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THE "OSHORO MARU" CRUISE 009
TO THE OGASAWARA ISLANDS

IN DECEMBER 2014

1. Cruise Itinerary

Cruise 009

Departure from Hakodate		December 3	2014
Arrival at Yokohama		6	
Departure from Yokohama		9	
Start hydrographic research (OS14168)		10	
Start vertical long-line research (OSVL1401)		11	
Finish hydrographic research (OS14174)		12	
Finish vertical long-line research (OSVL141406)	and arrival at Futami	13	
Departure from Futami		14	
Arriveal at Tokyo		17	

Total coverage 1771.9 miles

2. Vessel Personnel

Crew: Captain: Associate Professor Shogo Takagi

And 29 persons

(Hakodate – Yokohama)

Technical staff: 4 persons

(Yokohama –Tokyo)

Guest Scientist: Assistant Professor (Hokkaido University Museum)

Yoshiharu Fujita

Program-Specific Assistant Professor (Kyoto University)

Shunsuke Yamashita

Postdoctoral Fellow (Department of Marine Science and Resources, Nihon University)

Shun Watanabe

Postdoctoral Fellow (Department of Marine Science and Resources, Nihon University)

Ryotaro Manabe

Undergraduate instructor: Professor (Department of Marine Science and Resources, Nihon University)

Takahito Kojima

Assistant Professor (Department of Marine Science and Resources, Nihon University)

Yuya Makiguchi

Associate Professor (Department of Animal Science, Teikyo University of Science and Technology)

Kyoichi Mori

Teaching Assistant: 3 persons

Undergraduate Students:

(Nihon University)	31 persons
(Teikyo University of Science Technology)	14 persons

Total 58 persons

3. Items of Research

Hydrographic observations: (Observation of Temperature, Salinity, and Computed Dynamic Depth Anomaly)

Hydrographic work on deck and the data processing were made by the Science officer, the deck officers, crews, research staff and cadets of the “Oshoro maru”. Temperature and salinity were measured by CTD (Seabird SBE-9Plus) and XCTD.

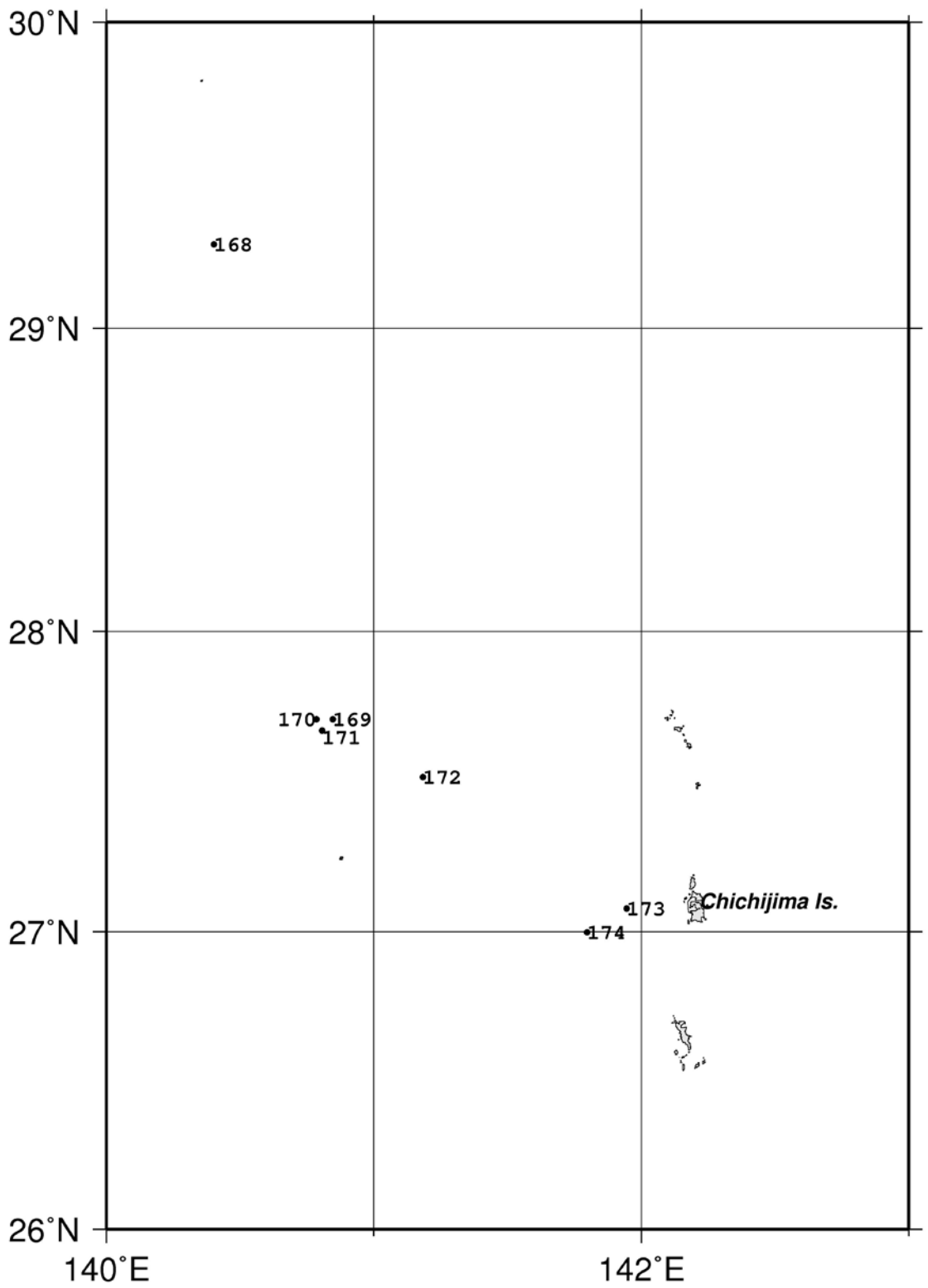

Fig.-1 Oceanographic stations

Table 1. List of Oceanographic station

Station	Lat.	Long.	Date (GMT)	Hour (GMT)	T.Z.	Depth	Col.	Tr.	SST	Wr.	Gear
OS14168	29 16.49 N	140 24.13 E	12/10	10:01	9	2504	-	-	23.2	bc	XCTD-1
OS14169	27 42.56 N	140 50.81 E	12/10	20:54	p	1863	-	-	23.4	c	XCTD-2
OS14170	27 42.51 N	140 47.18 E	12/10	21:55	9	1405	28.2	-	23.3	c	9p-1171
OS14171	27 40.24 N	140 48.40 E	12/11	1:39	9	635	-	-	23.3	c	9p-1171
OS14172	27 31.02 N	141 10.97 E	12/11	10:51	9	4110	-	-	23.5	bc	XCTD-1
OS14173	27 04.70 N	141 56.67 E	12/12	1:52	9	1458	-	-	22.6	bc	XCTD-2
OS14174	26 59.87 N	141 47.78 E	12/12	12:00	9	3810	-	-	22.5	bc	XCTD-2

T.Z.: Time Difference between G.M.T and S.M.T.

Col.: Water color in Forel-Ule scale

Tr.: Transparency in meters with Secchi disc

SST: Surface temperature

Wr.: Weather in WMO Code 4501

Table 2. Oceanographic data

Station OS14168
Latitude 29-16.49N
Longitude 140-24.13E
Depth(m) 2504

Depth	Temp.	Sal.	SIG-T
12	23.061	31.552	-
20	23.069	34.635	-
30	23.069	34.642	-
40	23.069	34.643	-
50	23.069	34.650	-
75	22.783	34.666	-
100	20.377	34.772	-
125	19.015	34.764	-
150	18.505	34.747	-
175	18.176	34.733	-
200	17.386	34.710	-
250	16.776	34.683	-
300	15.988	34.616	-
400	13.713	34.453	-
500	11.278	34.284	-
600	9.049	34.153	-
700	6.268	34.033	-
800	5.330	34.066	-
900	4.671	34.131	-
1000	4.144	34.213	-
1100	3.586	34.312	-

Station OS14169
Latitude 27-42.56N
Longitude 140-50.81E
Depth(m) 1863

Depth	Temp.	Sal.	SIG-T
5	23.320	34.664	-
10	23.320	34.677	-
20	23.320	34.686	-
30	23.320	34.692	-
40	23.300	34.686	-
50	23.301	34.690	-
75	23.194	34.679	-
100	22.273	34.654	-
125	18.746	34.760	-
150	17.840	34.725	-
175	17.386	34.714	-
200	17.115	34.705	-
250	16.862	34.693	-
300	16.646	34.679	-
400	15.671	34.603	-
500	13.612	34.451	-
600	10.513	34.237	-
700	8.018	34.114	-
800	6.163	34.100	-
900	4.819	34.178	-
1000	4.105	34.279	-
1200	3.435	34.395	-
1500	2.464	34.533	-

Station OS14170
Latitude 27-42.51N
Longitude 140-47.18E
Depth(m) 1405

Press.	Temp.	Sal.	SIG-T
5	23.222	34.698	23.641
10	23.218	34.698	23.642
20	23.225	34.698	23.639
30	23.223	34.698	23.640
40	23.225	34.698	23.639
50	23.228	34.698	23.639
75	22.087	34.732	23.990
100	20.269	34.779	24.522
125	18.268	34.754	25.017
150	17.508	34.732	25.187
175	17.202	34.722	25.253
200	17.005	34.715	25.295
250	16.868	34.707	25.321
300	16.773	34.701	25.339
400	15.997	34.633	25.466
500	14.162	34.497	25.764

Vertical long-line Research

Four operations using a vertical long-line were performed.

The gear comprised by three types of main line (400,500,600m) with a weight attached to one end, a buoy attached to the other end, and six branch lines (18m-for tuna and 4m-for squid) attached to the main line.

These operations were supervised by the captain, Deck officers, Science officer, crews, and under graduate instructor were engaged in the work

Table 3 Data on vertical long line research

No. of research		OSVL 1401-01	OSVL 1401-02	OSVL 1401-03	OSVL 1401-04
Date			11-Dec		
position of	Lat. (N)	27-42.3	27-42.4	27-42.4	27-42.5
line set	Long. (E)	140-49.3	140-48.8	140-48.3	140-47.9
Time	Line set	0619	0625	0630	0635
(S.M.T.)	Line haul		0814-0951		
Length of main line(m)		600	600	500	500
Depth(m)			1051-1380		
Surface temp. (°C)			23.2		
Wether			c		
Wind			East-4		
Flying squid			1		
Diamondback squid					1
Swordfish		1			

No. of research		OSVL 1402-01	OSVL 1402-02	OSVL 1402-03
Date			11-Dec	
position of	Lat. (N)	27-40.4	27-40.4	27-40.4
line set	Long. (E)	140-49.9	140-49.6	140-49.2
Time	Line set	1005	1011	1018
(S.M.T.)	Line haul		1140-1235	
Length of main line(m)		600	600	500
Depth(m)			1160	
Surface temp. (°C)			23.2	
Wether			bc	
Wind			East-5	
			nothing	

No. of research		OSVL 1403-01	OSVL 1403-02	OSVL 1403-03	OSVL 1403-04
Date			11-Dec		
position of	Lat. (N)	27-40.5	27-40.4	27-40.2	27-40.1
line set	Long. (E)	140-52.0	140-52.4	140-52.9	140-53.2
Time	Line set	1253	1259	1304	1309
(S.M.T.)	Line haul		1457-1621		
Length of main line(m)		600	600	500	500
Depth(m)			2711		
Surface temp. (°C)			23.3		
Wether			c		
Wind			SSE-5		
Flying squid				1	
Diamondback squid			1		1
Sickle pomfret					1
Blue shark			1		

Continued

No. of research		OSVL 1404-01	OSVL 1404-02	OSVL 1404-03	OSVL 1404-04	OSVL 1404-05	OSVL 1404-06
Date		12-Dec					
position of	Lat. (N)	27-06.7	27-06.5	27-06.5	27-06.4	27-06.3	27-06.2
line set	Long. (E)	141-56.5	141-57.1	141-57.7	141-58.1	141-58.5	141-58.9
Time	Line set	0619	0625	0631	0636	0642	0646
(S.M.T.)	Line haul	0832-1048					
Length of main line(m)		600	500	600	500	600	500
Depth(m)		1352-1734					
Surface temp. (°C)		22.5					
Wether		bc					
Wind		NW-3					

Bigeye tuna	1
Blue shark	1

No. of research		OSVL 1405-01	OSVL 1405-02	OSVL 1405-03	OSVL 1405-04	OSVL 1405-05	OSVL 1405-06
Date		12-Dec					
position of	Lat. (N)	27-05.5	27-05.6	27-05.8	27-05.9	27-06.0	27-06.1
line set	Long. (E)	141-50.8	141-51.1	141-51.5	141-51.9	141-52.2	141-52.5
Time	Line set	1204	1209	1215	1221	1226	1231
(S.M.T.)	Line haul	1351-1558					
Length of main line(m)		600	600	500	500	500	500
Depth(m)		-					
Surface temp. (°C)		22.4					
Wether		b					
Wind		WSW-3					

Diamondback squid			1		
Bigeye tuna	1	1			
Thresher shark					1

No. of research		OSVL 1406-01	OSVL 1406-02	OSVL 1406-03	OSVL 1406-04	OSVL 1406-05	OSVL 1406-06
Date		13-Dec					
position of	Lat. (N)	27-10.0	27-09.7	27-09.4	27-09.2	27-08.9	27-08.7
line set	Long. (E)	141-54.4	141-54.9	141-54.9	141-55.2	141-55.4	141-55.7
Time	Line set	0611	0617	0622	0627	0632	0637
(S.M.T.)	Line haul	0828-1018					
Length of main line(m)		600	600	600	500	500	500
Depth(m)		2080					
Surface temp. (°C)		22.5					
Wether		c					
Wind		NW-4					

Flying squid	1

S.T. : Surface temperature

Wr.: Weather (r: rain, o: 100% clouded, c: 75-99% clouded, d: drizzling rain, bc: 25-75% clouded)