Structural Features around the LFT Zone beneath Western Shikoku based on Converted *Ps* amplitude variations

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Low-frequency tremors (LFTs) in the Nankai region southwest Japan are actively distributed along the down-dip limit of the recurrent megathrust source regions. This fact implies that the LFT activities might be strongly related to stress changes in the source regions along the Philippine Sea plate. To understand the mechanisms of LFTs, knowledge about the structural features both inside and outside of the LFT active zone is important. In this study, we investigated variation of converted *P*-to-*S* (*Ps*) phase amplitude from receiver functions (RFs) along the subducting oceanic Moho. Teleseismograms recorded at the NIED Hi-net and F-net seismic stations were used. Since converted phase amplitude depends on its ray parameter, we selected earthquakes with ray parameter range from 0.050 to 0.077, and applied amplitude correction coefficients. We read converted *Ps* amplitudes of RFs with reference to the previous studies [e.g. Shiomi *et al.*, 2008; 2015]. Since the selected events were not uniformly distributed in back azimuth (BAZ, θ), we calculated an average and its standard deviation for each 5-degree bin. Then, we fit a simple function constructed with $\sin\theta$, $\sin2\theta$ and bias component to the data with the least square fitting algorithm. The bias components, named 'standard amplitude' by Shiomi and Park [2009], gradually decayed as the oceanic Moho becomes deep. As the slab's dip angle beneath western Shikoku is almost constant, this feature reflects a gradual phase transition from amphibolite to eclogite with water release in the oceanic crust. At almost all stations, $\sin\theta$ component is dominated. This component corresponds to the contribution from the dipping interface mainly, and the estimated plunge azimuth (305±10deg) is consistent with the previous models. On the other hand, at the several stations located at the northern edge of the active LFT zone, 4-lobed backazimuthal distribution was dominant. This means that the oceanic crust beneath the down-dip edge of the LFT zone becomes anisotropic caused by the phase transition. Our observation implies that water dehydrated from the oceanic crust rises to the inter-plates, and the LFTs become active.

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