

SAMUEL SMITH

Curriculum Vitae

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EDUCATION

- 2017-2023 PhD, Atmospheric Science; Scientific Computing Minor
 Advisor: Paul Staten
 Indiana University, Bloomington, IN
 Dissertation: *Scale Interactions between Local Moist Phenomena and Shifts of the Global Atmospheric Circulation*
- 2011-2015 B.A., cum laude, Music with High Honors and Physics with Honors
 Advisor: Gonzalo Ordonez
 Butler University, Indianapolis, IN

EMPLOYMENT

- 2023-present Postdoctoral Scholar
 Supervisor: Noboru Nakamura
 University of Chicago, Chicago, IL

PUBLICATIONS

Smith, S., P. Staten, and J. Lu, 2024b: The Intraseasonal North Atlantic Oscillation as a Quasi-semiannual Propagating Disturbance. In preparation.

Lu, J., B. Harrop, S. Lubis, **S. Smith**, G. Chen, and R. Leung, 2024: The Role of Cloud Radiative Effects in the Propagating Southern Annular Mode. *Journal of Geophysical Research: Atmospheres*. Submitted.

Smith, S., J. Lu, and P. Staten, 2024a: Diabatic Eddy Forcing Increases Persistence and Opposes Propagation of the Southern Annular Mode in MERRA2. *Journal of Atmospheric Science*. doi: 10.1175/JAS-D-23-0019.1.

Smith, S., P. Staten, and J. Lu, 2021: How Moist and Dry Intrusions Control the Local Hydrologic Cycle in Present and Future Climates. *Journal of Climate*. doi: 10.1175/JCLI-D-20-0780.1

GRANTS

Future Investigators in NASA Earth and Space Science and Technology (FINESST). 2021-2022. *Determining the Dynamical Drivers of Present and Future Changes in the Atmospheric Water Cycle*. Smith, S. (FI) and Staten, P.W. (PI). \$51,975.

RESEARCH EXPERIENCE

- 2021-2023 FINESST Fellow. Indiana University. Bloomington, IN.
PI: Paul Staten, Associate Professor of Atmospheric Science.
- 2018-2020 Research Assistantship. Indiana University. Bloomington, IN.
Advisor: Paul Staten, Associate Professor of Atmospheric Science.
- 2013-2014 Undergraduate Student Research Program. Butler University.
Advisor: Gonzalo Ordonez, Professor of Physics & Astronomy.

CONFERENCES AND PRESENTATIONS

Invited Presentations

- 2021 “The Wavy Rain: How the “Local Hydrologic Cycle” Diagnoses the Dynamical Drivers of Wet (and Dry) Anomalies.” Purdue University “Storm Snacks” Seminar (virtual).

Oral Presentations

- 2022 “Diabatic Eddy Forcing Increases Persistence and Assists Propagation of the Intraseasonal Southern Annular Mode.” Fall Meeting of the American Geophysical Union. Chicago, IL.
- 2022 “Revisiting the Role of Diabatic Eddy Generation in the Persistence of the Southern Annular Mode.” Crossroads Conference. Indiana University, Bloomington, IN.
- 2020 “How Moist and Dry Intrusions Control the Local Hydrologic Cycle in Present and Future Climates.” Fall Meeting of the American Geophysical Union (virtual).
- 2019 “Anthropogenic Impacts on Hydrologic Cycle Extremes Mediated by Large-Scale Atmospheric Turbulence.” Crossroads Conference. Indiana University. Bloomington, IN.

Poster Presentations

- 2023 “The Intraseasonal North Atlantic Oscillation as a Quasi-semiannual Propagating Disturbance.” Fall Meeting of the American Geophysical Union. San Francisco, CA.
- 2022 “How Internal and External Processes Control Variability in the Location of the Southern Hemisphere Jetstream.” Midwest Climate Workshop. Purdue University, West Lafayette, IN.
- 2022 “Diabatic Heating Increases Southern Annular Mode Persistence in MERRA2 by Modifying Anticyclonic Wave Breaking.” American Meteorological Society Conference on Atmospheric and Ocean Fluid Dynamics. Breckenridge, CO.
- 2021 “How Do the Dominant Modes of Jet Variability Respond to Diabatic Heat Sources?” Fall Meeting of the American Geophysical Union. New Orleans, LA.
- 2019 “How much will a changing meridional surface temperature gradient affect the midlatitudes?” Fall Meeting of the American Geophysical Union. San Francisco, CA.
- 2019 “Dynamics Behind Forced Wet and Dry Extremes in CESM LENS.” American Meteorological Society Conference on Atmospheric and Ocean Fluid Dynamics. Portland, ME.
- 2018 “Zonal-mean Zonal Wind Response to Surface Heat Fluxes over the North Atlantic: a Wave Activity Approach.” Fall Meeting of the American Geophysical Union. Washington, DC.
- 2018 “Response of Hydrologic Cycle Extremes over the U.S to Climate Change in CESM LENS.” Midwest Student Conference on Atmospheric Research. University of Illinois. Urbana-Champaign, IL.
- 2018 “Local Finite-Amplitude Wave Activity and the Extreme Weather of 1936.” Crossroads Conference. Indiana University. Bloomington, IN.

TEACHING EXPERIENCE

- Spring 2021 Teaching Assistant. Indiana University, Bloomington.
Records of Global Climate Change

2014-2016 Highlands Latin School, Indianapolis, IN.
Upper School Faculty. Developed and taught Introductory Physics,
Advanced Physics, Earth Science, Music History, and Honors Algebra 2

SEMINARS, WORKSHOPS, AND OTHER EXPERIENCES

2021 Machine Learning Workshop. Co-host. Department of Earth &
Atmospheric Science, Indiana University Bloomington. Bloomington, IN.

2020-2021 Unlearning Racism in Geoscience. Participant, IU Earth & Atmospheric
Sciences Pod.

2019 Community Earth System Model (CESM) Tutorial. Participant. Boulder,
CO.

HONORS AND AWARDS

2017 Indiana University Atmospheric Science Fellowship
2014 Robert O. Whitesell Award for Excellence in Physics
2013 H. Marshall Dixon Award for Excellence in Physics
2012 Segal AmeriCorps Education Award

PROFESSIONAL MEMBERSHIPS

2017-present American Geophysical Union
2017-present American Meteorological Society
2014-2015 Sigma Pi Sigma Honorary Physics Fraternity
2014-2015 American Physical Society
2013-2015 Pi Kappa Lambda Honorary Music Fraternity

OTHER EMPLOYMENT

2016-2017 Software Trainer/Release Coordinator. Eskenazi Health Services.
Indianapolis, IN.

2014-2016 Upper School Faculty. Highlands Latin School. Indianapolis, IN.

SERVICE

- 2021 “The Dynamics of Large-Scale Atmospheric Circulation in Present and Future Climates: Jet Streams, Storm Tracks, Stationary Waves, and Monsoons.” Co-chair and Outstanding Student Presentations Award (OSPA) co-coordinator and judge. Fall Meeting of the American Geophysical Union. New Orleans, LA.
- 2021 Holland Research Initiative in STEM Education. Co-presenter. Bloomington, IN.
- 2019 Wonderlab Summer Science Institute - Educating for Environmental Change. Teaching Assistant. Bloomington, IN.
- 2015 Volunteer Income Tax Assistance (VITA) Program. Volunteer. Indianapolis, IN.