Geophysical Research Abstracts, Vol. 9, 02322, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-02322
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The SPICE Library: Codes, Training Material and Benchmarking in Computational Seismology

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Since 2004, the EU funded Marie Curie Training Network "Seismic wave propagation and imaging in complex media: a European network" joins 14 institutions and several associated partners in a project that aims at carrying out research in the field of computational seismology. One of the key deliverables of the project is an open www-based digital library with wave and rupture propagation codes, training material in numerical methods applied to the wave propagation problem and eventually simulation data. In 2005 the code library was initiated and several algorithms are now available to the scientific community. In addition to sophisticated, parallelized 3D wave propagation algorithms based on finite differences, finite elements or pseudospectral methods for local, regional, and global models, there are also simple training codes that help getting started with a particular method or can be used in tutorials. The software library also contains "classical" approaches like ray-theoretical approaches, the reflectivity and the normal mode methods. Furthermore, the library includes training material (including two books) covering a broad range of seismological topics. The goal of this paper is to present an update of the library, call for codes from outside of the SPICE community and also show links to the various SPICE benchmarking exercises, one of which offers an interactive web interface (developed by the Comenius University, Bratislava) to compare numerical and benchmarked test solutions. The library can be accessed through the project web pages http://www.spice-rtn.org.