

## Computation of teleseismic waves for large earthquake using Spectral-Element Method

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We calculate broadband synthetic seismograms with the finite source propagation model for a realistic 3D Earth model using the spectral-element method. Source model we used is that of Lee et al (2011), which uses teleseismic waveform, strong motion seismograms and GPS measurements. We use the Earth Simulator 2 of JAMSTEC to compute synthetic seismograms using the spectral-element method. The simulations are performed on 1014 processors, which require 127 nodes of the Earth Simulator 2. We use a mesh with 200 million spectral-elements, for a total of 13 billion global integration grid points. This translates into an approximate grid spacing of 2.0 km along the Earth's surface. On this number of nodes, a simulation of 30 minutes of wave propagation accurate at periods of 3.5 seconds and longer requires about 7 hours of CPU time.

Keywords: Theoretical seismic waves, Spectral-Element Method