Synthetic Seismograms for realistic 3D Earth model with anisotropic inner core

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We have demonstrated that we can calculate global theoretical seismograms for realistic 3D Earth models based upon the combination of a precise numerical technique (the spectral-element method) and a sufficiently fast supercomputer (the Earth Simulator) [Tsuboi et al, 2003]. Here we have calculated synthetic seismograms by using model S20RTS of the mantle (Ritsema et al., 1999), model CRUST2.0 of the crust (Basin et al., 2000), topography and bathymetry model ETOPO5, and anisotropic inner core model (Ishii 2002). The calculations are performed on 4056 processors, which require 507 out of 640 nodes of the Earth Simulator. These synthetics are computed by using SPECFEM3D(Komatitsch and Tromp, 2002) and are accurate up to 3.5 seconds. We have calculated these synthetics with aisotropic inner core model for several earthquakes and compared with the synthetics which are calculated for isotropic inner core model. Preliminary comparison shows that the travel time differences between anisotropic inner core model and isotropic core model for PKPab phases are at most a few seconds. There seems to be no significant differences in waveforms of PKP phases. These differences in travel times may help us to improve inner core fine structure by comparing these synthetics with observation.