Crust and uppermost mantle structure beneath the Kinki region by combined use of auto-correlation and receiver-function analyses

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The Philippine Sea Plate (PHP) is subducting with generating great earthquakes and low-frequency earthquakes beneath the Kii Peninsula. It is important to search where such events occur around the PHP, so we need to estimate the shapes of the PHP and the Moho. In this study, we examined to search seismic discontinuities by using an auto-correlation analysis.

In this study, we used the data that recorded seismic waveform to seach underground structure under the DAIDAITOKU Project. The observation stations exist the north and the south observation lines around 5 km observation interval. We used 128 teleseismic events observed waveforms at 38 stations including Hi-net and F-net stations near the observation lines. In analysis, we made auto-correlation functions of vertical component from P wave arrived to before S wave arrived, and stacked auto-correlation functions by back azimuth to enhance the reflected wave phases.

We can get the P wave velocity structure by auto-correlation analysis, so we can get P and S wave velocity structure by auto-correlation and receiver function analysis. Therefore we will get more detailed discontinuities structure.