2013-2018 PyLith Dev Plans

PyLith Development Plans

Software development plans for PyLith

Version 1.8.1 (by mid-late April)

BUG FIXES

- Improve solver for rate-state friction and explicit time stepping. difficult (50%)
- Remove duplicate impulses in parallel Green's function simulations. done

Version 2.0 (by June workshop)

COMPUTATIONAL SCIENCE

- Replace Sieve implementation of finite-element data structures with more efficient !DMPlex implementation. expert (80%)
  !DMPlex implementation is better integrated within !PETSc. Smaller memory usage. Developed to support multiphysics and higher order discretizations.

 Higher order basis functions expert (0%)
 Allow user to select order of basis functions independent of the mesh (which defines the geometry).
 This permits higher resolution for a given mesh.

(Fall or Winter 2013)

TURES

quake cycle modeling difficult
mesh for dynamic and quasi-static parts (dynamic -> quasi-static, quasi-static -> dynamic, complete

hardening/softening 2-D and 3-D Drucker-Prager elastoplastic models. intermediate
a generalized Maxwell model (bulk and shear relaxation) intermediate (50%)
r point sources via equivalent body forces difficult (5%)
r point sources provide a mesh independent deformation source that is better suited for Green's
ations than slip on a fault surface via cohesive cells.

Version 2.2 (Spring 2014)

e elasticity via a pressure field expert
at flow expert
id flow expert

ert (5 %)
s run by many users because most are running on desktop machines that have GPUs.

ic parts expert
rent meshes/discretizations and may require extrapolation of solutions when quasi-static problems span

ry location difficult

of prescribed slip. Need some way to describe when to turn on/off prescribed slip.