

Reflection points of seismic signals from ACROSS transmitters on the Philippine Sea plate boundary

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We installed a seismic ACROSS transmitter at Mori-machi in Shizuoka Pref. with support from ACROSS research group of Shizuoka University. We aim at monitoring state change at the plate boundary of the Philippine Sea plate by observing reflected seismic waves. We estimated reflection points of seismic waves to the seismic stations with three-dimensional ray-tracing method.

Plate depth is assumed referring to recent studies, and assumed several kilometer above seismicity in the uppermost mantle of the plate. A layered structure with discontinuities is assumed. Depths of bottom of surface layer, the Conrad and the Moho, and velocity distribution in layers are estimated with arrival times from natural earthquakes and blasts. Ray tracing method of Um and Thurber (1986) was used in solid layers, and Snell's law was used at boundaries.

Reflection points were estimated based on the velocity model. The calculated travel times of reflected seismic waves at the plate boundaries were compared with travel times obtained by Iidaka *et al.* (2007). The differences were no more than 1 s, which corresponds to depth difference of about 3 km.

Reflection points for the Mori transmitting station were distributed around northwest region of assumed source area of Tokai Earthquake, and it is suitable for monitoring the source area of the earthquake. Reflection points for the Toki transmitting station were distributed around the edge of the mantle wedge. The area is source region of the deep low-frequency tremor. Epicentral distances of the observation stations for the tremor source area were more than several tens of kilometers, which would require long stacking time. Those for Toyohashi transmitting station were distributed around the source area of the long-term slow-slip in 2001-2005.