Nicole Feldl

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Current position

Assistant Professor, University of California, Santa Cruz

Research Interests

Climate dynamics • Climate feedbacks and climate sensitivity • General circulation of the atmosphere and oceans • Coupling between clouds and circulations

Employment

2016-present Assistant Professor
Earth and Planetary Sciences
University of California, Santa Cruz

2015-2016 National Science Foundation Postdoctoral Research Fellow
Environmental Science and Engineering
California Institute of Technology

2013-2015 Foster and Coco Stanback Postdoctoral Scholar
Environmental Science and Engineering
California Institute of Technology

2007-2013 Graduate Research Assistant
Atmospheric Sciences
University of Washington

2005-2007 Project Engineer
UNAVCO, a non-profit university-governed consortium,
facilitates geoscience research and education using geodesy

2002-2005 Graduate Research Assistant
Geological Sciences
University of Colorado, Boulder

Education

2013 PhD in Atmospheric Sciences
University of Washington
ADVISOR: Gerard Roe

2005 MS in Geological Sciences
University of Colorado
ADVISOR: Roger Bilham

2002 BS in Geological Sciences *summa cum laude*
University of North Carolina at Chapel Hill

Honors & Awards

2018 NSF CAREER Award.

2015 NSF Postdoctoral Research Fellowship (PRF).

2013 Foster and Coco Stanback Postdoctoral Fellowship.

2012 Washington NASA Space Grant Consortium Graduate Fellowship.

2011 Outstanding Poster Presentation, World Climate Research Programme Open Science Conference, Denver.

2007 Achievement Rewards for College Scientists Fellowship, Seattle Chapter.

2005 Outstanding Geoscience Student Award, Association for Women Geoscientists, Denver Chapter.

2004 Longley, Warner, and Wahlstrom Award, University of Colorado.

2002 Op White Prize in Geology, University of North Carolina at Chapel Hill.

Grants

2018-2023 PI, CAREER: The Lapse Rate Feedback and Other Mechanisms of High-Latitude Climate Change, NSF AGS-1753034.

2019-2022 Co-I, REU: The Lamat Summer Research Program on High Performance Computing in Astrophysics, NSF AST-1852393.

2018-2021 Co-PI, MRI: Acquisition of a High Performance Computer for Computational Science at UC Santa Cruz, NSF AST-1828315.

2015-2016 PI, PRF: Coupling Between Regional Climate Feedbacks and Large-scale Circulation in a Hierarchy of Models, NSF AGS-1524569.

Publications

Journal Articles

Kaufman, Z. S., **N. Feldl**, W. Weijer, and M. Veneziani (in review), Causal interactions between Southern Ocean polynyas and high-latitude atmosphere-ocean variability, *Journal of Climate*.

Siler, N., G. H. Roe, K. C. Armour, **N. Feldl** (2019), Revisiting the surface-energy-flux perspective on the sensitivity of global precipitation to climate change, *Climate Dynamics*, 52, doi:10.1007/s00382-018-4359-0.

Bonan, D. B., K. C. Armour, G. H. Roe, N. Siler, and **N. Feldl** (2018), Sources of uncertainty in the

meridional pattern of climate change, *Geophysical Research Letters*, 45, doi:10.1029/2018GL079429.

Kim, D., S. M. Kang, Y. Shin, and **N. Feldl** (2018), Sensitivity of polar amplification to varying insolation conditions, *Journal of Climate*, 31, 4933–4947.

Anderson, B. T., **N. Feldl**, and B. R. Lintner (2018), Emergent behavior of Arctic precipitation in response to enhanced Arctic warming, *Journal of Geophysical Research: Atmospheres*, 123.

Feldl, **N.**, B. T. Anderson, and S. Bordoni (2017), Atmospheric eddies mediate lapse rate feedback and Arctic amplification, *Journal of Climate*, 30, 9213–9224.

Feldl, **N.**, S. Bordoni, and T. M. Merlis (2017), Coupled high-latitude climate feedbacks and their impact on atmospheric heat transport, *Journal of Climate*, 30, 189–201.

Yang, J., J. Leconte, E. T. Wolf, C. Goldblatt, **N. Feldl**, T. Merlis, Y. Wang, D. D. B. Koll, F. Ding, F. Forget, and D. S. Abbot (2016), Differences in water vapor radiative transfer among 1D models can significantly affect the inner edge of the habitable zone, *The Astrophysical Journal*, 826.

Feldl, **N.**, and S. Bordoni (2016), Characterizing the Hadley Circulation response through regional climate feedbacks, *Journal of Climate*, 29, 613–622.

Roe, G. H., **N. Feldl**, K. C. Armour, Y.-T. Hwang, and D. M. W. Frierson (2015), The remote impacts of climate feedbacks on regional climate predictability, *Nature Geoscience*, 8, 135–139.

Rose, B. E. J., K. C. Armour, D. S. Battisti, **N. Feldl**, and D. D. B. Koll (2014), The dependence of transient climate sensitivity and radiative feedbacks on the spatial pattern of ocean heat uptake, *Geophysical Research Letters*, 41.

Feldl, **N.**, and G. H. Roe (2013), Four perspectives on climate feedbacks, *Geophysical Research Letters*, 40.

Feldl, **N.**, and G. H. Roe (2013), The nonlinear and nonlocal nature of climate feedbacks, *Journal of Climate*, 26, 8289–8304.

Feldl, **N.**, and G. H. Roe (2011), Climate variability and the shape of daily precipitation: A case study of ENSO and the American West, *Journal of Climate*, 24, 2483–2499.

Feldl, **N.**, and G. H. Roe (2010), Synoptic weather patterns associated with intense ENSO rainfall in the southwest United States, *Geophysical Research Letters*, 37.

Feldl, **N.**, and R. Bilham (2006), Great Himalayan earthquakes and the Tibetan Plateau, *Nature*, 444, 165-170.

Bilham, R., E. R. Engdahl, **N. Feldl**, and S. P. Satyabala (2005), Partial and complete rupture of the Indo-Andaman plate boundary 1847-2004, *Seismological Research Letters*, 76, 299-311.

Hough, S. E., R. Bilham, N. Ambraseys, and **N. Feldl** (2005), The 1905 Kangra and Dehra Dun earthquakes, *Geological Survey of India Special Publications*, 85, 15-22.

Hough, S. E., R. Bilham, N. Ambraseys, and **N. Feldl** (2005), Revisiting the 1897 Shillong and 1905 Kangra earthquakes in northern India: Site response, Moho reflections and a triggered earthquake, *Current Science*, 88, 1632-1638.

Recent Conference Presentations

A physical basis for the high-latitude lapse rate feedback, AGU Fall Meeting, San Francisco, 9–13 December 2019.

The role of atmospheric eddies on the lapse rate feedback and Arctic amplification, AGU Fall Meeting, Washington, DC, 10–14 December 2018. Invited.

Atmospheric eddies mediate lapse rate feedback and Arctic amplification, CFMIP Meeting on Clouds, Precipitation, Circulation, and Climate Sensitivity, Boulder, 16–19 October 2018.

Energetic perspectives on the changing tropical circulation: Hemispheric asymmetries and subtropical drying, AMS Annual Meeting, Conference on Climate Variability and Change, Austin, 7–11 January 2018. Invited.

Atmospheric eddies mediate lapse rate feedback and Arctic amplification, AMS Conference on Atmospheric and Oceanic Fluid Dynamics, Portland, OR, 26–30 June 2017.

Impact of coupled high-latitude climate feedbacks on tropical circulations, AGU Fall Meeting, San Francisco, 12–16 December 2016.

Coupled high-latitude climate feedbacks and their impact on atmospheric heat transport, CFMIP/WCRP Conference on Cloud Processes, Circulation and Climate Sensitivity, ICTP, Trieste, Italy, 4–7 July 2016.

Characterizing the Hadley circulation response through regional climate feedbacks, Monsoons & ITCZ: The annual cycle in the Holocene and the future, Columbia University, New York, 15–18 September 2015.

Coupling between climate feedbacks and large-scale circulation, AGU Fall Meeting, San Francisco, 15–19 December 2014. Invited.

The influence of regional feedbacks on circulation sensitivity, Latsis Symposium on Atmosphere and Climate Dynamics, ETH, Zurich, Switzerland, 18–21 June 2014.

The influence of regional feedbacks on circulation sensitivity, AMS Conference on Hurricanes and Tropical Meteorology, San Diego, 30 March–4 April 2014.

Professional Activities

Memberships

2002-present American Geophysical Union

2014-present American Meteorological Society

Editor and Reviewer

Journal reviewer

Nature Geoscience; Nature Communications; Geophysical Research Letters; Journal of Climate; Climate Dynamics; Journal of Geophysical Research - Atmospheres.

Proposal reviewer

National Science Foundation (ad hoc and panel), National Oceanic and Atmospheric Administration.

Invited Seminars & Colloquia

2020 National Taiwan University, canceled due to COVID-19.

2020 University of Toronto, Noble Seminar, March 2020.

2018 RGMA High Latitude Earth Systems Webinar, February 2018.

2017 Lawrence Livermore National Laboratory, Climate and Weather Seminar, November 2017.

2017 San Jose State University, Geology Club Seminar, San Jose, October 2017.
2017 UC Santa Cruz, Geophysical And Astrophysical Fluid Dynamics Seminar, Santa Cruz, May 2017.
2015 MIT, Atmospheric Science Seminar, Cambridge, November 2015.
2015 University of Rochester, Earth and Environmental Sciences Seminar, Rochester, April 2015.
2015 UC Santa Cruz, Earth and Planetary Sciences Seminar, Santa Cruz, March 2015.
2015 Boston University, Earth and Environment Department Seminar, Boston, February 2015.
2015 Colorado College, Environmental Program Seminar, Colorado Springs, January 2015.
2014 Portland State University, Geography Seminar, Portland, November 2014.
2014 UC Berkeley, Earth and Planetary Science Seminar, Berkeley, March 2014.
2014 Caltech, Environmental Science and Engineering Seminar, Pasadena, February 2014.
2013 University of Washington, Atmospheric Sciences Colloquium, Seattle, June 2013.
2013 CESM Climate Variability and Change Working Group Meeting, NCAR, Boulder, March 2013.
2010 University of Washington, Atmospheric and Climate Dynamics Seminar, Seattle, January 2010.

Mentoring

Primary Graduate Advisor

Zachary Kaufman (2017–present)

Graduate Committee Member

Mason Leandro (2020–present), John P. O'Brien (2017–2019), Carver Bierson (2017–present)

Undergraduate Research Advisor

Emiliia Dyrenkova (Summer 2020 Lamat Fellow), Flor Vanessa Maciel (2018–2019), Ricky Calzada (2018–2019)

Teaching

University of California, Santa Cruz

Introduction to Weather and Climate (EART 12; lower division)
Fall 2019, Winter 2019, Winter 2018, Fall 2016

The Atmosphere (EART 121; upper division)
Fall 2018

Modeling Earth's Climate (EART 124; upper division)
Spring 2018

Hydroclimatology (EART 290L; graduate)
Winter 2020

Atmospheric Dynamics (EART 290M; graduate)
Spring 2017

Atmospheric Rivers (EART 290M; graduate)
Fall 2017

University of Washington

Introduction to Weather (ATMS 101; lower division)
Summer 2011

Other

Teaching assistant: Climate and Climate Change (ATMS 211), University of Washington
Spring 2010

Teaching assistant: Earth System and Climate (ESS 201), University of Washington
Winter 2009

Teaching assistant: Introduction to Geology Laboratory (GEOL 1030), University of Colorado
Spring 2003, Fall 2002