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More information is available online at: https://www.calacademy.org/academy/exhibits/earthquake

Submitted by Artie Rodgers, LLNL

Research Highlight

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Submitted by Artie Rodgers, LLNL
Computing

Geodynamics in the Cloud
If you have a google account, share photos or store music online, you are in the cloud. The cloud provides Infrastructure-as-a-Service such as server farms, Platform-as-a-Service (PaaS) such as Google App Engine, and Software-as-a-Service such as WebEx. The PaaS model supplies remote computing capacity with a set of software-development tools for use by outside software programmers. Cloud resources, as in this instance, can provide internet access to ready-to-run applications as well as cpu and memory scalability in a pay-as-you go model. Installation of CIG codes in the cloud helps users to quickly and easily try CIG codes negating the need for users to download and install the codes on their own machines. In addition, service providers such as Amazon EC2 provide scalable HPC options allowing users to run larger computations. CIG is considering offering cloud oriented tools to help those researchers who would find cloud computing to be a cost effective source of computing resources. Let us know what you think.

New Allocation at NCAR
CIG has been awarded an allocation of 490,000 core hours on the new NCAR supercomputer Yellowstone. Hours have been allocated to support code benchmarking, to conduct training sessions, and to offer help to new users by providing small allocations of computational time for CitcomS, Aspect, Pylith and Gale. Technical details for Yellowstone can be found at: https://www2.cisl.ucar.edu/resources/yellowstone

NEW RELEASES
⇒ Pylith 1.7.1 [2012 June 12]
⇒ Relax 1.0.3 [2012 June 18]
⇒ Specfem3D Geotech 1.1 [2012 April 23]
⇒ Specfem1D 1.0.3 [2012 April 30]

Comings and Goings
CIG welcomes Eric Heien and Lorraine Hwang to its Staff at headquarters at UC Davis. Eric is CIG’s Lead Programmer responsible for the technical direction of CIG code development. Eric received his Ph.D. from Osaka University and completed postdoctoral work at INRIA and UC Davis studying parallel, distributed and cloud computing. While at UC Davis, he led the development of Virtual California (VC). VC supports both OpenMP and MPI based parallel computing for large scale models on the order of hundreds and thousands of elements requiring hundreds of GB of memory to compute.

XSEDE12 Conference
Eric Heien from CIG recently presented visualization work at the XSEDE12 conference. This work examined the flow of passive tracer particles in a 3D box environment using the new CIG code ASPECT (Advanced Solver for Problems in Earth’s Convection) on the XSEDE supercomputer Lonestar. By evaluating mixing in a suite of configurations, researchers hope to qualitatively understand the dynamics of regional and global mixing in the Earth's mantle.
Webinar

**2012 October 11 @ 11 am PT – Wolfgang Bangerth**

**Using Existing Libraries to Improve and Solve Computational Problems**

Over the past 20 years, there have been two landmark shifts in computational science and engineering: The transition from sequential to parallel computing, and the emergence of very large libraries that provide a huge amount of functionality to application programs in much the same way as MATLAB does for many tasks that can be written in the language of linear algebra. Unfortunately, while the codes written in many applications areas are well parallelized today, they have only recently started to be based on existing libraries.

In this webinar, I will explore what led to these libraries, what they offer, and how they can help communities write codes that are far better, faster, and less complex, yet utilizing far more complex algorithms, that are smaller, better tested, and better documented. Our software, the open source library deal.II (see http://www.dealii.org), is used as an example to exemplify these benefits and its application to geodynamics.

While this talk will focus on deal.II as the underlying library, the following talk in this webinar series, by Timo Heister, will focus on an application built on deal.II, the mantle convection code ASPECT.

Please go to [geodynamics.org](http://geodynamics.org) for instructions on how to connect to the meeting.

Submitted by Wolfgang Bangerth, TAMU
Computational Infrastructure for Geodynamics (CIG) is a membership-governed organization that supports and promotes Earth science by developing and maintaining software for computational geophysics and related fields.

For more information contact:

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