Curriculum Vitae

ROBERT JEFFREY TRAPP

Department of Climate, Meteorology, and Atmospheric Sciences
School of Earth, Society & Environment
College of Liberal Arts & Sciences
University of Illinois Urbana-Champaign
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Urbana, Illinois 61801
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EDUCATION

The University of Oklahoma, Ph.D. in Meteorology, 1994
Dissertation: *Numerical Simulation of the Genesis of Tornado-Like Vortices*
Principal Advisor: Prof. Brian H. Fiedler

Texas A&M University, M.S. in Meteorology, 1989
Thesis: *The Effects of Cloud Base Rotation on Microburst Dynamics-A Numerical Investigation*
Principal Advisor: Prof. P. Das

University of Missouri-Columbia, B.S. in Agriculture/Atmospheric Science, 1985

APPOINTMENTS

Faculty Fellow, National Center for Supercomputing Applications, University of Illinois Urbana-Champaign, May 2024-current.

Scientific Visitor, Institute of Geography, and Oeschger Centre for Climate Change Research, Universität Bern, Bern, Switzerland, January 2024-August 2024.

Director, School of Earth, Society and Environment, University of Illinois Urbana-Champaign, August 2023-current.

Head, Department of Atmospheric Sciences, University of Illinois Urbana-Champaign, August 2018-August 2023.

Professor, Department of Atmospheric Sciences, University of Illinois Urbana-Champaign, August 2014-current.

Professor, Department of Earth and Atmospheric Sciences, Purdue University, August 2010-July 2014.

Scientific Visitor, School of the Environment, University of Leeds, UK, January 2010-July 2010

Associate Professor, Department of Earth and Atmospheric Sciences, Purdue University, August 2003-August 2010

Research Scientist, Cooperative Institute for Mesoscale Meteorological Studies, University of Oklahoma, and National Severe Storms Laboratory, July 1996-July 2003

Visiting Scientist, National Center for Atmospheric Research, Mesoscale and Microscale Meteorology Division, August 1998-December 2002

National Research Council Postdoctoral Research Fellow, at the National Severe Storms Laboratory, July 1994-June 1996

GRANTS AND FUNDING

- CURRENT AND PAST

Principal Investigator: *Forcings, characteristics, and loadings of damaging winds in derechos and other high-impact thunderstorm events*, NSF-CMMI, $399,851, 2023-2026.

Principal Investigator: Understanding the impact of the lower stratospheric thermodynamic environment on observed overshooting top characteristics. NASA, $150,000, 2022-2025.

Principal Investigator: *Geospatial predictive analysis of damaging wind and hail occurrences in the lower 48 states and Canada*. Aon Inc. (Aon Risk Consultants), $418,991, 2022-2024.

Principal Investigator: *Collaborative Research: Propagation, Evolution and Rotation in Linear Storms (PERiLS)*, NSF-AGS, $3,900,980, 2020-2026.

Principal Investigator: *Toward an improved understanding of tornado formation within quasi-linear convective systems (QLCSs)*, NOAA, $282,718, 2020-2022.

Principal Investigator, *Deep convective updraft populations in organized and unorganized systems across the globe*, NASA, $507,569, 2020-2023.

Principal Investigator, *Study of Convective Hazards under Anthropogenic Climate Change using innovative approaches*, NSF-AGS, $741,462, 2019-2022.

Principal Investigator, *Modulation of convective-draft characteristics and subsequent tornado intensity by the environmental wind and thermodynamics within the Southeast U.S*, NOAA, $287,529, 2017-2019.

Principal Investigator, *Collaborative Research: Remote sensing of electrictrification, lightning, and mesoscale/microscale processes with adaptive ground observations during RELMPAGO*, NSF-AGS, $636,947, 2017-2021.

Co-Investigator, *Remote sensing of electrification, lightning, and mesoscale/microscale processes with adaptive ground observations (RELMPAGO)*, NSF-AGS, $23,940, 2016–2017.

Principal Investigator, *A Bottom-up Approach to Improve the Representation of Deep Convective Clouds in Weather and Climate*, DOE-ASR, $555,802, 2015-2017.

Principal Investigator, *Collaborative Research: Improved understanding of convective-storm predictability and environment feedbacks from observations during the Mesoscale Predictability Experiment (MPEX)*, NSF-AGS 1230085, $440,200, 2012-2015.

Co-Investigator, *Assessment and Recommendations for Using High-Resolution Weather Information to Improve Winter Maintenance Operations*. IN Department of Transportation, $147,346, 2012-2013.

Principal Investigator, Supplement to *Collaborative Research: Multi-scale and Multi-Platform Study of Tornadoes, Supercell Thunderstorms, and their Parent Environments in VORTEX2*, NSF grant ATM-0758588, $6032, 2009-2012.

Principal Investigator, *The DOW Radar Observations at Purdue study* (DROPs), NSF Facilities for Education, $21,680 (to the Center for Severe Weather Research), 2009.

Co-Investigator, *The Application of a Successful Research-Based Laboratory Model to Atmospheric Science*, NSF CCLI, $150,000, 2009-2011.

Principal Investigator, *The Response of Convective Precipitating Storms to Anthropogenically Enhanced Global Radiative Forcing*, NSF grant ATM-0756624, $616,112, 2008-2011.

Principal Investigator, *Collaborative Research: Multi-scale and Multi-Platform Study of Tornadoes, Supercell Thunderstorms, and their Parent Environments in VORTEX2*, NSF grant ATM-0758588, $57,769, 2008-2012.

Co-Investigator, *An experimental, real-time prediction system for high-impact convective weather events*, UCAR/COMET Cooperative Research Project, $46,405, 2007-2008.

Principal Investigator, *Sub-daily scale extreme precipitation in future climate-change scenarios*, NSF-ATM, 0541491, $275,075, 2006-2008.

Principal Investigator: *Equipment to Enhance the Capacity to Process and Disseminate Value-Added Weather Data at Purdue University*, Unidata/UCAR, $7000, 2005.

Principal Investigator, *Quantification of damaging wind characteristics in tornadoes*, Purdue Research Foundation, $13,776, 2005-2006.

Principal Investigator: *Collaborative research: Damage analysis and numerical simulation of convectively driven wind events during BAMEX*, NSF-ATM, 0233344, $368,115, 2003-2006.

Principal Investigator: *The formation and climatological distribution of tornadoes within quasi-linear convective systems*, NSF-ATM, 0100016, $175,204, 2001-2003.

Principal Investigator: *An evaluation of the warning utility of tornadic vortex signatures detected by WSR-88D radars*, UCAR/COMET Cooperative Research Project, Subaward UCAR S97-86995 $26,000, 1997-1998.

SELECT ACTIVITIES

●PROFESSIONAL COMMUNITY

Co-Chair, Global Precipitation Experiment, World Climate Research Programme, 2024-present

Member, Wind Task Committee, American Society of Civil Engineers (ASCE) 7-28 Future Conditions Subcommittee, 2025-present

Member, Task Group for Climate Change, International Association for Wind Engineering

(IAWE), 2025-present

Member, Nominating Committee, University Corporation for Atmospheric Research, 2024-present

Co-Principal Investigator, PERiLS (Propagation, Evolution, and Rotation in Linear Storms), 2022-2023

Co-Chair, 23rd Biennial Joint AMS/AGU Heads and Chairs Meeting, Boulder, CO, 2022

Co-Chair, 22nd Biennial Joint AMS/AGU Heads and Chairs Meeting, (online) 2020.

Member, Department of Energy (DOE) ARM Science Board, 2018-2019

Co-Principal Investigator, RELAMPAGO (Remote sensing of electrification, lightning, and mesoscale/microscale processes with adaptive ground observations), 2018

Lead-Author, 4th U.S. National Climate Assessment Report, 2016-2017.

Co-Principal Investigator, MPEX (Mesoscale Predictability EXperiment), 2013

Member, Developmental Testbed Center (DTC) Science Advisory Board, 2013-2016

Editor, *Monthly Weather Review*, 2008-2010

Member, University Corporation for Atmospheric Research (UCAR) President Advisory Council on University Relations, 2009-2015

Member, National Center for Atmospheric Research (NCAR) Observing Facilities Assessment Panel, 2010-2015

Co-Principal Investigator, VORTEX2 (Verification of the Origins of Rotation in Tornadoes EXperiment-2), 2009-2010

Participant, NOAA Hazardous Weather Testbed - Experimental Forecast Program, 2005, 2007

Associate Editor, *Weather and Forecasting*, 2001-2003

Associate Editor, *Monthly Weather Review*, 2002-2003; 2006-2007

Co-Principal Investigator, BAMEX (Bow echo and MCV Experiment), 2003

Co-Principal Investigator, IPEX (Intermountain Precipitation Experiment), 2000

Chair, AMS Scientific and Technological Activities Committee on Severe Local Storms, 2001-2003; Member, 1999-2000

Chair, program committee, 20th AMS *Conference on Severe Local Storms*, 1999-2000; Member, program committees, 1998; 2002; 2004

●UNIVERSITY, COLLEGE, DEPARTMENTAL

Chair, Search Committee, Director of Illinois Mesonet, University of Illinois, 2026-present

Member, Executive Committee, College of Liberal Arts and Sciences, University of Illinois, 2025-present

Member, Advisory Board, Institute for Sustainability, Energy, and Environment, University of Illinois, 2023-present

Member, Executive Committee, School of Earth, Society, Environment, 2017-2023

Executive Officer, FARM (Flexible Array of Radars and Mesonets) facility, University of Illinois, 2021-2023

Chair, Search Committee, Teaching Assistant Professor, Department of Atmospheric Sciences, 2020

Chair, Curriculum Committee, Department of Atmospheric Sciences, 2017-2018

Associate Head, Department of Earth and Atmospheric Sciences, Purdue University, 2010-2013

Chair, Search Committee, Director of Purdue Climate Change Research Center, Purdue University, 2008

Member, Executive Committee, Purdue Climate Change Research Center, 2007-2010.

Chair, Faculty Search Committee, Climate and Extreme Weather, 2007

Chair, Graduate Committee, Department of Earth and Atmospheric Sciences, Purdue University, 2007

Faculty Advisor, Purdue University Meteorological Association (PUMA), 2003-2007

●ENGAGEMENT

INTERVIEWS with larger media outlets including: Chicago Tribune, NPR, Washington Post, The History Channel, Newsweek (Invited Op-Ed), New York Times, The Weather Channel, Associated Press, USA Today; and with numerous local outlets including the News Gazette, WCIA-TV, and Daily Illini

PRESENTATIONS to civic organizations and schools including: Rotary Club, Kiwanis Club, Cub Scouts, “Town and Gown”, Mahomet-Seymour Middle School, Klondike Elementary School, Klondike Middle School, Math Camp

TEACHING

Introduction to Atmospheric Science (Undergraduate; U), *Geosciences in the Cinema (U)*, *Science of the Atmosphere (U)*, *Atmospheric Dynamics I (U)*, *Atmospheric Dynamics II (U)*, *Radar Meteorology (Graduate; G/Un)*, *Weather Analysis and Forecasting (U)*, *Climate and Extreme Weather Seminar (G)*, *Mesoscale Meteorology (G/U), Meteorological Observations and Measurements (U), Numerical Modeling of Convective Clouds and Storms (G), Mesoscale Observations and Analysis (G), Introduction to Atmospheric Sciences Research (U), Spring Break Field Course (U), Dynamics of Convective Clouds and Storms (G), Professional Development (G), Mesoscale Dynamics (U), Dynamic Meteorology (G), Climate Resilience (G/U)*

PURDUE TEACHING HONOR ROLL: Spring 2004, Fall 2004, Spring 2005, Fall 2005, Spring 2006, Fall 2006, Spring 2007, Fall 2007, Spring 2008, Fall 2008, Spring 2009, Fall 2010, Spring 2011, Fall 2011, Spring 2012, Fall 2012, Spring 2013, Fall 2013, Spring 2014

UIUC LIST OF TEACHERS RANKED AS EXCELLENT: Fall 2015, Spring 2016, Fall 2016, Spring 2017, Fall 2017, Spring 2018, Fall 2018, Spring 2019, Fall 2019, Spring 2021, Fall 2021, Spring 2022, Fall 2022, Spring 2023; Fall 2025

STUDENTS ADVISED

- CURRENT (GRADUATE):

Songning Wang – Ph.D., anticipated May 2026
Eddie Wolff – Ph.D., anticipated December 2026 (co-advise)
Melinda Berman – Ph.D., anticipated May 2026 (co-advise)
Matthew Graber – Ph.D., anticipated August 2024 (co-advise)
Garrett Statum – Ph.D., anticipated August 2027

- PAST (GRADUATE):

Elaine Godfrey – M.S., received December 2003 (co-advised, Univ. of Oklahoma)
Dustan Wheatley - M.S., received May 2004 (Purdue University)
Brooke Halvorson – M.S., received July 2006 (Purdue University)
Kent Knopfmeier – M.S., received May 2007 (Purdue University)
Dustan Wheatley – Ph.D., received December 2007 (Purdue University)
Karen Kosiba – Ph.D., received May 2009 (Purdue University)
Nathan Hitchens – Ph.D., received December 2010 (Purdue University)
Eric Robinson – Ph.D., received December 2012 (Purdue University)
Mallie Toth – M.S., received December 2012 (Purdue University)
Joe Woznicki – M.S., received August 2014 (Purdue University)
Dereka Carroll – M.S., received August 2014 (Purdue University)
Kim Hoogewind – Ph.D., received December 2016 (co-advised, Purdue University)
Geoff Marion – M.S., received May 2017
Logan Dawson – Ph.D., received August 2017 (Purdue University)
Adam Stepanek – Ph.D., received August 2017 (Purdue University)
Dereka Carroll-Smith – Ph.D., received July 2018
Jake Mulholland – Ph.D., received July 2019 (co-advised)
Devin Chehak – M.S., received May 2020
Michael Sessa – M.S., received May 2020
Geoff Marion – Ph.D., received May 2021
Max Grover – M.S., received May 2021
Matt Woods – M.S., received August 2021
Seth Goodnight – M.S., received May 2022
Songning Wang – M.S., received May 2022
Sophie Orendorf – M.S., received May 2022 (co-advised)
Melinda Berman – M.S., received May 2023 (co-advised)
Eddie Wolff – M.S., received August 2023 (co-advised)
Leanne Blind-Doskocil – M.S., received August 2023 (co-advised)
Gabbie Christo – M.S., received May 2024
Kyle Killion – M.S., received May 2024
Michael Sessa – Ph.D, received August 2024

Matthew Graber – M.S., received August 2024 (co-advised)

- SERVICE ON GRADUATE COMMITTEES:

Angela Lese - M.S., received December 2003 (Purdue University)
Jonathan Chamberlain – M.S., received May 2004 (Purdue University)
Hong-bing Zhang - M.S., received December 2004 (Purdue University)
Aisha Reed – M.S., received December 2005 (Purdue University)
Justin Stachnik – M.S., received August 2007 (Purdue University)
Kevin Vermeesch – M.S., received August 2007 (Purdue University)
Colleen Henry – Ph.D., received May 2008 (Purdue University)
Megan Walker – M.S., received July 2008 (Purdue University)
Dan Arthur – M.S., received May 2009 (Purdue University)
Erin Jones – M.S., received July 2009 (Purdue University)
Moetasim Ashfaq – Ph.D., received July 2009 (Purdue University)
Yi-Chi Wang – Ph.D., received May 2012 (Purdue University)
Jacob Carley – Ph.D., received May 2013 (Purdue University)
Cecille Villanueva Birriel – Ph.D., received May 2013 (Purdue University)
Daniel Moser, Ph.D., received December 2017
Emily Janssen-Schlie, Ph.D., received December 2017
Gan Zhang, Ph.D., received May 2018
Emily Hogan, Ph.D., received May 2018
Doug Miller, Ph.D., received December 2020
Piyush Garg, Ph.D., received May 2021
IT Singh, Ph.D., received May 2022
Holly Mallinson, Ph.D., received May 2023
Kevin Gray, Ph.D., received August 2023
Troy Zaremba, Ph.D., received August 2023
Alex Adams, Ph.D., received May 2024
Sean Matus, Ph.D., received December 2024
Fitria Sari, Ph.D., received December 2025
Toby Ross, Ph.D., anticipated May 2026

HONORS AND AWARDS

Gilbert F. White Distinguished Award, American Geophysical Union, 2022
Fellow, American Meteorological Society, elected 2020
Blue Waters Professor, University of Illinois at Urbana-Champaign, 2014-2022
Discovery Park Research Fellow, Purdue University, 2013
University Faculty Scholar, Purdue University, 2010
Outstanding Teacher in the College of Science, Purdue University, 2007
NOAA/Cooperative Institute for Mesoscale Meteorological Studies, Outstanding Paper Award, 2005
NOAA/Environmental Research Laboratory, Outstanding Paper Award, 2002
NOAA/Environmental Research Laboratory, Outstanding Paper Award, 2000

PROFESSIONAL SOCIETY MEMBERSHIPS

American Association for the Advancement of Science
American Meteorological Society
American Geophysical Union
Sigma Xi

PUBLICATIONS

● BOOKS

Trapp, R.J., 2013: *Mesoscale-Convective Processes in the Atmosphere*, Cambridge University Press, 346 pp.

● FORMAL, IN REVIEW:

Graber, M., Z. Wang, and **R. J. Trapp**, 2026: Seasonal prediction of springtime tornado activity in the United States using a hybrid model. *Weather and Climate Dynamics*, in review.

Melanson, S. D., M. D. Parker, P. Robinson, K. A. Kosiba, S. W. Nesbitt, **R. J. Trapp**, J. Wurman, M. I. Biggerstaff, and A. E. Reinhart, 2026: Dual-Doppler time series of QLCS mesovortices observed during PERiLS, *Monthly Weather Review*, in review.

Wolff, E. C., **R. J. Trapp**, and S. W. Nesbitt, 2026: Characteristics of discrete updrafts in quasi-linear convective systems, environmental influences, and implications for tornadogenesis prediction, *Weather and Forecasting*, in revision.

Wang, S., **R. J. Trapp**, J. Allen, D. Gopalakrishnan, and E. Robinson, 2026: An ensemble of environment-informed, convection-permitting dynamical downscaling simulations for climate-change projections of hazardous convective weather. *Journal of Geophysical Research-Atmospheres*, in revision.

Killion, K. J., **R. J. Trapp**, and F. T. Lombardo, 2026: Quantification of mechanisms for damaging wind generation in simulated derecho events. *Monthly Weather Review*, in revision.

● FORMAL, IN PRINT OR PRESS:

1. Wu, T., S. Reda, F. Lombardo, S. Li, M. Barbato, G. Yan, and **R. J. Trapp**, 2026: Climate change impacts on extreme windstorms and implications for structural design in the United States: A review. *Journal of Structural Engineering*, DOI: 10.1061/JSENDH/STENG-15800

2. Berman, M. T., **R. J. Trapp**, S. Nesbitt, and L. Di Girolamo, 2025: Improved understanding of how kinematic and thermodynamic environmental changes impact modeled overshooting top characteristics. *Geophysical Research Letters*, 52, e2025GL117993. https://doi.org/10.1029/2025GL117993

3. **Trapp, R. J.**, S. G. Lasher-Trapp, R. D. Claybrooke, and O. Romppainen-Martius, 2025: A storyline climate-change attribution study of a high-impact hailstorm in Switzerland. *Geophysical Research Letters*, 52, e2025GL117142, https://doi.org/10.1029/2025GL117142

4. Christo, G., **R. Trapp**, S. Nesbitt, L. Di Girolamo, E. C. Wolff, and C. R. Homeyer, 2025: The spatial area and other attributes of GOES-16 overshooting tops as indicators of potential hail. *Monthly Weather Review*, https://doi.org/10.1175/MWR-D-24-0150.1.

5. Blind-Doskocil, L., **R. J. Trapp**, S. W. Nesbitt, M. Parker, K. A. Kosiba, J. Wurman, and

J. Aikins, 2025: Characteristics of tornadic and nontornadic QLCS mesovortices observed using radar and pod data from PERiLS, *Weather and Forecasting*, https://doi.org/10.1175/WAF-D-24-0200.1.

6. Sessa, M. F., and **R. J. Trapp**, 2025: The prediction of potential tornado intensity using machine learning. *Artificial Intelligence for the Earth Systems*, https://doi.org/10.1175/AIES-D-23-0113.1.

7. Silcott, M. K., M. D. Parker, K. A. Kosiba, S. W. Nesbitt, **R. J. Trapp**, J. Wurman, and C. C. Weiss, 2025: Properties of cold pools from PERiLS 2022-2023, *Monthly Weather Review*, https://doi.org/10.1175/MWR-D-24-0280.1.

8. Wolff, E. C., **R. J. Trapp**, S. W. Nesbitt, M. D. Parker, K. A. Kosiba, and J. Wurman, 2025: On discrete convective updrafts and tornadoes in quasi-linear convective systems, *Weather and Forecasting*, **40**, 1065-1083, https://doi.org/10.1175/WAF-D-24-0080.1

9. Graber, M., Z. Wang, and **R. J. Trapp**, 2025: Linking weather regimes to the variability of warm-season tornado activity over the United States. *Weather and Climate Dynamics*, https://doi.org/10.5194/wcd-6-807-2025.

10. Buckingham, T. J., D. M. Schultz, P. M. Markowski, and **R. J. Trapp**, 2025: Two Archetypes of Tornadic Quasilinear Convective Systems in the United Kingdom: Relevance of Horizontal Shearing Instability to Vortexgenesis and Maintenance, *Quarterly Journal of the Royal Meteorological Society*, DOI: 10.1002/qj.4967

11. Gopalakrishnan, D., C. Cuervo-Lopez, J. T. Allen, **R. J. Trapp**, and E. Robinson 2025: A comprehensive evaluation of biases in convective-storm parameters in CMIP6 models over the Unites States. *Journal of Climate*, **38**, 947-971, https://doi.org/10.1175/JCLI-D-24-0165.1

12. Kosiba, K. A., A. W. Lyza, **J. Trapp**, and others, 2024: The Propagation, Evolution, and Rotation in Linear Storms (PERiLS) Project. *Bulletin of the American Meteorological Society*, DOI: 10.1175/BAMS-D-22-0064.1

13. Graber, M., **R. Trapp**, and Z. Wang, 2024: The Regionality and Seasonality of Tornado Trends in the United States, *npj Climate and Atmospheric Science*, **7**, https://doi.org/10.1038/s41612-024-00698-y

14. Berman, M. T., **R. J. Trapp**, S. W. Nesbitt, and L. Di Girolamo, 2024: The observed impact of the upper tropospheric/lower stratospheric thermodynamic environment on overshooting top characteristics during the RELAMPAGO-CACTI field campaign. *Journal of Geophysical Research-Atmospheres*, DOI:10.1029/2023JD040348

15. Mallinson, H., S. Lasher-Trapp, **J. Trapp**, M. Woods, and S. Orendorf, 2023: Hailfall in a future climate using a pseudo-global warming approach: Hail characteristics and mesoscale influences. *Journal of Climate*, **37**, 527-549, https://doi.org/10.1175/JCLI-D-23-0181.1

16. Lasher-Trapp, S., S. A. Orendorf, and **R. J. Trapp**, 2023: Investigating a derecho in a future warmer climate. *Bulletin of the American Meteorological Society*, **104**, E1831-E1852, https://doi.org/10.1175/BAMS-D-22-0173.1

17. Woods, M.J., **R. J. Trapp**, and H. Mallinson, 2023: The impact of human-induced

climate change on future tornado intensity as revealed through multi-scale modeling. *Geophysical Research Letters*, DOI: 10.1029/2023GL104796.

18. Sessa, M. F., and **R. J. Trapp**, 2023: Environmental and radar-derived predictors of tornado intensity within ongoing convective storms. *Journal of Operational Meteorology*, **11**, 49-71.

19. Hong, Y., S. W. Nesbitt, **R. J. Trapp**, and L. Di Girolamo, 2023: Near global distributions of overshooting tops derived from Terra and Aqua MODIS observations. *Atmospheric Measurement Techniques*, **16**, 1391-1406.

20. Goodnight, J. S., D. Chehak, and **R. J. Trapp**, 2022: Quantification of QLCS tornadogenesis, associated characteristics, and environments across a large sample. *Weather and Forecasting*, 37, 2087-2105.

21. **Trapp, R. J.**, M. J. Woods, S. G. Lasher-Trapp, and M. Grover, 2021: Alternative implementations of the "pseudo-global-warming" methodology for event-based simulations. *Journal of Geophysical Research-Atmospheres*, 126, e2021JD035017, https://doi.org/10.1029/2021JD035017

22. Nesbitt, S. W., and co-authors (including **R. J. Trapp**), 2021: A storm safari in subtropical South America: proyecto RELAMPAGO. *Bulletin of the American Meteorological Society*.

23. Wurman, J., K. Kosiba, B. Pereira, P. Robinson, A. Frambach, A. Gilliland, T. White, J. Aikins, **R. J. Trapp**, S. Nesbitt, M. N. Hanshaw, and J. Lutz, 2021: The FARM (Flexible Array of Radars and Mesonets). *Bulletin of the American Meteorological Society*.

24. Lasher-Trapp., S., E. Jo, L. R. Allen, B. N. Engelsen, and **R. J. Trapp**, 2021: Entrainment in a simulated supercell thunderstorm, Part I: The evolution of different entrainment mechanisms and their dilutive effects. *Journal of the Atmospheric Sciences*.

25. Marion, G. R., and **R. J. Trapp**, 2021: Controls of quasi-linear convective system tornado intensity. *Journal of the Atmospheric Sciences*, **78**, 1189-1205.

26. Schumacher, R. S., D. A. Hence, S. W. Nesbitt, **R. J. Trapp**, K. A. Kosiba, J. Wurman, P. Salio, M. Rugna, A. C. Varble, and N. R. Kelly, 2021: Convective-storm environments in subtropical South America from high-frequency soundings during RELAMPAGO-CACTI. *Monthly Weather Review*, **149**, 1439-1458.

27. Raupach, T. H., O. Martius, J. T. Allen, M. Kunz, S. Lasher-Trapp, S. Mohr, K. L. Rasmussen, **R. J. Trapp**., and Q. Zhang, 2020: The effects of climate change on hailstorms, *Nature Reviews Earth and Environment*, DOI: 10.1038/s43017-020-00133-9.

28. Carroll-Smith, D., **R. J. Trapp**, and J. Done, 2020: Exploring inland tropical cyclone rainfall and tornadoes under future climate conditions through a case study of Hurricane Ivan. *Journal of Applied Meteorology and Climatology*, DOI: 10.1175/JAMC-D-20-0090.1.

29. **Trapp, R. J.**, K. A. Kosiba, J. N. Marquis, M. R. Kumjian, S. W. Nesbitt, J. Wurman, P. Salio, M. A. Grover, P. Robinson, and D. A. Hence, 2020: Multiple-platform and multiple-Doppler radar observations of a supercell thunderstorm in South America during RELAMPAGO. *Monthly Weather Review*, **148**, 3225-3241.

30. Mulholland, J. P., S. W. Nesbitt, **R. J. Trapp**, and J. M. Peters, 2020: Terrain influences on the upscale convective growth of orographic supercells into mesoscale convective systems. *Journal of the Atmospheric Sciences*, **77**, 3929-3949.

31. Miller, D. E., Z. Wang, **R. J. Trapp**, and D. S. Harnos, 2020: Hybrid prediction of weekly tornado activity out to week 3: Utilizing weather regions. *Geophysical Research Letters*, 47, e2020GL087253.

32. Sessa, M. F., and **R. J. Trapp**, 2020: Observed relationship between tornado intensity and pre-tornadic mesocyclone characteristics, *Weather and Forecasting*, 1243-1261.

33. Liu, X., K. Zhou, Y. Lan, X. Mao, and **R. J. Trapp**, 2020: On the use of conceptual models for severe convective weather forecasting operations in China. *Weather and Forecasting*, **35**, 299-308.

34. Borque, P., S. W. Nesbitt, **R. J. Trapp**, S. G. Lasher-Trapp, M. Oue, 2020: Observational study of the thermodynamics and morphological characteristics of a midlatitude continental cold pool event. *Monthly Weather Review*, **148**, 719–737.

35. Marion, G. R., **R. J. Trapp**, and S. W. Nesbitt, 2019: Using Overshooting Top Area to Discriminate Potential for Large, Intense Tornadoes, *Geophysical Research Letters*, 10.1029/2019GL084099.

36. Mulholland, J. P., S. W. Nesbitt, and **R. J. Trapp**, 2019: How does terrain influence upscale convective growth of orographic deep moist convection? *Monthly Weather Review*, **147**, 4305-4324.

37. **Trapp, R. J.**, K. A. Hoogewind, S. G. Lasher-Trapp, 2019: Projected increases in hail occurrences in the United States determined through convective-permitting dynamical downscaling. *Journal of Climate*, 32, 5493-5509.

38. Carroll-Smith, D., L. C. Dawson, **R. J. Trapp**, 2019: High resolution real-data WRF modeling and verification of tropical cyclone tornadoes associated with Hurricane Ivan 2004. *Electronic Journal of Severe Storms Meteorology*, 14 (2), 1-36.

39. Marion, G. R., and **R. J. Trapp**, 2019: The dynamical coupling of convective updrafts, downdrafts, and cold pools in simulated supercell thunderstorms. *Journal of Geophysical Research-Atmospheres*, *124*, DOI: 10.1029/2018JD029055.

40. Schlie-Janssen, E. A., D. Wuebbles, S. Stevens, **R. J. Trapp**, and B. Jewett, 2019: A radar-based study of severe hail outbreaks over the contiguous United States for 2000-2011. *International Journal of Climatology*, *39*, 278-291, DOI: 10.1002/joc.5805.

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(underline indicates authorship by student advised/co-advised by R.J. Trapp)

- BOOK CHAPTERS:

Trapp, R. J., 2020: *Potential effects of anthropogenic climate change on non-synoptic wind storm hazards*. Oxford Handbook of Non-Synoptic Wind Storm Hazards, DOI: 10.1093/oxfordhb/9780190670252.103.4.

Trapp, R. J., 2018: *Formation and Development of Convective Storms*. Oxford Research Encyclopedia of Climate Science, DOI 10.1093/acrefore/9780190228620.013.61.

Trapp, R. J., 2002: *Severe Thunderstorms.* Encyl. Phys. Science and Technol., Academic Press, San Diego, 735-749.

Davies-Jones, R., **R. J. Trapp**, and H. B. Bluestein, 2001: Tornadoes and tornadic storms, *Severe Convective Storms, Meteorological Monograph*, No. 50, Amer. Meteor. Soc., 167-222.

PRESENTATIONS

- SELECT PRESENTATIONS (LAST 15 YEARS)

International Association for Wind Engineering (IAWE) Webinar Series, 2025: "Future trends in severe thunderstorms and tornadoes"

NIST/ASCE Webinar Series, 2024: "The impact of human-induced climate change on future tornado intensity as revealed through multi-scale modeling"

Karlsruhe Institute of Technology, Karlsruhe, Germany, 2024: Results from PERiLS, a recent multi-institutional field study of hazardous mesoscale convective systems"

University of Bern, Oeschger Centre for Climate Change Research, Bern, Switzerland, 2024: "Hailstorms in a changing climate"

University of Bern, Institute of Geography, Bern, Switzerland, 2024: "PERiLS: A field campaign devoted to the study of hazardous mesoscale convective systems"

MeteoSwiss, Locarno Monti, Switzerland, 2024: "Satellite-based quantifications of convective updraft characteristics: Application to hail severity"

Met Office Hadley Centre, 2023: "Environment-informed, convection-permitting dynamical downscaling for climate-change projections of hazardous convective weather"

AGU Fall Meeting, Chicago, IL 2022: "Gilbert F. White Distinguished Lecture Award, Temporal and spatial changes in the risks associated with severe convective storms" (invited)

AGU Fall Meeting Chicago, IL, 2022: "The use of an event-based pseudo-global-warming modeling approach to assess changes in extreme thunderstorm event characteristics" (invited)

AGU Fall Meeting Chicago, IL, 2022: "Convection-allowing dynamical downscaling for hazardous thunderstorm risk assessment under past and future climates" (invited)

International Workshop on Cold Pools, Tagnernsee, Germany, 2022: "Coupling of Cold Pool Depth to Convective-Draft Width"

Earth System Science Interdisciplinary Center, University of Maryland, 2022: “The Use of Implicit and Explicit Approaches to Assess Future Changes in Extreme Thunderstorm Event Characteristics”

NWA Extreme Weather Symposium, 2021: “Understanding and anticipating QLCS tornado intensity” (invited)

AMS Annual Meeting, Boston, MA, 2020: “Robust observational support for hypothesized connection between rotating updraft width and tornado intensity” (invited)

MMAG Conference, St. Louis, MO, 2019: “Storm prediction, projection, and prognostication” (invited)

AGU Fall Meeting, Washington, D.C., 2018: “The dynamical coupling of convective updrafts, downdrafts, and cold pools in highly organized convective storms in midlatitudes” (invited)

Tornado Hazard Wind Assessment and Reduction Symposium (THWARTS), Champaign, IL, 2018: “Historical trends and future climate projections of tornado activity in the United States” (invited)

North American Workshop on Hail and Hailstorms, Boulder, CO, 2018: “Hail occurrence under anthropogenic climate change as investigated with convection permitting dynamical downscaling” (solicited)

Pacific Northwest National Laboratory, Richmond, WA, 2018: “The dynamical coupling of convective updrafts, downdrafts, and cold pools in highly organized convective storms in midlatitudes”

ASR/ARM Joint Meeting, 2018: “Inter-relationships between convectively generated cold pools, updraft/downdraft characteristics, and microphysical processes” (solicited)

Ninth European Conference on Severe Storms, Pula, Croatia, 2017: “The regulation of tornado intensity by updraft width” (solicited)

NCAR/MMM Distinguished Seminar Series, Boulder, CO, 2017: “The regulation of tornado intensity by updraft width”

Second European Hail Workshop, Bern, Switzerland, 2017: “Hail occurrence under anthropogenic climate change” (keynote)

Karlsruhe Institute of Technology, Karlsruhe, Germany, 2017: “Characteristics, controls, and inter-relationships of the convective components of simulated convective storms under current and future climates”

Severe Convection and Climate Workshop, Columbia University, New York, 2016: “The realization of extreme tornadic storm events under future anthropogenic global warming.” (invited)

AMS Annual Meeting, New Orleans, LA, 2016: “Extreme precipitation revealed through high-resolution dynamical downscaling” (invited)

AGU Annual Meeting, San Francisco, CA, 2015: “Pseudo-global warming controls on the intensity and morphology of extreme convective storm events.” (invited)

Earth Systems Science Center, Penn State University, PA, 2014: “Adventures in dynamical downscaling”

Department of Meteorology, Penn State University, PA, 2014: “On the possible effects of anthropogenically enhanced global radiative forcing on severe thunderstorm frequency and intensity”

American Meteorological Society, *The Special Symposium on Severe Local Storms: The Current State of the Science and Understanding Impacts*, Atlanta, GA, 2014: “Connecting tornado and extreme convective weather occurrence to climate variability and change” (invited)

Texas A&M University, 2012: “Connecting tornado and extreme convective weather occurrence to climate variability and change”

Northern Illinois University, 2012: “Vertically rotating cores in quasi-linear convective systems: formation and forecast/warning issues”

School of Earth and Environment, University of Leeds, Leeds, UK, 2010: “Regional climate of hazardous convective weather using high-resolution dynamical downscaling”

Department of Meteorology, University of Reading, Reading, UK, 2010: “Vertically rotating cores in quasi-linear convective systems: implications, formation, and influence of environmental heterogeneity”

School of Earth, Atmospheric, and Environmental Sciences, University of Manchester, Manchester, UK, 2010: “Exploring possible connections between local convective storms and anthropogenic climate change”

- LIST OF CONFERENCES, SYMPOSIA, AND WORKSHOPS (LAST 15 YEARS):

AMS Annual Meeting, Houston, TX, 2026

AGU Fall Meeting, New Orleans, LA 2025

12th European Conference on Severe Storms, Utrecht, The Netherlands, 2025

AGU Fall Meeting, Washington, DC, 2024

AMS 31st AMS Conference on Severe Local Storms, Virginia Beach, VA, 2024

AGU Fall Meeting, San Francisco, CA, 2023

European Hail Workshop, Karlsruhe, Germany, 2023

AMS 32nd AMS Conference on Weather Analysis and Forecasting, Madison, WI, 2023

AGU Fall Meeting, Chicago, IL, 2022

AMS 30th AMS Conference on Severe Local Storms, Santa Fe, NM, 2022

AMS Annual Meeting, Boston, MA, 2020

10th European Conference on Severe Storms, Krakow, Poland, 2019

Blue Waters Symposium, Sunriver, OR, 2019.

29th AMS Conference on Severe Local Storms, Vermont, 2018 (contributed)

31st Conference on Climate Variability and Change, Austin, TX, 2018

9th European Conference on Severe Storms, Pula, Croatia, 2017

38th Conference on Radar Meteorology, Chicago, IL, 2017 (contributed)

28th AMS Conference on Severe Local Storms, Portland, OR, 2016

Blue Waters Symposium, Sunriver, OR, 2016.

GWEX Symposium on Convective Permitting Model Applications, Boulder, CO, 2016.

7th European Conference on Severe Storms, Wiener Neustadt, Austria, 2015

27th AMS Conference on Severe Local Storms, Madison, WI, 2014

26th AMS Conference on Severe Local Storms, Nashville, TN, 2012

Open Science Conference, World Climate Research Programme, Denver, CO, 2011

6th European Conference on Severe Storms, Palma De Mallorca, Spain, 2011

35th AMS Conference on Radar Meteorology, Pittsburg, PA, 2011 (contributed)

25th AMS Conference on Severe Local Storms, Denver, CO, 2010

American Meteorological Society, *22nd Conference on Climate Variability and Change*, Atlanta, Georgia, 2010 (contributed)

American Meteorological Society, *19th Symposium on Education*, Atlanta, Georgia, 2010 (contributed)

American Meteorological Society, *9th Annual Student Conference*, Atlanta, Georgia, 2010 (contributed)