

Curriculum Vitae

SONIA G. LASHER-TRAPP

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EDUCATION

The University of Oklahoma, Ph.D. in Meteorology, 1998

Dissertation: *Ultragiant Aerosol Growth by Collection within a Warm Continental Cumulus Congestus*

Principal Advisor: Dr. Jerry M. Straka

The University of Oklahoma, M.S. in Meteorology, 1993

Thesis: *A Measure of Spatial Irregularity in Observation Networks*

Principal Advisor: Dr. Charles A. Doswell

Saint Louis University, B.S. in Meteorology (Summa cum Laude), 1990

APPOINTMENTS

Assistant Professor, Department of Earth and Atmospheric Sciences, Purdue University, January 2003-present

Research Scientist, New Mexico Institute of Mines and Technology, in residence at the National Center for Atmospheric Research, Dec 2000- Dec 2002

Postdoctoral Fellow, Advanced Study Program, National Center for Atmospheric Research/Texas A&M University, Aug 1998-Nov 2000

GRANTS AND FUNDING

Principle Investigator: *The Application of a Successful Research-Based Laboratory Model to Atmospheric Science*, NSF, \$150,000, pending

Principle Investigator: *Entrainment, Ultragiant Particles, and Warm Rain Formation in Trade Wind Cumulus* (supplement), NSF, \$20,807, 2008-2009

Principle Investigator: *The Effects of Entrainment and Mixing on Droplet Populations in Trade Wind Cumuli*, Purdue Research Foundation, \$16,300, 2008-2009

Co-principal Investigator: *Sub-Daily Scale Extreme Precipitation in Future Climate-Change Scenarios: A Pilot Study*, NSF, \$275,075, 2006-2008

Co-principal Investigator: *Collaborative Research: An Advanced Interactive Multifield, Multisource Atmospheric Visual Analysis Environment*, NSF, \$686,163, 2005-2009

Principal Investigator: *Entrainment, Ultragiant Particles, and Warm Rain Formation in Trade Wind Cumulus*, NSF, \$352,761, 2004-2008

Co-principal Investigator: *Interdisciplinary Earth and Atmospheric Science Research: A Unique Challenge for Graduate Student Recruitment*, Purdue Graduate College, \$10,000, 2004-2005

Principal Investigator: *Supercooled Large Drop Formation by Ultragraining Particles in Wintertime Stratiform Clouds during the Second Alliance Icing Research Study (AIRS II)*, NSF, \$201,089, 2003-2006

Co-principal Investigator: *Interdisciplinary Earth and Atmospheric Science Research: A Unique Challenge for Graduate Student Recruitment*, Purdue Graduate College, \$5,000, 2003-2004

Co-principal Investigator: *The Roles of Ultragraining Aerosols and Entrainment and Mixing in the Warm Rain Process*, NSF, \$193,139, 2000-2003

PROFESSIONAL ACTIVITIES

Associate Editor, *Journal of the Atmospheric Sciences*, 2008

Member, International Commission on Clouds and Precipitation, 2008-2012

Member, NSF Observing Facilities Assessment Panel (OFAP), 2006-2009

Chair, program committee, AMS 12th Conference on Cloud Physics, 2005-2006

Member, AGU Cloud and Precipitation Committee, 2005-2007

Member, AMS Cloud Physics committee, 2001-2007

Session chair: AMS 11th Conference on Cloud Physics, 2002

PROFESSIONAL SOCIETY MEMBERSHIPS

American Meteorological Society

American Geophysical Union

Sigma Xi

HONORS AND AWARDS

Outstanding Contributions to Undergraduate Teaching by an Assistant Professor, Purdue College of Science, 2007

Outstanding Faculty Graduate Advisor, Dept. of Earth and Atmospheric Sciences, 2006

Patricia Roberts Harris Fellow, The University of Oklahoma

Phi Beta Kappa Honor Society

Alpha Sigma Nu Jesuit Honor Society

Valedictorian, Heritage Hills High School, Lincoln City, Indiana

PUBLICATIONS

● FORMAL, IN REVIEW:

Reiche, C. H., and S. Lasher-Trapp, 2008: The variable importance of giant aerosol to precipitation development within shallow small trade wind cumuli observed during RICO. Submitted to *Atmospheric Research*.

● FORMAL, IN PRESS:

Carleton, L. E., G. H. Krockover, S. Lasher-Trapp and D. C. Eichinger, 2008: Ideas about the nature of science held by undergraduate atmospheric science students. *Bull. Amer. Meteor. Soc.*, in press.

Lasher-Trapp, S., S. Anderson-Bereznicki, A. Shackelford, C. H. Twohy and J. G. Hudson, 2008: An investigation of the influence of droplet number concentration and giant aerosol particles upon supercooled large drop formation in wintertime stratiform clouds. *J. Appl. Meteor. Climatol.*, in press.

● FORMAL, IN PRINT:

Lasher-Trapp, S., 2007: Clouds in a warmer climate: Friend or foe? *Forum on Public Policy*, **3**, 353-368.

Rauber, R. M., and coauthors, 2007: Rain in shallow cumulus over the ocean—the RICO campaign. *Bull. Amer. Meteor. Soc.*, **88**, 1912-1928.

Rauber, R. M., and coauthors, 2007: Supplement to Rain in shallow cumulus over the ocean. *Bull. Amer. Meteor. Soc.*, **88**, S12-S18.

Lasher-Trapp, S., and **J. P. Stachnik**, 2007: Giant and Ultragiant Aerosol Particle Variability over the Eastern Great Lakes Region. *J. Appl. Meteor.*, **46**, 651-659.

Song, Y., J. Ye, N. Svakhine, **S. Lasher-Trapp**, M. Baldwin and D. S. Ebert, 2006: An Atmospheric Visual Analysis and Exploration System. *IEEE Transactions on Visualization and Computer Graphics*, **12**, 1157-1164.

Barth, M., and coauthors, 2006: Coupling Between Land Ecosystems and the Atmospheric Hydrologic Cycle through Biogenic Aerosol Pathways. *Bull. Amer. Meteor. Soc.*, **86**, 1738-1742.

Blyth, A. M., **S. G. Lasher-Trapp** and W. A. Cooper, 2005: A Study of Thermals in Cumulus Clouds. *Quart. J. Roy. Meteor. Soc.*, **131**, 1171-1190.

Lasher-Trapp, S. G., W. A. Cooper and A. M. Blyth, 2005: Broadening of Droplet Size Distributions from Entrainment and Mixing in a Cumulus Cloud. *Quart. J. Roy. Meteor. Soc.*, **131**, 195-220.

Blyth, A. M., **S. G. Lasher-Trapp**, W. A. Cooper, C. A. Knight and J. Latham, 2002: The Role of Giant and Ultra-giant Aerosols in the Initiation of Rain in Warm Cumulus Clouds. *J. Atmos. Sci.*, **60**, 2557-2572.

Knight, C. A., J. Vivekanandan and **S. Lasher-Trapp**, 2002: First Radar Echoes and Early ZDR History of Florida Cumulus. *J. Atmos. Sci.*, **59**, 1454-1472.

Lasher-Trapp, S. G., W. A. Cooper and A. M. Blyth, 2002: Measurements of Ultragiant Aerosol Particles in the Atmosphere from the Small Cumulus Microphysics Study. *J. Atmos. Ocean. Tech.*, **19**, 402-408.

Lasher-Trapp, S., C. A. Knight and J. M. Straka, 2001: Early Radar Echoes from Ultragiant Aerosol in a Cumulus Congestus: Modeling and Observations. *J. Atmos. Sci.*, **58**, 3545-3562.

Doswell, C. A. III, and **S. G. Lasher-Trapp**, 1997: Measuring the Degree of Irregularity in Observation Networks. *J. Atmos. Ocean. Tech.*, **14**, 120-132.

● CONFERENCE PROCEEDINGS:

Lasher-Trapp, S., W. A. Cooper and A. M. Blyth, 2008: Effects of entrainment and mixing on droplet coalescence in a simulated warm cumulus cloud. Preprints, *15th Int. Conf. on Clouds and Precipitation*, Cancun, Mexico, ICCP, CD-ROM.

Bewley, J. L., and **S. Lasher-Trapp**, 2008: The effects of entrainment and mixing on droplet populations: A comparison of numerical modeling and aircraft observations. Preprints, *15th Int. Conf. on Clouds and Precipitation*, Cancun, Mexico, ICCP, CD-ROM.

Arthur, D. K., **S. Lasher-Trapp**, A. Abdel-Haleem, N. Klosterman, and D. S. Ebert, 2008: A new three-dimensional visualization system for combining aircraft and radar data and its application to RICO observations. Preprints, *15th Int. Conf. on Clouds and Precipitation*, Cancun, Mexico, ICCP, CD-ROM.

Henry, C. and **S. Lasher-Trapp**, 2006: When can giant aerosol fail to produce rain? Preprints, *12th Conf. on Cloud Physics*, Madison, WI, Amer. Meteor. Soc. CD-ROM.

Lasher-Trapp, S., S. Anderson-Bereznicki and C. Twohy, 2005: Giant Aerosol Particles as a Potential Source of Supercooled Large Drops in Wintertime Stratiform Clouds. *Eos Trans. AGU*, 86(52), Fall Meet. Suppl., Abstract A33E-05.

Lasher-Trapp, S., S. Bereznicki and J. Stachnik, 2004: Giant and Ultragiant Aerosol Particles: Source of Large Supercooled Drops in Mixed-phase Clouds? *Proc. 14th Int. Conf. on Clouds and Precipitation*, Bologna, Italy, 831-835.

Blyth, A. M., **S. G. Lasher-Trapp** and W. A. Cooper, 2004: Observations of Reduced Liquid Water Content in the Centre of Cumulus Cloud Updrafts. *Proc. 14th Int. Conf. on Clouds and Precipitation*, Bologna, Italy, 491-493.

Lasher-Trapp, S., W. A. Cooper and A. M. Blyth, 2002: Supersaturation Variations Among Droplet Trajectories Through a Warm Cumulus: Effects on Droplet Size Distributions. *Proc. 11th Conf. On Cloud Physics*, Ogden, UT.

Blyth, A. M., **S. Lasher-Trapp** and W. A. Cooper, 2002: Entrainment and Mixing in Small Cumulus Clouds. *Proc. 11th Conf. On Cloud Physics*, Ogden, UT.

Blyth, A. M., **S. G. Lasher-Trapp** and W. A. Cooper, 2000: Observations of Thermals in Cumulus Clouds. *Proc. 13th Int. Conf. on Clouds and Precipitation*, Reno, NV, 67-70.

Lasher-Trapp, S. G. and W. A. Cooper, 2000: Comparison of theory and observations of broadening of cloud droplet size distributions in warm cumuli. *Proc. 13th Int. Conf. on Clouds and Precipitation*, Reno, NV, 90-93.

Lasher-Trapp, S., C. A. Knight and J. M. Straka, 1998: Ultragiant aerosol growth by collection within a warm continental cumulus, Preprints, *10th Conf. on Cloud Physics*, Everett, WA, Amer. Meteor. Soc., 494-497.

Brooks, H. E., C. A. Doswell III, E. N. Rasmussen and **S. Lasher-Trapp**, 1995: Detailed observations of complex dryline structure in Oklahoma on 14 April 1994. *Proc. 14th Conf. on Weather Analysis and Forecasting*, Dallas, TX, Amer. Meteor. Soc., 62-67.

Trapp, R. J., E. N. Rasmussen, **S. G. Lasher-Trapp**, A. I. Watson and T. R. Shepherd, 1995: Multi-platform observation of a severe thunderstorm during VORTEX. Preprints, *27th Conf. on Radar Meteorology*, Vail, CO, Amer. Meteor. Soc., 517-518.