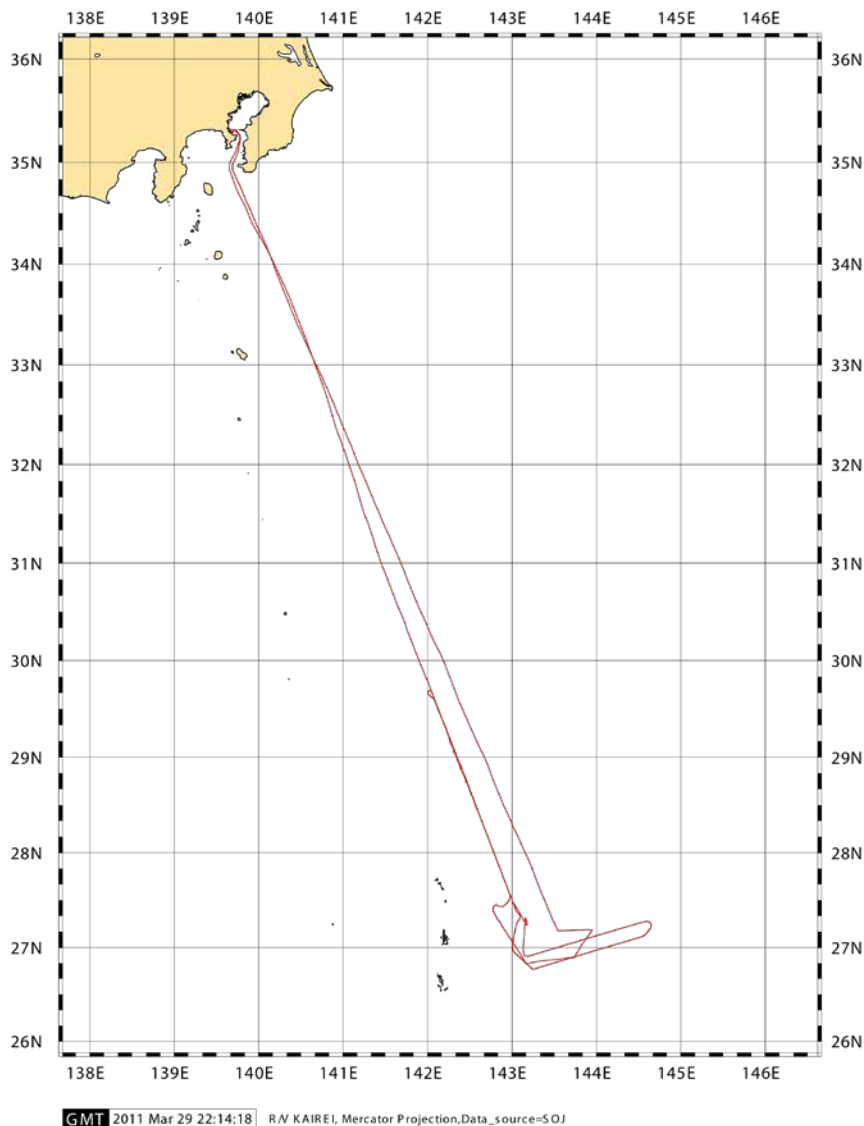


Cruise Summary

1. Cruise Information :

- (1) Cruise number, Ship name: KR11-05Leg1, R/V Kairei
- (2) Title of the cruise: 2010FY “Seismic study in the Izu-Ogasawara region”
- (3) Title of proposal: High-resolution structure study in the Izu-Ogasawara region
- (4) Cruise period, Port call:
2011/03/03-03/14, JAMSTEC (Yokosuka) to JAMSTEC (Yokosuka)
- (5) Research Area: Izu-Ogasawara region
- (6) Research Map:

KR11-05_LEG1_Nav Track



2. Researchers

(1) Chief Scientist [Affiliation]: Yuka KAIHO [JAMSTEC]

(2) Representative of Science Party [Affiliation]:

Yoshiyuki TATSUMI [JAMSTEC]

(3) Science party list:

Shuichi KODAIRA [JAMSTEC]

Narumi TAKAHASHI [JAMSTEC]

Koichiro OBANA [JAMSTEC]

Yuka KAIHO [JAMSTEC]

Seiichi MIURA [JAMSTEC]

Takeshi SATO [JAMSTEC]

Mikiya YAMASHITA [JAMSTEC]

Tetsuo NO [JAMSTEC]

Tsutomu TAKAHASHI [JAMSTEC]

Naoto NOGUCHI [JAMSTEC]

Katsuro KATSUMATA [JAMSTEC]

3. Overview of Observation :

(1) Objectives :

In the Izu-Ogasawara area, IFREE has conducted seismic surveys intensively to understand crustal evolution of oceanic arcs since 2004. The objectives of this cruise in this area are to reveal the distribution of the detail crustal structure in the fore-arc area and in planned drill points of the “Project IBM” being one of an IODP proposal.

The earthquake of $M_{JMA} = 7.4$ occurred on December 22, 2010 off the east of the Chichi-jima in the Ogasawara area. To understand the mechanism of the earthquake generation and the tsunami generation of this earthquake, and the deformation of the old oceanic plate around the trench, it is important to clarify the location and geometry of the fault plane of the main shock. The objectives are also to reveal the precise aftershock distribution of this earthquake because this distribution is essential to determine the fault geometry.

(2) List of observations :

1) Deployment of OBSs

43 OBSs (KT06_01-KT06_43) were deployed along the east slope of Ogasawara ridge.

2) Multi-channel seismic (MCS) reflection survey

On 4 lines (Off Chichi-jima area: CJ_main and CJ_sub, Izu-Ogasawara area: KT06_obs_0 and KT06_0 lines), the MCS reflection survey using a tuned air-gun array of 7,800 cubic inch and a 444 channel hydrophone streamer with a 12.5 m

group interval was conducted. On KT06_obs line, shot spacing is 200m for OBS survey. On KT06, CJ_main and CJ_sub lines, shot spacing is 50m for the MCS survey.

3) Recovery of ocean bottom seismometers (OBSs)

4 OBSs (C01-04) which are deployed by Kairei KR11-01 cruise were recovered in the off chichi-jima.

4) Bathymetry, Gravity and Geomagnetic observation

During this cruise, bathymetry, gravity and geomagnetic data have been recorded continuously by SEABEAM2112, gravity meter (KSS-31) and three-component magnetometer (SFG1214), respectively.

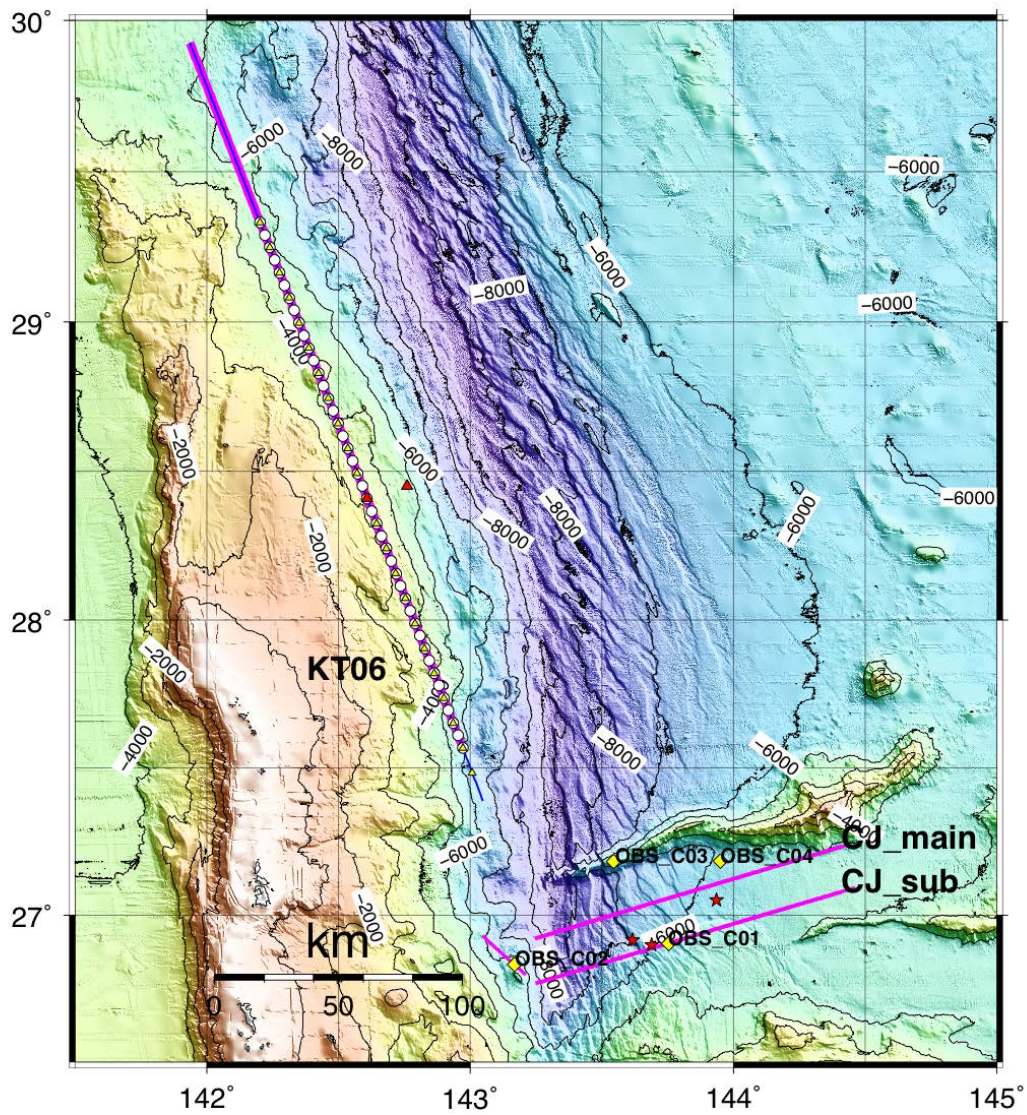
5) Temperature and Conductivity observation for the correction of sonic speed

EXpendable-Bathy Thermograph (XBT), XCP(eXpendable Current Profiler) and XCTD (eXpendable Conductivity, Temperature and Depth) have been conducted to correct the sonic speed for the bathymetry survey and MCS survey.

(3) Cruise log:

Date		Remarks
2011/03/03	Thu	Departure from JAMSTEC (Yokosuka), and transit to survey area
2011/03/04	Fri	Transit to survey area and deployment of OBSs (KT06) Observaion of XCP and XCTD
2011/03/05	Sat	Deployment of OBSs (KT06) and observaion of XCP and XCTD
2011/03/06	Sun	Deployment of OBSs (KT06) and observaion of XCP and XCTD
2011/03/07	Mon	MCS survey on CJ_main line(50m shot)
2011/03/08	Tue	MCS survey on CJ_main line(50m shot)
2011/03/09	Wed	MCS survey on KT06_OBS line(200m shot)
2011/03/10	Thu	MCS survey on KT06_OBS line(200m shot)
2011/03/11	Fri	MCS survey on KT06_OBS line(200m shot)
2011/03/12	Sat	Recovery of OBS(C01-C04) and transit to JAMSTEC (Yokosuka)
2011/03/13	Sun	Transit to JAMSTEC (Yokosuka)
2011/03/14	Mon	Arrival at JAMSTEC (Yokosuka)

(4) Survey map of OBS, MCS, XCP and XCTD



White circles show the deployed OBS positions. Yellow triangles show XCP and XCTD sites. Yellow diamonds are recovered OBS positions. Magenta lines are MCS(50m shot) lines. Blue line is MCS(200m shot) line for OBS study. Red triangles are proposed points of drilling. Red stars are epicenter positions of Dec. 22 2010 earthquake determined by USGS and JMA.