Curriculum Vitae

ROBERT JEFFREY TRAPP

Department of Atmospheric Sciences
University of Illinois at Urbana-Champaign
105 S. Gregory Street
Urbana, Illinois 61801
jtrapp@illinois.edu

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

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

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

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

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 (pending formal approval by NOAA Grants Officer).

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-Principal 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 $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 1230085-AGS, $440,200, 2012-2015.

Co-Principal 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, J. Wurman), 2009.

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

Principal Investigator, *Sub-daily scale extreme precipitation in future climate-change scenarios*, NSF grant 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 grant ATM-0233344, $368,115, 2003-2006.

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

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

PROFESSIONAL ACTIVITIES

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

Co-Principal Investigator, RELAMPAGO, 2017

Invited Participant, NAS Workshop on Extreme Weather Events and Climate Change Attribution, 2015

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

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

Invited Participant, NOAA Climate Science Challenge Workshop on Regional Climate Variability and Change, 2011

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

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

Invited Participant, Workshop on Progress and Priorities of US Weather Research and Research-to-Operations Activities, sponsored by the Board on Atmospheric Sciences and Climate, National Academy of Science, 2009

Contributing Author, U.S. Climate Change Science Program, Synthesis and Assessment Product 3.3, “Weather and Climate Extremes in a Changing Climate”, 2007

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

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

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

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

Session chair: 18th, 19th, 20th, 22nd, 24th, 25th AMS *Conferences on Severe Local Storms*

Research mentor, SOARS (Significant Opportunities in Atmospheric Research and Science), 1999, 2000

Chair, program committee, *Golden Jubilee Symposium on Tornado Forecasting*, 1998

TEACHING

Introduction to Atmospheric Science, *Geosciences in the Cinema*, *Science of the Atmosphere*, *Atmospheric Dynamics I*, *Atmospheric Dynamics II*, *Radar Meteorology*, *Weather Analysis and Forecasting*, *Climate and Extreme Weather Seminar*, *Mesoscale Meteorology, Meteorological Observations and Measurements, Numerical Modeling of Convective Clouds and Storms, Mesoscale Observations and Analysis, Introduction to Atmospheric Sciences Research, Spring Break Field Course*

EAS 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

STUDENTS ADVISED

- CURRENT (GRADUATE):

Geoff Marion – Ph.D., anticipated May 2020
Jake Mulholland – Ph.D., anticipated May 2019
Dereka Carroll – Ph.D., anticipated December 2017
Logan Dawson – Ph.D., anticipated August 2017 (Purdue University)
Adam Stepanek – Ph.D., anticipated August 2017 (Purdue University)

- 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

- UNDERGRADUATES:

Kent Knopfmeier – B.S., received May 2005
Anthony Reinhart – B.S., received May 2007
Mark Nance – B.S., received May 2007
Eric Robinson – B.S. (in Physics), received May 2008
Dustin Pittman – B.S., received May 2010
Kevin Van Leer – B.S., received May 2011

- SERVICE ON GRADUATE COMITTEES:

Angela Lese - M.S., received December 2003

Jonathan Chamberlain – M.S., received May 2004
Hong-bing Zhang - M.S., received December 2004
Aisha Reed – M.S., received December 2005
Justin Stachnik – M.S., received August 2007
Kevin Vermeesch – M.S., received August 2007
Colleen Henry – Ph.D., received May 2008
Megan Walker – M.S., received July 2008
Dan Arthur – M.S., received May 2009
Erin Jones – M.S., received July 2009
Moetasim Ashfaq – Ph.D., received July 2009
Yi-Chi Wang – Ph.D., received May 2012
Jacob Carley – Ph.D., received May 2013
Cecille Villanueva Birriel – Ph.D., May 2013
Kevin Grady – Ph.D., May 2016

HONORS AND AWARDS

Blue Waters Professor, University of Illinois at Urbana-Champaign, 2014-present
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 Meteorological Society
Sigma Xi
American Geophysical Union

PUBLICATIONS

● BOOKS

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

● FORMAL, IN REVIEW:

Trapp, R. J., G. R. Marion, and S. W. Nesbitt, 2016: The regulation of tornado intensity by updraft width. *Journal of the Atmospheric Sciences*, in revision.

Hoogewind, K. A., M. E. Baldwin, and **R. J. Trapp**, 2017: The Impact of Climate Change on Hazardous Convective Storms in the United States: Insight from High-Resolution Dynamical Downscaling, *Journal of Climate*, in revision.

Trapp, R. J., and K. A. Hoogewind, 2017: Is there a connection between Arctic sea ice and tornado activity? *Nature-Climate Change*, in revision.

Stepanek, A., **R. J. Trapp**, and M. E. Baldwin, 2017: Subseasonal Prediction of Severe Weather Environments by the Climate Forecast System Version 2 Model Suite. *Weather and Forecasting*, in revision.

● FORMAL, IN PRINT:

Dawson, L. C., G. S. Romine, **R. J. Trapp**, and M. E. Baldwin, 2017: Verifying supercellular rotation in a convection-permitting ensemble forecasting system with radar-derived rotation track data. *Weather and Forecasting*, **32**, 781–795.

Trapp, R. J., and J. M. Woznicki, 2017: Convectively inducted stabilizations and subsequent recovery with supercell thunderstorms during the Mesoscale Predictability Experiment (MPEX). *Monthly Weather Review*, **145**, 1739–1754.

Trapp, R. J., and K. A. Hoogewind, 2016: The realization of extreme tornadic storm events under future anthropogenic climate change. *Journal of Climate*, **29**, 5251–5265, doi: 10.1175/JCLI-D-15-0623.1.

Trapp, R. J., D. Stensrud, M. Coniglio, R. Schumacher, M. Baldwin, S. Waugh, and D. Conlee, 2016: Mobile radiosonde deployments during the Mesoscale Predictability Experiment (MPEX): Rapid and adaptive sampling of upscale convective feedbacks. *Bulletin of the American Meteorological Society*, **97**, 326-336.

Weisman, M., **R. J. Trapp**, and others, 2015: The Mesoscale Predictability Experiment (MPEX). *Bulletin of the American Meteorological Society*, **96**, 2127-2149.

Trier, S., G. Romine, D. Ahijevych, **R. Trapp**, R. Schumacher, M. Coniglio, and D. Stensrud, 2015: Mesoscale Thermodynamic Influences on Convection Initiation near a Surface Dryline in a Convection-Permitting Ensemble. *Monthly Weather Review*, **143**, 3726–3753.

Villanueva-Birriel, C. M., S. Lasher-Trapp, **R. J. Trapp**, and N. S. Diffenbaugh, 2014: Sensitivity of the Warm Rain Process in Convective Clouds to Regional Climate Change in the Contiguous U.S., *Journal of Clouds, Aerosols, and Radiation,* **1***,* 1-17.

Trapp, R. J., 2014: On the significance of multiple consecutive days of tornado activity. *Monthly Weather Review,* **142**, 1452–1459

Diffenbaugh, N.S., M. Scherer, and **R. Trapp**, 2013: Robust increases in severe thunderstorm environments in response to greenhouse forcing. *Proceedings, National Academy of Sciences*, doi: 10.1073/pnas.1307758110.

Robinson, E. D., **R. J. Trapp**, and M. E. Baldwin, 2013: The geospatial and temporal distributions of severe thunderstorms from high-resolution dynamical downscaling. *Journal of Applied Meteorology and Climatology,* **52**, 2147-2161.

Trapp, R. J., and H. E. Brooks, 2013: Regional characterization of tornado activity. *Journal of Applied Meteorology and Climatology,* **52**, 654-659.

Toth, M. E., **R. J. Trapp,** K. K. Kosiba, and J. Wurman, 2012: Comparison of mobile-radar measurements of tornado intensity with corresponding WSR-88D measurements. *Weather and Forecasting*, 28, 418-426.

Kunkel, K. E., and co-authors (incl. **J. Trapp**), 2012: Monitoring and understanding trends in extreme storms: State of knowledge. *Bulletin of the American Meteorological Society*, **94**, 499-514.

Hitchens, N., M. E. Baldwin, and **R. J. Trapp**, 2012: An object-oriented characterization of extreme precipitation-producing convective systems in the Midwestern United States. *Monthly Weather Review,* **140**, 1356-1366.

Carley, J. R., B. R. J. Schwedler, M. E. Baldwin, R. J. Trapp, J. Kwiatkowski, J. Logsdon, and S. J. Weiss, 2011: A proposed model-based methodology for feature-specific prediction for high impact weather. *Weather and Forecasting*, **26**, 243-249.

Trapp, R. J., E. D. Robinson, M. E. Baldwin, N. S. Diffenbaugh, and B. R. J. Schwedler, 2010: Regional climate of hazardous convective weather through high-resolution dynamical downscaling. *Climate Dynamics*, doi: 10.1007/s00382-010-0826-y

Hitchens, N., **R. J. Trapp**, M. E. Baldwin, and A. Gluhovsky, 2010: Characterizing sub-diurnal extreme precipitation in the Midwestern United States. *Journal of Hydrometeorology*, **11**, 211-218.

Huber, M., and **J. Trapp**, 2009: A review of NEXRAD Level II: Data, Distribution, and Applications. *Journal of Terrestrial Observation*, **2**, 5-15.

Ashfaq, M., Y. Shi. W.-w. Tung, **R. J. Trapp**, X. Gao, J. S. Pal, and N. S. Diffenbaugh, 2009: Suppression of South Asia summer monsoon precipitation in the 21st century. *Geophysical Research Letters*, L01704, doi:10.1029/2008GL036500.

Trapp, R. J., N. S. Diffenbaugh, and A. Gluhovsky, 2009: Transient response of severe thunderstorm forcing to elevated greenhouse gas concentrations. *Geophysical Research Letters*, 36, L01703, doi:10.1029/2008GL036203.

Diffenbaugh, N.S., **R. J. Trapp**, and H. E. Brooks, 2008: Challenges in identifying influences of global warming on tornado activity. *Eos Transactions*, *89*(53), 553-554.

Markowski, P., E. Rasmussen, J. Straka, R. Davies-Jones, Y. Richardson, and **J. Trapp**, 2008: Vortex lines within low-level mesocyclones obtained from pseudo-dual-Doppler radar observations. *Monthly Weather Review*, **136**, 3513-3535.

Wheatley, D. M., and **R. J. Trapp**, 2008: The effect of mesoscale heterogeneity on the genesis and structure of mesovortices within quasi-linear convective systems. *Monthly Weather Review*, **136**, 4220-4241.

Kosiba, K. A., **R. J. Trapp**, and J. Wurman, 2008: An analysis of the axisymmetric three-dimensional low level wind field in a tornado using mobile radar observations. *Geophysical Research Letters*, **35**, L05805, doi:10.1029/2007GL031851.

Trapp, R. J., N. S. Diffenbaugh, H. E. Brooks, M. E. Baldwin, E. D. Robinson, and J. S. Pal, 2007: Changes in severe thunderstorm environment frequency during the 21st century caused by anthropogenically enhanced global radiative forcing. *Proceedings, National Academy of Sciences*, **104**, 19719-19723, doi: 10.1073/pnas.0705494104.

Moore, G. E., M. Levine, J. D. Anderson, and **R. J. Trapp**, 2007: Meteorological influence on the occurrence of gastric dilatation-volvulus in military working dogs in Texas. *International Journal of Biometeorology*, doi:10.1007/s00484-007-0115-6.

Trapp, R. J., B. Halvorson, and N. S. Diffenbaugh, 2007: Telescoping, multimodel approaches to evaluate extreme convective weather under future climates, *Journal of Geophysical Research*, **112**, D20109, doi:10.1029/2006JD008345.

Schultz, D. M., K. M. Kanak, J. M. Straka, **R. J. Trapp**, B. A. Gordon, D. S. Zrnic, P. M. Kastner-Klein, C. A. Doswell III, G. H. Bryan, D. K. Lilly, and T. J. Garrett, 2006: The mysteries of mammatus clouds: Observations and formation mechanisms. *Journal of the Atmospheric*

Sciences, **63**, 2409-2435.

Trapp, R. J., D. M. Wheatley, N. T. Atkins, R. W. Przybylinski, and R. Wolf, 2006: Buyer beware: Some words of caution on the use of severe wind reports in post-event assessment and research. *Weather and Forecasting*, **21**, 408-415.

Wheatley, D. M, **R. J. Trapp**, and N. T. Atkins, 2006: Radar and Damage Analysis of Severe Bow Echoes Observed during BAMEX, *Monthly Weather Review*, **134**, 791-806.

Diffenbaugh, N. S., J. S. Pal, **R. J. Trapp**, and F. Giorgi, 2005: Interactions of large- and fine-scale processes dictate the greenhouse response of extreme daily climate events over the United States. *Proceedings, National Academy of Sciences*, 102, 15774-15778.

Trapp, R. J., G. J. Stumpf, and K. L. Manross, 2005: A reassessment of the percentage of tornadic mesocyclones. *Weather and Forecasting*, **20**, 680-687.

Atkins, N. T., C. S. Bouchard, R. W. Przybylinski, **R. J. Trapp**, and G. Schmocker, 2005: Damaging surface wind mechanisms within the 10 June 2003 Saint Louis bow echo event during BAMEX. *Monthly Weather Review*, **133**, 2275–2296.

Trapp, R. J., S. A. Tessendorf, E. G. Savageau, and H. E. Brooks, 2005: Tornadoes in squall lines and bow echoes. Part I: Climatological distribution. *Weather and Forecasting*, **40**, 23-34.

Davis, C., N. Atkins, D. Bartels, L. Bosart, M. Coniglio, G. Bryan, W. Cotton, D. Dowell, B. Jewett, R. Johns, D. Jorgensen, J. Knievel, K. Knupp, W.-C. Lee, G. McFarquahar, J. Moorse, R. Przybylinski, R. Rabuer, B. Smull, **R. Trapp**, S. Trier, R. Wakimoto, M. Weisman, and C. Ziegler, 2004: The Bow Echo and MCV Experiment: Observations and Opportunities. *Bulletin of the American Meteorological Society*, **85**, 1075-1092.

Weisman, M. L., and **R. J. Trapp**, 2003: Low-level mesovortices within squall lines and bow echoes: Part I. Overview and dependence on environmental shear. *Monthly Weather Review*, **131**, 2779-2803.

Trapp, R. J., and M. L. Weisman, 2003: Low-level mesovortices within squall lines and bow echoes: Part II. Their genesis and implications. *Monthly Weather Review*, **131**, 2804-2823.

Schultz, D. M., and **R. J. Trapp**, 2003: Nonclassical cold-frontal structure caused by dry subcloud air in northern Utah during the Intermountain Precipitation Experiment (IPEX), *Monthly Weather Review*, 130, 2222-2246.

Rust, W.D. and **R. J. Trapp**, 2002: Initial balloon soundings of the electric field in winter nimbostratus clouds in the USA, *Geophysical Research Letters*, **29**, 20-1 – 20-4.

Schultz, D. M., W. J. Steenburgh, **R. J. Trapp,** and co-authors, 2002: The Intermountain Precipitation Experiment, *Bulletin of the American Meteorological Society*, 83, 189-210.

Trapp, R. J., N. T. Atkins, H. E. Fuelberg, J. G. LaDue, K. J. Pence, T. L. Smith, and G. J. Stumpf, 2001: Meeting Summary: 20th Conference on Severe Local Storms, *Bulletin of the American Meteorological Society*, **82**, 2251-2258.

Trapp, R. J., D. M. Schultz, A. V. Ryzhkov, and R. L. Holle, 2001: Multiscale analysis of an Oklahoma winter-precipitation event. *Monthly Weather Review*, **129**, 486-501.

Trapp, R. J., 2000: A clarification of vortex breakdown and tornadogenesis. *Monthly Weather*

Review, **128**, 888-895.

Trapp, R. J. and C. A. Doswell III, 2000: Radar data objective analysis. *Journal of Atmospheric and Oceanic Technology*, 17, 105-120.

Trapp, R. J., E. D. Mitchell, G. A. Tipton, D. A. Effertz, A. I. Watson, D. L. Andra, and M. A. Magsig, 1999: Descending and non-descending tornadic vortex signatures detected by WSR-88D's. *Weather and Forecasting*, **14**, 625-639.

Grice, G. K., **Trapp, R. J.**, S. F. Corfidi, R. Davies-Jones, C. C. Buononno, J. P. Craven, K. K. Droegemeier, C. Duchon, J. V. Houghton, R. A. Prentice, G. Romine, K. Schlachter, and K. K. Wagner, 1999: The golden anniversary celebration of the first tornado forecast, *Bulletin of the American Meteorological Society*, **80**, 1341-1348.

Trapp, R. J., 1999: Observations of nontornadic low-level mesocyclones and attendant tornadogenesis failure during VORTEX. *Monthly Weather Review*, **127**, 1693-1705.

Trapp, R. J., and R. Davies-Jones, 1997: Tornadogenesis with and without a dynamic pipe effect. *Journal of the Atmospheric Sciences*, **54**, 113-133.

Trapp, R. J. and B. H. Fiedler, 1995: Tornado-like vortexgenesis in a simplified numerical model. *Journal of the Atmospheric Sciences*, **52**, 3757-3778.

Trapp, R. J. and B. H. Fiedler, 1993: Numerical simulation of tornado-like vortices in asymmetric flow. *The Tornado: Its Structure, Dynamics, Prediction, and Hazards*. C. R. Church (Ed.), AGU Geophysical Monograph Series, Washington, 49-54.

Fiedler, B. H. and **R. J. Trapp**, 1993: A fast dynamic grid adaption scheme for meteorological flows. *Monthly Weather Review*, **121**, 2879-2888.

- BOOK CHAPTERS:

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

- SELECTED INVITED PRESENTATIONS

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."

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

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

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

Department of Meteorology, Penn State University, 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, Georgia, 2014: “Connecting tornado and extreme convective weather occurrence to climate variability and change”

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”

Climate Change Science Workshop, Yale Forum on Climate Change and the Media, Field Museum, Chicago, Illinois, 2009: “Climate change and severe weather”

Department of Meteorology, Valparaiso University, 2008: “How global warming may change storm chasing by the late 21st Century”

School of Meteorology, University of Oklahoma, 2007: “Severe thunderstorms and climate change”

IMO Skywarn Advanced Spotter Training Workshop, Elkhart, Indiana, 2007: “The state of the sciences of tornadoes”

Third Workshop on the Theory and Use of Regional Climate Models, Abdus Salam International Center for Theoretical Physics, Trieste, Italy, 2006: “Downscaling regional climate model data for studies of small scale severe weather phenomena”

Central Indiana Severe Weather Symposium, Indianapolis, Indiana, 2006: “Tornadoes and damaging winds within squall lines and bow echoes”

10th Severe Storms and Doppler Radar Conference of the Central Iowa NWA, Des Moines, Iowa, 2006: “A tale of two storm types” (keynote speaker)

●SELECTED PRESENTATIONS AT CONFERENCES, SYMPOSIA, AND WORKSHOPS:

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.

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)

5th European Conference on Severe Storms, Landshut, Germany, 2009

24th AMS Conference on Severe Local Storms, Savannah, GA, 2008

4th PAN-GCSS Meeting on Advances in Modeling and Observing Clouds and Convection, Météo France, Toulouse, France, 2008

4th European Conference on Severe Storms, International Centre for Theoretical Physics, Trieste, Italy, 2007

2nd International Conference on Earth System Modeling, Max Planck Institute for Meteorology, Hamburg, Germany, 2007

Midwest Bow Echo Workshop, Louisville, KY, 2007

American Meteorological Society, *19th Conference on Climate Variability and Change*, San Antonio Texas, 2007 (contributed)

19th Conference on Climate Variability and Change / *AMS Forum: Climate Change Manifested by Changes in Weather*, 2007

Fifth Conference on Artificial Intelligence Applications to Environmental Science, 2007 (contributed)

23rd AMS Conference on Severe Local Storms, St. Louis, MO, 2006