



HOKKAIDO UNIVERSITY

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THE " USHIO MARU "

CRUISE 233

CRUISE 234

CRUISE 235

IN AUGUST - SEPTEMBER 2011

1. Cruise Itinerary

Cruise 233

Departure from Hakodate	Aug. 17, 2011
Arrival at and departure from Usujiri	17
Start hydrographic research (US11530)	17
Retrieval mooring ADCP system	18
Arrival at and departure from Mori	18
Set mooring ADCP system	18
Arrival at Mori	18
Departure from Mori	19
Start trawl net research	19
Arrival at Mori	19
Departure from and arrival at Mori	20
Departure from Mori	21
Finish trawl net research	21
Arrival at Muroran	21
Departure from and arrival at Muroran	22
Departure from Muroran	23
Arrival at and departure from Usujiri	23
Finish hydrographic research (US11567)	24
Return to Hakodate	24
Total coverage 540.5 miles	

Cruise 234

Departure from Hakodate	Aug. 28, 2011
Start hydrographic research (US11568) and whales watching research	29
Arrival at Akkeshi	29
Departure from Akkwshi	30
Finish whales watching research	31
Arrival at Usujiri	31
Departure from Usujiri	Sep. 7
Finish hydrographic research (US11577)	7
Return to Hakodate	7
Total coverage 602.2 miles	

Cruise 235

Departure from Hakodate	Sep. 10, 2011
Sampling by vertical long line	10
Start hydrographic research (US11578)	10
Sampling by Tuna long line	11
Finish hydrographic research (US11586)	13
Return to Hakodate	13
Total coverage 209.2 miles	

2. 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 “Ushio Maru”. Temperature and salinity were measured by CTD (Seabird SBE9Plus and SBE-19). Dynamic computations were made using a desk-top computer aboard the “Ushio Maru”.

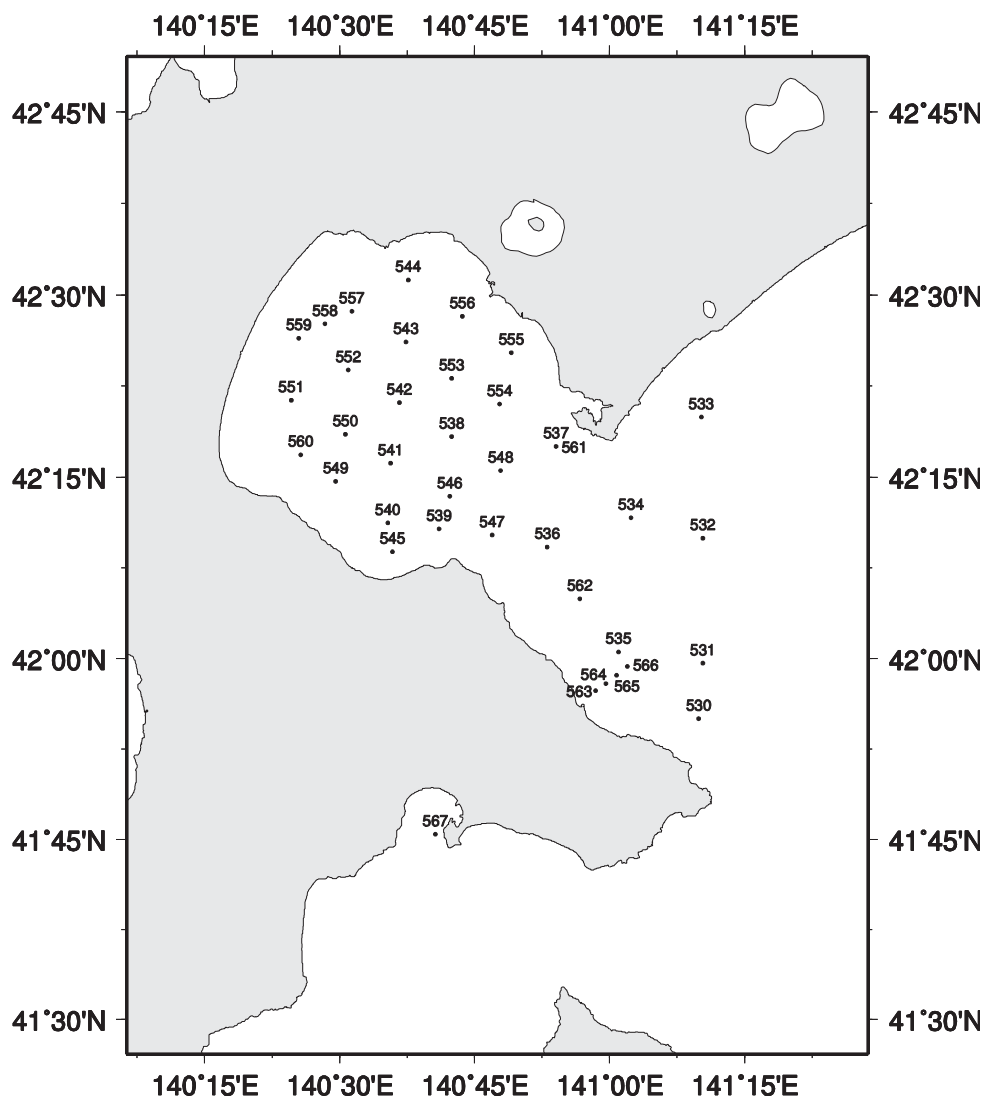


Figure 1. Oceanographic stations (Cruise 233)

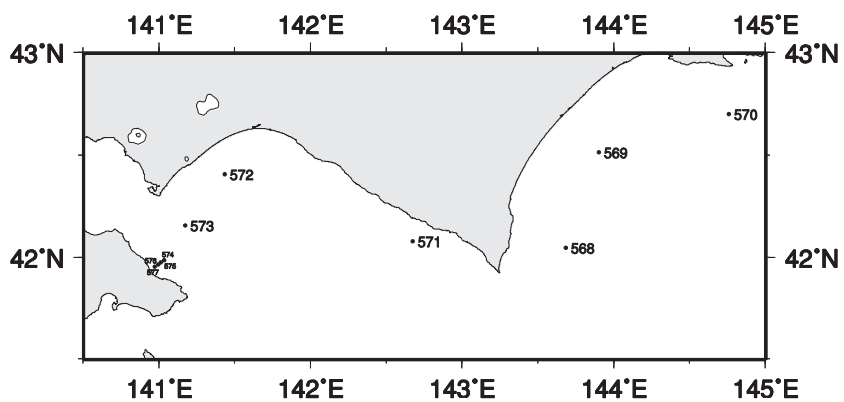


Figure 2. Oceanographic stations (Cruise 234)

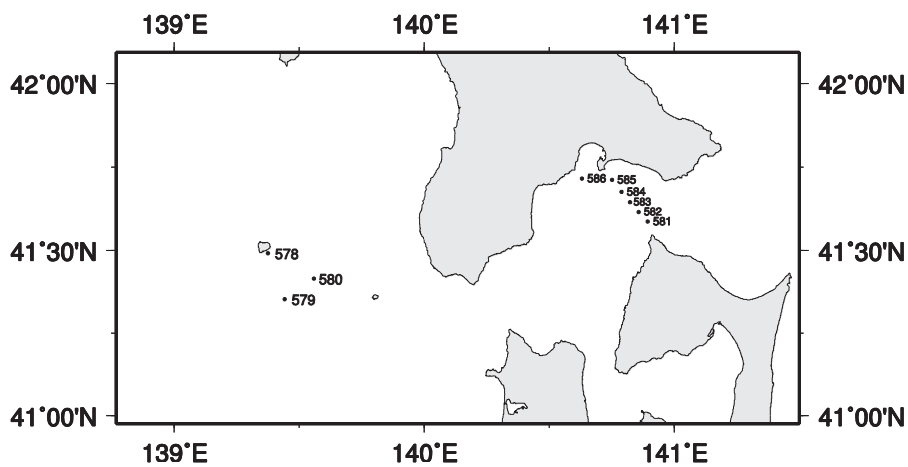


Figure 3. Oceanographic stations (Cruise 235)

Table 1: List of oceanographic stations

Cruise 233

Station	Lat. (N)*	Long (E)*	Date	S.M.T	Depth	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US11530	41-55.1	141-09.8	8/17	1439-1447	178	Calm	East-1	Calm	22.3	20.6	c	1003.2
US11531	41-59.7	141-10.3	8/17	1535-1541	140	Calm	NW -1	Calm	23.9	21.3	bc	1003.6
US11532	42-10.0	141-10.3	8/17	1657-1705	123	Calm	WNW-1	Calm	22.5	21.3	bc	1004.0
US11533	42-20.0	141-10.1	8/17	1814-1818	73	East-1	WNW-1	East-1	22.6	21.9	c	1003.8
US11534	42-11.7	141-02.3	8/17	1931-1934	80	NE -1	WNW-1	NE -1	22.6	21.6	c	1004.1
US11535	42-00.6	141-00.9	8/17	2054-2100	91	SE -1	WNW-1	SE -2	21.9	20.2	c	1005.2
US11536	42-09.3	140-53.0	8/17	2219-2224	77	Calm	WNW-1	Calm	21.7	21.9	o	1005.2
US11537	42-17.6	140-54.0	8/17	2325-2328	56	SE -2	WNW-1	SE -3	21.6	21.5	o	1005.0
US11538	42-18.4	140-42.4	8/18	0027-0031	63	East-1	WNW-1	East-3	22.1	22.2	o	1004.6
US11539	42-10.8	140-41.0	8/18	0129-0133	87	SE -2	ESE-1	SE -4	20.7	22.1	o	1004.8
US11540	42-11.3	140-35.3	8/18	0757-0801	79	Calm	East-1	Calm	23.0	21.8	bc	1005.6
US11541	42-16.2	140-35.6	8/18	0832-0839	91	Calm	ESE-1	Calm	23.7	22.3	bc	1005.6
US11542	42-21.2	140-36.6	8/18	0939-0943	87	Calm	ESE-1	Calm	25.3	22.7	bc	1005.7
US11543	42-26.2	140-37.3	8/18	1015-1021	82	Calm	ESE-1	Calm	23.8	22.8	bc	1005.6
US11544	42-31.3	140-37.6	8/18	1119-1122	60	South-1	ESE-1	South-2	27.4	22.8	bc	1005.1
US11545	42-08.9	140-35.8	8/18	1443-1447	66	ESE-2	ESE-1	ESE-4	23.7	23.0	c	1004.0
US11546	42-13.5	140-42.2	8/19	1131-1135	87	Calm	ESE-1	Calm	24.7	23.1	bc	1011.0
US11547	42-10.3	140-46.9	8/19	1241-1245	94	SE -1	ESE-1	SE -2	23.9	23.6	bc	1011.0
US11548	42-15.6	140-47.8	8/19	1326-1330	70	SE -1	ESE-1	SE -2	24.7	23.4	bc	1011.0
US11549	42-14.7	140-29.5	8/20	0842-0849	78	East-1	ESE-1	East-3	24.6	22.5	bc	1012.1
US11550	42-18.6	140-30.6	8/21	0741-0748	93	Calm	ESE-1	Calm	21.3	22.5	bc	1014.0
US11551	42-21.4	140-24.6	8/21	0925-0931	67	Calm	ESE-1	Calm	24.7	22.6	bc	1014.1
US11552	42-23.9	140-30.9	8/21	1054-1100	95	SE -2	ESE-1	SE -4	23.1	22.7	bc	1014.0
US11553	42-23.2	140-42.4	8/21	1418-1422	61	ESE-3	ESE-1	ESE-6	22.4	22.9	bc	1013.1
US11554	42-21.1	140-47.7	8/21	1455-1500	51	ESE-3	ESE-1	ESE-5	22.9	23.0	bc	1013.2
US11555	42-25.3	140-49.0	8/22	0808-0811	41	SE -2	SE -1	SE -4	22.4	20.3	bc	1016.1
US11556	42-28.3	140-43.6	8/22	0846-0852	58	SE -2	SE -1	SE -4	23.0	22.5	bc	1016.1
US11557	42-28.7	140-31.3	8/22	1053-1057	76	SE -2	SE -1	SE -4	23.6	21.9	bc	1016.5
US11558	42-27.7	140-28.3	8/22	1124-1132	76	SE -2	ESE-1	SE -5	23.6	23.0	bc	1016.5
US11559	42-26.5	140-25.4	8/22	1153-1157	63	SE -2	ESE-1	SE -5	23.7	21.6	bc	1016.2
US11560	42-16.9	140-25.6	8/22	1322-1325	62	East-3	ESE-1	East-5	22.0	21.5	bc	1015.6
US11561	42-17.6	140-54.0	8/23	0642-0653	55	East-3	East-1	East-5	19.7	21.1	r	1014.2
US11562	42-05.0	140-56.6	8/23	0817-0823	83	East-3	East-1	East-5	19.3	19.7	r	1015.1
US11563	41-57.4	140-58.4	8/23	1018-1022	79	ESE-2	ESE-1	ESE-4	17.1	16.3	r	1014.5
US11564	41-58.0	140-59.5	8/23	1028-1032	84	SE -2	ESE-1	SE -4	17.5	16.5	r	1014.2
US11565	41-58.7	141-00.7	8/23	1039-1043	94	ESE-3	ESE-1	ESE-5	18.2	17.1	r	1014.2
US11566	41-59.4	141-01.9	8/23	1051-1055	100	ESE-3	ESE-1	ESE-5	18.5	17.5	r	1014.2
US11567	41-45.5	140-40.6	8/24	0700-0703	32	NNE-1	SE -1	NNE-2	20.4	24.3	o	1015.6

Cruise 234

Station	Lat. (N)*	Long (E)*	Date	S.M.T	Depth	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US11568	42-03.0	143-40.8	8/29	0345-0358	312	North-1	SE -1	North-3	15.6	15.3	f	1017.1
US11569	42-31.0	143-54.0	8/29	0728-0734	172	North-1	SSE-1	North-3	16.4	17.2	f	1018.1
US11570	42-42.2	144-45.4	8/29	1328-1335	185	South-1	South-1	South-2	18	15.8	m	1017.7
US11571	42-05.0	142-40.3	8/31	0423-0429	119	East-2	South-1	East-3	21.5	21.3	o	1013.3
US11572	42-24.6	141-25.8	8/31	1016-1021	118	ESE-1	SE -1	ESE-3	23.9	22.1	o	1012.1
US11573	42-09.6	141-10.3	8/31	1207-1212	124	East-2	SE -1	East-4	23.6	22.5	o	1011
US11574	41-59.4	141-02.0	8/31	1321-1325	100	ESE-2	ESE-1	ESE-4	23.8	22.4	o	1010.1
US11575	41-58.8	141-00.6	8/31	1334-1338	93	ESE-2	ESE-1	ESE-4	24.1	22.4	o	1010.1
US11576	41-58.1	140-59.5	8/31	1345-1349	85	East-2	ESE-1	East-4	24.2	22.2	c	1010.1
US11577	41-57.5	140-58.2	8/31	1356-1400	78	East-2	ESE-1	East-4	24.2	21.8	c	1010

Cruise 235

Station	Lat. (N)*	Long (E)*	Date	S.M.T	Depth	Wave	Swell	Wind	Air Temp.	Sea Temp.	Wr.	Bar. (hPa)
US11578	41-29.6	139-22.4	9/10	1618-1627	246	Calm	WSW-1	Calm	21.6	23.4	c	1024.1
US11579	41-21.3	139-26.4	9/11	0502-0509	2437	NE -1	NW -1	NE -3	21.1	22.7	o	1025.1
US11580	41-25.0	139-33.4	9/11	0937-0948	1543	East-3	NW -1	East-5	21	23.3	o	1024.9
US11581	41-35.3	140-53.5	9/12	1404-1407	50	Calm	NE -1	Calm	22.2	23.8	r	1017.1
US11582	41-37.0	140-51.4	9/12	1425-1429	97	Calm	NE -1	Calm	22.1	23.6	r	1017.1
US11583	41-38.8	140-49.3	9/12	1446-1457	324	Calm	NE -1	Calm	21.8	22.8	r	1016.6
US11584	41-40.7	140-47.2	9/12	1516-1523	227	Calm	ENE-1	Calm	21.5	21.5	r	1016.6
US11585	41-42.8	140-45.0	9/12	1542-1546	84	West-1	ESE-1	West-2	21.5	21.6	r	1016.6
US11586	41-43.1	140-37.7	9/13	0615-0618	60	North-1	SSE-1	North-3	21	21.3	o	1016.5

(*) : Fixed position by Global Positioning System

Table 2: Oceanographic data

STATION	US11530		
LATITUDE	41-55.1	N	
LONGITUDE	141-09.8	E	
DEPTH (m)	178		
Press.	Temp.	Salinity	Sigma-T
5	18.677	31.921	22.750
10	16.332	32.156	23.486
20	12.942	33.009	24.862
30	9.573	33.204	25.621
40	9.024	33.482	25.926
50	9.645	33.879	26.136
75	9.730	34.053	26.258
100	8.385	33.861	26.322
125	7.449	33.759	26.379
150	5.809	33.603	26.472

STATION	US11531		
LATITUDE	41-59.7	N	
LONGITUDE	141-10.3	E	
DEPTH (m)	140		
Press.	Temp.	Salinity	Sigma-T
5	21.068	32.414	22.508
10	17.799	32.872	23.691
20	14.735	33.888	25.172
30	12.913	34.075	25.693
40	11.944	34.075	25.881
50	11.495	34.131	26.009
75	9.576	33.929	26.186
100	8.510	33.874	26.313
125	7.555	33.760	26.364

STATION	US11532		
LATITUDE	42-10.0	N	
LONGITUDE	141-10.3	E	
DEPTH (m)	123		
Press.	Temp.	Salinity	Sigma-T
5	21.324	32.428	22.450
10	17.188	32.875	23.840
20	12.375	33.249	25.158
30	13.300	34.051	25.598
40	12.687	34.039	25.710
50	12.165	34.117	25.872
75	10.008	33.933	26.117
100	7.579	33.695	26.310

STATION	US11533		
LATITUDE	42-20.0	N	
LONGITUDE	141-10.1	E	
DEPTH (m)	73		
Press.	Temp.	Salinity	Sigma-T
5	21.114	32.127	22.278
10	18.077	32.499	23.339
20	13.034	33.140	24.945
30	9.578	33.186	25.605
40	8.564	33.249	25.814
50	7.798	33.333	25.994

STATION	US11534		
LATITUDE	42-11.7	N	
LONGITUDE	141-02.3	E	
DEPTH (m)	80		
Press.	Temp.	Salinity	Sigma-T
5	21.426	32.317	22.338
10	19.289	32.869	23.320
20	13.817	33.217	24.847
30	12.007	33.629	25.523
40	10.146	33.748	25.949
50	9.196	33.754	26.111

STATION	US11535		
LATITUDE	42-00.6	N	
LONGITUDE	141-00.9	E	
DEPTH (m)	91		
Press.	Temp.	Salinity	Sigma-T
5	17.904	31.982	22.984
10	12.730	32.643	24.620
20	11.268	33.182	25.312
30	8.524	33.133	25.730
40	7.576	33.336	26.028
50	6.180	33.230	26.132
75	6.127	33.508	26.358

STATION	US11536		
LATITUDE	42-09.3	N	
LONGITUDE	140-53.0	E	
DEPTH (m)	77		
Press.	Temp.	Salinity	Sigma-T
5	21.851	32.604	22.440
10	17.617	33.025	23.853
20	13.620	33.609	25.191
30	10.494	33.432	25.643
40	7.792	33.228	25.913
50	8.018	33.529	26.116

STATION	US11537		
LATITUDE	42-17.6	N	
LONGITUDE	140-54.0	E	
DEPTH (m)	56		
Press.	Temp.	Salinity	Sigma-T
5	21.078	31.809	22.046
10	17.662	32.628	23.537
20	13.291	32.955	24.751
30	9.905	33.139	25.515
40	8.828	33.158	25.703

STATION	US11538		
LATITUDE	42-18.4	N	
LONGITUDE	140-42.4	E	
DEPTH (m)	63		
Press.	Temp.	Salinity	Sigma-T
5	22.530	31.354	21.303
10	21.331	31.447	21.703
20	17.037	31.970	23.181
30	10.003	32.467	24.974
40	7.474	32.907	25.705
50	5.497	32.978	26.016

STATION	US11539		
LATITUDE	42-10.8	N	
LONGITUDE	140-41.0	E	
DEPTH (m)	87		
Press.	Temp.	Salinity	Sigma-T
5	22.275	31.333	21.359
10	20.592	31.564	21.989
20	13.326	32.513	24.402
30	8.853	32.836	25.447
40	7.071	33.012	25.843
50	5.349	32.947	26.008
75	3.818	33.243	26.406

STATION	US11540		
LATITUDE	42-11.3	N	
LONGITUDE	140-35.3	E	
DEPTH (m)	79		
Press.	Temp.	Salinity	Sigma-T
5	22.110	31.352	21.418
10	19.418	31.700	22.396
20	12.608	32.512	24.542
30	7.720	32.593	25.424
40	5.829	32.775	25.815
50	5.039	33.002	26.087
75	3.769	33.216	26.390

STATION	US11541		
LATITUDE	42-16.2	N	
LONGITUDE	140-35.6	E	
DEPTH (m)	91		
Press.	Temp.	Salinity	Sigma-T
5	22.259	31.348	21.374
10	21.670	31.417	21.588
20	16.707	31.947	23.240
30	9.022	32.521	25.173
40	6.120	32.761	25.769
50	7.693	33.399	26.061
75	5.773	33.452	26.358

STATION	US11542		
LATITUDE	42-21.2	N	
LONGITUDE	140-36.6	E	
DEPTH (m)	87		
Press.	Temp.	Salinity	Sigma-T
5	22.632	31.321	21.250
10	22.347	31.340	21.343
20	16.928	31.951	23.192
30	8.650	32.393	25.131
40	6.876	32.870	25.757
50	6.822	33.328	26.126
75	6.062	33.362	26.251

STATION	US11543		
LATITUDE	42-26.2	N	
LONGITUDE	140-37.3	E	
DEPTH (m)	82		
Press.	Temp.	Salinity	Sigma-T
5	22.507	31.301	21.270
10	22.387	31.300	21.302
20	15.360	32.113	23.668
30	7.429	32.435	25.340
40	5.910	32.776	25.806
50	5.075	32.899	26.001
75	3.875	33.191	26.359

STATION	US11544		
LATITUDE	42-31.3	N	
LONGITUDE	140-37.6	E	
DEPTH (m)	60		
Press.	Temp.	Salinity	Sigma-T
5	22.003	31.198	21.331
10	18.793	31.783	22.616
20	10.770	32.661	24.995
30	6.571	32.583	25.572
40	5.679	32.819	25.868
50	5.437	33.006	26.045

STATION	US11545		
LATITUDE	42-08.9	N	
LONGITUDE	140-35.8	E	
DEPTH (m)	66		
Press.	Temp.	Salinity	Sigma-T
5	22.033	31.530	21.574
10	18.536	32.108	22.926
20	10.879	32.581	24.914
30	6.480	32.497	25.515
40	5.612	32.839	25.892
50	5.183	33.006	26.074

STATION	US11546		
LATITUDE	42-13.5	N	
LONGITUDE	140-42.2	E	
DEPTH (m)	87		
Press.	Temp.	Salinity	Sigma-T
5	22.620	31.324	21.255
10	21.001	31.506	21.835
20	15.791	32.145	23.599
30	9.029	32.653	25.275
40	9.571	33.476	25.833
50	7.360	33.354	26.073
75	6.014	33.415	26.299

STATION	US11547		
LATITUDE	42-10.3	N	
LONGITUDE	140-46.9	E	
DEPTH (m)	94		
Press.	Temp.	Salinity	Sigma-T
5	22.044	31.396	21.470
10	17.029	32.142	23.315
20	14.629	32.946	24.468
30	8.634	32.855	25.495
40	7.446	33.079	25.845
50	4.992	32.946	26.048
75	3.711	33.148	26.341

STATION US11548			
LATITUDE 42-15.6 N			
LONGITUDE 140-47.8 E			
DEPTH (m) 70			
Press.	Temp.	Salinity	Sigma-T
5	22.674	31.303	21.224
10	22.412	31.363	21.343
20	14.911	32.235	23.860
30	12.588	33.063	24.973
40	8.949	33.153	25.680
50	7.735	33.349	26.016

STATION US11549			
LATITUDE 42-14.7 N			
LONGITUDE 140-29.5 E			
DEPTH (m) 78			
Press.	Temp.	Salinity	Sigma-T
5	22.485	31.336	21.302
10	21.517	32.041	22.103
20	12.370	32.406	24.505
30	7.386	32.537	25.426
40	5.929	32.806	25.828
50	4.985	32.898	26.011

STATION US11550			
LATITUDE 42-18.6 N			
LONGITUDE 140-30.6 E			
DEPTH (m) 93			
Press.	Temp.	Salinity	Sigma-T
5	22.435	31.390	21.357
10	20.523	31.445	21.917
20	14.378	32.324	24.041
30	8.555	32.564	25.279
40	6.167	32.692	25.709
50	4.864	32.930	26.050
75	3.987	33.212	26.365

STATION US11551			
LATITUDE 42-21.4 N			
LONGITUDE 140-24.6 E			
DEPTH (m) 67			
Press.	Temp.	Salinity	Sigma-T
5	19.141	31.748	22.502
10	16.687	32.147	23.398
20	11.089	32.578	24.874
30	8.401	32.695	25.405
40	6.095	32.743	25.758
50	5.280	32.958	26.025

STATION US11552			
LATITUDE 42-23.9 N			
LONGITUDE 140-30.9 E			
DEPTH (m) 95			
Press.	Temp.	Salinity	Sigma-T
5	22.331	31.517	21.482
10	20.751	31.569	21.950
20	14.372	32.446	24.137
30	7.842	32.432	25.281
40	6.044	32.724	25.749
50	5.304	32.964	26.027
75	3.826	33.191	26.365

STATION US11553			
LATITUDE 42-23.2 N			
LONGITUDE 140-42.4 E			
DEPTH (m) 61			
Press.	Temp.	Salinity	Sigma-T
5	22.956	31.362	21.189
10	20.879	31.492	21.858
20	16.395	32.351	23.621
30	8.978	32.660	25.289
40	6.922	32.915	25.787
50	7.204	33.233	26.000

STATION US11554			
LATITUDE 42-21.1 N			
LONGITUDE 140-47.7 E			
DEPTH (m) 51			
Press.	Temp.	Salinity	Sigma-T
5	22.838	31.342	21.208
10	19.242	31.875	22.573
20	13.738	33.234	24.876
30	9.765	33.195	25.582
40	8.680	33.229	25.781

STATION US11555			
LATITUDE 42-25.3 N			
LONGITUDE 140-49.0 E			
DEPTH (m) 41			
Press.	Temp.	Salinity	Sigma-T
5	22.320	31.365	21.370
10	21.108	32.326	22.431
20	14.747	32.750	24.292
30	10.253	33.117	25.439

STATION US11556			
LATITUDE 42-28.3 N			
LONGITUDE 140-43.6 E			
DEPTH (m) 58			
Press.	Temp.	Salinity	Sigma-T
5	22.512	31.431	21.366
10	22.439	31.439	21.393
20	15.482	32.768	24.146
30	10.071	32.884	25.288
40	9.187	33.208	25.686
50	6.924	33.144	25.967

STATION US11557			
LATITUDE 42-28.7 N			
LONGITUDE 140-31.3 E			
DEPTH (m) 76			
Press.	Temp.	Salinity	Sigma-T
5	22.203	31.490	21.497
10	22.099	31.503	21.536
20	16.182	32.268	23.606
30	8.767	32.478	25.180
40	6.554	32.640	25.619
50	5.734	32.893	25.920

STATION US11558			
LATITUDE 42-27.7 N			
LONGITUDE 140-28.3 E			
DEPTH (m) 76			
Press.	Temp.	Salinity	Sigma-T
5	21.670	31.453	21.616
10	21.449	31.587	21.778
20	13.377	32.353	24.268
30	8.460	32.476	25.224
40	6.791	32.717	25.648
50	7.227	33.172	25.948

STATION US11559			
LATITUDE 42-26.5 N			
LONGITUDE 140-25.4 E			
DEPTH (m) 63			
Press.	Temp.	Salinity	Sigma-T
5	21.678	31.510	21.656
10	21.526	31.602	21.768
20	12.967	32.467	24.438
30	10.382	32.812	25.179
40	6.136	32.618	25.654
50	6.446	33.063	25.966

STATION US11560			
LATITUDE 42-16.9 N			
LONGITUDE 140-25.6 E			
DEPTH (m) 62			
Press.	Temp.	Salinity	Sigma-T
5	21.627	31.510	21.670
10	20.121	31.828	22.310
20	11.915	32.523	24.682
30	9.851	32.708	25.187
40	7.228	32.774	25.635
50	5.976	32.896	25.893

STATION US11561			
LATITUDE 42-17.6 N			
LONGITUDE 140-54.0 E			
DEPTH (m) 55			
Press.	Temp.	Salinity	Sigma-T
5	21.299	32.248	22.320
10	21.303	32.249	22.320
20	14.437	33.076	24.609
30	12.631	33.450	25.265
40	10.745	33.444	25.609

STATION US11562			
LATITUDE 42-05.0 N			
LONGITUDE 140-56.6 E			
DEPTH (m) 83			
Press.	Temp.	Salinity	Sigma-T
5	19.444	32.146	22.729
10	18.839	32.447	23.111
20	13.423	33.114	24.848
30	9.534	33.192	25.618
40	8.664	33.432	25.943
50	8.486	33.506	26.028

STATION US11563			
LATITUDE 41-57.4 N			
LONGITUDE 140-58.4 E			
DEPTH (m) 79			
Press.	Temp.	Salinity	Sigma-T
5	16.079	32.765	24.011
10	14.195	33.032	24.626
20	10.393	32.787	25.158
30	6.755	32.663	25.611
40	5.700	32.805	25.854
50	5.428	32.920	25.978

STATION US11564			
LATITUDE 41-58.0 N			
LONGITUDE 140-59.5 E			
DEPTH (m) 84			
Press.	Temp.	Salinity	Sigma-T
5	16.987	32.533	23.625
10	14.441	33.040	24.580
20	11.942	33.209	25.209
30	11.389	33.665	25.666
40	10.861	33.858	25.911
50	10.664	33.912	25.988
75	5.058	33.121	26.179

STATION US11565			
LATITUDE 41-58.7 N			
LONGITUDE 141-00.7 E			
DEPTH (m) 94			
Press.	Temp.	Salinity	Sigma-T
5	17.392	32.507	23.510
10	14.706	33.017	24.507
20	11.910	33.238	25.237
30	9.602	33.200	25.613
40	8.702	33.411	25.920
50	10.361	33.958	26.077
75	7.045	33.459	26.199

STATION US11566			
LATITUDE 41-59.4 N			
LONGITUDE 141-01.9 E			
DEPTH (m) 100			
Press.	Temp.	Salinity	Sigma-T
5	17.947	32.430	23.317
10	15.261	33.005	24.377
20	12.089	33.046	25.055
30	9.854	33.227	25.592
40	7.880	33.152	25.840
50	7.795	33.332	25.994
75	8.141	33.671	26.210

STATION US11567			
LATITUDE 41-45.5 N			
LONGITUDE 140-40.6 E			
DEPTH (m) 32			
Press.	Temp.	Salinity	Sigma-T
5	24.331	33.455	22.374
10	24.346	33.456	22.371
20	24.219	33.462	22.413

STATION US11568			
LATITUDE 42-03.0 N			
LONGITUDE 143-40.8 E			
DEPTH (m) 312			
Press.	Temp.	Salinity	Sigma-T
5	14.815	33.001	24.471
10	12.027	33.252	25.227
20	9.871	33.425	25.743
30	8.149	33.360	25.964
40	6.512	33.186	26.055
50	6.907	33.370	26.147
75	5.954	33.340	26.247
100	4.235	33.244	26.366
125	3.764	33.245	26.413
150	2.184	33.247	26.553
175	2.033	33.309	26.615
200	1.866	33.365	26.672
250	2.099	33.472	26.740
300	2.376	33.569	26.795

STATION US11569			
LATITUDE 42-31.0 N			
LONGITUDE 143-54.0 E			
DEPTH (m) 172			
Press.	Temp.	Salinity	Sigma-T
5	16.105	32.749	23.993
10	12.971	32.760	24.664
20	11.438	33.288	25.364
30	7.772	33.076	25.796
40	6.771	33.211	26.040
50	6.413	33.269	26.133
75	4.811	33.210	26.277
100	4.130	33.255	26.385
125	2.882	33.217	26.472
150	2.725	33.257	26.517

STATION US11570			
LATITUDE 42-42.2 N			
LONGITUDE 144-45.4 E			
DEPTH (m) 185			
Press.	Temp.	Salinity	Sigma-T
5	15.437	32.831	24.205
10	13.168	32.951	24.773
20	11.658	33.345	25.368
30	9.787	33.399	25.737
40	8.968	33.424	25.889
50	8.353	33.444	26.000
75	8.141	33.471	26.053
100	7.267	33.443	26.156
125	5.396	33.276	26.263
150	3.184	33.247	26.470
175	2.325	33.291	26.577

STATION US11571			
LATITUDE 42-05.0 N			
LONGITUDE 142-40.3 E			
DEPTH (m) 119			
Press.	Temp.	Salinity	Sigma-T
5	21.410	32.929	22.807
10	20.226	33.725	23.730
20	18.036	33.969	24.474
30	16.951	34.032	24.783
40	14.832	34.063	25.286
50	14.614	34.202	25.440
75	11.528	34.103	25.981
100	9.699	33.993	26.216

STATION US11572			
LATITUDE 42-24.6 N			
LONGITUDE 141-25.8 E			
DEPTH (m) 118			
Press.	Temp.	Salinity	Sigma-T
5	22.223	33.184	22.777
10	21.214	33.130	23.013
20	16.385	33.622	24.600
30	12.732	33.671	25.416
40	11.916	33.928	25.772
50	11.762	33.997	25.855
75	9.584	33.971	26.218
100	8.112	33.837	26.344

STATION US11573			
LATITUDE 42-09.6 N			
LONGITUDE 141-10.3 E			
DEPTH (m) 124			
Press.	Temp.	Salinity	Sigma-T
5	22.469	32.125	21.904
10	20.402	33.479	23.496
20	14.863	33.654	24.964
30	11.573	33.709	25.666
40	10.182	33.590	25.820
50	10.201	33.674	25.882
75	10.523	34.011	26.090
100	9.108	33.898	26.238

STATION US11574			
LATITUDE 41-59.4 N			
LONGITUDE 141-02.0 E			
DEPTH (m) 100			
Press.	Temp.	Salinity	Sigma-T
5	22.411	31.601	21.524
10	20.362	32.763	22.962
20	16.194	33.521	24.566
30	13.072	33.551	25.256
40	12.111	33.695	25.555
50	11.281	33.787	25.780
75	10.737	33.997	26.042

STATION US11575			
LATITUDE 41-58.8 N			
LONGITUDE 141-00.6 E			
DEPTH (m) 93			
Press.	Temp.	Salinity	Sigma-T
5	21.658	31.866	21.932
10	19.936	32.447	22.832
20	16.226	33.350	24.427
30	12.560	33.322	25.179
40	11.823	33.668	25.588
50	9.927	33.463	25.764
75	6.575	33.339	26.167

STATION US11576			
LATITUDE 41-58.1 N			
LONGITUDE 140-59.5 E			
DEPTH (m) 85			
Press.	Temp.	Salinity	Sigma-T
5	21.152	31.993	22.165
10	19.555	32.470	22.948
20	15.414	32.982	24.326
30	12.763	33.438	25.229
40	10.323	33.491	25.719
50	10.376	33.596	25.790
75	6.422	33.146	26.034

STATION US11577			
LATITUDE 41-57.5 N			
LONGITUDE 140-58.2 E			
DEPTH (m) 78			
Press.	Temp.	Salinity	Sigma-T
5	20.952	31.909	22.156
10	18.116	32.198	23.099
20	14.957	32.920	24.378
30	12.638	33.396	25.221
40	11.470	33.487	25.513
50	9.873	33.408	25.730
75	9.402	33.541	25.912

STATION US11578			
LATITUDE 41-29.6 N			
LONGITUDE 139-22.4 E			
DEPTH (m) 246			
Press.	Temp.	Salinity	Sigma-T
5	23.466	33.524	22.681
10	23.468	33.524	22.680
20	19.592	33.690	23.868
30	15.239	34.099	25.225
40	12.952	34.197	25.780
50	12.641	34.378	25.982
75	8.744	34.134	26.480
100	7.110	34.080	26.679
125	4.216	34.022	26.986
150	3.128	34.031	27.100
175	2.660	34.045	27.152
200	1.967	34.045	27.209

STATION US11579			
LATITUDE 41-21.3 N			
LONGITUDE 139-26.4 E			
DEPTH (m) 2437			
Press.	Temp.	Salinity	Sigma-T
5	22.748	33.531	22.892
10	22.769	33.572	22.917
20	21.763	33.642	23.251
30	14.928	34.182	25.357
40	13.337	34.348	25.820
50	12.174	34.323	26.030
75	9.348	34.191	26.428
100	6.948	34.074	26.697
125	3.244	33.991	27.057
150	2.614	34.005	27.125
175	2.324	34.007	27.150
200	2.222	34.015	27.165

STATION US11580			
LATITUDE 41-25.0 N			
LONGITUDE 139-33.4 E			
DEPTH (m) 1543			
Press.	Temp.	Salinity	Sigma-T
5	23.398	33.620	22.773
10	23.315	33.605	22.785
20	17.807	33.958	24.521
30	15.853	34.366	25.293
40	15.534	34.421	25.408
50	14.415	34.389	25.627
75	11.957	34.363	26.103
100	9.910	34.231	26.366
125	8.101	34.134	26.579
150	5.779	34.061	26.838
175	3.402	34.039	27.081
200	2.420	34.028	27.160

STATION US11581			
LATITUDE 41-35.3 N			
LONGITUDE 140-53.5 E			
DEPTH (m) 50			
Press.	Temp.	Salinity	Sigma-T
5	23.830	33.527	22.576
10	22.691	33.617	22.973
20	19.934	33.856	23.906
30	19.882	33.897	23.951
40	19.190	33.945	24.167

STATION US11582			
LATITUDE 41-37.0 N			
LONGITUDE 140-51.4 E			
DEPTH (m) 97			
Press.	Temp.	Salinity	Sigma-T
5	23.422	33.541	22.706
10	23.367	33.556	22.733
20	21.976	33.740	23.267
30	19.683	33.959	24.050
40	16.481	34.115	24.957
50	14.214	34.225	25.543
75	13.441	34.286	25.751

STATION US11583			
LATITUDE 41-38.8 N			
LONGITUDE 140-49.3 E			
DEPTH (m) 324			
Press.	Temp.	Salinity	Sigma-T
5	22.482	33.520	22.959
10	21.603	33.699	23.339
20	17.881	33.953	24.499
30	15.501	34.117	25.181
40	13.343	34.227	25.725
50	13.272	34.269	25.772
75	12.963	34.291	25.851
100	12.751	34.297	25.898
125	12.365	34.288	25.966
150	12.038	34.277	26.020
175	11.785	34.283	26.073
200	11.476	34.275	26.124
250	10.984	34.257	26.200
300	10.924	34.258	26.212

STATION US11584			
LATITUDE 41-40.7 N			
LONGITUDE 140-47.2 E			
DEPTH (m) 227			
Press.	Temp.	Salinity	Sigma-T
5	21.496	33.634	23.319
10	20.956	33.730	23.539
20	18.034	33.967	24.473
30	15.435	34.105	25.186
40	14.639	34.155	25.399
50	13.327	34.178	25.690
75	12.550	34.241	25.894
100	11.939	34.265	26.030
125	11.526	34.257	26.101
150	11.170	34.254	26.163
175	11.077	34.253	26.180
200	10.876	34.246	26.210

STATION US11585			
LATITUDE 41-42.8 N			
LONGITUDE 140-45.0 E			
DEPTH (m) 84			
Press.	Temp.	Salinity	Sigma-T
5	21.578	33.631	23.295
10	21.160	33.763	23.510
20	20.404	33.823	23.758
30	17.954	33.961	24.488
40	14.734	34.071	25.313
50	13.672	34.185	25.625
75	12.299	34.247	25.947

STATION US11586			
LATITUDE 41-43.1 N			
LONGITUDE 140-37.7 E			
DEPTH (m) 60			
Press.	Temp.	Salinity	Sigma-T
5	21.357	33.645	23.365
10	20.756	33.773	23.626
20	19.749	33.885	23.977
30	18.346	33.965	24.394
40	16.950	34.064	24.808
50	16.425	34.114	24.969

