A Solid Earth Research and Teaching Environment
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Design goals

SEATREE provides a modular, robust, and user-friendly software framework to facilitate using solid Earth research tools in the classroom and for interdisciplinary, scientific collaboration. We use python wrappers and a "soft" object-oriented programming approach to make use of modern software design, while remaining compatible with traditional scientific coding. Our goals are to provide a fully contained, yet transparent package that allows users to operate in an easy, graphically supported "black box" mode, while allowing to look under the hood. In the long run, we envision SEATREE to contribute to new ways of sharing scientific research, and making (numerical) experiments truly reproducible again.

Open-source implementation

Low level: C, Fortran modules
Wrappers: Python, module objects
GUI: PyGtk GNOME toolkit
Development: SVN, Trac
Documentation: Wiki

Screenshots from currently implemented modules

Global mantle flow
2D tomography
Non-Linear Earthquake Relocation

NonLinLoc Module

NonLinLoc is a python-wrapped GUI for Anthony Lomax' NonLinLoc nonlinear earthquake location routines, visualizations by means of Matplotlib code. Ideally users will be able to change the velocity models of the surrounding ground, and the take of angles and the travel times of the P and S waves and then visually be able to see the effects of those parameters on an earthquake's location, as well as wave propagation. It also allows one to gain an understanding of the structure and patterns of the seismicity of an area.