

# Computational Infrastructure for Geodynamics (CIG)

CIG-IRIS Computational Seismology Workshop  
June, 2005

# What is CIG

A small core (~4-5) of dedicated **software engineers** and architects guided by scientific objectives driven by the Geodynamics community.

We will partner with science-neutral activities from the Computer Science/Scientific Computation communities & implement current "best-practices" into community specific toolkits for scientific computation in solid-earth sciences.

This Software Development Team will provide software service to the community in terms of programming, documentation and support.

Guidance for the programmers will come from **Science Steering Committee** whose emphasis is to identify & balance common components needed across the disciplines.

# Present State of CIG

- Member Institutions (32, plus 4 Foreign Affiliates)
- Funded by NSF Geoinformatics Program within EAR Division
- Managed by Caltech for the community through a five-year cooperative agreement
- Ultimate authority rest with an elected Executive Committee (Mark Richards, Chair)
- Science Steering Committee
  - *Will be in place by mid-June, 2005 -- please participate*
- Resources
  - *3-4 In house software engineers*
  - *Technical writer/web master; Administrative support*
  - *Support Matt Knepley (PETSc), Argonne National Lab*
  - *Some support for subcontracts for software development*
  - *Support for workshops and for visitors at CIG*

# What does the CIG-SSC need from you?

- Evaluate the current state of your computational tools
  - *Strength and weakness of methods*
  - *Codes in existence that use these methods and the strength and weakness of the codes*
  - *Availability of these codes (freely available, open source)*
- Start a process of benchmarking
  - *Articulate the parameters of these benchmarks*
  - *How should your benchmarks be presented (data formats, necessary meta data)*
  - *Get “buy-in” from members of the community and then have the results of these BM on the web*
- What new software tools will be needed for your science
- A Workshop Report posted on the Web
- Your report will be used by the Science Steering Committee to establish CIG priorities

# Workshops Summer 2005

- Fault systems and tectonics (joint with SCEC)
  - *Brad Hager, Carl Gable & Mark Simons*
  - *LANL in July*
- Mantle convection
  - *Shijie Zhong, Adrian Lenardic, Scott King & Marc Parmentier*
  - *Boulder, CO, in June*
- Computational seismology (joint with IRIS)
  - *Jeroen Tromp, Guy Masters, Michael Ritzwoller, Michael Wysession, & Alan Levander*
  - *Stevenson WA just before IRIS meeting*
- Long-term tectonics
  - *Dennis Harry, Sean Willett & Luc Lavier*
  - *Breckenridge, CO in June*