



Title	8.THE "OSHORO MARU" CRUISE 033 to THE NANPO ISLANDS in DECEMBER 2016
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**THE "OSHORO MARU" CRUISE 033
TO THE NANPO ISLANDS
IN DECEMBER 2016**

1. Cruise Itinerary

Cruise 033

Departure from Hakodate (Leg1)	Nov. 29, 2016
Arrival at Tokyo	Dec. 02
Departure from Tokyo (Leg2)	05
Start of vertical long-line research (OSVL1601) and oceanographic research	07
End of vertical long-line research (OSVL 1606)	10
Arrival at Izu Oshima	11
Departure from Izu Oshima (Leg3) and end of oceanographic research	12
Arrival at Yokohama	13

Total coverage 1440.5 miles

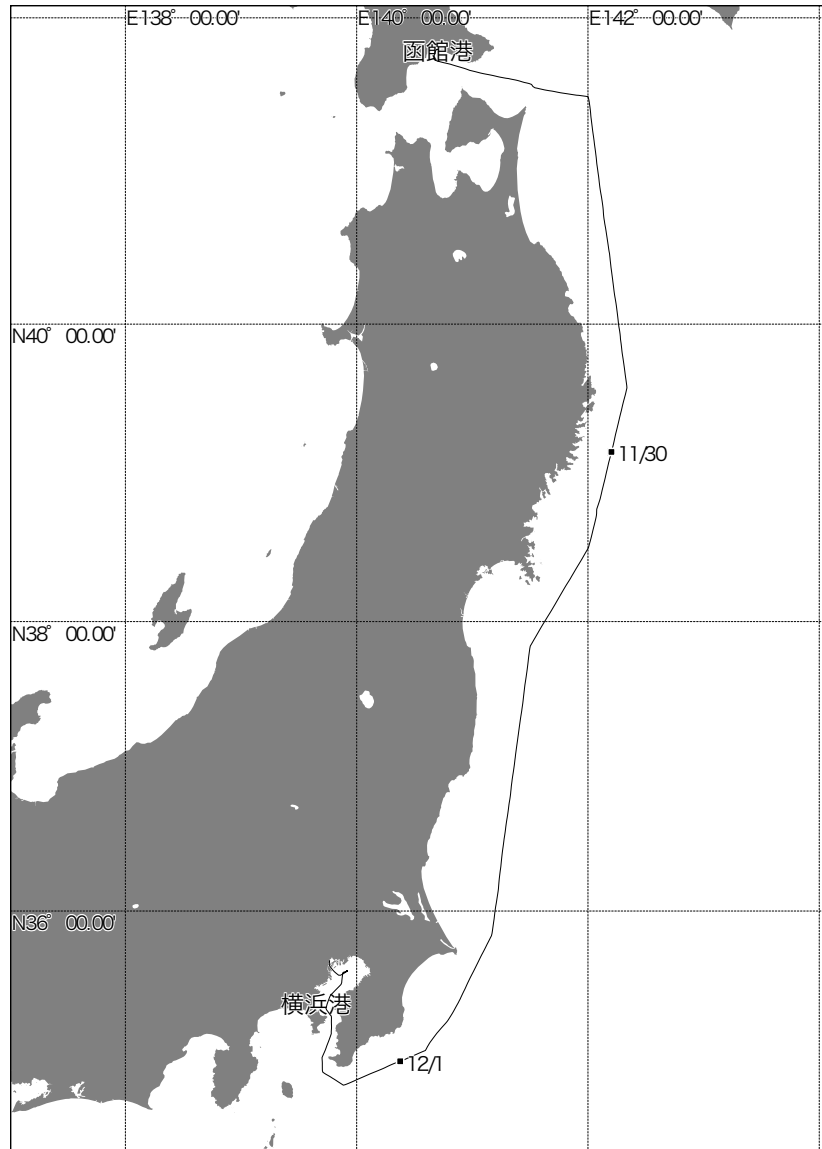
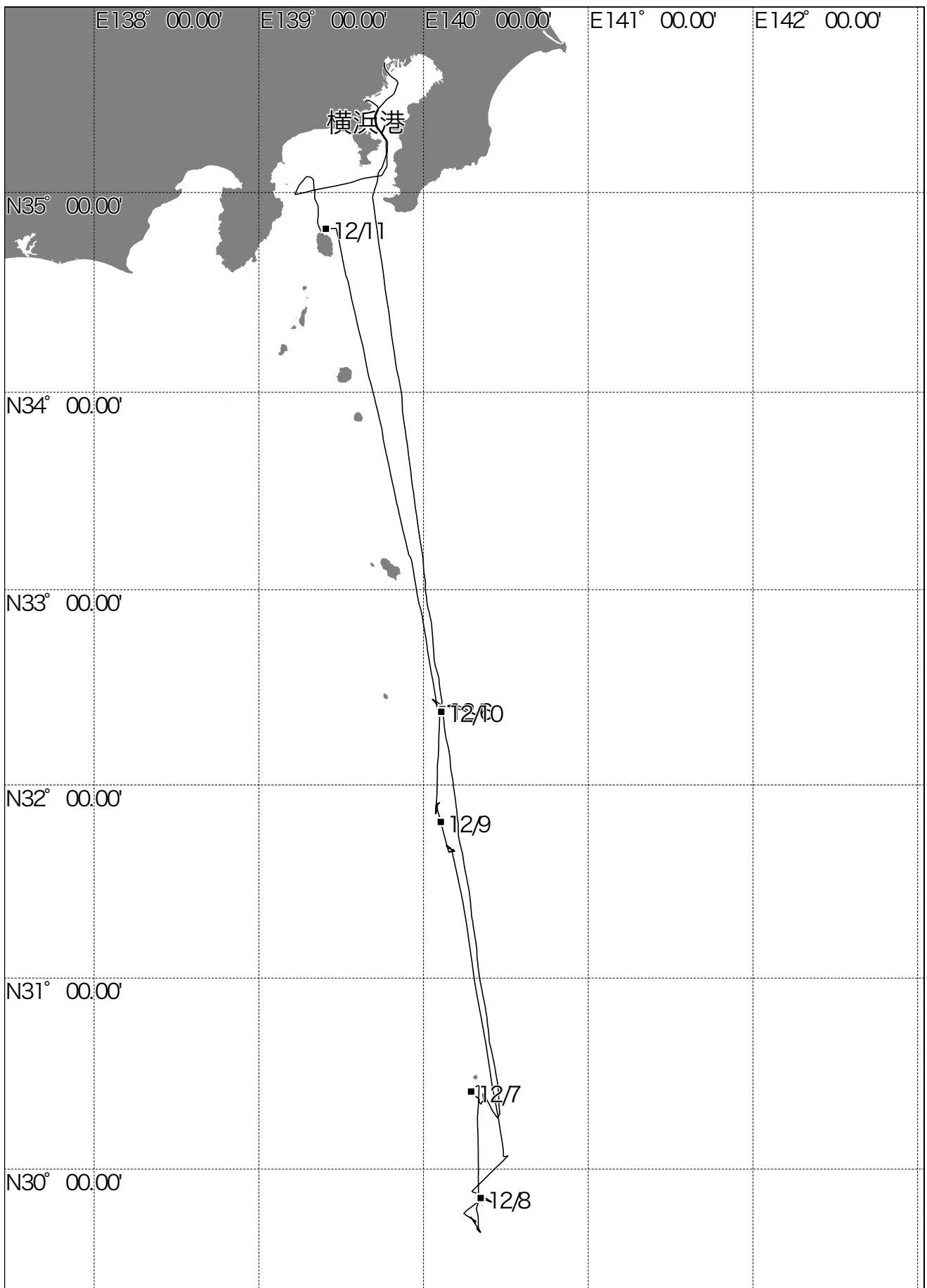


Fig.1.1: Noon Position (Leg1)



■ 正午位置

Fig.1.2: Noon Position (Leg2)

2. Vessel Personnel

Crew:	Captain:	Associate Professor	Shogo Takagi
			And 31 persons
Research Staff:	Assistant Professor (National Fisheries University)	Leg1	Yoichi Shimada
Under Graduate instructor:	Professor (Department of Marine Science and Resources, Nihon University)	Leg2,3	Takahito Kojima
	Assistant Professor (Department of Marine Science and Resources, Nihon University)	Leg2,3	Yuya Makiguchi
	Professor (Teikyo University of Science and Technology)	Leg2,3	Kyoichi Mori
Teaching Assistant:	Leg2,3	1 persons	
Under Graduate Student:	Leg2,3	52 persons	
Other:	4 faculty staffs from Hokkaido University		

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 Science officer, the deck officers, crews, research staff and cadets of the “*Oshoromaru*”.

Temperature and salinity were measured by CTD (Seabird SBE-9).

Dynamic computations were made using a desk-top computer aboard the “*Oshoromaru*”.

Fig.2 Table 1

4. Result of oceanographic research

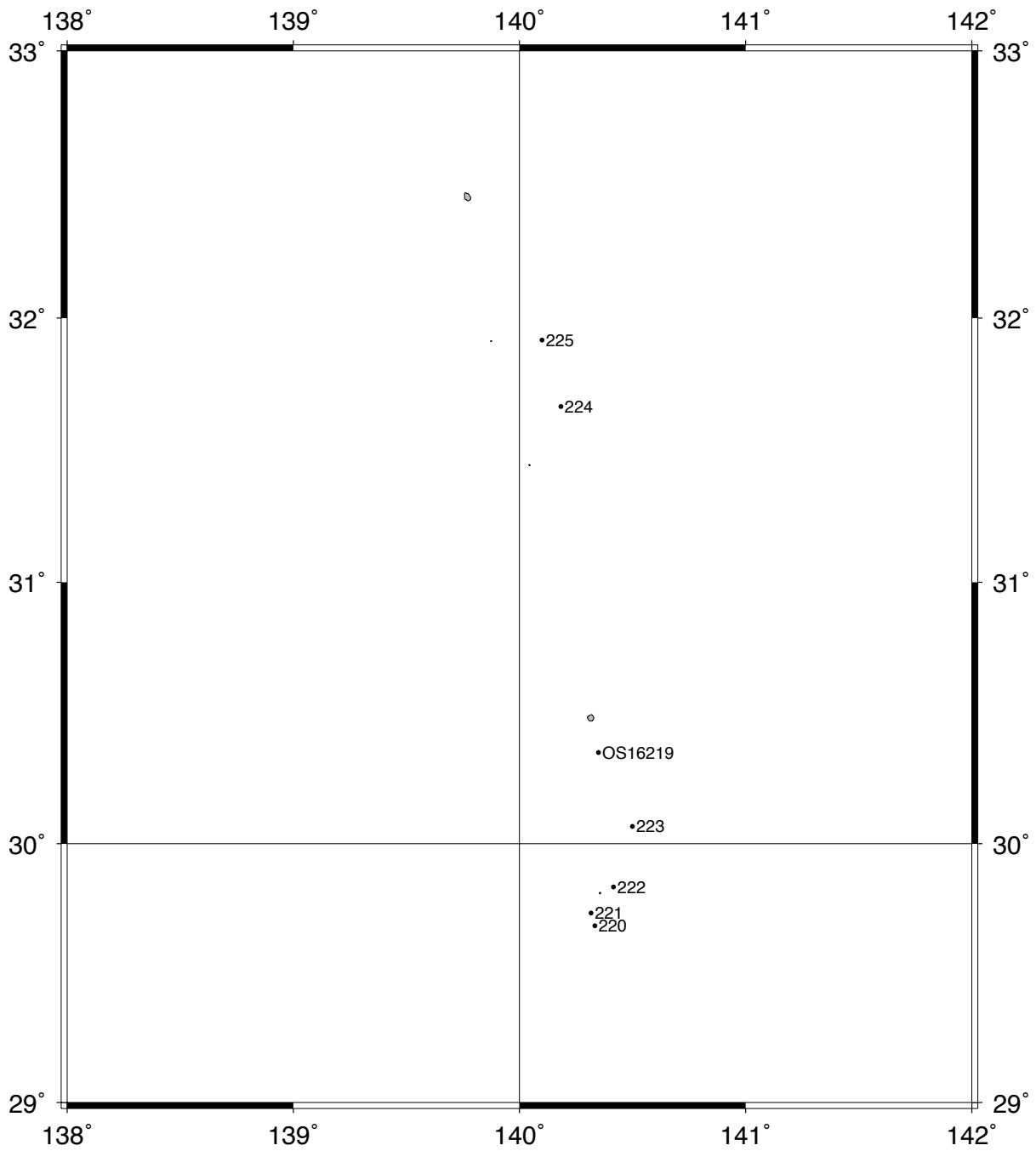


Fig.2: Research stations

Table 1. Oceanographic data

STATION OS16219				STATION OS16220				STATION OS16221			
LATITUDE 30-20.9 N				LATITUDE 29-41.0 N				LATITUDE 29-43.5 N			
LONGITUDE 140-20.6 E				LONGITUDE 140-19.7 E				LONGITUDE 140-18.9 E			
DEPTH (m)				DEPTH (m)				DEPTH (m)			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	23.5295	34.8354	23.6551	5	23.7469	34.812	23.5737	5	23.6947	34.8164	23.5923
10	23.5302	34.8358	23.6552	10	23.7489	34.812	23.5731	10	23.6969	34.8161	23.5915
20	23.5282	34.8357	23.6558	20	23.7495	34.8118	23.5727	20	23.6984	34.8162	23.5912
30	23.5358	34.8351	23.6531	30	23.7489	34.8117	23.5729	30	23.7019	34.8169	23.5906
40	23.5385	34.835	23.6522	40	23.7433	34.8118	23.5746	40	23.7019	34.8167	23.5905
50	23.5392	34.835	23.652	50	23.7485	34.8121	23.5733	50	23.7037	34.8161	23.5895
75	21.3581	34.882	24.3062	75	23.7462	34.812	23.5739	75	23.5633	34.8296	23.6409
100	19.3262	34.869	24.8374	100	20.4647	34.8372	24.5142	100	20.3003	34.8411	24.5611
125	18.8051	34.8503	24.9563	125	18.5787	34.7972	24.9728	125	18.5748	34.8033	24.9784
150	18.4423	34.8342	25.0352	150	17.6739	34.7651	25.172	150	17.6678	34.7715	25.1784
175	18.1111	34.8158	25.1035	175	17.0539	34.7279	25.2926	175	17.0631	34.7344	25.2954
200	17.8217	34.7987	25.1617	200	16.6415	34.7049	25.3722	200	16.724	34.7117	25.3581
250	17.2157	34.7498	25.2708	250	15.743	34.6232	25.5161	250	16.0578	34.6512	25.4661
300	16.4932	34.6922	25.3971	300	14.9104	34.5581	25.6508	300	14.9408	34.5617	25.6469
400	14.5589	34.5303	25.7055	400	12.535	34.3918	26.0135	400	12.6823	34.4017	25.9923
500	11.8539	34.3384	26.1028	500	9.7646	34.1851	26.3552	500	9.49	34.1705	26.3894
600	8.2029	34.1411	26.5689	600	7.2609	34.0706	26.6504	600	7.2139	34.0682	26.6551
700	6.1874	34.0604	26.7864	700	5.648	34.0589	26.8526	700	5.568	34.0619	26.8647
800	4.9551	34.1039	26.9699	800	4.8832	34.1787	27.0374	800	4.8249	34.142	27.0149
900	4.4073	34.1842	27.0943	900	4.1731	34.2755	27.1918	900	4.1018	34.2838	27.2059
1000	3.8603	34.3013	27.2446	1000	3.8439	34.315	27.2572	1000	3.6995	34.3316	27.2849

STATION OS16222				STATION OS16223				STATION OS16224			
LATITUDE 29-49.7 N				LATITUDE 30-04.0 N				LATITUDE 31-39.9 N			
LONGITUDE 140-24.7 E				LONGITUDE 140-30.0 E				LONGITUDE 140-10.9 E			
DEPTH (m)				DEPTH (m)				DEPTH (m)			
Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T	Press.	Temp.	Salinity	Sigma-T
5	23.7071	34.8201	23.5915	5	23.6296	34.8731	23.6544	5	23.1753	34.8565	23.7741
10	23.7064	34.8207	23.5922	10	23.6264	34.8732	23.6554	10	23.1801	34.8562	23.7726
20	23.7085	34.8202	23.5911	20	23.6356	34.8726	23.6522	20	23.181	34.8563	23.7723
30	23.708	34.8201	23.5912	30	23.6354	34.8731	23.6527	30	23.1836	34.8563	23.7715
40	23.7033	34.8197	23.5923	40	23.6346	34.8733	23.6531	40	23.1837	34.8562	23.7715
50	23.7037	34.8197	23.5922	50	23.635	34.8736	23.6532	50	23.1849	34.8563	23.7712
75	23.1971	34.831	23.7485	75	22.9387	34.8836	23.863	75	23.1885	34.8561	23.77
100	19.1956	34.8412	24.8498	100	19.6027	34.8876	24.78	100	23.0946	34.8518	23.7939
125	18.4818	34.8219	25.016	125	19.1342	34.8728	24.8896	125	19.8845	34.8715	24.6941
150	18.0448	34.8024	25.1097	150	18.5555	34.8412	25.0123	150	18.85	34.8471	24.9424
175	17.5256	34.7681	25.2102	175	18.0477	34.8092	25.1142	175	18.5034	34.8256	25.0134
200	17.0761	34.733	25.2912	200	17.7078	34.7851	25.179	200	18.1684	34.8047	25.0808
250	16.6161	34.7051	25.3784	250	16.8378	34.7211	25.3386	250	17.2208	34.7344	25.2577
300	15.8933	34.6375	25.4931	300	16.1651	34.6606	25.4487	300	16.7884	34.7063	25.3388
400	13.1688	34.4362	25.9222	400	14.1013	34.5021	25.781	400	15.8593	34.6304	25.4953
500	9.8936	34.1951	26.3414	500	11.0236	34.2735	26.2055	500	13.3256	34.4467	25.8986
600	7.0962	34.0638	26.668	600	8.6239	34.1339	26.4989	600	10.4012	34.2858	26.3253
700	5.7926	34.07	26.8436	700	6.3695	34.106	26.7988	700	8.0722	34.1922	26.6287
800	4.8996	34.1307	26.9975	800	5.0644	34.1221	26.9718	800	6.405	34.232	26.8937
900	4.1843	34.2303	27.1547	900	4.3508	34.1951	27.109	900	4.8948	34.2741	27.1118
1000	3.8521	34.3135	27.2552	1000	3.9054	34.2651	27.2112	1000	4.1887	34.3391	27.2407

STATION OS16225			
LATITUDE 31-54.4 N			
LONGITUDE 140-05.7 E			
DEPTH (m)			
Press.	Temp.	Salinity	Sigma-T
5	23.9304	34.7549	23.4764
10	23.935	34.7544	23.4747
20	23.9354	34.7546	23.4747
30	23.9364	34.7547	23.4745
40	23.9383	34.7547	23.4739
50	23.9399	34.7548	23.4735
75	23.9283	34.7556	23.4775
100	22.9099	34.8476	23.8439
125	21.6723	34.9441	24.2667
150	21.1297	34.9231	24.4
175	20.3146	34.8889	24.5937
200	18.7473	34.8317	24.9566
250	18.3437	34.8111	25.0422
300	17.7464	34.7893	25.1728
400	15.2541	34.5829	25.5944
500	12.5595	34.399	26.0144
600	9.8764	34.2707	26.4033
700	7.8391	34.218	26.6835
800	6.2979	34.2344	26.9095
900	4.8957	34.2853	27.1206
1000	4.0913	34.3423	27.2534