



HOKKAIDO UNIVERSITY

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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

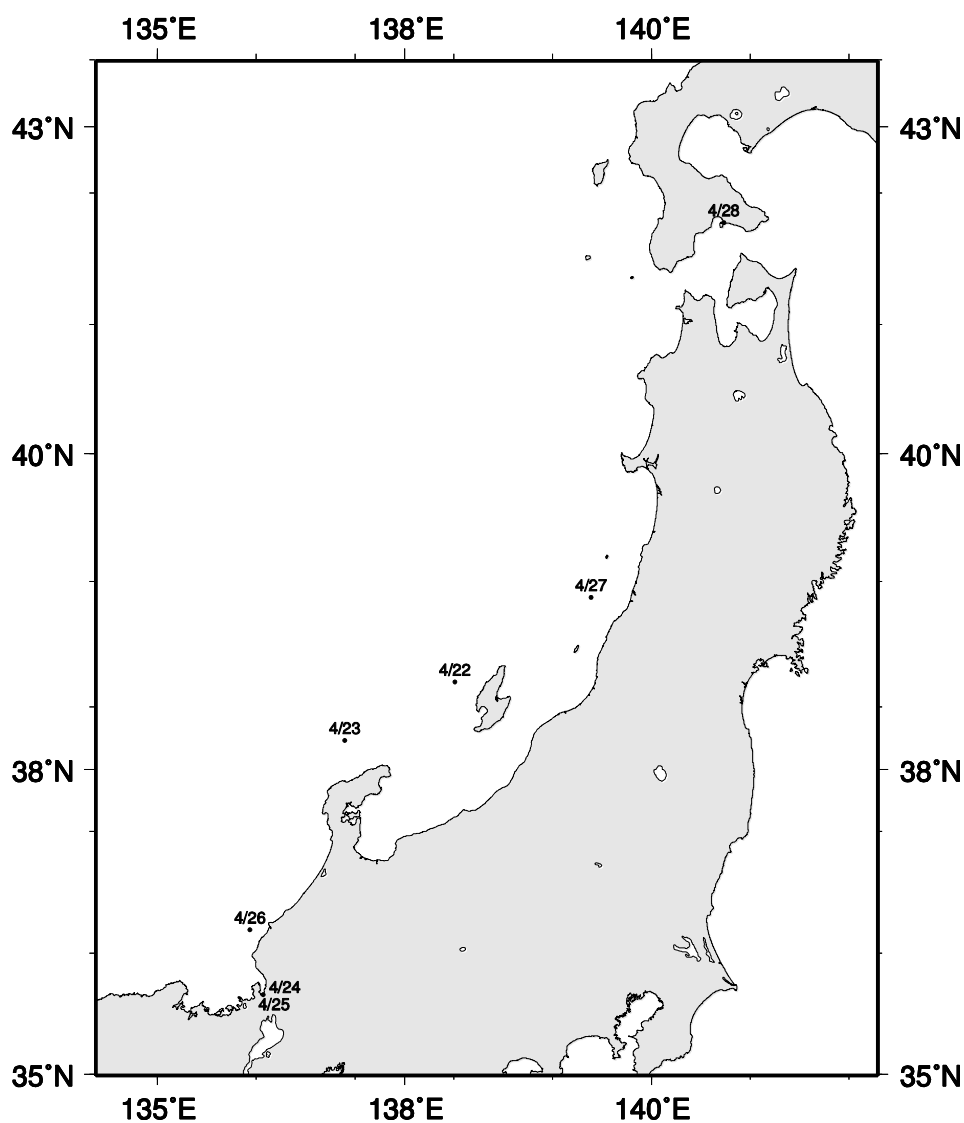


Figure 1. Noon position

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 Kajiware
	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”.

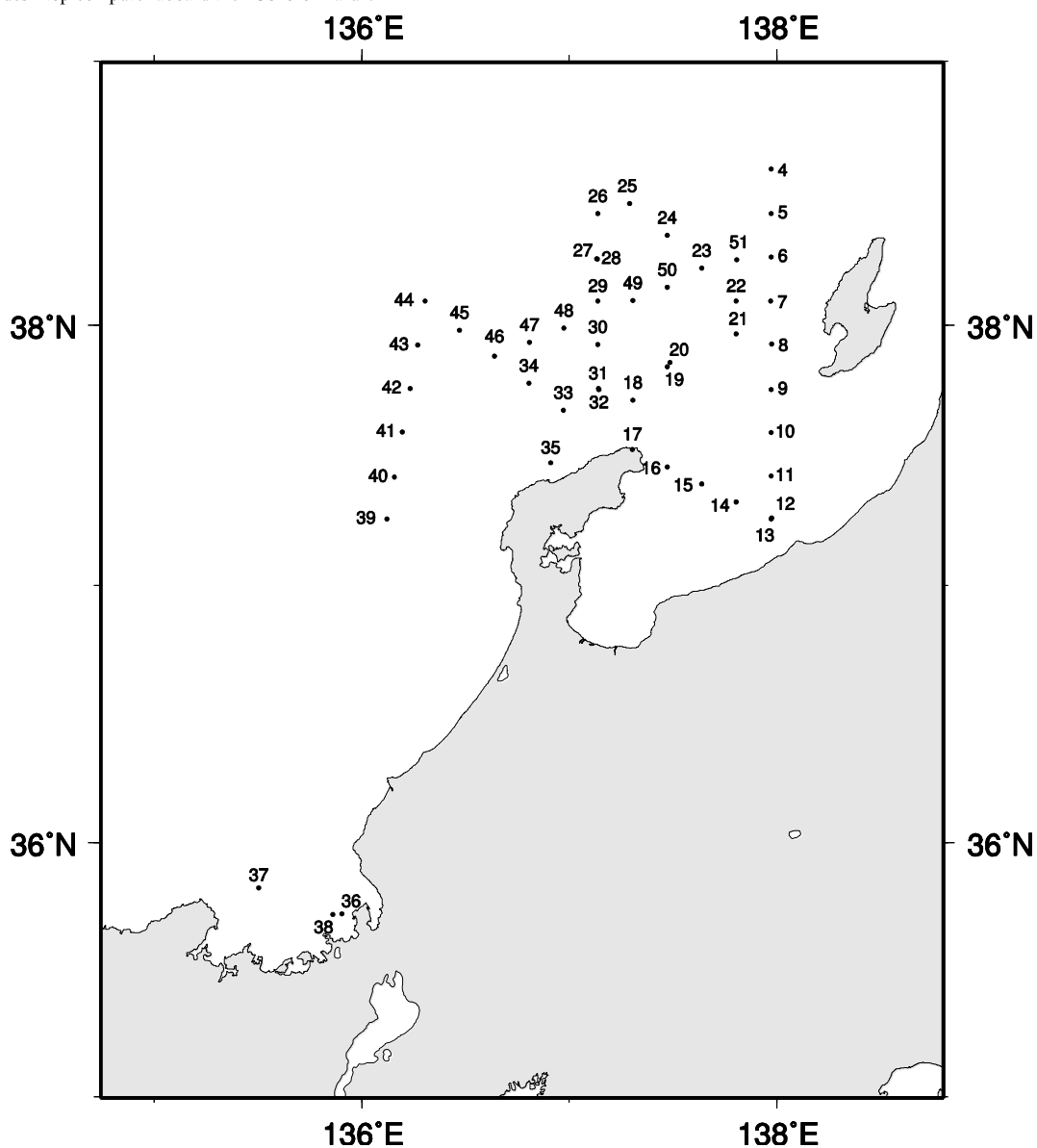


Figure 2. Oceanographic station

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 Longitude 138-00.0E Latitude 38-40.0N Depth(m) 1860				Station OS10005 Longitude 138-00.1E Latitude 38-30.0N Depth(m) 1550				Station OS10006 Longitude 138-00.1E Latitude 38-20.0N 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 Longitude 137-59.9E Latitude 38-10.0N Depth(m) 1867				Station OS10008 Longitude 138-00.1E Latitude 38-00.2N Depth(m) 1845				Station OS10009 Longitude 138-00.0E Latitude 37-49.7N 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 Longitude 138-00.0E Latitude 37-39.9N Depth(m) 1485				Station OS10011 Longitude 138-00.0E Latitude 37-29.9N Depth(m) 1118				Station OS10012 Longitude 138-00.0E Latitude 37-20.0N 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	
Longitude		137-10.1E	
Latitude		37-49.9N	
Depth(m)		157	
Press.	Temp.	Sal.	SIG-T
5	10.107	33.993	26.148
10	10.093	33.963	26.126
20	10.093	33.964	26.127
30	10.199	34.027	26.158
40	10.155	34.074	26.202
50	9.998	34.068	26.224
75	9.906	34.099	26.264
100	9.705	34.098	26.297

Station		OS10032	
Longitude		137-10.2E	
Latitude		37-49.7N	
Depth(m)		156	
Press.	Temp.	Sal.	SIG-T
5	10.211	-	-
10	10.210	-	-
20	10.218	-	-
30	10.232	-	-
40	10.204	-	-
50	10.018	-	-
75	9.931	-	-
100	9.542	-	-
125	9.130	-	-
150	8.239	-	-
200	7.939	-	-
250	-2.220	-	-
300	-2.220	-	-
400	-2.220	-	-

Station		OS10033	
Longitude		136-59.9E	
Latitude		37-44.9N	
Depth(m)		82	
Press.	Temp.	Sal.	SIG-T
5	10.470	-	-
10	10.472	-	-
20	10.423	-	-
30	10.400	-	-
40	10.382	-	-
50	10.382	-	-
75	10.038	-	-
100	10.000	-	-
125	10.000	-	-
150	10.020	-	-
200	-2.220	-	-
250	-2.220	-	-
300	-2.220	-	-
400	-2.220	-	-

Station		OS10034	
Longitude		136-49.9E	
Latitude		37-51.2N	
Depth(m)		118	
Press.	Temp.	Sal.	SIG-T
5	10.650	-	-
10	10.630	-	-
20	10.598	-	-
30	10.586	-	-
40	10.550	-	-
50	10.556	-	-
75	10.540	-	-
100	10.496	-	-
125	10.430	-	-
150	10.450	-	-
200	10.470	-	-
250	10.490	-	-
300	-2.220	-	-
400	-2.220	-	-

Station		OS10035	
Longitude		136-56.2E	
Latitude		37-33.0N	
Depth(m)		108	
Press.	Temp.	Sal.	SIG-T
5	10.600	-	-
10	10.561	-	-
20	10.500	-	-
30	10.472	-	-
40	10.372	-	-
50	10.204	-	-
75	9.780	-	-
100	9.674	-	-
125	9.780	-	-
150	9.800	-	-
200	9.781	-	-
250	9.801	-	-
300	-2.220	-	-
400	-2.220	-	-

Station		OS10036	
Longitude		135-55.9E	
Latitude		35-47.9N	
Depth(m)		85	
Press.	Temp.	Sal.	SIG-T
5	12.692	33.537	25.320
10	12.779	34.233	25.842
20	12.511	34.325	25.967
30	12.470	34.349	25.993
40	12.369	34.362	26.023
50	12.308	34.364	26.036

Station		OS10037	
Longitude		135-31.9E	
Latitude		35-54.1N	
Depth(m)		212	
Press.	Temp.	Sal.	SIG-T
5	12.532	34.122	25.805
10	12.478	34.142	25.831
20	12.338	34.300	25.981
30	12.318	34.344	26.019
40	12.223	34.383	26.068
50	12.111	34.388	26.093
75	11.650	34.354	26.153
100	11.214	34.293	26.186
125	10.718	34.229	26.225
150	10.302	34.189	26.267
175	9.383	34.144	26.386

Station		OS10038	
Longitude		135-53.3E	
Latitude		35-47.8N	
Depth(m)		85	
Press.	Temp.	Sal.	SIG-T
5	12.556	33.718	25.487
10	12.613	33.914	25.628
20	12.720	34.349	25.944
30	12.517	34.359	25.992
40	12.395	34.361	26.017
50	12.266	34.355	26.037

Station		OS10039	
Longitude		136-08.9E	
Latitude		37-20.0N	
Depth(m)		354	
Press.	Temp.	Sal.	SIG-T
5	11.879	-	-
10	11.888	-	-
20	11.593	-	-
30	11.090	-	-
40	10.748	-	-
50	10.550	-	-
75	10.370	-	-
100	10.200	-	-
125	10.120	-	-
150	9.800	-	-
200	7.564	-	-
250	3.351	-	-
300	1.537	-	-
400	0.597	-	-

Table 2. Oceanographic data (continued)

Station OS10040 Longitude 136-11.1E Latitude 37-29.6N Depth(m) 286				Station OS10041 Longitude 136-13.4E Latitude 37-40.0N Depth(m) 362				Station OS10042 Longitude 136-15.7E Latitude 37-50.0N 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 Longitude 136-17.9E Latitude 38-00.0N Depth(m) 1740				Station OS10044 Longitude 136-19.9E Latitude 38-10.0N Depth(m) 2542				Station OS10045 Longitude 136-30.0E Latitude 38-03.4N 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 Longitude 136-40.0E Latitude 37-57.4N Depth(m) 500				Station OS10047 Longitude 136-50.1E Latitude 38-00.6N Depth(m) 338				Station OS10048 Longitude 137-00.0E Latitude 38-03.8N 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 Longitude 137-20.0E Latitude 38-10.1N Depth(m) 1369				Station OS10050 Longitude 137-30.0E Latitude 38-13.1N Depth(m) 990				Station OS10051 Longitude 137-50.0E Latitude 38-19.4N 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	-	-