Jacqueline Austermann – Curriculum Vitae

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Academic positions

Assistant Professor, Department of Earth and Environmental Sciences, Columbia University, New York, USA — 01/2018 – present

Full parental leave 01/2022 – 05/2022

Partial parental leave 06/2022 – 08/2022

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: The role of the Zagros orogeny in slowing down Arabia-Eurasia convergence since ~5 Ma
Advisors: Dr. Hans-Peter Bunge & Dr. Giampiero Iaffaldano

B.Sc. in Physics, Technische Universität Darmstadt, Germany — 10/2006 – 09/2009

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 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.

Honors and Awards

Named one of Science News 10 Scientists to watch	2022
Sloan Research Fellow ($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
Co-author on 'best student paper' award from *Geophysical Journal International*	2018
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
Graduate Fellowship by the Harvard Center for the Environment	2013 - 2014
James Mills Peirce Fellowship, Harvard University	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 (Advisor for Postdoc)

Currently funded grants

Title: EAR-Climate: Mountain Glacier contribution to Sea Level CE 1900-2100
PI: Schaefer, co-PIs Austermann, Rupper (U of Utah), Brewer (U of Utah), Givens (Utah State)
Source of Support: NSF, FRES **Period:** 9/2022 – 8/2026 **Award (Lamont)**: $2,699,998

Title: Collaborative Research: Imaging the 3D Viscosity Structure of the Antarctic Mantle with Existing Observations from GPS and Relative Sea Level
PI: Lloyd, co-PIs Austermann, Mitrovica (Harvard)
Source of Support: NSF, OPP **Period:** 2/2022 – 1/2025 **Award (Lamont)**: $437,788

Title: Collaborative Research: Sensitivity of the West Antarctic Ice Sheet to 2º Celsius (SWAIS2C)
PI: Patterson (Binghamton U.), co-PIs Ash (William Marsh Rice U.), Austermann, Dodd (Northern Illinois U.), Harwood (U. of Nebraska-Lincoln), Leventer (Colgate U.), Winberry (Central Washington U.), Kingslake
Source of Support: NSF, OPP **Period:** 9/2022 – 9/2026 **Award (Lamont)**: $516,683

Title: Analysis of multi-decadal Fennoscandian geodetic data sets in an environment of present-day mass loss: Implications for Earth structure and sea-level change
PI: Davis, co-PIs Austermann, Wang (Ohio State)
Source of Support: NASA Earth Science **Period:** 8/2021 – 8/2024 **Award (Lamont)**: $797,423

Title: Constraining the evolution of Last Interglacial sea level from radiometrically dated corals, ooids and caves on Crooked Island, Bahamas
PI: Dumitru, co-PIs Austermann, Raymo
Source of Support: NSF, P2C2 **Period:** 6/2021 – 5/2023 **Award (Lamont)**: $261,456

Title: Collaborative Research: Understanding what we see in the lower mantle - mineral physics interpretation of seismic tomographic images
PI: Wentzcovitch, co-PIs Austermann, Ren, Ekstrom, Tromp (Princeton U.)
Source of Support: NSF, CSEDI **Period:** 7/2020 – 6/2023 **Award (Lamont)**: $745,000

Title: NSFGEO-NERC: Adjoint tomography of mantle viscosity using deglacial sea level observations
PI: Austermann, co-PI Al-Attar (U. of Cambridge)
Source of Support: NSF, Geophysics **Period:** 6/2020 – 5/2023 **Award (Lamont)**: $408,003

Title: NNA Track 1: Predicting Coastal Responses to a Changing Greenland Ice Sheet
PI: Bell, co-PIs Austermann, Tinto, Porter, Kingslake
Source of Support: NSF, ICER **Period:** 9/2019 - 8/2023 **Award (Lamont)**: $2,849,500

Title: Collaborative Research: Terrestrial hydrology during the last deglaciation
PI: Wickert (U. of Minnesota), co-PIs Austermann, Fan Reinfelder (Rutgers U), Ng (U. of Minnesota)
Source of Support: NSF, P2C2 **Period:** 7/2019 - 6/2023 **Award (Lamont)**: $274,132

Title: Reconstructing last interglacial sea level based on models and observations from the Bahamas
PI: Austermann, co-PIs Raymo, Dyer
Source of Support: NSF, MG&G **Period:** 4/2019 - 3/2023 **Award (Lamont)**: $446,796

Pending proposals

Title: Collaborative Research: Glacial isostatic adjustment during ice sheet collapse: a detailed analysis of postglacial sea level change along the Norwegian coast
PI: D'Andrea, co-PIs Austermann, Balascio (College of William & Mary)
Source of Support: NSF, MGG **Period:** 9/2023 – 8/2026 **Award (Lamont)**: $723,712

Title: Collaborative Research: Understanding what we see in the lower mantle - mineral physics interpretation of seismic tomographic images
PI: Wentzcovitch, co-PIs Austermann, Ren, Tromp (Princeton U)
Source of Support: NSF, CSEDI **Period:** 7/2023 – 6/2026 **Award (Lamont)**: $820,152

Previous support

Title: Combining Data and Models of the Centralian Superbasin to Investigate Cratonic Basin Formation
PI: Austermann
Source of Support: Petroleum Res. Fund **Period:** 10/2018 - 9/2020 **Award (Lamont)**: $110,000

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

h-index: 19, # of citations: 1421 (12/28/22 on google scholar)

in review & in press

Lloyd, A., O. Crawford, D. Al-Attar, **J. Austermann**, M. J. Hoggard, F. D. Richards, F. Syvret, *in rev*. GIA imaging of 3D mantle viscosity based on paleo sea-level observations - Part I: Sensitivity kernels for an Earth with laterally varying viscosity

Richards, F., S. L. Coulson, M. J. Hoggard, **J. Austermann**, B. Dyer, J. X. Mitrovica, *in rev*. Geodynamically-corrected Pliocene shoreline elevations rule out major destabilisation of East Antarctic Ice Sheet

Weil-Accardo, J., P. Boyden, A. Rovere, N. Godeau, N. Jaosedy, A. Guihou, M. Humblet, M. N. Rajaonarivelo, **J. Austermann**, P. Deschamps, *in rev*. New dating and elevations of a fossil reef in Lembetabe, southwest Madagascar: eustatic and tectonic implications

Barnett, R. L., **J. Austermann**, B. Dyer, M.W. Telfer, N.L.M Barlow, S.J. Boulton, A.S. Carr, *R.C. Creel, in rev*. Constraining the contribution of the Antarctic Ice Sheet to the Last Interglacial sea-level highstand.

Paxman, G., H.C.P. Lau, **J. Austermann**, B.K. Holtzman, *in rev*. Inference of the timescale-dependent apparent viscosity structure in the upper mantle beneath Greenland

Dumitru, O., B. Dyer, **J. Austermann**, M.R. Sandstrom, S.L. Goldstein, W. D'Andrea, M. Cashman, R. Creel, L. Bolge, M.E. Raymo, in rev. Last interglacial global mean sea level from high-precision U-series ages of Bahamian fossil coral reefs

Cleveland Stout, R., T. Pico, P. Huybers, J.X. Mitrovica, **J. Austermann**, *in rev*. Imprint of relative sea-level histories on Last Interglacial coral preservation

Rovere, A., T. Pico, F. Richards, M.J. O'Leary, J.X. Mitrovica, I.D. Goodwin, **J. Austermann**, K. Latychev, *in rev*. The influence of reef isostasy, dynamic topography, and glacial isostatic adjustment on the Last Interglacial sea-level record of Northeastern Australia

Hollyday, A., **J. Austermann**, A. Lloyd, M. Hoggard, F. Richards, A. Rovere, *in press*. A revised estimate of early Pliocene global mean sea level using geodynamic models of the Patagonian slab window

2022

Austermann, J., A. Wickert, T. Pico, J. Kingslake, K.L. Callaghan, *R.C. Creel*, Glacial Isostatic Adjustment Shapes Proglacial Lakes Over Glacial Cycles, 2022. *Geophysical Research Letters* 49(24), https://doi.org/10.1029/2022gl101191.

Bahadori, A., W.E. Holt, **J. Austermann**, L. Campbell, E.T. Rasbury, D.M. Davis, C.M. Calvelage, L.M. Flesch, The role of gravitational body forces in the development of metamorphic core complexes, 2022. *Nature Communications* vol. 13, 5646. https://doi.org/10.1038/s41467-022-33361-2

Tawil-Morsink, K., **J. Austermann**, B. Dyer, O. Dumitru, W. F. Precht, M. Cashman, S. L. Goldstein, M. E. Raymo, 2022. Probabilistic investigation of global mean sea level during MIS 5a based on observations from Cave Hill, Barbados. *Quaternary Science Reviews*, 295(107783), https://doi.org/10.1016/j.quascirev.2022.107783.

Creel, R.C., **J. Austermann**, N.S. Khan, W.J. D'Andrea, N. Balascio, B. Dyer, E. Ashe, W. Menke, 2022. Postglacial relative sea level in Norway, *Quaternary Science Reviews*, 282(107422), 107422.

Paxman, G.J.G., **J. Austermann**, *A. Hollyday*, 2022. Total Rebound: solid Earth isostatic response to the complete unloading of the Greenland and Antarctic Ice Sheets, *Scientific Reports* 12, 11399. https://doi.org/10.1038/s41598-022-15440-y

Bahadori, A., W.E. Holt, R. Feng, **J. Austermann**, K. Loughney, T. Salles, L. Moresi, R. Beucher, N. Lu, L. Flesch, C. Calvelage, T. Rasbury, D. Davis, A. Potochnik, W. Ward, K. Hatton, S. Haq, T. Smiley, K. Wooton, C. Badgley, 2022. Coupled influence of tectonics, climate, and surface processes on landscape

evolution in southwestern North America. *Nature Communications* vol. 13. doi:10.1038/s41467-022-31903-2

Pan, L., G.A. Milne, K. Latychev, S.L. Goldberg, **J. Austermann**, M.J. Hoggard, J.X. Mitrovica, 2022. The influence of lateral Earth structure on inferences of global ice volume during the Last Glacial Maximum. *Quaternary Science Reviews*, 290 (107644).

2021

Paxman, G.J.G., K.J. Tinto, **J. Austermann**, 2021. Neogene uplift and landscape evolution in northern Greenland recorded by subglacial valley morphology. *JGR Earth Surface*, Vol. 126, Issue 12, https://doi.org/10.1029/2021jf006395

Powell, E., L. Pan, M. Hoggard, K. Latychev, N. Gomez, **J. Austermann**, J.X. Mitrovica, 2021. The Impact of 3-D Earth Structure on Far-Field Sea Level Following Interglacial West Antarctic Ice Sheet Collapse, *Quaternary Science Reviews*, https://doi.org/10.1016/j.quascirev.2021.107256.

Lau, H.C.P., **J. Austermann**, B. K. Holtzman, C. Havlin, A. Lloyd, C. Book, E. Hopper, 2021. Frequency Dependent Mantle Viscoelasticity via the Complex Viscosity: cases from Antarctica, *JGR Solid Earth*, https://doi.org/10.1029/2021JB022622.

Daher, H., B.K. Arbic, J.G. Williams, J.K. Ansong, D.H. Boggs, M. Mueller, M. Schindelegger, **J. Austermann**, B.D. Cornuelle, E.B. Crawford, O.B. Fringer, H.C.P. Lau, S.J. Lock, A.C. Maloof, D. Menemenlis, J.X. Mitrovica, J.A.M Green, M. Huber, 2021. Long-term Earth-Moon evolution with high-level orbit and ocean tide models, *JGR Planets*, https://doi.org/10.1029/2021je006875.

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*, https://doi.org/10.1093/gji/ggab289.

Dyer, B., **J. Austermann**, W.J. D'Andrea, *R.C. Creel*, M. R. Sandstrom, M. Cashman, A. Rovere, M.E. Raymo, 2021. Sea level trends across the Bahamas constrain peak Last Interglacial ice melt, *PNAS*, 118(33), e2026839118. https://doi.org/10.1073/pnas.2026839118.

Dumitru, O.A., **J. Austermann**, V. J. Polyak, J. J. Fornós, Y. Asmerom, J. Ginés, A.Ginés, B. P. Onac, 2021. Sea-level stands over the past 6.5 million years from phreatic overgrowths on speleothems in Mallorcan caves, *Scientific Reports 11*, 261.

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.

2020

Rovere, A., M. Pappalardo, S. Richiano, M. Aguirre, R. M. Sandstrom, M. E. Raymo, **J. Austermann**, I. Castellanos, P. J. Hearty, 2020. Higher than present global mean sea level recorded by an Early Pliocene intertidal unit in Patagonia (Argentina). *Communications Earth & Environment*, 1(1). https://doi.org/10.1038/s43247-020-00067-6

Mitrovica, J. X., **J. Austermann**, S. Coulson, J.R. Creveling, M. Hoggard, G.T. Jarvis, F.D. Richards, 2020. Dynamic Topography and Ice Age Paleoclimate. *Annual Review of Earth and Planetary Sciences*, Vol. 48:585-621, doi:10.1146/annurev-earth-082517-010225 (invited review).

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.

2019

Creveling, J. R., **J. Austermann,** A. Dutton, 2019. Uplift of Trail Ridge (Florida) by Karst Dissolution, Glacial Isostatic Adjustment, and Dynamic Topography. *Journal of Geophysical Research: Solid Earth 124,* doi:10.1029/2019JB018489

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

Capron, E., 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, 2019. 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 Alvárez, 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 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.

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., Panelist at the National Academy of Sciences community workshop: Identifying New Community-Driven Science Themes for NSF's Support of Paleo Perspectives on Climate Change (P2C2), 2021, online.

Austermann, J., Keynote presentation at the CSDMS 2021 Annual Meeting: Changing Landscapes and Seascapes: Modeling for Discovery, Decision-making and Communication, 2021, online.

Austermann, J., Sea level and Solid Earth Deformation, Fall Meeting of the National Academies of Sciences, Engineering, and Medicine's Committee on Solid Earth Geophysics, 2020, online.

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. Latychev, 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

2022 Syracuse University, K. Douglas Nelson Seminar
2022 Western Washington University, Seminar series
2022 Dartmouth University, Seminar series
2022 State University of New York at New Paltz, Harrington lecture
2021 University of South Florida, Department seminar
2021 University of Texas, Austin, DeFord lecture
2021 Rice University, Department seminar
2021 University Illinois Urbana-Champaign, Department seminar
2021 ETH Zürich, Department seminar
2021 UCLA, Geophysics and Tectonics seminar
2021 Virginia Tech, Departmental Colloquium
2021 Lehigh University, Departmental Colloquium
2021 University of Alabama, CIG Distinguished Speaker
2020 Washington University, Departmental Colloquium
2020 University of Hawaii, CIG Distinguished Speaker
2020 University of Southern California, Paleo/Environmental Seminar
2020 University of Victoria, Department Seminar
2020 Montclair State University, Sustainability Seminar Series

2019 MIT, PAOC colloquium
2019 Yale University, Department colloquium
2019 Binghampton 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

Selected Media Coverage

Documentary:

Surviving Hothouse Earth (2022) by ZDF and Arte

Interviews:

The Gothamist (2021): *"Could A Surfside Building Disaster Happen On The NY Or NJ Coast?"*
Live Science (2020): *"How will sea levels change with climate change?"*

News articles about peer-reviewed papers:

SciTechDaily (2021): *"Future Sea Level Rise: What Are We Missing, and How Much Should It Scare Us"*
Vice (2020): "*A Vast Ancient Lake Is Hidden Deep Under Greenland's Ice, Scientists Discover*"
EOS (2020): *"An Ice Sheet's Footprint on Ancient Shorelines"*
Fox News (2019): *"Past sea-level rise? Scientists find evidence several million years old"*
Science Daily (2019): *"Evidence for past high-level sea rise"*
LA Times (2013): *"Ice mass the size of Greenland overlooked in climate models"*

Earth Institute State of the Planet:

"International Team to Drill Deep Through Antarctic Ice Into Ancient Sediments" (2021)
"Some Past Sea Levels May Not Have Been as High as Thought, Says Study of Rising and Sinking Landmasses"(2021)
"Scientists Have Discovered an Ancient Lake Bed Deep Beneath the Greenland Ice" (2020)
"Greenland Rising: The Future of Greenland's Waterfront" (2020)
"Should New York build a storm surge barrier?" (2019)

"Team deciphers sea-level rise from last time Earth's CO2 was as high as today" (2019)
"A world warmer by just 2°C will be very different from today" (2018)
"How high can seas rise? On a tropical isle, the answers are not always obvious" (2018)

Supervision (all at Lamont unless noted otherwise, former staff / students in grey)

Research Staff:

Dr. Konstantin Latychev (part-time Staff Associate), 2/2018 – 2/2021, 2/2023 – 1/2026

Postdoctoral Researcher:

Dr. Fiona Clerc (primary advisor: Roger Buck), 9/2022 – 8/2023
Dr. Evelyn Powell (primary advisor: Jim Davis), 2/2022 – 1/2024
Dr. Alireza Bahadori, 1/2022 – 12/2023
Dr. Oana Dumitru (primary advisor: Maureen Raymo), 2/2020 – 6/2023
Dr. Andrew Lloyd, 1/2020 – 12/2023
Dr. Kerry Callaghan, 2/2021 – 12/2022
Dr. Yashar Esfahani Monfared (primary location and advisor at Dalhousie University, OFI International Postdoctoral Fellowship), 9/2020 – 8/2022
Dr. Guy Paxman (co-advised with Kirsty Tinto), 12/2019 – 4/2022
Dr. Mark Hoggard (co-advised with Jerry X. Mitrovica, Harvard U.), 1/2018 – 12/2020

Graduate Students:

Sam Chester (co-advised with Billy D'Andrea), 9/2022 – 2027
Lauren Lewright, 9/2022 - 2027
Andrew Hollyday, 7/1/2019 – 2024
Roger Creel, 9/2018 – 2023
Casey Brayton (advising 1 thesis chapter, primary advisor: Kirsty Tinto), 9/2020 – 2025
Raf Antwerpen (advising 1 thesis chapter, primary advisor: Marco Tedesco), 9/2020 – 2025

Research Assistants:

Kalila Morsink, 9/2019 – 2/2020
Cameron Book, 7/2018 – 9/2018
Cody Randel, 5/2018 – 8/2018
Sarah Dendy, Harvard University, 2015 – 2016

Thesis students:

Bridget Craig (undergraduate thesis), 9/2019 – 5/2020
Kalila Morsink (undergraduate thesis), 9/2018 – 5/2019
Raf Antwerpen (master's thesis), 9/2019 – 8/2021

Fieldwork

Last interglacial corals and shorelines on the Bahamas (Crooked & Long Island)	2019
Surveying Pleistocene corals on Barbados	2018

Teaching

EESC W 4235 Sea Level Change (Columbia University)	since 2019

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

Service to the University, Profession, and Public

Service to the University

Climate School, Academic planning Earth and Ecosystems Group	2022/2023
DEES Graduate Program Committee	2022
DEES Diversity Committee	2022
DEES Student Awards Committee	2019, 2021
DEES Nominating Committee for Associate Chair	2021
Lamont Diversity, Equity, and Inclusion (LDEI) Task Force	2020
Lamont Vision Committee (within SGT and Lamont-wide)	2020
CU, Advisory Committee for High Performance Computing at Columbia	since 2019
Earth Institute, Postdoctoral Selection Committee	2020
DEES Graduate admissions committee	2018-2021
Lamont Geodynamics seminar series	2018-2020
Cambridge University, Department Equality and Diversity Committee	2017

Service to the Profession

Secretary of the Tectonophysics Section of the American Geophysical Union (2023 – 2025).

Working group leader – PALSEA (2018 – 2023). 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

Principal Developer of the open source code ASPECT (since 2017), which is the Advanced Solver for Problems in Earth's ConvecTion: github.com/geodynamics/aspect (active since 2014, principal developer 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.

Developing teaching material: As part of the GeoContext group (geo-context.github.io/) we have developed short storytelling teaching modules that highlight the complicated social and political backdrop that accompanied past geologic discoveries. The aim of these modules is to acknowledge and highlight this aspect of the Earth Sciences in classes.

CIG (Computational Infrastructure for Geodynamics) nominating committee: CIG leadership 2020, 2021 (executive committee and science steering committee), CIG Distinguished Speaker Series 2021

Organized meetings:

- *Improving understanding of ice sheet and solid earth processes driving paleo sea level change;* PALSEA-SERCE 2021 meeting, 13th-16th September 2021; online; Lead organizer.

- *PALSEA Express*, online workshop, 14th – 15th September 2020
- *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:

- Linkages between paleoclimate, paleoceanography, polar wander, and tectonic changes during the Paleogene (AGU 2021)
- In and out of the ice age: Sea level, ice sheets, and climate during glacial-interglacial transitions (AGU 2020)
- Centennial Session: One Hundred Years of Ice Sheet and Sea Level Science (AGU 2019)
- 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, Nature Communications, Science Advances, Geology, G-Cubed, JGR: Solid Earth, Geophysical Journal International, Earth and Planetary Science Letters, Quaternary Science Reviews, Tectonophysics, G3 (Geochemistry, Geophysics, Geosystems), Geoscience Letters, West Australian Basins Symposium

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

White paper: IDP / Summit-SCO Greenland Scientific Traverse Planning Workshop: NW Greenland Traverse, co-organizer of the white paper with Guy Paxman and Erich Osterberg, 2021.

Service and Dissemination to the Public

Lamont Open House, exhibit: Sea level change – Back to the future	2022
Presentation for Columbia's Office of Postdoctoral Affairs: "*How to give a job talk*"	2022
Lamont Open House, Ted talk: *Solid facts and missing pieces: What rocks can tell us about sea level change*	2021
Waterfront Alliance's Climate Week NYC event *"Art at the BlueLine: A Conversation on Climate and Social Resilience with Artists"*	2021
Science-on-Hudson lecture at Nevis Labs "*How much will sea level rise? Diving into the past to model future change*"	2021
Earth Institute Live K12 series "*Tropical Tales of Polar Ice*"	2021
The Brooklyn Rail Earth Day event *"The Sound of Science: Artists and Scientists Discuss Climate Change"*	2021
SciArt website: http://scisound.com/	2020
Participation in "*Exploring SciArt: Between Climatology and Composition*" sponsored by the German Consulate	2020
Participation in "*Sea Level Change: a SciArt Concert and Lecture*" at the NYC Climate week	2020
Participation in "*Keepin' Sustainability Alive Inside*" series from the NYC Department of Education	2020
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