Waveform Inversion for 3-D Earth Structure Using Earth Simulator

Tatsuhiko Hara[1]

[1] IISEE, BRI

http://iisee.kenken.go.jp/staff/thara/index.html

We have developed the Direct Solution Method (DSM) to compute synthetic seismic wavefields and their partial derivatives with respect to perturbations to Earth structure. We use these calculations in waveform inversion for the structure of the Earth's interior on a global scale. We have implemented our DSM codes on the Earth Simulator. We show that the computational efficiency of the DSM is greatly improved by using parallel computing, and that it is possible to enhance the resolution of Earth models by using the DSM to analyze large datasets.