

## Cruise summary

### 1. Cruise Information :

(1) Cruise number, Ship name: KY09-10, R/V Kaiyo

(2) Title of the cruise: FY2009 Deep sea research (R/V Kaiyo)

(3) Chief Scientist [Affiliation]: Koichiro Obana [JAMSTEC]

(4) Representative of Science Party [Affiliation]: Shuichi Kodaira [JAMSTEC],

(5) Title of proposal:

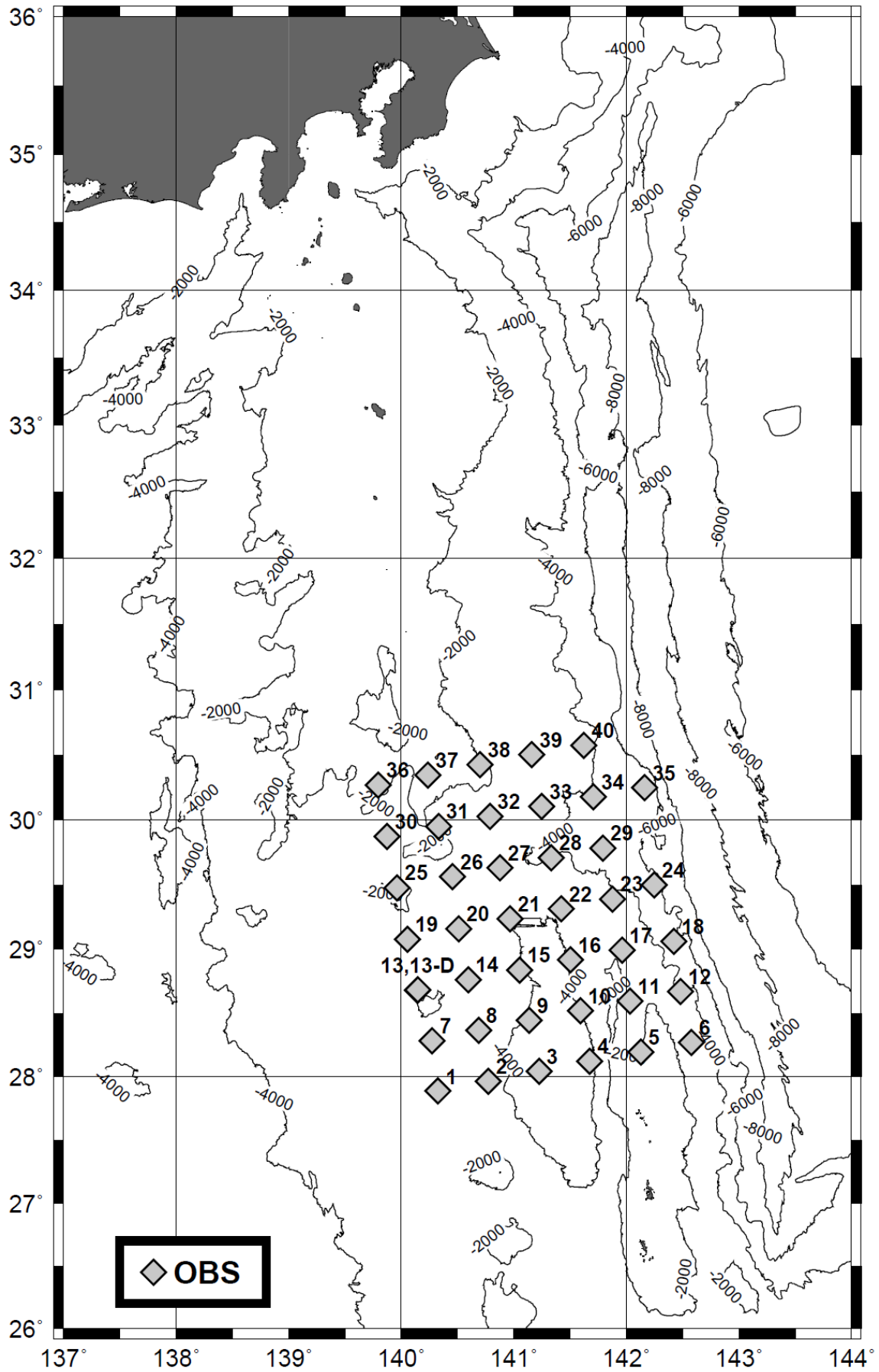
S09-20: Intra-oceanic arc volcanoes and growth of continental crust: mantle imaging in Izu-Bonin arc

(6) Cruise period, Port call:

2009/12/16-12/28, from JAMSTEC (Yokosuka) to Yokohama

(7) Research Area: Southern Izu-Bonin arc

(8) Research Area Map:



## 2. Overview of Observation :

### (1) Objectives:

Recent active seismic surveys have revealed several new seismological constraints on crustal evolution of Izu-Bonin intra-oceanic island arc. One of the important findings is a difference in crustal thickness between northern and southern parts of the Izu-Bonin arc. The Izu-Bonin arc has thicker mature crust in north of the Sofu-gan Tectonic Line (STL) than that in south of STL. Mantle wedge structure is a key to understand whether the variation in crustal thickness is caused by difference in quantity of material supply from the mantle wedge or difference in arc evolution history. The objective of this study is to compare the mantle wedge structure in southern Izu-Bonin arc and that in northern Izu-Bonin arc obtained by the OBS experiments in 2006. During the cruise, we deployed ocean bottom seismographs (OBS) in southern Izu-Bonin arc to obtain the mantle wedge structure by a seismic tomography using natural earthquakes.

### (2) Observations:

#### 1) Ocean bottom seismograph (OBS) recovery

Forty short-period OBSs (site 1-40) and one OBS with differential pressure gauge (site 13-D), which were deployed in southern Izu-Bonin arc by R/V Kaiyo in September 2009, have been recovered.

#### 2) Others

Bathymetry data have been recorded during the OBS recovery.