



HOKKAIDO UNIVERSITY

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**THE " OSHORO MARU " CRUISE 221 TO THE JAPAN SEA
AND SETO INLAND SEA**

IN OCTOBER-NOVEMBER 2010

1. Cruise Itinerary

Cruise 221

Departure from Hakodate	Oct. 22, 2010
Start hydrographic research (OS10180)	22
Arrival at Nagasaki	28
Departure from Nagasaki	31
Finish hydrographic research (OS10190)	Nov. 6
Return to Hakodate	7

Total coverage 2109.0miles 14days at sea and two days at port

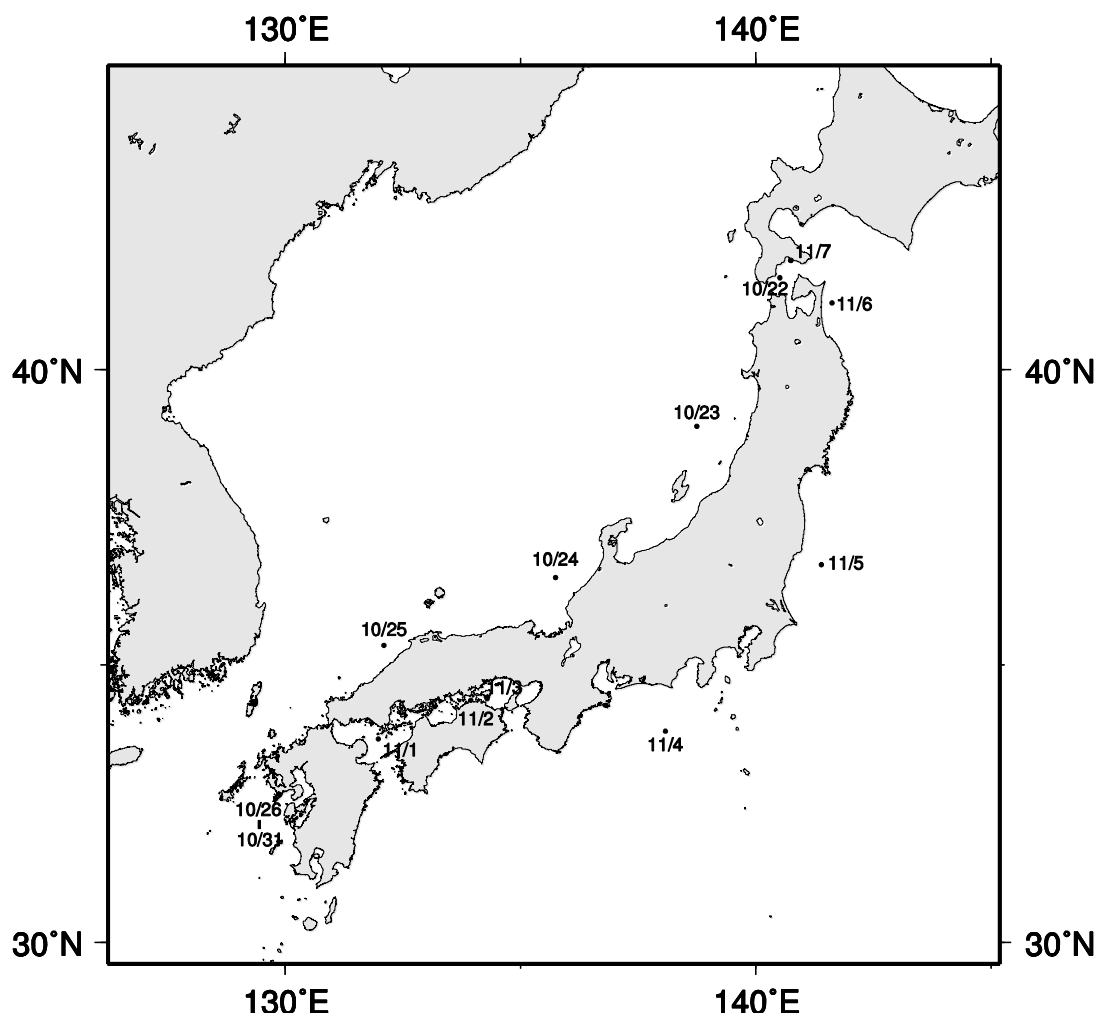


Figure 1. Noon position

2. Vessel Personnel			
Captain:		Associate Professor	Shogo Takagi
Crew:	Chief Officer	Associate Professor	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 23 men		
Cruise 221			
Under Graduate instructor:	Associate Professor	(Laboratory of Marine Bioresource and EnvironmentSensing)	Toru Mukai
	Instructor	(Field Science Center for Northern Biosphere, Hokkaido University)	Jun Yamamoto
	Research Fellow	(Graduate School of Information and Technology GCOE)	Toshiro Iwamori
Guest Scientist	Associate Professor	(Graduate School of Environmental Science)	Yutaka Watanabe
	Hakodate - Nagasaki	(Institute of Low Temperature Science, Hokkaido University)	Jun Nishioka
	Associate Professor	(faculty of fishing sciences, Chonnam National University)	Miyuki Hirose
	Nagasaki - Hakodate		
	Invitation professor		
	Hakodate - Nagasaki		
Teaching Assistant:	3 Person		
Graduate Students:	3 Persons		
Under Graduate Students:	19 Persons		
	Total 31 persons		

3. Items of Research

Hydrographic observations:
 Biological research for squid caught by jigging:
 Plankton and jellyfish samplings by NORPAC-net, FMT-net:
 Sediment sampling and observation by Smith-McIntyre Grab:
 Water samplings by Niskin bottles and underwater tug plane:

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, Science officer, crews, research staff and cadets of the “Oshoromaru”. Temperature and salinity were measured by CTD (Seabird SBE-9Plus and SBE-19Plus). Dynamic computations were made using a desk-top computer aboard the “Oshoromaru”. Water and Plankton sampling were also carried out at almost hydrographic stations.

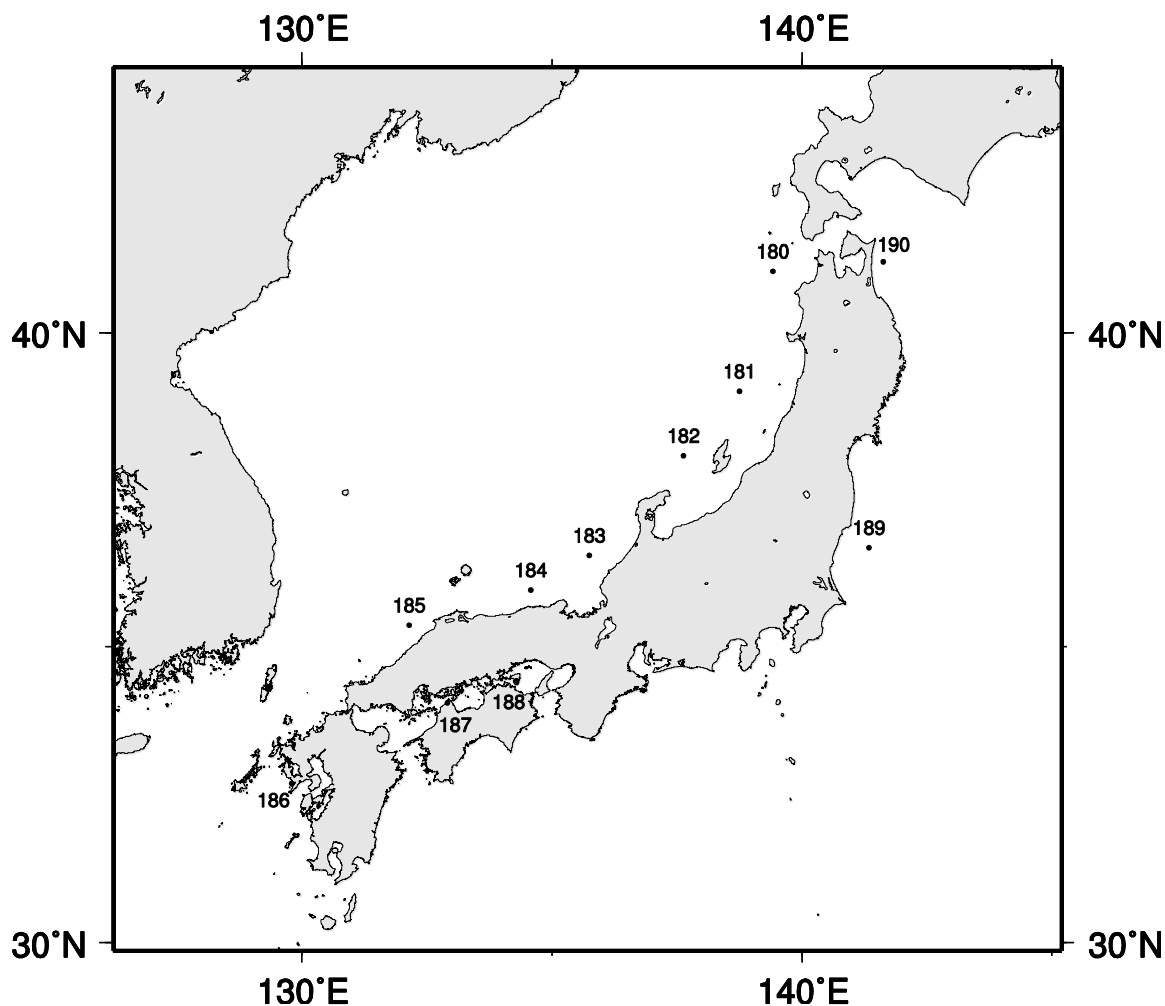


Figure 2. Oceanographic station

Table 1. List of Oceanographic Station

Station	Lat.(*)	Long.(*)	Date	S.M.T	T.Z.	Depth	COL.	TR.	S.S.T.	WR.	Remark
OS10180	40-57.1N	139-23.7E	10/22	1157	9	2430	-	-	20.4	bc	9Plus-0769
OS10181	39-06.6N	138-43.3E	10/23	0111	9	520	3	23	21.7	bc	9Plus-0769
OS10182	38-05.4N	137-36.2E	10/23	1015	9	1489	-	-	22.5	bc	9Plus-0769
OS10183	36-30.6N	135-43.2E	10/24	0102	9	510	3	12	22.8	bc	9Plus-0769
OS10184	35-57.1N	134-33.0E	10/24	1015	9	284	-	-	21.6	r	9Plus-0769
OS10185	35-22.8N	132-06.8E	10/25	0114	9	156	3	16	23.5	c	9Plus-0769
OS10186	32-45.1N	129-46.2E	10/27	0635	9	59	-	-	22.9	bc	19Plus-4636
OS10187	34-05.7N	132-52.9E	11/1	0735	9	42	-	-	21.9	bc	19Plus-4636
OS10188	34-25.7N	134-15.7E	11/2	0457	9	24	-	-	21.6	c	19Plus-4636
OS10189	36-38.1N	141-18.5E	11/4	2332	9	496	-	-	18.5	bc	19Plus-4636
OS10190	41-06.1N	141-35.7E	11/6	0251	9	538	-	-	17.3	b	19Plus-4636

(*) : Fixed position by Global Positioning System

Table 2. Oceanographic data

Station		OS10180	
Longitude		139-23.7E	
Latitude		40-57.1N	
Depth(m)		2430	
Press.	Temp.	Sal.	SIG-T
5	20.594	32.801	22.929
10	20.599	32.800	22.927
20	20.412	32.802	22.978
30	17.331	33.563	24.333
40	15.814	33.933	24.969
50	14.312	34.207	25.508
75	10.632	34.187	26.207
100	7.705	34.131	26.634
125	5.815	34.089	26.856
150	3.921	34.048	27.037
175	2.979	34.067	27.142
200	2.330	34.067	27.198
250	1.544	34.074	27.264
300	1.073	34.073	27.295
400	0.732	34.073	27.317
500	0.565	34.073	27.327

Station		OS10183	
Longitude		135-43.2E	
Latitude		36-30.6N	
Depth(m)		510	
Press.	Temp.	Sal.	SIG-T
5	22.924	32.545	22.095
10	22.927	32.545	22.093
20	22.929	32.545	22.093
30	22.929	32.545	22.093
40	23.323	33.151	22.439
50	22.570	33.671	23.048
75	18.719	34.067	24.379
100	16.392	34.240	25.074
125	14.254	34.348	25.630
150	10.572	34.245	26.264
175	8.097	34.152	26.593
200	5.242	34.091	26.927
250	2.056	34.065	27.218
300	1.233	34.071	27.283
400	0.693	34.072	27.319

Station		OS10186	
Longitude		129-46.2E	
Latitude		32-45.1N	
Depth(m)		59	
Press.	Temp.	Sal.	SIG-T
5	23.134	33.487	22.748
10	23.133	33.487	22.749
20	23.165	33.570	22.803
30	22.825	33.915	23.159
40	22.475	34.083	23.383
50	21.944	34.137	23.575

Station		OS10189	
Longitude		141-18.5E	
Latitude		36-38.1N	
Depth(m)		496	
Press.	Temp.	Sal.	SIG-T
5	18.202	33.582	24.137
10	18.197	33.582	24.138
20	18.072	33.609	24.190
30	18.070	33.611	24.191
40	17.944	33.645	24.248
50	17.933	33.648	24.254
75	17.758	33.670	24.312
100	17.418	34.047	24.682
125	13.899	34.211	25.564
150	13.445	34.455	25.879
175	12.469	34.390	26.028
200	9.905	34.244	26.377
250	6.343	33.866	26.613
300	5.119	33.823	26.728
400	4.340	33.945	26.911

Station		OS10181	
Longitude		138-43.3E	
Latitude		39-06.6N	
Depth(m)		520	
Press.	Temp.	Sal.	SIG-T
5	21.657	32.863	22.690
10	21.640	32.861	22.693
20	21.630	32.861	22.695
30	20.650	32.841	22.945
40	20.628	32.911	23.004
50	19.424	34.033	24.174
75	16.245	34.319	25.167
100	14.378	34.346	25.602
125	11.562	34.243	26.083
150	9.682	34.163	26.351
175	8.549	34.147	26.521
200	6.650	34.108	26.763
250	3.323	34.075	27.117
300	2.145	34.070	27.215
400	1.065	34.072	27.295

Station		OS10184	
Longitude		134-33.0E	
Latitude		35-57.1N	
Depth(m)		284	
Press.	Temp.	Sal.	SIG-T
5	21.683	32.777	22.617
10	21.666	32.777	22.622
20	21.684	32.787	22.625
30	21.693	32.826	22.651
40	18.468	34.051	24.430
50	17.157	34.215	24.875
75	15.494	34.330	25.346
100	12.833	34.326	25.904
125	10.697	34.252	26.247
150	8.375	34.159	26.557
175	5.524	34.091	26.893
200	3.822	34.083	27.074
250	1.757	34.074	27.248

Station		OS10187	
Longitude		132-52.9E	
Latitude		34-05.7N	
Depth(m)		42	
Press.	Temp.	Sal.	SIG-T
5	22.095	32.649	22.407
10	22.102	32.649	22.404
20	22.098	32.650	22.406
30	22.073	32.650	22.413
40	22.074	32.647	22.410

Station		OS10190	
Longitude		141-35.7E	
Latitude		41-06.1N	
Depth(m)		538	
Press.	Temp.	Sal.	SIG-T
5	17.302	33.511	24.300
10	17.299	33.513	24.303
20	17.151	33.527	24.347
30	16.965	33.541	24.402
40	16.792	33.551	24.451
50	16.428	33.547	24.531
75	15.734	33.622	24.747
100	15.565	33.657	24.812
125	15.414	33.666	24.852
150	14.703	33.751	25.073
175	11.203	33.850	25.833
200	6.299	33.505	26.331
250	2.989	33.354	26.571
300	2.347	33.438	26.693
400	2.906	33.729	26.879
500	3.287	33.943	27.015

Station		OS10182	
Longitude		137-36.2E	
Latitude		38-05.4N	
Depth(m)		1489	
Press.	Temp.	Sal.	SIG-T
5	22.322	32.756	22.424
10	22.316	32.756	22.426
20	22.298	32.757	22.432
30	22.131	32.765	22.484
40	22.077	32.800	22.526
50	20.778	33.958	23.760
75	17.058	34.244	24.920
100	14.558	34.344	25.562
125	10.812	34.197	26.184
150	9.496	34.154	26.376
175	7.329	34.116	26.676
200	4.817	34.085	26.970
250	2.013	34.073	27.228
300	1.320	34.072	27.278
400	0.808	34.073	27.312
500	0.602	34.073	27.325

Station		OS10185	
Longitude		132-06.8E	
Latitude		35-22.8N	
Depth(m)		156	
Press.	Temp.	Sal.	SIG-T
5	23.492	33.424	22.597
10	23.484	33.423	22.599
20	23.179	33.333	22.619
30	23.176	33.358	22.638
40	23.237	33.425	22.672
50	22.449	33.774	23.161
75	19.367	34.252	24.356
100	17.063	34.331	24.986
125	15.394	34.403	25.424

Station		OS10188	
Longitude		134-15.7E	
Latitude		34-25.7N	
Depth(m)		24	
Press.	Temp.	Sal.	SIG-T
5	21.764	31.905	21.933
10	21.765	31.899	21.928
20	21.790	31.908	21.929

