



Detection of a low-velocity layer atop the mantle transition zone beneath the northeastern South China Sea from triplicated waveform modeling

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We detect the detailed P-wave velocity structure near the 410 km discontinuity beneath the northeastern South China Sea with triplicated P-wave waveforms from two intermediate-depth earthquakes occurred in the central Philippines and recorded by the Chinese Digital Seismic Network. Matching the observed P-wave triplications with synthetics through grid search technique, we obtain the best-fit one-dimensional P-wave velocity model. In such model a low-velocity layer (LVL) is found to reside atop the mantle transition zone, and it is characterized by a thickness of 63 km and P-wave velocity decrement of 2.1% compared to the IASP91 model. The relative weak LVL is possibly a response of small amount of remnant hydrous partial melts after plume-like upwelling.