

## Delamination of the Ogasawara Plateau

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Japan Agency for Earth-Marine Science and Technology (JAMSTEC) carried out a seismic survey using 105 ocean bottom seismographs (OBSs) around the southern Izu-Ogasawara arc region in 2008. One of objectives of this cruise is to clarify crustal deformation and its tectonics for collision of the Ogasawara Plateau with the Izu-Ogasawara arc. The seismic line runs from the Ogasawara Plateau to the Parece Vela Basin through the southern foot of the Hahajima Seamount, the Ogasawara Ridge, the Ogasawara Trough, volcanic front. We adopted an airgun array with total capacity of 12,000 cubic inches as the source. And a reflection survey using a 204-channel streamer and the airgun array was also conducted. For data analysis, we used a tomographic inversion (Zhang et al., 1998) applied for first arrivals of refractions and a diffraction stack reflection mapping (Fujie et al., 2006) for picked reflection arrivals.

As the results, we identified the continuous Moho from the Ogasawara Trough to the southern foot of the Hahajima Seamount. The Moho seems to connect to a boundary between the upper and lower crust of the Ogasawara Plateau. The mantle with a velocity of approximately 7.5-8.0 km/s beneath the arc side continues to the eastern edge of the Ogasawara Ridge, and the crustal thickness from the Ogasawara Ridge to the Ogasawara Plateau is kept to be over 12 km. Beneath the Izu-Ogasawara arc, the top of the Pacific plate is identified, and it connects to the junction between the arc Moho and the boundary between the upper and lower crust of the Ogasawara Plateau. On the reflection section, there is no reflector inclining to west like a top of the subducting plate. In addition, a part of sediments on the trench axis is obducted on the western side of the trench slope. If the top of the Ogasawara Plateau distributes from the trench axis to the junction, the slope of the Ogasawara Plateau is approximately 22 degree, which is too steep comparing with that of this region. Finally, we concluded that delamination of the Ogasawara Plateau occurred there. Only lower crust of the Ogasawara Plateau subducts beneath the Izu-Ogasawara arc and the upper crust collides to the arc.

Keywords: Crustal structure, OBS, delamination, Ogasawara Plateau, continental collision