12.0	63-52S	127-25E	1.8	1.8	1.7	1.7	0.1	0.8	1.2	1.3	1.4	1.5	1.5	1.5	1.5	1.5	1.5	44	-1.0	
					1.5	1.5	1.4	1.4	1.4	1.3	-	-	-	-	-	-	-	-	-			
SP96135	97-03-07	15.0	63-54S	127-57E	1.8	1.7	1.6	1.5	0.0	1.2	1.5	1.5	1.4	1.6	1.6	1.5	1.6	1.6	1.6	38	-1.1	
					1.6	1.5	1.5	1.5	1.5	1.4	-	-	-	-	-	-	-	-	-			
SP96136	97-03-07	17.7	63-56S	128-28E	1.9	1.8	1.8	1.8	1.5	0.2	1.3	1.6	1.7	1.6	1.7	1.5	1.6	1.7	1.6	36	-1.0	
					1.5	1.5	1.6	1.5	1.4	1.4	-	-	-	-	-	-	-	-	-			
SP96137	97-03-07	21.0	63-58S	129-01E	2.0	1.9	1.9	1.9	0.1	1.3	1.6	2.3	1.9	2.2	2.4	2.3	2.1	2.5	2.4	30	-1.6	
					2.1	2.2	2.1	2.2	2.2	2.3	-	-	-	-	-	-	-	-	-			

NUMBER	DATE TIME		POSITION		TEMPERATURE (° C)														S. L. (M)	AIR TEMP. (° C)		
					DEPTH (M)																	
	UT	LAT.	LONG.	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																
SP96138	97-03-08	00.0	63-59S	129-35E	1.9	1.9	1.8	1.8	1.0	1.4	1.7	1.7	1.6	1.5	1.5	1.6	1.6	1.7	39	-1.2		
SP96139	97-03-08	03.0	64-01S	130-12E	1.2	1.2	1.2	1.2	1.1	-0.8	-1.5	-1.6	-1.6	-1.0	-0.4	0.2	0.8	0.9	1.1	55	-0.1	
SP96140	97-03-08	07.4	64-05S	130-33E	1.5	1.5	1.4	1.4	1.3	-1.6	-1.8	-1.8	-1.8	-1.4	0.1	1.0	1.2	1.1	1.3	43	-2.4	
SP96141	97-03-08	09.0	64-05S	130-51E	1.2	1.2	1.2	1.2	0.7	-1.3	-0.5	-1.0	-0.0	0.3	1.2	0.9	1.2	1.3	2.2	46	-3.4	
SP96142	97-03-08	12.0	64-03S	131-33E	1.6	1.6	1.6	1.6	0.1	-0.9	-0.5	0.0	0.6	1.4	1.3	2.0	1.4	1.4	1.4	34	-4.8	
SP96143	97-03-08	14.0	64-03S	131-55E	1.7	1.7	1.7	1.7	1.2	-1.0	0.6	1.2	1.4	1.5	1.5	1.7	1.5	1.6	1.5	39	-5.8	
SP96144	97-03-08	16.7	64-02S	132-34E	1.2	1.3	1.2	1.2	0.0	-0.1	0.4	0.5	0.6	1.0	1.2	1.3	1.6	1.5	1.5	30	-6.4	
SP96145	97-03-08	20.0	64-05S	133-15E	1.6	1.6	1.6	1.6	1.1	0.6	1.1	1.4	1.2	1.1	1.3	1.5	1.5	1.6	1.6	37	-6.4	
SP96146	97-03-08	23.0	64-09S	133-50E	1.5	1.5	1.4	1.4	0.3	0.1	0.4	1.2	1.4	1.3	1.5	1.4	1.5	1.5	1.5	38	-6.5	
SP96147	97-03-09	02.0	64-13S	134-26E	1.4	1.3	1.3	1.3	0.3	0.0	0.5	0.7	0.7	1.0	1.1	1.1	1.2	1.2	1.3	33	-6.3	
SP96148	97-03-09	05.0	64-16S	135-04E	1.6	1.6	1.5	1.5	1.0	-0.2	0.3	1.1	1.3	1.3	1.5	1.5	1.3	1.2	1.4	44	-7.8	
SP96149	97-03-09	08.0	64-20S	135-41E	1.6	1.5	1.5	1.5	1.2	-0.5	-0.1	0.7	0.6	0.9	1.0	1.2	1.2	0.8	1.1	51	-7.1	
SP96150	97-03-09	11.0	64-23S	136-17E	1.6	1.5	1.5	1.5	1.0	0.5	1.1	1.2	1.3	1.4	1.5	1.6	1.5	1.5	1.4	44	-5.7	
SP96151	97-03-09	14.0	64-26S	136-54E	0.8	0.7	0.7	0.7	0.6	-1.2	-1.1	-1.0	-0.9	-0.8	-0.4	0.0	0.2	0.3	0.5	47	-4.8	
SP96152	97-03-09	16.7	64-30S	137-30E	1.1	1.0	1.0	0.9	0.5	-0.7	-0.7	-0.4	-0.6	-0.4	0.8	0.9	1.3	1.1	1.3	38	-4.6	
SP96153	97-03-09	20.0	64-34S	138-07E	0.5	0.4	0.4	0.5	0.4	-0.8	-0.4	-0.7	-0.5	0.2	0.6	1.0	1.0	1.0	1.0	58	-3.8	
SP96154	97-03-09	23.0	64-39S	138-45E	0.4	0.3	0.3	0.3	0.3	-0.6	-1.8	-1.8	-1.7	-0.7	-0.4	0.3	0.7	0.8	0.7	54	-3.9	

NUMBER	DATE TIME		POSITION		TEMPERATURE (° C)														S. L.	AIR TEMP.	
					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
SP96155	97-03-10	01.7	64-53S	139-33E	0.4	0.3	0.3	0.3	0.2	0.3	0.2	-0.0	-0.5	0.6	0.8	0.9	1.1	1.2	1.2	45	-4.6
					1.2	1.2	1.1	1.1	1.1	1.0	-	-	-	-	-	-	-	-	-		
SP96156	97-03-10	07.0	65-00S	140-51E	0.1	0.1	0.1	0.1	0.1	-1.4	-1.6	-1.5	-1.3	-0.2	0.1	0.4	0.8	1.0	0.8	60	-4.6
					0.9	1.0	0.9	0.9	0.9	0.9	-	-	-	-	-	-	-	-	-		
SP96157	97-03-10	09.0	65-17S	141-09E	-0.7	-0.8	-0.8	-0.8	-1.3	-1.7	-1.6	-1.4	-1.2	-0.4	0.0	0.2	0.5	0.6	0.7	44	-5.3
					0.7	0.6	0.7	0.7	0.7	0.8	-	-	-	-	-	-	-	-	-		
SP96158	97-03-10	11.0	65-21S	141-54E	-0.1	-0.1	-0.1	-0.2	-1.0	-1.6	-1.5	-1.3	-0.6	0.6	1.0	0.9	0.8	0.6	1.1	44	-6.5
					0.8	0.9	0.9	0.8	0.8	0.7	-	-	-	-	-	-	-	-	-		
SP96159	97-03-10	13.0	65-15S	142-27E	-0.6	-0.6	-1.0	-1.2	-1.1	-1.3	-1.2	-1.1	-0.8	-0.2	0.4	0.6	0.7	0.8	0.9	10	-6.2
					0.9	0.9	0.9	0.9	0.8	0.7	-	-	-	-	-	-	-	-	-		
SP96160	97-03-10	14.7	65-07S	143-00E	0.1	0.0	0.0	0.0	-0.0	-0.6	-0.3	-0.2	-0.2	0.9	0.8	1.1	1.1	1.2	1.2	47	-5.7
					1.3	1.3	1.2	1.2	1.1	1.1	-	-	-	-	-	-	-	-	-		
SP96161	97-03-10	16.7	65-00S	143-32E	0.0	0.0	0.0	0.0	-0.1	-1.1	-1.0	-0.9	-0.2	0.2	0.7	0.9	1.3	1.3	1.4	45	-5.5
					1.3	1.3	1.3	1.3	1.2	1.2	-	-	-	-	-	-	-	-	-		
SP96162	97-03-10	19.0	65-00S	144-11E	-0.4	-0.4	-0.4	-0.6	-0.7	-0.6	0.2	0.5	0.8	1.2	1.2	1.3	1.2	1.2	1.3	46	-5.1
					1.2	1.4	1.2	1.1	1.1	1.1	-	-	-	-	-	-	-	-	-		
SP96163	97-03-10	21.0	65-00S	144-49E	0.2	0.2	0.1	0.1	0.0	-0.7	0.2	1.4	1.4	1.4	1.5	1.5	1.5	1.6	1.5	50	-4.8
					1.5	1.5	1.5	1.4	1.3	1.3	-	-	-	-	-	-	-	-	-		
SP96164	97-03-10	22.7	65-00S	145-25E	0.5	0.4	0.4	0.4	0.4	0.0	0.6	1.3	1.0	1.5	1.2	1.2	1.4	1.4	1.6	59	-4.2
					1.5	1.5	1.5	1.5	1.3	1.3	-	-	-	-	-	-	-	-	-		
SP96165	97-03-11	00.7	65-00S	146-01E	-0.1	-0.1	-0.1	-0.1	-0.2	0.1	1.0	1.3	1.4	1.5	1.4	1.5	1.5	1.4	1.5	49	-3.1
					1.5	1.5	1.5	1.4	1.4	1.3	-	-	-	-	-	-	-	-	-		
SP96166	97-03-11	03.0	64-59S	146-36E	0.3	0.3	0.3	0.3	0.2	-1.2	-1.8	-1.8	-1.4	-0.5	-0.1	0.4	0.9	1.0	1.1	49	-0.2
					0.9	0.9	0.9	1.0	1.0	1.1	-	-	-	-	-	-	-	-	-		
SP96167	97-03-11	07.0	64-57S	147-06E	-0.1	-0.1	-0.1	-0.1	-0.1	-0.9	-1.3	-1.3	-1.3	-0.9	-0.3	0.1	-0.0	0.1	0.2	49	-2.0
					1.0	0.8	0.6	0.5	0.5	0.5	-	-	-	-	-	-	-	-	-		
SP96168	97-03-11	09.0	64-48S	147-07E	-0.0	-0.0	-0.1	-0.1	-0.1	-1.0	-1.2	-1.2	-1.2	-0.5	0.4	0.7	0.8	1.4	1.2	54	-0.9
					1.4	1.1	1.1	1.3	1.2	1.2	-	-	-	-	-	-	-	-	-		
SP96169	97-03-11	11.0	64-37S	147-09E	0.5	0.5	0.3	0.2	0.2	1.4	1.6	1.7	1.7	1.4	1.6	1.7	1.7	1.7	1.7	51	-1.0
					2.0	1.8	1.7	1.6	1.6	1.5	-	-	-	-	-	-	-	-	-		
SP96170	97-03-11	12.8	64-26S	147-07E	0.8	0.8	0.8	0.7	0.8	1.3	1.6	1.7	1.8	1.8	1.9	1.9	1.9	1.9	1.9	56	0.2
					1.9	1.8	1.7	1.7	1.7	1.7	-	-	-	-	-	-	-	-	-		
SP96171	97-03-11	13.7	64-20S	147-05E	1.0	0.9	0.9	0.9	0.4	1.6	1.8	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.8	46	0.9
					1.7	1.7	1.7	1.7	1.6	1.6	-	-	-	-	-	-	-	-	-		

NUMBER	DATE TIME		POSITION		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
SP96172	97-03-11	16.7	64-07S	147-02E	1.3	1.3	1.3	1.2	1.2	0.8	1.7	1.8	1.9	1.9	1.9	1.9	1.9	1.8	1.8	51	0.8
					1.8	1.8	1.7	1.7	1.7	1.7	-	-	-	-	-	-	-	-	-		
SP96173	97-03-11	18.0	63-54S	147-00E	1.2	1.2	1.2	1.2	1.2	1.2	1.7	1.8	1.8	1.9	1.9	2.0	2.1	2.2	2.1	55	0.9
					2.1	2.0	1.9	1.9	1.8	1.8	-	-	-	-	-	-	-	-	-		
SP96174	97-03-11	20.0	63-42S	147-00E	1.5	1.5	1.5	1.5	1.5	0.1	1.3	1.8	1.9	2.0	2.0	2.1	2.3	2.1	2.1	56	2.9
					2.1	2.0	2.0	2.0	1.9	1.8	-	-	-	-	-	-	-	-	-		
SP96175	97-03-11	22.0	63-31S	147-03E	1.5	1.5	1.5	1.5	1.5	-0.3	1.2	1.9	1.7	2.0	2.0	2.0	2.3	2.3	2.3	62	2.6
					2.7	2.1	2.0	2.1	2.0	2.0	-	-	-	-	-	-	-	-	-		
SP96176	97-03-12	00.0	63-21S	147-06E	1.8	1.8	1.8	1.9	1.9	-0.5	0.6	1.4	1.8	2.0	2.2	2.1	2.2	2.3	2.4	53	2.3
					2.3	2.1	2.2	2.7	2.4	2.2	-	-	-	-	-	-	-	-	-		
SP96177	97-03-12	02.0	63-12S	147-06E	1.7	1.7	1.7	1.7	1.7	-0.7	0.6	1.7	1.9	2.0	2.1	2.1	2.1	2.1	2.1	64	2.5
					2.0	2.0	2.0	2.0	2.1	2.0	-	-	-	-	-	-	-	-	-		
SP96178	97-03-12	04.0	63-02S	147-03E	1.7	1.7	1.7	1.7	1.6	-0.6	1.2	1.8	1.9	2.0	2.1	2.2	2.3	2.2	2.1	64	2.5
					2.1	2.0	2.1	2.0	2.0	1.9	-	-	-	-	-	-	-	-	-		
SP96179	97-03-12	05.7	62-52S	147-00E	1.8	1.8	1.8	1.8	1.7	0.3	0.3	1.4	1.8	1.9	2.0	2.0	2.0	2.0	2.0	69	1.4
					2.0	2.0	1.9	1.9	1.9	1.8	-	-	-	-	-	-	-	-	-		
SP96180	97-03-12	07.7	62-41S	147-00E	1.7	1.7	1.7	1.7	1.6	-0.7	1.2	1.8	2.0	2.0	1.9	1.9	2.0	1.9	2.0	58	0.1
					2.0	1.9	1.9	1.9	1.8	1.8	-	-	-	-	-	-	-	-	-		
SP96181	97-03-12	10.0	62-29S	147-00E	1.9	1.9	2.0	1.9	1.9	-0.3	-0.5	1.7	1.9	1.7	1.8	1.8	1.9	1.9	1.8	68	0.0
					1.8	1.8	1.8	1.8	1.7	1.7	-	-	-	-	-	-	-	-	-		
SP96182	97-03-12	12.0	62-15S	147-00E	2.1	2.1	2.1	1.8	0.8	-0.5	0.8	1.6	1.9	2.0	1.9	2.0	2.1	2.1	2.1	45	0.0
					2.0	2.0	2.0	2.0	2.0	2.0	-	-	-	-	-	-	-	-	-		
SP96183	97-03-12	13.8	62-02S	147-00E	2.2	2.2	2.2	2.2	-0.7	-0.6	0.8	1.4	1.8	-	-	-	-	-	-	41	-1.6
SP96184	97-03-12	15.7	61-50S	147-00E	2.3	2.3	2.4	2.4	2.4	-0.7	0.7	1.8	2.0	2.0	2.1	2.2	2.3	2.3	2.2	59	-1.1
					2.2	2.2	2.2	2.2	2.1	2.1	-	-	-	-	-	-	-	-	-		
SP96185	97-03-12	19.0	61-37S	147-01E	2.5	2.5	2.5	2.5	2.3	-0.8	0.7	1.6	1.8	2.0	2.1	2.0	2.1	2.1	2.1	55	-0.8
					2.1	2.0	2.0	2.0	1.9	1.9	-	-	-	-	-	-	-	-	-		
SP96186	97-03-12	20.0	61-23S	147-02E	2.6	2.7	2.6	2.6	2.6	-0.3	-0.3	1.1	1.6	1.9	2.1	2.0	2.1	2.0	2.1	69	-0.4
					2.0	2.0	1.9	1.9	1.9	1.9	-	-	-	-	-	-	-	-	-		
SP96187	97-03-12	22.0	61-09S	147-04E	2.5	2.5	2.5	2.5	2.5	-0.4	-0.5	1.0	1.5	1.9	2.0	2.0	2.1	2.0	2.1	67	0.4
					2.0	2.0	2.0	2.0	2.0	1.9	-	-	-	-	-	-	-	-	-		
SP96188	97-03-13	00.0	60-56S	147-06E	3.1	3.1	3.1	3.1	3.2	-0.1	0.1	1.3	1.8	2.0	2.1	2.2	2.2	2.1	2.2	52	1.1
					2.1	2.1	2.1	2.0	2.0	2.0	-	-	-	-	-	-	-	-	-		

NUMBER	DATE TIME		POSITION		TEMPERATURE (° C)															S. L.	AIR TEMP.
					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		
SP96189	97-03-13	02.0	60-42S	147-07E	3.3	3.3	3.3	3.3	3.6	0.0	0.1	0.9	1.6	1.9	2.4	2.4	2.3	2.4	2.3	31	1.3
					2.3	2.6	2.3	2.4	2.3	2.2	-	-	-	-	-	-	-	-	-		
SP96190	97-03-13	07.0	60-35S	147-17E	3.4	3.4	3.3	3.4	3.4	0.5	0.1	0.6	1.4	1.8	2.0	2.2	2.3	2.4	2.3	60	1.8
					2.3	2.2	2.2	2.2	2.2	2.2	-	-	-	-	-	-	-	-	-		
SP96191	97-03-13	10.0	60-20S	147-15E	3.4	3.4	3.4	3.4	3.7	0.4	0.7	1.6	1.7	2.4	2.2	2.6	2.9	2.6	2.8	41	1.6
					2.6	3.0	2.8	2.8	2.7	2.6	-	-	-	-	-	-	-	-	-		
SP96192	97-03-13	12.0	60-07S	147-13E	3.5	3.5	3.5	3.5	3.5	0.5	0.1	0.7	1.8	2.0	2.3	2.4	2.7	2.4	2.4	63	1.6
					2.3	2.3	2.3	2.3	2.3	2.2	-	-	-	-	-	-	-	-	-		
SP96193	97-03-13	13.7	59-54S	147-11E	3.5	3.5	3.5	3.5	3.5	0.9	0.9	1.4	1.7	2.0	2.2	2.3	2.4	2.4	2.6	64	1.6
					2.7	2.5	2.4	2.6	2.5	2.5	-	-	-	-	-	-	-	-	-		
SP96194	97-03-13	15.7	59-40S	147-08E	3.6	3.6	3.6	3.7	3.7	1.1	0.8	1.0	1.6	2.5	2.4	2.5	2.5	2.5	2.5	59	1.6
					2.5	2.5	2.7	2.7	2.6	2.5	-	-	-	-	-	-	-	-	-		
SP96195	97-03-13	18.0	59-26S	147-04E	3.7	3.7	3.7	3.7	3.7	1.0	0.6	1.3	1.6	1.9	2.1	2.3	2.5	2.5	2.6	65	1.9
					2.5	2.4	2.4	2.4	2.6	2.6	-	-	-	-	-	-	-	-	-		
SP96196	97-03-13	20.0	59-13S	147-01E	3.5	3.4	3.5	3.5	3.4	0.4	0.4	1.1	1.6	2.1	2.2	2.4	3.2	2.8	2.7	65	1.9
					2.5	2.5	2.8	2.7	2.5	2.5	-	-	-	-	-	-	-	-	-		
SP96198	97-03-14	00.0	58-47S	147-04E	3.5	3.5	3.5	3.5	3.5	0.1	-0.4	1.1	1.7	2.0	2.1	2.2	2.2	2.2	2.2	63	3.6
					2.2	2.2	2.2	2.1	2.1	2.1	-	-	-	-	-	-	-	-	-		
SP96199	97-03-14	02.0	58-32S	147-04E	3.6	3.6	3.5	3.5	3.5	-0.1	0.0	1.4	1.7	2.0	2.1	2.2	2.2	2.4	2.4	56	3.4
					2.3	2.2	2.3	2.2	2.2	2.2	-	-	-	-	-	-	-	-	-		
SP96200	97-03-14	04.0	58-20S	147-02E	3.6	3.6	3.6	3.6	3.6	-0.1	-0.2	0.9	1.6	1.9	2.1	2.1	2.2	2.2	2.2	62	3.5
					2.2	2.1	2.1	2.1	2.1	2.0	-	-	-	-	-	-	-	-	-		
SP96201	97-03-14	06.0	58-05S	147-02E	3.6	3.6	3.6	3.6	3.6	-0.1	-0.3	0.7	1.5	1.9	2.1	2.2	2.2	2.2	2.2	62	3.7
					2.2	2.2	2.2	2.1	2.1	2.1	-	-	-	-	-	-	-	-	-		
SP96202	97-03-14	08.0	57-54S	147-02E	3.7	3.6	3.6	3.6	3.6	-0.2	0.2	1.4	1.7	2.0	2.1	2.2	2.2	2.2	2.2	62	4.2
					2.2	2.1	2.1	2.1	2.1	2.1	-	-	-	-	-	-	-	-	-		
SP96203	97-03-14	10.0	57-41S	147-03E	3.8	3.8	3.8	3.7	3.7	1.3	-0.1	0.6	1.4	1.9	2.1	2.2	2.2	2.2	2.2	66	4.0
					2.2	2.2	2.2	2.2	2.1	2.1	-	-	-	-	-	-	-	-	-		
SP96204	97-03-14	12.0	57-28S	147-02E	3.7	3.7	3.7	3.7	3.7	-0.1	-0.0	0.2	0.5	1.0	1.6	2.1	2.2	2.2	2.2	62	4.0
					2.2	2.2	2.2	2.2	2.1	2.1	-	-	-	-	-	-	-	-	-		
SP96205	97-03-14	13.7	57-13S	147-00E	3.7	3.7	3.6	3.7	3.6	0.0	0.8	1.5	1.8	2.0	2.1	2.2	2.2	2.2	2.2	54	4.0
					2.2	2.2	2.2	2.2	2.1	2.1	-	-	-	-	-	-	-	-	-		
SP96206	97-03-14	15.7	57-01S	146-59E	3.7	3.7	3.7	3.7	3.6	-0.0	0.5	1.5	1.8	2.1	2.1	2.2	2.2	2.2	2.2	52	3.6
					2.2	2.2	2.2	2.2	2.1	2.1	-	-	-	-	-	-	-	-	-		

NUMBER	DATE TIME		POSITION		TEMPERATURE (° C)															S. L.	AIR TEMP.			
					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					
		LAT.	LONG.	1500	1600	1700	1800																(M)	(° C)
SP96207	97-03-14	18.0	56-49S	147-00E	3.8	3.8	3.8	3.8	3.8	-0.3	0.1	1.2	1.7	2.0	2.1	2.2	2.2	2.2	2.2	2.2	51	3.7		
					2.2	2.2	2.1	2.1	2.1	2.0	-	-	-	-	-	-	-	-	-	-				
SP96208	97-03-14	20.0	56-36S	147-02E	3.9	3.9	3.9	3.9	3.8	-0.5	0.2	1.5	1.8	2.0	2.1	2.1	2.1	2.1	2.1	2.1	56	3.7		
					2.1	2.1	2.0	2.0	2.0	2.0	-	-	-	-	-	-	-	-	-	-				
SP96209	97-03-14	21.7	56-22S	147-03E	3.7	3.7	3.7	3.7	3.7	0.1	0.8	1.8	1.9	2.0	2.1	2.1	2.1	2.1	2.1	2.1	61	3.8		
					2.0	2.0	2.0	2.0	1.9	2.0	-	-	-	-	-	-	-	-	-	-				
SP96210	97-03-14	23.7	56-07S	147-04E	3.8	3.7	3.7	3.7	3.7	-0.2	-0.2	1.1	1.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0	59	3.9		
					2.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
SP96211	97-03-15	02.0	55-55S	147-04E	3.9	3.9	3.9	3.9	3.9	-0.1	-0.1	1.4	1.8	2.0	2.1	2.1	2.1	2.1	2.1	2.1	59	4.8		
					2.1	2.1	2.0	2.0	2.0	1.9	-	-	-	-	-	-	-	-	-	-				
SP96212	97-03-15	04.9	55-47S	147-02E	4.1	4.1	4.1	4.0	4.0	1.3	-0.4	0.1	1.7	2.0	2.1	2.1	2.1	2.1	2.1	2.1	68	3.9		
					2.1	2.1	2.0	2.0	2.0	2.0	-	-	-	-	-	-	-	-	-	-				
SP96213	97-03-15	11.7	55-22S	147-21E	4.8	4.9	4.8	4.8	4.8	4.6	0.0	-0.3	1.3	1.9	2.1	2.2	2.2	2.3	2.2	2.2	75	3.9		
					2.2	2.2	2.2	2.2	2.1	2.1	-	-	-	-	-	-	-	-	-	-				
SP96214	97-03-15	13.7	55-03S	147-02E	6.1	6.1	6.1	6.1	6.1	3.6	3.3	3.5	3.2	3.1	2.9	2.7	2.8	2.6	2.4	2.4	65	4.3		
					2.4	2.3	2.3	2.3	2.3	2.3	-	-	-	-	-	-	-	-	-	-				
SP96215	97-03-15	14.7	54-49S	146-56E	5.9	5.9	5.9	5.9	5.9	2.7	0.7	0.4	1.3	2.0	2.1	2.2	2.2	2.2	2.2	2.2	59	4.4		
					2.2	2.2	2.2	2.2	2.2	2.1	-	-	-	-	-	-	-	-	-	-				
SP96216	97-03-15	21.0	53-20S	147-05E	5.9	5.9	5.9	5.9	5.9	4.6	1.0	0.5	0.8	1.8	2.0	2.1	2.2	2.2	2.3	2.3	71	5.2		
					2.3	2.3	2.3	2.2	2.2	2.2	-	-	-	-	-	-	-	-	-	-				
SP96217	97-03-15	22.0	53-04S	147-05E	7.8	7.8	7.8	7.8	7.8	7.8	6.4	6.3	5.9	5.5	5.7	5.1	5.1	5.0	4.3	4.3	78	5.7		
					4.1	3.8	3.7	3.4	3.1	3.0	-	-	-	-	-	-	-	-	-	-				
SP96218	97-03-15	23.0	52-49S	147-05E	8.0	8.0	8.0	8.0	8.0	8.0	6.0	5.8	5.3	5.0	4.7	5.0	4.8	4.5	3.9	3.9	77	6.1		
					3.7	3.6	3.5	3.3	3.1	3.0	-	-	-	-	-	-	-	-	-	-				
SP96219	97-03-16	00.0	52-33S	147-03E	8.1	8.1	8.1	8.1	8.1	7.6	6.6	5.5	4.8	4.2	3.8	3.7	3.6	3.6	3.3	3.3	49	5.9		
					3.3	3.2	3.1	3.0	2.9	2.8	-	-	-	-	-	-	-	-	-	-				
SP96220	97-03-16	01.0	52-18S	147-02E	8.7	8.7	8.7	8.7	8.7	8.7	6.8	6.0	5.1	4.2	4.3	3.5	3.6	3.3	3.4	3.4	49	5.7		
					3.3	3.2	3.1	3.0	3.0	2.8	-	-	-	-	-	-	-	-	-	-				
SP96221	97-03-16	02.0	52-04S	147-01E	7.6	7.6	7.6	7.6	7.5	7.3	5.1	4.5	4.4	4.2	4.5	4.3	4.1	3.8	3.5	3.5	83	5.4		
					3.2	3.1	3.0	2.8	2.7	2.7	-	-	-	-	-	-	-	-	-	-				
SP96222	97-03-16	03.0	51-48S	147-00E	7.0	7.0	7.0	7.0	6.9	6.9	5.5	5.0	4.7	4.3	4.4	4.6	4.3	4.2	3.7	3.7	90	6.0		
					3.4	3.4	3.1	3.1	2.9	2.8	-	-	-	-	-	-	-	-	-	-				
SP96223	97-03-16	04.0	51-32S	146-59E	7.4	7.4	7.4	7.4	7.4	7.4	6.9	6.4	6.1	5.7	5.1	5.2	5.3	5.0	4.7	4.7	77	6.8		
					4.1	3.8	3.7	3.4	3.2	3.1	-	-	-	-	-	-	-	-	-	-				



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			
SP96224	97-03-16 08.0	51-22S	147-13E	7.6	7.6	7.6	7.6	7.6	7.6	7.3	7.1	7.0	6.5	6.1	5.9	5.7	5.4	5.3	74	7.2	
				4.9	4.6	4.0	3.8	3.6	3.4	-	-	-	-	-	-	-	-	-			
SP96225	97-03-16 09.0	51-09S	147-26E	8.4	8.4	8.4	8.4	8.4	8.4	8.0	7.6	7.5	7.1	6.7	6.3	6.4	6.0	5.6	88	7.3	
				5.4	5.0	4.6	4.3	4.0	3.7	-	-	-	-	-	-	-	-	-			
SP96226	97-03-16 10.0	50-57S	147-38E	8.9	8.9	8.9	8.8	8.4	8.3	8.5	8.3	8.4	7.6	7.7	7.2	6.9	6.6	6.3	25	8.1	
				5.8	5.7	5.3	4.9	4.4	4.0	-	-	-	-	-	-	-	-	-			
SP96227	97-03-16 11.0	50-44S	147-50E	9.9	9.9	9.9	9.9	9.9	9.9	9.0	8.9	8.8	8.7	8.2	7.8	7.5	7.1	6.8	83	7.8	
				6.4	6.0	5.6	5.1	4.6	4.6	-	-	-	-	-	-	-	-	-			
SP96228	97-03-16 12.0	50-29S	147-52E	10.1	10.1	10.1	10.1	10.0	10.0	8.9	8.7	8.6	8.6	8.4	8.1	7.7	7.6	7.3	91	7.9	
				6.9	6.8	6.2	6.2	6.0	5.7	-	-	-	-	-	-	-	-	-			
SP96229	97-03-16 13.0	50-14S	147-52E	10.3	10.3	10.3	10.3	10.3	10.3	9.3	9.0	8.9	8.8	8.8	8.8	8.8	8.7	8.6	90	8.1	
				8.3	7.9	7.6	7.2	6.9	6.5	-	-	-	-	-	-	-	-	-			
SP96230	97-03-16 14.0	49-58S	147-52E	10.2	10.2	10.2	10.2	10.2	10.2	10.0	9.1	8.9	8.7	8.7	8.7	8.7	8.6	8.4	98	8.3	
				8.1	7.8	7.6	7.3	7.0	6.8	-	-	-	-	-	-	-	-	-			
SP96231	97-03-16 15.0	49-43S	147-51E	10.1	10.1	10.1	10.1	10.1	10.1	8.8	8.8	8.8	8.8	8.7	8.7	8.7	8.8	8.7	80	7.9	
				8.7	8.5	8.3	7.9	7.5	7.2	-	-	-	-	-	-	-	-	-			
SP96232	97-03-16 16.0	49-27S	147-50E	10.5	10.5	10.4	10.4	10.4	10.4	9.4	9.1	8.9	8.8	8.8	8.8	8.8	8.8	8.8	89	8.8	
				8.7	8.5	8.3	8.0	7.6	7.4	-	-	-	-	-	-	-	-	-			
SP96233	97-03-16 17.0	49-12S	147-48E	10.4	10.4	10.4	10.4	10.4	10.4	10.2	8.8	8.8	8.7	8.7	8.6	8.7	8.7	8.7	98	7.9	
				8.7	8.4	8.1	7.8	7.3	6.9	-	-	-	-	-	-	-	-	-			
SP96234	97-03-16 18.0	48-57S	147-48E	10.5	10.5	10.5	10.5	10.5	10.5	10.4	9.3	9.0	8.8	8.7	8.7	8.7	8.6	8.6	100	8.2	
				8.3	8.0	7.7	7.4	7.1	6.7	-	-	-	-	-	-	-	-	-			
SP96235	97-03-16 19.0	48-42S	147-48E	10.4	10.4	10.4	10.4	10.4	10.4	10.3	9.2	9.0	8.8	8.8	8.8	8.7	8.5	8.3	104	8.5	
				7.8	7.5	7.2	7.0	6.8	6.2	-	-	-	-	-	-	-	-	-			
SP96236	97-03-16 20.0	48-27S	147-49E	10.4	10.4	10.4	10.4	10.4	10.4	10.4	9.2	8.8	8.7	8.7	8.7	8.7	8.6	8.4	101	8.6	
				8.0	7.6	7.4	6.9	6.3	5.9	-	-	-	-	-	-	-	-	-			
SP96237	97-03-16 21.0	48-12S	147-49E	10.2	10.2	10.2	10.2	10.2	10.3	10.0	9.1	9.0	8.8	8.8	8.8	8.8	8.7	8.5	93	8.9	
				8.2	7.8	7.4	7.2	6.1	6.1	-	-	-	-	-	-	-	-	-			
SP96238	97-03-16 22.0	47-57S	147-49E	11.6	11.6	11.6	11.6	11.7	11.9	9.9	9.6	9.3	8.8	8.7	8.8	8.8	8.6	8.5	91	9.1	
				8.4	7.8	7.4	7.5	6.9	6.7	-	-	-	-	-	-	-	-	-			
SP96239	97-03-16 23.0	47-40S	147-49E	12.0	12.0	12.0	12.0	12.0	12.0	11.5	9.4	9.3	8.9	8.8	8.8	8.8	8.6	8.3	98	9.2	
				7.9	7.6	7.8	7.6	6.9	6.6	-	-	-	-	-	-	-	-	-			
SP96240	97-03-17 00.0	47-28S	147-49E	10.9	10.9	10.9	10.9	10.9	10.9	11.4	11.1	10.9	10.3	9.1	8.8	8.8	8.8	8.6	80	9.9	
				8.4	8.2	7.4	7.0	7.0	6.6	-	-	-	-	-	-	-	-	-			

NUMBER	DATE TIME		POSITION		TEMPERATURE (° C)															S. L.	AIR
					DEPTH (M)																
	UT		LAT.	LONG.	0	10	20	30	50	75	100	125	150	200	250	300	350	400	450	(M)	(° C)
					500	550	600	650	700	750	800	850	900	950	1000	1100	1200	1300	1400		
					1500	1600	1700	1800													
SP96241	97-03-17	01.0	47-14S	147-49E	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.2	10.9	10.1	9.4	8.9	8.9	8.8	8.6	75	0.0
					8.4	8.1	7.4	6.9	6.7	6.4	-	-	-	-	-	-	-	-	-		

Table 3. Serial observation data.

Station 1

Meteorological observation

Date	: December 5, 1996	Weather	Time(UT)	: 05:00	Wind Direction	: SSW
Time(UT)	: 06:00	Weather		: c	Velocity	: 10m/s
Latitude	: 41-53.9S	Air Temperature (dry)		: 9.6°C	Wave	: SW /4
Longitude	: 109-58.3E	Humidity		: 62 %	Swell	: SW /4
Depth	: 4466m	Atmospheric Pressure		: 1011.8hPa	Visibility	: 25km

Observed										Interpolated				
Depth (m)	T (°C)	S	pH	D02	P04-P	SI03-S	N02-N	N03-N	NH4-N	Depth (m)	T (°C)	S	σ <sub>t</sub>	ΔD
				(μmol/l)										
0	11.20	34.836	8.14	289	0.66	3	0.17	10	0.2	0	11.20	34.836	26.630	0.000
27	11.38	34.818	8.12	293	0.71	3	0.19	8	0.2	10	11.30	34.829	26.610	0.014
48	11.35	----	----	--	--	--	--	--	--	20	11.37	34.822	26.590	0.029
74	11.34	34.784	8.12	292	0.79	4	0.20	10	0.2	75	11.33	34.783	26.570	1.052
98	10.80	34.778	8.12	289	0.87	--	0.37	--	0.4	100	10.74	34.777	26.670	1.015
126	9.87	34.767	8.12	288	0.89	4	0.49	11	0.5	125	9.89	34.767	26.810	0.982
151	9.73	34.772	8.12	283	0.91	4	0.30	11	0.3	150	9.73	34.772	26.840	0.950
200	9.60	34.740	8.11	288	0.99	4	0.04	12	0.0	200	9.60	34.740	26.840	0.887
251	9.55	34.738	8.11	288	0.99	6	0.02	12	0.0	250	9.55	34.738	26.840	0.824
301	9.53	34.736	8.11	276	0.98	5	0.00	12	0.0	300	9.52	34.736	26.850	0.761
401	9.38	34.710	8.08	269	1.05	4	0.02	13	0.0	400	9.37	34.710	26.850	0.632
500	9.18	34.680	8.09	257	1.09	6	0.00	14	0.0	500	9.17	34.679	26.860	0.503
599	8.64	34.594	8.05	247	1.28	7	0.00	17	0.0	600	8.61	34.591	26.880	0.373
700	7.92	34.525	8.04	242	1.48	9	0.65	20	--	700	7.89	34.522	26.940	0.246
799	7.08	34.474	8.01	229	1.75	15	0.00	24	0.0					
898	5.97	----	----	--	--	--	--	--	--					
997	4.96	34.357	7.99	226	2.04	28	0.01	28	0.0					
1241	3.59	----	----	--	--	--	--	--	--					
1494	2.91	34.498	8.01	197	2.37	63	0.02	32	0.0					
1525	2.87	34.519	----	190	2.42	66	0.00	33	0.0					

Station 2

Meteorological observation

Date : December 7, 1996  
 Time (UT) : 07:00  
 Latitude : 52-20.4S  
 Longitude : 110-00.7E  
 Depth : 3700m

Weather Time (UT) : 06:00  
 Weather : c  
 Air Temperature (dry) : 3.0°C  
 Humidity : 80 %  
 Atmospheric Pressure : 1002.8hPa

Wind Direction : SW  
 Velocity : 8m/s  
 Wave : SW /4  
 Swell : WSW /3  
 Visibility : 25km

Observed										Interpolated				
Depth (m)	T (°C)	S	pH	D02	P04-P	SI03-Si	N02-N	N03-N	NH4-N	Depth (m)	T (°C)	S	σ <sub>t</sub>	ΔD
				(μmol/l)										
0	2.90	33.967	8.09	341	1.74	15	0.23	23	0.2	0	2.90	33.967	27.090	0.000
29	2.84	33.912	8.11	343	1.72	15	0.25	23	0.1	10	2.88	33.940	27.070	0.010
50	2.82	33.910	8.10	346	1.78	16	0.24	23	0.1	20	2.86	33.920	27.060	0.020
73	2.75	33.911	8.10	344	1.78	15	0.21	23	0.2	30	2.84	33.912	27.050	0.030
103	2.07	33.931	8.10	345	1.83	16	0.21	24	0.2	50	2.82	33.910	27.050	0.050
124	1.72	33.913	8.10	345	1.75	15	9.99	24	0.2	75	2.73	33.911	27.060	0.076
149	1.43	33.964	8.08	338	1.94	22	0.24	25	0.2	100	2.11	33.930	27.130	0.100
200	1.57	34.065	8.04	303	2.10	29	0.25	28	0.3	125	1.71	33.915	27.150	0.124
250	2.03	34.213	8.00	255	2.30	40	0.03	30	0.3	150	1.43	33.966	27.210	0.146
300	1.98	34.280	7.97	243	2.36	47	0.00	32	0.3	200	1.58	34.067	27.280	0.188
400	1.95	34.397	7.93	218	2.45	59	0.00	33	0.3	250	2.03	34.216	27.360	0.227
501	2.15	34.506	7.90	201	2.47	66	0.00	33	0.3	300	1.98	34.281	27.420	0.262
601	2.22	34.568	7.89	193	2.45	71	0.00	33	0.3	400	1.95	34.399	27.520	0.326
701	2.18	34.621	7.89	191	2.38	72	0.00	32	0.3	500	2.15	34.508	27.590	0.383
799	2.22	34.668	7.88	193	2.33	74	0.00	31	0.3	600	2.22	34.570	27.630	0.434
900	2.17	34.690	7.88	196	2.29	77	0.00	31	0.3	700	2.18	34.623	27.680	0.482
1001	2.08	34.707	7.89	202	2.26	78	0.00	31	0.3	800	2.21	34.670	27.710	0.527
1249	1.92	34.739	7.90	—	2.21	81	0.00	30	0.3	1000	2.07	34.708	27.750	0.610
1504	1.76	34.753	7.89	214	2.20	87	0.00	29	--	1200	1.95	34.735	27.790	0.688
1996	1.30	34.733	7.89	215	2.24	100	0.00	30	0.2	1500	1.75	34.753	27.810	0.797
2496	0.89	34.723	7.89	224	2.29	112	0.00	30	--	2000	1.28	34.732	27.830	0.969
2993	0.44	34.695	7.88	229	2.33	122	0.00	31	0.2	2500	0.86	34.722	27.850	1.128
3020	0.42	34.703	7.86	229	2.33	123	0.00	31	--					

Station 3

Meteorological observation

Date : December 8, 1996  
 Time(UT) : 07:00  
 Latitude : 57-27.0S  
 Longitude : 108-11.9E  
 Depth : 4330m

Weather Time(UT) : 06:00  
 Weather : c  
 Air Temperature(dry) : 3.0°C  
 Humidity : 89 %  
 Atmospheric Pressure : 987.2hPa

Wind Direction : NNE  
 Velocity : 9m/s  
 Wave : NNE /3  
 Swell : NW /1  
 Visibility : 10km

Observed										Interpolated				
Depth (m)	T (°C)	S	pH	D02	P04-P	SI03-Si	N02-N	N03-N	NH4-N	Depth (m)	T (°C)	S	σ <sub>t</sub>	ΔD
				(μmol/l)										
0	0.18	33.974	8.13	349	0.28	22	0.17	25	0.2	0	0.18	33.974	27.280	0.000
30	1.38	33.945	8.11	355	0.26	22	0.17	26	0.1	10	0.81	33.964	27.260	0.008
47	1.10	----	----	--	--	--	--	--	--	20	1.25	33.954	27.250	0.017
73	0.25	33.973	8.11	354	0.35	25	0.40	27	0.1	30	1.38	35.750	27.260	0.019
97	0.16	33.981	8.09	352	0.40	27	0.40	28	0.1	50	1.01	97.565	27.260	0.461
124	0.15	34.077	8.06	317	0.56	36	0.39	30	0.1	75	0.23	33.974	27.260	1.044
150	0.88	34.234	8.00	268	0.75	49	0.34	33	0.1	100	0.15	33.992	27.340	1.024
199	1.62	34.381	7.95	223	0.86	62	0.30	34	0.1	125	0.17	34.087	27.360	1.006
249	1.83	----	----	--	--	--	--	--	--	150	0.90	34.240	27.390	0.989
300	2.00	34.534	7.92	193	0.85	71	0.28	34	0.1	200	1.63	34.696	27.470	0.965
400	1.98	34.597	7.90	188	0.79	--	0.29	33	0.1	300	2.00	34.535		
502	2.04	34.649	7.89	190	0.73	92	0.36	33	0.2	400	1.98	34.598		
600	1.98	34.682	7.89	192	0.72	95	0.01	33	--	500	2.04	34.649		
701	1.94	34.686	7.89	195	0.70	96	0.01	32	0.2	600	1.98	34.682		
800	1.89	34.702	7.89	199	0.69	98	0.02	31	0.2	700	1.94	34.686		
900	1.84	34.717	7.90	201	0.65	99	0.02	31	--	800	1.89	34.703		
1001	1.82	34.733	7.91	204	0.64	100	0.03	31	0.2	1000	1.81	34.734		
1250	1.63	34.747	7.91	211	2.19	106	0.02	31	0.2	1200	1.66	34.745		
1498	1.41	34.751	7.91	211	2.22	112	0.09	31	0.2	1500	1.40	34.906		
1998	0.99	----	----	--	--	--	--	--	--	2500	0.58	34.749		
2496	0.61	34.753	7.88	224	2.49	136	0.00	32	0.2	3000	0.27	34.704		
2990	0.30	34.705	7.87	229	2.27	141	0.00	32	0.3					
3284	0.17	34.702	7.87	236	2.30	144	0.00	32	0.4					

Station 4

Meteorological observation

Date	: December 9, 1996	Weather Time(UT)	: 02:00	Wind Direction	: S
Time(UT)	: 03:00	Weather	: s	Velocity	: 7m/s
Latitude	: 60-05.2S	Air Temperature(dry)	: 0.5°C	Wave	: S /3
Longitude	: 105-53.6E	Humidity	: 96 %	Swell	: S /1
Depth	: 4100m	Atmospheric Pressure	: 972.8hPa	Visibility	: 5km

Observed										Interpolated				
Depth (m)	T (°C)	S	pH	D02	P04-P	SI03-Si	N02-N	N03-N	NH4-N	Depth (m)	T (°C)	S	σ <sub>t</sub>	ΔD
				(μmol/l)										
0	0.05	33.760	8.09	--	--	30	0.25	25	0.3	0	0.05	33.760	27.120	0.000
28	0.04	33.813	8.11	364	--	33	0.27	26	0.3	10	0.05	33.774	27.140	0.009
49	1.03	33.877	8.11	367	--	30	0.22	26	0.3	20	0.04	33.793	27.150	0.019
74	1.46	33.968	8.10	355	--	35	0.44	27	0.4	30	0.11	33.819	27.170	0.028
97	0.83	34.092	8.08	328	--	42	0.27	29	0.3	50	1.10	33.884	27.160	0.046
124	0.37	34.294	8.05	262	--	57	0.10	31	0.3	75	1.43	33.976	27.220	0.068
149	1.39	----	----	--	--	--	--	--	--	100	0.76	34.109	27.370	0.088
200	1.75	34.615	7.99	196	--	72	0.09	33	0.3	125	0.38	35.504	28.510	0.093
250	1.83	34.569	7.98	202	--	76	0.07	33	0.3	200	1.76	34.613	27.700	1.737
302	1.90	34.647	7.97	192	--	77	0.01	32	--	250	1.83	34.571	27.660	1.716
400	1.85	34.677	7.97	192	--	78	0.01	32	--	300	1.90	34.647	27.720	1.695
501	1.82	34.719	7.96	193	--	82	0.00	31	0.0	400	1.85	34.678	27.750	1.656
600	1.77	34.725	7.97	196	--	83	0.00	31	0.1	500	1.82	34.719	27.780	1.620
701	1.73	34.735	7.97	203	--	83	0.01	30	0.0	600	1.77	34.725	27.790	1.586
800	1.68	34.741	7.98	208	--	85	0.00	30	0.1	700	1.73	34.735	27.800	1.552
899	1.61	34.748	7.99	207	--	88	0.01	30	0.1	800	1.67	34.741	27.810	1.518
1000	1.53	34.754	7.99	208	--	90	0.00	29	0.0	1000	1.53	34.754	27.830	1.454
1248	1.31	34.741	7.98	213	--	97	0.02	29	0.0	1200	1.34	34.743	27.840	1.392
1498	1.11	34.732	7.98	215	--	101	0.00	30	0.0	1500	1.10	34.732	27.840	1.300
1996	0.72	34.715	7.97	219	--	111	0.00	30	--	2000	0.70	34.714	27.860	1.154
2432	0.41	34.709	7.96	226	--	119	0.00	31	0.0					

Station 5

Meteorological observation

Date	: March 6, 1997	Weather Time(UT)	: 05:00	Wind Direction	: W
Time(UT)	: 05:00	Weather	: c	Velocity	: 4m/s
Latitude	: 63-30.6S	Air Temperature (dry)	: 1.7°C	Wave	: W /3
Longitude	: 118-49.2E	Humidity	: 78 %	Swell	: NNW /1
Depth	: 3568m	Atmospheric Pressure	: 981.1hPa	Visibility	: 10km

Observed										Interpolated				
Depth (m)	T (°C)	S	pH	DO2	PO4-P	SI03-Si	NO2-N	NO3-N	NH4-N	Depth (m)	T (°C)	S	σ t	ΔD
						(μ mol/l)								
0	0.14	34.044	8.09	335	1.81	40	0.21	27	0.0	0	0.14	34.044	27.350	0.000
27	1.16	34.045	8.06	339	--	--	--	--	--	10	0.79	34.044	27.310	0.008
47	0.21	34.166	8.04	341	1.93	50	0.33	28	0.1	20	1.13	34.045	27.290	0.015
95	1.53	34.374	7.97	313	2.15	67	0.45	31	0.1	30	1.09	34.060	27.310	0.023
123	0.31	----	----	--	--	--	--	--	--	50	0.30	34.183	27.450	0.037
147	1.14	34.645	7.91	213	2.27	89	0.24	32	0.1	75	0.99	34.292	27.500	0.053
197	1.22	34.676	7.90	209	2.21	92	0.00	32	0.2	150	1.15	34.647	27.770	1.248
248	1.28	34.690	7.89	208	2.24	94	0.00	32	0.2	200	1.22	34.677	27.790	1.232
297	1.40	34.689	7.89	206	2.27	95	0.00	32	0.3	250	1.28	34.690	27.800	1.216
398	1.29	34.718	7.89	209	2.21	99	0.00	32	0.5	300	1.40	34.690	27.790	1.200
496	1.24	34.724	7.89	212	2.21	101	0.00	31	--	400	1.28	34.718	27.820	1.168
596	1.19	34.727	7.88	214	2.22	104	0.00	32	0.5	500	1.24	34.724	27.830	1.139
696	1.11	34.722	7.89	216	2.22	107	0.00	32	0.5	600	1.18	34.727	27.830	1.109
799	1.01	34.712	7.88	214	2.22	110	0.00	32	0.5	700	1.10	34.721	27.840	1.080
896	0.93	34.707	7.89	217	2.24	112	0.00	32	0.5	800	1.00	34.712	27.840	1.051
998	0.84	34.701	7.88	217	2.22	115	0.00	32	--	1000	0.83	34.700	27.840	0.992
1248	0.60	34.690	7.87	225	2.27	122	0.00	33	0.1	1200	0.63	34.691	27.840	0.935
1496	0.42	34.687	7.86	227	2.25	127	0.00	33	0.1	1500	0.40	34.687	27.850	0.852
1996	0.11	34.680	7.86	235	2.25	131	0.00	33	0.1	2000	0.10	34.680	27.860	0.725
2496	0.07	34.670	7.85	236	2.25	131	0.00	33	0.2	2500	0.07	34.669	27.860	0.602
2998	0.23	34.662	7.83	251	2.28	125	0.00	33	0.2	3000	0.25	34.661	27.100	0.471
3494	0.44	34.652	7.82	262	2.24	111	0.00	33	0.1					
3541	0.44	34.657	7.82	269	2.24	111	0.00	32	0.2					

Station 6

Meteorological observation

Date	: March 8, 1997	Weather Time(UT)	: 06:00	Wind Direction	: ESE
Time(UT)	: 06:00	Weather	: s	Velocity	: 6m/s
Latitude	: 64-04.3S	Air Temperature(dry)	: -2.0°C	Wave	: ESE /3
Longitude	: 130-36.4E	Humidity	: 81 %	Swell	: SE /1
Depth	: 3568m	Atmospheric Pressure	: 981.5hPa	Visibility	: 5km

Observed										Interpolated				
Depth (m)	T (°C)	S	pH	D02	P04-P	SiO3-Si	N02-N	N03-N	NH4-N	Depth (m)	T (°C)	S	σ <sub>t</sub>	ΔD
				(μmol/l)										
0	0.15	33.941	8.14	305	1.71	11	0.52	24	0.0	0	0.15	33.941	27.270	0.000
29	1.40	33.927	8.12	338	1.73	30	0.38	25	0.0	10	0.78	33.934	27.220	0.008
50	1.29	33.932	8.11	341	1.77	33	0.41	25	0.0	20	1.22	33.930	27.190	0.017
73	1.67	34.230	8.03	337	2.11	49	0.27	28	0.0	30	1.39	33.927	27.180	0.026
96	1.82	34.291	8.01	333	2.13	56	0.21	29	0.0	50	1.29	33.932	27.190	0.044
124	1.79	34.335	8.00	333	2.13	61	0.17	29	0.0	75	1.70	34.240	27.410	0.063
149	1.65	34.365	7.99	318	2.12	63	0.18	29	0.0	100	1.82	34.299	27.450	0.080
200	1.24	34.439	7.99	302	2.18	69	0.08	29	0.0	125	1.78	34.338	27.480	0.096
249	0.30	34.534	7.98	263	2.22	77	0.00	30	0.0	150	1.64	34.368	27.510	0.111
301	0.49	34.617	7.95	233	2.24	85	0.06	31	0.1	200	1.23	34.441	27.600	0.138
400	1.08	34.688	7.95	215	2.25	91	0.13	30	0.1	250	0.30	34.539	27.740	0.160
498	1.14	34.707	7.94	213	2.25	95	0.11	30	0.1	300	0.50	34.618	27.790	0.177
599	1.15	34.718	7.94	212	2.22	98	0.10	30	0.1	400	1.09	34.688	27.810	0.208
700	1.05	34.717	7.94	214	2.27	102	0.10	31	0.0	500	1.14	34.708	27.820	0.239
797	0.73	34.690	7.94	--	2.28	--	0.09	31	0.0	600	1.15	34.718	28.100	0.268
898	0.65	34.690	7.94	224	2.29	104	0.09	31	0.0	700	1.04	34.716	27.500	0.298
997	0.55	34.682	7.93	229	2.27	106	0.09	31	0.0	800	0.72	34.690	27.500	0.327
1247	0.55	34.698	7.92	--	2.31	117	0.06	31	0.1	1000	0.55	34.683	27.100	0.383
1499	0.30	----	----	--	--	--	--	--	--	1200	0.55	34.696	26.100	0.438
1997	0.03	34.680	7.91	235	2.32	125	0.04	32	0.1	1500	0.03	34.680	24.600	0.815
2499	0.23	34.671	7.90	--	--	--	--	--	--	2500	0.24	34.671	26.300	0.961
2996	0.33	34.663	7.89	253	2.29	108	0.10	31	0.1	3000	0.33	34.662	27.500	1.094
3306	0.34	34.655	7.87	255	2.29	108	0.09	31	0.2					



## Station 7

## Meteorological observation

Date	: March 10, 1997	Weather Time(UT)	: 06:00	Wind Direction	: WSW
Time(UT)	: 04:00	Weather	: bc	Velocity	: 9m/s
Latitude	: 64-59.9S	Air Temperature(dry)	: -3.9°C	Wave	: WSW/3
Longitude	: 140-05.5E	Humidity	: 63 %	Swell	: WSW/1
Depth	: --- m	Atmospheric Pressure	: 973.3hPa	Visibility	: 30km

Observed										Interpolated				
Depth (m)	T (°C)	S	pH	D02	P04-P	SI03-Si	N02-N	N03-N	NH4-N	Depth (m)	T (°C)	S	$\sigma_t$	$\Delta D$
				( $\mu\text{mol/l}$ )										
0	-0.01	33.974	8.14	345	1.56	27	0.24	27	0.0	0	0.01	33.974	27.300	0.000
29	0.05	33.957	8.14	349	1.71	31	0.29	25	0.0	10	0.01	33.968	27.290	0.008
50	0.57	34.020	8.11	343	1.87	39	0.31	25	0.1	20	0.03	33.962	27.290	0.016
72	1.38	34.314	8.05	306	2.15	60	0.29	29	0.1	30	0.07	33.958	27.280	0.024
100	1.36	34.352	8.04	294	2.16	65	0.23	29	0.1	50	0.60	34.027	27.310	0.039
123	1.32	34.386	8.03	295	2.19	68	0.13	30	0.0	75	1.38	34.319	27.490	0.057
148	0.90	34.412	8.01	--	2.22	74	0.10	30	0.0	100	1.36	34.352	27.520	0.071
202	0.09	34.525	8.00	--	2.27	80	0.07	30	0.0	125	1.30	34.390	27.560	0.085
249	0.02	34.547	7.99	247	2.25	84	0.07	30	0.0	150	0.86	34.415	27.610	0.098
298	0.14	34.565	7.99	--	2.25	85	0.07	30	0.0	200	0.10	34.524	27.740	0.120
402	0.81	34.654	7.98	224	2.27	92	0.10	30	0.1	250	0.03	34.548	27.760	0.138
499	0.85	34.689	7.97	225	2.27	97	0.08	30	0.1	300	0.15	34.567	27.770	0.155
599	0.85	34.695	7.97	--	2.28	102	0.12	31	0.1	400	0.81	34.654	27.800	0.187
702	0.81	34.699	7.96	224	2.28	105	0.17	31	0.1	500	0.85	34.689	27.830	0.218
800	0.70	34.694	----	--	2.31	109	0.16	31	--	600	0.85	34.695	27.830	0.247
902	0.73	34.703	7.97	230	2.29	112	0.19	31	0.1	700	0.81	34.699	27.840	0.275
1001	0.68	34.703	7.97	--	2.31	116	0.19	31	0.1	800	0.71	34.694	27.840	0.304
1250	0.39	34.685	7.96	231	2.32	118	0.20	32	0.1	1000	0.67	34.703	27.850	0.359
1497	0.27	34.685	7.96	230	2.33	123	0.17	31	0.0	1200	0.42	34.687	27.850	0.414
1997	0.02	34.665	7.95	231	2.27	--	0.20	30	0.1	1500	0.26	34.685	27.860	0.492
2496	0.15	34.679	7.94	243	2.31	114	0.20	31	0.0	2000	0.02	34.665	27.860	0.618
2793	0.21	34.683	7.93	245	2.32	109	0.19	31	0.1	2500	0.15	34.680	27.860	0.742

## Station 8

## Meteorological observation

Date	: March 11, 1997	Weather Time(UT)	: 05:00	Wind Direction	: W
Time(UT)	: 04:00	Weather	: bc	Velocity	: 5m/s
Latitude	: 64-58.7S	Air Temperature(dry)	: -1.0°C	Wave	: S /3
Longitude	: 146-57.3E	Humidity	: 58 %	Swell	: WNW/3
Depth	: 3305m	Atmospheric Pressure	: 988.9hPa	Visibility	: 30km

Observed										Interpolated				
Depth (m)	T (°C)	S	pH	D02	P04-P	SI03-Si	N02-N	N03-N	NH4-N	Depth (m)	T (°C)	S	$\sigma_t$	$\Delta D$
				(μmol/l)										
0	-0.01	33.890	8.16	352	1.79	34	0.36	27	0.2	0	0.01	33.890	27.230	0.000
27	0.09	33.894	8.14	348	1.81	34	0.35	25	0.2	10	0.04	33.891	27.230	0.008
49	0.05	33.965	8.11	342	1.88	35	0.32	25	0.2	20	0.07	33.893	27.230	0.017
73	0.40	34.029	8.07	329	2.01	44	0.28	27	0.3	30	0.08	33.903	27.240	0.025
98	1.21	34.217	8.04	313	2.13	57	0.23	29	0.3	50	0.05	33.968	27.290	0.042
121	1.27	34.340	8.01	295	2.20	66	0.29	30	0.1	75	0.45	34.038	27.330	0.061
149	1.43	34.262	8.00	296	2.18	76	0.17	30	0.1	100	1.22	34.230	27.430	0.079
198	0.85	34.448	7.98	272	2.24	80	0.11	30	0.0	125	1.30	34.328	27.510	0.094
249	0.30	34.511	7.97	256	2.27	83	0.11	31	0.1	150	1.41	34.267	27.450	0.110
301	0.01	34.489	7.97	244	2.28	86	0.08	31	0.0	200	0.82	34.453	27.640	0.137
399	0.08	34.554	7.96	--	2.25	--	0.11	31	0.1	250	0.28	34.511	27.720	0.159
498	0.29	34.620	7.96	234	2.28	93	0.10	31	0.1	300	0.01	34.490	27.710	0.178
601	0.39	34.642	7.94	228	2.28	97	0.08	31	0.1	400	0.09	34.556	27.760	0.214
700	0.55	34.668	7.94	222	2.30	103	0.13	31	0.1	500	0.30	34.623	27.810	0.247
801	0.53	34.676	7.94	222	2.31	107	0.17	31	0.1	600	0.39	34.643	27.820	0.277
900	0.45	34.674	7.94	225	2.31	109	0.08	31	0.1	700	0.55	34.669	27.830	0.306
1001	0.40	34.674	7.94	--	2.31	113	0.08	31	0.1	800	0.52	34.676	27.840	0.334
1250	0.38	34.685	7.93	226	2.32	119	0.08	32	--	1000	0.40	34.674	27.840	0.390
1499	0.28	34.682	7.92	229	2.32	123	0.07	32	0.1	1200	0.39	34.684	27.850	0.444
1996	0.11	34.682	7.92	233	2.32	126	0.07	32	0.1	1500	0.28	34.682	27.860	0.523
2498	0.01	----	----	--	--	--	--	--	--	2000	0.11	35.128	28.220	0.567
2995	0.19	34.683	7.89	247	2.28	110	0.12	31	0.2	3000	0.20	34.648	27.860	
3278	0.23	34.691	7.89	250	2.30	105	0.08	31	0.2					

## Station 9

## Meteorological observation

Date : March 13, 1997      Weather Time(UT) : 04:00      Wind Direction : NW  
 Time(UT) : 03:00      Weather : c      Velocity : 2m/s  
 Latitude : 60-34.6S      Air Temperature(dry) : 3.1°C      Wave : NW /3  
 Longitude : 147-09.8E      Humidity : 61 %      Swell : NNW/1  
 Depth : 3905m      Atmospheric Pressure : 980.6hPa      Visibility : 25km

Observed										Interpolated				
Depth (m)	T (°C)	S	pH	D02	P04-P	SI03-Si	N02-N	N03-N	NH4-N	Depth (m)	T (°C)	S	$\sigma_t$	$\Delta D$
				( $\mu\text{mol/l}$ )										
0	3.22	33.829	8.19	298	1.31	6	0.39	24	0.0	0	3.22	33.829	27.160	0.000
24	3.30	33.819	8.15	330	1.61	6	0.41	25	0.1	10	3.25	33.826	27.060	0.010
45	3.29	33.796	8.15	326	1.66	6	0.40	25	0.1	20	3.28	33.821	26.960	0.020
73	0.24	33.899	8.15	345	2.05	17	0.30	34	0.2	30	3.30	33.812	26.930	0.031
96	0.00	33.959	8.12	335	2.09	24	0.33	38	0.3	50	2.84	33.805	26.970	0.054
118	0.76	34.069	8.06	293	2.22	36	0.21	35	0.1	75	0.13	33.907	27.240	0.078
143	1.54	34.212	8.00	244	2.41	50	0.17	33	0.1	100	0.17	33.982	27.300	0.098
197	1.86	34.341	7.96	212	2.49	61	0.17	36	0.1	125	1.02	34.114	27.350	0.117
248	1.99	34.412	7.93	197	2.52	67	0.17	36	0.1	150	1.64	34.240	27.410	0.135
297	2.11	----	7.92	194	2.54	72	0.07	36	0.1	200	1.87	34.349	27.480	0.167
398	2.18	34.495	7.92	184	2.45	75	0.11	35	0.2	250	2.00	34.411	27.520	0.197
496	2.20	34.575	7.92	182	2.42	77	0.11	35	0.1	300	2.12	34.211	27.350	0.231
596	2.16	34.654	7.92	186	2.37	80	0.10	34	0.1	400	2.18	34.498	27.580	0.295
696	2.10	34.683	7.93	189	2.31	81	0.08	33	0.1	500	2.20	34.581	27.640	0.346
798	2.07	34.706	7.95	195	2.27	83	0.11	33	0.2	600	2.16	34.658	27.710	0.391
896	2.02	34.720	7.95	198	2.24	83	0.10	32	0.2	700	2.10	34.685	27.730	0.433
997	1.97	34.716	7.95	201	2.21	84	0.11	32	0.2	800	2.06	34.708	27.750	0.473
1247	1.78	34.743	7.95	204	2.17	89	0.11	31	0.2	1000	1.97	34.717	27.770	0.550
1498	1.58	34.742	7.95	211	2.17	97	0.12	31	0.2	1200	1.82	34.741	27.800	0.624
1998	1.16	34.729	7.95	213	2.21	109	0.11	32	0.2	1500	1.56	34.742	27.820	0.730
2494	0.80	----	----	---	---	---	---	---	---	2000	1.15	35.080	28.120	0.831
2996	0.44	34.688	7.93	224	2.32	128	0.06	33	0.2	3000	0.42	34.688	27.850	
3182	0.37	34.688	7.92	224	2.29	132	0.05	33	0.2					

## Station 10

## Meteorological observation

Date	: March 15, 1997	Weather Time(UT)	: 04:00	Wind Direction	: S
Time(UT)	: 04:00	Weather	: c	Velocity	: 14m/s
Latitude	: 55-46.8S	Air Temperature (dry)	: 3.9°C	Wave	: S /3
Longitude	: 147-01.9E	Humidity	: 84 %	Swell	: SW /1
Depth	: 2185m	Atmospheric Pressure	: 971.8hPa	Visibility	: 20km

Observed										Interpolated				
Depth (m)	T (°C)	S	pH	D02	P04-P	SI03-Si	N02-N	N03-N	NH4-N	Depth (m)	T (°C)	S	$\sigma_t$	$\Delta D$
				( $\mu\text{mol/l}$ )										
0	3.89	33.800	8.21	293	1.45	0	0.33	23	0.0	0	3.89	33.800	27.140	0.000
28	4.60	33.698	8.16	318	1.56	0	0.36	23	0.1	10	4.19	33.740	26.940	0.010
45	4.43	33.728	8.16	319	1.61	1	0.35	23	0.2	20	4.39	33.701	26.760	0.022
74	4.35	33.780	8.16	321	1.61	2	0.35	23	0.1	30	4.59	33.701	26.710	0.036
100	0.10	33.893	8.13	345	2.10	24	0.32	27	0.3	50	4.41	33.737	26.760	0.062
117	0.28	33.931	8.10	338	2.11	29	0.31	28	0.3	75	4.32	33.782	26.810	0.094
143	0.62	34.053	8.06	288	2.24	39	0.16	31	0.1	100	0.10	33.893	27.230	0.120
194	1.79	34.321	7.97	214	2.47	59	--	34	0.1	125	0.38	33.968	27.270	0.141
243	2.02	34.401	7.93	198	2.50	66	--	35	0.1	150	0.77	34.095	27.350	0.160
298	2.14	34.463	7.92	188	2.48	71	0.15	35	0.1	200	1.85	34.344	27.480	0.194
401	2.19	34.539	7.91	180	2.44	74	0.08	35	0.1	250	2.04	34.411	27.520	0.224
500	2.18	34.624	7.93	181	2.34	78	0.13	33	0.1	300	2.14	34.465	27.550	0.253
601	2.14	34.663	7.93	187	2.30	81	0.15	33	0.1	400	2.19	34.541	27.610	0.306
702	2.09	34.689	7.94	190	2.30	83	0.10	32	0.1	500	2.18	34.626	27.680	0.354
800	2.05	34.712	7.94	196	2.24	84	0.11	32	0.1	600	2.14	34.664	27.710	0.397
899	1.99	34.723	7.95	197	--	85	0.11	31	--	700	2.09	34.690	27.740	0.438
995	1.94	34.732	7.97	199	2.14	87	0.07	31	0.1	800	2.05	34.713	27.760	0.477
1245	1.75	34.741	7.97	203	2.13	92	0.08	30	0.1	1000	1.93	34.733	27.790	0.553
1492	1.53	34.741	7.97	208	2.15	98	0.11	30	0.1	1200	1.78	34.740	27.800	0.625
1714	1.29	34.733	7.97	210	2.18	105	0.15	31	0.1	1500	1.51	34.741	27.820	0.729

Station 11

Meteorological observation

Date	: March 16, 1997	Weather Time(UT)	: 05:00	Wind Direction	: W
Time(UT)	: 04:00	Weather	: r	Velocity	: 8m/s
Latitude	: 51-30.0S	Air Temperature (dry)	: 7.7°C	Wave	: W /4
Longitude	: 146-59.3E	Humidity	: 88 %	Swell	: W /1
Depth	: 3564m	Atmospheric Pressure	: 1000.3hPa	Visibility	: 15km

Observed										Interpolated				
Depth (m)	T (°C)	S	pH	D02	P04-P	SI03-Si	N02-N	N03-N	NH4-N	Depth (m)	T (°C)	S	σ <sub>t</sub>	ΔD
				(μmol/l)										
0	7.67	34.085	8.27	297	1.18	0	0.33	20	0.1	0	7.67	34.085	27.350	0.000
27	8.19	34.092	8.20	297	1.14	4	0.29	17	0.1	10	7.85	34.088	27.010	0.009
48	8.20	34.074	8.21	296	1.18	4	0.26	17	0.1	20	8.03	34.090	26.650	0.021
70	8.19	34.039	8.21	294	1.18	5	0.27	17	0.2	30	8.20	34.091	26.550	0.036
100	8.17	34.161	8.20	293	1.20	4	0.34	17	0.0	50	8.20	34.072	26.540	0.066
123	7.18	34.319	8.19	290	1.26	6	1.14	19	0.0	75	8.19	34.046	26.520	0.104
148	7.20	34.338	8.18	288	1.26	6	0.12	19	0.0	100	8.16	34.167	26.620	0.141
199	7.06	34.361	8.18	292	1.29	7	0.08	19	0.0	125	7.18	34.322	26.880	0.174
248	6.56	34.305	----	287	1.36	7	0.08	20	0.0	150	7.19	34.340	26.890	0.204
300	6.23	34.247	8.16	282	1.44	9	0.08	21	0.0	200	7.05	34.359	26.930	0.263
397	5.67	34.280	8.13	268	1.61	13	0.12	24	0.1	250	6.54	34.302	26.950	0.321
497	5.37	34.337	----	241	1.80	19	0.12	27	0.1	300	6.22	34.248	26.950	0.379
603	4.40	34.306	8.06	240	1.97	24	0.09	29	0.2	400	5.64	34.283	27.050	0.490
703	3.86	34.316	8.04	236	2.07	--	0.11	31	0.1	500	5.34	34.336	27.130	0.593
803	3.48	34.363	8.02	226	2.19	40	0.09	32	0.1	600	4.40	34.306	27.210	0.689
902	3.24	----	8.00	--	2.27	47	0.09	34	0.2	700	3.86	34.316	27.280	0.779
1002	2.91	34.430	7.99	208	2.30	54	0.11	34	0.2	800	3.47	34.444	27.420	0.858
1252	2.58	34.564	7.96	188	2.33	69	0.20	35	0.3	1000	2.90	34.432	27.460	1.001
1499	2.44	34.645	7.96	187	2.28	76	0.21	34	0.2	1200	2.61	34.546	27.580	1.128
1997	2.12	34.776	7.98	202	2.08	83	0.21	32	0.2	1500	2.43	34.649	27.680	1.293
2488	1.70	34.790	7.99	210	2.07	98	0.17	32	0.3	2000	2.10	34.780	27.810	1.518

Table 4. Petroleum oil, cadmium and mercury concentration in the surface water.

Station No.	Date	Time		Position		Air Temp.	Water Temp.	Petroleum Oil	Cadmium	Mercury
		UT	LMT	lat.	long.	( $^{\circ}$ C)		( $\mu$ g/l)		
	1996									
St-1	12. 5	0600	1400	41-53S	109-58E	9. 6	11. 2	1. 3	0. 018	0. 0012
St-2	12. 7	0700	1400	52-20S	110-00E	3. 0	2. 9	1. 3	0. 044	0. 0015
St-4	12. 9	0300	1000	60-05S	105-53E	0. 5	0. 5	1. 0	0. 050	0. 0050
	1997									
St-5	3. 6	0500	1300	63-50S	126-41E	1. 7	1. 5	1. 0	0. 055	0. 0047
St-6	3. 8	0600	1400	64-04S	130-36E	-2. 0	1. 5	1. 4	0. 056	0. 0035
St-8	3. 11	0400	1300	64-58S	146-57E	-1. 0	-0. 1	1. 3	0. 042	0. 0075
St-9	3. 13	0300	1300	60-34S	147-09E	3. 1	3. 5	0. 5	0. 043	0. 0118
St-10	3. 15	0400	1400	55-46S	147-01E	3. 9	4. 3	1. 1	0. 035	0. 0125
St-11	3. 16	0400	1400	51-30S	146-59E	7. 7	7. 8	0. 9	0. 047	0. 0130

Table 5. Hourly tidal observation at Syowa Station from February 1996 to January 1997 (time is LMT (UT+3 hours)).

Station : SYOWA STATION  
 Latitude : 69° 00' 28" S  
 Longitude : 39° 34' 13" E  
 Duration : Feb. 1-Feb. 29 1996  
 Unit : CENTIMETER

The zero level of the tide gauge  
 relative to the bench mark No. 1040:  
 -4.653m Jan. 19 1996  
 -4.651m Feb. 2 1997

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	208	212	217	219	220	215	200	181	162	144	132	125	132	146	166	189	211	224	230	229	224	214	204	201	4605	192	4809	192		
2	204	208	218	228	232	229	220	200	177	156	139	128	131	147	168	194	218	238	246	246	238	225	215	208	4814	201	5022	201		
3	208	217	228	243	252	255	248	227	205	180	154	141	139	147	167	195	221	238	250	251	239	228	214	204	5049	210	5250	210		
4	201	206	219	233	247	253	250	236	215	189	158	140	132	135	155	185	208	230	246	252	244	229	215	201	4978	207	5173	207		
5	194	198	208	226	245	257	258	249	230	206	175	153	138	136	153	177	205	229	244	251	246	233	215	197	5022	209	5211	208		
6	189	187	195	212	231	249	257	255	240	216	187	161	142	136	146	165	190	216	235	245	243	231	213	196	4936	206	5119	205		
7	184	177	179	193	217	237	249	254	245	227	199	174	154	141	145	163	183	207	228	238	239	232	216	196	4876	203	5059	202		
8	183	171	171	181	200	220	236	244	244	234	214	189	168	155	155	164	182	202	223	235	239	235	222	201	4867	203	5052	202		
9	186	174	165	169	187	206	222	232	239	234	220	203	186	173	166	171	185	202	218	232	239	235	224	207	4873	203	5063	203		
10	189	175	166	163	172	189	204	217	225	230	224	214	199	190	186	186	193	205	221	232	237	238	231	216	4904	204	5104	204		
11	200	184	171	165	164	174	185	195	204	210	212	209	202	196	194	194	197	207	215	225	230	230	226	216	4807	200	5011	200		
12	204	190	177	164	159	162	164	170	179	187	191	195	196	196	201	204	207	209	215	220	224	224	223	218	4679	195	4890	196		
13	211	202	189	180	171	165	162	162	165	172	180	191	197	207	222	230	236	241	243	249	251	251	254	252	4983	208	5235	209		
14	252	247	244	239	231	224	213	206	203	200	202	210	219	228	244	258	266	267	265	260	257	250	247	245	5676	237	5922	237		
15	246	243	242	239	230	217	198	183	166	155	154	158	171	194	215	238	255	261	262	260	252	242	237	234	5253	219	5490	220		
16	237	243	248	252	250	238	222	197	175	155	142	140	150	169	196	226	252	264	268	262	251	239	228	224	5228	218	5456	218		
17	227	235	246	258	262	259	246	220	190	161	139	128	131	145	171	204	229	250	258	255	243	226	210	201	5096	212	5296	212		
18	200	211	227	243	257	265	256	236	206	172	142	123	115	123	148	176	207	230	243	246	234	216	196	181	4853	202	5030	201		
19	177	185	201	223	244	259	263	252	227	198	162	136	120	121	139	165	194	221	237	243	234	214	193	173	4783	199	4943	198		
20	160	162	177	202	227	251	263	261	247	221	190	161	139	132	144	165	191	219	234	243	239	220	197	175	4822	201	4977	199		
21	155	151	160	177	205	232	249	256	253	236	210	186	162	149	152	169	192	214	231	245	243	227	206	181	4840	202	5001	200		
22	160	148	148	160	184	211	233	245	249	242	224	203	188	176	173	186	207	228	249	261	264	257	241	217	5053	211	5252	210		
23	199	185	175	181	198	222	244	258	269	266	258	243	226	217	211	215	229	244	259	271	271	268	257	235	5601	233	5817	233		
24	216	199	188	185	191	210	224	236	249	250	249	241	230	224	220	221	231	242	255	264	265	262	253	236	5541	231	5757	230		
25	216	202	189	181	182	189	200	210	217	222	225	222	216	218	219	223	227	235	244	255	256	253	246	237	5281	220	5502	220		
26	222	209	199	190	187	189	191	196	200	202	205	207	208	210	215	224	227	232	240	245	245	242	239	232	5156	215	5377	215		
27	221	213	209	198	191	189	187	183	184	186	188	193	199	204	215	227	235	238	243	244	242	238	236	230	5093	212	5319	213		
28	226	222	220	215	210	203	197	189	182	180	179	183	189	200	213	227	239	243	245	244	238	232	227	224	5127	214	5352	214		
29	225	224	224	224	221	215	205	192	181	175	171	173	181	197	214	230	245	255	255	252	245	236	230	229	5199	217	5428	217		
1	229																													
MONTHLY MEAN																													209.8cm	

Station SYOWA STATION  
 Latitude 69° 00' 28" S  
 Longitude 39° 34' 13" E  
 Duration Mar. 1-Mar. 31 1996  
 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	229	233	240	243	243	238	224	208	191	177	171	172	179	194	215	234	246	257	259	255	245	233	223	218	5326	222	5547	222		
2	221	226	237	246	251	249	236	220	195	177	164	157	158	174	195	219	236	248	252	247	233	219	206	199	5164	215	5364	215		
3	200	209	222	234	246	249	241	223	199	177	156	147	148	161	183	208	230	248	254	249	236	219	201	193	5032	210	5226	209		
4	194	202	218	238	257	263	262	249	224	198	175	160	158	167	188	213	239	258	266	263	250	229	213	199	5286	220	5479	219		
5	193	204	220	241	261	274	277	268	247	219	191	170	161	165	184	208	234	253	264	265	252	233	212	193	5390	225	5572	223		
6	183	186	201	224	250	267	278	275	259	235	209	184	168	167	179	202	227	249	262	263	254	233	209	188	5352	223	5526	221		
7	174	172	184	206	232	256	270	276	268	248	223	200	184	176	184	204	231	251	267	271	264	248	223	200	5410	225	5594	224		
8	184	174	180	197	224	249	270	281	281	271	251	229	210	199	200	216	234	254	268	274	269	253	229	205	5601	233	5784	231		
9	183	165	163	173	192	217	238	252	257	255	240	222	207	193	190	198	217	233	248	254	254	244	224	203	5221	218	5403	216		
10	183	164	156	160	172	192	212	226	238	243	237	224	214	205	201	208	217	230	244	252	251	246	232	212	5120	213	5313	213		
11	193	178	165	162	169	184	197	212	225	234	238	236	231	227	228	228	235	243	255	261	263	259	253	237	5316	221	5534	221		
12	219	205	193	181	180	185	191	202	214	223	227	234	238	242	245	248	252	256	263	266	265	262	256	247	5493	229	5727	229		
13	234	222	211	198	190	185	184	185	187	196	205	213	223	231	241	248	252	253	256	257	254	253	248	243	5364	224	5602	224		
14	238	234	225	220	209	199	189	181	174	175	180	190	205	219	235	252	257	257	257	256	247	242	240	241	5323	222	5562	222		
15	239	243	245	241	237	228	212	194	184	175	171	178	193	212	233	253	265	272	267	259	250	240	236	236	5463	228	5703	228		
16	239	247	257	263	264	257	241	216	197	178	169	167	176	194	219	242	259	266	265	255	239	223	213	210	5457	227	5673	227		
17	217	229	247	262	271	271	259	236	209	186	169	160	168	184	207	235	257	269	268	258	241	218	200	193	5415	226	5614	225		
18	199	213	232	255	272	280	276	257	229	202	167	161	160	171	181	220	243	257	260	251	232	208	185	171	5283	220	5452	218		
19	169	183	209	232	256	275	280	269	248	221	193	173	165	171	191	218	241	258	269	265	246	222	197	177	5327	222	5495	220		
20	167	175	196	225	253	276	290	288	272	249	223	198	181	181	192	214	236	256	265	262	248	221	190	167	5424	226	5573	223		
21	150	148	163	190	220	246	264	272	264	250	227	202	187	182	189	211	232	250	261	263	253	230	202	179	5235	218	5394	216		
22	158	149	156	178	207	234	255	269	272	262	246	229	214	203	207	223	239	258	270	273	268	247	223	196	5436	227	5612	224		
23	176	160	157	170	192	218	237	253	258	257	247	233	218	210	210	220	233	251	264	267	265	252	229	206	5383	224	5567	223		
24	185	170	162	164	179	198	217	232	242	245	242	231	225	222	220	224	236	251	263	268	267	258	242	223	5367	224	5570	223		
25	203	189	179	175	182	194	208	221	228	234	236	231	226	225	226	230	236	246	256	258	259	254	240	228	5366	224	5579	223		
26	213	200	192	187	188	196	204	213	221	228	235	235	237	242	246	253	258	265	269	271	269	262	254	244	5583	233	5814	233		
27	231	220	212	206	202	202	204	207	210	213	219	223	228	236	245	252	258	263	267	269	263	258	253	250	5592	233	5833	233		
28	241	235	233	226	223	220	215	212	209	208	211	217	223	231	239	249	257	257	258	253	248	239	236	234	5573	232	5803	232		
29	229	230	230	229	226	222	214	207	200	194	196	204	213	227	241	253	259	265	261	256	250	238	233	232	5511	230	5742	230		
30	231	237	244	245	246	243	231	220	204	194	200	195	204	220	235	250	260	263	261	250	238	226	216	211	5525	230	5738	230		
31	214	224	235	243	246	242	230	214	195	180	171	171	177	192	210	228	243	249	245	235	221	206	197	190	5158	215	5355	214		
1	196																													
MONTHLY MEAN																													223.8cm	



Station : SYOWA STATION  
 Latitude : 69° 00' 28" S  
 Longitude : 39° 34' 13" E  
 Duration : Apr. 1-Apr. 30 1996  
 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	196	210	227	240	250	254	244	230	210	188	177	172	178	193	215	236	252	259	258	250	232	214	198	193	5276	220	5473	219		
2	197	213	233	252	269	278	276	263	242	219	203	191	192	206	226	248	265	277	278	264	247	224	204	192	5660	236	5852	234		
3	192	207	230	258	280	295	299	292	269	243	221	202	197	206	224	249	260	276	283	274	253	226	200	185	5822	243	5999	240		
4	177	187	210	235	260	280	291	287	269	248	225	202	191	195	208	229	250	263	267	261	241	211	184	163	5535	231	5684	227		
5	150	152	168	195	224	252	267	271	264	247	224	205	190	188	199	220	238	256	265	262	249	223	193	169	5273	220	5425	217		
6	152	150	160	185	216	246	266	281	283	270	254	234	219	213	217	232	250	266	275	274	262	241	211	185	5539	231	5700	228		
7	161	148	152	167	191	219	243	259	269	265	255	241	228	222	222	230	247	261	272	276	269	250	223	198	5468	228	5643	226		
8	176	158	153	159	175	198	222	240	253	260	259	250	242	237	235	241	253	267	278	286	282	271	255	232	5581	233	5793	232		
9	212	192	183	181	189	205	224	240	256	267	272	271	270	267	268	266	272	281	288	291	289	282	267	252	5985	249	6219	249		
10	233	213	197	189	187	187	197	209	220	245	237	243	245	250	253	252	251	260	261	266	264	260	253	243	5614	234	5844	234		
11	229	220	210	199	192	188	187	195	193	200	211	225	234	242	252	255	256	256	257	256	256	256	250	251	5471	228	5718	229		
12	247	247	242	237	229	223	216	208	208	209	217	229	240	252	265	273	273	269	266	258	253	245	243	243	5791	241	6037	241		
13	246	249	249	248	242	232	218	203	191	185	187	197	208	224	242	254	260	259	250	240	228	218	214	220	5462	228	5689	228		
14	227	239	251	258	261	256	241	225	208	193	187	191	198	217	235	248	257	256	246	230	213	197	190	188	5415	226	5613	225		
15	198	214	229	246	256	255	244	225	203	184	172	168	177	192	212	230	242	249	240	223	201	181	170	169	5079	212	5263	211		
16	184	203	231	260	279	294	292	279	261	239	222	215	213	225	246	261	277	284	276	260	238	210	188	179	5817	242	5999	240		
17	182	197	222	248	271	285	290	278	257	235	213	197	193	203	220	238	254	259	258	243	216	187	161	141	5448	227	5587	223		
18	139	150	173	202	229	253	262	261	248	227	210	193	183	187	202	221	237	246	249	239	216	187	159	136	5007	209	5133	205		
19	126	129	148	174	202	229	250	256	250	236	222	207	195	195	209	228	246	256	265	260	242	218	190	165	5099	212	5249	210		
20	150	150	160	184	213	239	260	275	277	269	257	248	240	235	244	259	279	294	301	301	288	261	234	209	5827	243	6016	241		
21	188	175	179	192	216	240	262	272	278	273	261	251	241	237	239	245	260	273	276	281	269	251	228	204	5791	241	5976	239		
22	185	170	166	177	193	215	234	248	257	258	254	248	242	238	236	241	253	264	274	274	268	257	237	216	5605	234	5801	232		
23	196	182	177	174	188	204	221	233	245	250	249	246	243	240	241	243	251	260	268	271	267	256	244	225	5573	232	5781	231		
24	209	196	189	184	187	198	209	220	227	235	240	241	240	241	241	246	245	253	261	261	258	252	241	228	5503	229	5720	229		
25	218	206	196	192	190	194	201	207	213	217	224	227	227	232	234	235	240	241	243	244	241	236	228	223	5311	221	5527	221		
26	216	210	205	200	195	196	196	196	199	206	210	218	223	231	236	238	240	240	237	236	233	225	222	221	5231	218	5449	218		
27	219	219	218	216	212	207	203	199	196	198	203	210	220	227	238	240	244	238	232	227	219	211	208	209	5211	217	5421	217		
28	210	216	221	222	219	216	209	198	191	189	192	195	208	222	230	241	244	243	238	228	218	210	208	212	5179	216	5398	216		
29	219	230	242	248	252	249	238	226	217	208	207	213	222	234	247	257	262	259	252	235	219	206	199	200	5539	231	5748	230		
30	209	223	239	254	261	261	256	239	222	209	202	204	212	225	242	255	258	258	251	232	211	190	180	177	5471	228	5656	226		
1	186																													
MONTHLY MEAN																											228.6cm			

Station : SYOWA STATION  
 Latitude 69° 00' 28" S  
 Longitude 39° 34' 13" E  
 Duration May. 1-May. 31 1996  
 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	186	204	223	245	260	264	259	245	224	208	194	190	195	208	223	238	250	249	240	221	196	173	157	149	5203	217	5358	214		
2	155	175	201	229	250	266	270	261	244	227	209	199	203	214	233	248	261	264	259	244	216	187	166	149	5331	222	5481	219		
3	151	166	190	220	249	270	282	279	267	249	231	217	210	218	232	249	263	271	269	254	227	195	167	146	5470	228	5609	224		
4	139	146	168	195	226	254	272	280	272	255	239	223	214	215	227	243	256	267	270	259	235	204	173	146	5378	224	5509	220		
5	130	129	143	168	199	230	254	269	270	264	249	235	224	221	227	244	258	272	277	271	255	229	199	170	5388	225	5536	221		
6	148	137	143	163	186	216	244	262	271	270	263	253	242	236	236	246	260	272	280	278	269	249	220	192	5534	231	5702	228		
7	168	151	147	156	174	194	220	244	258	266	268	263	259	254	252	255	267	280	288	290	288	278	258	236	5715	238	5929	237		
8	215	194	181	180	186	200	220	237	248	261	267	264	264	259	254	252	261	268	270	276	272	264	254	236	5783	241	6000	240		
9	218	199	187	177	175	182	191	205	217	232	241	245	251	250	246	244	242	247	249	254	255	253	249	243	5448	227	5683	227		
10	234	224	213	200	196	191	193	199	207	217	227	236	244	247	250	246	242	238	237	236	237	235	236	236	5421	226	5655	226		
11	234	230	226	219	211	204	196	193	194	199	206	220	231	237	243	244	239	235	227	222	216	220	221	225	5293	221	5526	221		
12	233	243	245	248	240	234	224	216	209	209	212	222	232	242	250	253	251	243	235	221	211	206	211	213	5501	229	5728	229		
13	227	242	254	263	268	264	254	242	230	221	221	223	233	244	252	256	253	245	230	211	192	179	172	178	5554	231	5746	230		
14	191	208	225	241	250	253	245	230	217	206	197	199	209	219	231	241	243	240	225	207	186	168	153	157	5140	214	5309	212		
15	168	190	212	231	253	259	261	252	236	223	212	211	215	226	240	252	256	254	242	223	197	173	158	151	5296	221	5453	218		
16	157	179	201	226	252	266	271	266	253	239	225	219	221	228	242	256	266	266	257	242	215	186	162	151	5445	227	5596	224		
17	151	164	188	215	240	261	272	273	261	249	235	224	222	229	240	254	264	269	265	249	222	194	166	146	5454	227	5592	224		
18	138	146	166	192	217	241	256	263	258	247	237	222	217	220	232	247	258	267	268	259	236	210	181	160	5339	222	5484	219		
19	146	146	160	183	212	237	258	269	270	263	253	247	236	234	243	256	268	279	282	275	256	231	205	179	5587	233	5748	230		
20	160	154	158	177	202	225	242	254	259	257	246	237	229	226	224	237	252	260	264	264	250	230	206	180	5396	225	5557	222		
21	161	148	146	158	179	201	219	232	243	245	239	231	226	221	221	226	237	249	257	258	252	238	217	194	5198	217	5375	215		
22	177	165	159	164	177	197	214	230	241	245	245	242	236	229	227	232	238	247	254	257	252	242	227	209	5306	221	5498	220		
23	192	179	172	172	180	193	209	223	234	240	243	240	239	237	232	234	237	241	249	252	248	244	234	220	5343	223	5547	222		
24	204	194	185	182	182	190	201	211	221	227	235	236	237	235	233	230	230	229	236	237	236	233	229	221	5256	219	5469	219		
25	213	205	199	193	194	195	198	210	216	221	230	235	236	238	236	234	232	230	230	231	228	227	226	223	5282	220	5503	220		
26	221	219	214	212	209	203	204	205	210	216	220	229	237	234	237	237	233	232	224	222	222	221	224	228	5312	221	5547	222		
27	235	240	246	251	248	251	254	254	260	263	268	276	286	290	291	295	289	279	269	259	248	239	237	237	6266	261	6511	260		
28	245	253	255	259	258	248	238	230	221	217	220	223	230	241	245	247	246	237	223	213	200	193	193	197	5533	231	5746	230		
29	213	234	249	261	268	269	260	250	239	230	229	233	239	250	258	262	262	251	236	219	198	183	177	178	5648	235	5843	234		
30	195	215	233	254	269	273	267	255	241	230	221	222	228	238	248	254	256	249	234	213	187	166	153	152	5453	227	5615	225		
31	161	183	205	233	254	268	270	261	248	234	222	219	222	228	242	254	259	254	243	222	191	164	144	132	5316	222	5450	218		
1	134																													
MONTHLY MEAN																													226.6cm	

Station : SYOWA STATION  
 Latitude : 69° 00' 28" S  
 Longitude : 39° 34' 13" E  
 Duration : Jun. 1-Jun. 30 1996  
 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	134	153	178	210	236	262	270	269	260	244	229	220	219	225	238	252	262	264	256	238	208	178	152	131	5289	220	5419	217	
2	129	141	162	195	226	253	275	280	278	267	252	239	234	236	249	261	276	285	279	268	243	212	178	152	5569	232	5708	228	
3	139	140	156	183	213	245	272	284	289	285	271	261	253	254	260	274	288	297	300	296	278	250	217	185	5889	245	6051	242	
4	162	152	152	173	195	225	254	271	282	281	273	262	253	246	244	253	267	277	283	284	270	249	221	190	5719	238	5882	235	
5	163	147	139	146	165	189	212	233	246	253	250	248	239	228	225	230	242	252	263	269	267	256	240	218	5318	222	5513	221	
6	194	175	163	165	172	192	211	232	250	259	263	264	260	254	245	244	247	258	268	273	274	271	260	242	5637	235	5860	234	
7	223	206	188	180	177	185	193	206	220	230	239	238	232	226	220	211	208	208	219	227	227	229	232	224	5149	215	5365	215	
8	216	203	194	184	182	182	185	196	207	213	222	227	225	221	218	213	205	197	199	204	210	211	215	221	4948	206	5166	207	
9	218	216	214	213	205	200	200	203	211	220	223	235	236	241	237	232	223	216	208	206	208	211	217	221	5213	217	5446	218	
10	233	240	242	246	244	236	234	232	231	234	243	252	263	264	267	262	255	243	233	222	213	213	216	223	5741	239	5977	239	
11	236	247	259	268	267	265	258	253	248	244	245	248	259	263	263	261	255	241	225	212	195	186	185	191	5774	241	5979	239	
12	205	219	237	253	261	262	259	252	241	234	234	236	242	249	252	253	249	241	223	206	185	168	162	164	5487	229	5662	226	
13	176	195	213	235	249	259	262	255	242	231	229	227	236	240	247	253	253	249	230	213	188	167	152	149	5351	223	5508	220	
14	157	177	197	219	240	254	259	255	249	236	229	224	226	236	242	252	255	252	242	222	194	171	149	139	5277	220	5419	217	
15	142	154	178	205	228	247	258	260	254	243	234	226	227	232	243	255	263	263	258	240	214	189	165	147	5327	222	5469	219	
16	142	148	166	192	218	244	254	263	258	246	236	232	224	226	235	250	259	266	260	251	228	202	173	156	5330	222	5476	219	
17	146	146	161	184	209	236	255	265	270	261	249	242	236	236	246	261	271	281	287	279	260	237	209	185	5610	234	5781	231	
18	171	167	177	196	220	246	267	277	282	277	268	258	253	249	247	259	272	283	285	286	270	247	224	195	5875	245	6055	242	
19	180	167	169	182	203	226	248	261	270	267	257	251	239	231	233	238	250	264	270	270	262	245	221	197	5601	233	5780	231	
20	179	170	162	173	187	207	230	245	256	259	253	246	239	230	227	233	240	253	262	265	263	254	235	215	5486	229	5681	227	
21	195	183	174	176	185	205	223	236	247	252	248	243	236	230	220	222	223	233	243	248	250	246	233	219	5368	224	5568	223	
22	200	187	177	179	181	191	207	218	226	235	238	231	229	219	210	210	211	214	223	228	232	232	225	217	5120	213	5326	213	
23	206	200	188	184	186	194	201	216	223	232	236	235	236	229	222	214	210	211	218	220	221	225	225	226	5159	215	5383	215	
24	223	218	210	205	208	208	211	219	225	231	239	242	240	236	227	221	214	208	207	209	209	212	215	219	5253	219	5478	219	
25	224	225	222	223	219	217	217	217	220	223	227	235	235	233	230	224	212	204	197	189	186	186	189	198	5155	215	5362	214	
26	207	217	224	226	228	227	220	220	220	219	223	231	235	236	236	231	219	209	196	186	175	170	175	181	5114	213	5310	212	
27	196	211	224	236	241	239	236	231	221	221	219	225	230	238	236	236	229	214	200	182	163	153	148	154	5085	212	5255	210	
28	170	192	214	228	243	248	243	233	225	217	215	216	219	227	232	234	231	219	202	183	158	141	132	131	4952	206	5097	204	
29	145	166	195	226	248	263	269	266	255	243	237	237	240	249	253	262	264	255	239	215	184	155	133	126	5325	222	5458	218	
30	133	151	175	206	234	254	264	264	253	240	227	219	220	230	239	251	256	257	246	224	192	158	128	115	5138	214	5247	210	
1	109																												
MONTHLY MEAN																											224.0cm		

Station : SYOWA STATION  
 Latitude : 69° 00' 28" S  
 Longitude : 39° 34' 13" E  
 Duration : Jul. 1-Jul. 31 1996  
 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	109	119	144	174	207	235	252	260	256	243	229	219	217	221	233	246	256	260	260	247	218	187	153	127	5073	211	5188	208		
2	115	116	132	159	192	222	246	262	264	256	245	231	221	220	230	247	260	269	278	272	252	222	192	158	5262	219	5399	216		
3	137	126	132	153	180	207	232	251	260	257	248	232	222	213	216	231	246	261	272	275	264	241	213	184	5252	219	5407	216		
4	155	136	137	143	162	193	210	233	244	245	241	231	218	203	200	208	221	242	255	264	267	258	240	214	5120	213	5312	212		
5	192	175	164	166	181	197	218	238	249	253	252	241	228	215	200	198	207	219	235	247	252	250	241	223	5240	218	5445	218		
6	205	189	174	168	175	184	198	217	224	235	237	230	218	206	192	185	183	190	203	214	222	226	225	220	4921	205	5132	205		
7	212	202	192	185	186	193	199	215	226	233	239	240	232	225	213	203	196	197	206	212	219	227	234	236	5124	213	5360	214		
8	236	235	231	228	228	226	236	242	250	257	258	262	258	250	242	231	216	215	213	211	217	220	225	229	5616	234	5855	234		
9	239	239	243	245	247	247	246	248	250	251	253	256	256	252	245	237	224	212	203	197	194	192	197	203	5575	232	5788	232		
10	213	224	230	240	242	244	243	241	238	237	237	241	243	241	237	233	223	209	199	183	174	170	166	174	5280	220	5466	219		
11	186	199	214	228	239	244	242	237	235	231	230	233	237	240	240	236	231	222	208	188	174	160	156	159	5170	215	5339	214		
12	169	187	204	223	240	251	252	251	245	237	235	234	238	243	250	252	248	240	226	208	184	163	151	147	5275	220	5429	217		
13	154	172	189	211	231	246	251	250	242	234	226	227	230	235	243	251	252	250	239	219	194	173	156	146	5220	217	5366	215		
14	147	161	183	204	230	247	254	256	252	236	228	223	221	225	237	244	251	251	247	228	202	177	154	138	5195	216	5329	213		
15	134	146	163	186	216	232	243	249	243	233	222	214	207	213	224	239	247	252	251	235	210	186	157	137	5037	210	5167	207		
16	130	138	151	175	204	224	242	245	244	234	223	214	203	204	217	230	242	250	249	246	221	195	168	148	4994	208	5125	205		
17	131	128	140	163	185	210	227	237	237	227	216	202	193	190	198	210	223	236	244	240	226	204	178	151	4795	200	4927	197		
18	132	125	131	147	174	198	216	232	234	225	214	202	194	187	187	198	213	231	239	240	233	214	188	163	4718	197	4865	195		
19	148	137	132	147	168	190	209	222	230	225	217	206	191	185	182	190	202	218	233	238	236	226	204	185	4720	197	4883	195		
20	163	152	148	151	171	191	210	225	231	231	222	212	198	190	184	185	195	210	222	230	235	225	211	195	4789	200	4967	199		
21	178	163	157	159	172	186	203	214	223	227	221	211	196	186	181	175	179	188	201	212	216	217	211	198	4674	195	4859	194		
22	185	174	168	161	171	182	194	208	213	220	220	212	202	190	180	174	173	177	187	196	206	208	206	199	4606	192	4803	192		
23	197	187	184	181	181	188	198	210	219	221	225	224	215	206	202	195	184	188	191	200	206	208	214	218	4843	202	5068	203		
24	225	218	215	212	213	214	216	222	227	230	234	229	224	218	208	198	185	179	176	174	175	183	184	191	4947	206	5148	206		
25	201	207	209	218	219	218	219	218	220	221	221	222	223	218	213	206	192	182	171	164	157	155	160	172	4811	200	4995	200		
26	185	200	211	222	228	228	226	222	218	218	215	217	218	218	219	211	202	186	172	154	143	132	131	142	4720	197	4876	195		
27	156	174	197	215	232	235	234	230	222	218	214	217	221	225	228	231	227	211	197	173	154	141	130	141	4823	201	4981	199		
28	157	176	207	235	256	278	279	277	268	263	253	252	255	265	274	276	280	270	250	227	195	168	148	140	5649	235	5796	232		
29	147	166	189	220	245	266	278	275	262	249	241	233	233	242	256	268	280	277	264	245	212	179	152	135	5513	230	5648	226		
30	135	144	173	200	230	257	275	276	266	251	236	224	218	224	235	252	265	275	273	256	227	193	160	132	5377	224	5497	220		
31	120	121	140	167	197	222	246	258	254	240	223	210	200	204	218	238	257	276	281	278	260	231	198	170	5211	217	5361	214		
1	151																													
MONTHLY MEAN																													211.8cm	

Station : SYOWA STATION  
 Latitude : 69° 00' 28" S  
 Longitude : 39° 34' 13" E  
 Duration : Aug. 1-Aug. 31 1996  
 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	151	145	148	175	200	229	251	262	265	256	240	222	208	203	210	225	248	266	280	284	278	257	225	196	5423	226	5597	224		
2	174	160	157	171	195	217	242	252	255	249	234	217	196	182	181	190	211	231	248	260	261	251	231	206	5170	215	5355	214		
3	184	168	160	163	182	202	220	236	242	240	229	214	192	178	168	170	182	201	221	235	243	241	229	217	4916	205	5116	205		
4	200	185	176	178	187	202	217	232	243	243	237	224	207	192	182	174	178	193	208	221	232	237	234	226	5008	209	5225	209		
5	217	207	200	201	203	212	225	237	243	244	242	230	216	202	190	178	176	180	190	200	208	216	220	220	5055	211	5272	211		
6	217	216	215	214	218	225	231	238	245	248	248	242	229	218	209	197	188	184	184	189	193	197	204	208	5156	215	5366	215		
7	210	214	218	224	226	228	230	235	240	241	241	239	230	220	215	207	194	188	184	181	181	187	188	194	5116	213	5321	213		
8	205	216	222	236	246	251	253	257	259	261	260	261	262	259	254	252	243	229	220	212	206	201	200	206	5673	236	5890	236		
9	217	226	243	251	258	260	261	258	255	248	246	244	244	245	245	240	230	221	212	191	178	168	161	162	5463	228	5637	225		
10	175	187	201	220	234	244	247	240	233	228	223	221	223	228	233	236	235	228	217	200	184	166	156	156	5116	213	5282	211		
11	166	186	208	228	248	262	268	265	254	248	244	241	246	253	259	267	269	261	251	233	213	184	169	166	5589	233	5754	230		
12	165	180	202	219	242	255	262	260	251	237	228	222	223	229	244	253	260	260	252	234	211	184	162	149	5387	224	5536	221		
13	150	163	184	206	227	243	253	250	241	226	212	205	202	209	221	235	247	251	249	234	212	184	159	143	5104	213	5241	210		
14	137	145	163	189	214	230	240	243	238	221	204	191	187	193	206	226	241	249	251	244	223	195	169	150	4949	206	5090	204		
15	141	144	158	185	207	232	246	248	242	229	212	199	188	187	203	221	240	252	256	255	238	217	187	163	5051	210	5201	208		
16	151	150	160	184	210	228	249	256	253	243	222	207	197	198	204	220	243	263	277	280	271	252	229	209	5355	223	5545	222		
17	190	186	192	207	232	252	271	282	281	270	249	228	214	208	208	220	242	257	272	277	272	258	233	213	5713	238	5908	236		
18	195	182	182	192	211	230	248	256	259	251	233	213	197	185	180	184	202	218	237	249	249	241	228	208	5230	218	5420	217		
19	190	184	178	182	202	219	232	247	249	247	235	216	198	188	180	183	194	208	226	241	248	250	239	229	5162	215	5379	215		
20	217	208	204	207	218	232	247	256	261	261	252	234	219	205	192	187	190	202	217	229	237	240	239	233	5389	225	5612	224		
21	223	219	216	214	218	229	235	242	248	248	242	233	215	199	189	177	178	183	191	199	210	217	223	228	5174	216	5401	216		
22	227	229	232	230	233	241	247	251	251	252	252	247	235	219	211	197	189	186	183	187	189	194	200	211	5296	221	5510	220		
23	215	220	230	234	236	238	240	241	244	241	242	239	231	225	218	208	199	189	182	174	171	174	179	189	5158	215	5359	214		
24	201	215	229	242	246	245	243	237	235	231	228	227	225	224	225	217	208	194	177	165	152	145	147	150	5007	209	5174	207		
25	167	187	208	228	236	239	234	229	221	217	211	210	213	216	218	220	211	201	184	160	141	128	117	122	4718	197	4855	194		
26	137	157	186	209	226	244	241	231	220	210	205	204	206	214	226	233	236	226	209	186	158	134	113	109	4720	197	4839	194		
27	119	136	164	193	219	238	241	234	220	207	192	186	192	204	217	234	247	248	238	217	185	154	129	114	4731	197	4846	194		
28	116	129	155	185	213	233	244	245	227	208	190	180	178	191	212	232	250	260	261	247	218	187	157	133	4851	202	4976	199		
29	125	130	155	181	208	230	244	245	231	211	189	170	165	168	190	217	236	253	262	258	241	210	176	151	4845	202	4979	199		
30	134	129	144	168	191	216	231	234	221	202	179	158	141	140	151	176	202	225	242	248	240	219	191	165	4547	189	4696	188		
31	149	140	145	164	187	211	227	233	229	214	190	168	148	138	144	160	187	213	233	245	249	235	216	196	4619	192	4794	192		
1	175																													
MONTHLY MEAN																													213.3cm	

Station : SYOWA STATION  
 Latitude : 69° 00' 28" S  
 Longitude : 39° 34' 13" E  
 Duration : Sep 1-Sep. 30 1996  
 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	175	163	163	174	197	215	228	238	234	223	203	179	154	142	138	145	164	189	208	223	233	229	216	200	4632	193	4820	193	
2	188	177	172	180	193	212	225	231	233	226	211	187	168	150	141	143	154	169	189	206	215	217	214	205	4606	192	4802	192	
3	196	193	189	193	205	216	233	239	240	236	227	209	190	174	162	156	158	168	181	195	201	208	210	205	4784	199	4985	199	
4	201	204	204	205	212	221	230	235	235	237	227	213	202	190	179	171	167	170	177	183	188	191	192	194	4828	201	5024	201	
5	196	201	211	209	216	223	227	231	232	231	223	218	211	200	194	186	180	175	174	175	180	179	182	187	4841	202	5035	201	
6	194	202	212	219	226	230	231	234	230	229	225	221	217	212	212	206	198	194	183	179	176	174	173	182	4959	207	5147	206	
7	188	202	213	227	234	239	241	238	230	228	227	227	229	227	229	229	224	215	204	195	183	178	180	182	5169	215	5361	214	
8	192	211	226	243	252	259	258	252	249	240	237	233	237	244	248	250	251	242	229	216	201	184	180	179	5513	230	5700	228	
9	186	202	220	237	250	260	258	250	238	227	221	218	222	231	241	249	251	249	235	220	198	180	166	166	5376	224	5547	222	
10	171	186	210	228	247	254	254	249	231	216	205	202	205	213	230	242	249	249	239	223	203	179	162	153	5199	217	5357	214	
11	158	168	190	216	233	244	246	241	225	208	195	186	188	202	217	229	247	253	247	231	211	184	163	148	5031	210	5179	207	
12	149	163	178	200	225	239	240	234	216	200	185	173	169	179	202	223	239	250	252	244	221	194	171	154	4901	204	5047	202	
13	147	156	175	199	223	238	245	241	225	206	184	171	165	170	188	212	231	249	254	250	235	208	183	162	4915	205	5068	203	
14	152	153	169	191	214	230	239	239	225	201	180	161	151	150	167	191	215	237	250	252	243	220	195	177	4803	200	4965	199	
15	162	161	173	191	216	234	246	250	238	218	197	179	162	160	167	188	214	238	254	263	257	243	221	199	5032	210	5215	209	
16	183	179	183	198	219	235	244	250	242	224	200	178	156	147	151	168	186	210	226	241	246	236	221	204	4927	205	5116	205	
17	189	183	183	191	209	226	237	239	237	225	204	183	163	149	147	152	169	191	211	224	234	234	226	216	4822	201	5028	201	
18	206	199	198	203	216	229	243	246	245	240	222	202	183	171	162	163	175	194	211	229	242	249	253	250	5130	214	5373	215	
19	243	240	239	236	244	257	262	266	264	256	246	225	204	189	176	168	169	176	182	193	205	214	218	224	5295	221	5522	221	
20	227	230	230	234	240	247	253	257	257	254	250	237	222	210	201	191	184	182	183	188	192	197	207	215	5289	220	5511	220	
21	222	230	239	245	249	250	251	252	249	250	247	243	237	228	221	213	201	192	185	179	178	181	183	195	5318	222	5523	221	
22	205	219	234	243	245	243	242	234	230	225	223	222	221	219	219	216	205	193	177	165	155	150	151	163	5001	208	5176	207	
23	176	194	216	229	238	241	235	226	216	212	209	209	217	224	232	238	235	225	211	191	175	162	161	166	5037	210	5218	209	
24	182	205	231	252	269	275	271	256	242	231	224	222	230	241	253	263	266	258	242	217	189	168	153	149	5490	229	5647	226	
25	157	177	201	223	240	248	244	229	209	191	176	175	183	196	218	237	250	252	244	224	195	169	148	139	4923	205	5064	203	
26	141	156	181	203	224	236	237	221	197	177	157	149	153	171	196	223	244	257	255	245	220	192	166	148	4749	198	4895	196	
27	146	155	177	204	226	237	241	229	207	182	156	144	140	152	180	208	234	254	265	259	237	214	187	165	4798	200	4954	198	
28	156	159	179	201	223	241	247	240	219	195	170	147	132	140	162	191	221	248	262	264	256	234	211	188	4886	204	5061	202	
29	175	172	183	204	226	240	247	245	228	203	176	151	134	128	141	165	194	220	243	252	251	241	222	206	4847	202	5040	202	
30	192	186	192	209	229	245	253	252	242	221	193	167	147	135	137	153	176	202	222	237	242	236	224	215	4908	204	5110	204	
1	202																												
MONTHLY MEAN																											208.3cm		

Station : SYOWA STATION  
 Latitude : 69° 00' 28" S  
 Longitude : 39° 34' 13" E  
 Duration : Oct. 1-Oct. 31 1996  
 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	202	196	198	207	222	241	249	249	244	230	208	182	163	149	146	151	167	188	208	221	232	235	228	220	4938	206	5153	206																							
2	215	212	212	215	229	242	252	255	250	243	226	205	185	171	162	162	170	180	197	209	215	219	220	216	5064	211	5278	211																							
3	214	214	214	217	227	237	244	245	244	240	228	212	194	181	173	169	170	176	184	191	201	205	208	210	4994	208	5204	208																							
4	210	215	218	219	227	234	238	240	238	234	226	215	208	198	190	187	182	182	183	188	193	195	198	203	5023	209	5233	209																							
5	210	217	223	227	231	235	238	233	233	228	221	215	211	206	202	198	191	186	184	182	181	183	184	191	5013	209	5216	209																							
6	203	211	222	230	235	236	233	227	224	218	214	211	209	211	210	211	207	201	194	185	180	179	179	186	5014	209	5210	208																							
7	196	209	225	236	243	244	240	234	225	218	217	217	219	227	235	241	240	234	225	213	203	195	192	198	5326	222	5536	221																							
8	210	226	241	253	263	263	256	246	233	221	216	215	220	231	242	248	251	248	233	218	203	189	182	185	5495	229	5689	228																							
9	194	212	228	246	257	258	251	240	223	210	202	201	207	221	238	252	260	259	252	236	216	198	187	185	5435	226	5627	225																							
10	192	208	229	248	263	266	257	242	222	206	189	184	193	205	225	248	259	262	258	242	222	201	183	181	5386	224	5567	223																							
11	181	197	217	238	251	260	255	239	218	200	182	171	175	191	214	237	259	269	268	254	234	213	191	181	5294	221	5472	219																							
12	178	186	209	231	245	252	250	236	213	188	167	151	150	162	185	214	237	253	263	255	237	215	192	176	5046	210	5217	209																							
13	171	176	192	215	233	244	245	234	213	186	161	144	135	141	164	192	223	246	258	262	251	232	211	194	4921	205	5104	204																							
14	182	184	199	218	238	249	255	246	225	198	171	148	133	131	146	171	199	225	243	252	249	235	215	198	4912	205	5097	204																							
15	185	182	190	207	223	239	243	237	226	201	171	146	129	119	126	148	175	200	223	241	247	239	229	218	4743	198	4950	198																							
16	207	203	209	223	243	259	267	266	259	240	214	189	168	152	152	164	181	204	228	244	254	252	248	237	5262	219	5488	220																							
17	226	219	220	225	238	251	256	255	251	236	215	192	170	154	147	148	160	176	192	212	223	230	230	229	5056	211	5282	211																							
18	225	221	223	225	236	248	256	258	259	252	239	222	206	190	180	180	186	192	209	222	236	248	251	258	5424	226	5687	227																							
19	263	261	259	259	261	263	267	265	264	259	250	241	227	215	205	198	192	191	198	204	209	219	231	239	5641	235	5886	235																							
20	246	256	260	260	262	260	263	259	258	252	248	246	239	232	226	218	210	200	194	192	194	196	203	214	5589	233	5814	233																							
21	225	235	246	248	248	245	240	229	223	223	221	220	224	226	223	223	215	202	188	180	171	171	174	182	5183	216	5380	215																							
22	197	212	226	236	236	232	222	210	200	195	195	203	213	224	231	238	240	229	215	200	186	175	178	185	5077	212	5278	211																							
23	201	217	236	251	258	256	244	228	213	201	198	205	215	232	248	261	268	263	250	231	210	192	184	186	5450	227	5646	226																							
24	195	215	231	247	256	254	241	221	201	182	172	175	187	208	232	253	268	272	264	245	223	201	186	181	5310	221	5498	220																							
25	188	202	219	237	248	248	237	214	190	164	145	140	149	171	198	226	247	260	258	248	225	204	186	175	4981	208	5158	206																							
26	178	191	208	225	240	246	238	217	190	161	139	122	124	142	170	200	227	247	255	253	237	218	200	186	4815	201	4998	200																							
27	183	191	209	227	246	253	251	237	212	183	157	138	132	144	167	199	230	253	271	275	268	253	236	219	5135	214	5347	214																							
28	212	215	226	246	260	267	267	254	232	201	171	148	131	131	148	173	200	224	245	254	253	243	228	216	5144	214	5351	214																							
29	207	206	215	229	245	258	261	253	237	212	182	157	138	129	136	154	181	203	222	238	241	236	226	215	4979	207	5186	207																							
30	208	205	207	219	235	247	252	248	237	217	191	167	147	135	135	149	167	187	207	223	229	232	226	219	4889	204	5106	204																							
31	216	215	216	223	234	250	255	254	250	237	217	196	177	163	158	163	173	188	207	221	230	234	234	232	5146	214	5372	215																							
1	226																																																		
MONTHLY MEAN																											214.6cm																								

Station : SYOWA STATION  
 Latitude : 69° 00' 28" S  
 Longitude : 39° 34' 13" E  
 Duration : Nov. 1-Nov. 30 1996  
 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	222	221	223	224	229	234	237	237	233	225	217	205	190	181	176	174	174	177	182	192	198	201	209	211	4972	207	5185	207		
3	213	217	217	219	222	224	223	223	221	214	210	205	195	189	186	182	181	179	179	182	186	190	197	202	4859	202	5065	203		
4	207	212	216	220	220	221	216	213	210	205	202	201	199	198	199	196	195	190	183	184	182	184	190	196	4841	202	5047	202		
5	206	212	219	225	225	220	214	205	197	193	194	194	196	203	207	209	208	201	190	185	180	174	178	185	4819	201	5013	201		
6	194	206	214	222	225	219	207	197	188	180	175	180	186	200	211	218	220	215	206	198	185	177	178	181	4782	199	4974	199		
7	192	205	216	225	230	226	213	200	183	173	167	170	180	195	215	227	235	236	223	212	198	183	178	181	4863	203	5053	202		
8	190	203	216	226	230	227	213	192	174	157	148	146	158	179	199	218	234	236	229	218	199	182	173	170	4717	197	4894	196		
9	177	192	210	223	229	230	216	195	172	152	135	131	142	165	188	215	239	247	247	239	221	203	188	182	4740	198	4928	197		
10	187	200	218	235	246	247	238	216	193	166	144	136	140	160	188	216	244	261	268	260	245	225	208	197	5038	210	5233	209		
11	195	204	219	235	247	252	245	223	197	167	140	123	116	130	156	186	217	241	255	259	248	230	215	201	4903	204	5098	204		
12	195	201	214	232	245	251	249	235	207	177	148	123	111	115	134	160	192	219	239	251	246	233	221	206	4804	200	4999	200		
13	195	195	203	222	238	247	248	239	218	193	159	134	116	111	121	145	174	201	226	242	248	244	234	221	4774	199	4987	199		
14	213	210	214	228	241	253	257	255	241	216	184	158	136	121	123	137	155	181	203	222	235	236	230	220	4870	203	5085	203		
15	214	210	206	212	225	234	238	239	230	214	189	164	142	124	117	122	136	153	175	192	208	219	218	215	4597	192	4810	192		
16	214	211	206	210	217	225	231	237	234	225	211	192	171	155	145	142	147	157	169	185	198	210	219	221	4731	197	4953	198		
17	222	224	220	218	223	228	235	238	242	239	232	223	210	199	189	179	177	178	181	189	199	209	217	222	5093	212	5319	213		
18	226	230	227	223	220	216	216	217	215	214	215	214	208	201	198	190	182	177	174	175	180	185	193	204	4903	204	5116	205		
19	213	216	218	217	210	208	199	194	194	194	196	204	209	211	214	214	208	200	191	187	184	187	193	202	4864	203	5079	203		
20	214	223	230	230	226	216	202	191	184	181	184	192	204	215	225	231	229	221	211	202	191	186	186	195	4973	207	5182	207		
21	209	217	224	231	226	216	200	182	169	161	161	169	181	201	218	233	241	238	231	218	205	195	192	197	4917	205	5124	205		
22	207	218	232	239	238	231	215	192	175	158	151	158	171	196	218	240	259	262	256	247	231	217	211	208	5130	214	5349	214		
23	218	228	242	251	250	247	229	203	181	154	140	139	148	170	198	223	247	258	260	253	238	222	209	203	5112	213	5320	213		
24	208	221	233	245	250	249	236	213	184	155	133	123	127	146	171	202	229	247	255	251	241	227	212	204	4962	207	5164	207		
25	203	211	227	241	248	252	243	224	197	167	141	125	121	134	158	186	215	237	253	257	250	238	225	215	4970	207	5183	207		
26	213	218	232	248	262	267	262	248	225	195	169	147	135	141	159	186	214	239	258	269	268	258	247	238	5299	221	5530	221		
27	231	231	241	255	267	277	277	264	247	219	189	165	148	144	154	179	204	228	247	261	267	262	251	244	5452	227	5689	228		
28	238	236	240	254	267	276	280	274	259	237	208	181	161	151	154	169	191	212	232	246	251	251	243	235	5445	227	5674	227		
29	229	223	223	232	243	254	258	255	247	230	205	182	162	149	148	154	171	187	207	220	229	232	229	223	5095	212	5312	212		
30	217	214	211	218	226	236	242	243	239	229	212	193	176	164	158	160	173	183	201	216	224	231	232	228	5027	209	5250	210		
1	223																													
MONTHLY MEAN																													206.6cm	



Station : SYOWA STATION  
 Latitude : 69° 00' 28" S  
 Longitude : 39° 34' 13" E  
 Duration : Dec. 1-Dec. 31 1996  
 Unit : CENTIMETER

Date	Time																							(24H)		(25H)				
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2	217	218	215	213	213	219	220	221	222	217	212	204	194	186	183	181	181	182	190	199	206	214	218	221	4950	206	5172	207		
3	222	223	224	222	220	222	222	222	221	220	220	218	213	212	211	207	206	207	207	211	213	220	226	231	5222	218	5455	218		
4	233	234	235	233	230	224	217	211	207	205	205	201	204	206	206	204	203	199	193	190	191	191	195	201	5016	209	5225	209		
5	209	209	212	213	206	198	189	181	176	170	172	181	186	196	207	213	215	213	207	201	202	198	201	209	4761	198	4979	199		
6	218	224	231	232	227	218	205	192	181	174	173	177	190	208	222	233	238	236	231	220	212	206	203	210	5059	211	5278	211		
7	219	226	233	235	232	223	209	188	170	157	153	156	170	191	210	230	241	245	240	229	216	207	200	202	4981	208	5193	208		
8	212	220	230	236	236	226	211	188	165	145	135	135	147	170	196	222	243	255	256	246	234	222	211	210	4948	206	5165	207		
9	216	226	240	247	252	248	230	208	181	153	134	128	136	156	183	214	242	259	266	260	250	236	222	215	5105	213	5323	213		
10	217	225	238	249	257	256	244	221	189	157	132	117	116	130	158	189	220	245	261	263	255	243	228	216	5029	210	5243	210		
11	214	219	232	244	255	259	251	235	207	173	143	117	109	114	133	162	194	222	245	256	254	246	234	220	4938	206	5151	206		
12	213	214	223	235	250	259	256	247	225	193	161	133	112	107	119	144	173	203	228	244	251	248	237	227	4904	204	5121	205		
13	217	212	217	230	245	258	262	256	243	218	187	159	133	118	121	134	158	183	207	225	240	243	235	227	4929	205	5146	206		
14	217	210	209	216	231	243	251	254	247	232	207	181	156	139	129	135	148	169	188	209	223	231	232	226	4883	203	5102	204		
15	218	211	205	205	214	226	236	242	244	235	221	202	181	164	152	148	154	166	182	198	212	223	228	224	4890	204	5110	204		
16	220	212	203	198	202	207	215	223	226	227	223	213	201	189	177	171	170	175	182	193	207	215	222	226	4897	204	5120	205		
17	223	218	212	204	199	200	204	211	216	218	221	219	214	210	207	198	194	193	195	199	206	212	217	224	5014	209	5238	210		
18	224	219	215	207	197	191	188	187	189	195	197	206	211	213	213	214	211	207	205	202	205	210	212	216	4934	206	5156	206		
19	222	222	219	213	204	190	181	173	172	171	175	183	196	209	217	226	230	226	222	218	215	214	217	223	4940	206	5171	207		
20	231	237	238	233	226	213	196	184	173	168	171	177	191	208	226	240	249	250	246	241	234	230	229	232	5223	218	5458	218		
21	235	242	247	246	243	230	213	192	173	161	155	158	172	192	213	233	246	256	256	247	238	229	223	223	5224	218	5452	218		
22	228	234	240	246	246	239	219	198	176	155	145	142	152	173	195	218	243	255	257	256	246	236	228	227	5153	215	5383	215		
23	230	238	248	256	261	258	243	221	199	173	151	144	148	166	187	213	241	259	269	268	260	249	239	232	5354	223	5588	224		
24	234	242	252	263	270	269	258	237	212	183	158	144	139	150	174	201	226	247	261	264	258	248	237	227	5354	223	5578	223		
25	224	229	240	251	261	264	257	243	216	188	158	136	127	131	147	175	201	223	241	246	245	237	227	215	5082	212	5291	212		
26	209	210	220	234	246	255	254	246	226	197	168	146	131	128	143	166	191	217	239	250	252	247	237	226	5038	210	5256	210		
27	217	215	222	236	249	262	265	260	246	220	193	169	149	142	148	164	189	213	233	248	254	249	239	228	5213	217	5432	217		
28	218	213	214	225	241	253	258	258	248	229	207	181	159	148	148	159	178	202	221	234	244	244	231	225	5138	214	5355	214		
29	216	207	205	213	223	237	244	247	244	232	212	187	169	155	148	157	170	188	207	219	230	234	228	221	4993	208	5203	208		
30	211	203	200	200	210	220	229	235	235	226	214	197	181	169	163	163	175	189	202	215	227	231	230	224	4948	206	5163	207		
31	214	208	201	199	201	210	216	221	225	223	214	202	191	181	175	175	177	186	200	211	220	228	229	226	4933	206	5153	206		
1	220																													
MONTHLY MEAN																											209.7cm			

Station : SYOWA STATION  
 Latitude : 69° 00' 28" S  
 Longitude : 39° 34' 13" E  
 Duration : Jan. 1-Jan. 31 1997  
 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	230	223	215	211	206	203	202	204	207	208	209	212	210	209	209	209	206	209	212	214	218	221	224	227	5094	212	5321	213																										
3	227	221	218	212	202	196	190	185	185	188	189	193	202	209	213	217	220	218	217	216	217	217	220	224	5000	208	5226	209																										
4	226	225	224	219	211	200	188	178	172	170	173	180	190	204	217	227	233	233	230	227	223	221	222	225	5017	209	5246	210																										
5	229	235	233	234	226	213	197	181	171	161	162	169	182	202	222	240	254	259	256	252	245	239	235	217	5215	217	5458	218																										
6	243	245	246	255	247	237	218	196	175	160	150	150	162	184	209	235	253	263	264	257	246	236	225	229	5287	220	5516	221																										
7	229	236	244	247	248	239	221	197	171	146	129	123	131	150	180	209	233	251	258	254	245	232	218	212	5003	208	5218	209																										
8	215	222	234	243	247	247	234	211	180	147	122	108	110	123	150	183	214	243	253	262	255	243	228	218	4893	204	5110	204																										
9	216	222	232	247	260	263	256	237	207	173	138	113	105	110	130	164	194	223	246	256	254	243	227	213	4929	205	5136	205																										
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11	198	195	204	219	240	255	262	259	245	220	187	155	131	118	120	137	163	190	213	234	245	242	230	214	4878	203	5079	203																										
12	201	190	192	202	220	238	249	255	252	236	212	183	156	139	131	139	158	180	204	223	234	234	227	216	4871	203	5072	203																										
13	201	186	180	182	195	213	228	236	243	237	220	200	179	159	148	150	159	175	194	210	222	227	221	212	4778	199	4978	199																										
14	200	185	175	172	176	190	205	217	226	229	223	212	201	186	176	175	179	187	202	213	225	231	229	224	4838	202	5051	202																										
15	213	201	188	178	174	179	187	197	206	212	212	210	204	197	195	191	189	193	201	208	214	222	220	218	4808	200	5019	201																										
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17	222	214	208	199	187	180	175	170	170	174	179	183	193	201	209	218	222	224	225	32	228	31	226	230	4499	187	4729	189																										
18	230	226	223	215	208	197	183	174	167	162	162	165	180	192	207	221	37	235	237	235	229	228	226	225	4763	198	4994	200																										
19	231	230	230	228	221	209	194	178	163	152	148	151	161	176	194	212	226	235	239	235	228	224	218	217	4900	204	5121	205																										
20	221	228	231	232	234	223	209	189	170	152	142	140	148	166	187	209	229	245	250	249	242	233	226	222	4977	207	5202	208																										
21	225	235	241	244	248	245	231	212	189	166	147	143	144	159	180	206	228	245	251	252	245	234	222	215	5108	213	5326	213																										
22	218	224	232	243	252	251	242	221	198	171	146	132	129	142	163	189	212	233	245	248	242	230	217	208	4988	208	5195	208																										
23	207	210	224	238	248	256	251	237	214	187	163	142	135	144	163	189	216	240	255	262	255	245	233	218	5132	214	5345	214																										
24	213	215	226	241	255	266	265	253	234	206	177	152	138	139	153	176	204	229	245	253	252	240	226	213	5172	215	5375	215																										
25	204	199	210	225	243	257	262	256	242	217	190	162	144	140	149	170	194	217	238	248	250	240	223	209	5088	212	5292	212																										
26	204	190	196	210	225	243	252	251	240	218	195	167	146	137	140	170	179	201	219	233	237	229	215	201	4896	204	5085	203																										
27	189	180	180	192	210	226	238	244	240	227	205	181	162	151	153	160	180	202	219	233	241	236	224	212	4884	203	5082	203																										
28	199	188	182	189	202	221	236	243	245	236	220	200	180	170	165	168	183	202	217	232	239	240	230	214	5002	208	5204	208																										
29	202	189	180	180	187	203	214	224	230	226	219	204	188	178	173	173	182	193	211	224	231	233	225	214	4884	203	5085	203																										
30	202	189	180	176	178	188	198	208	215	217	215	208	195	191	185	183	191	201	212	225	233	236	231	225	4883	203	5099	204																										
31	216	204	194	188	186	190	200	206	212	214	216	218	210	211	210	209	212	216	223	229	234	237	234	229	5097	212	5320	213																										
1	223																																																					
MONTHLY MEAN																													206.4cm																									