

Short-period body wave (1-3 Hz) extraction from ambient noise records observed at seafloor and borehole in the Nankai subduction zone

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In the Nankai subduction zone, a cabled-network, named DONET (Dense Oceanfloor Network system for Earthquakes and Tsunamis), and borehole stations connected to the DONET have been constructed. The station spacing of DONET is 15-20 km, but, incorporating it with borehole sensors, some of station pairs have station spacing less than 15 km. We attempted to extract body waves by applying cross correlation analysis to ambient noise records observed at the southern part of those stations, because borehole sensors have constructed near the trough.

As a result, we found eight pairs showing P wave in the cross correlation functions (CCFs) at frequencies of 1–3 Hz, which emerged before T-wave. In the case of station spacing less than 5 km (2 pairs), P wave extraction required only one-day stacking of ambient noise records, but other pairs required 10–30 days. Although the reason for unstable retrieval on the pairs and time periods for stacking is still under debate, the retrieved P-wave was stable over the observation periods.

Keywords: Seismic interferometry, ambient noise, body wave