Summary of Activities

- Workshop next month

- PyLith development - main priority for working group

  - PyLith 1.0
    - Released at June 2007 workshop
    - 2 bugfix releases
  - PyLith 1.1
    - Released April 2008
    - 1 bugfix release
  - PyLith 1.2
    - Target release in June 2008

Computational Infrastructure for
Geodynamics

Workshop: June 23-27, 2008

- 58 registrants

  - Usual mixture of grad students, post-docs, faculty, and researchers
  - Some new, some long-time participants
  - Several foreign participants willing to pay for travel

- Mixture of science talks, tutorials, and discussions

Computational Infrastructure for
Geodynamics

PyLith 1.1

Add several new features, many under the hood improvements

- New features

  - Complete explicit time stepping implementation to support wave propagation
  - Neumann (traction) boundary conditions
  - Absorbing boundary conditions
  - Add velocity values to Dirichlet boundary condition
  - Generalize Maxwell viscoelastic model
  - Seamless interface with SCEC CVM-H for physical properties

- Enhancements

  - User controlled output of solution, state-variables, and BC information
  - Reduce memory use and runtime (Sieve optimizations)
  - Dynamic arrays in Pyre
  - More consistency checks
  - Several bugfixes

Computational Infrastructure for
Geodynamics

PyLith Development Priorities

Community wants faster progress

- Implement all features in Tecton by Jan

  - Multiple earthquake sources
  - Gravitational body forces
  - Initial stress state
  - Nonlinear bulk rheologies
  - Fault friction
  - Time dependent BCs
  - Large deformation and finite strain

- Adaptive time stepping

- Green's functions

- Coupling quasi-static and dynamic simulations

Current resources/commitments do not permit meeting communities needs