

# Oceanographic Data of the 15th Japanese Antarctic Research Expedition 1973-1974

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第15次南極地域観測隊海洋部門報告

菱田昌孝・徳江猪久二\*

要旨：第15次南極地域観測において、定常観測（1973-1974）として、海上保安庁水路部の担当した表面観測、バシサーモグラフ（BT）観測、温度-塩分-深度記録計（STD）による観測、および各層観測の結果を報告する。

This report deals with the data of the oceanographic observations made on board the icebreaker FUJI during the summer mission of the 15th Japanese Antarctic Research Expedition in 1973 and 1974. The track chart of the cruise is shown in Fig. 1. The locations of the Salinity-Temperature-Depth (STD) recorder observation, the serial vertical observation stations and the bathythermograph (BT) observation stations in the Southern Ocean are given in Fig. 2.

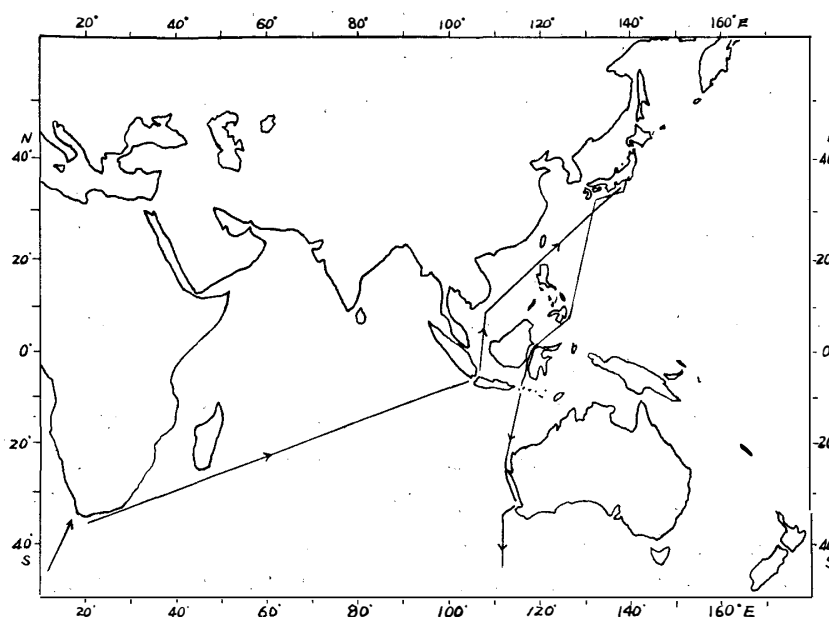


Fig. 1. Track of JARE-15 cruise 1973-1974.

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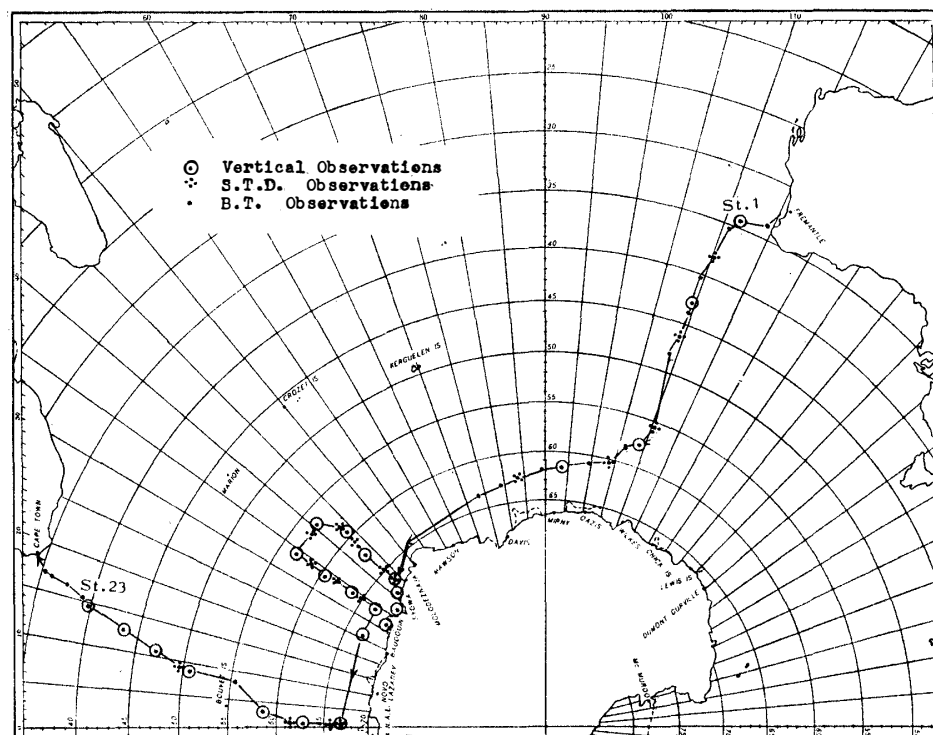


Fig. 2. Track of JARE-15 cruise and oceanographic station.

**Surface observation:** Surface temperature measurements and surface water samplings for chemical analysis were made twice or three times a day during the cruise from Fremantle to Cape Town through Syowa Station and twice a day for the rest of the cruise so far as the circumstances permitted. The results are given in Table 1.

**Current measurement:** Measurements of surface current were made by Geomagnetic Electrokinetograph (GEK) through the cruise except in the magnetic equator region and in the pack ice area. The results are also shown in Table 1.

**BT observation:** Water temperature in the upper layer (down to about 250m) was measured with BT at almost the same frequency as the surface observations. The results are given in Table 2.

**STD recorder observation:** The vertical distribution of temperature and salinity was measured at 17 stations in the Southern Ocean along the track from Fremantle to Cape Town through Syowa Station. The results are shown in Fig. 3.

**Serial observation:** The observations were made at 23 stations in the Southern Ocean along the track from Fremantle to Cape Town (Fig. 2). The observed data are shown in Table 3 with relevant meteorological data. The interpolated and computed values (temperature, salinity, sigma- $t$  and dynamic depth anomalies) at standard depths are also included in Table 3. These values were calculated by the electronic computer at the Hydrographic Department.

Chemical analysis of sea water: The followings are the elements and the methods (or instrument) of analysis. The results are also presented in Table 3.

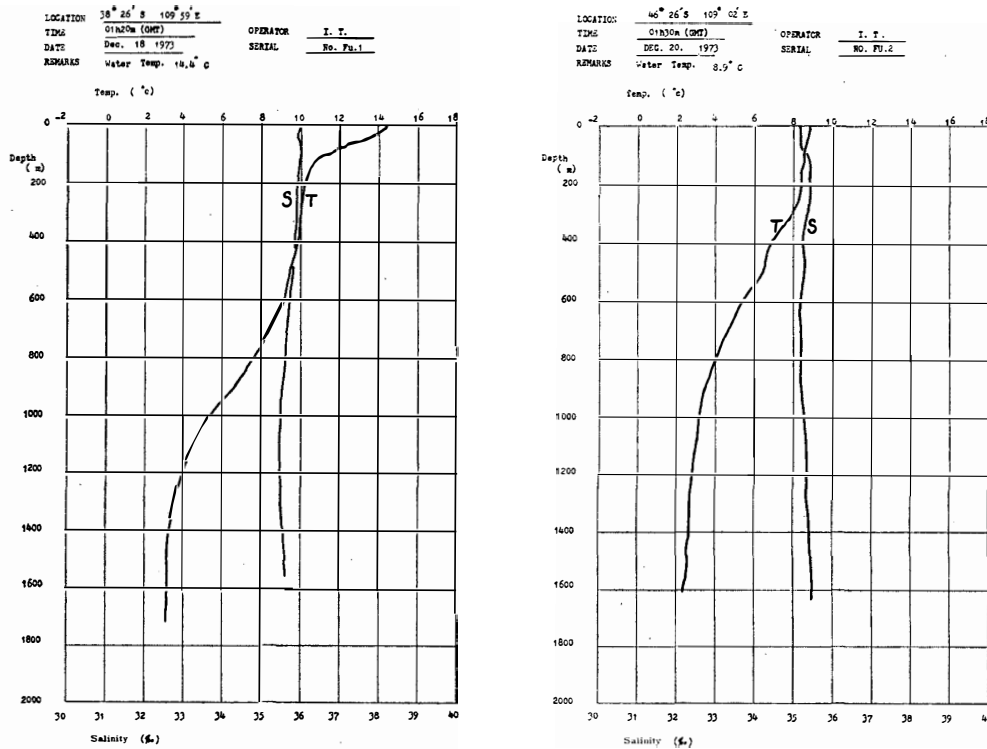
Salinity	Inductive salinometer (Auto-Lab Model 601 MK III)
pH	pH meter (Denki Kagaku Keiki Co. HG-3)
Dissolved oxygen	Winkler's method
Phosphate-P	Molybdenum blue method*
Reactive silicate-Si	Molybdenum yellow method* (Technicon Auto Analyzer Basic)
Nitrate-N	Modified Morris and Riley method
Nitrite-N	Sulphanilamide and N-(1-naphtyl)-ethylene-diamine 2HCl were used as reagent*.
Ammonium-N	Indophenol method

**Acknowledgements**

The authors are indebted to Captain M. MORITA of the icebreaker FUJI and his officers and crew for their co-operation which made these observations possible.

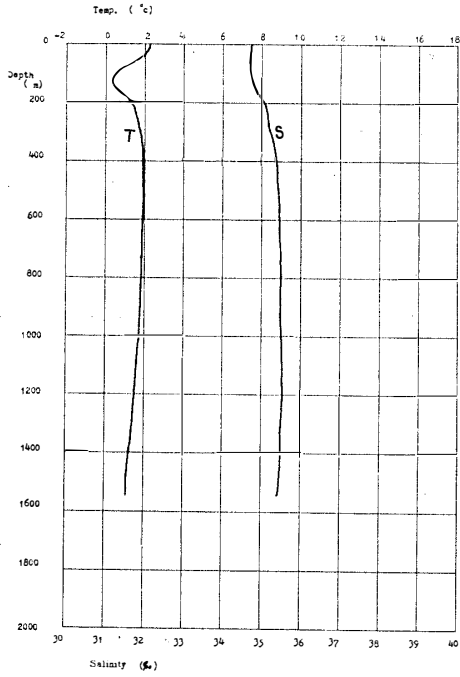
(Received July 20, 1974)

Fig. 3. The results of STD observation.

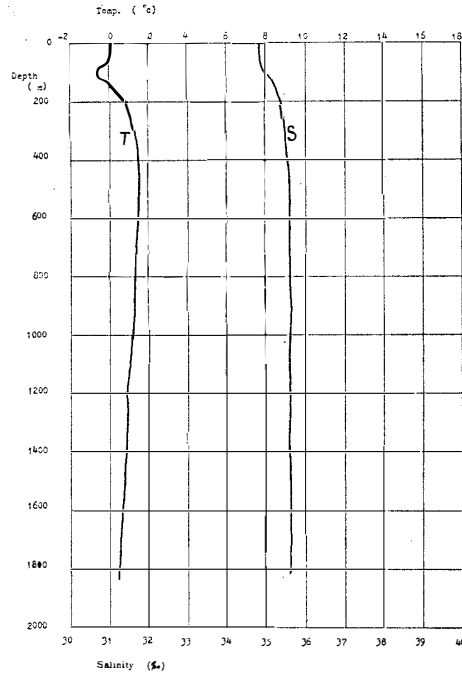


\* STRICKLAND, J. D. H. and T. R. PARSONS (1960): A manual of sea water analysis. Bull. Fish. Res. Bd. Canada, 125, 185pp.

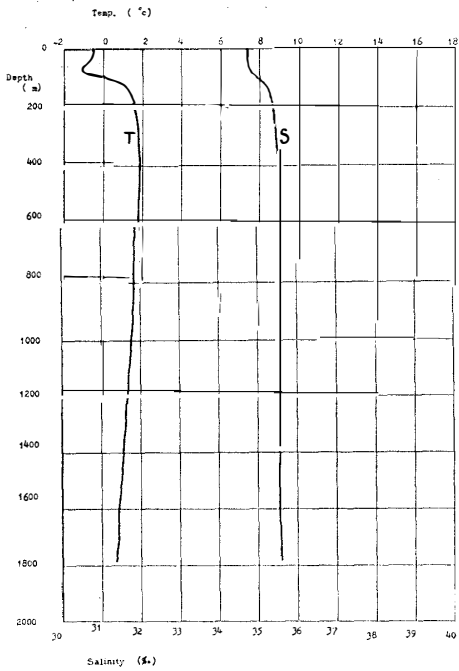
LOCATION 55° 23' S 110° 32' E  
 TIME 0600h (GMT) OPERATOR I. T.  
 DATE Dec. 22 1972 SERIAL No. FU.3  
 REMARKS Water Temp. 2.0° C



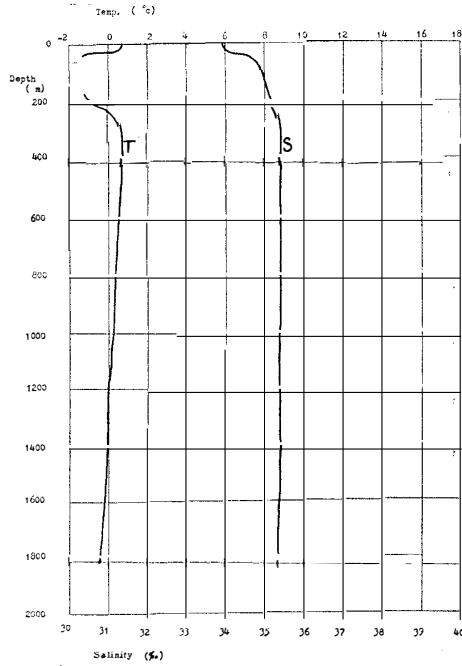
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 DATE Dec. 24 1972 SERIAL No. FU.4  
 REMARKS Water Temp. 0.1° C



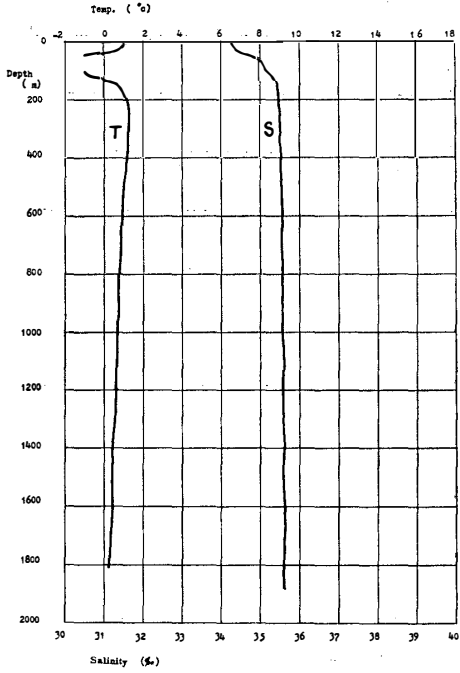
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 TIME 0200h (GMT) OPERATOR I. T.  
 DATE Dec. 26 1972 SERIAL No. FU.5  
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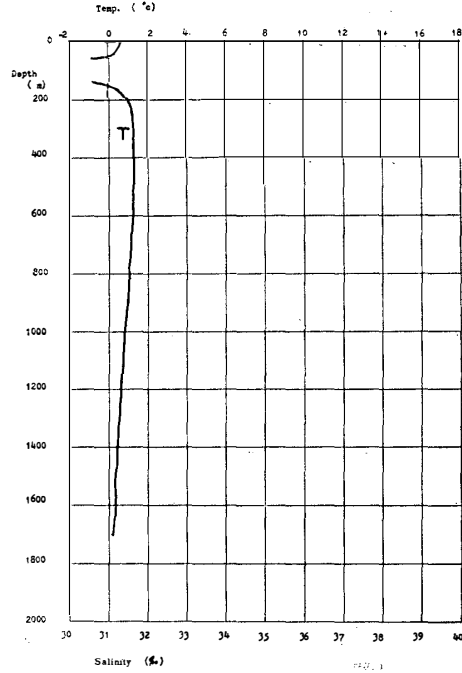
LOCATION 66° 28' S 42° 20' E  
 TIME 0800h (GMT) OPERATOR I. T.  
 DATE Feb. 15 1974 SERIAL No. FU.6  
 REMARKS Water Temp. 0.8° C



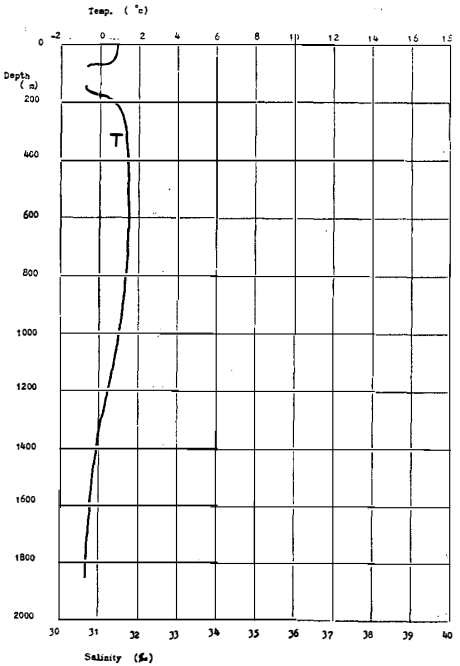
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 TIME 1515m (GMT) OPERATOR I. T.  
 DATE Feb. 16, 1974 SERIAL No. FU.7  
 REMARKS Water Temp. 1.3° C



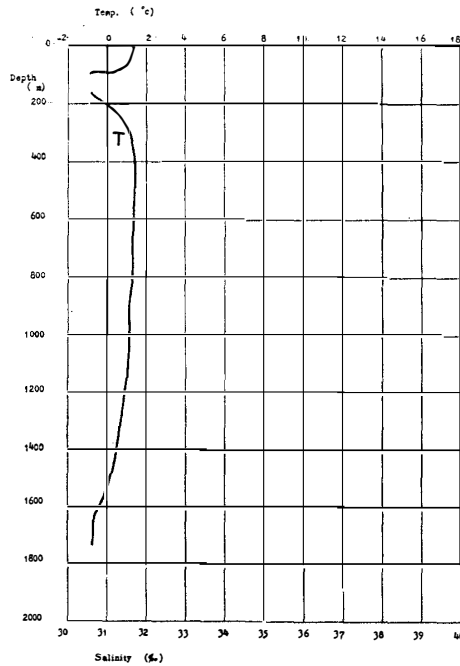
LOCATION 6° 29' S 43° 31' E  
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 DATE Feb. 17, 1974 SERIAL No. FU.8  
 REMARKS Water Temp. 0.9° C



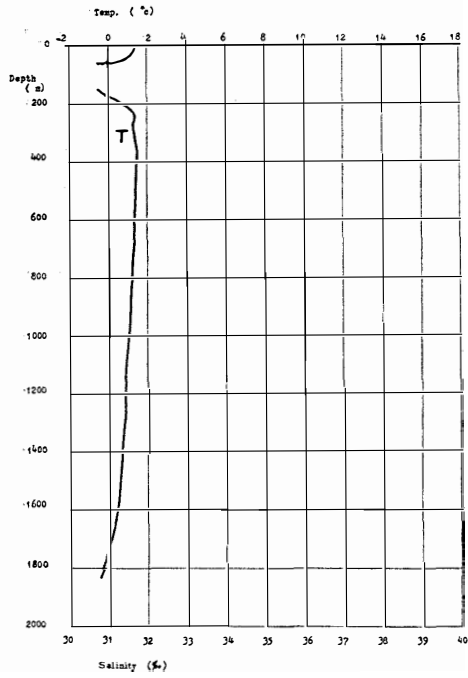
LOCATION 58° 25' S 43° 28' E  
 TIME 1510m (GMT) OPERATOR I. T.  
 DATE Feb. 18, 1974 SERIAL No. FU.9  
 REMARKS Water Temp. 1.1° C



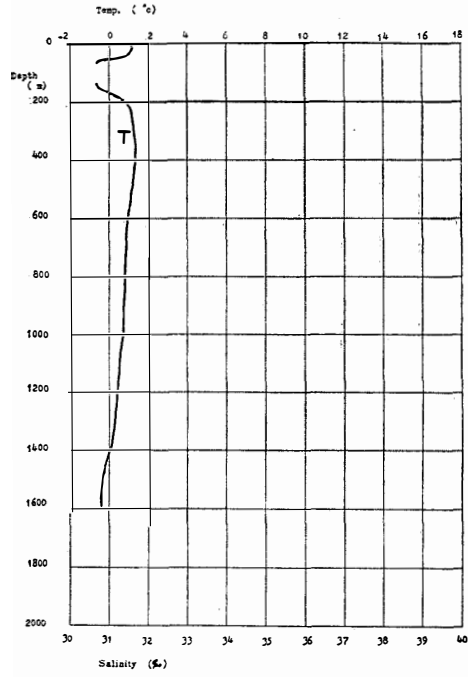
LOCATION 56° 14' S 38° 28' E  
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 REMARKS Water Temp. 1.6° C



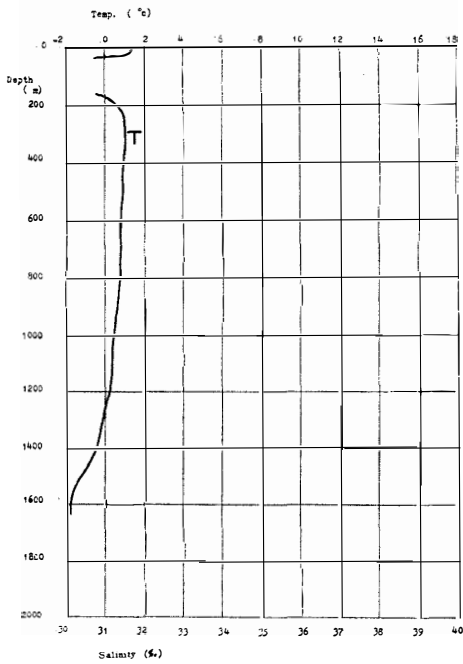
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 DATE Feb. 20 1974 SERIAL No. FU-11  
 REMARKS Water Temp. 1.5° C



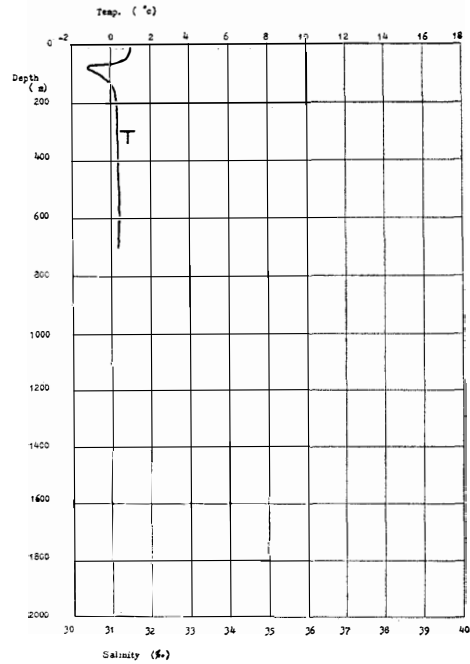
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 DATE Feb. 21 1974 SERIAL No. FU-12  
 REMARKS Water Temp. 1.3° C



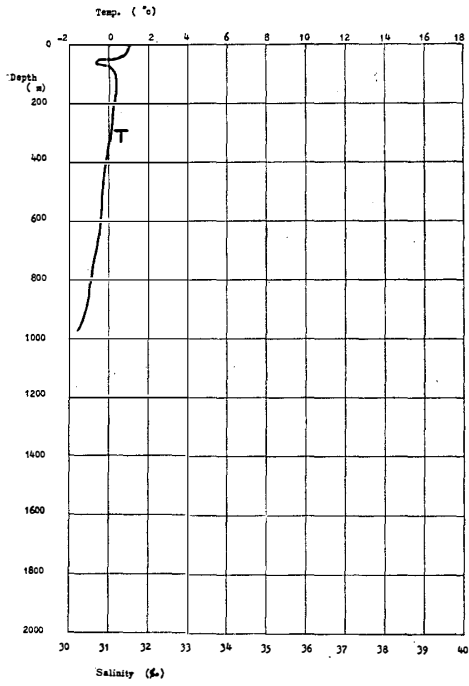
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 TIME 1500h (GMT) OPERATOR I. T.  
 DATE Feb. 22 1974 SERIAL No. FU-13  
 REMARKS Water Temp. 1.5° C



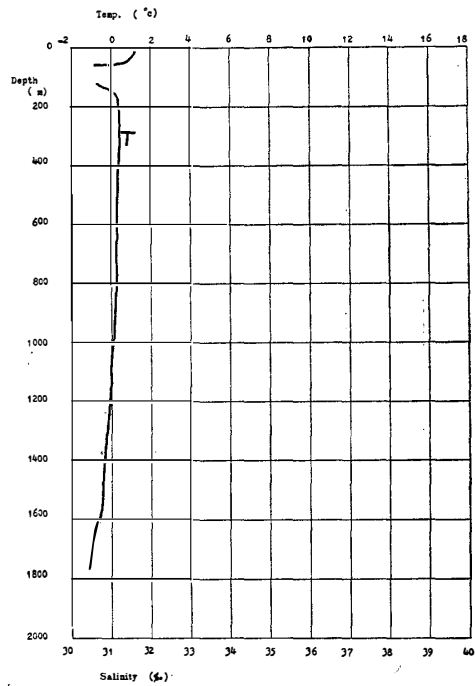
LOCATION 66° 31' S 01° 14' E  
 TIME 0915h (GMT) OPERATOR I. T.  
 DATE Feb. 27 1974 SERIAL No. FU-14  
 REMARKS Water Temp. 1.0° C



LOCATION 58° 25' S 00° 19' E  
 TIME 1615m (GMT) OPERATOR I. T.  
 DATE Feb. 27 1974 SERIAL No. FT. 15  
 REMARKS Water Temp. 1.1° C



LOCATION 61° 12' S 01° 20' E  
 TIME 1615m (GMT) OPERATOR I. T.  
 DATE Feb. 28 1974 SERIAL No. FT. 16  
 REMARKS Water Temp. 1.2° C



LOCATION 60° 14' S 02° 21' E  
 TIME 1615m (GMT) OPERATOR I. T.  
 DATE Mar. 3 1974 SERIAL No. FT. 12  
 REMARKS Water Temp. 5.0° C

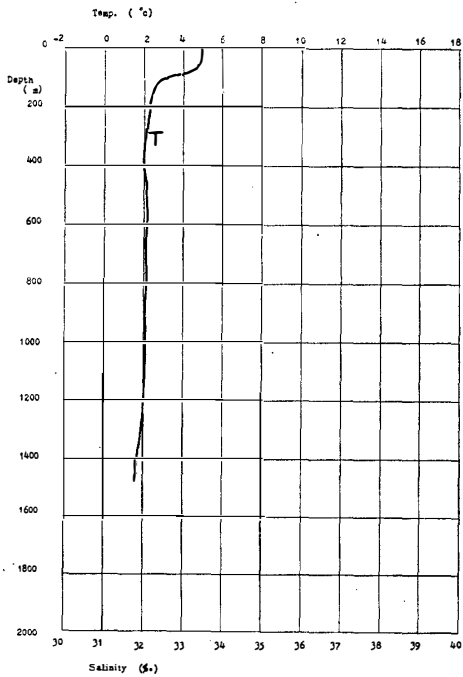


Table 1. Surface observation data.

Date	Time		Position		Air temp.	Water temp.	S	pH	O <sub>2</sub> cc/L	Phos- phate-P	Sili- cate-Si	Ni- trite-N	Ni- trate-N	Ammo- nia-N	Current	
	GMT	LMT	Lat.	Long.	°C	‰									Dir.	Speed (kn)
1973																
Nov. 25			Leave Tokyo													
27	2300*	0800	30-59N	133-51E	18.3	20.2	34.784	8.29	5.06		1	0.04	0.1			
28	2300*	0800	26-23	131-49	22.1	23.0	34.752	8.30	4.92	0.06		0.09		0.2		
29	0000	0800	20-59	130-17	24.9	24.8	34.689	8.28	4.77	0.04	1	0.03		0.1		
	1000	1900	18-30	129-39	27.1	28.4	34.383	8.25	4.35	0.08	1	0.06				
30	2300*	0700	15-43	128-37	27.8	28.5	34.113	8.25	4.48	0.06	1	0.06		0.8		
	1100	1900	13-04	127-59	28.3	28.5	34.433	8.24	4.46	0.10	1	0.03		0.4		
Dec. 1	2300*	0700	10-24	127-13	27.7	28.9	33.889	8.26	4.48	0.08	1	0.05	0.0	1.0	142	1.6
	1100	1900	7-39	126-52	27.4	28.7	33.514	8.26	4.40	0.04		0.02	0.0	0.8		
2	2300*	0700	5-02	125-30	28.4	28.6	34.117	8.27	4.51	0.02	1	0.01	0.1	0.0	296	1.2
	1100	1900	3-29	123-23	27.9	29.1	34.140	8.29	4.51	0.04	1	0.02	0.0	0.2		
4	2300*	0700	2-19S	118-41	27.0	28.9	33.775	8.28	4.50	0.06	3	0.05	0.0	0.0		
	1100	1900	4-58	118-15	28.0	29.2	33.756	8.25	4.51	0.00	2	0.04	0.0	0.1		
5	2300*	0700	7-13	116-53	26.9	28.8	33.818	8.29	4.51	0.00	1	0.03	0.0	0.0		
	1100	1900	9-03	115-37	28.1	29.6	33.145	8.26	4.47	0.00	4	0.03	0.0	0.1		
6	2300*	0700	11-25	115-05	27.7	28.5	34.491	8.27	4.52	0.08	2	0.02	0.1	0.1	294	1.3
	1100	1900	13-56	114-28	28.3	29.8	34.494	8.23	4.41	0.00	1	0.01	0.0	0.0		
7	2300*	0700	16-00	114-09	26.7	28.2	34.503	8.24	4.52	0.04	2	0.03	0.0	0.6	20	1.4
	1100	1900	18-28	113-47	26.3	28.2	34.526	8.33	4.51	0.00	2	0.01	0.0	0.1		
8	2300*	0700	20-50	113-16	24.6	26.2	34.824	8.36	4.70	0.10	3	0.03	0.0	0.0	227	0.7
	1100	1900	23-17	112-47	23.2	24.4	35.023	8.31	4.79	0.04	3	0.01	0.1	0.0		
9	2300*	0700	25-41	112-23	21.5	22.7	35.172	8.32	4.94	0.06	2	0.00	0.0	0.0		
	1100	1900	28-08	113-03	20.0	22.2	35.258	8.30	4.97	0.00	2	0.01	0.0	0.0		



Date	Time		Position		Air temp.	Water temp.	S	pH	O <sub>2</sub>	Phos-phate-P	Sili-cate-Si	Ni-trite-N	Ni-trate-N	Ammo-nia-N	Current		
	GMT	LMT	Lat.	Long.	°C	‰	cc/L		µg-atoms/L					Dir.	Speed (kn)		
Dec. 10	2300*	0700	30-19S	114-14E	20.4	22.4	35.346	8.36	5.04	0.08	2	0.03	0.0	0.0			
			Arrive in Fremantle														
			Leave Fremantle														
16	0500	1300	31-56	115-27	25.0	21.4	35.659	8.37	5.16	0.00	1	0.12	0.0				
	1000	1800	32-27	114-27	21.1	20.4	35.730	8.36	5.04	0.00	1	0.01	0.1	0.5			
17	0000	0800	33-55	111-39	18.4	19.2	35.730	8.39	5.25	0.04	3	0.18	0.1	0.3	318	1.0	
	1000	1800	35-22	110-47	17.0	17.9	35.808	8.36	5.51	0.04	2	0.01	0.1	0.9	359	0.3	
18	0100	0800	38-23	110-04	14.8	14.4	34.986	8.28	6.01	0.65	5	0.15	6.6	0.5	337	0.4	
	0600	1300	39-09	109-56	14.7	15.0	35.179	8.32	6.03	0.40	2	0.11	3.3	0.7			
	1100	1800	40-09	109-54	13.0	14.3	34.834	8.26	6.13	0.73	2	0.18	8.6	0.1	349	0.3	
19	0100	0800	42-59	109-49	11.5	12.1	34.689	8.26	6.31	0.75	5	0.18	11.3	0.7	344	0.4	
	1100	1800	43-59	109-47	10.3	11.4	34.711	8.30	6.41	0.85	1	0.18	9.4	0.4	360	0.2	
20	0100	0800	46-23	109-03	6.1	8.8	34.273	8.27	6.87	1.07	1	0.26	13	0.0	132	0.5	
	0600	1300	47-07	108-49	6.6	8.3	34.156	8.24	6.90	1.20	2	0.23	17	0.1			
	1100	1800	48-04	108-32	6.4	6.5	33.995	8.21	7.15	1.42	4	0.21	17	0.1	83	0.2	
21	0000	0700	50-21	108-28	4.9	4.4	33.956	8.19	7.45	1.53	1	0.20	21	0.7			
	1000	1700	52-07	108-40	3.3	3.0	33.949	8.23	7.70	1.42	1	0.29	23	1.4			
22	0100	0800	54-35	110-03	2.1	1.9	33.927	8.19	7.79	1.65	11	0.32	27	0.4			
	0600	1300	55-23	110-32	3.1	2.4	33.954	8.22	7.76	1.57	6	0.32	25	0.2			
	1100	1800	56-10	111-02	1.4	1.4	33.939	8.21	7.90	1.77	17	0.30	26	0.5			
23	0100	0800	57-52	108-25	0.5	0.4	33.931	8.21	6.96	1.85	25	0.26	27	0.3	352	0.5	
	1100	1800	58-27	106-40	0.5	0.5	33.928	8.22	7.98	1.79	26	0.23	25	0.4	75	0.2	
24	0100	0800	60-17	103-21	-0.7	0.1	34.009	8.19	8.02	1.85	35	0.27	27	0.4	33	0.4	
	0600	1300	60-33	101-46	0.2	0.5	33.889	8.20	7.97	1.93	31	0.29	27	0.3			
	1100	1800	60-52	99-52	0.0	-0.1	33.914	8.15	8.06	1.91	44	0.25	27	0.1	277	0.5	
25	0200	0800	61-30	93-46	-0.5	-0.2	34.077	8.18	8.10	1.75	42	0.22	29	0.0			

Date	Time		Position		Air temp.	Water temp.	S	pH	O <sub>2</sub> cc/L	Phos- phate-P	Sili- cate-Si	Ni- trite-N	Ni- trate-N	Ammo- nia-N	Current	
	GMT	LMT	Lat.	Long.	°C		‰			µg-atoms/L					Dir.	Speed (kn)
Dec. 25	1200	1800	61-49S	89-52E	0.0	0.1	34.081	8.18	8.00	1.69	47	0.20	25	0.6		
26	0200	0800	62-30	83-47	0.0	-0.4	33.925	8.19	8.07	1.65	35	0.26	26	0.4	321	0.4
	0700	1300	62-51	81-56	0.1	-0.2	33.922	8.17	8.17	1.67	34	0.25	26	0.0		
	1200	1800	63-23	79-53	-0.2	-0.4	33.953	8.16	8.25	1.77	39	0.23	25	0.0	294	0.3
27	0300	0800	63-54	73-20	0.0	-0.2	33.979	8.20	8.17	1.67	41	0.23	25	0.2	282	0.3
	0800	1300	64-08	71-10	0.1	-0.5	33.696	8.14	8.10	1.98	54	0.21	28	0.3		
	1300	1800	64-20	68-45	-0.6	-0.7	33.716	8.14	8.11	1.75	55	0.16	27	0.0		
28	0400	0800	64-51	61-31	-0.1	-0.6	33.789	8.17	8.15	1.73	45	0.18	26	0.2		
	0900	1300	64-51	59-15	-0.6	-0.8	33.847	8.16	8.13	1.75	48	0.19	28	0.0		
	1400	1800	64-55	57-07	-0.9	-0.8	33.946	8.12	7.98	1.93	56	0.19	27	0.1	280	0.4
29	0500	0800	64-49	51-49	-0.6	-1.5	33.839	8.13	7.90	1.93	59	0.18	29	0.1		
	1000	1300	65-00	50-20	0.5	-1.5	33.783	8.12	7.96	2.04	59	0.19	28	0.1		
	1500	1800	64-55	49-17	0.0	-1.7	33.535	8.13	8.05	1.85	62	0.21	27	0.0		
31	Arrive at Ongul Island															
1974																
Jan. 1	0500	0800	68-40	38-47	-0.7	-1.7	33.883	8.13	7.96	1.91	78	0.06	23	0.1		
2	0800	1100	68-40	38-47	0.5	-1.7	34.040	8.19	7.89	2.06	77	0.06	29			
Feb. 6	Leave Ongul Island															
7	0700	1000	68-29	33-01	-0.8	-1.0	33.572	8.33	8.62	1.26	51	0.17	14	0.0		
8	1300	1600	68-16	34-13	-2.2	-0.5	33.424	8.31	8.55	1.22	56	0.18	14	0.3		
	1700	2000	68-08	36-12	-0.3	0.1	33.112	8.26	8.12	1.05	53	0.23	15	0.7		
9	0500	0800	67-40	41-07	-2.8	0.1	32.865	8.35	8.50	0.75	26	0.27	6	0.0		
14	1400	1700	67-31	44-16	-1.8	-1.5	32.743	8.31	8.83	1.07	49	0.21	16	0.1		
16	0500	0800	66-28	42-50	1.2	1.1	33.337	8.29	8.15	1.18	36	0.15	20	0.4	270	0.3
	1500	1800	64-59	42-55	1.1	1.3	33.567	8.19	7.93	1.53	49	0.25	25	0.0	288	0.5

Date	Time		Position		Air temp.	Water temp.	S	pH	O <sub>2</sub> cc/L	Phos-phate-P	Sili-cate-Si	Ni-trite-N	Ni-trate-N	Ammo-nia-N	Current	
	GMT	LMT	Lat.	Long.	°C		‰			µg-atoms/L					Dir.	Speed (kn)
Feb. 17	0500	0800	62-39S	43-13E	1.0	0.9	33.870	8.14	7.74	1.83	49	0.29	29	0.3	315	0.9
	1500	1800	61-29	43-21	0.6	0.9	33.772	8.17	7.94	1.67	35	0.24	26	0.0	342	0.5
18	0500	0800	59-28	43-35	1.4	1.1	33.749	8.17	7.88	1.53	23	0.29	25	0.0	45	0.3
	1500	1800	58-25	43-28	1.8	1.1	33.726	8.17	7.82	1.61	30	0.26	25	0.5	303	0.4
19	0500	0800	56-58	40-31	1.2	1.2	33.753	8.19	7.81	1.55	19	0.32	26	0.0	310	0.8
	1500	1800	56-54	38-28	1.5	1.6	33.729	8.18	7.73	1.67	33	0.30	25	0.2	294	0.4
20	0600	0800	56-59	33-58	2.0	2.1	33.901	8.15	7.66	1.67	26	0.27	28	2.5	326	0.4
	1600	1800	58-01	34-05	2.0	1.5	33.617	8.15	7.76	1.67	45	0.31	26	0.2	360	0.9
21	0600	0800	60-17	34-18	1.7	1.5	33.644	8.14	7.73	1.77	52	0.35	30	0.5	348	0.8
	1600	1800	61-22	34-28	1.2	1.2	33.689	8.13	7.75	1.87	51	0.30	28	0.7	68	0.6
22	0600	0800	63-45	34-13	2.0	1.4	33.769	8.15	7.54	1.73	45	0.25	28	1.3	360	0.4
	1600	1800	64-44	34-31	1.8	1.5	33.910	8.28	8.03	1.48	56	0.08	21	0.2	308	0.5
23	0600	0800	66-22	33-13	1.2	1.3	33.948	8.27	7.84	1.34	52	0.06	21	1.2	315	0.5
	1600	1800	66-46	30-27	-0.2	1.2	33.787	8.23	7.88	1.51	49	0.17	25	0.0		
24	0600	0800	66-50	25-56	1.2	1.3	33.817	8.21	7.77	1.46	42	0.26	25	0.1	104	0.3
	1600	1800	66-34	23-39	1.1	1.6	33.794	8.21	7.72	1.36	45	0.15	20	2.2		
27	0600	0800	66-31	01-14	-0.2	1.0	34.325	8.16	7.70	1.73	64	0.26	27	0.1	327	0.4
	1600	1800	65-25	00-19	0.5	1.1	34.247	8.15	7.66	1.61	74	0.18	26	1.1	323	0.5
28	0600	0800	62-40	01-18	2.0	1.3	34.057	8.21	7.66	1.36	22	0.18	22	0.7	349	0.5
	1600	1800	61-12	01-20	0.8	1.2	34.044	8.19	7.71	1.38	36	0.15	21	2.9	34	0.4
March 1	0700	0900	58-35	03-28	0.4	0.7	34.008	8.18	7.76	1.73	65	0.19	26	0.5	346	0.4
	2	0600	0800	55-10	05-38	0.8	1.0	33.966	8.10	7.80	1.85	56	0.21	27	0.0	
1100		1300	54-09	06-11	1.3	1.1	33.936	8.09	7.70	1.77	49	0.21	25	0.1		
1600		1800	53-13	06-56	1.9	1.3	33.810	8.11	7.72	1.63	43	0.23	25	0.2		
3	0600	0800	50-22	08-25	3.8	3.6	33.778	8.20	7.33	1.59	1	0.24	23	1.5	351	0.7
	1600	1800	49-14	09-23	5.4	5.0	33.796	8.20	7.11	1.32	1	0.27	19	0.8	109	0.4

Date	Time		Position		Air temp.	Water temp.	S	pH	O <sub>2</sub>	Phos-phate-P	Sili-cate-Si	Ni-trite-N	Ni-trate-N	Ammo-nia-N	Current		
	GMT	LMT	Lat.	Long.	°C	‰									cc/L	μg-atoms/L	Dir.
March 4	0600	0800	46-56S	10-57E	8.0	7.1	33.969	8.22	6.76	1.30	3	0.27	22	0.2	359	0.6	
	1600	1800	45-46	11-51	9.1	7.6	33.951	8.21	6.76	1.18	2	0.23	17	0.4			
5	0600	0800	43-10	13-13	11.4	11.2	34.473	8.24	6.25	0.87	3	0.20	11	0.1	129	0.4	
	1600	1800	41-53	13-58	14.0	15.0	34.926	8.31	5.82	0.55	2	0.14	4	0.0			
6	0500	0700	39-56	14-56	19.0	20.1	35.392	8.36	5.13	0.14	3	0.01	0.1	0.3			
	1600	1800	39-12	15-24	19.8	20.8	35.458	8.38	5.07	0.10	0	0.01	0.1	0.3			
8			Arrive in Cape Town														
18	1600	1800	30-06	35-37											358	1.1	
19	1600	1800	27-55	40-43											13	0.4	
21	1500	1800	24-21	50-10											316	0.3	
22	1400	1800	22-29	54-26											48	0.6	
23	1400	1800	20-01	58-44											17	0.7	
24	1400	1800	16-58	62-56											309	1.1	
25	1400	1800	13-56	66-52											235	0.6	
26	1300	1800	11-07	70-41											257	0.6	
			Arrive in Singapore														
April 14	1000	1800	20-37N	122-32											45	1.4	
15	0000	0800	22-46	124-43											158	1.5	
15	1000	1800	23-58	126-07											151	0.8	
16	2300*	0800	25-52	128-10											269	0.1	
16	0900	1800	27-25	129-38											69	1.2	

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

Table 2. Bathythermograph data.

St. No.	Date			Time		Position		Temperature (°C) at indicated depth (m)										
	Day	Month	Year	GMT	LMT	Lat.	Long.	0	10	20	30	50	75	100	125	150	200	250
1	1	Dec.	1973	2300*	0700	10-24N	127-13E	28.9	28.9	28.9	28.9	29.0	28.3	27.2	23.8	20.4	16.1	11.3
2	2			2300*	0700	05-02	125-30	28.6	28.6	28.6	28.5	28.0	27.9	25.4	23.3	20.8	15.8	14.1
3	6			0100	0900	11-51S	114-59	29.3	29.0	28.6	28.5	27.1	24.8	23.7	21.5	17.9	14.1	
4	7			0100	0900	16-24	114-04	27.8	27.8	27.8	27.4	26.5	25.1	24.1	22.4	20.8	18.2	16.5
5	8			0200	1000	21-28	113-09	25.5	25.5	25.4	25.4	25.2	23.1	22.0	21.4	21.0	20.1	18.1
6	17			2300*	0700	33-54	114-46	19.2	19.2	19.2	19.1	18.4	17.2	16.5	15.5	14.8	13.9	12.7
7	17			1000	1800	35-22	110-47	18.0	18.0	18.0	17.3	16.2	14.8	13.5	13.0	12.3	12.1	11.7
8	18			0100	0800	38-23	110-04	14.4	14.4	13.5	13.5	12.5	11.7	11.8	11.2	10.8	10.5	10.2
9	18			1100	1800	40-09	109-54	14.0	13.4	13.0	13.0	12.5	11.3	11.4	11.3	11.0	10.8	10.3
10	19			0100	0800	42-59	109-49	12.1	12.1	12.1	12.1	11.5	10.1	10.0	9.8	9.9	9.8	
11	19			1000	1700	43-48	109-50	11.4	11.4	11.4	11.4	11.4	11.4	9.7	9.6	9.7	9.6	9.6
12	20			0100	0800	46-23	109-03	8.9	8.8	8.8	8.9	8.7	8.6	8.9	9.1	9.0	8.8	8.5
13	20			1100	1800	48-04	108-32	6.6	6.6	6.6	6.6	5.5	5.1	4.6	4.4			
14	22			0600	1300	55-23	110-32	2.4	2.4	2.4	2.4	2.4						
15	23			0100	0800	57-52	108-25	0.4	0.4	0.4	0.4	0.4	0.4	-0.9	-1.1			
16	23			1100	1800	58-27	106-40	0.5	0.4	0.4	0.4	0.4	0.4	-0.6	-0.5			
17	24			0100	0800	60-17	103-21	0.1	0.1	0.1	0.1	0.1	0.0	-0.7	-0.6	0.4	1.2	
18	24			1200	1900	60-52	99-52	-0.2	-0.2	-0.4	-0.5	-1.3	-1.2					
19	25			0200	0800	61-30	93-46	-0.2	-0.2	-0.2	-0.2	-0.3	-0.5					
20	25			1200	1800	61-49	89-52	0.1	0.0	0.0	0.0	-0.3	-0.4					
21	26			0200	0800	62-30	83-47	-0.4	-0.4	-0.4	-0.4	-0.6	-1.1	0.4	1.4	1.7	2.1	
22	26			1200	1800	63-23	79-53	-0.4	-0.4	-0.4	-0.4	-0.5	-1.2	-1.0	0.1	0.6	1.3	1.5
23	27			0300	0800	63-58	73-37	-0.1	-0.1	-0.1	-0.1	-0.3	0.0	1.5	1.8	1.8	1.9	

St. No.	Date			Time		Position		Temperature (°C) at indicated depth (m)										
	Day	Month	Year	GMT	LMT	Lat.	Long.	0	10	20	30	50	75	100	125	150	200	250
24	16	Feb.	1974	0500	0800	66-28S	42-50E	0.8	0.7	0.6	-1.7	-2.1	-2.1	-2.1	-2.1	-1.9	-0.6	
25	16			1500	1800	64-59	42-55	1.3	1.1	1.0	1.0	-1.2	-1.7	-0.7	0.1	1.0	1.6	
26	17			0500	0800	62-39	43-13	0.9	-0.7	1.5	1.4	0.0	-1.3	-1.0	-0.8	1.0	2.0	
27	17			1500	1800	61-29	43-31	0.9	0.8	0.8	0.8	0.8	-1.8	-1.9	-1.4	-0.2	1.5	
28	18			0500	0800	59-28	43-35	1.2	1.2	1.3	1.2	1.2	-1.0	-1.0	-1.1	-0.9	1.3	
29	18			1500	1800	58-25	43-28	1.1	1.1	1.1	1.1	1.0	-0.7	-1.3	-1.2	-0.6	1.2	
30	19			0500	0800	56-58	40-31	1.2	1.2	1.2	1.2	1.2	-1.0	-1.2	-1.2	-0.4	1.1	
31	19			1500	1800	56-54	38-28	1.6	1.6	1.7	1.7	1.6	0.9	-1.1	-0.9	-0.7	1.0	
32	20			0500	0800	56-59	33-58	2.0	2.0	2.0	2.0	1.7	1.7	1.0	0.4	0.5	0.8	
33	20			1500	1800	58-01	34-05	1.5	1.5	1.4	1.4	1.0	-1.3	-1.3	-0.8	-0.5	0.9	
34	21			0600	0800	60-17	34-18	1.5	1.5	1.5	1.6	0.6	-1.1	-1.1	-0.9	-0.6	0.7	
35	21			1600	1800	61-22	34-28	1.3	1.3	1.3	1.3	-1.2	-1.5	-1.2	-1.2	-0.4		
36	22			0600	0800	63-45	34-13	1.3	1.4	1.4	1.4	-1.7	-1.7	-1.7	-1.2	0.0	1.2	
37	22			1600	1800	64-44	34-31	1.5	1.5	1.5	1.5	-1.6	-1.6	-1.7	-1.6	-1.5	0.9	
38	23			0600	0800	66-22	33-13	1.2	1.2	1.2	1.2	-1.8	-1.7	-1.7	-1.7	-1.7	-1.2	
39	24			0600	0800	66-50	25-56	1.2	1.2	1.2	1.1	-1.7	-1.7	-1.7	-1.5	-1.8	0.7	
40	27			0400	0600	66-31	01-14	1.0	1.0	1.0	1.0	1.0	-1.2	0.0	0.3	0.4	0.6	
41	27			1600	1800	65-25	00-19	1.1	1.1	1.1	1.2	0.4	0.2	0.6	0.7	0.7	0.7	
42	28			0600	0800	62-40	01-18	1.4	1.4	1.5	1.4	-1.5	-1.5	-1.4	-0.9	0.6	0.9	
43	28			1600	1800	61-12	01-20	1.2	1.2	1.2	1.2	0.6	-1.7	-1.7	-0.8	0.3	0.6	
44	1	March	1974	0600	0800	58-35	03-28	0.7	0.7	0.7	0.7	0.8	-1.0	-1.6	-1.5	-1.2	-0.1	
45	3			0600	0800	50-22	08-25	3.5	3.5	3.5	3.5	3.6	3.6	3.7	2.8	1.9	1.9	
46	3			1600	1800	49-14	09-23	5.0	5.0	5.0	5.0	5.0	5.0	3.3	2.8	2.7	2.7	

St. No.	Date			Time		Position		Temperature (°C) at indicated depth (m)										
	Day	Month	Year	GMT	LMT	Lat.	Long.	0	10	20	30	50	75	100	125	150	200	250
47	4	March	1974	0600	0800	46-56S	10-57E	6.9	6.9	6.9	6.9	7.0	7.0	6.9	6.1	5.5	4.6	
48	5			0600	0800	43-10	13-13	11.0	11.0	11.0	10.9	10.9	10.9	10.9	9.6	8.5	8.0	
49	6			0500	0700	39-56	14-56	20.1	20.1	20.1	19.5	17.5	15.5	14.3	13.3	12.8	11.6	
50	6			1600	1800	39-12	15-24	20.8	20.8	20.6	20.6	20.5	18.8	18.1	17.2	16.7	16.2	
51	7			0400	0600	37-24	16-09	17.3	17.3	17.2	16.8	14.7	12.9	12.2	12.0	11.6	11.1	
52	7			1000	1200	36-38	16-31	20.3	20.3	20.2	19.0	16.8	15.3	15.0				
53	7			1600	1800	35-50	17-10	20.7	20.7	20.6	20.5	19.6	15.6	13.9	12.8	12.0	11.1	
54	18			1600	1800	30-06	35-36	26.7	26.7	26.7	26.7	26.1	24.3	20.5	18.9	18.2	17.6	
55	19			1600	1800	27-55	40-43	26.1	25.9	25.9	25.9	24.8	21.1	18.9	18.1	16.8		
56	21			1500	1800	24-21	50-10	26.5	26.5	26.5	26.5	26.0	21.6	20.0	19.3	18.4	17.2	
57	22			1400	1800	22-29	54-26	27.2	27.2	27.2	27.2	27.2	25.1	23.1	22.0	21.0	19.2	17.1
58	23			1400	1800	20-01	58-44	26.6	26.6	26.6	26.6	26.6	24.4	23.1	21.4	20.4	19.0	
59	24			1400	1800	16-58	62-56	27.1	27.1	27.1	27.1	25.3	23.3	22.2	21.1	20.5	18.6	16.3
60	25			1400	1800	13-56	66-52	27.4	27.4	27.4	26.2	24.0	21.2	18.4	16.2	14.5	13.8	12.6
61	26			1300	1800	11-07	70-41	27.4	27.4	27.2	27.0	21.4	18.2	15.9	13.2	12.4	11.5	10.9
62	14	April	1974	1000	1800	20-37N	122-32	26.7	26.6	26.6	26.6	26.5	25.5	25.2	23.8	23.3	21.6	
63	15			0000	0800	22-45	124-38	24.2	24.1	23.9	23.7	23.6	23.2	23.1	22.1	21.6	20.9	
64	15			1000	1800	23-58	126-07	23.9	22.7	22.3	22.2	21.7	21.5	21.1	20.6	19.9	18.3	
65	16			2300*	0800	25-53	128-11	23.3	23.3	21.9	21.7	21.6	21.2	20.7	20.1	19.4	18.9	
66	16			0900	1800	27-25	129-40	22.7	22.6	22.3	22.1	21.6	21.6	20.5	20.0	19.5	18.8	
67	17			2300*	0800	29-34	131-50	20.1	19.3	19.2	18.7	18.2	18.1	17.3	16.8	16.6	15.6	
68	17			0900	1800	31-19	132-57	22.6	22.3	22.2	22.2	22.0	21.3	20.9	20.7	20.5	20.1	
69	18			2300*	0800	33-01	135-10	21.7	21.7	21.8	21.6	20.6	19.4	18.6	17.8	17.3	16.1	

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

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Oceanographic Data of the 15th JARE 1973-1974

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Table 3. Vertical observation data.

St. 1

Date : Dec. 17, 1973  
 Time(GMT) : 2330-0105  
 (LMT) : 0730-0915  
 Lat. : 33-54S  
 Long. : 111-36E

Meteorological observation  
 Time(GMT) : 0200  
 (LMT) : 1000  
 Weather : Cloudy  
 Air temperature(°C) : 18.5  
 Atm. pressure(mb) : 1013.2

Wind direction : ESE  
 velocity(kn) : 24  
 Humidity(%) : 84  
 Sea : /  
 Swell : SE/1

Observed											Interpolated				
Depth (m)	T(°C)	S(‰)	pH	O <sub>2</sub> (cc/L)	PO <sub>4</sub> -P	SiO <sub>3</sub> -Si	NO <sub>2</sub> -N	NO <sub>3</sub> -N	NH <sub>4</sub> -N	Depth (m)	T(°C)	S(‰)	σ <sub>t</sub>	ΔD	
					(μg-atoms/L)										
0	20.4	35.730	8.38	5.25	0.04	3	0.18	0.1	0.2	0	20.40	35.730	25.23	0.000	
5	19.04	35.748	8.43	5.31	0.04	2	0.06	0.0	0.3	10	19.05	35.746	25.60	0.026	
14	19.06	35.745	8.42	5.31	0.08	2	0.06	0.0	0.7	20	19.07	35.747	25.59	0.050	
20	19.07	35.747	8.41	5.48	0.08	2	0.13	0.1	0.3	30	19.00	35.744	25.61	0.074	
33	18.97	35.742	8.43	5.33	0.10	2	1.55	0.0	0.5	50	18.95	35.729	25.61	0.122	
50	18.95	35.729	8.42	5.31	0.08	2	0.05	0.0	0.0	75	17.83	35.754	25.91	0.179	
67	18.40	35.751	8.41	5.41	0.10	2	0.41	0.0	0.0	100	16.85	35.761	26.15	0.229	
82	17.33	35.755	8.40	5.48	0.08	2	0.20	0.0	0.1	125	15.28	35.602	26.39	0.274	
103	16.78	35.762	8.40	5.41	0.10	2	0.27	0.1	0.1	150	14.74	35.548	26.47	0.315	
124	15.31	35.605	8.41	5.77	0.14	2	0.10	0.1	0.7	200	13.53	35.395	26.61	0.393	
152	14.72	35.546	8.40	5.61	0.18	2	0.34	0.1	0.0	250	12.56	35.256	26.70	0.466	
181	14.00	35.454	8.38	5.57	0.16	2	0.09	1.0	0.6	300	11.73	35.112	26.75	0.536	
228	12.90	35.313	8.35	5.65	0.50	3	0.03	3.2	0.3	400	9.99	34.828	26.84	0.670	
283	12.07	35.168	8.33	5.69	0.61	3	0.03	7.1	1.6	500	9.09	34.773	26.95	0.796	
338	10.96	34.987	8.32	5.66	0.79	3	0.21	11	0.7	600	7.18	34.504	27.02	0.914	
435	9.58	34.772	8.31	5.60	1.03	5	0.14	16	0.2	700	4.31	34.444	27.33	1.012	
512	9.01	34.773	8.27	5.58	1.05	4	0.05	15	0.5	800	5.21	34.426	27.22	1.101	
564	8.46	34.623	8.23	5.52	1.20	6	0.04	19	0.3						
614	6.62	34.459	8.15	4.74	1.71	16	0.00	28	1.1						
965	3.96	34.396	8.07	4.34	2.38	16	0.04	36	0.1						

Masataka HISHIDA and Ikuzi TOKUE

[南極資料]



St. 2

Date : Dec. 19, 1973  
 Time(GMT) : 0130-0500  
 (LMT) : 0830-1200  
 Lat. : 43-00S  
 Long. : 109-58E

Meteorological observation

Time(GMT) : 0500 Wind direction : W  
 (LMT) : 1200 velocity(kn) : 41  
 Weather : Cloudy Humidity(%) : 80  
 Air temperature(°C) : 11.7 Sea : /  
 Atm. pressure(mb) : 1015.2 Swell : SW/3

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Depth (m)	Observed										Interpolated				
	T(°C)	S(‰)	pH	O <sub>2</sub> (cc/L)	PO <sub>4</sub> -P	SiO <sub>3</sub> -Si	NO <sub>2</sub> -N	NO <sub>3</sub> -N	NH <sub>4</sub> -N	Depth (m)	T(°C)	S(‰)	$\sigma_t$	$\Delta D$	
					(μg-atoms/L)										
0	12.1	34.689	8.26	6.31	0.77	5	0.18	11	0.7	0	12.10	34.689	26.35	0.000	
8	12.00	34.717	8.29		0.77	5	0.21	11	0.0	10	12.01	34.713	26.38	0.017	
15	12.05	34.700	8.31	6.32	0.79	5	0.22	11	0.1	20	12.04	34.701	26.37	0.033	
23	12.03	34.701	8.29	6.34	0.81	4	0.21	10	0.2	30	11.78	34.699	26.42	0.050	
38	11.45	34.696	8.32	6.40	0.79	4	0.29	11	0.0	50	11.41	34.688	26.48	0.082	
58	11.35	34.687	8.30	6.36	0.83	5	0.19	11	0.2	75	10.37	34.721	26.69	0.119	
75	10.37	34.721	8.30	6.44		5	0.30	11	0.0	100	9.78	34.754	26.81	0.152	
87	9.83	34.759	8.29	6.31	0.91	5	0.44	8	0.0	125	9.64	34.754	26.84	0.183	
101	9.79		8.28	6.18	0.91	5	0.41	12	0.0	150	9.57	34.741	26.84	0.214	
132	9.60	34.743	8.29	6.13	0.95	5	0.06	11	0.2	200	9.45	34.734	26.86	0.277	
166	9.56		8.28	6.19	0.95	5	0.02	13	0.1	250	9.33	34.727	26.87	0.339	
199	9.45		8.27	6.00	0.93	5	0.06	10	0.3	300	9.29	34.720	26.87	0.401	
261	9.31		8.27	6.02	0.99	5	0.03	14	0.0	400	9.30	34.705	26.86	0.528	
330	9.29		8.26	6.24	1.03	5	0.02	13	0.1	500	9.11	34.690	26.88	0.656	
393	9.31		8.28	6.15	0.95	6	0.06	15	0.0	600	8.72	34.625	26.89	0.784	
512	9.07	34.688	8.25	5.91	1.10	7	0.04	14	0.1	700	8.04	34.556	26.94	0.911	
647	8.46		8.23	5.47	1.24	7	0.05	19	0.0	800	7.12	34.490	27.02	1.032	
794	7.18		8.14	4.97	1.67	15	0.03	26	0.0	1000	5.15	34.369	27.18	1.250	
1050	4.69	34.341	8.09	4.78	2.03	28	0.06	33	0.0	1200	3.85	34.373	27.32	1.437	
1707	2.61	34.604	7.99	4.11	2.40	74	0.03	37	0.2	1500	2.82	34.487	27.51	1.666	
2111	2.33	34.706	8.04	4.28	2.24	80	0.03	34	0.0	2000	2.37	34.684	27.71	1.959	
2525	2.03	34.742	8.04	4.61	2.18	86	0.05	35	0.1	2500	2.05	34.741	27.78	2.194	
2937	1.51	34.739	8.04	4.75	2.26	104	0.06	35	0.4	3000	1.45	34.737	27.82	2.398	
3378	1.17	34.720	8.05	4.78	2.06	115	0.06	34	0.2						

St. 3

Date : Dec. 23, 1973  
 Time(GMT) : 0120-0430  
 (LMT) : 0800-1130  
 Lat. : 57-52S  
 Long. : 108-23E

Meteorological observation

Time(GMT) : 0400 Wind direction : SW  
 (LMT) : 1100 velocity(kn) : 24  
 Weather : Cloudy Humidity(%) : 84  
 Air temperature(°C) : 1.0 Sea : /  
 Atm. pressure(mb) : 978.9 Swell : W/3

Observed										Interpolated				
Depth (m)	T(°C)	S(‰)	pH	O <sub>2</sub> (cc/L)	PO <sub>4</sub> -P	SiO <sub>3</sub> -Si	NO <sub>2</sub> -N	NO <sub>3</sub> -N	NH <sub>4</sub> -N	Depth (m)	T(°C)	S(‰)	σ <sub>t</sub>	ΔD
					(μg-atoms/L)									
0	0.4	33.931	8.21		1.85	25	0.26	27	0.3	0	0.40	33.931	27.24	0.000
8	0.38	33.889	8.21	8.04	1.69	24	0.23	29	0.5	10	0.40	33.890	27.21	0.009
15	0.45	33.891	8.24	8.08	1.73	25	0.24	29	0.4	20	0.43	33.896	27.21	0.017
23	0.40	33.899	8.23	8.03	1.85	24	0.24	28	0.7	30	0.38	33.900	27.22	0.026
39	0.38	33.901	8.25	7.91	1.79	25	0.26	27	0.5	50	0.37	33.897	27.22	0.043
59	0.37	33.897	8.22	7.91	1.87	25	0.27	30	0.7	75	0.17	33.918	27.25	0.064
79	0.06	33.926	8.21	8.00	1.93	29	0.27	27	0.4	100	-1.02	33.983	27.35	0.084
96	-1.00	33.975	8.21	8.04	2.01	33	0.27	31	0.7	125	-0.76	34.137	27.47	0.101
112	-1.06	34.017	8.19	7.82	2.10	34	0.19	27	0.5	150	0.04	34.370	27.62	0.114
159	0.40	34.455	8.09	5.72	2.34	55	0.27	35	0.3	200	1.40	34.471	27.61	0.139
200	1.40	34.471	8.03	5.11	2.46	66	0.03	37	0.5	250	1.66	34.537	27.65	0.162
244	1.65	34.532	8.00	4.42	2.48	71	0.05	35	0.2	300	1.66	34.580	27.68	0.185
318	1.66	34.591	8.02	4.23	2.44	74	0.02	31	0.6	400	1.87	34.641	27.72	0.226
395	1.87	34.639	8.01	3.79	2.38	77	0.01	36	0.5	500	1.83	34.673	27.74	0.266
471	1.84	34.664	8.06	3.42	2.30	79	0.01	35	0.6	600	1.78	34.697	27.77	0.303
624	1.77	34.701	8.07	4.39	2.22	82	0.01	35	0.6	700	1.72	34.709	27.78	0.339
779	1.67	34.715	8.06	4.51	2.22	84	0.03	34	0.5	800	1.67	34.718	27.79	0.374
921	1.62	34.734	8.06	4.34	2.22	87	0.02	35	0.5	1000	1.51	34.732	27.82	0.441
1097	1.36	34.730	8.08	4.78	2.16	92	0.02	33	0.5	1200	1.27	34.727	27.83	0.506
1573	1.05	34.715	8.05	4.39	2.22	104	0.04	33		1500	1.08	34.718	27.83	0.600
2011	0.71	34.698	8.05	4.48	2.30	111	0.03	36	0.6	2000	0.72	34.698	27.84	0.751
2437	0.44	34.687	8.03	4.50	2.36	121	0.04	36	0.5	2500	0.40	34.686	27.85	0.893
2874	0.19	34.678	8.04	5.01	2.34	124	0.04	36	0.4	3000	0.13	34.675	27.86	1.024
3305	0.03	34.669	8.06	4.97	2.24	124	0.04	34	0.7					

## St. 4

Date : Dec. 25, 1973  
 Time(GMT) : 0200-0315  
 (LMT) : 0800-0915  
 Lat. : 61-29S  
 Long. : 93-43E

## Meteorological observation

Time(GMT) : 0200 Wind direction : SE  
 (LMT) : 0800 velocity(kn) : 16  
 Weather : Cloudy Humidity(%) : 84  
 Air temperature(°C) : -0.5 Sea : /  
 Atm. pressure(mb) : 985.2 Swell : SW/1

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Observed										Interpolated				
Depth (m)	T(°C)	S(‰)	pH	O <sub>2</sub> (cc/L)	PO <sub>4</sub> -P	SiO <sub>3</sub> -Si	NO <sub>2</sub> -N	NO <sub>3</sub> -N	NH <sub>4</sub> -N	Depth (m)	T(°C)	S(‰)	σ <sub>t</sub>	ΔD
					(μg-atoms/L)									
0	-0.2	34.077	8.18	8.10	1.75	42	0.22	29	0.0	0	-0.20	34.077	27.39	0.000
8	-0.23	34.058	8.23	8.15	1.69	42	0.24	29	0.2	10	-0.22	34.058	27.38	0.007
14	-0.19	34.061	8.23	8.18	1.69	42	0.22	29	0.1	20	-0.20	34.058	27.38	0.014
23	-0.21	34.056	8.23	8.05	1.75	42	0.24	30	0.5	30	-0.25	34.052	27.37	0.021
41	-0.33	34.050	8.24	8.09	1.75	44	0.23	28	0.4	50	-0.34	34.051	27.38	0.035
60	-0.41	34.071	8.21	7.91	1.89	47	0.21	30	0.2	75	-0.84	34.180	27.50	0.052
80	-0.99	34.218	8.15	6.98	2.12	61	0.16	33	0.5	100	-1.07	34.265	27.58	0.065
104	-1.08	34.272	8.14	6.65	2.22	66	0.12	35	0.1	125	-0.53	34.371	27.64	0.077
126	-0.50	34.376	8.11	6.05	2.28	71	0.06	35	0.4	150	-0.07	34.452	27.69	0.088
171	0.19	34.498	8.09	5.42	2.28	78	0.05	36	0.1	200	0.45	34.544	27.73	0.108
216	0.56	34.563	8.08	5.38	2.28	82	0.02	34	0.6	250	0.82	34.599	27.76	0.126
261	0.89	34.608	8.05	5.11	2.32	85	0.03	33	0.1	300	1.06	34.634	27.77	0.143
345	1.17	34.655	8.06	4.82	2.30	87	0.02	36	0.7	400	1.24	34.675	27.79	0.177
427	1.26	34.683	8.06	4.94	2.26	90	0.00	31	1.0	500	1.30	34.697	27.80	0.210
512	1.30	34.699	8.07	4.99	2.22	93	0.01	35	0.6	600	1.28	34.709	27.81	0.241
686	1.24	34.713	8.09	4.74	2.16	97	0.00	34	0.7	700	1.24	34.713	27.82	0.273
849	1.18	34.708	8.07	4.77	2.20	98	0.01	32	0.7	800	1.21	34.711	27.82	0.304
1022	0.90	34.699	8.06	4.81	2.26	108	0.00	36	0.0	1000	0.94	34.699	27.83	0.365
1285	0.75	34.694	8.05	4.82	2.26	113	0.03	34	0.9	1200	0.78	34.695	27.84	0.424
1738	0.40	34.675	8.04	5.08	2.32	126	0.02	35	0.4	1500	0.60	34.687	27.84	0.511

## St. 5

Date : Jan. 3, 1974  
 Time(GMT) : 0600-0700  
 (LMT) : 0900-1000  
 Lat. : 68-40S  
 Long. : 38-47E

## Meteorological observation

Time(GMT) : 0700 Wind direction : /  
 (LMT) : 1000 velocity(kn) : 00  
 Weather : Cloudy Humidity(%) : 69  
 Air temperature(°C) : -1.8 Sea : /  
 Atm. pressure(mb) : 994.1 Swell : /0

Observed										Interpolated				
Depth (m)	T(°C)	S(‰)	pH	O <sub>2</sub> (cc/L)	PO <sub>4</sub> -P	SiO <sub>3</sub> -Si	NO <sub>2</sub> -N	NO <sub>3</sub> -N	NH <sub>4</sub> -N	Depth (m)	T(°C)	S(‰)	σ <sub>t</sub>	ΔD
					(μg-atoms/L)									
0	-1.3	34.040	8.20	7.89	2.06	70	0.06	29		0	-1.30	34.040	27.41	0.000
10	-0.78	34.052	8.15	7.56	1.96	72	0.08	29	1.0	10	-1.78	34.052	27.43	0.007
20	-1.75	34.059	8.15	7.47	2.00	72	0.09	26	0.4	20	-1.75	34.059	27.43	0.013
30	-1.79	34.086	8.13	7.39	2.16	73	0.08	31	0.9	30	-1.79	34.086	27.46	0.020
50	-1.76	34.100	8.13	7.33	2.14	73	0.06	31	0.5	50	-1.76	34.100	27.47	0.032
75	-1.73	34.143	8.12	7.22	2.20	74	0.05	33	1.0	75	-1.73	34.143	27.50	0.047
100	-1.73	34.178	8.11	7.27	2.24	73	0.04	29	0.6	100	-1.73	34.178	27.53	0.062
125	-1.78	34.199	8.12	7.34	2.22	70	0.01	28	0.8	125	-1.78	34.199	27.55	0.075
150	-1.76	34.217	8.12	7.36	2.24	70	0.04	30	0.8	150	-1.76	34.217	27.56	0.089

St. 6

Date : Feb. 7, 1974  
 Time(GMT) : 0700-0715  
 (LMT) : 1000-1015  
 Lat. : 68-29S  
 Long. : 33-02E

Meteorological observation

Time(GMT) : 0700 Wind direction : E  
 (LMT) : 1000 velocity(kn) : 20  
 Weather : Snow Humidity(%) : 93  
 Air temperature(°C) : -0.8 Sea : /  
 Atm. pressure(mb) : 987.5 Swell : N/1

Observed										Interpolated				
Depth (m)	T(°C)	S(‰)	pH	O <sub>2</sub> (cc/L)	PO <sub>4</sub> -P	SiO <sub>3</sub> -Si	NO <sub>2</sub> -N	NO <sub>3</sub> -N	NH <sub>4</sub> -N	Depth (m)	T(°C)	S(‰)	σ <sub>t</sub>	ΔD
					(μg-atoms/L)									
0	-1.0	33.572	8.33	8.62	1.26	51	0.17	14	0.0	0	-1.00	33.572	27.02	0.000
10	-1.08	33.517	8.33	8.67	1.26	52	0.17	22	0.4	10	-1.08	33.517	26.98	0.011
20	-1.02	33.566	8.32	8.51	1.42	54	0.16	24	0.5	20	-1.02	33.566	27.01	0.021
30	-1.01	33.660	8.30	8.47		55	0.16	24	0.4	30	-1.01	33.660	27.09	0.032
50	-1.01	33.774	8.29	8.38	1.48	58	0.18	26	0.4	50	-1.01	33.774	27.18	0.050
75	-1.15	33.990	8.24	8.00	1.77	68	0.12	28	0.2	75	-1.15	33.990	27.36	0.071
100	-1.28	34.090	8.21	7.79	1.90	69	0.12	30	0.4	100	-1.28	34.090	27.45	0.088
125	-1.28	34.131	8.18	7.53	2.00	73	0.10	32	0.6	125	-1.28	34.131	27.48	0.103
150	-1.27	34.145	8.19	7.47	2.00	73	0.11	31	0.2	150	-1.27	34.145	27.49	0.118

St. 7

Date : Feb. 9, 1974  
 Time(GMT) : 0500-0630  
 (LMT) : 0800-0930  
 Lat. : 67-42S  
 Long. : 41-06E

Meteorological observation

Time(GMT) : 0600 Wind direction : E  
 (LMT) : 0900 velocity(kn) : 31  
 Weather : Cloudy Humidity(%) : 77  
 Air temperature(°C) : -2.5 Sea : /  
 Atm. pressure(mb) : 970.2 Swell : NNE/3

Observed										Interpolated				
Depth (m)	T(°C)	S(‰)	pH	O <sub>2</sub> (cc/L)	PO <sub>4</sub> -P	SiO <sub>3</sub> -Si	NO <sub>2</sub> -N	NO <sub>3</sub> -N	NH <sub>4</sub> -N	Depth (m)	T(°C)	S(‰)	σ <sub>t</sub>	ΔD
					(μg-atoms/L)									
0	0.1	32.865	8.35	8.50	0.75	26	0.27	6.2	0.0	0	0.10	32.865	26.40	0.000
6	0.15	32.787	8.38	8.90	0.67	25	0.24	10	0.0	10	0.17	32.785	26.33	0.017
13	0.17	32.784	8.38	8.81	0.71	24	0.24	17	0.2	20	0.14	32.802	26.35	0.034
20	0.14	32.802	8.39	8.85	0.73	24	0.24	17	0.0	30	-0.90	33.578	27.02	0.047
33	-0.25	33.841	8.29	8.78	1.51	43	0.15	25	0.0	50	-1.52	34.024	27.40	0.065
50	-1.52	34.024	8.25	8.29	1.75	48	0.12	27	0.2	75	-1.78	34.239	27.58	0.080
67	-1.79	34.211	8.17	7.49	2.02	56	0.12	31	0.2	100	-1.73	34.260	27.60	0.092
79	-1.76	34.244	8.15	7.37	2.10	58	0.12	33	0.0	125	-1.72	34.283	27.62	0.104
94	-1.74	34.253	8.15	7.28	2.10	58	0.12	31	0.7	150	-1.72	34.301	27.63	0.116
113	-1.72	34.275	8.16	7.28	2.14	60	0.15	32	0.0	200	-1.73	34.317	27.64	0.139
139	-1.72	34.299	8.15	7.23	2.12	61	0.11	34	0.0	250	-1.66	34.354	27.67	0.160
163	-1.72	34.312	8.14	7.25	2.14	62	0.10	32	1.0	300	-0.80	34.480	27.74	0.180
221	-1.74	34.322	8.16	7.22	2.04	60	0.12	33	0.9	400	0.92	34.638	27.78	0.214
262	-1.57	34.374	8.13	7.00	2.16	66	0.07	33	0.0	500	1.05	34.661	27.79	0.247
311	-0.54	34.513	8.12	5.91	2.16	74	0.01	36	3.8	600	0.97	34.701	27.83	0.278
419	1.12									700	0.80	34.699	27.84	0.307
530	1.03	34.685	8.06	4.71	2.16	88	0.01	34	4.2	800	0.58	34.685	27.84	0.335
636	0.93	34.704	8.05	4.72	2.26	96	0.01	35	1.5	1000	0.35	34.681	27.85	0.390
789	0.60	34.686	8.06	4.90	2.26	99	0.03	36	0.7					
1117	0.32	34.678	8.04	4.94	2.34	108	0.01	36	0.1					

St. 8

Date : Feb. 16, 1974  
 Time(GMT) : 0530-0815  
 (LMT) : 0830-1115  
 Lat. : 66-27S  
 Long. : 42-52E

Meteorological observation

Time(GMT) : 0700 Wind direction : WNW  
 (LMT) : 1000 velocity(kn) : 10  
 Weather : Fine Humidity(%) : 79  
 Air temperature(°C) : 1.1 Sea : /  
 Atm. pressure(mb) : 982.0 Swell : WNW/1

Observed										Interpolated				
Depth (m)	T(°C)	S(‰)	pH	O <sub>2</sub> (cc/L)	PO <sub>4</sub> -P	SiO <sub>3</sub> -Si	NO <sub>2</sub> -N	NO <sub>3</sub> -N	NH <sub>4</sub> -N	Depth (m)	T(°C)	S(‰)	σ <sub>t</sub>	ΔD
					(μg-atoms/L)									
0	0.1	33.337	8.29	8.15	1.18	36	0.15	20	0.4	0	1.10	33.337	26.73	0.000
9	1.12	33.304	8.30	8.20	1.20	38	0.14	20	1.9	10	1.19	33.306	26.69	0.013
17	1.24	33.317	8.32	8.09	1.18	37	0.14	20	0.9	20	0.54	33.427	26.83	0.026
25	-0.80	33.643	8.27	8.47	1.69	47	0.15	25	1.4	30	-1.36	33.772	27.19	0.037
42	-1.75	33.972	8.16	7.52	2.02	63	0.16	32	1.9	50	-1.74	34.079	27.45	0.052
63	-1.73	34.204	8.11	7.14	2.20	68	0.17	33	2.6	75	-1.78	34.272	27.61	0.066
81	-1.81	34.293	8.10	7.12	2.16	70	0.18	34	0.7	100	-1.81	34.319	27.65	0.078
104	-1.80	34.320	8.11	7.10	2.16	71	0.20	33	0.5	125	-1.77	34.338	27.66	0.089
125	-1.77	34.338	8.12	7.13	2.16	71	0.12	34	0.7	150	-1.53	34.375	27.68	0.099
172	-1.11	34.425	8.09	6.59	2.20	79	0.10	35	0.4	200	-0.20	34.526	27.75	0.118
214	0.25	34.575	8.04	5.42	2.34	88	0.07	36	0.3	250	0.70	34.629	27.79	0.135
261	0.75	34.636	8.03	4.95	2.30	94	0.03	35	0.4	300	0.78	34.639	27.79	0.151
349	0.81	34.642	8.04		2.20		0.04	36	0.2	400	0.86	34.667	27.81	0.183
438	0.88	34.685	8.03	4.79	2.28	100	0.03	37	0.0	500	0.85	34.686	27.82	0.213
531	0.82	34.687	8.03	4.86	2.22	104	0.03	35	0.6	600	0.79	34.689	27.83	0.242
704	0.73	34.692	8.06	4.81	2.20	105	0.00	37	0.5	700	0.73	34.692	27.84	0.271
882	0.59	34.690	8.02	4.53	2.26	103	0.02	36	0.4	800	0.66	34.691	27.84	0.299
1066	0.42	34.688	8.01		2.30	115	0.00	36	0.7	1000	0.48	34.689	27.85	0.354
1349	0.28	34.676	8.03	4.97	2.22	123	0.00	36	0.7	1200	0.34	34.683	27.85	0.408
1805	0.06	34.669	8.00	5.18	2.36	126	0.01	34	0.4	1500	0.20	34.673	27.85	0.486
2233	-0.11	34.661	8.00	5.34	2.32	125	0.00	36	0.7	2000	-0.02	34.665	27.86	0.612
2682	-0.21	34.664	7.99	5.60	2.30	129	0.02	36	0.4	2500	-0.18	34.661	27.86	0.729

St. 9

Date : Feb. 17, 1974  
 Time(GMT) : 0530-0440  
 (LMT) : 0830-1140  
 Lat. : 62-36S  
 Long. : 43-18E

Meteorological observation

Time(GMT) : 0700 Wind direction : WWN  
 (LMT) : 1000 velocity(kn) : 34  
 Weather : Snow Humidity(%) : 86  
 Air temperature(°C) : 1.0 Sea : /  
 Atm. pressure(mb) : 994.5 Swell : NW/3

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Observed										Interpolated				
Depth (m)	T(°C)	S(‰)	pH	O <sub>2</sub> (cc/L)	PO <sub>4</sub> -P	SiO <sub>3</sub> -Si	NO <sub>2</sub> -N	NO <sub>3</sub> -N	NH <sub>4</sub> -N	Depth (m)	T(°C)	S(‰)	σ <sub>t</sub>	ΔD
					(μg-atoms/L)									
0	0.9	33.870	8.14	7.74	1.83	49	0.28	29	0.3	0	0.90	33.870	27.17	0.000
7	0.89	33.864	8.14	7.80	1.85	48	0.25	29	0.2	10	0.92	33.847	27.15	0.009
15	0.97	33.852	8.17	7.78	1.81	48	0.29	28	0.0	20	0.95	33.846	27.14	0.018
23	0.93	33.842	8.16	7.81	1.93	48	0.27	31	0.0	30	0.92	33.843	27.14	0.028
38	0.91	33.844	8.17	7.78	1.83	48	0.29	32	0.4	50	-0.55	33.973	27.32	0.045
57	-1.43	34.056	8.17	8.01	1.95	48	0.20	32	0.0	75	-1.54	34.114	27.47	0.062
75	-1.54	34.114	8.16	7.79	2.02	51	0.23	29	0.2	100	-1.51	34.039	27.41	0.078
92	-1.55	33.963	8.14	7.68	2.10	54	0.19	33	0.0	125	-1.78	34.296	27.59	0.093
111	-1.45	34.193	8.14	7.47	2.08	57	0.18	31	0.0	150	0.53	34.421	27.63	0.105
145	0.35	34.395	8.04	5.42	2.42	76	0.00	38	0.0	200	1.40	34.580	27.70	0.127
177	1.19	34.533	7.99	4.56	2.50	84	0.02	38	0.1	250	1.47	34.607	27.72	0.147
211	1.43	34.592	7.98	4.38	2.48	88	0.03	38	0.0	300	1.52	34.620	27.72	0.166
287	1.51	34.608	7.99		2.34		0.02	38	0.2	400	1.56	34.686	27.78	0.203
360	1.57	34.674	7.98	4.36	2.38	92	0.01	38	0.0	500	1.55	34.707	27.79	0.237
434	1.55	34.691	8.03	4.34	2.32	93	0.02	37	0.1	600	1.51	34.720	27.81	0.270
579	1.53	34.720	8.04	4.52	2.24	93	0.01	37	0.0	700	1.39	34.717	27.81	0.302
727	1.35	34.716	8.01	4.56	2.30	93	0.03	35	0.0	800	1.27	34.724	27.83	0.333
882	1.18	34.733	8.01	4.68	2.32	100	0.02	36	0.0	1000	1.05	34.728	27.84	0.393
1130	0.92	34.716	8.02	4.75	2.28	107	0.01	37	0.5	1200	0.87	34.713	27.84	0.451
1384		34.707	7.98	4.78	2.36	110	0.01	35	0.0	1500	0.67	34.703	27.85	0.536
1756	0.54	34.696	7.97	4.81	2.38	117	0.00	38	0.0	2000	0.41	34.691	27.85	0.673
2130	0.36	34.688	7.97	4.95	2.42	122	0.02	37	0.1	2500	0.29	34.681	27.85	0.806
2538	0.28	34.680	7.99	5.11	2.44	131	0.03	35	0.1					
2926	0.00	34.672	8.00	5.24	2.34	131	0.08	36	0.4					
3214	-0.13													

Masataka HIRANDA and Kuzi TOKUE

〔南極資料〕



## St. 10

Date : Feb. 18, 1974  
 Time(GMT) : 0530-0845  
 (LMT) : 0830-1145  
 Lat. : 59-25S  
 Long. : 43-31E

## Meteorological observation

Time(GMT) : 0800 Wind direction : ENE  
 (LMT) : 1100 velocity(kn) : 34  
 Weather : Fog Humidity(%) : 93  
 Air temperature(°C) : 1.6 Sea : /  
 Atm. pressure(mb) : 986.1 Swell : NW/3

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Oceanographic Data of the 15th JARE 1973-1974

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Observed										Interpolated				
Depth (m)	T(°C)	S(‰)	pH	O <sub>2</sub> (cc/L)	PO <sub>4</sub> -P	SiO <sub>3</sub> -Si	NO <sub>2</sub> -N	NO <sub>3</sub> -N	NH <sub>4</sub> -N	Depth (m)	T(°C)	S(‰)	σ <sub>t</sub>	ΔD
					(μg-atoms/L)									
0	1.1	33.749	8.17	7.89	1.53	23	0.29	25	0.0	0	1.10	33.749	27.06	0.000
9	1.13	33.723	8.18	7.93	1.55	23	0.27	25	0.0	10	1.14	33.722	27.03	0.010
17	1.22	33.718	8.18	7.90	1.55	23	0.27	25	0.0	20	1.21	33.718	27.02	0.021
25	1.17	33.719	8.20	7.89	1.61	24	0.29	27	0.0	30	1.16	33.719	27.03	0.031
43	1.16	33.719	8.22	7.89	1.53	23	0.28	27	0.0	50	1.14	33.722	27.03	0.052
65	1.09	33.729	8.21	7.87	1.57	21	0.27	27	0.0	75	0.13	33.823	27.17	0.076
86	-0.96	33.929	8.14	8.01	1.95	35	0.23	30	0.5	100	-1.16	33.963	27.34	0.097
107	-1.26	33.967	8.15	8.01	1.97	56	0.25	31	0.2	125	-1.40	34.006	27.38	0.115
125	-1.40	34.006	8.15	7.79	2.02	61	0.25	31	1.1	150	-0.70	34.140	27.47	0.131
157	-0.41	34.185	8.09	5.43	2.26	70	0.04	36	0.0	200	1.15	34.424	27.59	0.159
198	1.11	34.416	7.98	4.94	2.46	76	0.04	37	0.0	250	1.67	34.557	27.66	0.183
233	1.59	34.531	7.95	4.33	2.48	82	0.01	39	0.0	300	1.66	34.582	27.68	0.205
315	1.67	34.593	7.96	4.24	2.46	86	0.18	37	0.5	400	1.78	34.638	27.72	0.247
395	1.78	34.635	7.96	4.19	2.46	89	0.00	37	0.0	500	1.81	34.681	27.75	0.285
476	1.81	34.673	8.02	3.81	2.32	90	0.00	37	0.0	600	1.80	34.707	27.77	0.322
639	1.79	34.714	8.03	4.36	2.28	90	0.00	35	0.0	700	1.75	34.723	27.79	0.357
794	1.68	34.730	8.01	4.52	2.22	91	0.00	36	0.1	800	1.67	34.730	27.80	0.391
960	1.51	34.727	8.00	4.56	2.26	94	0.01	36	1.2	1000	1.47	34.728	27.82	0.458
1201	1.27	34.731	8.00	4.68	2.26	102	0.01	36	0.0	1200	1.27	34.731	27.83	0.522
1629	0.87	34.719	7.99	4.77	2.32	114	0.01	36	0.1	1500	0.98	34.724	27.85	0.613
2260	0.57	34.694	7.96	4.81	2.32	124	0.00	34	0.0	2000	0.68	34.704	27.85	0.759
2676	0.32	34.683	7.95	5.04	2.40	128	0.01	36	0.6	2500	0.42	34.687	27.85	0.899
3087	0.15	34.678	7.97	5.12	2.40	130	0.01	35	0.0	3000	0.18	34.679	27.86	1.031
3489	-0.01	34.674	7.97	5.26	2.34	130	0.03	35	0.0	3500	-0.01	34.674	27.86	1.151
3902	-0.12	34.666	7.97	5.47	2.28	130	0.01	36	0.3	4000	-0.14	34.665	27.86	1.262
4344	-0.20	34.663	7.97	5.57	2.30	130	0.09	35	0.3					

St. 11

Date : Feb. 19, 1974  
 Time(GMT) : 0530-0825  
 (LMT) : 0830-1125  
 Lat. : 56-56S  
 Long. : 40-29E

Meteorological observation

Time(GMT) : 0600  
 (LMT) : 0900  
 Weather : Fog  
 Air temperature(°C) : 1.2  
 Atm. pressure(mb) : 973.0  
 Wind direction : SSE  
 velocity(kn) : 24  
 Humidity(%) : 93  
 Sea : /  
 Swell : N/3

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Observed										Interpolated				
Depth (m)	T(°C)	S(‰)	pH	O <sub>2</sub> (cc/L)	PO <sub>4</sub> -P	SiO <sub>3</sub> -Si	NO <sub>2</sub> -N	NO <sub>3</sub> -N	NH <sub>4</sub> -N	Depth (m)	T(°C)	S(‰)	σ <sub>t</sub>	ΔD
					(μg-atoms/L)									
0	1.2	33.753	8.19	7.82	1.55	19	0.32	26	0.0	0	1.20	33.753	27.05	0.000
8	1.25	33.720	8.21	7.78	1.51	19	0.30	26	1.3	10	1.27	33.718	27.02	0.010
17	1.31	33.716	8.22	7.86	1.48	19	0.28	28	0.3	20	1.30	33.715	27.02	0.021
25	1.26	33.713	8.21	7.90	1.53	19	0.28	26	1.7	30	1.24	33.711	27.02	0.031
41	1.22	33.708	8.22	7.88	1.53	19	0.30	26	0.3	50	1.19	33.711	27.02	0.052
62	1.14	33.716	8.12	7.83	1.59	20	0.31	26	0.0	75	-0.42	33.852	27.22	0.076
82	-1.26	33.930	8.16	8.05	2.02	41	0.27	30	2.1	100	-1.36	33.999	27.37	0.096
101	-1.37	34.001	8.16	7.93	2.04	45	0.30	32	0.5	125	-1.25	34.064	27.42	0.113
121	-1.32	34.048	8.15	7.70	2.08	49	0.24	32	0.3	150	-0.57	34.186	27.50	0.128
154	-0.42	34.209	8.09	6.55	2.20	60	0.03	36	1.1	200	1.27	34.461	27.62	0.155
192	1.14	34.436	7.97	4.83	2.48	75	0.03	36	0.7	250	1.57	34.547	27.66	0.179
235	1.50	34.526	7.96	4.38	2.50	81	0.01	39	0.0	300	1.69	34.597	27.69	0.200
308	1.70	34.602	7.95	4.17	2.46	86	0.03	39	1.1	400	1.79	34.649	27.73	0.241
385	1.78	34.642	7.96	4.16	2.42	88	0.00	39	0.0	500	1.79	34.685	27.76	0.279
459	1.80	34.674	8.00	4.19	2.38	90	0.00	37	1.3	600	1.74	34.700	27.77	0.316
615	1.73	34.701	8.01	4.33	2.28	91	0.00	36	1.0	700	1.65	34.705	27.78	0.351
763	1.58	34.705	8.00	4.40	2.34	90	0.02	36	0.0	800	1.55	34.706	27.79	0.386
925	1.45	34.710	8.00	4.48	2.28	94	0.01	36	0.0	1000	1.38	34.713	27.81	0.453
1175	1.21	34.719	8.00	4.66	2.26	105	0.00	35	0.1	1200	1.19	34.719	27.83	0.518
1803	0.74	34.699	7.99	4.77	2.24	118	0.00	36	0.2	1500	0.95	34.713	27.84	0.610
2227	0.49	34.685	7.98	4.84	2.34	126	0.00	37	0.8	2000	0.62	34.692	27.84	0.757
2632	0.30	34.678	7.97	5.05	2.32	130	0.02	37	0.0	2500	0.36	34.680	27.85	0.898
3036	0.10	34.673	7.98	5.15	2.38	130	0.01	36	0.0	3000	0.12	34.673	27.86	1.028
3486	-0.05	34.668	8.00	5.33	2.32	130	0.00	36	0.0	3500	-0.05	34.668	27.86	1.147
3954	-0.15	34.662	8.00	5.46	2.24	130	0.02	37	0.0					

St. 12

Date : Feb. 20, 1974  
 Time(GMT) : 0630-0935  
 (LMT) : 0830-1135  
 Lat. : 56-58S  
 Long. : 34-00E

Meteorological observation

Time(GMT) : 0700 Wind direction : SW  
 (LMT) : 0900 velocity(kn) : 16  
 Weather : Cloudy Humidity(%) : 68  
 Air temperature(°C) : 2.3 Sea : /  
 Atm. pressure(mb) : 998.0 Swell : SW/3

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Observed										Interpolated				
Depth (m)	T(°C)	S(‰)	pH	O <sub>2</sub> (cc/L)	PO <sub>4</sub> -P	SiO <sub>3</sub> -Si	NO <sub>2</sub> -N	NO <sub>3</sub> -N	NH <sub>4</sub> -N	Depth (m)	T(°C)	S(‰)	σ <sub>t</sub>	ΔD
					(μg-atoms/L)									
0	2.1	33.901	8.15	7.66	1.67	26	0.27	28	2.5	0	2.10	33.901	27.11	0.000
8	2.08	33.879	8.19	7.66	1.59	25	0.28	28	4.0	10	2.10	33.878	27.09	0.010
15	2.13	33.877	8.19	7.64	1.69	25	0.27	29	3.1	20	2.11	33.876	27.09	0.020
23	2.09	33.875	8.19	7.62	1.69	26	0.27	28	6.5	30	2.05	33.875	27.09	0.029
40	2.00	33.877	8.19	7.67	1.69	27	0.24	29	5.2	50	1.96	33.877	27.10	0.049
57	1.91	33.877	8.19	7.66	1.77	28	0.26	30	0.1	75	1.60	33.894	27.14	0.073
78	1.51	33.901	8.18	7.63	1.83	33	0.27	29	1.9	100	0.45	34.015	27.31	0.094
99	0.46	34.012	8.13	7.33	2.10	47	0.14	33	2.4	125	0.54	34.073	27.35	0.113
122	0.54	34.068	8.12	7.02	2.16	50	0.11	35	4.0	150	0.54	34.116	27.38	0.131
169	0.54	34.151	8.09	6.61	2.20	58	0.06	36	1.4	200	0.84	34.246	27.47	0.164
212	1.01	34.287	8.03	5.71	2.44	68	0.04	40	2.5	250	1.64	34.410	27.55	0.194
254	1.70	34.422	7.97	4.64	2.57	75	0.04	40	0.0	300	1.94	34.506	27.60	0.220
334	1.94	34.542	7.96	4.17	2.53	84	0.05	41	1.3	400	1.99	34.582	27.66	0.269
418	1.99	34.589	7.95	4.10	2.48	88	0.03	42		500	2.02	34.638	27.70	0.313
505	2.01	34.641	8.00	4.09	2.38	92	0.03	39	3.3	600	1.91	34.666	27.73	0.354
678	1.80	34.678	8.03	4.28	2.32	97	0.03	38	1.4	700	1.80	34.685	27.76	0.393
841	1.83	34.727	8.02	4.47	2.26	96	0.03	37	0.0	800	1.82	34.716	27.78	0.430
1049	1.61	34.728	8.00		2.26	102	0.03	35		1000	1.68	34.728	27.80	0.501
1262	1.33	34.731	8.01	4.68	2.26	109	0.01	36		1200	1.41	34.730	27.82	0.568
1733		34.706	8.00	4.80	2.32	122	0.01	37	0.2	1500	1.08	34.721	27.84	0.663
2120	0.61	34.690	7.98	4.80	2.36	131	0.03	38	2.0	2000	0.68	34.694	27.84	0.814
2554	0.40	34.680	7.96	4.97	2.38	135	0.03	37	0.6	2500	0.42	34.681	27.85	0.957
2994	0.20	34.676	7.99	5.06	2.44	136	0.02	39	1.8	3000	0.20	34.676	27.85	1.091
3435	0.05	34.669	8.00	5.24	2.32	135	0.04	40	2.9	3500	0.03	34.668	27.86	1.215
3889	-0.07	34.661	8.00	5.41	2.28	133	0.03	37	1.5	4000	-0.10	34.659	27.86	1.331
4341	-0.18	34.656	7.97	5.54	2.40	133	0.05	37	2.6					

St. 13

Date : Feb. 21, 1974  
 Time(GMT) : 0630-0950  
 (LMT) : 0830-1150  
 Lat. : 60-20S  
 Long. : 34-19E

## Meteorological observation

Time(GMT) : 0800 Wind direction : NNW  
 (LMT) : 1000 velocity(kn) : 34  
 Weather : Snow Humidity(%) : 89  
 Air temperature(°C) : 1.7 Sea : /  
 Atm. pressure(mb) : 974.0 Swell : NW/3

Observed										Interpolated				
Depth (m)	T(°C)	S(‰)	pH	O <sub>2</sub> (cc/L)	PO <sub>4</sub> -P	SiO <sub>3</sub> -Si	NO <sub>2</sub> -N	NO <sub>3</sub> -N	NH <sub>4</sub> -N	Depth (m)	T(°C)	S(‰)	σ <sub>t</sub>	ΔD
					(μg-atoms/L)									
0	1.5	33.644	8.14	7.74	1.77	52	0.35	30	0.5	0	1.50	33.644	26.95	0.000
10	1.45	33.615	8.15	7.79	1.75	52	0.35	28	0.3	10	1.45	33.615	26.93	0.011
18	1.50	33.608	8.18	7.73	1.71	54	0.33	30	0.7	20	1.50	33.607	26.92	0.023
25	1.48	33.607	8.17	8.02	1.73	54	0.30	28	1.9	30	1.47	33.607	26.92	0.034
40	1.45	33.607	8.19	7.76	1.73	54	0.32	30	1.3	50	1.47	33.629	26.93	0.057
61	1.50	33.653	8.18	7.84	1.79	55	0.26	29	1.0	75	-0.54	33.916	27.28	0.081
80	-1.25	34.010	8.17	8.12	1.81	58	0.26	30	0.4	100	-1.23	34.084	27.44	0.099
96	-1.25	34.076	8.16	7.91	1.85	60	0.27	32	1.8	125	-1.00	34.138	27.48	0.115
114	-1.10	34.107	8.14	7.66	1.93	65	0.26	33	2.0	150	-0.65	34.226	27.53	0.129
150	-1.65	34.226	8.12	7.06	2.08	73	0.00	34	0.4	200	0.70	34.423	27.62	0.155
189	0.48	34.386	8.03	5.67	2.22	81	0.00	35	0.3	250	1.39	34.547	27.68	0.178
233	1.21	34.513	7.99	4.74	2.34	87	0.01	35	0.8	300	1.70	34.615	27.71	0.199
310	1.72	34.623	7.98	4.22	2.36	89	0.02	39	0.1	400	1.74	34.659	27.74	0.239
385	1.75	34.654	7.99	4.22	2.38	89	0.01	37	0.1	500	1.66	34.682	27.77	0.276
459	1.70	34.674	8.10	4.30	2.22	90	0.01	36	0.5	600	1.56	34.698	27.78	0.311
611	1.55	34.699	8.10	4.45	2.24	92	0.00	35	2.2	700	1.51	34.710	27.80	0.345
763	1.47	34.715	8.05	4.59	2.14	93	0.01	35	0.0	800	1.43	34.714	27.81	0.378
921	1.27	34.712	8.01	4.72	2.22	98	0.00	33	0.1	1000	1.18	34.709	27.82	0.442
1153	1.02	34.703	8.05	4.73	2.24	105	0.01	36	0.6	1200	0.97	34.701	27.83	0.504
1566	0.67	34.685	7.99	4.80	2.28	116	0.01	36	2.1	1500	0.72	34.688	27.83	0.595
2122	0.41	34.676	7.97	4.88	2.30	123	0.06	35	0.3	2000	0.46	34.677	27.84	0.740
2576	0.19	34.665	7.96	5.12	2.34	125	0.03	36	0.1	2500	0.23	34.667	27.85	0.877
3018	0.02	34.660	7.97	5.20	2.38	125	0.05	35	0.5	3000	0.03	34.660	27.85	1.005
3459	-0.09	34.660	8.00	5.36	2.28	126	0.05	35	0.3	3500	-0.12	34.658	27.86	1.124
3885	-0.17	34.655	7.99	5.50	2.26	126	0.05	35	0.7					

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## St. 14

Date : Feb. 22, 1974  
 Time(GMT) : 0615-0945  
 (LMT) : 0815-1145  
 Lat. : 63-47S  
 Long. : 34-16E

## Meteorological observation

Time(GMT) : 0800 Wind direction : NW  
 (LMT) : 1000 velocity(kn) : 38  
 Weather : Cloudy Humidity(%) : 83  
 Air temperature(°C) : 2.6 Sea : /  
 Atm. pressure(mb) : 975.4 Swell : NW/3

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Oceanographic Data of the 15th JARE 1973-1974

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Observed										Interpolated				
Depth (m)	T(°C)	S(‰)	pH	O <sub>2</sub> (cc/L)	PO <sub>4</sub> -P	SiO <sub>3</sub> -Si	NO <sub>2</sub> -N	NO <sub>3</sub> -N	NH <sub>4</sub> -N	Depth (m)	T(°C)	S(‰)	σ <sub>t</sub>	ΔD
0	1.4	33.769	8.14	7.54	1.73	45	0.25	28	1.3	0	1.40	33.769	27.05	0.000
8	1.42	33.751	8.18	7.69	1.65	45	0.24	28	2.1	10	1.44	33.751	27.03	0.010
15	1.49	33.752	8.21	7.68	1.73	44	0.21	28	0.6	20	1.48	33.752	27.03	0.021
23	1.47	33.753	8.20	7.75	1.73	44	0.23	29	1.9	30	1.45	33.758	27.04	0.031
37	1.43	33.762	8.23	7.68	1.63	45	0.21	28	1.9	50	-0.34	33.950	27.30	0.049
58	-1.45	34.076	8.19	8.12	1.90	49	0.22	31	0.7	75	-1.57	34.146	27.50	0.066
74	-1.56	34.144	8.16	7.80	2.00	53	0.24	31	2.0	100	-1.61	34.180	27.53	0.081
95	-1.61	34.176	8.15	7.67	2.00	56	0.26	32	1.8	125	-1.15	34.245	27.57	0.094
115	-1.47	34.203	8.14	7.38	2.02	58	0.14	31	1.3	150	-0.12	34.380	27.63	0.107
149	-0.16	34.374	8.07	5.97	2.28	71	0.03	36	0.5	200	1.17	34.579	27.72	0.128
181	0.91	34.529	8.00	4.98	2.40	83	0.00	37	1.3	250	1.41	34.641	27.75	0.147
211	1.24	34.599	7.99	4.57	2.38	87	0.01	38	1.2	300	1.44	34.662	27.77	0.165
280	1.44	34.654	7.99	4.48	2.34	90	0.01	38	0.3	400	1.40	34.689	27.79	0.199
349	1.43	34.676	7.99	4.43	2.26	93	0.01	37	2.2	500	1.32	34.703	27.81	0.231
421	1.39	34.693	8.03	4.49	2.26	95	0.00	37	0.7	600	1.21	34.704	27.82	0.263
551	1.27	34.705	8.05	4.58	2.14	98	0.00	38	1.6	700	1.08	34.701	27.82	0.294
689	1.09	34.701	8.03	4.65	2.24	102	0.00	36	0.0	800	0.98	34.704	27.83	0.324
834	0.95	34.705	8.00	4.76	2.22	107	0.00	36	0.7	1000	0.80	34.698	27.84	0.382
1053	0.76	34.695	8.00	4.74	2.22	113	0.01	36	0.5	1200	0.67	34.693	27.84	0.440
1426	0.55	34.690	7.98	4.80	2.34	123	0.00	37	1.1	1500	0.50	34.688	27.85	0.524
1658	0.39	34.683	7.98	4.86	2.42	129	0.00	36	0.3	2000	0.25	34.675	27.85	0.659
2062	0.23	34.674	7.97	5.06	2.30	129	0.00	36	0.4	2500	0.05	34.665	27.85	0.786
2472	0.06	34.666	8.00	5.17	2.40	130	0.01	36	1.7	3000	-0.09	34.658	27.86	0.907
2886	-0.07	34.659	8.01	5.30	2.34	130	0.00	36	0.4	3500	-0.18	34.656	27.86	1.020
3296	-0.14	34.656	8.01	5.46	2.32	130	0.01	36	0.9					
3720	-0.22	34.656	7.98	5.55	2.36	130	0.00	35	1.5					

St. 15

Date : Feb. 23, 1974  
 Time(GMT) : 0620-0710  
 (LMT) : 0820-0910  
 Lat. : 66-22S  
 Long. : 33-12E

Meteorological observation

Time(GMT) : 0700 Wind direction : NE  
 (LMT) : 0900 velocity(kn) : 32  
 Weather : Snow Humidity(%) : 87  
 Air temperature(°C) : 1.0 Sea : /  
 Atm. pressure(mb) : 982.5 Swell : NW/3

Observed										Interpolated				
Depth (m)	T(°C)	S(‰)	pH	O <sub>2</sub> (cc/L)	PO <sub>4</sub> -P	SiO <sub>3</sub> -Si	NO <sub>2</sub> -N	NO <sub>3</sub> -N	NH <sub>4</sub> -N	Depth (m)	T(°C)	S(‰)	σ <sub>t</sub>	ΔD
					(μg-atoms/L)									
0	1.3	33.984	8.27	7.84	1.34	52	0.06	21	1.2	0	1.30	33.948	27.20	0.000
7	1.26	33.925	8.27	7.86	1.36	52	0.10	19	2.3	10	1.28	33.922	27.18	0.009
15	1.33	33.921	8.28	7.86	1.32	52	0.08	21	3.3	20	1.31	33.919	27.18	0.018
23	1.30	33.918	8.28	8.12	1.42	53	0.09	21	2.4	30	0.38	33.997	27.30	0.026
40	-1.21	34.141	8.18	7.70	2.02	66	0.05	29	4.5	50	-1.71	34.205	27.55	0.039
										75	-1.69	34.283	27.61	0.052
78	-1.73	34.284	8.10	7.47	2.22	68	0.12	32	4.4	100	-1.83	34.336	27.66	0.064
96	-1.83	34.332	8.12	7.52	2.18	68	0.20	35	1.3	125	-1.81	34.348	27.67	0.074
111	-1.81	34.340	8.13	7.54	2.16	72	0.11	34	0.5	150	-1.75	34.345	27.67	0.085
138	-1.81	34.352	8.12	7.49	2.16	70	0.03	35	1.2	200	-1.82	34.346	27.67	0.106
										250	-1.86	34.415	27.73	0.126
166	-1.68	34.334	8.11	7.49	2.16	69	0.21	31	1.2	300	-1.04	34.481	27.75	0.144
199	-1.81	34.345	8.12	7.52	2.14	69	0.03	34	0.8	400	0.48	34.632	27.80	0.176
255	-1.87	34.423	8.10	6.74	2.18	77	0.00	34	1.3	500	0.54	34.654	27.82	0.206
330	-0.36	34.522	8.06	5.92	2.24	85	0.02	36	0.9	600	0.59	34.675	27.83	0.235
392	0.44	34.626	8.08	5.18	2.22	94	0.01	36	1.2					
										700	0.53	34.676	27.84	0.264
562	0.59	34.670	8.07	4.98	2.32	104	0.01	37	0.8					
749	0.47	34.678	8.05	4.97	2.34	111	0.00	35	0.4					

St. 16

Date : Feb. 24, 1974  
 Time(GMT) : 0600-0900  
 (LMT) : 0800-1100  
 Lat. : 66-50S  
 Long. : 25-55E

Meteorological observation

Time(GMT) : 0800 Wind direction : NNE  
 (LMT) : 1000 velocity(kn) : 10  
 Weather : Fine Humidity(%) : 77  
 Air temperature(°C) : 1.2 Sea : /  
 Atm. pressure(mb) : 976.2 Swell : NNE/3

No. 51, 1974

Oceanographic Data of the 15th JARE 1973-1974

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Observed										Interpolated				
Depth (m)	T(°C)	S(‰)	pH	O <sub>2</sub> (cc/L)	PO <sub>4</sub> -P	SiO <sub>3</sub> -Si	NO <sub>2</sub> -N	NO <sub>3</sub> -N	NH <sub>4</sub> -N	Depth (m)	T(°C)	S(‰)	σ <sub>t</sub>	ΔD
0	1.3	33.817	8.21	7.77	1.46	42	0.26	25	0.1	0	1.30	33.817	27.10	0.000
6	1.40	33.787	8.24	7.83	1.40	39	0.22	24	0.4	10	1.44	33.787	27.06	0.010
15	1.45	33.786	8.26	7.78	1.40	40	0.16	25	0.1	20	1.45	33.896	27.15	0.020
22	1.38	33.951	8.22	7.86	1.67	48	0.13	26	1.1	30	-0.13	34.163	27.46	0.027
38	-1.79	34.334	8.14	7.44	2.14	65	0.11	34	0.3	50	-1.77	34.347	27.67	0.038
57	-1.76	34.355	8.12	7.38	2.16	66	0.09	35	0.1	75	-1.79	34.367	27.68	0.049
76	-1.79	34.368	8.13	7.29	2.18	66	0.09	34	0.4	100	-1.59	34.392	27.70	0.059
96	-1.62	34.387	8.11	7.00	2.22	68	0.08	36	0.6	125	-1.11	34.449	27.73	0.068
118	-1.36	34.426	8.11	6.64	2.26	69	0.10	35	0.1	150	-0.14	34.536	27.76	0.077
158	0.19	34.564	8.06	5.22	2.38	82	0.07	36	0.1	200	0.84	34.639	27.79	0.094
203	0.86	34.642	8.01	4.62	2.46	88	0.03	37	0.4	250	1.01	34.662	27.79	0.110
245	1.00	34.660	8.00	4.60	2.40	88	0.03	37	0.0	300	1.13	34.682	27.80	0.126
327	1.17	34.691	8.01	4.56	2.36	92	0.03	37	0.0	400	1.17	34.703	27.82	0.157
410	1.16	34.704	8.02	4.58	2.36	94	0.01	37	0.0	500	1.10	34.699	27.82	0.187
494	1.11	34.699	8.02	4.93	2.34	94	0.03	37	0.2	600	0.99	34.703	27.83	0.217
667	0.90	34.707	8.06	4.66	2.34	103	0.00	37	0.2	700	0.86	34.706	27.84	0.246
838	0.73	34.700	8.01	4.71	2.40	108	0.01	36	0.0	800	0.76	34.702	27.84	0.274
1012	0.59	34.695	8.00	4.78	2.48	110	0.00	36	0.3	1000	0.60	34.695	27.85	0.330
1270	0.44	34.689	8.00	4.68	2.38	116	0.00	36	0.2	1200	0.48	34.691	27.85	0.384
1730	0.20	34.676	7.99	5.07	2.30	119	0.00	35	0.2	1500	0.31	34.682	27.85	0.464
2228	0.00	34.670	7.99	5.24	2.22	119	0.00	37	0.0	2000	0.08	34.672	27.86	0.592
2697	-0.11	34.662	7.98	5.36	2.26	120	0.01	37	0.3	2500	-0.06	34.662	27.86	0.713
3050	0.43	34.693	8.02	4.77	2.26	112	0.03	35	0.2	3000	0.38	34.690	27.86	0.840
3240	0.11	34.674	8.03	5.13	2.22	120	0.03	39	0.3					

St. 17

Date : Feb. 27, 1974  
 Time(GMT) : 0610-1015  
 (LMT) : 0810-1215  
 Lat. : 66-29S  
 Long. : 01-14E

## Meteorological observation

Time(GMT) : 0700 Wind direction : SE  
 (LMT) : 0900 velocity(kn) : 44  
 Weather : Cloudy Humidity(%) : 82  
 Air temperature(°C) : -0.2 Sea : /  
 Atm. pressure(mb) : 970.0 Swell : E/3

Observed										Interpolated				
Depth (m)	T(°C)	S(‰)	pH	O <sub>2</sub> (cc/L)	PO <sub>4</sub> -P	SiO <sub>3</sub> -Si	NO <sub>2</sub> -N	NO <sub>3</sub> -N	NH <sub>4</sub> -N	Depth (m)	T(°C)	S(‰)	σ <sub>t</sub>	ΔD
					(μg-atoms/L)									
0	1.0	34.325	8.16	7.70	1.73	64	0.26	27	0.1	0	1.00	34.325	27.52	0.000
5	1.0	34.284	8.18	7.71	1.67	64	0.24	28	0.8	10	1.05	34.285	27.49	0.006
12	1.06	34.285	8.21	7.67	1.67	63	0.23	28	0.1	20	1.03	34.284	27.49	0.012
18	1.01	34.284	8.19	7.76	1.75	64	0.22	29	0.4	30	1.04	34.282	27.49	0.018
30	1.04	34.282	8.24	7.68	1.63	65	0.21	29	0.7	50	0.43	34.297	27.54	0.030
45	0.37	34.286	8.21		1.73	65	0.21	28	0.5	75	-1.00	34.498	27.77	0.041
60	0.43	34.343	8.17	7.37	1.89	82	0.20	30	0.6	100	-0.72	34.560	27.81	0.049
77	-1.19	34.519	8.09	6.46	2.30	89	0.15	35	0.6	125	0.05	34.623	27.82	0.056
100	-0.72	34.560	8.07	5.93	2.26	93	0.17	35	0.7	150	0.22	34.640	27.82	0.063
130	0.19	34.634	8.04	5.08	2.40	109	0.05	36	0.2	200	0.43	34.662	27.83	0.078
166	0.24	34.644	8.02	5.02	2.34	105	0.02	38	0.6	250	0.47	34.671	27.84	0.092
200	0.43	34.662	8.02	4.84	2.42	109	0.03	38	0.1	300	0.48	34.674	27.84	0.105
273	0.49	34.672	8.01	4.77	2.44	111	0.00	39	0.0	400	0.50	34.678	27.84	0.133
338	0.47	34.675	8.00	4.73	2.42	115	0.00	37	0.0	500	0.50	34.680	27.84	0.160
404	0.50	34.678	7.99	4.71	2.38	118	0.01	36	0.4	600	0.48	34.681	27.84	0.188
542	0.50	34.681	8.02	4.68	2.36	121	0.00	37	0.0	700	0.44	34.681	27.84	0.215
679	0.45	34.681	8.01	4.81	2.38	121	0.00	37	0.0	800	0.42	34.681	27.85	0.242
829	0.41	34.681	7.98	4.78	2.44	128	0.01	37	3.5	1000	0.34	34.679	27.85	0.296
1071	0.31	34.678	7.99	4.79	2.42	131	0.01	36	0.2	1200	0.26	34.676	27.85	0.348
1539	0.13	34.671	7.98	5.02	2.38	130	0.00	35	0.5	1500	0.14	34.672	27.85	0.426
1983	-0.05	34.664	7.98	5.10	2.44	130	0.02	37	1.1	2000	-0.05	34.664	27.86	0.550
2413	-0.15	34.657	7.99	5.32	2.36	130	0.01	36	0.1	2500	-0.17	34.656	27.86	0.667
2849	-0.22	34.655	7.99	5.48	2.38	128	0.00	37	0.3	3000	-0.24	34.654	27.86	0.780
3290	-0.28	34.651	7.98	5.61	2.42	126	0.03	34	0.4					

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St. 18

Date : Feb. 28, 1974  
 Time(GMT) : 0630-0850  
 (LMT) : 0830-1050  
 Lat. : 62-37S  
 Long. : 01-15E

Meteorological observation

Time(GMT) : 0700 Wind direction : SW  
 (LMT) : 0900 velocity(kn) : 14  
 Weather : Cloudy Humidity(%) : 64  
 Air temperature(°C) : 1.6 Sea : /  
 Atm. pressure(mb) : 985.3 Swell : NW/1

Observed										Interpolated				
Depth (m)	T(°C)	S(‰)	pH	O <sub>2</sub> (cc/L)	PO <sub>4</sub> -P	SiO <sub>3</sub> -Si	NO <sub>2</sub> -N	NO <sub>3</sub> -N	NH <sub>4</sub> -N	Depth (m)	T(°C)	S(‰)	σ <sub>t</sub>	ΔD
0	1.3	34.057	8.21	7.66	1.36	22	0.18	22	0.7	0	1.30	34.057	27.29	0.000
10	1.34	34.038	8.25	7.68	1.36	21	0.18	22	0.3	10	1.34	34.038	27.27	0.008
20	1.41	34.038	8.26	7.67	1.32	21	0.18	23	2.1	20	1.41	34.038	27.27	0.016
29	1.37	34.035	8.26	7.68	1.36	21	0.16	23	1.9	30	1.23	34.045	27.28	0.024
48	-1.56	34.251	8.16	7.60		64	0.23	31	1.4	50	-1.66	34.260	27.59	0.037
70	-1.83	34.301	8.13	7.41	2.14	68	0.27	33	0.8	75	-1.84	34.308	27.64	0.049
95	-1.77	34.336	8.13	7.43	2.14	69	0.24	33	2.1	100	-1.73	34.346	27.67	0.060
114	-1.55	34.381	8.11	6.97	2.22	75	0.10	34	2.2	125	-1.34	34.416	27.71	0.070
136	-1.07	34.456	8.08	6.35	2.32	83	0.10	37	0.1	150	-0.47	34.525	27.77	0.080
174	0.49	34.631	8.01	4.72	2.36	108	0.01	39	0.5	200	0.58	34.665	27.82	0.095
216	0.63	34.668	8.00	4.61	2.40	113	0.03	39	0.4	250	0.62	34.676	27.83	0.109
258	0.61	34.676	7.99	4.58	2.38	117	0.01	38	0.5	300	0.58	34.681	27.84	0.123
343	0.55	34.683	7.99	4.55	2.44	120	0.00	39	0.6	400	0.52	34.685	27.84	0.151
431	0.51	34.685	7.99	4.52	2.44	124	0.01	41	0.5	500	0.47	34.684	27.85	0.178
517	0.46	34.684	7.98	4.50	2.38	127	0.04	40	0.3	600	0.42	34.682	27.85	0.205
689	0.37	34.680	7.99	4.58	2.42	130	0.03	40	0.6	700	0.37	34.679	27.85	0.231
859	0.29	34.672	8.00	4.71	2.38	130	0.02	39	0.1	800	0.32	34.674	27.85	0.258
1038	0.18	34.677	8.00	4.88	2.36	131	0.01	39	0.7	1000	0.20	34.676	27.85	0.311
1295	0.07	34.669	8.00	5.03	2.38	132	0.01	37	0.4	1200	0.11	34.673	27.86	0.362
1720	-0.08	34.664	7.98	5.20	2.26	131	0.02	37	0.3	1500	-0.01	34.666	27.86	0.436
2153	-0.21	34.658	7.99	5.36	2.30	130	0.04	39	0.6	2000	-0.17	34.660	27.86	0.556
2595	-0.28	34.652	8.01	5.44	2.20	131	0.01	36	0.8	2500	-0.27	34.653	27.86	0.669
3081	-0.35	34.652	8.00	5.60	2.22	129	0.02	36	0.1	3000	-0.34	34.652	27.86	0.776
3491	-0.38	34.650	8.01	5.70	2.20	127	0.02	38	0.7	3500	-0.38	34.650	27.86	0.877
3954	-0.42	34.648	8.01	5.76	2.22	137	0.04	36	2.3					

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Oceanographic Data of the 15th JARE 1973-1974

St. 19

Date : March 1, 1974  
 Time(GMT) : 0640-1030  
 (LMT) : 0840-1230  
 Lat. : 58-37S  
 Long. : 03-31E

Meteorological observation

Time(GMT) : 0700  
 (LMT) : 0900  
 Weather : Snow  
 Air temperature(°C) : 0.5  
 Atm. pressure(mb) : 966.8  
 Wind direction : NNW  
 velocity(kn) : 50  
 Humidity(%) : 91  
 Sea : /  
 Swell : NE/3

Observed										Interpolated				
Depth (m)	T(°C)	S(‰)	pH	O <sub>2</sub> (cc/L)	PO <sub>4</sub> -P	SiO <sub>3</sub> -Si	NO <sub>2</sub> -N	NO <sub>3</sub> -N	NH <sub>4</sub> -N	Depth (m)	T(°C)	S(‰)	σ <sub>t</sub>	ΔD
					(μg-atoms/L)									
0	0.7	34.008	8.17	7.76	1.73	65	0.19	26	0.5	0	0.70	34.008	27.29	0.000
14	0.78	33.989	8.19	7.77	1.67	63	0.18	26	2.4	10	0.77	33.992	27.27	0.008
21	0.76	33.989	8.19	7.76	1.81	63	0.18	25	3.1	20	0.76	33.989	27.27	0.016
35	0.73	33.991	8.21	7.78	1.83	63	0.21	25	2.4	30	0.74	33.990	27.27	0.024
53	0.76	33.992	8.19	7.77	1.77	63	0.20	25	1.4	50	0.76	33.991	27.27	0.040
72	0.63	34.006	8.19	7.77	1.75	65	0.18	26	1.9	75	0.34	34.039	27.33	0.060
86	-0.80	34.177	8.13	7.48	2.03	74	0.21	29	1.5	100	-1.47	34.306	27.63	0.075
102	-1.52	34.320	8.11	7.24	2.24	79	0.24	33	0.9	125	-1.72	34.385	27.70	0.086
130	-1.76	34.388	8.10	7.12	2.24	80	0.15	34	0.0	150	-1.55	34.422	27.72	0.096
155	-1.49	34.427	8.08	6.80	2.24	84	0.12	36	0.1	200	-1.77	34.423	27.73	0.114
182	-1.55	34.412	8.09	7.01	2.18	82	0.09	35	0.0	250	-1.21	34.515	27.79	0.131
234	-1.81	34.476	8.07	6.30	2.38	91	0.07	36	0.0	300	0.34	34.621	27.80	0.146
279	-0.01	34.587	8.01	5.21	2.48	106	0.09	39	0.0	400	0.51	34.665	27.83	0.176
325	0.53	34.649	7.99	4.83	2.40	112	0.09	37	0.0	500	0.47	34.676	27.84	0.204
462	0.50	34.670	7.99	4.69	2.50	118	0.07	38	0.0	600	0.42	34.682	27.85	0.231
543	0.45	34.678	7.98	4.57	2.50	126	0.09	40	0.3	700	0.36	34.684	27.85	0.258
650	0.39	34.684	7.97	4.62	2.50	129	0.09	37	0.2	800	0.29	34.681	27.85	0.284
784	0.30	34.681	7.98	4.69	2.52	131	0.07	35	0.2	1000	0.21	34.674	27.85	0.336
1046	0.20	34.673	7.98	4.92	2.48	131	0.07	36	0.4	1200	0.13	34.671	27.85	0.387
1930	-0.14	34.664	7.98	5.27	2.34	132	0.00	37	0.5	1500	0.01	34.667	27.86	0.463
2349	-0.24	34.658	8.00	5.39	2.42	132	0.01	37	0.0	2000	-0.16	34.663	27.86	0.582
2777	-0.31	34.655	8.01	5.57	2.46	130	0.00	37	0.0	2500	-0.27	34.657	27.86	0.695
3205	-0.36	34.650	8.01	5.63	2.44	127	0.00	36	0.0	3000	-0.34	34.652	27.86	0.801
3634	-0.42	34.651	8.01	5.75	2.38	126	0.01	35	1.1	3500	-0.40	34.651	27.86	0.902
4064	-0.51	34.643	7.97	5.89	2.38	121	0.02	38	1.3	4000	-0.49	34.645	27.86	0.995

St. 20

Date : March 3, 1974  
 Time(GMT) : 0630-0930  
 (LMT) : 0830-1130  
 Lat. : 50-22S  
 Long. : 08-32E

## Meteorological observation

Time(GMT) : 0800 Wind direction : W  
 (LMT) : 1000 velocity(kn) : 44  
 Weather : Cloudy Humidity(%) : 72  
 Air temperature(°C) : 3.8 Sea : /  
 Atm. pressure(mb) : 1014.5 Swell : WSW/6

Observed										Interpolated				
Depth (m)	T(°C)	S(‰)	pH	O <sub>2</sub> (cc/L)	PO <sub>4</sub> -P	SiO <sub>3</sub> -Si	NO <sub>2</sub> -N	NO <sub>3</sub> -N	NH <sub>4</sub> -N	Depth (m)	T(°C)	S(‰)	σ <sub>t</sub>	ΔD
					(μg-atoms/L)									
0	3.6	33.778	8.20	7.33	1.59	0	0.24	23	1.5	0	3.60	33.778	26.88	0.000
16	3.67	33.762	8.21	7.51	1.48	1	0.23	22	2.0	10	3.66	33.766	26.86	0.012
28	3.65	33.761	8.23	7.38	1.38	1	0.24	22	2.8	20	3.67	33.761	26.86	0.024
42	3.66	33.763	8.23	7.47	1.42	1	0.24	21	3.1	30	3.65	33.761	26.86	0.036
55	3.64	33.759	8.23	7.43	1.36	1	0.23	23	2.2	50	3.65	33.761	26.86	0.060
72	3.62	33.763	8.23	7.40	1.42	3	0.24	22	2.2	75	3.62	33.762	26.86	0.090
86	3.63	33.760	8.23	7.39	1.42	2	0.24	20	0.8	100	3.61	33.761	26.86	0.120
114	3.59	33.762	8.23	7.36	1.51	2	0.24	23	2.3	125	3.10	33.783	26.93	0.150
147	2.06	33.839	8.16	7.31	1.87	16	0.28	26	3.1	150	2.01	33.845	27.07	0.176
176	1.74	33.902	8.13	7.11	1.87	20	0.06	33	0.6	200	1.33	33.999	27.24	0.223
230	1.09	34.112	8.07	5.99	2.18	31	0.03	38	0.7	250	1.52	34.131	27.33	0.263
280	2.24	34.153	8.02	5.27	2.36	41	0.03	41	0.3	300	2.24	34.206	27.34	0.301
330	2.25	34.290	7.99	4.91	2.34	48	0.02	40	0.7	400	2.22	34.366	27.47	0.371
430	2.20	34.380	7.98	4.50	2.36	61	0.02	41	0.8	500	2.18	34.438	27.53	0.432
527	2.18	34.459	7.97	4.24	2.52	68	0.03	39	0.4	600	2.17	34.503	27.58	0.489
642	2.16	34.525	7.94	4.16	2.48	74	0.01	40	0.0	700	2.17	34.553	27.62	0.542
847	2.20	34.613	7.97	4.07	2.40	78	0.02	39	0.0	800	2.19	34.595	27.65	0.591
1378	2.10	34.737	7.99	4.57	2.14	82	0.02	36	0.6	1000	2.17	34.663	27.71	0.684
1815	1.75	34.743	8.01	4.65	2.24	92	0.00	35	0.0	1200	2.17	34.711	27.75	0.771
2265	1.29	34.728	8.02	4.69	2.22	106	0.00	38	0.2	1500	2.02	34.739	27.78	0.892
2700	0.95	34.708	8.00	4.78	2.32	117	0.00	36	0.6	2000	1.56	34.738	27.82	1.081
3140	0.75	34.695	7.99	4.83	2.32	126	0.00	38	0.5	2500	1.09	34.717	27.83	1.225
3559	0.64	34.690	8.00	4.84	2.36	132	0.00	38	0.6	3000	0.80	34.698	27.84	1.418
										3500	0.65	34.690	27.84	1.574

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St. 21

Date : March 4, 1974  
 Time(GMT) : 0630-0930  
 (LMT) : 0830-1130  
 Lat. : 46-57S  
 Long. : 11-04E

Meteorological observation

Time(GMT) : 0700  
 (LMT) : 0900  
 Weather : Fog  
 Air temperature(°C) : 8.0  
 Atm. pressure(mb) : 1023.4  
 Wind direction : WNW  
 velocity(kn) : 42  
 Humidity(%) : 93  
 Sea : /  
 Swell : WSW/3

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Observed										Interpolated				
Depth (m)	T(°C)	S(‰)	pH	O <sub>2</sub> (cc/L)	PO <sub>4</sub> -P	SiO <sub>3</sub> -Si	NO <sub>2</sub> -N	NO <sub>3</sub> -N	NH <sub>4</sub> -N	Depth (m)	T(°C)	S(‰)	σ <sub>t</sub>	ΔD
0	7.1	33.969	8.22	6.76	1.30	3	0.27	22	0.2	0	7.10	33.963	26.61	0.000
8	7.08	33.935	8.24	6.80	1.36	3	0.27	22	0.4	10	7.08	33.935	26.59	0.014
20	7.06	33.933	8.25	6.82	1.36	3	0.28	21	0.0	20	7.06	33.933	26.59	0.029
35	7.06	33.929	8.26	6.80	1.32	3	0.27	22	0.3	30	7.06	33.930	26.59	0.044
52	7.03	33.931	8.25	6.88	1.36	3	0.27	22	0.6	50	7.03	33.931	26.59	0.073
70	7.06	33.932	8.25	6.79	1.38	3	0.27	19	0.4	75	7.07	33.932	26.59	0.109
84	7.08	33.933	8.25	6.80	1.38	3	0.29	20	0.0	100	6.90	33.990	26.66	0.145
95	7.07	33.935	8.25	6.78	1.32	3	0.27	20	0.5	125	6.07	34.229	26.96	0.177
115	6.28	34.183	8.22	6.43	1.48	8	0.21	24	0.4	150	5.62	34.238	27.02	0.204
141	5.82	34.243	8.19	6.27	1.57	8	0.06	26	0.0	200	4.78	34.191	27.08	0.256
170	5.20	34.210	8.19	6.36	1.67	9	0.03	26	0.0	250	4.27	34.174	27.12	0.306
229	4.40	34.181	8.17	6.27	1.79	14	0.00	29	0.0	300	3.92	34.171	27.16	0.354
275	4.05	34.169	8.14	6.14	1.85	15	0.00	30	0.0	1200	2.48	34.589	27.63	
331	3.86	34.177	8.13	6.01	1.90	18	0.00	32	0.0	1500	2.46	34.686	27.70	
1134	2.48	34.562	7.99	4.15	2.50	70	0.03	40	0.0	2000	2.29	34.764	27.78	
1465	2.46	34.677	8.00	4.26	2.38	72	0.01	37	0.3	2500	1.91	34.766	27.81	
1827	2.39	34.748	8.03	4.54	2.16	72	0.03	35	0.0					
2206	2.14	34.772	8.03	4.73	2.08	75	0.01	33	0.2					
2557	1.86	34.763	8.04	4.78	2.10	85	0.00	34	0.2					
2958	1.48	34.745	8.04	4.79	2.12	97	0.00	33	0.6					

Masataka Hishida and Ikuzi Tokue

〔南極資料〕

St. 22

Date : March 5, 1974  
 Time(GMT) : 0630-0951  
 (LMT) : 0830-1115  
 Lat. : 43-06S  
 Long. : 13-17E

Meteorological observation

Time(GMT) : 0800 Wind direction : W  
 (LMT) : 1000 velocity(kn) : 16  
 Weather : Clear Humidity(%) : 83  
 Air temperature(°C) : 11.4 Sea : /  
 Atm. pressure(mb) : 1028.0 Swell : SW/1

Observed										Interpolated				
Depth (m)	T(°C)	S(‰)	pH	O <sub>2</sub> (cc/L)	PO <sub>4</sub> -P	SiO <sub>3</sub> -Si	NO <sub>2</sub> -N	NO <sub>3</sub> -N	NH <sub>4</sub> -N	Depth (m)	T(°C)	S(‰)	σ <sub>t</sub>	ΔD
					(μg-atoms/L)									
0	11.2	34.473	8.24	6.25	0.87	3	0.20	11	0.1	0	11.20	34.473	26.35	0.000
10	11.36	34.506	8.27	6.24	0.87	3	0.24	11	0.2	10	11.36	34.506	26.34	0.017
20	11.40	34.522	8.28	6.24	0.93	3	0.22	10	0.3	20	11.40	34.522	26.35	0.034
30	11.16	34.531	8.28	6.27	0.87	3	0.21	10	0.1	30	11.16	34.531	26.40	0.050
47	11.09	34.533	8.29	6.20	0.91	3	0.21	10	0.1	50	11.09	34.532	26.42	0.083
70	11.07	34.526	8.27	6.18	0.89	3	0.20	11	0.2	75	11.06	34.526	26.41	0.124
95	11.04	34.523	8.27	6.17	0.83	3	0.21	11	0.2	100	11.02	34.517	26.41	0.165
115	10.74	34.499	8.26	6.12	0.89	3	0.18	12	0.5	125	10.18	34.500	26.55	0.205
132	9.74	34.501	8.23	5.97	0.93	4	0.14	15	0.1	150	8.94	34.475	26.74	0.241
172	8.31	34.438	8.21	6.05	1.20	5	0.05	18	0.0	200	8.05	34.424	26.84	0.306
207	8.04	34.424	8.21	5.98	1.24	5	0.05	19	0.1	250	7.94	34.457	26.88	0.368
248	7.95	34.455	8.17	5.70	1.34	6	0.02	20	0.2	300	7.61	34.466	26.93	0.428
330	7.25	34.472	8.12	5.09	1.57	11	0.02	27	0.1	400	5.74	34.334	27.08	0.539
406	5.61	34.321	8.10	5.34	1.75	15	0.00	28	0.0	500	4.55	34.252	27.15	0.640
483	4.68	34.249	8.10	5.55	1.87	16	0.03	29	0.3	600	4.00	34.256	27.22	0.734
647	3.85	34.274	8.08	5.27	2.18	26	0.00	35	0.2	700	3.60	34.275	27.27	0.823
824	3.12	34.275	8.05	5.24	2.02	31	0.02	34	0.4	800	3.20	34.274	27.31	0.907
995	2.78	34.332	8.00	4.89	2.26	44	0.00	37	0.1	1000	2.77	34.334	27.40	1.065
1251	2.56	34.472	7.97	4.35	2.30	61	0.00	36	0.3	1200	2.58	34.442	27.50	1.206
1581	2.66	34.637	7.98	4.24	2.24	68	0.00	35	0.1	1500	2.62	34.600	27.62	1.390
2002	2.60	34.770	8.01	4.67	1.98	64	0.00	35	0.1	2000	2.60	34.770	27.76	1.648
2441	2.35	34.797	8.04	4.83	1.79	68	0.02	27	0.3	2500	2.33	34.800	27.81	1.873
2868	2.17	34.807	8.04	4.83	1.77	73	0.00	31	0.2	3000	2.04	34.799	27.83	2.086
3228	1.78	34.774	8.03	4.89	1.93	90	0.00	31	0.0					

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Oceanographic Data of the 15th JARE 1973-1974

St. 23

Date : March 6, 1974  
 Time(GMT) : 0500-0800  
 (LMT) : 0700-1000  
 Lat. : 39-56S  
 Long. : 14-56E

Meteorological observation

Time(GMT) : 0800 Wind direction : ESE  
 (LMT) : 1000 velocity(kn) : 24  
 Weather : Fine Humidity(%) : 72  
 Air temperature(°C) : 19.0 Sea : /  
 Atm. pressure(mb) : 1023.0 Swell : NE/1

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Observed										Interpolated				
Depth (m)	T(°C)	S(‰)	pH	O <sub>2</sub> (cc/L)	PO <sub>4</sub> -P	SiO <sub>3</sub> -Si	NO <sub>2</sub> -N	NO <sub>3</sub> -N	NH <sub>4</sub> -N	Depth (m)	T(°C)	S(‰)	σ <sub>t</sub>	ΔD
					(μg-atoms/L)									
0	20.1	35.392	8.36	5.13	0.14	3	0.01	0.1	0.3	0	20.10	35.392	25.05	0.000
10	20.09	35.401	8.39	5.16	0.20	2	0.00	0.0	0.5	10	20.09	35.401	25.06	0.029
19	20.10	35.399	8.40	5.13	0.16	2	0.03	0.1	0.2	20	20.11	35.399	25.06	0.058
28	20.11	35.396	8.39	5.20	0.14	2	0.01	0.1	0.3	30	20.07	35.395	25.06	0.087
45	19.35	35.369	8.39	5.23	0.14	2	0.00	0.1	0.3	50	18.84	35.338	25.34	0.143
67	16.99	35.240	8.35	5.31	0.32	2	0.15	0.1	0.5	75	16.45	35.244	25.85	0.204
90	15.66	35.252	8.29	4.88	0.57	4	0.03	6.2	0.1	100	15.20	35.278	26.16	0.255
107	14.86	35.283	8.24	4.24	0.81	8	0.06	11	0.1	125	13.63	35.148	26.40	0.299
125	13.63	35.148	8.29	5.28	0.61	3	0.03	6.4	0.3	150	12.49	34.997	26.51	0.340
154	12.36	34.979	8.29	5.48	0.69	2	0.03	7.7	0.1	200	11.64	34.885	26.59	0.417
191	11.84	34.912	8.28	5.60	0.69	3	0.01	8.4	0.8	250	10.82	34.821	26.69	0.490
223	11.12	34.821	8.27	5.60	0.91	3	0.03	10	0.2	300	10.45	34.822	26.76	0.560
303	10.43	34.822	8.22	5.22	1.07	4	0.01	15	0.4	400	9.12	34.675	26.86	0.692
384	9.26	34.685	8.19	5.18	1.28	6	0.03	18	0.2	500	7.85	34.576	26.98	0.814
460	8.58	34.644	8.16	4.77	1.46	10	0.03	21	0.6	600	6.08	34.420	27.11	0.925
616	5.80	34.397	8.12	5.00	1.61	17	0.00	30	0.1	700	5.39	34.427	27.20	1.025
773	5.19	34.474	8.08	4.43	2.00	33	0.02	30	0.4	800	4.95	34.463	27.28	1.118
941	3.67	34.397	8.03	4.56	2.28	44	0.00	34	0.1	1000	3.41	34.413	27.40	1.283
1190	3.06	34.520	7.99	4.05	2.36	64	0.00	35	0.3	1200	3.05	34.525	27.52	1.425
1464	2.97	34.655	8.01	4.18	2.14	69	0.00	34	0.0	1500	2.94	34.669	27.65	1.606
1851	2.62	34.775	8.07	4.70	1.89	61	0.00	29	0.5	2000	2.57	34.800	27.79	1.854
2237	2.53	34.824	8.10	4.99	1.69	57	0.00	27	0.1	2500	2.44	34.836	27.83	2.069
2632	2.39	34.837	8.10	5.15	1.71	58	0.02	28	0.2	3000	2.29	34.833	27.84	2.282
3039	2.27	34.832	8.11	5.16	1.67	62	0.03	27	0.3					
3470	1.90	34.812	8.09	5.10	1.75	77	0.00	30	0.2					

Masataka HISHIDA and Ikuzi TOKUE

〔南極資料〕