

Research Highlight

### SCOPED: Seismic COmputational Platform for Empowering Discovery

Seismic waves are our primary tools to explore the multi-scale structure of Earth— from its surface down to the inner core—and its wide range of processes, including earthquakes, volcanic activity, glacial processes, oceanic and environmental processes, and human-caused processes such as hydraulic fracturing or nuclear explosions.

The unprecedented growth of data and computational power have formed two pillars of seismology during the last decade. While numerical tools allow us to take full 3D complexity of wave propagation in seismic source and structural modeling, exponentially grown seismic data from traditional broadband seismometers as well as emerging instruments (i.e., distributed acoustic sensors, MERMAIDs, nodal arrays, etc.) offer new opportunities to monitor seismic activity and to improve resolution beneath continents and oceans. We need high-performance and Cloud computing to efficiently process large data sets and accurately model them. Seismic workflows involve various pieces depending on the problem, from retrieving field data from data repositories to processing and modeling them. Data processing requires easy access to large data sets, which becomes much more challenging for (near-) real-time monitoring studies, while seismic modeling of source and structure often deals with iterative workflows involving large earthquake or noise data, which can quickly turn out to be overwhelming tasks for researchers. The steep learning curve of modern computational technics and workflows, together with computational challenges, leaves limited time for students and researchers to focus on seismological and broader Earth science interpretations.

SCOPED ... [continued]

contributed by

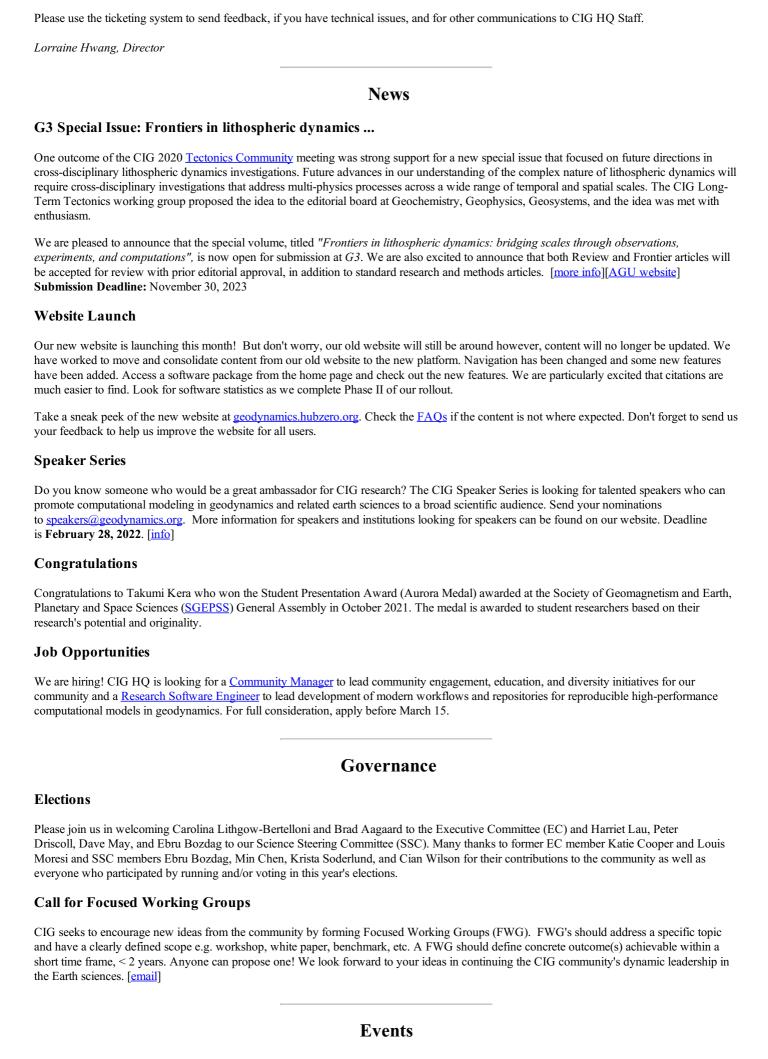
Ebru Bozdag, Colorado School of Mines; Carl Tape, University of Alaska Fairbanks; Marine Denolle, University of Washington Seattle; Felix Waldhauser, Columbia University; Ian Wang, TACC, University of Texas

# **Updates from HQ**

#### Dear Community,

Our current website has been serving our community since 2013. In the past 8 years, much has changed not only in technology but also in the needs of our community. We are excited to be partnering with <a href="https://hubzero">hubzero</a> on a new website platform. hubzero is part of the <a href="https://science.gateways.community">Science Gateways</a> <a href="https://www.community.

This does mean change. And change can be frustrating. The biggest change will be fully transitioning from our mail list serve which is no longer being supported to the <u>community forum</u> and a more user friendly ticketing system. In the forum, remember to navigate to the category you are interested in receiving email from and select how often you wish to be noticed (look for the icon next to the + *New Topic* button). To assist you, we have also developed a few <u>FAQs</u> as content has moved around.



### Webinars

October 14 SMOREs Showcase
November 11 Veterans Day

November 18 CIG Business Meeting @ 1P PT

**December** none - AGU

January 13 Raj Moulik, Princeton University

February 17 Takumi Kera, Tohoku University [register]

March 10 Ryan Orvedahl, *UC Davis*April 14 Kali Allison, *UC Davis* 

May 12 Robert Walker, University at Buffalo

## Workshops

Feb 28-Mar 1&4 Software Developer's Meeting [register]

May 15-24 ASPECT Hackathon

June 20-24 Crustal Deformation Modeling Workshop

tbd Rayleigh Hackathon

Registration for Workshops will be announced as they become available.

Remember to join our forum to receive announcements for these and other 2021-2022 events.