



News Elements

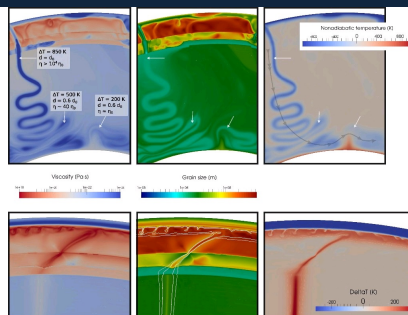
November 2017 Volume 6 Issue 4

Research Highlight

Modeling grain size evolution in the mantle with ASPECT

Grain size plays a key role in controlling the mechanical properties of the Earth's mantle, affecting both long-term flow patterns and anelasticity on the timescales of seismic wave propagation. In turn, the deformation in the Earth's mantle also affects grain size evolution. However, dynamic models of Earth's convecting mantle usually implement flow laws with constant grain size, stress-independent viscosity, and a limited treatment of changes in mineral assemblage.

In "The importance of grain size to mantle dynamics and seismological observations", Dannberg et al. (2017) use the community mantle convection code ASPECT to study grain size evolution in the Earth's mantle. The presented geodynamic models include the simultaneous and competing effects of grain growth, dynamic recrystallization resulting from dislocation creep (decreasing the grain size), and recrystallization at phase transitions. They show that grain size evolution drastically affects both rheology and the dynamics of mantle convection. Changes in grain size alone can lead to lateral viscosity variations of six orders of magnitude in the upper mantle, and control the shape of upwellings and downwellings. ... [read full article](#) J. Dannberg et al., 2017 doi: [10.1002/2017GC006944](https://doi.org/10.1002/2017GC006944).



Shape and dynamics of subducting slabs (top) and mantle plumes (bottom) in models with dynamically evolving grain size. Snapshots show viscosity (left), grain size (center) and temperature (right). [link to full caption](#)



WEBINARS

November 16 - Max Rudolph

February 8 - Gabriele Morra

March 8 - Eri Mittelstaedt

April 23 - Sabine Stanley

May 10 -

[More info](#)

[Connect to webinar](#)

MEETINGS

Dec 11: CIG Business Meeting

Dec 11-15: AGU

2018

April 25-27: Coupling of Tectonic and Surface Processes

June 10-14: CGU joint with CIG

TBD: ASPECT Hackathon

TBD: PyLith Hackathon

NEW RELEASES

Calypso 1.2.0

PyLith 2.2.1



click the icon for citation info

ALLOCATIONS

Stampede2: 40690/51070 SUs

Ranch: 10,000 GB

Maverick: 121/ 15,000 SUs

QUICK LINKS

[Submit Publications](#)

[Software](#)

CONTACT US

CIG, Zenodo, and Archiving

[Zenodo](#) helps researchers receive credit by making their research results citable. This free service archives data and software and its associated metadata. Research products are assigned DOIs and your citation information is passed to DataCite and other scholarly aggregators. CIG uses zenodo to assign DOIs to its software and maintains a [Zenodo Community](#) to easily find research products in geodynamics. Don't forget to join our collection when entering in your metadata. Please feel free to [contact](#) us for more information on using zenodo for your research.

Elections

2017 Elections are now open for positions on the Executive and Science Steering Committees. Candidates for the EC are Susanne Buitert and Carl Tape. Candidates for 3 positions on the SSC are Chris Harig or Gabriele Morra, David Ham or Moritz Heimpel, and Jessica Irving or Ying Zhou. Candidate statements are available [online](#). Contact your [member representative](#) to vote. Many thanks to EC member Omar Ghattas and SSC members Jed Brown, David May, and Carl Tape for their contributions to the community and to the Nominations Committee, Clint Conrad, Wolfgang Bangerth, Ved Lekic and Sabine Stanley for presenting an excellent slate of candidates.

CIG @AGU

Looking for talks in geodynamics at AGU? Visit our website to see the latest research your CIG colleagues are presenting. Do not forget to [email](#) us your presentation information so your research can be highlighted on this list.

2017 CIG Business Meeting

CIG will hold its Annual Business Meeting on Monday, December 11 at the Hilton Garden Inn New Orleans Convention Center. The Hilton Garden Inn is just one block west of the convention center. The reception begins at 6pm followed by the business meeting at 7pm. Light hors d'oeuvres will be served. Results from the 2017 EC and SSC elections will be announced and join the lively discussion on HPC. See our website for more information and directions. [\[more info\]](#)

2017 CIG-LLNL Computational Seismology Workshop

CIG in collaboration with Lawrence Livermore National Laboratory (LLNL) held a workshop focusing on computational seismology at the Livermore Valley Open Campus September 18-22, 2017. The [workshop](#) combined keynote lectures and training on seismic waveform processing, visualization and HPC waveform simulation. Fifty-five predominantly early career participants from the US and 16 countries attended. This highly successful workshop was the first of its kind to feature full access to HPC resources for research grade example problems. [\[full article\]](#)

CIG in the News

Under the leadership of Jon Aurnou, the Geodynamo Work Group is entering the next phase of its successful INCITE project. The GWG has been using the CIG code Rayleigh to simulate solar and planetary dynamos at unprecedented detail on ALCF's Mira supercomputer. Their work is highlighted in the **ALCF magazine**. [\[full article\]](#)

Congratulations to Julianne Dannberg for winning the KlarText Prize for Science Communication. The **KlarText prize** is awarded to scientists who have finished their dissertation and can explain their research to a non-scientific audience in German. Read her winning entry [Up and down in the mantle](#).

Job Opportunities at NSF

NSF has openings for a [Division Director](#) in GEO/EAR and a [Program Director](#) for Geophysics. Consider making an impact on the national level and represent the geodynamics community in Alexandria, VA.