

## Publication List (January 2018 to present)

### Tectonics

- Naliboff, J.B., Brune, S., Hake, T., Quantitative analysis of distributed normal faulting patterns in 3D thermal-mechanical simulations of continental rifting, Abstract T13F-0295 presented at the 2018 American Geophysical Union Fall Meeting, Washington DC, District of Columbia, December 10-14, 2018.
- Naliboff, J.B., Glerum, A., and Brune, S. (2018), High-Resolution 3D simulations of continental extension, Abstract presented at the 2018 CGU, CSSS, and CIG Joint Annual Meeting, Niagara Fall, Canada, June 10-14.
- Naliboff, J.B., S.J. Buiter, Numerical simulations of complex normal fault interaction during continental extension, Abstract 5520 presented at the 2018 European Union Geosciences Union General Assembly, Vienna, Austria, April 8-13, 2018.

### Mantle Convection

- Clevenger, T.C., Heister, T., Kanschka, G., and Kronbichler, M., A Flexible, Parallel, Adaptive Geometric Multigrid method for FEM, *ACM Transactions on Mathematical Software*, in Review, 2019.
- Dannberg, J., and Gassmoeller, R., Chemical trends in ocean islands explained by plumeslab interaction, *Proceedings of the National Academy of Sciences*, **115(17)**, 4351-4356, 2018.
- Dannberg, J. and Gassmoeller, R., Convection Simulations Explain the Compositional Heterogeneity of Oceanic Island Chains, NG24A-08, American Geophysical Union Fall Meeting, Washington DC, Dec., 2018.
- Dannberg, J., Gassmoeller, R., Grove, R., and Heister, T., A new formulation for coupled magma/mantle dynamics. *Geophysical Journal International*, **219 (1)**, 94–107, 2019.
- Dannberg, J., Gassmoeller, R., and Heister, T., Modeling Melt Generation and Transport by Integrating Thermodynamic Models in Geodynamic Simulations Using the Community Code ASPECT, V53A-01, American Geophysical Union Fall Meeting, Washington DC, Dec., 2018.
- Dannberg, J. and Rudge, J., Reconciling the formation of shear-induced melt bands in numerical and laboratory experiments: The effects of surface tension and a porosity-weakening bulk viscosity. In EGU General Assembly Conference Abstracts (Vol. 21, EGU2019-4060), Vienna, Austria, April 8-13, 2018.
- Dannberg, J., Gassmoeller, R., and Leshner, C.E., Linking chemical trends in ocean islands to the complex interaction between starting plumes and the core-mantle boundary. In EGU General Assembly Conference Abstracts (Vol. 21, EGU2019-3648), Vienna, Austria, April 8-13, 2018.

- Gassmoeller, R., Dannberg, J., Heister, T., and Bangerth, W., On Formulations of Compressible Mantle Convection. *Geophysical Journal International*, In Review.
- Gassmoeller, R., Dannberg, J., Heister, T., Bangerth, W., and Myhill, R., Mantle Convection Beyond the Reference Profile: Accurately Modeling Dynamic Effects of Compressibility., DI24B-02, American Geophysical Union Fall Meeting, Washington DC, Dec., 2018.
- Gassmoeller, R., W. Bangerth, J. Dannberg, and T. Heister, Advances in Mantle Convection Modelling: Nonlinear Solvers, Multiphysics, Linking Scales, SIAM Conference on Parallel Processing for Scientific computing, Tokyo, Japan, Mar. 2018.
- Gassmoeller, R., Lokavarapu, H., Bangerth, W., and Puckett, E. G., Evaluating the accuracy of hybrid finite element / Particle-In-Cell methods for modeling incompressible Stokes flow. *Geophysical Journal International*, In Review.
- Gassmoeller, R., Lokavarapu, H., Heien, E., Puckett, E. G., and Bangerth, W., Flexible and Scalable ParticleinCell Methods With Adaptive Mesh Refinement for Geodynamic Computations. *Geochemistry, Geophysics, Geosystems*, **19(9)**, 3596-3604, 2018
- Heron, P., Dannberg, J., Gassmoeller, R., Shephard, G., van Hunen, J., and Pysklywec, R., Impact of thermo-chemical pile size in the generation of upwellings: insights from mantle convection models featuring paleo-subduction history., European Geosciences Union General Assembly, Vienna, Austria, Apr., 2018.
- Leshner, C.E., Dannberg, J., Barfod, G.H., Bennett N.R., Glessner, J., Lacks, D. and Brenan, J.M., Iron isotope fractionation at the core-mantle boundary. *Nature Geoscience*, in review.

## Geodynamo

- Buffett, B.A and Matsui H., Equatorially trapped waves in Earths core, *Geophysical Journal International*, **218(2)**, 1210–1225, 2019.
- Featherstone, N.A., Exploring Planetary and Stellar Convection Using the Rayleigh Code, SIAM Conference on Parallel Processing for Scientific computing, Tokyo, Japan, Mar. 2018.
- Liao, Y., Matsui, H., Kreylos, O., and Kellogg, L.H., Scalable Parallel Flow Visualization Using 3D Line Integral Convolution for Large Scale Unstructured Simulation Data, *Proceeding of Eurographics Symposium on Parallel Graphics and Visualization 2019*, Porto, Portugal, June, 2019.
- Matsui, H., Geodynamo Simulations and Visualizations Using Calypso, SIAM Conference on Parallel Processing for Scientific computing, Tokyo, Japan, Mar. 2018.
- Matsui, H. and Buffett, B.A., Investigation of dynamic sub-grid scale (SGS) terms in dynamo simulations with small Ekman number, DI21B-001, American Geophysical Union Fall Meeting, Washington DC, Dec., 2018.
- Matsui, H., Dekura, H., and T. Tsuchiya, Estimation of temperature perturbation at ICB

induced by CMB heat flux variation by numerical dynamos, Symposium of Study of the Earth Deep Interior (SEDI), Edmonton, Canada, July, 2018.

Matsui, H. and Buffett, B.A., Dynamic sub-grid scale (SGS) modeling for dynamo simulations in a rotating spherical shell modeled on the Earth's outer core, GTP workshop "WAVES, TURBULENCE, AND LARGE-SCALE STRUCTURES IN ROTATING MAGNETIC FLUIDS: ABOVE & BEYOND GEOPHYSICAL FLUID DYNAMICS", Boulder, CO, Sep. 2019.

Matsui, H., Investigation of sub-grid scale (SGS) model in dynamo simulations with small Ekman and magnetic Prandtl numbers, Japan Geoscience Union Meeting, Chiba, May 2019.