

Oceanographic Data of the 17th Japanese Antarctic Research Expedition 1975-1976

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第17次南極地域観測隊海洋部門報告

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要旨: 第17次南極地域観測において、定常観測(1975-1976)として海上保安庁水路部の担当した海洋観測および潮汐の結果を報告する。

Abstract: This report presents the results of the oceanographic observations, which were carried out by the 17th Japanese Antarctic Research Expedition in 1975-1976.

This report presents the data of the oceanographic observations obtained on board the icebreaker FUJI during the summer mission of the 17th Japanese Antarctic Research Expedition in 1975-1976. The track chart of the cruise is shown in Fig. 1. The locations of the serial (vertical) observation stations, the bathythermograph (BT) observation stations and the expendable bathythermograph (XBT) observation stations in the Southern Ocean are given in Fig. 2.

A tide gauge of pressure type which has a straining gauge was installed in February 1975 and one year record was obtained by this new tide gauge. This report also includes the results of harmonic analysis of the record.

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

Current measurement: Measurements of surface current were made with 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 distributions in the upper layer (down to about 250 m) were surveyed with bathythermograph (BT) at almost the same frequency as the surface observations. The results are given in Table 2.

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XBT observation : The vertical distributions of temperature in the upper layer (down to about 500 m) were investigated at 10 stations in the Southern Ocean along the track from Fremantle to Mauritius through Syowa Station. The results are shown in Fig. 3.

Serial observation : The serial observations were made at 14 stations in the Southern Ocean along the track from Fremantle to Mauritius (Fig. 2). The 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.

Chemical analysis of sea water : The following are the elements and the methods of analysis (or instruments). 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
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

Tidal observation : The tidal observation was made for one year (1975-1976) at Syowa Station, using the pressure type tide gauge (SWL-7). Processing and analysis of the data were carried out at the Hydrographic Department by the electronic computer. The least squares method was employed in the harmonic analysis. Harmonic constants, characteristic of the tide and other details are given in Table 4.

Acknowledgments

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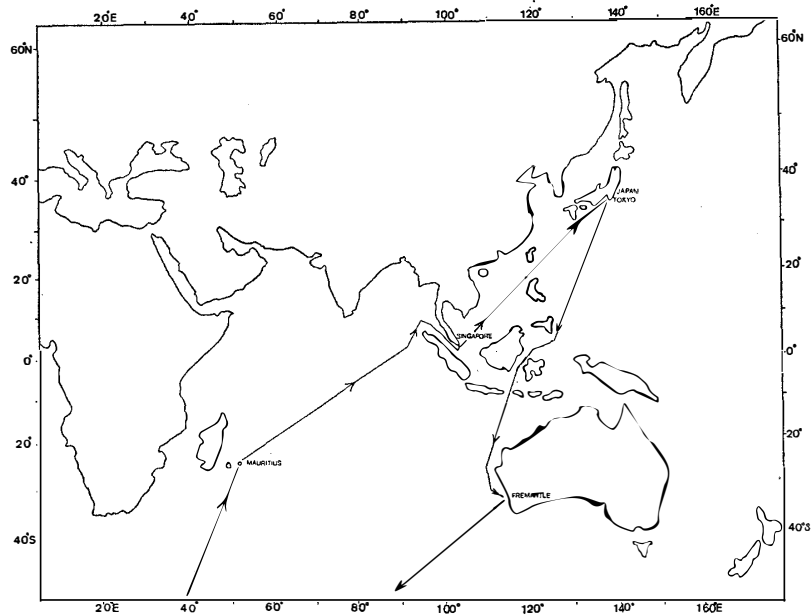


Fig. 1. Track of cruise 1975-1976.

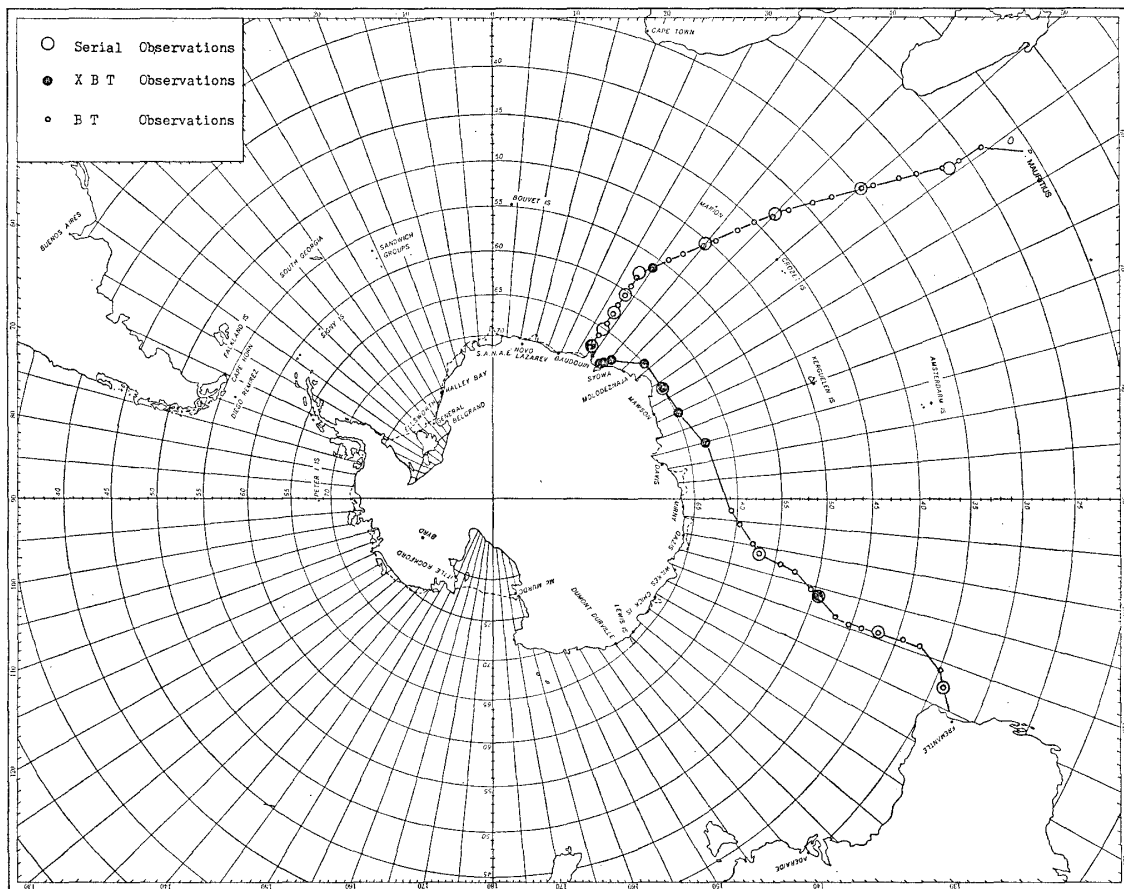
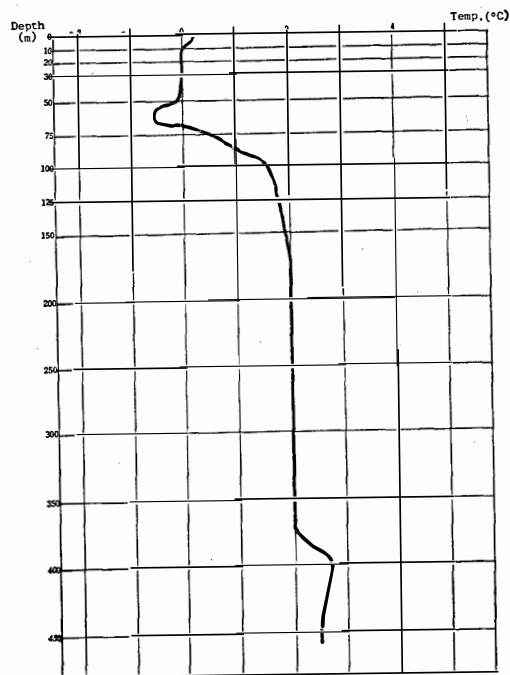
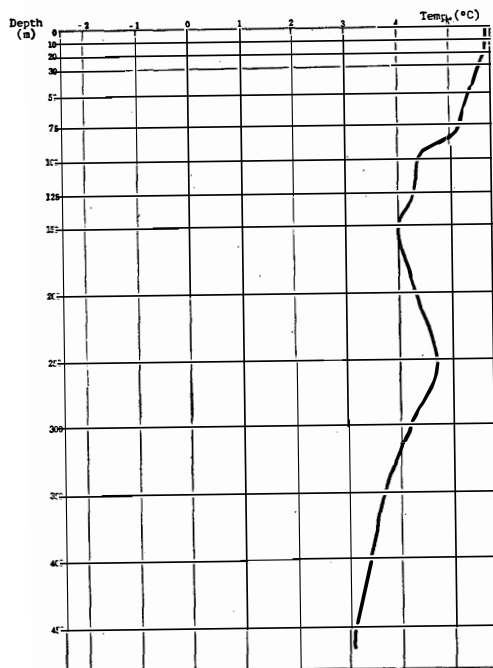


Fig. 2. Track of JARE-17 cruise and oceanographic station.

Location 49°10'S 106°35'E
 Time 02h00m (GMT)
 Date Dec. 21, 1975
 Remarks Water temp. 5.7°C
 Operator N.S. Y.O.
 Serial No. 1

Location 62°47'S 75°39'E
 Time 13h00m (GMT)
 Date Dec. 26, 1975
 Remarks Water temp. 0.2°C
 Operator N.S. Y.O.
 Serial No. 2



Location 64°38'S 65°05'E
 Time 13h00m (GMT)
 Date Dec. 27, 1975
 Remarks Water Temp. 0.6°C
 Operator N.S. Y.O.
 Serial No. 3

Location 64°56'S 58°01'E
 Time 13h00m (GMT)
 Date Dec. 28, 1975
 Remarks Water Temp. -0.4°C
 Operator N.S. Y.O.
 Serial No. 4

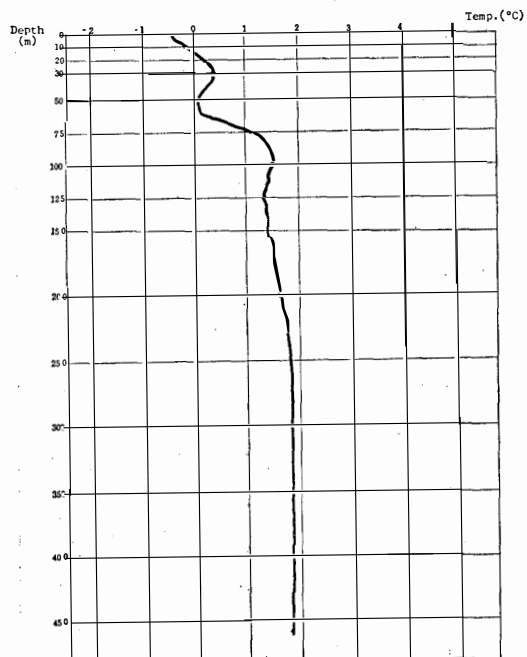
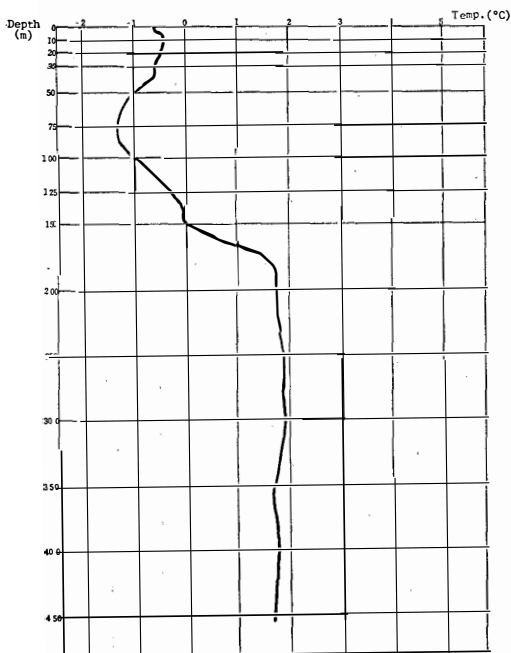
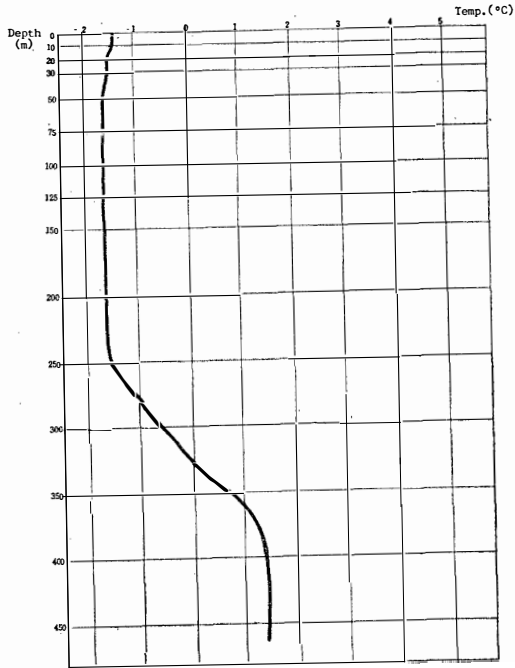
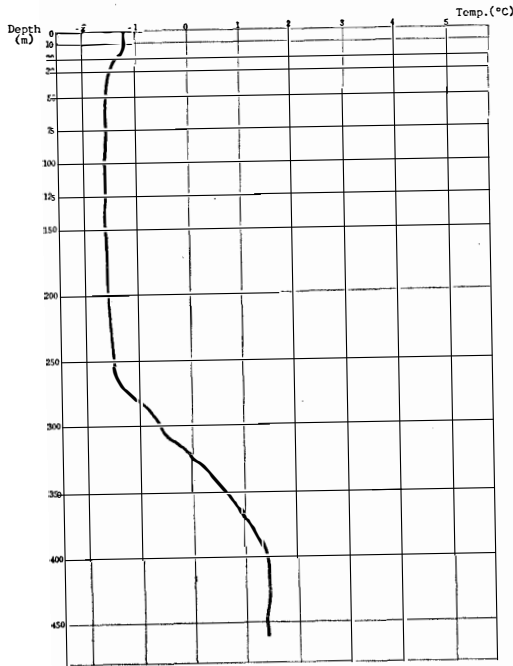


Fig. 3. XBT recorder.

Location 64°57'S, 48°39'E
 Time 16h00m (GMT) Operator N.S.Y.O
 Date Dec.29.1975 Serial No. 5
 Remarks Water Temp. -1.2°C

Location 67°32'S, 40°23'E
 Time 15h00m (GMT) Operator N.S.Y.O
 Date Dec.30.1975 Serial No. 6
 Remarks Water Temp. -1.4°C



Location 68°08'S, 39°56'E
 Time 15h00m (GMT) Operator N.S.Y.O
 Date Dec.31.1975 Serial No. 7
 Remarks Water Temp. -1.4°C

Location 68°25'S, 38°42'E
 Time 15h00m (GMT) Operator N.S.Y.O
 Date Jan. 5.1976 Serial No. 8
 Remarks Water Temp. -1.5°C

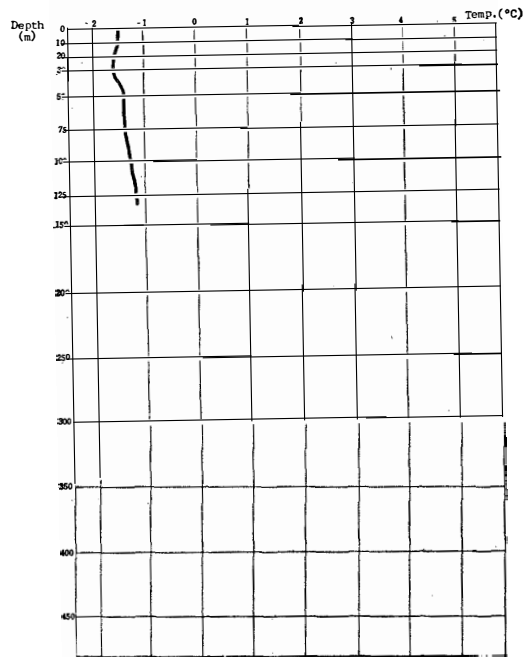
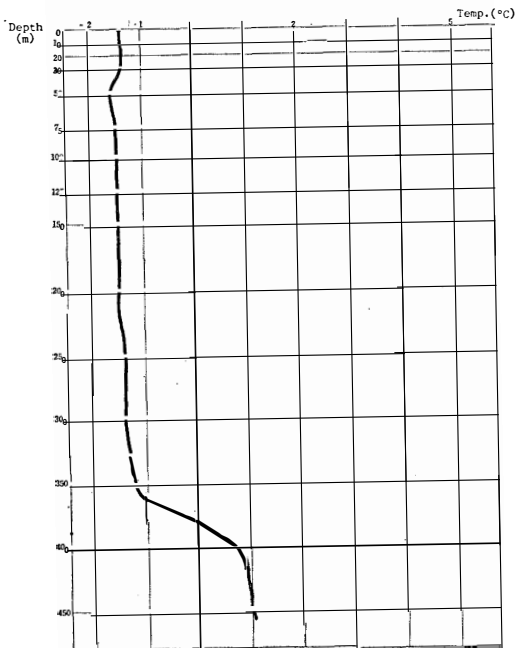


Fig. 3. XBT recorder.

Location 67°30'S. 33°21'E
 Time 15h00m (GMT) Operator N.S. Y.O
 Date Feb. 25. 1976. Serial No. 9
 Remarks Water Temp. -0.2°C

Location 56°45'S. 34°27'E
 Time 15h00m (GMT) Operator N.S. Y.O
 Date Feb. 29. 1976. Serial No. 10
 Remarks WaterTemp. 3.0°C

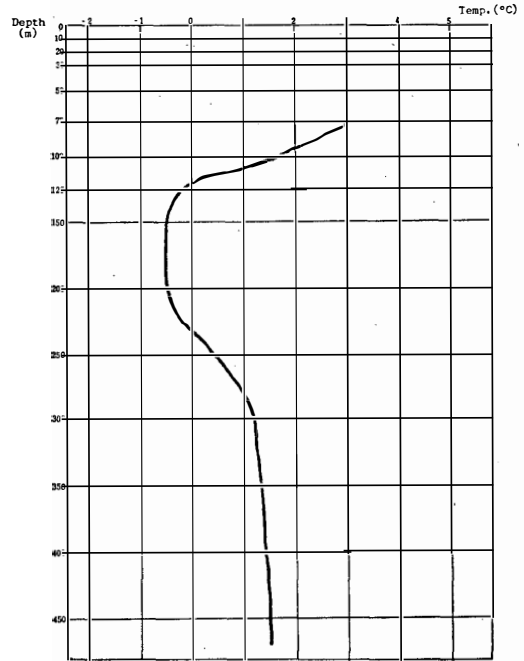
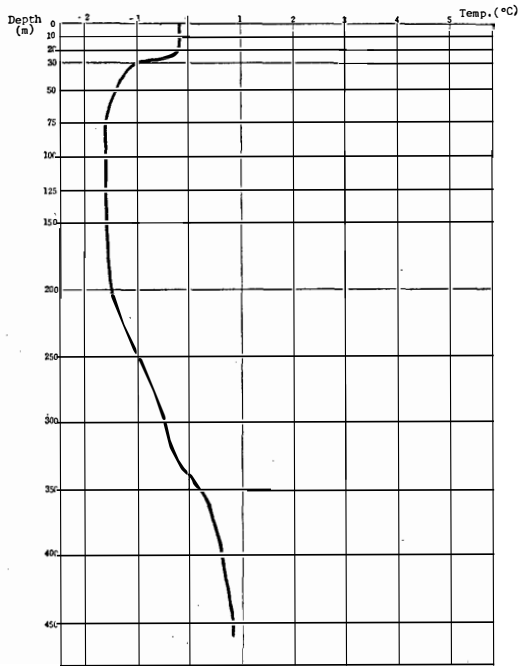


Fig. 3. XBT recorder.

Table 1. Surface observation data.

Date	Time		Position		Air temp.	Water temp.	S	pH	O ₂	Phos- phate- P	Sili- cate- Si	Ni- trite- N	Ni- trate- N	Am- mo- nia-N	Alka- linity meq/L	Current		
	GMT	LMT	Lat.	Long.	°C	‰				cc/L	μg-atoms/L					Dir.	Speed (Kn)	
1975 Nov. 25			Leave	Tokyo														
26	09-00	18-00	30-31 N	137-05E	18.8	23.7	34.432	8.22	4.89	0.06	4	0.10	0.0					
27	23-00*	08-00	27-43	135-41	22.5	23.2	34.505	8.23	4.92	0.06	1	0.02	0.0	0.0				
	09-00	18-00	25-53	134-56	23.3	24.2	34.594	8.26	4.87	0.06	1	0.02	0.0	0.0				
28	23-00*	08-00	23-01	133-43	24.2	25.1	34.530	8.30	4.85	0.02	1	0.02	0.0	0.0				
	09-00	18-00	20-59	132-55	25.4	26.3	34.441	8.31	4.66	0.00	3	0.01	0.0	0.0				
29	23-00*	08-00	18-11	131-56	26.9	27.3	34.461	8.31	4.43	0.02	0	0.01	0.0	0.0				
	08-00	17-00	16-27	131-31	27.2	27.6	34.352	8.35	4.58	0.08	1	0.00	0.0	0.0				
30	23-00*	08-00	13-44	129-36	28.4	28.2	34.432	8.34	4.57	0.04	0	0.00	0.0	0.0				
	08-30	17-30	12-59	128-32	28.2	28.7	34.402	8.33	4.50	0.08	2	0.01	0.0	0.1				
Dec. 1	22-30	07-30	9-13	127-25	28.8	28.8	34.189	8.32	4.46	0.12	1	0.03	0.0	0.5				
	09-00	18-00	6-26	126-33	28.9	28.7	34.320	8.33	4.52	0.08	3	0.01	0.0	0.1				
2	00-00	08-00	3-40	123-37	28.3	28.8	33.967	8.34	4.61	0.08	4	0.01	0.0	0.1				
	10-00	18-00	2-27	121-57	26.5	29.2	34.004	8.35	4.56	0.02	2	0.01	0.0	0.1				
3	00-00	08-00	0-54	119-52	25.8	28.5	33.279	8.35	4.61	0.06	3	0.02	0.0	0.2				
4	00-00	08-00	3-58S	118-28E	25.5	29.1	33.303	8.34	4.53	0.04	4	0.07	0.0	0.0				
	10-00	18-00	6-12	117-37	27.8	29.1	33.739	8.36	4.59	0.04	3	0.03	0.0	0.0				
5	00-00	08-00	9-00	115-38	25.6	29.0	33.395	8.37	4.61	0.06	4	0.03	0.0	0.1				
	10-00	18-00	10-22	114-33	29.1	29.2	34.095	8.36	4.63	0.10	4	0.01	0.0	0.1		323	1.3	
6	00-00	08-00	12-11	112-49	28.0	28.6	33.617	8.36	4.70	0.00	2	0.02	0.0	1.2		161	0.6	
	09-00	17-00	13-44	112-40	27.5	28.1	34.115	8.29	4.66	0.04	2	0.03	0.0	0.1		106	0.5	
7	00-00	08-00	16-06	111-38	26.2	27.9	34.099	8.33	4.66	0.04	3	0.02	0.0	0.2		299	0.8	
	10-00	18-00	17-57	110-29	25.1	27.6	34.301	8.32	4.66	0.14	2	0.04	0.0	0.3		112	0.5	
8	00-00	08-00	20-29	110-47	23.5	24.5	34.697	8.28	4.88	0.18	4	0.01	0.0	0.0		272	0.4	
	10-00	18-00	22-15	111-09	23.4	23.7	34.884	8.31	5.03	0.12	3	0.01	0.0	0.1				
9	00-00	08-00	24-45	111-57	23.9	24.3	34.723	8.26	4.93	0.10	4	0.02	0.0	0.1				

* The time of date of the preceding day.

Date	Time		Position		Air temp.	Water temp.	S	pH	O ₂	Phosphate-P	Sili-cate-Si	Ni-trite-N	Ni-trate-N	Am-mo-nia-N	Alka-linity	Current	
	GMT	LMT	Lat.	Long.	°C	‰										cc/L	μg-atoms/L
Dec. 9	09-00	17-00	26-23S	112-33E	24.3	23.1											
	10-00	18-00	26-33	112-38	23.8	23.1	35.071	8.32	5.04	0.12	4	0.00	0.1	0.0			
10	00-00	08-00	29-11	113-38	21.2	22.2	35.089	8.36	5.10	0.14	1	0.04	0.0	0.0			
	09-30	17-30	30-48	114-31	20.5	21.9											
	10-00	18-00	30-53	114-35	20.5	21.9	35.205	8.35	5.22	0.12	4	0.04	0.2	0.2			
11			Arrive in Fremantle														
16			Leave Fremantle														
	10-00	18-00	32-25S	114-27E	19.3	20.3	35.418	8.34	5.28	0.12	2	0.01	0.1	0.0			
17	01-00	18-00	34-10	111-58	17.1	18.5		8.39	5.54	0.10	2	0.01	0.0	0.0		75	0.5
	06-00	13-00	34-32	111-25	18.5	19.1	35.598	8.40	5.50	0.12	2	0.00	0.1	2.3			
	11-00	18-00	35-15	110-45	16.2	17.3	35.660	8.38	5.55	0.10	2	0.00	0.0	0.2		216	0.6
18	01-00	08-00	38-33	109-02	14.5	14.3	35.331	8.37	5.98	0.33	1	0.06	1.0	0.5		300	0.3
	06-00	13-00	37-40	108-58	14.6	13.7	35.035	8.34	6.16	0.45	0	0.08	4.3	0.4			
	11-00	18-00	39-14	109-00	14.0	13.8	35.113	8.33	6.18	0.39	1	0.08	3.4	0.3		279	0.3
19	01-00	08-00	42-01	109-00	12.7	11.9		8.30	6.22	0.56	8	0.21	7.9	0.1		13	0.3
	06-00	13-00	42-16	109-01	13.2	11.6	34.626	8.34	6.46	0.72	1	0.23	9.0	0.1			
	11-00	18-00	43-04	109-01	12.1	11.1	34.648	8.32	6.51	0.76	3	0.23	9.2	0.4		36	0.3
20	01-00	08-00	45-46	109-12	10.0	8.7	34.274	8.29	6.85	1.00	2	0.26	13.	0.4		41	0.6
	06-00	13-00	46-24	109-04	9.6	8.3	34.205	8.27	6.89	1.05	1	0.25	15.	0.7			
	11-00	18-00	47-06	108-39	9.5	8.3	34.231	8.27	6.85	1.07	1	0.25	14.	0.2		56	0.3
21	01-00	08-00	49-06	106-40	5.9	5.7		8.24	7.22	1.48	5	0.23	19.	0.3		12	0.3
	06-00	13-00	49-32	106-14	6.5	5.5	33.886	8.26	7.32	1.52	2	0.28	14.	0.6			
	11-00	18-00	50-14	105-29	6.0	5.3	33.907	8.27	7.37	1.54	3	0.25	21.	0.1		325	0.8
22	01-00	08-00	52-23	103-04	4.2	4.4	33.906	8.29	7.53	1.52	1	0.27	24.	0.0		56	0.3
	06-00	13-00	53-13	102-38	4.0	3.3	33.922	8.25	7.70	1.58	3	0.30	25.	1.1			
	11-00	18-00	54-11	102-21	6.0	2.4	33.963	8.23	7.89	1.70	13	0.30	21.	1.8		134	0.6
23	01-00	08-00	56-58	101-45	1.7	1.4		8.25	8.16	1.67	32	0.34	26.	0.1		325	0.1

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Date	Time		Position		Air temp.	Water temp.	S	pH	O ₂	Phosphate-P	Silicate-Si	Nitrite-N	Nitrate-N	Ammonia-N	Alkalinity	Current		
	GMT	LMT	Lat.	Long.	°C	‰										cc/L	µg-atoms/L	Dir.
Dec. 23	06-00	13-00	57-15S	101-14E	2.4	1.2	33.957	8.34	8.14	1.80	43	0.34	18.	0.1				
	11-00	18-00	57-51	99-54	2.0	1.2		8.22	8.09	1.78	37	0.30	28.	0.3		149	0.3	
24	02-00	08-00	59-41	95-44	1.2	1.0	33.885	8.27	8.13	1.54	20	0.31	27.	0.8		295	0.1	
	07-00	13-00	60-14	94-27	1.2	1.0	33.962	8.27	8.21	1.44	20	0.31	26.	0.7				
25	12-00	18-00	60-47	92-50	0.5	1.0	33.931	8.27	8.20	1.52	23	0.32	26.	0.3		247	0.6	
	03-00	08-00	62-28	88-29	0.1	-0.2	33.952	8.29	8.17	1.74	60	0.09	23.	0.9				
26	08-00	13-00	62-39	86-14	0.0	-0.3	33.871	8.23	8.20	1.82	61	0.14	26.	0.9				
	13-00	18-00	62-46	83-59	-0.5	-0.8	33.511	8.22	8.03	1.93	58	0.23	31.	0.2				
27	03-00	08-00	62-05	79-48	-0.2	0.0	33.746	8.24	8.03	1.95	43	0.27	29.	0.4				
	08-00	13-00	62-26	77-47	0.0	0.1	33.876	8.25	8.04	1.78	42	0.27	30.	0.2				
28	13-00	18-00	62-47	75-39	-0.5	0.2	33.863	8.23	8.19	1.72	43	0.27	29.	0.0				
	03-00	08-00	63-51	69-31	-0.3	-0.7	33.633	8.22	8.16	1.93	61	0.30	26.	0.0				
29	08-00	13-00	64-12	67-17	-1.0	-1.0	33.617	8.23	8.11	1.97	47	0.31	29.	0.1				
	13-00	18-00	64-38	65-05	-1.1	-0.6	33.690	8.22	8.23	1.87	48	0.27	27.	0.3				
30	04-00	08-00	65-11	60-07	0.4	-1.0		8.20	8.06	1.87	60	0.31	26.	0.0				
	09-00	13-00	65-12	59-53	0.3	-0.6	33.680	8.28	8.24	1.89	68	0.22	27.	0.2				
31	14-00	18-00	64-56	58-01	-1.0	-0.4	33.676	8.28	8.26	1.76	59	0.27	28.	0.1				
	04-00	08-00	64-42	52-05	-1.0	-0.7	33.695	8.26	8.27	1.72	49	0.23	23.	1.1				
1976	09-00	13-00	64-55	50-09	0.0	-0.4	33.695	8.24	8.41	1.89	54	0.23	25.	0.5				
	14-00	18-00	64-57	48-39	0.0	-1.2	33.201	8.27	8.31	1.91	53	0.26	26.	0.5				
Jan. 6	05-00	08-00	66-09	43-02	0.2	-0.9	32.757	8.28	8.31	1.74	55	0.21	22.	1.0				
	10-00	13-00	66-53	41-29		-0.6	32.802	8.30	8.67	1.46	49	0.10	19.	1.1				
11	15-00	18-00	67-32	40-23		-1.4	33.077	8.35	8.68	1.60	59	0.13	22.	0.7				
	15-00	18-00	68-08	39-56		-1.4	31.217	8.39	8.82	2.30	68	0.14	22.					
	15-00	18-00	68-25	38-42														
			Arrive at Ongul Islands															

Date	Time		Position		Air temp.	Water temp.	S	pH	O ₂	Phosphate-P	Silicate-Si	Nitrite-N	Nitrate-N	Ammonia-N	Alkalinity	Current	
	GMT	LMT	Lat.	Long.	°C	‰										cc/L	µg-atoms/L
Feb. 22			Leave Ongul Islands														
24	15-00	18-00	67-39S	36-42E	-0.5	0.4	33.582	8.26	7.92	1.60	49	0.21	25.	0.3			
25	05-00	08-00	67-34	33-25	0.2	-0.4	33.771	8.20	7.91	1.76	62	0.28	25.	0.3			
	15-00	18-00	67-30	33-21	-0.1	-0.2	33.814	8.22	7.96	1.84	64	0.27	29.	0.2			
26	05-00	08-00	66-08	33-41	0.5	0.2	33.884	8.21	7.74	1.70	45	0.27	30.	0.3			
	15-00	18-00	65-03	33-46	1.3	1.0	33.940	8.24	7.68	1.80	48	0.29	28.	0.4	270	0.2	
27	05-00	08-00	63-05	33-34	1.6	1.8	33.808	8.21	7.61	1.74	41	0.69	27.	1.4	213	0.4	
	15-00	18-00	62-21	33-29	2.0	2.1	33.652	8.21	7.55	1.78	47	0.59	28.	1.2	228	0.5	
28	05-00	08-00	60-19	33-32	1.7	2.6	33.720	8.20	7.55	1.68	36	0.51	26.	0.2	—	0.0	
	15-00	18-00	59-36	33-45	2.8	2.8	33.777	8.20	7.57	1.52	19	0.52	24.	0.7	309	0.5	
29	05-00	08-00	57-44	33-45	2.5	2.5	33.845	8.23	8.16	1.54	27	0.50	20.	0.3	297	0.9	
	15-00	18-00	56-45	34-27	4.2	3.0	33.887	8.19	7.54	1.16	21	0.38	22.	0.9			
Mar. 1	05-00	08-00	64-24	36-55	4.0	3.8	33.832	8.22	7.42	1.60	15	0.37	24.	1.2	354	0.6	
	10-00	13-00	53-38	37-39	4.1	4.0	33.790	8.23	7.33	1.42	11	0.39	23.	1.0			
	15-00	18-00	52-50	38-23	5.2	4.4	33.747	8.22	7.30	1.44	11	0.40	22.	0.5	336	0.4	
2	05-00	08-00	50-39	40-19	5.5	4.4	33.763	8.21	7.32	1.52	16	0.41	23.	0.4	115	0.3	
	15-00	18-00	49-33	41-16	5.3	5.3	33.666	8.22	7.20	1.34	6	0.34	19.	1.0	336	0.4	
3	05-00	08-00	46-58	42-33	6.9	8.0	33.743	8.23	6.79	1.34	2	0.23	20.	1.1	155	0.4	
	10-00	13-00	46-23	42-52	7.6	8.4	33.752	8.22	6.74	1.26	1	0.27	15.	1.7			
	15-00	18-00	45-32	43-26	8.0	9.6	33.753	8.23	6.59	1.26	3	0.27	17.	1.6	200	0.1	
4	05-00	08-00	43-03	45-03	8.8	10.2	33.741	8.23	6.54	1.18	5	0.32	17.	0.3	35	0.7	
	15-00	18-00	41-45	45-54	12.0	12.9	33.824	8.25	6.24	0.94	1	0.27	14.	1.6	249	0.3	
5	05-00	08-00	39-14	47-40	17.0	20.1	35.593	8.35	5.19	0.16	3	0.00	0.0	0.8	316	1.0	
	10-00	13-00	38-22	48-15	18.3	21.0	35.625	8.35	5.12	0.14	2	0.02	0.0	0.0			
	15-00	18-00	37-27	48-47	18.0	20.9	35.551	8.30	5.15	0.20	1	0.00	0.0	0.1	327	1.0	
6	05-00	08-00	35-00	50-16	21.0	22.9	35.424	8.30	4.99	0.10	6	0.00	0.0	0.0	252	0.1	
	15-00	18-00	33-42	50-55	23.1	23.9	35.429	8.29	4.90	0.20	1	0.01	0.0	0.5	281	0.9	

No. 60. 1977)

Oceanographic Data of the 17th JARE

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Date	Time		Position		Air temp.	Water temp.	S	pH	O ₂	Phosphate-P	Silicate-Si	Nitrite-N	Nitrate-N	Ammonia-N	Alkalinity	Current	
	GMT	LMT	Lat.	Long.	°C											‰	cc/L
Mar. 7	04-00	08-00	31-26S	51-57E	23.2	25.6	35.333	8.34	4.67	0.14	2	0.00	0.1	0.0		265	0.9
	09-00	13-00	30-35	52-23	24.8	26.1	35.251	8.33	4.66	0.04	1	0.01	0.0	0.0			
	14-00	18-00	29-43	52-49	25.0	26.5	35.380	8.33	4.70	0.01	1	0.02	0.0	0.0		51	0.2
8	04-00	08-00	27-19	54-02	25.2	27.3	35.229	8.32	4.77	0.08	7	0.03	0.0	0.1		11	0.4
	14-00	18-00	26-12	54-11	26.8	27.7	35.354	8.31	4.58	0.14	1	0.02	0.0	0.0		45	0.4
9	04-00	08-00	23-31	54-14	26.7	27.5	35.360	8.34	4.68	0.16	1	0.01	0.0	0.2		250	1.0
	09-00	13-00	22-49	54-50		27.7	35.398	8.34	4.55	0.08	2	0.00	0.0	0.2			
	14-00	18-00	22-05	55-31		28.5	35.155	8.32	4.59	0.02	3	0.02	0.0	0.1			
10			Arrive at Mauritius														
17			Leave Mauritius														
	14-00	18-00	19-07S	59-44E	27.6	27.6		8.35	4.74	0.06	0	0.00	0.0	0.9			
18	04-00	08-00	17-44	60-53	27.0	27.3		8.36	4.66	0.10	1	0.01	0.0	0.1			
	14-00	18-00	16-24	62-15	27.8	28.5		8.34	4.48	0.18	1	0.02	0.0	0.0			
19	04-00	08-00	14-48	64-10	28.1	28.7		8.33	4.57	0.18	1	0.01	0.0	0.3			
	14-00	18-00	13-52	65-24	28.0	28.3		8.35	4.56	0.12	2	0.06	0.0	0.2			
20	03-00	08-00	11-28	65-52	26.2	28.3		8.34	4.70	0.20	0	0.05	0.1	0.3			
	13-00	18-00	10-36	67-18	25.5	28.5		8.36	4.68	0.10	3	0.03	0.0	0.0			
21	03-00	08-00	9-14	69-37	27.0	28.8		8.35	4.56	0.20	1	0.02	0.0	0.5			
	13-00	18-00	9-00	71-40	28.5	28.7		8.32	4.68	0.24	1	0.02	0.0	0.1			
22	03-00	08-00	7-16	72-50	28.0	27.8		8.38	4.66	0.22	1	0.03	0.0	0.4			
	13-00	18-00	6-23	74-14	27.9	28.5		8.35	4.80	0.20	1	0.01	0.0	0.2			
23	03-00	08-00	5-04	76-14	28.8	28.5		8.36	4.60	0.18	2	0.02	0.0	0.1			
	13-00	18-00	4-05	78-20	28.7	28.7		8.34	4.64	0.20	4	0.05	0.0	0.0			
24	03-00	08-00	2-30	80-55	28.8	28.4		8.33	4.60	0.18	0	0.00	0.0	0.0			
	13-00	18-00	1-23	82-54	28.2	28.7		8.35	4.64	0.18	3	0.06	0.0	0.0			
25	02-00	08-00	0-08N	85-22E	27.8	28.7		8.37	4.53	0.16	3	0.03	0.0	0.0			
	12-00	18-00	1-04	87-08	28.3	29.1		8.37	4.61	0.18	3	0.02	0.0	0.0			

Date	Time		Position		Air temp.	Water temp.	S	pH	O ₂	Phosphate-P	Silicate-Si	Nitrite-N	Nitrate-N	Ammonia-N	Alkalinity	Current	
	GMT	LMT	Lat.	Long.	°C	‰				cc/L	µg-atoms/L					meq/L	Dir.
Mar. 26	02-00	08-00	2-23N	89-32E	28.2	29.2		8.36	4.66	0.20	1	0.00	0.0	0.3			
	12-00	18-00	3-28	91-05	28.1	29.3		8.37	4.60	0.14	3	0.02	0.0	0.0			
27	02-00	08-00	5-03	93-17	28.4	28.8		8.36	4.56	0.12	0	0.01	0.0	0.2			
	12-00	18-00	6-09	94-54	28.4	29.3		8.36	4.77	0.06	3	0.04	0.0	0.1			
28	01-00	08-00	6-03	97-26	28.4	29.3		8.36	4.56	0.06	5	0.03	0.0	0.0			
	11-00	18-00	5-08	98-29	28.6	29.9		8.38	4.72	0.08	4	0.06	0.0	0.2			
29	01-00	08-00	3-45	100-13	27.6	29.1		8.35	4.61	0.16	11	0.03	0.0	0.2			
	11-00	18-00	2-44	101-11	27.3	28.9		8.33	4.70	0.16	9	0.08	0.0				
30	00-00	08-00	1-36	102-51	26.6	28.6		8.35	4.52	0.28	13	0.17	0.0	0.2			
31	Arrive in Singapore																
Apr. 7	Leave Singapore																
8	11-00	18-00	2-21N	105-06E	28.1	29.2		8.35	4.77	0.02	4	0.03	0.0	0.2			
	00-00	08-00	5-15	106-51	27.6	27.9		8.38	4.71	0.08	3	0.03	0.0	0.0			
9	10-00	18-00	7-26	108-15	28.0	28.8		8.36	4.69	0.08	3	0.03	0.0	0.0			
	00-00	08-00	10-08	110-42	27.5	28.0		8.39	4.70	0.00	1	0.02	0.0	0.1			
10	10-00	18-00	11-47	112-30	27.8	28.9		8.37	4.64	0.06	3	0.01	0.0	0.0			
	00-00	08-00	14-14	115-11	27.2	27.8		8.38	4.72	0.06	2	0.01	0.0	0.1			
11	10-00	18-00	16-11	116-55	27.1	28.5		8.38	4.73	0.10	2	0.01	0.0	0.0			
	00-00	08-00	18-52	119-24	26.0	25.6		8.41	4.86	0.10	2	0.03	0.0	0.1			
12	10-00	18-00	20-21	120-47	24.6	25.1		8.43	4.87	0.20	1	0.00	0.0	0.2			
	00-00	08-00	22-26	122-29	23.8	23.5		8.42	5.00	0.06	1	0.04	0.1	0.3			
13	10-00	18-00	24-13	123-23	23.6	24.3		8.44	4.97	0.06	1	0.03	0.0	0.0		46	0.3
	23-00*	08-00	26-01	125-16	23.8	24.5		8.42	4.91	0.12	1	0.00	0.0	0.0		61	1.3
14	09-00	18-00	27-04	126-45	23.9	24.4		8.43	5.14	0.06	1	0.02	0.0	0.0		87	0.2
	23-00*	08-00	28-28	128-52	21.5	21.8										2	0.2
15	09-00	18-00	29-25	130-13	18.8	21.9										152	1.5
	23-00*	08-00	31-15	131-51	17.5	21.3										34	1.4
19	09-00	18-00	32-39	133-11	18.3	20.3										122	0.4
	Arrive in Tokyo																

* 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	26	Nov.	1975	09-00	18-00	30-31N	137-05E	23.7	23.7	23.7	23.7	23.7	23.7	23.7	22.6	21.7	19.9	18.7
2	27			23-00*	08-00	27-43	135-41	23.2	23.2	23.2	23.2	23.2	23.2	22.9	21.5	20.4	18.8	17.6
3	27			09-00	18-00	25-53	134-56	24.2	24.2	24.2	24.2	24.2	24.2	20.9	19.3	18.4	17.7	17.1
4	28			23-00*	08-00	23-01	133-43	25.1	25.1	25.1	25.1	24.7	24.5	23.2	21.7	20.3	18.4	
5	28			09-00	18-00	20-59	132-55	26.3	26.3	26.3	26.3	26.3	25.2	24.2	23.0	22.3	19.6	18.0
6	29			23-00*	08-00	18-11	131-56	27.3	27.3	27.3	27.3	27.3	27.3	27.3	25.8	24.9	22.1	19.4
7	29			08-00	17-00	16-27	131-31	27.6	27.6	27.6	27.6	27.6	27.6	27.4	25.5	24.3	20.9	18.3
8	30			23-00*	08-00	13-44	129-36	28.2	28.2	28.2	28.2	28.2	28.2	28.2	27.2	26.1	20.6	17.1
9	30			08-30	17-30	12-59	128-32	28.7	28.7	28.5	28.5	28.5	28.4	27.2	26.3	24.3	18.1	13.7
10	1	Dec.	1975	22-30*	07-30	9-13	127-25	28.8	28.8	28.8	28.8	28.8	27.9	26.2	24.3	22.1	15.9	11.7
11	5			10-00	18-00	10-22S	114-34E	29.2	29.2	29.2	27.9	26.9	25.4	23.7	21.4	19.2	15.4	13.1
12	6			00-00	08-00	12-11	112-49	28.6	28.6	28.6	28.6	27.5	25.9	24.9	23.1	20.6	16.9	13.5
13	6			09-00	17-00	13-44	112-40	28.1	28.1	28.1	28.1	26.5	24.9	24.2	22.1	20.5	16.4	12.9
14	7			00-00	08-00	16-06	111-38	27.9	27.9	27.9	27.9	26.3	25.3	23.6	22.3	20.1	18.0	14.7
15	7			10-00	18-00	17-57	110-29	27.6	27.6	27.6	27.6	27.6	25.6	24.2	23.1	21.9	19.0	16.5
16	8			00-00	08-00	20-29	110-47	24.5	24.5	24.5	24.5	22.5	21.8	20.7	19.8	18.6	16.8	15.2
17	8			10-00	18-00	22-15	111-09	23.7	23.7	23.6	23.2	23.2	21.6	20.9	20.1	19.6	18.2	16.6
18	9			00-00	08-00	24-45	111-57	24.3	24.3	24.3	24.3	23.8	22.1	21.5	20.8	20.1	18.8	17.7
19	9			09-00	17-00	26-23	112-33	23.1	22.8	22.3	22.3	22.3	22.2	21.7	21.1			
20	10			00-00	08-00	29-11	113-38	22.2	22.2	22.0	21.9	21.1	20.6	19.7	18.9	18.4	17.8	16.7
21	10			09-30	17-30	30-48	114-31	21.9	21.9	21.1	20.8	20.3	19.4	18.8	18.5	18.0		
22	17			01-00	08-00	34-10	111-58	18.5	18.4	18.4	18.4	16.9	16.0	15.6	14.6	14.0	12.8	
23	17			11-00	18-00	35-15	110-45	17.3	17.3	17.2	17.0	16.9	16.4	15.9	15.3	15.2	14.3	
24	18			01-00	08-00	37-33	109-02	14.3	14.3	14.3	14.3	13.8	13.3	12.1	11.6	11.3	10.9	
25	18			11-00	18-00	39-14	109-00	13.8	13.5	13.5	13.5	13.5	13.1	12.4	11.9	11.8	11.3	
26	19			01-00	08-00	42-01	109-00	11.9	11.7	11.6	11.6	11.5	11.4	10.9	10.6	10.3	10.1	9.9
27	19			11-00	18-00	43-04	109-01	11.1	11.1	11.1	10.8	10.7	10.6	10.9	9.7	9.7	9.9	9.9

* The time of the date preceding day.

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
28	20	Dec.	1975	01-00	08-00	45-46S	109-12E	8.7	8.7	8.7	8.7	8.1	8.1	7.8	7.6	7.7	7.6	
29	20			11-00	18-00	47-06	108-39	8.3	8.3	8.3	8.3	8.3	8.3	8.3	7.7	8.3		
30	21			01-00	08-00	49-06	106-40	5.7	5.4	5.4	5.3	5.3	4.3	4.1	4.1	3.6		
31	21			11-00	18-00	50-14	105-29	5.3	5.2	5.1	5.1	4.9	3.9	3.3	3.3	3.3		
32	22			01-00	08-00	52-23	103-04	4.4	—	—	—	4.7	3.6	3.5	3.5	3.1	3.3	
33	22			11-00	18-00	54-11	102-21	2.4	2.4	2.2	2.0	2.0	1.0	0.8	0.8	1.4		
34	23			01-00	08-00	56-58	101-45	1.4	1.4	1.3	1.0	1.0	-0.4	0.1	1.1	1.7	2.1	
35	23			11-00	18-00	57-51	99-54	1.2	1.1	0.8	0.8	0.8	-0.5	0.0	1.4	1.7		
36	24			02-00	08-00	59-41	95-44	1.0	1.2	1.2	1.2	1.2	0.7	0.2	0.1	0.1	1.2	1.9
37	24			12-00	18-00	60-47	92-50	1.0	1.0	1.1	1.1	1.1	0.2	0.1	0.1	0.1	0.7	1.8
38	25	Feb.	1976	05-00	08-00	67-34	33-25	-0.4	-0.4	-0.4	-0.7	-1.2	-1.2	-1.2	-1.0	-1.0	-0.5	0.1
39	26			05-00	08-00	66-08	33-41	0.2	0.2	0.2	0.3	0.3	-0.8	-1.3	-1.4	-1.1	-0.8	-0.7
40	26			15-00	18-00	65-03	33-46	1.0										
41	27			05-00	08-00	63-05	33-34	1.8	1.9	1.9	1.9	2.0	-0.6	-0.9	-0.9	-0.8	0.5	1.9
42	27			15-00	18-00	62-21	33-29	2.1										
43	28			05-00	08-00	60-19	33-32	2.6	2.6	2.6	2.6	-0.1	-0.4	-0.5	-0.4	0.1	2.0	
44	28			15-00	18-00	59-36	33-45	2.8	2.8	2.7	2.7	-0.4	-0.4	-0.4	-0.2			
45	29			05-00	08-00	57-44	33-45	2.5	2.5	2.5	2.5	2.5	0.1	-0.2	-0.2	0.4	1.6	
46	1	Mar.	1976	05-00	08-00	54-24	36-55	3.8	3.8	3.8	3.8	3.8	3.8	1.6	1.0	1.0		
47	1			15-00	18-00	52-50	38-23	4.4	4.4	4.4	4.4	4.4	4.4	2.3	1.7	2.8		
48	2			05-00	08-00	50-39	40-19	4.4	4.4	4.4	4.4	4.4	4.4	2.7	1.6	2.2		
49	2			15-00	18-00	49-33	41-16	5.3	5.3	5.3	5.3	5.1	4.6	3.7				
50	3			05-00	08-00	46-58	42-33	8.0	8.0	8.0	8.0	8.0	6.1	5.8	5.3	5.3	5.3	4.7
51	3			15-00	18-00	45-32	43-26	9.6	9.5	9.5	9.5	8.3	7.2	6.3	5.3	5.2		
52	4			05-00	08-00	43-06	45-03	10.2	10.2	10.2	9.7	7.7	6.4	5.6	4.7	4.3	4.5	4.5
53	4			15-00	18-00	41-45	45-54	12.9	12.9	12.3	11.5	10.1	8.4	7.6	7.4	7.3	6.7	
54	5			05-00	08-00	39-14	47-40	20.1	20.1	20.1	19.9	19.3	19.3	19.1	18.5	17.8	17.1	16.6

St. No.	Date			Time		Position		Temperature (°C) at indicated depth (m)										
	Day	Month	Year	GMT	LMT	Lat.	Long.	0	10	20	30	50	75	110	125	150	200	250
55	5	Mar.	1976	15-00	18-00	37-27S	48-47E	20.9	20.9	20.4	20.4	19.0	16.8	15.9	15.4	15.4	14.8	14.6
56	6			05-00	08-00	35-00	50-16	22.9	22.9	22.9	21.8	18.5	17.5	16.3	15.7	15.2	15.1	
57	6			15-00	18-00	33-42	50-55	23.9	23.9	21.7	21.2	20.0	17.0	15.7	15.2	15.1	14.6	14.3
58	7			04-00	08-00	31-26	51-57	25.6	25.6	23.7	22.5	20.1	17.6	16.3	15.7	15.3	14.8	14.2
59	7			14-00	18-00	29-43	52-49	26.5	26.5	26.5	26.0	21.7	18.4	17.0	16.4	15.9	15.4	14.8
60	8			04-00	08-00	27-19	54-02	27.3	27.3	27.3	26.2	22.0	18.7	17.8	16.7	16.1	15.1	14.4
61	8			14-00	18-00	26-12	54-11	27.7	27.7	27.7	27.4	22.4	19.4	18.3	17.3	16.9	16.5	15.3
62	9			04-00	08-00	23-31	54-14	27.5	27.5	27.5	27.5	27.2	23.6	22.2	21.7	21.1	19.8	17.8
63	17			14-00	18-00	19-07	59-44	27.6	27.6	27.6	27.6	26.5	24.2	22.9	22.0	21.8	20.4	17.6
64	18			04-00	08-00	17-44	60-53	27.3	27.3	27.3	27.3	26.4	23.7	22.3	21.5	21.0	19.9	18.1
65	18			14-00	18-00	16-24	62-15	28.5	28.2	28.1	28.1	24.7	20.6	18.3	16.7	16.5	16.0	14.9
66	19			04-00	08-00	14-48	64-10	28.7	28.7	28.7	28.7	26.2	21.7	19.9	18.7	18.2	15.9	13.1
67	19			14-00	18-00	13-52	65-24	28.3	28.3	28.3	28.3	23.3	21.1	19.7	18.6	16.4	13.6	
68	20			03-00	08-00	11-28	65-52	28.3	28.3	22.3	17.8	16.2	15.4	14.5	14.0	13.8	12.7	12.9
69	20			13-00	18-00	10-36	67-18	28.5	28.5	28.5	28.5	24.1	21.3	19.8	18.0	15.5	13.7	12.6
70	21			03-00	08-00	9-14	69-37	28.8	28.8	28.8	26.6	20.5	16.8	14.3	13.8	13.2	12.2	11.5
71	21			13-00	18-00	9-00	71-40	28.7	28.7	24.0	21.2	18.2	16.8	15.1	13.5	12.9	12.3	
72	22			03-00	08-00	7-16	72-50	27.8	27.8	27.8	26.7	20.8	17.8	16.4	15.5	14.5	12.5	11.7
73	22			13-00	18-00	6-23	74-14	28.5	28.4	28.3	27.7	18.5	17.7	16.2	15.2	14.6		
74	23			03-00	08-00	5-04	76-14	28.5	28.5	28.5	28.5	26.6	20.5	18.8	17.7	16.3	14.5	12.7
75	23			13-00	18-00	4-05	78-20	28.7	28.7	28.7	28.7	27.3	22.8	20.1	18.2	17.0	13.9	12.1
76	24			03-00	08-00	2-30	80-55	28.4	28.4	28.4	27.8	26.7	23.1	20.0	16.7	14.9	12.8	11.9
77	24			13-00	18-00	1-23	82-54	28.7	28.7	28.7	28.7	28.7	25.4	20.0	16.7	14.5	12.8	11.7
78	25			02-00	08-00	0-08N	85-22E	28.7	28.7	28.7	28.7	28.7	25.2	20.5	17.5	15.0	13.6	12.2
79	25			12-00	18-00	1-04	87-08	29.1	29.1	29.1	29.0	28.3	24.3	18.5	15.3	14.0	13.2	12.1
80	26			02-00	08-00	2-23	89-32	29.2	29.2	29.2	28.7	28.6	26.7	21.4	17.5	15.3	13.6	12.7
81	26			12-00	18-00	3-28	91-05	29.3	29.3	28.7	28.5	28.2	27.4	25.0	18.2	15.7	13.2	12.1

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
82	27	Mar.	1976	02-00	08-00	5-03N	93-17E	28.8	28.8	28.8	28.7	27.9	22.8	19.7	17.8	16.6	14.4	12.1
83	27			12-00	18-00	6-09	94-54	29.3	29.3	28.7	28.2	28.2	28.5	24.0	17.3	15.5	13.2	12.1
84	28			01-00	08-00	6-03	97-26	29.3	29.0	28.7	28.2	26.7	23.9	18.4	16.2	14.3	12.4	11.9
85	12	Apr.	1976	09-00	17-00	24-13	123-23	24.3	24.2	24.2	24.2	24.2	24.2	22.8	21.7	20.7	20.5	18.7
86	13			22-30*	07-30	26-01	125-16	24.5	24.5	24.2	24.0	23.4	22.7	22.1	20.9	20.0	18.1	
87	13			08-30	17-30	27-04	126-45	24.4	24.2	23.7	23.5	23.0	22.5	22.4	21.9	21.1	20.0	18.7
88	14			23-00*	08-00	28-28	128-52	21.8	21.8	21.5	21.3	21.3	21.3	21.3	21.3	21.3	20.3	
89	14			08-30	17-30	29-25	130-13	21.9	21.9	21.7	21.6	21.1	20.8	20.8	20.8	20.4	19.6	17.6
90	15			23-00*	08-00	31-15	131-51	21.3	21.3	21.3	21.3	21.3	21.0	20.7	20.4	20.1	17.9	14.5

* The time of the data of the preceding day.

Table 3. Vertical observation data.

St. 1

Date : Dec. 17, 1975
 Time (GMT) : 0145-0250
 (LMT) : 0845-0950
 Lat. : 34-16 S
 Long. : 115-53 E

Meteorological observation

Time (GMT) : 02-00
 (LMT) : 09-00
 Weather : bc
 Air temp. : 18.0°C
 Atm. press. : 1023.2 mb
 Wind Dir. : WSW
 Vel. : 18 m/s
 Humidity : 69 %
 Sea : 3
 Swell : WSW-3

Observed											Interpolated				
Depth (m)	T (°C)	S (‰)	pH	O ₂ (cc/L)	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	NH ₄ -N	Alkalinity	Depth (m)	T (°C)	S (‰)	σ _t	ΔD
					(μg-atoms/L)					(meq/L)					
0	18.50	35.659	8.39	5.54	0.10	2	0.00	0.0	0.0		0	18.50	35.659	25.67	0.000
9	18.69	35.669	8.40	5.56	0.10	1	0.14	0.2	0.2		10	18.69	35.669	25.63	0.024
18	18.64	35.670	8.42	5.51	0.10	3	0.10	0.1	0.1		20	18.64	35.670	25.64	0.047
27	18.67	35.668	8.40	5.43	0.12	2	0.00	0.0	0.0		30	18.72	35.668	25.62	0.071
45	18.64	35.663	8.40	5.45	0.08	1	0.09	0.2	0.0		50	18.21	35.657	25.74	0.118
68	16.50	35.634	8.41	5.61	0.10	1	0.01	0.0	0.3		75	16.23	35.633	26.20	0.169
90	15.88	35.625	8.40	5.60	0.14	0	0.07	0.1	1.8		100	15.59	35.603	26.32	0.214
111	15.25	35.567	8.39	5.43	0.23	0	0.10	1.0	0.7		125	14.73	35.505	26.44	0.256
130	14.54	35.481	8.38	5.45	0.29	0	0.03	2.0	0.0		150	13.87	35.409	26.55	0.296
167	13.36	35.346	8.36	5.52	0.37	0	0.10	3.4	0.1		200	12.48	35.176	26.65	0.371
207	12.30	35.140	8.34	5.65	0.45	2	0.15	6.9	0.1		250	11.17	34.996	26.76	0.441
250	11.17	34.996	8.31	5.63	0.59	2	0.01	11.	0.0		300	10.17	34.842	26.82	0.507
340	9.56	34.743	8.27	5.63	0.96	5	0.00	16.	0.0		400	8.91	34.664	26.89	0.635
430	8.65	34.638	8.26	5.42	1.11	6	0.03	17.	0.1		500	8.01	34.562	26.95	0.758
520	7.82	34.542	—	5.23	1.29	10	0.02	21.	0.1		600	6.70	34.467	27.06	0.873
700	5.28	34.404	8.15	4.69	1.80	31	0.00	24.	0.0		700	5.28	34.404	27.19	0.976
870	3.82	34.413	—	—	—	—	—	—	—		800	4.31	34.398	27.30	1.068
1040	3.26	34.468	8.08	3.95	2.19	64	0.00	26.	0.0		1000	3.34	34.453	27.44	1.227
1300	2.84	34.562	8.06	3.76	2.23	77	0.00	—	0.1		1200	2.96	34.526	27.53	1.363
1745	2.44	34.685	8.07	3.77	2.19	101	0.00	25.	0.0		1500	2.61	34.623	27.64	1.542

St. 2

Date : Dec. 19, 1975
 Time (GMT) : 0100-0500
 (LMT) : 0800-1200
 Lat. : 42-05 S
 Long. : 109-01 E

Meteorological observation

Time (GMT) : 03-00
 (LMT) : 10-00
 Weather : b
 Air temp. : 12.8°C
 Atm. press. : 1017.0 mb
 Wind Dir. : NNW
 Vel. : 9 m/s
 Humidity : 78 %
 Sea : 3
 Swell : SW-1

Depth (m)	Observed										Interpolated				
	T (°C)	S (‰)	pH	O ₂ (cc/L)	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	NH ₄ -N	Alkalinity (meq/L)	Depth (m)	T (°C)	S (‰)	σ_t	ΔD
					(μ g-atoms/L)										
0	11.60	34.752	8.30	6.22	0.56	8	0.21	7.9	0.1		0	11.60	34.752	26.49	0.000
9	11.92	34.769	8.32	6.40	0.61	5	0.25	8.1	0.0		10	11.94	34.769	26.44	0.016
18	12.02	34.768	8.34	6.33	0.52	8	0.21	9.4	0.2		20	11.99	34.767	26.43	0.032
28	11.84	34.761	8.34	6.31	0.54	5	0.13	9.2	0.0		30	11.81	34.759	26.46	0.048
46	11.63	34.745	8.33	6.33	0.65	5	0.22	6.9	0.1		50	11.62	34.744	26.48	0.079
69	11.56	34.744	8.33	6.20	0.61	4	0.21	9.7	0.4		75	11.52	34.737	26.50	0.119
91	11.30	34.742	8.32	6.20	0.71	5	0.28	6.9	0.7		100	11.02	34.799	26.64	0.156
113	10.63	34.877	8.33	6.07	0.71	7	0.36	9.0	0.2		125	10.51	34.872	26.78	0.190
135	10.48	34.850	8.33	6.08	0.78	4	0.09	10.0	0.1		150	10.41	34.840	26.78	0.223
179	10.30	34.826	8.31	6.12	0.73	3	0.03	9.7	0.0		200	10.19	34.805	26.79	0.289
222	10.09	34.788	8.31	6.14	0.80	5	0.00	11.	0.0		250	10.09	34.795	26.80	0.354
266	10.10	34.802	8.31	6.07	0.78	4	0.00	11.	0.1		300	9.98	34.787	26.81	0.420
355	9.71	34.750	8.29	5.89	0.94	5	0.00	13.	0.0		400	9.57	34.737	26.84	0.551
443	9.45	34.725	8.27	5.83	1.01	3	0.00	14.	0.3		500	9.28	34.700	26.86	0.681
531	9.17	34.685	8.26	5.78	1.04	3	0.00	17.	0.0		600	8.87	34.647	26.88	0.811
706	8.18	34.577	8.23	5.55	1.36	8	0.00	17.	0.0		700	8.23	34.581	26.93	0.939
885	6.19	34.422	8.15	4.76	1.83	22	0.00	25.	0.4		800	7.18	34.494	27.02	1.060
1075	4.32	34.336	8.10	4.80	1.99	35	0.00	27.	0.0		1000	4.99	34.358	27.19	1.278
1352	3.15	34.418	8.07	4.26	2.20	63	0.00	28.	0.1		1200	3.64	34.357	27.33	1.462
1804	2.65	34.595	8.06	3.89	2.30	86	0.00	29.	0.1		1500	2.88	34.477	27.50	1.692
2255	2.33	34.697	8.07	4.13	2.15	97	0.00	30.	0.4		2000	2.50	34.748	27.67	2.000
2713	1.99	34.734	8.08	4.52	2.15	103	0.00	26.	0.1		2500	2.16	34.724	27.76	2.253
3181	1.50	34.727	8.05	4.71	2.13	113	0.03	29.	0.1		3000	1.69	34.733	27.80	2.475
3657	1.06	34.705	8.09	4.83	2.18	130	0.00	32.	0.0		3500	1.20	34.714	27.82	2.672

No. 60. 1977

Oceanographic Data of the 17th JARE

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St. 3

Date : Dec. 21, 1975
 Time (GMT) : 0130-0330
 (LMT) : 0830-1030
 Lat. : 49-10 S
 Long. : 106-35 E

Meteorological observation

Time (GMT) : 02-00
 (LMT) : 09-00
 Weather : bc
 Air temp. : 6.3°C
 Atm. press. : 1006.8 mb
 Wind Dir. : WSW
 Vel. : 7 m/s
 Humidity : 81 %
 Sea : 3
 Swell : W-3

Observed											Interpolated				
Depth (m)	T (°C)	S (‰)	pH	O ₂ (cc/L)	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	NH ₄ -N	Alkalinity	Depth (m)	T (°C)	S (‰)	σ _t	ΔD
					(μg-atoms/L)					(meq/L)					
0	5.60	33.932	8.24	7.22	1.48	5	0.23	19.	0.3		0	5.60	33.932	26.78	0.000
8	5.55	33.929	8.26	7.27	1.48	5	0.27	18.	0.1		10	5.54	33.929	26.79	0.013
18	5.51	33.927	8.28	7.27	1.50	5	0.22	16.	0.2		20	5.48	33.926	26.79	0.025
26	5.41	33.924	8.29	7.24	1.46	5	0.19	20.	0.3		30	5.42	33.925	26.80	0.038
44	5.46	33.929	8.27	7.24	1.52	4	0.21	17.	0.3		50	5.39	33.929	26.80	0.063
65	5.11	33.929	8.29	7.29	1.48	4	0.21	19.	0.3		75	4.84	33.925	26.87	0.094
84	4.59	33.931	8.27	7.27	1.60	5	0.23	19.	0.1		100	4.29	34.000	26.98	0.123
103	4.25	34.014	8.25	6.92	1.78	10	0.25	22.	0.0		125	4.15	34.038	27.03	0.150
124	4.15	34.038	8.24	6.76	1.78	11	0.01	22.	0.0		150	4.08	34.057	27.05	0.176
164	4.09	34.073	8.23	6.53	1.74	13	0.01	23.	0.0		200	4.33	34.175	27.12	0.226
204	4.36	34.187	8.20	5.88	1.91	16	0.00	27.	0.1		250	4.39	34.228	27.15	0.274
244	4.44	34.228	8.19	5.66	1.91	20	0.00	27.	0.0		300	3.84	34.224	27.21	0.320
320	3.57	34.218	8.15	5.63	2.05	25	0.00	29.	0.0		400	3.13	34.267	27.31	0.404
400	3.13	34.267	8.12	5.25	2.17	36	0.00	28.	0.0		500	2.77	34.320	27.39	0.481
480	2.82	34.307	8.11	5.00	2.30	43	0.00	33.	0.0		600	2.57	34.385	27.45	0.551
640	2.53	34.412	8.11	4.60	2.38	58	0.00	31.	0.0		700	2.48	34.447	27.51	0.616
796	2.42	34.502	8.07	4.28	2.38	69	0.00	32.	0.0		800	2.42	34.504	27.56	0.675
954	2.30	34.592	8.06	4.18	2.30	74	0.00	29.	0.0		1000	2.30	34.613	27.66	0.783
1196	2.31	34.682	8.08	4.23	2.19	79	0.00	29.	0.0		1200	2.31	34.683	27.72	0.877
1610	2.12	34.753	8.12	4.53	2.07	85	0.00	24.	0.0		1500	2.19	34.742	27.77	1.007
2031	1.72	34.762	8.13	4.63	2.19	96	0.00	26.	0.0		2000	1.75	34.763	27.82	1.203
2483	1.24	34.745	8.09	4.81	2.30	113	0.00	21.	0.0						

St. 4

Date : Dec. 23, 1975
 Time (GMT) : 0145-0405
 (LMT) : 0845-1105
 Lat. : 57-00 S
 Long. : 101-45 E

Meteorological observation

Time (GMT) : 03-00
 (LMT) : 10-00
 Weather : bc
 Air temp. : 2.8 °C
 Atm. press. : 986.0 mb
 Wind Dir. : NNW
 Vel. : 7 m/s
 Humidity : 86 %
 Sea : 2
 Swell : NE-1

Observed											Interpolated				
Depth (m)	T (°C)	S (‰)	pH	O ₂ (cc/L)	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	NH ₄ -N	Alkalinity	Depth (m)	T (°C)	S (‰)	σ_t	ΔD
					($\mu\text{g-atoms/L}$)					(meq/L)					
0	0.90	33.990	8.25	8.16	1.67	32	0.34	26.	0.1		0	0.90	33.990	27.26	0.000
10	0.98	33.982	8.25	8.21	1.68	35	0.33	24.	0.3		10	0.98	33.982	27.25	0.008
18	0.95	33.981	8.28	8.18	1.62	35	0.30	23.	0.3		20	0.93	33.981	27.25	0.017
28	0.83	33.981	8.29	8.16	1.62	35	0.28	27.	0.1		30	0.79	33.981	27.26	0.025
47	0.41	33.983	8.28	8.23	1.72	30	0.29	28.	0.1		50	0.38	33.982	27.29	0.041
71	-0.01	33.996	8.28	8.12	1.78	33	0.29	21.	0.3		75	-0.26	34.004	27.34	0.060
94	-1.14	34.080	8.23	7.81	2.09	54	0.24	23.	0.3		100	-0.96	34.126	27.47	0.077
117	-0.07	34.273	8.16	6.42	2.26	64	0.10	27.	0.0		125	0.26	34.336	27.58	0.092
140	0.79	34.440	8.12	5.22	2.34	76	0.01	31.	0.0		150	1.01	34.486	27.65	0.104
186	1.41	34.581	8.09	4.54	2.17	86	0.01	29.	0.0		200	1.45	34.596	27.71	0.125
231	1.47	34.613	8.09	4.47	2.26	87	0.01	32.	0.0		250	1.58	34.635	27.73	0.144
277	1.74	34.664	8.10	4.32	2.09	88	0.00	28.	0.0		300	1.79	34.673	27.75	0.163
368	1.78	34.680	8.11	4.36	2.09	92	0.00	27.	0.0		400	1.75	34.686	27.76	0.200
462	1.68	34.695	8.11	4.47	2.11	92	0.01	25.	0.0		500	1.64	34.699	27.78	0.235
556	1.58	34.704	8.12	4.49	1.97	94	0.00	26.	0.0		600	1.57	34.709	27.79	0.269
738	1.55	34.724	8.14	4.65	1.99	99	0.00	26.	0.0		700	1.55	34.720	27.80	0.303
920	1.41	34.729	8.14	—	2.01	103	0.00	28.	0.2		800	1.51	34.727	27.81	0.336
1104	1.25	34.722	8.13	4.66	1.93	110	0.01	24.	0.1		1000	1.34	34.727	27.82	0.400
1380	1.01	34.711	8.13	4.78	1.95	116	0.00	27.	0.0		1200	1.17	34.718	27.83	0.463
1844	0.66	34.692	8.13	4.85	1.95	127	0.00	24.	0.2		1500	0.91	34.706	27.84	0.555
2312	0.35	34.673	8.11	5.01	2.07	137	0.01	25.	0.0		2000	0.55	34.685	27.84	0.703
2780	0.10	34.660	8.09	5.22	2.15	138	0.00	25.	0.0		2500	0.24	34.667	27.85	0.842
3264	-0.04	34.660	8.08	5.45	2.15	138	0.02	25.	0.1		3000	0.02	34.658	27.85	0.972

No. 60, 1977

Oceanographic Data of the 17th JARE

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St. 5

Date : Dec. 28, 1975
 Time (GMT) : 0445-0610
 (LMT) : 0845-1010
 Lat. : 65-11 S
 Long. : 60-07 E

Meteorological observation

Time (GMT) : 05-00
 (LMT) : 09-00
 Weather : bc
 Air temp. : 0.5 °C
 Atm. press. : 989.5 mb
 Wind Dir. : SSW
 Vel. : 4 m/s
 Humidity : 86 %
 Sea : 1
 Swell : NE-1

Observed											Interpolated				
Depth (m)	T(°C)	S (‰)	pH	O ₂ (cc/L)	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	NH ₄ -N	Alkalinity	Depth (m)	T (°C)	S (‰)	σ _t	ΔD
					(μg-atoms/L)					(meq/L)					
0	-1.00	33.612	8.20	8.06	1.87	60	0.31	26.	0.1		0	-1.00	33.612	27.05	0.000
10	-1.05	33.589	8.19	8.07	2.03	60	0.35	26.	0.0		10	-1.05	33.589	27.03	0.010
20	-1.07	33.582	8.21	8.03	1.97	60	0.36	28.	0.3		20	-1.07	33.582	27.03	0.021
30	-1.29	33.598	8.21	7.91	1.99	59	0.34	28.	0.0		30	-1.29	33.598	27.05	0.031
50	-1.54	33.871	8.18	7.39	2.15	64	0.25	28.	0.0		50	-1.54	33.871	27.28	0.049
75	-1.53	34.127	8.17	6.75	2.34	68	0.15	30.	0.1		75	-1.53	34.127	27.48	0.067
98	-1.57	34.271	8.17	6.94	2.34	67	0.06	30.	0.1		100	-1.53	34.281	0.080	0.080
124	-0.65	34.389	8.15	6.27	2.34	74	0.09	31.	0.1		125	-0.59	34.395	27.67	0.092
149	0.74	34.522	8.08	4.94	2.64	84	0.09	33.	0.0		150	0.77	34.525	27.70	0.102
198	1.62	34.623	8.06	4.25	2.40	95	0.10	34.	0.0		200	1.63	34.625	27.72	0.122
246	1.60	34.649	8.06	4.30	2.46	97	0.03	33.	0.0		250	1.60	34.651	27.74	0.141
295	1.62	34.666	8.08	4.37	2.42	97	0.03	33.	0.0		300	1.62	34.667	27.76	0.160
394	1.57	34.682	8.08	4.50	2.42	97	0.00	32.	0.0		400	1.57	34.683	27.77	0.195
495	1.50	34.694	8.08	4.50	2.40	100	0.00	32.	0.1		500	1.49	34.694	27.79	0.229
594	1.38	34.699	8.10	4.63	2.36	105	0.00	32.	0.0		600	1.37	34.699	27.80	0.263
792	1.19	34.702	8.11	4.71	2.32	111	0.00	32.	0.0		700	1.27	34.702	27.81	0.295
987	1.02	34.695	8.11	4.74	2.38	116	0.02	32.	0.1		800	1.18	34.702	27.82	0.327
1184	0.85	34.685	8.10	4.76	2.38	121	0.01	32.	0.2		1000	1.01	34.694	27.82	0.390
1484	0.64	34.676	8.10	4.75	2.40	129	0.02	33.	0.1		1200	0.84	34.684	27.82	0.452
1981	0.34	34.662	8.09	4.94	2.38	134	0.00	33.	0.0		1500	0.63	34.676	27.83	0.542
2466	0.13	34.652	8.08	5.12	2.50	143	0.08	33.	0.0		2000	0.33	34.662	27.84	0.687
2911	-0.09	34.641	8.06	5.42	2.50	136	0.02	33.	0.0		2500	0.11	34.651	27.84	0.824

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Nobuyuki SHIBAYAMA and Yukihito OHNIIWA

〔南極資料〕

St. 6

Date	: Feb. 25, 1976	Time (GMT)	: 06-00	Wind Dir.	: NE
Time (GMT)	: 0509-0610	(LMT)	: 09-00	Vel.	: 4 m/s
(LMT)	: 0809-0910	Weather	: b	Humidity	: 87 %
Lat.	: 67-34 S	Air temp.	: 0.2 °C	Sea	: 2
Long.	: 33-25 E	Atm. press.	: 984.9 mb	Swell	: E-1

Meteorological observation

Observed											Interpolated				
Depth (m)	T (°C)	S (‰)	pH	O ₂ (cc/L)	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	NH ₄ -N	Alkalinity	Depth (m)	T (°C)	S (‰)	σ _t	ΔD
					(μg-atoms/L)					(meq/L)					
0	-0.40	33.771	8.20	7.91	1.76	62	0.28	29.	0.3		0	-0.40	33.771	27.16	0.000
10	-0.50	33.771	8.20	7.96	1.78	62	0.28	28.	0.3		10	-0.50	33.771	27.16	0.009
20	-0.52	33.783	8.21	7.98	1.80	62	0.27	27.	0.2		20	-0.52	33.783	27.17	0.018
30	-0.89	33.895	8.21	7.69	1.88	64	0.20	30.	0.2		30	-0.89	33.895	27.28	0.027
49	-1.65	34.106	8.19	7.62	1.96	62	0.12	28.	0.1		50	-1.66	34.113	27.48	0.041
74	-1.74	34.212	8.17	7.28	1.98	101	0.14	32.	0.1		75	-1.74	34.214	27.56	0.055
99	-1.82	34.249	8.18	7.27	2.14	103	0.11	32.	0.0		100	-1.82	34.250	27.59	0.068
123	-1.77	34.267	8.17	7.19	2.02	102	0.02	31.	0.0		125	-1.77	34.268	27.60	0.081
147	-1.76	34.272	8.17	7.16	2.12	102	0.03	32.	0.1		150	-1.77	34.273	27.61	0.093
197	-1.75	34.304	8.17	6.99	1.98	104	0.04	32.	0.2		200	-1.72	34.308	27.64	0.116
245	-1.06	34.379	8.13	6.49	2.10	116	0.00	34.	0.1		250	-0.97	34.390	27.68	0.138
294	-0.22	34.487	8.11	5.72	2.10	126	0.00	33.	0.2		300	-0.15	34.497	27.73	0.157
391	0.44	34.605	8.10	5.19	2.18	140	0.00	33.	0.2		400	0.47	34.612	27.79	0.192
489	0.60	34.657	8.09	5.00	2.14	149	0.00	33.	0.1		500	0.60	34.659	27.82	0.223
588	0.51	34.669	8.09	5.00	2.18	157	0.00	35.	0.1		600	0.50	34.670	27.83	0.252
784	0.19	34.675	8.09	5.40	2.16	172	0.00	34.	0.2		700	0.16	34.675	27.85	0.280

No. 60, 1977]

Oceanographic Data of the 17th JARE

St. 7

Date	: Feb. 26, 1976	Time (GMT)	: 06-00	Wind Dir.	: E
Time (GMT)	: 0500-0713	(LMT)	: 09-00	Vel.	: 11 m/s
(LMT)	: 0800-1013	Weather	: s	Humidity	: 82 %
Lat.	: 66-09 S	Air temp.	: 0.6 °C	Sea	: 4
Long.	: 33-43 E	Atm. press.	: 976.4 mb	Swell	: E-3

Meteorological observation

Observed											Interpolated				
Depth (m)	T (°C)	S (‰)	pH	O ₂ (cc/L)	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	NH ₄ -N	Alkalinity	Depth (m)	T (°C)	S (‰)	σ _t	ΔD
					(μg-atoms/L)					(meq/L)					
0	-0.20	33.884	8.21	7.74	1.70	45	0.27	30.	0.3		0	-0.20	33.884	27.24	0.000
10	0.31	33.875	8.20	7.79	1.84	62	0.32	28.	0.4		10	0.31	33.875	27.21	0.009
18	0.34	33.875	8.21	7.81	1.70	61	0.30	27.	0.3		20	0.33	33.874	27.20	0.017
25	0.29	33.874	8.23	7.79	1.80	45	0.29	29.	0.4		30	0.30	33.867	27.20	0.026
40	0.25	33.874	8.23	7.81	1.86	61	0.30	29.	0.5		50	-0.30	33.985	27.32	0.042
75	-1.65	34.260	8.21	7.41	1.80	64	0.13	32.	0.5		75	-1.65	34.260	27.60	0.058
88	-1.70	34.262	8.18	6.91	1.96	67	0.07	33.	0.4		100	-1.74	34.300	27.63	0.070
100	-1.74	34.300	8.21	7.10	1.96	65	0.18	31.	0.2		125	-1.76	34.312	27.64	0.082
130	-1.75	34.310	8.19	7.09	1.96	66	0.13	31.	0.2		150	-1.61	34.324	27.65	0.093
160	-1.52	34.333	8.18	6.82	1.96	70	0.00	32.	0.2		200	-1.06	34.401	27.69	0.114
190	-1.25	34.375	8.18	6.54	1.94	73	0.02	34.	0.2		250	-0.01	34.534	27.75	0.133
250	-0.01	34.534	8.12	5.55	1.98	83	0.00	34.	0.1		300	0.57	34.604	27.78	0.150
312	0.65	34.613	8.10	5.00	2.02	93	0.01	36.	0.2		400	0.64	34.634	27.80	0.183
375	0.61	34.626	8.11	5.07	2.04	96	0.00	35.	0.2		500	0.73	34.666	27.82	0.213
509	0.74	34.669	8.11	4.91	2.04	104	0.00	34.	0.2						
590	0.65	34.680	8.12	4.89	2.06	108	0.00	33.	0.2						

St. 8

Date : Feb. 27, 1976
 Time (GMT) : 0520-0934
 (LMT) : 0820-1234
 Lat. : 63-05 S
 Long. : 33-34 E

Meteorological observation

Time (GMT) : 07-00
 (LMT) : 10-00
 Weather : bc
 Air temp. : 2.3 °C
 Atm. press. : 970.8 mb
 Wind Dir. : ESE
 Vel. : 1 m/s
 Humidity : 91 %
 Sea : 2
 Swell : NNW-4

No. 60. 1977

Observed											Interpolated				
Depth (m)	T (°C)	S (‰)	pH	O ₂ (cc/L)	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	NH ₄ -N	Alkalinity	Depth (m)	T (°C)	S (‰)	σ _t	ΔD
					(μg-atoms/L)					(meq/L)					
0	1.80	33.808	8.21	7.61	1.74	41	0.69	27.	1.4		0	1.80	33.808	27.06	0.000
10	1.63	33.768	8.23	7.63	1.70	39	0.55	24.	0.2		10	1.63	33.768	27.04	0.010
20	1.62	33.767	8.25	7.62	1.54	37	0.52	25.	0.4		20	1.62	33.767	27.04	0.021
30	1.58	33.767	8.26	7.56	1.54	35	0.57	25.	0.2		30	1.58	33.767	27.04	0.031
49	-1.09	34.123	8.28	8.20	1.68	35	0.37	25.	1.4		50	-1.15	34.126	27.47	0.047
65	-1.53	34.143	8.28	7.81	1.50	47	0.37	26.	0.2		75	-1.67	34.195	27.54	0.062
71	-1.63	34.182	8.28	7.70	1.84	51	0.40	28.	0.5		100	-1.30	34.261	27.59	0.075
95	-1.55	34.236	8.28	7.42	1.92	57	0.28	27.	0.4		125	-1.56	34.334	27.65	0.087
110	-1.09	34.229	8.23	6.83	1.78	68	0.23	30.	0.3		150	-1.35	34.442	27.73	0.097
115	-1.40	34.300	—	—	—	—	—	—	—		200	-0.05	34.600	27.81	0.114
165	-0.80	34.523	8.15	4.92	1.86	92	0.00	33.	0.0		250	0.92	34.650	27.79	0.129
245	0.87	34.646	8.11	4.37	1.88	99	0.	33.	0.0		300	1.28	34.679	27.79	0.146
338	1.35	34.687	8.13	4.41	1.92	101	0.	32.	0.4		400	1.33	34.698	27.80	0.178
433	1.27	34.701	8.12	4.49	1.80	103	0.	33.	0.4		500	1.27	34.709	27.82	0.209
617	1.24	34.717	8.14	4.57	1.90	109	0.	33.	1.5		600	1.25	34.716	27.82	0.240
796	0.94	34.709	8.13	4.59	1.90	121	0.	30.	0.1		700	1.12	34.715	27.83	0.270
920	0.75	34.703	8.13	4.60	1.70	127	0.	33.	0.0		800	0.93	34.709	27.84	0.300
1133	0.79	34.703	8.14	4.60	1.70	122	0.	34.	0.0		1000	0.75	34.703	27.84	0.357
1407	0.52	34.694	8.12	4.93	1.84	134	0.	34.	0.0		1200	0.74	34.701	27.84	0.414
1882	0.32	34.681	8.12	4.83	1.88	140	0.	35.	0.0		1500	0.47	34.691	27.85	0.497
2353	0.09	34.672	8.07	5.06	2.20	143	0.	34.	0.2		2000	0.26	34.679	27.85	0.631
2832	-0.08	34.664	8.07	5.25	2.08	139	0.	34.	0.0		2500	0.03	34.669	27.86	0.757
3310	-0.16	34.662	8.09	5.41	1.96	139	0.	34.	0.2		3000	-0.11	34.663	27.86	0.875
2789	-0.24	34.658	8.06	5.50	1.98	138	0.	34.	0.2		3500	-0.19	34.660	27.86	0.986
4272	-0.28	34.655	8.05	5.61	1.96	140	0.	33.	0.1		4000	-0.26	34.657	27.86	1.091
4512	-0.29	34.654	8.10	5.52	1.82	138	0.	34.	0.5		4500	-0.29	34.654	27.86	1.191

Oceanographic Data of the 17th JARE

St. 9

Date : Feb. 28, 1976
 Time (GMT) : 0515-0915
 (LMT) : 0815-1215
 Lat. : 60-19 S
 Long. : 33-32 E

Meteorological observation

Time (GMT) : 07-00
 (LMT) : 10-00
 Weather : s
 Air temp. : 2.0 °C
 Atm. press. : 968.1 mb
 Wind Dir. : NE
 Vel. : 9 m/s
 Humidity : 90 %
 Sea : 3
 Swell : NW-4

Observed											Interpolated				
Depth (m)	T (°C)	S (‰)	pH	O ₂ (cc/L)	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	NH ₄ -N	Alkalinity	Depth (m)	T (°C)	S (‰)	σ _t	ΔD
					(μg-atoms/L)					(meq/L)					
0	2.60	33.720	8.20	7.55	1.68	36	0.51	26.	0.2		0	2.60	33.720	26.92	0.000
10	2.45	33.714	8.21	7.60	1.68	39	0.55	26.	0.3		10	2.45	33.714	26.93	0.011
20	2.45	33.714	8.22	7.61	1.60	40	0.54	26.	0.2		20	2.45	33.714	26.93	0.023
30	2.43	33.718	8.24	7.59	1.58	35	0.51	25.	0.0		30	2.43	33.718	26.94	0.034
48	2.41	33.715	8.23	7.59	1.70	36	0.51	26.	0.3		50	2.07	33.741	26.98	0.056
67	-0.91	33.970	8.24	8.14	1.84	44	0.35	27.	0.4		75	-1.30	34.002	27.38	0.079
85	-1.37	34.012	8.23	8.10	1.88	51	0.35	28.	0.5		100	-1.42	34.029	27.40	0.096
105	-1.41	34.036	8.23	7.85	1.88	53	0.42	28.	0.5		125	-1.30	34.094	27.45	0.112
120	-1.42	34.077	8.22	7.70	1.92	54	0.42	29.	1.5		150	-0.41	34.199	27.50	0.128
159	0.02	34.244	8.12	6.22	2.00	70	0.06	33.	0.2		200	1.48	34.475	27.61	0.155
196	1.43	34.463	8.04	4.52	2.36	86	0.03	36.	0.1		250	1.56	34.550	27.67	0.178
237	1.57	33.536	8.04	4.31	2.28	91	0.00	36.	0.3		300	1.50	34.589	27.70	0.200
311	1.48	34.594	8.03	4.33	2.28	94	0.00	36.	0.2		400	1.62	34.654	27.75	0.239
387	1.60	34.646	8.03	4.30	2.22	97	0.00	34.	0.3		500	1.70	34.695	27.77	0.275
465	1.68	34.685	8.05	4.30	2.08	97	0.00	33.	0.3		600	1.70	34.709	27.78	0.311
611	1.69	34.710	8.08	4.48	2.08	113	0.00	32.	0.3		700	1.55	34.116	27.80	0.345
780	1.41	34.718	8.08	4.54	2.12	98	0.00	32.	0.1		800	1.39	34.719	27.81	0.377
946	1.26	34.721	8.08	4.62	2.14	103	0.00	32.	1.5		1000	1.20	34.721	27.83	0.440
1216	0.98	34.717	8.08	4.70	2.14	119	0.00	32.	0.1		1200	1.00	34.718	27.84	0.501
1487	0.74	34.705	8.08	4.73	2.02	127	0.00	33.	0.3		1500	0.73	34.704	27.85	0.589
1918	0.44	34.690	8.07	4.74	2.20	137	0.00	34.	0.3		2000	0.41	34.688	27.85	0.728
2354	0.29	34.680	8.04	4.92	2.28	141	0.00	35.	0.2		2500	0.23	34.677	27.85	0.861
2794	0.12	34.673	8.03	5.10	2.18	141	0.00	35.	0.4		3000	0.04	34.670	27.86	0.987
3251	-0.05	34.666	8.06	5.23	2.18	141	0.00	35.	0.5		3500	-0.11	34.664	27.86	1.103
3708	-0.16	34.662	8.05	5.37	2.16	141	0.00	34.	0.2		4000	-0.22	34.659	27.86	1.211
4172	-0.25	34.658	8.04	5.52	2.16	140	0.00	34.	0.5						

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St. 10

Date	: Feb. 29, 1976	Time (GMT)	: 07-00	Wind Dir.	: W
Time (GMT)	: 0517-0922	(LMT)	: 10-00	Vel.	: 10m/s
(LMT)	: 0817-1222	Weather	: b	Humidity	: 72%
Lat.	: 57-44 S	Air temp.	: 3.7 °C	Sea	: 3
Long.	: 33-45 E	Atm. press.	: 978.8 mb	Swell	: NW-4

Meteorological observation

Observed											Interpolated				
Depth (m)	T (°C)	S (‰)	pH	O ₂ (cc/L)	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	NH ₄ -N	Alkalinity	Depth (m)	T (°C)	S (‰)	σ _t	ΔD
					(μg-atoms/L)					(meq/L)					
0	2.50	33.845	8.23	8.16	1.54	27	0.50	20.	0.3		0	2.50	33.845	27.03	0.000
10	2.39	33.828	8.23	7.66	1.54	28	0.47	20.	0.3		10	2.39	33.828	27.03	0.010
20	2.39	33.827	8.25	7.63	1.50	29	0.45	19.	0.3		20	2.39	33.827	27.03	0.021
30	2.34	33.825	8.26	7.61	1.50	24	0.41	20.	0.3		30	2.34	33.825	27.03	0.031
50	2.33	33.828	8.26	7.62	1.58	24	0.46	20.	0.5		50	2.33	33.828	27.03	0.052
75	-0.22	33.996	8.22	7.78	1.94	45	0.37	26.	1.6		75	-0.02	33.996	27.32	0.075
98	-0.43	34.035	8.19	7.61	2.00	52	0.45	26.	0.7		100	-0.43	34.039	27.37	0.093
123	-0.20	34.098	8.18	7.21	2.04	49	0.18	27.	0.3		125	-0.18	34.104	27.41	0.110
147	0.14	34.178	8.16	6.73	2.08	64	0.11	29.	0.3		150	0.22	34.192	27.46	0.127
195	1.35	34.392	8.05	4.73	2.30	78	0.00	33.	0.3		200	1.39	34.407	27.56	0.156
240	1.55	34.494	8.03	4.32	2.34	85	0.00	30.	0.4		250	1.61	34.512	27.63	0.181
290	1.81	34.568	8.03	4.09	2.22	89	0.00	32.	0.4		300	1.84	34.578	27.67	0.204
382	1.95	34.632	8.04	4.07	2.26	90	0.00	32.	0.3		400	1.96	34.642	27.71	0.247
480	1.95	34.675	8.05	4.15	2.14	90	0.00	28.	0.4		500	1.94	34.680	27.74	0.287
580	1.90	34.697	8.08	4.28	2.06	91	0.00	27.	0.3		600	1.89	34.701	27.76	0.325
775	1.79	34.729	8.09	4.50	2.06	95	0.00	28.	0.3		700	1.84	34.719	27.78	0.361
960	1.58	34.736	8.09	4.58	2.04	98	0.00	27.	0.1		800	1.77	34.731	27.80	0.396
1150	1.30	34.728	8.09	4.59	2.10	107	0.00	30.	0.3		1000	1.52	34.735	27.82	0.464
1430	1.00	34.714	8.09	4.71	2.16	115	0.00	26.	0.4		1200	1.23	34.725	27.83	0.528
1600	0.92	34.711	8.10	4.73	1.98	121	0.00	27.	0.4		1500	0.96	34.713	27.84	0.621
2048	0.54	34.694	8.08	4.72	2.16	132	0.00	31.	0.2		2000	0.58	34.696	27.85	0.767
2489	0.34	34.684	8.06	4.91	2.32	137	0.00	28.	0.4		2500	0.33	34.684	27.85	0.905
2929	0.14	34.673	8.06	5.05	2.24	137	0.00	26.	0.5		3000	0.11	34.672	27.86	1.035
3380	-0.02	34.668	8.08	5.23	2.14	137	0.00	28.	0.5		3500	-0.05	34.667	27.86	1.154
3820	-0.13	34.664	8.06	5.34	2.16	138	0.00	33.	0.6		4000	-0.17	34.662	27.86	1.266
4273	-0.21	34.658	8.06	5.49	2.18	137	0.00	33.	0.7						

No. 60, 1977

Oceanographic Data of the 17th JARE

St. 11

Date : Mar. 2, 1976
 Time (GMT) : 0520-0755
 (LMT) : 0820-1055
 Lat. : 50-39 S
 Long. : 40-19 E

Meteorological observation

Time (GMT) : 06-00
 (LMT) : 09-00
 Weather : r
 Air temp. : 5.2 °C
 Atm. press. : 993.2 mb
 Wind Dir. : W
 Vel. : 9 m/3
 Humidity : 93 %
 Sea : 2
 Swell : WNW-3

Observed											Interpolated				
Depth (m)	T (°C)	S (‰)	pH	O ₂ (cc/L)	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	NH ₄ -N	Alkalinity	Depth (m)	T (°C)	S (‰)	σ _t	ΔD
					(μg-atoms/L)					(meq/L)					
0	4.40	33.763	8.21	7.32	1.52	16	0.41	23.	0.4		0	4.40	33.763	26.78	0.000
5	4.27	33.731	8.22	7.40	1.52	15	0.40	22.	0.4		10	4.27	33.728	26.77	0.012
10	4.27	33.728	8.23	7.36	1.42	15	0.40	22.	0.5		20	4.21	33.726	26.78	0.026
15	4.21	33.726	8.23	7.31	1.46	14	0.38	23.	0.2		30	4.22	33.733	26.78	0.038
25	4.23	33.728	8.23	7.31	1.54	14	0.38	22.	0.2		50	4.23	33.746	26.79	0.064
40	4.18	33.743	8.23	7.36	1.50	13	0.42	23.	0.4		75	2.33	33.799	27.01	0.093
55	4.15	33.749	8.23	7.28	1.54	14	0.40	22.	0.6		100	0.98	33.919	27.20	0.117
70	2.89	33.786	8.23	7.40	1.62	16	0.45	24.	0.7		125	1.05	33.904	27.18	0.140
85	1.34	33.830	8.22	7.42	1.80	29	0.51	25.	0.5		150	1.14	33.945	27.21	0.162
110	1.06	33.960	8.18	7.23	1.78	32	0.04	28.	0.2		200	1.97	34.195	27.35	0.202
130	1.07	33.884	—	7.38	1.86	31	0.38	27.	0.4		250	2.07	34.311	27.44	0.237
150	1.14	33.945	8.18	7.06	1.86	37	0.00	30.	0.2		300	2.10	34.375	27.49	0.269
190	1.90	34.159	8.11	5.70	2.18	45	0.00	33.	0.2		400	2.18	34.465	27.55	0.328
230	2.05	34.725	8.08	4.98	2.26	53	0.00	33.	0.1		500	2.21	34.530	27.60	0.383
270	2.08	34.338	8.03	4.65	2.28	62	0.00	34.	0.1		600	2.18	34.578	27.64	0.433
360	2.14	34.433	8.02	4.33	2.34	73	0.00	34.	0.0		700	2.17	34.613	27.67	0.481
450	2.21	34.499	8.02	4.09	2.36	77	0.00	34.	0.0		800	2.17	34.640	27.69	0.527
550	2.19	34.556	8.01	4.03	2.16	81	0.00	34.	0.2		1000	2.17	34.679	27.72	0.615
710	2.17	34.616	8.02	4.04	2.24	86	0.00	33.	0.0		1200	2.13	34.701	27.74	0.701
1015	2.17	34.681	8.05	4.13	2.08	86	0.00	32.	0.0		1500	2.05	34.730	27.77	0.825
1330	2.09	34.712	8.04	4.27	2.10	88	0.00	31.	0.1		2000	1.92	34.758	27.01	
1650	2.02	34.744	8.05	4.49	2.00	88	0.01	30.	0.0						
1970	1.93	34.758	8.05	4.63	2.00	93	0.00	30.	0.2						

St. 12

Date : Mar. 4, 1976
 Time (GMT) : 0517-0714
 (LMT) : 0817-1014
 Lat. : 43-06 S
 Long. : 45-03 E

Meteorological observation

Time (GMT) : 06-00
 (LMT) : 09-00
 Weather : f
 Air temp. : 9.4 °C
 Atm. press. : 1008.5 mb
 Wind Dir. : SSW
 Vel. : 4 m/s
 Humidity : 92 %
 Sea : 2
 Swell : SW-3

Depth (m)	Observed										Interpolated				
	T (°C)	S (‰)	pH	O ₂ (cc/L)	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	NH ₄ -N	Alkalinity (meq/L)	Deth (m)	T (°C)	S (‰)	σ_t	ΔD
					(μ g-atoms/L)										
0	10.20	33.741	8.23	6.54	1.18	5	0.32	17.	0.3		0	10.20	33.741	25.96	0.000
10	10.11	33.730	8.24	6.54	1.24	5	0.31	17.	0.4		10	10.11	33.730	25.96	0.021
20	10.06	33.729	8.25	6.54	1.20	5	0.31	17.	0.2		20	10.06	33.729	25.97	0.041
30	8.62	33.752	8.26	6.79	1.24	4	0.22	18.	0.1		30	8.62	33.752	26.22	0.060
50	7.50	33.749	8.26	7.02	1.30	4	0.22	18.	0.7		50	7.50	33.749	26.39	0.095
73	6.46	34.034	8.25	6.98	1.32	4	0.30	20.	0.9		75	6.38	34.031	26.76	0.132
94	5.59	33.929	8.24	6.97	1.46	6	0.56	19.	0.9		100	5.32	33.908	26.80	0.164
115	4.72	33.867	8.23	6.38	1.58	9	0.21	22.	0.1		125	4.49	33.844	26.84	0.196
140	4.30	33.815	8.22	6.80	1.60	10	0.00	23.	0.0		150	4.25	33.775	26.81	0.227
185	4.28	33.752	8.20	6.41	1.60	13	0.00	24.	0.0		200	4.36	33.920	26.91	0.287
230	4.48	34.528	8.17	5.95	1.68	16	0.00	26.	0.3		250	4.41	34.272	27.19	0.339
272	4.28	34.226	8.14	5.76	1.78	19	0.00	27.	0.3		300	4.09	34.217	27.18	0.385
366	3.65	34.212	8.14	5.71	1.86	24	0.00	29.	0.2		400	3.49	34.211	27.23	0.476
454	3.28	34.207	8.12	5.54	1.94	29	0.00	30.	0.2		500	3.11	34.177	27.24	0.563
549	2.96	34.172	8.09	5.24	2.02	38	0.00	30.	0.3		600	2.86	34.326	27.38	0.644
730	2.70	34.747	8.05	4.69	2.24	56	0.00	33.	0.1		700	2.72	34.646	27.65	0.706
901	2.53	34.665	8.04	4.25	2.22	68	0.00	33.	0.5		800	2.62	34.751	27.74	0.751
1080	2.49	34.562	8.04	4.18	2.08	74	0.00	33.	0.3		1000	2.49	34.607	27.64	0.844
1340	2.61	34.482	8.06	4.22	2.06	80	0.00	31.	0.2		1200	2.54	34.519	27.56	0.956
1760	2.43	34.382	8.09	4.50	1.76	81	0.00	29.	0.0		1500	2.57	34.435	27.50	1.149
2168	2.22	34.390	8.14	4.75	1.86	84	0.00	28.	0.2		2000	2.31	34.374	27.47	1.499

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Oceanographic Data of the 17th JARE

St. 13

Meteorological observation

Date : Mar. 6, 1976
 Time (GMT) : 0520-0730
 (LMT) : 0820-1030
 Lat. : 35-00 S
 Long. : 50-16 E

Time (GMT) : 06-00
 (LMT) : 09-00
 Weather : b
 Air temp. : 22.0 °C
 Atm. press. : 1010.9 mb

Wind Dir. : SE
 Vel. : 5 m/s
 Humidity : 76%
 Sea : 3
 Swell : ESE-1

Observed											Interpolated				
Depth (m)	T (°C)	S (‰)	pH	O ₂ (cc/L)	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	NH ₄ -N	Alkalinity	Depth (m)	T (°C)	S (‰)	σ_t	ΔD
					(μ g-atoms/L)					(meq/L)					
0	23.10	35.424	8.30	4.99	0.10	6	0.00	0.0	0.0		0	23.10	35.424	24.25	0.000
10	22.95	35.414	8.31	4.98	0.12	5	0.01	0.0	0.0		10	22.95	35.414	24.28	0.034
20	22.86	35.418	8.31	4.97	0.14	6	0.02	0.0	0.0		20	22.86	35.418	24.31	0.073
29	21.83	35.445	8.33	5.15	0.12	3	0.00	0.0	0.0		30	21.66	35.448	24.67	0.108
45	19.17	35.475	8.34	5.55	0.14	2	0.01	0.0	0.0		50	18.64	35.477	25.50	0.166
65	17.55	35.476	8.34	5.68	0.18	2	0.02	0.0	0.1		75	17.09	35.476	25.88	0.224
89	16.63	35.476	8.34	5.57	0.30	5	0.15	0.0	0.3		100	16.27	35.474	26.07	0.276
105	16.13	35.473	8.33	5.39	0.30	5	0.31	0.3	—		125	15.74	35.465	26.18	0.324
125	15.74	35.465	8.33	5.37	0.30	3	0.21	1.0	0.0		150	15.28	35.456	26.28	0.370
160	15.13	35.453	8.32	5.24	0.40	3	0.05	2.2	0.0		200	14.95	35.438	26.34	0.459
199	14.95	35.438	8.31	5.22	0.40	4	0.05	2.5	0.0		250	14.71	35.423	26.38	0.546
240	14.77	35.427	8.32	5.21	0.40	1	0.03	2.8	0.0		300	14.40	35.399	26.43	0.632
320	14.27	35.387	8.30	5.20	0.44	3	0.03	5.1	0.0		400	13.79	35.321	26.50	0.800
400	13.79	35.321	8.29	5.18	0.52	2	0.03	4.7	0.0		500	13.00	35.220	26.58	0.962
476	13.18	35.242	8.27	5.16	0.62	2	0.01	5.7	0.0		600	12.19	35.118	26.66	1.119
633	11.91	35.082	8.26	5.24	0.80	4	0.00	9.4	0.0		700	11.23	34.986	26.74	1.270
795	10.18	34.844	8.22	4.96	1.08	6	0.01	13.	0.0		800	10.12	34.837	26.82	1.415
960	8.20	34.638	8.16	4.76	1.30	13	0.00	18.	0.0		1000	7.68	34.593	27.02	1.677
1210	5.22	34.420	8.12	4.63	1.80	29	0.00	24.	0.0		1200	5.33	34.462	27.20	1.899
1635	3.16	34.511	8.06	—	1.96	66	0.00	28.	0.0		1500	3.53	34.448	27.42	2.170
2070	2.57	34.660	8.06	4.30	2.02	78	0.03	28.	0.0		2000	2.61	34.637	27.65	2.509
2508	2.19	34.735	8.05	4.43	1.92	88	0.03	24.	0.1		2500	2.20	34.734	27.77	1.766
2730	2.06	34.750	8.04	4.64	1.90	92	0.03	22.	0.0						

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Nobuyuki SHIBAYAMA and Yukihiko OHNIIWA

〔南極資料〕

St. 14

Date : Mar. 8, 1976
 Time (GMT) : 0417-0813
 (LMT) : 0817-1213
 Lat. : 27-19 S
 Long. : 54-02 E

Meteorological observation

Time (GMT) : 06-00
 (LMT) : 10-00
 Weather : b
 Air temp. : 26.0 °C
 Atm. press. : 1013.0 mb
 Wind Dir. : SE
 Vel. : 7 m/s
 Humidity : 69 %
 Sea : 3
 Swell : SSW-1

Observed											Interpolated				
Depth (m)	T (°C)	S (‰)	pH	O ₂ (cc/L)	PO ₄ -P	SiO ₃ -Si	NO ₂ -N	NO ₃ -N	NH ₄ -N	Alkalinity	Depth (m)	T (°C)	S (‰)	σ _t	ΔD
					(μg-atoms/L)					(meq/L)					
0	27.30	35.229	8.32	4.77	0.08	7	0.03	0.0	0.1		0	27.30	35.229	22.82	0.000
10	27.44	35.224	8.33	4.82	0.08	5	0.07	0.0	0.0		10	27.44	35.224	22.77	0.051
20	27.43	35.223	8.33	4.76	0.08	5	0.06	0.0	0.0		20	27.43	35.223	22.77	0.102
30	26.70	35.454	8.34	4.62	0.08	3	0.08	0.0	0.0		30	26.70	35.454	23.18	0.151
44	23.19	35.566	8.33	5.24	0.10	3	0.05	0.0	0.0		50	22.06	35.575	24.66	0.231
65	20.00	35.564	8.34	5.45	0.16	1	0.06	0.0	0.0		75	19.21	35.572	25.42	0.305
85	18.67	35.577	8.34	5.52	0.16	6	0.08	0.0	0.0		100	17.90	35.565	25.75	0.366
96	18.06	35.567	8.33	5.31	0.18	6	0.08	0.0	0.0		125	16.92	35.542	25.97	0.421
110	17.54	35.561	8.35	5.20	0.26	2	0.14	0.0	0.0		150	16.10	35.507	26.13	0.471
145	16.20	35.512	8.33	5.43	0.28	2	0.13	0.6	0.0		200	15.33	35.461	26.27	0.565
187	15.56	35.476	8.31	5.21	0.38	4	0.15	1.0	0.0		250	14.56	35.406	26.40	0.653
224	14.92	35.433	8.31	5.11	0.46	3	0.09	2.8	0.0		300	13.97	35.353	26.48	0.737
298	13.99	35.355	8.29	5.18	0.56	3	0.09	6.0	0.0		400	12.85	35.220	26.61	0.896
367	13.19	35.265	8.29	5.25	0.50	3	0.13	4.2	0.0		500	11.96	35.107	26.70	1.047
440	12.46	35.167	8.27	5.29	0.72	4	0.10	7.8	0.0		600	11.11	35.000	26.78	1.192
586	11.24	35.020	8.25	5.54	0.90	6	0.08	11.	0.0		700	10.04	34.846	26.85	1.332
728	9.70	34.800	8.23	5.06	1.12	9	0.07	15.	0.0		800	8.64	34.684	26.95	1.463
879	7.44	34.571	8.16	4.65	1.52	18	0.07	22.	0.0		1000	5.81	34.469	27.18	1.693
1132	4.37	34.422	8.08	4.38	1.94	44	0.07	28.	0.0		1200	3.96	34.434	27.36	1.878
1527	3.00	34.583	8.06	3.95	1.94	84	0.04	31.	0.0		1500	3.01	34.565	27.56	2.098
1932	2.45	34.698	8.07	4.15	2.06	97	0.06	30.	0.0		2000	2.39	34.709	27.73	2.379
2361	2.14	34.739	8.03	3.95	2.30	115	0.07	29.	0.0		2500	2.06	34.741	27.78	2.611
2798	1.91	34.738	8.03	3.84	2.40	128	0.07	29.	0.0		3000	1.78	34.736	27.80	2.829
3245	1.63	34.733	8.06	4.07	2.10	130	0.07	26.	0.0		3500	1.49	34.729	27.82	3.037
3695	1.39	34.725	8.05	4.19	2.16	131	0.06	25.	0.1		4000	1.22	34.720	27.83	3.234
4149	1.14	34.718	8.05	4.52	2.06	127	0.09	24.	0.2						

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Oceanographic Data of the 17th JARE

Table 4(a). Harmonic constants.

Port
Position
Lat. 69°00'28''S
Long. 39°34'13''E
Time zone S=-3 00
Time and duration of observation
Epoch Feb. 2, 1975. 00h
Duration in days 353 days
Mean sea level So=161.0 cm
Standard deflection S.D.=8.0 cm
Break in record
Feb. 6, 1975. 10 h - Feb. 11, 1975. 01 h,
Mar. 8, 1975. 17 h - Mar. 11, 1975. 17 h,
Apr. 1, 1975. 14 h - Apr. 3, 1975. 16 h,
Apr. 4, 1975. 14 h - Apr. 5, 1975. 14 h,
Feb. 1, 1976. 10 h - Feb. 6, 1976. 00 h.

Symbol	H (cm)	K (deg.)	G (deg.)	Symbol	H(cm)	K (deg.)	G (deg.)
Sa	13.69	115.13	115.26	M ₂	23.64	166.98	174.80
Ssa	4.97	44.29	44.53	MKS ₂	0.32	92.20	100.26
Mm	1.81	192.30	193.93	λ ₂	0.23	186.63	195.86
MSf	0.40	151.81	154.85	L ₂	1.22	141.55	151.00
Mf	4.21	193.88	197.17	T ₂	1.03	171.04	181.77
2Q ₁	0.63	327.85	326.84	S ₂	19.69	182.52	193.38
σ ₁	1.35	320.79	320.00	R ₂	0.52	115.57	126.55
Q ₁	5.47	339.46	340.09	K ₂	5.33	181.60	192.71
ρ ₁	0.81	348.72	349.56	MSN ₂	0.26	101.09	113.58
O ₁	24.08	352.37	354.63	KJ ₂	0.45	28.93	41.67
MP ₁	0.52	329.11	331.61	2SM ₂	0.59	130.48	144.39
M ₁	1.10	7.90	11.81	MO ₃	0.11	299.73	309.80
χ ₁	0.22	9.62	13.75	M ₃	0.16	275.24	286.96
π ₁	0.78	5.03	10.22	SO ₃	0.34	290.99	304.11
P ₁	8.65	2.62	7.93	MK ₃	0.18	338.78	352.14
S ₁	1.77	234.71	240.14	SK ₃	0.57	337.73	354.15
K ₁	22.10	5.49	11.04	MN ₄	0.19	63.02	77.02
φ ₁	1.06	108.13	113.80	M ₄	0.45	140.47	156.10
φ ₁	0.64	343.38	349.18	SN ₄	0.03	162.80	179.84
θ ₁	0.19	355.54	2.51	MS ₄	0.26	210.81	229.49
J ₁	1.00	8.34	15.52	MK ₄	0.16	174.73	193.65
SO ₁	0.80	341.35	349.35	S ₄	0.07	209.01	230.73
OO ₁	0.50	310.80	319.65	SK ₄	0.14	210.33	232.30
OQ ₂	0.25	155.53	158.41	2MN ₆	0.03	82.74	104.54
MNS ₂	0.23	67.10	70.23	M ₆	0.11	90.23	113.67
2N ₂	0.23	68.66	73.21	MSN ₆	0.10	173.60	198.45
μ ₂	1.11	108.17	112.93	2MS ₆	0.34	203.52	230.00
N ₂	4.34	155.90	162.08	2MK ₆	0.14	193.14	219.87
ν ₂	0.90	164.60	170.99	2SM ₆	0.20	231.48	261.01
OP ₂	0.23	327.60	335.16	MSK ₆	0.20	234.43	264.21

Table 4 (b). Daily mean sea level 1975-1976.
Syowa Station

	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Remarks
1	—	1.51	—	1.61	1.75	1.62	1.77	1.72	1.77	1.62	1.47	1.48	1. Annual mean sea level
2	1.54	1.49	—	1.49	1.68	1.63	1.87	1.71	1.67	1.61	1.47	1.42	1.61
3	1.66	1.43	—	1.50	1.67	1.66	1.83	1.70	1.61	1.61	1.47	1.40	2. Highest sea level
4	1.66	1.43	—	1.50	1.68	1.69	1.75	1.66	1.61	1.65	1.44	1.43	2.48
5	1.55	1.49	—	1.52	1.73	1.65	1.78	1.62	1.59	1.59	1.49	1.41	(17-32, May 26, 1975)
6	—	1.51	1.68	1.55	1.85	1.62	1.80	1.65	1.60	1.57	1.49	1.42	3. Lowest sea level
7	—	1.52	1.77	1.58	1.95	1.62	1.74	1.61	1.64	1.59	1.47	1.41	0.38
8	—	—	1.72	1.60	1.96	1.66	1.68	1.59	1.70	1.58	1.47	1.40	(12-28, Jan. 17, 1976)
9	—	—	1.62	1.63	1.86	1.68	1.72	1.61	1.81	1.54	1.47	1.41	4. Break in record
10	—	—	1.66	1.60	1.80	1.71	1.68	1.68	1.78	1.56	1.46	1.46	1) 03-00, Feb. 1, 1975
11	—	—	1.65	1.68	1.76	1.69	1.59	1.71	1.77	1.58	1.44	1.48	23-00, Feb. 1, 1975
12	1.50	1.60	1.68	1.68	1.78	1.59	1.59	1.74	1.76	1.63	1.46	1.40	
13	1.54	1.60	1.75	1.67	1.77	1.60	1.62	1.77	1.74	1.65	1.46	1.45	2) 10-00, Feb. 6, 1975
14	1.51	1.59	1.83	1.67	1.76	1.59	1.64	1.78	1.68	1.61	1.45	1.43	01-00, Feb. 11, 1975
15	1.53	1.56	1.82	1.63	1.70	1.62	1.68	1.75	1.66	1.66	1.41	1.36	3) 17-00, Mar. 8, 1975
16	1.50	1.53	1.81	1.60	1.68	1.59	1.69	1.69	1.64	1.68	1.42	1.32	17-00, Mar. 11, 1975
17	1.48	1.52	1.82	1.57	1.72	1.58	1.73	1.72	1.61	1.61	1.46	1.35	
18	1.50	1.58	1.74	1.59	1.76	1.63	1.75	1.79	1.57	1.59	1.48	1.35	4) 14-00, Apr. 1, 1975
19	1.49	1.60	1.74	1.51	1.71	1.64	1.77	1.77	1.57	1.59	1.47	1.40	16-00, Apr. 3, 1975
20	1.49	1.61	1.68	1.54	1.72	1.63	1.81	1.69	1.53	1.59	1.43	1.37	
21	1.48	1.59	1.59	1.60	1.73	1.66	1.78	1.65	1.55	1.59	1.43	1.37	5) 14-00, Apr. 4, 1975
22	1.47	1.54	1.59	1.63	1.78	1.69	1.78	1.65	1.66	1.60	1.45	1.38	14-00, Apr. 5, 1975
23	1.45	1.49	1.63	1.70	1.81	1.70	1.77	1.66	1.68	1.59	1.43	1.40	
24	1.44	1.52	1.65	1.68	1.80	1.72	1.74	1.68	1.69	1.54	1.40	1.40	
25	1.47	1.55	1.71	1.82	1.77	1.65	1.71	1.79	1.69	1.47	1.39	1.47	
26	1.47	1.50	1.69	1.97	1.73	1.58	1.74	1.79	1.62	1.47	1.39	1.54	
27	1.45	1.52	1.66	1.91	1.71	1.63	1.75	1.76	1.63	1.49	1.42	1.51	
28	1.49	1.59	1.68	1.85	1.69	1.67	1.72	1.77	1.66	1.49	1.41	1.43	
29		1.59	1.73	1.81	1.64	1.71	1.63	1.77	1.67	1.48	1.41	1.45	
30		1.50	1.74	1.77	1.61	1.78	1.65	1.79	1.63	1.49	1.40	1.47	
31		1.51		1.77		1.72	1.68		1.62		1.46	1.48	
Mean	(1.51)	(1.54)	(1.70)	1.65	1.75	1.65	1.72	1.71	1.66	1.58	1.44	1.42	