Nicholas Siler

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Contact Information

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Education

Ph.D., Atmospheric Science, University of Washington, Seattle, WA — 2015
A.B., Physics, Harvard University, Cambridge, MA — 2005

Employment

Assistant Professor, Oregon State University	2018 - present
Associate State Climatologist for Oregon	2022 - present
Postdoctoral Scholar, Scripps Institution of Oceanography	2015 - 2017
Graduate Research Assistant, University of Washington	2009 - 2015
Commissioned Officer, US Air Force	2005 - 2009

Courses Taught

Atmospheric Science 201 Climate Science	W21, S21, W22, S22, F22, W23
Atmospheric Science 302 Mathematical Applications in the Earth Sciences	W19, W20
Atmospheric Science 310 Meteorology	F20, F21, F22, F23
Atmospheric Science 441 Climate Science Capstone	S23, S24
Atmospheric Science 499 Mesoscale Meteorology	S20, S21
Oceanography 683 Data Analysis in the Frequency/Wavenumber Domain (Co-Instructor)	S19

Grants and Fellowships

PI, *Understanding future changes in midlatitude orographic precipitation*. National Science Foundation, 09/2020-08/2025, $432k.

PI, *Testing controls on the source, sink, and lifetime of atmospheric water with numerical tags and stable isotope ratios*. National Science Foundation, 05/2020-04/2024, $446k.

National Defense Science and Engineering Graduate Fellowship, 09/2010-08/2013.

University of Washington Program on Climate Change Fellowship, 09/2009-06/2010.

Submitted Manuscripts

[28] **N. Siler**, R. Fiorella, **T. Kukla**. A unified interpretation of variability in precipitation isotope ratios. Submitted to *J. Climate*. Preprint.

[27] A. Hall, S. Rahimi, J. Norris, N. Ban, **N. Siler**, L. R. Leung, P. Ullrich,K. A. Reed, A. F. Prein, Y. Qian. An evaluation of dynamical downscaling methods used to project regional climate change. Submitted to *J. Geophys. Res.: Atmos.*

Peer-reviewed Publications

[26] Bonan, D., N. Feldl, **N. Siler**, J. Kay, K. Armour, I. Eisenman, G. Roe: The influence of climate feedbacks on regional hydrological changes under warming. *Geophys. Res. Lett.* http://doi.org/10.1029/2023GL106648

[25] **Koszuta, M.**, **N. Siler**, L. R. Leung, J. Wettstein: Weakened orographic influence on cool-season precipitation in simulations of future warming over the western US. *Geophys. Res. Lett.* https://doi.org/10.1029/2023GL107298

[24] Zhou, W., L. R. Leung, **N. Siler**, J. Lu: Future precipitation increase constrained by climatological pattern of cloud effect. *Nature Communications*. https://doi.org/10.1038/s41467-023-42181-x

[23] **Siler, N.**, D. Bonan, A. Donohoe: Diagnosing mechanisms of hydrologic change under global warming in the CESM1 Large Ensemble. *J. Climate*. https://doi.org/10.1175/JCLI-D-23-0086.1.

[22] Bonan, D., **N. Siler**, G. Roe, K. Armour, 2023: Energetic constraints on the pattern of changes to the hydrological cycle under global warming. *J. Climate*. https://doi.org/10.1175/JCLI-D-22-0337.1

[21] Po-Chedley, S., J. Fasullo, **N. Siler**, E. Barnes, Z. Labe, C. Bonfils, B. Santer, 2022: Internal variability and forcing influence model-satellite differences in the rate of tropical tropospheric warming. *Proceedings of the National Academy of Sciences*. https://doi.org/10.1073/pnas.2209431119

[20] Rupp, D., L. Hawkins, S. Li, **M. Koszuta**, **N. Siler**, 2022: Spatial patterns of extreme precipitation and their changes under 2 °C global warming: A large-ensemble study of the western USA. *Climate Dynamics*. https://doi.org/10.1007/s00382-022-06214-3

[19] Fiorella, R., **N. Siler**, D. Noone, 2021: Enhancing understanding of the hydrological cycle via pairing of process-oriented and isotope ratio tracers. *Journal of Advances in Modeling Earth Systems*. https://doi.org/10.1029/2021MS002648

[18] **Siler, N.**, A. Bailey, G. Roe, C. Buizert, B. Markle, and D. Noone, 2021: The large-scale, long-term coupling of temperature, hydrology, and water isotopes. *J. Climate*. https://doi.org/10.1175/JCLI-D-20-0563.1

[17] Burls, N., C. D. Bradshaw, ..., **N. Siler**, ..., 2021: Simulating Miocene warmth: insights from an opportunistic Multi-Model ensemble (MioMIP1). *Paleoceanography and Paleoclimatology*. https://doi.org/10.1029/2020PA004054

[16] **Huston, A.**, **N. Siler**, G. Roe, E. Pettit, and N. Steiger, 2021: Understanding drivers of glacier length variability over the last millennium. *The Cryosphere*. https://doi.org/10.5194/tc-15-1645-2021

[15] Inglis, G., F. Bragg, ..., **N. Siler**, ..., 2020: Global mean surface temperature and climate sensitivity of the EECO, PETM and latest Paleocene. *Climate of the Past*. https://doi.org/10.5194/cp-2019-167

[14] Payne, A., M. Demory, ..., **N. Siler**, ..., 2020: Responses and impacts of atmospheric rivers to climate change. *Nature Reviews Earth & Environment*. https://doi.org/10.1038/s43017-020-0030-5

[13] Armour, K.C., **N. Siler**, A. Donohoe and G.H. Roe, 2019: Meridional atmospheric heat transport constrained by energetics and mediated by large-scale diffusion. *J. Climate*. https://doi.org/10.1175/JCLI-D-18-0563.1

[12] **Siler, N.**, G. Roe, K. Armour, and N. Feldl, 2019: Revisiting the surface-energy-flux perspective on the sensitivity of global precipitation to climate change. *Climate Dynamics*. https://doi.org/10.1007/s00382-018-4359-0

[11] **Siler, N.**, C. Proistosescu, and S. Po-Chedley, 2019: Natural variability has slowed the decline in western-US snowpack since the 1980s. *Geophys. Res. Lett.*. https://doi.org/10.1029/2018GL081080

[10] Bonan, D. B., K. C. Armour, G. H. Roe, **N. Siler**, N. Feldl, 2018: Sources of uncertainty in the meridional pattern of climate change. *Geophys. Res. Lett.*. https://doi.org/10.1029/2018GL079429

[9] **Siler, N.**, K. Armour, and G. Roe, 2018: Insights into the zonal-mean response of the hydrologic cycle to global warming from a diffusive energy balance model. *J. Climate*. https://doi.org/10.1175/JCLI-D-18-0081.1

[8] Amaya, D., **N. Siler**, A. Miller, and S.P. Xie, 2018: The interplay of internal and forced modes of Hadley cell width variability. *Climate Dynamics*. https://doi.org/10.1007/s00382-017-3921-5

[7] **Siler, N.**, S. Po-Chedley, and C. Bretherton, 2018: Variability in modeled cloud feedback tied to differences in the climatological spatial pattern of clouds. *Climate Dynamics*. https://doi.org/10.1007/s00382-017-3673-2

[6] **Siler, N.**, Y. Kosaka, S.P. Xie, and X. Li, 2017: Tropical ocean contributions to California's surprisingly dry El Niño of 2015-16. *J. Climate*. https://doi.org/10.1175/JCLI-D-17-0177.1

[5] **Siler, N.** and D. Durran, 2016: What causes weak orographic rain shadows? Insights from case studies in the Cascades and idealized simulations. *J. Atmos. Sci.*. https://doi.org/10.1175/JAS-D-15-0371.1

[4] Christian, J., **N. Siler**, G. Roe, and M. Koutnik, 2016: Identifying dynamically induced variability in glacier mass balance records *J. Climate*. https://doi.org/10.1175/JCLI-D-16-0128.1

[3] **Siler, N.** and D. Durran, 2015: Assessing the influence of the tropopause on mountain waves and orographic precipitation using linear theory and numerical simulations. *J. Atm. Sci.*. https://doi.org/10.1175/JAS-D-14-0200.1

[2] **Siler, N.** and G. Roe, 2014: How will orographic precipitation respond to surface warming? An idealized thermodynamic perspective. *Geophys. Res. Lett.*. https://doi.org/10.1002/2013GL059095

[1] **Siler, N.**, G. Roe, and D. Durran, 2013: On the dynamical causes of variability in the rain-shadow effect: a case study of the Washington Cascades. *J. Hydrometeor.*. https://doi.org/10.1175/JHM-D-12-045.1

Other Publications

O'Neill, L., **M. Koszuta**, **N. Siler**, E. Fleishman, 2023: History and future of drought in Oregon. Commissioned report for Oregon Water Resources Department.

O'Neill, L., **N. Siler**: Drought, and O'Neill, L., **N. Siler**, P. Loikith, A. Arends, 2023: Extreme Temperatures, in Sixth Oregon Climate Assessment.
https://doi.org/10.5399/osu/1161