

On the hypocentral distribution considered to be double seismic zone obtained by pop-up ocean bottom seismometers at the area around Ogasawara

*Kenji Nakata¹, Akio Kobayashi¹, Akio Katsumata¹, Fuyuki Hirose¹, Hisatoshi Baba², Kazuhiro Kimura³, Yutaka Nagaoka⁴, Hiroaki Tsushima¹, Kenji Maeda¹

1. Seismology and Tsunami Research Department, Meteorological Research Institute, Japan Meteorological Agency, 2. Department of Marine and Earth Science, Tokai University, 3. Seismology and Volcanology Department, Japan Meteorological Agency, 4. Volcanology Research Department, Meteorological Research Institute

The Meteorological Research Institute conducted observation for about 3 months by pop-up ocean bottom seismometers (OBS) from July to October 2015 for the purpose of improving hypocenter determination accuracy around the Ogasawara area. The observation network was set to cover this area at about 50 km intervals at 8 stations of OBS and 2 stations of existing Chichijima and Hahajima in total 10 stations. Analysis of this observation data showed that the hypocenters determined by OBS observation was located about 50 km west from the Seismological Bulletin of Japan (the unified seismic catalog) (Nakata et al., 2016, JpGU).

This analysis reveals the hypocenters, which is thought to be an intraslab earthquake of the Pacific plate subducting from the Izu-Ogasawara trench. Especially, hypocenter distribution of two planes, the upper plane and lower plane, can be seen from a depth of about 70 km to 200 km. The distance between the upper plane and lower plane is about 35 km, and the both planes can not be separated from each other at about 200 to 250 km. An active region of cluster-like seismic activity can be seen around the depth of 60-80 km. The cluster is scattered to run parallel 80 - 90 km east of volcano front including Nishinoshima. This may correspond to the upper plane seismic belt pointed out by Kita et al. (2006, GRL). In this way, the features obtained in the Ogasawara area are similar to those of the double seismic zone reported in various parts of the world including Tohoku Japan. Regarding the distance between double planes in other areas, it is about 20 km in Aleutian, about 30 km in Hokkaido Japan, about 35 km in Tohoku Japan, about 30 km in Kanto Japan, about 25 km in Mariana, about 20 - 25 km in central Chile (Reyners & Coles, 1982, JGR; Hosono & Yoshida, 2001, Volcano (in Japanese); Yoshida & Hosono, 2002, Volcano; Shiobara et al., 2010, GJI; Marot et al., 2013, JGR).

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