Holly M. Mallinson

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Greenbelt, MD 20771
Mesoscale Atmospheric Processes Laboratory (Code 612)
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EDUCATION

PhD in Atmospheric Science May 2023
University of Illinois Urbana-Champaign
Dissertation: "Hailfall in a Future Climate Using a Pseudo-Global Warming Approach"
Committee: Sonia Lasher-Trapp (chair), Jeff Trapp, Nicole Riemer, Kelly Mahoney

MS in Atmospheric Science August 2018
University of Illinois Urbana-Champaign
Thesis: "Microphysical Influences on Cold Pools"
Advisor: Sonia Lasher-Trapp

BS in Atmospheric Science May 2016
University of Louisiana-Monroe

APPOINTMENTS

Postdoctoral Fellow June 2023-present
NASA Postdoctoral Program
Goddard Space Flight Center, Mesoscale Atmospheric Processes Laboratory
Advisor: Scott Braun

Graduate Research Assistant August 2016-May 2023
Department of Atmospheric Sciences, University of Illinois

Graduate Teaching Assistant Fall 2019
Department of Atmospheric Sciences, University of Illinois
Course: Introduction to Meteorology (ATMS 100)

Intern Summer 2016
NASA Goddard Space Flight Center
Mesoscale Atmospheric Processes Laboratory
Advisors: Amber Emory & Stephen Nicholls

Researcher Summer 2015
NSF Gulf Coast Region Research Experience for Undergraduates
Texas A&M University
Advisor: Courtney Schumacher

Undergraduate Researcher August 2015-May 2016
Department of Atmospheric Science, University of Louisiana-Monroe
Advisor: Todd Murphy

FIELD CAMPAIGNS

Remote Sensing of Electrification, Lightning, and Mesoscale/Microscale Processes with Adaptive Ground Observations (RELAMPAGO) November 2018-December 2018
Córdoba, Argentina
UI Sounding Team: data and equipment manager, driver, trained others on launching soundings
Flexible Array of Radars and Mesonets (formerly the Center for Severe Weather Research): assisted in mobile mesonet operations

Verification of the Origin of Rotation in Tornadoes Experiment- Southeast (VORTEX-SE) March 2016-May 2016
Huntsville, AL
ULM Sounding Team: assisted with sounding launches and data collection
Purdue Mobile Mesonet Team: deployed in-situ mobile disdrometers to coordinate with Texas Tech University StickNet platform

REU Field Research Experience July 2015
Galveston, TX
-Studied sea-breeze convection using Doppler on Wheels (DOW) mobile radar, SoDAR vertical wind profiler, and soundings

Hail Spatial and Temporal Observing Network Effort (HailSTONE) May 2015
Kansas City, MO
-Collected and documented in-situ observations on hail size

PEER REVIEWED PUBLICATIONS

Woods, M.J., Trapp, R.J., & **Mallinson, H. M.** (2023). The impact of human-induced climate change on future tornado intensity as revealed through multi-scale modeling. *Geophysical Research Letters*, 50, e2023GL104796. https://doi.org/10.1029/2023GL104796

Xue, L., and Coauthors.: Progress and challenges in modeling dynamics-microphysics interactions: from the Pi chamber to Monsoon convection. Bull. Amer. Meteor. Soc., 103, E1413-E1420, https://doi.org/10.1175/BAMS- D-22-0018.1

Mallinson, H.M. and S.G. Lasher-Trapp, 2019: An Investigation of Hydrometeor Latent Cooling upon Convective Cold Pool Formation, Sustainment, and Properties. Mon. Wea. Rev., 147, 3205-3222, https://doi.org/10.1175/MWR-D-18-0382.1

Blair, S.F., and Coauthors., 2017: High-Resolution Hail Observations: Implications for NWS Warning Operations. Wea. Forecasting, 32, 1101-1119, https://doi.org/10.1175/WAF-D-16-0203.1

CONFERENCE PRESENTATIONS

* *denotes talk*
† *denotes invited presentation*

***Mallinson, H.M.**, S.G. Lasher-Trapp, R.J. Trapp, 2023: Possible Seasonal Changes in Hailfall due to Anthropogenic Climate Change as Indicated by a Pseudo-Global Warming Approach. 103rd Annual AMS Conference, Denver, CO, Amer. Meteor. Soc.

*†Trapp, R.J., S.G. Lasher-Trapp, **H.M. Mallinson**, S. Orendorf, 2022: The use of an event-based pseudo-global warming modeling approach to assess changes in extreme thunderstorm event characteristics. AGU Fall Meeting 2022, Chicago, IL, Amer. Geophys. Union

***Mallinson, H.M.**, 2022: Changes in Hail and Associated Processes in a Future Climate. 16th Annual Graduate Climate Conference, Pack Forest, WA

*Woods, M.J., R.J. Trapp, **H. M. Mallinson**, 2022: The impact of human-induced climate change on tornado intensity as revealed through multi-scale modeling. 30th Conference on Severe Local Storms, Santa Fe, NM, Amer. Meteor. Soc.

Mallinson, H.M., S. G. Lasher-Trapp, R. J. Trapp, 2022: Changes in Mesoscale and Microscale Processes Influencing Hail Characteristics in a Future Climate. 16th Conference on Cloud Physics, Madison, WI, Amer. Meteor. Soc.

***Mallinson, H.M.**, S.G. Lasher-Trapp, R.J. Trapp 2021: Potential Changes in Hail Characteristics and Processes in a Future Climate Using a Pseudo-Global Warming Approach. AGU Fall Meeting 2021, New Orleans, LA, Amer. Geophys. Union

***Mallinson, H.M.**, S.G. Lasher-Trapp, R.J. Trapp 2021: Potential Changes in Hail Characteristics and Processes in a Future Climate Using a Pseudo-Global Warming Approach. Virtual Student and Early Career Conference on Severe Storms, Virtual, Amer. Meteor. Soc.

Mallinson, H.M., S.G. Lasher-Trapp, 2020: Sensitivity of Hail Processes and Characteristics to WRF Input Options. 3rd Annual Midwest Student Conference on Atmospheric Research, Champaign, IL.

***Mallinson, H.M.**, M. Grover, R.J. Trapp, 2020: Influence of Terrain and Environment on Cold Pools During RELAMPAGO. 100th Annual AMS Conference, Boston, MA, Amer. Meteor. Soc.

Mallinson, H.M., S.G. Lasher-Trapp, 2020: An Investigation of Hydrometeor Latent Cooling Upon Cold Pool Formation, Sustainment, and Properties. 100th Annual AMS Conference, Boston, MA, Amer. Meteor. Soc.

*Trapp, R.J., M. Grover, **H. M. Mallinson**, 2019: The Dynamical Coupling of Convective Updrafts, Downdrafts, and Cold Pools during RELAMPAGO. RELAMPAGO Data Analysis Workshop, Buenos Aires, Argentina.

***Mallinson, H.M.**, S.G. Lasher-Trapp, 2019: Connecting Microscale Processes to Mesoscale Phenomena: Improving Cold Pool Parameterizations. 7th Annual NCSA Blue Waters Symposium for Petascale Science and Beyond, Sunriver, OR.

***Mallinson, H.M.**, S.G. Lasher-Trapp, 2018: Mircophysical Influences on Cold Pools. 15th Conference on Cloud Physics, Vancouver, B.C., Canada, Amer. Meteor. Soc.
*Trapp et al., 2018.: Inter-relationships between convectively generated cold pools, updraft/downdraft characteristics, and microphysical processes. DOE Atmospheric Systems Research Science Team Meeting, Tysons, VA.

*Dawson et al., 2017: Overview of Purdue's Mobile Disdrometer Operations During VORTEX-SE 2016-2017. 38th Conference on Radar Meteorology, Chicago, IL, Amer. Meteor. Soc.

***Mallinson, H.M.**, S. D. Nicholls, A. E. Emory, 2017: Model Comparison of the 22-24 January 2016 Nor'easter. 97th Annual AMS Conference, Seattle, WA, Amer. Meteor. Soc.

*Dawson, D.T., J. Bozell, J. Buckingham, W. Downing, D. Chavas, **H.M. Mallinson**, M. Biggerstaff, S. Waugh, 2016: Overview of Purdue's Mobile Disdrometer Operations During VORTEX-SE. 28th Conference on Severe Local Storms, Portland, OR, Amer. Meteor. Soc.

Murphy, T.A., T. Aydell, I. Bordelon, S. Kreller, **H.M. Mallinson**, A. Melancon, E. Murillo, 2016: An Overview of ULM Participation in the VORTEX-SE Field Program. 28th Conference on Severe Local Storms, Portland, OR, Amer. Meteor. Soc.

Mallinson, H.M., T. Murphy, 2016: Comparing Environmental Conditions of Convective Storms Producing Damaging Winds and Hail. ULM Student Research Symposium, Monroe, LA, ULM

***Mallinson, H.M.**, C. Schumacher, F. Ahmed, 2016: Vertical Motions in Convective Clouds Over Darwin Australia. LSUS Student Scholars Forum, Shreveport, LA, LSUS

***Mallinson, H.M.**, T. Murphy, 2016: Comparing Environmental Conditions of Convective Storms Producing Damaging Winds and Hail. LSUS Student Scholars Forum, Shreveport, LA, LSUS

Mallinson, H.M., C. Schumacher, F. Ahmed, 2016: Vertical Motions in Convective Clouds Over Darwin Australia. 15th Annual AMS Student Conference, New Orleans, LA, Amer. Meteor. Soc.

***Mallinson, H.M.**, C. Schumacher, F. Ahmed, 2015: Vertical Motions in Convective Clouds Over Darwin Australia. AGU Fall Meeting 2015, San Francisco, CA, Amer. Geophys. Union

SERVICE IN PROFESSIONAL SOCIETIES

American Meteorological Society

Board on Student Affairs 2023-2024

-Helped with creation of board and developed terms of reference
-Served as chair for inaugural year and was a liaison on AMS Council

Board on Representation, Accessibility, Inclusion, and Diversity (BRAID) 2021-2024

-Served on Accessibility, Member Survey, and Women's Committees
-Co-Chair for the "World Through My Eyes: Building Reasonable Accommodations Into Daily Living (BRAID Living)" Town Hall at the 2023 AMS Annual Meeting

Student Conference 2020-2023

-Conference Co-Chair "Connecting the Data Points: Enriching Today's Students to Become Tomorrow's Scientists" (2023)
-Session Chair for the Student Conference Poster Session (2023)
-Session Chair for keynotes linking topics on extreme weather and Annual Meeting theme (2020-2022)

International Conference on Clouds and Precipitation (ICCP)

International Cloud Modeling Workshop 2021

-Co-Organizer for the "Convection in Strong Vertical Wind Shear: The 2 Aug COPE Case" workshop as part of the 10th International Cloud Modeling Workshop

SERVICE IN UNIVERSITIES

University of Illinois

Students Advising on Graduate Education 2019-2022

The Graduate College

-Graduate Student Mentoring Group (2021-2022)
-Pandemic Impacts on Doctoral Education Committee (2020-2021)
-Mentoring Graduate Students Through Challenging Times Committee (2020-2021)
-Student Performance Indicators Strategic Planning Group (2019-2020)

Academic Affairs COVID-19 Task Force for the 2021-2022 Academic Year 2020-2021

Office of the Provost

-Provided input on planning campus operations for the 2021-2022 academic year

Department of Atmospheric Sciences Student Organization 2017-2018

-Served as liaison between graduate students and faculty, attended faculty meetings and provided input regarding graduate student affairs, assisted in creating annual graduate student survey, helped coordinate new graduate student orientation

University of Louisiana-Monroe

Student Chapter of the American Meteorological Society 2014-2016

-President (2015-2016): coordinated northeast Louisiana flood relief efforts, professional development opportunities, guest speakers, fundraisers, and social events; awarded AMS Student Chapter of the Year
-Secretary (2014-2015): took meeting minutes and communicated events to members

OTHER PROFESSIONAL AND OUTREACH ACTIVITIES

Invited Panelist: Finding Success as a Grad Student or Postdoc November 2021
Virtual Student and Early Career Conference on Severe Storms
AMS Committee on Severe Local Storms

Graduate Student Mentor Fall 2018-Spring 2020
University of Illinois

Exhibitor: Engineering Open House March 2020
University of Illinois
Cancelled due to COVID-19

Panelist: Graduate Student Panel January 2020
AMS Student Conference

Ambassador Fall 2016-Spring 2017
NASA Space Public Outreach Team

AWARDS AND HONORS

Student Presentation Award- Oral Presentation 2020
30th Conference on Weather Analysis and Forecasting
100th American Meteorological Society Annual Meeting

AMS Student Chapter of the Year Award 2016
University of Louisiana-Monroe

Outstanding Senior in Atmospheric Sciences 2016
University of Louisiana-Monroe

First Place Undergraduate Poster, Physical Sciences 2016
Student Research Symposium, University of Louisiana-Monroe

Harold Taft Scholarship Recipient 2014
NBC5 and Lone Star Emmy Foundation

TECHNICAL STRENGTHS

Computer Languages

Python, NCL, Fortran, Linux/Unix, bash/shell scripting

Numerical Modeling

NASA-Unified Weather Research and Forecasting model (NU-WRF), Advanced Research Weather Research and Forecasting model (AR-WRF), Cloud Model 1 (CM1)

High Performance Computing

Discover (NASA), Cheyenne (NCAR), Blue Waters (NCSA), Stampede (TACC)

JOURNAL REVIEWER

Nature

npj Climate and Atmospheric Science

PROFESSIONAL AFFILIATIONS

American Meteorological Society (AMS) 2015-current

American Geophysical Union (AGU) 2015-current

Earth Science Women's Network (ESWN) 2018-current