

Deep crustal structure across source region of the Tonankai earthquake southeast off Shima Peninsula

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Although great interplate earthquakes occur in every 100 years off the Kii Peninsula, central Japan, different characteristics of slip distribution of those earthquakes estimated by tsunami and seismic data, respectively. Recent onshore seismic study shows a drastic change of the Moho geometry of the subducting Philippine Sea plate (PSP) beneath the northeast of the Kii Peninsula [Shiomi et al., 2007]. It is possible that the subducting plate geometry off the Kii Peninsula changes along the Nankai Trough. The plate geometry is considered to have a strong influence on the slip pattern of great earthquakes and make the Tonankai-Tokai earthquake segmentation boundary. To investigate the subducting PSP geometry and variation of structure across the Tonankai-Tokai earthquake segmentation boundary, an onshore-offshore wide-angle seismic survey was conducted in 2006. The result of this survey is shown here. Based on the recent and previous structural studies, the irregular geometry of the subducting plate, e.g., subducting ridge and seamount only exist in the eastern Nankai Trough, eastern side of the Shima Peninsula [e.g., Kodaira et al., 2004]. In the central Nankai Trough, western side of the Shima Peninsula, the oceanic crust with relatively smooth and flat geometry is subducting beneath the Kumano Basin [Nakanishi et al., 2008]. We thus propose that the subducting plate might have irregular geometries only beneath the large seismic slip region. This hypothesis will be able to be verified in this study. This research is funded by 'A research program for subduction earthquakes in Nankai and Tonankai(2003-2007)' sponsored by MEXT.