

## Shallow structures in the middle Izu-Ogasawara arc-backarc transition zone observed by seismic reflection data

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### 1. Introduction

In order to understand the process of the crust growth of the Izu-Ogasawara intra-oceanic arc, we have carried out seismic surveys using R/V KAIREI of Japan Agency for Marine-Earth Science and Technology (JAMSTEC) in the Izu-Ogasawara region since 2002. From seismic reflection data, outer ridges beneath the forearc thick sediments and normal faults in backarc rifting zone had been reported (No et.al [2005], Takizawa et.al [2005]).

We report here interpretations of seven survey lines across the eastern Shikoku basin from the Nishi-Shichito ridge to the Kinan seamount chain in view of sedimentary structures and deformation of the basement.

### 2. Data Acquisition

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

### 3. Results

We set the survey area to be reported here in the backarc region, which includes the Nishi-Shichito ridge, the Kinan escarpment, the Kinan seamount chain, and the lineament between the Nishi-Shichito ridge and the Kinan escarpment. Our preliminary interpretations from the MCS profiles are divided into three areas by the above topography and characteristics of the shallow structures.

1) The arc-backarc transition zone from the Nishi-Shichito ridge to the lineament: Here is covered with thick sediments with many reflectors caused by turbidites. The thickness of sediments is about 1.5-2 sec and 0.5 sec in two way traveltime in the northern part and southern part, respectively. And we found that an acoustic basement of the Nishi-Shichito ridge does not continue to that beneath the Shikoku basin. The basement of the Shikoku basin is distributed beneath about 1 sec of the other.

2) The eastern Shikoku basin margin: In the area between the lineament and the Kinan escarpment, sediments have a few reflectors but are thinner and more transparent than that of above transition zone. We can see the basement of the Shikoku basin clearly. A number of small knolls, a part of these knolls expose on sea floor, are also identified.

3) The Shikoku basin: Thin sediments are characteristics in the area between the Kinan escarpment and the Kinan seamount chain. The sedimentary layer has few seismic reflectors and the origins could be pelagic deposits.