**Jeffrey D. Thayer**

**jthayer2@illinois.edu**

**Research Interests**

Tropical convection, Madden-Julian Oscillation (MJO), tropical cyclones, radar remote sensing

**Education**

2018 – Present Ph.D. Atmospheric Sciences, *University of Illinois at Urbana-Champaign*

2015 – 17M.S. Atmospheric Sciences, *University of Illinois at Urbana-Champaign*

2011 – 15B.S. Atmospheric Sciences, *University of Washington*

**Research Experience**

2018 – Present **PhD Student**, University of Illinois at Urbana-Champaign, Department of Atmospheric Sciences

*Advisor: Deanna A. Hence*

Topic: Interaction of Tropical Cyclones with MJO Convection in the Indian Ocean from 2000-2013 using Multiple Satellite Platforms and High-resolution Simulations.

2019 – 2020 **Graduate Student Visitor**, National Center for Atmospheric Research

*Advisor: Falko Judt, Mesoscale and Microscale Meteorology Laboratory*

Topic: High-Resolution MPAS Simulations of Tropical Cyclones and an MJO event in the Indian Ocean

2018 – 2021 **Co-Principal Investigator**, STAMPEDE-2 Supercomputing Research

*Principal Investigator: Deanna A. Hence, Co-Principal Investigators: Stephen W. Nesbitt, Piyush Garg*

Topic: High-Resolution WRF Simulations of Tropical Convection and associated Cold Pools in the Indian Ocean

2015 – 17 **Masters Student**, University of Illinois at Urbana-Champaign, Department of Atmospheric Sciences

*Advisor: Deanna A. Hence*

Topic: Role of Multiscale Atmospheric Conditions in the Evolution of Convective Organization during MJO-1 of DYNAMO/CINDY/AMIE.

2015 **Undergraduate Research Assistant**, University of Washington,Department of Atmospheric Sciences

*Mentor: Daehyun Kim*

Topic: Using WRF simulations of a squall line during DYNAMO with 5 different microphysical schemes to determine vertical profiles of entrainment and detrainment for cumulus convection.

2014 **Student Intern**,University of Michigan Undergraduate Research Experience for Undergraduates, Department of Atmospheric, Oceanic, and Space Sciences

*Mentor: Aaron J. Ridley*

Topic: Verifications of Neutral Winds and Temperatures from the Global Ionosphere-Thermosphere Model (GITM).

2013 – 14 **Undergraduate Research Assistant**, University of Washington,Department of Atmospheric Sciences

*Mentor: Daniel A. Jaffe*

Topic: Crowd-funded air pollution study which determined diesel emission factors for in-service rail in Washington State.

**Publications**

**Thayer, Jeffrey D.**, D.A. Hence, P. Garg, and S.W. Nesbitt, 2021: Tropical Cyclone Interactions with Madden-Julian Oscillation in the Indian Ocean using a High-Resolution WRF Simulation. *J. Geophys. Res.-Atmos.*, in preparation.

**Thayer, Jeffrey D.** and D.A. Hence, 2021: Transition of Large-scale Environmental Conditions and Characteristics of Four Rainfall Types observed by S-PolKa during the MJO-1 Active Phase of DYNAMO/CINDY/AMIE. *J. Geophys. Res.-Atmos*., submitted.

Garg, P., Nesbitt, S.W., Lang, T.J., Priftis, G., Chronis, T., **Thayer, J.D.**, Hence, D.A., 2021: Identifying and

Characterizing Tropical Oceanic Mesoscale Cold Pools using Spaceborne Scatterometer Winds. *J. Geophys.*

*Res. Atmos.*, **125**, e2019JD031812.

Jaffe, D.A., Hof G., Malashanka S., Putz J., **Thayer J.**, Fry J.L., Ayres B., and Pierce J.R., 2014: Diesel Particulate Matter Emission Factors and Air quality Implications from In-Service Rail in Washington State, USA, *Atmospheric Pollution Research*, **5**, 344-351.

**Grants and Fellowships**

2019 – 22 NASA Earth Science FINESST Fellowship

**Teaching Experience**

2018 Graduate Teaching Assistant, ATMS 201: General Physical Meteorology, Instructor: Eric Snodgrass

2018 Graduate Teaching Assistant, ATMS 120: Severe and Hazardous Weather, Instructor: Eric Snodgrass

2015 – 16, 18 Graduate Teaching Assistant, ATMS/GEOG 100: Introduction to Meteorology, Professor: Jeffrey Frame

2013 Teaching Assistant, Quantitative Statistics 381, Instructor: Alia Kroos

**Field Experience**

2019 Hurricane Dorian deployment, Florida, USA

*Duties*: Scientist in Mobile Mesonet; launched soundings in outer rainbands

2018 RELAMPAGO field campaign, Argentina

*Duties*: Scientist in Mobile Mesonet for 6 weeks; launched soundings; deployed weather station pods

2016 Olympic Mountains Experiment (OLYMPEX), Washington State, USA

*Duties*:Radar Scientist for the Doppler on Wheels (DOW); monitored radar functions and observations along with other radar scientists and operators; recorded relevant meteorological features on dual-pol products; generated a DOW Site Report for each of my shifts during operations (available on the OLYMPEX website); participated in morning weather briefings while at the DOW site

**Honors and Leadership**

2021 – Present Department of Atmospheric Sciences Diversity, Equity, and Inclusion (DEI) Committee Member

2021 Department of Atmospheric Sciences Graduate Student Mentor

2021 Poster Judging Committee Co-Chair for 34th Conference on Hurricanes and Tropical Meteorology

2018 Accepted into ICTP Summer School on Theory, Mechanisms, and Hierarchical Modelling of Climate Dynamics, *Trieste, Italy*

2018 Outstanding Student Poster Award, 33rd Conference on Hurricanes and Tropical Meteorology

2016 – 17 Conference Co-Chair of 1st Midwest Student Conference on Atmospheric Research (MSCAR)

2016 – 17 Department of Atmospheric Sciences Student Organization (DASSO) Secretary

2015 – 16, 18 *Excellent* Graduate Teaching Assistant

2011 – 15 Academic Achievement Scholarship, Department of Atmospheric Sciences, *University of Washington*

**Scholarly Presentations**

*Oral*:

Thayer, Jeffrey D., D.A. Hence, P. Garg, and S.W. Nesbitt, 2021: Tropical Cyclone Interactions with Madden-Julian Oscillation in the Indian Ocean using a High-Resolution WRF Simulation. 34th Conference on Hurricanes and Tropical Meteorology, Virtual Meeting.

Thayer, Jeffrey D. and D.A. Hence, 2019: Tropical Cyclone Interactions with the Madden-Julian Oscillation in the Indian Ocean. American Geophysical Union Fall Meeting 2019, San Francisco, CA.

Thayer, Jeffrey D., D.A. Hence and B.F. Jewett, 2017: The Role of Multiscale Atmospheric Conditions in the Evolution of Convective Organization during MJO-1 of DYNAMO/CINDY/AMIE. American Meteorological Society, 97th Annual Meeting, Seattle, WA.

*Poster*:

Thayer, Jeffrey D. and D.A. Hence, 2020: Tropical Cyclone Interactions with the Madden-Julian Oscillation in the Indian Ocean. American Meteorological Society, 100th Annual Meeting, Boston, MA.

Thayer, Jeffrey D. and D.A. Hence, 2018: Role of Multiscale Atmospheric Conditions in the Evolution of Convective Organization during MJO-1 of DYNAMO/CINDY/AMIE. 33rd Conference on Hurricanes and Tropical Meteorology, Ponte Vedra, FL.

**Technical Skills**

Python, Matlab, Unix/Linux, Weather Research and Forecasting (WRF) Model, Model for Prediction Across Scales (MPAS)