

OCEANOGRAPHIC DATA AT THE S. M. B. L., 1972

Measurements of the surface sea water temperature were made every day at 9:00 in the morning at the fixed site on the south coast of the laboratory ground near the water intake of the laboratory by

Mr. Yoshirô Kashiya,
Mr. Sôichi Moriyama,
Mr. Mitsuru Ohta,
Mr. Sadayoshi Ohtsuki,
Mr. Shôzô Sakai,
Mr. Hidetomo Tanase, and
Mr. Yoshikazu Yamamoto.

The salinity was measured by salinometer (Tsurumi Co., Ltd., Type E2).

Meteorological observations were made similarly in the laboratory yard by
Miss Junko Kondô.

The necessary correction after formal manuals of oceanographical and meteorological observations, as well as the typewriting of tables, were made by
Dr. Shin-ichirô Fuse.

Weather is shown in Beaufort notation, and wind force in Beaufort scale. The codes used are:

b Blue sky	0 Calm, less than 0.3 m/sec
bc Partly clouded	1 Light air, 0.3~1.5 m/sec
c Cloudy	2 Light breeze, 1.6~3.3 m/sec
o Overcast	3 Gentle breeze, 3.4~5.4 m/sec
d Drizzling rain	4 Moderate breeze, 5.5~7.9 m/sec
r Rain	5 Fresh breeze, 8.0~10.7 m/sec
s Snow	
p Passing showers	
q Squalls	

Summarizing the data, the following annual values are obtained for 1972:

	Lowest	Highest	Mean
Air temperature (°C)	5.4 (Jan. 18)	31.0 (Sept. 6)	18.0
Water temperature (°C)	12.50 (Feb. 8)	29.20 (Aug. 5)	18.50
Salinity (‰)	27.005 (June 16)	35.101 (Jan. 14)	33.642
Total precipitation (mm)	2702.9		

JANUARY							FEBRUARY						
date	weather	air temperature °C	precipitation mm	wind	water temperature °C	salinity ‰	date	weather	air temperature °C	precipitation mm	wind	water temperature °C	salinity ‰
1	r	11.3	8.4	E 1	17.24	34.587	1	d	15.4	44.5	N 1	17.25	34.181
2	o	8.8	6.8	NW 2	16.68	34.732	2	o	11.9	—	N 1	16.72	34.601
3	b	6.8	—	N 1	14.70	34.310	3	o	11.6	—	NW 2	15.80	34.577
4	bc	10.2	—	E 1	15.45	34.746	4	d	9.2	35.5	— 0	15.40	34.419
5	r	14.8	22.0	W 1	17.23	34.521	5	c	9.4	5.4	N 1	16.00	34.574
6	bc	9.8	2.5	NW 2	15.55	34.604	6	o	8.4	—	N 1	15.20	34.523
7	o	9.4	—	E 1	17.25	34.756	7	o	8.3	16.6	W 1	15.10	34.239
8	b	9.2	0.7	— 0	18.50	34.958	8	bc	6.7	—	N 2	14.10	34.513
9	b	8.3	—	NE 1	16.62	34.828	9	o	6.3	—	— 0	14.50	34.505
10	o	11.7	—	— 0	17.30	34.984	10	d	6.3	7.4	W 2	14.60	34.425
11	d	13.3	2.7	E 1	17.70	34.532	11	b	9.9	0.3	NW 2	16.48	34.735
12	o	13.4	2.7	N 2	16.80	34.975	12	b	8.8	—	— 0	15.20	34.716
13	b	11.1	—	N 2	16.50	34.886	13	r	11.7	3.1	SE 0	16.30	34.634
14	b	9.6	—	— 0	16.70	35.101	14	bc	8.4	30.0	W 2	15.40	34.542
15	o	9.7	6.6	NW 1	16.70	34.919	15	bc	9.6	—	W 2	14.60	34.512
16	bc	9.4	—	NW 2	15.52	34.773	16	r	7.3	0.2	— 0		
17	bc	8.2	—	N 2	15.20	34.962	17	c	10.9	5.2	N 2	15.60	34.112
18	b	5.4	—	— 0	16.60	34.975	18	c	12.9	—	SW 1	15.32	34.336
19	o	8.8	—	— 0	17.10	34.964	19	r	8.6	0.8	N 1	16.00	34.525
20	o	13.4	3.9	— 0	17.70	34.869	20	bc	7.4	0.1	N 2	14.60	34.651
21	bc	11.7	—	— 0	17.20	34.927	21	bc	7.0	—	NW 2	14.80	34.838
22	bc	10.1	—	N 2	16.30	35.003	22	o	9.4	—	NW 1	16.00	34.771
23	b	8.9	—	— 0	17.02	34.982	23	o	8.6	—	— 0	16.10	34.712
24	o	14.3	—	W 1	16.30	34.886	24	bc	9.4	—	N 1	15.30	34.736
25	o	17.8	18.9	— 0	18.25	34.768	25	b	7.7	—	W 2	14.90	34.716
26	b	10.9	0.7	NW 2	16.70	34.924	26	o	9.4	58.0	E 1	15.50	34.629
27	c	9.1	—	W 1	15.95	34.564	27	o	10.3	—	NW 2	16.65	34.552
28	b	9.0	—	NW 2	15.50	34.484	28	bc	7.4	—	N 2	13.80	34.467
29	b	6.9	7.6	— 0	15.30	34.503	29	o	6.1	—	— 0	14.70	34.446
30	c	10.5	—	WNW 2	15.26	34.426							
31	o	9.2	—	W 1	15.70	34.684							
mean		10.4			16.53	34.778	mean		9.1			15.43	34.543

MARCH							APRIL						
date	weather	air temperature °C	precipitation mm	wind	water temperature °C	salinity ‰	date	weather	air temperature °C	precipitation mm	wind	water temperature °C	salinity ‰
1	bc	6.6	—	NW 3	14.47	34.683	1	c	6.8	—	NW 2	15.80	34.149
2	b	7.6	—	NNW 3	14.60	34.698	2	bc	8.7	0.4	N 1	15.10	34.106
3	c	6.8	—	NNW 3	14.12	34.719	3	o	10.8	—	— 0	15.54	33.928
4	b	9.2	—	NW 3	14.42	34.733	4	o	7.3	4.5	W 2	16.75	33.987
5	b	7.4	—	NW 2	15.07	34.669	5	bc	15.8	—	E 1	17.21	34.114
6	b	9.8	—	N 3	14.12	34.665	6	r	17.1	20.9	SSW 1	17.49	34.096
7	b	10.6	—	WNW 3	14.73	34.675	7	o	17.4	22.8	— 0	17.70	33.862
8	b	10.1	—	N 1	14.52	34.634	8	r	13.6	12.0	— 0	17.75	33.889
9	o	10.7	9.9	N 2	14.52	34.178	9	o	10.5	17.0	NW 2	15.95	34.244
10	o	9.4	—	NW 4	14.32	34.601	10	b	11.6	44.0	NW 1	15.89	34.263
11	bc	10.3	—	N 2	14.35	34.612	11	o	12.6	—	NE 2	15.00	34.166
12	o	10.8	—	NW 1	14.66	34.714	12	b	11.7	—	NW 3	14.50	33.647
13	c	7.4	—	N 2	14.10	34.565	13	b	15.2	—	NNW 2	14.83	33.978
14	bc	9.8	—	NW 1	14.10	34.487	14	b	16.2	—	NW 1	15.52	33.824
15	bc	9.1	—	NW 2	13.70	34.484	15	r	13.5	0.8	WSW 2	16.42	33.694
16	b	9.3	—	NNE 1	14.39	34.401	16	b	18.1	27.6	— 0	16.62	33.667
17	r	13.4	26.7	WSW 1	15.02	33.400	17	bc	19.8	0.1	— 0	16.72	33.657
18	b	14.9	6.7	— 0	14.98	34.058	18	bc	20.4	—	— 0	17.27	33.506
19	o	15.8	—	— 0	15.70	34.040	19	bc	21.5	—	W 1	18.00	33.722
20	o	19.0	12.6	W 2	16.05	33.670	20	r	19.0	21.0	S 2	18.72	32.658
21	bc	12.3	3.2	NW 2	15.30	33.675	21	o	18.4	2.2	NNW 3	17.02	33.153
22	bc	16.3	—	— 0	14.70	34.450	22	bc	19.2	76.0	E 2	17.31	33.144
23	r	16.1	17.0	ENE 1	15.39	33.544	23	c	18.2	—	E 1	18.40	34.051
24	r	15.4	25.0	NW 2	16.21	33.080	24	b	19.9	—	NNW 3	19.39	33.876
25	c	13.9	4.4	— 0	16.10	33.729	25	o	18.3	—	— 0	19.12	33.640
26	r	11.3	22.0	NW 2	15.94	33.907	26	o	19.9	0.6	— 0	20.01	33.664
27	b	13.0	4.4	NW 1	14.32	33.563	27	o	18.9	26.1	— 0	21.00	33.858
28	b	13.4	—	— 0	15.85	33.886	28	b	20.2	—	NW 1	20.70	33.955
29	bc	16.9	9.8	NE 1	17.03	34.187	29	c	19.8	—	— 0	20.90	34.179
30	r	18.3	17.5	S 3	18.49	34.138	30	o	19.4	—	SE 1	21.20	34.173
31	bc	16.6	—	NW 3	18.33	34.031							
mean		12.0			15.15	34.222	mean		16.0			17.43	33.828

MAY							JUNE						
date	weather	air temperature °C	precipitation mm	wind	water temperature °C	salinity ‰	date	weather	air temperature °C	precipitation mm	wind	water temperature °C	salinity ‰
1	o	22.2	68.3	S 2	21.28	33.822	1	b	23.0	—	— 0	21.22	34.401
2	b	19.1	—	NW 4	19.99	34.065	2	bc	22.6	—	NE 1	21.50	34.321
3	b	18.4	—	— 0	20.92	33.900	3	o	22.4	0.1	— 0	21.28	34.377
4	o	19.9	—	SE 1	19.11	34.437	4	o	17.8	24.6	NW 1	21.10	33.593
5	o	21.6	29.6	— 0	20.10	33.622	5	bc	20.0	19.5	— 0	21.21	34.085
6	b	20.1	—	WNW 3	19.24	33.579	6	b	22.4	—	— 0	22.15	33.908
7	bc	21.7	—	— 0	19.86	33.657	7	r	19.8	1.3	E 1	21.71	34.004
8	o	21.4	—	— 0	20.99	33.692	8	o	23.4	58.3	SE 2	22.18	33.492
9	o	23.2	4.0	SW 4	21.45	33.947	9	o	22.5	3.2	— 0	22.31	33.600
10	o	19.3	—	— 0	20.80	34.022	10	b	24.0	—	S 1	22.49	33.444
11	o	22.7	—	— 0	21.42	34.041	11	o	27.0	—	— 0	22.80	33.893
12	bc	23.1	—	— 0	21.01	34.054	12	r	20.8	114.5	ENE 1	22.12	27.205
13	r	18.2	13.7	— 0	21.00	33.386	13	o	23.7	75.5	S 1	22.52	32.663
14	r	19.9	15.5	— 0	20.50	33.056	14	bc	23.9	—	— 0	22.68	33.477
15	d	21.6	17.6	— 0	21.60	33.662	15	o	24.2	—	— 0	22.70	33.477
16	bc	22.9	0.7	SW 2	22.35	33.531	16	bc	24.5	—	— 0	22.69	33.423
17	b	18.3	—	E 2	20.90	33.958	17	c	24.3	—	— 0	23.39	33.441
18	bc	19.1	—	— 0	19.96	32.998	18	r	22.0	60.5	— 0	23.84	31.437
19	c	21.6	—	S 2	21.10	33.874	19	r	21.5	5.7	NW 1	22.95	32.809
20	o	21.1	12.7	SSW 1	20.49	33.820	20	o	23.8	16.3	— 0	23.15	32.249
21	b	20.5	6.1	NW 2	20.65	33.817	21	c	23.6	—	NW 1	23.22	32.195
22	b	20.7	—	NW 2	20.32	34.384	22	r	21.0	—	NE 1	22.34	33.098
23	b	20.6	—	S 1	20.19	34.375	23	o	19.7	25.2	E 1	22.00	32.538
24	b	22.6	—	S 1	21.59	34.483	24	bc	24.5	—	E 1	22.50	32.195
25	bc	21.6	—	— 0	21.60	34.541	25	b	23.8	—	— 0	23.10	30.877
26	o	20.4	—	— 0	21.29	34.032	26	bc	23.6	—	— 0	22.83	33.025
27	o	22.7	23.0	SW 2	21.55	33.590	27	r	19.8	9.2	NE 2	22.17	33.242
28	b	22.4	—	SW 1	23.84	34.258	28	o	23.9	64.5	S 1	23.60	33.116
29	b	23.2	—	NE 2	21.30	34.406	29	d	23.6	0.5	— 0	23.91	32.809
30	o	21.5	5.0	— 0	21.36	33.539	30	b	26.4	0.9	SW 3	24.70	33.459
31	b	20.5	9.5	NW 3	21.55	34.357							
mean		21.0			20.95	33.900	mean		22.8			22.55	32.995

JULY						
date	weather	air temperature °C	precipitation mm	wind	water temperature °C	salinity ‰
1	o	26.5	—	— 0	24.69	32.971
2	b	27.2	—	S 1	25.29	33.025
3	o	27.5	—	NE 1	25.61	32.628
4	o	27.2	2.5	SSW 2	25.59	32.935
5	o	27.6	1.8	SW 1	25.74	32.983
6	r	25.7	20.2	S 1	26.80	33.062
7	o	26.4	14.6	ESE 1	25.41	32.701
8	bc	26.6	0.1	S 2	25.91	31.816
9	bc	26.7	—	S 2	25.80	31.581
10	o	26.1	—	SW 1	25.35	31.924
11	bc	26.4	—	S 2	26.20	32.069
12	o	26.9	—	SE 2	25.82	31.997
13	r	24.5	157.0	SW 2	24.90	29.632
14	b	26.4	72.0	S 1	24.72	29.181
15	bc	23.6	—	NW 2	24.55	31.888
16	o	22.8	12.0	— 0	23.80	32.953
17	o	24.9	0.1	— 0	24.75	30.769
18	b	27.7	2.0	S 1	25.55	33.080
19	c	28.9	—	ENE 2	26.07	33.296
20	o	28.3	—	— 0	26.00	33.296
21	bc	29.5	—	SW 2	26.12	33.080
22	bc	29.9	—	— 0	—	32.863
23	o	29.0	0.6	NE 1	26.30	33.043
24	bc	27.5	14.6	NE 1	26.29	32.610
25	b	29.1	—	SW 1	26.62	33.260
26	bc	29.8	—	WE 1	26.95	33.513
27	o	25.6	0.5	— 0	26.80	33.766
28	bc	25.3	6.2	— 0	27.05	33.603
29	b	26.2	—	— 0	26.91	32.827
30	bc	28.4	—	— 0	27.40	33.513
31	bc	27.8	—	— 0	27.33	32.484
mean		27.0			25.88	32.527

AUGUST						
date	weather	air temperature °C	precipitation mm	wind	water temperature °C	salinity ‰
1	b	27.7	—	S 2	27.70	32.628
2	b	28.2	—	S 1	27.31	32.502
3	o	28.9	—	— 0	28.09	33.368
4	b	28.7	—	— 0	28.13	33.122
5	b	29.2	—	S 1	29.20	33.359
6	bc	28.9	—	— 0	28.82	33.369
7	o	28.6	—	NNE 1	28.38	33.398
8	bc	29.1	—	— 0	28.82	33.276
9	b	29.0	—	SW 1	28.97	33.492
10	o	27.5	38.0	S 2	28.01	32.779
11	r	23.8	3.7	— 0	27.35	31.778
12	r	24.6	61.0	SE 1	27.72	30.325
13	bc	27.3	14.7	E 1	27.80	31.854
14	b	27.9	1.9	S 1	27.72	32.346
15	b	27.8	—	S 1	27.61	32.294
16	bc	28.2	—		27.60	33.195
17	b	28.7	—		27.37	33.694
18	b	28.4	—	S 1	27.83	33.696
19	bc	28.3	5.5	S 1	28.07	33.772
20	b	29.1	—	SW 2	28.42	32.358
21	o	27.8	2.0	SE 2	28.01	32.521
22	r	23.6	61.0	— 0	27.10	31.437
23	b	22.9	27.2	— 0	26.30	29.693
24	o	25.6	—	— 0	26.02	32.250
25	o	24.0	11.0	— 0	26.60	33.050
26	o	26.8	21.8	S 2	26.70	32.656
27	b	26.6	6.4	NW 2	26.80	33.417
28	bc	27.8	—	— 0	27.30	33.136
29	bc	27.8	—	SW 1	27.32	33.163
30	bc	27.5	—	S 1	27.56	32.722
31	b	29.0	—	S 1	28.10	32.895
mean		27.4			27.70	32.695

SEPTEMBER							OCTOBER						
date	weather	air tem- perature °C	precipi- tation mm	wind	water tem- perature °C	salinity ‰	date	weather	air tem- perature °C	precipi- tation mm	wind	water tem- perature °C	salinity ‰
1	bc	29.1	—	NW 1	28.65	33.099	1	bc	20.6	—	— 0	23.48	33.094
2	bc	27.3	—	— 0	27.20	33.449	2	b	22.4	—	NW 2	23.12	32.657
3	b	27.2	—	— 0	27.30	33.510	3	b	23.3	—	NE 1	23.32	33.003
4	bc	28.4	—	NNE 2	27.50	33.236	4	c	25.8	—	SW 1	23.90	32.460
5	b	27.9	—	S 1	27.39	33.227	5	bc	20.7	5.5	NW 2	22.67	32.062
6	bc	31.0	—	— 0	27.75	33.336	6	bc	22.6	—	NW 3	22.25	33.041
7	o	24.5	85.0	NE 1	27.01	32.792	7	b	21.2	—	— 0	22.95	33.850
8	bc	29.4	3.1	S 1	27.22	33.093	8	b	21.6	—	— 0	22.88	33.867
9	o	26.0	50.5	SE 2	26.77	32.617	9	c	23.3	—	— 0	23.65	33.883
10	b	25.1	—	NW 1	26.92	32.240	10	bc	21.9	—	— 0	22.66	32.333
11	b	26.0	70.3	— 0	26.31	32.867	11	bc	21.9	9.5	NW 1	23.22	32.735
12	bc	25.7	—	— 0	26.56	32.829	12	b	21.8	—	NNW 3	22.35	33.103
13	bc	24.9	—	NE 1	25.90	32.617	13	b	19.9	—	NW 1	21.63	33.342
14	p	24.6	1.7	NE 2	25.70	32.932	14	b	20.3	—	NW 1	21.46	33.062
15	r	22.5	40.5	— 0	25.30	31.159	15	b	21.2	—	— 0	21.76	33.140
16	r	22.4	14.0	NW 2	27.00	32.949	16	b	21.8	11.8	NW 2	22.45	33.214
17	bc	25.9	97.0	NW 2	—	—	17	c	16.6	—	— 0	21.72	33.395
18	b	25.1	0.2	NW 1	25.41	32.535	18	c	19.6	—	— 0	21.88	33.619
19	bc	23.1	7.3	— 0	—	—	19	r	19.1	3.8	NE 2	22.24	33.330
20	bc	23.2	—	NW 1	25.41	32.202	20	o	21.6	13.5	NE 2	22.64	33.459
21	bc	24.1	—	— 0	25.50	32.940	21	bc	23.0	—	— 0	22.64	33.823
22	b	25.9	—	— 0	25.09	32.399	22	o	19.9	19.1	NW 2	22.16	33.540
23	bc	26.2	—	E 1	26.00	33.122	23	bc	18.5	—	NW 2	22.60	33.940
24	o	24.6	—	— 0	25.43	32.919	24	b	17.5	—	— 0	20.64	33.916
25	o	21.6	—	N 1	24.46	32.622	25	b	19.1	—	— 0	21.04	33.919
26	b	21.2	—	— 0	24.10	32.828	26	o	19.1	—	— 0	21.07	33.792
27	b	21.6	—	— 0	23.30	32.294	27	o	19.6	20.2	NW 1	21.62	33.473
28	o	22.9	—	— 0	23.59	32.792	28	b	16.4	—	— 0	20.77	33.572
29	bc	23.9	7.1	NW 2	23.80	32.245	29	bc	18.6	—	— 0	21.22	33.636
30	bc	21.5	—	NW 2	23.31	32.874	30	bc	18.1	—	— 0	21.27	33.827
							31	bc	17.1	9.2	NW 2	20.71	33.782
mean		25.1			25.92	32.776	mean		20.5			22.13	33.351

NOVEMBER						
date	weather	air temperature °C	precipitation mm	wind	water temperature °C	salinity ‰
1	c	14.2	—	N 1	20.14	33.809
2	c	15.5	—	N 1	19.81	33.722
3	r	12.1	0.3	NE 1	21.30	33.609
4	c	18.0	22.5	— 0	21.00	33.650
5	b	19.6	—	NW 1	20.75	33.915
6	o	20.7	—	S 1	20.95	33.909
7	bc	18.3	1.0	NW 2	20.13	33.784
8	o	14.3	—	N 1	19.60	33.769
9	c	14.0	—	N 1	19.60	33.787
10	r	16.8	3.2	NW 1	20.10	33.964
11	b	16.5	18.1	NW 2	19.07	33.402
12	b	14.4	—	— 0	19.18	33.428
13	b	14.1	—	— 0	19.26	33.392
14	bc	16.2	—	NW 1	19.78	33.763
15	r	18.6	45.0	E 1	19.91	32.720
16		18.2	48.2			
17	bc	17.5	—	NW 2	20.61	34.436
18	c	15.7	—	NW 3	17.82	33.417
19	b	11.4	—	— 0	16.97	32.750
20	o	15.0	—	NE 2	18.54	33.652
21	bc	12.1	1.0	WNW 4	18.40	34.044
22	o	10.3	—	N 3	16.79	34.055
23	o	10.2	—	NW 1	17.26	33.912
24	bc	10.1	3.8	WNW 3	17.74	33.938
25	bc	9.7	—	2	16.12	34.864
26	b	10.7	—	NW 2	16.73	34.534
27	b	14.4	0.2	SW 2	16.60	34.391
28	o	9.6	—	NW 2	15.61	34.294
29	o	13.8	—	NE 1	15.07	34.292
30	c	12.1	—	— 0	15.76	33.743
mean		14.5			18.64	33.826

DECEMBER						
date	weather	air temperature °C	precipitation mm	wind	water temperature °C	salinity ‰
1	bc	6.8	—	WNW 4	14.26	34.093
2	o	9.3	—	WNW 4	12.99	34.140
3	b	8.6	—	NE 1	15.10	34.016
4	b	8.7	—	— 0	15.46	33.667
5	b	9.5	—	— 0	16.22	33.899
6	b	14.5	—	— 0	16.79	33.796
7	c	15.4	—	— 0	17.60	33.837
8	bc	13.0	56.5	NW 3	17.36	33.796
9	b	8.6	—	— 0	16.64	34.337
10	b	10.8	—	— 0	18.12	34.359
11	b	10.0	—	— 0	18.59	34.350
12	r	17.5	4.1	SSE 4	17.64	34.193
13	o	6.5	26.8	WNW 4	14.65	34.349
14	bc	6.5	—	WNW 4	13.72	34.340
15	b	7.9	—	N 1	15.79	34.542
16	bc	7.8	—	NW 1	16.87	34.432
17	o	7.9	—	NW 1	17.70	
18	o	14.2	1.2	NW 2	17.62	34.226
19	o	7.9	—	NW 2	14.94	34.441
20	bc	7.5	—	NW 2	14.30	34.533
21	bc	8.6	—	NE 2	14.74	34.222
22	c	7.6	—	NE 1	15.80	34.489
23	r	12.3	1.8	NE 1	16.85	34.370
24	c	14.4	33.9	N 1	18.82	34.352
25	o	11.3	—	NW 3	16.84	34.522
26	b	10.3	—	NW 1	16.95	34.521
27	b	9.1	—	— 0	16.56	34.513
28	o	13.8	—	NE 1	17.32	34.570
29	r	10.8	10.1	— 0	17.47	34.522
30	bc	6.9	1.9	NW 3	14.90	34.523
31	o	6.9	—	NW 1	16.60	34.578
mean		10.0			16.30	34.284