

Stephen W. Nesbitt, Ph.D.  
Department of Atmospheric Sciences  
School of Earth Society and Environment  
University of Illinois at Urbana-Champaign  
1301 West Green Street  
Urbana, IL 61801 USA  
E-mail: [snesbitt@illinois.edu](mailto:snesbitt@illinois.edu)  
Phone: (217) 244-3740

## 1. PERSONAL HISTORY AND PROFESSIONAL EXPERIENCE

### A. Educational Background

B.S. in Meteorology with honors (*summa cum laude*), State University of New York College at Oswego, 1997  
M.S. in Meteorology, Texas A&M University, 1999  
Ph.D. in Meteorology, University of Utah, 2003

### B. List of Academic Positions Since Final Degree

Assistant Professor, Dept. of Atmospheric Sciences, University of Illinois at Urbana-Champaign, 2006 – 2012  
Associate Professor, Dept. of Atmospheric Sciences, University of Illinois at Urbana-Champaign, 2012 – 2019  
Affiliate, Computational Science and Engineering, University of Illinois at Urbana-Champaign, 2014 – present  
Affiliate, Center for Latin American Studies, University of Illinois at Urbana-Champaign, 2015 – present  
Visiting Professor, Dept. de Ciencias de la Atmósfera y los Océanos, Universidad de Buenos Aires, Spr 2015  
Associate Researcher, Instituto Nacional de Agua, Argentina, 2019 – present  
Professor, Dept. of Atmospheric Sciences, University of Illinois at Urbana-Champaign, 2019 – present

### C. Other Professional Employment

Undergraduate Research Assistant, State University of New York College at Oswego, Oswego, NY, 1995 – 1997  
Graduate Teaching Assistant, Department of Meteorology, Texas A&M University, College Station, TX, 1997  
Graduate Research Assistant, Tropical Convection Research Program, Department of Meteorology, Texas A&M University, College Station, TX, 1997 – 1999  
Graduate Research Assistant, Tropical Meteorology Group, University of Utah, Salt Lake City, UT, 1999 – 2003  
Research Scientist I, Dept. of Atmospheric Sciences, Colorado State University, 2003 – 2005  
Research Scientist II, Dept. of Atmospheric Sciences, Colorado State University, 2005 – 2006  
Research Fellow, Consejo Nacional de Investigaciones Científicas y Técnicas, Centro de Investigaciones del Mar y la Atmósfera, Argentina, Spr 2015  
Visiting Scientist, Servicio Meteorológico Nacional, Argentina, Spr 2015  
Affiliate Researcher, Instituto Nacional de Agua, Argentina, Jun 2019 – present

### D. Honors, Recognitions, and Prizes

Highly Meritorious Meteorology Senior Award, State University of New York College at Oswego, 1997  
Excellence in Graduate Research Award, University of Utah, 2003  
NASA Earth System Science Graduate Fellowship, 2001-2003  
Editors' Citation for Excellence in Refereeing for *Journal of Geophysical Research – Atmospheres*, AGU, 2006  
NASA New Investigator Award, 2008  
NASA Group Achievement Award, *Genesis and Rapid Intensification Project* field campaign, 2011  
Editors' Citation for Excellence in Refereeing for *Journal of Geophysical Research – Atmospheres*, AGU, 2011  
Co-Chair, AMS 35th Conference on Radar Meteorology, Pittsburgh, PA, 2011  
Honors Council, College of Liberal Arts and Sciences, University of Illinois, 2012-2014  
List of Teachers Ranked as Excellent:  
ATMS 403 Spring 2007, Fall 2007, Fall 2009, ATMS 406 Fall 2009  
University of Illinois, College of Liberal Arts and Sciences, Reflective Teaching Seminar, 2010-11 academic year  
Elected chair, Scientific and Technical Advisory Committee on Radar Meteorology, AMS, 2013-2016  
Program theme lead and organizing committee, AMS 36th Conference on Radar Meteorology, Breckenridge, CO, Oct 2013  
Organizing committee, 8<sup>th</sup> European Conference on Radar in Meteorology and Hydrology, Garmisch-Partenkirchen,

Germany, Sep 2014  
 Research Fellowship, Consejo Nacional de Investigaciones Científicas y Técnicas, Argentina, Spring 2015  
 NASA Robert H. Goddard Award, *Global Precipitation Measurement mission* ground validation team for exceptional achievement in science, 2015  
 NASA Group Achievement Award, *Global Precipitation Measurement mission* science team, 2015  
 Program theme lead and organizing committee, AMS 37th Conference on Radar Meteorology, Norman, OK, Sep 2015  
 Organizing committee, 8th European Radar and Hydrology Conference, Antalya, Turkey, Oct 2016  
 AMS award for Outstanding Service as Member and Chair, Radar Meteorology, 2016  
 Science Community Committee, NASA Aerosol and Clouds, Convection, and Precipitation (ACCP) mission, 2018 – present  
 Suborbital Working Group, NASA Aerosol and Clouds, Convection, and Precipitation (ACCP) mission, 2018 – present  
 Co-Chair, NASA Global Precipitation Measurement Ground Validation Symposium, Online, 2020  
 Faculty award for Outstanding Service to the Department of Atmospheric Sciences, 2020  
 Faculty award for Outstanding Teacher in a Graduate Course, 2020  
 List of Teachers Ranked as Excellent (since promotion to Associate Professor):  
 ATMS 571 Fall 2014, ATMS 505 Spring 2013, ATMS 597 Spring 2020

#### E. Invited Lectures and Invited Conference Presentations

Intense thunderstorms in the tropics, Local Chapter Meeting, Central Illinois Chapter of the American Meteorological Society, Lincoln, IL, September 2006  
 Observations and processes within intense thunderstorms, Seminar Series, Illinois State Water Survey, Champaign, IL, September 2006  
 Global Precipitation Mission ground validation strategies, Department of Energy Atmospheric Radiation Measurement Cloud Properties Working Group Meeting, Annapolis, MD, October 2006  
 North American Monsoon, Science Today Lecture Series, State University of New York College at Oswego, October 2007  
 Precipitation processes within the North American Monsoon, World Meteorological Organization Workshop on High Resolution Precipitation Products, Geneva, Switzerland, December 2007  
 Satellite studies of monsoon precipitation, Department of Earth Sciences, University of Goa, Goa, India, August 2008  
 North American Monsoon, Seminar Series, Department of Atmospheric Sciences, University of Illinois at Urbana-Champaign, October 2008  
 High resolution precipitation data and analysis of the North American Monsoon, Second Climate Prediction Program for the Americas Principal Investigator's Meeting, Silver Spring, MD, October 2008  
 North American Monsoon, Under threat? Department of Physics and Engineering, Fort Lewis College, April 2010  
 Impact of soil moisture initialization on convection in the North American Monsoon, Department of Civil and Environmental Engineering, University of Illinois at Urbana-Champaign, April 2010  
 Impact of soil moisture initialization on convection in the North American Monsoon, Department of Atmospheric Science, University of Utah, June 2010  
 Soil moisture feedbacks on deep convection in the North American Monsoon, Max Planck Institute for Meteorology, Hamburg, Germany, October 2010  
 Orographic precipitation in conditionally unstable flow, Department of Earth and Atmospheric Science, Purdue University, October 2010  
 Orographic precipitation in conditionally unstable flow, Department of Atmospheric Science, Colorado State University, November 2010  
 Warm season orographic precipitation, Complex Terrain Workshop, Biosphere 2/University of Arizona, February 2011  
 Convective structure of rapidly intensifying tropical cyclones, Department of Meteorology, University of Hawaii, December 2011  
 Biosphere-atmosphere interactions in the North American Monsoon, Energy Biosciences Institute, Water Workshop, Chicago, IL, June 2012  
 Radar-aircraft synergy in GPM Field Campaign Measurements, 5th NASA GPM Ground Validation Workshop, Toronto, Canada, July 2012  
 Advanced dual-polarization radar applications, Federal University of Santa Maria,

Santa Maria, Rio Grande do Sul, Brazil, Dec 2012

NASA Global Precipitation Measurement Mission Ground Validation, Argonne National Laboratory, Chicago, IL, Jan 2013.

NASA Global Precipitation Measurement Mission Ground Validation, University of Wisconsin-Madison, Madison, WI, Mar 2013.

Microphysics research using matched radar-aircraft analyses, NASA Precipitation Measurement Missions Science Team Meeting, Annapolis, MD, Mar 2013.

Science activities of the Global Precipitation Measurement Missions Drop Size Distribution Working Group, 6<sup>th</sup> NASA GPM Ground Validation Workshop, Rome, Italy, Nov 2013.

What we don't know about snow: Snowfall retrieval science in the Global Precipitation Measurement Mission. Program on Atmospheres, Oceans, and Climate, Massachusetts Institute of Technology, Cambridge, Massachusetts, Nov 2013.

Building the GPM-GV Column from the GPM Cold season Precipitation Experiment. AGU Fall Meeting, San Francisco, California, Dec 2013.

What we don't know about snow: Snowfall retrieval science in the Global Precipitation Measurement Mission. Department of Atmospheric Sciences, University of North Dakota, Grand Forks, North Dakota, Dec 2014.

RELAMPAGO. World Meteorological Organization, Working Group on Nowcasting Research, Montreal, Canada, Jul 2014.

RELAMPAGO. Geosciences Division, National Science Foundation, Arlington, Virginia, Aug 2014.

RELAMPAGO. Universidad Nacional de Cuyo, Mendoza, Argentina, Apr 2015.

RELAMPAGO. Universidad Nacional de Córdoba, Cordoba, Argentina, Apr 2015.

RELAMPAGO. Universidad de Buenos Aires, Buenos Aires, Argentina, May 2015.

Improving Cold Season Precipitation Retrievals with GPM Ground Validation Data. 7<sup>th</sup> NASA Global Precipitation Measurement Ground Validation Workshop, Seoul, Korea, May 2015.

RELAMPAGO. Conference Keynote Presentation. XII Argentine Congress on Meteorology, Mar del Plata, Argentina, May 2015.

What we don't know about snow: Snowfall retrieval science in the Global Precipitation Measurement Mission. School of Architecture, Civil, and Environmental Engineering, École Polytechnique Fédéral de Lausanne, Lausanne, Switzerland, Jun 2015.

Constraining Global Precipitation Measurement Mission retrievals with GPM Field Campaign observations. NASA Precipitation Measurement Missions Science Team meeting.

Radar operations during the CACTI field campaign. Atmospheric Radiation Measurement Radar Meeting, Miami, Florida, Feb 2016.

Processes, prediction, and societal impacts of intense convection in subtropical South America. Environmental Sciences Division, Argonne National Laboratory, Mar 2016.

Processes, prediction, and societal impacts of intense convection in subtropical South America. NASA Marshall Space Flight Center and University of Alabama-Huntsville, Mar 2016.

CACTI-RELAMPAGO synergy. Atmospheric Radiation Measurement Atmospheric Systems Research Science Team Meeting, Tysons, Virginia, Apr 2016.

A critical evaluation of the GPM DPR algorithm assumptions using OLYMPLEX data, OLYMPLEX Workshop, Seattle, Mar 2017.

RELAMPAGO. Atmospheric Radiation Measurement Atmospheric Systems Research Science Team Meeting, Tysons, Virginia, Mar 2017.

A critical evaluation of the GPM DPR algorithm assumptions using OLYMPLEX data, OLYMPLEX Workshop, Seattle, Mar 2017.

RELAMPAGO. Atmospheric Radiation Measurement Atmospheric Systems Research Science Team Meeting, Tysons, Virginia, Mar 2017.

Resumen del Proyecto RELAMPAGO-CACTI. Servicio Meteorológico Nacional, Buenos Aires, Jul 2017.

Triple-frequency radar observations of snow in OLYMPLEX. NASA Precipitation Measurement Missions Science Team meeting.

Proyecto RELAMPAGO-CACTI. AGU Fall Meeting, New Orleans, Louisiana, Dec 2017.

Earth system observations for societal benefit, Space Science and Engineering Center, University of Wisconsin-Madison, May 2018.

Proyecto RELAMPAGO-CACTI. Ministry of Science, Technology, and Innovation, Buenos Aires, Jun 2018.

Proyecto RELAMPAGO-CACTI. Universidad Nacional de Córdoba, Córdoba, Argentina, Jun 2018.

Orographic convective initiation and upscale growth. Invited keynote presentation, 4<sup>th</sup> Symposium on Radar and

Hydrometeorological Systems, Córdoba, Argentina, Sep 2018.  
 Radar Meteorology, Advanced Study Institute-RELAMPAGO, National Science Foundation, Nov 2018.  
 Chasing the World's Most Intense Thunderstorms: Proyecto RELAMPAGO-CACTI Argentina 2018, American Meteorological Society Annual Meeting Student Conference, Phoenix, Arizona, Jan 2019.  
 RELAMPAGO. Atmospheric Radiation Measurement Atmospheric Systems Research Science Team Meeting, Rockville, Maryland, Jun 2019.  
 Adaptive radar scanning in CACTI-RELAMPAGO. Atmospheric Radiation Measurement Atmospheric Systems Research Science Team Meeting, Rockville, Maryland, Jun 2019.  
 Mesoscale flows during convective initiation and upscale growth observed during RELAMPAGO-CACTI. Invited keynote presentation, 18<sup>th</sup> Conference on Mesoscale Meteorology, American Meteorological Society, Savannah, Georgia.  
 Mesoscale flows during convective initiation and upscale growth observed during RELAMPAGO-CACTI. Invited seminar, Pacific Northwest National Lab, Richland, Washington, Aug 2019.  
 What can observations tell us about improving the representation of mesoscale convective systems in large-scale models. Invited presentation, AGU Fall Meeting, San Francisco, California, Dec 2019.  
 Suborbital Research for Convective Storm Systems, NASA Aerosol Clouds Convection Precipitation Study, Suborbital Workshop. Online, Mar 2020.  
 Objective 3 Science: Convective Storm Systems, NASA Aerosol Clouds Convection Precipitation Study, Science Community Committee Meeting. Online, Mar 2020.  
 Rapid convective mode transitions in the lee of complex terrain observed in RELAMPAGO-CACTI. 19<sup>th</sup> Conference on Mountain Meteorology, American Meteorological Society. Online, Jul 2020.  
 RELAMPAGO-CACTI, Earth and Planetary Science Department, Purdue University, Oct 2020.

#### F. Offices Held in Professional Societies

President-elect, Central Illinois Chapter of the AMS, 2007  
 President, Central Illinois Chapter of the AMS, 2007 – 2009  
 Chair, Scientific and Technical Advisory Committee on Radar Meteorology, AMS, 2013 – 2016  
 Member, Scientific and Technical Advisory Committee on Mesoscale Meteorology, AMS, 2019 – present

#### G. Editorships of Journals and Other Learned Publications

Editor, Journal of Applied Meteorology and Climatology, AMS, 2010 – 2014

#### H. Grants Received

<i>Title:</i>	Creation and Analysis of C3VP Synthesis Datasets for Global Precipitation Mission Algorithm Development and Evaluation
<i>Granting Agency:</i>	NASA, Global Precipitation Mission Ground Validation Program
<i>Dates of Award:</i>	5/15/07 – 5/14/08
<i>Award Amount:</i>	\$20 K
<i>Role:</i>	Principal investigator
<i>Title:</i>	Diurnal variations and forcing of precipitation systems in the North American Monsoon system
<i>Granting Agency:</i>	NOAA, Climate Prediction Program for the Americas Program
<i>Dates of Award:</i>	8/1/07 – 7/31/11
<i>Award Amount:</i>	\$285 K
<i>Role:</i>	Principal investigator
<i>Title:</i>	Analysis of C3VP Synthesis Datasets for Global Precipitation Mission Algorithm Development and Evaluation
<i>Principal Investigator:</i>	Stephen W. Nesbitt
<i>Granting Agency:</i>	NASA, Global Precipitation Mission Ground Validation Program
<i>Dates of Award:</i>	5/15/08 – 5/14/09
<i>Role:</i>	Principal investigator

*Title:* Improving the Measurement and Understanding of Orographic Precipitation using NASA Satellite Measurements  
*Principal Investigator:* Stephen W. Nesbitt  
*Granting Agency:* NASA, Global Precipitation Mission Ground Validation Program  
*Dates of Award:* 8/1/08 – 5/31/12  
*Role:* Principal investigator

*Title:* Application of NASA Field Observations, Satellite Retrievals and High Resolution WRF Simulations to Study Physical and Dynamical Processes Governing Tropical Cyclone Rainfall and Intensity Change  
*Granting Agency:* NASA, Hurricane Science Research Program  
*Dates of Award:* 1/1/09 – 12/31/12  
*Amount:* \$614 K (\$270 K to SN)  
*Role:* Principal investigator (Lead PI: Greg McFarquhar, Univ. Illinois)

*Title:* Coupling Between Weather, Climate, and Landscape Evolution in the Western Ghats of India  
*Granting Agency:* NSF, Geomorphology and Land Use Dynamics  
*Dates of Award:* 7/1/09 – 3/31/14  
*Award Amount:* \$665 K (\$334 K to SN)  
*Role:* Principal investigator (lead PI: Alison Anders, Univ. Illinois)

*Title:* Remote sensing and modeling studies of dynamical and microphysical processes in tropical cyclone intensification  
*Granting Agency:* NASA, Earth System Science graduate fellowship for Daniel Harnos  
*Dates of Award:* 9/1/10 – 8/31/13  
*Amount:* \$75 K  
*Role:* Principal investigator

*Title:* Synthesis of aircraft and ground based measurements for NASA GPM algorithm validation  
*Granting Agency:* NASA, Global Precipitation Mission Ground Validation Program  
*Dates of Award:* 10/1/10 – 9/30/12  
*Amount:* \$180 K  
*Role:* Principal investigator

*Title:* An orographic optimization technique for improved satellite quantitative precipitation estimation in complex terrain  
*Granting Agency:* NASA, Earth System Science graduate fellowship for Kimberly Reed  
*Dates of Award:* 9/1/11 – 8/31/14  
*Amount:* \$75 K  
*Role:* Principal investigator

*Title:* GPM field campaign aircraft and radar data synergy for algorithm improvement and error characterization  
*Granting Agency:* NASA, Precipitation Measurement Mission  
*Dates of Award:* 2/4/13 – 2/3/16  
*Amount:* \$474 K  
*Role:* Principal investigator

*Title:* Illinois continued participation in Global Precipitation Mission field campaigns and analysis  
*Granting Agency:* National Aeronautics and Space Administration, Global Precipitation Mission Ground Validation Program  
*Dates of Award:* 5/16/13 – 5/15/14  
*Amount:* \$70 K

<i>Role:</i>	Principal investigator
<i>Title:</i>	Properties of ice and mixed phase particles in GPM-Ground Validation Field Campaigns
<i>Granting Agency:</i>	National Aeronautics and Space Administration, Global Precipitation Mission Ground Validation Program
<i>Dates of Award:</i>	5/16/14 – 5/15/15
<i>Amount:</i>	\$75 K
<i>Role:</i>	Principal investigator
<i>Title:</i>	Improving spaceborne falling snow retrievals using in situ data, particle models, and validation
<i>Granting Agency:</i>	NASA, Earth System Science graduate fellowship for George Duffy
<i>Dates of Award:</i>	9/1/14 – 8/31/17
<i>Amount:</i>	\$75 K
<i>Role:</i>	Principal investigator
<i>Title:</i>	Using scatterometer-measured vector winds to study high-impact weather events
<i>Granting Agency:</i>	NASA, Ocean Vector Winds Science Team
<i>Dates of Award:</i>	7/1/14 – 6/30/18
<i>Amount:</i>	\$600 K to SN
<i>Role:</i>	Principal investigator (lead PI: Timothy J. Lang, NASA MSFC)
<i>Title:</i>	Influence of potential vorticity anomalies on flash flood-producing convective systems in subtropical South America
<i>Granting Agency:</i>	NSF – Graduate Research Fellowship for Stella Choi
<i>Dates of Award:</i>	9/1/15 – 8/31/18
<i>Amount:</i>	\$90 K
<i>Role:</i>	Principal investigator
<i>Granting Agency:</i>	University of Illinois Vice Chancellor for Research
<i>Dates of Award:</i>	1/1/15 – 1/1/16
<i>Title:</i>	SCAMP: System for Characterizing And Measuring Precipitation
<i>Amount:</i>	\$90 K for instrumentation for the department
<i>Role:</i>	Principal investigator (lead PI: Sonia Lasher-Trapp, Univ. Illinois)
<i>Principal Investigator:</i>	Stephen W. Nesbitt (lead PI: Robert J. Trapp)
<i>Granting Agency:</i>	DOE – Office of Science
<i>Dates of Award:</i>	9/1/15 – 8/31/18
<i>Title:</i>	A Bottom-up Approach to Improve the Representation of Deep Convective Clouds in Weather and Climate Models
<i>Amount:</i>	\$551 K (\$184 K to SN)
<i>Role:</i>	Principal investigator (lead PI: Robert J. Trapp)
<i>Title:</i>	Cloud, Aerosol, and Complex Terrain Interactions (CACTI) Experiment
<i>Granting Agency:</i>	DOE – Office of Science
<i>Dates of Award:</i>	8/1/18 – 4/30/18
<i>Equipment allocation:</i>	Facilities grant: deployment of ~ \$10 million in facilities for CACTI to Argentina
<i>Role:</i>	Principal investigator (lead PI: Adam Varble, Univ. Utah)
<i>Title:</i>	Participation in the OLYMPLEX Field Campaign
<i>Granting Agency:</i>	NASA, Global Precipitation Mission Ground Validation Program
<i>Dates of Award:</i>	10/1/15 – 9/30/16
<i>Amount:</i>	\$75 K
<i>Role:</i>	Principal investigator

*Title:* Ice and mixed phase precipitation system retrieval validation for improved multifrequency spaceborne precipitation measurements  
*Granting Agency:* NASA, Precipitation Measurement Missions  
*Dates of Award:* 2/4/16 – 2/3/19  
*Amount:* \$450 K  
*Role:* Principal investigator

*Title:* CAMP2Ex leadership, flight planning and integrative analysis for addressing heterogeneity issues in observing aerosol induced changes to cloud and precipitation properties  
*Granting Agency:* NASA  
*Dates of Award:* 8/1/17 – 7/4/19  
*Amount:* \$450 K (\$150 K to SN)  
*Role:* Principal investigator (lead PI: Larry Di Girolamo, Univ. Illinois)

*Title:* RELAMPAGO (Remote sensing of Electrification, Lightning, And Mesoscale/microscale Processes with Adaptive Ground Observations) Scientific Overview Document and Experimental Design Overview Document  
*Dates of Award:* 8/1/18 – 7/31/18  
*Granting Agency:* NSF, Physical and Dynamical Meteorology  
*Equipment allocation:* approx. \$15 million in observing facilities (\$30 K to SN for project planning)  
*Role:* Principal investigator

*Title:* Collaborative research: Use of RELAMPAGO observations to understand the thermodynamic, kinematic, and dynamic processes leading to heavy precipitation  
*Amount:* \$650 K  
*Granting Agency:* NSF, Physical and Dynamical Meteorology  
*Dates of Award:* 8/1/17 – 7/31/21  
*Role:* Principal investigator

*Title:* Use of GPM field campaign in-situ cloud measurements to evaluate precipitation retrieval assumptions  
*Granting Agency:* NASA, Earth System Science graduate fellowship for Randy Chase  
*Dates of Award:* 9/1/17 – 8/31/20  
*Amount:* \$140 K  
*Role:* Principal investigator

*Title:* Using satellite-measured ocean vector winds to determine cold pool characteristics and their relationships to tropical convective variability  
*Granting Agency:* NASA, Ocean Vector Winds Science Team  
*Dates of Award:* 2/1/19 – 1/31/23  
*Amount:* \$625 K to SN  
*Role:* Principal investigator (lead PI: Timothy J. Lang, NASA MSFC)

*Title:* Activities to improve CACTI data collection, quality, and utility  
*Granting Agency:* DOE, Pacific Northwest National Laboratory  
*Dates of Award:* 7/1/18 – 6/30/20  
*Amount:* \$200 K  
*Role:* Principal investigator

*Title:* On-site support for Battelle G-1 research operations in CACTI  
*Granting Agency:* DOE, Pacific Northwest National Laboratory  
*Dates of Award:* 10/30/18 – 12/31/18  
*Amount:* \$11 K

*Role:* Principal investigator

*Title:* Radar tower for RELAMPAGO  
*Granting Agency:* NSF, Physical and Dynamical Meteorology  
*Dates of Award:* 8/1/18 – 7/31/19  
*Amount:* \$198 K  
*Role:* Principal investigator

*Title:* RAPID: A scientific deployment of a C-Band radar to observe heavy precipitation and convective system dynamic processes in RELAMPAGO  
*Granting Agency:* NSF, Physical and Dynamical Meteorology  
*Dates of Award:* 8/1/18 – 7/31/19  
*Amount:* \$114 K  
*Role:* Principal investigator

*Title:* Using GPM Ground Validation measurements for improved precipitation retrievals  
*Granting Agency:* NASA  
*Dates of Award:* 2/1/19 – 1/31/22  
*Amount:* \$450 K  
*Role:* Principal investigator

*Title:* Deep convective updraft populations in organized and unorganized systems across the globe  
*Granting Agency:* NASA  
*Dates of Award:* 2/1/19 – 1/31/22  
*Amount:* \$450 K  
*Role:* Co-Principal investigator (lead PI: R. Jeffrey Trapp)

#### Submitted

*Title:* PERiLS (Propagation, Evolution and Rotation in Linear Storms)  
*Granting Agency:* NSF  
*Dates of Award:* 9/1/20 – 8/31/23  
*Amount:* \$3.0 M  
*Role:* Co-Principal investigator (lead PI: K. Kosiba)

*Title:* The Superior Cloud-Aerosol-Precipitation Experiment (SuperCAPE)  
*Granting Agency:* DOE  
*Dates of Award:* 10/20/21 – 10/19/23  
*Amount:* Field campaign proposal  
*Role:* Co-Principal investigator (lead PI: A. Rowe, University of Wisconsin)

#### I. Review Panels (e.g. for Governmental Agencies, Educational Institutions)

Precipitation Measurement Missions, NASA, Aug 2006  
 CubeSat Missions, National Science Foundation, Jul 2008  
 CloudSat/CALIPSO Science Team, NASA, Feb 2010  
 The Science of Terra/Aqua, NASA, Aug 2010  
 Lawrence Berkeley National Labs Climate and Atmospheric Systems Research Focus Areas, DOE, Sept 2010  
 NASA Energy and Water cycle Study (NEWS), NASA, Dec 2011  
 Making Earth Science Data Records for Use in Research Environments (MEaSUREs), NASA, Aug 2012  
 CloudSat/CALIPSO Science Team, NASA, Jun 2013  
 GoAMAZON, Department of Energy, Sep 2013  
 The Science of Terra/Aqua, NASA, Sep 2013  
 The Atmospheric Composition Campaign Data Analysis and Modeling program, NASA, Jul 2014



The Earth Venture Instruments program, NASA, Sep 2015  
 Weather Program, NASA, Sep 2016  
 National Science Foundation Graduate Research Fellowship, Jan 2017  
 National Science Foundation Major Research Instrumentation, Apr 2017  
 Priority Programme Polarimetric Radar, Deutsche Forschungsgemeinschaft (DFG), German Sci. Fndtn., Jul 2018  
 Department of Energy Atmospheric Radiation Measurement Mobile Facility Program Review, Aug 2018  
 CloudSat/CALIPSO Science Team, NASA, Apr 2019  
 NASA Orbital Earth Science Division Senior Review Panel, May-Jul 2020

## 2. PUBLICATIONS AND CREATIVE WORKS

- # Denotes any publication derived from a candidate's thesis
- \* Denotes any publication that has undergone stringent editorial review by peers
- + Denotes any publication that was invited and carries special prestige and recognition
- Denotes any publication from a student or post-doctoral researcher advised or co-advised by S. Nesbitt

### A. Doctoral thesis title

\*Nesbitt, S. W., 2003: Precipitation features according to the Tropical Rainfall Measuring Mission. Ph.D. Dissertation, Dept. of Meteorology, University of Utah, Salt Lake City, UT 84112-0110, 182 pp.

### B. Books authored or co-authored

Rauber, R. M., and S. W. Nesbitt, 2018: Radar meteorology, a first course. Wiley-Blackwell, 488 pp.

### C. Articles in journals

1. \*Nesbitt, S. W., R. Zhang, and R. E. Orville, 2000: Seasonal and global NO(x) production by lightning estimated from the optical transient detector (OTD). *Tellus*, **52**, 1206–1215, <https://doi.org/10.3402/tellusb.v52i5.17098>.
2. \*#Nesbitt, S. W., and E. J. Zipser, 2000: A census of precipitation features in the tropics using TRMM: Radar, ice scattering, and lightning observations. *J. Clim.*, **13**, 4087–4106, [https://doi.org/10.1175/1520-0442\(2000\)013<4087:ACOPFI>2.0.CO;2](https://doi.org/10.1175/1520-0442(2000)013<4087:ACOPFI>2.0.CO;2).
3. \*Petersen, W. A., S. W. Nesbitt, R. J. Blakeslee, R. Cifelli, P. Hein, and S. A. Rutledge, 2002: TRMM observations of intraseasonal variability in convective regimes over the Amazon. *J. Clim.*, **15**, 1278–1294, [https://doi.org/10.1175/1520-0442\(2002\)015<1278:TOOIVI>2.0.CO;2](https://doi.org/10.1175/1520-0442(2002)015<1278:TOOIVI>2.0.CO;2).
4. \*Toracinta, E. R., D. J. Cecil, E. J. Zipser, and S. W. Nesbitt, 2002: Radar, passive microwave, and lightning characteristics of precipitating systems in the tropics. *Mon. Wea. Rev.*, **130**, 802–824, [https://doi.org/10.1175/1520-0493\(2002\)130<0802:RPMALC>2.0.CO;2](https://doi.org/10.1175/1520-0493(2002)130<0802:RPMALC>2.0.CO;2).
5. \*Cecil, D. J., E. J. Zipser, and S. W. Nesbitt, 2002: Reflectivity, ice scattering and lightning characteristics of hurricane eyewalls and rainbands. Part I: Quantitative description. *Mon. Wea. Rev.*, **130**, 769–784, [https://doi.org/10.1175/1520-0493\(2002\)130<0769:RISALC>2.0.CO;2](https://doi.org/10.1175/1520-0493(2002)130<0769:RISALC>2.0.CO;2).
6. \*#Nesbitt, S. W., and E. J. Zipser, 2003: The diurnal cycle of rainfall and convective intensity according to three years of TRMM measurements. *J. Clim.*, **16**, 1456–1475, <https://doi.org/10.1175/1520-0442-16.10.1456>.
7. \*#Nesbitt, S. W., E. J. Zipser, and C. D. Kummerow, 2004: An examination of version-5 rainfall estimates from the TRMM Microwave Imager, precipitation radar, and rain gauges on global, regional, and storm scales. *J. Appl. Meteor. Clim.*, **43**, 1016–1036, [https://doi.org/10.1175/1520-0450\(2004\)043<1016:AEOVRE>2.0.CO;2](https://doi.org/10.1175/1520-0450(2004)043<1016:AEOVRE>2.0.CO;2).
8. \*Barros, A. P., G. Kim, E. Williams, and S. W. Nesbitt, 2004: Probing orographic controls in the Himalayas during the monsoon using satellite imagery. *Natural Hazards and Earth System Sciences*, **4**, 29–51.
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#### Forthcoming articles

- Rivelli Zea, L., and S. W. Nesbitt, 2020: An investigation of the raindrop size spectrum in deep convective regions of the Americas. *Atmosphere*, in review.
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#### D. Bulletins, Reports or Conference Proceedings

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- E. Abstracts (since promotion to associate professor, 68 submitted prior to promotion to associate professor, omitted for space)
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  4. Gleicher, K. J., and S. W. Nesbitt, 2013: An evaluation of WRF microphysics using airborne and ground instrumentation in LPVEx for GPM-GV. Fall meeting, AGU, San Francisco, CA.
  5. Harnos, D. S., and S. W. Nesbitt, 2013: Structural morphology of tropical cyclones as witnessed by passive microwave sensors. Annual meeting, AMS, Austin, TX.
  6. Nesbitt, S. W., A. M. Anders, 2013: Precipitation, elevation and relief in the tropics. Annual meeting, AMS, Austin, TX.
  7. Kaufeld, W. J., and S. W. Nesbitt, 2013: Influence of soil moisture initialization on local precipitation patterns in the Western Ghats. Oral presentation, Annual meeting, AMS, Austin, TX.
  8. Schiffer, N. S., and S. W. Nesbitt, 2013: Does increased model resolution over complex terrain improve precipitation for the right reasons? A North American Monsoon case study. Oral presentation, Annual meeting, AMS, Austin, TX.
  9. Nesbitt, S. W., 2013: Building the GV column: physical validation of GPM algorithms. Invited presentation, NASA Precipitation Measurement Missions science team meeting, Annapolis, MD.
  10. Nesbitt, S. W., 2013: Building the GV column in the GPM Cold Season Precipitation Experiment (GCPEX). Invited poster, NASA Precipitation Measurement Missions Science Team Meeting, Annapolis, MD.
  11. Nesbitt, S. W., G. Duffy, G. McFarquhar, M. Kulie, C. V. Chandra, P. Kollias, S. Tanelli, W. A. Petersen, and A. Tokay, 2013: Quantifying snowfall scattering and microphysical properties from the Global Precipitation Mission Cold season Precipitation Experiment (GCPEX). Oral presentation, 36<sup>th</sup> Conference on Radar Meteorology, AMS, Breckenridge, CO.
  12. Keeler, J. M., B. F. Jewett, R. M. Rauber, G. M. McFarquhar, A. A. Rosenow, D. M. Plummer, D. Leon, S. W. Nesbitt, R. M. Rasmussen, G. Thompson, L. Xue, and C. Liu, 2014: Comparisons of Wyoming Cloud Radar observations to simulations of precipitation generating cells in winter cyclones. Abstract, 36<sup>th</sup> Conference on Radar Meteorology, AMS, Breckenridge, CO.
  13. Nesbitt, S. W., G. A. Duffy, K. Gleicher, G. M. McFarquhar, M. Kulie, C. R. Williams, W. A. Petersen, S. J. Munchak, A. Tokay, G. Skofronick-Jackson, V. Chandrasekar, P. Kollias, D. R. Hudak, S. Tanelli, 2013: Building the GPM-GV column from the GPM Cold season Precipitation Experiment. Invited oral presentation, AGU Fall Meeting, San Francisco, CA.
  14. Duffy, G., S. W. Nesbitt, G. McFarquhar, M. Poellot, V. Chandrasekar, D. Hudak, 2013: In situ microphysical and scattering properties of falling snow in GPM-GCPEX. Oral presentation, AGU Fall Meeting, San Francisco, CA.
  15. Gleicher, K., S. W. Nesbitt, G. Duffy, G. McFarquhar, A. Bansemer, A. Heymsfield, W. A. Petersen, 2013: Evaluating relationships between particle size distribution parameters and environment from GCPEX. Fall meeting, AGU Fall Meeting, San Francisco, CA.
  16. Colle, B. E., A. Molthan, R. Yu, S. E. Yuter, and S. W. Nesbitt, 2013: Evaluation of model microphysics within precipitation bands of extratropical cyclones. AGU Fall Meeting, San Francisco, CA.
  17. Harnos, D. S., and S. W. Nesbitt, 2013: Evaluation of vertical motion contributions towards tropical cyclone rapid intensification under varying wind shear. AGU Fall Meeting, San Francisco, CA.
  18. Reed, K. A., S. W. Nesbitt, M. Kulie, T. S. L'Ecuyer, and N. Wood, 2013: An evaluation of satellite retrievals of snowfall in regions of complex terrain. AGU Fall Meeting, San Francisco, CA.
  19. Wang, Z., I. E. Hankes, S. M. Hristova-Veleva, T. J. Dunkerton, and S. W. Nesbitt, 2014: Characteristics of tropical easterly wave pouches during tropical cyclone formation. 31<sup>st</sup> Conference on Hurricanes and Tropical Meteorology, San Diego, CA.
  20. Harnos, D. S., and S. W. Nesbitt, 2014: Characterization of the dynamical role of convection in two simulated episodes of rapid intensification. Oral presentation, 31<sup>st</sup> Conference on Hurricanes and Tropical Meteorology, San Diego, CA.

21. Harnos, D. S., and S. W. Nesbitt, 2014: Passive microwave signatures of tropical cyclone symmetry as related to intensity change. 31<sup>st</sup> Conference on Hurricanes and Tropical Meteorology, San Diego, CA.
22. Duffy, G., S. W. Nesbitt, and G. McFarquhar, 2014: Evaluations of radar scattering models for falling snow. Precipitation Measurement Missions Science Team Meeting, NASA, Baltimore, Maryland.
23. Gleicher, K., S. W. Nesbitt, K. Reed, A. Bansemer, A. Heymsfield, and W. Petersen, 2015: Evaluating Relationships between Particle Size Distribution Parameters from GCPEX. Precipitation Measurement Missions Science Team Meeting, NASA, Baltimore, Maryland.
24. Nesbitt, S. W., P. Salio, D. Cecil, R. Garreaud, R. Houze, Jr., K. Rasmussen, A. Varble, L. Machado, D. Gochis, and S. Goodman, 2014: RELAMPAGO and SAME-PACE: Extreme storms that impact society in Southeastern South America. World Weather Open Science Conference, World Meteorological Organization, Montréal, Canada.
25. Nesbitt, S. W., K. Gleicher, G. Duffy, K. Reed, V. Chandrasekar, W. Petersen, D. Hudak, 2014: Snowfall validation for the NASA Global Precipitation Measurement mission. 8<sup>th</sup> European Conference on Radar Meteorology and Hydrology, Garmisch-Partenkirchen, Germany.
26. Harnos, K., S. W. Nesbitt, K. Reed, G. Duffy, C. Williams, A. Bansemer, S. Munchak, A. Heymsfield, W. Petersen, 2014: Comparison of airborne and ground based measurements and the relationships between microphysical parameters from GCPEX. AGU Fall Meeting, San Francisco, CA.
27. Choi, S., S. W. Nesbitt, T. Lang, and T. Chronis, 2014: Influence of Mesoscale Ocean Wind Variability on Tropical Atmospheric Convection. AGU Fall Meeting, San Francisco, CA.
28. Nesbitt, S. W., D. S. Harnos, K. Harnos, K. Reed, G. Duffy, G. McFarquhar, S. Tanelli, C. Williams, B. Johnson, W. Petersen, A. Tokey, A. Barros, A. Wilson, 2014: Constraints on a priori assumptions and microphysical properties in precipitation from in situ measurements in GPM-GV field campaigns: regime dependence and impact on retrievals. AGU Fall Meeting, San Francisco, CA.
29. Colle, B., A. Molthan, R. Yu, and S. W. Nesbitt, 2014: Evaluation of Mixed-Phase Microphysics Within Winter Storms Using Field Data and In Situ Observations. AGU Fall Meeting, San Francisco, CA.
30. Barros, A., W. Petersen, T. Lang, A. Wilson, Y. Duan, S. W. Nesbitt, R. Cifelli, M. Schwaller, D. Wolff, D. Miller, J. Gourley, M. Petters, 2014: IPHEX 2014: Observations of Orographic Precipitation Processes in the Southern Appalachians. AGU Fall Meeting, San Francisco, CA. (invited)
31. Reed, K., S. W. Nesbitt, and A. Tokay: 2014: An Evaluation Of Cold Season Precipitation Microphysical Properties From A Ground-Based Perspective. AGU Fall Meeting, San Francisco, CA.
32. Kulie, M., S. W. Nesbitt, D. S. Harnos, A. Heymsfield, B. Johnson, S. Tanelli, 2014: Multi-Frequency Radar and Microwave Radiometer Simulations of Surface Snowfall Events from GCPEX: Synergistic Application of In-Situ Microphysics Observations with Modeled Ice Scattering Properties. AGU Fall Meeting, San Francisco, CA.
33. Duffy, G., S. W. Nesbitt, and G. McFarquhar, 2014: Evaluations of Particle Scattering Models for Falling Snow. AGU Fall Meeting, San Francisco, CA.
34. Nesbitt, S. W., 2015: Improving Cold Season Precipitation Retrievals with GPM Ground Validation Data. 7<sup>th</sup> NASA Global Precipitation Measurement Ground Validation Workshop, Seoul, Korea. (invited)
35. Nesbitt, S. W., 2015: RELAMPAGO: Remote sensing of Electrification, Lightning, And Meso-scale/micro-scale Processes with Adaptive Ground Observations. Invited Conference Keynote Presentation, XII Argentine Congress on Meteorology, Mar del Plata, Argentina.
36. Nesbitt, S. W., P. Salio, A. C. Saulo, 2015: RELAMPAGO Field Campaign. XII Argentine Congress on Meteorology, Mar del Plata, Argentina. (invited)
37. Ruiz, J. J., L. Vidal Sr., P. Maldonado, S. Suarez Ruiz, P. Salio, Y. Garcia Skabar, Y. Garcia Skabar, A. C. Saulo, S. W. Nesbitt, E. Kalnay, and T. Miyoshi, 2016: Local ensemble transform Kalman filter experiments using radar observations: a case study over central Argentina. 37<sup>th</sup> Conference on Radar Meteorology, AMS, Norman, OK.
38. Vidal, L. Sr., S. W. Nesbitt, P. Salio, S. Osore, C. Farias, A. Rodriguez, J. Serra, and G. Caranti, 2015: C-Band Dual-Polarization Observations of a Massive Volcanic Eruption in South America. 37<sup>th</sup> Conference on Radar Meteorology, AMS, Norman, OK.
39. Salio, P. V., and L. Pappalardo, S. W. Nesbitt, L. Vidal Sr., M. D. L. M. Alvarez Imaz, and A. Scardilli, 2015: Variability of parameters for Attenuation Correction over mid-latitude extreme precipitating events. 37<sup>th</sup> Conference on Radar Meteorology, AMS, Norman, OK.
40. Nesbitt, S. W., G. Duffy, K. A. Reed, G. McFarquhar, and A. Tokay, 2015: Using particle size distribution observations from GPM field campaigns to constrain spaceborne precipitation retrievals. 37<sup>th</sup> Conference on Radar Meteorology, AMS, Norman, OK.

41. Vidal, L. Sr., S. R. Suarez, P. Salio, S. W. Nesbitt, and R. Mezher, 2015: S. Ruiz Suarez, P. Salio, S. W. Nesbitt, and R. Mezher, 2015: C-band Hydrometeor Classification Scheme and Its Application on Hail Detection over Central Argentina. 37<sup>th</sup> Conference on Radar Meteorology, AMS, Norman, OK.
42. Duffy, G., S. W. Nesbitt, and G. McFarquhar, 2015: A Comparison of Retrieved Mass-Diameter Relationships in Snowfall from Radar and Ice Water Content Measurements. 37<sup>th</sup> Conference on Radar Meteorology, AMS, Norman, OK.
43. Metzler, R., S. W. Nesbitt, and P. Salio, 2015: Investigating Hail Core Signatures Using C-Band Polarimetric Radar. 37<sup>th</sup> Conference on Radar Meteorology, AMS, Norman, OK.
44. Reed, K. A., and S. W. Nesbitt, 2015: An Evaluation of Cold Season Precipitation Microphysical Properties from a Radar Perspective. 37<sup>th</sup> Conference on Radar Meteorology, AMS, Norman, OK.
45. Nesbitt, S. W., and K. L. Rasmussen, 2015: Extremely tall convection: characteristics and controls. AGU Fall Meeting, San Francisco, CA.
46. Duffy, G. A., S. W. Nesbitt, and G. M. McFarquhar, 2015: Sensitivity of simulated snow cloud properties to mass-diameter parameterizations. AGU Fall Meeting, San Francisco, CA.
47. Fritz, C., Z. Wang, S. W. Nesbitt, and T. Dunkerton, 2015: Cloud Evolution during Tropical Cyclone Formation as Revealed by TRMM PR. AGU Fall Meeting, San Francisco, CA.
48. Reed, K. A., and S. W. Nesbitt, 2015: An uncertainty model for snowfall rate retrievals from the GPM DPR. AGU Fall Meeting, CA.
49. Nesbitt, S. W., and A. Varble, 2016: CACTI-RELAMPAGO synergy. Atmospheric Radiation Measurement Radar Meeting, Miami, FL. (invited)
50. Lang, T. J., S. W. Nesbitt, P. Garg, G. Priftus, and T. Chronis, 2016: Using scatterometer-measured vector winds to study high-impact weather events. NASA Ocean Vector Winds Science Team Meeting, Sapporo, Japan. (invited)
51. Nesbitt, S. W., and A. Varble, 2016: CACTI-RELAMPAGO synergy. Atmospheric Radiation Measurement Atmospheric Systems Research Science Team Meeting, Tysons, VA. (invited)
52. Nesbitt, S. W., P. Borque, K. Rasmussen, P. Salio, R. J. Trapp, L. Vidal, M. Rugna, J. Mulholland, 2016: Severe Convection in Central Argentina: Storm Modes and Environments. 28<sup>th</sup> Conference on Severe Local Storms, AMS, Portland, OR.
53. Nesbitt, S. W. and P. Borque, 2017: RELAMPAGO. Atmospheric Radiation Measurement Atmospheric Systems Research Science Team Meeting, Tysons, VA. (invited)
54. Garg, P., S. W. Nesbitt, T. J. Lang, 2017: Using scatterometer-measured vector winds to study high-impact weather events. NASA Ocean Vector Winds Science Team Meeting, San Diego, CA (invited)
55. Nesbitt, S. W., R. Chase, P. Borque, J. Finlon, S. Ding, and G. McFarquhar, 2017: A critical evaluation of the GPM DPR algorithm assumptions using OLYMPEX data, OLYMPEX Workshop, Seattle, WA. (invited)
56. Nesbitt, S. W., K. Rasmussen, M. Cancelada, P. Salio, L. Vidal, J. Mulholland, P. Borque, R. J. Trapp, 2017: Storm environments supporting spaceborne radar and GOES-observed severe storms in Central Argentina. 37<sup>th</sup> Conference on Radar Meteorology, AMS, Chicago, IL.
57. Nesbitt, S. W., P. Borque, R. Chase, and G. McFarquhar, 2017: Using GV Field Campaign Data to Improve GPM Algorithm Assumptions. Poster, NASA Precipitation Science Team Meeting, San Diego, CA.
58. Nesbitt, S. W., R. Chase, P. Borque, J. Finlon, and G. McFarquhar, 2017: Evaluation of GPM algorithm assumptions using GPM-GV data, NASA Precipitation Science Team Meeting, San Diego, CA. (invited)
59. Nesbitt, S. W., and coauthors: 2017: Improving high impact weather and climate prediction for societal resilience in Subtropical South America: Proyecto RELAMPAGO-CACTI. AGU Fall Meeting, New Orleans, LA. (invited)
60. McFarquhar, G. M., J. Finlon, S. W. Nesbitt, P. Borque, R. Chase, W. Wu, H. Morrison, and M. Poellot, 2017: A framework for characterizing how ice crystal size distributions, mass-dimensional and area-dimensional relations vary with environmental and aerosol properties. AGU Fall Meeting, New Orleans, LA. (Invited)
61. Garg, P., S. W. Nesbitt, T. J. Lang, and T. Chronis, 2017: Observed structure and characteristics of cold pools over tropical oceans using vector wind retrievals and WRF simulations. AGU Fall Meeting, New Orleans, LA.
62. P. Borque, J. Finlon, S. W. Nesbitt, G. M. McFarquhar, 2017: Characterization of ice and snow in-situ properties during the main weather regimes observed in the Olympic Mountain Experiment. . AGU Fall Meeting, New Orleans, LA.
63. Borque, P. C., S. W. Nesbitt, and G. M. McFarquhar, 2018: Analysis of cold pools' morphology and thermodynamics in connection with associated convective clouds strength and microphysics evolution. AMS Annual Meeting, Austin, TX.



64. Nesbitt, S. W., and coauthors: 2018: Understanding Processes and Improving Predictions of Hydrometeorological Extremes: Proyecto RELAMPAGO-CACTI. AMS Annual Meeting, Austin, TX.
65. Mulholland, J., S. W. Nesbitt, R. J. Trapp, and K. L. Rasmussen, 2018: Factors Controlling Convective Storm Mode and Heavy Rainfall Production Near the Sierras De Córdoba, Argentina. AMS Annual Meeting, Austin, TX.
66. Flynn, W. J., S. W. Nesbitt, and P. Garg, 2018: On the Diurnal Cycle of Rainfall Near the Western Ghats during the Indian Summer Monsoon: Influences of the Low-Level Atmosphere and Land Surface. AMS Annual Meeting, Austin, TX.
67. Borque, P., and S. W. Nesbitt, 2018: RELAMPAGO overview, synergy with CACTI. Department of Energy Atmospheric Radiation Measurement Principal Investigator Meeting and Atmospheric Radiation Measurement Climate Research Facility Users' Meeting. Tysons, VA.
68. Nesbitt, S. W., P. Borque, R. Chase, J. Finlon, and G. M. McFarquhar, 2018: Towards improved spaceborne ice and mixed-phase spaceborne precipitation retrievals. NASA Precipitation Measurement Missions Science Team Meeting, Phoenix, Arizona.
69. Chase, R., S. W. Nesbitt, P. Borque and G. M. McFarquhar, 2018: Multi-sensor investigation of large ice particles using GPM and NASA GV Data. NASA Precipitation Measurement Missions Science Team Meeting, Phoenix, Arizona.
70. Garg, P., S. W. Nesbitt, T. J. Lang, G. Priftus, and T. Chronis, 2019: Using scatterometer winds to identify convectively generated oceanic cold pools. NASA Ocean Vector Winds Science Team Meeting, Portland, Maine.
71. Nesbitt, S. W. Garg, P., T. J. Lang, G. Priftus, and T. Chronis, 2019: The diurnal cycle of convectively generated cold pools in the Maritime Continent and surrounding seas. NASA Ocean Vector Winds Science Team Meeting, Portland, Maine.
72. Nesbitt, S. W., J. Mulholland, J. Mulholland, I. Singh, L. E. R. Zea, P. Borque, K. L. Rasmussen, R. S. Schumacher, A. K. Rowe, L. A. McMurdie, J. Marquis, P. Salio, M. D. L. M. A. Imaz, M. Cancelada, H. Bechis, and A. C. Varble, 2019: Mesoscale Flows Leading to Convective Initiation, Upscale Growth, and Heavy Precipitation As Observed during RELAMPAGO-CACTI. 18<sup>th</sup> AMS Conference on Mesoscale Processes, Savannah, GA.
73. Schumacher, R. S., D. A. Hence, N. R. Kelly, K. A. Kosiba, S. W. Nesbitt, R. J. Trapp, and J. Wurman, 2019: High-Frequency Mobile Soundings in Convective Environments During RELAMPAGO: Overview and Preliminary Findings. 18<sup>th</sup> AMS Conference on Mesoscale Processes, Savannah, GA.
74. Garg, P., S. W. Nesbitt, T. J. Lang, T. Chronis, G. Priftus, J. D. Thayer, and D. A. Hence, 2019: Identification and characterization of tropical atmospheric mesoscale near-surface cold pools using spaceborne scatterometer, precipitation, reanalysis, and high-resolution modeling. 18<sup>th</sup> AMS Conference on Mesoscale Processes, Savannah, GA.
75. Singh, I. T. and S. W. Nesbitt, 2019: High-resolution idealized simulations of orographic convection initiation over the Sierras de Córdoba Mountains. 18<sup>th</sup> AMS Conference on Mesoscale Processes, Savannah, GA.
76. Nesbitt, S.W., R. C. Chase, and G. M. McFarquhar, 2019: Using GPM-GV data for improved ice and mixed phase precipitation retrievals from GPM-DPR. NASA Precipitation Measurement Missions Science Team Meeting, Indianapolis, Indiana.
77. Chase, R. C., S. W. Nesbitt, and G. M. McFarquhar, 2019: Does an R-Dm relationship apply in snow? NASA Precipitation Measurement Missions Science Team Meeting, Indianapolis, Indiana.
78. Singh, I., S. W. Nesbitt, and C. A. Davis, 2019: Initiation of deep moist convection over the Sierras de Córdoba mountains in Argentina. AGU Fall Meeting, San Francisco, CA.
79. Rivelli Zea, L. E., S. W. Nesbitt, A. Tokay, and W. Petersen, 2019: RELAMPAGO-CACTI drop size distribution observations and the implications for hydrologic studies. AGU Fall Meeting, San Francisco, CA.
80. McFarquhar, G. M., J. Finlon, H. Morrison, M. Stanford, A. Varble, R. Rauber, S. W. Nesbitt, S. Ding, and W. Wu, 2019: A stochastic approach for representing uncertainty and variability in cloud microphysical parameters for use in process-oriented studies. AGU Fall Meeting, San Francisco, CA.
81. Pal, S., F. Dominguez, J. Alvarez, C. M. Garcia, S. W. Nesbitt, and D. Gochis, 2019: Hydrometeorological modeling of extreme rainfall events using WRF and WRF-Hydro during the RELAMPAGO campaign in Argentina. AGU Fall Meeting, San Francisco, CA.
82. Salio, P. V., M. Cancelada, S. W. Nesbitt, L. Vidal, and D. Vila, 2019: Environmental conditions associated to convective initiation of extreme convective systems over Southeastern South America. AGU Fall Meeting, San Francisco, CA.
83. Mulholland, J. S. W. Nesbitt, R. J. Trapp, and J. M. Peters, 2019: Terrain Influences on Upscale Convective

- Growth of Orographic Supercells into Mesoscale Convective Systems. AGU Fall Meeting, San Francisco, CA.
84. M. Cancelada, P. V. Salio, and S. W. Nesbitt, 2019: CCN Source Regions During RELAMPAGO-CACTI Field Campaign. AGU Fall Meeting, San Francisco, CA.
  85. Chase, R. J., S. W. Nesbitt, G. McFarquhar, F. Tridon, and J. Leinonen, 2019: Improving Active Remote Sensing of Snow Through the Use of Multiple Frequencies, In-Situ Data and Neural Networks. AGU Fall Meeting, San Francisco, CA.
  86. Casanovas, C., P. V. Salio, V. S. Galligani, S. W. Nesbitt, and B. Dolan, 2019: Drop-Size Distribution Variability over Central Argentina during RELAMPAGO-CACTI. AGU Fall Meeting, San Francisco, CA.
  87. Trapp, R. J., G. R. Marion, and S. W. Nesbitt, 2019: Satellite-based anticipation of extreme convective weather through quantification of convective updraft characteristics: Application to potential tornado intensity estimation. AGU Fall Meeting, San Francisco, CA.
  88. Marion, G., R. J. Trapp, and S. W. Nesbitt, 2020: Using Overshooting Top Area to Discriminate the Potential for Large, Intense Tornadoes. AMS Annual Meeting, Boston, MA.
  89. Schumacher, R. S., D. A. Hence, N. R. Kelly, K. A. Kosiba, S. W. Nesbitt, R. J. Trapp, and J. Wurman, 2020: High-Frequency Mobile Soundings in Convective Environments during RELAMPAGO: Overview and Preliminary Findings. AMS Annual Meeting, Boston, MA.
  90. Chase, R. J., S. W. Nesbitt, G. McFarquhar, F. Tridon, and J. Leinonen, 2020: Improving Active Remote Sensing of Snow Through the Use of Multiple Frequencies, In-Situ Data and Neural Networks. AMS Annual Meeting, Boston, MA.
  91. Trapp, R. J., G. Marion, M. F. Sessa, D. Chehak, and S. W. Nesbitt, 2020: Robust Observational Support of the Hypothesized Connection between Rotating Updraft Width and Tornado Intensity. AMS Annual Meeting, Boston, MA.
  92. Kosiba, K. A., J. Wurman, S. W. Nesbitt, R. J. Trapp, M. R. Kumjian, R. S. Schumacher, and D. A. Hence, 2020: Overview of CSWR RELAMPAGO Radar and Surface Observations. AMS Annual Meeting, Boston, MA.
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### 3. RESIDENT INSTRUCTION

#### A. Summary of Instruction

##### 1. Courses Taught

ATMS 305 Geophysical Data Analysis  
 ATMS 315 Meteorological Instrumentation  
 ATMS 406 Tropical Meteorology  
 ATMS 410 Radar Remote Sensing  
 ATMS 411 Satellite Remote Sensing  
 ATMS 505 Weather Systems  
 ATMS 571 Graduate Professional Development  
 ATMS 591 Graduate Seminar  
 ATMS 597 Mesoscale Modeling with the Weather Research and Forecasting Model  
 ATMS 597 Weather and Climate Data Science

##### 2. Supervision of graduate students

###### M.S. Students Supervised

Kaufeld/Flynn, Wendilyn	M.S., 2010, continued to PhD in our department
Schiffer, Nicole	M.S., 2010, continued to PhD in our department
Harnos, Daniel	M.S., 2010, continued to PhD in our department
Brown, Patrick	M.S., 2010, currently employed at Energy Resources Center
Reed, Kimberly	M.S., 2011, continued to PhD in our department
Duffy, George	M.S. 2016, now a PhD student at Vanderbilt University
Choi, Lina	M.S. 2016 (received NSF Graduate Fellowship Fall 2015), now a PhD student at Aalborg University, Denmark
Chase, Randy	M.S., 2018, continued to PhD in our department

Ph.D. Students Supervised

Kaufeld/Flynn, Wendilyn 2012: “Land surface and orographic controls on precipitation patterns in the Sierra Madre Occidental and Western Ghats”, Currently employed as an associate professor of earth sciences at the University of Northern Colorado.

Schiffer, Nicole 2013: “Intraseasonal precipitation processes in complex terrain: The effects of model and terrain resolution on WRF simulations of the North American Monsoon.” Currently employed a science writer at the National Center for Supercomputing Applications.

Harnos, Daniel 2014, “Characterization of the role of precipitation in tropical cyclone intensification”, Currently employed at NOAA Climate Prediction Center.

Gleicher/Harnos, Kirstin 2014, “Parametrizing PSD assumptions for GPM algorithms”, Currently employed at NOAA Climate Prediction Center.

Mulholland, Jake 2019, “How does terrain impact the upscale growth of deep moist convection”, Currently a National Research Council postdoctoral fellow, Naval Research Laboratory.

Reed, Kimberly 2009 – present, Passed Qualification Exam May 2013 (received NASA Earth System Science Graduate Fellowship Fall 2011)

Garg, Piyush 2016 – present, passed preliminary exam in 2017

Singh, Itinderjot 2018 – present, passed preliminary exam in 2018

Cancelada, Maite (co-Advised) 2016 – present, Universidad de Buenos Aires, Argentina

Chase, Randy 2018 – present (received NASA Earth System Science Graduate Fellowship Fall 2017)

Graduate Examination Committees

2007: Grim, Joseph (Ph.D.)

2008: Zhang, Henian (Ph.D.), Romine, Glen (Ph.D.)

2009: Um, Junshik (Ph.D.)

2012: Van Looche, Andrew (Ph.D.)

2013: Barman, Rahul (Ph.D.), Ching, Joseph (Ph.D.)

2014: Mills, Catrin (Ph.D.), Hanks, Isaac (Ph.D.)

2015: Alvarez Imaz, Milagros (Licenciatura, Universidad de Buenos Aires, Argentina), Keeler, Jason (Ph.D.), Anselmo, Evandro (Ph.D., Universidade de São Paulo, Brazil), Grazioli, Jacopo (Ph.D., École Polytechnique Fédérale de Lausanne, Switzerland)

2016: Tian, Jian (Ph.D.), Rosenow, Andrew (Ph.D.)

2017: Fritz, Cody (Ph.D.), Wu, Wei (Ph.D., 2017)

2018: Hu, Huancui (Ph.D.)

2019: Curtis, Jeffrey (Ph.D.)

2019: Finlon, Joseph (Ph.D.), Marion, Geoffrey (ABD), Jenkins, Calvin (ABD)

2020: Gray, Kevin (ABD), Pal, Sujun (ABD)

### 3. Supervision of Undergraduate Students (\*capstone, +undergraduate researcher)

2009: Akers, Roger+

2011: Sulski, Katie\*, Mycyk, Nicolas \*

2012: Ventimiglia, Thomas\*, Gacek, Zaneta+

2013: Ortiz, Ana\*, Ewing, Gabriel+

2015: Carter, Lauren\*, Gaggiano, Stephen\*

2017: Soch, Carson\*, Shackleton, James\*, O’Shea, Brian\*, Mandruccolo, Justin\*, Grande, Anthony\*

2018: Ross, Tobias\*, Chung, Brian+

2019: James, Scott\*

2020: James, Scott\*, Daniel Lopez+

## 4. SERVICE

### A. Summary of Service

## 1. Public Engagement

Speaker at the Central Illinois Chapter of the AMS, Lincoln, IL, Sep 2006  
Speaker at the Illinois State Water Survey, Champaign, IL, Oct 2006  
Interviewed by *Daily Illini* on the hurricane season, Sep 2007  
Represented Atmospheric Sciences at the National Weather Service Open House, Lincoln, IL, Oct 2007  
Speaker at earth science classes, Lancaster High School, Lancaster, NY, Oct 2007  
Speaker in campus-wide lecture series on the North American Monsoon, State University of New York at Oswego, Oswego, NY, Oct 2007  
Interviewed by *Daily Illini* on snowy weather, Feb 2008  
Speaker at Early Learning preschool on hurricanes, Champaign, IL, Dec 2008  
Speaker at Early Learning preschool on tornadoes, Champaign, IL, May 2009  
Interviewed by *Daily Illini* on climate change impacts, Oct 2009  
Interviewed by Medill News Service on weather exhibit at Chicago Museum of Sci. and Technology, May 2010  
Speaker at Bottenfield Elementary School on tornadoes, Champaign, IL, May 2010  
Interviewed by *Christian Science Monitor* on research on rapidly intensifying hurricanes, Aug 2011  
Interviewed by American Institute of Physics *Discoveries and Breakthroughs Inside Science* on rapidly intensifying hurricanes, Aug 2011  
Speaker at Booker T. Washington Elementary School on tornadoes, Champaign, IL, Mar 2012  
Interviewed on rapidly intensifying hurricanes, *ORF Austria Radio/Television*, May 2012  
Speaker at Leal Elementary School on weather and tornadoes, Urbana, IL, May 2012  
Led short course on Spaceborne Radar at the European Radar and Hydrology conference, Toulouse, France, Jun 2012.  
Speaker at Polaris Charter Academy on Hurricanes, Chicago, IL, Sep 2012  
Hosted the 7<sup>th</sup> grade class (~80 students) from Polaris Charter Academy in the Department of Atmospheric Sciences, Urbana, IL, Nov 2012  
Invited webinar speaker on the Global Precipitation Mission, CoCoRAHS Webinar Series, Jun 2013  
Invited webinar speaker on the Remote Sensing of Clouds and Precipitation, National Earth Science Teachers Association, Aug 2013  
Invited webinar speaker on the Remote Sensing of Clouds and Precipitation, National Earth Science Teachers Association, Feb 2015  
Led 8-day workshop on “Applications of dual polarization radar data” at Universidad de Buenos Aires, Mar-Apr 2015  
Interviewed by the CANAL 10 television station (in Spanish) in Córdoba, Argentina, Apr 2015  
Interviewed by the University of Buenos Aires Public Affairs Bureau on RELAMPAGO field campaign, May 2015  
Speaker on Clouds and Precipitation at Bottenfield Elementary School, Champaign, IL, May 2016.  
Speaker on Clouds and Precipitation at University Primary School, Champaign, IL, Oct 2016  
Interviewed by Business Insider on “Scientists around the world are worried about a Trump team proposal to ax NASA’s 58-year mission to study the Earth”, Dec 2016  
Interviewed by University of Illinois College of LAS news article on RELAMPAGO, Jun 2017  
Interviewed for Champaign-Urbana News-Gazette The Big 10 with Jeff D'Alessio: “What game-changing innovations could be on the horizon in the next 20 years”, Oct 2017  
Interviewed by Perfil Newspaper, Buenos Aires, Argentina about RELAMPAGO, Apr 2018  
Speaker on Tornado Safety, Campus Middle School for Girls, Urbana, IL, Jun 2018  
Speaker on Precipitation and Clouds, Montessori School of Champaign-Urbana, Oct 2019  
Interviewed by *Weather Geeks* podcast, March 2020  
Interviewed by Forbes Magazine on Faculty Workloads, Mar 2020  
Interviewed by Washington Post on Kansas Storms, Jun 2020

## 2. Service to Disciplinary and Professional Societies or Associations

Member, AMS Science and Technology Advisory Committee on Radar Meteorology, 2007 – 2012  
President-elect, Central Illinois Chapter of the AMS, 2007  
President, Central Illinois Chapter of the AMS, 2007 – 2009  
Faculty advisor, University of Illinois Chapter of the AMS, 2007 – 2013  
Chaired session on “Error Metrics” at the World Meteorological Organization Workshop on High Resolution

Precipitation Products, Geneva, Switzerland, Dec 2007

Chaired session on “Use of Lightning Data in the Operational Warning and Decision Making Process” at the 3rd Conference on the Meteorological Application of Lightning Data, AMS Annual Meeting, New Orleans, LA, Jan 2008

Member of Validation Working Group, International Precipitation Working Group, Coordination Group for Meteorological Satellites, World Meteorological Organization, Oct 2008 – present

Served on National Academy of Sciences Committee on Progress and Priorities of US Weather Research and Research-to-Operations Activities”, Woods Hole, MA, Jul 2009

Chaired session on “Quantitative Precipitation Estimation” at the 34th AMS Conference on Radar Meteorology, Williamsburg, VA, Oct 2009

Chaired session on “Convection” at the 29th AMS Conference on Hurricanes and Tropical Meteorology, Tucson, AZ, May 2010

Selection committee, Max Eaton Prize at the 29th AMS Conference on Hurricanes and Tropical Meteorology, Tucson, AZ, May 2010

Co-Chair, AMS 35th Conference on Radar Meteorology, Sep 2011

Selection committee, Spiros Geotis Prize at 35th AMS Conference on Radar Meteorology, Pittsburgh, PA, Sep 2011

Session co-convenor, “Orographic precipitation: Measurement, Mechanisms, and Impact on Landforms”, AGU Fall Meeting, Dec 2011.

Session co-convenor, “Remote Sensing of Tropical Cyclones and Tropical Convective Systems: Observation and Data Assimilation”, AGU Fall Meeting, Dec 2012.

Chair, AMS Science and Technical Advisory Committee on Radar Meteorology, 2013 – 2016.

Chaired session on “Applications” at the 4th International Workshop on Space-based Snowfall Measurement (IWSSM), Mammoth Lakes, CA, May 2013

Chaired session on “Precipitation and Microphysics Estimation – Research” at the 36th AMS Conference on Radar Meteorology, Breckenridge, CO, Sep 2013

Chaired session on “Invited keynote speaker: Precipitation and Microphysics Estimation – research” at the 36th AMS Conference on Radar Meteorology, Breckenridge, CO, Sep 2013

Chaired session on “Nowcasting techniques”, 8th European Conference on Radar in Meteorology and Hydrology, Garmisch-Partenkirchen, Germany, Sep 2014.

Session rapporteur, “Ground Validation Science”, at 7th NASA Global Precipitation Measurement Ground Validation Workshop, Seoul, Korea, May 2015.

Chaired session on “Microphysical Studies, General Topics in Radar Meteorology, and New and Emerging Radar Technology” at 37th Conference on Radar Meteorology, AMS, Norman, OK, Sep 2015.

Chaired session on “Microphysical Studies” at 37th Conference on Radar Meteorology, AMS, Norman, OK, Sep 2015.

Chaired session on “Intense Continental Convection” at 2015 Fall Meeting, AGU, San Francisco, CA, Dec 2015.

Chaired session on “Polarimetric Radar Applications” at 2016 Fall Meeting, AGU, San Francisco, CA, Dec 2016.

Chaired session on “Intense Continental Convection” at 2016 Fall Meeting, AGU, San Francisco, CA, Dec 2016.

Member, Earth Sciences Council, United Space Research Association, 2016 – present

Chaired session at Midwest Student Conference on Atmospheric Research, University of Illinois, Sep 2017.

Chaired session on “Mesoscale Convective Systems and PECAN Results” at 18<sup>th</sup> Conference on Mesoscale Meteorology, AMS, Savannah, GA, Jul 2019

Chaired symposium on “Mesoscale Processes Across Scales” at 101<sup>st</sup> Annual Meeting, AMS, New Orleans, LA, Jan 2021

### 3. Editorship of Journals

Editor, Journal of Applied Meteorology and Climatology, AMS, 2010 – 2014

### 4. Journals, publishers, or federal agencies serving as a reviewer for submitted papers, books, or proposals

Atmosphera

Atmosphere

Atmospheric Chemistry and Physics

Atmospheric Research

Bulletin of the AMS

Cambridge Press  
 Geography Compass  
 Geophysical Research Letters  
 Department of Defense  
 Department of Energy  
 Deutsche Forschungsgemeinschaft (German National Science Foundation)  
 International Journal of Climatology  
 IEEE Transactions on Remote Sensing  
 Journal of Applied Meteorology and Climatology  
 Journal of Atmospheric Sciences  
 Journal of Climate  
 Journal of Geophysical Research – Atmospheres  
 Journal of Hydrometeorology  
 Journal of Atmospheric and Oceanic Technology  
 Journal of the Meteorological Society of Japan  
 Monthly Weather Review  
 Natural Environment Research Council (United Kingdom)  
 National Science Foundation  
 National Oceanic and Atmospheric Administration  
 National Aeronautics and Space Administration  
 Quarterly Journal of the Royal Meteorological Society  
 Weather and Forecasting

## 5. Service to the University

### College and Campus:

Member of College of Liberal Arts and Sciences Policy and Development Committee, 2007–2009  
 Member of College of Liberal Arts and Sciences Honors Council, 2012 – 2015  
 Member of College of Liberal Arts and Sciences Dean's Faculty Information Team, 2012 – 2013  
 Member of Water Council, Illinois Institute for Sustainability, Energy, and Environment (iSEE), 2014 – present  
 Member of College of Liberal Arts and Sciences General Education Council, 2015 – 2016, 2016 – 2018  
 Faculty Senate departmental representative, 2019 – present

### Department:

Organized Department Seminars, 2008 – 2009  
 Member of Department Graduate Affairs Committee, 2007 – 2009, 2013 – 2014  
 Chair, Department Web Committee, 2007 – present  
 Member of Department Curriculum Committee, 2007 – 2009, 2015 – 18, 2019 – present  
 Chair, Department Curriculum Committee, 2012 – 2015  
 Research Poster Judge, School of Earth, Society, and Environment Research Review, 2009, 2010, 2013, 2015, 2016, 2017, 2018, 2019  
 Ogura Research Award departmental review committee, 2010, 2011, 2014, 2016, 2018  
 Prepared questions for and graded questions from Ph.D. graduate qualification exam, 2007 – 2014  
 Served on department head review committee, Spring 2013 semester  
 Chaired search committee for Junior Faculty Search, 2013 – 2014 academic year  
 Chaired discussion on department undergraduate and graduate Curriculum, 2014 department faculty retreat  
 Member of Department of Atmospheric Sciences Executive committee, 2015 – 2016, 2017 – 2018, 2019 – 2020  
 Committee to form a new online graduate program in Atmospheric Sciences, 2017 – present  
 Hiring committee for Teaching Assistant Professor, 2019 – 2020  
 Effort to develop an undergraduate atmospheric science + data science major, 2019 – present  
 Faculty mentorship committee for an assistant professor, 2019 – 2020

