

Deep seismic transect across the Tonankai-Nankai earthquake area obtained from the onshore-offshore wide-angle seismic study

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In the Nankai Trough subduction seismogenic zone, there are, mainly, three segment M8-class great earthquakes; they are source regions of the Nankai, Tonankai and presumed Tokai earthquakes. The Nankai and Tonankai segment earthquakes had often occurred simultaneously, and caused a great event. Hypocenters of these great earthquakes were usually located off the cape Shiono, Kii Peninsula, and the rupture propagated westwards and eastwards, respectively (e.g. Hori et al., 2004). To obtain the deep structure beneath the segment boundary and first break area off the Kii Peninsula, the onshore-offshore wide-angle seismic study was conducted in 2004. The result of this study, the deep seismic transect, is shown here. The seismic profile is totally ~400km. The onshore structure shows subduction of the Philippine Sea plate (PSP) with an angle of ~20-25 degree. The oceanic crust has a thickness of 8-10km. Many reflectors are located in the lower crust beneath the Kii Peninsula. Some reflectors were recognized in the uppermost mantle beneath the Moho in the offshore sections. The offshore research is part of 'Structure research on plate dynamics of the presumed rupture zone of the Tonankai-Nankai Earthquakes' funded by Ministry of Education, Culture, Sports, Science and Technology. The onshore research carried by the Kyoto University is part of 'Special Project for Earthquake Disaster Mitigation in Urban Areas (RR2002)' funded by Ministry of Education, Culture, Sports, Science and Technology.