

## Crustal structures in the southernmost Izu-Ogasawara region and Shikoku basin observed by seismic reflection data

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### 1. Introduction

The Izu-Ogasawara region is a typical intra-oceanic island arc system involving trench, arc, and backarc-basin : the Izu-Ogasawara trench where the Pacific plate is subducting beneath the Philippine Sea plate, the Izu-Ogasawara arc, and the backarc Shikoku basin which lies to the west of the Izu-Ogasawara arc. In order to figure out the process of the crust growth of this typical island arc system, seismic surveys had been actively performed in recent years. From seismic reflection data, outer ridges under the forearc thick sediments and normal faults of backarc basin show rifting were reported (No et.al [2005], Takizawa et.al [2005]).

We carried out a multi-channel seismic(MCS) reflection survey using R/V KAIREI of Japan Agency for Marine-Earth Science and Technology (JAMSTEC) in the southernmost Izu-Ogasawara region in November and December, 2005. The data acquired in these surveys contribute to the continental shelf investigation.

### 2. Data acquisition

The survey line SP3 has the length of about 1100km, crossing the Kyushu- Palau ridge, the Shikoku basin, the southernmost part of the Izu-Ogasawara arc, and the northernmost part of the Mariana trench. The eastern end reaches the south foot of the Ogasawara plateau.

The airgun array has total capacity of 12,000 cubic inches, and the length of a hydrophone streamer cable is about 5400m. The basic specifications of the data acquisition are as follows; 50m shot-spacing, 2000psi(14MPa) airgun-pressure, 25m group-spacing, 204 channels, 4ms sampling-interval and 15s record-length.

### 3. Results

We report here our preliminary

interpretations from the MCS profile.

1) We can identify a clear seismic reflector of the Moho around the south foot of the Ogasawara plateau, which deepened gradually westward (2s in the eastern end of the line, 3s in the south foot of plateau, and 4s near trench, in two way traveltime, respectively). This may suggest a phased growth of the Ogasawara plateau.

2) In the forearc area, a part of outer ridges which also observed in middle and southern part of Ogasawara exposes on sea floor because of thinner sediments (0.5s in two way traveltime) than those areas.

3) In backarc area, there are thick sediments (maximum 1.5s in two way traveltime) between echelon seamount chains, while Shikoku basin has a few sediments. And reflections corresponding to the Moho are not visible, which differ from the middle Shikoku basin.

4) The nearer to Oki-Daito ridge, the thicker sediments are accumulated in the west side of the Kyushu-Palau ridge.