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THE " OSHORO MARU " CRUISE 214 TO THE JAPAN SEA

IN APRIL 2010

1. Cruise Itinerary

Cruise 214

Departure from Hakodate

Apr. 21, 2010

Start hydrographic research (OS10004)

22

Arrival at Tsuruga

24

Departure from Tsuruga

24

Arrival at Tsuruga

25

Departure from Tsuruga

26

Finish hydrographic research (OS10051)

27

Return to Hakodate

28

Total coverage 1204.7 miles

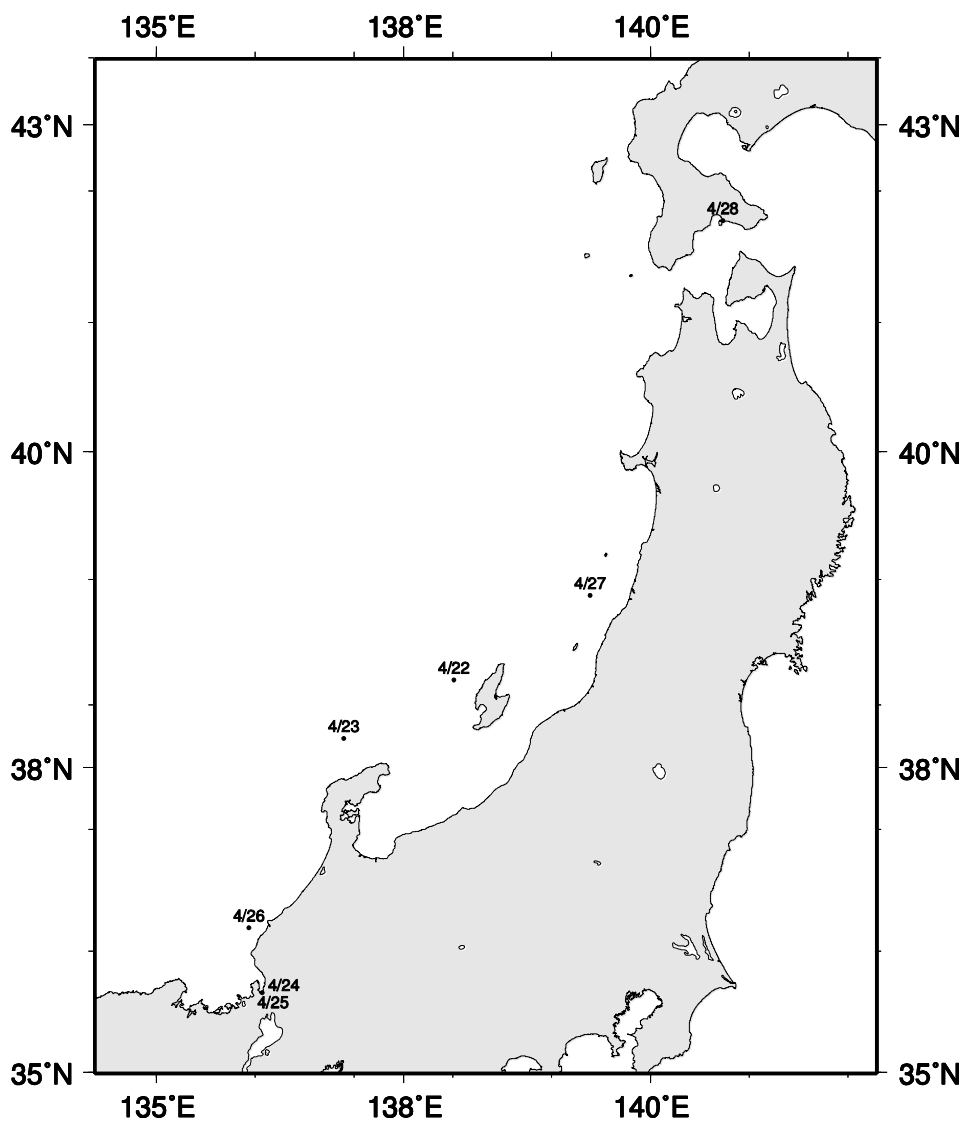


Figure 1. Noon position

2. Vessel Personnel

Captain:		Associate Professor	Shogo Takagi
Crew:	Chief Officer	Instructor	Yoshihiko Kamei
	First Officer	Instructor	Keiichiro Sakaoka
	Second Officer	Technical official	Naoki Hoshi
	Third Officer	Technical official	Takuzo Abe
	Science Officer	Technical official	Keiri Imai
	Chief Engineer	Instructor	Jyunichi Kimura
	And 26 men		

Cruise 214

Research Staff:

Associate Professor	(Laboratory of Marine Environment Science)	Yutaka Isoda
Associate Professor	(Faculty of Fisheries Training Ship Oshoro-Maru)	Yoshiyuki Kajiwara
Associate Professor	(Laboratory of Marine Environment engineering)	Masabumi Seto
Associate Professor	(Laboratory of Microbial Ecology)	Ryuji Kondo
Lecturer	(Laboratory of Marine Environment engineering)	Atsushi kaneda
Instructor	(Laboratory of Microbial Ecology)	Yoshitake Takao

Teaching Assistant 4 persons

Under Graduate Students: 54 persons

Total 64persons

3. Items of Research

Hydrographic observations:

Fig. 2 Table 1, 2

4. Data on Temperature, Salinity and Computed Dynamic Depth Anomaly

Hydrographic work on deck and the data processing were made by the deck officers, crews, research staff and cadets of the “Oshoro Maru”. Temperature and salinity were measured by CTD (Seabird SBE9Plus and SBE-19). Dynamic computations were made using a desk-top computer aboard the “Oshoro Maru”.

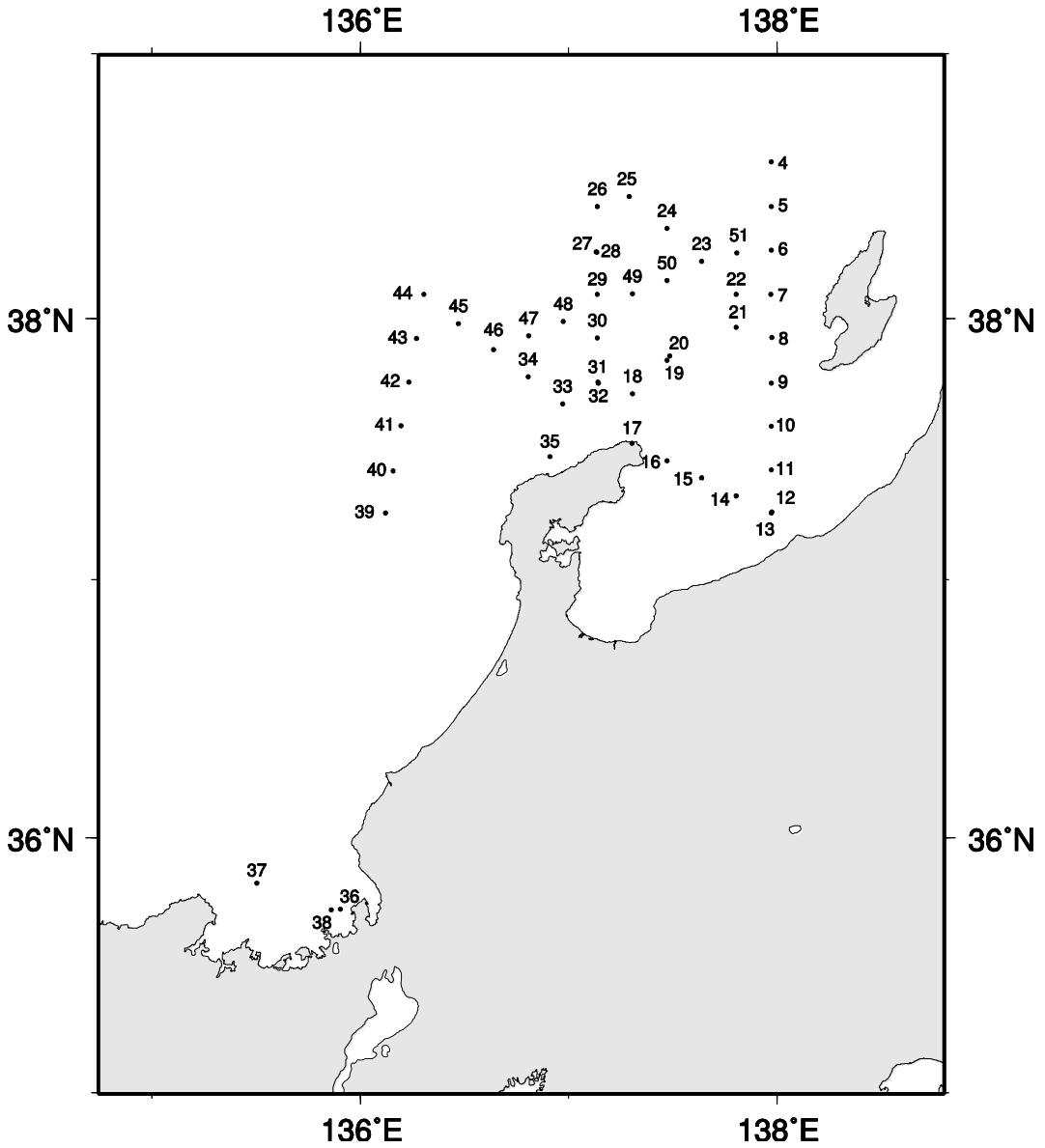


Figure 2. Oceanographic station

Table 1. List of Oceanographic Station

Station	Lat.(*)	Long.(*)	Date	S.M.T	T.Z.	Depth	COL.	TR.	S.S.T.	WR.	Remark
OS10004	38-40.0N	138-00.0E	4/22	0944	9	1860	-	-	-	r	XBT
OS10005	38-30.0N	138-00.1E	4/22	1030	9	1550	-	-	-	r	XBT
OS10006	38-20.0N	138-00.1E	4/22	1122	9	1760	-	-	-	r	XBT
OS10007	38-10.0N	137-59.9E	4/22	1113	9	1867	-	-	-	r	XBT
OS10008	38-00.2N	138-00.1E	4/22	1318	9	1845	-	-	10.3	o	9Plus-0769
OS10009	37-49.7N	138-00.0E	4/22	1453	9	1732	-	-	-	o	XBT
OS10010	37-39.9N	138-00.0E	4/22	1545	9	1485	-	-	-	r	XBT
OS10011	37-29.9N	138-00.0E	4/22	1638	9	1118	-	-	-	r	XBT
OS10012	37-20.0N	138-00.0E	4/22	1738	9	565	-	-	10.2	r	9Plus-0769
OS10013	37-20.2N	138-00.2E	4/22	1803	9	577	-	-	-	r	XBT
OS10014	37-23.8N	137-49.9E	4/22	1906	9	1553	-	-	-	r	XBT
OS10015	37-28.0N	137-40.0E	4/22	1950	9	685	-	-	-	r	XBT
OS10016	37-32.0N	137-30.0E	4/22	2035	9	785	-	-	-	r	XBT
OS10017	37-36.0N	137-19.9E	4/22	2115	9	100	-	-	-	o	XBT
OS10018	37-47.3N	137-20.0E	4/22	2216	9	120	-	-	-	r	XBT
OS10019	37-55.0N	137-30.0E	4/22	2316	9	450	-	-	-	o	XBT
OS10020	37-56.0N	137-30.7E	4/22	2321	9	620	-	-	-	o	XBT
OS10021	38-02.5N	137-49-9E	4/23	0014	9	1783	-	-	-	o	XBT
OS10022	38-10.0N	137-49.9E	4/23	0115	9	1874	-	-	-	c	XBT
OS10023	38-17.5N	137-39.9E	4/23	0211	9	1830	-	-	-	c	XBT
OS10024	38-25.0N	137-29.9E	4/23	0313	9	1215	-	-	-	o	XBT
OS10025	38-32.2N	137-19.1E	4/23	0409	9	1148	-	-	-	o	XBT
OS10026	38-29.9N	137-10.0E	4/23	0444	9	439	-	-	-	c	XBT
OS10027	38-19.6N	137-09.6E	4/23	0608	9	1150	-	-	-	c	19Plus-4636
OS10028	38-19.5N	137-09.7E	4/23	0644	9	1150	-	-	-	c	XBT
OS10029	38-09.9N	137-10.0E	4/23	0730	9	823	-	-	-	c	XBT
OS10030	38-00.0N	137-09.9E	4/23	0816	9	260	-	-	-	o	XBT
OS10031	37-49.9N	137-10.1E	4/23	0911	9	157	-	-	10.25	o	19Plus-4636
OS10032	37-49.7N	137-10.2E	4/23	0935	9	156	-	-	-	o	XBT
OS10033	37-44.9N	136-59.9E	4/23	1028	9	82	-	-	-	o	XBT
OS10034	37-51.2N	136-49.9E	4/23	1118	9	118	-	-	-	o	XBT
OS10035	37-33.0N	136-56.2E	4/23	1259	9	108	-	-	-	o	XBT
OS10036	35-47.9N	135-55.9E	4/24	1535	9	85	-	-	-	bc	9Plus-0769
OS10037	35-54.1N	135-31.9E	4/24	1845	9	212	-	-	12.9	bc	9Plus-0769
OS10038	35-47.8N	135-53.3E	4/25	0836	9	85	3	14.4	13	-	9Plus-0769
OS10039	37-20.0N	136-08.9E	4/26	1746	9	354	-	-	-	-	XBT
OS10040	37-29.6N	136-11.1E	4/26	1846	9	286	-	-	-	-	XBT
OS10041	37-40.0N	136-13.4E	4/26	1929	9	362	-	-	-	-	XBT
OS10042	37-50.0N	136-15.7E	4/26	2021	9	820	-	-	-	-	XBT
OS10043	38-00.0N	136-17.9E	4/26	2110	9	1740	-	-	-	-	XBT
OS10044	38-10.0N	136-19.9E	4/26	2201	9	2542	-	-	-	-	XBT
OS10045	38-03.4N	136-30.0E	4/26	2259	9	1308	-	-	-	-	XBT
OS10046	37-57.4N	136-40.0E	4/26	2351	9	500	-	-	-	-	XBT
OS10047	38-00.6N	136-50.1E	4/27	0039	9	338	-	-	-	-	XBT
OS10048	38-03.8N	137-00.0E	4/27	0125	9	395	-	-	-	-	XBT
OS10049	38-10.1N	137-20.0E	4/27	0249	9	1369	-	-	-	-	XBT
OS10050	38-13.1N	137-30.0E	4/27	0332	9	990	-	-	-	-	XBT
OS10051	38-19.4N	137-50.0E	4/27	0501	9	1850	-	-	-	-	XBT

(*) : Fixed position by Global Positioning System

Table 2. Oceanographic data

Station OS10004				Station OS10005				Station OS10006			
Longitude 138-00.0E				Longitude 138-00.1E				Longitude 138-00.1E			
Latitude 38-40.0N				Latitude 38-30.0N				Latitude 38-20.0N			
Depth(m) 1860				Depth(m) 1550				Depth(m) 1760			
Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T
5	10.302	-	-	5	10.210	-	-	5	10.058	-	-
10	10.328	-	-	10	10.211	-	-	10	10.024	-	-
20	10.225	-	-	20	10.148	-	-	20	10.022	-	-
30	10.038	-	-	30	9.864	-	-	30	9.868	-	-
40	9.960	-	-	40	9.938	-	-	40	9.766	-	-
50	9.836	-	-	50	9.925	-	-	50	9.620	-	-
75	9.570	-	-	75	9.590	-	-	75	9.338	-	-
100	9.524	-	-	100	9.540	-	-	100	9.319	-	-
125	9.010	-	-	125	9.360	-	-	125	8.590	-	-
150	8.374	-	-	150	8.812	-	-	150	7.868	-	-
200	6.220	-	-	200	6.099	-	-	200	5.352	-	-
250	4.021	-	-	250	4.732	-	-	250	3.324	-	-
300	2.363	-	-	300	2.727	-	-	300	1.860	-	-
400	1.243	-	-	400	1.336	-	-	400	1.130	-	-

Station OS10007				Station OS10008				Station OS10009			
Longitude 137-59.9E				Longitude 138-00.1E				Longitude 138-00.0E			
Latitude 38-10.0N				Latitude 38-00.2N				Latitude 37-49.7N			
Depth(m) 1867				Depth(m) 1845				Depth(m) 1732			
Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T
5	9.839	-	-	5	9.981	33.841	26.050	5	9.899	-	-
10	9.811	-	-	10	9.976	33.841	26.051	10	9.899	-	-
20	9.820	-	-	20	9.842	33.893	26.114	20	9.910	-	-
30	9.880	-	-	30	9.711	34.016	26.232	30	9.978	-	-
40	9.888	-	-	40	9.319	34.008	26.290	40	9.832	-	-
50	9.776	-	-	50	9.188	34.054	26.347	50	9.740	-	-
75	9.269	-	-	75	8.692	34.076	26.443	75	9.490	-	-
100	8.414	-	-	100	8.143	34.083	26.532	100	9.110	-	-
125	7.340	-	-	125	7.007	34.091	26.701	125	8.340	-	-
150	6.098	-	-	150	6.235	34.086	26.801	150	7.454	-	-
200	3.892	-	-	175	5.257	34.076	26.913	200	4.719	-	-
250	2.000	-	-	200	3.898	34.065	27.053	250	2.500	-	-
300	1.347	-	-	250	2.457	34.061	27.182	300	1.617	-	-
400	0.897	-	-	300	1.430	34.140	27.325	400	0.910	-	-
				400	0.860	34.088	27.321				

Station OS10010				Station OS10011				Station OS10012			
Longitude 138-00.0E				Longitude 138-00.0E				Longitude 138-00.0E			
Latitude 37-39.9N				Latitude 37-29.9N				Latitude 37-20.0N			
Depth(m) 1485				Depth(m) 1118				Depth(m) 565			
Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T
5	10.221	-	-	5	10.381	-	-	5	10.163	33.024	25.382
10	10.337	-	-	10	10.391	-	-	10	10.173	33.177	25.500
20	10.843	-	-	20	10.340	-	-	20	10.146	33.503	25.759
30	10.752	-	-	30	10.244	-	-	30	9.996	33.929	26.116
40	10.652	-	-	40	10.142	-	-	40	10.052	34.000	26.162
50	10.528	-	-	50	10.140	-	-	50	9.986	34.007	26.179
75	10.629	-	-	75	9.700	-	-	75	9.723	34.015	26.229
100	10.496	-	-	100	9.620	-	-	100	9.637	34.048	26.270
125	10.330	-	-	125	9.530	-	-	125	9.442	34.058	26.309
150	9.640	-	-	150	9.230	-	-	150	9.044	34.071	26.384
200	6.841	-	-	200	5.682	-	-	175	7.805	34.087	26.586
250	3.931	-	-	250	2.540	-	-	200	5.210	34.071	26.914
300	2.840	-	-	300	1.350	-	-	250	2.476	34.060	27.180
400	1.900	-	-	400	0.893	-	-	300	2.293	34.146	27.264

Table 2. Oceanographic data (continued)

Station OS10013				Station OS10014				Station OS10015			
Longitude 138°00.2E				Longitude 137°49.9E				Longitude 137°40.0E			
Latitude 37°20.2N				Latitude 37°23.8N				Latitude 37°28.0N			
Depth(m) 577				Depth(m) 1553				Depth(m) 685			
Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T
5	10.179	-	-	5	10.139	-	-	5	10.070	-	-
10	10.140	-	-	10	10.101	-	-	10	10.080	-	-
20	10.030	-	-	20	9.988	-	-	20	10.032	-	-
30	10.020	-	-	30	9.782	-	-	30	9.952	-	-
40	10.010	-	-	40	9.780	-	-	40	9.940	-	-
50	9.960	-	-	50	9.680	-	-	50	9.870	-	-
75	9.740	-	-	75	9.480	-	-	75	9.740	-	-
100	9.620	-	-	100	9.440	-	-	100	9.346	-	-
125	9.390	-	-	125	9.110	-	-	125	8.970	-	-
150	8.982	-	-	150	7.163	-	-	150	8.084	-	-
200	5.113	-	-	200	3.101	-	-	200	6.301	-	-
250	2.570	-	-	250	1.822	-	-	250	3.872	-	-
300	1.593	-	-	300	1.503	-	-	300	2.617	-	-
400	0.901	-	-	400	1.017	-	-	400	1.840	-	-

Station OS10016				Station OS10017				Station OS10018			
Longitude 137°30.0E				Longitude 137°19.9E				Longitude 137°20.0E			
Latitude 37°32.0N				Latitude 37°36.0N				Latitude 37°47.3N			
Depth(m) 785				Depth(m) 100				Depth(m) 120			
Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T
5	10.019	-	-	5	10.169	-	-	5	10.221	-	-
10	10.011	-	-	10	10.160	-	-	10	10.170	-	-
20	10.000	-	-	20	10.130	-	-	20	10.102	-	-
30	10.002	-	-	30	10.112	-	-	30	9.980	-	-
40	9.990	-	-	40	10.100	-	-	40	9.930	-	-
50	9.812	-	-	50	10.120	-	-	50	9.880	-	-
75	9.630	-	-	75	10.070	-	-	75	9.830	-	-
100	9.526	-	-	100	10.014	-	-	100	9.576	-	-
125	9.410	-	-	125	10.050	-	-	125	9.140	-	-
150	8.854	-	-	150	10.050	-	-	150	9.196	-	-
200	5.112	-	-	200	10.080	-	-	200	9.270	-	-
250	3.002	-	-	250	-2.220	-	-	250	9.300	-	-
300	1.790	-	-	300	-2.220	-	-	300	-2.220	-	-
400	1.036	-	-	400	-2.220	-	-	400	-2.220	-	-

Station OS10019				Station OS10020				Station OS10021			
Longitude 137°30.0E				Longitude 137°30.7E				Longitude 137°49.9E			
Latitude 37°55.0N				Latitude 37°56.0N				Latitude 38°02.5N			
Depth(m) 450				Depth(m) 620				Depth(m) 1783			
Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T
5	2.250	-	-	5	9.831	-	-	5	9.199	-	-
10	2.221	-	-	10	9.813	-	-	10	9.171	-	-
20	2.022	-	-	20	9.812	-	-	20	9.170	-	-
30	1.830	-	-	30	9.802	-	-	30	9.150	-	-
40	1.654	-	-	40	9.443	-	-	40	7.955	-	-
50	1.608	-	-	50	9.448	-	-	50	7.435	-	-
75	1.410	-	-	75	8.639	-	-	75	6.259	-	-
100	1.300	-	-	100	7.626	-	-	100	5.554	-	-
125	1.180	-	-	125	5.880	-	-	125	4.330	-	-
150	1.060	-	-	150	4.542	-	-	150	3.308	-	-
200	0.880	-	-	200	2.699	-	-	200	2.068	-	-
250	0.898	-	-	250	1.520	-	-	250	1.348	-	-
300	0.900	-	-	300	1.163	-	-	300	1.020	-	-
400	0.910	-	-	400	0.821	-	-	400	0.787	-	-

Table 2. Oceanographic data (continued)

Station OS10022				Station OS10023				Station OS10024			
Longitude 137-49.9E				Longitude 137-39.9E				Longitude 137-29.9E			
Latitude 38-10.0N				Latitude 38-17.5N				Latitude 38-25.0N			
Depth(m) 1874				Depth(m) 1830				Depth(m) 1215			
Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T
5	9.109	-	-	5	9.849	-	-	5	9.980	-	-
10	9.041	-	-	10	9.841	-	-	10	9.998	-	-
20	8.063	-	-	20	9.830	-	-	20	9.958	-	-
30	7.346	-	-	30	9.780	-	-	30	9.920	-	-
40	6.802	-	-	40	9.450	-	-	40	9.722	-	-
50	6.514	-	-	50	9.240	-	-	50	9.658	-	-
75	5.760	-	-	75	7.989	-	-	75	9.250	-	-
100	5.018	-	-	100	7.093	-	-	100	8.894	-	-
125	3.570	-	-	125	5.580	-	-	125	7.940	-	-
150	2.592	-	-	150	3.498	-	-	150	6.924	-	-
200	1.711	-	-	200	2.349	-	-	200	4.682	-	-
250	1.240	-	-	250	1.660	-	-	250	2.631	-	-
300	1.003	-	-	300	1.160	-	-	300	1.627	-	-
400	0.793	-	-	400	0.784	-	-	400	0.960	-	-

Station OS10025				Station OS10026				Station OS10027			
Longitude 137-19.1E				Longitude 137-10.0E				Longitude 137-09.6E			
Latitude 38-32.2N				Latitude 38-29.9N				Latitude 38-19.6N			
Depth(m) 1148				Depth(m) 439				Depth(m) 1150			
Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T
5	10.120	-	-	5	10.265	-	-	5	9.795	33.916	26.140
10	10.131	-	-	10	10.179	-	-	10	9.793	33.916	26.140
20	10.122	-	-	20	10.172	-	-	20	9.792	33.915	26.140
30	10.130	-	-	30	10.170	-	-	30	10.173	34.079	26.203
40	10.112	-	-	40	10.180	-	-	40	10.154	34.075	26.204
50	10.112	-	-	50	10.176	-	-	50	10.074	34.086	26.226
75	9.890	-	-	75	10.180	-	-	75	9.904	34.091	26.258
100	9.826	-	-	100	10.086	-	-	100	9.662	34.083	26.292
125	9.780	-	-	125	9.920	-	-	125	9.471	34.144	26.372
150	9.682	-	-	150	9.742	-	-	150	9.327	34.157	26.406
200	9.062	-	-	200	9.221	-	-	175	9.069	34.155	26.445
250	6.015	-	-	250	6.771	-	-	200	7.972	34.098	26.570
300	3.690	-	-	300	4.140	-	-	250	4.723	34.087	26.983
400	1.429	-	-	400	1.577	-	-	300	2.237	34.072	27.209
								400	1.184	34.069	27.285

Station OS10028				Station OS10029				Station OS10030			
Longitude 137-09.7E				Longitude 137-10.0E				Longitude 137-09.9E			
Latitude 38-19.5N				Latitude 38-09.9N				Latitude 38-00.0N			
Depth(m) 1150				Depth(m) 823				Depth(m) 260			
Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T
5	9.849	-	-	5	10.010	-	-	5	9.939	-	-
10	9.831	-	-	10	10.009	-	-	10	9.930	-	-
20	9.830	-	-	20	9.998	-	-	20	9.910	-	-
30	10.063	-	-	30	10.032	-	-	30	9.910	-	-
40	10.160	-	-	40	10.052	-	-	40	9.854	-	-
50	10.110	-	-	50	9.910	-	-	50	9.800	-	-
75	9.819	-	-	75	9.800	-	-	75	9.650	-	-
100	9.710	-	-	100	9.328	-	-	100	9.450	-	-
125	9.520	-	-	125	8.950	-	-	125	9.300	-	-
150	9.296	-	-	150	8.306	-	-	150	8.568	-	-
200	7.982	-	-	200	5.892	-	-	200	6.082	-	-
250	4.652	-	-	250	3.481	-	-	250	3.392	-	-
300	2.230	-	-	300	2.087	-	-	300	3.243	-	-
400	1.203	-	-	400	0.974	-	-	400	-2.220	-	-

Table 2. Oceanographic data (continued)

Station OS10031				Station OS10032				Station OS10033			
Longitude 137-10.1E				Longitude 137-10.2E				Longitude 136-59.9E			
Latitude 37-49.9N				Latitude 37-49.7N				Latitude 37-44.9N			
Depth(m) 157				Depth(m) 156				Depth(m) 82			
Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T
5	10.107	33.993	26.148	5	10.211	-	-	5	10.470	-	-
10	10.093	33.963	26.126	10	10.210	-	-	10	10.472	-	-
20	10.093	33.964	26.127	20	10.218	-	-	20	10.423	-	-
30	10.199	34.027	26.158	30	10.232	-	-	30	10.400	-	-
40	10.155	34.074	26.202	40	10.204	-	-	40	10.382	-	-
50	9.998	34.068	26.224	50	10.018	-	-	50	10.382	-	-
75	9.906	34.099	26.264	75	9.931	-	-	75	10.038	-	-
100	9.705	34.098	26.297	100	9.542	-	-	100	10.000	-	-
				125	9.130	-	-	125	10.000	-	-
				150	8.239	-	-	150	10.020	-	-
				200	7.939	-	-	200	-2.220	-	-
				250	-2.220	-	-	250	-2.220	-	-
				300	-2.220	-	-	300	-2.220	-	-
				400	-2.220	-	-	400	-2.220	-	-

Station OS10034				Station OS10035				Station OS10036			
Longitude 136-49.9E				Longitude 136-56.2E				Longitude 135-55.9E			
Latitude 37-51.2N				Latitude 37-33.0N				Latitude 35-47.9N			
Depth(m) 118				Depth(m) 108				Depth(m) 85			
Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T
5	10.650	-	-	5	10.600	-	-	5	12.692	33.537	25.320
10	10.630	-	-	10	10.561	-	-	10	12.779	34.233	25.842
20	10.598	-	-	20	10.500	-	-	20	12.511	34.325	25.967
30	10.586	-	-	30	10.472	-	-	30	12.470	34.349	25.993
40	10.550	-	-	40	10.372	-	-	40	12.369	34.362	26.023
50	10.556	-	-	50	10.204	-	-	50	12.308	34.364	26.036
75	10.540	-	-	75	9.780	-	-				
100	10.496	-	-	100	9.674	-	-				
125	10.430	-	-	125	9.780	-	-				
150	10.450	-	-	150	9.800	-	-				
200	10.470	-	-	200	9.781	-	-				
250	10.490	-	-	250	9.801	-	-				
300	-2.220	-	-	300	-2.220	-	-				
400	-2.220	-	-	400	-2.220	-	-				

Station OS10037				Station OS10038				Station OS10039			
Longitude 135-31.9E				Longitude 135-53.3E				Longitude 136-08.9E			
Latitude 35-54.1N				Latitude 35-47.8N				Latitude 37-20.0N			
Depth(m) 212				Depth(m) 85				Depth(m) 354			
Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T
5	12.532	34.122	25.805	5	12.556	33.718	25.487	5	11.879	-	-
10	12.478	34.142	25.831	10	12.613	33.914	25.628	10	11.888	-	-
20	12.338	34.300	25.981	20	12.720	34.349	25.944	20	11.593	-	-
30	12.318	34.344	26.019	30	12.517	34.359	25.992	30	11.090	-	-
40	12.223	34.383	26.068	40	12.395	34.361	26.017	40	10.748	-	-
50	12.111	34.388	26.093	50	12.266	34.355	26.037	50	10.550	-	-
75	11.650	34.354	26.153					75	10.370	-	-
100	11.214	34.293	26.186					100	10.200	-	-
125	10.718	34.229	26.225					125	10.120	-	-
150	10.302	34.189	26.267					150	9.800	-	-
175	9.383	34.144	26.386					200	7.564	-	-
								250	3.351	-	-
								300	1.537	-	-
								400	0.597	-	-

Table 2. Oceanographic data (continued)

Station OS10040				Station OS10041				Station OS10042			
Longitude 136-11.1E				Longitude 136-13.4E				Longitude 136-15.7E			
Latitude 37-29.6N				Latitude 37-40.0N				Latitude 37-50.0N			
Depth(m) 286				Depth(m) 362				Depth(m) 820			
Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T
5	11.690	-	-	5	11.541	-	-	5	11.541	-	-
10	11.681	-	-	10	11.531	-	-	10	11.550	-	-
20	11.420	-	-	20	11.380	-	-	20	11.344	-	-
30	11.274	-	-	30	11.372	-	-	30	10.990	-	-
40	11.064	-	-	40	11.292	-	-	40	10.592	-	-
50	10.622	-	-	50	10.962	-	-	50	10.500	-	-
75	10.330	-	-	75	10.900	-	-	75	9.860	-	-
100	10.294	-	-	100	10.580	-	-	100	9.670	-	-
125	10.200	-	-	125	10.190	-	-	125	9.090	-	-
150	9.782	-	-	150	9.464	-	-	150	8.282	-	-
200	8.115	-	-	200	6.571	-	-	200	4.482	-	-
250	3.715	-	-	250	3.110	-	-	250	2.369	-	-
300	1.300	-	-	300	1.793	-	-	300	1.380	-	-
400	1.460	-	-	400	0.916	-	-	400	0.760	-	-

Station OS10043				Station OS10044				Station OS10045			
Longitude 136-17.9E				Longitude 136-19.9E				Longitude 136-30.0E			
Latitude 38-00.0N				Latitude 38-10.0N				Latitude 38-03.4N			
Depth(m) 1740				Depth(m) 2542				Depth(m) 1308			
Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T
5	10.720	-	-	5	10.320	-	-	5	10.510	-	-
10	10.719	-	-	10	10.310	-	-	10	10.518	-	-
20	10.640	-	-	20	10.312	-	-	20	10.422	-	-
30	10.628	-	-	30	10.047	-	-	30	10.222	-	-
40	10.570	-	-	40	10.280	-	-	40	10.176	-	-
50	10.392	-	-	50	10.152	-	-	50	10.175	-	-
75	10.200	-	-	75	9.901	-	-	75	10.010	-	-
100	10.004	-	-	100	9.648	-	-	100	9.906	-	-
125	9.570	-	-	125	9.210	-	-	125	9.690	-	-
150	8.572	-	-	150	9.140	-	-	150	9.392	-	-
200	5.050	-	-	200	6.611	-	-	200	6.610	-	-
250	2.329	-	-	250	3.270	-	-	250	2.882	-	-
300	1.373	-	-	300	1.783	-	-	300	1.843	-	-
400	0.860	-	-	400	0.977	-	-	400	0.801	-	-

Station OS10046				Station OS10047				Station OS10048			
Longitude 136-40.0E				Longitude 136-50.1E				Longitude 137-00.0E			
Latitude 37-57.4N				Latitude 38-00.6N				Latitude 38-03.8N			
Depth(m) 500				Depth(m) 338				Depth(m) 395			
Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T
5	10.809	-	-	5	10.121	-	-	5	10.241	-	-
10	10.792	-	-	10	10.121	-	-	10	10.240	-	-
20	10.800	-	-	20	10.122	-	-	20	10.220	-	-
30	10.402	-	-	30	10.106	-	-	30	10.148	-	-
40	10.322	-	-	40	9.992	-	-	40	9.990	-	-
50	10.288	-	-	50	9.812	-	-	50	9.882	-	-
75	10.390	-	-	75	9.590	-	-	75	9.570	-	-
100	10.216	-	-	100	9.390	-	-	100	9.090	-	-
125	9.580	-	-	125	9.260	-	-	125	8.650	-	-
150	8.732	-	-	150	8.910	-	-	150	7.504	-	-
200	6.951	-	-	200	6.175	-	-	200	4.921	-	-
250	3.739	-	-	250	3.020	-	-	250	2.661	-	-
300	1.657	-	-	300	1.493	-	-	300	1.540	-	-
400	0.767	-	-	400	1.080	-	-	400	0.720	-	-

Station OS10049				Station OS10050				Station OS10051			
Longitude 137-20.0E				Longitude 137-30.0E				Longitude 137-50.0E			
Latitude 38-10.1N				Latitude 38-13.1N				Latitude 38-19.4N			
Depth(m) 1369				Depth(m) 990				Depth(m) 1850			
Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T
5	10.121	-	-	5	9.890	-	-	5	10.470	-	-
10	10.110	-	-	10	9.891	-	-	10	10.468	-	-
20	9.815	-	-	20	9.872	-	-	20	10.085	-	-
30	8.799	-	-	30	9.624	-	-	30	9.970	-	-
40	7.942	-	-	40	8.775	-	-	40	9.890	-	-
50	7.035	-	-	50	8.055	-	-	50	9.622	-	-
75	5.529	-	-	75	6.620	-	-	75	9.550	-	-
100	4.717	-	-	100	6.032	-	-	100	9.252	-	-
125	3.290	-	-	125	4.820	-	-	125	8.830	-	-
150	2.642	-	-	150	3.932	-	-	150	8.222	-	-
200	1.770	-	-	200	2.169	-	-	200	5.631	-	-
250	1.221	-	-	250	1.440	-	-	250	2.950	-	-
300	0.973	-	-	300	1.027	-	-	300	1.857	-	-
400	0.690	-	-	400	0.743	-	-	400	1.030	-	-