

Jacqueline Austermann – Curriculum Vitae

Columbia University, Lamont-Doherty Earth Observatory
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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 title: 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		

Fellowships and Awards

Jason Morgan Early Career Award from the <i>American Geophysical Union</i>	2019
Co-author on ‘best student paper’ award from <i>Geophysical Journal International</i>	2018
Outstanding peer reviewer, <i>Nature Geoscience</i>	2017
Newton International Fellowship, Royal Society	2016 - 2017
Certificate for Distinction in Teaching, Harvard University	2013, 2016
Harvard GSAS Merit Fellowship	2015
Graduate Fellowship by the Harvard Center for the Environment	2013 - 2014
James Mills Peirce Fellowship, Harvard University	2011
Young Scientist Conference Grant, IGCP	2011
Master Fellowship of the Max Weber-Program Bavaria (Elite Network of Bavaria)	2009 - 2011
Bachelor and Master Fellowship of the Foundation of German Industry	2006 - 2011

Research Grants

Title: NNA Track 1: Predicting Coastal Responses to a Changing Greenland Ice Sheet

PI: Bell, co-PI Austermann, Tinto, Porter, Kingslake

Source of Support: NSF, ICER **Period:** 9/2019 - 8/2023 **Total award:** \$2,849,500

Title: Collaborative Research: Terrestrial hydrology during the last deglaciation

PI: Wickert, co-PI Austermann, Fan Reinfelder, Ng

Source of Support: NSF, P2C2 **Period:** 7/2019 - 6/2021 **Total award:** \$706,342
(Lamont portion: \$274,132)

Title: Reconstructing last interglacial sea level based on models and observations from the Bahamas

PI: Austermann, co-PI Raymo, Dyer

Source of Support: NSF, MG&G **Period:** 4/2019 - 3/202 **Total award:** \$446,796

Title: Combining Data and Models of the Centralian Superbasin to Investigate Cratonic Basin Formation

PI: Austermann

Source of Support: Petroleum Research Fund **Period:** 10/2018 - 9/2020 **Total award:** \$110,000
(overhead waived)

Publications (Advisor for Postdoc, *Graduate student or Research Assistant*)

h-index: 13, # of peer-reviewed publications: 25, # of citations: 520 (10/1/19 on google scholar)

in review

Dyer, B., **J. Austermann**, W.J. D'Andrea, *R.C. Creel*, M. R. Sandstrom, M. Cashman, A. Rovere, M.E. Raymo, *in review*. Sea level trends across the Bahamas constrain peak Last Interglacial ice melt. *Science Advances*.

Mitrovica, J. X., **J. Austermann**, S. Coulson, J.R. Creveling, M.J. Hoggard, G.T. Jarvis, F.D. Richards, *in review*. Dynamics Topography and Ice Age Paleoclimate. *Annual Review of Earth and Planetary Sciences (invited review)*.

Creveling, J. R., **J. Austermann**, A. Dutton, *in review*. Uplift of Trail Ridge (Florida) by Karst Dissolution, Glacial Isostatic Adjustment, and Dynamic Topography. *JGR – Solid Earth*.

Hoggard, M., **J. Austermann**, S. Stephenson, *in review*. Observing dynamic topography through space and time. *AGU monograph (invited review)*.

Austermann, J., C. Y. Chen, H. C. P. Lau, A. Maloof, K. Latychev, *in review*. Constraints on mantle viscosity and Laurentide ice sheet evolution from pluvial paleolake shorelines in the western United States. *Earth and Planetary Science Letters*.

2019

*Dumitru**, *O.A.*, **J. Austermann***, V. J. Polyak, J. J. Fornós, Y. Asmerom, J. Ginés, A. Ginés, B. P. Onac, 2019. Constraints on global mean sea level during Pliocene warmth. *Nature*, doi: 10.1038/s41586-019-1543-2.

*these two authors contributed equally

E. Capron, A. Rovere, **J. Austermann**, Y. Axford, N.L.M. Barlow, A.E. Carlson, A. de Vernal, A. Dutton, R.E. Kopp, J.F. McManus, L. Menviel, B.L. Otto-Bliesner, A. Robinson, J.D. Shakun, P.C. Tzedakis, E.W. Wolff, 2019. Challenges and research priorities to understand interactions between climate, ice sheets and global mean sea level during past interglacials. *Quaternary Science Reviews* 219, p. 308-311 (not peer-reviewed).

Coulson, S., T. Pico, **J. Austermann**, R. Moucha J. X. Mitrovica, 2019. The Role of Isostatic and Gravitational Effects in the Dynamics of the Messinian Salinity Crisis. *Earth and Planetary Science Letters* 525, doi:10.1016/j.epsl.2019.115760

Austermann, J., A. Forte. The importance of dynamic topography for understanding past sea level changes. *Past Global Changes Magazine*, 27(1), doi.org/10.22498/pages.27.1.18 (not peer reviewed).

2018

Lau, H. C. P., **J. Austermann**, J. X. Mitrovica, O. Crawford, D. Al-Attar, K. Latychev, 2018. Inferences of mantle viscosity based on ice age data sets: The effect of geographically sparse data on radial viscosity profiles. *Journal of Geophysical Research - Solid Earth*, doi.org/10.1029/2018JB015740.

Pohl, A., **J. Austermann**, 2018. The sea-level fingerprint of Late Ordovician ice-sheet collapse. *Geology*, doi:10.1130/G40189.1

*Crawford***, O., D. Al-Attar, J. Tromp, J. X. Mitrovica, **J. Austermann**, H. C. P. Lau, 2018. Quantifying the sensitivity of post-glacial sea level change to laterally varying viscosity. *Geophysical Journal International*, doi:10.1093/gji/ggy184.

** ‘best student paper’ award from *Geophysical Journal International* in 2018

Fischer, H., K. J. Meissner, A. C. Mix, N. J. Abram, **J. Austermann**, V. Brovkin, E. Capron, D. Colombaroli, A.-L. Daniau, K. A. Dyez, T. Felis, S. A. Finkelstein, S. L. Jaccard, E. L. McClymont, A. Rovere, J. Sutter, E. W. Wolff, S. Affolter, P. Bakker, J. A. Ballesteros-Cánovas, C. Barbante, T. Caley, A. E. Carlson, O. Churakova, G. Cortese, B. A. S. Davis, A. de Vernal, J. Emile-Geay, S. C. Fritz, P. Gierz, J. Gottschalk, M. D. Holloway, F. Joos, M. Kucera, M.-F. Loutre, D. J. Lunt, K. Marcisz, J. R. Marlon, P. Martinez, V. Masson-Delmotte, C. Nehrbass-Ahles, B. L. Otto-Bliesner, C. C. Raible, B. Risebrobakken, M. F. Sánchez Goñi, J. S. Arrigo, M. Sarnthein, J. Sjolte, T. F. Stocker, P. A. Velasquez Álvarez, W. Tinner, P. J. Valdes, H. Vogel, H. Wanner, Q. Yan, Z. Yu, M. Ziegler, L. Zhou, 2018. Paleoclimate constraints on a future warmer world, *Nature Geoscience*, doi:10.1038/s41561-018-0146-0.

K. Ferrier, Q. Li, T. Pico, **J. Austermann**, 2018. Water storage in marine sediment: Implications for modeling sea-level change, paleo-ice volume, and the global seawater budget, *Geophysical Research Letters*, doi: 10.1002/2017GL076592.

2017

Rooney, A. D., **J. Austermann**, E. F. Smith, Y. Li, D. Selby, C. M. Dehler, M. D. Schmitz, K. E. Karlstrom, F. A. Macdonald, 2017. Coupled Re-Os and U-Pb geochronology of the Tonian Chuar Group, Grand Canyon, *GSA Bulletin*, doi:10.1130/B31768.1.

Ferrier, K., **J. Austermann**, J.X. Mitrovica, T. Pico, 2017. Incorporating sediment compaction into a gravitationally self-consistent model for ice age sea-level change. *Geophysical Journal International* ggx293, doi: 10.1093/gji/ggx293.

Dendy, S., J. Austermann, J. Creveling, J.X. Mitrovica, 2017. Sensitivity of Last Interglacial Sea Level High Stands to Ice Sheet Configuration During Marine Isotope Stage 6. Quaternary Science Reviews 171, p. 234-244.

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.

Daradich, A., P. Huybers, J.X. Mitrovica, N.-H. Chan, **J. Austermann**, 2017. The Influence of True Polar Wander on Glacial Inception in North America. *Earth and Planetary Science Letters*. 461, 96-104.

2016

Hay, C., H.C.P. Lau, N. Gomez, **J. Austermann**, E. Powell, J.X. Mitrovica, K. Latychev, D. Wiens, 2016. Sea-level fingerprints in a region of complex Earth structure: The case of WAIS. *Journal of Climate*, doi: 10.1175/JCLI-D-16-0388.1.

Lau, H.C.P., J.X. Mitrovica, **J. Austermann**, O. Crawford, D. Al-Attar, K. Latychev, 2016. Inferences of Mantle Viscosity Based on Ice Age Datasets: I. Radial Structure. *Journal of Geophysical Research: Solid Earth*, doi:10.1002/2016JB013043.

D'Alpoim Guedes, J., **J. Austermann**, J.X. Mitrovica, 2016. Lost foraging opportunities for East Asian hunter-gatherers due to rising sea level since the Last Glacial Maximum. *Geoarcheology*, doi:10.1002/gea.21542.

2015

Austermann, J., J.X. Mitrovica, 2015a. Calculating gravitationally self-consistent sea level changes drive 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.

Rovere, A., P.J. Hearty, **J. Austermann**, J.X. Mitrovica, J. Gale, R. Moucha, A. Forte, M.E. Raymo, 2015. Mid-Pliocene shorelines of the US Atlantic coastal plain – an improved elevation database with comparison to Earth model predictions. *Earth Science Reviews* 145, 117-131.

Creveling, J.R., J.X. Mitrovica, C.C. Hay, **J. Austermann**, R.E. Kopp, 2015. Revisiting tectonic corrections applied to Pleistocene sea-level Highstands. *Quaternary Science Reviews* 111, 72-80.

2014

Austermann, J., B.T. Kaye, J.X. Mitrovica, P. Huybers, 2014. A statistical analysis of the correlation between Large Igneous Provinces and Lower Mantle Seismic Structure. Geophysical Journal International 197, 1-9, doi: 10.1093/gji/ggt500.

Hay, C., J.X. Mitrovica, N. Gomez, J.R. Creveling, **J. Austermann**, R. Kopp, 2014. The sea-level fingerprints of ice-sheet collapse during interglacial periods. *Quaternary Science Review* 87, 60-69.

2013

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.

before 2013

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.

Schmelzeisen, M., **J. Austermann**, M. Kreiter, 2008. Plasmon mediated confocal dark-field microscopy. *Optics Express* 16, 17826-17841.

Invited Conference and Workshop Talks (meetings with regular participation not shown)

Austermann J., Modeling Glacial isostatic adjustment and dynamic topography, CoChE - Coastal Changes and Evolution Summer School, 2019, Sardinia, Italy

Austermann J., D. Al-Attar, W. Bangerth, M. Hoggard, Sensitivity kernels for geodynamic surface observables based on adjoint methods, American Geophysical Union Fall Meeting, 2018, San Francisco, USA.

Austermann J., C. Y. Chen, H. C.P. Lau, K. Latychev, Investigating ice peripheral bulge dynamics in the western US using paleo lake shorelines, American Geophysical Union Fall Meeting, 2018, San Francisco, USA.

Austermann J., A. Rovere, T. Lorscheid, Estimates of last interglacial global mean sea level from an extended sea level database and improved solid Earth models, Joint workshop PALSEA – QUIGS, Climate, ice sheets and sea level during past interglacial periods, 2018, Galloway, New Jersey, USA.

Austermann J., Constraining mantle convection and linking it to long term climate change, Workshop on Convection in Nature, 2018, Princeton, New Jersey, USA.

Austermann J., H.C.P. Lau, D. Al-Attar, C. Chen, Probing lateral variations in Earth's viscosity across timescales, Workshop on Glacial isostatic adjustment and elastic deformation, 2017, Reykjavic, Iceland.

Austermann J., J.X. Mitrovica, P. Huybers, A. Rovere, S. Dendy, Sea level changes during the last interglacial, PAGES/OCCR workshop "Lessons learnt from paleoscience on a possible 1.5 – 2°C warmer world in the future", 2017, Bern, Switzerland.

Austermann J., Meltwater Pulses: Corals during the last deglaciation, Comer Climate Conference, 2016, Wisconsin, USA.

Austermann J., J.X. Mitrovica, P. Huybers, A. Rovere, The role of mantle convection in understanding sea level and cryospheric changes during past warm periods, 12th International Conference on Paleoceanography, 2016, Utrecht, Netherlands.

Austermann J., Sea level and glacial isostatic adjustment, Antarctica's Cenozoic Ice and Climate History, IODP Workshop at Texas A&M University, 2016, College Station, USA.

Austermann J., H. Lau, J.X. Mitrovica, Towards reconciling viscosity inversion, CIDER Community Workshop, 2016, Marshall, USA.

Austermann J., D. Pollard, J.X. Mitrovica, R. Moucha, A.M. Forte, R. DeConto, D.B. Rowley, M.E. Raymo, The impact of dynamic topography change on Antarctic Ice Sheet stability during the Mid-Pliocene Warm Period, American Geophysical Union Fall Meeting, 2015, San Francisco, USA.

Austermann, J., J.X. Mitrovica, D. Pollard, R. Moucha, A.M. Forte, R. DeConto, D.B. Rowley, A. Rovere, M.E. Raymo, The impact of dynamic topography on mid-Pliocene ice volume estimates, PALSEA Meeting: “Data-Model Integration and Comparison”, 2015, Tokyo, Japan.

Austermann, J., J.X. Mitrovica, K. Letychev, A. Rovere, R. Moucha. Ice age sea level change on a dynamic Earth. American Geophysical Union Fall Meeting, 2014, San Francisco, USA.

Austermann, J., B.T. Kaye, J.X. Mitrovica, P.J. Huybers. Correlating large igneous provinces with lower mantle seismic structure – where is the plume generation zone? American Geophysical Union Fall Meeting, 2014, San Francisco, USA.

Invited Department talks

- 2019 MIT, PAOC colloquium
- 2019 Yale University, Department colloquium
- 2019 Binghamton University, Department seminar
- 2018 Georgia Tech, Department seminar
- 2018 University of Heidelberg, Department seminar
- 2017 Geoforschungszentrum (GFZ) Potsdam, Special seminar
- 2017 University of Oslo, CEED seminar
- 2017 University of Bergen, Department seminar
- 2017 University of Durham, Department seminar
- 2017 University of Oxford, Department seminar
- 2017 ETH Zürich, Department seminar
- 2017 Ludwig-Maximilians Universität Munich, Geophysics Seminar
- 2016 Princeton University, Department seminar
- 2016 University of Chicago, Department seminar
- 2016 Brown University, Department seminar
- 2015 Massachusetts Institute of Technology, Department seminar
- 2015 Lamont-Doherty Earth Observatory, Columbia University, Colloquium
- 2015 University of Cambridge, Bullard Seminar Series
- 2015 MARUM – Center for Marine Environmental Sciences, University of Bremen, Special seminar
- 2015 University of California, Berkeley, Seismological Laboratory Seminar
- 2014 Princeton University, Brown Bag Seminar

Supervision

Research Staff:

Dr. Konstantin Letychev, Lamont-Doherty Earth Observatory (part-time Staff Associate),
2/2018 – 2/2020

Postdoctoral Researcher:

Dr. Mark Hoggard, Lamont-Doherty Earth Observatory, 1/2019 – 12/2019

Dr. Guy Paxman, Lamont-Doherty Earth Observatory, 11/2019 – 10/2021

Dr. Andrew Lloyd, Lamont-Doherty Earth Observatory, 1/2020– 12/2021

Graduate Students:

Roger Creel, Columbia University, 9/2018 – present (primary advisor)

Andrew Hollyday, Columbia University, will be starting on 7/1/2019

Research Assistants:

Kalila Morsink, Lamont-Doherty Earth Observatory, 9/2019 – 12/2019

Cameron Book, Lamont-Doherty Earth Observatory, 7/2018 - 9/2018

Cody Randel, Lamont-Doherty Earth Observatory, 5/2018 - 8/2018

Sarah Dendy, Harvard University, 2015-2016

Thesis students:

Bridget Craig (undergraduate thesis), Lamont-Doherty Earth Observatory, 9/2019 – 5/2020

Kalila Morsink (undergraduate thesis), Lamont-Doherty Earth Observatory, 9/2018 – 5/2019

Raf Antwerpen (master's thesis), Lamont-Doherty Earth Observatory, 9/2019 – 5/2020

Fieldwork

Last interglacial corals and shorelines on the Bahamas	2019
Surveying Pleistocene corals on Barbados	2018

Teaching

EESC GR 9600 Seminar in Paleoclimatology (Columbia University)	2019
EESC W 4235 Sea Level Change (Columbia University)	2019
EESC W 3901 Environmental Science Research Seminar (Columbia University)	2019
EESC W 3901 Environmental Science Research Seminar (Columbia University)	2018
EPS 261 Sea Level Change (Harvard University)	2016
EPS 205 Geophysics: A Primer (Harvard University)	2014
EPS 109 Earth Resources and the Environment (Harvard University)	2013
Experimental Physics; Optics (Technische Universität Darmstadt)	2009
Linear Algebra for Physicists (Technische Universität Darmstadt)	2007

Service to the University, Profession, and Public

Service to the University

Earth Institute Postdoctoral Selection Committee	2019
Graduate admissions committee, Columbia University	2018, 2019
Geodynamics seminar series, Lamont-Doherty Earth Observatory	2018, 2019
Department Equality and Diversity Committee, Cambridge University	2017

Service to the Profession

Working group leader – PALSEA. One of four leaders, treasurer and ECR (Early Career Researcher) liaison of the PAGES (Past Global Changes) and INQUA (International Union for Quaternary Research) working group PALeO constraints on future SEA level rise, palseagroup.weebly.com (PALSEA, active in the group since 2015, leader since 2018).

Maintainer of the open source code – ASPECT. One of eight maintainers of the open source code ASPECT (Advanced Solver for Problems in Earth's ConvecTion), github.com/geodynamics/aspect (active since 2014, maintainer since 2017). ASPECT is an NSF

supported computational code intended to solve the equations that describe thermo-chemical convection in the context of Earth's mantle.

Organized meetings:

Using ecological and chronological data to improve proxy-based paleo sea level reconstructions; PALSEA 2019 workshop, 21st – 23rd July 2019; Trinity College, Dublin

Session convener & chair:

Mapping and interpreting sea-level change through time and space (INQUA 2019)

Sea level and ice sheet reconstructions over glacial cycles (AGU 2018)

Reconciling Observations and Predictions of Dynamic Topography on Earth (AGU 2016)

Manuscripts reviewed for: Nature, Nature Geosciences, Science Advances, Geology, G-Cubed, Geophysical Journal International, Earth and Planetary Science Letters, Quaternary Science Reviews, Tectonophysics, West Australian Basins Symposium

Proposals reviewed for: NSF Marine Geology and Geophysics, NSF Antarctic Earth Sciences, PRF (Petroleum Research Fund) Doctoral New Investigator Grant, The Icelandic Research Fund

Service to the Public

Panel discussion on NY storm surge barriers, Columbia Law School	2019
Lamont Open House	2019
Columbia University Academic Career Panel for Postdocs and PhD Students	2019
American Museum of Natural History, Earth Fest	2019
Explorer's Club, career talk	2019
Lamont Open House	2018
American Museum of Natural History, Sun and Earth day	2018
The Oxford Colloquium	2017
Harvard Science in the News, Day Conference	2016
Harvard Science in the News, Graduate student lecture series	2015
Harvard Science in the News, Science by the Pint	2014
Judge for the 8th Grade Cambridge Street Upper School Climate Change project	2014