Oceanographic Data of the 47th Japanese Antarctic Research Expedition from December 2005 to March 2006

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The result of oceanographic observations on board the icebreaker "Shirase" and tidal observations at Syowa Station, Antarctic are presented in this report. The oceanographic observations were carried out by the summer party of the 47th Japanese Antarctica Research Expedition (JARE-47) during the austral summer of 2005/2006. The tidal observations were carried out by the winter party of JARE-46 from February 2005 to January 2006.

1. Oceanographic Observations

The track of the icebreaker "Shirase" and the sites of oceanographic stations are shown in Fig. 1. Surface water samplings were carried out using a plastic bucket of 10-L capacity. XCTD (Expendable Conductivity, Temperature and Depth profiler), XBT (Expendable Bathy-Thermo-graph), CTD (Conductivity, Temperature and Depth profiling system) and serial observations were made in the Southern Ocean. Three surface drifting buoys were deployed and LADCP (Lowered Acoustic Current Profiler) observations were made at three sites in the Antarctic Circumpolar Current region. These observations were carried out in the Southern Ocean from Fremantle to Antarctica and on the way back to Sydney, and each observation and analytical method are summarized below.

(1) Surface water samplings

Surface water samplings were carried out at 54 stations and the results are given in Table 1.

(2) Monitoring of marine pollution

Surface water sampling for monitoring of marine pollution were made at 19 stations. Items and method of analysis are given in the following section of (5).

(3) XCTD and XBT observations

XCTD and XBT observations were carried out at 102 stations (XCTD: 78 stations, XBT: 24 stations). The results are listed in Table 2 and Table 3. The vertical profiles of water temperature and salinity are shown in Fig. 2 to Fig. 7.

(4) CTD and serial observations

CTD (Falmouth Scientific Inc. TRITON ICTD) and serial observations with Rosette sampler (2.5-L Niskin sampler × 22) were carried out 19 stations. The result including chemical analysis of sampled water and measured value of temperature and salinity with CTD at each standard depth together with meteorological data are given in Table 4.

(5) Chemical analysis of sampled water

Chemical analysis of seawater sampled with a bucket (10-L) for surface observation and Niskin bottles (2.5-L) for serial observation was made according to the following methods. The item(a) was calculated from conductivity using the 1987 practical salinity scales (UNESCO, 1981). The items (b) and (d) were carried out with the method described by Strickland and Parsons (1972). The item (c) was analyzed by the winker method as modified by Carpenter (1965) for more precision. The item (e) was analyzed with the method in Motomizu and Korechika (1988). The items (f) and (g) were analyzed with the method in Andersson (1979). The items (h), (i) and (j) were analyzed with the method in Hydrographic Department (2005).

(a) Practical salinity: Conductive salinometer
(Guidline Autosal salinometer model 8400B).
(b) pH: Glass electrode method (Horiba digital pH meter F-24).
(c) Dissolved oxygen: Carpenter method
(Sensoren Instrument System dissolved oxygen analyzer).
(d) Phosphate: Molybdenum blue method
(BRAN+LUEBBE model TRAACS 800 auto analyzer).
(e) Silicate: Molybdenum blue method
(BRAN+LUEBBE model TRAACS 800 auto analyzer).
(f) Nitrite: Molybdenum blue method
(BRAN+LUEBBE model TRAACS 800 auto analyzer).
(g) Nitrate: Cadmium(Cd)-copper(Cu) reduction column,
Naphthylethylenediamine method
(BRAN+LUEBBE model TRAACS 800 auto analyzer).
(h) Petroleum oil: N-hexane extraction-fluorophotometric analysis.
(i) Cadmium (Cd): Solvent extraction-atomic absorption spectrophotometry.
(j) Mercury (Hg): Cold vapor atomic absorption spectrometry.

The results of items (a) to (g) are given in Tables 1 and 4. The results of items (h) to (j) are given in Table 5.

(6) Current observation with three surface drifters

Each surface drifter comprises from a spherical buoy of 30 cm in diameter with a drogue of 90 cm in diameter, 7 m in length and 15 m in depth (Zeni Lite buoy Co. Model ZTB-R1S4). Signal transmitted from the drifter are sent to GES(Gateway Earth Station) via ORBCOMM satellites, and the GES distributes drifter's positions and surface water temperature observed by the drifter to the drifter's owners. The first buoy (ID No. 471) was deployed at 44°37.2'S, 109°25.4'E on December 6, 2005. It continued transmitting data until March 21, 2006. The second one (ID No. 472) was deployed at 55°20.8'S, 109°34.8'E on December 8, 2005. It continued transmitting data until April 10, 2006. The third one (ID No. 473) was deployed at 63°55.1'S, 111°05.4'E on March 9, 2006. It continued transmitting data until April 17 2006. The trajectories are shown in Fig. 8.

(7) Current observation with LADCP

LADCP (RD Instruments Co. 300KHz WH-ADCP) observations were carried out at 13 stations and the results are given in Fig. 9. The current data observed at St.14 - St.16 were excepted, because the compass mounted on LADCP has large error of direction with an accuracy of about 5 degrees or more where horizontal magnetic intensity is below 3,000 nT (Kikuchi *et al.* 2004).

2. Tidal observations at Syowa Station

Tidal observations have been continued at Syowa Station since 1965. The tide gauge (QWP-8-303D, Meisei Denki Co.) was installed on the sea bottom, about 15 m water depth, Nisino-ura Cove, East Ongle Island by the JARE-36 member on February 2, 1995, and has been continuing observation. The result obtained from February 2005 to January 2006 are described in this report. The methodology of tidal observations is followed Odamaki *et al.* (1991). In this system, the relative water pressure compensated for atmospheric pressure is measured with a quartz oscillator. The range of this system is 0-50 m and its precision is 0.01 m. The data sampled once per 2s are averaged over 30s on hard disk of recording PC. The gauge was maintained by a member of the winter party of JARE-46, through the year. Hourly sea level was recorded on the hour. Daily and monthly mean sea levels were calculated from the hourly data. The results are given in Table 6. The least squares method was employed to the harmonic analysis for one year. The harmonic constants, characteristics of the tide and other details are given in Table 7.

On the zero level of the tide gauge:

Every summer, the zero level of the tide gauge has been routinely checked. And, since February 1, 2001, the level of 500 cm below the bench mark No. 1040 was adopted as the reference of the tide levels.

Acknowledgments

The authors would like to express their sincere thanks to Mr. K. Shiraishi (the leader of JARE-47), Mr. K. Matubara (the leader of JARE-46), Mr. K. Kamiyama (the winter party leader of JARE-47), Dr. K. Watanabe (the winter party leader of JARE-46) and to all the member of JARE-47 and JARE-46 for their helpful support and valuable advices. The authors also express their sincere thanks to Ms. K. Egawa, a member of JARE-46 winter party, who maintained the tide gauge throughout a whole year. The authors also express their thanks to Captain S. Ohira, the officers and all crew of the icebreaker "Shirase".

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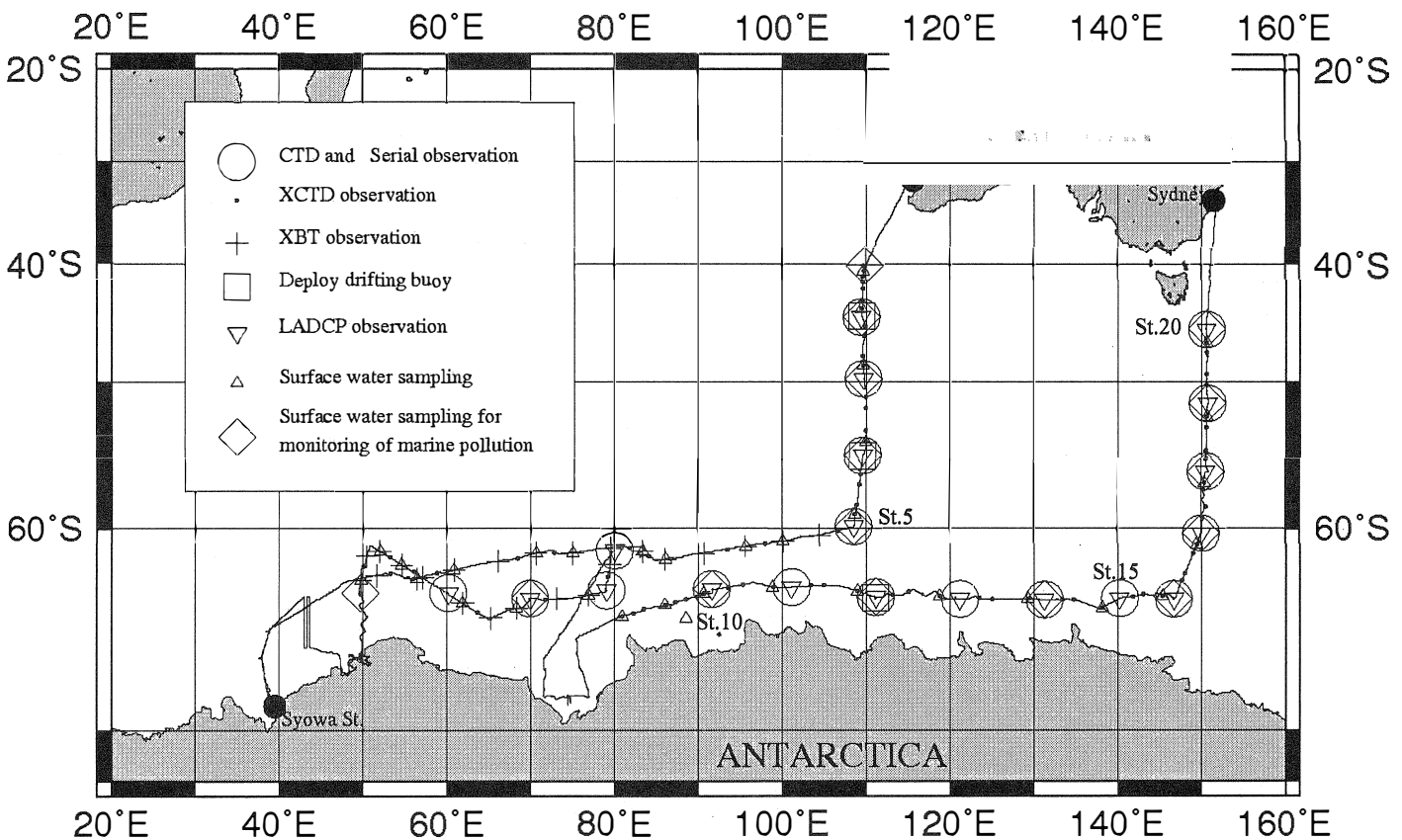


Fig. 1. The track of the icebreaker Shirase and the site of oceanographic stations.

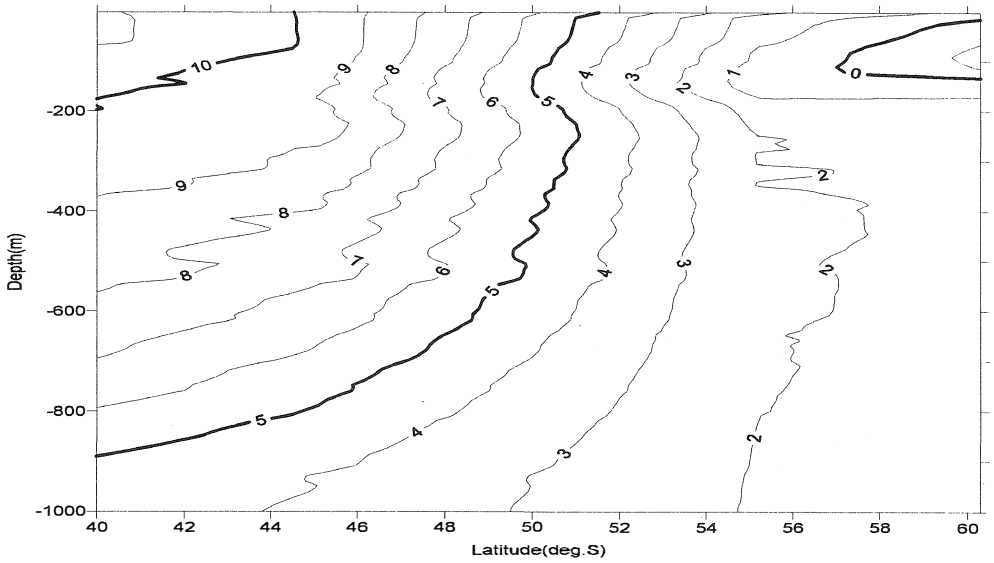


Fig. 2. Vertical profile of water temperature (℃) observed with XCTD along 110 ° E.

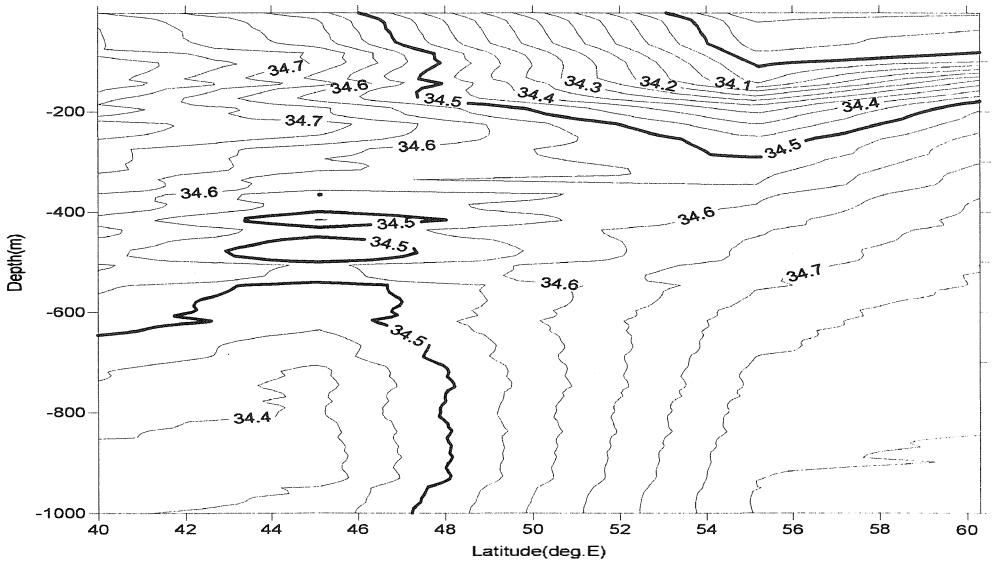


Fig. 3. Vertical profile of water salinity observed with XCTD along 110 ° E.

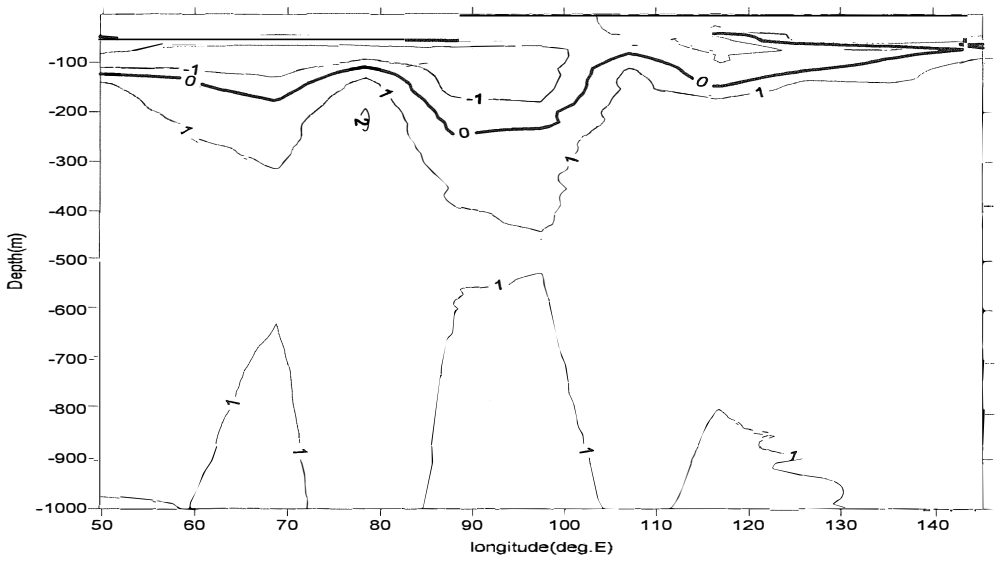


Fig. 4. Vertical profile of water temperature (℃) observed with XCTD along 64 ° S.

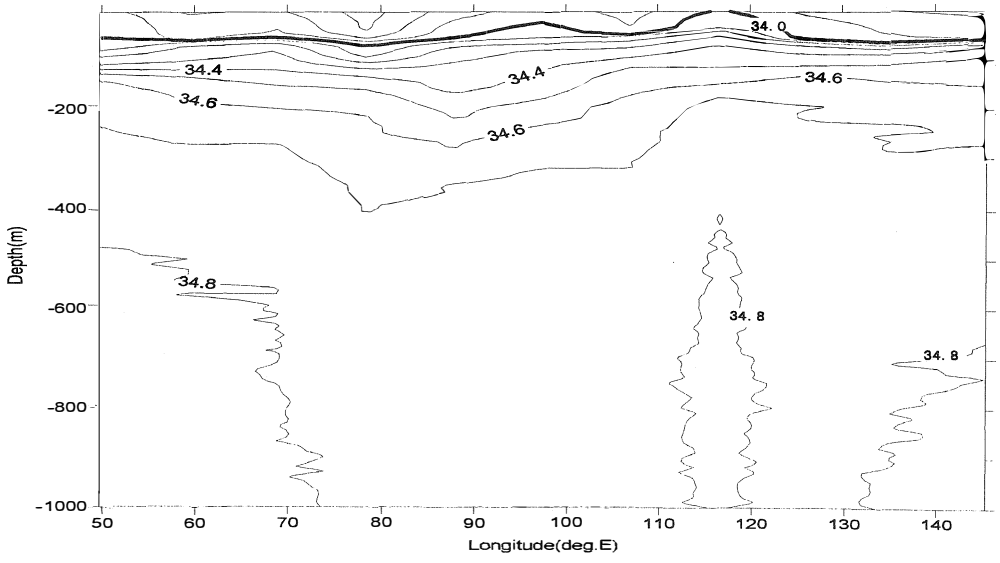


Fig. 5. Vertical profile of water salinity observed with XCTD along 64 ° S.

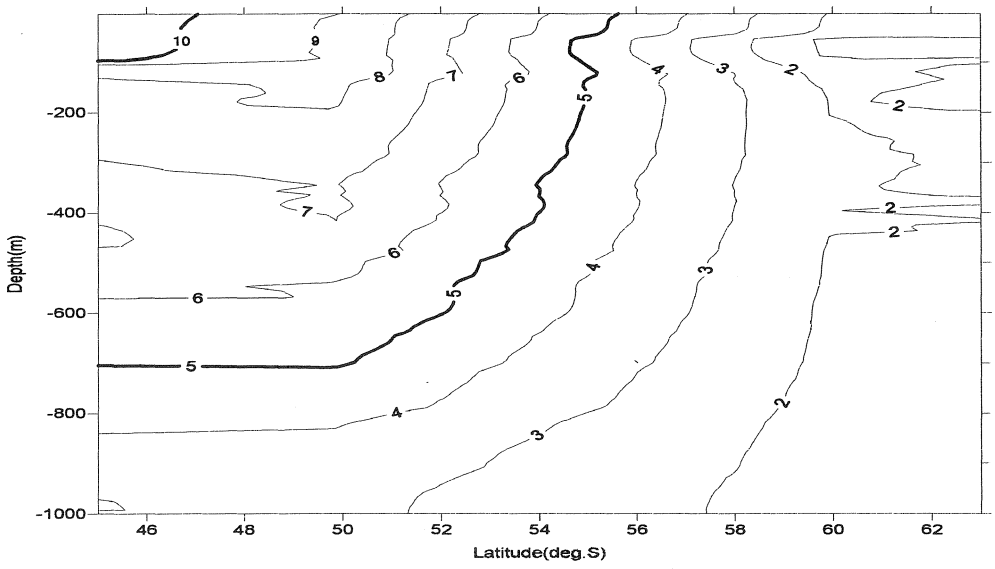


Fig. 6. Vertical profile of water temperature (℃) observed with XCTD along 150 ° E.

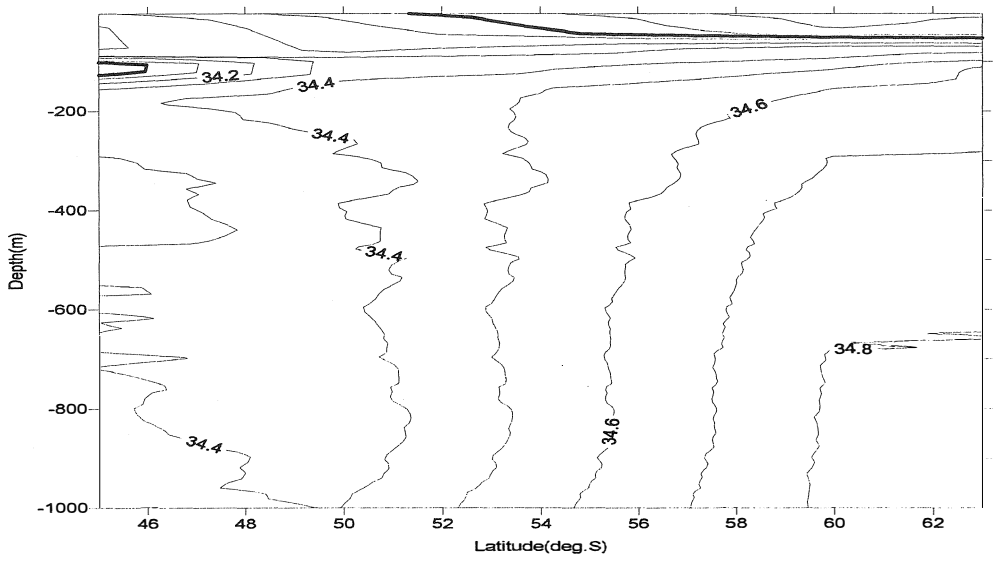


Fig. 7. Vertical profile of water salinity observed with XCTD along 150 ° E.

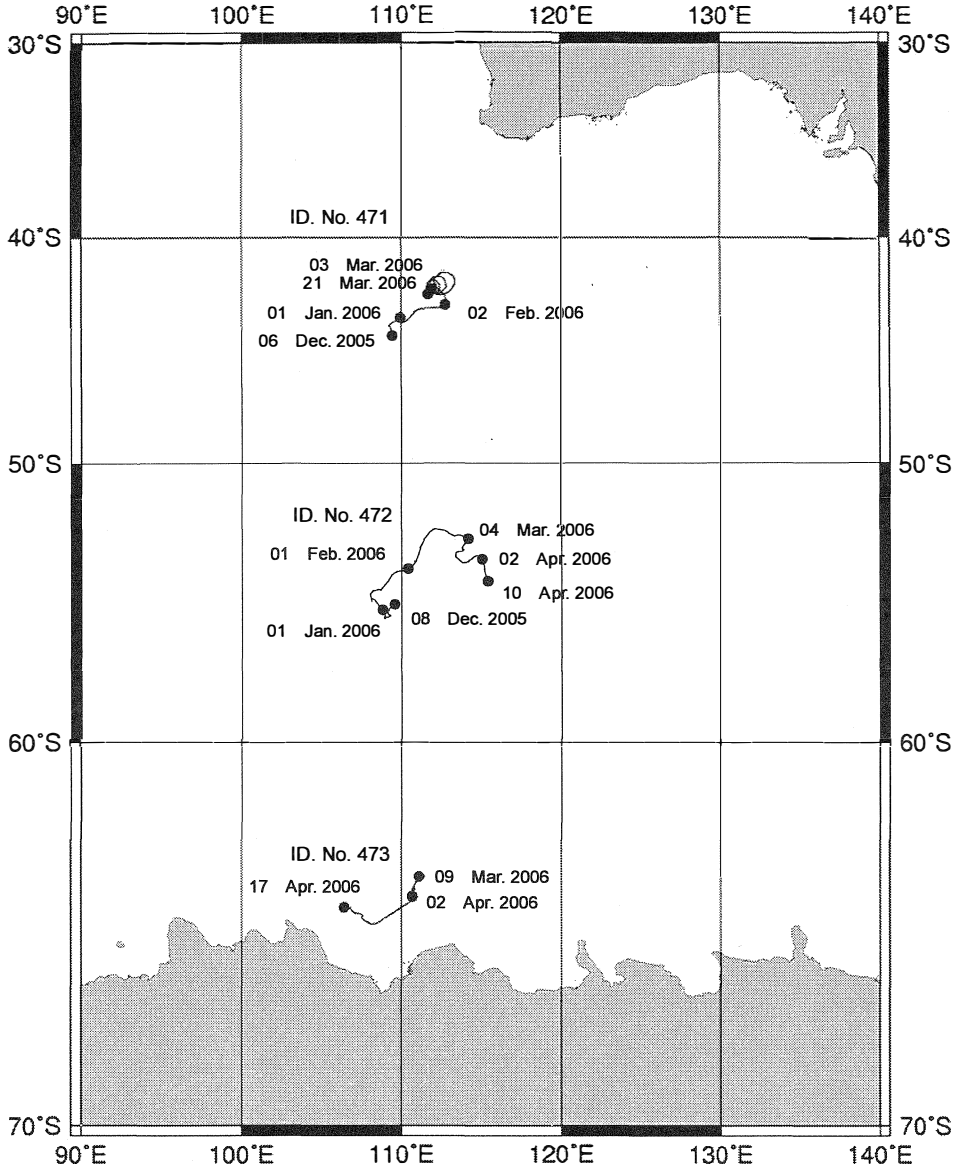
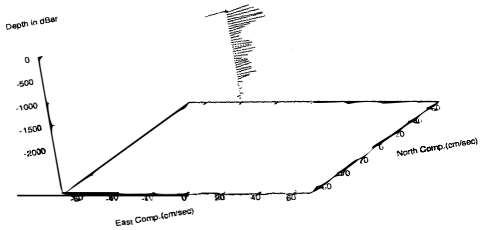


Fig. 8. Trajectories of three surface drifting buoys. Solid circles denote the deployment location and the location on the first day of every month.

St.2 : reference 2,000dBar.



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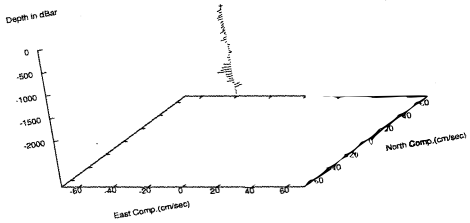

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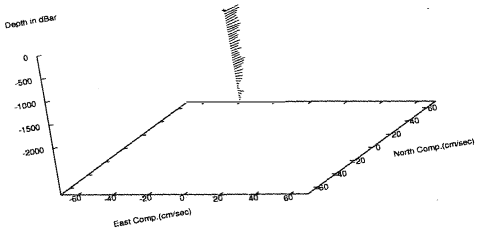

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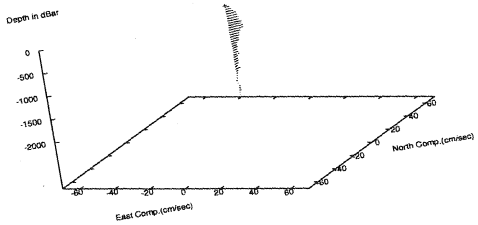
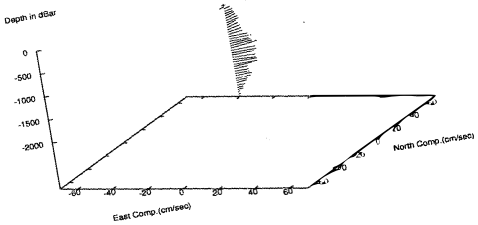


St.7 : reference 2,000dBar.



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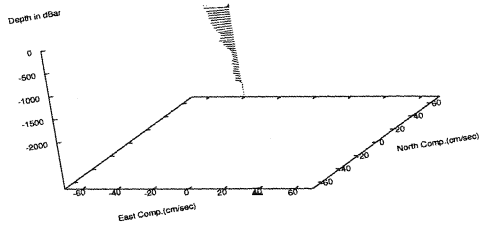

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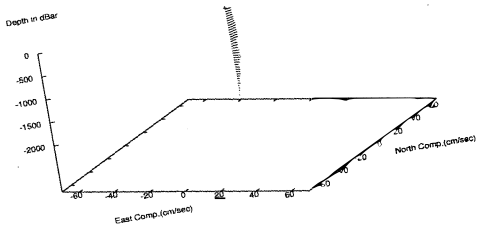


St.11 : reference 2,000dBar.

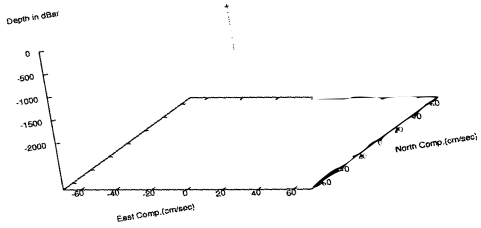
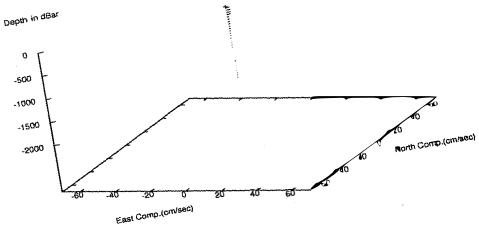
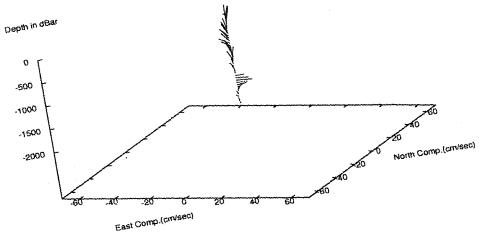


Fig. 9. Vertical profile of current observed with LADCP.

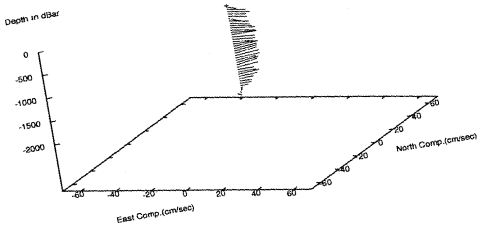
St.13 : reference 2,000dBar.



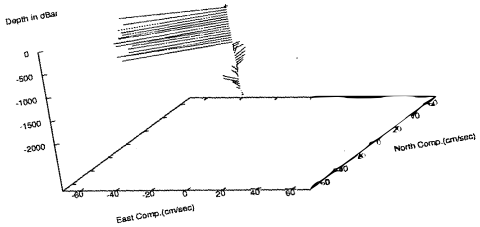
St.17 : reference 2,000dBar.



St.18 : reference 2,000dBar.



St.19 : reference 2,000dBar.



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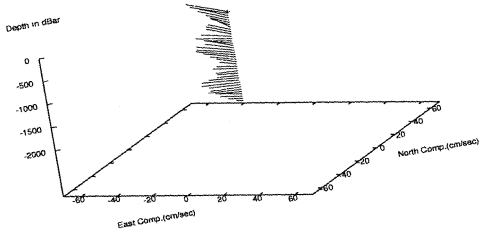

Fig. 9. (continued)

Table 1. Data of surface water observations on board the icebreaker "Shirase" in 2005-2006.

Date	Time	Position		Station No.	Air Temp	Water Temp	Salinity	pH	Dissolved Oxygen	Phosphate	Silicate	Nitrite	Nitrate
(UT)		Lat.	Long.		(°C)				(μmol/L)				
2005		Left Fremantle											
Dec. 5	5:40	47-07.7	109-52.1		10.0	11.6	34.834	7.74	304.12	0.653	0.429	0.197	8.830
5	8:00	40-33.3	109-45.9		10.0	11.3	34.753	7.80	289.52	0.712	0.974	0.165	9.454
6	2:00	43-56.7	109-26.7		9.9	10.6	34.740	8.05	296.36	0.773	1.537	0.168	10.832
6	7:35	44-38.1	109-25.1	St.2	10.2	10.1	34.755	7.99	287.80	0.830	2.600	0.110	12.020
7	1:55	48-41.1	109-38.5		6.6	6.8	34.106	8.08	313.85	1.210	0.332	0.278	19.285
7	7:07	49-44.1	109-41.9	St.3	5.7	4.8	33.877	7.94	349.10	1.470	0.000	0.280	23.370
8	1:56	54-22.9	109-57.8		3.0	2.7	33.926	8.00	-	1.770	17.076	0.337	27.838
8	7:47	55-20.4	109-34.7	St.4	4.3	2.7	33.922	7.88	346.30	1.700	16.400	0.340	27.740
9	1:55	59-08.4	108-42.0		1.2	2.4	33.946	8.06	350.26	1.829	22.290	0.313	28.333
9	7:52	59-55.1	108-28.9	St.5	0.5	0.4	33.924	7.96	382.80	1.810	34.200	0.280	28.550
10	0:56	60-46.4	100-06.4		0.3	0.2	33.972	8.01	364.44	1.962	40.145	0.264	29.158
10	8:56	61-05.0	95-38.9		0.1	-0.3	34.003	7.90	368.64	1.833	47.678	0.223	28.838
11	1:56	61-49.6	86-04.8		1.4	-0.9	33.831	7.90	358.35	1.692	50.128	0.107	27.330
11	9:57	61-21.4	83-19.5		-0.2	-0.8	33.778	7.98	353.93	1.677	50.180	0.210	26.731
12	1:54	61-27.2	75-02.9		-0.8	-0.8	33.610	8.01	376.64	1.291	31.134	0.192	22.236
12	9:54	61-28.3	70-40.1		-0.5	-0.6	33.639	8.01	371.04	1.607	40.702	0.257	28.065
13	2:56	62-24.5	60-51.3		-1.3	-1.2	33.690	7.97	368.59	1.723	47.793	0.245	29.095
13	10:57	62-52.5	56-27.5		-1.0	-1.1	33.760	7.95	363.90	1.700	52.489	0.254	28.176
		Arrived at the ice edge of SYOWA station											
2006		Left at the ice edge of SYOWA station											
Feb. 24	9:30	63-40.1	49-41.1		1.7	0.0	33.979	8.07	376.17	1.849	56.179	0.314	28.190
24	12:55	62-57.0	49-46.1		0.8	0.8	33.899	8.15	350.36	1.817	53.786	0.337	27.413
25	4:55	61-20.6	52-03.9		1.1	1.6	33.758	8.05	350.77	1.747	43.637	0.294	26.993
25	12:55	62-06.7	54-37.9		0.1	0.9	33.807	8.11	351.95	1.811	50.090	0.332	28.158
26	5:50	63-37.3	60-08.5	St.7	-0.7	0.8	33.829	8.09	352.70	1.880	53.800	0.350	28.770
26	11:55	64-09.5	61-52.8		0.0	0.6	33.855	8.08	352.71	1.920	66.649	0.252	29.883
27	3:55	64-26.3	68-19.5		-1.2	0.5	33.807	8.10	352.51	1.823	56.309	0.295	28.407
27	10:20	63-55.4	69-55.1	St.8	0.8	0.6	33.826	8.10	350.30	1.820	54.100	0.320	28.230
28	2:55	63-44.3	76-56.5		-0.2	0.6	33.778	8.09	355.06	1.691	47.282	0.263	27.228
28	10:00	63-30.5	78-56.1	St.9	-0.1	0.6	33.868	8.09	348.00	1.900	58.700	0.320	29.200
Mar. 1	7:40	61-15.9	80-02.4	Sed.	-0.6	1.1	33.741	8.11	354.90	1.630	34.400	0.360	26.980
5	10:55	64-52.2	80-55.0		1.0	0.4	33.844	8.13	353.04	1.904	59.439	0.287	28.501
6	2:53	64-16.9	86-03.6		0.3	0.6	33.852	8.07	351.87	1.913	60.511	0.292	28.518
6	10:57	64-57.8	88-32.1		1.2	0.7	33.934	8.10	352.34	1.868	64.520	0.274	27.841
7	1:53	63-40.4	90-37.0		-1.0	0.3	33.933	8.11	353.39	1.864	65.538	0.243	27.675
7	8:38	63-27.1	91-33.4	St.10	0.5	0.9	34.038	8.11	346.60	1.830	56.700	0.270	27.380
8	1:55	63-21.0	98-52.7		-0.2	0.7	34.014	8.12	346.84	1.926	62.557	0.238	28.566
8	7:25	63-20.1	101-05.8	St.11	-1.2	0.2	33.785	8.10	352.10	1.870	62.500	0.240	28.310
9	0:55	63-32.5	108-57.7		-0.1	1.3	33.955	8.10	344.65	1.958	54.742	0.323	29.005
9	7:25	63-53.9	111-06.6	St.12	1.4	1.0	34.017	8.11	346.10	1.900	58.600	0.300	28.640
10	0:55	63-48.2	118-44.6		1.1	1.5	34.086	7.94	345.88	1.826	51.068	0.255	28.596
10	7:40	63-58.7	121-10.6	St.13	1.4	1.2	34.053	7.94	344.70	1.870	49.600	0.270	28.670
10	23:55	63-57.0	129-19.6		0.5	1.9	33.918	8.11	344.45	1.717	34.811	0.308	27.670
11	6:35	64-00.2	131-14.7	St.14	0.7	1.4	33.932	8.09	343.80	1.850	41.800	0.320	28.390
11	22:55	64-25.7	138-09.8		-3.5	1.4	33.907	8.11	345.29	1.686	25.422	0.272	26.768
12	5:35	63-55.5	140-08.3	St.15	-1.2	1.1	33.897	8.13	345.40	1.620	18.400	0.280	26.060
12	22:57	63-48.1	145-21.5		-2.5	1.4	33.840	8.12	342.29	1.656	16.509	0.273	25.820
13	5:35	63-57.3	146-47.5	St.16	-0.3	1.1	33.899	8.10	343.30	1.620	14.900	0.280	25.850
13	22:57	60-56.7	149-27.9		0.2	2.2	33.774	8.17	338.37	1.717	11.685	0.260	26.647
14	4:38	60-15.9	150-04.6	St.17	1.2	2.2	33.803	8.17	340.20	1.710	15.400	0.260	26.370
14	22:55	57-08.3	150-24.9		4.2	4.2	33.769	8.18	329.16	1.727	13.197	0.258	25.868
15	5:02	56-25.5	150-44.5	St.18	5.3	5.8	33.757	8.06	315.00	1.550	0.000	0.170	22.950
15	22:55	52-33.7	150-35.8		8.0	7.2	33.874	8.12	307.56	1.541	2.601	0.300	22.775
16	4:24	51-37.8	150-44.3	St.19	9.5	8.9	34.131	8.11	295.50	1.220	1.200	0.320	17.620
16	22:55	46-49.0	150-35.7		12.8	12.1	34.536	8.18	276.39	0.655	0.457	0.159	8.213
17	4:25	45-42.4	150-32.0	St.20	13.6	14.2	35.021	8.19	266.00	0.370	0.000	0.210	3.000
		Arrived Sydney											

Table 2. XCTD observation data

Station	JA47001		JA47002		JA47003		JA47004		JA47005		JA47006		JA47007		JA47008	
Date	2005/12/5		2005/12/5		2005/12/5		2005/12/5		2005/12/5		2005/12/5		2005/12/6		2005/12/6	
Time(UT)	6:40		9:00		11:54		14:58		16:53		22:53		1:57		13:56	
Latitude	40-07.7S		40-33.3S		41-04.1S		41-37.5S		42-11.7S		43-21.2S		43-56.7S		45-30.3S	
Longitude	109-52.1E		109-45.6E		109-36.2E		109-33.0E		109-34.2E		109-30.9E		109-26.7E		109-50.5E	
Depth(m)	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity
0	11.76	34.75	11.40	34.69	11.08	34.69	10.85	34.68	10.90	34.66	10.82	34.71	10.70	34.65	9.59	34.54
10	11.74	34.77	11.39	34.71	11.08	34.71	10.85	34.70	10.89	34.69	10.81	34.73	10.69	34.70	9.59	34.56
20	11.74	34.78	11.39	34.72	11.07	34.71	10.84	34.71	10.88	34.70	10.80	34.74	10.69	34.71	9.59	34.57
30	11.73	34.79	11.39	34.73	11.07	34.72	10.84	34.72	10.88	34.71	10.80	34.74	10.69	34.71	9.59	34.57
50	11.73	34.79	11.38	34.74	11.06	34.72	10.84	34.73	10.88	34.71	10.80	34.75	10.69	34.72	9.60	34.59
75	11.32	34.80	11.11	34.83	11.04	34.73	10.82	34.73	10.78	34.71	10.79	34.76	10.66	34.73	9.63	34.63
100	10.62	34.85	10.50	34.85	10.35	34.74	10.26	34.73	9.97	34.69	10.62	34.75	10.33	34.74	9.40	34.65
125	10.67	34.90	10.50	34.86	10.09	34.77	9.89	34.72	9.79	34.71	9.97	34.74	10.01	34.75	9.16	34.61
150	10.60	34.88	10.45	34.86	9.95	34.76	9.83	34.74	9.77	34.71	9.77	34.74	9.97	34.77	9.16	34.62
200	10.36	34.84	10.41	34.85	9.91	34.76	9.72	34.75	9.72	34.70	9.72	34.75	9.80	34.74	8.99	34.62
250	10.16	34.80	10.29	34.84	9.78	34.74	9.66	34.75	9.67	34.70	9.66	34.74	9.74	34.74	9.15	34.67
300	10.15	34.80	10.24	34.83	9.72	34.73	9.50	34.73	9.67	34.70	9.60	34.74	9.69	34.73	8.49	34.56
400	9.63	34.74	9.64	34.74	9.54	34.73	9.50	34.75	9.63	34.72	9.47	34.75	9.61	34.75	7.47	34.43
500	9.27	34.69	9.27	34.69	9.24	34.69	9.19	34.71	9.38	34.69	9.23	34.71	9.31	34.70	7.00	34.47
600	8.88	34.64	8.94	34.65	8.93	34.65	8.78	34.67	9.05	34.64	8.90	34.67	8.84	34.64	5.95	34.40
700	8.16	34.56	8.25	34.58	8.16	34.57	7.99	34.58	8.59	34.58	8.27	34.59	8.07	34.56	5.07	34.36
800	7.06	34.48	7.23	34.50	7.34	34.52	7.02	34.52	7.70	34.51	7.31	34.53	6.88	34.49	4.37	34.37
900	5.79	34.41	5.95	34.44	6.07	34.44	5.96	34.47	6.51	34.44	6.23	34.47	5.79	34.43	3.79	34.37
1000	4.98	34.38	4.76	34.40	4.92	34.39	5.00	34.43	5.34	34.39	5.11	34.43	4.81	34.41	3.54	34.42

Station	JA470009		JA470010		JA470011		JA470012		JA470013		JA470014		JA470015		JA470016	
Date	2005/12/6		2005/12/6		2005/12/7		2005/12/7		2005/12/7		2005/12/7		2005/12/8		2005/12/8	
Time(UT)	17:04		22:54		1:53		13:55		16:53		23:00		1:54		13:54	
Latitude	46-17.2S		47-56.1S		48-41.1S		51-09.5S		51-56.8S		53-35.5S		54-22.9S		56-33.6S	
Longitude	109-48.2E		109-35.9E		109-38.5E		109-55.4E		109-57.7E		109-57.6E		109-57.8E		109-19.6E	
Depth(m)	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity
0	9.53	34.53	7.83	34.21	6.73	34.04	3.79	33.88	2.63	33.82	2.96	33.89	2.41	33.84	2.09	33.86
10	9.53	34.55	7.83	34.23	6.72	34.07	3.69	33.89	2.16	33.88	2.70	33.91	1.82	33.88	1.76	33.87
20	9.53	34.56	7.82	34.25	6.69	34.09	3.45	33.90	2.03	33.91	2.55	33.94	1.67	33.90	1.56	33.90
30	9.53	34.56	7.82	34.25	6.69	34.09	3.41	33.91	1.98	33.93	2.51	33.94	1.62	33.92	1.51	33.90
50	9.53	34.56	7.80	34.26	6.46	34.07	3.37	33.92	1.96	33.95	2.31	33.95	1.60	33.92	1.04	33.91
75	9.47	34.56	6.75	34.18	5.47	34.06	3.08	33.93	1.52	33.97	2.02	33.96	1.09	33.96	0.86	33.92
100	8.76	34.52	6.90	34.22	5.14	34.05	2.97	33.94	1.38	33.97	1.97	33.96	0.95	33.98	0.82	33.98
125	9.12	34.61	6.98	34.25	5.07	34.07	2.81	33.95	1.20	33.99	1.48	33.99	0.61	34.02	0.45	34.00
150	9.07	34.60	6.81	34.27	5.22	34.12	2.20	33.95	0.47	34.03	1.22	34.01	0.55	34.09	0.27	34.04
200	8.94	34.59	6.74	34.28	4.88	34.15	1.92	34.00	0.33	34.09	1.40	34.10	1.61	34.34	1.37	34.23
250	9.15	34.64	6.48	34.27	4.52	34.16	1.61	34.05	1.09	34.22	1.81	34.21	2.01	34.45	1.85	34.35
300	8.70	34.57	6.06	34.25	3.87	34.12	2.42	34.19	1.74	34.37	2.13	34.31	2.02	34.50	1.91	34.44
400	7.84	34.45	5.74	34.33	3.91	34.23	2.36	34.30	1.94	34.50	2.28	34.44	2.18	34.62	2.14	34.54
500	6.74	34.37	4.99	34.34	3.71	34.29	2.37	34.40	2.23	34.61	2.33	34.53	2.08	34.66	2.20	34.62
600	6.44	34.41	4.05	34.30	3.13	34.31	2.20	34.46	2.20	34.66	2.31	34.62	2.11	34.72	2.18	34.68
700	5.31	34.35	3.91	34.38	2.98	34.38	2.27	34.55	2.15	34.71	2.29	34.66	2.05	34.75	2.14	34.72
800	4.48	34.33	3.42	34.39	2.85	34.46	2.28	34.62	2.11	34.76	2.25	34.71	2.03	34.78	2.08	34.74
900	4.11	34.38	3.07	34.43	2.71	34.49	2.25	34.68	2.07	34.78	2.18	34.75	1.96	34.80	2.04	34.77
1000	3.66	34.40	2.87	34.48	2.61	34.56	2.22	34.72	2.03	34.80	2.11	34.78	1.90	34.82	1.96	34.78

*Adoption for "Depth 0" for a numerical value of 4m.

Station	JA480017		JA480018		JA480019		JA480020		JA480021		JA480022		JA480023		JA480024	
Date	2005/12/8		2005/12/8		2005/12/9		2005/12/9		2005/12/10		2005/12/10		2005/12/11		2005/12/11	
Time(UT)	16:52		22:56		1:53		12:56		4:56		13:01		5:53		13:57	
Latitude	57-16.0S		58-35.1S		59-08.4S		60-08.8S		60-56.2S		61-17.0S		61-38.2S		61-09.5S	
Longitude	109-11.1E		108-54.6E		108-42.0E		106-39.9E		97-54.0E		93-23.8E		84-00.6E		81-49.2E	
Depth(m)	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity
0	2.61	33.85	2.08	33.83	2.18	33.90	0.15	33.88	-0.19	33.89	-0.62	33.91	-0.87	33.76	-0.63	33.77
10	1.60	33.87	1.97	33.88	1.21	33.91	0.12	33.93	-0.22	33.92	-0.65	33.96	-0.93	33.78	-0.65	33.81
20	1.41	33.89	1.12	33.91	1.08	33.92	-0.07	33.94	-0.25	33.93	-0.72	33.99	-1.10	33.81	-0.67	33.83
30	1.37	33.90	0.88	33.92	0.99	33.93	-0.64	33.94	-0.27	33.94	-0.80	34.02	-1.24	33.82	-0.71	33.85
50	0.85	33.92	0.65	33.94	0.54	33.95	-1.05	33.99	-0.60	34.01	-0.98	34.04	-1.47	33.98	-1.13	33.92
75	0.39	33.94	0.17	33.97	0.35	33.97	-1.30	34.00	-1.28	34.09	-1.42	34.16	-1.17	34.19	-0.81	34.19
100	0.12	33.96	-0.19	33.98	0.16	34.00	-1.54	34.05	-1.18	34.13	-1.16	34.26	0.59	34.40	0.59	34.42
125	-0.22	33.98	-0.44	33.99	0.55	34.12	-0.75	34.21	-0.46	34.27	-0.26	34.38	1.20	34.49	1.23	34.53
150	-0.24	34.03	-0.28	34.07	1.20	34.25	0.59	34.40	-0.16	34.35	0.72	34.51	1.50	34.54	1.54	34.58
200	1.38	34.30	0.74	34.30	1.79	34.41	1.51	34.55	0.80	34.50	1.55	34.66	1.76	34.61	1.81	34.65
250	1.81	34.42	1.58	34.43	2.00	34.49	1.68	34.62	1.31	34.61	1.69	34.70	1.90	34.65	1.87	34.68
300	1.94	34.50	1.88	34.53	2.07	34.54	1.76	34.65	1.49	34.67	1.74	34.73	1.93	34.68	1.88	34.71
400	2.08	34.59	2.01	34.63	2.11	34.62	1.79	34.71	1.71	34.74	1.71	34.76	1.92	34.73	1.89	34.75
500	2.09	34.66	1.93	34.68	2.14	34.68	1.78	34.75	1.66	34.76	1.72	34.79	1.89	34.75	1.84	34.77
600	2.04	34.69	1.98	34.74	2.08	34.73	1.76	34.78	1.61	34.79	1.65	34.81	1.83	34.78	1.77	34.78
700	2.02	34.74	2.00	34.77	2.04	34.76	1.70	34.78	1.61	34.82	1.59	34.82	1.75	34.79	1.69	34.79
800	1.98	34.76	1.94	34.80	2.00	34.78	1.62	34.79	1.53	34.82	1.45	34.82	1.68	34.80	1.62	34.79
900	1.95	34.77	1.87	34.81	1.92	34.79	1.56	34.80	1.46	34.84	1.40	34.83	1.60	34.81	1.49	34.79
1000	1.88	34.79	1.82	34.82	1.85	34.80	1.49	34.80	1.38	34.84	1.27	34.83	1.54	34.81	1.39	34.79

Station	JA470025		JA470026		JA470027		JA470028		JA470029		JA470030		JA470031		JA470032	
Date	2005/12/12		2005/12/12		2005/12/13		2005/12/13		2006/2/24		2006/2/24		2006/2/25		2006/2/25	
Time(UT)	5:54		13:55		6:56		17:04		9:26		16:55		8:52		16:57	
Latitude	61-26.5S		61-47.0S		62-34.2S		62-36.4S		63-40.1S		62-12.9S		61-41.9S		62-31.0S	
Longitude	72-48.8E		68-27.5E		58-48.7E		53-18.0E		49-41.1E		50-05.9E		53-14.7E		56-02.8E	
Depth(m)	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity
0	-1.42	33.42	-1.02	33.67	-1.40	33.63	-1.13	33.64	0.12	33.95	1.15	33.74	1.14	33.66	0.68	33.75
10	-1.43	33.44	-1.09	33.69	-1.46	33.65	-1.13	33.69	0.09	33.97	1.13	33.75	1.13	33.68	0.66	33.78
20	-1.34	33.54	-1.27	33.71	-1.49	33.68	-1.15	33.69	0.08	33.99	1.13	33.76	1.11	33.71	0.65	33.79
30	-1.47	33.63	-1.36	33.74	-1.52	33.69	-1.38	33.85	0.08	34.01	1.13	33.77	1.09	33.72	0.64	33.80
50	-1.65	33.94	-1.76	33.90	-1.72	33.92	-1.75	34.04	0.05	34.02	0.77	33.78	1.07	33.74	0.63	33.82
75	-1.51	34.04	-1.68	34.00	-1.73	34.08	-1.75	34.15	-0.07	34.03	-1.62	34.06	-1.43	33.96	-1.58	34.09
100	-1.43	34.11	-1.48	34.04	-1.18	34.21	-0.88	34.27	-1.46	34.25	-1.57	34.12	-1.35	34.11	-1.15	34.21
125	0.38	34.33	-0.46	34.19	0.79	34.47	1.18	34.54	0.23	34.52	-0.58	34.24	-0.24	34.30	0.29	34.43
150	1.53	34.48	0.50	34.34	1.45	34.57	1.47	34.60	1.23	34.63	0.89	34.45	0.98	34.46	1.34	34.58
200	1.82	34.57	1.67	34.54	1.64	34.63	1.61	34.66	1.45	34.69	1.39	34.56	1.63	34.58	1.57	34.64
250	1.92	34.62	1.86	34.63	1.72	34.68	1.67	34.69	1.50	34.72	1.60	34.63	1.74	34.65	1.64	34.68
300	1.95	34.66	1.90	34.66	1.75	34.71	1.72	34.72	1.50	34.75	1.65	34.66	1.78	34.68	1.71	34.72
400	2.01	34.72	1.93	34.71	1.74	34.74	1.73	34.76	1.48	34.79	1.65	34.71	1.79	34.72	1.71	34.76
500	1.96	34.74	1.91	34.75	1.70	34.76	1.69	34.78	1.40	34.80	1.63	34.75	1.74	34.76	1.68	34.78
600	1.91	34.77	1.89	34.78	1.60	34.78	1.61	34.79	1.32	34.82	1.59	34.76	1.69	34.78	1.62	34.80
700	1.88	34.79	1.83	34.80	1.53	34.79	1.49	34.80	1.24	34.83	1.51	34.77	1.60	34.80	1.51	34.81
800	1.81	34.79	1.78	34.80	1.46	34.80	1.36	34.80	1.14	34.83	1.44	34.78	1.52	34.80	1.40	34.82
900	1.73	34.81	1.69	34.81	1.36	34.79	1.29	34.81	1.05	34.83	1.36	34.79	1.42	34.81	1.31	34.81
1000	1.66	34.81	1.60	34.82	1.26	34.80	1.23	34.82	0.94	34.84	1.24	34.79	1.32	34.81	1.21	34.82

*Adoption for "Depth 0" for a numerical value of 4m.

Station	JA470033		JA470034		JA470035		JA470036		JA470037		JA470038		JA470039		JA470040	
Date	2006/2/26		2006/2/27		2006/2/28		2006/3/5		2006/3/5		2006/3/5		2006/3/6		2006/3/6	
Time(UT)	16:13		15:56		15:04		10:54		14:53		18:54		2:52		6:54	
Latitude	64-39.1S		64-00.1S		62-47.4S		64-52.2S		64-43.1S		64-29.2S		64-16.9S		64-09.0S	
Longitude	63-38.2E		71-41.7E		79-11.7E		80-55.0E		82-12.7E		83-29.7E		86-03.6E		87-16.6E	
Depth(m)	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity
0	0.16	33.81	0.58	33.81	0.71	33.65	0.28	33.70	0.10	33.77	-0.04	33.74	0.36	33.82	0.48	33.83
10	0.15	33.83	0.57	33.84	0.70	33.66	0.24	33.75	0.08	33.81	-0.05	33.75	0.35	33.83	0.43	33.87
20	0.13	33.84	0.55	33.86	0.69	33.68	0.19	33.78	0.06	33.82	-0.06	33.76	0.34	33.85	0.40	33.90
30	0.12	33.86	0.49	33.88	0.68	33.69	0.17	33.82	0.02	33.83	-0.06	33.77	0.34	33.86	0.38	33.92
50	0.10	33.88	0.19	33.92	0.29	33.78	0.18	33.85	0.00	33.84	-1.16	34.07	0.32	33.88	0.31	33.95
75	-1.65	34.31	-1.59	34.23	-1.19	34.04	-0.88	34.18	-1.50	34.21	-1.73	34.28	-1.37	34.22	-1.53	34.26
100	-1.76	34.36	-1.61	34.30	-0.43	34.19	0.53	34.41	-1.65	34.29	-1.75	34.31	-0.80	34.34	-1.68	34.31
125	-1.59	34.40	-0.57	34.43	0.81	34.37	0.61	34.48	-1.56	34.33	-1.66	34.33	-0.73	34.39	-1.54	34.35
150	-1.32	34.45	0.14	34.53	1.55	34.50	1.12	34.55	-1.39	34.36	-1.66	34.35	0.03	34.49	-1.44	34.39
200	-0.43	34.58	0.82	34.62	1.77	34.57	0.35	34.54	-0.12	34.50	-1.83	34.37	0.04	34.54	-0.61	34.50
250	0.18	34.66	1.07	34.68	1.89	34.62	1.44	34.67	0.58	34.59	0.64	34.59	0.92	34.63	-0.16	34.56
300	0.74	34.72	1.15	34.71	1.89	34.66	1.55	34.70	0.76	34.64	1.10	34.64	1.02	34.67	0.39	34.64
400	1.05	34.77	1.31	34.77	1.94	34.70	1.68	34.74	1.34	34.72	1.61	34.73	1.41	34.75	1.12	34.76
500	1.16	34.80	1.22	34.78	1.91	34.73	1.63	34.77	1.34	34.74	1.68	34.78	1.39	34.76	1.15	34.78
600	1.05	34.80	1.16	34.80	1.85	34.76	1.53	34.79	1.20	34.75	1.13	34.74	1.31	34.77	1.05	34.78
700	0.97	34.81	1.00	34.80	1.80	34.77	1.46	34.80	1.05	34.76	1.08	34.75	1.26	34.78	0.94	34.79
800	0.88	34.81	0.94	34.80	1.71	34.78	1.35	34.79	1.04	34.76	1.10	34.77	1.08	34.77	0.85	34.79
900	0.82	34.80	0.85	34.81	1.64	34.79	1.25	34.80	0.94	34.76	0.93	34.76	1.01	34.77	0.79	34.80
1000	0.75	34.81	0.79	34.80	1.53	34.79	1.17	34.80	0.89	34.77	0.89	34.77	0.94	34.77	0.70	34.79

Station	JA470041		JA470042		JA470043		JA470044		JA470045		JA470046		JA470047		JA470048	
Date	2006/3/6		2006/3/6		2006/3/6		2006/3/7		2006/3/7		2006/3/7		2006/3/8		2006/3/8	
Time(UT)	10:54		14:55		17:53		1:51		13:57		17:52		1:55		14:04	
Latitude	63-57.8S		63-49.6S		63-38.4S		63-40.4S		63-22.3S		63-13.6S		63-21.0S		63-15.4S	
Longitude	88-32.1E		89-48.9E		90-41.3E		90-37.0E		93-30.0E		95-15.3E		98-52.7E		103-27.2E	
Depth(m)	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity
0	0.47	33.88	-0.56	33.56	0.24	33.97	0.19	33.90	0.54	33.98	0.37	33.90	0.61	33.99	1.00	33.96
10	0.45	33.90	-0.65	33.57	0.23	33.97	0.18	33.91	0.51	34.02	0.26	33.94	0.60	34.02	0.93	33.98
20	0.43	33.92	-0.72	33.58	0.28	34.01	0.17	33.91	0.50	34.03	0.21	33.97	0.59	34.03	0.70	33.99
30	0.39	33.95	-0.81	33.59	0.26	34.03	0.14	33.92	0.48	34.04	-0.01	33.99	0.58	34.03	0.66	34.00
50	0.25	34.01	-1.60	33.87	-0.17	34.06	0.17	33.95	0.44	34.05	-0.49	34.14	0.52	34.06	0.56	34.02
75	-0.94	34.18	-1.74	33.98	-1.61	34.23	-1.14	34.23	-1.04	34.25	-1.48	34.26	-1.31	34.30	-1.16	34.27
100	-1.47	34.28	-1.12	34.12	-1.47	34.31	-1.42	34.32	-0.90	34.39	-1.35	34.34	-1.70	34.37	-1.37	34.38
125	-1.38	34.33	1.00	34.46	-1.36	34.36	-1.27	34.37	-0.44	34.47	-1.09	34.41	-1.82	34.41	-0.94	34.45
150	-1.26	34.36	1.49	34.55	-1.32	34.39	-0.76	34.44	0.05	34.54	-0.43	34.50	-1.79	34.42	-0.08	34.55
200	-0.37	34.48	1.70	34.60	-0.87	34.47	0.05	34.55	0.80	34.65	0.99	34.69	-0.78	34.54	0.98	34.67
250	0.29	34.57	1.80	34.65	0.82	34.65	0.79	34.66	1.22	34.72	1.28	34.73	-0.04	34.59	1.31	34.72
300	0.71	34.64	1.81	34.68	1.10	34.70	1.13	34.72	1.31	34.73	1.31	34.75	0.35	34.65	1.38	34.75
400	1.03	34.71	1.82	34.74	1.24	34.73	1.25	34.76	1.28	34.75	1.28	34.77	0.66	34.72	1.38	34.77
500	1.04	34.73	1.76	34.77	1.19	34.75	1.25	34.78	1.21	34.76	1.22	34.79	0.94	34.76	1.32	34.78
600	1.01	34.75	1.74	34.80	1.17	34.76	1.18	34.78	1.14	34.76	1.15	34.79	0.83	34.76	1.25	34.79
700	0.88	34.74	1.67	34.80	1.10	34.76	1.08	34.79	1.05	34.77	1.02	34.79	0.79	34.78	1.16	34.79
800	0.84	34.75	1.58	34.82	0.99	34.76	1.00	34.79	0.96	34.76	0.91	34.79	0.71	34.77	1.09	34.79
900	0.83	34.75	1.47	34.83	0.90	34.76	0.92	34.78	0.86	34.77	0.81	34.79	0.61	34.78	1.01	34.79
1000	0.76	34.75	1.39	34.83	0.83	34.75	0.84	34.80	0.79	34.76	0.73	34.80	0.52	34.77	0.90	34.79

*Adoption for "Depth 0" for a numerical value of 4m.

Station	JA470049		JA470050		JA470051		JA470052		JA470053		JA470054		JA470055		JA470056	
Date	2006/3/8		2006/3/9		2006/3/9		2006/3/9		2006/3/10		2006/3/10		2006/3/10		2006/3/10	
Time(UT)	16:55		0:53		12:54		16:53		0:57		12:55		15:59		23:54	
Latitude	63-14.9S		63-32.5S		63-44.2S		63-35.3S		63-48.2S		63-54.1S		63-57.5S		63-57.0S	
Longitude	104-57.8E		108-57.7E		113-07.6E		115-04.7E		118-44.6E		123-29.1E		125-03.0E		129-19.6E	
Depth(m)	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity
0	1.37	33.86	1.17	33.88	1.05	33.97	1.02	34.02	1.03	34.00	1.03	33.92	1.26	33.88	1.56	33.89
10	1.32	33.89	1.16	33.90	1.03	33.98	1.04	34.05	1.01	34.02	1.00	33.96	1.25	33.90	1.56	33.90
20	1.32	33.90	1.16	33.92	1.00	34.00	1.01	34.07	0.98	34.07	0.91	33.98	1.23	33.93	1.56	33.91
30	1.24	33.91	1.16	33.92	0.99	34.01	0.98	34.08	0.97	34.07	0.89	34.00	1.22	33.95	1.55	33.92
50	0.86	33.92	0.77	33.97	0.32	34.08	-1.75	34.32	0.15	34.12	0.74	33.99	1.18	33.97	1.55	33.92
75	-0.39	34.24	-0.27	34.38	-0.83	34.42	-1.80	34.36	-0.26	34.50	-1.78	34.28	-1.11	34.32	-0.71	34.30
100	0.08	34.37	0.47	34.50	0.43	34.57	-1.72	34.40	0.61	34.63	-1.65	34.34	-0.86	34.41	0.45	34.52
125	0.83	34.48	1.08	34.59	0.91	34.63	-1.52	34.44	0.99	34.67	-1.35	34.40	-0.03	34.53	0.91	34.58
150	1.11	34.53	1.11	34.61	1.16	34.67	-0.30	34.56	1.23	34.71	-0.80	34.47	0.72	34.60	1.36	34.64
200	1.56	34.63	1.48	34.68	1.39	34.71	1.12	34.72	1.48	34.75	0.21	34.59	1.30	34.68	1.54	34.68
250	1.62	34.66	1.62	34.71	1.50	34.73	1.28	34.75	1.53	34.76	0.95	34.68	1.34	34.71	1.64	34.72
300	1.53	34.68	1.63	34.73	1.51	34.75	1.28	34.76	1.53	34.78	0.97	34.70	1.34	34.72	1.63	34.73
400	1.75	34.73	1.59	34.76	1.43	34.76	1.30	34.78	1.46	34.79	1.09	34.73	1.18	34.74	1.59	34.75
500	1.64	34.75	1.54	34.77	1.38	34.76	1.26	34.80	1.36	34.80	1.07	34.75	1.30	34.76	1.51	34.77
600	1.61	34.76	1.45	34.77	1.29	34.76	1.17	34.80	1.27	34.81	1.08	34.77	1.15	34.75	1.45	34.77
700	1.47	34.77	1.37	34.79	1.20	34.76	1.12	34.81	1.23	34.81	1.06	34.78	1.06	34.77	1.24	34.76
800	1.38	34.78	1.28	34.79	1.10	34.75	0.98	34.81	1.07	34.80	1.02	34.78	1.16	34.79	1.21	34.78
900	1.28	34.77	1.18	34.79	1.02	34.74	0.85	34.81	0.97	34.80	0.87	34.78	0.93	34.77	1.12	34.77
1000	1.21	34.78	1.08	34.79	0.94	34.74	0.77	34.80	0.88	34.80	0.87	34.79	0.87	34.78	1.02	34.77

Station	JA470057		JA470058		JA470059		JA470060		JA470061		JA470062		JA470063		JA470064	
Date	2006/3/11		2006/3/11		2006/3/11		2006/3/12		2006/3/12		2006/3/12		2006/3/13		2006/3/13	
Time(UT)	11:54		14:55		22:55		11:08		14:54		22:57		11:54		13:53	
Latitude	63-59.5S		64-00.3S		64-25.7S		63-50.5S		63-43.2S		63-48.1S		62-58.5S		62-36.2S	
Longitude	133-24.2E		134-46.5E		138-09.8E		141-47.5E		143-04.1E		145-21.5E		147-40.1E		148-01.4E	
Depth(m)	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity
0	1.34	33.89	1.61	33.79	1.37	33.84	1.46	33.75	1.61	33.78	1.48	33.77	1.86	33.79	2.23	33.71
10	1.33	33.90	1.59	33.84	1.36	33.87	1.44	33.79	1.60	33.81	1.47	33.80	1.85	33.81	2.22	33.76
20	1.34	33.91	1.57	33.86	1.36	33.88	1.42	33.82	1.58	33.83	1.45	33.81	1.84	33.82	2.21	33.78
30	1.34	33.91	1.56	33.87	1.35	33.89	1.42	33.82	1.58	33.83	1.44	33.83	1.84	33.83	2.20	33.79
50	1.33	33.92	1.55	33.90	1.35	33.91	1.42	33.85	1.55	33.86	1.41	33.84	1.83	33.84	2.20	33.80
75	-0.48	34.29	-1.04	34.22	-1.03	34.29	-0.91	34.07	-0.59	34.16	0.38	34.40	-0.84	34.15	-0.80	34.06
100	0.88	34.52	0.37	34.46	-0.24	34.43	-1.19	34.29	0.68	34.37	1.43	34.54	0.86	34.36	-0.44	34.18
125	1.35	34.58	1.07	34.56	-0.07	34.48	-0.46	34.41	1.40	34.49	1.56	34.57	1.67	34.48	0.61	34.32
150	1.47	34.61	1.41	34.63	0.62	34.57	0.16	34.49	1.62	34.53	1.66	34.60	1.76	34.53	1.33	34.43
200	1.67	34.68	1.51	34.68	1.14	34.63	1.22	34.62	1.93	34.62	1.86	34.66	1.89	34.59	1.76	34.54
250	1.78	34.72	1.44	34.70	1.28	34.67	1.46	34.67	1.96	34.66	1.88	34.69	1.92	34.64	1.99	34.62
300	1.78	34.74	1.39	34.73	1.37	34.69	1.39	34.67	1.90	34.67	1.85	34.72	1.96	34.68	2.01	34.66
400	1.56	34.74	1.36	34.76	1.23	34.71	1.51	34.72	1.94	34.72	1.87	34.75	1.99	34.73	2.01	34.71
500	1.56	34.77	1.40	34.78	1.44	34.75	1.46	34.73	1.88	34.75	1.82	34.78	1.97	34.76	1.98	34.74
600	1.39	34.76	1.24	34.78	1.33	34.75	1.42	34.74	1.83	34.76	1.74	34.79	1.90	34.78	1.98	34.78
700	1.10	34.75	1.23	34.79	1.26	34.76	1.40	34.76	1.74	34.76	1.69	34.81	1.84	34.79	1.88	34.80
800	0.98	34.75	1.10	34.80	1.21	34.77	1.36	34.77	1.67	34.78	1.62	34.82	1.77	34.81	1.83	34.81
900	0.86	34.74	1.02	34.80	1.11	34.76	1.23	34.76	1.61	34.78	1.53	34.81	1.71	34.82	1.79	34.82
1000	0.84	34.75	1.08	34.82	1.01	34.76	1.16	34.76	1.50	34.78	1.47	34.82	1.64	34.82	1.70	34.82

*Adoption for "Depth 0" for a numerical value of 4m.

Station	JA470065		JA470066		JA470067		JA470068		JA470069		JA470070		JA470071		JA470072	
Date	2006/3/13		2006/3/13		2006/3/14		2006/3/14		2006/3/14		2006/3/14		2006/3/15		2006/3/15	
Time(UT)	19:54		22:55		10:56		13:53		19:54		22:53		10:55		13:52	
Latitude	61-30.3S		60-56.7S		59-16.9S		58-42.1S		57-38.3S		57-08.3S		55-35.8S		55-02.6S	
Longitude	149-00.7E		149-27.9E		150-10.7E		150-31.2E		150-15.2E		150-24.9E		150-30.7E		150-29.8E	
Depth(m)	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity
0	2.25	33.68	2.21	33.73	1.92	33.71	2.53	33.74	3.88	33.69	4.03	33.72	7.48	34.07	7.09	33.94
10	2.24	33.72	2.19	33.76	1.91	33.75	2.53	33.75	3.88	33.72	4.02	33.73	7.48	34.08	7.08	33.97
20	2.22	33.74	2.19	33.76	1.89	33.78	2.53	33.76	3.88	33.74	4.02	33.74	7.48	34.10	7.09	33.98
30	2.22	33.75	2.19	33.77	1.87	33.80	2.52	33.77	3.87	33.74	4.00	33.75	7.47	34.10	7.09	33.98
50	2.20	33.77	2.18	33.77	0.73	34.03	2.50	33.77	3.86	33.76	3.99	33.76	7.49	34.10	7.09	33.99
75	-0.96	33.97	-0.93	33.95	1.41	34.52	-0.30	34.03	-0.24	33.88	3.53	33.78	7.51	34.12	7.09	33.99
100	-0.70	34.08	-0.53	34.07	1.82	34.60	0.68	34.33	-0.37	34.01	-0.38	34.03	7.39	34.18	7.12	34.00
125	0.21	34.24	1.01	34.27	1.85	34.64	1.67	34.49	0.91	34.21	0.38	34.25	6.67	34.27	7.13	34.12
150	1.18	34.36	1.69	34.38	1.89	34.68	1.89	34.56	1.74	34.36	1.17	34.37	6.56	34.27	5.55	34.13
200	1.94	34.50	2.09	34.48	1.93	34.71	2.00	34.61	2.11	34.46	1.74	34.48	6.20	34.26	5.66	34.20
250	2.09	34.57	2.21	34.55	1.94	34.73	2.03	34.65	2.23	34.52	2.01	34.56	5.85	34.24	4.31	34.05
300	2.09	34.60	2.22	34.59	1.94	34.75	2.00	34.67	2.25	34.57	2.11	34.60	5.53	34.25	4.42	34.13
400	2.05	34.67	2.19	34.65	1.89	34.78	1.95	34.71	2.24	34.63	2.14	34.67	5.16	34.30	4.79	34.28
500	2.02	34.72	2.14	34.69	1.82	34.81	1.97	34.75	2.19	34.68	2.10	34.71	4.67	34.35	3.92	34.26
600	1.98	34.73	2.06	34.72	1.76	34.82	1.91	34.77	2.17	34.73	2.07	34.75	3.93	34.35	3.62	34.33
700	1.94	34.76	2.05	34.75	1.69	34.83	1.85	34.78	2.10	34.75	2.03	34.76	3.15	34.36	2.98	34.36
800	1.89	34.78	2.00	34.76	1.57	34.83	1.76	34.80	2.00	34.76	1.98	34.79	3.09	34.45	2.97	34.45
900	1.81	34.80	1.92	34.77	1.51	34.84	1.67	34.79	1.93	34.79	1.92	34.82	2.85	34.51	2.79	34.49
1000	1.73	34.80	1.87	34.79	1.42	34.84	1.57	34.80	1.91	34.81	1.87	34.82	2.73	34.56	2.65	34.53

Station	JA470073		JA470074		JA470075		JA470076		JA470077		JA470078					
Date	2006/3/15		2006/3/15		2006/3/16		2006/3/16		2006/3/16		2006/3/16					
Time(UT)	19:54		22:54		10:54		13:56		19:56		22:53					
Latitude	53-23.6S		52-33.7S		50-12.1S		49-21.0S		47-37.4S		46-49.0S					
Longitude	150-31.7E		150-35.8E		150-38.0E		150-38.5E		150-36.7E		150-35.7E					
Depth(m)	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity	Temp.	Salinity
0	6.79	33.74	6.98	33.82	9.04	34.02	9.14	34.10	12.33	34.52	12.04	34.38				
10	6.79	33.76	6.97	33.85	8.90	34.09	9.04	34.13	12.34	34.58	12.03	34.47				
20	6.78	33.79	6.95	33.86	8.86	34.12	8.97	34.14	12.25	34.61	12.01	34.49				
30	6.78	33.79	6.87	33.86	8.84	34.13	8.95	34.15	12.23	34.62	11.92	34.51				
50	6.77	33.79	6.22	33.81	8.86	34.15	8.99	34.18	12.22	34.63	11.89	34.51				
75	6.74	33.81	6.17	33.81	8.84	34.16	8.96	34.20	12.23	34.64	11.88	34.52				
100	6.00	33.79	6.11	33.81	8.81	34.16	9.03	34.56	10.76	34.82	10.58	34.35				
125	3.49	33.85	5.07	34.03	8.73	34.18	8.98	34.56	10.20	34.82	8.90	34.28				
150	2.27	33.92	4.60	34.04	7.67	34.33	8.88	34.56	9.65	34.73	8.47	34.46				
200	2.02	34.01	4.41	34.05	7.48	34.35	8.67	34.53	9.25	34.67	8.46	34.51				
250	2.64	34.18	4.37	34.11	7.25	34.35	8.30	34.48	9.07	34.65	8.20	34.48				
300	2.36	34.20	4.54	34.20	7.00	34.33	7.99	34.45	8.96	34.64	7.84	34.44				
400	2.40	34.32	4.10	34.23	6.73	34.37	7.71	34.45	8.80	34.63	7.31	34.38				
500	2.51	34.44	3.59	34.26	5.85	34.32	6.67	34.35	8.28	34.56	7.36	34.47				
600	2.40	34.53	3.32	34.32	5.45	34.35	6.57	34.43	7.77	34.52	6.69	34.45				
700	2.37	34.60	3.00	34.36	4.70	34.35	5.79	34.38	6.88	34.46	6.01	34.47				
800	2.41	34.64	2.85	34.43	3.97	34.34	4.83	34.34	6.16	34.46	5.19	34.46				
900	2.34	34.69	2.67	34.50	3.25	34.36	4.13	34.36	4.92	34.37	4.49	34.46				
1000	2.31	34.72	2.62	34.55	3.05	34.40	3.55	34.40	4.49	34.41	3.64	34.43				

*Adoption for "Depth 0" for a numerical value of 4m.

Table 3. XBT observation data.

NUMBER	DATE	TIME (UTC)	POSITION		TEMPERATURE(degC) DEPTH(m)															S.L. (m)	AIR TEMP. (degC)
			LAT.	LONG.	0	10	20	30	50	75	100	125	150	200	250	300	350	400	450		
					500	550	600	650	700	750											
JA470001B	2005/12/09	16:56	60-23.7S	104-30.2E	1.1	1.1	1.1	1.0	0.3	0.2	0.0	-0.1	0.9	1.8	2.1	2.1	2.1	2.2	2.2	35	0.6
					2.2	2.2	2.2	2.2	2.2	2.1											
JA470002B	2005/12/10	00:55	60-46.4S	100-06.4E	-0.1	-0.1	-0.1	-0.1	-0.7	-0.9	-1.1	0.4	1.4	1.5	1.6	1.7	1.8	1.8	1.8	35	0.4
					1.7	1.7	1.7	1.7	1.7	1.6											
JA470003B	2005/12/10	08:56	61-05.0S	95-38.9E	-0.4	-0.4	-0.5	-0.5	-0.8	-1.3	-1.0	-0.5	0.2	1.4	1.6	1.7	1.8	1.8	1.8	43	0.0
					1.8	1.7	1.7	1.7	1.6	1.6											
JA470004B	2005/12/10	17:58	61-29.6S	90-37.3E	-0.6	-0.6	-0.6	-0.7	-1.2	-1.4	-1.2	-1.1	-0.6	1.2	1.7	1.7	1.8	1.8	1.7	40	-0.4
					1.7	1.7	1.7	1.7	1.6	1.5											
JA470005B	2005/12/11	01:53	61-49.6S	86-04.8E	-1.1	-1.1	-1.2	-1.2	-1.4	-1.5	-0.9	0.1	0.7	1.2	1.8	1.7	1.9	1.9	1.8	71	0.9
					1.8	1.7	1.7	1.6	1.6	1.6											
JA470006B	2005/12/11	09:57	61-21.4S	83-19.5E	-1.0	-1.0	-1.0	-1.2	-1.4	-0.7	0.6	0.9	1.4	1.7	1.9	1.9	2.0	2.0	2.0	31	-0.3
					1.9	1.9	1.9	1.8	1.8	1.8											
JA470007B	2005/12/11	18:02	61-09.7S	79-32.3E	-0.8	-0.7	-0.8	-0.8	-1.3	-1.7	-1.6	-0.4	1.1	1.9	2.0	2.0	2.0	2.0	2.0	44	-0.3
					2.0	2.0	2.0	2.0	2.0	1.9											
JA470008B	2005/12/12	01:53	61-27.2S	75-02.9E	-1.1	-1.1	-1.1	-1.1	-1.7	-1.7	-1.6	-0.8	0.4	1.7	1.9	2.0	2.0	2.0	2.0	33	-0.8
					2.0	2.0	2.0	2.0	2.0	1.9											
JA470009B	2005/12/12	09:53	61-28.3S	70-40.1E	-0.8	-0.8	-0.8	-1.6	-1.7	-1.6	-1.3	0.0	1.2	1.8	1.9	2.0	2.0	2.0	2.0	26	-0.4
					2.0	1.9	1.9	1.9	1.9	1.8											
JA470010B	2005/12/12	17:57	61-55.6S	66-08.2E	-0.7	-0.7	-0.8	-0.8	-1.6	-1.7	-1.4	-0.5	1.0	1.9	1.9	2.0	2.0	2.0	2.0	35	-0.7
					2.0	2.0	2.0	1.9	1.9	1.9											
JA470011B	2005/12/13	02:55	62-24.5S	60-51.3E	-1.4	-1.4	-1.4	-1.5	-1.5	-1.7	-1.6	-0.5	1.0	1.8	1.8	1.8	1.8	1.8	1.8	103	-1.0
					1.8	1.8	1.8	1.7	1.7	1.7											
JA470012B	2005/12/13	10:56	62-52.5S	56-27.5E	-1.3	-1.3	-1.4	-1.5	-1.8	-1.8	-1.0	0.5	1.2	1.6	1.7	1.7	1.7	1.7	1.7	76	-1.0
					1.6	1.6	1.6	1.5	1.5	1.4											
JA470013B	2005/12/13	19:56	62-42.1S	51-41.3E	-1.2	-1.2	-1.2	-1.2	-1.3	-1.8	-1.6	0.2	1.3	1.7	1.9	1.9	1.8	1.8	1.8	59	-1.8
					1.8	1.8	1.7	1.6	1.6	1.6											
JA470014B	2006/02/24	12:56	62-57.0S	49-46.1E	0.7	0.7	0.6	0.7	0.6	-1.6	-1.6	0.2	1.2	1.5	1.5	1.6	1.6	1.6	1.6	62	0.8
					1.5	1.5	1.5	1.4	1.4	1.4											
JA470015B	2006/02/24	20:56	61-37.2S	50-29.5E	1.1	1.1	1.1	1.1	1.1	-1.5	-1.3	-0.3	1.0	1.7	1.8	1.8	1.9	1.9	1.8	58	1.0
					1.8	1.8	1.8	1.7	1.7	1.7											

NUMBER	DATE	TIME (UTC)	POSITION		TEMPERATURE(degC) DEPTH(m)															S.L. (m)	AIR TEMP. (degC)
			LAT.	LONG.	0	10	20	30	50	75	100	125	150	200	250	300	350	400	450		
					500	550	600	650	700	750											
JA470016B	2006/02/25	04:56	61-20.6S	52-03.9E	1.2	1.2	1.1	1.2	0.9	-1.5	-1.0	0.3	1.3	1.7	1.8	1.8	1.9	1.8	1.9	56	1.1
					1.8	1.8	1.8	1.7	1.7	1.7											
JA470017B	2006/02/25	12:58	62-06.7S	54-37.9E	1.0	0.9	0.9	0.9	0.9	-1.4	-1.3	0.2	1.4	1.7	1.8	1.9	1.9	1.8	1.8	69	0.0
					1.9	1.8	1.7	1.8	1.7	1.7											
JA470018B	2006/02/25	19:53	62-49.6S	57-08.5E	0.6	0.6	0.5	0.5	0.5	-1.3	-1.1	0.4	1.2	1.6	1.7	1.7	1.7	1.7	1.7	59	-0.7
					1.7	1.6	1.6	1.5	1.5	1.5											
JA470019B	2006/02/26	11:53	64-09.5S	61-52.8E	0.4	0.4	0.3	0.3	0.2	-0.4	0.4	1.1	1.3	1.7	1.7	1.7	1.7	1.7	1.7	54	0.2
					1.6	1.6	1.6	1.5	1.5	1.4											
JA470020B	2006/02/26	19:54	64-56.8S	65-14.6E	0.2	0.2	0.2	0.2	0.2	-1.2	-0.8	-0.2	0.7	1.4	1.4	1.4	1.3	1.2	1.1	67	-3.0
					1.0	1.0	1.0	1.1	1.0	0.9											
JA470021B	2006/02/27	03:51	64-26.3S	68-19.5E	0.3	0.3	0.3	0.3	0.3	-1.7	-1.5	-0.2	0.5	1.0	1.3	1.4	1.4	1.3	1.2	63	-1.3
					1.2	1.2	1.1	0.9	1.0	0.9											
JA470022B	2006/02/27	18:53	63-56.0S	73-09.8E	0.8	0.8	0.7	0.7	0.2	-1.2	0.1	1.5	1.3	1.6	1.8	1.8	1.8	1.7	1.7	53	0.2
					1.7	1.6	1.6	1.5	1.5	1.4											
JA470023B	2006/02/28	02:52	63-44.3S	76-56.5E	0.5	0.4	0.4	0.4	0.4	-1.3	-0.2	1.0	1.5	1.7	1.8	1.8	1.8	1.8	1.8	62	-0.3
					1.7	1.7	1.7	1.6	1.5	1.5											
JA470024B	2006/02/28	18:54	62-06.2S	79-27.5E	0.8	0.8	0.8	0.8	0.6	-0.9	0.0	1.1	1.6	1.8	2.0	2.0	2.0	2.0	2.0	54	-0.3
					2.1	2.0	2.0	2.0	2.0	2.0											

Table 4. Serial observation data.

Station 2

Beginning of cast

Meteorological observation

Date	: December 6, 2005	Time(UT)	: 0800	Wind direction	: SW
Time(UT)	: 07:35	Weather	: BC	Velocity	: 14(kn)
Latitude	: 44-38.1S	Air temperature(dry)	: 10.2(degC)	Wave	: 4
Longitude	: 109-25.1E	Humidity	: 71(%)	Swell	: SSW/6
Depth	: 4058 m	Atmospheric Pressure	: 1005.8(hPa)	Visibility	: 20(km)

Water Sampling by Niskin bottles										Observed by CTD		
Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)	pH	Dissolved Oxygen	Phosphate	Silicate	Nitrite	Nitrate	Ammonium	Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)
				(μmol/L)								
0	10.100	34.755	7.99	287.8	0.83	2.6	0.11	12.02	0.4	10	10.050	34.724
52	10.073	34.747	7.95	290.9	0.83	2.6	0.12	12.18	0.4	20	10.023	34.723
76	10.068	34.748	8.00	291.6	0.83	2.3	0.14	12.27	0.4	30	10.010	34.724
104	9.993	34.752	8.03	289.2	0.84	2.8	0.23	12.77	0.4	50	10.002	34.723
127	9.956	34.754	8.04	286.9	0.86	2.7	0.27	12.78	0.3	75	9.988	34.723
153	9.937	34.751	8.05	285.9	0.87	2.7	0.26	12.87	0.5	100	9.928	34.726
200	9.947	34.752	8.05	287.8	0.88	3.3	0.25	12.84	0.4	125	9.868	34.728
254	9.941	34.752	8.04	285.6	0.88	2.8	0.14	13.01	0.3	150	9.862	34.731
300	9.862	34.739	8.05	284.6	0.91	2.9	0.01	13.82	0.2	200	9.856	34.733
402	9.761	34.727	8.05	288.3	0.95	3.5	0.00	14.62	0.2	250	9.863	34.735
506	9.217	34.643	8.06	279.8	1.06	4.2	0.00	16.36	0.3	300	9.815	34.729
603	8.881	34.620	8.03	253.9	1.23	6.4	0.00	19.48	0.5	400	9.575	34.687
706	7.590	34.447	8.05	261.6	1.42	9.6	0.00	22.61	0.8	500	9.308	34.651
806	6.726	34.432	8.00	231.9	1.70	16.5	0.00	27.25	0.7	600	8.597	34.559
905	5.673	34.369	7.95	230.2	1.85	22.4	0.00	29.91	0.5	700	7.900	34.518
1008	4.711	34.327	7.96	215.9	1.99	28.8	0.00	31.97	0.7	800	6.704	34.416
1253	3.539	34.374	7.91	219.0	2.23	48.1	0.00	35.23	0.4	900	5.646	34.359
1506	2.937	34.492	7.90	195.8	2.32	67.0	0.00	36.81	1.1	1000	4.686	34.321
2004	2.468	34.685	7.88	197.6	2.21	84.5	0.00	34.87	0.7	1250	3.504	34.372
2501	2.118	34.753	7.87	-	2.07	89.8	0.00	32.73	0.7	1500	2.897	34.469
2992	1.555	34.745	7.89	218.3	2.13	109.2	0.00	33.23	0.6	2000	2.467	34.678
3243	1.335	-	7.89	220.4	2.20	122.8	0.00	33.81	-	2500	2.120	34.747
										3000	1.544	34.738

ITS-90 : International Temperature Scale of 1990.
PSS78 : Practical Salinity Scale of 1978.

Station 3

Beginning of cast

Meteorological observation

Date	: December 7, 2005	Time (UT)	: 0700	Wind direction	: WNW
Time (UT)	: 07:07	Weather	: BC	Velocity	: 10 (kn)
Latitude	: 49-44.1S	Air temperature (dry)	: 5.7 (degC)	Wave	: 3
Longitude	: 109-41.9E	Humidity	: 88 (%)	Swell	: SSE/1
Depth	: 3095 m	Atmospheric Pressure	: 996.4 (hPa)	Visibility	: 15 (km)

Water Sampling by Niskin bottles										Observed by CTD		
Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)	pH	Dissolved Oxygen	Phosphate	Silicate	Nitrite	Nitrate	Ammonium	Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)
				(μmol/L)								
0	4.800	33.877	7.94	349.1	1.47	0.0	0.28	23.37	0.6	10	4.365	33.947
55	4.101	-	-	332.5	-	-	-	-	-	20	4.269	33.947
79	3.215	33.943	7.97	325.8	1.70	5.1	0.28	25.48	1.2	30	4.199	33.942
102	3.014	33.968	8.00	317.5	1.76	13.4	0.29	27.42	0.8	50	3.997	33.943
127	2.932	33.985	7.99	313.5	1.79	15.2	0.28	27.76	0.7	75	3.224	33.932
151	2.779	33.987	7.99	313.0	1.80	16.8	0.24	28.33	0.7	100	3.201	33.935
203	2.693	34.020	8.01	306.1	1.84	19.8	0.21	29.23	0.7	125	3.061	33.971
253	3.122	-	7.97	269.8	1.97	27.1	0.04	31.63	1.1	150	2.771	33.989
303	2.438	34.101	7.97	277.0	2.03	31.0	0.03	32.32	0.7	200	2.177	33.970
403	2.512	34.235	7.94	242.6	2.16	44.0	0.02	34.43	1.0	250	2.352	34.050
503	2.797	34.363	7.90	209.7	2.25	54.0	0.01	35.96	0.7	300	2.385	34.118
603	2.683	-	-	-	-	-	-	-	-	400	2.985	34.304
702	2.541	34.478	7.89	192.7	2.34	67.6	0.01	36.50	0.6	500	2.713	34.358
803	2.570	34.547	7.89	187.7	2.26	71.8	0.01	35.96	0.6	600	2.679	34.428
904	2.472	34.589	7.88	186.6	2.24	75.1	0.01	35.74	0.5	700	2.630	34.488
1005	2.426	34.629	7.89	188.3	2.21	77.4	0.01	35.22	0.5	800	2.581	34.544
1254	2.281	-	-	-	-	-	-	-	-	900	2.476	34.593
1503	2.120	34.728	7.92	-	2.05	84.3	0.01	32.78	0.7	1000	2.422	34.631
2003	1.677	34.749	7.93	210.8	2.03	97.6	0.00	32.52	-	1250	2.296	34.698
2503	1.201	34.728	7.89	215.2	2.11	113.2	0.01	33.26	0.6	1500	2.108	34.734
3004	0.761	34.705	7.89	221.0	2.18	129.7	0.01	34.14	0.6	2000	1.700	34.748
										2500	1.170	34.727

ITS-90 : International Temperature Scale of 1990.
PSS78 : Practical Salinity Scale of 1978.

Station 4

Beginning of cast

Meteorological observation

Date	: December 8, 2005	Time(UT)	: 0800	Wind direction	: ENE
Time(UT)	: 07:47	Weather	: BC	Velocity	: 1(kn)
Latitude	: 55-20.4S	Air temperature(dry)	: 4.3(degC)	Wave	: 2
Longitude	: 109-34.7E	Humidity	: 83(%)	Swell	: W/4
Depth	: 3869 m	Atmospheric Pressure	: 984.4(hPa)	Visibility	: 15(km)

Water Sampling by Niskin bottles										Observed by CTD		
Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)	pH	Dissolved Oxygen	Phosphate	Silicate	Nitrite	Nitrate	Ammonium	Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)
				(μmol/L)								
0	2.700	33.922	7.88	346.3	1.70	16.4	0.34	27.74	0.7	10	1.878	33.942
50	1.452	33.917	7.94	348.4	1.75	16.9	0.28	27.90	0.7	20	1.855	33.938
74	1.235	33.922	7.96	346.9	1.77	17.8	0.28	28.35	0.8	30	1.565	33.948
97	1.154	33.934	7.97	344.8	1.81	19.4	0.30	28.52	1.1	50	1.365	33.948
123	0.769	33.984	7.96	332.8	1.93	26.7	0.28	30.36	1.0	75	1.290	33.953
148	0.691	34.052	7.96	315.5	2.02	35.6	0.18	31.77	0.3	100	0.563	33.997
199	1.511	34.258	7.90	246.2	2.25	56.0	0.03	35.77	0.3	125	0.529	34.036
247	1.899	34.364	7.88	216.6	2.26	64.2	0.03	36.49	0.3	150	1.309	34.196
298	2.077	34.452	7.86	200.9	2.33	71.0	0.02	36.36	0.5	200	1.955	34.355
396	2.198	34.552	7.84	189.4	2.29	77.7	0.02	36.18	0.4	250	1.953	34.421
497	2.179	34.609	7.84	193.8	2.22	80.9	0.03	35.98	0.5	300	2.037	34.477
599	2.157	34.657	7.86	193.1	2.21	83.2	0.02	34.90	0.5	400	2.198	34.572
699	2.111	34.684	7.87	194.2	2.16	85.1	0.02	34.56	0.6	500	2.208	34.635
799	2.072	34.708	7.88	196.5	2.13	86.3	0.02	33.73	0.8	600	2.162	34.664
898	2.018	–	–	–	–	–	–	–	–	700	2.112	34.695
999	1.964	34.735	7.89	202.3	2.08	89.1	0.02	33.28	0.5	800	2.061	34.714
1249	1.765	34.746	7.90	209.2	2.07	94.2	0.01	32.34	0.5	900	2.009	34.734
1500	1.535	34.744	7.90	211.9	2.09	101.6	0.01	32.55	0.7	1000	1.955	34.743
1997	1.105	34.725	7.88	219.9	2.14	115.1	0.01	33.27	0.6	1250	1.758	34.752
2497	0.657	34.702	7.87	222.3	2.19	128.3	0.01	34.20	0.6	1500	1.528	34.749
2996	0.336	34.688	7.85	230.4	2.22	135.3	0.01	34.38	0.5	2000	1.098	34.729
3500	0.161	34.678	7.85	236.5	2.23	140.3	0.02	34.91	0.7	2500	0.649	34.707
3701	0.127	34.678	7.83	236.6	2.26	143.1	0.02	34.51	0.7	3000	0.324	34.692
										3500	0.157	34.685

ITS-90 : International Temperature Scale of 1990.
PSS78 : Practical Salinity Scale of 1978.

Station 5

Beginning of cast

Meteorological observation

Date	: December 9, 2005	Time(UT)	: 0800	Wind direction	: E
Time(UT)	: 07:52	Weather	: C	Velocity	: 19(kn)
Latitude	: 59-55.1S	Air temperature(dry)	: 0.5(degC)	Wave	: 4
Longitude	: 108-28.9E	Humidity	: 82(%)	Swell	: ESE/3
Depth	: 4398 m	Atmospheric Pressure	: 980.4(hPa)	Visibility	: 20(km)

Water Sampling by Niskin bottles										Observed by CTD		
Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)	pH	Dissolved Oxygen	Phosphate	Silicate	Nitrite	Nitrate	Ammonium	Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)
				(μmol/L)								
0	0.400	33.924	7.96	382.8	1.81	34.2	0.28	28.55	0.4	10	0.245	33.918
49	-0.685	33.949	8.03	367.2	1.82	34.2	0.22	28.79	0.2	20	0.154	33.926
75	-1.304	34.005	8.01	354.5	1.95	40.4	0.21	30.27	0.3	30	-0.453	33.937
98	-1.025	34.122	7.98	322.8	2.10	49.1	0.18	32.31	0.2	50	-0.706	33.951
126	0.493	34.319	7.92	258.0	2.26	63.2	0.03	34.92	0.2	75	-1.139	33.995
151	1.365	34.464	7.89	214.7	2.34	74.0	0.01	36.20	0.3	100	-1.166	34.062
200	1.703	34.544	7.90	197.5	2.35	78.8	0.01	36.11	0.2	125	-0.734	34.192
249	1.914	34.610	7.89	189.7	2.31	81.8	0.01	35.76	0.3	150	0.523	34.360
301	1.907	34.641	7.88	191.8	2.28	83.5	0.00	35.15	0.3	200	1.668	34.561
401	1.874	34.676	7.89	192.3	2.23	85.8	0.00	34.49	0.2	250	1.782	34.603
502	1.905	34.712	7.91	195.4	2.17	86.8	0.00	33.64	0.2	300	1.857	34.645
605	1.847	34.725	7.91	201.6	2.15	88.2	0.00	33.23	0.2	400	1.874	34.680
704	1.734	34.730	7.93	202.1	2.13	91.0	0.00	32.99	0.3	500	1.862	34.710
803	1.662	34.738	7.92	204.0	2.12	93.1	0.00	32.72	0.2	600	1.812	34.726
902	1.593	34.740	7.91	209.5	2.11	95.2	0.00	32.67	0.2	700	1.747	34.732
1001	1.503	34.739	7.98	210.9	2.11	97.5	0.00	32.51	0.2	800	1.656	34.736
1252	1.285	34.732	7.98	215.1	2.14	105.4	0.00	32.87	0.3	900	1.573	34.739
1506	1.059	34.723	7.94	225.6	2.18	111.9	0.00	33.17	0.4	1000	1.486	34.737
2003	0.707	34.702	7.97	227.2	2.22	122.1	0.00	33.91	0.3	1250	1.289	34.733
2502	0.401	34.691	7.92	229.7	2.24	128.9	0.00	34.30	0.3	1500	1.087	34.723
2989	0.190	34.680	7.89	245.2	2.25	132.8	0.00	34.21	0.3	2000	0.730	34.704
3498	0.049	34.672	7.93	249.2	2.25	131.9	0.00	34.28	0.4	2500	0.403	34.688
3999	-0.045	34.667	7.86	245.3	2.25	133.6	0.00	34.19	0.4	3000	0.190	34.680
										3500	0.047	34.673

ITS-90 : International Temperature Scale of 1990.
PSS78 : Practical Salinity Scale of 1978.

Station 7

Beginning of cast

Meteorological observation

Date	: February 26, 2006	Time(UT)	: 0600	Wind direction	: WSW
Time(UT)	: 05:50	Weather	: BC	Velocity	: 7(kn)
Latitude	: 63-37.3S	Air temperature(dry)	: -0.7(degC)	Wave	: 3
Longitude	: 60-08.5E	Humidity	: 65(%)	Swell	: SE/3
Depth	: 4461 m	Atmospheric Pressure	: 987.3(hPa)	Visibility	: 20(km)

Water Sampling by Niskin bottles										Observed by CTD		
Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)	pH	Dissolved Oxygen	Phosphate	Silicate	Nitrite	Nitrate	Ammonium	Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)
				(μmol/L)								
0	0.800	33.829	8.09	352.7	1.88	53.8	0.35	28.77	0.7	10	0.458	33.827
53	0.497	33.815	8.12	351.4	1.87	54.2	0.34	28.66	0.9	20	0.456	33.823
79	-1.321	34.068	8.09	333.8	2.11	70.0	0.23	31.25	0.6	30	0.457	33.823
103	-0.845	34.188	8.06	303.1	2.22	80.1	0.21	32.71	0.8	50	0.458	33.821
129	0.752	34.438	7.96	228.4	2.42	99.8	0.25	35.77	0.6	75	-0.864	34.031
152	1.424	34.551	7.93	197.9	2.46	108.2	0.06	36.72	0.5	100	-0.418	34.265
203	1.646	34.614	7.95	195.1	2.45	111.7	0.02	36.32	0.5	125	0.726	34.451
254	1.712	34.653	7.96	199.7	2.40	113.6	0.02	35.72	0.5	150	1.331	34.554
303	1.731	34.674	7.97	193.1	2.36	114.2	0.02	35.29	0.7	200	1.634	34.628
403	1.717	34.701	7.96	202.4	2.32	116.0	0.02	34.54	0.5	250	1.658	34.653
504	1.661	34.714	7.96	206.8	2.29	117.4	0.02	34.02	0.5	300	1.686	34.672
604	1.587	34.724	7.98	205.8	2.25	119.1	0.02	33.56	0.6	400	1.676	34.700
705	1.485	34.730	7.98	209.8	2.25	122.1	0.02	33.48	0.6	500	1.631	34.719
804	1.392	34.733	7.98	209.7	2.24	124.8	0.02	33.36	0.8	600	1.571	34.728
902	1.307	34.735	7.99	215.9	2.24	127.9	0.01	33.42	0.8	700	1.500	34.730
1004	1.208	34.728	7.98	214.2	2.25	131.5	0.02	33.53	0.7	800	1.414	34.731
1252	0.999	34.721	7.99	216.1	2.27	138.3	0.01	33.77	0.8	900	1.309	34.729
1505	0.808	34.711	8.02	218.1	2.29	145.2	0.01	34.23	0.7	1000	1.214	34.726
2002	0.501	34.694	7.98	223.7	2.35	156.8	0.01	34.99	1.0	1250	0.968	34.714
2501	0.283	34.684	7.95	231.2	2.37	163.3	0.00	35.32	0.9	1500	0.804	34.707
3000	0.113	34.675	7.93	237.2	2.37	166.3	0.01	35.23	1.1	2000	0.492	34.689
3503	-0.031	-	-	-	-	-	-	-	-	2500	0.274	34.679
4003	-0.141	34.667	7.91	247.9	2.35	172.5	0.00	35.07	1.0	3000	0.110	34.671
										3500	-0.030	34.664
										4000	-0.142	34.660

ITS-90 : International Temperature Scale of 1990.
PSS78 : Practical Salinity Scale of 1978.

Station 8

Beginning of cast

Meteorological observation

Date	: February 27, 2006	Time(UT)	: 1000	Wind direction	: ESE
Time(UT)	: 10:20	Weather	: BC	Velocity	: 8(kn)
Latitude	: 63-55.4S	Air temperature(dry)	: 0.8(degC)	Wave	: 3
Longitude	: 69-55.1E	Humidity	: 75(%)	Swell	: S/1
Depth	: 3607 m	Atmospheric Pressure	: 986.2(hPa)	Visibility	: 20(km)

Water Sampling by Niskin bottles										Observed by CTD		
Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)	pH	Dissolved Oxygen	Phosphate	Silicate	Nitrite	Nitrate	Ammonium	Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)
				(μmol/L)								
0	0.600	33.826	8.10	350.3	1.82	54.1	0.32	28.23	1.0	10	0.478	33.808
50	0.092	33.881	8.10	346.5	1.89	61.0	0.27	29.22	1.0	20	0.441	33.807
76	-1.510	34.233	8.06	306.4	2.20	84.2	0.18	32.81	1.0	30	0.408	33.806
101	-1.365	34.286	8.05	290.9	2.24	88.8	0.18	33.44	1.2	50	0.298	33.829
126	-0.171	34.422	8.01	251.5	2.29	98.3	0.10	34.58	0.5	75	-1.514	34.225
152	0.729	34.533	7.98	223.0	2.32	104.9	0.07	34.95	0.8	100	-1.407	34.262
201	1.030	34.607	7.98	215.8	2.29	108.5	0.03	34.37	0.7	125	-0.833	34.330
252	1.298	34.659	7.98	207.9	2.26	111.8	0.02	34.17	0.2	150	0.255	34.481
301	1.205	34.665	7.99	216.0	2.25	112.8	0.02	33.90	0.9	200	0.695	34.577
400	1.459	34.712	7.99	206.7	2.21	116.7	0.02	33.11	1.2	250	0.931	34.630
501	1.355	34.718	7.99	208.8	2.20	119.6	0.02	33.11	0.6	300	1.254	34.684
600	1.090	34.702	8.00	217.6	2.21	121.6	0.02	33.31	0.8	400	1.336	34.713
701	1.065	34.711	8.00	216.5	2.21	125.6	0.02	33.22	1.4	500	1.286	34.721
802	1.039	34.717	8.00	218.6	2.22	130.7	0.01	33.51	0.3	600	1.201	34.721
903	0.960	34.714	7.99	219.0	2.23	134.3	0.01	33.43	0.9	700	1.135	34.722
1002	0.883	34.713	7.99	225.4	2.23	137.8	0.01	33.71	1.5	800	1.045	34.718
1251	0.700	34.704	7.98	219.9	2.26	144.9	0.01	33.77	0.4	900	0.956	34.716
1503	0.536	34.696	7.97	220.1	2.29	152.0	0.01	34.32	0.9	1000	0.878	34.713
2000	0.253	34.682	7.96	233.1	2.31	158.5	0.01	34.42	1.4	1250	0.677	34.702
2499	0.084	34.676	7.95	235.5	2.31	164.2	0.02	34.58	0.7	1500	0.523	34.695
2999	-0.050	34.669	7.94	244.3	2.28	161.0	0.00	34.10	1.1	2000	0.260	34.682
3400	-0.144	34.665	7.92	244.2	2.31	168.6	0.00	34.48	0.6	2500	0.080	34.673
										3000	-0.049	34.670

ITS-90 : International Temperature Scale of 1990.
PSS78 : Practical Salinity Scale of 1978.

Station 9

Beginning of cast

Meteorological observation

Date	: February 28, 2006	Time(UT)	: 1000	Wind direction	: SE
Time(UT)	: 10:00	Weather	: S	Velocity	: 17(kn)
Latitude	: 63-30.5S	Air temperature(dry)	: -0.1(degC)	Wave	: 4
Longitude	: 78-56.1E	Humidity	: 66(%)	Swell	: ESE/3
Depth	: 3737 m	Atmospheric Pressure	: 986.8(hPa)	Visibility	: 10(km)

Water Sampling by Niskin bottles										Observed by CTD		
Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)	pH	Dissolved Oxygen	Phosphate	Silicate	Nitrite	Nitrate	Ammonium	Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)
				(μmol/L)								
0	0.600	33.868	8.09	348.0	1.90	58.7	0.32	29.20	0.3	10	0.635	33.875
48	0.386	33.882	8.10	344.2	1.92	60.1	0.29	29.54	0.7	20	0.631	33.874
76	0.081	34.318	8.00	253.2	2.31	88.6	0.17	34.56	0.6	30	0.617	33.875
99	0.813	34.438	7.97	221.8	2.38	96.5	0.16	35.79	0.6	50	-0.433	34.147
123	1.376	34.530	7.95	210.9	2.41	101.6	0.01	35.98	0.6	75	0.236	34.370
149	1.637	34.571	7.94	195.7	2.40	104.0	0.00	36.38	0.5	100	0.752	34.461
198	1.830	34.625	7.94	186.2	2.37	106.6	0.00	35.81	0.3	125	1.129	34.525
253	1.883	34.658	7.95	200.5	2.34	107.3	0.00	35.39	0.7	150	1.654	34.585
303	1.898	34.684	7.96	190.6	2.29	108.2	0.00	34.81	0.6	200	1.830	34.641
404	1.882	34.709	7.97	201.2	2.24	108.6	0.00	33.93	0.6	250	1.878	34.665
503	1.852	34.728	7.98	199.3	2.20	108.8	0.00	33.16	0.6	300	1.904	34.686
600	1.757	34.737	8.00	205.1	2.16	111.3	0.00	32.83	0.5	400	1.895	34.717
700	1.680	34.743	8.00	205.4	2.14	112.8	0.00	32.52	0.5	500	1.829	34.732
803	1.589	34.746	8.00	209.2	2.14	115.0	0.00	32.25	0.6	600	1.739	34.739
901	1.503	34.746	7.99	211.7	2.14	117.5	0.00	32.27	0.4	700	1.681	34.745
998	1.397	34.741	7.99	213.2	2.14	121.1	0.00	32.32	0.5	800	1.604	34.746
1252	1.140	34.731	7.98	217.9	2.17	129.8	0.00	32.79	0.6	900	1.507	34.746
1501	0.923	34.720	7.98	218.8	2.21	138.0	0.00	33.40	0.8	1000	1.394	34.740
2001	0.540	34.696	7.97	223.3	2.28	151.6	0.00	34.09	0.9	1250	1.135	34.728
2500	0.271	34.683	7.96	230.0	2.30	159.3	0.00	34.37	0.7	1500	0.899	34.714
2995	0.071	34.674	7.94	236.4	2.28	157.2	0.00	34.25	0.4	2000	0.542	34.693
3499	-0.050	34.669	7.92	243.2	2.26	155.7	0.00	34.27	0.7	2500	0.269	34.678
										3000	0.069	34.672
										3500	-0.051	34.667

ITS-90 : International Temperature Scale of 1990.
PSS78 : Practical Salinity Scale of 1978.

Station 10

Beginning of cast

Meteorological observation

Date	: March 7, 2006	Time(UT)	: 0900	Wind direction	: SE
Time(UT)	: 08:38	Weather	: S	Velocity	: 5(kn)
Latitude	: 63-27.1S	Air temperature(dry)	: 0.5(degC)	Wave	: 2
Longitude	: 91-33.4E	Humidity	: 86(%)	Swell	: SSE/1
Depth	: 3697 m	Atmospheric Pressure	: 981.3(hPa)	Visibility	: 15(km)

Water Sampling by Niskin bottles										Observed by CTD		
Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)	pH	Dissolved Oxygen	Phosphate	Silicate	Nitrite	Nitrate	Ammonium	Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)
				(μmol/L)								
0	0.900	34.038	8.11	346.6	1.83	56.7	0.27	27.38	0.8	10	0.682	34.027
51	0.505	34.030	8.08	344.0	1.88	59.7	0.25	27.64	0.9	20	0.617	34.030
75	-0.750	34.238	8.04	306.9	2.16	81.6	0.23	31.00	1.1	30	0.598	34.030
100	-0.883	34.307	8.03	291.2	2.22	88.3	0.27	31.96	0.8	50	0.502	34.035
124	-0.663	34.373	8.01	278.3	2.24	92.6	0.13	32.55	0.4	75	-0.417	34.173
150	-0.114	34.466	8.00	252.1	2.27	98.0	0.03	33.13	1.0	100	-0.886	34.306
200	0.463	34.563	7.99	234.3	2.26	104.5	0.01	33.02	0.8	125	-0.494	34.395
250	0.941	34.635	7.99	220.9	2.25	109.8	0.02	33.32	1.0	150	-0.028	34.476
301	1.201	34.679	7.99	213.1	2.24	113.1	0.02	32.91	0.8	200	0.554	34.568
400	1.371	34.719	7.99	212.8	2.20	116.8	0.01	32.36	0.8	250	0.914	34.639
501	1.300	34.725	8.00	208.9	2.19	120.5	0.01	32.43	0.5	300	1.172	34.686
602	1.236	34.728	8.00	211.9	2.20	123.6	0.02	32.26	1.1	400	1.316	34.721
702	1.154	34.726	7.98	210.9	2.21	127.0	0.03	32.30	0.8	500	1.274	34.726
801	1.066	34.723	7.99	213.7	2.22	131.0	0.01	32.46	0.7	600	1.201	34.727
899	0.977	34.720	7.99	219.2	2.23	134.2	0.00	32.70	0.6	700	1.130	34.726
999	0.904	34.717	7.99	216.3	2.24	137.4	0.01	32.73	0.9	800	1.050	34.723
1251	0.687	34.705	7.97	219.0	2.27	145.0	0.00	32.99	0.8	900	0.973	34.720
1500	0.512	34.695	7.98	222.6	2.29	150.3	0.00	33.25	1.2	1000	0.890	34.715
1999	0.219	34.684	7.96	232.1	2.29	154.9	0.00	33.34	1.0	1250	0.707	34.705
2500	0.027	34.677	7.96	238.4	2.28	156.1	0.00	33.22	0.8	1500	0.499	34.693
3001	-0.064	34.673	7.93	242.7	2.28	157.6	0.00	33.22	1.1	2000	0.205	34.679
3503	-0.129	34.668	7.92	245.2	2.28	157.3	0.00	33.22	1.0	2500	0.029	34.674
										3000	-0.066	34.671

ITS-90 : International Temperature Scale of 1990.
PSS78 : Practical Salinity Scale of 1978.

Station 11

Beginning of cast

Meteorological observation

Date	: March 8, 2006	Time(UT)	: 0700	Wind direction	: S
Time(UT)	: 07:25	Weather	: C	Velocity	: 12(kn)
Latitude	: 63-20.1S	Air temperature(dry)	: -1.2(degC)	Wave	: 2
Longitude	: 101-05.8E	Humidity	: 83(%)	Swell	: SE/1
Depth	: 1283 m	Atmospheric Pressure	: 983.1(hPa)	Visibility	: 20(km)

Water Sampling by Niskin bottles										Observed by CTD		
Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)	pH	Dissolved Oxygen	Phosphate	Silicate	Nitrite	Nitrate	Ammonium	Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)
				(μmol/L)								
0	0.200	33.785	8.10	352.1	1.87	62.5	0.24	28.31	1.0	10	0.159	33.800
49	-0.735	34.017	8.11	347.6	1.96	67.7	0.17	29.16	1.0	20	0.116	33.841
74	-1.613	34.267	8.10	338.6	2.11	79.0	0.16	31.09	0.8	30	0.140	33.849
100	-1.741	34.312	8.10	329.1	2.16	83.9	0.18	32.06	0.4	50	-1.174	34.191
124	-1.805	34.339	8.09	332.4	2.19	84.9	0.13	32.26	0.5	75	-1.607	34.288
149	-1.769	34.353	8.09	326.9	2.17	85.7	0.16	32.46	0.5	100	-1.774	34.324
200	-1.711	34.380	8.09	325.7	2.18	86.7	0.02	32.70	0.3	125	-1.805	34.342
248	-1.396	34.423	8.07	311.9	2.20	90.6	0.02	32.84	0.7	150	-1.732	34.360
298	-0.029	34.543	8.03	256.5	2.24	106.4	0.01	33.41	0.8	200	-1.673	34.387
399	-0.079	34.595	8.02	255.5	2.25	112.3	0.02	33.21	0.4	250	-1.220	34.436
500	0.843	34.690	8.03	222.9	2.26	129.0	0.02	33.57	0.4	300	0.011	34.557
599	0.753	34.693	8.04	221.0	2.26	134.6	0.02	33.61	0.4	400	0.204	34.624
700	0.619	34.690	8.04	222.6	2.27	140.3	0.02	33.85	0.3	500	0.805	34.695
799	0.504	34.688	8.01	224.8	2.29	145.1	0.01	34.70	0.6	600	0.725	34.698
899	0.393	34.683	8.01	225.8	2.28	147.8	0.01	34.08	0.6	700	0.642	34.698
1001	0.277	34.679	8.00	227.7	2.30	151.1	0.01	34.27	0.3	800	0.488	34.689
										900	0.385	34.686

ITS-90 : International Temperature Scale of 1990.
PSS78 : Practical Salinity Scale of 1978.

Station 12

Beginning of cast

Meteorological observation

Date	: March 9, 2006	Time(UT)	: 0700	Wind direction	: NNW
Time(UT)	: 07:25	Weather	: BC	Velocity	: 10(kn)
Latitude	: 63-53.9S	Air temperature(dry)	: 1.4(degC)	Wave	: 2
Longitude	: 111-06.6E	Humidity	: 63(%)	Swell	: E/3
Depth	: 3324 m	Atmospheric Pressure	: 992.5(hPa)	Visibility	: 20(km)

Water Sampling by Niskin bottles										Observed by CTD		
Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)	pH	Dissolved Oxygen	Phosphate	Silicate	Nitrite	Nitrate	Ammonium	Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)
				(μmol/L)								
0	1.000	34.017	8.11	346.1	1.90	58.6	0.30	28.64	0.7	10	0.835	34.001
51	0.749	34.003	8.13	345.8	1.91	58.5	0.29	28.74	0.8	20	0.831	34.001
76	-1.430	34.321	8.11	315.4	2.15	80.1	0.15	31.46	0.7	30	0.829	34.000
99	-1.203	34.392	8.08	295.6	2.23	89.7	0.29	32.72	0.4	50	-1.344	34.306
126	-0.025	34.518	8.05	254.2	2.27	102.1	0.06	33.74	0.6	75	-1.196	34.408
150	0.701	34.603	8.03	227.0	2.29	109.6	0.04	33.92	0.7	100	-0.756	34.458
201	1.179	34.669	8.03	216.4	2.25	115.6	0.02	33.63	0.5	125	0.228	34.549
252	1.400	34.705	8.02	212.9	2.24	118.3	0.02	33.36	0.7	150	0.737	34.613
302	1.444	34.718	8.02	203.9	2.24	120.4	0.01	33.14	0.5	200	1.240	34.685
400	1.421	34.729	8.02	204.8	2.21	123.5	0.01	33.02	0.5	250	1.387	34.711
502	1.332	34.731	8.02	208.4	2.21	127.7	0.02	33.07	0.7	300	1.438	34.725
603	1.244	34.730	8.03	212.0	2.23	131.0	0.02	33.07	0.7	400	1.411	34.736
702	1.158	34.722	8.04	215.8	2.21	133.3	0.02	33.02	0.5	500	1.334	34.736
802	1.059	34.723	8.02	216.2	2.23	137.5	0.02	33.05	0.7	600	1.236	34.733
899	1.012	34.722	8.03	216.0	2.23	140.9	0.02	33.28	0.6	700	1.175	34.732
1000	0.929	34.719	8.02	216.0	2.24	144.2	0.01	33.46	0.4	800	1.100	34.730
1250	0.713	34.707	8.01	223.1	2.26	150.7	0.01	33.86	0.5	900	1.014	34.726
1501	0.538	34.698	8.02	222.9	2.29	157.0	0.01	33.94	0.6	1000	0.933	34.721
2000	0.188	34.681	8.00	231.8	2.31	161.9	0.02	34.08	-	1250	0.717	34.708
2501	0.009	34.676	7.99	238.6	2.30	163.0	0.01	34.00	0.6	1500	0.534	34.700
2995	-0.111	34.671	7.96	244.5	2.30	157.9	0.00	33.97	0.7	2000	0.195	34.683
3204	-0.164	34.667	7.96	247.0	2.29	156.9	0.01	34.03	0.5	2500	0.014	34.678
										3000	-0.105	34.673

ITS-90 : International Temperature Scale of 1990.
PSS78 : Practical Salinity Scale of 1978.

Station 13

Beginning of cast

Meteorological observation

Date	: March 10, 2006	Time(UT)	: 0800	Wind direction	: WSW
Time(UT)	: 07:40	Weather	: BC	Velocity	: 10(kn)
Latitude	: 63-58.7S	Air temperature(dry)	: 1.4(degC)	Wave	: 3
Longitude	: 121-10.6E	Humidity	: 62(%)	Swell	: E/6
Depth	: 3486 m	Atmospheric Pressure	: 1005.0(hPa)	Visibility	: 20(km)

Water Sampling by Niskin bottles										Observed by CTD		
Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)	pH	Dissolved Oxygen	Phosphate	Silicate	Nitrite	Nitrate	Ammonium	Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)
				(μmol/L)								
0	1.200	34.053	7.94	344.7	1.87	49.6	0.27	28.67	0.8	10	0.975	34.043
49	0.885	34.040	7.94	342.7	1.87	49.9	0.26	28.66	0.8	20	0.963	34.042
74	-1.738	34.302	7.92	327.5	2.12	77.9	0.12	32.68	0.3	30	0.959	34.040
102	-0.993	34.385	7.89	305.0	2.18	85.1	0.07	33.29	0.1	50	0.602	34.081
128	0.868	34.586	7.82	216.4	2.29	103.9	0.09	34.98	0.1	75	-1.684	34.307
151	1.232	34.639	7.80	212.2	2.27	108.5	0.03	34.94	0.1	100	-0.791	34.404
200	1.521	34.684	7.82	205.2	2.27	111.3	0.02	34.43	0.1	125	0.750	34.561
251	1.455	34.691	7.81	202.0	2.23	112.3	0.01	34.22	0.1	150	1.307	34.634
301	1.591	34.717	7.82	207.2	2.22	114.1	0.02	33.77	0.1	200	1.436	34.668
401	1.503	-	-	-	-	-	-	-	-	250	1.374	34.678
500	1.428	34.731	7.84	209.0	2.18	120.4	0.01	33.35	0.1	300	1.627	34.722
604	1.355	34.731	7.84	214.3	2.18	124.1	0.02	33.40	0.1	400	1.544	34.730
703	1.268	34.729	7.83	211.0	2.18	126.6	0.01	33.27	0.1	500	1.444	34.733
802	1.134	34.722	7.84	214.3	2.19	129.8	0.01	33.59	0.1	600	1.360	34.733
900	1.070	34.723	7.83	215.3	2.20	133.7	0.02	33.61	0.0	700	1.273	34.732
1000	0.906	34.710	7.82	218.2	2.21	135.4	0.01	33.83	0.1	800	1.141	34.722
1252	0.657	34.697	7.82	223.2	2.24	143.9	0.00	34.13	0.1	900	1.058	34.721
1503	0.503	34.697	7.81	222.4	2.26	153.4	0.00	34.29	0.1	1000	0.985	34.719
1998	0.160	34.678	7.80	232.3	2.27	152.4	0.00	34.56	0.1	1250	0.700	34.705
2500	-0.002	34.674	7.76	238.2	2.27	157.7	0.00	34.43	0.1	1500	0.538	34.699
2999	-0.197	34.659	7.75	248.7	2.25	146.0	0.02	34.06	0.1	2000	0.170	34.679
3401	-0.252	34.653	7.72	252.1	2.25	141.2	0.01	34.33	0.0	2500	0.013	34.677
										3000	-0.199	34.659

ITS-90 : International Temperature Scale of 1990.
PSS78 : Practical Salinity Scale of 1978.

Station 14

Beginning of cast

Meteorological observation

Date	: March 11, 2006	Time(UT)	: 0700	Wind direction	: SSW
Time(UT)	: 06:35	Weather	: BC	Velocity	: 4(kn)
Latitude	: 64-00.2S	Air temperature(dry)	: 0.7(degC)	Wave	: 2
Longitude	: 131-14.7E	Humidity	: 67(%)	Swell	: W/1
Depth	: 3009 m	Atmospheric Pressure	: 1003.0(hPa)	Visibility	: 30(km)

Water Sampling by Niskin bottles										Observed by CTD		
Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)	pH	Dissolved Oxygen	Phosphate	Silicate	Nitrite	Nitrate	Ammonium	Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)
				(μmol/L)								
0	1.400	33.932	8.09	343.8	1.85	41.8	0.32	28.39	0.7	10	1.321	33.906
54	1.263	33.922	8.11	343.1	1.86	43.2	0.30	28.56	0.5	20	1.303	33.906
79	-1.236	34.241	8.06	318.4	2.18	72.2	0.18	32.48	0.5	30	1.300	33.907
102	-1.176	34.316	8.06	303.5	2.23	79.2	0.16	33.41	0.4	50	1.284	33.912
124	-0.728	34.375	8.02	284.2	2.25	85.1	0.14	34.11	0.1	75	-1.341	34.243
150	-0.564	34.424	8.03	280.6	2.22	89.3	0.04	33.84	0.1	100	-1.327	34.295
202	0.434	34.558	8.00	237.3	2.73	102.5	0.02	34.43	0.2	125	-0.875	34.394
249	0.718	34.600	7.99	226.7	2.76	106.6	0.02	34.51	0.1	150	-0.429	34.432
300	0.880	34.634	8.00	222.4	2.85	109.8	0.01	34.21	0.1	200	0.359	34.551
398	1.179	34.687	8.00	212.7	2.66	114.9	0.01	33.84	0.2	250	0.789	34.617
499	1.152	34.696	8.01	220.3	2.77	117.8	0.02	33.68	0.1	300	1.026	34.651
600	0.950	34.689	8.00	220.3	2.20	121.6	0.02	33.50	0.1	400	1.078	34.676
700	0.901	34.694	8.01	222.2	2.18	125.1	0.01	33.51	0.1	500	1.071	34.694
801	0.878	34.699	8.00	227.1	2.21	129.7	0.02	33.65	0.1	600	1.004	34.696
900	0.843	34.703	8.01	224.2	2.21	134.3	0.01	33.76	0.1	700	0.922	34.698
999	0.776	34.702	8.00	227.2	2.22	138.2	0.02	33.92	0.1	800	0.854	34.698
1252	0.529	34.692	7.98	225.2	2.24	146.3	0.01	34.41	0.1	900	0.828	34.702
1500	0.315	34.682	7.99	228.3	2.26	151.2	0.01	34.56	0.2	1000	0.765	34.701
2001	0.078	34.678	7.98	236.3	2.27	158.0	0.01	34.65	0.1	1250	0.494	34.686
2501	-0.107	34.673	7.96	245.5	2.26	162.1	0.01	34.56	0.1	1500	0.315	34.681
2804	-0.281	34.653	7.96	254.5	2.25	136.0	0.03	34.33	0.1	2000	0.056	34.676
										2500	-0.109	34.672

ITS-90 : International Temperature Scale of 1990.
PSS78 : Practical Salinity Scale of 1978.

Station 15

Beginning of cast

Meteorological observation

Date	: March 12, 2006	Time(UT)	: 0600	Wind direction	: SE
Time(UT)	: 05:35	Weather	: S	Velocity	: 22(kn)
Latitude	: 63-55.5S	Air temperature(dry)	: -1.2(degC)	Wave	: 4
Longitude	: 140-08.3E	Humidity	: 87(%)	Swell	: E/3
Depth	: 3696 m	Atmospheric Pressure	: 977.0(hPa)	Visibility	: 3(km)

Water Sampling by Niskin bottles										Observed by CTD		
Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)	pH	Dissolved Oxygen	Phosphate	Silicate	Nitrite	Nitrate	Ammonium	Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)
				(μmol/L)								
0	1.100	33.897	8.13	345.4	1.62	18.4	0.28	26.06	0.5	10	0.603	33.877
49	1.148	33.887	7.92	356.4	1.61	18.6	0.28	26.13	0.6	20	0.600	33.878
74	-1.211	34.172	7.79	321.0	2.26	64.0	0.21	31.65	1.0	30	0.599	33.880
98	-0.641	34.334	7.77	283.9	2.27	79.5	0.21	33.84	0.1	50	0.600	33.878
124	-0.069	34.444	7.77	258.2	2.28	88.8	0.07	34.36	0.1	75	-1.296	34.193
150	0.393	34.499	7.74	240.4	2.31	94.4	0.07	34.79	0.1	100	-0.776	34.324
201	0.956	34.578	7.71	223.4	2.30	100.8	0.05	35.14	0.1	125	-0.069	34.438
250	1.515	34.649	7.71	204.2	2.30	106.1	0.07	34.69	0.1	150	0.453	34.506
302	1.578	34.673	7.71	208.9	2.27	107.8	0.04	34.37	0.1	200	0.757	34.567
405	1.726	34.717	7.72	201.8	2.23	110.6	0.03	33.61	0.1	250	1.135	34.622
503	1.576	34.719	7.75	207.9	2.21	115.0	0.04	33.26	0.1	300	1.165	34.641
602	1.457	34.719	7.73	208.2	2.20	114.6	0.04	33.16	0.1	400	1.327	34.681
702	1.432	34.724	7.75	209.4	2.19	117.8	0.05	33.08	0.0	500	1.358	34.700
802	1.325	34.727	7.75	213.3	2.21	122.3	0.05	33.71	0.1	600	1.342	34.711
901	1.262	34.728	7.80	215.9	2.19	126.0	0.03	33.12	0.1	700	1.303	34.716
1001	1.214	34.729	7.79	214.3	2.20	128.2	0.04	32.93	0.1	800	1.258	34.720
1251	0.915	34.720	7.77	216.3	2.21	131.4	0.03	33.14	0.1	900	1.158	34.719
1500	0.733	34.703	7.78	220.8	2.24	143.4	0.03	33.81	0.2	1000	1.086	34.717
2000	0.366	34.685	7.77	228.3	2.28	151.1	0.03	34.36	0.1	1250	0.940	34.714
2498	0.162	34.681	7.76	237.8	2.28	154.6	0.03	34.38	0.1	1500	0.749	34.703
2997	-0.036	34.671	7.80	243.0	2.28	152.3	0.03	34.53	0.0	2000	0.375	34.684
3504	-0.275	34.653	7.81	257.0	2.24	140.9	0.02	33.79	0.0	2500	0.166	34.678
										3000	-0.019	34.672
										3500	-0.274	34.651

ITS-90 : International Temperature Scale of 1990.
PSS78 : Practical Salinity Scale of 1978.

Station 16

Beginning of cast

Meteorological observation

Date	: March 13, 2006	Time(UT)	: 0600	Wind direction	: WSW
Time(UT)	: 05:35	Weather	: C	Velocity	: 19(kn)
Latitude	: 63-57.3S	Air temperature(dry)	: -0.3(degC)	Wave	: 5
Longitude	: 146-47.5E	Humidity	: 82(%)	Swell	: SSW/6
Depth	: 3825 m	Atmospheric Pressure	: 968.5(hPa)	Visibility	: 15(km)

Water Sampling by Niskin bottles										Observed by CTD		
Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)	pH	Dissolved Oxygen	Phosphate	Silicate	Nitrite	Nitrate	Ammonium	Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)
				(μmol/L)								
0	1.100	33.899	8.10	343.3	1.62	14.9	0.28	25.85	0.5	10	1.129	33.897
52	0.735	33.904	8.11	340.2	1.67	18.5	0.27	26.31	0.6	20	1.131	33.899
75	0.934	34.380	7.93	227.1	2.44	83.0	0.17	36.36	0.1	30	1.128	33.898
101	1.557	34.491	7.91	197.9	2.45	92.4	0.04	36.76	0.1	50	0.286	34.311
125	1.697	34.534	7.92	195.5	2.44	96.0	0.03	36.76	0.0	75	1.185	34.440
150	1.673	34.549	7.91	190.5	2.44	97.5	0.05	36.59	0.0	100	1.540	34.510
200	1.902	34.601	7.92	184.3	2.40	101.2	0.04	36.23	0.1	125	1.638	34.542
251	1.905	34.626	7.92	187.6	2.37	102.1	0.04	35.73	0.1	150	1.728	34.572
301	1.940	34.658	7.93	195.4	2.35	104.6	0.04	35.19	0.1	200	1.798	34.609
404	1.818	34.677	7.95	198.8	2.28	105.5	0.02	34.62	0.0	250	1.841	34.640
502	1.731	34.689	7.96	-	2.25	107.6	0.04	34.18	0.1	300	1.902	34.667
607	1.590	34.698	7.97	208.2	2.22	109.7	0.04	33.71	0.1	400	1.922	34.699
705	1.576	34.712	7.98	205.8	2.20	112.2	0.03	33.35	0.0	500	1.858	34.716
804	1.490	34.714	7.97	208.3	2.20	113.8	0.04	33.20	0.0	600	1.758	34.724
906	1.446	34.722	7.97	211.3	2.17	116.6	0.02	33.10	0.1	700	1.662	34.729
999	1.443	34.732	7.99	212.0	2.17	120.1	0.03	32.85	0.1	800	1.572	34.731
1254	1.229	34.725	7.97	214.2	2.18	126.6	0.02	33.01	0.0	900	1.602	34.745
1503	1.093	34.724	7.96	216.6	2.20	134.7	0.02	33.17	0.1	1000	1.523	34.745
1997	0.705	34.703	7.95	221.2	2.25	147.4	0.04	33.96	0.0	1250	1.325	34.740
2494	0.382	34.689	7.94	228.8	2.27	156.3	0.04	34.20	0.0	1500	1.104	34.729
2995	0.181	34.683	7.91	234.3	2.28	159.9	0.02	34.36	0.0	2000	0.692	34.704
3499	-0.001	34.677	7.90	242.4	2.28	152.1	0.02	34.25	0.0	2500	0.374	34.690
										3000	0.175	34.685

ITS-90 : International Temperature Scale of 1990.
PSS78 : Practical Salinity Scale of 1978.

Station 17

Beginning of cast

Meteorological observation

Date	: March 14, 2006	Time (UT)	: 0500	Wind direction	: WSW
Time (UT)	: 04:38	Weather	: BC	Velocity	: 25 (kn)
Latitude	: 60-15.9S	Air temperature (dry)	: 1.2 (degC)	Wave	: 4
Longitude	: 150-04.6E	Humidity	: 70 (%)	Swell	: WSW/3
Depth	: 3356 m	Atmospheric Pressure	: 984.6 (hPa)	Visibility	: 10 (km)

Water Sampling by Niskin bottles										Observed by CTD		
Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)	pH	Dissolved Oxygen	Phosphate	Silicate	Nitrite	Nitrate	Ammonium	Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)
				(μmol/L)								
0	2.200	33.803	8.17	340.2	1.71	15.4	0.26	26.37	0.5	10	2.170	33.793
51	2.024	33.782	8.18	341.2	1.71	16.7	0.25	26.25	0.9	20	2.177	33.790
70	1.949	33.789	8.19	341.0	1.72	17.7	0.25	26.22	0.7	30	2.144	33.794
100	-0.327	34.153	8.09	299.4	2.26	58.5	0.20	33.28	0.3	50	1.408	33.876
125	1.104	34.360	8.02	229.3	2.42	76.5	0.00	36.32	0.3	75	-0.766	34.046
151	1.678	34.444	8.00	206.6	2.44	85.1	0.00	36.95	0.3	100	0.287	34.201
200	1.995	34.557	8.00	185.6	2.43	93.7	0.00	36.93	0.1	125	1.302	34.345
252	2.083	34.603	8.00	187.0	2.38	96.0	0.00	35.91	0.4	150	1.803	34.432
299	2.097	34.628	8.01	-	2.35	97.4	0.00	35.61	0.3	200	2.097	34.518
402	2.096	34.672	8.03	188.9	2.28	99.2	0.00	34.59	0.2	250	2.183	34.575
502	2.000	34.691	8.03	190.6	2.26	102.3	0.00	34.22	0.3	300	2.181	34.610
603	1.977	34.715	8.05	200.1	2.21	103.7	0.00	33.59	0.1	400	2.116	34.655
702	1.943	34.719	8.06	209.1	2.18	104.0	0.00	32.96	0.1	500	2.081	34.685
801	1.848	34.732	8.05	205.4	2.18	106.6	0.00	32.98	0.2	600	2.041	34.711
903	1.777	34.739	8.05	212.5	2.15	108.8	0.00	32.72	0.1	700	1.929	34.719
1003	1.700	34.742	8.06	206.3	2.15	111.6	0.00	32.64	0.1	800	1.878	34.734
1254	1.503	34.743	8.04	213.8	2.13	118.3	0.00	32.47	0.3	900	1.814	34.742
1501	1.303	34.736	8.05	214.2	2.16	125.4	0.00	32.58	0.3	1000	1.732	34.743
1999	0.900	34.716	8.04	218.0	2.21	140.5	0.00	33.44	0.3	1250	1.538	34.746
2498	0.562	34.699	8.02	224.3	2.25	152.5	0.00	34.02	0.1	1500	1.324	34.738
2802	0.365	34.691	8.01	228.4	2.25	157.7	0.00	34.01	0.1	2000	0.903	34.716
										2500	0.543	34.699

ITS-90 : International Temperature Scale of 1990.
PSS78 : Practical Salinity Scale of 1978.

Station 18

Beginning of cast

Meteorological observation

Date	: March 15, 2006	Time(UT)	: 0500	Wind direction	: W
Time(UT)	: 05:02	Weather	: BC	Velocity	: 19(kn)
Latitude	: 56-25.5S	Air temperature(dry)	: 5.3(degC)	Wave	: 4
Longitude	: 150-44.5E	Humidity	: 86(%)	Swell	: WNW/3
Depth	: 3701 m	Atmospheric Pressure	: 1004.8(hPa)	Visibility	: 15(km)

Water Sampling by Niskin bottles										Observed by CTD		
Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)	pH	Dissolved Oxygen	Phosphate	Silicate	Nitrite	Nitrate	Ammonium	Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)
				(μmol/L)								
0	5.800	33.757	8.06	315.0	1.55	0.0	0.17	22.95	0.7	10	5.420	33.742
52	5.685	33.741	8.08	315.1	1.58	0.0	0.17	23.36	0.6	20	5.206	33.749
77	5.566	33.753	8.22	315.1	1.59	0.2	0.17	23.38	0.7	30	5.165	33.749
98	3.138	33.904	8.18	323.8	1.84	9.6	0.31	27.00	0.4	50	5.078	33.748
123	2.680	33.937	8.16	320.0	1.91	15.1	0.11	28.31	0.2	75	3.693	33.894
148	2.580	33.970	8.15	310.3	1.93	19.2	0.00	28.03	0.2	100	1.467	33.869
200	2.603	34.088	8.11	282.7	2.07	30.7	0.00	30.21	0.5	125	1.135	33.874
249	2.505	34.161	8.08	264.2	2.14	40.0	0.00	30.50	0.4	150	0.965	33.887
300	2.554	34.239	8.06	243.6	2.24	50.3	0.00	32.77	0.5	200	1.391	34.031
399	2.543	34.346	8.02	218.8	2.33	63.3	0.00	33.38	0.4	250	2.051	34.194
493	2.529	34.413	8.01	204.1	2.37	70.1	0.00	33.85	0.4	300	2.266	34.267
596	2.489	34.496	8.00	190.3	2.36	80.1	0.00	34.33	0.3	400	2.400	34.394
699	2.473	34.549	8.01	186.4	2.31	83.1	0.00	33.01	0.6	500	2.396	34.480
800	2.402	34.605	8.00	189.1	2.30	89.2	0.00	34.68	0.3	600	2.401	34.548
902	2.331	34.650	8.00	189.0	2.28	91.5	0.00	32.85	0.4	700	2.368	34.594
1002	2.291	34.675	8.02	198.0	2.22	95.1	0.00	33.70	0.7	800	2.374	34.638
1254	2.135	34.731	8.04	202.0	2.15	102.0	0.00	32.64	0.3	900	2.357	34.678
1503	1.951	34.747	8.06	211.0	2.12	107.5	0.00	32.33	0.5	1000	2.289	34.701
2001	1.375	34.736	8.04	215.7	2.15	126.4	0.00	32.38	0.2	1250	2.110	34.734
2076	1.318	34.736	8.05	216.8	2.15	128.7	0.00	32.62	0.5	1500	1.919	34.746
										2000	1.417	34.739

ITS-90 : International Temperature Scale of 1990.
PSS78 : Practical Salinity Scale of 1978.

Station 19

Beginning of cast

Date	: March 16, 2006	Meteorological observation				Wind direction	:	WNW
Time (UT)	: 04:24	Time (UT)	:	0400		Velocity	:	14 (kn)
Latitude	: 51-37.8S	Weather	:	BC		Wave	:	4
Longitude	: 150-44.3E	Air temperature (dry)	:	9.5 (degC)		Swell	:	NW/3
Depth	: 3931 m	Humidity	:	92 (%)		Visibility	:	15 (km)
		Atmospheric Pressure	:	1012.4 (hPa)				

Water Sampling by Niskin bottles										Observed by CTD		
Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)	pH	Dissolved Oxygen	Phosphate	Silicate	Nitrite	Nitrate	Ammonium	Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)
				(μmol/L)								
0	8.900	34.131	8.11	295.5	1.22	1.2	0.32	17.62	0.4	10	8.812	34.146
74	8.813	34.156	8.17	294.4	1.17	0.7	0.30	16.97	0.4	20	8.811	34.150
100	8.810	34.157	8.14	294.5	1.20	0.9	0.33	17.02	0.6	30	8.816	34.157
125	8.797	34.156	8.17	294.1	1.18	0.7	0.31	17.04	0.5	50	8.810	34.157
151	8.255	34.152	8.16	290.4	1.27	2.6	0.49	18.28	0.3	75	8.816	34.157
201	7.569	34.347	8.15	282.9	1.33	6.4	0.03	19.95	0.1	100	8.795	34.155
251	7.172	34.323	8.12	281.9	1.39	7.3	0.02	21.10	0.1	125	8.114	34.219
299	6.770	34.278	8.11	279.8	1.47	8.5	0.04	22.36	0.1	150	7.844	34.371
399	6.096	34.278	8.08	261.8	1.66	14.0	0.04	25.39	0.1	200	7.410	34.342
499	5.615	34.292	8.06	248.2	1.81	19.6	0.03	27.76	0.1	250	6.952	34.284
601	5.170	34.313	7.99	235.1	1.96	25.8	0.02	29.82	0.2	300	6.681	34.265
702	4.384	34.289	8.00	233.8	2.18	41.1	0.03	33.00	0.3	400	5.991	34.242
801	3.973	34.310	7.99	224.6	2.17	40.9	0.03	32.91	0.1	500	5.761	34.306
902	3.598	34.321	7.98	222.6	2.20	44.5	0.02	33.52	0.2	600	5.178	34.332
1003	3.342	34.379	7.94	207.1	2.34	59.4	0.03	35.15	0.2	700	4.388	34.298
1251	2.847	34.479	7.90	192.4	2.41	77.5	0.04	36.07	0.5	800	3.827	34.306
1500	2.592	34.585	7.92	191.5	2.42	89.0	0.02	35.91	0.3	900	3.530	34.338
2000	2.257	34.719	7.94	201.2	2.19	99.7	0.01	33.15	0.3	1000	3.250	34.379
2500	1.817	34.746	7.93	210.5	2.22	116.5	0.04	33.67	0.3	1250	2.788	34.497
2998	1.349	34.731	7.93	212.4	2.23	137.7	0.01	33.60	0.3	1500	2.571	34.590
3497	1.072	34.717	7.93	219.2	2.25	146.6	0.02	33.92	0.2	2000	2.257	34.710
3699	1.022	34.715	7.92	222.5	2.28	148.7	0.03	34.36	0.2	2500	1.857	34.742
										3000	1.337	34.728
										3500	1.070	34.716

ITS-90 : International Temperature Scale of 1990.
PSS78 : Practical Salinity Scale of 1978.

Station 20

Beginning of cast

Meteorological observation

Date	: March 17, 2006	Time(UT)	: 0400	Wind direction	: S
Time(UT)	: 04:25	Weather	: BC	Velocity	: 18(kn)
Latitude	: 45-42.4S	Air temperature(dry)	: 13.6(degC)	Wave	: 4
Longitude	: 150-32.0E	Humidity	: 84(%)	Swell	: ENE/6
Depth	: 4552 m	Atmospheric Pressure	: 1004.0(hPa)	Visibility	: 20(km)

Water Sampling by Niskin bottles										Observed by CTD		
Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)	pH	Dissolved Oxygen	Phosphate	Silicate	Nitrite	Nitrate	Ammonium	Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)
				(μmol/L)								
0	14.200	35.021	8.19	266.4	0.37	0.0	0.21	3.23	0.2	10	12.284	34.675
53	12.856	34.820	8.19	270.3	0.51	0.0	0.20	5.48	0.3	20	12.293	34.685
78	12.755	34.810	8.19	270.9	0.53	0.0	0.20	5.54	0.4	30	12.455	34.734
102	13.670	35.224	8.14	237.1	0.61	0.9	0.04	7.96	0.2	50	12.548	34.762
126	13.114	35.298	8.14	239.5	0.67	1.9	0.02	9.23	0.1	75	12.642	34.793
153	12.491	35.214	8.12	240.4	0.75	2.4	0.02	10.09	0.2	100	12.587	34.914
202	11.785	35.111	8.13	241.2	0.81	2.9	0.02	11.52	0.2	125	12.103	35.042
254	10.614	34.901	8.11	253.4	0.95	3.4	0.03	13.81	0.1	150	10.018	34.723
303	10.001	34.802	8.10	259.0	1.03	3.6	0.03	14.88	0.2	200	8.944	34.554
405	9.262	34.680	8.09	262.7	1.14	4.4	0.02	16.77	0.2	250	8.694	34.521
502	8.809	34.627	8.08	258.0	1.24	5.8	0.03	18.41	0.1	300	8.793	34.546
603	8.212	34.542	8.07	250.0	1.39	8.3	0.01	20.69	0.2	400	8.857	34.581
700	7.827	34.541	8.02	223.3	1.58	13.7	0.02	24.08	0.2	500	8.565	34.542
800	6.883	34.458	8.00	216.5	1.77	20.2	0.02	26.96	0.1	600	8.310	34.545
902	5.637	—	7.99	232.5	1.90	23.7	0.00	28.99	0.2	700	7.870	34.527
1007	5.053	34.395	7.96	210.9	2.09	40.0	0.01	31.64	0.4	800	6.970	34.471
1254	3.694	34.415	7.93	200.4	2.31	63.3	0.02	34.60	0.2	900	6.276	34.439
1504	2.914	34.499	7.91	193.3	2.41	82.6	0.01	36.20	0.3	1000	5.301	34.378
2004	2.394	34.669	7.92	188.6	2.32	102.6	0.03	34.93	0.4	1250	3.838	34.409
2501	2.044	34.728	7.92	198.2	2.24	115.3	0.01	33.86	0.2	1500	2.945	34.491
2999	1.691	34.735	7.93	206.7	2.26	128.7	0.01	33.59	0.3	2000	2.399	34.658
3497	1.385	34.725	7.92	212.6	2.21	131.8	0.01	33.15	0.2	2500	2.063	34.719
3801	1.191	34.720	7.92	215.1	2.27	144.6	0.02	33.92	0.1	3000	1.682	34.728
										3500	1.367	34.721

ITS-90 : International Temperature Scale of 1990.
PSS78 : Practical Salinity Scale of 1978.

Station St. Trap

Beginning of cast

Meteorological observation

Date	: March 1, 2006	Time (UT)	: 0800	Wind direction	: S
Time (UT)	: 07:40	Weather	: BC	Velocity	: 16 (kn)
Latitude	: 61-15.9S	Air temperature (dry)	: -0.6 (degC)	Wave	: 3
Longitude	: 80-02.4E	Humidity	: 69 (%)	Swell	: S/1
Depth	: 2670 m	Atmospheric Pressure	: 988.3 (hPa)	Visibility	: 20 (km)

Water Sampling by Niskin bottles										Observed by CTD		
Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)	pH	Dissolved Oxygen	Phosphate	Silicate	Nitrite	Nitrate	Ammonium	Pressure (dbar)	Temperature (ITS-90)	Salinity (PSS78)
				(μmol/L)								
0	1.100	33.741	8.11	354.9	1.63	34.4	0.36	26.98	0.8	10	0.918	33.735
49	0.560	33.771	8.08	354.1	1.78	42.4	0.32	27.88	0.8	20	0.913	33.736
72	-0.666	33.914	8.04	332.7	2.13	58.4	0.25	30.76	1.4	30	0.904	33.740
100	-0.762	34.073	8.00	299.2	2.29	72.8	0.24	33.48	1.2	50	0.625	33.790
125	0.302	34.237	7.95	252.7	2.41	82.7	0.16	35.90	0.7	75	-0.853	33.967
150	1.386	34.398	7.91	211.0	2.49	92.3	0.06	37.33	0.7	100	-0.459	34.145
201	1.737	34.496	7.91	192.2	2.50	98.9	0.04	37.49	0.9	125	0.573	34.304
251	1.932	34.564	7.90	183.7	2.48	103.3	0.05	37.31	0.7	150	1.297	34.420
300	1.984	34.602	7.92	183.5	2.45	104.7	0.04	36.79	0.7	200	1.785	34.524
400	2.026	34.661	7.93	185.5	2.38	108.7	0.04	35.75	0.7	250	1.954	34.586
502	2.017	34.693	7.93	189.4	2.31	108.3	0.03	34.96	0.5	300	1.981	34.620
600	1.987	34.716	7.94	194.1	2.26	108.7	0.04	33.93	0.4	400	2.018	34.666
700	1.931	34.732	7.95	197.1	2.22	109.5	0.03	33.56	0.5	500	2.009	34.698
801	1.867	34.741	7.96	204.8	2.19	110.7	0.02	33.02	0.4	600	1.984	34.720
900	1.782	34.746	7.96	206.5	2.17	112.2	0.02	32.79	0.5	700	1.931	34.735
1000	1.702	34.749	7.96	210.2	2.15	114.0	0.02	32.67	0.6	800	1.858	34.744
1249	1.475	34.747	7.96	215.2	2.16	123.6	0.01	32.60	0.5	900	1.785	34.748
1499	1.249	34.737	7.95	214.0	2.19	135.2	0.02	33.12	0.5	1000	1.695	34.753
1998	0.823	34.712	7.93	216.4	2.27	146.9	0.01	34.26	0.7	1250	1.454	34.745
2501	0.494	34.693	7.90	221.0	2.32	162.0	0.02	35.00	0.5	1500	1.240	34.734
										2000	0.818	34.709

ITS-90 : International Temperature Scale of 1990.
PSS78 : Practical Salinity Scale of 1978.

Table 5: Petroleum oil, Cadmium and Mercury concentration in the surface water

Station No.	Date (UT)	Time	Position		Air Temp	Water Temp	Petroleum Oil	Cadmium	Mercury
			Latitude	Longtitude	(℃)		(μg/L)		
	2005								
1	Dec. 5	5:40	40-07.7S	109-52.1E	10.0	11.7	0.025	0.010	0.0006
2	6	7:35	44-38.1S	109-25.1E	10.2	10.2	0.030	0.021	—
3	7	7:07	49-44.1S	109-41.9E	5.7	4.9	0.020	0.051	—
4	8	7:47	55-20.4S	109-34.7E	4.3	2.8	0.230	0.069	0.0032
5	9	7:52	59-55.1S	108-28.9E	0.5	0.5	0.026	0.076	0.0014
	2006								
6	Feb. 24	9:30	63-40.1S	49-41.1E	1.7	0.1	0.025	0.074	0.0004
7	26	5:50	63-37.3S	60-08.5E	-0.7	0.9	0.045	0.064	0.0011
8	27	10:20	63-55.4S	69-55.1E	0.8	0.7	0.056	0.065	0.0007
9	28	10:00	63-30.5S	78-56.1E	-0.1	0.7	0.034	0.073	0.0007
10	Mar. 7	8:38	63-27.1S	91-33.4E	0.5	1.0	0.025	0.066	0.0006
11	8	7:25	63-20.1S	101-05.8E	-1.2	0.3	0.024	0.072	0.0008
12	9	7:25	63-53.9S	111-06.6E	1.4	1.1	0.025	0.073	0.0006
13	10	7:40	63-58.7S	121-10.6E	2.0	1.3	—	—	0.0008
14	11	6:35	64-00.2S	131-14.7E	0.8	1.5	0.025	0.069	0.0009
15	12	5:35	63-55.5S	140-08.3E	-1.2	1.2	—	—	—
16	13	5:35	63-57.3S	146-47.5E	-0.3	1.2	0.015	0.060	0.0006
17	14	4:38	60-15.9S	150-04.6E	1.0	2.3	0.015	0.052	0.0016
18	15	5:02	56-25.5S	150-44.5E	5.3	5.9	0.025	0.044	0.0010
19	16	4:24	51-37.8S	150-44.3E	9.5	9.0	0.040	0.030	0.0007
20	17	4:25	45-42.4S	150-32.0E	13.6	14.3	0.020	0.008	0.0018

Chrysen was used as the standard material to measure the levels of Petroleum Oil concentration.

Table 6. Hourly tidal observation at Syowa Station from February 2005 to January 2006 (time is LMT(UT+3 hours)

STATION : SYOWA STATION
LATITUDE : 69°00'28"S
LONGITUDE : 39°34'13"E
DURATION : FEB. 1, - FEB. 28, 2005
UNIT CENTIMETRE

The zero of the tide gauge: 500cm below the bench mark No.1040

Date	Time 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	(24H) SUM	(24H) MEAN	(25H) SUM	(25H) MEAN
1	246	235	223	217	219	229	241	252	266	272	275	271	264	259	253	251	255	260	269	278	286	287	282	275	6165.0	256.9	6428.0	257.1
2	263	247	234	224	220	219	224	231	241	249	254	259	259	260	262	264	268	271	277	283	285	286	284	277	6141.0	255.9	6410.0	256.4
3	269	257	245	234	226	218	216	220	222	229	239	246	255	264	274	280	286	288	292	294	292	289	287	281	6203.0	258.5	6477.0	259.1
4	274	266	255	246	235	224	212	206	202	201	208	217	233	250	268	284	295	302	304	302	299	295	290	285	6153.0	256.4	6435.0	257.4
5	282	275	271	261	251	239	221	203	191	184	181	188	203	224	250	273	294	306	311	311	305	297	289	284	6094.0	253.9	6375.0	255.0
6	281	281	280	276	268	257	237	212	190	171	158	157	167	188	216	248	275	295	307	308	303	293	283	278	5929.0	247.0	6204.0	248.2
7	275	279	282	286	286	279	261	235	206	177	153	141	143	159	186	221	252	281	300	306	302	290	278	270	5848.0	243.7	6116.0	244.6
8	268	272	282	292	302	300	290	270	237	202	172	148	140	149	171	203	237	269	292	303	301	291	276	263	5930.0	247.1	6189.0	247.6
9	259	262	274	291	306	316	314	300	274	239	203	173	153	149	164	188	221	252	275	289	293	282	265	248	5990.0	249.6	6228.0	249.1
10	238	238	248	268	289	308	316	315	299	269	235	202	175	165	170	189	217	247	271	287	292	283	265	249	6035.0	251.5	6268.0	250.7
11	233	226	233	251	274	299	317	321	317	299	269	238	210	192	188	201	223	246	268	282	288	281	262	244	6162.0	256.8	6388.0	255.5
12	226	212	210	223	244	271	290	304	310	303	285	262	238	221	216	221	238	260	279	294	300	295	280	260	6242.0	260.1	6482.0	259.3
13	240	223	213	217	231	256	277	293	302	303	293	278	261	248	238	242	252	268	284	297	302	299	285	267	6369.0	265.4	6616.0	264.6
14	247	228	216	213	220	237	256	269	281	286	284	274	265	257	253	253	260	272	284	295	298	295	284	269	6296.0	262.3	6545.0	261.8
15	249	232	218	209	209	217	230	241	252	260	262	259	256	258	258	259	267	277	285	293	297	292	284	272	6136.0	255.7	6393.0	255.7
16	257	241	230	218	212	214	218	222	230	237	239	241	245	248	256	265	271	276	285	291	289	286	280	268	6019.0	250.8	6276.0	251.0
17	257	244	236	225	220	215	215	212	213	218	220	225	232	239	250	265	276	283	293	297	295	292	289	281	5992.0	249.7	6267.0	250.7
18	275	270	262	258	253	246	237	231	223	216	216	216	223	233	248	266	279	288	293	293	290	285	277	271	6149.0	256.2	6417.0	256.7
19	268	265	262	258	255	247	236	225	212	204	198	198	206	221	240	260	281	294	301	303	299	292	284	277	6086.0	253.6	6360.0	254.4
20	274	275	277	279	277	271	261	245	226	211	201	196	199	213	235	258	280	297	304	305	299	290	279	274	6226.0	259.4	6498.0	259.9
21	272	273	280	285	288	284	272	256	232	211	196	187	188	201	224	251	273	291	303	305	298	287	275	267	6199.0	258.3	6463.0	258.5
22	264	269	277	286	293	296	288	269	245	221	197	184	183	190	211	239	264	284	297	302	293	279	266	255	6152.0	256.3	6385.0	255.4
23	250	254	267	279	290	297	292	277	253	225	198	178	170	175	194	219	248	271	284	289	281	268	253	240	5952.0	248.0	6185.0	247.4
24	233	235	248	265	284	295	297	287	265	238	210	184	170	173	187	212	240	262	282	289	283	269	254	239	5901.0	245.9	6128.0	245.1
25	227	229	242	263	284	304	314	313	301	280	248	224	208	204	216	240	264	289	308	320	313	297	274	252	6414.0	267.3	6651.0	266.0
26	237	229	235	255	277	296	309	311	304	282	254	228	206	195	200	215	240	261	279	287	284	271	247	225	6127.0	255.3	6337.0	253.5
27	210	199	201	218	240	264	283	294	293	279	258	235	215	201	198	212	232	250	269	280	279	267	244	224	5845.0	243.5	6050.0	242.0
28	205	190	189	198	217	242	264	278	283	280	267	247	229	218	213	221	237	255	271	281	282	274	256	234	5831.0	243.0	5831.0	233.2

MONTHLY MEAN 0.0 cm

STATION : SYOWA STATION
LATITUDE : 69°00'28"S
LONGITUDE : 39°34'13"E
DURATION : MAR . 1 , - MAR . 31 , 2005
UNIT CENTIMETRE

The zero of the tide gauge: 500cm below the bench mark No.1040

Date	Time 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	(24H) SUM	(24H) MEAN	(25H) SUM	(25H) MEAN
1	215	197	190	193	209	231	251	269	281	283	279	267	254	245	241	245	255	267	280	291	290	281	268	245	6027.0	251.1	6249.0	250.0
2	222	204	191	186	194	208	224	239	252	259	261	257	250	246	245	246	254	265	275	281	283	276	262	248	5828.0	242.8	6057.0	242.3
3	229	211	200	192	192	199	209	220	232	241	250	257	256	262	268	273	280	287	296	300	300	294	284	272	6004.0	250.2	6262.0	250.5
4	258	242	229	220	213	212	213	216	221	229	240	250	257	268	283	294	302	307	313	314	312	305	295	287	6280.0	261.7	6556.0	262.2
5	276	263	253	243	231	222	213	206	200	200	206	214	227	244	265	281	296	304	304	302	296	291	282	274	6093.0	253.9	6361.0	254.4
6	268	262	256	248	241	227	209	195	180	171	170	174	189	209	236	262	281	294	300	296	289	280	270	265	5772.0	240.5	6036.0	241.4
7	264	263	267	267	264	253	236	214	191	174	163	160	173	194	221	253	279	298	307	303	294	283	271	264	5856.0	244.0	6121.0	244.8
8	265	272	282	292	299	293	280	258	229	203	181	169	173	190	218	250	281	304	315	315	304	285	270	261	6189.0	257.9	6449.0	258.0
9	260	268	284	300	314	319	309	290	258	225	196	174	165	174	200	226	256	279	291	291	280	259	239	225	6082.0	253.4	6302.0	252.1
10	220	230	253	275	300	315	317	306	282	250	218	191	176	178	197	223	251	276	292	295	284	263	239	220	6051.0	252.1	6261.0	250.4
11	210	216	233	261	290	315	327	326	312	286	254	228	207	203	213	236	263	284	300	305	294	273	247	223	6306.0	262.8	6513.0	260.5
12	207	204	217	242	272	298	318	326	319	299	275	248	226	216	220	236	256	275	291	296	288	266	239	213	6247.0	260.3	6440.0	257.6
13	193	182	189	210	238	270	294	308	312	304	287	267	249	237	240	252	270	290	303	308	304	284	256	231	6278.0	261.6	6486.0	259.4
14	208	193	190	202	225	252	275	292	301	300	292	276	263	257	253	260	276	292	305	310	305	292	268	242	6329.0	263.7	6550.0	262.0
15	221	202	193	196	209	230	251	265	276	281	278	269	262	259	259	263	275	290	299	304	302	289	273	251	6197.0	258.2	6425.0	257.0
16	228	214	203	200	209	222	235	250	260	265	268	267	264	267	271	278	285	297	308	311	309	300	286	267	6264.0	261.0	6510.0	260.4
17	246	232	222	214	214	220	226	235	240	245	249	250	251	256	266	275	282	292	300	301	300	293	282	270	6161.0	256.7	6415.0	256.6
18	254	242	236	230	227	226	229	231	234	235	240	244	249	259	271	286	296	305	309	311	310	301	292	284	6301.0	262.5	6574.0	263.0
19	273	266	262	256	253	249	245	240	234	234	236	238	245	257	274	289	301	309	313	309	304	294	284	276	6441.0	268.4	6711.0	268.4
20	270	264	262	259	255	249	237	227	216	210	207	207	217	232	250	269	284	293	297	294	290	278	270	268	6105.0	254.4	6371.0	254.8
21	266	269	272	277	279	278	269	259	245	231	229	235	246	267	290	312	331	344	346	339	330	316	305	297	6832.0	284.7	7129.0	285.2
22	297	300	307	314	315	312	300	279	257	240	226	218	219	234	255	275	294	307	309	303	290	274	261	253	6639.0	276.6	6881.0	275.2
23	252	259	272	287	295	296	287	269	245	223	206	196	198	213	236	260	281	298	304	299	286	267	251	242	6222.0	259.3	6464.0	258.6
24	242	251	268	286	302	308	302	290	265	236	216	200	196	208	228	252	276	291	298	291	277	255	235	221	6194.0	258.1	6412.0	256.5
25	218	228	249	272	293	308	310	300	277	248	224	204	194	201	218	242	266	282	289	285	269	245	221	204	6047.0	252.0	6243.0	249.7
26	196	203	222	248	273	294	303	299	282	256	231	209	195	195	208	231	253	271	281	278	263	237	211	191	5830.0	242.9	6007.0	240.3
27	177	179	197	224	253	281	299	303	294	276	255	232	218	215	225	244	267	286	296	297	285	259	232	211	6005.0	250.2	6199.0	248.0
28	194	189	201	224	255	285	307	320	318	306	288	266	250	242	243	260	279	294	303	303	293	269	239	212	6340.0	264.2	6531.0	261.2
29	191	178	180	196	223	250	275	294	304	296	284	270	257	248	253	256	274	291	299	298	292	272	247	217	6145.0	256.0	6341.0	253.6
30	196	181	173	180	204	226	248	267	284	284	281	278	268	266	266	271	284	297	305	304	300	286	261	233	6143.0	256.0	6355.0	254.2
31	212	192	181	182	191	210	228	245	259	270	275	274	273	276	276	282	292	302	311	314	309	297	280	257	6188.0	257.8	6188.0	247.5

MONTHLY MEAN 0.0 cm

STATION : SYOWA STATION
LATITUDE : 69°00'28"S
LONGITUDE : 39°34'13"E
DURATION : APR. 1, - APR. 30, 2005
UNIT CENTIMETRE

The zero of the tide gauge: 500cm below the bench mark No.1040

Date	Time 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	(24H) SUM	(24H) MEAN	(25H) SUM	(25H) MEAN
1	234	217	203	195	194	203	211	223	233	243	256	262	266	274	282	288	295	305	310	309	307	297	285	270	6162.0	256.8	6415.0	256.6
2	253	239	227	215	210	207	206	210	214	222	233	244	257	269	281	292	301	307	308	308	304	294	285	277	6163.0	256.8	6431.0	257.2
3	268	260	253	245	236	227	219	213	210	208	217	230	244	262	283	300	309	313	314	311	303	296	287	284	6292.0	262.2	6575.0	263.0
4	283	281	279	273	265	254	239	223	208	199	199	207	220	241	266	284	298	304	301	294	285	273	264	263	6203.0	258.5	6469.0	258.8
5	266	271	278	283	283	274	259	238	216	198	188	190	202	220	247	268	287	297	295	286	270	255	245	242	6058.0	252.4	6307.0	252.3
6	249	262	279	294	301	302	291	265	243	220	203	198	204	224	249	274	296	309	311	298	279	259	245	239	6294.0	262.3	6543.0	261.7
7	249	267	287	311	330	337	333	316	289	260	240	226	223	238	258	281	302	315	315	303	281	255	232	224	6672.0	278.0	6898.0	275.9
8	226	240	268	296	321	336	342	326	304	278	254	235	227	236	254	276	297	309	311	299	275	247	219	201	6577.0	274.0	6774.0	271.0
9	197	210	236	267	295	319	331	328	313	291	265	244	234	233	248	268	285	296	300	292	271	241	210	188	6362.0	265.1	6536.0	261.4
10	174	179	200	230	259	287	309	316	310	294	277	259	246	243	253	272	288	303	307	301	281	252	222	196	6258.0	260.8	6436.0	257.4
11	178	176	186	211	241	268	290	305	306	298	285	270	259	255	262	278	293	306	313	310	296	270	241	215	6312.0	263.0	6505.0	260.2
12	193	186	188	205	231	255	277	293	298	298	288	280	274	268	270	284	296	308	316	314	302	282	252	226	6384.0	266.0	6590.0	263.6
13	206	191	187	197	214	234	254	269	279	282	281	278	274	273	275	284	295	307	315	315	308	291	269	245	6323.0	263.5	6549.0	262.0
14	226	214	204	209	221	235	251	265	276	282	286	285	287	291	295	303	314	323	333	335	329	319	302	281	6666.0	277.8	6932.0	277.3
15	266	254	242	242	245	252	260	270	279	285	288	291	293	298	306	311	318	325	329	327	323	310	296	279	6889.0	287.0	7153.0	286.1
16	264	250	241	234	232	235	237	240	245	249	256	262	264	273	284	290	297	304	307	305	300	289	279	270	6407.0	267.0	6665.0	266.6
17	258	251	245	241	239	235	233	229	230	233	237	246	254	266	279	288	297	300	300	297	289	280	270	263	6260.0	260.8	6519.0	260.8
18	259	256	253	251	248	242	235	229	221	218	223	230	240	253	268	280	289	292	292	286	278	268	263	259	6133.0	255.5	6394.0	255.8
19	261	265	271	273	273	268	260	249	242	235	234	242	253	268	285	299	307	310	306	296	285	270	261	260	6473.0	269.7	6736.0	269.4
20	263	270	280	285	287	283	267	252	236	223	216	219	223	239	259	274	283	288	284	271	256	242	231	232	6163.0	256.8	6401.0	256.0
21	238	252	266	280	292	291	281	265	244	226	214	213	218	234	257	273	283	290	286	270	253	233	220	217	6096.0	254.0	6323.0	252.9
22	227	242	265	287	304	311	308	292	270	249	232	225	229	242	263	278	293	301	294	277	253	227	209	198	6276.0	261.5	6458.0	258.3
23	204	221	243	273	295	307	310	298	277	254	234	222	221	231	250	268	283	291	288	274	248	221	198	182	6093.0	253.9	6275.0	251.0
24	182	198	223	255	285	303	315	311	297	276	256	242	233	240	256	272	286	296	293	279	255	223	195	173	6144.0	256.0	6311.0	252.4
25	167	175	197	233	266	290	311	317	312	295	277	262	255	255	269	286	298	308	308	295	271	238	206	180	6271.0	261.3	6435.0	257.4
26	164	164	180	208	241	271	296	311	313	305	293	282	270	267	276	290	305	316	316	311	292	260	227	199	6357.0	264.9	6535.0	261.4
27	178	168	174	198	224	252	280	300	308	308	302	294	287	283	285	296	312	322	324	321	306	280	250	219	6471.0	269.6	6665.0	266.6
28	194	177	175	185	203	226	252	272	284	293	292	291	288	285	289	294	304	315	318	316	305	286	260	233	6337.0	264.0	6546.0	261.8
29	209	188	179	180	187	202	221	238	254	267	277	280	283	289	293	292	303	312	316	314	309	297	278	256	6224.0	259.3	6463.0	258.5
30	239	221	204	200	201	205	214	226	240	255	270	280	288	299	308	309	316	326	330	331	328	320	309	295	6514.0	271.4	6514.0	260.6

MONTHLY MEAN 0.0 cm

STATION : SYOWA STATION
LATITUDE : 69°00'28"S
LONGITUDE : 39°34'13"E
DURATION : MAY 1, - MAY 31, 2005
UNIT CENTIMETRE

The zero of the tide gauge: 500cm below the bench mark No.1040

Date	Time 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	(24H) SUM	(24H) MEAN	(25H) SUM	(25H) MEAN
1	281	265	254	243	233	231	229	234	238	248	260	271	282	298	306	309	314	313	310	307	303	294	289	283	6595.0	274.8	6874.0	275.0
2	279	272	267	258	247	237	229	220	220	225	234	245	263	278	289	297	300	298	292	288	283	274	272	273	6340.0	264.2	6614.0	264.6
3	274	279	282	281	272	263	253	238	232	228	234	245	262	282	300	311	315	311	301	292	280	272	270	273	6550.0	272.9	6829.0	273.2
4	279	292	302	309	308	299	285	266	250	240	231	235	245	261	276	288	290	286	274	258	238	225	216	218	6371.0	265.5	6605.0	264.2
5	234	250	269	285	293	293	280	264	245	227	219	219	226	241	259	271	277	276	264	245	226	208	197	199	5967.0	248.6	6182.0	247.3
6	215	238	261	286	308	316	312	300	281	262	250	247	251	263	277	291	299	298	286	264	237	212	195	188	6337.0	264.0	6535.0	261.4
7	198	219	246	273	298	313	317	311	293	273	257	249	250	258	272	283	292	293	283	263	236	205	183	169	6234.0	259.8	6406.0	256.2
8	172	189	215	244	272	294	307	306	297	283	270	260	258	265	280	294	305	309	303	286	260	230	203	184	6286.0	261.9	6464.0	258.6
9	178	191	211	241	270	293	311	319	312	302	293	280	274	277	287	301	312	317	314	299	273	243	215	191	6504.0	271.0	6681.0	267.2
10	177	178	195	219	246	272	292	300	305	299	291	286	279	276	287	297	311	318	315	308	288	258	232	207	6436.0	268.2	6624.0	265.0
11	188	182	188	206	232	257	277	291	297	296	292	287	283	281	285	295	308	314	318	312	292	271	247	220	6419.0	267.5	6619.0	264.8
12	200	189	191	200	222	240	259	271	282	286	283	282	283	279	279	289	298	307	313	308	294	278	255	230	6318.0	263.3	6529.0	261.2
13	211	197	191	194	208	223	239	253	264	271	272	275	275	276	281	283	293	301	304	307	295	283	266	246	6208.0	258.7	6437.0	257.5
14	229	217	209	209	216	226	241	256	266	277	285	286	293	297	303	306	312	320	326	325	320	309	300	284	6612.0	275.5	6881.0	275.2
15	269	256	246	238	240	244	251	258	266	276	283	289	296	300	304	309	310	313	316	314	309	301	296	285	6769.0	282.0	7044.0	281.8
16	275	267	260	255	253	250	255	256	259	267	276	282	294	300	305	308	308	308	307	299	289	284	277	270	6704.0	279.3	6970.0	278.8
17	266	261	257	252	245	242	238	234	231	235	244	251	264	269	276	283	284	282	276	270	264	259	258	258	6199.0	258.3	6461.0	258.4
18	262	266	269	270	266	261	254	246	241	241	247	256	269	278	285	292	292	287	282	271	262	256	254	256	6363.0	265.1	6627.0	265.1
19	264	273	283	290	286	280	271	259	250	244	242	250	262	271	284	287	287	283	269	254	239	229	225	229	6311.0	263.0	6551.0	262.0
20	240	255	271	284	290	289	279	267	253	242	240	243	251	266	275	282	286	279	267	253	228	214	209	208	6171.0	257.1	6395.0	255.8
21	224	246	270	292	306	312	308	299	283	268	263	264	270	283	294	302	306	302	287	266	240	219	205	202	6511.0	271.3	6727.0	269.1
22	216	240	265	292	313	325	325	318	304	285	272	270	271	280	293	303	311	306	293	272	239	213	193	181	6580.0	274.2	6753.0	270.1
23	190	211	237	269	299	318	331	327	315	300	286	278	276	283	296	306	312	313	301	279	250	220	191	175	6563.0	273.5	6736.0	269.4
24	173	189	215	250	285	315	334	344	342	332	318	313	305	309	324	333	343	349	340	325	296	264	234	209	7041.0	293.4	7240.0	289.6
25	199	202	221	252	284	318	340	355	361	357	349	340	331	329	338	346	355	358	354	343	321	284	253	220	7410.0	308.8	7606.0	304.2
26	196	188	195	213	237	268	292	312	324	323	326	322	318	311	315	320	335	337	342	332	314	288	256	226	6890.0	287.1	7091.0	283.6
27	201	182	177	185	201	224	250	269	286	296	299	302	299	296	294	302	309	316	319	318	307	292	263	238	6425.0	267.7	6641.0	265.6
28	216	190	176	175	181	197	215	227	252	267	274	282	287	285	285	286	295	301	308	312	306	296	285	265	6163.0	256.8	6411.0	256.4
29	248	229	215	205	202	207	217	232	246	260	276	285	289	294	292	294	293	291	299	302	301	299	297	285	6358.0	264.9	6633.0	265.3
30	275	263	248	236	228	223	223	229	237	246	255	269	276	281	280	278	273	270	268	268	269	270	269	270	6204.0	258.5	6472.0	258.9
31	268	263	259	250	235	227	222	218	220	224	235	247	253	259	262	259	253	244	239	233	229	234	235	242	5810.0	242.1	5810.0	232.4

MONTHLY MEAN 0.0 cm

STATION : SYOWA STATION
LATITUDE : 69°00'28"S
LONGITUDE : 39°34'13"E
DURATION : JUNE 1, - JUNE 30, 2005
UNIT CENTIMETRE

The zero of the tide gauge: 500cm below the bench mark No.1040

Date	Time 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	(24H) SUM	(24H) MEAN	(25H) SUM	(25H) MEAN
1	250	256	260	259	253	242	237	230	226	226	233	241	253	260	267	267	262	251	241	231	225	225	229	239	5863.0	244.3	6119.0	244.8
2	256	268	281	289	290	283	274	262	254	247	248	256	266	267	276	280	270	258	245	227	216	212	209	219	6153.0	256.4	6390.0	255.6
3	237	258	278	294	307	309	304	295	285	281	281	286	291	302	310	308	304	293	276	255	233	220	214	218	6639.0	276.6	6871.0	274.8
4	232	251	277	296	312	321	322	314	304	293	287	287	289	299	304	311	311	301	285	259	234	209	197	197	6692.0	278.8	6901.0	276.0
5	209	224	245	272	296	307	312	310	302	291	281	279	282	288	296	305	308	299	290	264	238	215	196	185	6494.0	270.6	6684.0	267.4
6	190	206	231	255	282	302	311	314	312	299	290	286	285	295	302	309	314	309	301	280	254	228	205	188	6548.0	272.8	6733.0	269.3
7	185	195	217	241	269	292	309	316	316	313	305	300	296	300	309	319	327	326	318	304	278	249	222	201	6707.0	279.5	6896.0	275.8
8	189	190	206	228	250	274	296	305	307	304	298	290	288	286	292	302	310	313	312	300	277	250	220	197	6484.0	270.2	6667.0	266.7
9	183	176	182	200	224	247	268	282	288	290	286	285	277	274	284	294	304	313	312	308	292	270	244	220	6303.0	262.6	6505.0	260.2
10	202	194	197	207	227	253	272	287	298	304	299	297	292	294	293	300	309	315	320	317	307	287	266	242	6579.0	274.1	6801.0	272.0
11	222	209	203	207	220	237	255	270	282	289	286	283	281	274	274	277	281	287	292	294	284	272	254	234	6267.0	261.1	6482.0	259.3
12	215	202	193	190	201	216	231	245	263	269	273	275	275	271	271	275	280	286	292	296	294	288	277	261	6139.0	255.8	6386.0	255.4
13	247	235	224	219	225	231	241	253	268	275	283	284	282	283	280	278	280	282	287	293	290	288	280	270	6378.0	265.8	6639.0	265.6
14	261	249	240	233	232	231	237	245	253	260	269	274	272	270	268	268	263	258	258	258	260	257	257	252	6125.0	255.2	6375.0	255.0
15	250	241	235	231	224	222	225	227	235	239	249	255	258	260	261	256	253	249	243	244	244	244	245	252	5842.0	243.4	6098.0	243.9
16	256	257	254	257	252	250	247	247	247	249	257	261	265	266	265	261	253	239	233	226	220	219	220	228	5929.0	247.0	6168.0	246.7
17	239	249	256	259	257	254	249	246	240	239	245	250	255	259	260	257	248	238	225	212	201	197	199	206	5740.0	239.2	5966.0	238.6
18	226	241	252	264	275	270	263	257	251	244	245	249	254	258	259	258	253	239	223	208	192	183	181	190	5735.0	239.0	5941.0	237.6
19	206	229	251	271	284	290	289	283	274	266	262	262	270	275	279	278	270	260	244	217	198	182	171	176	5987.0	249.5	6178.0	247.1
20	191	214	240	271	291	303	313	309	297	287	281	281	283	291	299	301	298	287	271	244	218	194	174	171	6309.0	262.9	6487.0	259.5
21	178	198	223	257	287	310	323	327	321	312	304	301	302	309	315	320	322	311	297	271	238	204	176	158	6564.0	273.5	6722.0	268.9
22	158	170	193	223	257	287	305	319	319	312	301	296	291	296	302	310	314	312	307	287	257	221	188	162	6387.0	266.1	6541.0	261.6
23	150	150	166	193	224	254	281	301	308	309	300	296	291	289	296	304	312	317	315	301	276	245	210	181	6269.0	261.2	6423.0	256.9
24	154	147	150	166	195	223	250	272	286	292	287	282	278	272	272	282	295	300	306	303	287	267	236	206	6008.0	250.3	6187.0	247.5
25	179	159	153	159	178	203	226	249	267	278	281	279	273	265	263	267	278	286	297	300	293	283	260	234	5910.0	246.3	6120.0	244.8
26	210	187	174	171	178	195	216	236	253	266	272	273	269	258	254	251	259	269	282	291	290	291	278	263	5886.0	245.3	6129.0	245.2
27	243	222	206	197	193	201	212	230	244	253	263	265	260	250	243	235	234	239	250	258	261	267	268	259	5753.0	239.7	6002.0	240.1
28	249	237	224	215	208	206	214	228	239	245	253	257	254	246	240	228	218	217	224	228	238	241	245	250	5604.0	233.5	5854.0	234.2
29	250	247	241	234	231	226	226	230	238	244	250	252	251	247	241	229	216	207	208	212	211	219	227	237	5574.0	232.3	5817.0	232.7
30	243	247	254	254	250	249	245	243	244	249	255	256	260	256	250	243	231	217	212	204	204	203	212	224	5705.0	237.7	5705.0	228.2

MONTHLY MEAN 0.0 cm

STATION : SYOWA STATION
LATITUDE : 69°00'28"S
LONGITUDE : 39°34'13"E
DURATION : JULY 1 , - JULY 31 , 2005
UNIT CENTIMETRE

The zero of the tide gauge: 500cm below the bench mark No.1040

Date	Time 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	(24H) SUM	(24H) MEAN	(25H) SUM	(25H) MEAN
1	236	246	258	268	273	274	270	270	266	269	270	279	280	280	275	272	261	250	239	225	217	216	217	229	6140.0	255.8	6380.0	255.2
2	240	256	270	284	293	300	300	293	292	285	284	287	285	286	284	279	270	258	241	223	206	197	189	194	6296.0	262.3	6501.0	260.0
3	205	222	244	260	277	288	293	288	285	281	276	275	277	280	283	283	278	267	252	233	211	195	186	182	6121.0	255.0	6309.0	252.4
4	188	206	227	252	275	291	302	302	298	295	290	289	293	299	305	308	310	305	294	279	244	236	219	215	6522.0	271.8	6743.0	269.7
5	221	238	245	282	320	321	339	347	342	334	330	325	321	326	333	338	331	334	322	304	276	252	226	209	7216.0	300.7	7419.0	296.8
6	203	209	225	248	273	292	306	313	313	309	299	294	293	294	298	310	315	314	310	293	273	244	217	198	6643.0	276.8	6833.0	273.3
7	190	194	209	232	256	280	299	311	316	312	306	294	293	296	298	305	317	316	317	307	285	258	230	206	6627.0	276.1	6817.0	272.7
8	190	182	192	212	235	258	275	291	297	293	288	280	271	271	270	281	291	296	300	298	277	254	227	203	6232.0	259.7	6416.0	256.6
9	184	177	177	195	211	239	258	274	284	284	281	274	267	263	265	272	285	297	308	308	298	283	256	230	6170.0	257.1	6383.0	255.3
10	213	202	200	209	230	252	270	289	302	303	302	298	290	285	281	287	299	311	324	325	322	310	290	266	6660.0	277.5	6908.0	276.3
11	248	231	221	227	240	253	272	288	299	299	298	290	283	273	267	266	272	283	294	297	299	291	277	261	6529.0	272.0	6772.0	270.9
12	243	226	219	215	222	235	247	263	274	281	280	274	264	255	250	245	248	254	264	276	278	278	271	261	6123.0	255.1	6372.0	254.9
13	249	239	228	225	228	239	247	262	272	279	282	280	273	265	259	252	248	253	263	268	278	285	281	282	6237.0	259.9	6516.0	260.6
14	279	272	264	261	261	263	271	279	285	290	295	294	284	277	270	259	254	249	250	254	259	263	266	269	6468.0	269.5	6738.0	269.5
15	270	268	265	266	263	261	265	268	272	275	275	278	273	264	256	246	233	224	221	218	221	228	235	245	6090.0	253.8	6344.0	253.8
16	254	260	265	269	272	269	268	269	268	272	275	273	270	268	257	247	235	220	211	202	199	201	208	215	5947.0	247.8	6177.0	247.1
17	230	246	255	269	275	276	275	272	270	266	266	267	266	264	260	252	238	227	211	198	185	181	182	192	5823.0	242.6	6034.0	241.4
18	211	231	254	276	289	297	298	298	291	282	281	280	282	279	279	274	265	248	232	212	192	178	170	173	6072.0	253.0	6260.0	250.4
19	188	211	237	265	288	303	312	309	303	296	289	285	283	287	289	287	282	270	250	225	200	175	156	149	6139.0	255.8	6297.0	251.9
20	158	177	208	240	271	294	310	316	313	303	297	293	291	296	300	305	306	300	288	261	234	200	174	159	6294.0	262.3	6447.0	257.9
21	153	162	188	219	252	281	306	317	314	306	302	290	278	286	292	297	303	307	300	278	248	213	178	147	6217.0	259.0	6349.0	254.0
22	132	135	151	170	205	232	259	278	283	278	269	262	249	247	260	273	282	295	297	288	267	237	201	172	5722.0	238.4	5913.0	236.5
23	144	134	142	161	189	217	245	270	278	277	269	259	248	243	247	265	281	296	308	310	301	280	250	215	5829.0	242.9	6020.0	240.8
24	191	177	172	178	205	229	254	277	285	289	286	269	255	249	243	257	268	285	304	313	313	300	278	246	6123.0	255.1	6345.0	253.8
25	222	200	188	189	199	219	236	256	269	268	266	254	236	221	214	215	229	246	268	279	288	289	278	258	5787.0	241.1	6030.0	241.2
26	243	223	211	210	214	228	244	259	269	277	273	260	245	231	219	213	214	228	247	261	274	280	279	273	5875.0	244.8	6137.0	245.5
27	262	252	242	237	241	248	258	271	278	282	279	272	259	242	228	217	213	218	228	238	249	256	260	260	5990.0	249.6	6250.0	250.0
28	260	255	252	249	251	256	262	273	275	277	275	270	260	242	231	221	213	208	211	215	226	233	242	247	5904.0	246.0	6158.0	246.3
29	254	261	265	267	268	273	278	285	289	290	292	285	280	267	259	248	235	227	223	223	225	229	233	239	6195.0	258.1	6449.0	258.0
30	254	260	267	281	292	294	300	303	304	306	302	295	292	286	275	268	259	248	237	228	222	220	220	226	6439.0	268.3	6675.0	267.0
31	236	249	262	278	291	300	302	303	302	300	297	295	285	287	284	273	267	258	243	234	217	209	203	203	6378.0	265.8	6378.0	255.1

MONTHLY MEAN 0.0 cm

STATION : SYOWA STATION
LATITUDE : 69°00'28"S
LONGITUDE : 39°34'13"E
DURATION : AUG. 1, - AUG. 31, 2005
UNIT CENTIMETRE

The zero of the tide gauge: 500cm below the bench mark No.1040

Date	Time 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	(24H) SUM	(24H) MEAN	(25H) SUM	(25H) MEAN
1	220	233	244	267	284	298	299	303	299	292	287	284	284	280	285	278	271	264	253	231	211	197	184	180	6228.0	259.5	6412.0	256.5
2	184	201	220	246	263	279	292	292	289	286	276	272	271	274	272	279	277	270	261	243	221	197	180	170	6015.0	250.6	6193.0	247.7
3	178	186	209	236	259	276	287	292	286	283	272	263	262	267	273	279	279	278	273	252	229	202	179	167	5967.0	248.6	6130.0	245.2
4	163	179	194	218	249	269	284	291	288	284	275	263	262	267	276	287	295	298	292	279	254	228	200	180	6075.0	253.1	6250.0	250.0
5	175	176	193	218	240	267	284	290	289	283	274	264	259	260	269	285	298	302	303	292	272	244	216	192	6145.0	256.0	6325.0	253.0
6	180	180	194	213	243	262	280	292	294	284	272	262	257	255	262	280	296	308	315	311	297	273	244	219	6273.0	261.4	6473.0	258.9
7	200	192	201	218	241	270	289	302	303	294	281	269	256	251	253	270	287	303	310	313	302	283	256	230	6374.0	265.6	6586.0	263.4
8	212	207	207	217	242	263	284	296	301	298	285	273	259	248	246	259	276	291	303	313	308	294	274	251	6407.0	267.0	6634.0	265.4
9	227	218	213	219	238	261	279	292	301	297	287	270	259	246	243	256	271	287	304	320	326	317	304	288	6523.0	271.8	6796.0	271.8
10	273	255	254	257	267	286	302	312	315	313	304	285	271	256	245	245	257	270	280	297	302	300	292	273	6711.0	279.6	6969.0	278.8
11	258	247	241	240	252	255	272	283	284	280	272	260	238	223	216	209	209	219	233	247	258	258	257	255	5966.0	248.6	6213.0	248.5
12	247	239	234	234	241	252	261	273	278	279	276	263	249	232	222	212	211	210	224	236	245	250	254	259	5881.0	245.0	6136.0	245.4
13	255	258	259	259	263	268	277	283	287	284	281	274	256	243	233	218	209	205	207	213	215	225	233	241	5946.0	247.8	6195.0	247.8
14	249	256	260	268	273	278	284	285	288	281	279	273	266	257	245	231	220	214	205	203	202	206	212	226	5961.0	248.4	6200.0	248.0
15	239	255	270	283	294	303	303	303	301	297	292	285	277	280	271	258	249	230	219	206	196	189	187	201	6188.0	257.8	6406.0	256.2
16	218	238	260	279	295	307	309	302	298	298	291	287	281	279	280	276	265	248	228	207	192	176	168	170	6152.0	256.3	6337.0	253.5
17	185	206	237	264	289	310	314	312	309	295	296	283	283	287	290	289	290	276	256	233	205	183	162	155	6209.0	258.7	6371.0	254.8
18	162	186	210	244	278	300	312	314	305	295	284	278	276	280	291	295	305	297	286	261	228	195	164	149	6195.0	258.1	6340.0	253.6
19	145	159	182	215	243	274	295	300	292	280	264	257	250	257	270	286	299	307	300	286	254	219	185	158	5977.0	249.0	6121.0	244.8
20	144	145	165	193	225	257	277	288	285	271	257	244	230	236	247	273	290	308	313	310	287	256	221	187	5909.0	246.2	6078.0	243.1
21	169	161	171	193	220	249	270	281	280	266	251	231	216	214	225	245	270	290	308	312	302	282	251	218	5875.0	244.8	6066.0	242.6
22	191	177	181	198	219	244	264	274	273	262	238	219	199	189	189	210	232	257	280	296	294	283	264	238	5671.0	236.3	5907.0	236.3
23	218	202	198	208	226	247	265	276	279	266	250	227	203	187	180	191	210	231	256	275	283	281	271	254	5684.0	236.8	5920.0	236.8
24	236	224	219	221	236	253	270	276	279	270	254	230	208	190	176	175	189	206	226	246	255	261	259	251	5610.0	233.8	5853.0	234.1
25	243	237	236	240	251	268	284	294	297	290	282	265	246	227	213	206	210	220	235	246	258	266	266	268	6048.0	252.0	6315.0	252.6
26	267	263	264	270	275	286	297	304	302	297	289	270	253	238	221	210	206	203	206	214	221	224	227	231	6038.0	251.6	6271.0	250.8
27	233	236	241	247	254	262	266	275	271	267	263	251	235	224	220	210	202	201	202	209	211	219	228	235	5662.0	235.9	5905.0	236.2
28	243	260	274	289	305	313	318	322	322	317	313	304	300	291	276	274	268	262	252	246	242	238	235	238	6702.0	279.3	6948.0	277.9
29	246	260	275	290	301	308	314	314	308	301	294	287	281	272	270	268	258	249	238	228	213	201	196	202	6374.0	265.6	6580.0	263.2
30	206	222	242	258	277	288	294	293	285	280	272	267	265	265	267	267	265	263	246	233	216	201	194	193	6059.0	252.5	6259.0	250.4
31	200	216	247	265	290	303	311	313	306	298	289	285	287	292	298	306	305	302	291	274	251	228	212	201	6570.0	273.8	6570.0	262.8
																								MONTHLY MEAN		0.0 cm		

STATION : SYOWA STATION
LATITUDE : 69°00'28"S
LONGITUDE : 39°34'13"E
DURATION : SEP . 1 , - SEP . 30 , 2005
UNIT CENTIMETRE

The zero of the tide gauge: 500cm below the benchmark No.1040

Date	Time 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	(24H) SUM	(24H) MEAN	(25H) SUM	(25H) MEAN
1	210	226	244	265	287	302	313	309	295	281	272	265	263	264	277	289	289	292	281	262	238	215	190	180	6309.0	262.9	6491.0	259.6
2	182	192	215	237	260	283	290	289	279	261	252	244	240	247	261	275	288	289	285	269	246	219	194	174	5971.0	248.8	6147.0	245.9
3	176	182	203	230	255	273	288	286	270	260	243	231	224	231	246	266	282	292	292	283	260	232	206	185	5896.0	245.7	6074.0	243.0
4	178	181	200	222	250	269	284	286	274	258	242	227	217	221	238	260	279	297	302	298	281	254	225	200	5943.0	247.6	6130.0	245.2
5	187	184	196	222	242	266	276	276	271	251	233	217	201	201	213	232	259	278	287	293	283	260	232	214	5774.0	240.6	5970.0	238.8
6	196	188	198	216	240	259	274	278	271	255	235	215	202	199	206	226	253	278	299	309	308	295	270	250	5920.0	246.7	6156.0	246.2
7	236	228	228	245	265	284	297	301	293	276	248	223	203	191	190	200	218	244	260	274	281	274	258	242	5959.0	248.3	6188.0	247.5
8	229	218	220	232	251	271	285	294	292	284	267	246	228	225	222	232	250	270	293	316	322	321	309	293	6370.0	265.4	6649.0	266.0
9	279	273	265	272	284	296	309	309	307	297	279	256	233	220	211	209	222	238	257	271	286	290	288	285	6436.0	268.2	6717.0	268.7
10	281	275	275	280	290	301	312	312	311	302	288	269	251	234	221	216	220	227	238	251	263	269	277	281	6444.0	268.5	6726.0	269.0
11	282	286	290	297	303	311	317	321	317	310	298	285	267	253	240	232	227	227	230	235	240	247	255	264	6534.0	272.3	6807.0	272.3
12	273	281	290	301	306	310	312	313	306	302	294	283	271	259	251	238	228	220	214	211	210	209	218	231	6331.0	263.8	6575.0	263.0
13	244	259	278	291	301	305	304	300	293	284	279	273	264	258	253	244	235	220	206	197	185	179	181	190	6023.0	251.0	6231.0	249.2
14	208	233	260	280	296	305	307	303	293	285	275	271	268	270	273	273	263	250	231	211	191	172	164	170	6052.0	252.2	6237.0	249.5
15	185	209	236	266	288	302	305	296	286	274	264	261	259	268	277	286	284	278	262	236	208	182	165	156	6033.0	251.4	6199.0	248.0
16	166	188	217	245	275	290	297	290	277	260	247	241	247	262	274	291	305	306	293	274	244	211	186	172	6058.0	252.4	6230.0	249.2
17	172	189	216	247	277	295	304	297	282	264	245	236	238	252	276	298	318	330	328	316	285	250	224	200	6339.0	264.1	6533.0	261.3
18	194	201	223	247	277	298	307	298	283	260	236	217	211	224	247	275	302	326	334	324	305	276	245	219	6329.0	263.7	6533.0	261.3
19	204	205	220	243	264	284	294	288	270	243	214	194	179	181	204	233	264	289	305	312	302	279	254	230	5955.0	248.1	6169.0	246.8
20	214	211	221	242	265	282	293	291	276	254	225	201	184	179	194	221	252	281	304	317	319	307	287	265	6085.0	253.5	6336.0	253.4
21	251	245	247	262	284	299	309	307	296	272	243	216	194	181	183	203	227	255	277	294	300	295	283	271	6194.0	258.1	6454.0	258.2
22	260	252	254	267	284	299	306	307	297	281	254	225	204	188	182	187	204	230	249	263	275	279	273	266	6086.0	253.6	6350.0	254.0
23	261	261	264	270	283	298	308	306	301	289	268	244	222	206	198	199	206	220	236	250	256	262	266	263	6137.0	255.7	6401.0	256.0
24	264	267	272	280	290	299	307	310	302	295	281	258	240	226	215	211	209	214	221	230	236	238	245	247	6157.0	256.5	6405.0	256.2
25	248	257	266	276	286	291	294	298	292	283	274	262	247	238	230	224	221	221	222	223	229	231	234	241	6088.0	253.7	6339.0	253.6
26	251	262	274	286	296	300	302	303	301	291	283	274	263	256	251	249	240	234	229	223	217	217	215	222	6239.0	260.0	6473.0	258.9
27	234	245	259	275	286	291	292	288	281	276	267	261	257	254	257	255	250	242	233	224	219	214	213	223	6096.0	254.0	6329.0	253.2
28	233	250	266	281	298	302	302	298	290	281	271	268	266	271	273	276	275	270	256	240	227	215	211	209	6329.0	263.7	6551.0	262.0
29	222	240	259	279	294	302	301	292	280	269	262	258	260	265	278	284	284	281	268	250	232	213	203	203	6279.0	261.6	6489.0	259.6
30	210	226	246	266	284	291	291	280	264	251	239	232	238	247	263	276	282	282	272	254	229	206	191	185	6005.0	250.2	6005.0	240.2

MONTHLY MEAN 0.0 cm

STATION : SYOWA STATION
LATITUDE : 69°00'28"S
LONGITUDE : 39°34'13"E
DURATION : OCT. 1, - OCT. 31, 2005
UNIT CENTIMETRE

The zero of the tide gauge: 500cm below the bench mark No.1040

Date	Time 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	(24H) SUM	(24H) MEAN	(25H) SUM	(25H) MEAN
1	190	206	228	250	269	278	278	269	252	236	223	217	221	232	255	278	289	297	291	274	254	229	210	201	5927.0	247.0	6128.0	245.1
2	201	215	239	263	283	295	295	282	265	244	226	215	216	231	254	277	292	306	305	290	269	245	221	205	6134.0	255.6	6337.0	253.5
3	203	213	236	261	282	296	299	291	270	249	232	219	215	229	252	279	305	324	331	324	305	280	255	237	6387.0	266.1	6616.0	264.6
4	229	232	249	272	291	301	308	294	272	245	224	204	193	200	220	249	276	300	312	314	303	281	257	239	6265.0	261.0	6492.0	259.7
5	227	229	241	259	280	295	295	289	272	244	217	197	184	181	201	228	256	284	303	312	310	295	278	260	6137.0	255.7	6386.0	255.4
6	249	247	255	271	291	304	310	305	290	264	237	213	195	189	196	218	243	269	291	304	308	303	287	275	6314.0	263.1	6581.0	263.2
7	267	260	263	280	296	308	314	311	301	279	252	226	204	194	196	208	232	255	279	299	309	311	305	297	6446.0	268.6	6736.0	269.4
8	290	288	288	296	306	315	318	314	305	284	257	231	206	188	183	183	196	213	231	246	257	266	268	264	6193.0	258.0	6456.0	258.2
9	263	265	268	273	286	297	300	297	291	278	258	234	213	199	187	184	188	196	209	222	232	245	254	260	5899.0	245.8	6164.0	246.6
10	265	273	280	288	299	306	307	306	301	290	273	257	240	225	214	202	198	197	198	203	212	220	229	240	6023.0	251.0	6276.0	251.0
11	253	266	277	283	293	299	298	294	289	282	270	262	250	241	234	226	216	207	203	199	200	202	211	225	5980.0	249.2	6221.0	248.8
12	241	262	281	291	298	303	302	295	288	280	273	271	265	266	263	258	246	235	220	208	197	193	198	209	6143.0	256.0	6370.0	254.8
13	227	250	272	288	299	302	295	286	275	266	260	259	262	270	275	274	270	254	237	217	197	182	175	181	6073.0	253.0	6270.0	250.8
14	197	219	243	263	277	283	272	258	245	230	224	226	233	249	267	279	283	274	259	236	209	187	176	175	5764.0	240.2	5950.0	238.0
15	186	207	231	255	272	277	268	250	232	213	202	201	213	235	259	281	294	298	288	267	242	216	196	189	5772.0	240.5	5966.0	238.6
16	194	211	235	258	274	282	277	257	233	210	194	189	198	220	251	279	302	315	316	302	276	251	229	215	5968.0	248.7	6182.0	247.3
17	214	229	249	267	286	292	285	266	240	208	187	174	176	196	223	256	288	306	311	307	289	263	241	227	5980.0	249.2	6201.0	248.0
18	221	227	246	265	280	288	286	268	241	211	183	162	157	169	196	228	261	287	304	307	299	278	258	245	5867.0	244.5	6102.0	244.1
19	235	236	251	270	284	292	291	276	249	217	187	159	146	149	167	196	226	253	273	285	284	271	259	249	5705.0	237.7	5942.0	237.7
20	237	239	249	265	280	288	289	276	257	227	193	166	148	143	150	172	199	225	247	261	267	262	255	249	5544.0	231.0	5785.0	231.4
21	241	242	249	263	276	287	290	281	266	245	215	187	168	158	158	169	188	212	228	245	255	257	255	252	5587.0	232.8	5838.0	233.5
22	251	253	261	271	284	295	300	297	288	271	246	222	202	189	182	186	198	211	225	238	247	252	255	257	5881.0	245.0	6149.0	246.0
23	259	265	272	279	290	299	303	301	293	282	264	245	226	215	208	209	212	219	229	239	245	253	259	260	6126.0	255.3	6394.0	255.8
24	268	274	279	288	295	302	303	301	295	286	272	258	244	235	225	222	221	222	224	227	233	236	241	247	6198.0	258.3	6453.0	258.1
25	255	263	274	280	284	289	290	283	277	270	263	253	244	239	235	228	226	222	217	217	213	219	221	228	5990.0	249.6	6231.0	249.2
26	241	254	262	272	277	278	275	270	266	257	249	244	242	244	242	238	236	228	223	215	210	207	211	219	5860.0	244.2	6090.0	243.6
27	230	243	255	267	273	273	267	260	251	241	237	239	241	245	252	257	255	245	238	227	215	209	210	215	5845.0	243.5	6075.0	243.0
28	230	245	258	273	279	282	274	263	253	243	237	238	244	259	269	278	282	277	264	250	236	226	222	224	6106.0	254.4	6346.0	253.8
29	240	253	270	284	289	288	278	267	249	233	227	225	233	252	267	282	288	286	275	259	239	225	216	214	6139.0	255.8	6364.0	254.6
30	225	241	258	273	281	283	272	256	234	217	210	206	216	238	259	280	297	300	294	277	259	241	227	222	6066.0	252.8	6297.0	251.9
31	231	244	264	279	289	287	277	256	233	210	194	190	196	220	246	273	293	302	300	288	267	247	231	221	6038.0	251.6	6038.0	241.5

MONTHLY MEAN 0.0 cm

STATION : SYOWA STATION
LATITUDE : 69°00'28"S
LONGITUDE : 39°34'13"E
DURATION : NOV . 1 , - NOV . 30 , 2005
UNIT CENTIMETRE

The zero of the tide gauge: 500cm below the bench mark No.1040

Date	Time 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	(24H) SUM	(24H) MEAN	(25H) SUM	(25H) MEAN
1	225	234	253	269	281	282	272	251	224	195	176	166	168	190	217	249	277	291	298	294	278	257	243	231	5821.0	242.5	6050.0	242.0
2	229	235	254	273	283	286	280	260	229	201	175	161	156	174	200	232	262	284	300	303	292	276	260	246	5851.0	243.8	6092.0	243.7
3	241	246	261	277	288	294	290	272	247	215	186	165	153	163	185	214	247	272	293	306	302	291	278	267	5953.0	248.0	6213.0	248.5
4	260	260	272	287	296	304	303	289	266	234	202	175	158	156	166	189	217	247	271	287	294	291	281	274	5979.0	249.1	6250.0	250.0
5	271	266	273	284	298	305	305	294	277	252	219	192	170	158	159	176	199	224	249	266	280	284	281	279	5961.0	248.4	6238.0	249.5
6	277	276	281	290	301	311	313	308	295	274	248	221	199	184	179	185	197	212	233	251	266	276	281	281	6139.0	255.8	6425.0	257.0
7	286	286	287	294	304	309	313	310	298	282	264	239	219	200	188	185	189	196	208	220	233	248	258	265	6081.0	253.4	6355.0	254.2
8	274	279	283	289	293	298	299	299	294	286	274	259	242	231	219	209	206	203	205	215	223	232	245	257	6114.0	254.8	6385.0	255.4
9	271	279	285	287	286	287	285	282	277	271	266	259	253	244	235	225	217	206	198	198	200	203	214	227	5955.0	248.1	6197.0	247.9
10	242	255	264	267	268	267	261	252	251	248	247	250	251	255	255	251	244	234	220	211	205	206	213	226	5843.0	243.5	6085.0	243.4
11	242	261	274	282	283	278	268	256	249	245	246	253	262	274	284	286	285	273	257	243	228	222	219	227	6197.0	258.2	6440.0	257.6
12	243	257	269	279	279	271	256	239	224	215	215	224	235	257	275	289	293	287	274	257	239	227	221	222	6047.0	252.0	6280.0	251.2
13	233	245	259	268	270	261	244	221	201	184	177	184	200	223	248	270	286	290	283	267	248	232	223	221	5738.0	239.1	5966.0	238.6
14	228	240	256	265	269	265	245	220	196	175	160	160	174	198	226	256	281	291	291	284	266	249	237	230	5662.0	235.9	5895.0	235.8
15	233	246	260	269	275	272	255	231	202	174	153	146	153	177	207	239	269	290	299	295	284	270	256	246	5701.0	237.5	5948.0	237.9
16	247	257	270	281	290	288	274	252	220	188	163	146	144	160	186	215	245	269	282	286	283	272	259	251	5728.0	238.7	5976.0	239.0
17	248	255	267	279	287	291	283	263	236	205	172	151	141	148	167	195	225	249	269	280	280	276	269	260	5696.0	237.3	5954.0	238.2
18	258	260	271	286	297	301	299	285	262	231	203	179	163	159	171	192	220	241	263	282	285	282	280	276	5946.0	247.8	6218.0	248.7
19	272	272	280	291	303	312	309	300	287	260	229	205	185	176	179	189	213	233	248	267	277	276	274	274	6111.0	254.6	6383.0	255.3
20	272	271	274	283	292	302	302	295	282	264	239	215	193	180	176	182	195	212	226	242	253	260	260	262	5932.0	247.2	6194.0	247.8
21	262	263	266	271	279	287	291	289	281	266	247	228	210	198	191	192	198	209	222	233	243	252	256	257	5891.0	245.5	6153.0	246.1
22	262	263	267	268	275	282	283	282	278	268	256	240	226	214	206	204	203	207	217	225	231	242	247	249	5895.0	245.6	6149.0	246.0
23	254	258	261	264	266	269	269	267	265	256	248	242	232	226	220	215	213	212	215	220	226	234	239	246	5817.0	242.4	6071.0	242.8
24	254	259	265	266	267	267	260	258	257	251	250	247	243	240	237	235	232	225	222	222	222	227	232	240	5878.0	244.9	6127.0	245.1
25	249	253	260	259	260	254	247	243	237	233	232	233	237	240	242	244	244	235	230	225	220	221	225	232	5755.0	239.8	5996.0	239.8
26	241	250	257	257	254	249	239	227	219	214	214	216	224	235	244	249	251	245	236	227	218	215	216	222	5619.0	234.1	5849.0	234.0
27	230	240	250	252	250	244	230	216	204	195	196	203	217	236	256	268	276	274	267	256	245	241	237	243	5726.0	238.6	5982.0	239.3
28	256	266	277	283	283	275	258	240	222	208	203	211	226	246	269	289	301	303	298	286	274	260	252	252	6238.0	259.9	6500.0	260.0
29	262	271	279	284	286	275	255	232	209	188	177	177	188	212	239	264	287	296	293	288	273	257	245	242	5979.0	249.1	6224.0	249.0
30	245	254	264	272	276	267	251	227	199	173	158	151	161	186	214	246	276	293	302	299	290	276	265	259	5804.0	241.8	5804.0	232.2

MONTHLY MEAN 0.0 cm

STATION : SYOWA STATION
LATITUDE : 69° 00'28"S
LONGITUDE : 39° 34'13"E
DURATION : DEC . 1 , - DEC . 31 , 2005
UNIT CENTIMETRE

The zero of the tide gauge: 500cm below the bench mark No.1040

Date	Time 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	(24H) SUM	(24H) MEAN	(25H) SUM	(25H) MEAN
1	263	271	284	294	300	296	281	255	225	194	169	156	157	173	201	232	261	287	302	307	302	291	277	270	6048.0	252.0	6316.0	252.6
2	268	272	283	293	299	298	285	265	236	200	172	145	137	150	169	199	233	263	285	301	302	293	286	278	5912.0	246.3	6182.0	247.3
3	270	272	282	291	298	301	292	278	252	217	185	156	138	133	143	170	198	226	252	270	281	281	276	270	5732.0	238.8	5995.0	239.8
4	263	261	268	279	289	295	294	285	265	235	203	174	149	136	140	151	173	199	225	245	261	268	270	268	5596.0	233.2	5859.0	234.4
5	263	261	266	272	283	291	293	290	279	259	233	205	180	163	154	158	173	191	211	233	252	264	270	276	5720.0	238.3	5994.0	239.8
6	274	273	273	278	286	292	300	302	296	286	269	245	225	205	188	184	187	193	208	225	240	252	261	268	6010.0	250.4	6281.0	251.2
7	271	270	269	268	271	277	285	287	288	288	283	268	256	244	228	216	213	211	214	223	232	242	254	258	6116.0	254.8	6377.0	255.1
8	261	260	254	247	244	240	239	243	245	246	246	243	240	232	224	217	207	202	202	204	210	218	226	236	5586.0	232.8	5826.0	233.0
9	240	241	242	235	228	223	216	215	219	222	227	233	240	241	242	241	234	226	221	219	218	222	227	236	5508.0	229.5	5750.0	230.0
10	242	246	246	243	233	222	210	204	200	203	211	221	233	246	255	262	261	255	249	240	234	234	235	240	5625.0	234.4	5873.0	234.9
11	248	252	252	250	241	227	208	195	188	184	189	200	215	233	252	267	272	272	265	255	249	241	241	245	5641.0	235.0	5893.0	235.7
12	252	257	258	258	248	238	218	196	180	168	168	178	191	215	240	260	278	283	281	274	265	256	253	255	5670.0	236.3	5929.0	237.2
13	259	266	270	272	266	253	236	210	188	169	157	160	172	193	217	245	265	279	283	283	272	260	254	254	5683.0	236.8	5939.0	237.6
14	256	265	271	273	273	265	247	223	197	172	152	147	154	173	199	226	255	275	287	288	284	277	269	264	5692.0	237.2	5959.0	238.4
15	267	275	283	291	295	290	277	256	227	198	176	159	158	173	194	223	251	275	291	299	299	292	284	278	6011.0	250.5	6286.0	251.4
16	275	282	290	299	305	303	295	275	248	218	189	168	161	163	182	207	233	258	278	290	291	285	281	273	6049.0	252.0	6318.0	252.7
17	269	270	278	288	296	298	294	279	255	228	195	170	155	152	161	182	207	232	252	267	273	269	265	263	5798.0	241.6	6055.0	242.2
18	257	255	263	273	283	292	290	283	266	240	211	185	169	159	161	178	201	223	244	263	269	272	270	264	5771.0	240.5	6031.0	241.2
19	260	257	259	268	279	288	290	286	275	255	230	203	183	170	167	176	193	215	232	248	260	265	263	259	5781.0	240.9	6036.0	241.4
20	255	249	247	253	262	272	276	276	270	258	237	213	194	180	172	173	184	201	217	232	244	252	253	251	5621.0	234.2	5867.0	234.7
21	246	242	240	241	248	255	262	266	263	256	244	225	205	196	187	183	192	200	213	228	239	249	252	251	5583.0	232.6	5832.0	233.3
22	249	244	240	241	242	247	253	258	260	257	251	240	227	219	210	205	207	214	221	231	242	248	253	253	5712.0	238.0	5961.0	238.4
23	252	248	243	240	237	238	240	242	245	245	244	239	232	227	224	221	218	220	224	229	237	242	247	249	5683.0	236.8	5932.0	237.3
24	249	247	241	235	230	225	224	224	225	227	230	228	230	231	233	230	230	229	228	229	233	236	240	244	5578.0	232.4	5824.0	233.0
25	246	243	240	236	227	218	213	207	205	206	212	217	227	232	239	246	245	242	241	238	238	239	240	243	5540.0	230.8	5785.0	231.4
26	245	247	244	238	229	219	205	197	190	188	193	199	215	230	243	255	263	260	258	255	250	245	246	248	5562.0	231.8	5814.0	232.6
27	252	255	254	249	242	230	213	198	184	179	179	186	202	221	243	260	274	280	279	273	266	261	258	258	5696.0	237.3	5959.0	238.4
28	263	266	268	265	260	247	228	207	187	172	165	170	185	207	233	260	281	293	295	292	283	274	268	265	5834.0	243.1	6101.0	244.0
29	267	273	274	276	273	262	239	216	189	167	151	149	157	177	207	237	267	286	298	298	292	283	272	268	5778.0	240.8	6045.0	241.8
30	267	272	276	281	281	273	256	230	201	171	146	134	136	151	178	212	244	273	292	299	298	293	282	274	5720.0	238.3	5994.0	239.8
31	274	278	283	294	300	297	288	266	235	203	171	148	140	147	166	197	231	264	289	305	310	308	299	289	5982.0	249.3	5982.0	239.3

MONTHLY MEAN 0.0 cm

STATION : SYOWA STATION
LATITUDE : 69°00'28"S
LONGITUDE : 39°34'13"E
DURATION : JAN. 1, - JAN. 31, 2006
UNIT CENTIMETRE

The zero of the tide gauge: 500cm below the bench mark No.1040

Date	Time 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	(24H) SUM	(24H) MEAN	(25H) SUM	(25H) MEAN
1	285	287	293	303	313	318	312	298	272	238	203	172	150	146	159	179	207	239	268	287	297	298	292	282	6098.0	254.1	6373.0	254.9
2	275	272	277	288	299	308	311	303	285	258	224	191	164	147	147	162	183	212	238	260	279	285	280	274	5922.0	246.8	6188.0	247.5
3	266	257	257	268	282	293	302	305	297	281	253	224	197	177	169	172	186	207	229	251	269	276	276	271	5965.0	248.5	6225.0	249.0
4	260	250	245	248	258	272	285	292	293	286	268	246	222	200	186	181	186	200	216	233	250	257	258	253	5845.0	243.5	6093.0	243.7
5	248	236	226	223	227	238	251	262	269	271	268	255	241	226	213	205	204	211	224	235	247	257	259	255	5751.0	239.6	6002.0	240.1
6	251	241	229	223	218	222	232	244	253	259	265	265	259	253	247	242	241	242	247	256	264	268	271	272	5964.0	248.5	6229.0	249.2
7	265	256	245	233	224	220	221	228	235	242	249	254	259	261	261	262	262	259	261	265	268	271	273	273	6047.0	252.0	6315.0	252.6
8	268	261	253	241	228	219	214	209	213	220	225	234	245	254	264	272	274	275	273	276	277	276	277	279	6027.0	251.1	6303.0	252.1
9	276	271	263	255	240	229	217	208	199	202	208	213	227	243	256	272	282	288	288	288	285	282	280	281	6053.0	252.2	6333.0	253.3
10	280	279	272	265	257	244	227	210	197	189	186	192	206	221	240	265	279	288	292	292	288	285	281	282	6017.0	250.7	6300.0	252.0
11	283	280	277	276	270	259	242	221	202	186	177	173	183	198	222	245	267	284	292	293	289	284	278	274	5955.0	248.1	6228.0	249.1
12	273	277	280	282	280	272	257	236	211	190	173	165	169	186	206	232	258	279	290	296	293	285	277	272	5939.0	247.5	6209.0	248.4
13	270	274	281	286	287	284	271	252	226	197	173	159	157	165	186	212	240	264	278	285	286	279	269	264	5845.0	243.5	6105.0	244.2
14	260	263	270	280	286	288	281	266	241	212	185	164	154	161	178	200	230	255	275	287	288	281	275	268	5848.0	243.7	6109.0	244.4
15	261	263	273	286	298	306	305	293	272	244	217	192	176	174	185	209	239	263	285	297	301	297	288	282	6206.0	258.6	6475.0	259.0
16	269	268	278	289	303	316	316	312	296	268	238	209	190	180	185	202	225	250	270	285	291	282	274	264	6260.0	260.8	6511.0	260.4
17	251	244	247	262	275	286	293	294	281	262	236	210	187	177	176	186	207	233	253	267	275	274	265	254	5895.0	245.6	6141.0	245.6
18	246	237	236	246	259	275	286	289	286	273	249	225	204	190	187	193	210	233	250	266	273	275	265	256	5909.0	246.2	6156.0	246.2
19	247	237	232	233	245	263	273	278	280	274	256	239	218	205	200	201	212	227	247	259	269	271	265	256	5887.0	245.3	6134.0	245.4
20	247	234	226	227	233	245	260	267	270	271	260	246	235	220	213	213	218	231	244	255	266	267	263	254	5865.0	244.4	6109.0	244.4
21	244	232	223	217	216	224	235	245	252	255	252	245	236	227	224	223	225	234	246	255	262	266	262	256	5756.0	239.8	6004.0	240.2
22	248	234	224	216	212	216	221	228	238	243	245	248	245	241	243	243	245	251	256	266	270	270	270	266	5839.0	243.3	6110.0	244.4
23	258	247	235	226	219	216	217	219	223	229	238	243	245	251	257	262	266	270	271	275	280	279	276	275	5977.0	249.0	6248.0	249.9
24	271	260	250	240	232	225	218	215	212	214	220	229	236	251	265	273	283	285	286	289	289	284	281	279	6087.0	253.6	6364.0	254.6
25	277	267	260	253	243	231	218	207	200	196	200	208	220	239	260	278	289	298	302	301	298	291	284	282	6102.0	254.3	6382.0	255.3
26	280	278	273	267	261	248	231	212	197	185	180	184	195	215	243	270	291	306	311	311	306	296	288	283	6111.0	254.6	6394.0	255.8
27	283	282	283	283	278	266	247	224	199	179	163	159	167	187	215	250	282	304	317	322	317	304	296	294	6101.0	254.2	6393.0	255.7
28	292	295	299	305	307	301	285	259	230	201	176	163	163	176	202	237	272	299	320	327	324	313	301	291	6338.0	264.1	6625.0	265.0
29	287	290	297	304	313	315	304	280	251	216	180	156	146	147	168	200	231	261	287	301	300	291	278	265	6068.0	252.8	6327.0	253.1
30	259	260	268	281	297	306	304	292	267	235	196	163	142	137	148	173	205	236	264	282	288	282	267	252	5804.0	241.8	6044.0	241.8
31	240	239	247	263	283	301	312	307	293	267	230	197	168	153	154	171	196	225	251	268	276	271	257	243	5812.0	242.2	5812.0	232.5

MONTHLY MEAN 0.0 cm

Table 7. Harmonic constants at Syowa Station.

(1) POSITION

LAT. 69-00-28S

LONG. 39-34-13E

(2) EPOCH & DURATION OF ANALYSIS

EPOCH 2005/02/01

CENTRAL DATE 2005/08/02

(3) MEAN SEA LEVEL

S_0 254.5 cm

(4) SPECIAL REMARKS

Obser.-Pre. Max. 51.8 cm

Obser.-Pre. S.D. 9.9 cm

	H(cm)	κ(deg)		H(cm)	κ(deg)
SA	9.49	64.72	M_2	25.07	160.27
SSA	3.63	31.67	MKS_2	0.08	194.32
MM	2.59	193.09	LAM_2	0.20	128.49
MSF	0.56	44.86	L_2	0.31	118.28
MF	2.85	185.64	T_2	1.30	167.26
$2Q_1$	1.10	322.37	S_2	20.14	176.19
SIG_1	1.22	332.62	R_2	0.31	173.62
Q_1	6.26	341.96	K_2	5.77	174.62
RHO_1	1.13	340.91	MSN_2	0.20	9.49
O_1	24.47	349.66	KJ_2	0.47	20.27
MP_1	0.37	18.24	$2SM_2$	0.22	121.55
M_1	1.06	317.43	MO_3	0.05	97.34
CHI_1	0.20	338.57	M_3	0.22	259.48
PI_1	0.44	344.91	SO_3	0.04	282.73
P_1	7.40	356.50	MK_3	0.04	239.71
S_1	0.35	86.57	SK_3	0.35	333.67
K_1	22.20	356.64	MN_4	0.25	37.33
PSI_1	0.20	249.86	M_4	0.39	103.93
PHI_1	0.29	28.33	SN_4	0.05	174.25
THE_1	0.27	357.82	MS_4	0.16	177.35
J_1	1.09	341.13	MK_4	0.06	176.45
SO_1	0.18	336.05	S_4	0.03	181.28
OO_1	0.48	320.12	SK_4	0.07	177.46
OQ_2	0.06	169.90	$2MN_6$	0.04	35.01
MNS_2	0.05	299.33	M_6	0.16	92.39
$2N_2$	0.33	159.05	MSN_6	0.08	132.50
MU_2	0.53	109.40	$2MS_6$	0.36	183.20
N_2	4.44	161.83	$2MK_6$	0.10	188.14
NU_2	0.81	165.59	$2SM_6$	0.13	247.79
OP_2	0.03	213.33	MSK_6	0.09	252.11