

Deep structure of the Philippine Sea slab subducted in the Hyuga-nada region

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In the Hyuga-nada region, interplate earthquakes of $M \sim 7$ occur repeatedly at intervals of about 20 years. Recently, the possibility of simultaneous rupture of the Tokai, Tonankai, Nankai and Hyuga-nada segments was also pointed out. To understand the possibility of seismic linkage of Nankai and Hyuga-nada segments, Japan Agency for Marine-Earth Science and Technology has been carried out a wide-angle active source survey and local seismic observation in the western end of the Nankai seismogenic zone. Nakanishi et al [2009, AGU] showed that there is the zone of the thin oceanic crust of the subducting Philippine Sea Plate between Nankai segment and Kyushu-Palau Ridge by analyzing of the active source survey. This area is also the boundary of microseismicity, and it is active on the western part and inactive on the eastern part [Obana et al., 2009, SSJ].

Deep structure of the subducting slab is also important to consider the possibility of the seismic linkage. Local seismic data has information of the deeper part than the active source data. Now we are processing the local seismic data whose hypocenters are located along the extent of the HY-01 line, which is located along the thin oceanic crust zone. From the preliminary result of hypocenter relocation, the distribution of travel time residuals seems to have spatial characteristics. In addition, an indistinct area of first arrivals exists in a range away from the coastline from 90 to 160 km. In this study, we will attempt to estimate the 2-D slab velocity structure along the HY-01 line by using arrival time of local earthquakes and discuss the relationship among the slab mantle structure, seismicity and interplate coupling.

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