



Research Highlight

Teaching foundational coding skills through the CODE-GEO program

Using Computational Infrastructure for Geodynamics (CIG) software requires some crucial background knowledge in coding. For example, numerous CIG codes, like ASPECT and PyLith, operate with a command-line interface such that basic skills in using the terminal are necessary. To help fill such knowledge gaps for students from underrepresented groups at the undergraduate level, the CODE-GEO (Collecting Observation for Data Encoding in the Geosciences) program was developed at Virginia Tech by Associate Professor D. Sarah Stamps in 2018. CODE-GEO is a week-long coding camp for undergraduate students from underrepresented groups in STEM with little to no coding experience, but who want to learn. Participants gain fundamental and transferable coding skills, as well as useful techniques in cultural effectiveness like active listening and how to interrupt implicit bias in the workplace.

History and Program Content

CODE-GEO began in 2018 ... [[full article](#)]

contributed by

[D. Sarah Stamps](#), Virginia Tech, Department of Geosciences, Geodesy and Tectonophysics Laboratory

From HQ

Dear Community,

CIG IV officially launched on February 1, 2023 and we are excited to continue to support our code communities and expand in new directions. This month's *Research Highlight* focuses our attention on one such direction - creating a computationally ready geoscience workforce. The complexity of the problems in understanding Earth systems drives not only the need to increase the reach and diversity of the geodynamics community but also to provide learning experiences that integrate science and computation. The move to the HUBzero platform enables this by delivering the capability to provide content on a notebook server executable by anyone with an internet connection (see article in this issue on Executable Notebooks). Community input is sought to make this a valued resource for education and research. Please consider volunteering for the **Education Working Group** to contribute your expertise in helping to expand our reach and inspire the next generation of computational geoscientists.

Our **CIG Distinguished Speakers** series extends our reach and aspires to attract and excite the next generation of diverse and talented young researchers. Help us spread the word to institutions that typically do not have access to speakers in geodynamics. See article below and join us in congratulating Harriet Lau and Miki Nakajima our 2023-2024 CIG Distinguished Speakers.

We also plan to hold our first workshop for **publishing** in the Journal of Open Source Software ([JOSS](#)). The workshop will be held over 1/2 + 1 day. The first 1/2 day will be held virtually, followed 4 weeks later by a full day in person hack session for teams "near ready" to submit. Tentative dates are August 10 and September 9. Look for future announcements on details and how to register. We are excited to help our community to gain recognition for creating software.

Bruce Buffet & Lorraine Hwang, coDirectors

News

Speaker Series

Join us in congratulating our [2023-2024 CIG Distinguished Speakers](#):

- **Evolving Solid Earth Dynamics as a Trigger for the Mid Pleistocene Transition**, *Harriet Lau, Brown University*
- **Origin of moons in the solar system and beyond**, *Miki Nakashima, University of Rochester*

Apply to Host a Speaker

The CIG Speaker Series seeks to promote computational modeling in geodynamics and related Earth science disciplines. The series aims to bring computational geodynamics speakers to institutions that may not otherwise have access to speakers with expertise in computational science or computational geophysics. By doing so, we aim to connect speakers and CIG with audiences from a variety of STEM domains, and to broaden participation in CIG and to work toward building a more diverse community within computational geodynamics. Institutions interested in hosting a Speaker in 2023-2024 should **apply by May 26, 2023**.

See the [website](#) for more information.

Executable Notebooks - BurnMan LIVE !

Our notebook server is now live! Try it by creating a user account and navigating to [Software > Launch](#). Select a resource and either navigate to its software landing page for more information or launch the tool directly. Along with the *Burnman Jupyter Notebooks*, containers are available with the following environments: Debian 10, Jupyter Lab, Jupyter Notebook, and RStudio. Additional notebooks are under development and will be announced as they become available.

Have a notebook you are interested in sharing with the community? Please [contact us](#) to discuss creating a new resource for the community.

Tool Stats

Software usage and development statistics are now available under the Tool Stats tab on each software landing page. This includes GitHub download, pull requests, commit and contribution statistics. The raw data is available for export in json. Download maps are back and track redirects from our website to the github repository for downloads.

Governance

Education Working Group - Members Wanted

The Education Working Group (EWG) works to promote access to educational materials for geodynamics. The EWG advances the infrastructure and content needed to develop a computationally skilled workforce and increase discovery of the discipline. This is achieved through integrating computation with domain science in upper division and graduate level learning. We encourage all community members to contribute their expertise and ideas in helping to shape the modules for a curriculum in geodynamics, expand outreach, and identify funding and collaboration opportunities. Apply to **become a member** of the EWG by submitting a [ticket](#) with a brief statement of interest.

Working Groups

CIG seeks to engage its community and encourage new ideas by seeking members interested in participating as a member of a current working Group or starting a new Focused Working Groups (FWG). New FWG's should address a specific topic and have a clearly defined scope e.g., workshop, white paper, benchmark, etc. A WG should define concrete outcome(s) achievable within a short time frame, < 2 years. Anyone can propose one! We look forward to your ideas in continuing the CIG community's dynamic leadership in the Earth sciences. [\[apply\]](#)

Events

Fault Mechanics for Numerical Modeling Webinar Series

This webinar series highlights the recent discoveries in rock and fault mechanics from field observations and laboratory experiments that may inform and improve numerical models of the seismic cycles and short-term crustal deformation. The presentations cover advanced topics related to the importance of lithology, texture, and temperature on fault mechanics, the role of fluids in fault zones, and new observations on dynamic ruptures, foreshocks, and aftershocks in the laboratory. Isolating these effects in the laboratory and in the field will help the formulation of new constitutive laws for fault friction and the behavior of the surrounding rocks, allowing more realistic models. Webinars are weekly on Friday @1P PDT and ends June 2.

CIG Webinars

June 8 SZ4D Update

Workshops

June 11-17	PyLith Hackathon	Golden, Colorado
June 12-16	Rayleigh Hackathon	Golden, Colorado
July 6-15	ASPECT Hackathon	Lincoln City, Oregon
I: August 10, II: September 9	How to Get Published in JOSS	I: Zoom, II: tbd

Registration for Workshops will be announced as they become available.

See our [calendar](#) for details on all events and registration.

Remember to join our [forum](#) to receive announcements for these and other 2022-2023 events.
