Moho depth and Vp/Vs in the crust beneath the Japan Islands revealed by receiver function analysis

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We have executed receiver function (RF) analyses of teleseismic waveforms observed at high-density short-period stations in the Japan Islands to estimate the distribution of the thickness and Vp/Vs of the crust over the Japan Islands. We have used 220 J-array and 619 Hi-net stations. Following Zhu and Kanamori(2000), we measure the amplitudes of three phases of Ps, PpPs and PpSs+PsPs changing thickness and Vp/Vs value to search for the best values that explain observed RFs. In the analysis, we have used 1Hz-low-pass-filtered RFs and applied SVD filtering to them for each station. We have estimated them for 205 J-array and 523 Hi-net stations with some scatters. In Hokkaido, the Hidaka region has thick and high Vp/Vs value. In Tohoku, except for the thick crust in Kitakami and some scatters, the features are similar to those in Zhao et al.(1992). In the mountain area, central Japan, there is the thick crust. In central Kii peninsula, the crust is thin. In the central Chugoku region to the Inland Sea, the crust appears to be thick. In Kyusyu, though there are some scatters, the crust is relatively thin. For the Conrad and Vp/Vs in the upper crust, we have executed the same analysis. The velocity contrast dose not seem to be high enough to produce stable distributions. We need further careful analyses.