CIG Business Meeting
December 11, 2007

Computational Seismology

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Workshops

- CIG-SPICE-IRIS Computational Seismology Workshop

  October 9-11, 2007, Jackson, NH

  - ~60 International participants
  - SPICE-CIG software library and web presence
  - Future joint meetings & collaborations

Current CIG Work

- Computational Seismology Science Gateway
  - Normal-mode synthetics (MINEOS)
  - Spectral-element synthetics (SPECFEM3D_GLOBE)

Software

- MINEOS normal-mode synthetics
- SPECFEM3D Regional SEM synthetics
- SPECFEM3D_GLOBE Global SEM synthetics
- Princeton dynamic ray-tracing software
- SPICE Software Library link
- SPECFEM1D Introductory SEM package
- Soon: LLNL & Pau finite-difference software

Long Term Plans

- **Automated/On-Demand Simulations**: CIG will work to further establish a Seismology Science Gateway, involving both automated and on-demand simulations. Automated simulations would provide near real-time 1D and/or 3D synthetics to accompany IRIS data for all events over a certain magnitude threshold using past and emerging events in the CMT catalog.
- **Seismic Model Database**: There is the need for a database of seismic models, including structural models of the crust and mantle together with databases of topography and bathymetry. Various resolutions are needed to match the capabilities of codes being developed under CIG. Mechanisms for the contribution of models must be established.
- **Data Processing Tools**: The SSC is considering whether CIG should investigate the feasibility of facilitating the development of data processing tools for field and laboratory use. These could include low-level routines for standard data manipulation (e.g., filtering, simple array analyses); higher level functionality such as earthquake location, traveltime picking, and moment tensor analysis; and high-level functionality such as tomography, receiver functions (perhaps with migration), and shear-wave splitting.
- **Visualization** of 2D and 3D seismic models is increasingly important in seismology and presents an area of great overlap with other CIG efforts that require coordination. Imaging/tomographic tools may be included productively within the CIG framework.
- **SPICE-CIG** joint software library & web presence.