

## Seismic reflectors in the lower mantle beneath the Mariana subduction zone

# Daisuke Suetsugu[1]; Masayuki Obayashi[2]; Hiroko Sugioka[3]

[1] IFREE; [2] IFREE, JAMSTEC; [3] JAMSTEC

We detected later phases of various types on Hinet records of a deep earthquake in the Mariana subduction zone (Jan. 7, 2002; 19.02N, 145.05E, h=619km, Mw5.9). Distinct impulsive later phases were observed in western Japan at 12, 30, and 42 sec from the first P-waves. We performed an array analysis (a beam forming) to the Hinet data to determine the arrival times, approaching azimuths and slownesses (corresponding to incident angle) of the later phases. The obtained slownesses and particle motions of the later phases suggest that the phases are S to P converted waves originated from the lower mantle reflectors beneath the Mariana subduction zone. We determined locations and inclination angles of the reflectors by following Takenaka (2000) using the obtained slownesses, azimuths, and travel times.

The reflectors are located at 690, 800, 850, and 940 km. Comparing with a tomographic image by Obayashi et al. (2006), the 690 km and 940 km reflectors are located in the Mariana slab penetrating into the lower mantle. The former may be interpreted as the post-spinel transition and the latter may be originated by heterogeneities in the lower mantle Mariana slab. The 800 km and 850 km reflectors, on the other hand, are located outside the Mariana slab, of which origins are not identified yet. We will perform amplitude and waveform analyses to investigate the nature of the reflectors (e.g., simple velocity increase or decrease, low velocity zone, and so forth) to identify the origins of the reflectors.