doi : 10.17596/0003228

R/V Kairei Cruise Report

KR08-04

Seismic study at the Izu-Ogasawara region

Apr. 22, 2008 – May 10, 2008

Japan Agency for Marine-Earth Science and Technology

(JAMSTEC)

Contents:

1．Cruise Information：

（1）Cruise number, Ship name: KR08-04, R/V Kairei

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

（3）Title of proposal:

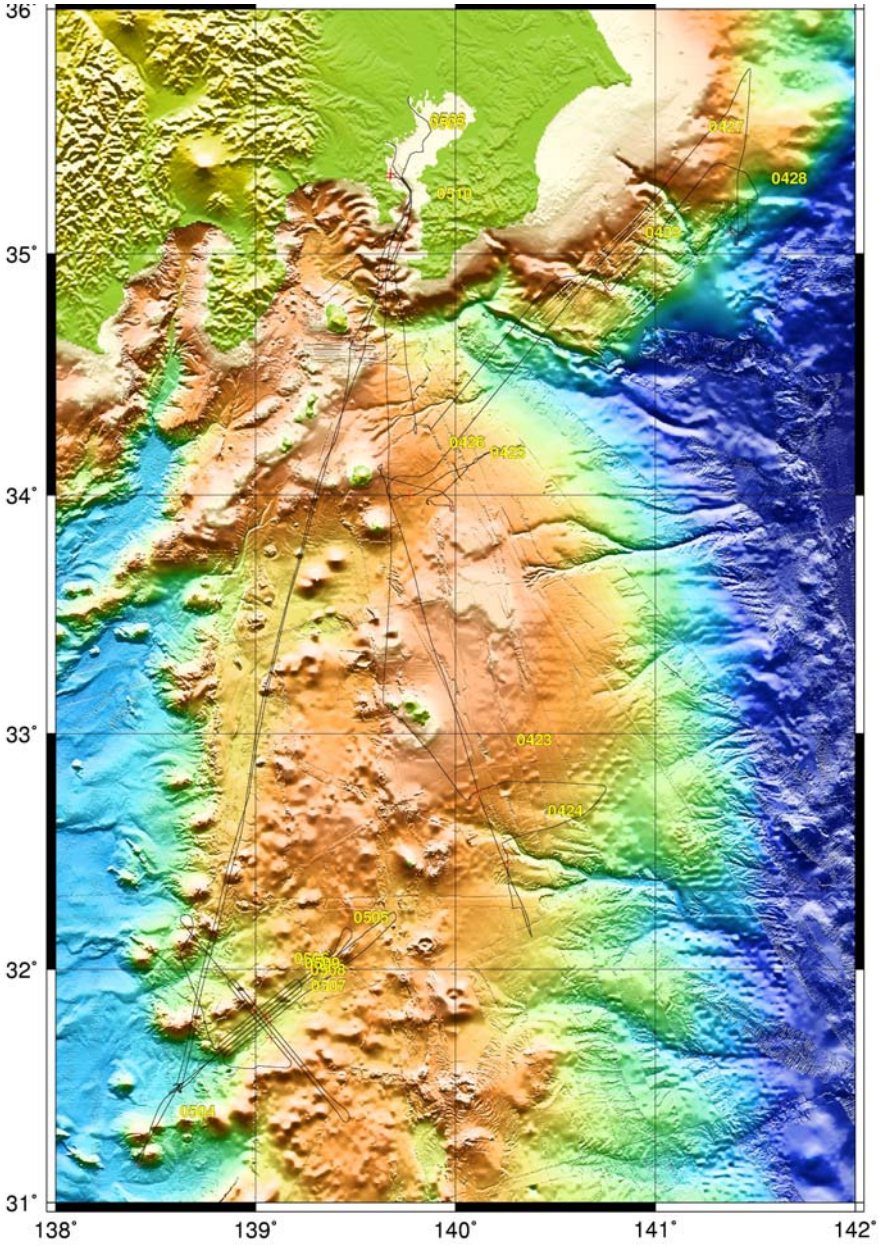
1）Crustal growth of the Izu-Ogasawara oceanic island arc –Seismicity study for IODP Project IBM-,

2）Site survey study for IODP proposal of Kanto Asperity Project(707)

（4）Cruise period, Port call: 2008/4/22-5/10, Yokohama-shinko to Harumi

（5）Research Area: Off-Boso, Izu-Ogasawara

（6）Research Map:



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3．Overview of Observation：

（1）Objectives：

IFREE have conducted seismic surveys intensively in the Izu-Ogasawara area to understand crustal evolution of oceanic arcs since 2004. The Izu-Ogasawara arc is composed of subducting oceanic crust beneath the oceanic crust. The objectives of this cruise are to reveal the structural characteristics of arcs and basins of the Izu-Ogasawara area with multi-channel seismic system (MCS) contributing the site characterizations of drill points of Project IBM sites. Moreover, MCS survey is also conducted off-Boso area for the cruise proposal for KAP.

（2）List of observation instruments：

1）Multi-channel seismic (MCS) reflection system

MCS survey have been conducted off-Boso and Izu-Ogasawara areas using a tuned airgun array of 7800 cu. in. and a 444-ch hydrophone streamer with 12.5-m group interval. The MCS system has been installed in 2007FY to acquire the high-resolution data and conducted sea trials at first of the cruise.

2）Ocean bottom seismometer（OBS）

To record airgun signals of the newly installed MCS system, an ocean bottom seismometer (OBS) has been deployed in the Izu-Ogasawara area.

3）Bathymetry, magnetic and gravity observation

During the cruise, bathymetry, magnetic and gravity data have been recorded continuously by SEABEAM2112.004, three component magnetometer and gravity meter, respectively.

4）XBT

We have conducted two XBT to correct the sonic speed for the bathymetry survey.

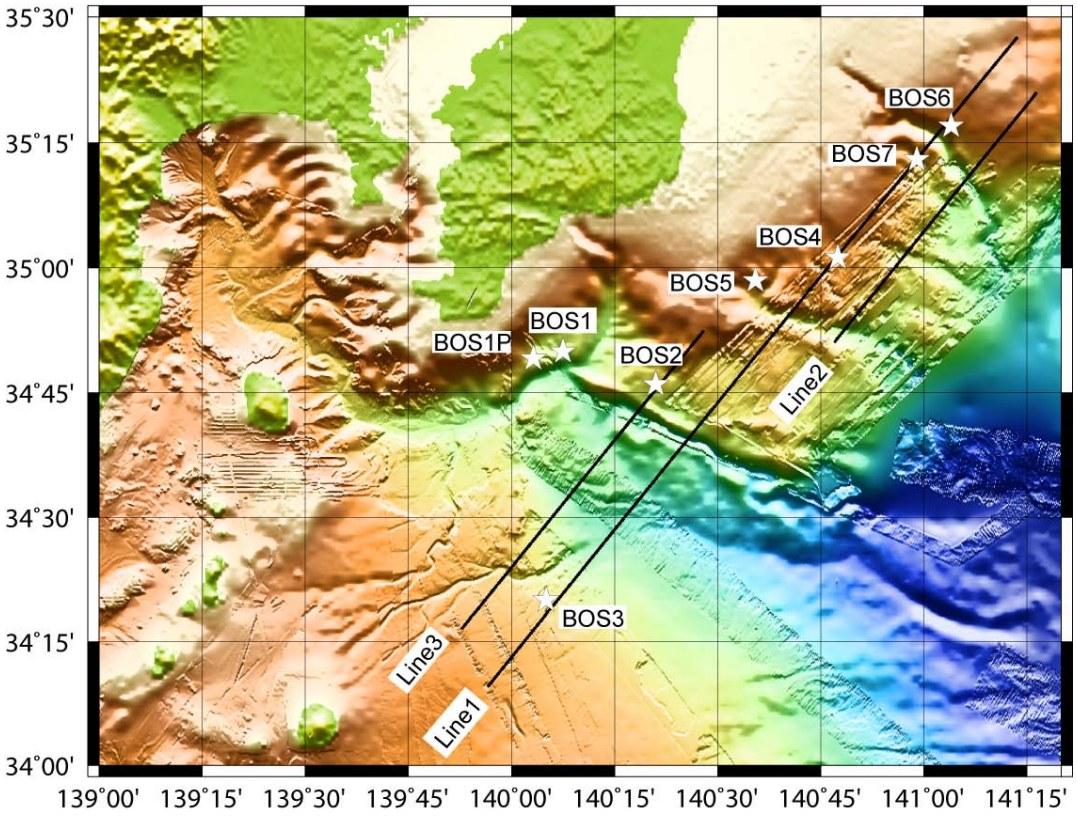
（3）Cruise log:

Date		Remarks
2008/4/22	Tue	Departure from Yokohama-shinko, transit to survey area
2008/4/23	Wed	MCS system maintenance
2008/4/24	Thu	MCS system maintenance
2008/4/25	Fri	MCS system maintenance
2008/4/26	Sat	MCS survey in off-Boso area
2008/4/27	Sun	MCS survey in off-Boso area
2008/4/28	Mon	MCS survey in off-Boso area

2008/4/29	Tue	MCS survey in off-Boso area
2008/4/30	Wed	MCS survey in off-Boso area
2008/5/1	Thu	Stay at Yokosuka to escape rough weather
2008/5/2	Fri	Stay at Yokosuka to escape rough weather
2008/5/3	Sat	Transit to survey area
2008/5/4	Sun	MCS survey in Izu-Ogasawara area
2008/5/5	Mon	MCS survey in Izu-Ogasawara area
2008/5/6	Tue	MCS survey in Izu-Ogasawara area
2008/5/7	Wed	MCS survey in Izu-Ogasawara area
2008/5/8	Thu	MCS survey in Izu-Ogasawara area
2008/5/9	Fri	Transit to Harumi
2008/5/10	Sat	Arrival at Harumi

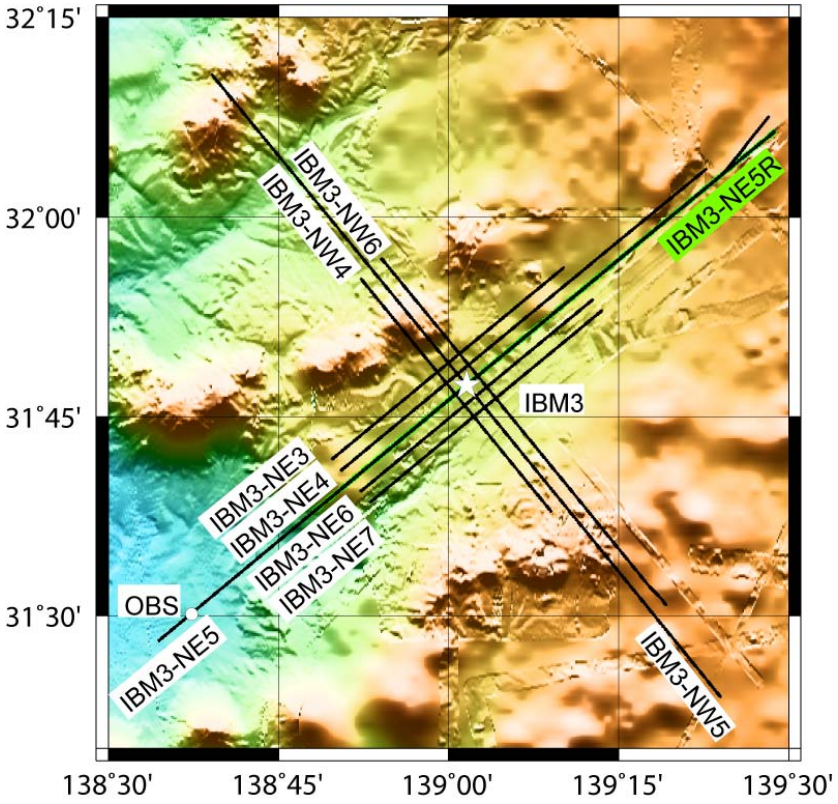
（4） Seismic lines

1） Boso area



Black lines are seismic lines conducted in this cruise (Line1, 2 and 3). White stars show the proposed IODP drill sites (BOS1, 1P, 2, 3, 4, 5, 6 and 7).

2） IBM area



Black lines are seismic lines conducted in this cruise (IBM3-NE3, 4, 5, 6, 7, IBM3-NW4, 5 and 6). Green line shows the seismic line for OBS (IBM3-NE5R). White stars show the proposed IODP drill site (IBM3).

（5）MCS line list

Line1_0	Time (UTC)	Latitude (N)	Longitude (E)	Depth (m)	SP
First shot	2008/4/26 5:43	34° 9.3557′	139° 56.3747′	1193	9967
First good shot	2008/4/26 5:48	34° 9.6702′	139° 56.6832′	1201	9982
Last good shot	2008/4/27 2:59	35° 27.5823′	141° 13.6029′	441	13696
Last shot	2008/4/27 3:25	35° 28.9176′	141° 14.9499′	509	13760

Line2_0	Time (UTC)	Latitude (N)	Longitude (E)	Depth (m)	SP
First shot	2008/4/28 13:18	35° 20.9913′	141° 16.3847′	727	9881
First good shot	2008/4/28 13:49	35° 19.1283′	141° 14.6283′	667	9968
Last good shot	2008/4/28 22:59	34° 51.0870′	140° 46.9940′	2102	11302
Last shot	2008/4/28 22:59	34° 51.0870′	140° 46.9940′	2102	11302

Line3_0	Time (UTC)	Latitude (N)	Longitude (E)	Depth (m)	SP
First shot	2008/4/29 6:47	34° 52.4274′	140° 27.9325′	748	10001
First good shot	2008/4/29 6:48	34° 52.3850′	140° 27.8916′	756	10003

Last good shot	2008/4/30 0:58	34°	16.5020′	139°	52.7516′	1182	11710
Last shot	2008/4/30 0:58	34°	16.5020′	139°	52.7516′	1182	11710

IBM3-NE5_0	Time (UTC)	Latitude (N)		Longitude (E)		Depth (m)	SP
First shot	2008/5/4 7:51	31°	28.0862′	138°	34.3734′	3394	9880
First good shot	2008/5/4 7:52	31°	28.1389′	138°	34.4455′	3399	9883
Last good shot	2008/5/4 19:46	32°	7.6004′	139°	28.2747′	1115	12122
Last shot	2008/5/4 19:46	32°	7.6004′	139°	28.2747′	1115	12122

IBM3-NE4_0	Time (UTC)	Latitude (N)		Longitude (E)		Depth (m)	SP
First shot	2008/5/4 22:28	32°	3.8428′	139°	23.0362′	1489	9390
First good shot	2008/5/4 22:53	32°	2.7963′	139°	21.5375′	1604	9451
Last good shot	2008/5/5 7:00	31°	40.9218′	138°	50.4480′	1895	10722
Last shot	2008/5/5 7:00	31°	40.9218′	138°	50.4480′	1895	10722

IBM3-NW5_0	Time (UTC)	Latitude (N)		Longitude (E)		Depth (m)	SP
First shot	2008/5/5 18:30	32°	10.7169′	138°	39.1038′	1882	9881
First good shot	2008/5/5 19:05	32°	8.2173′	138°	41.5327′	1387	10001
Last good shot	2008/5/6 7:05	31°	23.8397′	139°	24.0212′	1151	12120
Last shot	2008/5/6 7:05	31°	23.8397′	139°	24.0212′	1151	12120

IBM3-NW6_0	Time (UTC)	Latitude (N)		Longitude (E)		Depth (m)	SP
First shot	2008/5/6 11:50	31°	30.7739′	139°	19.1856′	994	9470
First good shot	2008/5/6 12:16	31°	32.2779′	139°	17.6400′	1020	9544
Last good shot	2008/5/6 19:13	31°	56.9281′	138°	54.0484′	2116	10721
Last shot	2008/5/6 19:13	31°	56.9281′	138°	54.0484′	2116	10721

IBM3-NW4_0	Time (UTC)	Latitude (N)		Longitude (E)		Depth (m)	SP
First shot	2008/5/6 20:17	31°	55.4112′	138°	52.2381′	2195	9881
First good shot	2008/5/6 20:59	31°	52.8995′	138°	54.6491′	-	10001
Last good shot	2008/5/7 1:14	31°	37.8219′	139°	9.0837′	1280	10721
Last shot	2008/5/7 1:14	31°	37.8219′	139°	9.0837′	1280	10721

IBM3-NE6_0	Time (UTC)	Latitude (N)		Longitude (E)		Depth (m)	SP
First shot	2008/5/7 7:54	31°	39.3709′	138°	52.2153′	1955	9881
First good shot	2008/5/7 8:24	31°	40.8901′	138°	54.3584′	2299	9969
Last good shot	2008/5/7 12:57	31°	53.8510′	139°	12.7607′	1998	10722
Last shot	2008/5/7 12:57	31°	53.8510′	139°	12.7607′	1998	10722

IBM3-NE3_0	Time (UTC)	Latitude (N)	Longitude (E)	Depth (m)	SP
First shot	2008/5/7 14:31	31° 56.2480′	139° 10.1887′	1827	9881
First good shot	2008/5/7 14:35	31° 56.0935′	139° 9.9680′	1870	9890
Last good shot	2008/5/7 19:57	31° 41.7607′	138° 49.6420′	1908	10722
Last shot	2008/5/7 19:57	31° 41.7607′	138° 49.6420′	1908	10722

IBM3-NE7_0	Time (UTC)	Latitude (N)	Longitude (E)	Depth (m)	SP
First shot	2008/5/7 21:20	31° 38.5514′	138° 53.0424′	2454	9882
First good shot	2008/5/7 21:37	31° 39.4438′	138° 54.3138′	2463	9934
Last good shot	2008/5/8 2:06	31° 52.9405′	139° 13.4962′	1958	10722
Last shot	2008/5/8 2:06	31° 52.9405′	139° 13.4962′	1958	10722

IBM3-NE5R_0	Time (UTC)	Latitude (N)	Longitude (E)	Depth (m)	SP
First shot	2008/5/8 16:35	32° 6.4725′	139° 28.7927′	1148	12115
First good shot	2008/5/8 16:36	32° 6.4405′	139° 28.7413′	1146	12113
Last good shot	2008/5/9 4:00	31° 37.8235′	138° 48.0561′	2700	10450
Last shot	2008/5/9 4:00	31° 37.8235′	138° 48.0561′	2700	10450

（6） OBS list

Site	OBS Calibration position						Remarks
	Lat(N)	Lon(E)	Depth	x	y	z	
1	31_30.1260	138_37.3414	3322.5	8.0	182.7	17.5	

4． Notice on using:

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