

Stephanie A. Henderson

Department of Atmospheric and Oceanic Sciences
University of Wisconsin-Madison
Madison, WI 53706-1695
sahenderson@wisc.edu

Education

Ph.D., Atmospheric Sciences, Colorado State University, 2017
M.S., Atmospheric Sciences, Colorado State University, 2012
B.S., Geography, Indiana State University, 2009

Appointments

2019 - present Assistant Professor, Department of Atmospheric and Oceanic Sciences,
University of Wisconsin-Madison
2017 - 2019 National Science Foundation (NSF) Atmospheric and Geospace Sciences
Postdoctoral Fellow, Center for Climatic Research, University of
Wisconsin-Madison
2015 NSF East Asia and Pacific Summer Institutes (EAPSI) fellow
Host: Seok-Woo Son, Seoul National University, South Korea
2009 - 2017 Graduate Research Assistant, Department of Atmospheric Science,
Colorado State University

Peer-Reviewed Publications

Pettersen, C., Henderson, S.A., Mattingly, K.S., Bennartz, R., and Breeden, M.L., 2022: The Critical Role of Euro-Atlantic Blocking in Promoting Precipitation in Central Greenland, *J. Geophys. Res.-Atmos.*, 127, doi: 10.1029/2021JD035776.

Mateling, M. E., C. Pettersen, M. S. Kulie, K. S. Mattingly, S. A. Henderson, and T. S. L'Ecuyer, 2021: The influence of atmospheric rivers on cold-season precipitation in the Upper Great Lakes region. *J. Geophys. Res.-Atmos.*, 126 (13), doi: 10.1029/2021JD034754.

Henderson, S. A., D. J. Vimont, and M. Newman, 2020: The critical role of non-normality in partitioning tropical and extratropical contributions to PNA growth. *J. Climate*, **33**, 6273–6295.

Wang, J., H. Kim, D. Kim, S. A. Henderson, C. Stan, and E. D. Maloney, 2020: MJO teleconnections over the PNA region in climate models. Part II: Impacts of the MJO and basic state. *J. Climate*, **33**, 5081–5101.

Wang, J., H. Kim, D. Kim, S. A. Henderson, C. Stan, and E. D. Maloney, 2020: MJO teleconnections over the PNA region in climate models. Part I: Performance- and process-based skill metrics. *J. Climate*, **33**, 1051–1067.

Henderson, S. A., and E. D. Maloney, 2018: The impact of the Madden-Julian Oscillation on high-latitude winter blocking during El Niño-Southern Oscillation Events. *J. Climate*, **31**, 5293–5318.

Henderson, S. A., E. D. Maloney, and S.-W. Son, 2017: Madden-Julian Oscillation Pacific teleconnections: The impact of the basic state and MJO representation in General Circulation Models. *J. Climate*, **30**, 4567–4587.

Wolding, B. O., E. D. Maloney, S. A. Henderson, and M. Branson, 2017: Climate Change and the Madden-Julian Oscillation: A Vertically Resolved Weak Temperature Gradient Analysis. *J. Adv. Modeling Earth Sys.*, **9**, doi:10.1002/2016MS000843.

Henderson, S. A., E. D. Maloney, and E. A. Barnes, 2016: The Influence of the Madden-Julian Oscillation on Northern Hemisphere Winter Blocking. *J. Climate*, **29**, 4597–4616.

Henderson, S. A., and E. D. Maloney, 2013: An Intraseasonal Prediction Model of Atlantic and East Pacific Tropical Cyclone Genesis. *Mon. Wea. Rev.*, **141**, 1925–1942.

Leadership

- Member of the NOAA Precipitation Working Group (2023 – present)
- Member of the World Meteorological Organization (WMO) Working Group on Numerical Experimentation (WGNE) MJO Task Force (2019 – present)
- US CLIVAR Blocking workshop scientific organizing committee (2024)
- Session organizer and co-chair for session on the Madden-Julian Oscillation, AGU 2023
- Program co-chair, Tenth Symposium on the Madden-Julian Oscillation and Sub-Seasonal Monsoon Variability, Annual AMS Meeting 2022
 - Session chair for Subseasonal-to-Seasonal (S2S) Predictability and Forecasting; the MJO and Intraseasonal Convective Variability; Tropical–Extratropical Interactions and MJO Teleconnections
- Program co-chair, Ninth Symposium on the Madden-Julian Oscillation and Sub-Seasonal Monsoon Variability, Annual AMS Meeting 2021
 - Session chair for Tropical Field Campaign Collective: PISTON, YMC, and OTREC; Tropical-Extratropical interactions
- World Climate Research Programme (WCRP) Stratosphere-troposphere Processes And their Role in Climate (SPARC) Stratospheric Nudging And Predictable Surface Impacts (SNAPSI) Working Groups 1 and 3 (Fall 2022 – present)
- Student presentation award judge, annual AMS Meeting 2023, 2022, 2021, annual AGU meeting 2023
- Student poster judge, Climate Change Symposium, Nelson Institute Center for Climatic Research, University of Wisconsin-Madison (2023, 2018, 2017).

Teaching and Outreach

- AOS 310: Dynamics of the Atmosphere and Ocean I (Fall 2023, Fall 2022, Fall 2021, Fall 2020, Fall 2019)
- AOS 311: Dynamics of the Atmosphere and Ocean II (Spring 2024, Spring 2023, Spring 2022, Spring 2021)
- AOS 801: Subseasonal to seasonal variability (Development and teaching; Spring 2020)
- Guest Lecturer in AOS 575 (Fall 2018), AOS 611 (Spring 2023, Spring 2024)

- Wednesday at Washburn speaker: “Weather versus climate and the ‘predictability gap’, UW-Madison L&S Honors Program, Oct 2021.
- Tropical Meteorology and Hurricanes short course (in Spanish), Autonomous University of Yucatan (UADY), Merida, Mexico, (Development and teaching; Summer 2012).
- Graduate Teaching Assistant for AT 655: Objective Analysis in the Atmospheric Sciences, Colorado State University (2011).
- Guest speaker at The Lawrenceville School, Lawrenceville, NJ (January 2018).
- CSU Little Shop of Physics Open House volunteer (2014).
- Teaching Weather and Climate Summer Teacher’s Course, Colorado State University Little Shop of Physics and the Center for Multiscale Modeling of Atmospheric Processes (volunteer, Summers 2011 and 2012).
- Severe weather education outreach and guest speaker at various elementary schools, Terre Haute, IN (2007-2009).

Professional Service

- Proposal reviews for NSF, NASA, and NOAA
- Reviewer for academic papers in various journals including Journal of Climate, Geophysical Research Letters, Nature Communications, Atmosphere-Ocean, Climate Dynamics, Atmospheric Science Letters, JAMES, and Monthly Weather Review.

Professional Development and Field Work

- Active participant of Unlearning Racism in Geoscience (URGE), UW-Madison AOS and SSEC Mega Pod (Spring 2021).
- DELTA Research Mentoring Seminar, Fall 2018, University of Wisconsin-Madison.
- DELTA Teaching in Science and Engineering, Spring 2018, University of Wisconsin-Madison.
- Pan American Advanced Studies Institute (PASI) workshop on Atmospheric Processes in Latin America and the Caribbean: Observations, Analysis, and Impacts, Cartagena, Colombia (2013).
- DYNAMO field campaign, Diego Garcia, BIOT (2011).

Presentations

2023

“Essential elements for modeling MJO teleconnections and their impacts”, 9th Annual US Climate Modeling Workshop and Summit (USCMS9) Topical Workshop, April 2023 (*invited speaker*).

“Understanding Madden-Julian Oscillation (MJO) teleconnections: importance, drivers, and uncertainty in a changing climate”, Pacific Northwest Association for College Physics 2023 Meeting, Pacific University, Oregon (*invited keynote*).

“Dissecting Madden-Julian Oscillation (MJO) Teleconnection Patterns” AOS seminar series, UW-Madison, April 2023 (joint talk with David Henderson).

“Investigating the Role of Radiative Heating in Driving Madden-Julian Oscillation (MJO) Teleconnection Patterns”, AMS 2023 Annual Meeting, Denver, January 2023.

2022

“The role of modal interference in optimal PNA pattern growth”, NASA GMAO Seminar Series on Earth System Science, June 2022 (*invited*).

“The optimal development of the Pacific-North American pattern”, Climate, People, and the Environment Program (CPEP) seminar series, UW-Madison, May 2022 (*invited*).

2021

“Diagnosing Pacific-North American pattern growth using linear inverse modeling”, Department of Atmospheric Science, University of Washington, Dec 2021 (*invited*).

“Diagnosing the optimal growth of the PNA pattern using linear inverse modeling”, Department of Atmospheric Science, University of Illinois at Urbana-Champaign, Oct 2021 (*invited*).

“Subseasonal variability of Northern Hemisphere winter blocking: the role of MJO teleconnections and its dependence on ENSO”, Workshop on Atmospheric Blocking, Sept 2021 (*invited keynote*).

“The role of the Madden-Julian Oscillation and the El Niño-Southern Oscillation on the development of the Pacific-North American pattern”, Atmosphere & Oceans Seminar, Department of Earth & Planetary Sciences, Johns Hopkins University, Apr 2021 (*invited*).

“Growing a Pacific-North American pattern: the critical role of the tropics and teleconnection pattern interference”, Ocean & Climate Seminar, Lamont-Doherty Earth Observatory, Columbia University, Apr 2021 (*invited*).

“What determines the characteristics of MJO teleconnections across timescales?” Workshop on Indian Ocean Variability and Teleconnections, Abdus Salam International Centre for Theoretical Physics (ICTP), Italy, Mar 2021 (*invited keynote speaker and panelist*).

“Growing a Pacific-North American pattern: the role of the tropics and teleconnection pattern interference”, Department of Marine, Earth, and Atmospheric Sciences, North Carolina State University, Feb 2021 (*invited*).

2020

“MJO-ENSO Teleconnection Interference and Impacts on Blocking”, NOAA-DOE Precipitation Processes and Predictability Workshop, Nov 2020 (*invited panelist*).

“Optimal development of the Pacific-North American pattern”, Department of Geological and Atmospheric Sciences, Iowa State University, Nov 2020 (*invited*).

“Non-normal optimal growth of the Pacific-North American pattern”, WWRP/WCRP/S2S/MJO-Teleconnections sub-project monthly series webinar, May 2020 (*invited*).

2019 and prior

“A Recipe for Greenland snow events: Atmospheric Blocking and Moisture”, AGU Fall Meeting 2019, San Francisco (poster).

“The role of tropical-extratropical interactions on the optimal growth of the Pacific-North American pattern”, International Conferences on Subseasonal to Decadal Prediction, September 2018, Boulder, CO.

“Madden-Julian Oscillation teleconnections: global impacts and model reproducibility”, February 2018, University of Wisconsin-Madison (*invited*).

“Impact of the basic state and MJO representation on MJO Pacific teleconnections in GCMs”, AGU Fall Meeting 2017, New Orleans (*invited*).

“The Extratropical Influence of the Madden-Julian Oscillation on Wintertime Blocking”, AGU Fall Meeting 2016, San Francisco (poster).

“The influence of the Madden-Julian Oscillation on Northern Hemisphere Winter Blocking”, Workshop on Atmospheric Blocking, April 2016, University of Reading, Reading, UK.

“An intraseasonal model for the prediction of Atlantic and East Pacific tropical cyclone genesis”, AMS 30th Conference on Hurricanes and Tropical Meteorology, April 2012, Ponte Vedra Beach, Florida.

“An intraseasonal model for the prediction of Atlantic tropical storm genesis”, 3rd International Summit on Hurricanes and Climate Change, June 2011, Rhodes, Greece (poster).

“An intraseasonal model for the prediction of East Pacific tropical storm genesis”, Young Scientist Symposium on Atmospheric Research, September 2011, Fort Collins, CO.

Professional Awards and Memberships

- 2017 – 2019: National Science Foundation (NSF) Atmospheric and Geospace Sciences Postdoctoral Research Fellowship (AGS-PRF)
- 2016: AGU Outstanding Student Paper Award (OSPA), Fall Meeting
- 2015: NSF East Asia and South Pacific Summer Institutes (EAPSI) fellowship
- 2013 – 2014: Colorado State University Shrake – Culler Scholarship recipient
- 2011: 3rd International Summit on Hurricanes and Climate Change travel award
- 2009 – 2010: Colorado Alliance for Graduate Education and the Professoriate (AGEP) Assistantship Award

- 2009 – 2010: Center for Multiscale Modeling of Atmospheric Processes (CMMAP)
Diversity in Atmospheric Science Scholarship
- 2009: John E. Oliver Memorial Scholarship
- 2009: Indiana State University McBeth Talisman Fund Recipient
- 2009: Summa Cum Laude
- 2016 – present: Member, American Geophysical Union
- 2008 – present: Member, American Meteorological Society
- 2006 – 2009: Member, Indiana State University Honors Program