

Degree-6 whole mantle S-wave velocity structure obtained by broadband seismic waveform inversion

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The ultimate goal of our research is to invert broadband seismic waveform data (waveforms that include both long period body waves and surface waves) for detailed 3-D Earth structure. It is desirable to invert waveform data iteratively using an aspherical starting model to obtain an accurate 3-D Earth model. We have developed an efficient method for computing synthetic seismograms and an efficient algorithm for such waveform inversion (Takeuchi et al. 2000, PEPI; Geller & Takeuchi 1995, GJI; Geller & Hara 1993, GJI). In this study, we performed a preliminary waveform inversion using the above methods and obtained a degree-6 whole mantle S-wave velocity structure.