Work Plan

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2014-2015

SHORT TERM (1-2 YEARS)

- Identify selected analytical cases to be used as a basis for accuracy benchmarks (verification)
- Begin work on a community benchmark(s) of available and in-development codes
- Begin development of tutorials
- Invite initial donations to CIG for benchmarking and testing.
- Establish partnerships between CIG and EarthScope.

INTERMEDIATE TERM (2-4 YEARS)

- Develop educational use case and tools.
- Establish a set of community benchmarks that are the standard for all future code efforts.
- Investigate the applicability of using cloud or grid computing for both educational and research efforts
- Investigate the applicability of including virtual machines in tutorials.
- Improve and increase access to computing resources for the research community.

TERM (BEYOND)

Converge on community best practices for LTT modeling.
Create a user-oriented framework for evaluation of community codes – matching computational and scientific methods, capabilities, and resources to science needs.

ar, dedicated meetings to promote interaction amongst the LTT community. Meetings will also help raise ness in the LTT and larger community about the philosophy, best practices, and methods of numerical ng and code development.

working towards defining the requirements necessary to address its computational needs. Problems in

span a broad range in both scales of length and time and cut across disciplinary boundaries, resulting in
nerical and computational issues. As a result, historically codes addressed a narrow range of LTT-
ems. Scientific progress, however, would benefit from an open source, extensible and usable code(s).

unity has been taking a series of steps to help define the problems and current capabilities in
The first step this past year was a workshop to both assess the current state of lithospheric modeling
s. The long-term tectonics community partnered with EarthScope for the first CIG-EarthScope Institute
ing workshop, held in Tempe, Arizona at the EarthScope National Office on the Arizona State University
2014. This working meeting focused on geodynamic modeling of lithosphere dynamics, data
ftware tools that facilitate this work.

hallenges are very distinctive from mantle convection modeling needs, an LTT focused community
nized in 2013. Aim of this workshop is to invite several code developers to present their codes, discuss
al challenges, and modeling needs of the community. Both users and code developers will be invited to

roups will be invited to make available their codes online through CIG. These codes can be explored and
y. Feedback from the community will guide further code development with the aim to converge toward a
de or set of codes.

p will submit a topical session proposal on LTT modeling to AGU.

of Gale was published online. The LTT working group is working on a publication that describes a study
r a set of numerical experiments increasing in complexity. The models are thermally-mechanically
ear rheology, and include extension as well as compression experiments. This manuscript can be used
es, as outlined above. Initial models were presented as a poster at AGU. Each of the LTT co-chairs
k with Walter Landry on Gale and the setup of these models.

tle convection workshop was held in Summer 2012. Presentations from the LTT community addressed
ctonics problems and a discussion on Gale and alternatives. There was consensus that LTT needs to
ding an open source code that can be used for a range of scientific problems.

ed to study possible formats of CIG-supported LTT codes and code-developments. Scientific (Buck and
hite papers (Lavier, Choi, Tan and Calo, and Brown, Knepley and May) summarizing the scientific and
current status were presented to CIG.