

Heterogeneity in the Crust and Uppermost Mantle in Chugoku and Shikoku, Southwest Japan, Inferred from Envelope Seismograms

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We investigated heterogeneity in the crust and the uppermost mantle in Chugoku and Shikoku regions, southwestern Japan. Envelope seismograms of shallow local earthquakes observed at 143 Hi-net stations located in and around these regions were analyzed in the present study. Two energy arrivals were detected as changes in amplitudes and/or coda decay rates of the envelope seismograms. One arrival is observed at almost all the stations in northern Shikoku and Chugoku regions after about 15 to 20 s from origin time, which can be explained by S to S reflected and/or scattered waves on and around Moho discontinuity in the continental plate. Another arrival is observed at northern part of Chugoku region after about 25 to 35 s from origin time; and the lapse time is later and later in northern edge of the region. The lapse time and its spatial distribution suggest that this arrival is caused by a north dipping reflector and/or scatter distributed at a depth range of 55 to 75 km. The present detected reflector and/or scatter may relate to the subducting Philippine Sea plate and/or its neighbor heterogeneity.