



HOKKAIDO UNIVERSITY

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THE “OSHORU MARU” CRUISE 200
TO THE JAPAN SEA

IN APRIL 2009

1. Cruise Itinerary

Cruise 200

Departure from Hakodate	Apr. 23	, 2009
Start hydrographic research (OS09019)	24	
Arrival at Tsuruga	25	
Departure from Tsuruga	27	
Finish hydrographic research (OS09041)	28	
Return to Hakodate	29	

Total coverage 990.6 miles

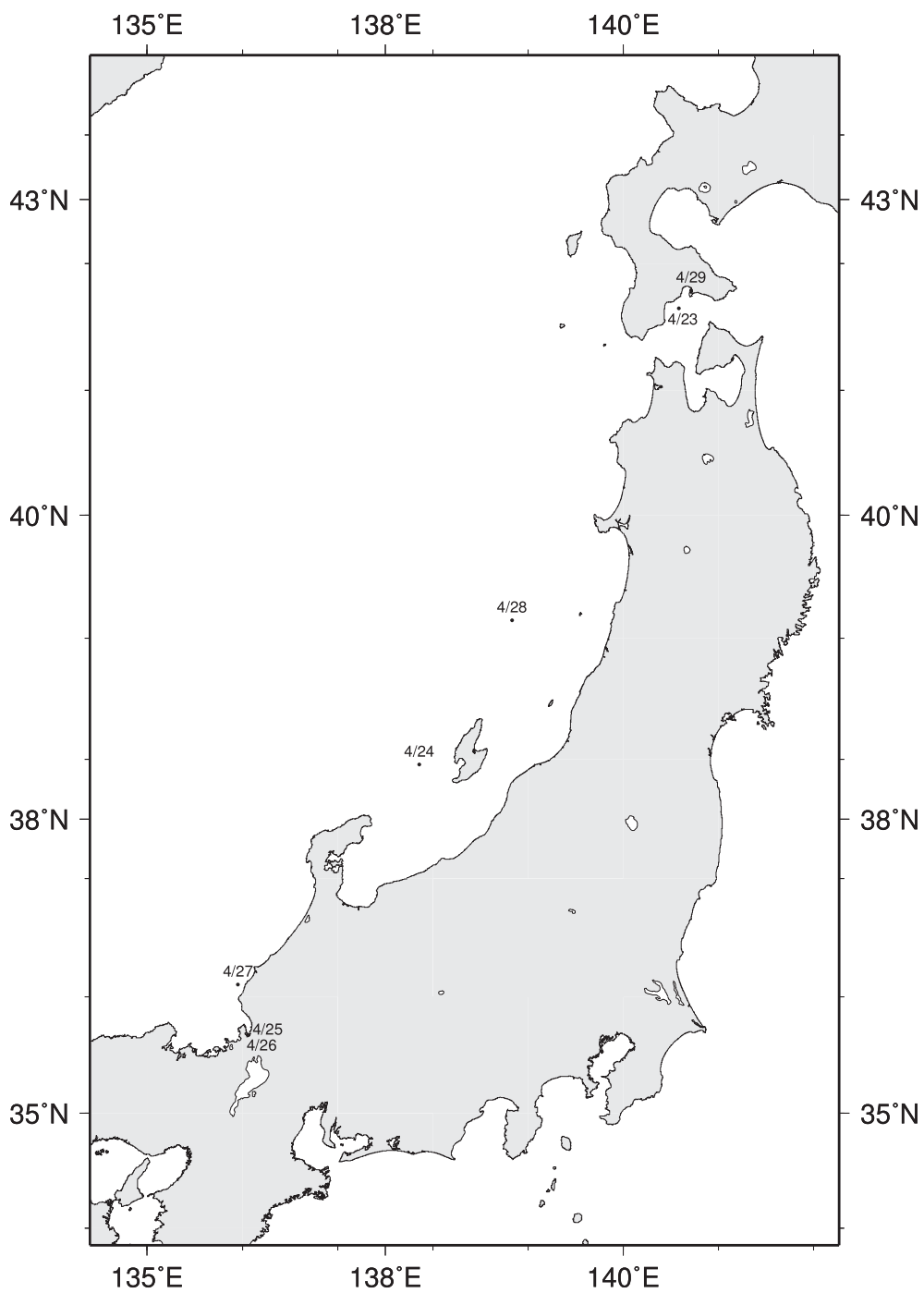


Figure 1: Noon position

2. Vessel Personnel

Captain:		Associate Professor	Shogo Takagi
Crew :	Chief Officer	Instructor	Yoshihiko Kamei
	Second Officer	Instructor	Keiichiro Sakaoka
	Third Officer	Technical Official	Naoki Hoshi
	Chief Engineer	Instructor	Jyunichi Kimura
	And 25 men		

Cruise 200

Research Staff:	Professor	(Research Center for Marine Bioresources)	Osamu Tominaga
	Associate Professor	(Laboratory of Marine Bioresources Ecology)	Tetsuya Takatsu
	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
	Graduate Students		2 persons
	Teaching Assistant		5 persons
	Under Graduate Students		53 persons
	Total		66 persons

3. Items of Research

Hydrographic observations: Fig. 2 Table 1,2

Beam trawl observations

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”.

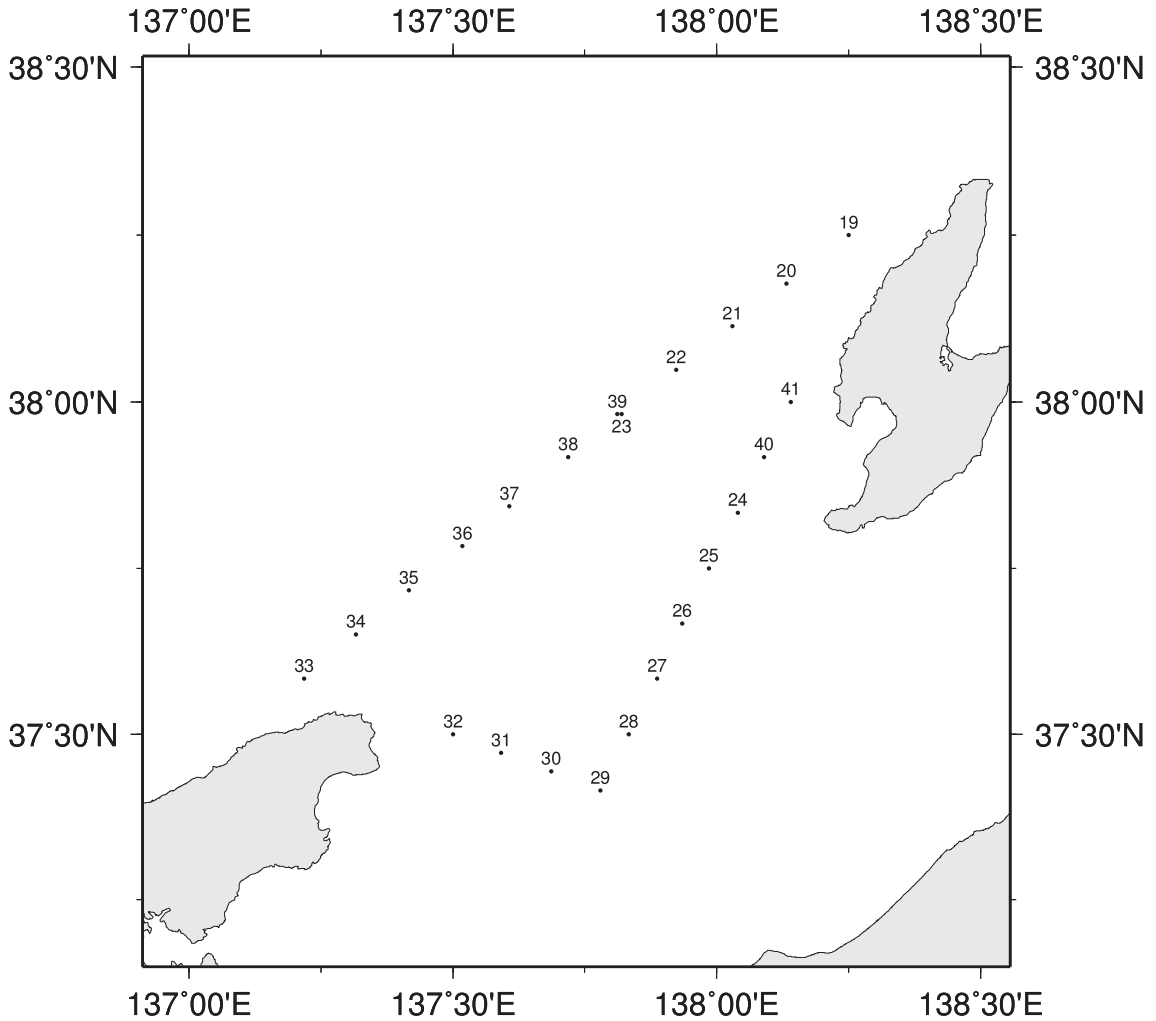


Figure 2: Oceanographic stations

Table 1: List of Oceanographic Stations

Station	Lat.(*)	Long.(*)	Date	S.M.T	T.Z.	Depth	COL.	TR.	S.S.T.	WR.	Remark
OS09019	38-15.0N	138-15.0E	4/24	0750	9	420	-	-	-	o	XBT

(*):Fixed position by Global Positioning system

Table 1: List of Oceanographic Stations

Station	Lat.(*)	Long.(*)	Date	S.M.T	T.Z.	Depth	COL.	TR.	S.S.T.	WR.	Remark
OS09020	38-10.6N	138-07.9E	4/24	0828	9	1605	-	-	-	o	XBT
OS09021	38-06.8N	138-01.8E	4/24	0859	9	1855	-	-	-	o	XBT
OS09022	38-02.9N	137-55.4E	4/24	0931	9	1845	-	-	-	o	XBT
OS09023	37-58.9N	137-49.2E	4/24	1010	9	2050	-	-	-	o	9Plus-1588
OS09024	37-50.0N	138-02.4E	4/24	1300	9	1700	-	-	-	o	XBT
OS09025	37-45.0N	137-59.1E	4/24	1328	9	1635	-	-	-	c	XBT
OS09026	37-40.0N	137-56.1E	4/24	1355	9	1570	-	-	-	c	XBT
OS09027	37-35.0N	137-53.2E	4/24	1421	9	1345	-	-	-	c	XBT
OS09028	37-30.0N	137-50.0E	4/24	1449	9	1023	-	-	-	c	XBT
OS09029	37-24.9N	137-46.8E	4/24	1520	9	1515	-	-	12.1	c	9Plus-1588
OS09030	37-26.6N	137-41.2E	4/24	1759	9	660	-	-	-	c	XBT
OS09031	37-28.3N	137-35.5E	4/24	1822	9	331	-	-	-	c	XBT
OS09032	37-30.0N	137-30.0E	4/24	1846	9	483	-	-	-	c	XBT
OS09033	37-35.0N	137-13.1E	4/27	2207	9	90	-	-	-	bc	XBT
OS09034	37-39.0N	137-19.0E	4/27	2238	9	105	-	-	-	bc	XBT
OS09035	37-43.0N	137-25.0E	4/27	2310	9	140	-	-	-	bc	XBT
OS09036	37-47.0N	137-31.1E	4/27	2343	9	315	-	-	-	bc	XBT
OS09037	37-50.6N	137-36.4E	4/28	0016	9	760	-	-	-	bc	XBT
OS09038	37-55.0N	137-43.1E	4/28	0049	9	1570	-	-	-	bc	XBT
OS09039	37-58.9N	137-48.7E	4/28	0125	9	2010	-	-	-	bc	9Plus-1588
OS09040	37-55.0N	138-05.4E	4/28	0458	9	1559	-	-	-	bc	XBT
OS09041	38-00.0N	138-843.0E	4/28	0528	9	647	-	-	-	bc	XBT

(*):Fixed position by Global Positioning system

Table 2: Oceanographic data

Station OS09019				Station OS09020				Station OS09021			
Longitude 38-15.0N				Longitude 38-10.6N				Longitude 38-06.8N			
Latitude 138-15.0E				Latitude 138-07.9E				Latitude 138-01.8E			
Depth(m) 420				Depth(m) 1605				Depth(m) 1855			
Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T
5	11.912	-	-	5	12.060	-	-	5	12.099	-	-
10	11.892	-	-	10	12.063	-	-	10	12.081	-	-
20	11.898	-	-	20	11.893	-	-	20	12.067	-	-
30	11.898	-	-	30	11.780	-	-	30	11.931	-	-
40	11.832	-	-	40	10.957	-	-	40	10.990	-	-
50	10.890	-	-	50	10.805	-	-	50	10.785	-	-
75	10.789	-	-	75	10.600	-	-	75	10.630	-	-
100	10.918	-	-	100	10.538	-	-	100	10.636	-	-
125	10.470	-	-	125	10.140	-	-	125	10.350	-	-
150	9.842	-	-	150	9.950	-	-	150	9.536	-	-
200	6.721	-	-	200	7.263	-	-	200	4.311	-	-
250	3.301	-	-	250	2.443	-	-	250	2.203	-	-
300	1.700	-	-	300	1.487	-	-	300	1.397	-	-
400	0.970	-	-	400	0.990	-	-	400	0.873	-	-
				500	0.710	-	-	500	0.631	-	-
				600	0.510	-	-	600	0.481	-	-
				700	0.406	-	-	700	0.416	-	-

Station OS09022				Station OS09023				Station OS09024			
Longitude 38-02.9N				Longitude 37-58.9N				Longitude 37-50.0N			
Latitude 137-55.4E				Latitude 137-49.2E				Latitude 138-02.4E			
Depth(m) 1845				Depth(m) 2050				Depth(m) 1700			
Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T	Press.	Temp.	Sal.	SIG-T
5	12.239	-	-	5	12.262	34.102	25.842	5	11.821	-	-
10	12.240	-	-	10	12.233	34.101	25.847	10	11.710	-	-
20	12.112	-	-	20	12.217	34.101	25.850	20	11.392	-	-
30	12.130	-	-	30	12.214	34.103	25.852	30	11.310	-	-
40	12.092	-	-	40	12.164	34.116	25.872	40	10.770	-	-
50	12.058	-	-	50	12.120	34.129	25.890	50	10.758	-	-
75	11.270	-	-	75	11.433	34.179	26.058	75	10.680	-	-
100	10.696	-	-	100	10.390	34.202	26.263	100	10.486	-	-
125	10.020	-	-	125	9.806	34.199	26.359	125	10.190	-	-
150	8.814	-	-	150	9.030	34.179	26.471	150	9.980	-	-
200	5.870	-	-	200	6.069	34.108	26.839	200	8.380	-	-
250	2.689	-	-	250	2.977	34.063	27.139	250	3.543	-	-
300	1.677	-	-	300	1.657	34.056	27.241	300	1.707	-	-
400	0.927	-	-	400	0.892	34.060	27.296	400	1.070	-	-
500	0.667	-	-	500	0.641	34.062	27.313				
600	0.499	-	-	600	0.504	34.063	27.322				
700	0.414	-	-	700	0.412	34.063	27.328				
				800	0.352	34.063	27.331				
				900	0.309	34.064	27.334				
				1000	0.278	34.064	27.336				
				1200	0.244	34.064	27.338				
				1500	0.215	34.064	27.339				

Station		OS09025	
Longitude		37-45.0N	
Latitude		137-59.1E	
Depth(m)		1635	
Press.	Temp.	Sal.	SIG-T
5	11.311	-	-
10	11.310	-	-
20	11.150	-	-
30	11.110	-	-
40	10.882	-	-
50	10.612	-	-
75	10.699	-	-
100	10.550	-	-
125	10.350	-	-
150	10.054	-	-
200	7.262	-	-
250	3.362	-	-
300	1.873	-	-
400	0.873	-	-

Station		OS09026	
Longitude		37-40.0N	
Latitude		137-56.1E	
Depth(m)		1570	
Press.	Temp.	Sal.	SIG-T
5	12.329	-	-
10	12.268	-	-
20	12.157	-	-
30	12.130	-	-
40	10.716	-	-
50	10.644	-	-
75	10.491	-	-
100	10.310	-	-
125	10.080	-	-
150	9.044	-	-
200	4.864	-	-
250	2.370	-	-
300	1.450	-	-
400	0.870	-	-
500	0.659	-	-
600	0.491	-	-
700	0.396	-	-

Station		OS09027	
Longitude		37-35.0N	
Latitude		137-53.2E	
Depth(m)		1345	
Press.	Temp.	Sal.	SIG-T
5	12.080	-	-
10	12.029	-	-
20	11.950	-	-
30	11.315	-	-
40	10.782	-	-
50	10.664	-	-
75	10.589	-	-
100	10.386	-	-
125	10.140	-	-
150	9.086	-	-
200	5.362	-	-
250	2.633	-	-
300	1.610	-	-
400	0.843	-	-
500	0.600	-	-
600	0.549	-	-
700	0.466	-	-

Station		OS09028	
Longitude		37-30.0N	
Latitude		137-50.0E	
Depth(m)		1023	
Press.	Temp.	Sal.	SIG-T
5	12.520	-	-
10	12.520	-	-
20	12.262	-	-
30	12.212	-	-
40	11.624	-	-
50	11.112	-	-
75	10.920	-	-
100	10.648	-	-
125	10.000	-	-
150	9.620	-	-
200	6.621	-	-
250	2.781	-	-
300	1.463	-	-
400	0.847	-	-
500	0.591	-	-
600	0.469	-	-
700	0.380	-	-

Station		OS09029	
Longitude		37-24.9N	
Latitude		137-46.8E	
Depth(m)		1515	
Press.	Temp.	Sal.	SIG-T
5	12.105	33.735	25.587
10	12.081	33.737	25.594
20	12.174	33.972	25.758
30	11.818	33.914	25.781
40	11.244	33.906	25.880
50	11.063	33.975	25.966
75	10.921	34.013	26.021
100	10.742	34.020	26.058
125	10.587	34.051	26.110
150	10.568	34.184	26.217
200	7.495	34.123	26.659
250	3.438	34.074	27.105
300	1.678	34.059	27.242
400	0.889	34.060	27.297
500	0.593	34.062	27.316
600	0.460	34.062	27.324
700	0.375	34.063	27.330
800	0.322	34.063	27.333
900	0.293	34.063	27.335
1000	0.268	34.063	27.336
1200	0.212	34.063	27.339

Station		OS09030	
Longitude		37-26.6N	
Latitude		137-41.2E	
Depth(m)		660	
Press.	Temp.	Sal.	SIG-T
5	12.350	-	-
10	12.341	-	-
20	12.333	-	-
30	12.304	-	-
40	11.702	-	-
50	11.360	-	-
75	11.210	-	-
100	11.154	-	-
125	11.030	-	-
150	10.464	-	-
200	6.441	-	-
250	2.853	-	-
300	1.707	-	-
400	0.969	-	-
500	0.480	-	-
600	0.371	-	-

Station	OS09031			
Longitude	37-28.3N			
Latitude	137-35.5E			
Depth(m)	331			
Press.	Temp.	Sal.	SIG-T	
5	12.601	-	-	
10	12.600	-	-	
20	12.415	-	-	
30	11.974	-	-	
40	11.720	-	-	
50	11.798	-	-	
75	11.690	-	-	
100	11.470	-	-	
125	11.230	-	-	
150	10.892	-	-	
200	7.301	-	-	
250	1.801	-	-	
300	1.350	-	-	

Station	OS09032			
Longitude	37-30.0N			
Latitude	137-30.0E			
Depth(m)	483			
Press.	Temp.	Sal.	SIG-T	
5	12.640	-	-	
10	12.641	-	-	
20	12.510	-	-	
30	12.440	-	-	
40	12.314	-	-	
50	12.140	-	-	
75	12.090	-	-	
100	12.064	-	-	
125	11.720	-	-	
150	11.578	-	-	
200	4.950	-	-	
250	2.462	-	-	
300	1.607	-	-	
400	0.997	-	-	

Station	OS09033			
Longitude	37-35.0N			
Latitude	137-13.1E			
Depth(m)	90			
Press.	Temp.	Sal.	SIG-T	
5	13.049	-	-	
10	13.021	-	-	
20	12.977	-	-	
30	12.852	-	-	
40	12.622	-	-	
50	12.494	-	-	
75	12.399	-	-	

Station	OS09034			
Longitude	37-39.0N			
Latitude	137-19.0E			
Depth(m)	105			
Press.	Temp.	Sal.	SIG-T	
5	12.421	-	-	
10	12.449	-	-	
20	12.412	-	-	
30	12.430	-	-	
40	12.412	-	-	
50	12.398	-	-	
75	12.369	-	-	
100	12.178	-	-	

Station	OS09035			
Longitude	37-43.0N			
Latitude	137-25.0E			
Depth(m)	140			
Press.	Temp.	Sal.	SIG-T	
5	11.859	-	-	
10	11.830	-	-	
20	11.788	-	-	
30	11.750	-	-	
40	11.740	-	-	
50	11.720	-	-	
75	11.720	-	-	
100	11.790	-	-	
125	11.650	-	-	

Station	OS09036			
Longitude	37-47.0N			
Latitude	137-31.1E			
Depth(m)	315			
Press.	Temp.	Sal.	SIG-T	
5	12.110	-	-	
10	12.099	-	-	
20	12.088	-	-	
30	12.050	-	-	
40	12.040	-	-	
50	12.036	-	-	
75	11.710	-	-	
100	11.080	-	-	
125	10.930	-	-	
150	10.546	-	-	
200	4.384	-	-	
250	1.950	-	-	
300	0.920	-	-	

		Station	OS09037
		Longitude	37-50.6N
		Latitude	137-36.4E
		Depth(m)	760
Press.	Temp.	Sal.	SIG-T
5	11.049	-	-
10	11.030	-	-
20	11.035	-	-
30	11.040	-	-
40	11.032	-	-
50	11.052	-	-
75	10.709	-	-
100	10.516	-	-
125	10.430	-	-
150	10.742	-	-
200	8.083	-	-
250	5.190	-	-
300	4.420	-	-
400	2.137	-	-

		Station	OS09038
		Longitude	37-55.0N
		Latitude	137-43.1E
		Depth(m)	1570
Press.	Temp.	Sal.	SIG-T
5	11.889	-	-
10	11.873	-	-
20	11.878	-	-
30	11.872	-	-
40	11.872	-	-
50	11.850	-	-
75	11.030	-	-
100	10.840	-	-
125	10.620	-	-
150	10.264	-	-
200	7.951	-	-
250	4.755	-	-
300	2.047	-	-
400	0.904	-	-
500	0.600	-	-
600	0.490	-	-
700	0.416	-	-

		Station	OS09039
		Longitude	37-58.9N
		Latitude	137-48.7E
		Depth(m)	2010
Press.	Temp.	Sal.	SIG-T
5	11.679	-	-
10	11.691	-	-
20	11.663	-	-
30	11.702	-	-
40	11.189	-	-
50	10.978	-	-
75	10.620	-	-
100	10.156	-	-
125	9.970	-	-
150	9.142	-	-
200	6.551	-	-
250	2.960	-	-
300	1.647	-	-
400	0.946	-	-

		Station	OS09040
		Longitude	37-55.0N
		Latitude	138-05.4E
		Depth(m)	1559
Press.	Temp.	Sal.	SIG-T
5	11.501	-	-
10	11.500	-	-
20	11.510	-	-
30	11.455	-	-
40	11.108	-	-
50	10.865	-	-
75	10.620	-	-
100	10.418	-	-
125	9.750	-	-
150	8.962	-	-
200	7.271	-	-
250	3.482	-	-
300	2.070	-	-
400	1.303	-	-