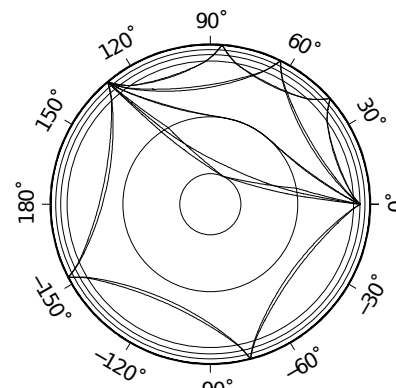


Tools for Seismology

Software to Learn, Leverage and Love

H. Philip Crotwell
Thomas J. Owens
Department of Earth and Ocean Sciences
University of South Carolina
<http://www.seis.sc.edu>



The TauP Toolkit

Leveraging software tools of the trade is essential within seismology. Long since gone are the days of paper and ruler. We present four tools that should be in every seismologist's toolbox. First is SOD, which automates data discovery, downloading and preprocessing in a highly customizable way. Second is TauP, which provides seismic travel times and raypath utilities for 1D earth models. Third is SeisFile, a collection of small utilities for dealing with common seismic data formats such as sac, miniseed, sync file and common services such as FDSN web services, seedlink, earthworm waveserver, winston and liss. The last tool, while still in development, is Crocus, which brings “Big Data” to seismology. Crocus is built on the Cassandra NoSQL database, and so easily handles very large data volumes, high throughput and the ability to use new big data techniques for very large bulk processing. All of these packages are open source and available from <http://www.seis.sc.edu/software.html>.