



R/V Kaiyo Cruise Report

KY08-08

Seismic study in the Izu-Ogasawara region

Aug. 14, 2008 – Aug. 28, 2008

Japan Agency for Marine-Earth Science and Technology

(JAMSTEC)

Contents:

- 1 . Cruise Information :
- 2 . Researchers
- 3 . Overview of Observation :
- 4 . Notice on using:

1. Cruise Information :

(1) Cruise number, Ship name: KY08-08, R/V Kaiyo

(2) Title of the cruise: 2008FY “Seismic study at the Izu-Ogasawara region”

(3) Title of proposal:

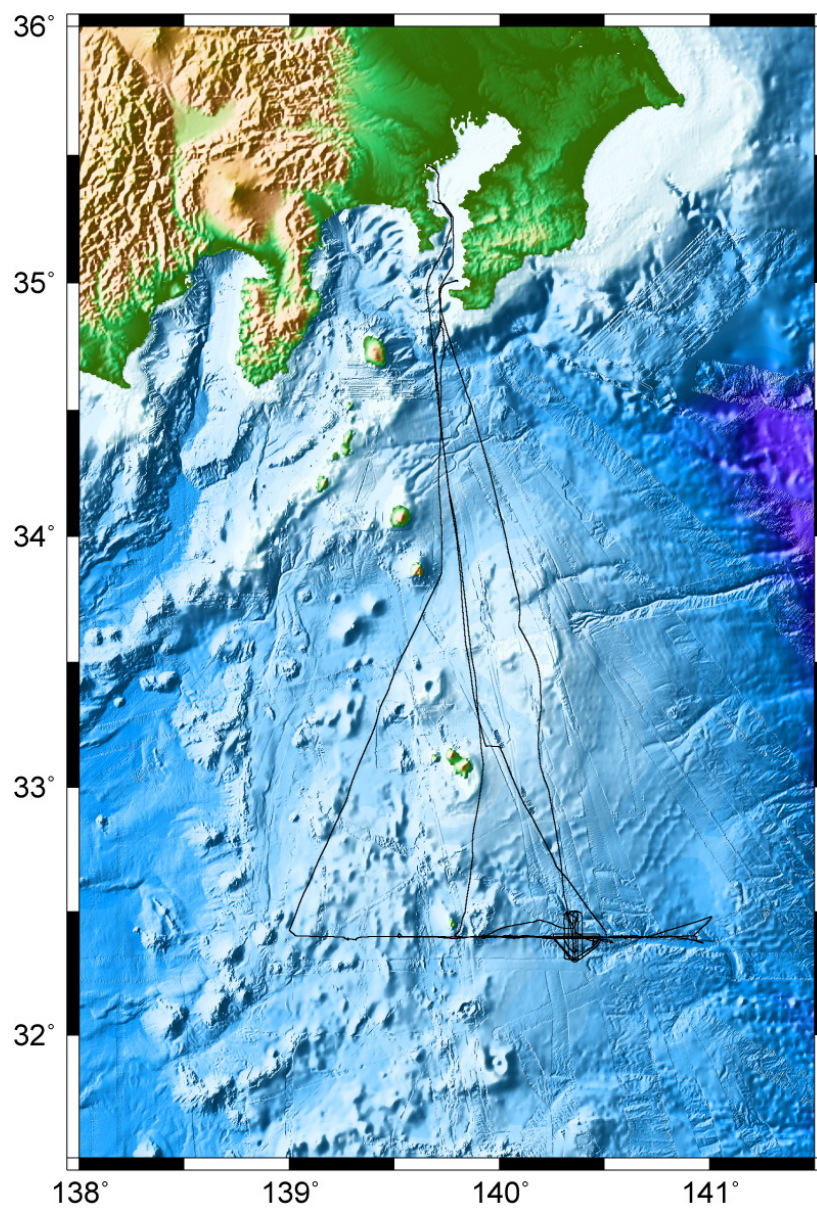
Crustal growth of the Izu-Ogasawara oceanic island arc -Seismic study for IODP
Project IBM-

(4) Cruise period, Port call:

2008/8/14-8/28, Yamashita Pier in Yokohama Port to JAMSTEC (Yokosuka)

(5) Research Area: Izu-Ogasawara

(6) Research Map:



2. Researchers

(1) Chief Scientist [Affiliation]: Takeshi SATO [JAMSTEC]

(2) Representative of Science Party [Affiliation]:

Yoshiyuki KANEDA [JAMSTEC],

(3) Science part list:

Yoshiyuki KANEDA [JAMSTEC],

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Kaoru TAKIZAWA [JAMSTEC],

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3. Overview of Observation :

(1) Objectives :

IFREE has conducted seismic surveys intensively in the Izu-Ogasawara area to understand crustal evolution of oceanic arcs since 2004. The objectives of this cruise are to reveal the distribution of the arc middle crust in the forearc area and the site characterizations of drill points of Project IBM sites by a refraction/reflection and high resolution reflection seismic surveys conducted in the southeast off Aoga-shima in the Izu-Ogasawara area.

(2) List of observation instruments :

1) Refraction/Reflection seismic survey

A Refraction/Reflection seismic survey was conducted in the southeast off Aoga-shima (IBM4-EW5 line), the Izu-Ogasawara area, using the airgun array of 12,000 cu. inch and a 16 channel hydrophone streamer.

2) Recovery of ocean bottom seismometers (OBSs)

We recovered OBSs which were deployed on the IBM4-EW5 line by KR08-09 cruise.

3) High resolution reflection seismic survey

A high-resolution reflection seismic survey was conducted in the southeast off Aoga-shima, the Izu-Ogasawara area, using the G-gun array of 600 cu. inch and a 16 channel hydrophone streamer.

4) Bathymetry observation

During this cruise, bathymetry data have been recorded continuously by SEABEAM2112.

5) Sea current observation

During this cruise, sea current data have been recorded continuously by Acoustic Doppler Current Profiler (ADCP).

6) Temperature and Conductivity observation for the correction of sonic speed

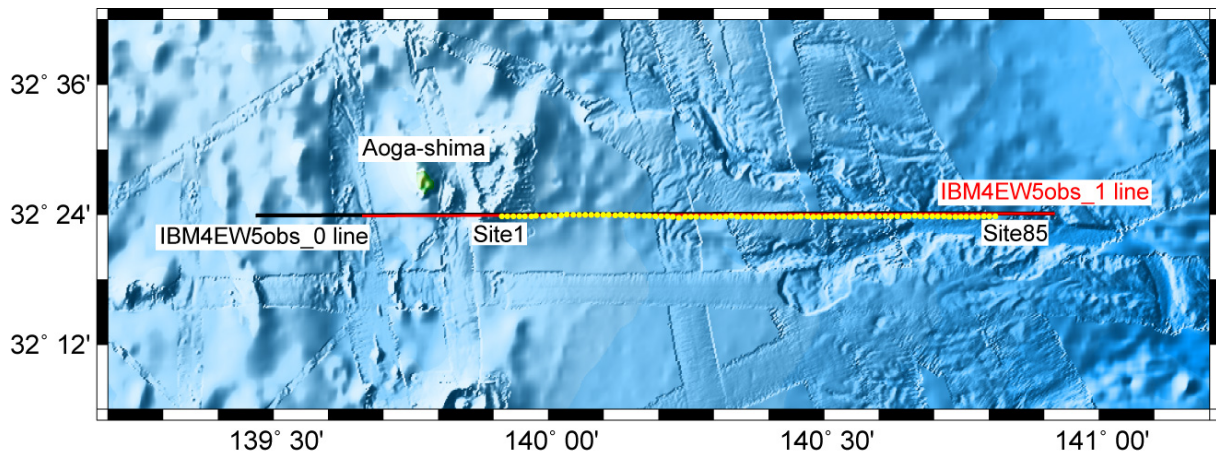
We have conducted two expendable-Bathy Thermograph (XBT) and expendable Conductivity-Temperature-Depth (XCTD) to correct the sonic speed for the bathymetry survey.

(3) Cruise log:

Date		Remarks
2008/8/14	Thu	Departure from Yamashita Pier in Yokohama Port, and transit to survey area
2008/8/15	Fri	Transit to Tateyama Bay to escape typhoon
2008/8/16	Sat	Stay at Tateyama Bay to escape typhoon
2008/8/17	Sun	Transit to survey area
2008/8/18	Mon	Airgun shooting on IBM4-EW5_0 line
2008/8/19	Tue	Airgun shooting on IBM4-EW5_1 line and Recovery of OBSs
2008/8/20	Wed	Recovery of OBSs
2008/8/21	Thu	Recovery of OBSs
2008/8/22	Fri	Recovery of OBSs
2008/8/23	Sat	Recovery of OBSs
2008/8/24	Sun	Recovery of OBSs
2008/8/25	Mon	G-gun shooting in IBM4a area (EW5_0, NS5_0, NS5_1 line)
2008/8/26	Tue	G-gun shooting in IBM4a area (NS4_b_0, EW5_b_0, NS5_b_0, NS3_0_b, EW4_b_0 line)
2008/8/27	Wed	G-gun shooting in IBM4a area (NS6_b_0, NS2_b_0 line) and transit to JAMSTEC (Yokosuka)
2008/8/28	Thu	Arrive at JAMSTEC (Yokosuka)

(4) Seismic lines

1) Refraction/Reflection seismic survey



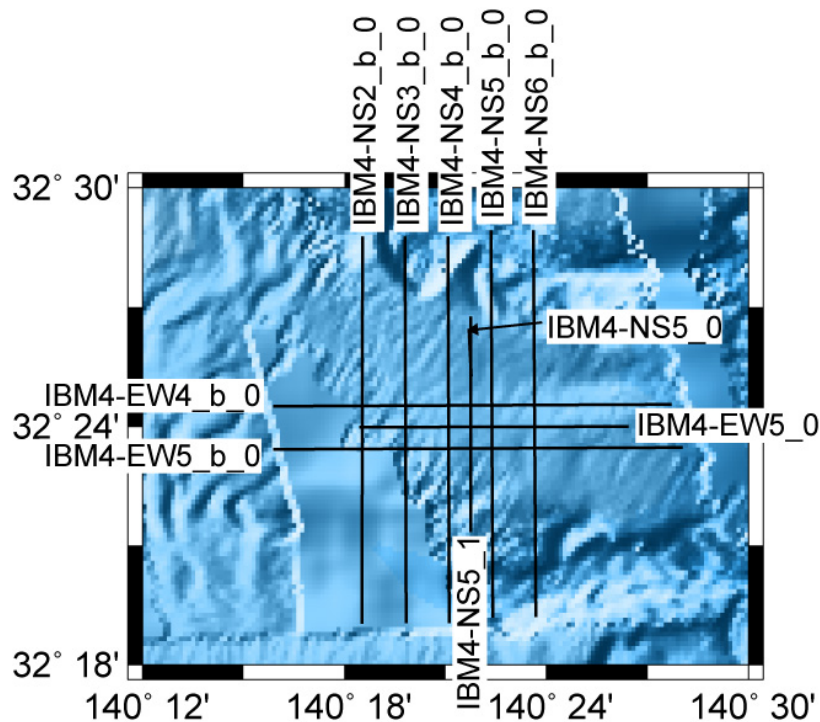
Black and red lines are refraction/reflection seismic survey lines conducted in this cruise using airgun and OBSs (IBM4EW5obs_0 and IBM4EW5obs_1 lines).

IBM4EW5obs_0	Time (UTC)	Latitude (N)	Longitude (E)	Depth (m)	SP
First shot	2008/8/17 23:39	32° 23.8982'	139° 28.1110'	1018	1673
First good shot	2008/8/17 23:39	32° 23.8982'	139° 28.1110'	1018	1673

Last good shot	2008/8/18 8:04	32° 23.8422'	140° 43.0531'	3152	1085
Last shot	2008/8/18 9:26	32° 24.0823'	140° 55.0361'	3268	991

IBM4EW5obs_1	Time (UTC)	Latitude (N)	Longitude (E)	Depth (m)	SP
First shot	2008/8/18 21:53	32° 23.8633'	139° 39.7199'	1404	1582
First good shot	2008/8/18 21:53	32° 23.8633'	139° 39.7199'	1404	1582
Last good shot	2008/8/19 6:51	32° 24.0923'	140° 55.1633'	3326	990
Last shot	2008/8/19 6:51	32° 24.0923'	140° 55.1633'	3326	990

2) High resolution seismic survey



Black lines are high resolution reflection seismic survey lines conducted in this cruise using G-gun and a hydrophone streamer (IBM4-EW4_b_0, 5_0, 5_b_0, IBM4-NS2_b_0, 3_b_0, 4_b_0, 5_0, 5_1, 5_0_b, and 6_b_0).

(5) MCS line list

IBM4-NS5_0	Time (UTC)	Latitude (N)	Longitude (E)	Depth (m)	SP
First shot	2008/8/25 5:19	32° 26.4623'	140° 21.6882'	1758	973
First good shot	2008/8/25 5:19	32° 26.4623'	140° 21.6882'	1758	973
Last good shot	2008/8/25 5:37	32° 25.2581'	140° 21.7624'	1791	1062
Last shot	2008/8/25 5:37	32° 25.2581'	140° 21.7624'	1791	1062

IBM4-EW5_0	Time (UTC)	Latitude (N)	Longitude (E)	Depth (m)	SP
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First shot	2008/8/25 8:16	32° 23.9969'	140° 26.4345'	1911	861
First good shot	2008/8/25 8:16	32° 23.9969'	140° 26.4345'	1911	861
Last good shot	2008/8/25 11:30	32° 23.9764'	140° 18.4438'	1733	1362
Last shot	2008/8/25 11:30	32° 23.9764'	140° 18.4438'	1733	1362

IBM4-NS5_1	Time (UTC)	Latitude (N)	Longitude (E)	Depth (m)	SP
First shot	2008/8/25 12:59	32° 21.3543'	140° 21.7392'	1922	961
First good shot	2008/8/25 12:59	32° 21.3543'	140° 21.7392'	1922	961
Last good shot	2008/8/25 14:23	32° 26.7669'	140° 21.7395'	1752	1361
Last shot	2008/8/25 14:23	32° 26.7669'	140° 21.7395'	1752	1361

IBM4-NS4_b_0	Time (UTC)	Latitude (N)	Longitude (E)	Depth (m)	SP
First shot	2008/8/25 15:52	32° 28.7811'	140° 21.0748'	2320	961
First good shot	2008/8/25 15:52	32° 28.7811'	140° 21.0748'	2320	961
Last good shot	2008/8/25 19:03	32° 19.0522'	140° 21.1151'	1808	1680
Last shot	2008/8/25 19:03	32° 19.0522'	140° 21.1151'	1808	1680

IBM4-EW5_b_0	Time (UTC)	Latitude (N)	Longitude (E)	Depth (m)	SP
First shot	2008/8/25 21:01	32° 23.4661'	140° 28.0426'	1991	921
First good shot	2008/8/25 21:01	32° 23.4662'	140° 28.0267'	1991	922
Last good shot	2008/8/26 1:56	32° 23.4278'	140° 15.8904'	1805	1683
Last shot	2008/8/26 1:56	32° 23.4278'	140° 15.8904'	1805	1683

IBM4-NS5_b_0	Time (UTC)	Latitude (N)	Longitude (E)	Depth (m)	SP
First shot	2008/8/26 3:59	32° 19.1982'	140° 22.4126'	2096	961
First good shot	2008/8/26 3:59	32° 19.1982'	140° 22.4126'	2096	961
Last good shot	2008/8/26 6:30	32° 28.9271'	140° 22.3410'	2290	1680
Last shot	2008/8/26 6:30	32° 28.9271'	140° 22.3410'	2290	1680

IBM4-NS3_b_0	Time (UTC)	Latitude (N)	Longitude (E)	Depth (m)	SP
First shot	2008/8/26 7:39	32° 28.7771'	140° 19.7986'	2120	961
First good shot	2008/8/26 7:39	32° 28.7771'	140° 19.7986'	2120	961
Last good shot	2008/8/26 10:33	32° 19.0482'	140° 19.8287'	1756	1680
Last shot	2008/8/26 10:33	32° 19.0482'	140° 19.8287'	1756	1680

IBM4-EW4_b_0	Time (UTC)	Latitude (N)	Longitude (E)	Depth (m)	SP
First shot	2008/8/26 12:36	32° 24.5520'	140° 27.7202'	2002	941
First good shot	2008/8/26 12:36	32° 24.5520'	140° 27.7202'	2002	941

Last good shot	2008/8/26 16:20	32° 24.5111'	140° 15.8847'	1713	1683
Last shot	2008/8/26 16:20	32° 24.5111'	140° 15.8847'	1713	1683

IBM4-NS6_b_0	Time (UTC)	Latitude (N)	Longitude (E)	Depth (m)	SP
First shot	2008/8/26 18:36	32° 19.2020'	140° 23.6758'	2121	961
First good shot	2008/8/26 18:36	32° 19.2020'	140° 23.6758'	2121	961
Last good shot	2008/8/26 21:05	32° 28.9309'	140° 23.6163'	2159	1680
Last shot	2008/8/26 21:05	32° 28.9309'	140° 23.6163'	2159	1680

IBM4-NS2_b_0	Time (UTC)	Latitude (N)	Longitude (E)	Depth (m)	SP
First shot	2008/8/26 22:44	32° 28.7728'	140° 18.5323'	1770	961
First good shot	2008/8/26 22:44	32° 28.7728'	140° 18.5323'	1770	961
Last good shot	2008/8/27 1:08	32° 19.0439'	140° 18.5250'	1744	1680
Last shot	2008/8/27 1:08	32° 19.0439'	140° 18.5250'	1744	1680

(6) OBS list

Site	OBS Calibration position					Remarks
	Latitude(N)	Longitude(E)	Depth(m)	x	y	
1	32_23.8238	139_54.9356	745.8	-79.3	85.3	
2	32_23.8244	139_55.5356	867.7	-86.0	24.0	Not recovered
3	32_23.8328	139_56.1644	951.7	-78.0	8.0	
4	32_23.8207	139_56.8035	997.7	-108.0	8.0	
5	32_23.8485	139_57.4502	1001.6	-64.0	20.0	
6	32_23.8406	139_58.1135	1052.9	-86.0	58.0	
7	32_23.8758	139_58.6275	1099.2	-28.0	-138.0	
8	32_23.8397	139_59.4133	1152.3	-102.0	92.0	
9	32_23.8965	140_00.0931	1148.0	-4.0	156.0	
10	32_23.8883	140_00.7092	1128.9	-26.0	120.0	
11	32_23.9127	140_01.3878	1173.2	12.0	182.0	
12	32_24.0029	140_01.9784	1181.3	172.0	106.0	
13	32_23.9567	140_02.7003	1249.5	80.0	236.0	
14	32_23.9386	140_03.3675	1307.3	40.0	280.0	
15	32_23.9485	140_04.0269	1320.9	52.0	312.0	
16	32_23.9466	140_04.6724	1327.3	42.0	322.0	
17	32_23.9499	140_05.2974	1334.5	42.0	300.0	
18	32_23.9522	140_05.9428	1447.8	40.0	310.0	
19	32_23.9511	140_06.5615	1405.4	32.0	278.0	
20	32_23.9371	140_07.2477	1422.4	0.0	352.0	

21	32_23.9467	140_07.8664	1467.7	12.0	320.0	
22	32_23.9238	140_08.4596	1517.3	-36.0	248.0	
23	32_23.9085	140_09.1317	1547.0	-70.0	300.0	
24	32_23.8931	140_09.7670	1556.9	-104.0	294.0	
25	32_23.8646	140_10.4341	1567.7	-162.0	338.0	
26	32_23.8675	140_11.0056	1589.1	-162.0	232.0	
27	32_23.8488	140_11.6472	1628.5	-202.0	236.0	
28	32_23.8299	140_12.2735	1626.7	-242.0	216.0	
29	32_23.8337	140_12.9343	1774.1	-240.0	250.0	
30	32_23.8094	140_13.5453	1680.6	-290.0	206.0	
31	32_23.6929	140_14.2188	1771.7	-510.0	260.0	
32	32_23.7874	140_14.8731	1757.8	-340.0	284.0	
33	32_23.7716	140_15.4842	1759.1	-374.0	240.0	
34	32_23.7708	140_16.1219	1803.8	-380.0	238.0	
35	32_23.7679	140_16.7840	1779.9	-390.0	274.0	
36	32_23.7788	140_17.4231	1777.8	-374.0	274.0	
37	32_23.7714	140_18.0430	1758.0	-392.0	244.0	
38	32_23.7802	140_18.6795	1762.4	-380.0	240.0	
39	32_23.7725	140_19.3109	1754.3	-398.0	228.0	
40	32_23.8624	140_19.9130	1752.2	-236.0	170.0	
41	32_23.7790	140_20.5662	1761.9	-394.0	192.0	
42	32_23.7691	140_21.2587	1773.7	-416.0	276.0	
43	32_23.7678	140_21.8991	1777.8	-422.0	278.0	
44	32_23.7892	140_22.5573	1802.2	-386.0	308.0	
45	32_23.7695	140_23.1760	1823.1	-426.0	276.0	
46	32_23.7908	140_23.8354	1832.3	-390.0	308.0	
47	32_23.7763	140_24.4427	1846.9	-420.0	258.0	
48	32_23.8040	140_25.0779	1871.3	-372.0	252.0	
49	32_23.8100	140_25.6826	1886.2	-364.0	198.0	
50	32_23.7781	140_26.3394	1919.6	-426.0	226.0	
51	32_23.7980	140_26.9734	1954.9	-392.0	218.0	
52	32_23.8309	140_27.5079	1986.2	-334.0	54.0	
53	32_23.8194	140_28.2108	2030.7	-358.0	154.0	
54	32_23.7764	140_28.8613	2062.7	-440.0	172.0	
55	32_23.7950	140_29.4685	2130.0	-408.0	122.0	
56	32_23.7897	140_30.1714	2174.0	-420.0	222.0	
57	32_23.8235	140_30.7633	2206.5	-360.0	148.0	

58	32_23.8268	140_31.4265	2223.6	-356.0	186.0	
59	32_23.8117	140_32.0657	1989.7	-386.0	186.0	
60	32_23.8048	140_32.7574	2154.1	-401.0	268.6	
61	32_23.8290	140_33.3744	2136.3	-358.0	234.0	
62	32_23.8136	140_34.0544	1894.9	-388.0	298.0	
63	32_23.8286	140_34.7164	1976.2	-362.0	334.0	
64	32_23.8144	140_35.3414	1873.3	-390.0	312.0	
65	32_23.8487	140_36.0188	2028.7	-328.0	372.0	
66	32_23.8332	140_36.6655	1999.0	-358.0	384.0	
67	32_23.8436	140_37.3174	2007.9	-340.0	404.0	
68	32_23.8476	140_37.9858	1921.5	-334.0	450.0	
69	32_23.8525	140_38.7529	1972.5	-326.0	494.0	
70	32_23.8453	140_39.2615	3094.0	-340.0	446.0	
71	32_23.8566	140_39.8890	1913.6	-320.0	428.0	
72	32_23.8495	140_40.5179	2038.5	-334.0	412.0	
73	32_23.8391	140_41.1315	1929.9	-354.0	372.0	
74	32_23.8405	140_41.8025	2113.6	-352.0	422.0	
75	32_23.8310	140_42.4108	1946.7	-370.0	374.0	
76	32_23.8453	140_43.0755	1874.3	-344.0	414.0	
77	32_23.8032	140_43.6572	1824.6	-422.0	324.0	
78	32_23.8012	140_44.3154	1898.6	-426.0	354.0	
79	32_23.8055	140_44.9073	2142.8	-418.0	280.0	
80	32_23.8077	140_45.5425	1989.5	-414.0	274.0	
81	32_23.7978	140_46.1587	2074.5	-432.0	238.0	
82	32_23.8065	140_46.7862	2080.9	-416.0	220.0	
83	32_23.8323	140_47.4304	1930.9	-368.0	228.0	
84	32_23.8450	140_48.0504	2027.0	-344.0	198.0	
85	32_23.8230	140_48.6678	2172.6	-384.0	164.0	

4. Notice on using:

This cruise report is a preliminary documentation as of the end of the cruise. It may not be corrected even if changes on content (i.e. taxonomic classifications) are found after publication. It may also be changed without notice. Data on the cruise report may be raw or not processed. Please ask the PI(s) for the latest information before using. Users of data or results of this cruise are requested to submit their results to Data Integration and Analysis Group (DIAG), JAMSTEC.