

# Kellogg's CIG Science Gateway and Community Codes for the Geodynamics Community

Date submitted: Jul 14, 2014

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## Title / FOS

TITLE	CIG Science Gateway and Community Codes for the Geodynamics Community
REQUEST NUMBER	MCA08X011
REQUEST TYPE	Renewal
PRIMARY FIELD OF SCIENCE	525 - Geophysics
KEYWORDS	geophysics seismology mantle convection geodynamo short and long term tectonics finite elements adaptive mesh scalable physics simulation

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# PI Information

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	/C=US/O=National Computational Science Alliance/CN=Louise Kellogg
	CN=Louise Kellogg,O=National Center for Supercomputing Applications,C=US
	/C=US/O=National Center for Supercomputing Applications/CN=Louise Kellogg
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## Co-PI(s) Information

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## Supporting Grant(s) Information

<b>PI NAME</b>	Louise H. Kellogg
<b>FUNDING AGENCY</b>	National Science Foundation (NSF)
<b>FUNDING AGENCY DIVISION</b>	EAR
<b>PROGRAM OFFICER NAME</b>	Robin Reichlin
<b>PROGRAM OFFICER EMAIL</b>	rreichli@nsf.gov
<b>FUNDING TITLE</b>	Geoinformatics: Facility Support: Computational Infrastructure for Geodynamics
<b>AWARD NUMBER</b>	0949446
<b>AWARDED AMOUNT</b>	1537500
<b>PERCENTAGE OF AWARD</b>	25
<b>SUPPORTING THIS REQUEST</b>	
<b>START DATE</b>	07/01/2010
<b>EXPIRATION DATE</b>	06/30/2015
<b>FIELD OF SCIENCE</b>	Geophysics
<b>COMMENT</b>	

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## Resources Requested

Please estimate what percentage of the work you expect to do in this allocation will be the following types (the 3 numbers should sum to 100):

Please estimate what percentage of the jobs you expect to run in this allocation will be the following types (the 3 numbers should sum to 100):

Please estimate what percentage of the science runs you expect to perform in this allocation will be the following types (the 4 numbers should sum to 100):

- Production (actually doing research): 40
  - Exploration/porting (preparing to do research): 40
  - Education (teaching others to do research): 20
  - Submitted through command line/script: 100
- 
- Independent (a job that is not immediately connected to any other job - a job that is artificially broken into chunks by queue limits should still be placed this category): 10
  - Independent but related (such as jobs that make up an ensemble or parameter sweeps): 10
  - Dependent (multiple jobs such as in a workflow): 80

RESOURCE NAME	TACC Dell PowerEdge C8220 Cluster with Intel Xeon Phi coprocessors (Stampede)
RESOURCE REQUESTED AMOUNT	2470000
RESOURCE AWARDED AMOUNT	

RESOURCE NAME	TACC HP/NVIDIA Interactive Visualization and Data Analytics System (Maverick)
RESOURCE REQUESTED AMOUNT	5000
RESOURCE AWARDED AMOUNT	

RESOURCE NAME	TACC Long-term tape Archival Storage (Ranch)
RESOURCE REQUESTED AMOUNT	500
RESOURCE AWARDED AMOUNT	

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# Abstract

The Computational Infrastructure for Geodynamics (CIG), an NSF center, aims to enhance the capabilities of the geodynamics community through developing software that can be used to address a range of unsolved grand challenge problems in geophysics. CIG supports benchmarking of its codes, conducts training, and offers help to new users by providing small allocations of computation time. These efforts have met with success, and the current CIG compute allocations on the XSEDE infrastructure have been used at a substantial rate. CIG supports the aforementioned efforts in the following areas of activity: mantle dynamics, seismic wave propagation, geodynamo, and crustal and lithospheric dynamics on both million-year and earthquake time-scales.

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