

CURRICULUM VITAE

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Education

Ph.D. (1999) - Atmospheric Science, Colorado State University, Fort Collins, CO
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M.S. (1994) - Atmospheric Science, Colorado State University, Fort Collins, CO

B.S. (1989) - Meteorology, The Pennsylvania State University, State College, PA

B.S. (1988) - Electrical Engineering, Boston University, Boston, MA

Professional Employment

2015 - *Associate Director*, Earth System Science Center (ESSC), The National Space Science and Technology Center (NSSTC), University of Alabama in Huntsville, Huntsville, AL 35805

2014 - 2018 *Interim Chair and Chair*, Department of Atmospheric Science, The National Space Science and Technology Center (NSSTC), University of Alabama in Huntsville, Huntsville, AL 35805

2012 - *Associate Professor*, Department of Atmospheric Science, The National Space Science and Technology Center (NSSTC), University of Alabama in Huntsville, Huntsville, AL 35805

2009 - 2011 *Principal Research Scientist I*, Earth System Science Center (ESSC), The National Space Science and Technology Center (NSSTC), University of Alabama in Huntsville, Huntsville, AL 35805

2007 - 2009 *Research Scientist V*, Earth System Science Center (ESSC), The National Space Science and Technology Center (NSSTC), University of Alabama in Huntsville, Huntsville, AL 35805

2003 - 2007 *Assistant Professor*, Department of Atmospheric Sciences, Texas A&M University, College Station, TX 77843

2001 - 2003 *Assistant Professor*, Department of Marine, Earth and Atmospheric Science, North Carolina State University, Raleigh, NC 27695

1999 - 2001 *Research Associate*, Cooperative Institute for Research in the Atmosphere (CIARA) and Department of Atmospheric Science, Colorado State University, Fort Collins, CO 80523

1992 - 1998 *Graduate Research Assistant*, Department of Atmospheric Science, Colorado State University

1988 - 1992 *Weather Officer*, United States Air Force

Research Interests: Lightning Meteorology, Radar Meteorology, Precipitation Physics and Severe Storms

Citations

Google Scholar Profile: <https://scholar.google.com/citations?user=eZ5FO0AAAAAJ>

Google Scholar Citations: 4457

Google Scholar h-index: 35

Google Scholar i10-index: 67

Publications in Refereed Literature (student or post-doctoral advisees are highlighted with *)

2019

83. Amiot*, C. G., **L. D. Carey**, W. P. Roeder, T. M. McNamara, and R. J. Blakeslee, 2019: C-band dual-polarization radar signatures of wet downbursts around Cape Canaveral, Florida. *Weather and Forecasting*, **34**, 103-131. <https://doi.org/10.1175/WAF-D-18-0081.1>.

2018

82. Mecikalski*, R. M., and **L. D. Carey**, 2018: Radar reflectivity and altitude distributions of lightning flashes as a function of three main storm types. *Journal of Geophysical Research: Atmospheres*, **123**, 12,814-12,828. <https://doi.org/10.1029/2018JD029238>.

81. Mecikalski*, R. M., and **L. D. Carey**, 2018: Radar reflectivity and altitude distributions of lightning as a function of IC, CG and HY flashes: Implications for LNO_x production. *Journal of Geophysical Research: Atmospheres*, **123**, 12,796-12,813. <https://doi.org/10.1029/2018JD029263>.

80. Gatlin, P. N., W. A. Petersen, K. R. Knupp and **L. D. Carey**, 2018: Observed response of the raindrop size distribution to changes in the melting layer. *Atmosphere*, **9**, 319. <https://doi.org/10.3390/atmos9080319>.

79. Bela, M. M., M. C. Barth, O. B. Toon, A. Fried, C. Ziegler, K. A. Cummings, Y. Li, K. E. Pickering, C. R. Homeyer, H. Morrison, Q. Yang, R. M. Mecikalski*, **L. Carey**, M. I. Biggerstaff, D. P. Betten, and A. A. Alford, 2018: Effects of scavenging, entrainment, and aqueous chemistry on peroxides and formaldehyde in deep convective outflow over the Central and Southeast United States, *Journal of Geophysical Research: Atmospheres*, **123**, 7594-7614. <https://doi.org/10.1029/2018JD028271>.

78. Fuchs, B. R., S. A. Rutledge, B. Dolan, **L. D. Carey** and C. Schultz, 2018: Microphysical and kinematic processes associated with anomalous charge structures in isolated convection. *Journal of Geophysical Research: Atmospheres*, **123**, 6505-6528. <https://doi.org/10.1029/2017JD027540>.

2017

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76. Mecikalski*, R. M., P. M. Bitzer, and **L. D. Carey**, 2017: Why flash type matters: A statistical analysis. *Geophysical Research Letters*, **44**, 9505-9512. <https://doi.org/10.1002/2017GL075003>.

75. Li, Y., K. E. Pickering, D. J. Allen, M. C. Barth, M. M. Bela, K. A. Cummings, **L. D. Carey**, R. M. Mecikalski*, A. O. Fierro, T. L. Campos, A. J. Weinheimer, G. S. Diskin, and M. I. Biggerstaff, 2017: Evaluation of deep convective transport in storms from different convective regimes during the DC3 field campaign using WRF-Chem with lightning data assimilation. *Journal of Geophysical Research: Atmospheres*, **122**, 7140-7163. <https://doi.org/10.1002/2017JD026461>.

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71. Jensen, M. P., W. A. Petersen, A. Bansemer, N. Bharadwaj, **L. D. Carey**, D. J. Cecil, S. M. Collis, A. D. Del Genio, B. Dolan, J. Gerlach, S. E. Giangrande, A. Heymsfield, G. Heymsfield, P. Kollias, T. J. Lang, S. W. Nesbitt, A. Neumann, M. Poellot, S. A. Rutledge, M. Schwaller, A. Tokay, C. R. Williams, D. B. Wolff, S. Xie, E. J. Zipser, 2016: The Midlatitude Continental Convective Clouds Experiment (MC3E), *Bulletin of the American Meteorological Society*, **97**, 1667-1686. <https://doi.org/10.1175/BAMS-D-14-00228.1>.

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2012

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48. Schultz*, C. J., **L. D. Carey**, E. V. Schultz, B. C. Carcione, C. B. Darden, C. C. Crowe, P. N. Gatlin, D. J. Nadler, W. A. Petersen, and K. R. Knupp, 2012: Dual-polarization tornadic debris signatures Part I: Examples and utility in an operational setting. *Electronic Journal of Operational Meteorology*, **13** (9), 120 - 137. <http://nwafiles.nwas.org/ej/pdf/2012-EJ9.pdf>.
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17. **Carey, L. D.**, M. J. Murphy, T. L. McCormick*, and N. W. S. Demetriades, 2005: Lightning location relative to storm structure in a leading-line, trailing-stratiform mesoscale convective system. *Journal of Geophysical Research*, **110**, D03105. <https://doi.org/10.1029/2003JD004371>.

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16. Cifelli, R., **L. Carey**, W. A. Petersen, S. A. Rutledge, 2004: An ensemble study of wet season convection in southwest Amazonia: Kinematics and implications for diabatic heating. *Journal of Climate*, **17**, 4692-4707. <https://doi.org/10.1175/JCLI-3236.1>.

15. Vincent*, B. R., **L. D. Carey**, D. Schneider, K. Keeter and R. Gonski, 2004: Using WSR-88D reflectivity data for the prediction of cloud-to-ground lightning: A central North Carolina study. *National Weather Digest*, **27**, 35-44. <http://nwafiles.nwas.org/digest/papers/2003/Vol27No1/Pg35-Vincent.pdf>.

2003

14. **Carey, L. D.**, and S. A. Rutledge, 2003: Characteristics of cloud-to-ground lightning in severe and nonsevere storms over the central United States from 1989-1998. *Journal of Geophysical Research*, **108**, NO. D15, 4483. <https://doi.org/10.1029/2002JD002951>.

13. **Carey, L. D.**, W. A. Petersen, and S. A. Rutledge, 2003: Evolution of cloud-to-ground lightning and storm structure in the Spencer, South Dakota, tornadic supercell of 30 May 1998. *Monthly Weather Review*, **131**, 1811-1831. <https://doi.org/10.1175/2566.1>.

12. **Carey, L. D.**, S. A. Rutledge, and W. A. Petersen, 2003: The relationship between severe storm reports and cloud-to-ground lightning polarity in the contiguous United States from 1989 to 1998. *Monthly Weather Review*, **131**, 1211-1228. [https://doi.org/10.1175/1520-0493\(2003\)131<1211:TRBSSR>2.0.CO;2](https://doi.org/10.1175/1520-0493(2003)131<1211:TRBSSR>2.0.CO;2).

2002

11. Cifelli, R., W. A. Petersen, **L. D. Carey**, S. A. Rutledge, and M. A. F. da Silva Dias, 2002: Radar observations of the kinematic, microphysical and precipitation characteristics of two MCSs in TRMM LBA. *Journal of Geophysical Research*, **107**, NO. D20, 8077. <https://doi.org/10.1029/2000JD000264>.

2001

10. Keenan, T. D., **L. D. Carey**, D. S. Zrnić, and P. T. May, 2001: Sensitivity of 5-cm wavelength polarimetric radar variables to raindrop axial ratio and drop size distribution. *Journal of Applied Meteorology*, **40**, 526 – 545. [https://doi.org/10.1175/1520-0450\(2001\)040<0526:SOCWPR>2.0.CO;2](https://doi.org/10.1175/1520-0450(2001)040<0526:SOCWPR>2.0.CO;2).

2000

9. **Carey, L. D.**, S. A. Rutledge, D. A. Ahijevych, and T. D. Keenan, 2000: Correcting propagation effects in C-band polarimetric radar observations of tropical convection using differential propagation phase. *Journal of Applied Meteorology*, **39**, 1405-1433. [https://doi.org/10.1175/1520-0450\(2000\)039<1405:CPEICB>2.0.CO;2](https://doi.org/10.1175/1520-0450(2000)039<1405:CPEICB>2.0.CO;2).

8. **Carey, L. D.**, and S. A. Rutledge, 2000: The relationship between precipitation and lightning in tropical island convection: A C-band polarimetric radar study. *Monthly Weather Review*, **128**, 2687-2710. [https://doi.org/10.1175/1520-0493\(2000\)128<2687:TRBPAL>2.0.CO;2](https://doi.org/10.1175/1520-0493(2000)128<2687:TRBPAL>2.0.CO;2).

7. Zrnić, D. S., T. D. Keenan, **L. D. Carey**, and P. May, 2000: Sensitivity analysis of polarimetric variables at a 5-cm wavelength in rain. *Journal of Applied Meteorology*, **39**, 1514-1526. [https://doi.org/10.1175/1520-0450\(2000\)039<1514:SAOPVA>2.0.CO;2](https://doi.org/10.1175/1520-0450(2000)039<1514:SAOPVA>2.0.CO;2).

6. Ahijevych, D. A., S. A. Rutledge, and **L. D. Carey**, 2000: Radar and electrical characteristics of convection observed during MCTEX. *Australian Meteorological Magazine*, **49**, 165-180. http://www.bom.gov.au/amm/docs/2000/ahijevych_hres.pdf.

1999

5. May, P. T., T. D. Keenan, D. S. Zrnić, **L. D. Carey**, and S. A. Rutledge, 1999: Polarimetric radar measurements of tropical rain at a 5-cm wavelength. *Journal of Applied Meteorology*, **38**, 750-765. [https://doi.org/10.1175/1520-0450\(1999\)038<0750:PRMOTR>2.0.CO;2](https://doi.org/10.1175/1520-0450(1999)038<0750:PRMOTR>2.0.CO;2).

4. Petersen, W. A., **L. D. Carey**, S. A. Rutledge, J. C. Knievel, N. J. Doesken, R. H. Johnson, T. B. McKee, T. Vonder Haar, and J. F. Weaver, 1999: Mesoscale and radar observations of the Fort Collins flash flood of 28 July 1997. *Bulletin of the American Meteorological Society*, **80**, 191-216. [https://doi.org/10.1175/1520-0477\(1999\)080<0191:MAROOT>2.0.CO;2](https://doi.org/10.1175/1520-0477(1999)080<0191:MAROOT>2.0.CO;2).

1998

3. **Carey, L. D.**, and S. A. Rutledge, 1998: Electrical and multiparameter radar observations of a severe hailstorm. *Journal of Geophysical Research*, **103**, 13,979-14,000. <https://doi.org/10.1029/97JD02626>.

2. Hubbert, J., V. N. Bringi, **L. D. Carey**, and S. Bolen, 1998: CSU-CHILL polarimetric radar measurements from a severe hail storm in Eastern Colorado. *Journal of Applied Meteorology*, **37**, 749–775. [https://doi.org/10.1175/1520-0450\(1998\)037<0749:CCPRMF>2.0.CO;2](https://doi.org/10.1175/1520-0450(1998)037<0749:CCPRMF>2.0.CO;2).

1996

1. **Carey, L. D.**, and S. A. Rutledge, 1996: A multiparameter radar case study of the microphysical and kinematic evolution of a lightning producing storm. *Meteorology and Atmospheric Physics*, **59**, 33-64. <https://doi.org/10.1007/BF01032000>.

Current Funded Research Projects

2018 – 2021 UAH ESSC Project Management (NASA PI: Dr. Cecil), “*Using CYGNSS to Characterize Tropical Cyclone Structure and Integrated Kinetic Energy*”, NASA MSFC, \$72K

2018 – 2021 UAH ESSC Project Management (NASA PI: Dr. Lang), “*Advanced Microwave Precipitation Radiometer (AMPR) in the Cloud, Aerosol, and Monsoon Processes Philippines Experiment (CAMP2Ex)*”, NASA MSFC, \$55K

2017 – 2021 UAH PI (team co-I) on “*LMA Deployment to the RELAMPAGO Field Campaign*”, NASA MSFC, \$112K

2017 – 2021 UAH PI (team co-PI) on “*Collaborative Research: Kinematic, Microphysical and Electrical Processes Leading to Extreme Lightning Flash Rates over Argentina Using RELAMPAGO Observations*”, NSF, \$367K

2016 – 2021 UAH ESSC Project Management (NASA PI: Dr. Cecil), *Precipitation Measurement Missions (PMM)*, NASA MSFC, \$88K

2015 – 2021 UAH ESSC Project Management (NASA PI: Dr. Petersen), “*GPM Ground Validation (On-site)*”, NASA MSFC, \$141K

2015 – 2021 UAH PI (team co-PI) on “*Use of Satellite-based Lightning Information to Understand Severe Thunderstorm Development and Tornado Potential*”, NASA MSFC (NASA ROSES Severe Storms Prime), \$254K

2017 – 2020 UAH PI (team co-PI) on “*Utilizing Sub-flash Properties of GLM to Monitor Convective Intensity with Probabilistic Guidance*”, NASA MSFC (NOAA GOES-R Series Risk Reduction Research Prime), \$233K

2015 – 2019 UAH PI on “*Convective Winds – Levels 1 & 2*”, NASA HQ, \$405K

Professional Teaching Experience

2019 ESS 498, *Research & Professional Development Capstone*, Spring Semester, UAH

2019 ATS 571, *Introduction to Radar Meteorology*, Spring Semester, UAH

2019 ATS 690 ST: *Supervised Teaching* (of Sarah Stough, PhD candidate, student teaching ESS 471, *Introduction to Radar Meteorology*), Spring Semester, UAH

2018	ATS 672, <i>Dual-polarization Radar Meteorology</i> , Fall Semester, UAH
2018	ESS 498, <i>Research & Professional Development Capstone</i> , Fall Semester, UAH (new 1 CH undergraduate class)
2018	ESS 111, <i>Weather, Climate and Global Change</i> , Spring Semester, UAH
2018	ATS 690 ST: <i>Supervised Teaching</i> (of Corey Amiot, PhD candidate, who student taught ATS 471/571, <i>Introduction to Radar Meteorology</i>), Spring Semester, UAH
2018	ESS 499, <i>Undergraduate Research</i> , Spring Semester, UAH
2017	ATS 642, <i>Precipitation Physics for Radar</i> , Fall Semester, UAH, (new graduate class)
2017	ESS 471/ATS 571, <i>Introduction to Radar Meteorology</i> , Spring Semester, UAH
2016	ATS 672, <i>Dual-polarization Radar Meteorology</i> , Fall Semester, UAH
2016	ESS 498, <i>Undergraduate Capstone Proposal</i> , Fall Semester, UAH
2016	ATS 690, ST: <i>GRA Capstone Research</i> , Fall Semester, UAH
2016	ESS 471/ATS 571, <i>Introduction to Radar Meteorology</i> , Spring Semester, UAH
2016	ESS 499, <i>Undergraduate Research</i> , Spring Semester, UAH
2015	FYE 101, <i>Charger Foundations</i> , Fall Semester, UAH
2015	ATS 690, <i>Precipitation Physics for Radar</i> , Fall Semester, UAH
2015	ESS 499, <i>Undergraduate Research</i> , Fall Semester, UAH
2015	ESS 471/ATS 571, <i>Introduction to Radar Meteorology</i> , Spring Semester, UAH (new undergraduate/graduate class)
2015	ESS 499, <i>Undergraduate Research</i> , Spring Semester, UAH
2015	ESS 498, <i>Undergraduate Capstone Proposal</i> , Spring Semester, UAH
2014	ATS 672, <i>Dual-polarization Radar Meteorology</i> , Fall Semester, UAH
2014	ATS490/590, <i>Introduction to Radar Meteorology</i> , Spring Semester, UAH
2014	ESS 498, <i>Undergraduate Capstone Proposal</i> , Fall Semester, UAH
2013	ATS 672, <i>Dual-polarization Radar Meteorology</i> , Fall Semester, UAH (new graduate class)
2013	ATS 690, <i>Precipitation Physics for Radar</i> , Spring Semester, UAH
2012	ATS 690, ST: <i>Dual-polarization Radar Meteorology</i> , Fall Semester, UAH
2012	ATS 454/554, <i>Forecasting Mesoscale Processes</i> , Spring Semester, UAH
2011	ATS 690, ST: <i>Dual-polarization Radar Meteorology</i> , Spring Semester, UAH

2009	ATS 454/554, <i>Forecasting Mesoscale Processes</i> , Spring Semester, UAH
2008	Co-Instructor, ATS 690, <i>ST: Polarimetric Radar in Meteorology</i> , Fall Semester, UAH
2005-2006	ATMO489, <i>Radar Meteorology</i> , Fall Semester, Texas A&M University (TAMU) (new undergraduate/graduate class)
2004-2007	ATMO352, <i>Severe and Mesoscale Weather Forecasting</i> , Spring Semester, TAMU
2004	ATMO689: <i>Polarimetric Radar Meteorology</i> , TAMU (new graduate class)
2003	ATMO201: <i>Atmospheric Science</i> , TAMU MEA444: <i>Mesoscale Analysis and Forecasting</i> , North Carolina State University (NCSU)
2002	MEA513: <i>Radar Meteorology</i> , NCSU MEA714: <i>Atmospheric Convection</i> , NCSU Co-Instructor, MEA140: <i>Natural Hazards</i> , NCSU
2000	Co-Instructor, AT741: <i>Radar Meteorology</i> , Colorado State University (CSU)

Current Graduate Students Advised (with Graduate Research Assistantship)

Bruno Medina (GRA, NSF)	UAH, Atmospheric Science, Ph.D. student since Spring 2016
Sarah Stough (GRA, NASA)	UAH, Atmospheric Science, Ph.D. student since Spring 2016

Past Graduate Students Advised and Theses

Nathan Curtis, M.S., 2018: "An Analysis of the Lightning Jump Algorithm using the GOES-16 Geostationary Lightning Mapper", University of Alabama in Huntsville

Retha Mecikalski, Ph.D., 2018: "Improved Understanding of Lightning Characteristics Relative to Radar and Altitude Profiles", University of Alabama in Huntsville

Cameron Kowalski, non-thesis M.S., 2018, University of Alabama in Huntsville

Megan McPeak, non-thesis M.S., 2018, University of Alabama in Huntsville

Kelby Gerhart, non-thesis M.S., 2018, University of Alabama in Huntsville

Kurtis Pinkney, M.S., 2017: "Analysis of Dual-polarization Radar Signatures Associated with Lightning Cessation in Multicellular Convection", University of Alabama in Huntsville

Austin Vacek, M.S., 2017: "Identifying Physical Processes in Supercells for Nowcasting Severe Weather Potential", University of Alabama in Huntsville

Corey Amiot, M.S. 2017: "Using C-band Dual-polarization and Environmental Signatures to Improve Convective Wind Nowcasting at Cape Canaveral Air Force Station and NASA Kennedy Space Center", University of Alabama in Huntsville

Camille Woods, M.S., 2016: "The Analysis and Characterization of Quasi-linear Convective System Tornadic Debris Signatures for Utilization in Operational Settings", University of Alabama in Huntsville

Marcus Hustedde, non-thesis M.S., 2016, University of Alabama in Huntsville

Patrick Burdick, non-thesis M.S., 2016, University of Alabama in Huntsville

Roger Allen, M.S., 2016: "A Comparison of Dual Polarimetric Hail Signatures between C-band and S-band Radar Systems", University of Alabama in Huntsville

Alex Young, M.S., 2016: "Analysis of Total Lightning and the Lightning Jump Algorithm using Enhanced Verification for Hail Cases", University of Alabama in Huntsville

Charanjit Pabla, M.S., 2015: "Sensitivity of C-band Polarimetric Radar-Rain Algorithms to Disdrometer Drop Size Distribution Integration Period", University of Alabama in Huntsville.

Brett Williams, M.S., 2015: "Assessing the Utility of Total Lightning and the Lightning Jump to Assist in the Q LCS Tornado Warning Decision Process", University of Alabama in Huntsville.

Sarah Stough, M.S., 2015: “Exploring the Relationship between Lightning Activity and Rotation in Supercell Thunderstorms”, University of Alabama in Huntsville

Danielle Kozlowski, M.S., 2015: “Examining the Kinematic and Lightning Properties of Supercells and the Theorized Role of Lightning in Tornadogenesis”, University of Alabama in Huntsville

Chris Schultz, Ph.D., 2015: “Physical and Dynamical Control of Lightning Jumps and Use for Assessing Severe Thunderstorm Potential”, University of Alabama in Huntsville

Patrick White, M.S., 2015: “An Exploratory Study in Nowcasting Convective Winds Using C-band Dual-Polarimetric Radar”, University of Alabama in Huntsville

Ryan Rogers, M.S., 2013: “Total Lightning as an Indicator of Convectively Induced Turbulence Threat to Aviation Interests”, University of Alabama in Huntsville

Lamont Bain, M.S., 2013: “Polarimetric Doppler Radar and Electrical Observations of Deep Moist Convection across Northern Alabama during the Deep Convective Clouds and Chemistry Experiment”, University of Alabama in Huntsville

Crystal Woodard, M.S., 2011: “Operational Lightning Forecasting Technique Development and Testing Utilizing C-band Dual-polarimetric Radar”, University of Alabama in Huntsville

Matthew Anderson, M.S., 2010: “C-band Polarimetric Radar Identification of Hail: An Observation and Modeling Study”, University of Alabama in Huntsville

Katie Palermo, non-thesis M.S., 2010, University of Alabama in Huntsville

Yuanming Suo, M.S., 2009: “A Novel Approach for Lightning Detection in CCD Images with Noise”, University of Alabama in Huntsville

Chris McKinney, M.S., 2008: “Total Lightning Observations of Severe Convection Over North Texas”, Texas A&M University

Amber Reynolds, M.S., 2007: “Analysis of 11 June 2003 Mesoscale Convective Vortex Genesis Using Weather Surveillance Radar – 1988 Doppler (WSR-88D)”, Texas A&M University

Chas Hodapp, M.S., 2007: “The Evolution of Total Lightning and Radar Reflectivity Characteristics of Two Mesoscale Convective Systems over Houston, Texas”, Texas A&M University

Kurt Buffalo, M.S., 2007: “Environmental Control of Cloud-to-ground Lightning Polarity in Severe Storms”

Veronica McNear, M.S., 2007: “Low-Level Convergence and its Role in Convective Intensity and Frequency over the Houston Lightning and Rainfall Anomaly”, Texas A&M University

Douglas Butts, M.S., 2006: “An Examination of the Relationship between Cool Season Tornadoes and Cloud-to-Ground Lightning Flashes”, Texas A&M University

Shane Motley, M.S., 2006: “Total Lightning Characteristics of Ordinary Convection”

Kelsey Sippel, non-thesis M.S., 2006, Texas A&M University

Tracy McCormick, M.S., 2003: “Three-Dimensional Radar and Lightning Characteristics of Mesoscale Convective Systems,” North Carolina State University

Graduate Advisory Committees (other than as primary research advisor)

Current

Chair	Dustin Conrad, University of Alabama in Huntsville, Ph.D. student since 2018
Chair	Corey Amiot, University of Alabama in Huntsville, Ph.D. student since 2017
Chair	Lena Heuscher, University of Alabama in Huntsville, Ph.D. student since 2017
Chair	Douglas Khan, University of Alabama in Huntsville, M.S. student since 2017
Member	Kelcy Brunner, University of Alabama in Huntsville, Ph.D. student since 2016
Chair	Austin Clark, University of Alabama in Huntsville, M.S. student since 2016
Member	Anthony Lyza, University of Alabama in Huntsville, Ph.D. student since 2015
Member	Brian Freitag, University of Alabama in Huntsville, Ph.D. student since 2015
Member	Emily Foshee, University of Alabama in Huntsville, Ph.D. student since 2015
Member	Kelsey Thompson, University of Alabama in Huntsville, Ph.D. student since 2012

Past

Chair	George Priftis, University of Alabama in Huntsville, M.S. completed 2018
Chair	Alexis Hunzinger, University of Alabama in Huntsville, M.S. completed 2018
Member	Jason Apke, University of Alabama in Huntsville, Ph.D. completed 2018
Member	Christopher Lisauckis, University of Alabama in Huntsville, M.S. completed 2018

Member	Brianna Lund, University of Alabama in Huntsville, M.S. completed 2017
Member	Dustin Conrad, University of Alabama in Huntsville, M.S. completed 2017
Member	Christina Leach, University of Alabama in Huntsville, M.S. completed 2017
Member	Kyle Pennington, University of Alabama in Huntsville, M.S. completed 2017
Member	Jackie Ringhausen, University of Alabama in Huntsville, M.S. completed 2016
Member	Rebecca Kollmeyer, University of Alabama in Huntsville, M.S. completed 2016
Member	Carter Hulse, University of Alabama in Huntsville, M.S. completed 2016
Member	Geoffrey Heidelberger, University of Alabama in Huntsville, M.S. completed 2015
Member	Kelcy Brunner, University of Alabama in Huntsville, M.S. completed 2015
Member	Stephanie Wingo, University of Alabama in Huntsville, Ph.D. completed 2015
Member	Patrick Gatlin, University of Alabama in Huntsville, Ph.D., completed 2015
Member	Anthony Lyza, University of Alabama in Huntsville, M.S., completed 2015
Member	Todd Murphy, University of Alabama in Huntsville, Ph.D., completed 2015
Member	Adam Sherrer, University of Alabama in Huntsville, M.S., completed 2014
Member	Veronica Franklin, University of Alabama in Huntsville, M.S., completed 2013
Member	Matthew Cullen, Texas A&M University, M.S., completed 2013
Member	Josh Bonner, University of Alabama in Huntsville, Physics, M.S., completed 2013
Chair	Kelsey Thompson, University of Alabama in Huntsville, M.S., completed 2012
Member	Retha Matthee, University of Alabama in Huntsville, M.S., completed 2012
Member	Danelle Botes, University of Alabama in Huntsville, M.S. completed 2011
Member	Todd Murphy, University of Alabama in Huntsville, M.S. completed 2010
Member	Jessica Busse, University of Alabama in Huntsville, Ph.D., completed 2010
Member	Elise Johnson, University of Alabama in Huntsville, M.S., completed 2009
Member	Nathan Clements, Texas A&M University, M.S. completed 2009
Member	Jason Sippel, Texas A&M University, Ph.D., completed 2008
Member	Brandon Ely, Texas A&M University, Ph.D. completed 2008
Member	Boksoon Myoung, Texas A&M University, Ph.D, completed 2007
Member	Kaycee Frederick, Texas A&M University, M.S., completed 2006
Member	Michael Gauthier, University of Alabama Huntsville, ATMO, Ph.D., completed 2006
Member	Stephanie Braswell, Texas A&M University, (non-thesis) M.S., completed 2006.
Member	Scott Steiger, Texas A&M University, Ph.D., completed 2005

Undergraduate Research Assistants Sponsored

2018 -	University of Alabama in Huntsville: Michael Solomon
2018	University of Alabama in Huntsville: Joy Marich, Nicholas Johnson (Honors Capstone Summer Research)
2017	University of Alabama in Huntsville: Emily Kinkle, Nicholas (Alex) McVey, Holley Kenward (Summer RCEU)
2016	University of Alabama in Huntsville, Summer RCEU, Kaitlyn Pate
2012 – 2013	University of Alabama in Huntsville, ITSC, Shannon Flynn
2011	University of Alabama in Huntsville: Stephen Icolano
2006	Texas A&M University: Alicia Dale, Matt Kovar, Chris McKinney, Matt Mosier
2005	Texas A&M University: Stephen Cole, Steven Fierstien, Celina Hernandez, Jason Hernandez, Chas Hodapp, Brad Klotz, Laura Mason, Chris McKinney, Andrew McNeel, Andrew Nelson, Emily Riley
2004	Texas A&M University: Andrew McNeel

Visiting Scholars Sponsored

2018	Ms. Camila Lopes, Visiting Graduate Student from University of Sao Paulo, Brazil
2012-2013	Dr. Themis Chronis, Post-doctoral Research Associate
2009-2010	Dr. Dong Kim, Post-doctoral Research Associate, co-sponsor with Kevin Knupp, University of Alabama in Huntsville
2006	Mr. Yonghui Weng, Research Associate, co-sponsor with Fuqing Zhang, Texas A&M University

2005-2007 Dr. Jianguo Niu, Post-doctoral Research Associate, co-sponsor with Ping Yang, Texas A&M University

Research Assistants/Associates/Scientists Supported and Supervised

2018 - Ms. Kelley Murphy, Research Associate I, University of Alabama in Huntsville
 2017 Mr. Austin Clark, Graduate Research Assistant, University of Alabama in Huntsville
 2017 Mr. David Haliczzer, Research Assistant, University of Alabama in Huntsville
 2017 Mr. Cameron Kowalski, Research Assistant, University of Alabama in Huntsville
 2016 - 2018 Ms. Retha Mecikalski, Research Assistant, University of Alabama in Huntsville
 2012 - 2016 Ms. Elise Schultz, Research Associate I, University of Alabama in Huntsville
 2012 - 2014 Dr. Themistoklis Chronis, Research Associate III, University of Alabama in Huntsville
 2010 - 2015 Mr. Matthew Wingo, Research Scientist I, University of Alabama in Huntsville
 2010 - 2014 Ms. Mariana (Felix) Scott, Research Associate I, University of Alabama in Huntsville
 2008 - 2011 Mr. Patrick Gatlin, Research Associate II, University of Alabama in Huntsville
 2003 Mr. Larry Belcher, Research Associate, North Carolina State University

Professional Awards

2018 UAH Graduate School Mentor Award
 2017 NASA Agency Honor Award, Group Achievement Award to GOES-R Team
 2014 NASA GSFC Robert H. Goddard Honor Award to GPM Ground Validation Science Team
 2012 NASA Group Achievement Award to GLM Validation Science Team
 2012 NASA Group Achievement Honor Award to MC3E Team
 2011 Federal Laboratory Consortium (FLC) for Technology Transfer – Far-West Region Outstanding Partnership, “Water Management in California: A NASA-CDWR partnership”
 2011 NASA Group Achievement Award to SMD American Recovery and Reinvestment Act Team
 2003 NASA Group Achievement Award to the CRYSTAL-FACE Science Team
 1997 *Award of Excellence* as a Graduate Research Assistant in the College of Engineering, Colorado State University
 1995 The *Spiros G. Geotis Prize*, Best Student Paper at the 27th Conference on Radar Meteorology, Vail, Colorado, American Meteorological Society
 1991 - 1992 U. S. Air Force Achievement, National Defense Service, and Commendation Medals

Professional Societies and Scientific Committees

2013-2019 Member, American Meteorological Society (AMS) Scientific and Technological Activities Commission (STAC) *Committee on Radar Meteorology*
 2007-2009 Chair, American Meteorological Society (AMS) Scientific and Technological Activities Commission (STAC) *Committee on Atmospheric Electricity*
 2004-2006 Member, American Meteorological Society (AMS) Scientific and Technological Activities Commission (STAC) *Committee on Atmospheric Electricity*

2001-present Member, *National Weather Association*
1994-present Member, *American Meteorological Society*
1994-present Member *American Geophysical Union*

Reviewer of Articles for the Following Journals

2018-present *Remote Sensing (MDPI)*
2017-present *Atmosphere (MDPI)*
2016-present *Journal of Atmospheric and Solar Terrestrial Physics*
2008-present *Weather and Forecasting*
2008-present *Atmospheric Research*
2005-present *Journal of Climate*
2004-present *IEEE Transactions on Geosciences and Remote Sensing*
2004-present *Journal of Atmospheric Science*
2004-present *Annales Geophysicae*
2002-present *Bulletin of the American Meteorological Society*
2002-present *National Weather Digest*
2002-present *Radio Science*
2001-present *Quarterly Journal of the Royal Meteorological Society*
2000-present *Monthly Weather Review*
1999-present *Journal of Hydrometeorology*
1999-present *Geophysical Research Letters*
1998-present *Journal of Applied Meteorology (and Climatology)*
1997-present *Journal of Atmospheric and Oceanic Technology*
1997 *The Electrification of Severe Storms*, by Earle Williams, Contribution to the *AMS Severe Storms Monograph*, Editor, C. Doswell III
1996-present *Journal of Geophysical Research, Atmospheres*

Panel Reviews

- 2018 Priority Programme "Polarimetric Radar Observations meet Atmospheric Modelling (PROM)" of DFG, German Research Foundation, Bonn, Germany
- 2017 Atmospheric System Research, Office of Biological & Environmental Research (BER), Department of Energy (DOE) Office of Science, Solicitation: DE-FOA-0001638, Panel: Convection
- 2015 U.S. Department of Energy's Atmospheric Radiation Measurement (ARM) Science Board Review
- 2014 Atmospheric System Research, Office of Biological & Environmental Research (BER), Department of Energy (DOE) Office of Science
- 2014 NASA Earth Science Division, NASA HQ, NASA Earth Venture Instrument-2 (EVI-2)

Reviewer of Grant Applications for the Following Agencies

- Department of Energy (DOE),
Atmospheric Radiation Measurement (ARM)
- National Aeronautics and Space Administration (NASA),
Tropical Cloud Systems and Processes (TCSP)
Precipitation Measurement Missions (PMM)
Tropical Rainfall Measurement Mission (TRMM)
Postdoctoral Program
- National Science Foundation (NSF)
Faculty Early Career Development (CAREER) Program
Major Research Instrumentation (MRI)
Hydrology
Water Cycle Research Competition
U.S. Weather Research Program (USWRP)
Physical and Dynamic Meteorology
- Israeli Science Foundation (ISF)

Invited Seminars and Presentations

- 2018 Invited Graduate Lectures, Cloud Electrification and Lightning, NSF International Research Experiences for Students, *Advanced Studies Institute (ASI) Lecture Series for NSF RELAMPAGO*, Córdoba, Villa Carlos Paz, Argentina
- 2018 Invited Seminar, *University of Oklahoma, School of Meteorology*, Norman Oklahoma
- 2017 Invited Speaker, *Symposium in Honor of Dr. Richard Orville*, Texas A&M University, College Station, TX
- 2017 Invited Speaker, Cloud Electricity and Lightning, Plenary Session IV: Physical Processes in Convection, *NCAR C-RITE Workshop*, Boulder, CO
- 2016 Keynote Speaker, *International Lightning Meteorology Conference*, San Diego, CA
- 2016 Invited Speaker, *Baron Weather Radar Summit*, New Orleans, LA
- 2015 Invited Seminar, *University of Alabama in Huntsville, Department of Atmospheric Science*, Huntsville, AL

- 2015 Keynote Speaker, *37th Conference on Radar Meteorology*, Mesoscale and Severe Weather, Norman, OK
- 2015 Invited Speaker, *Joint MTG LI Mission Advisory Group & GOES-R GLM Science Team Workshop*, Rome, Italy
- 2015 Invited Speaker, *2015 NOAA Satellite Science Week*, Boulder, CO
- 2015 Invited Seminar, *INPE CPTEC*, Cachoeira Paulista, SP, Brazil
- 2015 Invited Speaker, *Baron Weather Radar Technology Summit*, Phoenix AZ
- 2014 Invited Seminar, *NOAA GOES-R Brown Bag Series*, Greenbelt, MD
- 2013 Invited Speaker, *NSF Deep Convective Clouds & Chemistry Experiment (DC3) Science Team Meeting*, Boulder, CO
- 2013 Invited Speaker, *AMS Sixth Conference on the Meteorological Applications of Lightning Data, 93rd Annual AMS Meeting*, Austin, TX.
- 2012 Invited Seminar, *University of North Dakota, Department of Atmospheric Sciences*, Grand Forks, ND
- 2012 Invited Speaker, *NSF Deep Convective Clouds & Chemistry Experiment (DC3) Science Team Meeting*, Boulder, CO
- 2011 Invited Speaker, *Rocket City WeatherFest*, Huntsville, AL
- 2011 Invited Seminar, *University of Alabama in Huntsville, Department of Atmospheric Science*, Huntsville, AL
- 2011 Invited Speaker, *AMS Short Course*, Real world use of dual polarization radar in the media, Norman, OK
- 2010 Invited Seminar, *NOAA ESRL*, Boulder, CO
- 2010 Invited Seminar, *Chattanooga Engineers' Club*, Chattanooga, TN
- 2009 Invited Seminar, *University of Alabama in Huntsville, Atmospheric Sciences Department*, Huntsville, AL
- 2008 Invited Speaker, *AGU Fall Meeting*, Atmospheric and Space Electricity, American Geophysical Union (AGU), San Francisco, CA
- 2007 Invited Speaker, *The 2007 National Storm Conference*, Sponsored by the *Texas Severe Storms Association (TESSA)*, The Colleyville Center, Colleyville, Texas
- 2006 Invited Seminar, *University of Alabama in Huntsville, Atmospheric Sciences Department*, Huntsville, AL
- 2006 Invited Speaker, *Cooperative Institute for Applied Meteorological Studies (CIAMS)*, Texas A&M University and Texas Regional National Weather Service (NWS) Weather Forecast Offices (WFO), College Station, TX
- 2004 Invited Seminar, *Houston Chapter of the American Meteorological Society*, Houston, TX

2004	Invited Seminar, <i>Texas A&M Chapter of the American Meteorological Society (TAMSCAMS)</i> , College Station, TX
2004	Invited Seminar, <i>NASA Goddard, Tropical Rainfall Measuring Mission Validation Office</i> , Greenbelt, MD
2004	Invited Seminar, <i>Texas A&M University, Department of Atmospheric Sciences</i> , College Station, TX
2003	Invited Seminar, <i>Texas A&M Chapter of the American Meteorological Society (TAMSCAMS)</i> , College Station, TX
2003	Invited Seminar, <i>National Severe Storms Lab (NOAA-NSSL)</i> , Norman, OK
2002	Invited Seminar, <i>Texas A&M University, Department of Atmospheric Science</i> , College Station, TX
2002	Invited Seminar, <i>Raleigh Forecast Office of the National Weather Service (NWS)</i> , Raleigh, NC
2002	Invited Seminar, <i>Central North Carolina Chapter of the American Meteorological Society</i> , Research Triangle Park, NC
2002	Invited Speaker, <i>NASA - NWS Joint Symposium on Short-Term Forecasting and the Convective Weather Warning Process in the Southeastern United States</i> , Huntsville, AL
2002	Invited Seminar, <i>Department of Marine, Earth and Atmospheric Sciences, North Carolina State University</i> , Raleigh, NC
2002	Invited Seminar, <i>North Carolina State University, Student Chapter of the American Meteorological Society</i> , Raleigh, NC
2001	Invited Seminar, <i>Department of Meteorology, University of Wyoming</i> , Laramie, WY
2000	Invited Seminar, <i>Department of Meteorology, University of Utah</i> , Salt Lake City, UT
2000	Invited Seminar, <i>Department of Marine, Earth and Atmospheric Sciences, North Carolina State University</i> , Raleigh, NC
2000	Invited Seminar, <i>Institute of Atmospheric Physics, ETH</i> , Zurich, Switzerland
1998	Invited Seminar, <i>University of Northern Colorado</i> , Greeley, CO

Professional Activities

2019	Session Chair, Session 3: Global Lightning Casualties, <i>Ninth Conference on the Meteorological Applications of Lightning Data</i> , American Meteorological Society 99 th Annual Meeting, Phoenix, AZ, 6-10 January 2019.
2018	Session Co-chair, Meteorology and Severe Weather 3, <i>2018 International Lightning Detection Conference (ILDC)/International Lightning Meteorology Conference (ILMC)</i> , 12-15 March 2018, Fort Lauderdale, FL.
2017-2021	Lightning Scientist and PI, <i>NSF RELAMPAGO</i> (Remote sensing of Electrification, Lightning, And Mesoscale/microscale Processes with Adaptive Ground Observations), which also translates to lightning, November 1, 2018 – December 18, 2018.

- 2017-2018 Co-Chair, Scientific Committee for Vaisala's *2018 International Lightning Detection Conference (ILDC)/International Lightning Meteorology Conference (ILMC)*, 12-15 March 2018, Fort Lauderdale, FL.
- 2017 - University Corporation for Atmospheric Research (UCAR) Member Representative, University of Alabama in Huntsville
- 2016 Scientific Committee Member, Session Chair and Invited Keynote Speaker at Vaisala's *2016 International Lightning Detection Conference (ILDC)/International Lightning Meteorology Conference (ILMC)*, 18-21 April 2016, San Deigo, CA
- 2015 Invited Keynote Speaker, "Mesoscale and Severe Weather", *AMS 37th Conference on Radar Meteorology*, 14-18 September 2015, Norman, OK.
- 2015 Session Chair, "Session 5A: Mesoscale and Severe Weather (Tornadic Storms II)", *AMS 37th Conference on Radar Meteorology*, 14-18 September 2015, Norman, OK.
- 2015 Session Chair, "Meteorological Applications and Utility of Lightning Data", *Seventh Conference on the Meteorological Applications of Lightning Data*, 95th American Meteorological Society Annual Meeting, Phoenix, AZ, 4-8 January 2015
- 2015 Speaker, "Results from the Deep Convective Clouds and Chemistry Experiment (DC3)", *Seventh Conference on the Meteorological Applications of Lightning Data*, 95th American Meteorological Society Annual Meeting, Phoenix, AZ, 4-8 January 2015
- 2014-2015 Program Committee, *AMS 37th Conference on Radar Meteorology*, September 2015, Norman, OK
- 2014 Session Chair, "Poster 01: Lightning and Meteorology", *15th International Conference on Atmospheric Electricity*, Norman, OK, 15-20 June 2014
- 2014 Speaker, "Oral 11: Lightning Climatology and Chemical Effects", *15th International Conference on Atmospheric Electricity*, Norman, OK, 15-20 June 2014
- 2014 Scientific Committee Member, Session Chair and Speaker at Vaisala's *5th International Lightning Meteorology Conference (ILMC)*, Tucson, AZ, 20-21 March 2014
- 2014 Speaker, "Precipitation Processes and Observations for Atmospheric, Land Surface, and Hydrological Modeling Part III", *AMS 28th Conference on Hydrology*, Atlanta, GA, 2-6 February 2014
- 2013-2014 Planning Committee, Radar/Project Scientist, Integrated Precipitation & Hydrology Experiment in support of the NASA Global Precipitation Measurement project (GPM) Ground Validation Field Campaign – (IPHEX-GVFC), May – June 2014, Western North Carolina
- 2013 Speaker, "Lightning Effects on the Near-Earth Space Environment and Lightning Production of NO_x I", AE31A-03, *2013 Fall Meeting*, Atmospheric and Space Electricity, American Geophysical Union (AGU)
- 2013 Co-convener, "Lightning Effects on the Near-Earth Space Environment and Lightning Production of NO_x III Posters", AE33B, *2013 Fall Meeting*, Atmospheric and Space Electricity, American Geophysical Union (AGU)
- 2013 Speaker, "Field Campaigns: Mid-latitude Field Campaigns", *AMS 36th Conference on Radar Meteorology*, Breckenridge, CO, September 16-20, 2013

- 2013 Session co-chair, “Field Campaigns: Severe Weather/Lightning Field Campaigns”, *AMS 36th Conference on Radar Meteorology*, Breckenridge, CO, September 16-20, 2013
- 2013 Invited Speaker, Ground Facilities - Alabama, *NSF Deep Convective Clouds & Chemistry Experiment (DC3) Science Team Meeting (STM)*, NCAR, Boulder, CO, February 25-28, 2013.
- 2013 Invited Speaker, “Joint Session 7: Initial results from the Deep Convective Clouds and Chemistry (DC3) project I”, *AMS Sixth Conference on the Meteorological Applications of Lightning Data, 93rd Annual AMS Meeting*, January 8, 2013, Austin, TX.
- 2013 Session chair, “The utility of lightning data in operational warning and decision-making processes I”, *AMS Sixth Conference on the Meteorological Applications of Lightning Data, 93rd Annual AMS Meeting*, 9 January 2013, Austin, TX
- 2012 – 2013 Planning Committee, Radar Scientist and Project Scientist, NASA Global Precipitation Measurement project (GPM) Iowa Flood Studies (IFloods), April-May 2013, Central Iowa
- 2012 – 2013 Program Committee, *AMS Sixth Conference on the Meteorological Applications of Lightning Data, 93rd Annual AMS Meeting*, January 2013, Austin, TX
- 2012 Co-convenor, Sessions AE12A: “Lightning and Atmospheric Electricity in Thunderstorms II”; AE13A: Lightning and Atmospheric Electricity in Thunderstorms III Posters”; and AE21A: “Lightning and Atmospheric Electricity in Thunderstorms IV”, *AGU Annual Fall Meeting*, December 2012, San Francisco, CA
- 2012 Undergraduate Research Mentor, to six University of North Dakota (UND) undergraduate students, during NSF DC3 Experiment, May – June 2012
- 2011 – 2012 Lead Ground-based Facility Scientist and PI, Alabama Ground Based Facilities (radar, lightning, and sounding), *NSF Deep Convective Clouds & Chemistry Experiment (DC3)*, May 1, 2012 – June 30, 2012.
- 2012 Invited Speaker and Rapporteur, Ground Based Facilities, *NSF Deep Convective Clouds & Chemistry Experiment (DC3) Science Team Meeting (STM)*, Boulder, CO, February 21-22, 2012.
- 2012 Mission Scientist, NASA Global Precipitation Measurement project (GPM) Cold-season Precipitation Experiment (GCPEX), February 2-9, 2012, CARE site, Ontario, Canada.
- 2011 Speaker, “Session III: Missouri Tornadoes and Radar I”, *36th NWA Annual Meeting*, Birmingham, AL, October 15-20, 2011.
- 2011 Speaker, “Polarimetric Radar Applications – I”, *AMS 35th Conference on Radar Meteorology*, Pittsburgh, PA, September 26-30, 2011.
- 2011 Speaker, “Uses of Specific Lightning Networks”, *Southern Thunder 2011 (ST11)*, Norman, OK, July 11-14, 2011.
- 2011 Mission Scientist, NASA Midlatitude Continental Convective Clouds Experiment (MC3E), ARM Climate Research Facility, Lamont, Oklahoma, May 8-21, 2011.
- 2011 – 2015 Member, *NSF Deep Convective Clouds & Chemistry Experiment (DC3) Science Team and Steering Committee*

- 2011 Speaker, “Lightning Warning and Prediction using Observations and Models II”, *AMS Fifth Conference on the Meteorological Applications of Lightning Data*, 91st Annual AMS Meeting, Seattle, WA, January 2011.
- 2011 Session chair, “General Applications of Atmospheric Electricity and Lightning Data in the Atmospheric Sciences II”, *AMS Fifth Conference on the Meteorological Applications of Lightning Data*, 91st Annual AMS Meeting, January 2011, Seattle, WA.
- 2010 Speaker, “Supercells and Tornadoes: Tornadogenesis”, *AMS 25th Conference on Severe Local Storms*, October 2010, Denver, CO
- 2010 Mission Scientist, NASA Light Precipitation Validation Experiment (LPVEx), September 22-30, 2010, Helsinki, Finland
- 2009 Speaker, “Polarimetric Radar I”, *AMS 34th Conference on Radar Meteorology*, October 2009, Williamsburg, VA.
- 2009 Speaker, “Dual-Polarization Radar Studies”, *Southern Thunder 2009 (ST09)*, July 2009, Cocoa Beach, FL.
- 2008 – 2011 Affiliated Member of the Graduate Faculty, University of Alabama in Huntsville, Huntsville, AL
- 2008 Invited Speaker, “Thunderstorm Electrification and the Physics, Detection and Warning of Lightning I”, *2008 Fall Meeting*, Atmospheric and Space Electricity, American Geophysical Union (AGU)
- 2008 Lead Radar Scientist, UAH Mobile Alabama X-band (MAX) Radar Deployment to Jacksonville, Florida for the study of high impact weather associated with Tropical Storm Fay under the UAH Hazardous Weather Testbed, August 18-23, 2008.
- 2008 - 2009 Co-chair, *AMS Fourth Conference on the Meteorological Applications of Lightning Data*, 89th Annual AMS Meeting, January 2009, Phoenix AZ.
- 2008 Speaker, “Lightning and Electrical Processes in Convective to Mesoscale Storms”, *AMS Third Conference on the Meteorological Applications of Lightning Data*, 88th Annual AMS Meeting, January 2008, New Orleans, LA.
- 2008 Session chair, “Assimilation of Lightning Data into Numerical Models”, *AMS Third Conference on the Meteorological Applications of Lightning Data*, 88th Annual AMS Meeting, January 2008, New Orleans, LA.
- 2007 – 2012 Adjunct Graduate Faculty, Texas A&M University, College Station, Texas.
- 2007 – 2008 Chairperson, *AMS Third Conference on the Meteorological Applications of Lightning Data*, 88th Annual AMS Meeting, January 2008, New Orleans, LA.
- 2006 – 2007 Program Committee, *AMS 33rd Conference on Radar Meteorology*, August 2007, Cairns, Australia
- 2007 Session chair, “Polarimetric Applications I,” *AMS 33rd Conference on Radar Meteorology*, August 2007, Cairns, Australia
- 2007 Speaker, “Severe Weather and Mesoscale Meteorology II”, *AMS 33rd Conference on Radar Meteorology*, August 2007, Cairns, Australia

- 2006 Co-convener, Session AE43A, "Physics and Detection of Thunderstorm Electrification and Lightning", *AGU Annual Fall Meeting*, December 2006, San Francisco, CA.
- 2006 Conference organizer (via AMS STAC on Atmospheric Electricity) and session chair, 2nd *Conference on the Meteorological Applications of Lightning Data*, at the 86th *Annual AMS Meeting*, January 2006, Atlanta, GA.
- 2005 Co-convener, Session AE32A, "Cloud Physics and Thunderstorm Electrification: From Generator to Discharge", *AGU Annual Fall Meeting*, December 2005, San Francisco, CA.
- 2005 Session chair, "Drop Size Distributions and Lightning", 32nd *Conference on Radar Meteorology and 11th Conference on Mesoscale Processes*, October 2005, Albuquerque, NM.
- 2005 Conference organizer (via AMS STAC on Atmospheric Electricity) and session chair, *Conference on the Meteorological Applications of Lightning Data*, at the 85th *Annual AMS Meeting*, January 2005, San Diego, CA.
- 2004 - 2006 Appointed member of the affiliate graduate faculty at the University of Alabama, Huntsville
- 2004 Co-chair, Session on Mesoscale Convective Systems, 22nd *Conference on Severe Local Storms*, October 2004, Hyannis, MA
- 2004 - 2005 Member, Scientific Planning Committee for the *Houston Environmental Aerosol Thunderstorm (HEAT) Project*
- 2004 Visiting Scientist, June-July 2004, *NASA Goddard*, Greenbelt, MD
- 2003 Co-convener, "The Physics of Lightning and Storm Electrification," Session AE-02, *AGU Annual Fall Meeting*, December, 2003, San Francisco, CA
- 2002 *NASA TRMM International Science Conference*, July 2002, Honolulu, Hawaii
- 2002 *CRYSTAL-FACE Science Team Meeting*, Jan-Feb 2002, Lanham, MD
- 2001 Lead Scientist and University of Wyoming King Air Flight Scientist, *Complex Layered Cloud Experiment (CLEX-9)*, October, 2001, Nebraska and Wyoming.
- 2001 Substitute North Carolina State University (NCSU) Representative, Annual UCAR/NCAR, September, 2001, Meeting, Boulder, Colorado
- 2001 - 2002 Member, *Science Steering Committee, JPOLE* (Joint Polarization Experiment), proposed for Oklahoma, Spring 2003; *JPOLE Workshop*, October, 2001, Norman, Oklahoma
- 2001 Speaker, *Battlespace Atmospheric and Cloud Impacts on Military Operations Conference (BACIMO 2001)*, November, 2001, Fort Collins, CO
- 2001 Speaker, 4th *International Scientific Conference on the Global Energy and Water Cycle (GEWEX)*, September, 2001, Paris, France
- 2001 Lead Scientist and SPEC Inc. Learjet Flight Scientist, *Complex Layered Cloud Experiment (CLEX-8)*, May-June, 2001, Nebraska and South Dakota.
- 2000 Co-convener, Lightning and Thunderstorm Electrification Oral Session, *AGU Annual Fall Meeting*, December 2000, San Francisco, CA

Outreach Activities

- 2014 - Public Tour Leader, Severe Weather Institute - Radar & Lightning Laboratory (SWIRLL)
- 2014 – 2018 Rocket City WeatherFest, Booth volunteer representing Department of Atmospheric Science
- 2013 Invited Panelist, “Past, Present and Future of Weather Radar”, Huntsville Area Chapter of the American Meteorological Society and National Weather Association, October 2013.
- 2012 Host, East Limestone High School Physics and Chemistry Teacher, during Deep Convective Clouds and Chemistry (DC3) Field Campaign, NCAR/EOL Research Experience Teachers Institute (RETI), May-June 2012
- 2011 Invited Speaker, Rocket City WeatherFest, “Dual-Polarimetric Radar: The ARMOR radar”, September 2011.
- 2010 Undergraduate Advisor, PH 499 Physics Practicum, University of Alabama in Huntsville
- 2007 White Paper, Wrote a White Paper on “CLOUD SEEDING FOR PRECIPITATION AUGMENTATION: A REVIEW OF KEY ISSUES” for the Alabama Department of Economic and Community Affairs (ADECA)
- 2006 Mentor, National Science Foundation (NSF), Summer Meteorology Program (SMP), College of Geosciences, Texas A&M University
- 2006 Director, Meteorology Event, 2006 Texas Science Olympiad, B-Division, Blinn College Regional
- 2005 Director, Meteorology Event, 2005 Texas Science Olympiad, B-Division, Blinn College Regional
- 2005 Invited Judge, 2005 Texas Regional Science Fair, Brazos County, Texas, Home-school Division

Non-refereed Publications and Abstracts (student or post-doctoral advisees are highlighted with *)

2019

Early results from the RELAMPAGO Lightning Mapping Array, Poster 1014, 99th American Meteorological Society Annual Meeting, Ninth Conference on the Meteorological Application of Lightning Data, Phoenix, AZ, January 6-10, 2019 (T. J. Lang, R. J. Blakeslee, J. Burchfield, M. T. Wingo, **L. Carey**, S. J. Goodman, and W. Deierling).

An analysis of the lightning jump algorithm using the GOES-16 Geostationary Lightning Mapper, Poster 1015, 99th American Meteorological Society Annual Meeting, Ninth Conference on the Meteorological Application of Lightning Data, Phoenix, AZ, January 6-10, 2019 (N. Curtis*, **L. D. Carey** and C. J. Schultz).

Characterization of the optical energy output in thunderstorms to enhance severe thunderstorm identification, 7.4, 99th American Meteorological Society Annual Meeting, Ninth Conference on the Meteorological Application of Lightning Data, Phoenix, AZ, January 6-10, 2019 (C. J. Schultz, **L. D. Carey**, N. Curtis*, K. M. Calhoun, and E. Bruning).

A radar investigation of storm morphology and precipitation processes during discrepancies between GOES-16 GLM and LMA observed lightning flash rates and jumps, Poster 1018, 99th American Meteorological Society Annual Meeting, Ninth Conference on the Meteorological Application of Lightning Data, Phoenix, AZ, January 6-10, 2019 (**L. D. Carey**, N. Curtis*, S. M. Stough*, C. J. Schultz and P. M. Bitzer).

Characterizing lightning's response to the spatial distribution of updraft microphysics, 2.4, 99th *American Meteorological Society Annual Meeting, Ninth Conference on the Meteorological Application of Lightning Data*, Phoenix, AZ, January 6-10, 2019 (S. M. Stough*, **L. D. Carey**, C. J. Schultz and D. J. Cecil).

Improvements to convective wind nowcasting at Cape Canaveral, Florida using subjective dual-polarization radar analyses, 11.3, 99th *American Meteorological Society Annual Meeting, 19th Conference on Aviation, Range, and Aerospace Meteorology*, Phoenix, AZ, January 6-10, 2019 (C. G. Amiot*, **L. D. Carey**, W. P. Roeder, T. M. McNamara, and R. J. Blakeslee).

Random forest sensitivity test using radar signatures to forecast wet downbursts at Spaceport Florida, Poster 547, 99th *American Meteorological Society Annual Meeting, 19th Conference on Aviation, Range, and Aerospace Meteorology*, Phoenix, AZ, January 6-10, 2019 (B. L. Medina*, C. G. Amiot*, R. M. Mecikalski*, **L. D. Carey**, W. P. Roeder, T. M. McNamara and R. J. Blakeslee).

Abrupt changes in wind conditions at the Memphis International Airport, Poster S56, 99th *American Meteorological Society Annual Meeting, 18th Annual Student Conference*, Phoenix, AZ, January 6-10, 2019 (N. E. Johnson*, and **L. D. Carey**).

2018

Early results from the RELAMPAGO Lightning Mapping Array, Abstract AE34A-21, *2018 Fall Meeting, AGU*, Washington, D.C., December 10-14, 2018 (T. J. Lang, R. J. Blakeslee, J. Burchfield, M. T. Wingo, **L. D. Carey**, S. Goodman, and W. Deierling).

Examining Sub-flash Properties of Lightning from GLM for Tracking and Intensification Characterization of Thunderstorms, Poster P3-158, *43rd NWA Annual Meeting*, St. Louis, MO, August 25-30, 2018 (A. LeRoy, C. Schultz, N. Curtis*, D. Kahn, and **L. Carey**).

Spatial Characteristics of Lightning Relative to Supercell Kinematics and Microphysics, Poster 5, *Vaisala's 2018 International Lightning Detection Conference (ILDC) & International Lightning Meteorology Conference (ILMC)*, Fort Lauderdale, FL, 12-15 March 2018 (S. M. Stough*, **L. D. Carey**, C. J. Schultz and D. J. Cecil) (***Krider Scholarship Honorable Mention**).

An Analysis of the Lightning Jump Algorithm Using Geostationary Lightning Mapper Flashes, Poster 8, *Vaisala's 2018 International Lightning Detection Conference (ILDC) & International Lightning Meteorology Conference (ILMC)*, Fort Lauderdale, FL, 12-15 March 2018 (N. Curtis*, **L. D. Carey**, C. J. Schultz).

Understanding the Implications of Merging Existing Lightning Datasets with GLM for Severe Thunderstorm Monitoring, Poster 704, *98th American Meteorological Society Annual Meeting, 14th Annual Symposium on New Generation Operational Environmental Satellite Systems*, Austin, TX, 7-11 January 2018, (C. J. Schultz, N. Curtis*, **L. D. Carey**, P. M. Bitzer, A. LeRoy).

2017

Hydrometeor Characterization of Lightning Regions Relative to Downdraft Processes, Poster 7, *AMS 38th Conference on Radar Meteorology*, Chicago, Illinois, August 28 – September 1, 2017, (S. M. Stough*, **L. D. Carey**, C. J. Schultz and D. J. Cecil).

Preliminary Analysis of Dual-Polarization Signatures Associated with Lightning Cessation in Multicellular Convection, Poster 85, *AMS 38th Conference on Radar Meteorology*, Chicago, Illinois, August 28 – September 1, 2017, (K. Pinkney* and **L. D. Carey**).

A Multi-Parameter Predictor for Improved Convective Winds Nowcasting at Cape Canaveral Using C-band Dual-Polarization Radar and Environmental Observations, Poster 148, *AMS 38th Conference on Radar Meteorology*, Chicago, Illinois, August 28 – September 1, 2017, (B. L. Medina*, C. G. Amiot*, R. M. Mecikalski*, **L. D. Carey**, W. P. Roeder, T. D. McNamara and R. J. Blakeslee).

Identification of Dual-Polarization C-band Radar Signatures to Improve Convective Wind Nowcasting at Cape Canaveral Air Force Station and NASA Kennedy Space Center, Poster 219, *AMS 38th Conference on Radar Meteorology*, Chicago, Illinois, August 28 – September 1, 2017, (C. G. Amiot*, **L. D. Carey**, W. P. Roeder, T. D. McNamara and R. J. Blakeslee).

Precipitation Properties and Processes Linking Vertical Motion, Lightning, and Severe Weather, Paper 305, *97th American Meteorological Society Annual Meeting, Eighth Conference on the Meteorological Application of Lightning Data*, Seattle, WA, January 22-26, 2017, (S. M. Stough*, **L. D. Carey**, C. J. Schultz, and D. J. Cecil).

Using C-Band Dual-Polarization Radar Signatures to Improve Convective Wind Forecasting at Cape Canaveral Air Force Station and NASA Kennedy Space Center, Paper 12.4, *97th American Meteorological Society Annual Meeting, 18th Conference on Aviation, Range, and Aerospace Meteorology*, Seattle, WA, January 22-26, 2017, (C. G. Amiot*, **L. Carey**, W. P. Roeder, T. M. McNamara, and R. J. Blakeslee) (***Best Student Oral Presentation**).

Kinematic, Microphysical and Lightning Properties of a Tornadoic and Nontornadoic Supercell during VORTEX-SE, Paper 2.4A, *97th American Meteorological Society Annual Meeting, Eighth Conference on the Meteorological Application of Lightning Data*, Seattle, WA, January 22-26, 2017, (A. D. Vacek*, **L. D. Carey**, and S. M. Stough*).

Preliminary Analysis of Dual-Polarization Radar Signatures Associated with Lightning Cessation in Multicell Convection, Paper 308, *97th American Meteorological Society Annual Meeting, Eighth Conference on the Meteorological Application of Lightning Data*, Seattle, WA, January 22-26, 2017, (K. Pinkney* and **L. D. Carey**)

Lightning Characteristics Relative to Radar, Altitude and Temperature for a Multicell, MCS and Supercell over Northern Alabama, Paper 6.2, *97th American Meteorological Society Annual Meeting, Eighth Conference on the Meteorological Application of Lightning Data*, Seattle, WA, January 22-26, 2017, (R. M. Mecikalski* and **L. D. Carey**) (***2nd Place in Best Student Oral Presentation**).

Integrating Space-Borne Lightning Characteristics and Ground-Based Metrics for Assessing Thunderstorm Intensity, Paper 5.2, *97th American Meteorological Society Annual Meeting, Eighth Conference on the Meteorological Application of Lightning Data*, Seattle, WA, January 22-26, 2017, (C. J. Schultz, D. J. Cecil, **L. D. Carey**, P. M. Bitzer and W. J. Koshak).

An Analysis of Precipitation Transition and Hydrometeor Classification using Dual Polarization Radar and Active/Passive Atmospheric Profiling Observations, Paper 1B.2, *97th American Meteorological Society Annual Meeting, Special Symposium on Meteorological Observations and Instrumentation*, Seattle, WA, January 22-26, 2017, (C. G. A. Leach, K. R. Knupp and **L. D. Carey**).

Analysis of Relationships in Deep Convection between Super Rapid Scan Geostationary Satellite Derived Cloud Top Outflow, Updrafts and Total Lightning, *97th American Meteorological Society Annual Meeting, Seventh Conference on Transition of Research to Operations*, Seattle, WA, January 22-26, 2017, (J. Apke, J. R. Mecikalski, C. P. Jewett, E. W. McCaul Jr., and **L. D. Carey**).

WRF-Chem Simulations of Lightning-NO_x Production and Trace Gas Transport in Oklahoma and Colorado Thunderstorms Observed during DC3, Paper 14.3, *97th American Meteorological Society Annual Meeting, 19th Conference on Atmospheric Chemistry*, Seattle, WA, January 22-26, 2017, (Cummings, K. A., K. E. Pickering, M. C. Barth, M. M. Bela, Y. Li, D. J. Allen, E. Bruning, Chmielewski, D. R. MacGorman, S. A. Rutledge, B. Basarab, B. R. Fuchs, T. Davis, A. Weinheimer, I. Pollack, T. B. Ryerson, F. Flocke, T. Campos, G. S. Diskin, **L. Carey**, R. M. Mecikalski*, C. Ziegler, E. R. Mansell, M. Biggerstaff, D. P. Betten, E. DiGangi, R. Doherty, and D. Finney).

2016

Comparison of Deep Convective Transport in Cumulus-Parameterized and Cloud-Resolved WRF-Chem Simulations of Different Scale Storms during the DC3 Field Campaign, Abstract A34D-04, *2016 Fall Meeting, AGU*, San Francisco, December 12-16, 2016, (Y. Li, K. E. Pickering, M. C. Barth, M. Bela, K. Cummings, D. J. Allen, **L. D. Carey**, R. Mecikalski*, and A. Fierro).

Microphysical and Chemical Processes Affecting Wet Removal of Soluble Trace Gases in Deep Convection Observed over the Central U.S., Abstract A34D-06, *2016 Fall Meeting, AGU*, San Francisco, December 12-16, 2016, (M. Bela, M. C. Barth, O. B. Toon, A. Fried, C. R. Homeyer, H. Morrison, K. Cummings, Y. Li, K. E. Pickering, D. J. Allen, Q. Yang, P. O. Wennberg, J. Crounse, J. M. St Clair, A. Teng, D. W. O'Sullivan, L. G. Huey, D. Chen, X. Liu, D. R. Blake, N. J. Blake, E. C. Apel, R. S. Hornbrook, F. M. Flocke, T. L. Campos, G. S. Diskin, R. Mecikalski*, **L. D. Carey**, M. I. Biggerstaff, D. Betten, A. A. Alford, and C. Ziegler).

Probabilistic and Temporal Relationships between Lightning Jump Occurrence and Radar-Derived Thunderstorm Intensification, *AMS 28th Conference on Severe Local Storms*, Portland, OR, November 7-11, 2016, (C. J. Schultz*, T. Chronis, S. M. Stough*, **L. D. Carey**, and D. J. Cecil).

Causes and Implications of the Negative Lightning Jump Prior to the 31 March 2016 EF-2 Tornado during VORTEX-SE, *AMS 28th Conference on Severe Local Storms*, Portland, OR, November 7-11, 2016, (A. D. Vacek*, S. M. Stough*, **L. D. Carey** and B. L. Medina*).

The Relationship of the Lightning Jump to Thunderstorm Kinematics, Microphysics and Severe Weather, Invited Presentation, *24th International Lightning Detection Conference & 6th International Lightning Meteorology Conference*, San Diego, CA, April 18-21, 2016, (**L. Carey**).

A Comparison of the VLF Waveform and Optical Emissions Using Ground-Based and Satellite-Based Lightning Detection Methods, Session: Continental/Global LLS Performance 2, *24th International Lightning Detection Conference & 6th International Lightning Meteorology Conference*, San Diego, CA, April 18-21, 2016, (J. Ringhausen P. Bitzer and **L. Carey**).

The Temporal and Probabilistic Relationship between Lightning Jump Occurrence and Radar-Derived Thunderstorm Intensification, Paper 3.4, *96th American Meteorological Society Annual Meeting, 23rd Conference on Probability and Statistics in the Atmospheric Sciences*, New Orleans, LA, January 10-14, 2016, (C. J. Schultz*, P. M. Bitzer, **L. D. Carey**, T. Chronis, and S. M. Stough*).

Combining Satellite and Radar in the Development of a 0-1 hour Lightning Threat Algorithm, Paper 6A.6, *96th American Meteorological Society Annual Meeting, 18th Symposium on Meteorological Observation and Instrumentation*, New Orleans, LA, January 10-14, 2016, (J. R. Mecikalski, C. P. Jewett, **L. Carey**, T. Chronis, G. T. Stano and B. T. Zavodsky).

On the Development of Real-time GOES-SRSOR Derived Flow Products of Deep Convective Cloud Tops, Paper 3.6, *96th American Meteorological Society Annual Meeting, 12th Annual Symposium on New Generation Operational Environmental Satellite Systems*, New Orleans, LA, January 10-14, 2016, (J. Apke, J. R. Mecikalski, C. P. Jewett and **L. D. Carey**).

Deep Convective Transport in Convective Systems of Three Different Scales from the DC3 Field Campaign Using Results from WRF-Chem Simulations with Lightning Data Assimilation, Paper J 11.1, *96th American Meteorological Society Annual Meeting, Joint between the 18th Conference on Atmospheric Chemistry and the Eighth Symposium on Aerosol-Cloud-Climate Interactions*, New Orleans, LA, January 10-14, 2016, (Y. Li, K. Pickering, M. C. Barth, M. M. Bela, K. A. Cumming, D. J. Allen, **L. Carey**, R. M. Mecikalski*, A. Fierro and G. Mullendore).

WRF-Chem Simulations of Lightning-NO_x Production and Transport in Oklahoma and Colorado Thunderstorms Observed During DC3, Paper 3.3, *96th American Meteorological Society Annual Meeting, 18th Conference on Atmospheric Chemistry*, New Orleans, LA, January 10-14, 2016, (K. A. Cummings, K. E.

Pickering, M. C. Barth, M. M. Bela, Y. Li, D. Allen, E. Bruning, D. R. MacGorman, S. A. Rutledge, B. Basarab, B. R. Fuchs, A. Weinheimer, I. Pollack, T. B. Ryerson, F. Flocke, T. Campos, G. Diskin and **L. Carey**).

Supervised College Teaching from the Supervised College Teacher's Perspective, Poster 192, *96th American Meteorological Society Annual Meeting, 25th Symposium on Education*, New Orleans, LA, January 10-14, 2016, (T. Lyza, K. R. Knupp, and **L. D. Carey**).

2015

Total lightning as it relates to rotation in supercell thunderstorms, Abstract AE12A-03, *2015 Fall Meeting, AGU*, San Francisco, December 14-18, 2015, (S. Stough*, **L. Carey**, and C. Schultz*).

Total Lightning R20 development and evaluation in the HWT and NWS, Session IV: Lightning, Paper 3, *40th NWA Annual Meeting*, Norman, OK, October 17-22, 2015, (K. M. Calhoun, D. M. Kingfield, E. Bruning, E. T. Meyer, C. Schultz*, J. Jordan, S. Cobb, G. Stano, E. Schultz and **L. Carey**).

ARMOR: 10-years of Serving Science and Society, Keynote Speaker, Session 3: Mesoscale and Severe Weather, *AMS 37th Conference on Radar Meteorology*, Norman, OK, September 14-18, 2015, (**L. D. Carey**).

Analysis and characterization of QLCS tornadic debris signatures for utilization in operational settings. Paper 5A.6, *AMS 37th Conference on Radar Meteorology*, Norman, OK, September 14-18, 2015, (C. N. Woods*, **L. D. Carey** and C. J. Schultz*).

Drop Size Distribution Temporal Sample Sensitivity Analysis on Radar-Rain Relations and Gamma Model Parameters, Paper 102, *AMS 37th Conference on Radar Meteorology*, Norman, OK, September 14-18, 2015, (C. S. Pabla* and **L. D. Carey**)

A Comparison of Dual-Polarization Radar Signatures of Large Melting Hail at S- and C-band, Paper 124, *AMS 37th Conference on Radar Meteorology*, Norman, OK, September 14-18, 2015, (R. E. Allen* and **L. D. Carey**)

The Relationship between Polarimetric Signatures and Rotation Derived from Doppler Velocity in Supercell Thunderstorms, Paper 128, *AMS 37th Conference on Radar Meteorology*, Norman, OK, September 14-18, 2015, (S. M. Stough* and **L. D. Carey**)

Lightning jump science and applications, Invited Talk, *Joint MTG LI Mission Advisory Group & GOES-R GLM Science Team Workshop*, Centro Alti Studi per la Difesa (CASD), Rome, Italy, 27-29 May, 2015 (**L. Carey**)

The GOES-R GLM Lightning Jump Algorithm - Principles and Applications toward Severe Weather Warning and Impacts-Based Decision Support, Invited Talk, *2015 NOAA Satellite Science Week*, GOES-R and JPSS Programs, Boulder, CO, February 23-27, 2015 (**L. Carey**)

Kinematic and microphysical control of lightning flash rate over Northern Alabama, Paper 9.1, *95th American Meteorological Society Annual Meeting, Seventh Conference on the Meteorological Applications of Lightning Data*, Phoenix, AZ, January 4-8, 2015, (**L. Carey**, E. V. Schultz, C. J. Schultz*, A. L. Bain*, R. M. Mecikalski*, W. Deierling, W. A. Petersen, K. Pickering).

Flash rates versus flash areas and microphysical properties for multiple storm types over northern Alabama, Paper 9.2, *95th American Meteorological Society Annual Meeting, Seventh Conference on the Meteorological Applications of Lightning Data*, Phoenix, AZ, January 4-8, 2015, (R. M. Mecikalski* and **L. Carey**) (***Best Student Oral Presentation**).

Insight into the physical and dynamical processes that control rapid increases in total flash rate, Paper 3.1, *95th American Meteorological Society Annual Meeting, Seventh Conference on the Meteorological Applications of*

Lightning Data, Phoenix, AZ, January 4-8, 2015, (C. J. Schultz*, **L. Carey**, E. V. Schultz, R. J. Blakeslee, and S. J. Goodman).

Total lightning characteristics with respect to radar-derived mesocyclone strength, Paper 11.2, *95th American Meteorological Society Annual Meeting, Seventh Conference on the Meteorological Applications of Lightning Data*, Phoenix, AZ, January 4-8, 2015, (S. M. Stough*, **L. Carey** and C. J. Schultz*).

Characteristics of total lightning within tornadic vs. non-tornadic QLCSSs, Paper 11.3, *95th American Meteorological Society Annual Meeting, Seventh Conference on the Meteorological Applications of Lightning Data*, Phoenix, AZ, January 4-8, 2015, (B. M. Williams* and **L. Carey**).

Nowcasting of hail using the lightning jump algorithm and radar, Paper 342, *95th American Meteorological Society Annual Meeting, Seventh Conference on the Meteorological Applications of Lightning Data*, Phoenix, AZ, January 4-8, 2015, (A. B. Young*, T. Chronis, E. V. Schultz, **L. Carey**, C. J. Schultz*, K. M. Calhoun, K. L. Ortega).

An integrated 0-1 hour first-flash lightning nowcasting, lightning amount and lightning jump warning capability, Paper 781, *95th American Meteorological Society Annual Meeting, Seventh Conference on the Meteorological Applications of Lightning Data*, Phoenix, AZ, January 4-8, 2015, (J. Mecikalski, C. P. Jewett, **L. Carey**, B. T. Zavodsky, G. T. Stano, and T. Chronis).

The utility of next generation GOES satellite measurement techniques for assessing lightning initiation, intensity and charge structure, Paper 195, *95th American Meteorological Society Annual Meeting, 20th Conf. on Satellite Meteorology and Oceanography*, Phoenix, AZ, January 4-8, 2015, (J. Apke, J. Mecikalski, X. Li, **L. Carey**, C. P. Jewett).

GOES observations of deep convection in SRSOR with mesoscale atmospheric motion vectors: Can we discriminate between ordinary and supercellular storms by satellite?, Paper J6.2, *95th American Meteorological Society Annual Meeting, 20th Conf. on Satellite Meteorology and Oceanography*, Phoenix, AZ, January 4-8, 2015, (J. Apke, J. Mecikalski, X. Li, C. P. Jewett, and **L. Carey**).

Applying satellite aerosol retrievals for improved lightning predictions, Paper 193, *95th American Meteorological Society Annual Meeting, 20th Conf. on Satellite Meteorology and Oceanography*, Phoenix, AZ, January 4-8, 2015, (T. Ren, S. L. Nasiri, J. R. Mecikalski, and **L. D. Carey**).

Preparing users for the Geostationary Lightning Mapper (GLM) on GOES-R, Paper J10.5, *95th American Meteorological Society Annual Meeting, 20th Conf. on Satellite Meteorology and Oceanography*, Phoenix, AZ, January 4-8, 2015, (S. J. Goodman, S. D. Rudlosky, G. T. Stano, K. M. Calhoun, **L. Carey**, P. Dillis, P. Roehr, B. C. Motta, and J. LaDue).

2014

Integration time influence on rain drop size distribution (DSD) and radar parameters from disdrometer data, Abstract H13B-1066, *2014 Fall Meeting, AGU*, San Francisco, December 15-19, 2014, (C. Pabla*, **L. Carey**, and W. Petersen).

An analysis of deep convective transport in May 21, 2012 DC3 Alabama thunderstorms using results from WRF-Chem, Abstract A53C-3237, *2014 Fall Meeting, AGU*, San Francisco, December 15-19, 2014, (Y. Li, K. Pickering, M. Barth, M. Bela, K. Cummings, D. Allen, **L. Carey**, G. Diskin, T. Campos, and A. Fierro).

Lightning jump integration into the severe weather warning process, Paper 7B.1, *AMS 27th Conference on Severe Local Storms*, Madison, WI, November 2-7, 2014, (E. V. Schultz, C. J. Schultz*, S. M. Stough*, T. Chronis, **L. Carey**, K. M. Calhoun, K. L. Ortega, B. M. Williams*, A. B. Young* and S. J. Goodman).

The GOES-R Geostationary Lightning Mapper (GLM) and the global observing system of systems for total lightning, Paper 3A.1, *AMS 27th Conference on Severe Local Storms*, Madison, WI, November 2-7, 2014, (S. J. Goodman, R. J. Blakeslee, W. J. Koshak, D. Buechler, **L. Carey**, T. Chronis, D. Mach, M. Bateman, H. Peterson, E. W. McCaul Jr., G. T. Stano, P. M. Bitzer, S. D. Rudlosky, and K. Cummins).

Real time evaluation of the lightning jump algorithm in the Hazardous Weather Testbed, Paper P3.20, *39th NWA Annual Meeting*, Salt Lake City, UT, October 18-23, 2014, (K. M. Calhoun, E. Schultz, C. Schultz*, K. Ortega, and **L. Carey**).

Very large rain drops from 2D video disdrometers and concomitant polarimetric radar observations, Paper 6a.3, *ERAD 2014 – The 8th European Conference on Radar in Meteorology and Hydrology*, Garmisch-Partenkirchen, Germany, 1-5 September 2014, (M. Thurai, P. Gatlin, V. Bringi and **L. Carey**).

The kinematic and microphysical control of lightning rate, extent and NO_x production, Paper O-11-03, *15th International Conference on Atmospheric Electricity*, Norman, Oklahoma, U.S.A., 15-20 June 2014, (**L. Carey**, W. Koshak, H. Peterson, R. Matthee*, and A. L. Bain*).

Storm physics and lightning properties over northern Alabama during DC3, Paper P-01-13, *15th International Conference on Atmospheric Electricity*, Norman, Oklahoma, U.S.A., 15-20 June 2014, (R. Matthee*, and **L. Carey**).

Physical and dynamical linkages between lightning jumps and storm conceptual models, Paper O-04-01, *15th International Conference on Atmospheric Electricity*, Norman, Oklahoma, U.S.A., 15-20 June 2014 (C. Schultz*, **L. D. Carey**, E. V. Schultz, R. J. Blakeslee, and S. J. Goodman).

Investigating the lightning jump value in operational severe weather nowcasting, Paper P-04-14, *15th International Conference on Atmospheric Electricity*, Norman, Oklahoma, USA, 15-20 June 2014, (T. Chronis, **L. D. Carey**, C. J. Schultz*, E. V. Schultz, K. M. Calhoun, D. M. Kingfield, K. L., Ortega, G. T. Stano, and S. J. Goodman).

Enhanced verification of the lightning jump algorithm, Paper P-04-16, *15th International Conference on Atmospheric Electricity*, Norman, Oklahoma, USA, 15-20 June 2014, (E. V. Schultz, K. L. Ortega, T. Chronis, **L. D. Carey**, K. M. Calhoun, G. Stumpf, C. J. Schultz*, G. T. Stano, and S. J. Goodman).

São Paulo Lightning Mapping Array (SP-LMA): Network Assessment and Analyses for Intercomparison Studies and GOES-R Proxy Activities, Paper P-12-09, *15th International Conference on Atmospheric Electricity*, Norman, Oklahoma, USA, 15-20 June 2014, (J. Bailey, R. J. Blakeslee, **L. D. Carey**, S. J. Goodman, S. D. Rudlosky, R. Albrecht, C. A. Morales, W. M. Anselmo, J. R. Neves).

Total lightning as an indicator of mesocyclone behavior, Paper 2, Session on “Severe and Tropical Weather: Forecasting and Nowcasting”, *12th Annual Southeast Severe Storms Symposium*, Mississippi State University, April 4-5, 2014, (S. Stough*, **L. Carey**, and C. Schultz*).

Kinematic and microphysical control of lightning in multicell convection over Alabama during DC3, Paper 1, Session on Meteorology and Chemistry Applications, *Vaisala 5th International Lightning Meteorology Conference*, Tucson, AZ, March 20-21, 2014, (**L. D. Carey**, A. L. Bain*, and R. Matthee*).

An analysis of lightning holes in northern Alabama tornadic storms using a lightning mapping array and dual-polarization radar, Paper 3, Session on Meteorology and Severe Weather 1, *Vaisala 5th International Lightning Meteorology Conference*, Tucson, AZ, March 20-21, 2014, (D. Kozlowski* and **L. D. Carey**).

A preliminary analysis of precipitation properties and processes during NASA GPM IFloodS, Paper 7B.1A, *94th American Meteorological Society Annual Meeting, 28th Conference on Hydrology*, Atlanta, GA, February 2-6, 2014, (**L. D. Carey**, P. N. Gatlin, W. A. Petersen, M. T. Wingo, T. J. Lang, and D. B. Wolff).

Total lightning as an indicator of mesocyclone behavior, Paper 5.2A, *94th American Meteorological Society Annual Meeting, 26th Conference on Weather Analysis and Forecasting*, Atlanta, GA, February 2-6, 2014, (S. M. Stough*, **L. D. Carey**, and C. J. Schultz*).

Investigating the use of dual-polarization radar variables in forecasting lightning initiation, Paper 4A.1A, *94th American Meteorological Society Annual Meeting, 26th Conference on Weather Analysis and Forecasting*, Atlanta, GA, February 2-6, 2014, (M. Scott and **L. D. Carey**).

Total lightning as an indication of convectively induced turbulence potential in and around thunderstorms, Paper 3.2, *94th American Meteorological Society Annual Meeting, Fourth Aviation, Range, and Aerospace Meteorology Special Symposium*, Atlanta, GA, February 2-6, 2014, (R. H. Rogers* and **L. D. Carey**).

Integration of the total lightning jump algorithm into current operational warning environment conceptual models, Paper J3.5, *94th American Meteorological Society Annual Meeting, 18th Conference on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface*, Atlanta, GA, February 2-6, 2014, (C. J. Schultz*, **L. D. Carey**, E. V. Schultz, G. T. Stano, R. J. Blakeslee, and S. J. Goodman).

Lightning jump algorithm for GOES-R Geostationary Lightning Mapper (GLM) Proxy Data, Paper 334, *94th American Meteorological Society Annual Meeting, Tenth Annual Symposium on New Generation Operational Environmental Satellite Systems*, Atlanta, GA, February 2-6, 2014, (E. V. Schultz, C. J. Schultz*, **L. D. Carey**, D. J. Cecil, G. T. Stano, M. Bateman, and S. Goodman).

A total lightning perspective of the 20 May 2013 Moore, Oklahoma supercell, Paper 823, *94th American Meteorological Society Annual Meeting, Special Symposium on Severe Local Storms: The Current State of the Science and Understanding Impacts*, Atlanta, GA, February 2-6, 2014, (G. T. Stano, C. J. Schultz*, **L. D. Carey**, D. R. MacGorman and K. M. Calhoun).

National demonstration of a real-time lightning jump algorithm for operational use, Paper 4B.1, *94th American Meteorological Society Annual Meeting, 26th Conference on Weather Analysis and Forecasting*, Atlanta, GA, February 2-6, 2014, (T. Chronis, C. J. Schultz*, E. V. Schultz, **L. D. Carey**, K. M. Calhoun, D. M. Kingfield, K. L. Ortega, M. T. Filiaggi, G. J. Stumpf, G. T. Stano, and S. Goodman).

The structure of lightning in convective storms in varying pre-convective environments during the Deep Convective Clouds and Chemistry Field Campaign, Paper S53, *94th American Meteorological Society Annual Meeting, 13th Annual Student Conference*, Atlanta, GA, February 2-6, 2014, (K. Pinkney, G. L. Mullendore, B. C. Bigelbach, M. Scott, P. N. Gatlin, and **L. D. Carey**).

2013

An investigation of the kinematic and microphysical control of lightning rate, extent and NO_x production using DC3 observations and the NASA Lightning Nitrogen Oxides Model (LNOM), Abstract AE31A-03, *2013 Fall Meeting, AGU*, San Francisco, December 9-13, 2013, (**L. D. Carey**, W. J. Koshak, H. S. Peterson, R. Matthee*, A. L. Bain*).

Storm physics and lightning properties over Northern Alabama during DC3, Abstract AE33B-0342, *2013 Fall Meeting, AGU*, San Francisco, December 9-13, 2013, (R. Matthee*, **L. D. Carey**, and A. L. Bain*).

Thunderstorm lifecycle and morphological influences on lightning channel distribution, Abstract AE31A-01, *2013 Fall Meeting, AGU*, San Francisco, December 9-13, 2013, (E. C. Bruning, R. J. Thomas, P. R. Krehbiel, S. A. Rutledge, **L. D. Carey**, D. R. MacGorman, M. I. Biggerstaff, J. J. Blakeslee, W. J. Koshak, W. Rison, J. C. Bailey, and K. Pickering).

Connecting soluble trace gases and aerosol vertical distributions to storm properties, Abstract A21I-05, *2013 Fall Meeting, AGU*, San Francisco, December 9-13, 2013, (M. C. Barth, M. M. Bela, M. Applegate, A. Fried, P.

Weibring, T. F. Hanisco, H. L. Arkinson, E. C. Apel, D. W. O'Sullivan, B. Heikes, P. O. Wennberg, J. Crounse, J. M. St. Clair, A. Nenes, M. Z., Markovic, J. L. Stith, T. L. Campos, S. A. Rutledge, B. Basarab, B. Fuchs, **L. D. Carey**, A. L. Bain*, M. I. Biggerstaff, A. Wisthaler, G. S. Diskin, P. Campuzano Jost, T. B. Ryerson, F. M. Flocke, and S. Lance).

Development and future role of the GLM lightning jump algorithm in the warning decision making framework, Session XIV: Remote Sensing – Satellite, *38th NWA Annual Meeting*, North Charleston, SC, October 12-17, 2013, (E. V. Schultz, C. J. Schultz*, **L. D. Carey**, D. J. Cecil, G. T. Stano, M. Bateman, and S. Goodman).

Implementation and evaluation of a real-time lightning jump algorithm for operational use, Session V: Severe Weather, *38th NWA Annual Meeting*, North Charleston, SC, October 12-17, 2013, (K. M. Calhoun, D. M. Kingfield, K. Ortega, **L. D. Carey**, T. Chronis, C. J. Schultz*, E. Schultz, M. T. Filiaggi, G. J. Stumpf, and G. T. Stano).

Estimating the concentration of large raindrops from polarimetric radar and disdrometer observations, Paper 3A.1, *AMS 36th Conference on Radar Meteorology*, Breckenridge, CO, September 16-20, 2013, (**L. D. Carey**, W. A. Petersen, and P. N. Gatlin).

Polarimetric radar and electrical observations of deep moist convection across northern Alabama during the DC3 Experiment, *AMS 36th Conference on Radar Meteorology*, Breckenridge, CO, September 16-20, 2013, (A. L. Bain*, R. Matthee* and **L. D. Carey**).

Radar deployments and field sampling for GPM ground validation field campaigns, *AMS 36th Conference on Radar Meteorology*, Breckenridge, CO, September 16-20, 2013, (W. A. Petersen, V. Bringi, **L. D. Carey**, V. Chandrasekar, S. Rutledge, A. Tokay, and D. B. Wolff).

A summary of large raindrop observations from GPM GV field campaigns, *AMS 36th Conference on Radar Meteorology*, Breckenridge, CO, September 16-20, 2013, (P. N. Gatlin, W. A. Petersen, A. Tokay, V. Bringi, M. Thurai, **L. D. Carey**, and M. T. Wingo).

Conservation of vertical angular momentum during tornadogenesis, *AMS 36th Conference on Radar Meteorology*, Breckenridge, CO, September 16-20, 2013, (E. R. Williams, S. J. Goodman, D. E. Buechler, **L. Carey**, C. J. Schultz*, and R. J. Blakeslee).

The future role of total lightning information in the warning decision making process, Paper 3.3, *AMS Second Conference on Weather Warnings and Communication*, Nashville, TN, June 26-28, 2013, (E. V. Schultz, C. J. Schultz*, **L. D. Carey**, D. J. Cecil, G. T. Stano, M. Bateman, and S. J. Goodman).

Total lightning in a multi-sensor approach to the detection and forecasting of convectively induced turbulence, Presentation 1-8, *Severe Weather and Lightning, 2013 NOAA Satellite Science Week*, March 18-22, 2013, (R. Rogers*, **L. Carey**, K. Bedka, C. Fleeger, W. Feltz, and S. Monette).

Lightning jump algorithm for proxy GOES-R Lightning Mapper data, Presentation 1-11, *Severe Weather and Lightning, 2013 NOAA Satellite Science Week*, March 18-22, 2013, (E. Schultz, D. J. Cecil, C. J. Schultz*, M. Bateman, and **L. D. Carey**).

GOES-14 super rapid scan observations of severe convection and their co-evolution with total lightning and WSR-88D observations, Presentation 1-12, *Severe Weather and Lightning, 2013 NOAA Satellite Science Week*, March 18-22, 2013, (K. Bedka, C. Wang, R. Rogers*, **L. Carey**, W. Feltz, and J. Kanak).

Ground validation drop size distribution studies: Constraints, regimes; poster, *2013 NASA PMM Science Team Meeting*, Annapolis, MD, March 18-21, 2013, (W. A. Petersen, F. L. Bliven, V. N. Bringi, **L. D. Carey**, P. Gatlin, M. Thurai, A. Tokay, M. Wingo and D. Wolff).

Ground facilities – Alabama, during Deep Convective Clouds and Chemistry (DC3) Experiment, invited talk, *2013 NSF DC3 Science Team Meeting*, NCAR, Boulder, CO, February 25-28, 2013, (**L. D. Carey**).

Microphysical, kinematic and lightning properties of deep moist convection across Northern Alabama during the Deep Convective Clouds and Chemistry Experiment, poster, *NSF DC3 Science Team Meeting*, NCAR, Boulder, CO, February 25-28, 2013, (**L. D. Carey**, A. L. Bain*, and R. Matthee*).

Alabama ground operations during the Deep Convective Clouds and Chemistry (DC3) Experiment, Paper J7.4, *93rd American Meteorological Society Annual Meeting, Sixth Conference on the Meteorological Applications of Lightning Data*, Austin, TX, January 5-10, 2013, (**L. D. Carey**, A. L. Bain*, R. H. Rogers*, D. Kozlowski*, A. Sherrer, M. Saari, B. Bigelbach, M. Scott, E. V. Schultz, C. J. Schultz*, P. N. Gatlin, M. T. Wingo, D. W. Phillips, C. Phillips, H. Peterson, J. Bailey, T. Frederickson, J. M. Hall, R. Blakeslee, W. Koshak, N. Bart, M. Becker, K. Pinkney, S. Rowe, M. Starzec, J. K. Weber, and G. L. Mullendore).

The kinematic and microphysical control of storm integrated lightning flash extent, Paper 271, *93rd American Meteorological Society Annual Meeting, Sixth Conference on the Meteorological Applications of Lightning Data*, Austin, TX, January 5-10, 2013, (**L. D. Carey**, W. Koshak, H. Peterson, E. V. Schultz, R. Matthee*, C. J. Schultz*, W. A. Petersen and A. L. Bain*).

Microphysical, kinematic and lightning properties of deep moist convection across Northern Alabama during the Deep Convective Clouds and Chemistry Experiment, Paper 267, *93rd American Meteorological Society Annual Meeting, Sixth Conference on the Meteorological Applications of Lightning Data*, Austin, TX, January 5-10, 2013, (A. L. Bain* and **L. D. Carey**).

Examining the theorized role of lightning and tornadogenesis, Paper 364, *93rd American Meteorological Society Annual Meeting, Sixth Conference on the Meteorological Applications of Lightning Data*, Austin, TX, January 5-10, 2013, (D. Kozlowski* and **L. D. Carey**).

Total lightning in a multi-sensor approach to the detection and forecasting of convectively induced turbulence, Paper 732, *93rd American Meteorological Society Annual Meeting, Sixth Conference on the Meteorological Applications of Lightning Data*, Austin, TX, January 5-10, 2013, (R. H. Rogers*, **L. Carey**, K. Bedka, C. Fleeger, W. Feltz, and S. A. Monette).

Implementation and initial evaluation of a real-time lightning jump algorithm for operational use, Paper 743, *93rd American Meteorological Society Annual Meeting, Sixth Conference on the Meteorological Applications of Lightning Data*, Austin, TX, January 5-10, 2013, (K. M. Calhoun, **L. D. Carey**, M. T. Filiaggi, K. L. Ortega, C. J. Schultz*, and G. J. Stump).

Radar applications for nowcasting lightning cessation, Paper 5.2, *93rd American Meteorological Society Annual Meeting, Sixth Conference on the Meteorological Applications of Lightning Data*, Austin, TX, January 5-10, 2013, (E. V. Schultz, G. T. Stano, **L. D. Carey** and W. A. Petersen).

Integration of the total lightning jump algorithm into current operational warning environment conceptual models, Paper TJ30.4, *93rd American Meteorological Society Annual Meeting, Ninth Annual Symposium on Future Operational Environmental Satellite Systems*, Austin, TX, January 5-10, 2013, (C. J. Schultz*, **L. D. Carey**, E. V. Schultz, G. T. Stano, P. N. Gatlin, D. Kozlowski, R. J. Blakeslee, and S. J. Goodman).

Lightning jump algorithm for proxy GOES-R lightning mapper data, Paper TJ30.5, *93rd American Meteorological Society Annual Meeting, Ninth Annual Symposium on Future Operational Environmental Satellite Systems*, Austin, TX, January 5-10, 2013, (D. J. Cecil, C. J. Schultz*, and **L. Carey**).

The GOES-R Geostationary Lightning Mapper (GLM): A new eye on lightning, Paper TJ30.1, *93rd American Meteorological Society Annual Meeting, Ninth Annual Symposium on Future Operational Environmental*

Satellite Systems, Austin, TX, January 5-10, 2013, (S. J. Goodman, R. J. Blakeslee, W. Koshak, D. Mach, J. Bailey, D. Buechler, **L. Carey**, C. J. Schultz*, M. Bateman, E. W. McCaul Jr., and G. T. Stano).

CHUVA lighting mapping field campaigns: First results and contributions to GOES-R and MTG, Paper TJ30.3, 93rd *American Meteorological Society Annual Meeting, Ninth Annual Symposium on Future Operational Environmental Satellite Systems*, Austin, TX, January 5-10, 2013, (R. I. Albrecht, C. Morales, S. J. Goodman, R. Blakeslee, J. Bailey, S. D. Rudlosky, H. Holler, H. D. Betz, E. Mattos, T. Biscaro, L. Machado, E. M. Anselmo, J. R. Neves, M. Bateman, J. M. Hall, E. W. McCaul Jr., **L. Carey**, D. Mach, A. Nag, R. Said, J. Y. Lojou, S. Heckman, O. Pinto Jr., K. P. Naccarato, A. C. V. Saraiva, M. M. F. Saba, R. H. Holzworth, G. Anderson, and M. Collins).

Integrated GOES-R GLM/ABI approaches for the detection and forecasting of convectively induced turbulence, Paper 256, 93rd *American Meteorological Society Annual Meeting, 16th Conference on Aviation, Range and Aerospace Meteorology*, Austin, TX, January 5-10, 2013, (W. F. Feltz, **L. D. Carey**, K. Bedka, R. H. Rogers*, S. A. Monette, and C. Fleeger).

Leveraging field campaign resources to provide additional undergraduate forecasting and research experiences: A case study from Deep Convective Clouds and Chemistry (DC3), Paper 177, 93rd *American Meteorological Society Annual Meeting, 22nd Symposium on Education*, Austin, TX, January 5-10, 2013 (G. L. Mullendore, J. S. Tilley and **L. D. Carey**).

From classroom to field work: Bolstering undergraduate educational experience during the Deep Convective Clouds and Chemistry Experiment, Paper S33, 93rd *American Meteorological Society Annual Meeting, 12th Annual Student Conference*, Austin, TX, January 5-10, 2013, (N. Bart, M. E. Becker, K. Pinkney, S. Rowe, M. Starzec, J. K. Weber, G. L. Mullendore, B. Bigelbach, J. S. Tilley, and **L. Carey**).

2012

The kinematic and microphysical control of storm integrated lightning flash extent, Abstract AE23B-0326, presented at 2012 Fall Meeting, AGU, San Francisco, December 3-7, 2012 (**L. D. Carey**, W. J. Koshak, H. S. Peterson, E. V. Schultz, R. Matthee*, C. J. Schultz*, W. A. Petersen, L. Bain*).

São Paulo Lightning Mapping Array (SP-LMA): Deployment, operation, network assessment and initial results, Abstract AE23B-0327, presented at 2012 Fall Meeting, AGU, San Francisco, December 3-7, 2012 (R. J. Blakeslee, J. C. Bailey, **L. D. Carey**, S. D. Rudlosky, S. J. Goodman, R. I. Albrecht, C. A. Morales, E. M. Anselmo, J. R. Neves, O. Pinto).

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