

Retrieval of converted phases from shallow structure of the Ontong Java Plateau

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We present P-to-s converted phases (Ps) from seismic interfaces within the crust beneath the Ontong Java Plateau (OJP). We took cross-correlation functions between vertical and radial components of teleseismic P wave coda with a frequency band of 2–4 Hz, in which time windows of the two components from P arrival were from –2 to 4 s and from –2 to 20 s, respectively. Prior to the processing of cross-correlation, we estimated site amplifications at each broadband ocean bottom seismometer (BBOBS) from the teleseismic P amplitudes observed at Islands in Micronesia, and corrected the amplitudes in the two components observed at BBOBSs. As a result, Ps phases converted at the top of the basement could be retrieved at a lag time of 1 s. In the regions away from the OJP, Ps phases converted from the oceanic Moho could be detected beneath the basement, while several phases were obtained inside the OJP region. In order to identify Ps phases from the real structure, using a H- κ stacking method (Zhu and Kanamori, 2000) with Ps phases and their multiples, we estimated the thickness and Vp/Vs at the sediment layer, and then muted the amplitudes of the multiples. This processing allows us to explore Ps phases converted from deeper structure. Consequently, we could detect Ps phases converted at the middle of the crust, and possibly those from further deeper structure, e.g., Moho.

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