

SCOTT M. STEIGER CV

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EDUCATION:

- December, 2005 Doctor of Philosophy Degree in Atmospheric Sciences
Advisor: Richard E. Orville, Ph.D.
Dissertation title: Thunderstorm lightning and radar characteristics: Insights on electrification and severe weather forecasting
Texas A&M University, College Station, Texas
- August, 2001 Master of Science Degree in Atmospheric Sciences; GPA 4.0
Advisor: Richard E. Orville, Ph.D.
Thesis title: Cloud-to-ground lightning characteristics over Houston, Texas
Texas A&M University, College Station, Texas
- May, 1999 Bachelor of Science Degree in Meteorology; Mathematics Minor; GPA 4.0
Thesis title: Diagnosing the factors of the 31 May 1998 Central/Eastern New York tornado outbreak
State University of New York at Oswego, Oswego, New York

RESEARCH INTERESTS: Lake-effect snow storms, microphysics and lightning of storms, dual-polarimetric radar, urban effects on weather, weather forecasting, global warming and weather disasters' impacts

COMPUTER SKILLS: UNIX, Macintosh OS-X, Windows XP, FORTRAN, IDL (Interactive Data Language), Microsoft Office tools, GEMPAK (General Meteorological Package), IDV (Integrated Data Viewer), SOLO II research radar analysis software

EMPLOYMENT:

- Fall, 2003- **Assistant Professor**, tenured 2011, *Meteorology Program, SUNY Oswego*
- Present •Instruct introductory meteorology courses, labs, synoptic and mesoscale meteorology, weather disasters, senior seminar, storm observation summer program.
•Advise student research projects and the local AMS student chapter.
- Summer, 2000- **Research Assistant**, *Atmospheric Sciences Department, Texas A&M University*
2006 •Produced and analyzed cloud-to-ground lightning flash climatologies for all U.S. NWS sites.
•Studied the characteristics and causative factors of the Houston, TX CG lightning enhancement.
•Analyzed the electrical and dynamical storm behavior for different thunderstorm types.
- Spring, 2005 **Assistant Instructor**, *Meteorology Program, College of DuPage*
•Assisted in teaching and forecasting for a 2-week storm chasing course.
- Spring, 2003 **Graduate Assistant Lecturer**, *Atmospheric Sciences Department, Texas A&M University*
•Co-instructed a senior level radar and mesoscale meteorology course.

UNDERGRADUATE STUDENT PROJECTS SUPERVISED:

- Fall, 2010- Worked with ten undergraduate research assistants in the field collecting Doppler on Wheels data
Summer 2011 from lake-effect snowstorms as part of an NSF-EAGER grant. Four of these students analyzed the data during the summer of 2011 in preparation of a manuscript.
- Fall, 2010- Drew Montreuil completed an honors independent study in which he surveyed meteorology and
Spring, 2011 non-majors about their perceptions of weather forecasts.
- Fall, 2010- Evan Duffey, Keith Jaszka, and Drew Montreuil received a student Scholarly and Creative
Spring, 2011 Activities Committee (SCAC) grant (\$850) to purchase a car-mounted weather station. I advised them on how to use this to measure atmospheric properties in and around lake-effect snow bands.
- Fall, 2010 Brett Rathbun completed an independent study working with upper-air data collected during the 2010 SUNY Oswego Storm Forecasting and Observation Program.
- Fall, 2009- Christina Faraone and Christine Stacey assisted in launching rawinsondes into a lake-effect
Spring, 2011 thunderstorm near Buffalo, NY on 28-29 September 2009. They have done some analysis and presented their results at regional conferences. Christina worked with these data in completing an independent study honors thesis in 2011.

- Summer, 2009- Ron Harris and Thomas Ferris, participants in the 2009 SUNY Oswego Storm Forecasting and
Spring, 2010 Observation Program, analyzed data (sounding, radar, photographs) collected of two supercell thunderstorms during VORTEX-2. Ron completed an independent study honors thesis with this work.
- Fall, 2008- Advised an independent study honors project by Joseph Wegman on upslope and lake-enhanced
Spring, 2009 upslope snow events near the Allegheny Plateau. Joseph has presented this work at local and national conferences.
- Spring, 2008- Andrew Aizer and Ted Letcher analyzed radar reflectivity data over the Great Lakes to determine
Spring, 2010 the frequency of lake-effect snow band types, lake-effect thunderstorms, and precipitation type associated with these storms in preparation for field work. Mr. Letcher and I received a Student-Faculty Collaborative Challenge Grant (\$2500) to support dissemination of this work at conferences and through a journal article.
- Fall, 2006- Advised 4 SUNY Oswego students on COMET lake-effect snow grant. We had biweekly
Summer, 2007 meetings to teach students how to analyze radar data and run the WRF numerical model. This research resulted in several student conference presentations.
- Fall, 2006- Student-Faculty Collaborative Challenge grant (\$2500) work with Jason Keeler. Jason and I
Summer, 2007 researched the lake-effect lightning problem, mainly across the eastern Great Lakes. This work has resulted in an independent study project, multiple conference presentations, and a paper accepted in a peer-reviewed journal.
- Summer, 2005 Ronald E. McNair Scholars Program mentor (student project: Measurements of the urban heat islands of Syracuse and Fulton, NY; Christopher Thuman). Results were presented at the 2006 annual AMS conference.
- Summer, 2005 Two SUNY Oswego students were involved with the TexAQS II Project operating SMART (Shared Mobile Atmospheric Research and Teaching) Doppler radars.

SERVICE:

- 2008-Present Weather Forecast Consultant to local schools and businesses, Lake-Effect Storm Prediction and Research Center (LESPaRC)
- 2004-Present Participate in various TV, radio, and newspaper interviews on topics related to severe weather, research, and storm observation course
- 2003-Present Member of the Science Planning Committee (mission to improve and possibly restructure the science programs at SUNY Oswego; develop plans for new science building)
- 2003-Present Present to local college organizations, Boy Scout troupes, elementary and high school classes about varied weather topics (e.g., lake-effect snow, lightning safety)
- 2011 Participated in a Discovery Channel/BBC documentary "23 Degrees" about lake-effect snow and research with a Doppler on Wheels (DOW)
- 2008-2011 Member of the Campus Environmental Advisory Council, *SUNY Oswego*
- 2006-2011 New Faculty Orientation Committee member, *SUNY Oswego*
- 2008 Participated in a Discovery Channel documentary "Raging Planet" about lightning enhancement associated with large urban areas
- 2006-2008 Scholarly and Creative Activity Committee (SCAC) member, *SUNY Oswego*
- 2004-2006 Committee on Learning and Teaching (COLT) member, *SUNY Oswego*
- 2004 Participated in a British Broadcasting Company (BBC) documentary about lightning

MEMBERSHIPS:

- 2008-Present International Chase Forecast Discussion Group (CFDG)
- 2001-Present American Geophysical Union
- 1996-Present American Meteorological Society member and vice-president (2006-08), *CNYAMS Chapter*
- 2002-2003 Texas A&M Mobile Severe Storms Data Acquisition (TAMMSSDA) team coordinator
- 2002-2003 Graduate Student Council vice-president and chair, Research Week, *Texas A&M University*
- 1997-1999 Sigma Xi National Scientific Research Society
- 1997-1999 Omicron Delta Kappa National Leadership Society member and past president, *SUNY Oswego*

HONORS:

2011	Office of Research and Sponsored Programs Bronze Award (\$250,000), <i>SUNY Oswego</i>
2008	Forty under 40 Oswego County Business Award
2003	Jeff Montgomery Prize for Leadership, <i>Texas A&M University</i>
2002	Association of Former Students Distinguished Graduate Student Research Award, <i>Texas A&M University</i>
1998	Mark J. Schroeder Scholarship in Meteorology (American Meteorological Society)
1998	Who's Who in American Colleges and Universities
1997	AMS/WSI Industry Undergraduate Scholarship

REFEREED PUBLICATIONS

- S. M. Steiger**, A. Stamm, D. Ruth, K. Jaszka, T. Kress, B. Rathbun, R. Schrom, J. Frame, J. Wurman, and K. Kosiba, 2012: Circulations, bounded weak echo regions, and horizontal vortices observed by the Doppler on Wheels during long lake-axis-parallel lake-effect storms over Lake Ontario during the winter of 2010-11. *In preparation to be submitted to Monthly Weather Review*.
- Skubis, S., **S. M. Steiger**, R. J. Ballentine, and A. Stamm, 2012: Rawinsonde observations of an intense long lake-axis-parallel lake-effect snow band. *In preparation to be submitted to Monthly Weather Review*.
- Letcher, T., and **S. M. Steiger**, 2010: Lake-effect lightning climatology of the Great Lakes. *National Weather Digest*, **34**, 157-168.
- Steiger, S. M.**, R. Hamilton, J. Keeler, and R. E. Orville, 2009: Lake-effect thunderstorms in the lower Great Lakes. *J. Appl. Meteor. Clim.*, **48**, 889-902.
- Steiger, S. M.**, R. E. Orville, and L. D. Carey, 2007: Total lightning signatures of thunderstorm intensity over North Texas, Part I: Supercells. *Mon. Wea. Rev.*, **135**, 3281-3302.
- Steiger, S. M.**, R. E. Orville, and L. D. Carey, 2007: Total lightning signatures of thunderstorm intensity over North Texas, Part II: Mesoscale convective systems. *Mon. Wea. Rev.*, **135**, 3303-3324.
- Steiger, S.**, and R. E. Orville, 2003: Cloud-to-ground lightning enhancement over Southern Louisiana. *Geophys. Res. Lett.*, **30**, doi:10.1029/2003GL017923.
- Steiger, S. M.**, R. E. Orville, and G. Huffines, 2002: Cloud-to-ground lightning characteristics over Houston, Texas: 1989-2000. *J. Geophys. Res.*, **107**, doi:10.1029/2001JD001142.
- Bond, D., **S. Steiger**, R. Zhang, X. Tie, and R. E. Orville, 2002: The importance of NO_x production by lightning in the tropics. *Atmos. Environ.*, **36**, 1509-1519.
- Orville, R. E., G. Huffines, J. Nielsen-Gammon, R. Zhang, B. Ely, **S. Steiger**, S. Phillips, S. Allen, and W. Read, 2001: Enhancement of cloud-to-ground lightning over Houston, Texas. *Geophys. Res. Lett.*, **28**, 2597-2600.

GRANTS AND PROJECTS (Last 10 Years)

"Collaborative research: Dual-polarimetric Doppler-On-Wheels observations of long lake-axis-parallel lake-effect storms over Lakes Erie and Ontario," \$86,761 EARly concept Grant for Exploratory Research (EAGER), National Science Foundation, 2010-2012. I am the principal investigator (PI) on this grant.

"Lake-effect lightning events: Lake Erie versus Ontario," \$2,500 Student Faculty Collaborative Challenge Grant, SUNY Oswego, 2008-09. Ted Letcher and I investigated the frequency and precipitation type associated with lake-effect thunderstorms over each of the eastern Great Lakes. This study was extended to all the Great Lakes.

"Upper-air and surface observing systems for weather research and instruction at SUNY Oswego," \$156,072 Major Research Instrumentation (MRI) grant, National Science Foundation, 2008-2010. The meteorology faculty was awarded a grant to modernize our surface meteorological stations and to obtain a new mobile upper-air facility. I am the PI on this project.

"Improving the understanding and prediction of lake-effect snowstorms in the Eastern Great Lakes region," \$10,000 National Weather Service COMET grant, awarded to the SUNY Oswego meteorology program, 2006-07. I mentored four meteorology majors, ranging from sophomore to senior status, in analyzing radar and model data to improve lake-effect snow forecasting using the WRF modeling system. We also studied the inland extent of snowfall and diurnal variability of these storms.

"Lightning in lake-effect snow," \$2,500 Student Faculty Collaborative Challenge Grant, SUNY Oswego, 2006-07. Jason Keeler and I analyzed cloud-to-ground lightning data from lake-effect storms to develop a climatology of these storms and develop forecasting techniques.

"Houston Lightning Project," Texas A&M University. Assisted in Lightning Detection and Ranging II (LDAR II) instrument site selections and installations (summers 2004 and 2005).

PROFESSIONAL CONFERENCE PRESENTATIONS (Last 10 Years)

Steiger, S. M., and A. Stamm, 2011: Dual-polarimetric Doppler on Wheels observations of long lake-axis-parallel lake-effect snow storms over Lake Ontario. *Proceedings, 35th Conf. on Radar Meteorology*, Pittsburgh, PA, American Meteorological Society, P200.

Steiger, S., and A. Stamm, 2011: Observations and experiences while studying long lake-axis-parallel lake-effect snow storms with the Doppler on Wheels. *Proceedings, 2nd Annual Great Lakes Atmospheric Science Symposium*, Oswego, NY, Oswego State Student Chapter of the American Meteorological Society.

Gibbons, B., R. Ballentine, S. Skubis, A. Stamm, and **S. Steiger**, 2011: Wind power potential in upstate New York. *Proceedings, 36th Annual Northeastern Storm Conf.*, Taunton, MA, Lyndon State College Chapter of the American Meteorological Society and National Weather Association, p. 26.

Steiger, S. M., and A. Stamm, 2011: Observations and experiences while studying long lake-axis-parallel lake-effect snow storms with the Doppler on Wheels. *Proceedings, 36th Annual Northeastern Storm Conf.*, Taunton, MA, Lyndon State College Chapter of the American Meteorological Society and National Weather Association, p. 24.

Faraone, C., C. Stacey, **S. Steiger**, and A. Stamm, 2010: Launching rawinsondes into the 28 September 2009 Buffalo, NY lake-effect thunderstorm event. *Proceedings, 1st Annual Great Lakes Atmospheric Science Symposium*, Oswego, NY, Oswego State Student Chapter of the American Meteorological Society.

Steiger, S., A. Stamm, R. Ballentine, and S. Skubis, 2010: The SUNY Oswego experience with an NSF MRI grant: The need for "toys" in undergraduate meteorological education and some results. *Proceedings, 1st Annual Great Lakes Atmospheric Science Symposium*, Oswego, NY, Oswego State Student Chapter of the American Meteorological Society.

Harris, R., **S. Steiger**, and S. Skubis, 2010: Examining relationships in low-level wind speeds and other parameters with tornadic and non-tornadic supercells. *Proceedings, 1st Annual Great Lakes Atmospheric Science Symposium*, Oswego, NY, Oswego State Student Chapter of the American Meteorological Society.

Ballentine, R. J., D. Phoenix, **S. Steiger**, S. Skubis, and A. Stamm, 2010: Radiosonde tracking of a lake-effect snow band. *Proceedings, 35th Annual Northeastern Storm Conf.*, Saratoga Springs, NY, Lyndon State College Chapter of the American Meteorological Society and National Weather Association, p. 28.

- Faraone, C., C. Stacey, **S. Steiger**, and A. Stamm, 2010: Launching rawinsondes into the 28 September 2009 Buffalo, NY lake-effect thunderstorm event. *Proceedings, 35th Annual Northeastern Storm Conf.*, Saratoga Springs, NY, Lyndon State College Chapter of the American Meteorological Society and National Weather Association, p. 44.
- Steiger, S. M.**, 2010: The SUNY Oswego Storm Forecasting and Observation Program's participation with VORTEX-2. *Proceedings, 19th Symposium on Education*, Atlanta, GA, American Meteorological Society, P29.
- Ballentine, R. J., **S. Steiger**, and D. B. Phoenix, 2010: Numerical simulation of wind power potential in Upstate New York. *Proceedings, The 1st Conf. on Weather, Climate, and the New Energy Economy*, Atlanta, GA, American Meteorological Society, P501.
- Steiger, S. M.**, 2009: Structure and characteristics of long lake-axis-parallel lake-effect storms. *Proceedings, 34th Annual Northeastern Storm Conf.*, Springfield, MA, Lyndon State College Chapter of the American Meteorological Society and National Weather Association, p. 52.
- Letcher, T., and **S. Steiger**, 2009: Lake-effect lightning climatology. *Proceedings, 34th Annual Northeastern Storm Conf.*, Springfield, MA, Lyndon State College Chapter of the American Meteorological Society and National Weather Association, p. 26.
- Stamm, A., S. Skubis, **S. Steiger**, and B. Ballentine, 2009: Some experiences with launching rawinsondes into lake-effect snow bands and observations during a freezing rain event. *Proceedings, 34th Annual Northeastern Storm Conf.*, Springfield, MA, Lyndon State College Chapter of the American Meteorological Society and National Weather Association, p. 51.
- Steiger, S. M.**, and R. J. Ballentine, 2008: Structure and characteristics of long lake axis-parallel lake-effect storms. *Extended Abstracts, 24th Conference on Severe Local Storms*, Savannah, GA, Amer. Meteor. Soc., 13B.6.
- Steiger, S.**, and R. Ballentine, 2008: The blizzard of 1966 in upstate New York. *Keynote talk, 3rd Annual Lake Effect Conf.*, Oswego, NY, Oswego State Student Chapter of the American Meteorological Society.
- Steiger, S.**, 2007: Can we use the WRF to predict lake-effect lightning? *Proceedings, 2nd Annual Lake Effect Conf.*, Oswego, NY, Oswego State Student Chapter of the American Meteorological Society.
- Steiger, S.**, 2007: To the roof! Learning by observing Oswego's weather. *Proceedings, 32nd Annual Northeastern Storm Conf.*, Springfield, MA, Lyndon State College Chapter of the American Meteorological Society and National Weather Association, p. 32.
- Steiger, S. M.**, R. Orville, and J. Keeler, 2007: Lake-effect thunderstorms. *Proceedings, Symposium on Connections between Mesoscale Processes and Climate Variability*, San Antonio, TX, American Meteorological Society, CD-ROM, P1.7.
- Keeler, J., **S. M. Steiger**, and R. Orville, 2007: Cloud-to-ground lightning climatology of the lower Great Lakes. *Proceedings, Symposium on Connections between Mesoscale Processes and Climate Variability*, San Antonio, TX, American Meteorological Society, CD-ROM, P1.6.
- Steiger, S. M.**, 2006: The eastern Great Lakes lake-effect snow (EAGLLES) project: SUNY Oswego participation. *Proceedings, 1st Annual Lake Effect Conf.*, Oswego, NY, Oswego State Student Chapter of the American Meteorological Society.
- Steiger, S.**, 2006: Total lightning signatures of supercell thunderstorm intensity. *Proceedings, 31st Annual Northeastern Storm Conf.*, Saratoga Springs, NY, Lyndon State College Chapter of the American Meteorological Society and National Weather Association.

- Steiger, S. M.**, R. E. Orville, L. D. Carey, N. W. Demetriades, M. J. Murphy, and B. Ely, 2006: Total lightning characteristics of storms: supercells and cells within mesoscale convective systems. *Proceedings, 2nd Conf. on Meteorological Applications of Lightning Data*, Atlanta, GA, American Meteorological Society, CD-ROM, P2.1.
- Steiger, S.**, R. E. Orville, M. J. Murphy, and N. W. S. Demetriades, 2005: Total lightning and radar characteristics of supercells: Insights on electrification and severe weather forecasting. *Extended Abstracts, Conf. on Meteorological Applications of Lightning Data*, San Diego, CA, American Meteorological Society, CD-ROM, P1.7.
- Orville, R. E., L. Carey, J. Nielsen-Gammon, D. Collins, R. Zhang, A. Stuart, B. Ely, **S. Steiger**, and J. Smith, 2005: The Houston Environmental Aerosol Thunderstorm (HEAT) Project - 2005. *Proceedings, Conf. on Meteorological Applications of Lightning Data*, San Diego, CA, American Meteorological Society, CD-ROM, 8.2.
- Steiger, S.**, and R. E. Orville, 2003: Southern Louisiana: Compelling evidence for pollution enhancing cloud-to-ground lightning. *Proceedings, American Geophysical Union 2003 Fall Meeting*, San Francisco, CA, American Geophysical Union, F202-203. (Outstanding Student Paper Award Recipient.)
- Orville, R. E., B. Ely, and **S. Steiger**, 2002: The Houston Environmental Aerosol Thunderstorm (HEAT) Project. *Proceedings, American Geophysical Union 2002 Fall Meeting*, San Francisco, CA, American Geophysical Union.