Jacqueline Austermann – Curriculum Vitae

Columbia University, Lamont-Doherty Earth Observatory
223 Seismology, 61 Route 9W – PO Box 1000
Palisades, NY 10964-8000, USA
ja3170@columbia.edu
http://www.ldeo.columbia.edu/~jackya

Academic positions

Assistant Professor,	Department of Earth and Environmental Sciences, Columbia University, New York, USA	01/2018 – present
Newton International Fellow,	Department of Earth Sciences, University of Cambridge, Cambridge, UK	10/2016 - 12/2017
Post-Doctoral Fellow,	Department of Earth and Planetary Sciences, Harvard University, Cambridge, USA	06/2016 - 09/2016

Education

Ph.D. in Earth and Planetary Sciences; Harvard University, Cambridge, USA 09/2011 – 05/2016
Dissertation: Imprints of geodynamic processes on the paleoclimate record
Advisor: Prof. Jerry X. Mitrovica

M.Sc. in Geophysics, Ludwig Maximilians Universität München, Germany 10/2009 – 09/2011
Thesis title: The role of the Zagros orogeny in slowing down Arabia-Eurasia convergence since ~5 Ma
Advisor: Dr. Giampiero Iaffaldano

B.Sc. in Physics, Technische Universität Darmstadt, Germany 10/2006 – 09/2009
Thesis title: Evolutionary game theory on complex networks
Advisor: Prof. Markus Porto

Research Summary

My research lies at the intersection of solid Earth geophysics and paleoclimate. I'm interested in better understanding Earth's internal structure, rheology, and dynamics as well as how Earth's climate, in particular its ice sheets and sea level, are changing today and have changed over the last thousands to millions of years. Earth's interior and its climate system are closely linked in several ways including that sea level changes are caused by glacial isostatic adjustement (GIA) and mantle convection, ice sheet stability is dependent on its changing bedrock elevation and heatflow, and volatile fluxes in and out of the mantle affect mantle convection and climate. In my current work I've been particularly interested in understanding sea level during past warm periods, including the Last Interglacial and the Pliocene as these time periods serve as analogues for future warming. I approach questions with numerical models of GIA and mantle convection and particularly focus on improving data – model assimilation. I also conduct fieldwork in the Bahamas and Greenland centered around identifying, mapping, and interpreting paleoshorelines. Further, I'm involved in work targeted at understanding how coastlines, habitat, and coastal communities are responding to sea level change today and in the near future.

Key Publications (h-index: 19, # of citations: 1223 (05/31/22 on google scholar)

Austermann, J., M. Hoggard, K. Latychev, J.X. Mitrovica, 2021. The effect of lateral variations in Earth structure on last interglacial sea level, *Geophysical Journal International,* doi:10.1093/gji/ggab289.

Hoggard, M., **J. Austermann,** C. Randel, S. Stephenson, 2021. Observational estimates of dynamic topography through space and time. *AGU monograph* in In Mantle Convection and Surface Expressions (pp. 371–411). Wiley.

Paxman, G.J.G., **J. Austermann**, K.J. Tinto, 2021. A fault-bounded palaeo-lake basin preserved beneath the Greenland Ice Sheet, *Earth and Planetary Science Letters*, Vol. 553:116647, doi:10.1016/j.epsl.2020.116647.

Austermann, J., C. Y. Chen, H. C. P. Lau, A. Maloof, K. Latychev, 2020. Constraints on mantle viscosity and Laurentide ice sheet evolution from pluvial paleolake shorelines in the western United States. *Earth and Planetary Science Letters 532,* doi:10.1016/j.epsl.2019.116006.

Dumitru*, O.A., **J. Austermann***, V. J. Polyak, J. J. Fornós, Y. Asmerom, J. Ginés, A. Ginés, B. P. Onac, 2019. New constraints on Pliocene sea level and ice volume from precisely dated speleothems. *Nature,* doi:10.1038/s41586-019-1543-2. *these two authors contributed equally

Austermann, J., J.X. Mitrovica, P. Huybers, A. Rovere, 2017. Detection of a Dynamic Topography Signal in Last Interglacial Sea Level Records. *Science Advances* 3(7), doi:10.1126/sciadv.1700457.

Austermann, J., J.X. Mitrovica, 2015a. Calculating gravitationally self-consistent sea level changes driven by dynamic topography. *Geophysical Journal International* 203(3), 1909-1922.

Austermann, J., D. Pollard, J.X. Mitrovica, R. Moucha, A.M. Forte, R.M. DeConto, D. Rowley, M.E. Raymo, 2015b. The impact of dynamic topography change on Antarctic Ice Sheet stability in the Pliocene. *Geology* 43, 927-930, doi:10.1130/G36988.1.

Austermann, J., J.X. Mitrovica, K. Latychev, G.A. Milne, 2013a. Barbados-based estimate of ice volume at Last Glacial Maximum affected by subducted plate. *Nature-Geoscience* 6, 553-557.

Austermann J., G. Iaffaldano, 2013b. The role of the Zagros orogeny in slowing down Arabia-Eurasia convergence since ~5 Ma. *Tectonics* 32, 351-363.

Austermann J., Z. Ben-Avraham, P. Bird, O. Heidbach, G. Schubert, J. Stock, 2011. Quantifying the forces needed for the rapid change of Pacific plate motion at 6 Ma. *Earth and Planetary Science Letters* 307, 289-297.

Recent Honors

Sloan Research Fellowship ($75,000, 2-year fellowship)	2021 – 2023
CIG (Computational Infrastructure for Geodynamics) Distinguished Speaker	2020 – 2021
DEES Undergraduate Outstanding Professor Award	2020
Jason Morgan Early Career Award from the *American Geophysical Union*	2019
Outstanding peer reviewer, Nature Geoscience	2017
Newton International Fellowship, The Royal Society	2016 - 2017
Certificate for Distinction in Teaching, Harvard University	2013, 2016
Harvard GSAS Merit Fellowship	2015

Professional Society Memberships

American Geophysical Union (AGU)
European Geophysical Union (EGU)